December 22, 2016
Formation Environmental Project No.: 009-001

Ms. Margie English
Idaho Department of Environmental Quality
Waste and Remediation Division
1410 North Hilton
Boise, ID 83706

Subject: Final Remedial Investigation Report, Conda/Woodall Mountain Phosphate Mine

Dear Ms. English:

Enclosed, on behalf of the J.R. Simplot Company (Simplot), you will find paper copies of the above referenced document.

An electronic copy of the complete document has been placed on the Conda website and is accessible at https://condarifs.formationclient.com utilizing **condari** and **Formation77*** as the username and password, respectively. Note that the log-in information is case sensitive.

Please do not hesitate to contact Jeff Hamilton or me if you have any questions.

Sincerely,
FORMATION ENVIRONMENTAL, LLC

Robbert-Paul Smit
Project Manager

cc: Matt Wilkening – USEPA Region 10
Nick Vidargas – USEPA Region 10
Colleen O'Hara – BLM
Jeremy Moore and Sandi Fisher – USFWS
Kelly Wright and Shannon Leigh Ansley – Tribes
Gary Billman - IDL
Allan Erickson – CH2M Hill
Alan Prouty – J.R. Simplot Company
Burl Ackerman – J.R. Simplot Company
Lori Hamann – J.R. Simplot Company
Jeff Hamilton – J.R. Simplot Company

FINAL

Conda/Woodall Mountain Mine Remedial Investigation Report

J.R. Simplot Company

December 2016

Prepared for:

J.R. Simplot Company
P.O. Box 912
1130 West Highway 30
Pocatello, ID 83204

Prepared by:

FORMATION ENVIRONMENTAL
2500 55th Street, Suite 200
Boulder, Colorado 80301

TABLE OF CONTENTS

Page

LIST OF TABLES ..... **VII**

LIST OF FIGURES AND PLATES ..... **XII**

LIST OF APPENDICES ..... **XX**

LIST OF ACRONYMS ..... **XXI**

1.0 INTRODUCTION **1**
- 1.1 Purpose of the Remedial Investigation 2
- 1.2 Report Organization 2

2.0 BACKGROUND **4**
- 2.1 Phosphate Mining 4
- 2.2 Site Setting and Climate 4
  - 2.2.1 Setting 5
  - 2.2.2 Climate 6
- 2.3 Conda Mine Operational History 6
  - 2.3.1 Brown and Perkins and California Grove Companies 7
  - 2.3.2 Anaconda 7
    - 2.3.2.1 Anaconda Mining Methods 7
    - 2.3.2.2 Anaconda Ore Processing 9
  - 2.3.3 Simplot 9
    - 2.3.3.1 Simplot Mining Methods 9
    - 2.3.3.2 Simplot Ore Processing 11
- 2.4 Post-Mining Operations and Remaining Features 13
- 2.5 Prior Reclamation and Actions 15
- 2.6 Previous Studies on Phosphate-Mining Environmental Effects 17
  - 2.6.1 Pre-RI Studies 17
  - 2.6.2 Other Relevant Studies 18
  - 2.6.3 Summary of Previous Study Findings 19
- 2.7 Summary of Studies at Neighboring Facilities 22
- 2.8 Area Land Use 23
  - 2.8.1 Current Land Use 23
  - 2.8.2 Potential Future Land Use 26

3.0 REMEDIAL INVESTIGATION ACTIVITIES **28**
- 3.1 Investigation Planning 28
- 3.2 Terrestrial Investigations 29
  - 3.2.1 Mine-Area Features Survey 30
  - 3.2.2 Soil Investigation 30
  - 3.2.3 Ecological Investigation 31
    - 3.2.3.1 Vegetation 31
    - 3.2.3.2 Insect and Small Mammal Tissue 33
- 3.3 Aquatic Investigations 34

3.3.1 Surface Water Investigation....34
3.3.2 Sediment Investigation....36
3.3.3 Ecological Investigation....37
3.3.3.1 Aquatic Vegetation Evaluation....37
3.3.3.2 Benthic Macroinvertebrate Evaluation....38
3.3.3.3 Fish Population Evaluation....39
3.3.3.4 Physical Habitat Evaluation....40
3.4 Geological and Hydrogeological Investigation....41
3.4.1 Geologic Logging....41
3.4.2 Well Installation....42
3.4.3 Groundwater Level and Hydrophysical Surveys....45
3.4.3.1 Groundwater Level Survey....45
3.4.3.2 Hydrophysical Survey....45
3.4.4 Groundwater Quality Investigation....46
4.0 REMEDIAL INVESTIGATION DATA....48
4.1 RI Data....48
4.2 RI Laboratory Analyses....48
4.3 Comparison Values....48
4.3.1 Soil....49
4.3.2 Surface Water....49
4.3.3 Sediment....49
4.3.4 Groundwater....50
4.3.5 Fish....50
4.4 Site-Specific Background Concentrations....50
4.5 RI Data Evaluation....51
4.5.1 Data Validation....51
4.5.2 Data Quality and Usability....52
4.6 Summary of RI Data....53
4.6.1 Terrestrial Data....54
4.6.2 Aquatic Data....55
4.6.3 Hydrogeological Data....55
5.0 PHYSICAL SITE CHARACTERISTICS....56
5.1 Remaining Mine Features....56
5.1.1 Mine Features and Setting....56
5.1.2 Sources of COPCs....61
5.2 Geology....63
5.2.1 Consolidated and Unconsolidated Deposits....63
5.2.1.1 Consolidated Deposits....64
5.2.1.2 Unconsolidated Deposits....66
5.2.2 Structural Setting....67
5.2.2.1 Structural Features along the Aspen Range Ridge....68
5.2.2.2 Structural Features on the East Side of the Aspen Range....68
5.2.2.3 Structural Features on the West Side of the Aspen Range....69
5.3 Hydrogeology....71
5.3.1 Shallow Hydrostratigraphic System....71

5.3.2 Intermediate Hydrostratigraphic System 72
5.3.3 Deep Hydrostratigraphic System 77
5.3.4 Summary of Groundwater Flow Paths 78
5.4 Terrestrial Characteristics 79
5.4.1 Vegetation Communities 80
5.4.2 Wildlife and Invertebrates 81
5.5 Hydrology and Aquatic Ecology Characteristics 83
5.5.1 Surface Water Hydrology 83
5.5.1.1 East Side Surface Water Bodies 83
5.5.1.2 West Side Surface Water Bodies 86
5.5.2 Aquatic Ecology Characteristics 87
5.5.2.1 Habitat 88
5.5.2.2 Aquatic Vegetation 89
5.5.2.3 Fish and Invertebrates 89
5.6 Threatened and Endangered Species 91

6.0 NATURE AND EXTENT OF MINING-RELATED EFFECTS 95
6.1 Rationale and Approach for Evaluation of Nature and Extent 95
6.2 COPC Sources Characteristics 96
6.2.1 Soils 97
6.2.2 Terrestrial Vegetation 97
6.2.3 Surface Water 100
6.2.4 Groundwater 100
6.2.5 Animal Tissue and Aquatic Vegetation 101
6.2.5.1 Terrestrial Invertebrates and Small Mammals 102
6.2.5.2 Aquatic Invertebrates and Vegetation 102
6.2.6 Summary of Nature of COPCs 102
6.3 Extent of Mining-Related Effects in Aquatic and Riparian Media 102
6.3.1 Conditions in North Woodall Mountain Sub-Basin 103
6.3.1.1 Aquatic Conditions 103
6.3.1.2 Riparian Conditions 104
6.3.1.3 Summary of Conditions in North Woodall Mountain Sub-Basin105
6.3.2 Conditions in State Land Creek Sub-Basin 105
6.3.2.1 Aquatic Conditions 106
6.3.2.2 Riparian Conditions 110
6.3.2.3 Erosion Transport 111
6.3.2.4 Summary of Conditions in State Land Creek Sub-Basin 112
6.3.3 Conditions in Pedro Creek Sub-Basin 113
6.3.3.1 Aquatic Conditions 113
6.3.3.2 Riparian Conditions 118
6.3.3.3 Erosion Transport 119
6.3.3.4 Summary of Conditions in Pedro Creek Sub-Basin 121
6.3.4 Conditions in Camp G Creek Sub-Basin 121
6.3.4.1 Aquatic Conditions 122
6.3.4.2 Riparian Conditions 125
6.3.4.3 Summary of Conditions in Camp G Creek Sub-Basin 126

6.3.5 Conditions in Western Woodall Mountain Sub-Basin 127
6.3.5.1 Aquatic Conditions 127
6.3.5.2 Riparian Conditions.....129
6.3.5.3 Summary of Conditions in Western Woodall Mountain Sub-Basin129
6.3.6 Conditions in Old Tailings Pond Sub-Basin 129
6.3.6.1 Aquatic Conditions 130
6.3.6.2 Riparian Conditions.....131
6.3.6.3 Summary of Conditions in Old Tailings Pond Sub-Basin 131
6.3.7 Conditions in French Drain Sub-Basin 131
6.3.7.1 Aquatic Conditions 132
6.3.7.2 Riparian Conditions.....134
6.3.7.3 Summary of Conditions in French Drain Sub-Basin 134
6.3.8 Conditions in Shield and Jouglard Canyons Sub-Basin 135
6.3.8.1 Aquatic Conditions 135
6.3.8.2 Riparian Conditions.....138
6.3.8.3 Erosion Transport 138
6.3.8.4 Summary of Conditions in Shield and Jouglard Canyons Sub-Basin 139
6.3.9 Conditions in Margarette Creek/Trail Canyon Sub-Basin.....139
6.3.9.1 Aquatic Conditions 140
6.3.9.2 Riparian Conditions.....141
6.3.9.3 Summary of Conditions in Margarette Creek/Trail Canyon Sub-Basin 141
6.3.10 Conditions in Southwest Conda Sub-Basin 141
6.3.10.1 Aquatic Conditions 141
6.3.10.2 Riparian Conditions.....142
6.3.10.3 Summary of Conditions in Southwest Conda Sub-Basin 142
6.3.11 Conditions Offsite 142
6.3.11.1 Upper Blackfoot River Subwatershed.....142
6.3.11.2 Bear River Subwatershed 147
6.3.11.3 Summary of Conditions Offsite.....147
6.4 Extent of Mining-Related Effects in Groundwater 149
6.4.1 Groundwater Conditions on the East Side of the Aspen Range.....149
6.4.1.1 North Woodall Mountain Sub-Basin 150
6.4.1.2 State Land Creek Sub-Basin.....151
6.4.1.3 Pedro Creek Sub-Basin 154
6.4.1.4 Camp G Creek Sub-Basin.....155
6.4.2 Groundwater Conditions on the West Side of the Aspen Range.....156
6.4.2.1 Western Woodall Mountain Sub-Basin.....157
6.4.2.2 Old Tailings Pond Sub-Basin 158
6.4.2.3 French Drain Sub-Basin.....160
6.4.2.4 Shield and Jouglard Canyons Sub-Basin 164
6.4.2.5 Margarette Creek/Trail Canyon Sub-Basin.....166
6.4.2.6 Southwest Conda Sub-Basin 168

6.4.3 Pit Lake and Groundwater Interaction 168
6.4.4 Summary of Groundwater Conditions 170
6.4.4.1 East Side of the Aspen Range 170
6.4.4.2 West Side of the Aspen Range 170

7.0 FATE AND TRANSPORT 172
7.1 Summary of Site Conditions 172
7.1.1 Mining Process 172
7.1.2 RMM Sources of COPCs 173
7.1.3 Geology, Hydrogeology, and Hydrologic Setting 174
7.1.3.1 Geology 174
7.1.3.2 Hydrogeology 176
7.1.3.3 Hydrology 179
7.1.4 Exposure Pathways for Receptors 179
7.2 COPC Release Processes 180
7.2.1 Physical and Chemical Weathering 180
7.2.2 Vegetation Uptake 182
7.2.3 Mobility in the Environment 183
7.3 Groundwater Transport Pathway Model and Uncertainties 186
7.3.1 Transport in East Side Sub-Basins 187
7.3.1.1 Transport in State Land Creek Sub-Basin 187
7.3.1.2 Transport in Pedro Creek Sub-Basin 189
7.3.1.3 Transport in Camp G Creek Sub-Basin 190
7.3.2 Transport in West Side of Sub-Basins 191
7.3.2.1 Transport in Western Woodall Sub-Basin 191
7.3.2.2 Transport in Old Tailings Pond Sub-Basin 192
7.3.2.3 Transport in French Drain Sub-Basin 193
7.3.2.4 Transport in Shield and Jouglard Canyon Sub-Basin 194
7.3.2.5 Transport in Margarette Creek and Trail Canyon Sub-Basin ..196
7.3.3 Uncertainties 196
7.4 Surface Water Transport Pathway Model and Uncertainties 197
7.4.1 Transport by Runoff and Stream Flow 197
7.4.2 Transport by Seeps 200
7.4.3 Uncertainties 200
7.5 Dust Transport Pathway Model 200
7.6 Uptake by Vegetation Model 201
7.7 Open Pits and Underground Workings Model 201
7.8 Summary 202

8.0 SUMMARY AND CONCLUSIONS 205
8.1 Summary of RI Activities 205
8.2 Conclusions 206
8.2.1 Sources of COPCs 206
8.2.2 Extent of COPC Transport 207
8.2.2.1 Surface Water and Sediment Transport 208
8.2.2.2 Groundwater Transport 210

8.2.2.3 Plant Uptake of Selenium....212
8.2.3 Exposure Pathways....213
8.2.4 Uncertainties and Recommendations....213

9.0 PROPOSED PRELIMINARY REMEDIAL ACTION OBJECTIVES (RAO)....214
9.1 RMM and Soils....214
9.2 Vegetation....214
9.3 Groundwater....214
9.4 Surface Water....215
9.5 Sediment....215

10.0 REFERENCES....216

LIST OF TABLES

Table	Title
1-1	List of Chemicals of Concern for Conda
2-1	Monthly Climate Summaries for Conda, Idaho
2-2	Surface Mine Panel Overburden Volumes and Reclamation Summary
2-3	Summary of Geological Unit Outcrop and Residual Mining Materials Covering Outcrop Areas
2-4	Summary of Selenium Concentrations in Soil and Vegetation on the FSPS and NTCRA Piles
2-5	Grazing Allotment Summary
3-1	Terrestrial Monitoring Locations
3-2	Aquatic Monitoring Locations
3-3	Aquatic Tissue/Population Investigation Stream Section Boundaries
3-4	Geotechnical Sampling Locations
3-5	Groundwater Monitoring Locations
3-6	Groundwater Well Construction Details
4-1	Remedial Investigation Laboratory and Field Analyses
4-2	Screening Values Used in Evaluating Soils
4-3	Water Quality Criteria and Standards Used in Evaluating Surface Water
4-4	Hardness-Based Aquatic Life Water Quality Criteria Used in Evaluating Surface Water
4-5	Screening Values Used in Evaluating Sediment
4-6	Water Quality Criteria and Standards Used in Evaluating Groundwater
4-7	Summary of Background Values by Media
4-8	Summary of Available Analytical Data for Locations Sampled in 2015
4-9	Summary of Detected Metals Results in Soils
4-10	Summary of Detected Volatile Organic Compound (VOC) Results in Soils
4-11	Summary of Detected Semi-Volatile Organic Compound (SVOC) Results in Soils
4-12	Summary of Detected Polycyclic Aromatic Hydrocarbon (PAH) Results in Soils
4-13	Summary of Detected General Chemistry Results in Soils
4-14	Geotechnical Results
4-15	Summary of Detected Metals Results in Vegetation

4-16 Summary of Terrestrial and Aquatic Vegetation Species Collected
4-17 Summary of Vegetation Community and Habitat Characterization
4-18 Summary of Vegetation Species Nomenclature
4-19 Summary of Detected Metals Results in Terrestrial Invertebrates
4-20 Terrestrial Invertebrate Sample Composition
4-21 Summary of Detected Metals Results in Small Mammal Tissue
4-22 Small Mammal Sample Composition and Trapping Observations
4-23 Summary of Detected Metals Results in Surface Water
4-24 Summary of Detected Radiochemistry and Isotope Results in Surface Water
4-25 Summary of Detected General Anion and Cation Results in Surface Water
4-26 Summary of Detected General Chemistry Results for Surface Water
4-27 Summary of Surface Water Field Parameters
4-28 Surface Water Flows
4-29 Summary of Detected Metals Results in Sediments
4-30 Summary of Detected Metals Results in Aquatic Vegetation
4-31 Benthic Macroinvertebrate Tissue Voucher Taxonomy
4-32 Summary of Detected Metals Results in Aquatic Invertebrates
4-33 Benthic Macroinvertebrate Community Sample Summary
4-34 Stream Macroinvertebrate Index (SMI) Scores and Condition Ratings
4-35 Summary of Detected Metals Results in Fish Tissue
4-36 Fish Data Summary
4-37 Rapid Bioassessment Protocol (RBP) Physical Habitat Summary
4-38 Hydrophysical Survey Data
4-39 Summary of Detected Metals Results in Groundwater
4-40 Summary of Detected Organic Compound Results in Groundwater
4-41 Summary of Detected Radiochemistry Results in Groundwater
4-42 Summary of Detected General Anion and Cation Results in Groundwater
4-43 Summary of Detected General Chemistry Results for Groundwater
4-44 Summary of Groundwater Field Parameters

5-1 Alluvial/Colluvial Material Encountered During Drilling of Wells and Borings
5-2 Depth to Groundwater Information (2005-2014)
5-3 Summary of Hydraulic Conductivity Data for Formations in the southeast Idaho Phosphate Region

5-4 Potential Terrestrial and Riparian/Aquatic Species Occurring at Site (Not All Inclusive)

5-5 Summary of Special Status Species Information

6-1 Summary Statistics of COPC Comparison Value Exceedances

6-2 Comparison of Main COPC Concentrations in RMM Soils

6-3 Comparison of Main COPC Concentrations in Vegetation Growing on RMM Soils

6-4 Comparison of Main COPC Concentrations in Surface Water Associated with RMM

6-5 Comparison of Main COPC Concentrations in RMM Groundwater

6-6 Summary of Historical and Recent Water Quality Information for the Old Tailings Pond

6-7 Comparison of Main COPC Concentrations in Terrestrial Invertebrates and Mammals Associated with RMM

6-8 Comparison of Main COPC Concentrations in Aquatic Invertebrates and Vegetation Associated with RMM

6-9 North Woodall Mountain Sub-Basin Surface Water Flows

6-10 North Woodall Mountain Sub-Basin Surface Water Primary COPC Concentrations

6-11 North Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

6-12 North Woodall Mountain Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

6-13 North Woodall Mountain Sub-Basin Sediment COPC Concentrations

6-14 North Woodall Mountain Sub-Basin Aquatic Biota Selenium Concentrations

6-15 North Woodall Mountain Sub-Basin Riparian Soil and Biota Selenium Concentrations

6-16 State Land Creek Sub-Basin Surface Water Flows

6-17 State Land Creek Sub-Basin Surface Water Primary COPC Concentrations

6-18 State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

6-19 State Land Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

6-20 State Land Creek Sub-Basin Sediment Primary COPC Concentrations

6-21 State Land Creek Sub-Basin Aquatic Biota Selenium Concentrations

6-22 State Land Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations

6-23 Pedro Creek Sub-Basin Surface Water Flows

6-24 Pedro Creek Sub-Basin Surface Water Primary COPC Concentrations

6-25 Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations
6-26 Pedro Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations
6-27 Pedro Creek Sub-Basin Sediment Primary COPC Concentrations
6-28 Pedro Creek Sub-Basin Aquatic Biota Selenium Concentrations
6-29 Pedro Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations
6-30 Camp G Creek Sub-Basin Surface Water Flows
6-31 Camp G Creek Sub-Basin Surface Water Primary COPC Concentrations
6-32 Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations
6-33 Camp G Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations
6-34 Camp G Creek Sub-Basin Sediment Primary COPC Concentrations
6-35 Camp G Creek Sub-Basin Aquatic Biota Selenium Concentrations
6-36 Camp G Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations
6-37 Western Woodall Mountain Sub-Basin Surface Water Flows
6-38 Western Woodall Mountain Sub-Basin Surface Water Primary COPC Concentrations
6-39 Western Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations
6-40 Western Woodall Mountain Sub-Basin Surface Water Radiochemistry and Isotope Concentrations
6-41 Western Woodall Mountain Sub-Basin Sediment Primary COPC Concentrations
6-42 Old Tailings Pond Sub-Basin Surface Water Primary COPC Concentrations
6-43 Old Tailings Pond Sub-Basin Surface Water General Chemistry Concentrations
6-44 Old Tailings Pond Sub-Basin Surface Water Radiochemistry and Isotope Concentrations
6-45 Old Tailings Pond Sub-Basin Sediment and Tailings Primary COPC Concentrations
6-46 French Drain Sub-Basin Surface Water Flows
6-47 French Drain Sub-Basin Surface Water Primary COPC Concentrations
6-48 French Drain Sub-Basin Surface Water General Chemistry Concentrations
6-49 French Drain Sub-Basin Surface Water Radiochemistry and Isotope Concentrations
6-50 French Drain Sub-Basin Sediment and Tailings Primary COPC Concentrations
6-51 French Drain Sub-Basin Aquatic and Riparian Soil and Biota Selenium Concentrations
6-52 Shield and Jouglard Canyons Sub-Basin Surface Water Flows

6-53 Shield and Jouglard Canyons Sub-Basin Surface Water Primary COPC Concentrations

6-54 Shield and Jouglard Canyons Sub-Basin Surface Water General Chemistry Concentrations

6-55 Shield and Jouglard Canyons Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

6-56 Shield and Jouglard Canyons Sub-Basin Sediment Primary COPC Concentrations

6-57 Shield and Jouglard Canyons Sub-Basin Aquatic Biota Selenium Concentrations

6-58 Shield and Jouglard Canyons Sub-Basin Riparian Soil and Biota Selenium Concentrations

6-59 Margarette Creek/Trail Canyon Sub-Basin Surface Water Primary COPC Concentrations

6-60 Margarette Creek/Trail Canyon Sub-Basin Surface Water General Chemistry Concentrations

6-61 Margarette Creek/Trail Canyon Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

6-62 Margarette Creek/Trail Canyon Sub-Basin Sediment COPC Concentrations

6-63 Southwest Conda Sub-Basin Sediment Primary COPC Concentrations

6-64 Offsite Surface Water Selenium Concentration Summary Statistics

6-65 Offsite Sediment Selenium Concentration Summary Statistics

6-66 Offsite Fish Tissue Selenium Concentration Summary Statistics

6-67 Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

6-68 Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

6-69 Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

6-70 Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

6-71 Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

6-72 Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

7-1 Site Transport Pathways (by Source Area)

8-1 Summary of Conditions

LIST OF FIGURES AND PLATES

Figure	Title
1-1	Conda/Woodall Mountain Phosphate Mine Location
2-1	Land Ownership and Land Use
2-2	Site Topography
2-3	Surface Water Drainages and Sub-Basin Boundaries
2-4	Surface Geology Map
2-5	Conda Mine Timeline
2-6	Conda Mine Features
2-7	Underground Workings
2-8	Areas with Residual Mining Materials
2-9	Simplified Process Flow Diagram
2-10	Current and Past Topography at NTCRA and FSPS Overburden Piles
2-11	Average Selenium and Nitrate Concentrations in Surface Water and Groundwater along Boundary with Adjacent Operations
2-12	Grazing Allotments
2-13	Private Land and Domestic Wells Surrounding Conda Mine
3-1	Soil Monitoring Locations
3-2	Former Mill Site and Townsite Area Soil Monitoring Locations
3-3	Upper Pedro Creek and East Flank Woodall Mountain Soil Monitoring Locations
3-4	Terrestrial Vegetation Monitoring Locations
3-5	Upper Pedro Creek and East Flank Woodall Mountain Vegetation Monitoring Locations
3-6	Terrestrial Invertebrate and Small Mammal Monitoring Locations
3-7	Surface Water Monitoring Locations
3-8	Sediment Monitoring Locations
3-9	Aquatic Biota Monitoring Locations
3-10	Geotechnical Sampling Locations
3-11	Woodall Mountain Geotechnical Sampling Locations
3-12	West Limb, Middle Limb, and Ibex Panel Geotechnical Sampling Locations
3-13	Pit Lake Geotechnical Sampling Locations

3-14 Groundwater Monitoring Well Locations

4-1 Background Analysis Soil and Vegetation Locations
4-2 Background Analysis Surface Water and Sediment Locations
4-3 Annual Regional Precipitation Summary

5-1 Mining-Related Features Detail: North Woodall Mountain
5-2 Mining-Related Features Detail: South Woodall Mountain
5-3 Mining-Related Features Detail: Old Tailings Pond, Camp G and H, and Ibex and Middle Limb Panels
5-4 Mining-Related Features Detail: West Limb and North Trail Panels
5-5 Mining-Related Features Detail: French Drain and West Limb Panel
5-6 Mining-Related Features Detail: Grace and West Limb Panels
5-7 Residual Mining Materials Relative to Surface Geology
5-8 Generalized Stratigraphic Column for southeastern Idaho
5-9 Generalized Stratigraphy in an Open Pit
5-10 Geologic Cross-Section A-A'
5-11 Geologic Cross-Section B-B'
5-12 Geologic Cross-Section C-C'
5-13 Geologic Cross-Section K-K'
5-14 Generalized Cross-Section Line 1
5-15 Generalized Cross-Section Lines 2 and 3
5-16 Generalized Cross-Section Lines 4 and 5
5-17 Generalized Cross-Section Lines 6 and 7
5-18 Generalized Cross-Section Line 8
5-19 Generalized Cross-Section Lines 9 and 10
5-20 Generalized Cross-Section Lines 11, 12, and 13
5-21 Groundwater Monitoring Well Locations Relative to Surface Geology
5-22 General Areas of the Hydrostratigraphic Systems
5-23 General Groundwater Potentiometric Elevations in the Shallow Hydrostratigraphic System
5-24 General Groundwater Potentiometric Elevations in the Intermediate Hydrostratigraphic System
5-25 General Groundwater Potentiometric Elevations in the Deep Hydrostratigraphic System

5-26 Single Well Drawdown Recovery Curves

5-27 Vegetation Cover Types

5-28 Wetland Information

5-29 East Side Sub-Basin Drainages

5-30 West Side Sub-Basin Drainages

5-31 At-Risk Species Occurrences (IDFG/FWIS)

6-1 Comparison of Average Magnitude Exceedance for COPC, in RMM Soils

6-2 Spatial Distribution of Exceedances of COPC Comparison Values in Soil

6-3 Spatial Distribution of Exceedances of COPC Comparison Values in Surface Water

6-4 Spatial Distribution of Exceedances of COPC Comparison Values in Sediment

6-5 Spatial Distribution of Exceedances of COPC Comparison Values in Groundwater

6-6 Comparison of Soil COPC Concentrations in Residual Mining Materials

6-7 Comparison of Terrestrial Vegetation COPC Concentrations in Residual Mining Materials

6-8 Comparison of Surface Water COPC Concentrations in Residual Mining Materials

6-9 Comparison of Groundwater COPC Concentrations in Residual Mining Materials

6-10 Terrestrial Invertebrate and Small Mammal COPC Concentrations in Residual Mining Materials

6-11 Comparison of Terrestrial Invertebrate and Small Mammal COPC Concentrations in Residual Mining Materials

6-12 Aquatic Vegetation and Invertebrate COPC Concentrations in Residual Mining Materials

6-13 Comparison of Aquatic Vegetation and Invertebrate COPC Concentrations in Residual Mining Materials

6-14 North Woodall Mountain Sub-Basin Aquatic and Riparian Monitoring Locations

6-15 North Woodall Mountain Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-16 North Woodall Mountain Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-17 North Woodall Mountain Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-18 North Woodall Mountain Sub-Basin Surface Water COPC Concentrations by Location

6-19 North Woodall Mountain Sub-Basin Maximum Selenium Concentrations in Riparian Media

6-20 State Land Creek Sub-Basin Aquatic and Riparian Monitoring Locations

6-21 State Land Creek Average Flows by Reach Segment and Flow Season

6-22 State Land Creek Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-23 State Land Creek Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-24 State Land Creek Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-25 State Land Creek Sub-Basin Surface Water COPC Concentrations by Location

6-26 State Land Creek Surface Water COPC Concentrations by Reach Segment and Flow Season

6-27 State Land Creek Spring-Flow Selenium Loads in 2009

6-28 State Land Creek Sub-Basin Sediment COPC Concentrations by Location

6-29 State Land Creek Sub-Basin Maximum Selenium Concentrations in Riparian Media

6-30 Pedro Creek Sub-Basin Aquatic and Riparian Monitoring Locations

6-31 Pedro Creek Average Flows by Reach Segment and Flow Season

6-32 Pedro Creek Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-33 Pedro Creek Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-34 Pedro Creek Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-35 Pedro Creek Sub-Basin Surface Water COPC Concentrations by Location

6-36 Pedro Creek Surface Water COPC Concentrations by Reach Segment and Flow Season

6-37 Pedro Creek Spring-Flow Selenium Loads in 2009

6-38 Pedro Creek Sub-Basin Sediment COPC Concentrations by Location

6-39 Pedro Creek Sub-Basin Maximum Selenium Concentrations in Riparian Media

6-40 Pedro Creek Sub-Basin Headwaters Area Maximum Selenium Concentrations in Soil and Vegetation

6-41 Camp G Creek Sub-Basin Aquatic and Riparian Monitoring Locations

6-42 Camp G Creek Average Flows by Reach Segment and Flow Season

6-43 Camp G Creek Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-44 Camp G Creek Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-45 Camp G Creek Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-46 Camp G Creek Sub-Basin Surface Water COPC Concentrations by Location

6-47 Camp G Creek Surface Water COPC Concentrations by Reach Segment and Flow Season

6-48 Daily Selenium Loading Rates at Three Locations on Camp G Creek, Spring 2009

6-49 Camp G Creek Sub-Basin Sediment COPC Concentrations by Location

6-50 Camp G Creek Sub-Basin Maximum Selenium Concentrations in Riparian Media

6-51 Western Woodall Mountain Sub-Basin Aquatic Monitoring Locations

6-52 Western Woodall Mountain Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-53 Western Woodall Mountain Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-54 Western Woodall Mountain Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-55 Western Woodall Mountain Sub-Basin Surface Water COPC Concentrations by Location

6-56 Western Woodall Mountain Sub-Basin Sediment COPC Concentrations by Location

6-57 Old Tailings Pond Sub-Basin Aquatic Monitoring Locations

6-58 Old Tailings Pond Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-59 Old Tailings Pond Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-60 Old Tailings Pond Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-61 Old Tailings Pond Sub-Basin Surface Water COPC Concentrations by Location

6-62 Old Tailings Pond Sub-Basin Sediment COPC Concentrations by Location

6-63 French Drain Sub-Basin Aquatic and Riparian Monitoring Locations

6-64 French Drain Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-65 French Drain Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-66 French Drain Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-67 French Drain Sub-Basin Surface Water COPC Concentrations by Location

6-68 French Drain Sub-Basin Surface Water COPC Concentrations by Flow Season

6-69 French Drain Sub-Basin Sediment COPC Concentrations by Location

6-70 French Drain Sub-Basin Maximum Selenium Concentrations in Riparian Media

6-71 Shield and Jouglard Canyons Sub-Basin Aquatic and Riparian Monitoring Locations

6-72 Shield and Jouglard Canyons Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-73 Shield and Jouglard Canyons Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-74 Shield and Jouglard Canyons Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-75 Shield and Jouglard Canyons Sub-Basin Surface Water COPC Concentrations by Location

6-76 Shield and Jouglard Canyons Sub-Basin Sediment COPC Concentrations by Location

6-77 Shield and Jouglard Canyons Sub-Basin Maximum Selenium Concentrations in Riparian Media

6-78 Margarette Creek/Trail Canyon Sub-Basin Aquatic Monitoring Locations

6-79 Margarette Creek/Trail Canyon Sub-Basin Maximum Selenium Concentrations in Aquatic Media

6-80 Margarette Creek/Trail Canyon Sub-Basin Maximum Cadmium and Chromium Concentrations in Aquatic Media

6-81 Margarette Creek/Trail Canyon Sub-Basin Maximum Vanadium and Zinc Concentrations in Aquatic Media

6-82 Margarette Creek/Trail Canyon Sub-Basin Sediment COPC Concentrations by Location

6-83 Southwest Conda Sub-Basin Aquatic Monitoring Locations

6-84 Conda Offsite Locations

6-85 Offsite Surface Water Selenium Concentrations by Location

6-86 Offsite Sediment Selenium Concentrations by Location

6-87 Offsite Salmonid Fish Tissue Selenium Concentrations by Location

6-88 Offsite Non-Salmonid Fish Tissue Selenium Concentrations by Location

6-89 Maximum Selenium Concentrations Shallow Hydrostratigraphic System

6-90 North Woodall Sub-Basin Major Ion Composition Shallow and Intermediate Systems

6-91 Maximum Selenium Concentrations Intermediate Hydrostratigraphic System

6-92 Maximum Selenium Concentrations Deep Hydrostratigraphic System

6-93 North Woodall Sub-Basin Major Ion Composition Deep System

6-94 Pedro Creek Sub-Basin Vertical Plume Extent Lines 11 and 13

6-95 State Land Creek Sub-Basin Major Ion Composition Shallow and Intermediate System

6-96 State Land Creek Sub-Basin Major Ion Composition Deep System

6-97 Pedro Creek Major Sub-Basin Ion Composition Shallow and Intermediate System

6-98 Camp G Creek Sub-Basin Major Ion Composition Shallow System

6-99 Western Woodall Sub-Basin Major Ion Composition Shallow and Intermediate System

6-100 Western Woodall Sub-Basin Major Ion Composition Deep System

6-101 Old Tailings Pond Sub-Basin Major Ion Composition Shallow and Intermediate System

6-102 Old Tailings Pond Sub-Basin Vertical Plume Extent Lines 4 and 4A

6-103 French Drain Sub-Basin Major Ion Composition Shallow and Intermediate System

6-104 French Drain Sub-Basin Vertical Plume Extent Line 1

6-105 French Drain Sub-Basin Vertical Plume Extent Line 2

6-106 French Drain Sub-Basin Major Ion Composition Deep System

6-107 Shield and Jouglard Canyon Major Ion Composition Shallow and Intermediate System

6-108 Shield and Jouglard Canyon Vertical Plume Extent Line 7

6-109 Shield and Jouglard Canyon Major Ion Composition Deep System

6-110 Margarette and Trail Canyon Creeks Major Ion Composition Shallow and Intermediate System

7-1 Conceptual Site Model for Human Receptors

7-2 Ecological Conceptual Site Model

7-3 Conceptual Site Model for Domestic Livestock Receptors

7-4 Differing Affinities of Dissolved Metals for Sorption to Solids with Varying pH

7-5 Woodall Panel Block Model Area and Cross-Section

7-6 Pedro Creek ODA Block Model Area and Cross-Sections

7-7 French Drain Block Model Area and Cross-Sections

7-8 Jouglard Canyon Block Model Area and Cross-Sections

7-9 North Trail Panel Block Model Area and Cross-Section

8-1 Maximum Soil Selenium Concentrations in ODAs, Tailings, and Waste Rock

8-2 Surface Water and Fish Tissue Relative to Criteria

8-3 Sediment and Benthic Tissue Relative to Criteria

Plate	Title
Plate 1	Maximum COPC Concentrations in Soil
Plate 2	Maximum COPC Concentrations in Vegetation
Plate 3	Maximum COPC Concentrations in Surface Water
Plate 4	Maximum General Chemistry Concentrations in Surface Water
Plate 5	Maximum COPC Concentrations in Groundwater
Plate 6	Maximum General Chemistry Concentrations in Groundwater
Plate 7	Maximum COPC Concentrations in Sediment

LIST OF APPENDICES

Appendix	Title
A	Conda/Woodall Mountain Mine Site Photos
B	Historical Annual Reports and Operation Details
C	Report on Feasibility Study for New Tailings Pond Near Conda, Idaho
D	Calciner Mill Demolition Records
E	Benthic Macroinvertebrate Community Analysis: Conda Mine Region, July 2009
F	Site Quality Habitat Evaluation Form
G	Conda Monitoring Well Summary and Well Boring Logs
H	Hydrophysical and Geophysical Logging Results
I	Remedial Investigation Data Compilation
J	Evaluation of Background Concentrations
K	Data Summary Tables: Summary of Detected Results by Media
L	Field Forms: 2003-2012
M	ODA Condition Investigation Results
N	Terrestrial Monitoring Photo Log
O	Aquatic Monitoring Photo Log
P	Threatened and Endangered Species Information
Q	Indicator Chemical Analysis
R	Review Comments and Responses

LIST OF ACRONYMS

ACM	Asbestos-Containing Material
AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirements
ARCS	Assessment and Remediation of Contaminated Sediments
ARD	Acid-Rock Drainage
ASTM	American Society for Testing and Materials
AUM	Animal Unit Month
BLM	Bureau of Land Management
BPF	Baseline Problem Formulation
btoc	Below Top of Casing
BURP	Beneficial Use Reconnaissance Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CCB	Continuing Calibration Blanks
CCV	Continuing Calibration Verification
cm^2	Square centimeters
COC	Chain of Custody
COPC	Chemical of Potential Concern
DEIS	Draft Environmental Impact Statement
DI	De-ionized
DOI	Department of Interior
DW	Dry Weight
EE/CA	Engineering Evaluation/Cost Analysis
EcoSSLs	Ecological Soil Screening Levels
EIS	Environmental Impact Statement
FEC	Fluid Electrical Conductivity
FEIS	Final Environmental Impact Statement
FS	Feasibility Study
FSPS	Field Scale Pilot Study
ft	Foot (or Feet)
ft AMSL	Feet Above Mean Sea Level
ft bgs	Feet Below Ground Surface
ft btoc	Feet Below Top of Casing
ft/day	Feet per Day
ft^2/day	Square Feet per Day

GPM	Gallons per Minute
GYC	Greater Yellowstone Coalition
ICB	Initial Calibration Blanks
ICV	Initial Calibration Verification
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IMA	Idaho Mining Association
LCS	Laboratory Control Samples
LEL	Lowest Effect Level
MCL	Maximum Contaminant Level
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MOU	Memorandum of Understanding
MS/MSD	Matrix Spikes/Matrix Spike Duplicate
NAD	North American Datum
ND	Non-Detect
NF	National Forest
NFG	National Functional Guidelines
NOAA	National Oceanic and Atmospheric Association
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRWQC	National Recommended Water Quality Criteria
NTCRA	Non-Time-Critical Removal Action
NWGAP	Northwest Regional Gap Analysis Project
NWI	National Wetlands Inventory
ODA	Overburden Disposal Area
pcf	Pounds per Cubic Foot
PFO	Pocatello Field Office
PNEC	Predicted No-Effect Concentration
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RBP	Rapid Bioassessment Protocol
RCRA	Resource Conservation and Recovery Act

RI	Remedial Investigation
RMM	Residual Mining Materials
RMP	Resource Management Plan
ROD	Record of Decision
ROM	Run-of-Mine
RPD	Relative Percent Differences
RSL	Regional Screening Levels
SA/CO	Settlement Agreement/Consent Order
SAP	Sampling and Analysis Plan
SI	Site Investigation
SMI	Stream Macroinvertebrate Index
SOP	Standard Operating Procedure
SOW	Statement of Work
SQAGs	Sediment Quality Assessment Guidelines
SQuiRTs	Screening Quick Reference Tables
SSERA	Site-Specific Ecological Risk Assessment
SSHHRA	Site-Specific Human Health Risk Assessment
TEC	Threshold Effect Concentration
T/E	Threatened and Endangered
TMDL	Total Maximum Daily Load
TTEMI	Tetra Tech EM, Inc.
UBR	Upper Blackfoot River
USEPA	US Environmental Protection Agency
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WSS	Winter Stress Syndrome
YCT	Yellowstone Cutthroat Trout
ZIST	Zone Isolation Sampling Technology
95LCL	95th Lower Confidence Limit

1.0 INTRODUCTION

This report presents the findings of a Remedial Investigation (RI) conducted by the J.R. Simplot Company (Simplot) at the former Conda/Woodall Mountain Phosphate Mine (hereafter also referred to as Conda or Conda Mine). The Conda Mine is located approximately 8 miles northeast of Soda Springs, in Caribou County, Idaho (Figure 1-1).

In 2008, as an owner/operator of the Conda Mine, Simplot voluntarily entered into an Administrative Order on Consent (AOC) with the Idaho Department of Environmental Quality (IDEQ), the US Environmental Protection Agency (USEPA), and the US Department of the Interior (DOI) Bureau of Land Management (BLM) to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Conda Mine and the adjacent areas. Pursuant to a July 17, 2000 Memorandum of Understanding (MOU) concerning contamination from the phosphate mining operations in southeastern Idaho, IDEQ is the "Lead Agency," with USEPA implementing Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The BLM, US Fish and Wildlife Service (USFWS), and the Shoshone-Bannock Tribes (Tribes) have elected to participate as "Support Agencies." Hereafter, the IDEQ, USEPA, BLM, USFWS, and the Tribes are collectively referred to as the Agencies.

Although the RI activities under the AOC commenced in 2008, Simplot had since 2003 voluntarily been working with state and federal agencies[1] involved in the Southeast Idaho Phosphate Mining Resource Area-Wide Investigations to collect characterization information at Conda. In addition to studies performed by Simplot at the Conda Mine, some other studies associated with area-wide investigations provide relevant information. During the RI scoping process, it was determined that relevant information from 2001 onward would allow for the most comprehensive evaluation of spatial and temporal mining-related effects.

The interpretations presented in this report are predominantly based on information collected from 2001 to 2014. However, during the process of finalizing the report, data from ongoing monitoring performed in 2015 became available. The 2015 data were compared against the RI dataset to evaluate whether any new 2015 data would help refine the nature and extent and fate and transport evaluation. Additional information obtained in 2015 is discussed in the text, where relevant to refine the interpretations.

[1] Agencies involved in the Smoky Canyon Mine Site Investigation (SI) and Engineering Evaluation/Cost Analysis (EE/CA). The data was obtained following standard operating procedures (SOPs) approved by the Agencies for the Smoky Canyon Mine SI and EE/CA.

1.1 Purpose of the Remedial Investigation

Historical mining activities at the Conda Mine resulted in the release of selenium and other chemicals, also referred to as Chemicals of Potential Concern (COPCs) (Table 1-1). Concentrations of selenium and other COPCs exist at levels potentially posing risks to human health and the environment. The purpose of the RI is to evaluate the nature and extent of mining-related releases of selenium and other COPCs at the Conda Mine and adjacent areas downgradient from the Conda Mine, which are collectively referred to as the "Site." The Site includes areas disturbed by mining operations ("Mined Area"), and the areas immediately adjacent to the mine property boundary ("Non-Mined Area") potentially affected by COPC releases from mining-related features (Figure 1-1). The Mined Area is where the materials such as waste rock, overburden piles, tailings, etc. (also termed residual mining materials [RMM]), generated during mining, reside. Locations outside of the Non-Mined Area boundary, such as locations on the Upper Blackfoot River (UBR) and Trail Canyon Creek, were also evaluated during the investigation.

The planning and implementation of the RI was in accordance with USEPA guidance (USEPA 1988). Information presented in this RI Report is being used in the Site-specific risk assessment process which evaluates current and potential future risks to human health and the environment based on all COPCs, and will be used in the Feasibility Study (FS) to develop and screen alternatives for remedial action(s). The RI, Site-Specific Ecological Risk Assessment (SSERA), Human Health Risk Assessment (SSHHRA), and Livestock Risk Assessment (SSLRA), and the FS, will together provide the information necessary to support the development of the Record of Decision (ROD) and the selection of the most appropriate remedy for the Site.

1.2 Report Organization

The RI Report is organized as follows:

- Section 2 presents background information about the Site, including physical characteristics, mining history, reclamation activities, previous studies conducted at the Site and outside the Site boundaries, and area land use;
- Section 3 summarizes RI data collection activities, organized by environmental media (e.g., soil, surface water, groundwater, etc.);
- Section 4 supplies additional information regarding the data sets used in the RI, including data quality, data usability, data management, and data evaluation;
- Section 5 provides a detailed discussion of the existing geological, terrestrial, ecological, aquatic, and hydrogeological Site conditions based on all data developed through the RI process;

- Section 6 describes the nature and extent of mining-related effects at the Site through discussions of potential sources of COPCs in areas disturbed by mining, and transport and releases of the COPCs to the environment;
- Section 7 presents the fate and transport through a discussion of the interaction between sources of selenium and other COPCs, exposure pathways, and risks;
- Section 8 presents the conclusions of the RI process;
- Section 9 provides preliminary Remedial Action Objectives; and
- Section 10 lists references cited in the RI Report.

2.0 BACKGROUND

The following subsections present background information on phosphate mining in southeast Idaho, a description of the Conda Mine setting, as well as a summary of operational history, land ownership and use, and relevant previous Site-related studies.

2.1 Phosphate Mining

The Phosphoria Formation in the southeast Idaho phosphate resource area is one of the largest phosphate deposits in the world. Phosphate mining in southeast Idaho, including at the Conda Mine, targets the Meade Peak Member of the Phosphoria Formation, which contains the marine-deposited phosphate ore mineral carbonate fluorapatite ($Ca_5(OH, Cl, F)(CO_3, PO_4)_3$) and other phosphorites (Knudsen and Gunter 2004).

Southeast Idaho phosphate mines have been the subject of investigations to evaluate mining-related releases of selenium to the environment. These investigations were initiated after several horses pastured in and around mines were diagnosed with selenosis (IDEQ 2004 and ATSDR 2006). IDEQ initially conducted investigations with a regional objective, using area-wide phosphate mine sampling to develop data on source materials, potential pathways, receptors, release mechanisms, temporal effects, and range of observed concentrations in various media (IDEQ 2004). Following the screening of a comprehensive list of mining-related COPCs, the investigation identified cadmium, chromium, nickel, selenium, vanadium, and zinc as the main chemicals of concern (IDEQ 2004).

Samples collected as part of the regional investigations identified elevated levels of selenium and other COPCs in the media at Conda as well. To facilitate the decision-making process for actions at Conda, it was determined that more comprehensive site-specific investigations were needed, resulting in the RI data presented herein.

2.2 Site Setting and Climate

As previously mentioned, the RI evaluated conditions in areas where the RMM reside, and in the areas immediately adjacent to and downgradient from the Mined Area. The Mined Area (Figure 2-1) consists of approximately 4,670 acres, of which 3,033 acres are Simplot owned, 1,620 acres are Federal lands managed by the BLM ("BLM lands"), and approximately 17 acres that forms part of Monsanto's Blackfoot Bridge Mine. Property ownership in the Non-Mined Area consists of approximately 3,998 acres of Simplot lands, 4,834 acres of lands owned by

other private parties, 1,470 acres of BLM lands, 95 acres of Federal lands managed by the USDA Forest Service (USFS), and 0.5 acres of State land (Figure 2-1).[2]

2.2.1 Setting

The Site is located along the western portion of the north-south trending Aspen Range just north of Trail Canyon (Figure 1-1). Elevations range from approximately 6,200 feet above mean sea level (ft AMSL) in the valley floors to approximately 7,700 ft AMSL atop Woodall Mountain (Figure 2-2). The Aspen Range divides the Site, with the east and northern portions forming part of the UBR basin and the west side of the range forming part of the Bear River basin (Figure 2-3). The local drainage basins (also referred to as Sub-Basins) forming parts of the UBR subwatershed and Bear River subwatershed are listed below.[3]

- On the east side of the Aspen Range, in the UBR subwatershed:
  - North Woodall Mountain Sub-Basin.
- State Land Creek Sub-Basin:
  - Pedro Creek Sub-Basin; and
  - Camp G Creek Sub-Basin.
- On the west side of the Aspen Range, in the Bear River subwatershed:
  - Western Woodall Mountain Sub-Basin;
  - Old Tailings Pond Sub-Basin;
  - French Drain Sub-Basin;
  - Shield and Jouglard Canyons Sub-Basin;
  - Margarette Creek/Trail Canyon Sub-Basin; and
  - Southwest Conda Sub-Basin.

The local drainages on the east side of the Aspen Range with headwaters originating in the Mined Area and containing seasonal flow are North Woodall Mountain Creek, State Land Creek, Pedro Creek, and Camp G Creek. State Land and North Woodall Mountain Creeks flow directly into the UBR. Several tributaries contributing flow to these creeks, originate in the undisturbed foothills east of Woodall Mountain Ridge (Figure 2-2). Pedro Creek and Camp G Creek flow into Trail Creek; which flows into the UBR in an area downgradient of its confluence with Pedro

[2] Ownership records are current as of 2015 and are based on Caribou County Geographic Information Systems (GIS) data from 2009, supplemented with more current Simplot records including a 2012 land transaction with Monsanto. In some cases, on-the-ground surveys have been used to improve ownership boundary data from Caribou County. Land currently owned by Simplot within the Blackfoot Bridge Project Boundary is being negotiated for purchase by Monsanto (see Figure 2-1).

[3] The local surface water drainages at Conda were delineated based on land-surface, surface water flow, and hydrographic features. These drainage boundaries, labeled as Sub-Basins, are smaller than the lowest (sixth level) hydrologic-unit-boundary term (Subwatershed) under the NRCS coding and naming convention (USGS 2013). The Sub-Basin term is not intended to correspond to the standard NRCS naming of the larger (fourth level) Sub-Basin hydrologic unit term.

Creek. The UBR flows into the Blackfoot Reservoir. Downgradient of the reservoir, the UBR joins the Snake River, which ultimately enters the Columbia River. The drainages along the west side of the Aspen Range are generally dry, even when the east side drainages are flowing (see Sections 5 and 6). The main tributary to the Bear River in this area is Soda Creek. None of the Site's drainages flow into surface water bodies that have confluences with Soda Creek. The Bear River eventually flows to the Great Salt Lake.

2.2.2 Climate

The climate at the Site is dominated by cool and dry weather, with prevailing winds and weather patterns moving from west to east. The western mountain ranges cause Pacific storms to drop much of their moisture before they reach the Site, resulting in moderate precipitation of approximately 21 inches annually in the area (WRCC 2012, NWCC 2012). Average monthly data for temperature and precipitation, based on Conda Station 102071 are shown on Table 2-1. Snow accumulation occurs mainly along the ridge tops and eastern flanks of the ridges (Winter 1980), with total snowfall averaging almost 110 inches each year. The snow cover typically remains on the ground from November to March. Summer temperatures in the region are mild and normally range from 42 to 80 degrees Fahrenheit, with the highest temperatures occurring in July. Winter temperatures normally range from 9 to 33 degrees Fahrenheit, while spring and fall months range from 16 to 60 and 18 to 68 degrees Fahrenheit, respectively.

The growing season at the Site extends from late May to September with the average first frost occurring in early September. Soda Springs has an average of only 70 frost-free days, with the Site typically having fewer (Love et al. 2009).

2.3 Conda Mine Operational History

The first mining-related activities in the Conda Mine area began in 1906 with the acquisition of mining claims covering approximately 3,400 acres of phosphate-bearing land (Schwarze 1967, Lee 2000). As previously mentioned, the phosphate ore targeted for use in fertilizer production was the phosphatic shale in the Meade Peak Member of the Phosphoria Formation (Figure 2-4). The phosphate-bearing minerals are marine deposited phosphorites, with carbonate fluorapatite being the primary ore mineral (Knudsen and Gunter 2004). Other minerals present in the ore are calcite, dolomite, fluorite, gypsum, quartz, limonite, organic material, and clay (Schwarze 1967).

Underground mining operations commenced in 1920 and transitioned to open pit mining in the early 1950s. Owners and operators of the Conda Mine over time included:

- The Brown and Perkins Company;
- The Southern California Orange Grove Fertilizer Company;

- The Anaconda Copper Mining Company (Anaconda); and
- The J.R. Simplot Company.

The following subsections and Figure 2-5 summarize the Conda Mine's operational history. Appendix A presents some historical photos of the Mine, in addition to area features.

2.3.1 Brown and Perkins and California Grove Companies

In 1906, the Brown and Perkins Company located 23 placer mining claims covering approximately 3,400 acres of phosphate-bearing land (Schwarze 1967, Lee 2000). At the time these claims were identified, the Brown and Perkins Company was either an independent locator of claims or the company was working for the Southern California Orange Grove Fertilizer Company (a growers' cooperative). In 1910, the Brown and Perkins Company mined and shipped a 40-ton test load of ore to California (unpublished BLM records). The Southern California Orange Grove Fertilizer Company then patented the 23 placer mining claims between October 3, 1916 and December 18, 1917, but did not conduct any mining activities. In 1917, Southern California Orange Grove Fertilizer Company began negotiations with Anaconda for the sale of the patents.

2.3.2 Anaconda

Anaconda became interested in the Southern California Orange Grove Fertilizer Company phosphate claims because fertilizer production offered a viable way to utilize a surplus of sulfuric acid byproduct from their copper smelting operations in Montana. Negotiations for the sale of the 23 patents from the Southern California Orange Grove Fertilizer Company to Anaconda were initiated in 1917, and by the end of 1920, Anaconda had acquired the claims. Anaconda began underground development on the Emma and Maude claims first. They constructed a rail spur to the town of Soda Springs, Idaho, built the company townsite (Conda), and installed a mill in 1921 (Figure 2-6). The purpose of the Conda mill was to screen, crush, wash, and dry ore in preparation for shipment to the fertilizer processing plant in Anaconda, Montana. The Conda townsite eventually included 82 houses.

2.3.2.1 Anaconda Mining Methods

Anaconda detailed their early underground mining methods in a 1922 publication described by Lee (2000). Mining began via two adits located on the limbs of the Conda Anticline about one half mile apart. These two adits were known as Number One Mine (adit at elevation 6,255.8 feet) and Number Two Mine (adit at elevation 6,265 feet) (Figures 2-6 and 2-7, and Appendix B). All underground mining occurred above the adit levels with the ore body containing

numerous faults (Schwarze 1967). There was practically no water underground but the ore was reportedly just moist enough to prevent formation of dust (Fertilizer Department 1930).

The advance and development headings (six feet by eight feet) were driven from the adits along the beds by drilling, blasting, and mucking. The headings were then enlarged and timbered in a manner similar to the adits (nine feet by nine feet inside the heavily timber-set areas). Ventilation raises were installed on approximately 1,000-foot intervals. Sub-level haulage drifts were placed at 200-foot intervals down the dip of the ore bed. Raises were driven up the dip of the ore bed (about 50 degrees) at 200-foot intervals along the sublevels (Schwarze 1967). Main underground tracks were installed and had a standard gradient of ½ percent in favor of the loads (Fertilizer Department 1930). Rock was hauled to the mill by storage battery locomotives in side-dump cars that had a capacity of 10 tons. The locomotives were capable of hauling a 100-ton net load at a speed of about four to seven miles per hour.

Inefficiency associated with mining the highly-faulted Conda Anticline (Figure 2-4) led to the development of a crosscut (Figure 2-7) to the Trail Creek Syncline (known as the Number Three Mine [Appendix B]), which began in 1922. The crosscut was completed in 1929 and extended 6,000 feet east to the west limb of the Trail Creek Syncline. The crosscut traversed at an approximate elevation of 6,291 feet (Figures 2-7 and Appendix B). According to Schwarze, the development of the crosscut was significantly slowed because of the large amounts of water encountered in the upper Wells Formation and the Grandeur Member of the Park City Formation (Schwarze 1967). Based on the geological cross sections (discussed in Section 5) and geologic details of the cross cut (Appendix B), the source of water encountered likely would have been portions of the Dinwoody aquifer that is perched on top of the Meade Peak Member draining along the faulted zones, and/or locally recharged water into the Wells Formation. It is not expected to be due to water table conditions in the Wells Formation.[4]

Underground mining operations continued until 1956 and resulted in the production of three million tons of phosphate ore (Schwarze 1967). The transition from underground mining to open pit (surface) mining began in 1952, with initial surface operations focusing on the Conda Anticline. The improvements in earth-moving equipment and the rising cost of underground mining made surface mining techniques the preferred method of mining at Conda. The initial surface mining operations (1952 through 1958) were conducted by the Morrison-Knudsen Company under contract with Anaconda (HDR 2001). Underground mining was slowly phased out until it was entirely abandoned in 1957.

[4] Groundwater in the regional Wells Formation aquifer, in this area ranges between 6,218.51 and 6,226.55 feet based on the GW-14-MW groundwater elevation data, as discussed in Section 5.

2.3.2.2 Anaconda Ore Processing

Crushing and drying were the only treatments used for beneficiation of phosphate ore during Anaconda's period of operation (Fertilizer Department 1930). The ore was hauled from the underground workings over trestles about 50 feet high to the mill feed bin. From the feed bin, the ore was processed by a series of screens and crushers for sizing down to ¾-inch before being conveyed to a rotating dryer. From the dryer, the ore was then sent to a storage bin for distribution to rail cars, ultimately for transport offsite.

In 1951, the Conda mill was upgraded with the addition of a washing circuit, new screens, and crushers. These mill features allowed for the mining of lower-grade rock. In the process, primary crushing and screening of the ore occurred, followed by the washing circuit. In the washing circuit, the ore was crushed in a scrubbing mill for further sizing. The product from the scrubbing mill was conveyed to a classifier for size separation, and the classifier product was then discharged into a rotary dryer. Material of low ore content was conveyed into a 70-foot diameter Dorr Thickener, and the sludge from the bottom of the thickener was pumped into a slime pond (tailings pond) on the south side of the mill (TFM 1950). The clarified water from the thickener was transferred to a tank situated near the mine adit for reuse. Effluent gases from the dryer were drawn through a cyclone collector to remove the dust prior to discharge to the atmosphere.

2.3.3 Simplot

In 1959, the Minerals and Chemical Division of the J.R. Simplot Company negotiated a joint-venture agreement with Anaconda. The joint-venture terms were such that Simplot took over management and operation of the Site, but still supplied Anaconda with sufficient ore to run its fertilizer plant in Montana. In 1960, the joint venture was terminated and Simplot acquired ownership of Anaconda's fertilizer production facilities in Montana and began leasing the Site from Anaconda on a long-term royalty basis (Lee 2000). Simplot acquired 80 percent of the Federal leases held by the Anaconda Company in 1961, and acquired the remaining 20 percent in 1984. During that time, the fertilizer facility in Anaconda, Montana was dismantled and some of that equipment was shipped to Pocatello, Idaho, where it was reassembled and operated by Simplot as the Don Plant. Simplot mining at Conda was shut down in January 1984 (Lee 2000), although reclamation activities continued after this time.

2.3.3.1 Simplot Mining Methods

Simplot mined Conda using surface mining techniques. Surface mining was accomplished by first stripping the materials (overburden) overlying the ore body using scrapers, and then working areas along the exposed ore with large mechanical shovels. Due to the steep dip of the ore beds, most of the panels were stripped alternately with mining, bench by bench (Schwarze

1967). The removed overburden rock units above the ore zones were either placed back into open pits or onto external Overburden Disposal Areas (ODAs) (Figure 2-8).

The Woodall Mountain Panels (i.e., Woodall, East Woodall and South Woodall Panels) were mined from 1959 to 1984. The Ibex, Middle and West Limb and Grace Panels were mined from 1959 to 1977. The North Trail area consists of a single mine panel and ODAs located north and east of the Margarette Creek drainage and was mined from 1964 to 1978 (Figures 2-5 and 2-6).

The ODAs at Conda were placed at the most convenient locations and shortest haul distances, provided that they were not covering ore that could be mined in the future. Little effort was made to bench ODAs and decrease side slopes or to regulate their size and shape; as such, ODAs typically had steep and rocky side slopes. These slopes did not sustain significant plant growth except for weed species of non-forage value. According to Conda annual report documents, they were also considered aesthetically unappealing because they did not mimic the natural topography.

Simplot's mine plans in the 1970s had guidelines for the storage of overburden material in previously undisturbed areas to minimize the influence on the surrounding environment at its mines (Simplot 1979). These guidelines included:

- Storage of overburden in canyons or draws to maximize storage within a minimum acreage;
- Re-routing of existing drainages around or across the overburden to minimize erosion;
- Installing sediment catchment basins with rock outcrop or culvert spillways behind earth-filled dams and downgradient from all ODAs to contain eroded material;
- Designing ODAs to resemble a rolling hillside with slopes between 2.5 to 1 and 3 to 1, minimizing problems of snow accumulation and spring runoff; and
- Designing drainage channels that flow into the catchment basins.

These practices were applied at Conda, with the exception of re-routing of existing drainages. All of the ODAs at the Conda Mine located near drainages were placed above the drainage headwaters (Figure 2-8). Some topsoil was salvaged and used as slope dressing; however, middle waste shale or other soil-type material capable of supporting plant growth was predominantly substituted for topsoil. Prior to planting with seed mixtures, soil was to be treated with inorganic fertilizers to improve nitrogen deficiency and boost growth, and revegetation activities were considered adequate when a minimum of 65 percent ground cover was maintained for three consecutive years over 90 percent of the area revegetated. Native flowers and shrubs including bitterbrush, sagebrush, snowberry, arrowleaf balsam root, yarrow, penstemon, and lupine were also included in revegetation seed mixes (Annual Reports presented in Appendix B). Not all overburden piles (e.g., piles in the Pedro Creek headwaters

area, at the Grace Panel, near the Pit Lake) were graded to resemble rolling hillsides after mining operations terminated.

Overall overburden volumes generated by mine panels, and properties on which the ODAs lie are summarized in Table 2-2. Annual mine production totals, including tons of ore mined and cubic yards of overburden removed are presented in Appendix B (Annual Reports).

2.3.3.2 Simplot Ore Processing

Beneficiation of the ore involved a series of steps that generally included screening, washing, crushing, and drying at the slurry plant, mill, and calciner (Figure 2-9). For the first few years of operation under its new lease, Simplot generally employed the same processes used by Anaconda. In 1965, a new mill facility (beneficiation plant) was constructed to accommodate the increased production from the mine (Schwarze 1967). That mill was later upgraded in 1977 when a new fluid-bed phosphate ore calciner was installed (the calciner was an additional drying step to increase phosphate recovery). In 1982, a series of flotation circuits were installed to improve recovery; however, their use was discontinued by August 1983.

In general, chemical reagents or additives were not used in the beneficiation process; crushing and drying was the primary processing method. The only exception is the short period of time that the flotation circuit was used. In that process, the flotation circuit used an amine (Witco MG70), anhydrous-ammonia (Pamak WFCA), and a long-chain alcohol (Dowfroth 250 [polypropylene glycol methyl ether]) as additives (Simplot 2008).

The following describes the beneficiation steps used in the ore processing, by facilities sequentially. More detailed diagrams are included in Appendix B.

Slurry Plant – Stockpiled ore was transported to the slurry plant where the ore was screened through a grizzly prior to being conveyed to a scrubber/trommel screen for washing and primary sizing (Figure 2-9). The ore materials larger than the grizzly screen holes were rejected and reprocessed. Following the scrubber/trommel screen pass, the material between ¾-inch and 1-inch was conveyed to an impact crusher for further size reduction. Ore material smaller than ¾-inch was mixed with water and pumped as slurry to the mill facility for further processing.

Mill – Slurried ore arriving via the slurry pipeline discharged into a cyclone at the mill which split the stream into two fractions (Figure 2-9). The product of the cyclone was pumped to a classifier and the underflow was conveyed to a ball mill/scrubber for further sizing. The oversized material from the ball mill/scrubber was conveyed to a rod mill, and the rod mill product was conveyed to the classifier. The classifier product was conveyed to cyclones where the minus-325 mesh material was separated and conveyed to the tailings pond. The plus-325 mesh was sent to a second set of cyclones after which the product was conveyed to a gas-fired rotary dryer. From 1982 to 1983, when the flotation circuit was operational, the ball

mill/scrubber product was pumped to 26-inch hydro cyclones which made the size separation for flotation. The flotation circuit was comprised of a conditioning tank followed by carbonate and silica flotation cells. The flotation product was then pumped to filters for dewatering and subsequent drying. From the mill, the product was either conveyed to storage bins for direct railcar shipping to the Don Plant in Pocatello or to the calciner, located northwest of the mill, where organics contained in the ore were burned off. Dust particles generated at the rail cars loading area were captured in a large bag house and recycled back into the process. The residual materials produced during this process consisted of only water, tailings material, and oversized reject material. Oversized reject materials were placed in ODAs. The sources of process water were wells GW-7-IT, GW-8-IBS and GW-10-IBS (Figure 2-6).

Calciner – The phosphate product from the mill was conveyed to the preheat compartment of the calciner (Figure 2-9). After preheating, the material was piped to the main calcining compartment operated at 1,450 degrees Fahrenheit to remove the organics and water. A fluidized bed was maintained by air flowing counter-current to the free falling ore. The main calcining compartment dust went to a hot cyclone, with the product discharged to a cooling compartment and was then piped to an after-cooler. From there, it was conveyed to the loading facilities or storage. Any dust generated within the preheating and calcining compartments was collected in cyclones. Effluent gases from the various cyclone collectors were piped to a scrubber prior to discharge to the atmosphere. The calciner was operational from 1977 to 1981.

Tailings Ponds – The tailings produced during the process described above were discharged to tailings ponds. The tailings were generally very fine grained, classified as clays and silts. The maximum grain size of the tailings material was about the No. 100 U.S. Standard Sieve, with about 75 percent passing the No. 200 sieve (Dames and Moore 1976). Two tailings ponds (termed Old Tailings Pond and New Tailings Pond) remain at Conda (Figure 2-6). The Old Tailings Pond, located northeast of the Former Mill Site and townsite, was constructed in 1969 and encompasses several older ponds. Operation of the Old Tailings Pond ceased in 1979. The dam for the Old Tailings Pond was constructed using the “downgradient” method of construction, whereby the dam was progressively raised by placement of fill on its downgradient face (Dames and Moore 1976). The New Tailings Pond was constructed in 1979 as a replacement for the Old Tailings Pond and is located west of the former mill and townsite. The New Tailings Pond received tailings until 1984, when the operations at Conda ceased. The New Tailings Pond was constructed in the same manner as the Old Tailings Pond (i.e., progressively raising the dam by placement of fill on its downgradient face), using material from the pond area itself and borrow pits in the Shields Canyon Area (Dames and Moore 1976) (Appendix C). The tailings impoundment dams are regularly inspected for stability, and are considered stable.

In summary, the slurry plant was where the ore was first transported to for initial screening, washing, and sizing. Ore material smaller than ¾-inch was mixed with water and pumped as a slurry to the mill facility via a pipeline for further processing. Larger sized ore material was

recycled. Non-ore materials were disposed with nearby overburden piles. At the mill the ore was further processed into material that would get shipped to the Don Plant for fertilizer production, with non-ore waste sent to the tailings pond. Section 3.4 describes the sampling at the mill area and tailings ponds, the only ore processing features that remain onsite.

2.4 Post-Mining Operations and Remaining Features

The mill at Conda was shut down in 1984 when mining operations commenced at the Smoky Canyon Mine. At that time, Simplot constructed an ore receiving station which received ore from the Smoky Canyon mine via a 27 mile long slurry line. The ore was dried utilizing a filter press and gas fired dryer. In 1991 Simplot constructed a pump station at the Conda Mine and a slurry line from Conda to the Don Plant near Pocatello, Idaho. This boosted the pressure in an 86-mile long ore slurry pipeline that transports phosphate ore from the Smoky Canyon Mine to the Don Plant. Simplot continues to operate the pump booster station and the New Tailings Pond at the Conda Mine. The New Tailings Pond provides the industrial water used in the ore-slurry-line operations. As active facilities, the pump station and the New Tailings Pond are not being evaluated for cleanup under this CERCLA process. However, the influence of the New Tailings Pond on groundwater flow, as well as the transport of COPCs, are evaluated in this RI report.

The Conda Townsite was vacated by 1987, and the town structures were largely demolished. Structures remaining in the former townsite include one former office building, some streets, some concrete foundations, and the former sewage lagoons. The former office building is currently used for storage of archived exploration drill cuttings and ore samples, as well as monitoring well sampling equipment. Reports documenting the demolition process are included in Appendix D. Asbestos-containing materials (ACMs) were identified, removed, and disposed in an ACM-approved landfill. Because phosphate ore typically contains a small amount of uranium, a survey was conducted to identify building components that had radiation levels above background concentrations. The survey concluded that the only building component containing elevated radiation levels was the refractory brick. Scrap metal was recycled and all hazardous materials associated with the calciner and mill structures were disposed in accordance with Resource Conservation and Recovery Act (RCRA) hazardous waste regulations. Non-hazardous and Bevill-exempt waste, such as concrete, sheet metal, wood, and refractory brick, were disposed on-Site, south of the Former Mill Site in the “pit dump” (Figure 2-6), which was approved by Caribou County (Appendix D) as an onsite landfill. All demolition materials are still contained, and will remain in the pit dump.

Mining-related features remaining on Site (Figure 2-6) include:

- **Open Mine Panels (pits):** Mined areas that have not been filled with overburden and/or have not been reclaimed, covering an area of approximately 460 acres.

- **ODAs:** Areas where overburden materials removed from the mine panels have been placed in piles external to open pits or backfilled into open pits.
- **Pit Lake:** An open mine panel that was not backfilled or reclaimed, that formed as a result of surface water collecting atop the low permeability Meade Peak Member of the Phosphoria Formation.
- **Former Townsite:** One building, some streets, some concrete foundations, and the former sewage lagoons remain. All other townsite buildings were removed.
- **Former Mill:** The mill was shut down in 1984 when milling operations were transferred to the Don Plant near Pocatello, Idaho, and was demolished in 2004.
- **Underground Workings and Associated Waste Rock Piles:** Workings are present under the West Limb, Middle Limb, South Woodall, and Shield Canyon areas and extend to about the 6,300 feet AMSL elevation (Figure 2-7). Surface mining excavations have removed portions of the underground workings, but most of the workings remain. The underground workings remain dry as evident by the exposed Adit #1 (see Appendix A). Waste rock piles were generated during the construction of the workings; most waste rock was incorporated into ODAs, the only remaining waste rock piles are at the Camp G and Camp H portals.
- **Old Tailings Pond:** The Old Tailings Pond is located northeast of the Former Mill Site and Townsite. It was constructed in 1969 and encompassed older tailings ponds. Use of the Old Tailings Pond ceased in 1979.
- **New Tailings Pond:** The New Tailings Pond is located west of the Old Tailings Pond. Production well GW-10-IBS (Figure 2-6) is used is as a source of water for the pond. The amount of water stored in the pond varies depending on the time of the year. Water is extracted out of the pond to flush the pipeline section between Conda and the Don Plant, and water is discharged to the pond when the pipeline section between Smoky and the Pump Station is flushed.
- **Emergency Ore Slurry Storage Area:** Two former emergency ore storage areas exist east of the Old Tailings Pond, consisting of a dammed area (approximately 1.3 acres) and a circular concrete structure about 170 feet in diameter (Figure 2-6). These structures are no longer in use, and have been replaced by an emergency storage tank located at the Pump Station.
- **Haul Roads:** Approximately 25 miles of haul and maintenance roads remain on-Site.
- **Former Production Wells:** Several former domestic- and process-water supply wells (GW-7-IT through GW-13-IS) remain on-Site (Figure 2-6). Well GW-7-IT was predominantly used as a process-water supply well. Wells GW-8-IBS and GW-10-IBS were used as both domestic- and process-water supply wells. Wells GW-11-IW and GW-12-IS were used as domestic-water supply wells.

The Panels and ODAs at Conda (Figure 2-8) can be categorized as follows:

- Woodall Mountain Panels and ODAs;
- Ibex Panel and ODA;
- West and Middle Limb Panels and ODAs;
- North Trail Panel and ODA; and
- Grace Panel and ODA.

Appendix A presents a photo summary of these Site features. The above features cover approximately 1,462 acres, with haul and maintenance roads extending over about 150 acres. Most of these features (approximately 1,192 acres) are contained within Simplot property with a small portion (approximately 270 acres) located on BLM land. Table 2-3 summarizes the acreages of bedrock outcrop and unconsolidated deposits covered by mining-related materials (i.e., overburden, tailings and waste rock).

2.5 Prior Reclamation and Actions

The Conda Mine operated for almost 50 years before regulations under the National Environmental Policy Act (NEPA) were established and published in the Federal Register in 1969. Prior to 1969, there were no regulations related to ODA reclamation, only federal recommendations (Simplot 1968). These recommendations included:

- No angle-of-repose slopes should be higher than 50 feet;
- Slopes should be broken down by terraces or benches;
- Tops should be dished to prevent excessive runoff; and
- Catchment basins should be built to prevent pollution to streams if an erosion problem exists.

These recommendations set the stage for Simplot to propose site-specific overburden disposal practices in their mine plan and submit to the US Geological Survey (USGS), Conservation Division, in accordance with the federal mining regulations of that time period. During the later years of mining and since mining ceased, Simplot has reclaimed approximately 580 acres of the 1,600 acres of disturbed lands (Figure 2-8). The primary focus of reclamation activities has been on backfilling mine panels with overburden and regrading ODAs. The volumes of overburden used to backfill various mine panels are listed on Table 2-2. Reclamation of ODAs consisted of (1) reshaping steep piles to gentler slopes (3:1 or flatter); (2) spreading topsoil over the area wherever feasible; (3) ripping the surface with a bulldozer to a depth of three feet to improve soil conditions for plant growth where topsoil application was not feasible; (4) seeding the area with a mix of grasses, alfalfa, and clover; and (5) applying inorganic fertilizers. Concern regarding selenium toxicity in livestock grazing on and near phosphate mines in the mid-1990s prompted investigations to address mining-related risks associated with historic operations. Simplot halted mining activities in 1984, with reclamation activities occurring into

1998. In 1998 Simplot halted reclamation while state and federal investigations were ongoing to determine how to address risks pertaining to selenium exposure, leaving some ODAs unreclaimed at the angle of repose (e.g., piles in the Pedro Creek headwaters area, at the Grace Panel, near the Pit Lake, and in some open pits).

Simplot performs ongoing stormwater management and erosion-control activities at the Site pursuant to the Site's Stormwater Pollution Prevention Plan. Simplot has a National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), covering stormwater discharges at Conda.[5] The Stormwater Pollution Prevention Plan has been developed to specifically implement Part 8, Sector J of the MSGP (Stormwater discharges associated with industrial activity from active and inactive Non-Metallic Mineral Mining and Dressing activities). Activities that have been performed include the removal of pooling areas atop overburden piles, maintaining ditches, and cleaning of sedimentation basins.

In 2012, under an Agency-approved Work Plan (Formation 2012a), Simplot regraded a previously unreclaimed pile in the Pedro Creek ODA to construct a Field-Scale Selenium Plant Uptake Pilot Study (also referred to as the Field-Scale Pilot Study [FSPS] [Figure 2-8]). The FSPS was designed to evaluate the effectiveness of using low-selenium-accumulating plant species and soil covers to reduce plant-selenium concentrations on ODAs at the Site. It is anticipated that the FSPS could potentially provide sufficient data to be used in evaluating alternatives in the Feasibility Study as early as 2016. For the purposes of the study, the overburden pile was graded to a 3:1 slope, covered for the most part with Dinwoody Formation derived soil (except for the uncovered plots testing direct revegetation) and revegetated with shallow rooted, low selenium accumulating grass species (Figure 2-10). In addition, stormwater controls were installed along the perimeter of the pile to contain runoff. Prior to completing the construction, the average soil-selenium concentration at the pile was 65.5 mg/kg (ranging from 5 mg/kg to 309 mg/kg). Following the completion of the construction in 2012, the average selenium concentration at the pile was 17 mg/kg (ranging from 0.62 mg/kg to 75.4 mg/kg, Table 2-4), with the concentration in the Dinwoody Formation cover soil averaging 1(ranging from 0.62 mg/kg to 1.5 mg/kg, Table 2-4). Recent information collected in 2015 (Year 3 of the study) indicate average soil-selenium concentration at the pile at 14.6 mg/kg (ranging from 1.5 mg/kg to 62.6 mg/kg, Table 2-4), with the concentration in the Dinwoody Formation cover soil averaging 1.7 (ranging from 1.5 mg/kg to 2.1 mg/kg, Table 2-4). Average selenium concentration in vegetation on the pile in 2015 was 6.2 mg/kg (ranging from 0.24 mg/kg to 41.5 mg/kg, Table 2-4), with the concentration in the grasses averaging 4.3 (ranging from 0.45 mg/kg to 14.2 mg/kg, Table 2-4).

[5] NPDES permit (IDR05C311) effective for the period August 2012 to June 2020.

In the spring of 2013, under a Settlement Agreement/Consent Order (SA/CO) (IDEQ/EPA/BLM 2012), Simplot implemented a Non-Time-Critical Removal Action (NTCRA) at the angle-of-repose pile in the Pedro Creek ODA. The NTCRA was designed to stabilize the pile from an erosion and stability standpoint, as well as reduce releases and exposure of human and ecological receptors to selenium and other COPCs. The regraded pile was covered with clean Dinwoody Formation derived soil and revegetated with shallow rooted, low selenium accumulating grass species (Figure 2-10). Recent information collected in 2015, indicate that the average selenium concentration in surface soils at the pile was 0.4 mg/kg (ranging from 0.27 mg/kg to 0.53 mg/kg, Table 2-4). Average selenium concentration in vegetation on the NTCRA pile was 30 mg/kg (ranging from 1.4 mg/kg to 195 mg/kg [a selenium accumulator], Table 2-4), with the concentration in the grasses averaging 3.3 (ranging from 1.8 mg/kg to 4.5 mg/kg, Table 2-4).

2.6 Previous Studies on Phosphate-Mining Environmental Effects

Various relevant studies on the local and regional effects of phosphate mining on the environment have been conducted in the area. This section describes and summarizes the findings of previous environmental studies that are relevant to the RI.

2.6.1 Pre-RI Studies

As previously mentioned, from 2003 to 2007, in anticipation of the AOC/Scope of Work (SOW) for the Conda Mine RI/FS, Simplot voluntarily worked with the Agencies involved in the Smoky Canyon Mine SI and EE/CA to collect site characterization information at the Conda Mine. Sample collection and analysis were performed according to field protocols and laboratory methods documented in four separate Sampling and Analysis Plans (SAPs) based on the Agency-approved Smoky Canyon Mine SI Field Sampling Plan (MFG 2003a) and the Quality Assurance Project Plan (QAPP) (MFG 2003b). These four SAPs include:

- Conda Mine Spring 2003 Surface Water Quality Sampling and Analysis Plan (MFG 2003c);
- Conda Mine Soil and Vegetation Sampling and Analysis Plan (MFG 2003d);
- Conda Mine Spring 2004 Surface Water, Groundwater, Soil and Vegetation Sampling Plan (MFG 2004); and
- Conda/Woodall Mountain Mine Surface Water, Groundwater, Soil and Vegetation Sampling and Analysis Plan (NewFields 2007).

2.6.2 Other Relevant Studies

In addition to studies performed by Simplot at the Conda Mine, some other studies in the phosphate resource area and data sources providing relevant information include:

- Smoky Canyon Mine SI, EE/CA, and RI (NewFields 2005, 2006; Formation 2014c)[6];
- Baseline studies on overburden geochemistry, soil, water, fisheries, aquatic resources, vegetation and wildlife to support work at Smoky Canyon Mine (JBR Environmental Consultants, Inc. [JBR] 2001; Maxim Technologies, Inc. [Maxim] 2000a, 2000b, 2000c, 2000d, 2001a, 2001b, 2002a, 2002b, 2003, 2004a, 2004b, 2004c, 2004d, 2004e, 2004f, 2005a, 2005b, 2006);
- IDEQ Area-Wide Investigation studies to support the area-wide baseline risk assessments and total maximum daily load (TMDL) monitoring activities (IDEQ 2005, 2006, 2007; Tetra-Tech EM, Inc. [TTEMI] 2002, 2004);
- Agency for Toxic Substances and Disease Registry (ATSDR) health assessment (ATSDR 2006);
- USGS regional characterization studies (geology and ore reserves) (Mansfield 1927; Lee 2000; Hein et al. 2002);
- Idaho Mining Association (IMA) selenium subcommittee studies (Montgomery Watson 1998a, 1998b, 1999, 2000, 2001; MWH 2002a, 2002b);
- Mine Safety and Health Administration air particulates and gamma surveys (Dames and Moore 1979);
- USGS studies on selenium in water, sediment, and aquatic biota in southeastern Idaho watersheds (USGS 2002, 2003; Hamilton and Buhl 2004, 2005);
- Studies to support the Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS) for the proposed Blackfoot Bridge Mine (BLM 2009a, BLM 2011) and the Site Investigation for the Ballard, Henry, and Enoch Valley Mines (MWH 2004, 2005, 2009);
- University of Idaho research studies (Ralston et al. 1977; Winter 1980; Munkers 2000; Fessler 2003); bird egg tissue (Ratti et al. 2002 and 2006);
- Select IDEQ, Idaho Department of Fish and Game (IDFG), and Greater Yellowstone Coalition (GYC) data from database maintained by IDFG and distributed by IDEQ at the Idaho Fish Sampling Protocol Technical Team annual meeting, March 2011 (IDEQ 2011a);

[6] The Smoky Canyon Mine studies are relevant because the Smoky Canyon Mine was the first site to be studied under the Area-Wide Memorandum of Understanding (MOU).

- USFWS reconnaissance survey of selenium in water and avian eggs at selected sites within the phosphate mining region near Soda Springs (Skorupa et al. 2002); and
- Effects of Selenium on Development, Survival, and Accumulation in the Honeybee (Hladun et al. 2013).

2.6.3 Summary of Previous Study Findings

The above-mentioned studies concluded that ODAs associated with phosphate mine sites in southeast Idaho are the primary source of COPCs to the environment. Selenium and other metals/metalloids can exist at elevated concentrations in and downgradient of ODAs, posing potential risks to human health and the environment. Livestock deaths in the vicinity of phosphate mines have been attributed to selenosis; therefore, the following summary of findings focuses on selenium.

Sources of Selenium and other COPCs – The middle waste shale and mudstones of the Meade Peak Member, excavated to access the underlying phosphate ore during mining, are the predominant source of selenium and other metals/metalloids. The sulfides and organic matter in the Meade Peak Member shale/mudstones naturally contain the metals and metalloids. Selenium occurs predominantly as a divalent anion (selenide, Se^{2-}) in the shale and is a substitute for sulfur (S^{2-}) in the metal-sulfide minerals pyrite (FeS_2) and sphalerite (ZnS). Metals such as arsenic, cadmium, copper, chromium, molybdenum, nickel, vanadium, and zinc may also be present in trace amounts in sulfides where they typically substitute for iron or other metals (Herring and Grauch 2004; Desborough and Poole 1983).

Perkins and Foster (2004) report that the largest fraction of selenium is associated with sulfide minerals in unweathered shales. However, in weathered shales, selenium is generally associated with weathering products such as iron oxyhydroxides in organic matter. Selenium has also been found in sulfate salts (Grauch et al. 2004), such as gypsum, that form by wetting and drying of weathered shale.

In addition to the above-mentioned sulfide minerals, the Meade Peak Member shales/mudstones also contain various other minerals, such as quartz, muscovite, feldspar, carbonates calcite (calcium carbonate), and dolomite (calcium magnesium carbonate) (Knudsen et al. 2001). Calcium carbonate ($CaCO_3$) and dolomite ($CaMg(CO_3)^2$) minerals provide buffering against acid generation during weathering, and generate bicarbonate ions (Herring and Grauch 2004). Buddingtonite, which is a source of nitrogen in the form of ammonium feldspar, also exists in the Meade Peak (Herring and Grauch 2004). Phosphorite minerals, such as carbonate fluorapatite ($Ca_5(OH, Cl, F)(CO_3, PO_4)_3$), are also present in the mudstone unit but in lower amounts than in the Meade Peak ore zones.

The phosphate ore body generally contains lower concentrations of the metals found in the surrounding waste shale. This is because past weathering cycles (i.e., alteration) of the ore body have strongly reduced their carbonate, sulfide, and organic matter content (Knudsen and Gunter 2004). In other words, past alteration of minerals in the Meade Peak Member phosphate ore zones has already removed carbonates and mobilized the metals from those materials.

The phosphate ore may contain small amounts of naturally occurring uranium, as well as uranium decay products. The uranium is mainly associated with the phosphate minerals (Herring and Grauch 2004). A Conda phosphate ore sample analyzed for radionuclide levels in 1975 indicated uranium concentrations present at 16 ± 1 Picocuries per gram (pCi/g) (Dames and Moore 1979). Uranium concentrations in phosphate ores found in the U.S. range from 20 to 300 parts per million (ppm) (or 7 to 100 pCi/g) (USEPA 2008). Radionuclides can become concentrated in the mineral processing wastes. As described above, the Conda Mine did not process the phosphate ore into fertilizer. However, the ore was concentrated at Conda and sent to Anaconda's fertilizer facility in Montana in the early years and to Simplot's Don Plant in the later years for processing.

The Mine Safety and Health Administration (MSHA) conducted surveys at the Conda and Dry Valley mines and at the Monsanto Ore Handling Facility in 1978 (Dames and Moore 1979). Air particulates were collected using a low-volume air sampler, and gamma measurements were taken. No detectable radioactive particulates were found. The highest gamma reading was 2.0 micro Roentgen per hour (µR/hr), which was well within average annual levels for Soda Springs (13 µR/hr) (USEPA 1995).

Release and Transport Mechanisms of Selenium – Mining activities increased the surface area of the Meade Peak Member shales/mudstones (in ODAs or open pits) exposed to air, water, and chemical weathering (primarily oxidation). This exposure and subsequent weathering of the metal-sulfide minerals can result in releases of selenium and other metals/metalloids associated with the minerals. Mining activities increased the surface area of the Meade Peak Member shales/mudstones. Physical weathering by wind and water can break the exposed Meade Peak Member waste shales/mudstones (in ODAs or open pits) into smaller particles, thereby increasing the surface area available for further weathering and transport. During spring snowmelt and storm events, runoff can transport waste shale/mudstone particles into adjacent soils and drainages. Precipitation percolating through the weathered material can carry sulfides, releasing these constituents directly into groundwater and surface water. Once in soluble form, direct plant uptake of selenium can occur.

Regional studies (Montgomery Watson 1999, 2001; MWH 2002a, 2002b; Bond 2000; Herring et al. 2000; Maxim 2000c, 2001b; Munkers 2000) concluded that:

- Runoff/infiltration of water through chert and shale/mudstone overburden does not generate acid rock drainage, but mainly results in alkaline drainage due to the presence of cherty limestone of the Rex Formation, as well as other interbedded limestone;
- Metals concentrations are highest in the hanging wall phosphatic shale and middle waste shale lithologies of the Meade Peak Member; and
- Meade Peak Member leach studies yielded soluble concentrations of cadmium, chromium, and selenium exceeding primary groundwater standards.

Selenium Geochemistry – Selenium is found in the following four oxidation states within natural systems: selenide (Se^{2-}), elemental selenium (Se^{0}), selenite (Se^{4+}), and selenate (Se^{6+}). Selenate (Se^{6+}) is the primary state of selenium found in water draining from overburden material. The behavior of oxidized selenium in aqueous environments is largely dependent on pH, oxidation-reduction potential, adsorption to oxide and other mineral surfaces, and microbial activity. Removal of oxidized selenium from solution primarily occurs by either adsorption to solids or reduction to elemental selenium. Selenide may exist as aqueous species including H_2Se (aq), or in the gas phase as H_2Se (g). Aqueous species of selenide are generally only found under reducing conditions.

Reduction of selenium can occur chemically as a result of reducing environments and biologically through microbially-mediated processes. Selenite (Se^{4+}) reductions may occur under mildly reducing conditions, whereas selenate (Se^{6+}) reductions require stronger reducing conditions (Adams and Pickett 1998). Microbially-mediated selenite and selenate reduction is a dissimilative process that occurs under anaerobic conditions (Munkers 2000). The reduction of selenium oxyanions (selenite and selenate) by chemical and biological pathways often results in relatively insoluble elemental selenium and selenide compounds. Elemental selenium is mostly found in crystalline and amorphous polymorphs.

Selenium may also be removed from solution through biologically mediated volatilization pathways. The biomethylation of selenium oxyanions occurs as the oxyanions are reduced and transformed into gaseous dimethyl selenide. Dimethyl selenide is then volatilized to the overlying air column, thereby removing selenium from the aqueous phase (Adams and Pickett 1998).

Selenium Risks – Studies performed as part of the Area-Wide Investigations have identified that elevated selenium and other COPC concentrations exist in the media in and around the phosphate mines in southeast Idaho. The Area-Wide Investigations indicated that there is a low probability of significant human health effects or population-level effects for ecological receptors in the southeast Idaho phosphate resource area based on current conditions. However, there are potentially-significant risks to individuals and/or subpopulations of ecological receptors in localized mining-affected areas. Risks from selenium and other COPCs at the Site are evaluated in the site-specific risk assessments.

2.7 Summary of Studies at Neighboring Facilities

Studies at facilities neighboring the Conda Mine and data sources providing relevant information include:

- Site Assessment studies at the Nu-West Industries Conda Phosphate Operations; and
- Studies to support the Blackfoot Bridge Mine (BLM 2009a, BLM 2011, Whetstone 2009b, 2009c, 2010).

Conditions Along the Western Boundary with Neighboring Facility - Historic Conda Mine records indicate that in 1966, groundwater at production well GW-8-IBS exceeded State Health Department standards for fluoride (1.7 mg/L) of that time. As a result, well was no longer used as a domestic-water source (Appendix B). The 1970 Site records (Appendix B) indicate that groundwater in wells GW-8-IBS and GW-10-IBS was becoming contaminated with both fluoride and nitrate. In September 1972 Simplot stopped using GW-10-IBS as a domestic-water supply well because concentrations of fluoride and nitrate continued to exceed the State Health Department standards (1.7 and 45 mg/L, respectively) of that time. Current groundwater quality data obtained from the Site Assessment at the neighboring Nu-West Industries Conda Phosphate Operations indicate that nitrate concentrations continue to exceed the MCL (10 mg/l). Figure 2-11 presents the average selenium and nitrate concentrations in groundwater and New Tailings Pond in the area along the boundary between Simplot and Nu-West operations. The data from former Simplot production wells GW-7-IT, GW-8-IBS and GW-10-IBS and data obtained from Nu-West Site Assessment indicate that concentrations of selenium in wells west of the Conda Mine boundary are below the MCL of 0.05 mg/L, while groundwater on Simplot's property exceed the MCL for selenium (Figure 2-11). Concentrations of nitrate in wells west of the Conda Mine boundary exceed the MCL (10 mg/l), while in the Old Conda Townsite and tailings pond areas concentrations are below the MCL (Figure 2-11). Nitrate concentrations in wells in the Agrium Plant area are generally higher than concentrations in Conda wells. Although groundwater from GW-10-IBS is currently pumped into the New Tailings Pond, for use as make-up water in the Conda Pump Station operations, average nitrate concentrations in the pond remain below the MCL (Figure 2-11). The data indicate that the nitrate plume intercepted by wells GW-7-IT, GW-8-IBS and GW-10-IBS and the Nu-West monitoring wells north and west of the western half of the New Tailings Pond (Figure 2-11) likely originates in the offsite industrial facility. Therefore, the determination of the nature and extent of this nitrate plume is not an objective of the Conda RI, and no further attempt was made to define the plume boundaries on the Conda Mine property.

Conditions Along the Northern Boundary with Neighboring Facility – As previously described, north of Conda is where the Blackfoot Bridge Mine is situated. The southern extent of the Blackfoot Bridge Mine lease boundary shares a border with leases assigned to the Conda Mine. The project boundary for the Blackfoot Bridge Mine extends onto the Conda Mine boundary, onto both Simplot-owned and BLM-managed land (Figure 1-1). The Blackfoot Bridge Mine FEIS indicates that only operations pertaining to water management and environmental

control could occur on lands within the area where the two mine boundaries overlap. Water resources were monitored on a quarterly basis from 2005 until 2007 during the initial baseline characterization study for the Blackfoot Bridge Mine EIS, and on a semi-annual basis since the end of the baseline study in 2007. Figure 2-11 presents average total selenium concentrations in groundwater collected as part of these investigations. Total selenium concentrations in alluvial groundwater were below the MCL (0.05 mg/l) (Figure 2-11). Alluvial groundwater does contain concentrations of aluminum, iron, and manganese exceeding groundwater quality standards but are representative of baseline conditions and reflect discharge of groundwater from the regional system along the Aspen Range Fault (BLM 2011). Total selenium concentrations in groundwater from the Dinwoody Formation and the Rex Chert are below the MCL (Figure 2-11). Total selenium concentrations in groundwater in the Rex Chert are generally below the MCL except for in the initial sampling round at MW-2R. Total selenium concentrations in Metals concentrations in groundwater from the Wells Formation generally met water quality standards with the exception of iron and manganese, which exceeded secondary groundwater quality standards for both total and dissolved forms.

2.8 Area Land Use

The Site is bordered to the east by privately owned agricultural properties; to the north by Federal and State land; to the west by private land; and to the south by Federal and private land (Figure 2-1).

2.8.1 Current Land Use

The predominant current land uses in the area are associated with natural resource development, agricultural production, livestock grazing, and recreational/cultural uses. Residential use in the vicinity of the Site is limited in occurrence compared to the other land uses.

Mining and Minerals – Phosphate mining, while not a dominant land use in terms of acreage, is economically important for the area. A significant amount of un-mined Phosphoria Formation remains at the Conda Mine, and the area surrounding the Site continues to be used and developed for mining. Other phosphate mines in the UBR subwatershed, upgradient from Conda along the UBR, include the Blackfoot Bridge, Ballard, Wooley Valley, Dry Valley, Enoch Valley, North Maybe, South Maybe, Rasmussen, and Lanes Creek mines (Figure 1-1). In addition, the Agrium Conda Phosphate Operations facility is adjacent to the west boundary of the Site. The Agrium facility processes phosphate ore to produce a range of phosphate-based fertilizers. Investigation of environmental issues at the facility (including groundwater and soil contamination) is ongoing. Figure 2-1 depicts the areas currently used for natural resource development, as well as areas with potential for future development of natural resources.

Agricultural and Livestock – Crop production (wheat and hay) and sheep and cattle ranching are the dominant agricultural and livestock activities in the Site vicinity. Private and public lands within and around the Conda Mine have historically been used for livestock grazing. Sheep and cattle are the primary livestock that are grazed at the Site; however, livestock grazing is currently restricted within the Mine Area (see below). Horses are also pastured in the Non-Mine Area (primarily to the east).

Seven BLM grazing allotments fall within the Site: Conda Mine, North Sulphur and Trail, Trail Canyon-1, Trail Canyon-2, Woodall Mountain, Woodall Ranch, and Woodall Springs (Figure 2-12) (BLM 2010, 2012). The BLM does not prescribe grazing methods for the ranchers using the allotments. The ranchers are required to follow the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (BLM 1997). The allotment number, class of livestock, season of use, animal unit month (AUM),[7] and acreage within Mine Area and Non-Mine Area are reported for each allotment on Table 2-5. Grazing within these allotments consists of sheep and cattle. The Conda Mine allotment is not currently permitted or leased. Grazing in the Trail Canyon-1, Trail Canyon-2, and Woodall Mountain allotments has been partially restricted by the BLM Pocatello Field Office (PFO) due to elevated selenium concentrations in water and plants (BLM 2010). Sheep grazing is restricted on approximately 71 percent of the Woodall Mountain 1, 40 percent of Trail Canyon-1, and 13 percent of Trail Canyon-2 grazing allotments, based on calculations of acres of public land affected by selenium in each allotment (BLM 2010). Action alternatives outlined in the BLM PFO Proposed Resource Management Plan (RMP) and FEIS (BLM 2010) specify that closures would remain in place until selenium can be reduced to acceptable levels through containment or capping. BLM's ultimate goal is to return the BLM-managed public land to its multi-use status.

A small area of USFS land within the Site boundaries (Non-Mine Area), 98 acres in the southeastern corner of the Site (Figure 2-1), is part of the USFS North Sulphur (20220) grazing allotment (Figure 2-12). This USFS grazing allotment is currently permitted to the seasonal rancher at the Site, as part of a group of allotments referred to as: "North Sulphur, Johnson Creek, Henry Olsen (includes Sheep Creek), Maybe Canyon, and Slug Creek Sheep Allotments" (USFS 2011a). Permitted grazing in the North Sulphur allotment consists of up to 1,050 sheep (ewe/lambs) from June 16 to September 5.

There are no year-round or seasonal residents or ranchers living within the Mined Area of the Site. One operating seasonal ranch is located within the Non-Mined Area of the Site. Ranching occurs five months on the Site from late May through late October, and ranchers reside elsewhere for the remainder of the year. The rancher who used to seasonally run operations was interviewed to obtain basic information about livestock grazing at the Site. The rancher conveyed that they only grazed sheep and cattle, and that they would also use horses on the

[7] Grazing use by livestock is measured in terms of AUMs. One AUM is equal to the amount of forage used to support one cow and one calf for one month (approximately 800 pounds of forage).

ranch. The livestock grazed on private land as well as BLM and USFS allotments. Permission to graze on these allotments was obtained through application. Horses were also used during the movement of sheep and cattle and therefore grazed on the Site.

Seasonal grazing operations by the rancher include approximately 1,000 ewes and lambs grazing on about 50 acres per day. The rancher noted that grass is the preferred vegetation for the grazing livestock; however published literature[8] indicates that cattle and sheep do not have the same grazing patterns with sheep preferentially grazing forbs over grasses. Springs, ponds, and creeks serve as a water source for the livestock. Salt is administered to the livestock as a dietary supplement and the rancher explained that selenium is no longer added to the salt.

The livestock are raised for meat (cattle and sheep) and wool (sheep). The sheared wool is sent directly to a brokerage in Salt Lake City and is distributed to Russia or Eastern Bloc countries. The animals are sent to Colorado for slaughtering and the meat is then distributed throughout the United States. The status of future ranching, beginning in May 2016, is uncertain, since the Jouglard Sheep Company may no longer be ranching in the area.

Recreational – Recreational use of public lands is also considered economically important in the region and includes hunting, fishing, camping, hiking, skiing, and snowmobiling, among others. As most of the Site property is private, hunting and other recreation uses on those lands is primarily by landowners or by invitation only. Although hunters must be accompanied by a Simplot escort while within the Mine Area, BLM-managed land outside of the Mine Area within the Non-Mine Area is accessible for hunting by the general public.

Cultural –The relationship between the U.S. government and American Indian tribes is based on legal agreements between these sovereign nations. The 1867 Executive Order provided for the establishment of the Fort Hall Indian Reservation, and the 1868 Fort Bridger Treaty affirmed the reservation as a homeland for the Shoshone-Bannock Tribes. Subsequently, a series of land cessions occurred, and the present-day reservation boundaries were established in 1900. Even though the Shoshone-Bannock Tribes relinquished ownership of these lands involuntarily, the 1868 Fort Bridger Treaty reserved off-reservation treaty rights to tribal members, which include gathering, hunting, fishing, and practicing tribal cultural activities on unoccupied public lands (BLM 2010), including those in and around the Site.

Residential – The closest population center to the Conda Mine is Soda Springs, Idaho, approximately 8 miles to the southwest. The town of Soda Springs has a population of approximately 3,058 (U.S. Census Bureau 2010). Residents do not occupy the Mine Area. No year-round residents live within the Non-Mine Area; residential use within the Non-Mine Area is typically seasonal. Based on property ownership, Site conditions, and regional knowledge,

[8] www.fws.gov/invasives/staffTrainingModule/methods/grazing/practice.html
www.pubs.ext.vt.edu/410/410-366/410-366.html

future residential land use is expected to be similar to current use. Future development of residences on areas previously mined is unlikely because of the current land ownership, the presence of mineable ore, slope and overburden piles that are unsuitable for building permanent structures, the lack of conveniently-available potable water, and population growth trends (i.e., lack of increased development of rural areas outside of Soda Springs).

A survey of domestic wells and springs potentially utilized for drinking water within a 5-mile radius of Conda was completed through a search of well permit records. Figure 2-13 depicts private parcels in the vicinity of the Site, with domestic wells identified where present. Use of groundwater for domestic water supply occurs at the Jouglard ranch, where a spring is used for water, and at the Larson property, where a well is used at the residence. The potential domestic water supply dataset includes data from 20 springs and 22 groundwater wells (Formation, 2012e). Springs and groundwater wells are included based on their existing use as water supply sources or their potential to be a domestic water supply source. Only wells completed and producing water from the Salt Lake, Dinwoody, Thaynes, and Wells Formation are capable of producing an adequate volume of water to support domestic water supply use. Only springs identified as producing adequate volume and that are active during most of the year are included as potential domestic water supply sources.

2.8.2 Potential Future Land Use

Consistent with USEPA guidance on risk assessment (USEPA 1989), current land use and changing land-use patterns were considered in evaluating whether future use of the area would differ from existing uses. In considering land use, CERCLA exposure assessments most often classify land into one of three categories: (1) residential, (2) commercial/industrial, and (3) recreational.

As previously described, based on property ownership, Site conditions, and regional knowledge, future land use is expected to be similar to current use, which includes industrial, seasonal ranching, recreational, agricultural, and grazing uses. A significant amount of un-mined phosphate ore remains at the Site, and the area surrounding the Site continues to be used and developed for mining.

The probability that the Conda Mine will support residential use in the future is exceedingly small, because of the current land ownership, the presence of mineable ore, and lack of population growth[9] in the Soda Springs area. Simplot controls private lands where most of the mining occurred. Eighty percent of the mine panel acreage is on Simplot property. The

[9] The population in Soda Springs has decreased from approximately 3,381 to 3,058 between 2000 and 2010 (US Census Bureau 2010).

remaining twenty percent of the mine panel acreage is on BLM lands, which will remain unavailable for residential use.

3.0 REMEDIAL INVESTIGATION ACTIVITIES

This section summarizes the activities performed to support the evaluation of mining-related effects at the Site. Data and information obtained from these activities are presented in Section 4.

3.1 Investigation Planning

As previously discussed in Section 2.6.1, a substantial amount of data was collected from the Site prior to the RI. Following the signing of the AOC, the Work Plan (NewFields 2008a) and SAP (NewFields 2008b) documents were developed to serve as guides for subsequent RI-related activities. As part of the development of these planning documents, existing data were compiled, evaluated for usability,[10] and used to develop a conceptual Site model. The data and the conceptual model were used to preliminarily assess the nature and extent of mining-related effects and guide the identification of RI data needs. A detailed discussion of data quality and usability is provided in Section 4.

In addition to the Work Plan (NewFields 2008a) and SAP (NewFields 2008b), the RI activities were guided by the following planning documents:

- Conda/Woodall Mountain Mine Interim RI/FS SAP for Spring 2008 Monitoring (NewFields 2008c);
- Final Addendum to the Conda/Woodall Mountain RI/FS SAP for Small Mammal and Terrestrial Invertebrate Sampling (NewFields 2009a);
- Geotechnical Sampling and Analysis Work Plan for the Pedro Creek Overburden Disposal Area (Formation 2010a); and
- Final Conda/Woodall Mountain Mine West Side Groundwater Supplemental Investigation Work Plan (Formation 2014a).

Data needs were identified and documented in the following data analysis reports:

- Final Conda/Woodall Mountain Mine 2008 Data Summary Report (NewFields 2009b);
- Final Conda/Woodall Mountain Mine 2009 Data Summary Report (Formation 2010b);
- Final Conda/Woodall Mountain Mine RI/FS Groundwater Data Gap Analysis (Formation 2011a);

[10] Based on EPA's Guidance on Data Usability in Risk Assessments (USEPA 1992).

- Draft Final Conda/Woodall Mountain Mine RI/FS East Side of Woodall Mountain Groundwater Monitoring Network Evaluation (Formation 2010c);
- Draft Final Conda/Woodall Mountain Mine RI Report (Formation 2014b); and
- Draft and Final Conda/Woodall Mountain Mine West Side Groundwater Investigation Data Summary Reports (Formation 2015a and 2016).

The data and information obtained during each investigative event were evaluated to identify data gaps and, in collaboration with the Agencies, it was determined whether additional and/or modified sampling and analyses were necessary for subsequent investigative activities. Analytical methods and detection limits used for sample analyses were established based on conservative risk-based benchmarks and Applicable or Relevant and Appropriate Requirements (ARARs), as detailed in Section 4.

In addition to the investigative activities identified to further assess Site conditions, two pilot studies were implemented to evaluate potential remedy alternatives in the FS. One pilot study was implemented to evaluate a surface water treatment technology, and the other was implemented to evaluate soil-cover options. Findings from these pilot studies will be described in more detail in the future FS Report.

The pilot-study activities were guided by the following planning documents:

- Biological Selenium Removal Treatment System Pilot Study Work Plan (NewFields 2009c);
- Biological Selenium Removal Treatment System Pilot Study Sampling and Analysis Plan (NewFields 2009d); and
- Field-Scale Plant Uptake Pilot Study Work Plan (Formation 2012a).

3.2 Terrestrial Investigations

Terrestrial investigations consisted of surveying existing mine features, sampling soil at multiple depths, conducting geological investigations, and monitoring vegetation and other terrestrial biota. Soil, vegetation, and other terrestrial biota were sampled at and near areas with RMM to evaluate the nature and extent of mining-related effects. In addition, soil and biota were also sampled in riparian areas within drainages downgradient of areas with RMM.

3.2.1 Mine-Area Features Survey

Mining-related features within the Mine Area were inspected (to the extent possible)[11] and delineated. Available historical mining records (Appendices A-D) were assembled and used to support the survey. Mining-related features were visually inspected and conditions documented. The purpose of these activities was to identify areas of significant erosion, areas of subsidence or pooling, the condition of revegetated areas (seeded or native growth), and conditions of run-on and run-off controls.

3.2.2 Soil Investigation

Conditions in soils were evaluated using data from samples collected at a total of 321 locations across the Site (Table 3-1 and Figures 3-1, 3-2, and 3-3), per procedures documented in the RI SAPs (NewFields 2008b, 2008c, 2009a, Formation 2010a), the FSPS Work Plan (Formation 2012g), the NTCRA Design and Implementation Plan (D&IP) (Formation 2013c); and the Pedro Creek Sub-Basin Post-Removal Site Control Plan (PRSC Plan) (Formation 2015b).

Per the requirements of the RI SAPs, soil samples were:

- Collected as surface (0-2 inches) and subsurface (2-12 inches) samples;
- Collected as composites of at least three sub-samples from within a 50-foot by 50-foot area;[12]
- Collected from sides of the sampling excavations, using disposable plastic scoops or decontaminated stainless-steel trowels;
- Transferred into sampling bags (e.g., Zipper bags or Whirl-Pak® bags) and then mixed by manually manipulating the materials within the sealed sample bags; and
- Immediately labeled, double-bagged, and stored in chilled coolers for shipment to the laboratory for analysis.

Deviations from the RI SAPs include:

- Subsurface soil samples at depths of 12 to 36 inches in the Former Townsite area (Figure 3-2). These samples were collected with the aid of a backhoe. The backhoe was used to dig a large hole and samples were collected by scraping the soil from the walls at each of the specified depths.

[11] Underground workings were surveyed near the portals only.

[12] For haul road sampling, subsurface samples were collected from 25 locations at approximately 1,500-foot intervals along the down slope shoulder. Samples were collected to evaluate whether the roads contain seleniferous materials and whether they are additional sources of COPC at the Site. Roads traversing ODAs were not sampled, since they form part of the ODAs.

- Pedro Creek overbank deposit samples (station names starting with "PCO-"). These samples were collected from a depth of 0 to 4 inches (Figure 3-3).

Per the requirements of the FSPS Work Plan, soil samples were:

- Collected and composited from overburden material, salvaged topsoil, Dinwoody Formation and Rex Chert borrow areas prior to the placement of cover materials in 2012;
- Co-located with vegetation from each study plot in 2013;
- Excavated using a decontaminated pickaxe or shovel and a disposable plastic trowel to collect the sample;
- Composited and homogenized in a clean 2.5 gallon plastic bag, and transferred to a labeled clean bag (e.g., Zipper bags or Whirl-Pak® bags); and
- Double-bagged and stored in coolers on ice for shipment to the laboratory.

Deviations from the FSPS Work Plan include:

- Excavating soils predominantly from the active (visible) root zone, instead of always to 12 inches.
- Excavating subsampling holes in overburden plots down to refusal depth.

Per the requirements of the NTCRA D&IP, soil samples were collected from Dinwoody Formation borrow-area soils prior to placement as cover material, with no deviations.

Per the requirements of the PRSC Work Plan, soil samples were collected and composited from 5 Decision Units (DUs) (Figures 3-4 and 3-5) in accordance with the Interstate Technology and Regulatory Council (ITRC) Incremental Sampling Methodology (ISM), with no deviations.

3.2.3 Ecological Investigation

Terrestrial biota monitoring at the Site included the collection of vegetation, invertebrate tissue, and small-mammal tissue samples.

3.2.3.1 Vegetation

Conditions in vegetation were evaluated at a total of 196 locations across the Site (Table 3-1 and Figures 3-4 and 3-5), per procedures documented in the RI SAPs (NewFields 2008b, 2008c, and 2009a), the FSPS Work Plan (Formation 2012g), and the Pedro Creek Sub-Basin PRSC Plan (Formation 2015b). Of the 196 vegetation sample locations, 188 were co-located with soil sample locations.

As part of the RI vegetation sampling, areas measuring approximately 100-feet by 100-feet were established at each sampling location. Prior to collecting vegetation tissue samples, qualitative and/or quantitative community information was documented for the sampling area. Photographs were taken from the center point of each sampling area to document vegetation cover, and general habitat type and species present in the sampling area were recorded in field notebooks and/or on field data forms.

General forage composite samples, as well as additional composite samples of browse, grass, and single-species samples were collected. General forage vegetation samples were collected in either of two ways: (1) above-ground vegetation subsamples were collected from a 30-cm by 30-cm section of the five 50-cm by 100-cm quadrats set up within the sampling area to describe vegetation community; or (2) vegetation was collected from throughout the sampling area (a minimum of 5 sub-samples). Browse composite samples, grass composite samples, and single-species samples were collected using the latter method.

Herbaceous plants were cut to approximately one inch above the ground. If woody species were present, then the current year's growth was collected rather than all aboveground material. The sub-samples were then combined and homogenized prior to analysis to represent the average vegetation conditions within the sampling area. The approximate percentage of each species in composite samples was recorded.

All vegetation samples were submitted to the laboratory as unwashed samples. Samples were either lightly washed of adhering particles using distilled and de-ionized (DI) water by the laboratory prior to preparation for analysis or analyzed on an "as-received" basis (i.e., unwashed), as required for each sampling event. For all vegetation samples, each sample was weighed at the laboratory and then air-dried and reweighed before homogenization for analysis.

Vegetation samples collected in close proximity to and downgradient of an unreclaimed overburden pile in the Pedro Creek ODA were also used to evaluate potential dust transport. In particular, 18 browse composite samples (and two forage composite samples collected inadvertently) were collected from the 9 dust transect sampling locations (NT2 and NT5 transects). These samples were specifically collected from the side of the tree or shrub individuals that were facing the ODA. Half of the samples were submitted to be rinsed prior to laboratory analysis and the other half of the samples were split from the parent samples and submitted to be analyzed on an "as-received" basis (i.e., unwashed). The purpose of this exercise was to compare results between paired samples to determine the amount of potential dust deposition. All browse composite samples were collected as mixed-species samples by clipping the current year's growth from at least five different individuals. The sub-samples were thoroughly mixed to produce a single composite sample, and the approximate percentage of each species in the sample was recorded.

Vegetation samples at the FSPS were collected from a regularly-spaced grid yielding 36 intersection points using an adaptation of the Step Point Method, as outlined by USFS and BLM (1999). Additionally vegetation tissue composite samples were also collected from each plot (if present) including: one composite sample of the dominant grass species, one composite sample of the dominant forb species, and one composite sample of alfalfa. Subsamples of dominant grass and forbs were collected as close to each of the 36 subsample locations as possible, but were also collected throughout the plot where present. Prior to collecting vegetation tissue samples, qualitative and/or quantitative community information was documented for the sampling area.

Deviations from the standard procedures outlined in the FSPS Final Work Plan (Formation 2012g) for vegetation tissue sampling are as follows:

- Alfalfa present was sampled, although not required per the Work Plan.
- Forb and alfalfa plants were collected from the 36 point grid when possible, but the material was also collected from throughout the plot, where they were present.
- Scissors used for collecting vegetation samples were decontaminated between test plots. They were not necessarily decontaminated between each type of vegetation sample (i.e., grass, alfalfa, and forb) within the test plot, since these samples were often collected concurrently.

The PRSC vegetation samples were collected from 5 DUs (Figure 3-4 and 3-5). One composite vegetation sample was collected within each of the five DUs, with the increments (sub-samples) collected from randomly established grid points within each DU (Formation 2015b).

3.2.3.2 Insect and Small Mammal Tissue

Terrestrial invertebrate tissue samples were collected from 28 locations, and small mammal tissue samples were collected from 37 locations (Table 3-1 and Figure 3-6). At 28 of the locations, terrestrial invertebrate and small mammal samples were co-located with soil and vegetation samples.

Terrestrial invertebrates were collected by sweep-netting throughout the 100-foot by 100-foot sampling area established for collection of other terrestrial media. Sweeping was extended beyond the established sampling area up to a distance of approximately 10 feet when the desired quantity of tissue (approximately 5 grams) was unavailable. Following collection, samples were immediately bagged and stored on ice. Samples were then shipped to Formation Environmental in Boulder Colorado, where individual invertebrates were identified to the order level prior to shipment to the laboratory for analysis.

Small mammals were collected using Sherman live traps throughout the entire sampling area in locations most likely to provide habitat for small mammals. Each trap was baited with a mixture of rolled oats and peanut butter. Traps were checked each morning and all captured animals were identified to the species level, weighed, and their sex identified. When possible, adult animals were selected for sampling over juveniles. The small mammals selected for sampling were euthanized by placing the animal in a plastic bag and filling the bag with carbon dioxide from a small pressurized canister. The sample bags were then labeled, and all sample bags from a particular location were placed into a single large bag, sealed, and frozen with dry ice for shipment to the laboratory. There were no substantive deviations from the trapping protocol that would have an effect on the results of the small mammal sampling effort.

3.3 Aquatic Investigations

Aquatic investigations consisted of surface water sampling and flow measurements, sediment sampling, and aquatic biota (vegetation, benthic macroinvertebrates, and fish) sampling. In addition, benthic community, fish populations, and physical aquatic habitat were evaluated for a subset of locations. The foci of these aquatic investigations were the sub-basin drainages that typically contain surface water.

3.3.1 Surface Water Investigation

Conditions in surface water were evaluated at a total of 231 locations across the Conda Site and in nearby offsite areas (Table 3-2 and Figure 3-7). Of those locations, 46 were always reported to be dry, and 12 locations had field parameters or flow measured but no samples collected. The 12 locations where only field parameters were measured were not part of the pre-established RI sampling locations. Field parameters were collected from these 12 locations to supplement information collected at the pre-determined sampling locations.

Surface water samples were generally collected during spring runoff and fall base-flow seasons, but some winter and mid-summer monitoring was conducted as well. The timing of spring surface water sampling events was planned to coincide as closely as possible with peak snowmelt runoff. The timing of peak runoff was estimated by:

- Communicating with Simplot staff at the Conda Pump Station on current weather conditions;
- Monitoring local weather forecasts;

- Tracking daily snow depth and snow water equivalent data for the Slug Creek Divide SNOTEL[13] site operated by the Natural Resources Conservation Service (NWCC 2012); and
- Monitoring discharge of the UBR at the USGS stream gauge approximately 5 miles upgradient of the Blackfoot Reservoir.

A pre-cleaned one-gallon disposable container provided by the laboratory was used to collect each surface water sample after the container had been rinsed three times with water from the water body. Unfiltered samples were transferred directly from the gallon container into the sample bottles. Filtered samples were transferred into the sample bottles by pumping through a 0.45 µm in-line filter using a battery-operated peristaltic pump. The in-line filter was purged with sample water before the sample bottles were filled. Filters and tubing were used for only one sample and then disposed. Sample containers were preserved immediately following sample collection, as necessary, and stored on ice.

Measured field parameters included temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity. Field parameters were measured in-stream at the time of sample collection and recorded in field notebooks and/or on individual field sampling forms. At the Pit Lake, water levels were also measured using a permanent staff gauge. Stream flows were measured using either (1) a Marsh-McBirney flow meter with the Area-Velocity Method at 0.6 times depth; (2) an appropriately sized Baski cutthroat flume (8-inch, 4-inch, or 1-inch); or (3) the volumetric ("known volume and stopwatch") method at stream and river locations. Flow was not measured if a location was dry, pooled (i.e., no discernible flow), diffuse (i.e., marshy, soggy ground and shallow, stagnant water), or if high flows made it unsafe to enter the stream to conduct the flow measurement activities (e.g., at the UBR locations BFR-1, BFR-2, BFR-3, and BFR-4). For the UBR locations where flows were too high for sampling personnel to enter the stream, a USGS stream gauging station (USGS 13063000, HUC 17040207), located just upgradient from the Monsanto Haul Road, was used to provide an estimate of flow on the sample collection date.

The Site was visually inspected during spring runoff for possible opportunistic sampling locations. Opportunistic samples (Figure 3-7) collected from 2009 to 2014 include:

- **Old Tailings Pond:** Three samples (TP-2B, TP-2C, and TP-2D) were collected from points throughout the Old Tailings Pond that are usually dry but contained water in May 2009.
- **Pit Lake:** Three samples (NL4P-OP1, NL4P-OP2, and NL4P-OP3) were collected in close proximity to the Pit Lake in May 2009. NL4P-OP1 and NL4P-OP2 are samples of runoff water collected before entering the Pit Lake (i.e., upgradient of the lake), and

[13] SNOTEL (SNOw TELemetry) is an automated system of snowpack and related climate sensors located across the western United States and operated by the Natural Resource Conservation Service.

NL4P-OP3 is a sample collected from pooled snowmelt water located at the top of the overburden pile adjacent to the south end of the Pit Lake.

- **Woodall Mountain:** One sample (WM-OP1) was collected from the west side of the top of Woodall Mountain at a temporary surface pool between the dry draws WMC4 and WMC5 in May 2009.
- **Pedro Creek ODA:** In the fall of 2010, some pooling areas atop the angle-of-repose pile in the Pedro Creek ODA were graded under the stormwater control plan. Spring runoff samples were collected in June 2011 from the graded area (NRC-1)[14] and from sedimentation basin (NED-1) northeast of the angle-of-repose pile.
- **Pedro Creek tributaries:** One sample (PCT-0) was collected in the Pedro Creek headwaters area from an intermittent tributary to Pedro Creek that was flowing in June 2011. A second sample was collected from a different tributary in the upper Pedro Creek headwaters area (PCT5-2) in April 2012.
- **Northeast seeps:** One sample (NES-2A) was collected from a seep approximately 50 feet west of NES-2 in June 2011.

Surface water was also sampled during construction of the NTCRA and FSPS projects at the seeps, seep collection ponds, sedimentation basins, stock ponds, and runoff pools at the Dinwoody Formation borrow area.

3.3.2 Sediment Investigation

Conditions in sediments were evaluated at a total of 126 locations across the Site and in nearby offsite areas (Table 3-2 and Figure 3-8). Stream sediment samples were collected from the surface to a depth of 4 inches, which is the most biologically active sediment zone in the active channel. Each sample consisted of a mixture, or composite, of five grab samples collected from random locations along the creek channel within 50 feet of the specified location, amounting to approximately 200 grams of sediment from each sub-sampling location. Samples were collected with disposable plastic scoops or decontaminated stainless steel hand trowels. Samples were placed into sampling bags (e.g., Zipper bags or Whirl-Pak® bags) and thoroughly mixed within the sealed bag by manually manipulating the bag. Once the sample was mixed, it was immediately labeled, double-bagged, and stored in a chilled cooler for shipment to the laboratory. Any non-disposable sampling equipment was decontaminated after use.

[14] Runoff from the graded area was collected into runoff control ditches and diverted around the angle-of-repose pile via a pipe chute. The sample was collected from the discharge of the chute into the sedimentation basin.

3.3.3 Ecological Investigation

Aquatic biota, including aquatic vegetation tissue (macrophytes and periphyton, where available), benthic macroinvertebrate tissue, and fish tissue were sampled at locations identified in Table 3-2 and Figure 3-9.

3.3.3.1 Aquatic Vegetation Evaluation

Macrophyte and periphyton tissue samples were collected at 19 and 4 locations, respectively (Table 3-2 and Figure 3-9). For macrophyte sampling, an effort was made to collect similar species throughout the Site; however, the actual species sampled at each location was dependent on availability. Each single-species sample consisted of a mixture, or composite, of at least 5 grab samples of that species collected from random locations within 50 feet of the specified location for pond locations, or within the stream reach designated for fish monitoring at creek locations. Samples were collected using gloved hands. The collected samples were rinsed in ambient water and placed into a Whirl-Pak® bag. The samples were immediately labeled, double-bagged, and stored in chilled coolers for shipment to the laboratory. At the laboratory, each sample was weighed, air-dried, and reweighed prior to homogenization.

Periphyton was sampled by scraping or brushing creek-bottom rocks or other substrates to dislodge attached algae. The Beneficial Use Reconnaissance Program (BURP) manual (IDEQ 2004) provides similar protocols which were slightly modified here for collecting a composite periphyton sample from each location. Samples were collected from in-stream substrates (i.e., rocks or wood debris that are stable in the channel) at each location. Six substrates were selected from three different riffle areas in the sampled creek reaches. An area of approximately 3 square centimeters (cm^2) on the side of the substrate exposed to sunlight was scrubbed with a toothbrush to dislodge periphyton. A template was used to maintain uniformity as part of the sampling protocol.

A small amount of distilled or deionized (DI) water was used to rinse the scrubbed area and the tooth brush into a pre-cleaned sample collection pan. This procedure was repeated for each substrate surface to form a composite sample. The contents of the sample collection pans were transferred to appropriately labeled sample containers and stored on ice for shipment to the laboratory. A single composite sample was submitted for each location where enough periphyton tissue was available. Between sample locations, all sampling materials were decontaminated in accordance with standard procedures described in the SAP.

The creek-bed areas with adequate substrates to provide periphyton habitat (i.e., larger cobbles and rocks and logs) were limited. The creek-beds across the Site are predominantly composed of fine-grained silt and mud. If present, cobbles and logs were generally heavily embedded such that a sample scraped from that substrate would more likely represent sediments than green vegetative material.

3.3.3.2 Benthic Macroinvertebrate Evaluation

Benthic macroinvertebrate tissue samples were collected from 23 locations using a Surber sampler or D-ring net (Table 3-2 and Figure 3-9). Upgradient of the net, substrates such as rocks and cobbles were disturbed vigorously for each sample to a uniform depth of approximately four inches or as deep as possible given the substrates present. The contents of each sample were deposited into a decontaminated sorting pan. Benthic invertebrates were picked from the sample using decontaminated forceps and deposited into a pre-weighed sample jar. If extraneous materials were attached to the benthos being collected for tissue analysis, the organisms were rinsed with distilled water in a separate container, such that only benthic organisms were placed into the sample container.

The goal was to obtain 5 grams of invertebrates for submittal to the laboratory for analysis; however, depending upon the composition and size of invertebrates present, 5 grams were not always attained. If satisfactory biomass was not obtained from the first sample, additional samples were collected (up to 3 total samples) to obtain a mass as close to 5 grams of benthic organisms as possible. Benthic tissue samples were then labeled and stored on ice, unpreserved, for shipment to the laboratory. A voucher specimen from each location was preserved for taxonomy. Efforts were made to ensure that the benthic tissue sample and its associated voucher specimen were comprised of proportions of taxonomic groups such that they were representative of the community present.

A qualified entomologist identified the voucher specimens to the lowest practical taxonomic level and tabulated the species and number of taxa present at each monitoring location.[15] To ensure accuracy, the taxonomic identification was performed using a reference collection compiled for the area as part of a 2006 Smoky Canyon Mine project. The reference collection was independently verified by entomologists at EcoAnalyst, Inc., in Moscow Idaho. To ensure precision of taxonomic identification, randomly selected samples were sent to EcoAnalyst, Inc., for evaluation. Sorting QC was performed by having the sorted sample re-evaluated by a second technician for missed organisms. A sorting efficacy of 90-95 percent was considered acceptable, where the efficacy was calculated as follows:

- Sorting QA Score = 100 − (number of organisms missed ÷ total number of organism in sample × 100)

The sorting efficacy for the benthic macroinvertebrate tissue samples ranged from 97.6 to 99 percent.

[15] Taxonomic identifications were performed by an entomologist with more than 15 years of experience including 7 years of experience identifying taxa in Southeast Idaho.

Samples for benthic community assessments were collected at five locations in July 2009 using a Surber sampler (Table 3-2). Three benthic invertebrate samples from each reach were collected and composited for benthic community composition, diversity, and biomass. Sample processing and data analysis methods are detailed in Appendix E, *Benthic Macroinvertebrate Community Analysis: Conda Mine Region, July 2009, Caribou County, Idaho*. Taxonomy and enumeration were conducted by an entomologist. The benthic community samples were evaluated for Stream Macroinvertebrate Index (SMI), consistent with IDEQ's Small Stream Ecological Assessment Framework: An Integrated Approach (Grafe 2002). Nine metrics were calculated for the benthic community samples in order to derive the SMI. Location SMI scores were compared to ecoregion reference scores to rank the condition of each location within the appropriate ecoregion.

3.3.3.3 Fish Population Evaluation

Fish tissue samples were collected at 17 locations (Table 3-2 and Figure 3-9). A Site reconnaissance was conducted in June 2009 to identify the most productive sections of the creeks where the fish and habitat investigations were to be conducted. At the time of monitoring, the downgradient boundary of the creek section to be sampled was marked with a stake. The length of the creek to be sampled was determined as either 30 times the bank-full width, or at least 100 meters long for narrow creek sections. Coordinates for the upper and lower ends of each stream section were recorded using a GPS unit and are presented in Table 3-3.

At upgradient locations on State Land Creek (SLC-1, SLC-2), Pedro Creek (PC-2), and Camp G Creek (CGC-1, CGC-4A), one electrofishing pass was conducted to assess presence/absence of fish by species and relative counts. At specified downgradient locations on State Land Creek (SLC-0), Pedro Creek (PC-1), and Camp G Creek (CGC-0), and at a reference location on Trail Creek (TC-1), a three-pass removal method (i.e., three electrofishing passes) was conducted to quantify fish populations. However, at electrofishing locations where a three-pass removal method was implemented with the intent of quantifying fish populations, no "game fish" (e.g., trout) were captured. Locations TC-1 (for all tissue sampling, benthic community assessment, and physical habitat evaluation) and NWC-2 (for all activities except fish tissue sampling) were monitored for comparison to represent baseline or undisturbed conditions. In addition, five perennial pond locations (HHP-1, SWP-4, TP-1, NES-5, and NL4P-1) were visited for collection of surface water, sediment, macrophytes, and benthic macroinvertebrates for risk assessment purposes (i.e., to assess exposure to bird and mammal species that may inhabit or feed in and around these ponds).

At locations where the three-pass removal method was implemented, block nets were placed at the upper and lower limits of the creek section to be electrofished in order to prohibit the population present from exiting the area and to block fish from outside the sampling area from entering. Each electrofishing pass began at the downgradient limit, immediately upgradient of

the block net, and was completed when the field team reached the upgradient block net. Electrofishing was conducted at all locations using a Smith Root backpack-mounted electrofishing unit. The electrofishing unit timer was set to zero prior to each pass in order to record the time spent electrofishing during each pass. A pass was composed of the electrofishing crew moving in an upgradient direction in a zigzag pattern with the electrodes in the water and the unit turned on. Stunned fish were netted and immediately placed in buckets or in-stream "live cars" filled with stream water for holding until species identifications, counts, measurements, and observations were made. The time for each pass was recorded in the field log book together with any additional observations. Captured fish were released into the same reaches from which they were collected.

Once collected, fish were counted, weighed, measured, identified by species type, and selected for individual whole body fish tissue analysis. The individual fish retained for fish tissue analysis were selected at random. All fish collected after each electrofishing pass were held in a bucket, and the field team member measuring, weighing, and identifying the fish pulled random handfuls of fish from the bucket for processing. The first fish specimens to be processed that fit the qualifications for sample collection (i.e., preferred species and size) were retained until the target number of specimen required was met. If fish smaller than approximately 2 grams were collected, three or more individuals of the same species were composited as a single sample. Whole body fish samples were individually placed in a clean freezer-type zip-lock bag, double-bagged with another zip-lock bag, and labeled with species identification and other appropriate information.

Crawfish traps were deployed at two pond locations (HHP-1 and NL4P-1) for risk assessment purposes (i.e., to assess exposure to bird and mammal species that may feed on organisms other than fish in these ponds). One salamander was captured at HHP-1 and sent to the laboratory for tissue analysis.

3.3.3.4 Physical Habitat Evaluation

To complement the aquatic biota investigations, physical habitat assessments were conducted at seven creek sections during the initial reconnaissance of locations, and three additional sections during the aquatic sampling event of July 2009 (Table 3-2). Habitat assessments were made using Rapid Bioassessment Protocols (RBPs) developed by the USEPA (Barbour et al. 1999). RBPs provide a streamlined method of rating the physical condition of a stream based on channel characteristics, available substrate, flow regime, channel alterations or barriers, bank stability, riparian vegetation, and other relevant factors. The habitat scoring criteria form used at Conda in 2009 is provided as Appendix F.

3.4 Geological and Hydrogeological Investigation

The geological and hydrogeological investigation included the evaluation of information obtained from historical exploration records, boreholes and test pits advanced for chemical, geological and geotechnical evaluations, and boreholes advanced for the installation of groundwater monitoring wells (Tables 3-4, 3-5, and 3-6; Figures 3-10; 3-11, 3-12, and 3-13 [Appendix G]). On-the-ground activities to gather geological and hydrogeological information included:

- Installation and sampling of 21 new monitoring wells in shallow unconsolidated alluvium/colluvium and 23 new monitoring wells in the uppermost water-bearing zones of the consolidated formations (Appendix G, Tables 3-5 and 3-6, and Figure 3-14);
- Installation of 2 temporary piezometers in geotechnical borings B-1 and B-3[16] advanced into the unreclaimed angle-of-repose overburden pile in the Pedro Creek ODA and one temporary monitoring well (GW-38-MA) near the toe of the overburden pile (Refer to boring logs in Appendix G);
- Installation of 5 temporary piezometers in tailings material (TP-SB1 through TP2-SB5) (Figure 3-14);
- Geophysical logging of 4 existing wells (former production wells GW-8-IBS, GW-9-IS, GW-11-IW, and GW-12-IS) and one new well (GW-31-MW) to determine the current condition and to verify proper construction and correct placement of the screened interval in GW-31-MW (Appendix H); and
- Hydrophysical logging of former production wells GW-9-IS and GW-12-IS, and culinary well GW-11-IW, to identify the water producing zones, and evaluate the potential for cross contamination of aquifers through the long open/screened intervals at the wells, and collect discrete samples (Appendix H).

To supplement the geological and hydrogeological information obtained at the Site, data from 24 Monsanto Blackfoot Bridge Final Environmental Impact Statement (FEIS) wells (sampled from 2005 to 2013) and 38 Agrium wells (sampled from 2004 to 2014) in close proximity to the Site have been gathered and are incorporated into the evaluation of conditions (Figure 3-14).

3.4.1 Geologic Logging

Borings and test pits (Tables 3-4, 3-5 and 3-6, and Figure 3-10, 3-11, 3-12, 3-13) were advanced to obtain geological and geotechnical information to complement the available mining exploration and USGS area-mapping information. Borehole and test pit logs, as well as the exploration information are presented in Appendix G. The locations of the borings and test pits were selected to help refine the understanding of the fate and transport of mining-related

[16] Piezometer B-3 was damaged in 2011 and rendered unusable.

releases. The borings advanced were continuously logged for lithology according to American Society for Testing and Materials (ASTM) procedures. A select number of boreholes were also evaluated using geophysical logging techniques to obtain additional geologic information and supplement the lithological logging. The geophysical logging included collecting natural gamma, caliper, and neutron measurements.

3.4.2 Well Installation

Forty-four new RI monitoring wells were installed at the Site between 2008 and 2014. Borings converted into wells were continuously logged for lithology according to ASTM procedures to provide supporting information for well construction (ASTM 2000). Drilling summaries and borehole logs are presented in Appendix G.

All wells were surveyed using conventional land surveying methods. The horizontal locations were surveyed to the nearest 0.1 foot using State Plane North American Datum of 1983 (NAD 83) as the datum, and the well elevations were surveyed to the nearest 0.01 foot at both the ground surface and at marked locations on the inner well-casing riser.

Twenty-one of the Conda RI wells were completed in the shallow unconsolidated alluvium/colluvium hydrostratigraphic unit and the remaining 23 wells were completed in the uppermost water-bearing zones of the consolidated formations in the intermediate and deep hydrostratigraphic units. With a few exceptions (GW-38-MA [described below], GW-25-MA, GW-28-MA, GW-41-MA, GW-45-MA, GW-49-MA, GW-52-MA, and GW-54-MA), the shallow alluvium/colluvium wells were installed using a truck-mounted GeoProbe® 6600 Direct Push System. Drilling and construction of the 23 deeper monitoring wells in the consolidated formations were completed using either a Schramm 555 or Schramm 685 casing-advance, air rotary drill rig with a down-hole hammer.

Shallow direct push boreholes for 13 of the shallow wells were completed by first advancing a 2¼-inch diameter sample core barrel fitted with a plastic liner for continuous sampling. When the borehole was advanced to the desired depth, the 2¼-inch core barrel was removed and a temporary 3¼-inch drill pipe casing with a disposable drive tip was driven to expand the borehole. The monitoring well was then constructed of 1½-inch diameter Schedule-40 polyvinyl chloride (PVC) casing within the temporary drill pipe casing, which was subsequently removed. Well screens were constructed out of 1½-inch by 10-foot long Schedule-40 PVC screen with 0.01-inch slot opening in factory packed 20/40 mesh sand. In boreholes where the formation did not collapse around the pre-packed screen, 10/20 filter pack sand was used to fill the annulus to a minimum of two feet above the screen. Medium bentonite chips were placed in the boreholes from the top of the filter pack to the ground surface.

One temporary shallow well (GW-38-MA) was constructed by placing a pre-packed screen along the upgradient wall of a test pit advanced for geotechnical evaluation (Table 3-6, Figure 3-

14). The well was constructed using 2-inch diameter Schedule-40 PVC casing and 5 feet of pre-packed screen. A seal composed of ¼-inch coated bentonite pellets was placed from the top of the screen to the ground surface. Five temporary piezometers were installed in the native alluvium/colluvium below the tailings in the Old Tailings Pond to monitor for the presence of groundwater (Figure 3-14). The piezometers were constructed out of one-inch diameter, schedule 40 PVC risers with 10-foot 0.020-inch slotted-PVC screens. Filter packs consisting of 10/20 Colorado silica sand were installed around the screens and sealed through placement of bentonite pellets followed by placement of native soil cuttings to the surface.

The wells in the uppermost water-bearing zones of the consolidated formations in the intermediate and deep hydrostratigraphic units were drilled by first advancing a 10-inch diameter hammer drill bit followed by an 8⅝-inch diameter temporary carbon steel casing. Monitoring wells were constructed within the temporary casing using either 2-inch diameter Schedule-40 or Schedule-80 PVC casing (Table 3-6). Well screens are also either 2-inch diameter Schedule-40, Schedule-80 PVC, or 2-inch diameter PVC machine slot screen with 0.020-inch slot opening. Zone Isolation Sampling Technology (ZIST) adapters by BESST, Inc. were installed at the top of the well screens. The ZIST pump docks with the adapter and isolates groundwater within the screened interval from overhead-casing water during sampling, ensuring that only formation water is sampled (i.e., no mixing with stagnant casing water). Filter pack material consisting of clean 10/20 Colorado silica sand was placed to at least three feet above the well screen by gravity feed from the surface. A seal composed of ¼-inch coated bentonite pellets was placed on top of the filter pack to a minimum thickness of ten feet, and bentonite chips were placed to within five feet of the ground surface. The temporary steel casings were removed during well construction.

Depths of the filter packs and bentonite seals were continually checked during well construction using a weighted measuring tape. Well screens were placed to facilitate sampling of the intended saturated zone and do not span separate saturated units. The well-screen lengths were kept to the minimum length appropriate for intercepting potential contamination while allowing for continued monitoring during seasonal water level fluctuations. Well development, consisting of surging and pumping until the discharge was reasonably clear and free of sediment, was performed after a minimum of 24 hours had elapsed since completion of well construction. All development activities were implemented without the use of dispersing agents, acids, or the like. Nine of the newly drilled wells were dry and therefore were not developed.

A total of eight nested-well completions were installed. Seven of the nested-well completions consisted of a shallow alluvium/colluvium wells next to deeper consolidated formation wells; however one nested-well completion (GW-39-MW and GW-40-MW) consisted of both wells completed and screened in the Wells Formation. The boreholes were drilled to allow for the installation of up to three nested 2-inch diameter wells.

The following well drilling and installation activities required a deviation from the standard procedures described in the Work Plan:

- Proposed monitoring well GW-13-IS, which was intended to monitor the Rex Chert Member of the Phosphoria Formation (Rex Chert), co-located with Wells Formation well (GW-14-MW) was not installed.[17] The Rex Chert was not encountered at this location, and therefore only the deeper Wells Formation monitoring well (GW-14-MW) was completed. Three additional borings, BH-13a, BH-13b, and BH-13c (Figure 3-14), were advanced in separate locations to obtain additional lithologic data and as potential alternative locations for planned monitoring well GW-13-IS. Borings BH-13a and BH-13b encountered the Rex Chert; however, groundwater was not present in these borings. The remaining pilot boring (BH-13c) did not encounter the Rex Chert during drilling.
- Well GW-37-MD was completed without a ZIST docking station. Instead of using a ZIST pump, sampling at GW-37-MD is conducted using a 1.75-inch diameter GeoSub stainless steel submersible pump manufactured by GeoTech Environmental Equipment, Inc. (Figure 3-14).
- In May 2010, shallow groundwater was encountered while digging a test pit (TP-3) for geotechnical data east of the Pedro Creek ODA (Figure 3-10 and 3-11). A temporary well, GW-38-MA, was constructed at that time in order to obtain water level measurements and collect grab samples at times when water is present.[18] The well was constructed using 2-inch diameter Schedule 80 PVC casing and 5 feet of pre-packed screen. The well was placed in the upslope corner of the test pit and positioned to intercept active water-producing zones, and the excavation was then backfilled around the well.
- Nested wells GW-39-MW and GW-40-MW were completed as 4-inch diameter carbon steel riser with stainless steel screens without ZIST docking stations. Instead of using a ZIST pump, sampling at these wells is conducted using dedicated Bennett 1800-6 submersible piston pumps with the pump intakes installed in the middle of the saturated screened interval based on water levels recorded at the end of well development (Figure 3-14).
- Nested wells GW-41-MA/GW-42-MD, GW-45-MA/GW-46-MD, GW-49-MA/GW-50-MS/GW-51-MS, GW-52-MA/GW-53-MS, and GW-54-MA/GW-55-MS/GW-56-MS, and well GW-57-MS were completed without ZIST docking stations. Instead of using a ZIST pumps, sampling at these wells is conducted using either a peristaltic pump (shallow wells) or a submersible pump placed at the mid-point of the screened interval (deeper wells), using dedicated tubing.

[17] The well designated as GW-13-IS is a former Conda Mine production well discovered when sampling adjacent well GW-9-IS.
[18] Shallow temporary well GW-38-MA was removed as part of Pedro Creek NTCRA construction activities in 2013.

- GW-51-MS, GW-53-MS, and GW-56-MS were constructed using 2-inch diameter stainless steel screens and risers. GW-57-MS was installed using 4-inch diameter stainless steel screens and riser to satisfy Agrium's monitoring well diameter requirement.

3.4.3 Groundwater Level and Hydrophysical Surveys

The hydrogeologic conditions in the water-bearing zones were evaluated through water level measurements, pump tests, and HydroPhysical™[19] surveys in order to gain an understanding of hydraulic conductivity, transmissivity, gradient, and flow directions at the Site.

3.4.3.1 Groundwater Level Survey

Groundwater level measurements (to the nearest 0.01 foot) were obtained using an electronic water level probe at each well prior to sampling.

Constant-rate pumping and groundwater-level recovery tests were performed on select wells to gain additional information on transmissivity and hydraulic conductivity. The pumping and groundwater-level recovery tests were performed on Salt Lake Formation wells GW-9-IS and GW-19-MS, and Wells Formation wells GW-14-MW and GW-31-MW. Wells GW-9-IS, GW-14-MW, GW-19-MS, and GW-31-MW were equipped with pressure transducers to track changes in water level. The transducers were installed below the water table and were programmed to record on an hourly basis. The water levels measured by the transducers were verified with manual measurements using a water-level probe. In addition, four falling-head tests were conducted on two of the borings advanced in the Pedro Creek ODA.

3.4.3.2 Hydrophysical Survey

Subsurface hydrophysical surveys were performed on three of the existing production wells (GW-9-IS, GW-11-IW, and GW-12-IS) to ascertain the hydraulic characteristics of the formations within the wells under both ambient and pumping conditions. The logging techniques implemented included Hydrophysical™, optical televiewer, and borehole video logging.

The Hydrophysical™ logging technique involved simultaneous measurements of fluid electrical conductivity (FEC) and temperature under ambient conditions, pumping conditions, and after injecting DI water into the well. The changes in FEC and temperature measured in the groundwater column under ambient, pumped, and DI emplacement conditions were used to

[19] HydroPhysical™ is a registered trademark of Colog Borehole Logging Services.

evaluate flow and transmissivity within the water-bearing formations. The optical televiewer provides high resolution 360-degree imagery of the borehole walls for fracture and feature analysis. The optical televiewer tool has a digital fluxgate magnetometer and a mechanical compass to determine the orientation of the image captured by the camera. High resolution video cameras were used to film the borehole walls and complement the optical televiewer imagery. Additional detail is provided in Colog's report titled *Hydrophysical and Geophysical Logging Results: Conda Mine,* included in Appendix H.

3.4.4 Groundwater Quality Investigation

Groundwater quality conditions were evaluated at the above mentioned wells (Figure 3-14) and at surface water locations during base-flow conditions. Groundwater samples collected by Simplot were generally obtained using low-flow[20] sample collection methods or by using ZIST setups. Water levels were measured prior to purging each well. Field parameters including temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity were measured during purging prior to sample collection. Groundwater samples collected by Agrium and Monsanto followed similar protocols.

Samples were collected in pre-cleaned containers provided by the laboratory following stabilization of field parameters. Unfiltered samples were transferred directly from the dedicated or disposable discharge tubing into the sample bottles. Filtered samples were transferred from the discharge tubing into the sample bottles by pumping through a 0.45 µm in-line, high-capacity filter using a battery-operated peristaltic pump. The in-line filter was purged with sample water before the sample bottles were filled. Filters and tubing were used for only one sample and then disposed. Sample containers were preserved immediately following sample collection, where appropriate, and stored on ice.

Deviations from the RI groundwater sampling procedures described in the SAPs include:

- Sampling of the shallow monitoring wells, screened in the unconsolidated deposits, occurred approximately 24 hours after the well was purged dry. Often, due to the limited volume of groundwater available and the very slow recovery of these wells (i.e., the wells went dry before all sample bottles could be completely filled), only a partial suite of parameters could be collected.
- The wells that were dry following installation in 2008, but contained water in the spring of 2009, were sampled prior to attempting well development due to anticipated slow rates of recovery. These were shallow alluvium/colluvium wells GW-18-MA, GW-26-MD, GW-28-MA, and GW-34-MA, and shallow Meade Peak Member wells GW-22-MM, GW-23-MM, GW-24-MA. In addition, at times, samples from some other shallow wells (e.g.,

[20] Low-flow sampling involves purging at a rate resulting in minimal and stable drawdown (i.e., maintaining a stable water level) such as to maximize intake of formation-pore-water and minimize the intake of stagnant casing water.

Conda Townsite wells GW-16-MA and GW-17-MA) were collected prior to purging to ensure that a sample was obtained. These wells contained minimal amounts of groundwater and went dry during sample collection.

- Samples collected during the hydrophysical and geophysical loggings were collected using a 1-liter discrete point sampler. The ports on the sampler were controlled by an electrical signal sent via the wire line connected to the sampler. The sampler was lowered to a point just above the interval to be sampled to ensure complete mixing of the fluids moving up into the sampler once the sampler was opened.
- The wells that were dry following installation (GW-43-MA and GW-48-MA), but contained water in the subsequent spring were sampled prior to attempting well development due to anticipated slow rates of recovery.

4.0 REMEDIAL INVESTIGATION DATA

This section summarizes the information collected to support the evaluation of the nature and extent of mining-related effects at the Site. It summarizes the laboratory analyses for mining-related chemicals, the standards and screening values used to evaluate potential effects on environmental receptors (i.e., comparison values), the data validation performed, and the field data collected.

4.1 RI Data

As previously described, Site data have been collected through various investigations performed by Simplot and other entities since 1971. During the RI scoping process, it was determined that information collected from 2001 onward would allow for the most comprehensive evaluation of spatial and temporal mining-related effects. The RI focuses predominantly on information collected from 2001 to 2014. Findings from studies performed prior to 2001 are used qualitatively, where appropriate. Data obtained in 2015 that provide new information are used to supplement the RI dataset and refine the interpretations where possible. However, the 2015 data are not presented on all summary tables and figures, rather only on tables and figures where new data were above the concentrations observed from 2001 to 2014. All data discussed in this RI report, including the 2015 results are presented in a data-compilation appendix (Appendix I).[21]

4.2 RI Laboratory Analyses

Laboratory tests on samples of each environmental medium included an analysis for a comprehensive list of chemicals (Table 4-1) to ensure that all potential mining-related releases would be evaluated. The list of potential mining-related chemicals was developed in collaboration with the Agencies during the planning processes for the RI. Detection limits for laboratory analyses were determined based on promulgated standards as well as chemical-specific ARARs. The list of ARARs is presented in the Work Plan (NewFields 2008a).

4.3 Comparison Values

Standards (promulgated numerical criteria) and screening values used in this RI report to describe the nature and extent of effects are described in this section. A range of conservative human health and ecological comparison values are provided for comparison purposes only,

[21] Simplot's electronic database contains the entirety of Conda-related data collected since 1971.

and do not represent clean-up criteria. The Site-specific risk assessments support the development of Preliminary Remediation Goals (PRGs).

4.3.1 Soil

Soil comparison values are presented in Table 4-2 and consist of USEPA ecological soil screening levels (EcoSSLs) for birds, mammals, plants, and invertebrates (USEPA 2005), the USEPA human health regional screening levels (RSLs) for industrial soil (USEPA 2016b), and USEPA preliminary remediation goals for radionuclides (USEPA 2016c). Criteria for ecological and human health receptors are presented separately. The lower of the EcoSSL values was selected as the comparison value for ecological receptors.

4.3.2 Surface Water

Surface water standards are presented in Table 4-3 and consist of the Idaho Administrative Procedures Act (IDAPA) 58.01.02 Water Quality Standards (IDAPA 2015a), USEPA National Recommended Water Quality Criteria (NRWQC) (USEPA 2016d and USEPA 2016e), and the maximum contaminant levels (MCLs) from the USEPA National Primary Drinking Water Regulations (USEPA 2016f). The IDAPA value was selected as the comparison value; however, if no value was available, the NRWQC standard was used, followed by the USEPA MCL value. Ecological comparison values pertain to dissolved concentrations of the chemicals present, unless otherwise noted. Human health values pertain to total (i.e., dissolved plus suspended) chemical concentrations in the water.

IDAPA standards for some metals in surface water are expressed as a function of total hardness, with a modeled range from 25 milligrams per liter (mg/L) to 400 mg/L. Summary statistics for hardness data were derived for each sub-basin, and the 95th lower confidence limit (95LCL) of the mean was utilized as a conservative value for calculating the standards. Table 4-4 presents the hardness values for each sub-basin and the resulting calculated standards.

4.3.3 Sediment

Sediment comparison values are presented in Table 4-5 and consist of the Sediment Quality Assessment Guidelines (SQAGs) for Florida inland waters (threshold effect concentration [TEC]; MacDonald et al. 2003), values from the Screening Quick Reference Tables (SQuiRTs) from the U.S. National Oceanic and Atmospheric Association (NOAA) (Assessment and Remediation of Contaminated Sediments [ARCS] value, lowest effect level [LEL], or upper effect level [UEL]; NOAA 2008), the Predicted No-Effect Concentration (PNEC) based on ecotoxicity of uranium (Sheppard et al. 2005), and the USEPA freshwater sediment screening value for selenium (Lemly 2002 as cited in USEPA 2012). Values are considered to be

protective for both ecological and human health receptors. The SQAG values were selected as the comparison value; however, if a SQAG value was not available, the lowest of the alternatives was chosen.

4.3.4 Groundwater

Groundwater standards are presented in Table 4-6 and consist of IDAPA 58.01.11 Numerical Ground Water Quality Standards, Primary Constituent Standards (IDAPA 2015b), the MCLs and National Secondary Drinking Water Regulations (non-enforceable guidelines) from the USEPA National Primary Drinking Water Regulations (USEPA 2016f), USEPA preliminary remediation goals for radionuclides (USEPA 2014), and Michigan Department of Environmental Quality (DEQ 2015). The IDAPA value was selected as the comparison value; however, if no value was available, the MCL value was used. Groundwater quality standards pertain to total chemical concentrations in water.

4.3.5 Fish

USEPA is updating its national recommended chronic aquatic life criterion for selenium in freshwater to reflect the latest scientific information. Although selenium may cause acute toxicity at high concentrations, the most harmful effects on aquatic organisms are chronic effects due to its bioaccumulative properties. Chapman et al. (2010) found that organisms in aquatic environments exposed to selenium accumulate it primarily through their diet, and not directly through water. They also recognized that selenium toxicity occurs through transfer to the eggs and subsequent reproductive effects. As a result, USEPA developed a draft chronic criterion to address the reproductive effects of selenium concentrations on fish species. The Final Aquatic Life Ambient Water Quality Criterion for Selenium (Freshwater) 2016 (USEPA 2016a) has fish tissue-based and water column-based elements and is protective of the entire aquatic community including fish, invertebrates, and amphibians. USEPA's (2016a) final chronic criterion value for selenium in fish tissue is 15.1 milligrams per kilogram dry weight (mg/kg dw) for egg/ovary, and 11.3 mg/kg dw for whole body. The 2015 draft selenium chronic criterion for water is 1.5 micrograms per liter (µg/L) for lentic or static water habitats and 3.1 µg/L for lotic or dynamic water habitats. Because a fish tissue-based concentration is a more direct measure of selenium toxicity, USEPA recommends that fish tissue elements be given precedence over water column elements when both types of data are available.

4.4 Site-Specific Background Concentrations

An analysis of background concentrations of COPCs in soil, terrestrial vegetation, surface water, and sediment was performed to evaluate conditions in the absence of any disturbance (Appendix J). Background samples were collected from locations considered most representative of natural site conditions. These included native areas that were upgradient of

areas with mining-related activities, or native areas in adjacent foothills (Figures 4-1 and 4-2). A summary of Site-specific background concentrations is provided in Table 4-7. Background values that are higher than the comparison values discussed in Section 4.3 are identified on Table 4-7. This information will be considered in the risk assessment and risk management evaluations in support of the remedy selection process for the Site. The extent of mining-related effects is evaluated based on risk-based standards and screening levels, with background concentrations provided for context, where appropriate.

4.5 RI Data Evaluation

Simplot has performed data collection activities in accordance with Agency-approved SAPs and SAP addenda, planning documents, and associated QAPPs (MFG 2003a, 2003b, 2003c, 2003d, 2004; NewFields 2007, NewFields 2008a, NewFields 2008b, 2008c, 2009a, 2009b; Formation 2010a, Formation 2010b, Formation 2010c, Formation 2011a, Formation 2014a, Formation 2015b), as listed in Sections 2.5.1 and 3.1. Simplot-collected environmental data sets have undergone rigorous data quality review and meet the data needs established for the project in those documents. Field data records (e.g., chain of custody [COC] and other forms), were reviewed for completeness and general accuracy before the associated data were included in the project database. In addition, laboratory data reports, when available, were reviewed for completeness and evaluated for precision, accuracy, representativeness, and comparability. All of the Simplot-collected data packages provided necessary documentation to verify compliance with requested analysis and to allow for verification of data accuracy. Analytical results were reviewed and validated in accordance with the specifications described in the SAPs/QAPPs and associated SOPs. Only data that were verifiably collected following detailed procedures, analyzed by appropriate analytical methods, and validated according to standard protocols, are used in this RI. Data gathered during investigations performed by entities other than Simplot were used as much as possible, provided the data were of acceptable quality. This section presents how the data were validated and evaluated for usability.

4.5.1 Data Validation

The data validation assessments for Simplot-collected data are documented in the appendices to the Work Plan (NewFields 2008a) and Data Validation Summary Reports. The validation process of laboratory results confirmed data quality and identified the uncertainties associated with any individual result. The data validation process for Simplot-collected data consisted of the following general steps. First, the laboratory data reports were checked for completeness to confirm that the requested analyses were performed consistent with COC records using appropriate analytical methods, and that all supporting documentation is present to verify the accuracy of the results. Next, all field and laboratory QC analyses were evaluated against the applicable criteria for data quality specified in the approved SAP and the National Functional

Guidelines (NFGs) to identify any problems with field sampling, sample preparation, and laboratory instrument performance. The QC items that were assessed included: holding times, sample preservation, laboratory blanks, field blanks, initial calibration blanks (ICB), continuing calibration blanks (CCB), initial calibration verification (ICV), continuing calibration verification (CCV), interference check samples, laboratory control samples (LCS), analytical duplicates, field duplicates, and matrix spikes/matrix spike duplicates (MS/MSD). Summaries of the data quality criteria are available in the data validation reports. Following the QC check, the raw data provided by the laboratories were reviewed for accuracy and correctness of compound identification and reporting limits. Validation checklists were prepared by a project chemist, who also resolved any discrepancies in the data with the laboratories and obtained corrections of errors and re-submittals for non-compliant data. Validation qualifiers ("flags"), were assigned to individual results as necessary per the NFG, and are described in Appendix I.

4.5.2 Data Quality and Usability

An evaluation was performed for each data set to assess whether the data were appropriate for the intended use in the RI.

Data Quality - Data quality levels were assigned to all datasets using a standardized procedure of verification based on USEPA guidance in support of CERCLA investigations and risk assessments. The following documents provide guidelines to assess data quality:

- USEPA's Guidance on Data Usability in Risk Assessments (USEPA 1992);
- USEPA's Guidance for Quality Assurance Activities (USEPA 1998); and
- USEPA's Guidance for Data Verification and Assessment (USEPA 2002).

The data quality levels are outlined in Appendix I. Only datasets meeting the minimum requirements for quality and completeness (i.e., Level 2 or higher) were processed into a standardized electronic format and added to the project database. Data quality levels are summarized and presented for each data record in the project database and in Appendix I.

Data Usability – The assessment of data usability was based on the quality of the data; the source of the data; whether the data was authored, generated, distributed, or reviewed by the Agencies; and the intended use of the data.

The following data use levels were assigned to each dataset:

Level A Laboratory data and field measurements collected under documented standard protocols by a government agency, consulting firm, or university research group.

Level B Laboratory data and field measurements not collected under documented standard protocols by a government agency, consulting firm, or university research group.

Datasets assigned a data use level of "A" are acceptable for use in quantitative analyses. Datasets of data quality levels 4 or 5 were inherently considered usable. Datasets of data quality levels 2 or 3 were only assigned as data use level "A" after considering if results were Agency-authored, Agency-generated, Agency-distributed, and/or Agency-reviewed and are therefore acceptable for use. Datasets assigned a data use level of "B" are used qualitatively, where appropriate.

As indicated in Section 4.1, data collected prior to 2001 (even when assigned as data use level "A") are only used qualitatively where appropriate. Therefore, RI analyses are primarily based on datasets that are assigned as data use level A and were collected from 2001 onward. Field measurement data and historical data are presented and discussed in the RI as appropriate.

4.6 Summary of RI Data

As previously mentioned, during the process of revising the RI, data from ongoing monitoring performed in 2015 became available. The additional data obtained in 2015 are included in Table 4-8. Table 4-8 also presents a comparison of the range of information obtained in 2015 against the range of available information from 2001 to 2014.

To establish whether the 2015 data allow for a refined interpretation of the nature and extent of contamination, and allow for making more informed decisions regarding appropriate remedies, the data was evaluated to determine whether there are new locations:

- Where selenium concentrations exceeded criteria; and
- Where other COPCs exceed criteria and selenium had not previously exceeded its criteria.

The highlighted rows in Table 4-8 indicate the sampling locations for which the 2001-2014 dataset was supplemented with 2015 data to refine the nature and extent and fate and transport evaluation. The 2015 data for all the other locations listed in Table 4-8 were similar to the data from 2001 to 2014, and the discussions in the report remain based on information from 2001 to 2014. For the locations where the 2015 data allow for a refinement of the nature and extent evaluation, the interpretations are based on data from 2001 to 2015. The 2015 data are not presented in all the tables and figures, rather only on tables and figures corresponding with refined interpretations of the nature and extent of contamination. Therefore, only the following tables, figures, and plates present 2015 data: Tables 4-8, 5-2, and 8-1; Figures 6-5, 6-33, 6-34, 6-89, 6-91, 6-92, and 8-1; and Plates 3 and 5. Appendix K provides a compilation of individual laboratory and field analysis results, with summaries presented in Appendix K.

The tables presented in this section summarize the minimum, maximum, and average detected values for selenium, cadmium, chromium, vanadium and zinc (COPCs that have a wide spatial distribution and frequent exceedance of comparison values.[22] Results are compared to the appropriate standards and screening levels provided in Tables 4-1 through 4-6.[23] Field sampling data forms for Simplot-collected datasets are presented in Appendix L.

The following subsections summarize the information available in the data appendices. Sections 5, 6, and 7 provide interpretations based on the information included in this section.

4.6.1 Terrestrial Data

Surface Features – Results of the mining-related features survey, including a summary of ODA conditions by sub-basin, a photographic log of ODA conditions, a map illustrating photo documentation locations, and copies of field inspection forms are provided in Appendix M.

Soil and Geology – Tables 4-9 through 4-13 present the data for the soil sampling locations (Figures 3-1, 3-2, and 3-3). Table 4-14 presents the results of the geotechnical investigation.

Terrestrial Vegetation Tissue and Vegetation Communities – Table 4-15 presents the terrestrial vegetation data for the vegetation sampling locations (Figures 3-4 and 3-5). Table 4-16 presents a list of the species contained in each vegetation sample, and Table 4-17 provides a brief description of the habitat at each sampling location and typical plant species. Table 4-18, presents a summary of the Latin species names for the common names presented in Tables 4-16 and 4-17.

Terrestrial Insects – Table 4-19 presents the data obtained from composite insect samples (Figure 3-6). A summary of terrestrial invertebrates identified in the composite samples collected are shown on Table 4-20.

Small Mammals – Table 4-21 presents the data obtained from small mammal samples (Figure 3-6). Table 4-22 provides a summary of the sample composition and animals captured at each location.

[22] A summary of non-detected results is also included in Appendix K.

[23] A range of conservative human health and ecological comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

4.6.2 Aquatic Data

Surface Water – Tables 4-23 through 4-27 present the data collected at the surface water sampling locations (Figure 3-7). Flow data are presented on Table 4-28, and regional monthly precipitation data on an annual basis are presented in Figure 4-3 for context.

Sediment – Table 4-29 presents the data collected at the sediment sampling locations (Figure 3-8).

Aquatic Vegetation – Table 4-30 presents the aquatic vegetation (Figure 3-9) sampling data, including both macrophyte and periphyton data. Macrophyte species included in each sample are listed on Table 4-31.

Benthic Macroinvertebrate Tissue and Benthic Community – Table 4-32 presents the benthic macroinvertebrate sampling data. Table 4-31 provides a list of representative taxa in the samples collected from each location (Figure 3-9). Results of benthic community sampling and assessment are summarized in Table 4-33, and a complete benthic taxonomy report is provided in Appendix E. IDEQ's SMI was used to combine observed results for various metrics into a single score, and then rank each location according to protocols set forth in Jessup and Gerritsen (2000). SMI results for Conda monitoring locations are presented in Table 4-34.

Fish Tissue and Fish Population Monitoring – Table 4-35 presents the data collected at the fish sampling locations (Figure 3-9). The results of fish tissue collection efforts at all electrofished locations are summarized in Table 4-36.

Aquatic Physical Habitat Assessment – The aquatic habitat scoring criteria form is provided as Appendix F, and habitat assessment results for Site streams are presented in Table 4-37.

4.6.3 Hydrogeological Data

Geophysical and Hydrophysical Data – Table 4-38 presents the information obtained from the geophysical and HydroPhysical™ surveys performed at select monitoring wells. Hydrophysical and geophysical well logs from the surveys are attached in Appendix H.

Groundwater Data – Tables 4-39 through 4-44 present the data collected at the groundwater sampling locations (Figure 3-14).

5.0 PHYSICAL SITE CHARACTERISTICS

This section provides a summary of the characteristics of: the remaining mining-related features and their roles as sources of selenium and other COPCs; the geology, hydrogeology, and hydrology; as well as terrestrial, ecological, and aquatic conditions at the Site. Site-specific information gathered during the RI process is supplemented with local and regional information, where applicable.

5.1 Remaining Mine Features

As described in Section 2.3, the primary mining-related features remaining at the Site include mined panels (i.e., pits and ODAs), the Former Townsite and Mill areas, the tailings ponds, the underground workings and associated waste rock piles, the Former Emergency Ore-Slurry Storage areas, and haul roads (Figure 2-6).

5.1.1 Mine Features and Setting

The following paragraphs and Figures 5-1 through 5-6 describe the mining-related features, based on completed surveys included in Appendix M.

Open Mine Pits – Open mine pits (i.e., pits that have not been completely backfilled with overburden) (Figure 2-6, and Figures 5-1 through 5-6) are listed below.

- The Western Woodall Panel pit (Figure 5-1 and 5-2) is located on the west side of Woodall Mountain. During the implementation of the NTCRA, excess overburden material, excavated from the NTCRA pile was consolidated with the overburden already in the pit. Prior to implementation of the NTCRA, there were two distinct areas where pooling could occur; a small one in the northwest corner and a larger one in the northeast corner. The larger of the two pooling areas was completely covered with backfilled overburden. The in-pit ODA was graded to drain appropriately into an infiltration basin. All disturbed areas were covered with a minimum of 18 inches of Dinwoody Formation soil and seeded. Minimal vegetative cover exists on the pit walls, relative to the amount of vegetative cover atop the backfilled portions of the pit. The highwalls are comprised of the Rex Chert Member and Wells Formation, and remain stable. During the spring, some minor seepage is visible along the contact between the Rex Chert Member and the Meade Peak Member on the northern highwall. Precipitation falling upon the Rex Chert outcrop on Woodall Peak infiltrates into the formation, with moisture seeping out of the pit wall along the beds with lower permeability. The seepage does not reach the bottom of the pit. Any moisture from direct precipitation in the pit, that does infiltrate the overburden in the pit, is expected to stay above or within

the remaining underlying near-horizontally-bedded Meade Peak Member. The low permeability of the Meade Peak likely limits releases into the Wells Formation, although the potential for releases into the Wells Formation exist in fractured areas (e.g., faults- and fold-axis zones). No points of surface water discharge exist from this pit into the Woodall Mountain Creek drainages.

- The East Woodall Panel pit (Figure 5-1) is located on the east side of Woodall Mountain. It has very steep sides, with sparse vegetative cover and visible overburden transport from upslope-area erosion. Spring runoff pooling can occur in the northern and central portions of the pit, where the Meade Peak Member of the Phosphoria Formation is exposed at the bottom. Any moisture from direct precipitation in the pit, that does infiltrate the overburden in this pit, is expected to stay above or within the Meade Peak Member, or infiltrate preferentially along its bedding planes. Any water that infiltrates into the Meade Peak, which may be minimal due to the low permeability of the Meade Peak Member, would remain in the Meade Peak Member. There is the potential for direct release into the Wells Formation where the in-pit overburden is in contact with the formation (predominantly exposed along the steeply-sloping highwall). There are no points of surface water discharge into the State Land Creek or Pedro Creek drainages from this pit.
- South Woodall Panel pits (Figure 5-2) are located south of Woodall Mountain Peak, along the east flank of the mountain ridge. The pits are south of the overburden pile in the Pedro Creek headwaters area that was regraded and covered in 2013/2014 as part of the NTCRA. The pit on the south edge of the NTCRA pile has a steep sloping Wells Formation highwall with little vegetative cover. This pit was partially backfilled with overburden as part of the NTCRA, with only the top section of the highwall remaining exposed. Spring runoff pooling previously occurred in the southern portion of the pit, where the bottom was exposed Meade Peak Member of the Phosphoria Formation. Any spring runoff in the area is now directed to the east sedimentation basins. The smaller pit farther to the south (Figure 5-2) contains minimal backfilled overburden, compared to the northern pit. It consists predominantly of exposed Phosphoria Formation rock and eroded highwall material. During the NTCRA, Rex Chert Member exposed in the pit were used to obtain rock and gravel necessary for the construction. Sedimentation excavated from the PCP-2 stock pond was consolidated in the pit. Any moisture from direct precipitation in the pit, that does infiltrate the overburden material in this pit, is expected to stay within the Phosphatic rock. The low permeability of the Meade Peak likely limits releases into the underlying Wells Formation. There are no points of surface water discharge into the Pedro Creek drainages from these pits.
- The West Limb Panel is located southeast of the former Conda Townsite and has two partially-backfilled pits (Figures 5-3, 5-4, and 5-5). The northernmost pit, located north of Shield Canyon, has steep walls that have not been recontoured and are minimally covered with vegetation. Spring runoff pooling can occur in the southern portion of this pit, where the Meade Peak Member of the Phosphoria Formation is exposed at the

bottom. The southernmost pit contains the Pit Lake (NL4P-1), and has relatively steep sloping walls that are partially covered in vegetation Figure 5-4 and 5-6). The geology is overturned, with the Wells Formation stratigraphically above the Meade Peak Member. The highwalls are comprised of the Rex Chert Member and Wells Formation. The Pit Lake (NL4P-1), a terminal lake, is fed largely by runoff. Precipitation that has infiltrated the overburden atop the Wells Formation in the overturned area to the north likely becomes a source of water to the Pit Lake, when infiltration reaches the Meade Peak. The bedding plane of the Meade Peak is near-vertical. The Pit Lake is contained within the Meade Peak Member, with the shoreline of the lake predominantly comprised of the Meade Peak Member. Only a short section of the western shoreline consists of the Rex Cher Member (Figure 5-6). The low permeability of the Meade Peak, and the near vertical bedding, likely limits across-bedding releases into the Wells Formation to the east of the lake and potential contribution of COPCs to the regional groundwater. There are no points of surface water discharge from any of the West Limb Panel pits.

- The Middle Limb Panel pit is located east of the West Limb Panel and has two partially-backfilled pits (Figures 5-3, 5-4, and 5-5). The northernmost pit has been partially backfilled and generally has steep walls with minimal native plant growth. The highwalls are comprised of the Rex Chert Member and Wells Formation, and remain stable. Spring runoff pooling can occur in the northern portion of the pit, where the Meade Peak Member of the Phosphoria Formation is exposed at the bottom. The southernmost pit has largely been backfilled, with its northern extent still being open. Spring runoff pooling can occur atop the Meade Peak Member exposed in the northern portion of the pit. Any moisture from direct precipitation in the pit, that does infiltrate the overburden in this pit, is expected to stay above or within the Meade Peak Member, or flow preferentially along the bedding plane. Any water that infiltrates into the Meade Peak, would remain in the Meade Peak Member. There is the potential for direct release into the Wells Formation where the in-pit overburden is in contact with the formation. There are no points of surface water discharge from the pooling area.
- Grace Panel has a shallow pit where the overburden was stripped (Figure 5-6). In 1966, one bench of ore was stripped and mined for metallurgical research on unaltered ore. Because no satisfactory method existed at that time to mill the Grace Panel ore, no further mining was performed at the panel (Appendix B, 1966 Annual Report). The pit floor is covered by native plants but there is minimal vegetation on the pit walls. There is evidence of erosion and sediment transport from the pit walls down to the flat bottom. Signs of possible pooling are evident towards the south end of the pit, where moss is growing and the ground has a mud-cracked appearance.
- The North Trail Panel pit (Figure 5-4) is located in the southeastern most corner of the Site. No backfilling occurred in this pit. It is deep, with steep sides and minimal vegetation (i.e., covering less than 10 percent of the pit). There are visible signs of erosion as well as soil transfer to the pit floor. Spring runoff pooling can occur in the northern and southern portions of the pit, where the Meade Peak Member of the

Phosphoria Formation is exposed at the bottom. There are no points of surface water discharge into the Margarette Creek drainage from this pit.

ODAs – The overburden materials removed from the mine panels have been placed in ODAs, either as piles external and adjacent to the pits or piles placed in backfilled pits. ODAs are present at Woodall Mountain (including Woodall Panel, East Woodall Panel, and South Woodall Panel; Figures 5-1 and 5-2), West and Middle Limb Panels (Figures 5-3 through 5-6), Grace Panel (Figure 5-6), Ibex Panel (Figure 5-3), and North Trail Panel (Figure 5-4). Most of the overburden piles have been recontoured and seeded with non-native vegetation in the late 1980s and early 1990s. In many cases, the vegetation appears to be adequately stabilizing the overburden piles. Some of the steeper previously-reclaimed overburden piles show evidence of rilling due to stormwater runoff. Some of the overburden piles with relatively gentle sloping top areas can have areas with pooling of runoff as well as seeps (Figures 5-1 through 5-6). Two previously unreclaimed overburden piles in the South Woodall Mountain Panel (Figure 5-2) have been regraded as part of the FSPS and the NTCRA. Some unreclaimed piles remain in East Woodall and Middle Limb Panels (Figures 5-1 and 5-4).

The Former Townsite and Mill area – Most of the buildings in the Former Townsite and Mill area were demolished, except select buildings (currently used for storage). Some streets, some concrete foundations, and the former sewage lagoons remain (Figures 2-6 and 5-5). The overburden piles in the French Drain ODA have been recontoured to a gently sloping hillside and have been reseeded with non-native vegetation. The vegetation on the overburden piles appears to provide adequate stabilization and there are no signs of significant erosion on the slopes (Figure 5-5).

The Old Tailings Pond – The Old Tailings Pond (Figure 2-6) is a former tailings impoundment area located east of the pump station, situated atop alluvial/colluvial deposits, within a draw that existed during pre-mining conditions. Tailings were composed of fine-grained, slurried material from the milling process. Historical expansion of the tailings pond through the course of operations was in successional ponds from east to west (Figure 2-6). In 1969, a dam was constructed that encompassed the entire area and the pond was filled with additional tailings until 1979. There are no known faults that traverse the Old Tailings Pond (Figure 2-4). After use of the Old Tailings Pond ceased in 1979, the pond dried up and successional vegetation (e.g., both non-native and native vegetation, including shrubs) developed on the tailings material in the impoundment. There are minimal signs of erosion (e.g., stormwater channels) on any banks or mounds still remaining. Some pooling occurs in depressions within the impoundment (Figure 5-3).

The New Tailings Pond – The New Tailings Pond (Figures 2-6 and 5-5) is located west of the Former Townsite and Mill area. It was constructed in 1979 as a replacement for the Old Tailings Pond. The pond is not lined and it is unknown how much infiltration to groundwater is occurring; however the Field Study for the New Tailings Pond (Dames and Moore 1976)

surmised that infiltration losses would be greater during the initial stages of pond filling, but once a sufficient thickness and consolidation of tailings occurred the fine grained, clayey tailings material would reduce infiltration. This pond is currently utilized as a reservoir for water used in the operation of Simplot's slurry line from Smoky Canyon Mine to the Don Plant in Pocatello, Idaho. The New Tailings Pond covers an area of approximately 138 acres. Simplot currently draws water from well No. 10 as makeup water for the New Tailings Pond. The amount of water stored in the pond varies depending on the time of the year. Between 817,000 and 818,000 gallons of water is extracted out of the pond when the pipeline section between Conda and the Don Plant near Pocatello is flushed. When ore-slurry pumping resumes at Smoky, water in the pipeline section between Smoky and Conda flows into the New Tailings Pond (approximately 379,000 gallons). The New Tailings Pond lies predominantly on alluvial soils underlain by Quaternary basalts at relatively shallow depths, with only a small area of soils derived from the Salt Lake Formation, based on the borings and test pits advanced during the Feasibility Study for the New Tailings Pond (Dames and Moore 1976). There are no known faults that traverse the New Tailings Pond (Figure 2-4).

The Underground Workings and Associated Waste Rock Piles – Due to safety concerns, underground workings were not entered during the RI sampling efforts. However, mine maps generated during the underground operations were assembled, compiled, and evaluated. Approximately 150,000 feet of underground workings were advanced at Conda. Workings for Underground Mine Numbers One, Two, and Three exist within the French, Shield and Jouglard Canyons, and Camp G Creek Sub-Basins (Figure 2-7). These workings were primarily accessed through two adits (adits number one and two). Other portals used to access the workings include adit number three, Middle Limb Panel 5 adit (ML-5 adit), Camp G portal, and Camp H portal. These adits/portals (Figure 2-7) were advanced in the Wells Formation (i.e., below the Meade Peak Member ore body). The waste rock piles generated during the construction of the workings have for the most part been incorporated into the ODAs created during the surface mining period in the area. The waste rock piles at the Camp G and Camp H portals (Figure 5-3) are the only locations where surface mining operations have not altered the conditions from those present during the underground mining period. The Camp G and H waste rock piles cover an area of approximately four acres. These waste rock piles have not been recontoured or revegetated, but various plants (e.g., pine and aspen trees) have naturally populated these areas. These piles are moderately to very steep with sparse naturally reestablished vegetative cover. In both areas, there is visible sediment transport to the toe of the bare slopes, with additional erosion and naturally-formed stormwater conveyance channels (Figure 5-3 and Appendix M). Surface mining excavations have also removed some upper sections of the underground workings (Figure 2-6), but some of the workings remain.[24]

[24] Surface mining excavations typically would not extend beyond depths where the ratio of overburden to ore was greater than 3 to 1.

The Former Emergency Ore Slurry Storage Areas – The former Emergency Ore Slurry Storage Areas are situated east of the Old Tailings Pond and consist of an earthen impoundment area and a circular concrete structure (Figures 2-6 and 5-3). The earthen impoundment area was constructed in 1982 as the original ore slurry emergency storage area for the Conda Slurry Plant. It was subsequently determined that the ore slurry was too coarse to pump back out of the earthen-impoundment emergency storage area and to the Mill, and that soil would become mixed with the ore. Therefore, the circular concrete structure was built as a replacement. The circular concrete structure was housed in a forced-air inflatable dome, was equipped with its own pump, and was capable of holding about 423,000 gallons of slurry. The circular emergency ore storage area was also used for temporary emergency storage during maintenance of the Smoky Canyon Mine ore-slurry pipeline. The original dammed ore slurry emergency storage area was then used as an overflow area for the circular storage structure, when necessary. These structures are no longer in use, and have been replaced by an emergency storage tank located at the Pump Station.

Former Haul Roads – The Former Haul Roads connecting the mine panels to the mill area were typically constructed as balanced cut-and-fills in natural ground, although some roads traverse across ODAs. Where needed, Rex-Chert based gravel was placed on road surfaces to improve the strength of the road surface. Material from the Meade Peak Member of the Phosphoria was not used as fill to construct new roads. Meade Peak Member material is only present within footprints of the roads, where they traverse ODAs.

5.1.2 Sources of COPCs

The RMM present at the areas with overburden piles, waste rock piles, and mill tailings described above are the primary sources of selenium and other COPCs. Overburden is the material (i.e., rock or soil) present above the Meade Peak ore body that must be removed in order to access the economically valuable ore (Figures 5-8 and 5-9). Waste rock is the rock that was removed during underground mining to access ore. Mill tailings are the solid byproduct (i.e., finely milled host rock material) of the beneficiation process (e.g., milling). The tailings material is what remains after the economically valuable ore has already been extracted. All these materials contain the seleniferous Waste Shale and Mudstones.

The areal extent of the seleniferous Waste Shale and Mudstones exposed along pit walls or exposed in pit floors (i.e., not covered with backfill) are significantly less compared to the area covered by overburden piles (external to or in-pit overburden piles), waste rock piles, and tailings. Figure 5-9 presents the general geology exposed in open pits at the Site. There is little opportunity for selenium and other COPCs to be released by runoff flowing across the exposed Meade Peak Phosphatic Shale in the pit walls and floor, and into the Wells Formation, due to the brief contact time between runoff and the seleniferous material and preferential along-bedding infiltration. There is the potential for releases from exposed seleniferous materials along the pit floor. The underground workings are believed to play an even smaller role as a

COPC source, since the surface mining pits have intersected much of the workings and any remaining workings and Waste Shale and Mudstones are not in direct contact with much moisture (Figure 2-7). The Grace Panel pile is mostly comprised of Dinwoody, Rex Chert Member, and Wells Formation, since only a small amount of ore was excavated for testing, as previously mentioned. Therefore, the open pits (i.e., pits not containing any ODAs) that are typically dry, the underground workings, and the Grace Panel pile are believed to play insignificant roles as sources of selenium and other COPCs.

The haul roads were not constructed out of materials from the Meade Peak Member of the Phosphoria and are therefore not considered as sources of selenium and other COPCs.

The following paragraphs describe the physical characteristics of the RMM acting as sources of selenium and other COPCs. Section 6 provides a discussion of the distribution and concentrations of COPCs in the RMM, relative to comparison values.

Overburden Piles – The locations and relative extent of the overburden piles in the ODAs are well documented, and the materials are easily identified based on their unique physical characteristics (Figure 5-7). Comparative color and textural contrasts between the different waste materials (e.g., hard angular gray-black chert, softer, more fissile black mudstones, etc.) allow for relatively easy identification of the overburden rock types.

Surface and subsurface soil samples collected from overburden piles show that they consist of a mix of Mudstones and Waste Shale of the Phosphoria Formation; Rex Chert Member of the Phosphoria Formation; Dinwoody Formation; and Wells Formation. The piles are a heterogeneous mixture of coarse and fine materials that have undergone a certain amount of segregation from end-dumping and subsequent movement by heavy equipment. This often leads to coarse material settling at the base of the pile and more matrix-supported finer fragments nearer to the surface of the pile.

Geotechnical samples were collected from two overburden piles in the headwaters area of the Pedro Creek Sub-Basin. The geotechnical data provide an indication of the range of material composition of overburden piles (Table 4-14). The material in the piles are heterogeneous in nature (derived from chert, shale, mudstone, and limestone), consisting of vertically stratified silty gravels, silty sands and gravels, and clayey gravels with sands. Table 4-14 presents the summary of the laboratory testing results for the various geotechnical samples obtained from the piles (Figure 3-9).

Based on the geotechnical drilling and sampling performed in support of the NCTRA, the overburden piles are semi-pervious, with potential for perched-water zones, but are likely not saturated. A temporary well installed in boring B-1 advanced into the former Pedro Creek angle-of-repose overburden pile, across a moist interval, did not produce any water. This information indicates that precipitation infiltrating into the overburden piles moves relatively

quickly through the piles until reaching the underlying original ground surface. The infiltrated water can collect or flow along the contact with the original ground surface, emerging as seeps at the pile toes. The infiltrated water can also flow into the underlying native material depending on the hydraulic contrasts or other structural conduits (e.g., fracturing) between the overburden material and the native material. These overburden piles are predominantly situated on top of Salt Lake Formation, Dinwoody Formation, and Rex Chert Member of the Phosphoria Formation, with some piles situated atop the Wells Formation (Figure 5-7).

Waste Rock Piles – Waste rock was generated at the Site during the construction of underground workings. Because the adits were advanced in the Wells Formation and the workings were above the adit levels, the waste rock predominantly consisted of Wells Formation, although some waste rock may have been generated from in between the ore zones. Most of the waste rock piles were incorporated into the ODAs that resulted from surface mining. The waste rock piles at the Camp G and Camp H portals are the only locations at the Site that were not altered by surface mining activities. These remaining waste rock piles are situated on top of a Dinwoody Formation outcrop area (Figure 5-7).

Mill Tailings – The tailings produced by the Conda Mine are generally very fine-grained materials classified as clays and silts. The maximum grain size of the tailings material was about the Number 100 U.S. Standard Sieve, with about 75 percent of material passing through the Number 200 sieve (Dames and Moore 1976). The tailings materials were contained in tailings ponds. The tailings material in the Old Tailings Pond consists predominantly of very fine grained, slightly moist to moist plastic clays with occasional layers of wet coarser-grained silts (Formation 2015a). Silts and minor amounts of very fine-grained sand generally occur in the upper few feet. The tailings material below the silts is primarily clay. The Old Tailings Pond lies on alluvial soils (Figure 5-7). The New Tailings Pond lies predominantly on alluvial soils underlain by Quaternary basalts at relatively shallow depths, with only a small area of soils derived from the Salt Lake Formation, based on the borings and test pits advanced during the Feasibility Study for the New Tailings Pond (Appendix C). Tailings from the milling process were primarily discharged into the Old Tailings Pond, but some of the tailings produced during the final years of mining were discharged to the New Tailings Pond.

5.2 Geology

The Site geology and structural features (Figure 2-4) are described in the following subsections.

5.2.1 Consolidated and Unconsolidated Deposits

The consolidated (i.e., bedrock) and unconsolidated (i.e., alluvium/colluvium) deposits at the Site are described based on Site-specific information, supplemented with regional information.

5.2.1.1 Consolidated Deposits

The consolidated bedrock units that outcrop at the Site range in age from Permian to Quaternary. The general stratigraphy of these units (Figure 5-8) from youngest to oldest is:

- Alluvial and Colluvial Deposits and Travertine (Quaternary);
- Olivine Basalt (Quaternary);
- Salt Lake Formation (Tertiary);
- Thaynes Formation (Triassic);
- Dinwoody Formation (Triassic);
- Phosphoria Formation, Rex Chert Member (Permian);
- Phosphoria Formation, Meade Peak Member (Permian; with various sub-members described below);
- Park City Formation (Permian); and
- Wells Formation (Pennsylvanian/Permian).

Figures 5-10 through 5-20 present geologic cross sections for areas indicated on Figure 2-4.

Travertine – Travertine deposits are present in the vicinity of Formation Spring, near the southwestern corner of the Shield and Jouglard Canyons Sub-Basins, and in a large area west of Woodall Spring bordering the north tip of the Aspen Range in the Western and North Woodall Mountain Sub-Basins (Figure 2-4). The travertine is typically white, tan, or gray and is locally iron stained. Mineralized springs deposit travertine as a series of ledges and terraces and small pools. Locally, travertine forms rounded mounds or cones that mark the site of former springs. Travertine deposition occurred throughout the Quaternary period.

Olivine Basalt – Vesicular olivine basalt, scoria, and microporphyritic basalt are present in the valley floor west of the Aspen Range and are limited to the area in the northwestern corner of the French Drain Sub-Basin and the southwestern corner of the Western Woodall Mountain Sub-Basin (Figure 2-4). The basalt forms part of the Blackfoot Lava Field in the Bear River Basin and extends from the Blackfoot Reservoir to the Bear River south of Soda Springs. The basalts were emplaced over unconsolidated deposits and are typically covered by a thin veneer of soil. In some areas, subsequent flows are separated by soil horizons that may include gravel and stiff clay. The basalt can have a thickness ranging from a few feet, where the formation laps onto highland areas, to as much as 1,000 feet along valley centerlines (Dion 1974). Basalt outcrops can be seen in cultivated fields west of the Site. Two olivine-basalt dikes are present on the lower slopes of Woodall Mountain. The basalt has intruded along a fault trace separating the Wells Formation from the Dinwoody Formation (Figure 2-4).

Salt Lake Formation – The Salt Lake Formation consists of fresh-water-lake-deposited (lacustrine) limestone, calcareous siltstone, sandstone, and conglomerate with white, gray, and green tuff that grades into a red-weathered diamictite near exposures of older rock. Conglomeratic sections are typically light gray to buff color, containing angular fragments derived from surrounding formations. The formation may also contain beds of white marl and calcareous clay. The Salt Lake Formation surface outcrops at the Site are predominantly along the foothills west of the Aspen Range into Conda Valley and Bear River Valley (Figure 2-4). Outcrop areas on the east side of the Aspen Range are limited. Lithologies encountered during drilling for the West Side Supplemental Groundwater Investigation consisted of weakly consolidated sandy gravels and gravelly sands with some silt and clay layers east of a normal fault in the Conda Valley, and well indurated claystone, siltstone, and clayey conglomerate west of the fault (Formation 2015). Thickness of the Salt Lake Formation can exceed several thousand feet (Dion 1969). The Salt Lake Formation is not a unit that needed to be removed to access the ore body and therefore is not present in overburden or waste rock piles.

Thaynes Formation – The Thaynes Formation is made up of clayey gray limestone, brown-weathering calcareous siltstone, and dark gray green shale. Shale beds near the middle of the formation are typically fissile and break into prominent slabs. Limestone beds within the formation form subdued ledges and rough slopes in outcrop. Siltstone and shale beds are typically recessive and form rounded slopes. The Thaynes Formation is exposed along the foothills east of the Aspen Range and is present but limited in extent and concealed in areas along the western side of the range. Thickness of the Thaynes Formation is up to 2,000 feet. The Thaynes Formation is not a unit that needed to be removed to access the ore body and therefore is not present in overburden or waste rock piles.

Dinwoody Formation – The Dinwoody Formation is composed of thin to medium bedded olive-green to gray siltstone, shale, and limestone that grades downward into a calcareous shale and siltstone that is more thinly bedded. The formation outcrops along the entire length of the eastern flank of the Aspen Range and in some areas along the western slopes of the range. Exposed Dinwoody typically weathers to gentle slopes and dense clayey soils. The Dinwoody Formation is about 900 feet thick. The Dinwoody Formation is a unit that needed to be removed to access the ore body and is therefore present in overburden or waste rock piles.

Phosphoria Formation (Cherty Shale, Rex Chert, and Meade Peak Members) – The Phosphoria Formation is divided into three stratigraphic units (from youngest to oldest): the Cherty Shale, Rex Chert, and Meade Peak Members. The Cherty Shale Member is composed of interbedded black to brown cherty mudstone and siliceous shale and argillaceous chert that ranges from 100 to 150 feet in thickness. Underlying the Cherty Shale is the thickly bedded to massive bluish-gray and black Rex Chert Member, which varies between 100 and 200 feet in thickness and is composed of interbedded chert and lenticular limestones (Stahl 1975). The Cherty Shale and the Rex Chert are typically combined and mapped as the Rex Chert Member

at the Site, which crops out along the ridge of the Aspen Range. Because of its hardness, the Rex Chert often forms salient features along the upper flanks of Woodall Mountain.

The Meade Peak Member is approximately 150 to 180 feet thick and is subdivided into four informal units. From top to bottom, these are: Hanging Wall Phosphatic Shale; Mudstone and Middle Waste Shale; Footwall Phosphatic Shale; and Footwall Mudstone and Limestone lithologic units (Figure 5-8). The footwall mudstone is the lowermost unit of the Meade Peak Member and is composed of approximately 3 feet of massively bedded reddish brown siltstone with a thin bed of black fossiliferous phosphatic siltstone at the base. It is overlain by the lower ore body, which is about 28 to 38 feet thick and is composed of gray to brown interbedded oolitic phosphorite, phosphatic mudstone, siltstone, limestone, and argillaceous phosphorite. The Middle Waste Shale occurs between the lower and upper ore horizons and is composed of about 80 to 110 feet of dark gray to black mudstone, siltstone, argillaceous carbonate, and thin oolitic phosphorite interbeds. The upper ore body is composed of about 15 to 18 feet of gray-brown to brown interbedded phosphatic mudstone, argillaceous phosphorite, oolitic phosphorite, and cherty to calcareous mudstone. The Upper Meade Peak is at the top of the Meade Peak Section and is composed of mudstone, siltstone, and cherty phosphorite that vary in thickness from 15 to 35 feet.

The Rex Chert Member and Waste Shale are units that needed to be removed to access the ore body and are therefore present in overburden and waste rock piles.

Wells Formation – The Pennsylvanian and Permian Wells Formation is divided into two members. The upper member is approximately 1,000 to 1,400 feet thick and consists of fine-grained sandstone with interbeds of limestone and dolomite. The Grandeur Limestone Member of the Park City Formation is present at the top of this member and is locally mapped as part of the Wells Formation. The Grandeur Limestone is composed of thick to massively bedded cherty gray dolomite that is occasionally sandy or argillaceous and locally is 75 to 100 feet thick. The lower member of the Wells Formation is a 500 to 1,000 foot thick medium-bedded, gray cherty limestone with interbeds of sandstone. The Wells Formation forms ridges that crop out along the Aspen Range (Figure 2-4). This thick formation of sandstone and limestone contains the primary regional aquifer in the area, with recharge occurring on the mountain slopes and discharge occurring at lower elevations. The Wells Formation is a unit that needed to be removed to access the ore body and is therefore present in overburden and waste rock piles.

5.2.1.2 Unconsolidated Deposits

The unconsolidated surface material at the Site consists of alluvial and colluvial deposits derived from weathered bedrock. The alluvial material consists of water transported deposits. The alluvial deposits are present in the drainages, and increase in lateral and vertical extent toward the east in the valley floor. The larger areas of alluvium are present in the valley floor along the Site's eastern drainages and the UBR. The colluvium includes materials deposited

from the exposed bedrock through gravity, generally found near the base of steeper slopes of the Aspen Range. These unconsolidated alluvial/colluvial deposits are composed of poorly sorted clays, silt, and sand with angular to subangular pebbles, cobbles, and occasionally larger material derived from the exposed consolidated-formation outcrops. The thickness of the unconsolidated deposits can range from 10 to 40 feet.

The various types of bedrock outcrops at the Site differ in how they weather and contribute to the alluvial and colluvial deposits across the Site. The Dinwoody Formation weathers to form dense clayey soils that are indistinct in outcrop and form gently rounded slopes. The Cherty Shale, composed of thin bedded dark brown to black cherty mudstone and siliceous shale and argillaceous chert, weathers to form gentle slopes of angular sharp fragments. The Rex Chert outcrop weathers to form steep ledges with coarse angular cobbles and boulders. Meade Peak Phosphatic Shale, where exposed, weathers to form low-sloping hillsides with sparse vegetative cover. The Wells Formation weathers to form steep cliffs near Woodall Mountain with coarse talus slopes that grade to steep grass covered hillsides formed by coarse gravel limestone.

5.2.2 Structural Setting

As previously described, the Site is located in the southeast Idaho phosphate resource area along the western side of the Aspen Range north of Trail Canyon. The Aspen Range is located at the western edge of the Idaho-Wyoming thrust belt and the eastern edge of the Basin and Range Province (Schwarze 1967). Two significant events produced the structural features of the Site: thrusting and folding associated with compression during the Late Cretaceous Sevier Orogeny and Tertiary/Quaternary Basin and Range normal (extensional) faulting (Petrun 1999).

The Conda Mine, along with most of the other mines in the southeast Idaho phosphate resource area, is located on the Meade thrust allochthon, which is a major overthrust plate of the Idaho-Wyoming thrust belt (Mayo et al. 1985). The thrust plate is underlain by the westward-dipping Meade thrust fault (Ralston and Mayo 1983), which is an imbricate thrust of the Bannock thrust fault of Mansfield (1927) and the Bannock thrust zone of Armstrong and Cressman (1963). The Meade thrust allochthon is approximately 25 miles wide by 50 miles long; the horizontal displacement along the thrust fault is at least 20 miles. Strata within the thrust plate were folded into a series of northwest-trending anticlines and synclines that vary from open to tight folds and in many cases are overturned toward the east (Mayo et al. 1985). The folds have been eroded into a series of ridges and valleys that dominate the topography. Steep eastward-trending transverse faults or tear faults are present that are generally perpendicular to the trend of the folds and formed during thrusting (Armstrong and Cressman 1963). The tear faults offset strata and are generally zones of weakness that form small canyons dissecting the Aspen Range.

Later Basin and Range faulting produced northwest trending high-angle normal faults or block faults that bound some of the valleys (Petrun 1999). Gravity data collected by Mabey and Oriel (1970) indicate that the western portion of the Meade thrust plate along the Aspen Range is

truncated by a major west-dipping, high-angle normal fault that separates the Aspen Range horst from the southern Blackfoot Reservoir and northern Bear River Valley grabens (Figures 5-10 through 5-12). This fault, referred to as the frontal fault zone in Ralston and Mayo (1983) and the Aspen Range Fault in the Blackfoot Bridge EIS (BLM 2011), is located at the southwestern corner of the Site. Numerous high-angle normal faults that generally parallel the Aspen Range Fault and fold axes cut the Meade thrust plate into a series of blocks. The gravity data were also used to estimate the depth of fill in intermontane basins. The Blackfoot Reservoir and Bear River Valleys were filled with up to 5,000 feet of Tertiary sediments (Mabey and Oriel 1970).

The following subsections describe the main structural features at the Site controlling surface water and groundwater flow (i.e., serving as zones of preferential flow, barriers to flow, etc.) in and around mining disturbed areas. Structural features are shown on Figure 2-4.

5.2.2.1 Structural Features along the Aspen Range Ridge

A northwest-trending, northward plunging anticline forms the ridge along the crest of the Aspen Range from Shield Canyon to Woodall Mountain and farther north (Figure 2-4 and Figures 5-13 and 5-20). Wells Formation rocks in the core of the anticline are exposed along the ridge crest tracing anticlinal axis. Erosion has removed the overlying Phosphoria and Dinwoody Formations along the axis. Strata on the east limb of the anticline dip 40 to 60 degrees east. Wells Formation rocks are exposed on the west side of the range and dip 30 degrees west. The west limb of the Aspen Range anticline is truncated by a series of northwest-trending normal faults (Figure 5-10). South of there, the west limb is displaced downward along a normal fault to form the Conda Anticline (described below) (Schwarze 1967). Further south in Shield Canyon, the east limb of the anticline is offset by an east-west tear fault.

In the Woodall Mountain Peak area, where the Woodall mine panels are located, the structure is more complex. Woodall Mountain Peak is within a syncline with relatively flat limbs. Along the top of the ridge and east of the peak, there is an anticline that exposed the Meade Peak in the area of the East Woodall panel (Figure 2-4). Strata on the west side of Woodall Mountain Peak (Figures 5-13 and 5-20) have been cut by several northwest-trending normal faults and the Phosphoria and Dinwoody Formations have been removed by faulting and subsequent erosion. North of the Site in the Blackfoot Bridge Mine area, thrust faulting has resulted in steeper dips in the folded Pennsylvanian and Permian units along the northern extent of the Aspen Range anticline, with bedding reportedly near vertical to slightly overturned (BLM 2011).

5.2.2.2 Structural Features on the East Side of the Aspen Range

The east slope of Aspen Range ridge is aligned with the western limb of the Trail Creek Syncline, a large structural feature that controls the topography in this area. The axis of the

syncline, located near the bottom of the Blackfoot River Valley, generally trends northwest and plunges northward (Schwarze 1967). Dinwoody Formation strata on the east limb dip 15 to 30 degrees west, and Dinwoody and Phosphoria Formation strata on the west limb (east side of the Aspen Range) dip 40 to 60 degrees east (Figures 2-4 and 5-9 through 5-20). The Rex Chert Member of the Phosphoria Formation, which is resistant to weathering, forms a ledge below the slope of the Meade Peak Member. Mine panels along the east side of Woodall Mountain (East Woodall Panel and South Woodall Panel) were characterized as truncated on the north and south ends of each pit by deep gullies.

There are two fairly large and several smaller eastward-trending transverse faults along the east side of the Aspen Range (Figure 2-4). One of the larger transverse faults cuts the strata in the NTCRA area and the other is aligned with Shield Canyon (Figure 2-4). Displacement along the Shield Canyon fault is estimated to be approximately 1,000 feet (Appendix B, 1964-1965 Annual Report). The North Trail mine panel is located on the west limb of the Trail Creek Syncline. Beds of the Meade Peak Member of the Phosphoria Formation dip 55 to 60 degrees east within the panel. The structure becomes more complex in the north portion of the mine panel. The Meade Peak outcrop is truncated on the west by a north-south normal fault and is terminated on the north by the Shield Canyon fault.

5.2.2.3 Structural Features on the West Side of the Aspen Range

The west side of Aspen Range ridge exhibits two major structural features: the Conda Anticline and associated folds and extensional faults along the western front of the Aspen Range (Figures 2-4, 5-9 through 5-11, and 5-13 through 5-16). The Conda Anticline extends along the western portion of the Aspen Range from Trail Canyon to the Former Conda Townsite. The axis of the anticline trends northwest and plunges northward. The nose of the anticline is cut by a number of echelon faults that offset beds of the Rex Chert and Meade Peak members of the Phosphoria Formation. Wells Formation strata are exposed along the crest of the anticline and Phosphoria Formation beds are exposed on both the west and east flanks. Strata along the west limb of the anticline (referred to as the West Limb panel) dip 45 to 60 degrees west and strata along the east limb (referred to as the Middle Limb panel) dip 30 to 60 degrees east. The east limb of the Conda Anticline is offset by several small thrust faults (Figure 5-11). The Ibex Panel is located along the complexly faulted west limb of a small anticline. Both of the folds are associated with a series of northwest-trending normal faults between the Conda Anticline and Aspen Range ridge.

The Conda Anticline lies within a downdropped block truncated on both sides by northwest-trending normal faults. On the basis of mapping in the mine pits, Schwarze (1967) suggested that the Conda Anticline may be the displaced west limb of the Aspen Range anticline. The Conda Anticline is offset by a fairly large tear fault in the Jouglard Canyon area that is exposed in the West Limb mine panel (Figures 2-4 and 5-14). Strata in the hanging wall near the northeast end of the pit are overturned and dip 80 degrees east. Strata along the footwall

section of the West Limb panel dip 70 degrees west to nearly vertical. The ore body along the bottom of the pit is near vertical. In the Middle Limb panel, the footwall ore has been thrust eastward under the Wells Formation and the ore section may be repeated at depth (Appendix B, 1972-1973 Annual Report). Farther south, both limbs of the Conda Anticline are truncated by a fault in Trail Canyon (Figure 2-4).

Grace Panel is located on the nose of a small northwest-trending, southward-plunging syncline in a fault block west of the Conda Anticline. The block is bounded by an east-west tear fault on the north side, and northwest-trending, high-angle normal faults on both the east and west sides. The northwest-trending faults may eventually merge with the China Hat Boundary Fault, located on the west side of the Conda Phosphate Operations facility west of the Site.

The largest and most influential of the faults is the Aspen Range Fault, which extends for more than 25 miles and forms the boundary separating the Aspen Range horst from the southern Blackfoot Reservoir and northern Bear River Valley graben to the west (Mayo et al. 1985). It has been suggested that the stratigraphic throw along the frontal fault zone ranges from 3,000 to 5,000 feet (Ralston and Mayo 1983). The extensional fault dropped the Wells Formation to great depth in the Bear River Valley west of the Site. The graben is filled with Tertiary sediments, and Tertiary basalts cover the sediment fill. The basalt dike near Woodall Mountain Creek is probably related to graben lava flows that intruded a trace of the extensional fault zone.

Fault gouge[25] associated with extensional fault zones, which consists of breccia and clay-like material of very low hydraulic conductivity, may exert some control on groundwater flow direction. The brecciated material with silt and clay may provide a barrier, preventing or restricting the migration of groundwater from horst to graben. Carbonate cement deposited by groundwater supersaturated with calcite along the fault trace (common in carbonate lithologies) may also reduce the hydraulic conductivity of the near-surface coarse clastics of the grabens near periphery extension faults (Mayo et al. 1985).

Formation Spring is located near the base of the Aspen Range and issues along the Aspen Range Fault. The spring forms a small stream with nearly constant flow and is a source of water for the town of Soda Springs (Ralston and Mayo 1983). Ralston and Mayo suggested that the Wells Formation is at least 3,000 feet higher in the Aspen Range horst than in the Blackfoot Reservoir graben and may be the source of water to Formation Spring. A large travertine terrace within the graben is associated with Formation Spring. Although the spring does not appear to be depositing travertine currently, the ledges and pools are well preserved suggesting that travertine deposition occurred fairly recently (Ralston and Mayo 1983). The occurrence of springs along the fault traces indicates that the Aspen Range Fault is a partial or complete hydraulic barrier to groundwater flow from horst to graben (Mayo et al. 1985).

[25] Gouge (ground-up rock) in fault zones with generally lower hydraulic conductivity limits flow across faults.

5.3 Hydrogeology

Groundwater occurrence at the Site can be separated into three hydrostratigraphic systems:

- Shallow Hydrostratigraphic System - A shallow/uppermost interconnected system within the unconsolidated deposits along the transition zone from the mountain front into the valley floors as well as within the valley floors;
- Intermediate Hydrostratigraphic System - A system in the upper consolidated deposits stratigraphically above and including the Meade Peak Member; and
- Deep Hydrostratigraphic System - A system forming part of the regional Wells Formation aquifer.

Figure 5-21 depicts the groundwater monitoring wells relative to the surface geology. Groundwater characteristics of each of these hydrostratigraphic systems are described in the following paragraphs, relative to the areas where RMM reside.

5.3.1 Shallow Hydrostratigraphic System

The shallow hydrostratigraphic system consists of unconsolidated alluvial/colluvial deposits that are present along the eastern and western flanks of the Aspen Range. The shallow hydrostratigraphic system begins within topographic draws along the mountain-front, continues into the transition zones between mountain front and valley floors, and extends into the valley floors (Figure 5-22).

Where present in the draws and the transition zones, the shallow hydrostratigraphic system is underlain by saturated low-permeability materials such as clay lenses in the Salt Lake Formation or silty-clay in the weathered Dinwoody Formation. Groundwater typically does not occur in unconsolidated colluvial deposits in the draws formed within the Olivine Basalt, Rex Chert Member, or Wells Formation bedrock.[26] The groundwater systems that occur within the draws and the transition zones from the mountain front into the valley floors are not vertically extensive. The groundwater wells completed in these areas typically go dry in the summer and fall or the groundwater levels in the wells drop significantly (Tables 5-1 and 5-2).

Four shallow hydrostratigraphic systems occur on the east side of the Aspen Range, each of which is separated by topographic ridges. These shallow hydrostratigraphic systems occur within the North Woodall, State Land Creek, Pedro Creek, and Camp G Creek Sub-Basins. Three shallow hydrostratigraphic systems occur along the west side of the Aspen Range, each of which is also separated by topographical features (Figure 5-22). The largest shallow

[26] The Salt Lake and Dinwoody Formation weather into less permeable material, forming perched water tables, whereas the Basalt, Rex Chert, and Wells Formation do not.

hydrostratigraphic system occurs in the Conda valley spanning from Shield Canyon northward, and includes groundwater in the unconsolidated deposits in the French Drain, Old Tailings Pond, and Western Woodall Sub-Basins. A second, small shallow hydrostratigraphic system exists in the unconsolidated deposits in the Shield and Jouglard Canyons Sub-Basin. The third shallow hydrostratigraphic system occurs within the unconsolidated deposits in the Margarette Creek/Trail Canyon Sub-Basin.

Well pumping tests conducted in alluvium/colluvium in the area near the Site yield estimates of hydraulic conductivity for alluvium/colluvium ranging from 2 to 55 feet per day (ft/day) (Table 5-3). The alluvial/colluvial groundwater systems along the slopes of the Aspen Range within the Site boundaries do not yield adequate volumes for use as domestic-water supplies.[27] Estimates of hydraulic conductivity of the tailing materials in the Old Tailings Pond ranged from 0.00005 to 0.02 ft/day (Formation 2015). Although the tailings are considered to have very low permeability, pooled water from snowmelt or rain can infiltrate into the tailings (Formation 2015).

Groundwater recharge occurs along the transition zone from the mountain front into the valley floor or by leakage from surface water streams. Groundwater potential in the shallow hydrostratigraphic system present along the flanks of the Aspen Range typically mimics the topography, with groundwater flow joining where the more extensive groundwater is present in the valley floors (Figure 5-23). The groundwater in the shallow hydrostratigraphic system in the valley floor can be interconnected with groundwater in the intermediate hydrostratigraphic system. Table 2-3 presents a summary of the estimated acreages of alluvium/colluvium covered by RMM.

5.3.2 Intermediate Hydrostratigraphic System

The intermediate hydrostratigraphic system at the Site can occur in the Olivine Basalt, Salt Lake Formation, Dinwoody Formation, as well as the Rex Chert and Meade Peak Members of the Phosphoria Formation (Figure 5-22), and these strata exhibit varying degrees of transmissivity. Locally, the intermediate hydrostratigraphic systems are typically unconfined although semi-confined conditions can exist in the Salt Lake Formation. On the east side of the Aspen Range, the intermediate system is interconnected across the Sub-Basins. On the west side of the Aspen Range, the intermediate hydrostratigraphic groundwater is compartmentalized into three separate systems in the same manner as is the shallow hydrostratigraphic unit. Table 2-3 presents a summary of the estimated acreages of the intermediate hydrostratigraphic systems outcrop areas covered by RMM. Hydrologic conditions in the intermediate hydrostratigraphic are largely controlled by the stratigraphic unit and are described in the following paragraphs.

[27] On average, a single-family household demands 194 gallons per day, based on water-demand estimates calculated for the populations of Ada and Canyon counties (IDWR 2001).

Olivine Basalt – The Olivine Basalt is present west of the Aspen Range, under the alluvial/colluvial deposits in the northwestern corner of the French Drain Sub-Basin and the southwestern corner of the Western Woodall Mountain Sub-Basin (Figure 2-4). The Olivine Basalt was encountered in the former production wells GW-8-IBS and GW-10-IBS (west of the New Tailings Pond) as well as Agrium wells A-14, A-15, A-27 through A-30, A-33, A-35, A-36, A-46, A-49, A-50, A-58, GW-MWB, and GW-NW9-IBS (Figures 3-14 and 5-21 and Table 3-6). North of the New Tailings Pond, the Olivine Basalt is juxtaposed against the Wells Formation by the extensional fault that runs along the western front of the Aspen Range. Groundwater in the Olivine Basalt is predominantly recharged by leakage from the Blackfoot Reservoir and by the downward percolation of snowmelt, precipitation, and irrigation water. No Site-specific data are available regarding the hydraulic properties of the Olivine Basalt; however, transmissivity is high in areas with rubble, cinder, and scoria (Dion 1974).

Groundwater elevation data for these wells indicate that groundwater flows in a west to southwesterly direction (Figure 5-24), consistent with studies on the Blackfoot Lava Field (Idaho Department of Water Administration 1974). Groundwater flows in the Basalt are predominantly in fractures and along contacts between the various lava flow events.

Salt Lake Formation – The Salt Lake Formation is present along the west side of the Aspen Range, with subcrops in the western foothills and low-lying areas. North of the Former Conda Townsite, the formation is juxtaposed against the Wells Formation by an extensional fault that is parallel to the Aspen Range Fault. South of the Former Conda Townsite, the formation extends southward in the valley between the west limb of the Conda Anticline and the western foothills, where it is present along both sides of the extensional fault zone trace.

The Salt Lake Formation was encountered in boreholes advanced for wells GW-9-IS, GW-12-IS, GW-14-MW (completed in the Wells Formation), GW-15-MS, GW-16-MA, GW-17-MA, GW-19-MS, borehole BH-13c, as well as Agrium wells A-13, A-16, and A-17 (Figure 3-14 and Table 3-6). The Salt Lake Formation was also encountered in all of the boreholes advanced for the West Side Supplemental Groundwater Investigation (GW-49-MA, GW-50-MS, GW-51-MS, GW-52-MA, GW-53-MS, GW-54-MA, GW-55-MS, GW-56-MS, and GW-57-MS). The Salt Lake Formation varies greatly in its capacity to yield groundwater. The sandstone and conglomerate units within the Salt Lake Formation form zones of preferential flow. Claystone and silty limestone lenses within the formation can act as semi-confining layers, inhibiting vertical groundwater movement in some areas and locally creating artesian conditions. Claystones and gravelly claystones encountered at deeper depths (greater than 250 ft bgs) do not produce water and are generally dry.

As previously discussed, the extensional fault zone of the Aspen Range Fault may be a partial or complete hydraulic barrier to groundwater flow from horst to graben, indicated by the occurrence of springs along the fault trace (Mayo et al. 1985). Conditions at several of the Salt Lake Formation wells along the extensional fault zone within the Conda Site also indicate the

presence of a hydraulic barrier. However, the full extent of the fault zone and its hydraulic-barrier effects is uncertain for the area in between the Conda wells and Woodall Mountain Springs. Average groundwater elevation differences between wells GW-50-MS (6,144 ft above mean sea level [amsl]) and GW-55-MS (6,134 ft amsl), situated across the fault zone from each other, indicate that upwelling conditions exist along the east side of the fault zone. In addition, wells GW-12-IS and GW-15-MS, which are artesian due to hydrostatic pressure also indicate that the fault zone is acting as a barrier to flow. The bedding in the Salt Lake Formation in the area of wells GW-12-IS and GW-15-MS dips east (Figures 5-11 and 5-21) and the flowing conditions at these wells indicate that the water producing layer is not only confined vertically by the silty clay layering, but also laterally by the extensional fault.

Single well recovery tests performed on wells GW-9-IS and GW-19-MS also indicate that the extensional fault zone may be a barrier to flow. Well GW-9-IS is east of and close to the extensional fault zone and well GW-19-MS located east and further away from the fault zone. The drawdown recovery test for GW-9-IS indicates that the well recharged quickly (i.e., upward hydraulic gradient). It was difficult to lower the water table by 2.5 feet from the static water level (18.4 feet below top of casing [btoc]) to 20.99 feet btoc. Well GW-9-IS recovered to 90 percent of initial water level within the first hour (Figure 5-26). The drawdown recovery test for GW-19-MS indicated that the well recharged fairly slowly relative to GW-9-IS. Well GW-19-MS recovered to 36 percent of initial water level within the first hour. This indicates that the transmissivity of the Salt Lake Formation is higher at the location of GW-9-IS, possibly enhanced by the presence of the fault zone.

Calculated transmissivity based on HydroPhysical™ testing performed within the Salt Lake Formation at wells GW-9-IS and GW-12-IS range from 0.433 to 199 square feet per day (ft^2/day) in GW-9-IS and from 0.282 to 14.6 ft^2/day in GW-12-IS (Table 4-19 and Appendix H).

Groundwater in the Salt Lake Formation is predominantly recharged in areas where the formation outcrops/subcrops in the foothills of the Aspen Range. Groundwater flow in the Salt Lake Formation is controlled by hydraulic head differences, bedding[28] and fault structures. The Salt Lake Formation generally acts as a confining unit to groundwater flow due to the dominance of claystone and silty limestone within the formation. However, sand and gravel layers within the formation do allow for groundwater water flow along bedding planes. Groundwater elevation data for the wells completed in the Salt Lake Formation indicate that groundwater flows as follows:

- West side of the fault zone - north-northwest within outcrop areas, and south-southwest where overlain and influenced by the Olivine Basalt (Figure 5-24).

[28] Bedding control, common in carbonate terrains worldwide, is the principle mechanism in the superficial aquifers above the Phosphoria Formation in interior of the allochton created by the Meade Thrust (Ralston et al. 1977). Bedding control can be extrapolated into the deeper underlying aquifer by looking at the strike-dips of the strata at the surface.

- East side of the fault zone - north-northwest (Figure 5-24).

Dinwoody Formation – The Dinwoody Formation is present on both sides of the Aspen Range, outcropping along the entire eastern slope of the range and in some areas along the western slopes. Groundwater conditions in the Dinwoody Formation at, and in the vicinity of, the Site can be evaluated using information from wells GW-26-MD, GW-29-MD, GW-32-MD, GW-37-MD, GW-42-MD, GW-44-MD, GW-46-MD, GW-LRSN-1-DD, GW-LRSN-2-DD, MW-6D, MW-11Da, MW-11Db, MW-18Da, and MW-18Db (Figure 3-14 and Table 3-6). The formation can locally contain highly jointed and fractured zones that transmit considerable amounts of groundwater. Groundwater in the Dinwoody Formation is predominantly recharged in outcrop areas in the foothills of the Aspen Range. At the base of the Aspen Range, where the formation subcrops beneath the overlying alluvial/colluvial system, vertical groundwater migration into the steeply dipping Dinwoody Formation is very limited, as indicated by borehole conditions for nested wells GW-25-MA and GW-26-MD, nested wells GW-28-MA and -29-MD, GW-41-MA and GW-42-MD, and GW-45-MA and GW-46-MD – groundwater was observed in the alluvial/colluvial materials during drilling but the upper portion of the Dinwoody Formation was dry. A borehole (B-1 Appendix G) drilled through the Pedro Creek ODA angle-of-repose pile and into the Dinwoody Formation indicated moisture in the pile, but little to no moisture in the Dinwoody Formation. The Dinwoody Formation encountered below the pile was very clayey for approximately the upper 10 feet.

The hydraulic conductivity of the Dinwoody Formation is estimated to range from 0.02 to 2.5 ft/day based on single-well permeability tests at MW-6D and MW-11Db (BLM 2011). Intervals within the Dinwoody Formation are capable of yielding sufficient water for potential use as source for domestic-water supply.

Groundwater flow in the Dinwoody Formation is controlled by hydraulic head differences, bedding, and fault structures. Groundwater elevation data for the wells completed in the Dinwoody Formation indicate that groundwater flows as follows:

- East side of the Aspen Range – eastwardly following bedding planes (Figure 5-24).
- West side of the Aspen Range and north of the Jouglard Canyon Fault:
- On the east side of the fault zone, flow follows the bedding dips within the limbs of the anticline and ultimately to the north-northwest conveyed by the fault and plunge of the Conda Anticline (Figure 5-24).
- On the West side of the fault zone, flow is to the east, following bedding planes (Figure 5-11) until the extensional fault zone conveys the flow to the north-northwest (Figure 5-24).
- West side of the Aspen Range and south of the Jouglard Canyon Fault - eastwardly (Figure 5-24) following bedding planes (Figure 5-11).

- West Side of the Aspen Range in Margarette Creek and Trail Canyon Sub-Basins – likely towards and along the northwest trending fault that terminated the Conda Anticline.

Rex Chert and Cherty Shale – The Rex Chert and Cherty Shale Members of the Phosphoria Formation outcrop along the entire eastern slope of the Aspen Range; and on the flanks of the Conda Anticline. The Rex Chert is a massive[29] unit with a low hydraulic conductivity, estimated at 0.23 ft/day in the area (based on single-well permeability test at MW-2R [BLM 2011]). The Cherty Shale Member also is generally considered to have a low hydraulic conductivity (Corbet 1980). Previous investigations by Ralston et al. (1977, 1983) and Winter (1980) concluded that groundwater flow in the Rex Chert is limited, and that the unit generally can only transmit significant amounts of groundwater where highly fractured (i.e., in faulted zones). Recharge occurs through fractures in the surface outcrop areas along the hill sides.

Five boreholes (the boreholes for GW-14-MW and GW-33-MR; and boreholes BH-13a, BH-13b, and BH-13c) were advanced along the west flank of the Conda Anticline to investigate groundwater conditions in the Rex Chert Member downgradient of ODAs (Figure 3-14). In the first borehole (which was ultimately constructed as Wells Formation well GW-14-MW), the Rex Chert was not encountered. Boreholes BH-13a, b, and c were advanced in close proximity to a nearby Rex Chert outcrop. The Rex Chert was encountered in BH-13a (40 to 78 feet below ground surface [ft bgs]) and BH-13b (37 to 81 ft bgs); both were advanced into the Wells Formation. The Meade Peak Member was not encountered, in BH-13a and BH-13b. No saturated intervals were encountered in the Rex Chert in boreholes BH-13a and BH-13b. The Rex Chert was not encountered in BH-13c, which was advanced through alluvium and Salt Lake Formation (BH-13c was advanced to 285 ft bgs). Small intervals of breccia encountered in BH-13a (12 ft bgs) and BH-13c (3 ft bgs) indicate that the extensional fault zone may extend as much as 350 feet (ft) east from the projected trace at these locations.

The Rex Chert Member was encountered during the drilling of geotechnical boring B-3, through the Pedro Creek ODA angle-of-repose pile. At this location, the Rex Chert Member consists of highly fractured black chert with quartzite stringers. While drilling through the chert, it was difficult to maintain circulation due to the highly fractured characteristics of the material. A temporary well was constructed in the Rex Chert Member for groundwater monitoring purposes. The well has remained dry since installation in 2010.

Groundwater was encountered in the Rex Chert at well GW-33-MR, located southwest of the Pit Lake (Figure 6-95). Well GW-33-MR is within the fold axis trace of the Conda Anticline, where fracturing of the Rex Chert is likely most prevalent (consistent with findings from previous investigations by Ralston et al. [1977, 1983] and Winter [1980]). No shallow alluvial groundwater was encountered during the drilling for this well.

[29] A unit that has few or no joints, cracks, foliation, or bedding with a homogeneous appearance.

Based on the borehole log for the former production well GW-11-IW (Appendix G), groundwater was encountered in the Rex Chert during drilling. Well GW-11-IW also lies on the fold axis for the Conda Anticline.

The lack of saturated intervals encountered indicate that the Rex Chert is likely not a significant source of groundwater within the limbs of the Anticline.

Meade Peak Member – The Meade Peak Member of the Phosphoria Formation is considered an aquitard (Ralston and Mayo 1983) with a hydraulic conductivity estimated to be as low as 0.07 ft/day (Table 5-3). The Meade Peak Member is of sufficiently low hydraulic conductivity to preclude development as a drinking water source. Groundwater in the Meade Peak Member of the Phosphoria Formation can be evaluated using wells GW-22-MM and GW-23-MM in the vicinity of the Pit Lake (NL4P-1). In May of 2009, the concrete pad for GW-22-MM was submerged under Pit-Lake water. Well GW-22-MM was purged dry to monitor the recharge rate; which was approximately 0.02 ft per minute. The slow recharge indicates a low hydraulic conductivity, consistent with the Meade Peak characteristics.

5.3.3 Deep Hydrostratigraphic System

The deep hydrostratigraphic system in the Wells Formation is typically unconfined although semi-confined and confined conditions can exist. The Wells Formation outcrops along crest and flanks of the Aspen Range and extends deep (Figure 5-25). Groundwater in the Wells Formation at the Site is unconfined in outcrop areas and confined where overlain by the Meade Peak Member. Recharge to the Wells Formation along outcrop areas contributes to the regional Wells Formation groundwater system. Recharge likely moves rapidly through weathered and fractured portions of the outcrop areas along the ridge of Aspen Range. The Wells Formation exhibits the highest overall hydraulic conductivity of any of the strata that outcrop in the vicinity of the Site. Groundwater conditions in the Wells Formation in close proximity to the RMM at the Site can be evaluated using information obtained from the former production well GW-11-IW and monitoring wells GW-14-MW, GW-21-MW, GW-31-MW, GW-39-MW, and GW-40-MW (Figure 5-21).

As previously discussed, the extensional fault may be a partial or complete hydraulic barrier to groundwater flow from horst to graben, indicated by the occurrence of springs along the fault trace (Mayo et al. 1985). Discharge at the springs along the fault trace also results in a strong upward vertical hydraulic gradient on the east side of the fault. Wells GW-14-MW, GW-21-MW, and GW-31-MW were installed in 2008 (Table 5-2) within the valley, along the east side of the extensional fault zone. During drilling of these wells the groundwater level in the boring represented the groundwater potential in uppermost water-bearing strata encountered. Over time, the significantly higher groundwater potential present in deeper strata screened by the well resulted in a significant groundwater level rise in these wells. The low transmissivity of the strata screened in each of the wells contributes both to the significant vertical hydraulic gradient

and the slow equilibration time. The setting of these wells (i.e., adjacent to the fault zone) and the significant rise in water table (Table 5-2) relative to where water was encountered during drilling (Table 3-6), support the postulation that the fault acts a barrier to flow from horst to graben. The relatively constant groundwater levels in these wells, between seasons (Table 5-2) indicate regional groundwater influence.

Single well recovery tests performed on GW-14-MW and GW-31-MW indicated that the monitoring wells recharged slowly. Due to slow recharge, the water table in GW-14-MW could be decreased by 84 ft from the static water level (15.5 feet below top of casing [ft btoc]) to 99.4 ft btoc. Well GW-14-MW only recovered to 11 percent of initial water level within the first hour. It is estimated that it would have taken about 1.5 days to recover fully. Similarly, the water table in GW-31-MW could be decreased by over 56 ft from the static water level (42.3 ft btoc) to 99.69 ft btoc. Well GW-31-MW recovered to 24 percent of initial water level within the first hour, indicating a hydraulic conductivity of 39.64 ft/day. Data from single-well permeability tests at Monsanto's wells MW-1W, MW-4W and MW-8W indicate hydraulic conductivities ranging from 4.2 to 44 ft/day (BLM 2011).

Culinary well GW-11-IW was shut down in September 2009, and the pump removed to facilitate the evaluation of hydrophysical conditions in the well. The ambient groundwater was measured at 13.05 feet btoc, approximately 6,240.95 feet amsl. The lowermost portion of the well (from 155 feet bgs to total depth), which is considered to be Wells Formation, was able to produce only 3 gpm when pumped using a wireline straddle-packer.

Groundwater flow in the Wells Formation is controlled by hydraulic head differences, bedding, and fault structures. Groundwater elevation data for the wells completed in the Wells Formation indicate that locally recharged groundwater flows as follows:

- East side of the Aspen Range – eastwardly following bedding planes (Figure 5-25).
- West side of the Aspen Range and east of the extensional fault zone – westward following bedding planes until the extensional fault zone coveys the flow to the north-northwest (Figure 5-25).

Table 2-3 presents a summary of the estimated acreages of Wells Formation outcrop areas covered by RMM.

5.3.4 Summary of Groundwater Flow Paths

Groundwater flow direction and velocity within the hydrostratigraphic units is controlled locally by a number of factors including hydraulic head differences, hydraulic conductivity, orientation of geologic structures (e.g., bedding planes, fault zones, fold axis, fractures, and solution channels), topography, and extent of local areas of recharge (e.g., outcrop and stream loss

areas). Groundwater recharge occurs as direct infiltration in outcrop areas or by leakage from an overlying stratigraphic unit.

As a general rule, preferential groundwater flow paths in the consolidated formations tend to follow bedding planes (Ralston and Mayo 1983), with hydraulic conductivity along bedding planes at a given location being much higher than cross-bedding hydraulic conductivity. Groundwater flow paths in the shallow hydrostratigraphic systems typically mimic the topography. Preferential groundwater flow paths may be established through zones of relatively high hydraulic conductivity (e.g., preferentially in the alluvial deposits [2 to 55 ft/day] instead of the Dinwoody Formation [0.02 to 2.5 ft/day], where both encountered). Groundwater leakage from the higher conductivity units across bedding into adjacent units with relatively lower hydraulic conductivity is expected to be limited, since flow occurs preferentially along bedding planes.

On the east side of the Aspen Range, groundwater in the shallow hydrostratigraphic system occurs only within the Sub-Basin drainages resulting in a series of hydraulically separate sub-systems. Shallow groundwater within each of the drainages flows eastward, with the exception of shallow groundwater in the North Woodall Sub-Basin. Groundwater in the intermediate hydrostratigraphic system also flows eastward. In the deep hydrostratigraphic system, locally recharged groundwater flows north and eastward, until reaching the regional groundwater system and flowing to the west-northwest.

On the west side of the Aspen Range, groundwater in the shallow hydrostratigraphic systems that occur north of Shield Canyon, within Shield Canyon, and within Trail Canyon flows in north-northwest, west, and westerly directions, respectively. Groundwater flow within the intermediate hydrostratigraphic system is controlled by the distinct faulting and folding present within each of the above areas. In the deep hydrostratigraphic system, locally recharged groundwater flows along the limbs of the folds, until reaching the regional groundwater system and flowing to the west-northwest.

The hydrostratigraphic units in the consolidated formations (e.g., Olivine Basalt, Salt Lake, Thaynes, Dinwoody, and Wells formations) are generally the most capable of yielding the amount of groundwater previously described as necessary for potential domestic water-supply use. The groundwater within the valley floor alluvial/colluvial deposits could yield adequate amounts of water for potential domestic water-supply use, but would require more than one well per household due to the limited vertical extent of the alluvial/colluvial deposits.

5.4 Terrestrial Characteristics

The sections that follow describe the characteristics of vegetation communities and other terrestrial biota present at the Site. The information is based on the RI findings as well as information from other studies conducted at the Site and regional investigations.

5.4.1 Vegetation Communities

The vegetation community at the Site is predominantly composed of conifer-aspen, mountain brush, and sagebrush-grass communities, with areas of agricultural use. Figure 5-27 depicts the vegetation cover types in the Conda Mine area; the vegetation map is based on data compiled by USGS Northwest Regional Gap Analysis Project (NWGAP) (USGS 2009).

Extensive vegetation sampling and community monitoring was conducted throughout the Site. Representative forage, browse, and aquatic vegetation samples were collected from locations across the Site and Table 4-18 summarizes the species contained in those vegetation samples. Table 4-17 provides a brief description of the habitat at each sampling location based on field-collected information (i.e., vegetation samples, quantitative and qualitative community measurements, and general observations) and the USGS NWGAP land cover data. Photographs of the terrestrial sampling locations are provided in Appendix N. The dominant habitats at the Site are summarized briefly below.

- Dense grasses interspersed with some forbs and shrubs and varying degrees of bare ground/rock cover at the ODAs.
- Sparsely naturally revegetated areas with significant bare ground/exposed rock and some grasses and forbs, with shrubs and trees in pit, waste-rock pile and Townsite areas.
- Wet meadows characterized by herbaceous species, with groups of cattails and willows in tailings pond and other pooled areas.
- Sagebrush steppe and other grassland/shrubland areas. Densely shrubbed hillsides characterized by sagebrush, other shrubs, grasses, and forbs; and more open sagebrush-dominated areas with grasses and forbs.
- Woodland areas characterized by a tree overstory (conifer and deciduous species) and an understory of grasses, shrubs, and forbs, with some open meadows. Forest openings are dominated by a mixed shrub component and herbaceous understory.
- Woodland/sagebrush transition areas characterized by aspen, sage, grasses, forbs, and shrubs.
- Forested riparian areas in headwaters of intermittent creeks with some beaver-ponded areas; characterized by an aspen/conifer overstory and an understory of grasses, shrubs, and forbs.
- Open, willow-dominated riparian areas in valley floor with shrubs and herbaceous understory, often within sagebrush steppe.
- Sagebrush-dominated or wet meadow riparian areas with intermittent or permanent channels, with either sagebrush steppe or graminoid- and forb-dominated wet meadow communities.

- Wetlands (Figure 5-20) consisting of palustrine emergent wetlands, palustrine forested/shrub wetlands, and ponds (based on the National Wetlands Inventory [NWI] coverage [USFWS 2009a, 2012a] with classifications according to Cowardin et al. 1979, wetlands delineated as part of the Blackfoot Bridge Mine FEIS [BLM 2011], and wetlands delineated within the Pedro Creek Removal Action project area [JBR 2011]).

5.4.2 Wildlife and Invertebrates

The vegetation types in the area provide habitat for a variety of wildlife species. Table 5-4 provides a summary of terrestrial species potentially present at the Site, based on visual observations and regional documents.[30]

Small mammal surveys at 26 terrestrial sample locations, 7 riparian sample locations, 2 terrestrial background sample locations, and 2 riparian background sample locations identified nine dominant species (Table 4-22). Deer mice (*Peromyscus maniculatus*) were the species collected most often with at least one deer mouse collected at all locations except riparian location CGC-1. Western harvest mice (*Reithrodontomys megaloti)* were captured at 4 terrestrial locations but not at riparian locations, while meadow voles (*Microtus pennsylvanicus*) were captured at 7 terrestrial and 2 riparian locations. Least chipmunks (*Tamias minimus*) and ermine (*Mustela erminea*) were also both captured in multiple locations. Two bushy-tailed woodrats (*Neotoma cinerea*) were captured at terrestrial location NT5-05 which was the only wooded sampling location. Two species of vole, the sagebush vole (*Lemmiscus curtatus*), and southern red-backed vole (*Clethrionomys gapperi*) were captured at one riparian background location each. Finally, an unidentified shrew, most likely a vagrant shrew (*Sorex vagrans*), was captured at riparian location CGC-1. Other mammal species which can be observed at the Site include bats, lagomorphs (rabbits), rodents, carnivores, and ungulates. In particular, rodent species can include: shrew (*Sorex* spp.), chipmunk (*Tamias* spp.), pine squirrel (*Tamiasciurus hudsonicus*), yellow-bellied marmot (*Marmota flaviventris*), beaver (*Castor canadensis*), and porcupine (*Erithizon dorsatum*). Nuttall's cottontail (*Sylvilagus nuttalli*) was the only lagomorph observed. Other potentially present species are long-tailed vole (*Microtus longicaudus*), montane vole (*Microtus montanus*), northern flying squirrel (*Glaucomys abrinus*), and jackrabbit (*Lepus* spp).

Carnivores seen at the Site include mountain lion (*Felis concolor*), striped skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), black bear (*Ursus americanus*), and ermine. Other carnivores potentially inhabiting the area include bobcat (*Lynx rufus*), grey wolf (*Canis lupus*), badger (*Taxidea taxus*), marten (*Martes americana*), and long-tailed weasel (*Mustela frenata*). Ungulates observed at the Site include mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), and moose (*Alces alces*).

[30] Not all of the terrestrial species presented have been observed at the Site, nor is the list all-inclusive.

Several species of birds occur in the Site vicinity, including raptors, upland gamebirds, passerines (i.e., songbirds), waterfowl, and shorebirds. Bird species that have been observed at the Site are song sparrow (*Melospiza melodia*), American robin (*Turdus migratorius*), red-winged blackbird (*Agelaius phoeniceus*), black-billed magpie (*Pica hudsonia*), common raven (*Corvus corax*), gray jay (*Perisoreus canadensis*), sandhill crane (*Grus canadensis*), western tanager (*Piranga ludoviciana*), belted kingfisher (*Megaceryle alcyon*), bank swallow (*Riparia riparia*), mountain bluebird (*Sialia currucoides*), northern flicker (*Colaptes auratus*), ruffed grouse (*Bonasa umbellus*), mourning dove (*Zenaida macroura*), great blue heron (*Ardea heroidas*), mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), American white pelican (*Pelecanus erythrorhynchos*), killdeer (*Charadrius vociferus*), turkey vulture (*Cathartes aura*), and grebe. Raptors such as northern harrier (*Circus cyaneus*), bald eagle (*Haliaeetus leucocephalus*), red-tailed hawk (*Buteo jamaicensis*), northern goshawk (*Accipiter gentilis*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), and owls have also been observed.

Other raptors that may use the general area for hunting and/or nesting include Swainson's hawk (*Buteo swainsonii*), boreal owl (*Aegolius funereus*), great horned owl (*Bubo virginianus*), and great gray owl (*Strix nebulosa*). Additional game birds potentially found in the area are Hungarian partridges (*Perdix perdix*), Chukar partridges (*Alectoris chukar*), and blue grouse (*Dendragapus obscurus*), greater sage-grouse (*Centrocercus urophasianus*), and sharp-tailed grouse (*Tympanuchus phasianellus*) as cited in regional documents.

Based on regional documents (e.g., USFS 2003), additional bird species including migratory species that may be present in the area are: hairy woodpecker (*Picoides villosus*), tree swallow (*Tachycineta bicolor*), western wood-pewee (*Contopus sordidulus*), house wren (*Troglodytes aedon*), gray-headed junco (*Junco hyemalis*), and chipping sparrow (*Spizella passerina*). A variety of additional resident and migratory bird species may also occur within the region, such as tanagers, warblers, sparrows, swallows, wrens, hummingbirds, curlews, killdeer, thrushes, flycatchers, ducks, grebes, jays, and teal, among others.

Reptiles such as the western terrestrial garter snake (*Thamnophis elegans*) have been observed in the area; another potential reptile species in the area is the rubber boa (*Charina bottae*).

Fourteen orders of terrestrial invertebrates were identified in the 28 composite samples collected from across the Site. Nearly 95 percent of the terrestrial invertebrate mass was composed of the following six orders: Orthoptera (grasshoppers), Hemiptera (true bugs), Diptera (flies), Hymenoptera (ants, bees, and wasps), Coleoptera (beetles), and Lepidoptera (butterflies and moths) (Table 4-20). As expected, grasshoppers made up the majority of the total sample mass due to their size. However, in terms of number of individuals, the true bugs far outnumbered the grasshoppers and were the second most dominant of the orders by mass (Table 4-20).

5.5 Hydrology and Aquatic Ecology Characteristics

The following subsections describe the hydrological and aquatic characteristics of the Site.

5.5.1 Surface Water Hydrology

As previously described, a number of local drainages exist along the western and eastern portions of the north-south trending Aspen Range. Several foothill ridges are present between the plains along the perimeter of the Site and the Woodall Mountain Ridge of the Aspen Range (Figure 2-3). Drainages along the eastern and northern portions of the Site carry flow into the UBR. The UBR flows into the Blackfoot River Reservoir located approximately 10 miles northwest of the Site. From its headwaters area (approximately 15 miles upstream [east] of the Site) to the Blackfoot Reservoir is identified as impaired under CWA Section 303(d), based on concentrations of selenium, sediment, dissolved oxygen, and high temperatures (IDEQ 2014). For selenium, the Blackfoot River is in Category 5 which is the list of impaired water bodies under the Clean Water Act Section 303(d). For sediment, the Blackfoot River is in Category 4(a) waters not supporting one or more beneficial uses but a Total Maximum Daily Load (TMDL) is completed and approved by USEPA; for temperature/dissolved oxygen and it will be moved to Category 4(a) in the 2014 integrated report since a temperature TMDL has been approved by USEPA. Drainages along the western and southern portions of the Site are typically dry, but could carry flow into the Bear River Basin during large precipitation events (Figure 2-3 and Table 4-28). The Site's surface water features also include various ponds, seeps, and springs.

The drainages, when water is present, are considered first-order streams with minimal transport of fine sediment from upgradient sources. Aquatic habitat surveys (discussed further in Section 5.5.2.1) showed evidence of past grazing, some active grazing, and bank trampling, leading to erosion and sedimentation in sections of the channels at the Site, particularly in areas with more defined banks. The physical habitat surveys also indicated limited riffles, low percentages of cobble substrate, and a high degree of embeddedness, sedimentation, and erosion.

5.5.1.1 East Side Surface Water Bodies

The drainages with intermittent flow on the east side of the Aspen Range include North Woodall Mountain Creek, Camp G Creek, Pedro Creek, and State Land Creek (Figure 5-21). The headwaters areas of these drainages typically only contain flow during spring runoff. Flow in these creeks is often lost to the subsurface in the upper reaches and then resurfaces downgradient in the lower reaches. The mouths of Camp G Creek, Pedro Creek, and State Land Creek typically do contain flow year round. The headwaters of these runoff drainage channels are located at elevations ranging from 6,800 to 7,200 ft AMSL, and level out to approximately 6,300 ft AMSL at the mouths.

The east side of the Woodall Mountain Ridge is relatively steep. The topography becomes more gentle east of Woodall Mountain until the first area of foothills, where small tributaries enter Camp G Creek, Pedro Creek, and State Land Creek drainages. East of the first area of foothills, the topography continues to flatten until a second area of foothills further to the east yields additional tributaries that join with the major drainages. Finally, east of this second area of foothills are the plains where Trail Creek and the UBR flow.

Camp G Creek, Pedro Creek and State Land Creek do not have any special state or federal designations that significantly restrict their use. The U.S. Forest Service (USFS) and National Park Service (NPS) did not designate these creeks as Wild and Scenic Rivers (USFS and NPS 1998). State Land Creek is listed as impaired under the CWA 303(d), based on selenium and sediment from the headwaters on Woodall Mountain to the confluence with the UBR to the northeast, a distance of approximately 9 miles (IDEQ 2014). The creeks and ponds at the Conda Mine are subject to IDEQ's water quality criteria (i.e., standards) for designated cold-water biota use. Each of the main east side drainages is described in more detail below.

North Woodall Mountain Creek – The North Woodall Mountain Creek channel originates from the northern portion of Woodall Mountain and flows to the north across the northern border of the Site (Figure 5-29). This stream is composed mainly of ponds formed by beaver dams, with ephemeral flow between the ponds. The lower portions of the channel were reported dry in many of the cases where the beaver ponds further upgradient contained water. Much of this drainage has recently been disturbed by initial construction activities associated with the east overburden stockpile area of the Blackfoot Bridge Mine.

Camp G Creek Drainage – Two primary branches of Camp G Creek exist: the western branch, which originates upgradient of the Jouglard Ranch near the base of Woodall Mountain; and the southern tributary, which originates across the ridge on the southeastern slopes where it parallels the main access road to the Jouglard Ranch (Figure 5-29). Upper elevation riparian areas are generally narrower, shallow, and steep compared to the riparian areas in the valley, have ephemeral water availability, and are characterized by dense shrubs and evidence of historic beaver dams. Lower-elevation riparian areas within the valley are wider and deeper, and are characterized by wet meadow vegetation with evidence of grazing in the area. Some areas have dense willows along the banks. Several springs are also present in the Camp G Creek Sub-Basin, including two springs that are used for drinking water at the Jouglard Ranch.

The main stem of Camp G Creek can be divided into reaches that are defined by tributaries or other inflows (Figure 5-29). Reach 1 extends from the ephemeral headwaters of Camp G Creek to the inflow drainage of the Camp G portal area. Reach 2 begins where the Camp G portal area enters the main stem and continues on to the Camp H portal area and the confluence of Camp H Creek. At this point, the main stem of Camp G Creek passes through the first set of foothills east of Woodall Mountain. Reach 3 starts at the Camp H Creek confluence and extends downgradient to the confluence with the southern tributary (Tributary #1). Beaver

ponds are present in the narrow canyons where Camp G Creek passes through the first set of foothills. Reach 4 extends from the entrance of the southern tributary to the mouth where the main stem of Camp G Creek empties into the perennial Trail Creek. At lower elevations, the creek is shallow and narrow, with occasional stock ponds present before it eventually flows into Trail Creek to the east.

Pedro Creek Drainage – Pedro Creek is an intermittent stream that flows west to east from Woodall Mountain toward Trail Creek (Figure 5-29). Similar to other creeks at the Site, Pedro Creek is generally narrow, shallow, and has intermittent water availability. The upper elevation portion of Pedro Creek includes two ephemeral tributaries within densely forested areas with scattered meadows; the middle-elevation portion of the creek is within sagebrush habitat with some willows; and the lower-elevation riparian areas within the valley have some wet meadow vegetation as well as more dense willow clumps and evidence of grazing in the area. A set of four tributaries enter the main stem of Pedro Creek from the south.

Reach 1 of the main stem of Pedro Creek is a short stretch between a headwater seasonally wet meadow area to the confluence with Tributary #5 (Figure 5-29). This reach generally contains a small amount of water during spring snowmelt runoff conditions, but dries out by mid-summer and remains dry during base-flow conditions. Reach 2 begins where Tributary #5 meets the main stem, extends through the first set of foothills east of Woodall Mountain, and traverses across the middle of the Pedro Creek Sub-Basin until it encounters Tributaries #1 through #4, which converge and then enter the main stem of Pedro Creek at the second set of foothills east of Woodall Mountain. Much of this reach is dry during base-flow conditions. Reach 3 extends from the entrance of the set of tributaries to the mouth of Pedro Creek at Trail Creek. The reach 3 surface water monitoring location directly downgradient of the tributaries (PC-2) typically contains water, even during base-flow conditions, but the location further downgradient closer to the mouth of Pedro Creek (PC-1) is generally dry during the base-flow period.

State Land Creek Drainage – State Land Creek flows south to north in the northern portion of the Site (Figure 5-21). This intermittent stream is generally ephemeral in the headwaters area, and at lower elevations the creek is shallow and narrow, often less than 5 feet wide.

Reach 1 originates at the base of the eastern flank of Woodall Mountain and traverses across the valley, picking up flow (if any) from a few unnamed tributaries, until it is joined by Tributary #1 from the south (Figure 5-29). This headwaters reach and the associated unnamed headwater tributaries are ephemeral, and portions are typically dry during base-flow conditions and sometimes even dry during the high-flow period. At the junction of the main stem of State Land Creek with Tributary #1, the main stem turns sharply to the north. Reach 2 spans the distance between the confluence of Tributary #1 and Tributary #2 with the main stem. Reach 3 encompasses the area between the Tributary #2 inflow and the Tributary #3 inflow. Reaches 2 and 3 are intermittent, flowing seasonally during high-flow snowmelt runoff conditions and then

drying out in base-flow conditions. Reach 4 consists of the main stem of State Land Creek downgradient of Tributary #3 until it empties into the UBR at its mouth. This portion of State Land Creek usually contains water, but portions have also been dry during the base-flow period of certain years.

Other waterbodies on the east side include:

- Features containing water year round such as the FSPS sedimentation basin, livestock watering pond PCP-2, and the NTCRA NES-5 Seep Collection Pond.

- Features containing seasonal pooling of precipitation such as the NTCRA sedimentation ponds, pooling areas for use in livestock watering, beaver ponds, and other pooling areas throughout the Site.

5.5.1.2 West Side Surface Water Bodies

Drainages in the western and southern portions of the Conda Mine, such as Woodall Mountain Creeks #1 through #6, the French Drain, Southwest Conda Creek, Margarette Creek, Shield and Jouglard Canyons drainages, and Trail Canyon Creek, are much smaller than the drainages in the eastern and northern portions of the Site (Figure 5-30). These drainages are generally dry, since they are in Wells Formation outcrop areas (e.g., Woodall Mountain Creeks #1 through #6) and quickly lose flow to infiltration. Each of these west side drainages is described in more detail below, but the main drainages at the Site are found on the east side of the Aspen Range (refer to Section 5.5.1.2).

Woodall Mountain Creeks #1 through #6 – The ephemeral Woodall Mountain drainages (WMC1 through WMC5 in the Western Woodall Mountain Sub-Basin, and WMC6 in the Old Tailings Pond Sub-Basin) originate across Wells Formation outcrop on the west side of Woodall Ridge (Figure 5-30). They may briefly flow during heavy rainfall or rain-on-snow events, but are generally dry throughout the year because any flow is quickly lost to infiltration. Woodall Mountain runoff drainage channels WMC1 through WMC6 were visited during the 2003, 2004, 2007 (WMC6 only), and 2008 spring snowmelt seasons, and were found to be dry when other areas of the Site had flow.

French Drain – The French Drain conveys runoff and seep SWS-3 from the east side of the former haul road. Seep SWS-3 likely drains the underground workings at Adit No. 2 and flows into the cluster of small, shallow ponds (SWP-4 and SWP-4A) within a forested area adjacent to the former haul road. These ponds contribute to the French Drain flow under the former haul road (Figure 5-30). The minimal French Drain flow is ultimately lost to infiltration.

Shield and Jouglard Canyons – The ephemeral drainages in Shield and Jouglard Canyons flow into Hoorah Hollow pond (HHP-1) and the Pit Lake (NL4P-1). They both originate across

Dinwoody Formation outcrop (Figure 5-30) and flow ephemerally during rain and snowmelt events.

Margarette Creek and Trail Canyon Creek – The Margarette Creek and Trail Canyon drainage channels, located along the southern border of the Site (Figure 5-30), are ephemeral drainages that may flow during heavy rainfall or rain-on-snow events, but are generally dry throughout the year. The sampling location on Margarette Creek has been visited numerous times during high-flow snowmelt runoff conditions, and has been dry each time, as have the Trail Canyon Creek locations downgradient of Margarette Creek. A series of springs exists at the top of Trail Canyon, and runoff from these springs is captured in a pond upgradient of the confluence with Margarette Creek.

Southwest Conda Drainage – Similar to the west side of Woodall Mountain, there are no perennial streams on the west side of the Southwest Conda Sub-Basin hill; only draws and gullies that may flow ephemerally during rain and snowmelt events (Figure 5-30). Locations in this drainage were visited during high-flow snowmelt runoff conditions in both 2008 and 2009, and were dry on both occasions.

Other waterbodies on the west side include:

- Features containing water year round such as the New Tailings Pond (utilized as a water reservoir for the ore-slurry pipeline), the Hoorah Hollow Pond, and the Pit Lake.

- Features containing seasonal pooling of precipitation such as the Old Tailings Pond, sedimentation basins, and other pooling areas throughout the Site.

5.5.2 Aquatic Ecology Characteristics

The sections that follow describe the physical aquatic habitat present at the Site, as well as resident aquatic biota. Information presented includes RI findings as well as information from other studies conducted at the Site and regional investigations. Surveys were performed using USEPA's Rapid Bioassessment Program (RBP) scoring system (Barbour et al. 1999). The benthic macroinvertebrate community was evaluated and a Stream Macroinvertebrate Index (SMI) was calculated for each stream in accordance with Jessup and Gerritsen (2000). All locations were determined to have an SMI score recorded as "minimum threshold." The observed low SMI scores are a direct effect of relatively low abundances found in the samples, and a complete lack of one, two or all three Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa.

5.5.2.1 Habitat

Aquatic habitat surveys in the drainages were performed at 10 locations using USEPA's RBP scoring system (Barbour et al. 1999). RBPs provide a streamlined consistent methodology to rate physical habitat quality. The habitat scoring criteria form used is provided as Appendix F. RBP results for Site drainages are presented in Table 4-18 and color photographs depicting the physical condition of each aquatic study location are presented in Appendix O.

Habitat surveys were performed in the intermittent drainages on the east side of Woodall Ridge (Camp G Creek, Pedro Creek, and State Land Creek), in the small North Woodall Creek drainage, and in the offsite Trail Creek drainage. Aquatic habitat is significantly limited or absent in the ephemeral west side drainages (Woodall Mountain Creeks, French Drain, Southwest Conda, Margarette Creek, and Trail Canyon Creek), which typically contain water only as a result of snowmelt runoff or high precipitation events, if at all, and then run dry. Minimal to no aquatic habitat is present in these drainages. Results of RBP surveys conducted in drainages with potential aquatic habitat are provided below.

Camp G Creek Drainage – Physical aquatic habitat was assessed at Camp G Creek locations CGC-4A (Reach 2), CGC-1 (Reach 4), and CGC-0 (Reach 4) (Table 4-18). Creek conditions at the upgradient location CGC-4A were characterized by pervasive vegetation cover and good bank stability, but also had the influence of aquatic barriers such as beaver ponds. The creek was intermittent upgradient and downgradient of this location. At Camp G Creek location CGC-1, vegetation cover was decent with a fair number of willows and other near-stream vegetation present. At the downgradient location CGC-0 close to the mouth of Camp G Creek (just above the confluence with Trail Creek), near-stream vegetation was dense and grazing was evident in the past, but the meadow had not been recently grazed. Lower Camp G Creek was highly sinuous, and deep for its width. No willows were present, but near-stream vegetation was abundant and provided stable banks. The overall habitat quality at all three locations that were assessed on Camp G Creek received a RBP rating of sub-optimal (Table 4-18).

North Woodall Creek Drainage – At NWC-2, pond habitat was prevalent due to beaver activity. Ponds were shallow with heavy deposition of fine sediment. The site was not suitable for fish surveys, nor was it comparable to the main stems of the other drainages at the Site. The shallow conditions of the pond and limited inflow and outflow suggested that during base-flow conditions, this location becomes even less suitable for fish surveys.

State Land Creek Drainage – At State Land Creek sites SLC-0, SLC-1, and SLC-2, heavy livestock use was evident, including trampled banks and heavy grazing. Willows were interspersed along the banks, providing some stability, but other near-stream vegetation was grazed down to near soil level. Inadequate flows were present at SLC-3 (a location initially visited) when evaluated in early summer. This headwaters location was ephemeral, with limited flows over terrestrial vegetation.

Pedro Creek Drainage – The downgradient most Pedro Creek location (PC-1) was similar to State Land Creek locations, absent the willows. Active grazing and some bank trampling limited quality habitat at this location, although overhanging near-stream vegetation was not grazed as heavy as was observed at State Land Creek.

Trail Creek Drainage – Trail Creek at TC-1 showed evidence of past grazing, although recent grazing was not evident. Banks were generally well-vegetated, although willows were not present. Some signs of bank erosion were present.

Physical habitat quantity and quality of streams in and around the Conda Site are limited, primarily due to flow regime (Appendix K, Table K-13) and grazing effects. Headwater locations tended to be ephemeral or intermittent, and viable habitat to support a fish population was limited to several locations. RBP rankings for habitat quality yielded marginal or suboptimal ratings for all locations monitored (Table 4-18). Habitat quality during late summer and early fall may be diminished even further due to expected reductions in flow. Metrics for RBP ratings (i.e., those scored and their supporting data) indicated that no single parameter was ultimately responsible for a low habitat score, but that several factors combined resulted in low ratings when they occurred.

5.5.2.2 Aquatic Vegetation

Macrophyte samples were collected from 18 aquatic biota sampling locations, including creek and pond locations. An effort was made to collect similar macrophyte species from throughout the Site; however, the actual species sampled at each location was dependent on availability. Sampling teams were able to collect speedwell (*Veronica* sp.) from nine locations, white-water buttercup (*Ranunculus aquatilis*) from eight locations, and spikerush (*Eleocharis* sp.) and sedge (*Carex* sp.) from five locations each, to facilitate comparisons of analytical results. Macrophyte species included in each sample are listed on Table 4-18. The scarcity of areas with suitable substrate to sustain periphyton communities in the Site water bodies limited the sampling to four creek locations (PC-1, PC-2, SLC-2, and TC-1).

5.5.2.3 Fish and Invertebrates

The UBR and its tributaries contain several species of fish and a wide variety of aquatic macroinvertebrates. Fish species that may extend into the drainages at Conda with suitable habitat include Yellowstone cutthroat trout (*Oncorhynchus clarkii* spp.), brook trout (*Salvelinus fontinalis*), longnose dace (*Rhinichthys cataractae*), speckled dace (*Rhinichthys osculus*), redside shiners (*Richardsonius balteatus*), suckers (*Catostomus* spp.), and sculpins (*Cottus* spp.). Amphibian species that may occur in the area are tiger salamander (*Ambystoma tigrinum*) and boreal chorus frog (*Pseudacris maculata*).

Benthic macroinvertebrate composite tissue samples were collected from 22 aquatic biota sampling locations. The composite tissue samples were intended to represent the primary genera found in an area. Benthic tissue vouchers from all 15 locations where tissue samples were collected were submitted for taxonomic identification. Efforts were made to ensure that the benthic tissue sample and its associated voucher specimen were comprised of proportions of these groups such that they are representative of the community from which they were sampled. Representative taxa are listed on Table 4-14.

Benthic community samples were collected at a subset of five locations: the downgradient-most location at each of the three major creeks (SLC-0 on State Land Creek, PC-1 on Pedro Creek, and CGC-0 on Camp G Creek), and two locations unaffected by mining (TC-1 on Trail Creek and NWC-2 on North Woodall Creek) (Figure 3-9). Results of community sampling for each location are summarized in Table 4-15, and a complete benthic taxonomy report is provided in Appendix E. Total abundance and benthic density were highest at Pedro Creek location PC-1. Total taxa numbers were highest at North Woodall Creek location NWC-2, followed closely by SLC-0 on State Land Creek. All three metrics were lowest on Camp G Creek (location CGC-0). Abundance and diversity of ephemeroptera (mayflies), plecoptera (stoneflies), and trichoptera (caddis flies) are often used as a common metric of benthic community condition. Stoneflies were not present in any of the samples, and mayflies and caddis flies were poorly represented. Lack of these taxa from locations often indicates stressed conditions due to several potential factors including, but not limited to, habitat, water quality, and/or water quantity limitations.

IDEQ's SMI was used to combine observed results for various metrics into a single score, and then rank each location according to protocols set forth in Jessup and Gerritsen (2000). SMI results for Conda monitoring locations are presented in Table 4-16. Condition ratings for all five locations ranked below the minimum value of the reference condition (rating = minimum threshold). The SMI data suggest that stressed conditions exist in Site streams, limiting productivity and diversity of a healthy aquatic benthic community. For many locations, limited water quantity is a primary factor limiting the benthic community.

Fish samples were collected from 16 locations and species information is available for all fish samples except for 7 locations visited in 2004. Due to the paucity of historical fish population and tissue data, a Site-wide fish monitoring effort was conducted in July 2009. Color photographs depicting the physical condition of each study location at the time of electrofishing are presented in Appendix O.

Fish tissue data were collected from the three primary drainages (State Land, Pedro, and Camp G Creeks). Planned sampling included an upper, middle, and lower segment of each creek. Three locations each on State Land Creek and Camp G Creek were electrofished. The upgradient Pedro Creek location was dry at the time of sampling, so only two locations were electrofished on Pedro Creek. In addition, one location was electrofished on Trail Creek just upgradient of the confluence with Camp G Creek to serve as a location unaffected by previous

mining-related activities. The results of fish tissue collection efforts at all 9 locations electrofished are summarized in Table 4-17 and described in more detail below.

Based on the 2009 fish population monitoring event, the creeks in and around the Conda Site do not appear to support a substantial fishery. Typical fish species in the creeks consist of speckled dace (*Rhinichthys osculus*) and redside shiners (*Richardsonius balteatus*), with some presence of sculpin (*Cottus* sp.) and suckers (*Catostomus* sp.) noted (Table 4-17). No salmonid species (e.g., trout) were collected during this survey. Habitat quality and quantity may be limiting in these streams for salmonid species. No historical data were found reporting the presence of Yellowstone cutthroat trout (YCT) (*Oncorhynchus clarkii bouvieri*) in State Land, Pedro, or Camp G Creeks, although YCT are present in the UBR downgradient of the Site. Flow, other habitat limitations, and/or water quality may limit YCT in State Land, Pedro, and Camp G Creeks.

Sampling personnel conducting fish surveys at the Site in July 2009 were looking for presence of the northern leatherside chub (*Lepidomeda copei*; USFS sensitive species), but no leatherside chubs were found.

Fish were present at all three State Land Creek locations during the 2009 monitoring event (Table 4-17). Speckled dace were found at all three locations. Redside shiners were found at the middle location (SLC-1) and the downgradient location (SLC-0). One Utah sucker was captured at the upgradient-most location (SLC-2). In general, fish from the upgradient location were fewer but larger, and fish collected further downgradient tended to be more abundant but smaller in size.

Pedro Creek was dry at the upgradient locations (PC-3A and PC-4) in July 2009 (Table 4-17). The middle location on Pedro Creek (PC-2) was electrofished but no fish were captured. Nine speckled dace were captured at the downgradient location (PC-1).

Similarly, no fish were captured during electrofishing efforts at the upgradient location (CGC-4A) and the middle location (CGC-1) on Camp G Creek (Table 4-17). Forty-five fish were found at the downgradient location on Camp G Creek (CGC-0), including 40 speckled dace, three redside shiners, one Paiute sculpin, and one mountain sucker.

Electrofishing efforts at the Trail Creek location yielded mostly speckled dace, as well as some redside shiners and two Utah suckers (Table 4-17). Generally, where water was present and appeared to be perennial, fish were present.

5.6 Threatened and Endangered Species

Table 5-5 provides a current summary of threatened and endangered (T/E) and special-status species that are potentially present in the region. The table summarizes information provided

via correspondence with USFWS, USFS, IDFG, (including Idaho Fish and Wildlife Information System [IFWIS]), and BLM (USFWS 2009b, USFS 2009, USFS 2010, BLM 2009b, IDFG 2009, IDFG 2010a, IDFG 2010b) as well as information obtained from literature sources (BLM 2010, Idaho Administrative Procedures Act [IDAPA] 2009, IDAPA 2011, USFS 2011, USFWS 2011).

Simplot communicated with USFWS in June 2009 seeking feedback on which federally-listed T/E species they expect could occur at the Site and should be specifically included in the SSERA (USFWS 2009c). USFWS responded in 2009 that the only listed species that occurs in the vicinity of the Conda Mine is Canada lynx (*Lynx canadensis*), which is listed as threatened. A publication from the Idaho Fish and Wildlife Office of USFWS (dated August 2011) indicates that the following species are currently federally-listed for Caribou County: wolverine (candidate; *Gulo gulo*), greater sage grouse (candidate; *Centrocercus urophasiunus*), Canada lynx (threatened), and whitebark pine (candidate; *Pinus albicaulis*) (USFWS 2011) (Table 5-5). The USFWS is also responsible for the protection of migratory bird species through the MBTA.

IDFG lists several state-listed T/E species in IDAPA 13.01.06 (IDAPA 2009, 2011) (Table 5-5). Although the bald eagle was listed as threatened in IDAPA (2009), it was recommended by IDFG for delisting (IDFG 2009) and is now listed as a protected non-game species in IDAPA (2011). A letter was sent to IDFG in 2009 seeking feedback on which T/E species they expect could occur at the Site and should be specifically included in the SSERA; verbal response in 2010 indicated that a request should be submitted to IFWIS to inquire about known at-risk species occurrences in the project area (IDFG 2010a). Information from IFWIS was received in 2010 and historical occurrences of Federally-listed and other special-status species within two miles of the project area were identified (IDFG 2010b), as summarized on Table 5-5 and Figure 5-31. There have been occurrences of sage grouse, Canada lynx, bald eagle, trumpeter swan (*Cygnus buccinator*), long-billed curlew (*Numenius americanus*), merlin (*Falco columbarius*), Bear lake springsnail (*Pyrgulopsis pilsbryana*), and hoary willow (*Salix candida*) (Table 5-5, Figure 5-31) within two miles of the Site. The bald eagle and the hoary willow (*Salix candida*) were not encountered within the Site boundary. Of these special-status species, only the sage grouse and Canada lynx are federally-listed species. Although the bald eagle is not currently federally-listed, it is protected under the Bald and Golden Eagle Protection Act.

A letter was sent to USFS on October 21, 2009 seeking feedback on which T/E species they expect could occur on USFS lands within the Site and should be specifically included in the SSERA. USFS also provided feedback on other biological resources of concern (USFS 2009). USFS (2009) indicated that there is potential habitat for Canada lynx (listed as threatened) and grey wolf (currently de-listed). Other sensitive and management indicator species with potential habitat in the Study Area were also listed (USFS 2009) (Table 5-5). Trail Canyon Creek, an intermittent channel within the Bear River/Great Basin watershed, is specifically in a USFS Study Area, which also includes the Snake River watershed (USFS 2009). The USFS land within the Site, located in the southeast corner within Trail Canyon, is classified as Critical Winter Range (USFS 2009). Riparian, wetlands, sagebrush and aspen are important habitats

for birds protected under the MBTA (USFS 2009). No habitat suitable for sensitive plants currently listed for the Caribou National Forest or other rare plants are known or suspected to occur on USFS land within the Site (USFS 2009). The Caribou National Forest was also contacted to verify the fish species status information (USFS 2010), as requested in USFS (2009). The USFS biologist verified that the Snake River fine-spotted and Bonneville cutthroat trout can be lumped and referred to as Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*; USFS sensitive species) and that the leatherside chub (*Lepidomeda copei*) is a USFS sensitive species for the area as well (USFS 2010). Neither fish species were seen at the Site during aquatic sampling in 2009. Table 5-5 also includes the latest information regarding special-status species for the Caribou National Forest (USFS 2011).

An email was sent to BLM on October 29, 2009 seeking feedback on which BLM special-status species should be included in the SSERA BPF. The response email included an attachment titled "Idaho BLM Special Status Animal Species For Districts and Field Offices" (no date) (BLM 2009b). Type 1 (Rangewide / Globally Imperiled Species), Type 2 (Regional / State Imperiled Species), Type 3 (Regional / State Imperiled Species), and Type 4 (Peripheral Species in Idaho) species for the Pocatello Field Office were added to Table 5-5 based on BLM (2009b). The email did not indicate which species were expected to occur specifically on BLM lands at the Site. Table 5-5 was also updated to include more current information available in the BLM Proposed Resource Management Plan for the Pocatello Field Office (BLM 2010).

In summary, three federally-listed T/E species have been identified for Caribou County (Canada lynx, wolverine, and whitebark pine), and these species will be evaluated further in the SSERA. The greater sage-grouse was removed as a potential T/E species in September 2015; however, information about this species is also provided below.

- **Canada lynx -** The Canada lynx is listed as a threatened species in the U.S. due to its limited required habitat and prey supply. The Canada lynx prefers moist boreal forests in cold areas with deep snow and high-density populations of snowshoe hares. They inhabit forests with boreal features (conifer trees) along the Rocky Mountain ranges in the west. In mountainous areas, lynx use a matrix habitat consisting of hardwoods, dry forest, and low hare densities for traveling between patches of boreal forest (USFWS 2012b). In Idaho, the Canada lynx inhabits montane and subalpine coniferous forests typically above 4,000 ft (McKelvey et al. 2000), and this species needs early successional forests for foraging, and mature forests for denning (IDFG 1997). Although they are known or believed to occur in Caribou County, there is no designated critical habitat for the Canada lynx within Caribou County. The nearest designated critical habitat is in Lincoln County in southwestern Wyoming (USFWS 2009d). Information from IDFG 2010b) includes two historical occurrences for Canada lynx near the Site – a 1947 sighting and 1960 sighting – both with poor location information (within 5 kilometer of point on map; descriptions given as "just out of Trail Canyon on Soda Springs side" and "Caribou County, NE of Soda Springs, Trail Canyon") (Figure 5-31).

- **Wolverine -** The North American wolverine requires a cold, snowy habitat especially throughout the spring, and is therefore restricted to high elevations in the West (USFWS 2012c). Since wolverines favor habitats with near-arctic conditions, they depend on deep, persistent snow cover for successful denning. The wolverine is listed as a candidate species in Idaho, but is not known or believed to occur in Caribou County, or in any one of the five surrounding counties (Bannock, Bear Lake, Bingham, Bonneville, and Franklin) (USFWS 2012c). In Idaho, a 1985 survey indicated that the wolverine species inhabits remote, mountainous areas unaffected by human disturbance (IDFG 1997). The Site likely does not provide ideal habitat conditions for denning since deep snow is not maintained into the spring, and temperatures in the summer do not remain cool. There are no known occurrences of this species at the Site.

- **Whitebark pine -** Whitebark pine, a keystone species, is found within montane forests and on thin, rocky, cold soils at or near timberline (4,200 to 12,100 ft AMSL) in western North American (NatureServe 2012). Whitebark pine is not known to or believed to exist in Caribou County, however, the neighboring county Bonneville, is the nearest location known to host whitebark pine (USFWS 2012e). There are no known occurrences of this species at the Site.

- **Greater sage-grouse -** Greater sage-grouse are highly dependent on sagebrush for habitat and are found at elevations ranging from 4,000 to 9,000 ft AMSL. They are listed as a candidate species in Idaho and are known to be found in Caribou County as well as the surrounding counties (excluding Franklin) (USFWS 2012d). Because the Site ranges in elevation from approximately 6,200 to 7,700 ft AMSL and sagebrush is a dominant shrub in and around the area, there is potential habitat for the greater sage-grouse. Information from IDFG (2010b) indicates that two sage grouse leks (IDFG Lek ID #3C028 and #3C029) were identified/visited at the Site in 2009 but the management status (i.e., active or not) was unknown/undetermined. The IDFG was contacted again in November 2015 (IDFG 2-5) to obtain an updated status of these leks. Lek #3C028 is currently classified as “occupied,” with birds present during surveys conducted between 2012 and 2015. Lek #3C029 is currently classified as “undetermined,” with no birds present during surveys conducted between 2012 and 2015. The locations of these leks are shown on Figure 5-31.

The potential for risks to these species are evaluated further in the SSERA.

6.0 NATURE AND EXTENT OF MINING-RELATED EFFECTS

This section presents the evaluation of COPC concentrations in the media and describes the nature and extent of mining-related effects such that informed decisions can be made regarding any risks to human health and the environment (as identified by the risk assessment) and the need for any appropriate remedies.

6.1 Rationale and Approach for Evaluation of Nature and Extent

The evaluation of the nature and extent of areas with potential adverse effects to ecological and human receptors, involved the comparison of COPC results to conservative comparison values (Tables 4-3 through 4-7).[31] To facilitate efficient evaluation and discussion of the nature and extent of chemicals exceeding comparison values, an analysis was performed to identify indicator COPCs (Appendix Q). During this evaluation, the most conservative of the ecological and human health comparison values for each COPC was used. The goals of the analysis were to determine:

1) If there are a select number of COPCs exceeding comparison values at great magnitudes (i.e., potentially posing greatest risks); and

2) If concentrations exceed background (where the risk-based comparison values are less than background).

The analysis also evaluated whether there is an “indicator” chemical; one with the greatest frequency, widest spatial distribution, and order-of-magnitude of exceedances (Appendix Q). In other words, is there a chemical that can be used to describe the extent of mining-related effects, such that remedies can be selected that improve conditions by reducing the potential for release of all COPCs?

The indicator chemical analysis (Appendix Q) focused on metals and metalloids. Concentrations of organic constituents were evaluated only in the Former Mill Site and Townsite areas to allow for characterization of possible organic contaminants that might remain as a result of fuel storage and other uses in those areas. These organic compounds have different sources and different potential transport mechanisms than the metals/metalloids at the Site and so are discussed separately. Concentrations of organic constituents in both soil and groundwater were predominantly below the detection limits. None of the soil or groundwater

[31] Exceedances of comparison values do not necessarily signify that the COPCs present risks to human health and the environment.

concentrations of organic constituents exceed the available comparison values (Tables 4-10 through 4-12, and 4-40), and are therefore not discussed further in this report.

As previously discussed, the sulfides and organic matter in the Meade Peak Member shales/mudstones contain metal- and metalloid-sulfide minerals. In addition to selenium, metals such as arsenic, cadmium, copper, chromium, molybdenum, nickel, vanadium and zinc may also be present in trace amounts in sulfides where they typically substitute for iron or other metals (Herring and Grauch 2004; Desborough and Poole 1983). An analysis of the data for the RMM showed that the metals/metalloids with the greatest prevalence and magnitude of exceeding comparison and background values include selenium, cadmium, chromium, vanadium, and zinc (Table 6-1 and Figure 6-1). These chemicals can be considered the primary COPCs. Aluminum, antimony, arsenic, barium, beryllium, boron, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, silver, thallium, and uranium exceed comparison and background values at lower frequencies and magnitudes than selenium, cadmium, chromium, vanadium, and zinc.

Of the above-mentioned primary COPCs (selenium, cadmium, chromium, vanadium and zinc), selenium generally had the widest spatial distribution and greatest order-of-magnitude of maximum and average concentrations exceeding comparison and background values in the abiotic environmental media. The exceedances of the COPCs other than selenium occurred predominantly at the same locations where selenium exceeded. In the cases where COPCs exceeded comparison values at locations not co-located with selenium exceedances, the concentrations were generally at or just above site-specific background concentrations (Appendix Q). Figures 6-2 through 6-5 present the spatial distribution of comparison value exceedances of selenium relative to the other COPCs.

As a result of the analysis, the primary COPCs are considered to be selenium, cadmium, chromium, vanadium and zinc, with selenium as the indicator COPC. The nature and extent of mining-related effects and the fate and transport pathways of the COPCs in the environmental media is described relative to these primary COPCs. The risk assessments are based on all of the COPCs.

Plates 1, 2, 3, 5 and 7 summarize the maximum concentrations of the primary COPCs in soil, vegetation, surface water, groundwater and sediment. Plates 4 and 6 summarize the maximum concentrations of inorganic non-metallic constituents in surface water and groundwater.

6.2 COPC Sources Characteristics

To evaluate the characteristics of the COPC sources at the Site, samples were collected from locations in disturbed and undisturbed areas. The extent of mining-related effects downgradient from the source areas are presented and discussed in Section 6.3.

6.2.1 Soils

Soil samples were collected at 166 locations within areas with RMM, as well as 105 locations surrounding the RMM. Plate 1 depicts the primary COPC concentrations in soils. Table 6-2 and Figure 6-6 present a comparison of concentrations between the types of RMM and undisturbed soils at Conda. Other constituents that exceed comparison values, at locations where the primary COPCs exceed their comparison values, include antimony, barium, cobalt, copper, lead, manganese, and silver (Appendix K). Constituents that did not exceed comparison values include aluminum, boron, beryllium, iron, mercury, molybdenum, thallium, and uranium[32] (Appendix K).

As indicated by the concentrations of the primary COPCs in Table 6-2 and Figure 6-6 the overburden piles have the greatest average selenium concentrations. The tailings have greater average concentrations of cadmium, chromium, vanadium and zinc relative to the overburden and waste rock piles (Table 6-2 and Figure 6-6). This is consistent with the fact that selenium is associated with sulfide minerals in unweathered shales in the overburden, and that the phosphate ore body generally contains lower concentrations of selenium because past weathering cycles (i.e., alteration) of the ore body have strongly reduced their carbonate, sulfide, and organic matter content (Knudsen and Gunter 2004).

Average concentrations of the primary COPCs in the Former Mill Site and Townsite and haul road soils were significantly lower than levels in ODAs, tailings, and waste rock materials (Table 6-2 and Figure 6-6); and higher than the calculated background concentrations (Table 4-8). This is consistent with the fact that there are no overburden piles in the Former Mill Site and Townsite area and that haul[33] roads were typically built as balanced cut and fills through non-mineralized areas. Concentrations of the primary COPCs in locations outside of areas with RMM (105 locations) were in the range of the calculated background concentrations (Table 4-8).

6.2.2 Terrestrial Vegetation

Vegetation samples were collected at 125 locations in areas with RMM and 89 locations throughout the Site outside these areas (Plate 2). A variety of vegetation types were collected: browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation. “Accumulator” is a term used for samples that include selenium-accumulating species; refer to Section 6.2.2.1 for more information.

[32] Radium-226 is the uranium decay product with the lowest comparison value, and assuming secular equilibrium, is the driver of uranium decay products exceedances

[33] Haul roads adjacent to ODAs exhibit elevated selenium concentrations (ranging from 15.1 to 46.5 mg/kg, averaging 25.5 mg/kg) relative to haul roads disjunct from ODAs (ranging from 0.08 to 4.9 mg/kg, averaging 1.9 mg/kg).

As indicated by the concentrations of the primary COPCs in Table 6-3 and Figure 6-7 the vegetation growing on the overburden piles and tailings at the New and Old Tailings Ponds have the greatest average selenium concentrations. Vegetation growing on tailings and waste rock tend to have greater average concentrations of cadmium, vanadium and zinc. Vegetation growing on waste rock piles tend to have greater average chromium concentrations. Average concentrations of the primary COPCs in vegetation growing in the Former Mill Site and Townsite were significantly lower than levels in vegetation growing on ODAs, tailings, and waste rock materials(Table 6-3 and Figure 6-7); and in the range of the calculated background concentrations (Table 4-8). Concentrations of the primary COPCs in locations outside of areas with RMM (105 locations) were in the range of the calculated background concentrations (Table 4-8).

The tailings and ODAs are the areas where selenium concentrations in vegetation exceed the maximum tolerable dietary level for livestock of 5 mg/kg (NRC 2005) the greatest (with average concentrations of 73 mg/kg and 50.6 mg/kg, respectively). The waste rock piles and the Former Mill Site and Townsite had relatively low selenium concentrations in terrestrial vegetation (Figure 6-7), with concentrations in the range of (slightly exceeding in cases) the maximum tolerable dietary level for livestock (5 mg/kg) (NRC 2005). In general, samples with selenium-accumulating species often had higher average and/or maximum concentrations compared to other vegetation types in a particular area, although the concentrations were clearly highest for selenium-accumulating species samples within the tailings and ODA areas.

None of the RMM areas had vegetation with average concentrations for cadmium, chromium, vanadium, and zinc exceeding their respective maximum tolerable dietary level for livestock (10 mg/kg, 100 mg/kg, 50 mg/kg, and 500 mg/kg) [NRC 2005]).

Selenium-Accumulating Species - Certain plant genera and individual species are known to accumulate greater concentrations of selenium and these species are identified throughout this RI as “selenium-accumulating species” or “accumulators.” Table 1 in Mackowiak and Amacher (2010) contains a list of selenium hyperaccumulators (species able to concentrate selenium at greater levels than accumulators) and accumulators compiled by the authors from the scientific literature.

Mackowiak and Amacher (2010) identify the following plant genera as selenium hyperaccumulators:

- *Astragalus* spp. (of the legume family Fabaceae; commonly known as milk vetch);
- *Haplopappus* spp. (of the aster family Asteraceae; commonly known as goldenweed, but also included many other aster species that have recently been re-named to other genera);
- *Machaeranthera* spp., (of the aster family Asteraceae, commonly known as tansyaster); and

- *Stanleya* spp. (of the mustard family Brassicaceae, commonly known as prince's plumes).

Mackowiak and Amacher (2010) identify the following genera as accumulators:

- *Aster* spp. (of the aster family Asteraceae, commonly known as asters but also included many other aster species that have recently been re-named to other genera),
- Astragalus spp.;
- Atriplex spp.;
- Brassica spp.;
- Castilleja spp.;
- Grindelia spp.;
- Gutierrezia spp.;
- Machaeranthera spp.; and
- Mentzelia spp.

Also, as noted in Mackowiak et al. (2004), legumes (e.g., alfalfa and milk vetch) are considered possible accumulators because samples of legumes from overburden/waste rock sites can contain elevated concentrations of selenium compared to other vegetation collected from the same areas. It should be noted that other legumes (e.g., lupine [*Lupinus* spp.], clover [*Trifolium* spp.], yellow sweet clover [*Melilotus officianalis*], sainfoin [*Onobrychis viciifolia*]) are also present at the site, and when encountered during sampling, they were included in some broadleaf samples, but that these species are not considered to be accumulators.

Samples of selenium-accumulating species were collected during terrestrial sampling events at the Site. Refer to Tables 4-16 through 4-18 for information on sample composition. The selenium accumulating plants included in samples at the Site include aster (specifically, western mountain aster [*Aster occidentalis*][34]), milk vetch (*Astragalus* spp.), gumweed (*Grindelia* spp.), smoothstem blazingstar (*Mentzelia* spp.), snakeweed (*Gutierrezia* spp.), tansyaster (*Machaeranthera* spp.), goldenweed (*Haplopappus* spp. or related), and alfalfa (*Medicago sativa*). These selenium-accumulating species were collected as single-species samples but also as part of multiple-species samples (e.g., representative forage samples) if they occurred in the areas being sampled.

[34] Known as *Symphyotrichum spathulatum* in the USDA Plants database (USDA 2013).

6.2.3 Surface Water

Surface water samples were collected at 19 locations consisting of pools and runoff associated with RMM, and 84 surface water locations outside areas with RMM (Plate 3). The surface water collected from areas with RMM include water associated with pools on overburden piles, runoff from overburden piles, seep collection ponds, the French Drain, the Pit Lake, New Tailings Pond and pools on the Old Tailings Pond.

Table 6-4 and Figure 6-8 present a comparison of selenium and the other primary COPC concentrations in surface waters associated with RMM. Other COPCs that exceed comparison values, at these locations include aluminum, copper, nickel, and the uranium decay products.[35] The COPCs that did not exceed comparison values in surface water include antimony, arsenic, barium, boron, beryllium, cobalt, chromium, iron, lead, manganese, mercury, molybdenum, nitrate, silver, thallium, uranium, and vanadium. Table 4-26 and Plate 4 present a summary of the general chemistry data collected for surface water.

As indicated by the concentrations of the primary COPCs in Table 6-4 and Figure 6-8, pools or runoff waters associated with the overburden piles and Old Tailings Pond are the primary areas with elevated COPCs in surface water at the Site. The overburden piles have the greatest selenium, cadmium, chromium, and zinc concentrations, whereas the Old Tailings Pond had the greatest concentration of vanadium in pools atop the tailings. Surface water selenium concentrations in locations outside areas with RMM (84 locations), averaged 0.15 mg/L (ranging from non-detect to 4.08 mg/L).

As indicated by the comparison of the data to criteria and benchmarks, and considering the fact that the pooled water atop the tailings remains contained within the Old Tailings Pond, the ODAs are the primary sources of COPCs to surface water at the Site.

6.2.4 Groundwater

Groundwater samples from overburden piles, reflecting infiltrated water released from the overburden piles, were collected at 19 locations (wells and seeps) (Figure 6-9). For comparison, data from 30 locations outside areas with RMM (wells and springs distant from areas with RMM) were evaluated to provide perspective (Figure 6-9 and Plate 5). The RMM locations include ODA seeps, the French Drain, and wells installed directly into overburden material. No seeps were identified near tailings or waste rock areas and no were wells installed in the areas with waste rock piles. However, groundwater samples were obtained from two

[35] The naturally occurring uranium is assumed to be U-238. The decay products are Ra-226, Rd-222, Pb-210, and Po-210 which are assumed to be in secular equilibrium (equivalent activity concentrations) with U-238. For a definition of secular equilibrium see the Argonne National Laboratory, EVS Human Health Fact Sheet, August 2005 https://www.remm.nlm.gov/ANL_ContaminantFactSheets_All_070418.pdf.

borings advanced into the Old Tailings Pond (Figure 6-9). Seeps emanating from the piles, are also evaluated with groundwater, since they represent pore waters released from the pile. Table 6-5 and Figure 6-9 present a comparison of selenium and the other primary COPC concentrations in porewater associated with overburden and tailings materials.

As shown in Table 6-5 and Figure 6-9, average selenium, cadmium, vanadium, and zinc pore-water concentrations in the tailings exceeded comparison values at greater magnitudes than the seeps associated with overburden piles. In the seeps, aluminum, arsenic, cobalt, iron, lead, manganese, nickel, thallium, and nitrate were also detected above their respective comparison values (Appendix K Table K-9), but at lower magnitudes and generally lower frequencies (Appendix Q). The COPCs that did not exceed comparison values in seeps include cobalt, iron, manganese, mercury, molybdenum, nitrate, and silver.

Because the Old Tailings Pond received groundwater with nitrate concentrations ranging between 25 and 31.2 mg/L (Table 6-6) while it was operational, based on water quality data from 1975 and 1976, there was concern that the tailings may still be a source of nitrate to surrounding groundwater. The sources of process water were offsite wells GW-8-IBS and GW-10-IBS (Table 6-6), situated downgradient of the Conda Mine as well as an adjacent phosphate-processing facility. Porewater samples obtained from two open soil borings advanced in the Old Tailings Pond in 2014 (TP2-SB3 and TP2-SB5), contained nitrate levels ranging between 0.076 and 0.132 mg/L, while nitrates were not detected in any tailings-material or underlying native-soil samples (Table 6-6). This information indicates that the Old Tailings Pond is likely not the source of nitrate concentrations exceeding the MCL (10 mg/L) in nearby groundwater (see discussions in Section 6.4.2). This is consistent with the fact that the low permeability of the tailings greatly limits water flux through the Old Tailings Pond and into the subsurface. The hydrophysical properties of the tailings in the New Tailings Pond are the same, since there was no change in the ore-body mined or the milling process when the tailings discharge was switched from the Old Tailings Pond to the New Tailings Pond.

Considering that the low permeability of the tailings greatly limits water flux through the Old Tailings Pond and into the subsurface, and that the concentrations of nitrate and COPCs in wells adjacent to the tailings ponds are low, the tailings ponds are not significant sources of nitrate and COPC releases to groundwater (see discussions in Section 6.4.2). The ODAs, through release of infiltrated water at the base, are the primary sources of COPCs to groundwater at the Site (Tables 6-5 and Figure 6-9), considering the low permeability of the tailings prevents releases to the subsurface.

6.2.5 Animal Tissue and Aquatic Vegetation

Additional biotic samples collected from areas with RMM include terrestrial and aquatic invertebrate tissue, small mammal tissue, and aquatic vegetation.

6.2.5.1 Terrestrial Invertebrates and Small Mammals

Terrestrial invertebrate and small mammal samples were collected at 18 locations in areas with RMM and 9 locations throughout the Site in areas of no RMM (Figure 6-10). Concentration ranges for all COPCs in terrestrial invertebrate and small mammal samples are summarized by location in Tables 4-19 and 4-21.

Table 6-7 and Figure 6-11 provide comparisons of primary COPC concentrations in terrestrial invertebrate and small mammal samples. As indicated by the concentrations of the primary COPCs in Table 6-7 and Figure 6-11 invertebrate and mammals associated with the ODAs and tailings exhibit the greatest selenium concentrations at the Site. The Former Mill Site and Townsite had low selenium concentrations in terrestrial invertebrate and small mammals.

6.2.5.2 Aquatic Invertebrates and Vegetation

Aquatic invertebrate samples were collected at two locations in areas with RMM and 11 locations outside of these areas (Figure 6-12). Aquatic vegetation samples were collected at three RMM locations and 12 locations outside areas with RMM (Figure 6-12). Although other aquatic biota were sampled from offsite areas (i.e., periphyton and fish tissue), they were not present in areas with RMM and so are discussed in Section 6.3. Concentration ranges for all COPCs in aquatic biota samples are summarized by location in Table 4-30 and 4-32.

Table 6-8 and Figure 6-13 provide comparisons of primary COPC concentrations in aquatic invertebrate and periphyton samples. As indicated by the concentrations of the primary COPCs in Table 6-8 and Figure 6-13 aquatic invertebrate and periphyton associated with the ODA and tailings ponds exhibit the greatest selenium concentrations at the Site.

6.2.6 Summary of Nature of COPCs

ODAs and tailings contain the greatest COPC concentrations in abiotic and biotic media. Waste rock materials generally had lower soil and vegetation COPC concentrations than soils and vegetation in ODAs or tailings. The Former Mill Site and Townsite areas and haul roads had the lowest concentrations of COPCs.

6.3 Extent of Mining-Related Effects in Aquatic and Riparian Media

This section describes the distribution of COPCs exceeding the most conservative of the comparison values (promulgated numerical criteria and screening values) in the media at the Conda Mine and downgradient of the Conda Mine. Since the most conservative comparison values for the primary COPCs in surface water are the ecological screening levels, the discussions are based primarily on the dissolved data (except for selenium and vanadium).

Human health criteria are also presented in the tables and figures of this subsection for reference only.

The discussion is organized based on the major Sub-Basins at the Site. For each Sub-Basin, the extent of transport to aquatic media (surface water, sediment, and aquatic biota) and riparian media (riparian soil, vegetation, and other terrestrial biota) is evaluated. Figures with boxplots summarize the concentrations of the primary COPCs detected in the samples, relative to stream sections (e.g., main stem, tributary, pond, spring, seep, pooling area, dry draw, etc.). Biotic tissue effects are evaluated using selenium as the indicator COPC, since selenium is considered the driver for ecological risk.

6.3.1 Conditions in North Woodall Mountain Sub-Basin

The North Woodall Mountain Sub-Basin (Table 2-3 and Figure 2-3) covers an area of approximately 1004 acres. Conda mining operations did not extend into this sub-basin. Existing mining-related disturbances in this Sub-Basin are associated with the Blackfoot Bridge Mine, which began operating in 2011. Therefore, pre-2011 COPC concentrations in media from this sub-basin, could be considered representative of baseline conditions.[36] Tables 6-9 through 6-15 and Figures 6-14 through 6-19 summarize the data for North Woodall Mountain Sub-Basin.

6.3.1.1 Aquatic Conditions

The surface water bodies in this sub-basin include two springs, North Woodall Creek, and a man-made pond (Figure 6-14). The two springs are situated in the headwaters area of North Woodall Creek. The creek is ephemeral with several beaver-ponded areas. Creek flows in the drainage range from 0.002 to 1.2 cfs in the upper reaches at the springs (Table 6-9). Just below the springs, flow ranges between 0.001 to 0.17 cfs (Table 6-9). The lower portions of the creek channel can be dry when beaver ponds upgradient contain water.

Surface Water Conditions – Nine locations were monitored for surface water quality (Figure 6-14): two locations on North Woodall Creek (NWC-1 and NWC-2), six spring locations (SW05-SP, SW06-W, SW07-SP, WS-1, WS-2, and WS-3), and one location at the man-made pond (SW03-L). Table 4-23, Table 6-10, Figures 6-15 through 6-17, and Plate 3 summarize the concentrations for the primary COPCs. Average concentrations of the primary COPCs in surface water in the Sub-Basin (Figure 6-18) were below their respective chronic aquatic-life criteria. Of the other COPCs, aluminum had an average concentration above their respective comparison values (Appendix K Table K-9).

[36] Mining exploration work related to the Blackfoot Bridge Mine commenced in the summer of 2004 and mining commenced in 2011.

The average pH of North Woodall Creek (8.4 S.U.) and the springs (7.3 S.U.) were circum-neutral (Table 6-11). Average alkalinity, as calcium carbonate ($CaCO_3$), ranged from 178 mg/L in the creek to 375 mg/L in the springs (Table 6-11). The average temperatures and TDS in the Woodall Springs locations (Figure 6-14) are generally higher than in the creek and its headwaters spring (Tables 4-26 and 4-27). The relatively low temperature and TDS of the North Woodall Creek springs indicate that the source for this spring is locally recharged groundwater. Elevated temperature and TDS in natural groundwater are generally indicative of a more regional groundwater with longer flow paths and longer residence times. The low sulfate (which is released during the weathering of phosphorite minerals in the overburden material) concentrations in North Woodall Mountain Creek and its headwaters spring (1.8 to 12 mg/L, Table 6-11), is consistent with the fact that there are no mining related releases to the creek.

Sediment Conditions – Sediment samples were collected from both the creek and springs (Figure 6-14). Table 6-13, Figures 6-15 through 6-17, and Plate 7 summarize the concentrations for the primary COPCs in sediment. The concentrations of the primary COPCs in the creek were below their respective ecological sediment screening levels (Figure 6-15 through 6-17 and Table 6-13), except for one result for cadmium (1.3 mg/kg), only just exceeding its screening level (1 mg/kg). The concentrations of the primary COPCs in the springs were below their respective ecological sediment screening levels (Figure 6-15 through 6-17 and Table 6-13), except for one result for selenium (2.4 mg/kg), only just exceeding its screening level (2 mg/kg). Of the other COPCs, barium, iron, nickel, and manganese had average concentrations above their respective comparison values (Appendix K Table K-15 and Table 6-12).

Aquatic Biota – Aquatic habitat and biota monitoring was performed at location NWC-2 on North Woodall Creek (Figure 6-14). This aquatic habitat is comprised primarily of ponds formed by beaver dams, with ephemeral flow between the ponds. These ponds were shallow with heavy deposition of fine sediments, resulting in a lack of suitable substrate for periphyton. Consequently, no periphyton samples were obtained. Two aquatic macrophyte samples were collected, yielding selenium concentrations of 0.2 mg/kg and 0.21 mg/kg (Figure 6-15 and Table 6-14). A benthic macroinvertebrate tissue sample had a selenium concentration of 1.65 mg/kg (Figure 6-15 and Table 6-14). This location had the highest number of total taxa of any location visited in 2009 to assess benthic macroinvertebrate communities, but the stream reach still did not support the abundance and diversity of macroinvertebrate species indicative of a healthy community. This location was not electrofished because of a lack of water to support a viable fish population.

6.3.1.2 Riparian Conditions

Riparian conditions within the North Woodall Mountain Sub-Basin were evaluated at one location (NWC-2, Figure 6-14).

Riparian Soil Conditions – Selenium concentrations in soil samples collected from NWC-2 (Figure 6-19 and Table 6-15) were 0.3 mg/kg and 0.17 mg/kg in surface and subsurface soil samples, respectively. The selenium concentrations in both soil horizons are below the ecological soil screening level (0.52 mg/kg) (Figure 6-19 and Table 6-13) and of similar magnitude as selenium levels in upgradient soil (Figure 3-1 and Table 4-9).

Riparian Vegetation Conditions – Vegetation samples were collected from NWC-2 (Figure 6-14). Selenium in vegetation ranged from non-detect to 0.37 mg/kg (Figure 6-14 and Table 6-15).

Riparian Biota Conditions – Terrestrial invertebrate and small mammal samples were collected from the densely forested riparian location NWC-2 (Figure 6-14). The dominant terrestrial invertebrate taxa found here was diptera (flies) (Table 4-20), and the mammals captured for sampling were deer mice and red-backed voles (Table 4-22). Selenium concentrations in these biological media were 3.2 mg/kg and 1.9 mg/kg in invertebrates and mammals, respectively (Figure 6-19 and Table 6-15).

6.3.1.3 Summary of Conditions in North Woodall Mountain Sub-Basin

Average concentrations of the primary COPCs in surface water, sediment, and riparian soil, vegetation, and biota samples collected within the North Woodall Mountain Sub-Basin are below the respective comparison values. This is expected as mining had not occurred within this sub-basin. As previously discussed, it is likely that conditions in this sub-basin could be representative of baseline conditions because the data reflect conditions prior to commencement of Blackfoot Bridge Mine development activities.

6.3.2 Conditions in State Land Creek Sub-Basin

State Land Creek Sub-Basin covers an area of approximately 2,830 acres (Figure 2-3). State Land Creek is an intermittent stream that flows north to the UBR. The headwaters area for State Land Creek is along the northern portion of Woodall Mountain ridge, and it receives water from tributaries originating along the eastern flank of Woodall Mountain. The areas with RMM in State Land Creek Sub-Basin consist of approximately 253 acres of RMM (Table 2-3) situated along Woodall Mountain within the headwaters area. Most of the RMM (approximately 135 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 84, 27, and 7 acres atop the Wells Formation, Dinwoody Formation, and the unconsolidated alluvium/colluvium (Table 2-3), respectively. Tables 6-16 through 6-22 and Figures 6-20 through 6-29 summarize the data for State Land Creek Sub-Basin.

6.3.2.1 Aquatic Conditions

Aquatic conditions within the State Land Creek Sub-Basin were evaluated at 41 locations (Table 6-18 and Figure 6-20). Surface water bodies within the sub-basin include multiple springs, seeps, ponds, and State Land Creek and its tributaries. Spring runoff (precipitation and snowmelt) is the primary source of water in State Land Creek. Flows within the channel of State Land Creek are greatest during the spring snowmelt, with the discharge decreasing significantly throughout the summer and fall (Table 6-16). During the summer and fall, upper sections of the creek are often dry, with flowing conditions typically only present along the lower reaches of the creek. Base flow along the lower reaches is sustained primarily through shallow groundwater discharge to the creek. The tributaries within the headwater area of State Land Creek are mostly ephemeral or intermittent. The upper reaches of State Land Creek are "gaining," where water flow increases due to groundwater inflow, while some of the lower sections are "losing," where surface water flow is lost to the subsurface. Figure 6-21 presents a summary of average flows within the reaches of State Land Creek, illustrating both the gaining and losing nature of the creek.

Surface Water Conditions – Of the 41 locations monitored within the State Land Creek Sub-Basin, there were 26 creek locations, 7 seeps, 3 springs, one pooling area, and 3 ponds (Figures 3-7 and 6-20) were sampled for water quality. These locations were sampled to allow for spatial and temporal evaluation of mining-related effects to surface water along State Land Creek. In addition, seven surface water locations along the UBR, three upstream and four downstream of State Land Creek's confluence with the UBR, were monitored to evaluate the potential impacts to the UBR from the State Land Creek Sub-Basin.[37]

Tables 4-23 and 6-17, Figures 6-22 through 6-25, and Plate 3, summarize the concentration of the primary COPCs relative to the respective aquatic criteria for all locations where surface water samples were collected.

The locations with the highest COPC concentrations were a series of seven seeps located at the toe of the reclaimed overburden pile in the headwaters of State Land Creek (Figures 6-25). Average selenium, cadmium, and zinc concentrations at these seeps exceed their respective chronic and acute criteria. Among the radionuclide constituents, gross Alpha concentrations exceeded its human health comparison value (Table 6-19) in seeps. The uppermost ephemeral headwater tributary that confluences with State Land Creek in Reach 1 had average selenium concentrations (Figure 6-25 and Table 6-17) exceeding its chronic and acute aquatic life criteria. The primary COPC concentrations in Tributary #3, which drains a set of undisturbed foothills east of Woodall Mountain, were well below the aquatic criteria. Concentrations of the primary

[37] During spring 2011, unusually high runoff conditions prevented access to the established Blackfoot River locations BFR-1 and BFR-2, so samples were collected from nearby temporary locations BFR-DS and BFR-US.

COPCs in the three springs in the State Land Creek Sub-Basin were below their respective water quality criteria (Figure 6-25 and Table 6-17).

Average concentrations for cadmium, chromium, vanadium and zinc drop to levels below their respective chronic criteria within the uppermost reach of State Land Creek. Total selenium concentrations however, exceeded the chronic aquatic life water quality criterion (0.005 mg/L) from its headwaters to its confluence with the UBR (Figure 6-22, Figure 6-25 and Table 6-17). Selenium exceedances of aquatic criteria in the creek have occurred exclusively during high-flow conditions as opposed to base-flow conditions (Figure 6-26 and Table 6-17).

As shown on Figure 6-26, total selenium concentrations had a high degree of seasonal variation, with cadmium, chromium, vanadium and zinc remaining relatively stable. Many of the creek locations are often dry during base flow. The loading analysis presented in Figure 6-27 shows higher selenium loads in Reaches 1 and 3 compared to Reaches 2 and 4. In Reach 1, and in the headwater tributaries near the overburden pile, little alluvial material is present and consequently only a thin and discontinuous alluvial aquifer is present; with surface water carrying most of the selenium load. In Reaches 2 and 3, the selenium load transfers between surface water and groundwater. Similarly in Reach 4, certain areas have higher loads than others, but the load at the mouth of the creek is substantially lower than the load at and directly downgradient of the overburden pile.

The average pH of State Land Creek (7.9 S.U.) and the seeps (7.3 S.U.) were circum-neutral (Table 6-18). Average alkalinity, as calcium carbonate ($CaCO_3$) in the creek was 132 mg/L (Table 6-18). The TDS in the creek averaged 240 mg/L, ranging 79 near the mouth to 1340 mg/L below the seeps. The TDS in the seeps average 1716 mg/L (Table 6-18). The elevated average concentration for sulfate (77 mg/L) in the mainstem of the creek and tributary below the pile (SLC-5 and SLC-6), relative to levels in Tributary #3 (4 mg/L at SLCT3-0), also indicates mining related effects in the creek. Average sulfate in the seeps was 1006 mg/L (Table 6-18).

Three livestock ponds (SLP-1, -2, and -3) are located along State Land Creek (Figure 6-20). Water in these livestock ponds is fed by shallow groundwater in the spring, but they dry up in the summer. Ponds SLP-1 and SLP-2 are affected, with selenium being the only COPC exceeding its criteria in these ponds (Figure 6-25). Concentrations of the COPCs are low in pond SLP-3, meeting water quality criteria. Pooling area NEP-6 (Figure 6-20), at base of mined portion of the East Woodall Panel ODA on the northeastern side of Woodall Mountain, also only had selenium concentrations exceeding its criteria (Figure 6-25 and Table 6-17).

Other metal/metalloid COPCs that had concentrations exceeding comparison values at one or more locations include: aluminum, iron, manganese, and nickel. Of these COPC, the maximum detected concentrations of iron, and manganese at non-seep locations were below the maximum calculated background levels for the appropriate fraction (Appendix K, Table K-9 as compared to Table 4-7).

Seven locations were sampled on the UBR (BFR-2, BFR-1, and ST230), upgradient and downgradient (BFR-1, BFR-DS, MST020, and ST019) of the confluence with State Land Creek, to determine whether State Land Creek has any influence on the UBR (Figure 6-20). Surface water samples have been collected from these locations during spring and fall seasons since 2008. [38] In general, although average total selenium concentrations in the lower reach of State Land Creek exceed the chronic aquatic life water quality criterion (0.005 mg/L) during high flow (Figure 6-26), the average total selenium concentrations in the UBR both upgradient and downgradient of State Land Creek remain similar (Table 6-17 and Figure 6-25). Total selenium concentrations exceeded the chronic criterion [0.005 mg/L]) at locations BFR-2 and BFR-1, during high flow in May 2009 and May 2013. The only other COPC concentration that exceeded a surface water comparison value at BFR-2 or BFR-1 was total manganese. The human health comparison value for manganese is 0.05 mg/L and the maximum total concentration recorded at these locations was 0.059 mg/L (Appendix Table K-9).

In summary, based on data collected since 2001, selenium concentrations in State Land Creek exceeded the chronic aquatic life water quality criterion (0.005 mg/L) at points from its headwaters to its confluence with the UBR, with locations in close proximity and downgradient of the overburden piles exhibiting highest concentrations (Figures 6-22 and 6-25). Selenium concentrations generally decreased with distance from areas with RMM. Selenium concentrations were below the chronic criterion (0.005 mg/L) in Tributary #3 and at the groundwater springs. Total selenium concentrations experience a high degree of seasonal variation in this sub-basin, and exceedances of aquatic criteria in the creek have occurred exclusively during high-flow conditions as opposed to base-flow conditions (Figure 6-26 and Table 6-17). Many of the creek locations are often dry during base flow.

Sediment Conditions – Sediment samples were collected from 27 locations in the State Land Creek Sub-Basin (Table 6-20 and Figure 6-20) to assess the influence of the RMM on creek sediments (Table 6-20). In addition, samples were collected from two locations (ST230 and BFR-2) upstream of the confluence with the UBR and three locations (BFR-1, MST020, and ST019) downstream. Similar to surface water conditions, the locations with the highest sediment COPC concentrations were in close proximity to the reclaimed overburden pile in the headwaters of State Land Creek (Figures 6-20, 6-22 and 6-28). Average selenium, cadmium, and zinc concentrations exceeded their respective sediment screening levels from the creek's headwaters to its mouth. Average cadmium concentrations only exceeded its respective sediment screening level in Tributary #2.

Although selenium concentrations exceeded the sediment screening level (2 mg/kg) along the main stem of State Land Creek, sediment transport through erosion was limited considering the rapid decrease in average selenium concentrations. Selenium concentrations decreased from

[38] During spring 2011, unusually high runoff conditions prevented access to the established Blackfoot River locations BFR-1 and BFR-2, so samples were collected from nearby temporary locations BFR-DS and BFR-US.

ranging between 0.7 - 373 mg/kg (average 128 mg/kg) in the seeps and intermittent drainages in close proximity of the RMM (headwaters and Reach 1), to 0.5 – 7.8 mg/kg (average 3.5 mg/kg) in the areas where flow becomes more perennial (Reaches 2 through 4) (Table 6-20). Similarly, selenium concentrations decreased by an order of magnitude between the springs at the headwaters of Tributary #3 near an undisturbed Phosphoria Formation outcrop (6.2 mg/kg and 13.7 mg/kg at SLCT3-5 and SLCT3-4, respectively), and the mouth of Tributary #3 (1.1 mg/kg at SLCT3-0) (Table 6-20).

The elevated selenium concentrations in the mainstem from Reach 2 to Reach 4 are likely the result of increase in organic matter in the creek bed and contributions from Tributary #2. The sediment selenium concentration in the UBR downgradient of the confluence with State Land Creek (BFR-1, MST020, and ST019) ranged from 0.55 – 0.7 mg/kg (Table 6-20, Figure 6-28, and Plate 7). Considering that at the upgradient locations (BFR-2 and ST230) selenium concentrations ranged from 0.83 to 0.89 mg/kg, there is no indication that sediments from State Land Creek have measurable effects on the UBR. Upstream and downstream of the confluence, barium and manganese also exceeded their sediment comparison values (Appendix K Table K-15). The concentrations of barium and manganese were well below the calculated sediment background concentrations (Table 4-8).

Concentrations of other metal/metalloid COPCs that exceeded a sediment comparison value at one or more of the seeps within the State Land Creek Sub-Basin include: antimony, arsenic, barium, copper, iron, manganese, mercury, nickel, and silver (Appendix K Table K-15). At the other sampling locations within the State Land Creek Sub-Basin, the following metal/metalloid COPCs had sediment concentrations that exceeded a comparison value at one or more locations: aluminum, antimony, arsenic, barium, copper, iron, manganese, mercury, nickel, and silver.

In summary, the sediment COPC concentrations in State Land Creek were above the respective screening levels throughout the length of the creek, but it is not evident that sediment containing elevated selenium has been transported to the UBR in quantities large enough to cause increases in sediment concentrations in the river or exceedances of sediment screening criteria.

Aquatic Biota Tissue – Aquatic macrophyte samples were collected from four locations in Reach 4, from upgradient to downgradient: SLC-2, SLC-1, SLC, and SLC-0 (Figure 6-20). Macrophyte species sampled were white-water buttercup and speedwell, with an average selenium concentration of 7.8 mg/kg (Table 6-21). There were no obvious upgradient to downgradient patterns. Macrophyte selenium concentrations ranged from 12.1 mg/kg at the most upgradient location to 8.2 mg/kg at the most downgradient location (Table 6-21). A periphyton sample collected from location SLC-2 had a selenium concentration of 5.3 mg/kg (Figure 6-22 and Table 6-21). The remainder of the State Land Creek locations lacked the suitable substrate for periphyton, and no other periphyton samples were obtained.

Benthic macroinvertebrate tissue samples were collected at the four aquatic sampling locations on Reach 4, and the overall average selenium concentration was 10.7 mg/kg (Table 6-21). There were no obvious upgradient to downgradient patterns. The taxa and relative abundance of the taxa represented in the tissue samples are shown in Tables 4-31 and 4-33. Downgradient location SLC-0 had a relatively high number of total benthic invertebrate taxa compared to other locations evaluated, but the stream reach still did not support abundance and diversity of macroinvertebrate species indicative of a healthy community.

Fish (mostly speckled dace and redside shiners) were present at all four State Land Creek locations, with tissue selenium concentrations ranging from 12 to 34 mg/kg. All fish selenium concentrations were above the EPA criterion for fish tissue (8 mg/kg) (Figure 6-22 and Table 6-21).

6.3.2.2 Riparian Conditions

Riparian conditions within the State Land Creek Sub-Basin were evaluated at 7 locations (Figure 6-20).

Riparian Soil Conditions – Riparian soil samples were collected from seven locations within the State Land Creek Sub-Basin, from Reach 1 to Reach 4 (Figure 6-20). The average concentration of selenium in all riparian soils (surface and subsurface) was 0.75 mg/kg, and ranged from 0.36 to 1.9 mg/kg (Figure 6-29 and Table 6-22). The ecological soil screening level for selenium of 0.52 mg/kg (based on USEPA's plant EcoSSL) was exceeded at six of the seven locations in both surface and subsurface samples. There were no selenium exceedances in riparian soil collected at the most upgradient location (SLC-3). The background soil selenium concentrations of 2.3 mg/kg in surface soils (Table 4-7) were not exceeded in any of the samples collected.

Eight other COPCs exceeded EcoSSLs at riparian soil locations. These COPCs were arsenic, cadmium, chromium, copper, lead, manganese, vanadium and zinc. Concentrations of all eight COPCs were at or below corresponding soil background concentrations for those metals (Table 4-8).

Riparian Vegetation Conditions – Riparian vegetation samples were collected at the same 7 locations as soil samples in the State Land Creek Sub-Basin. The average concentration of selenium in all riparian vegetation samples was 0.9 mg/kg and ranged from 0.07 to 6.9 mg/kg (Figure 6-29 and Table 6-22). There were no obvious upgradient to downgradient patterns. Average selenium concentrations in riparian vegetation (multi-species) samples for each location were as follows, from upgradient to downgradient: 0.97 mg/kg at SLC-3, 2.3 mg/kg at SR-01, 0.09 mg/kg SR-02, 0.25 mg/kg at SR-03, 0.75 mg/kg at SR-04, 0.67 mg/kg at SR-05, and 0.27 mg/kg at SLC-2 (Table 6-22).

Riparian Biota Conditions – Terrestrial invertebrates and small mammals were sampled from two riparian locations within the State Land Creek Sub-Basin, in Reach 1 (SLC-3) and Reach 4 (SLC-2) (Figure 6-29 and Table 6-22). The selenium concentrations in invertebrate samples, primarily composed of Hemiptera (true bugs) and Orthoptera (grasshoppers and crickets) (Table 4-20), were 3.9 and 2.1 mg/kg, from upgradient (Reach 1) to downgradient (Reach 4) (Table 6-22). The concentrations in the small mammal composite samples, consisting of deer mouse and deer mouse/meadow vole (Table 4-22), were 6.5 and 2.5 mg/kg, from upgradient to downgradient (Table 6-22).

6.3.2.3 Erosion Transport

To evaluate erosional transport (i.e., due to runoff or wind) of overburden material from the downgradient-most overburden pile, surface and subsurface soil samples as well as washed and unwashed vegetation samples were collected in 2009 (Figures 3-1, 3-4, and 6-20). These 2009 results were presented and discussed in detail in the 2009 Data Summary Report (Formation 2010b) and that discussion is excerpted here. Location NT2-04 is located on the eastern portion of the ODA, and locations NT2-05 and NT2-06 are downgradient of the ODA to the east (Figures 3-1 and 6-20).

Erosion and transport due to runoff was evaluated at transect locations downgradient of the pile. The maximum surface/subsurface soil primary COPC concentrations along the transect decreased with distance from the pile (Table 4-9). Concentrations in the surface soil samples at the downgradient locations were not significantly greater than the concentrations in subsurface soils at those locations (as might be expected with erosion-related transport). In addition, the soil samples collected at all of these locations had surface and subsurface selenium concentrations within the range or slightly below of levels in undisturbed areas on both the eastern and western slopes of the Aspen Range (NT8 and ST11 transects), where selenium concentrations ranged from 0.2 to 0.7 mg/kg in the surface and 0.14 to 3.5 mg/kg in the subsurface (Table 4-9). These data indicate that erosional transport of overburden material much beyond the toe of the pile is limited.

Erosion and transport due to wind was evaluated by comparing selenium concentrations for washed and unwashed vegetation composite samples collected downwind from the ODA.[39] Selenium concentrations for washed and unwashed vegetation composite samples at NT2-05 and NT2-06 were low (Table 4-15, Formation 2010b). These concentrations are lower than that found in the forage vegetation growing in the reclaimed area at the toe of the ODA (NT2-04).

If overburden dust was being deposited on the plant surfaces, it would be expected that at locations directly adjacent to the overburden pile in the unwashed vegetation would have a

[39] Wind blowing patterns are generally from west to east.

significantly higher concentration than the washed vegetation. The data show no consistent relationships between COPC concentrations in washed and unwashed plant samples. Seven of the 16 detected analytes had higher concentrations in the washed samples (Formation 2010b). The absence of a relationship between washed and unwashed samples suggests COPC concentrations are associated with plant tissue rather than dust on the plant surface. This shows that dust transport from the pile does not contribute significantly to COPC concentrations on plants in the downwind areas. This is consistent with the coarse-grain properties of the overburden material and the fact that vegetation on this pile is well established.

6.3.2.4 Summary of Conditions in State Land Creek Sub-Basin

The headwaters area of State Land Creek consists of a number of ephemeral or intermittent broad-channel draws that may contribute flow to the main stem (beginning at the upper end of Reach 2).

The sources of selenium and other COPCs in this Sub-Basin are the ODAs in the headwaters area. The overburden piles along the perimeter of the Mine have been recontoured and revegetated with non-native plant species, and show minimal signs of erosion. The overburden pile at the top of Woodall Mountain, along the edge of the open pit, shows signs of erosion into the pit. Few pooling areas were evident on the overburden piles along the perimeter of the Mine. Pooling can occur atop the Meade Peak Member of the Phosphoria present along the base of the open pits. Selenium and other COPCs are transported into surface water, sediment, and soil near the boundaries of the Mine.

Of the primary COPCs, total selenium exceeded the chronic aquatic life water quality criterion (0.005 mg/L) at locations from State Land Creek's headwaters to its confluence with the Blackfoot River, with locations in close proximity and downgradient of the overburden piles exhibiting higher concentrations (Figures 6-22 and 6-25). The primary COPC concentrations generally decreased with distance from the RMM (Figures 6-22, 6-23, 6-24, and 6-25). Exceedances of aquatic criteria in the creek have occurred exclusively during high-flow conditions as opposed to base-flow conditions (Table 6-17 and Figure 6-26). The primary COPC concentrations in the UBR both upgradient and downgradient of State Land Creek during both high and low flows, were relatively similar, indicating that there are no measurable effects from State Land Creek surface water on the UBR.

Sediment COPC concentrations measured in State Land Creek followed a similar trend to surface water, and also do not indicate significantly enough contributions to the UBR to result in a measurable increase in concentrations. Similar to surface water conditions, the locations with the highest sediment COPC concentrations were in close proximity to the reclaimed overburden pile in the headwaters of State Land Creek (Figures 6-22, 6-23, 6-24 and 6-28). Of the primary COPCs, selenium had concentrations exceeding the sediment screening level (2 mg/kg) in all reaches.

Riparian soil samples had an average selenium concentration of 0.75 mg/kg (ranging from 0.36 mg/kg to 1.9 mg/kg) (Table 6-22). Riparian vegetation samples had selenium concentrations averaging 0.9 mg/kg and ranging from 0.07 mg/kg to 6.9 mg/kg (Table 6-22). Selenium concentrations in aquatic biota (i.e., fish, invertebrates, periphyton, and plants) in State Land Creek indicated transfer from ODA releases into surface water and sediments, relative to background locations.

The undisturbed foothills east of Woodall Mountain contribute unaffected surface water and sediment to the State Land Creek drainage. Surface water and sediment selenium concentrations in the springs and creek at Tributary #3 were below comparison values for all media.

6.3.3 Conditions in Pedro Creek Sub-Basin

The Pedro Creek Sub-Basin covers an area of approximately 1,864 acres (Figure 2-3). Pedro Creek is an intermittent stream that flows into Trail Creek just upgradient of the Trail Creek/Blackfoot River confluence. Its headwaters area is along Woodall Mountain ridge and it receives water from tributaries originating in two sets of undisturbed foothills east of Woodall Mountain. The RMM in this Sub-Basin consist of the ODAs situated along Woodall Mountain in the headwaters area. The RMM cover an area of approximately 202 acres (Table 2-3). Roughly half of the RMM (approximately 97 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 66 and 38 acres atop the Wells Formation and Dinwoody Formation (Table 2-3), respectively, and less of a tenth of an acre on the alluvial/colluvial deposits. Prior to the FSPS and the NTCRA activities, most of the overburden piles in this Sub-Basin were steeply sloped, unvegetated, and had areas of surface-water pooling (Figure 5-2). In addition, prior to the FSPS and NTCRA, seeps and precipitation runoff would flow directly into the Pedro Creek drainage. As previously mentioned, as part of the FSPS and the NTCRA, two piles have been regraded to 3:1 slopes, covered with a Dinwoody Formation-derived soil cover (except for areas left uncovered as per the FSPS and the NCTRA designs), and revegetated. In addition, prior to the FSPS and NTCRA, seeps and precipitation runoff would flow directly into the Pedro Creek drainage. Tables 6-23 through 6-29 and Figures 6-30 through 6-40 summarize the data for Pedro Creek Sub-Basin.

6.3.3.1 Aquatic Conditions

Aquatic conditions within the Pedro Creek Sub-Basin were evaluated at 43 locations (Figure 6-30). Spring runoff (precipitation and snowmelt) is the primary source of water within Pedro Creek. Flows along the main stem of Pedro Creek are greatest during the spring snowmelt, with the amount of flowing water decreasing significantly throughout the summer and fall (Table 6-23). During the summer and fall seasons, sections of the creek are often dry, with flows mainly present in the lower reaches. Base flow along the lower reaches is sustained by shallow

groundwater inflow into the creek. Pedro Creek is a gaining stream, where water volume increases in the downgradient direction as it gains groundwater. Figure 6-31 presents a summary of average flows within the reaches of Pedro Creek. Pedro Creek gains flow during both high- and low-flow periods.

Surface Water Conditions – In addition to the 43 locations monitored within the Pedro Creek Sub-Basin (Figures 3-7 and 6-30), two locations upgradient and downgradient of Pedro Creek's confluence with Trail Creek were monitored to evaluate contributions from this Sub-Basin. Figures 6-32 through 6-36 summarize maximum concentrations for the primary COPCs relative to their aquatic life criteria for all locations where surface water samples were collected from May 2001 through October 2014.

Surface water locations on or adjacent to the overburden piles (e.g., NEP-4a, NES-5, and PC-5 [Figure 6-30]), some no longer present as a result of the FSPS and NTCRA regrading and cover placements, had the greatest COPC concentrations. Average selenium, cadmium, and zinc concentrations at the pools and seep exceeded their respective chronic and acute criteria (Tables 4-23 and 6-24, and Figure 6-35). The waters at NES-5 and PC-5 also exceeded the Gross Alpha human health comparison value of 15 pCi/L (Table 6-26).

As part of the construction of the FSPS and NTCRA, containment ponds (Figure 6-30) were built for seep NES-5 as well as other seeps uncovered (FSPS seep, NES-7, and NES-8) during or following construction. These features were constructed to prevent seep water from co-mingling with runoff. Seeps at the FSPS, NES-7 and NES-8, go dry in the summer months, and seepage at NES-5 is year round, but significantly decreases in the summer and fall. In addition to the seep collection ponds, five stormwater sedimentation basins were installed (Figure 6-30), namely:

- Northeast sedimentation basin;
- East sedimentation basin;
- Southeast sedimentation and infiltration basin;
- Southwest sedimentation and infiltration basin; and
- West sedimentation and infiltration basin.

Concentrations of the COPCs in the headwaters area increased during the periods of construction as a result of the weathering of freshly regraded overburden. Following the placements of Dinwoody Formation soil covers on the regraded piles, concentrations generally began to decrease. The greatest selenium concentrations in the headwaters area water were as follows:

- Mainstem (at seep NES-5);

- 6.9 mg/L, based on pre-NTCRA-construction data from 2001 to 2012 (Table 6-24).
- 8.9 mg/L, based on during-NTCRA-construction data from 2013 and 2014 (Table 6-24).
- 7.8 mg/L, based on post-NTCRA-construction data from 2015 (Table 4-8).

- Tributary 5 (at the FSPS Seep);
  - 1.5 mg/L, based on data from 2013 (Table 6-24).
  - 1.3 mg/L, based on data from 2014 (Table 6-24).
  - 0.7 mg/L, based on data from 2015 (Table 4-8).
- Tributary 6 (at seeps NES-7 and NES-8, contained into one seep collection pond);
  - 9.8 mg/L, based on during-NTCRA-construction data from 2013 and 2014 (Table 6-24).
  - 1.8 mg/L, based on post-NTCRA-construction data from 2015 (Table 4-8).

Of the primary COPCs, selenium and cadmium exceeded their respective criteria in Reaches 1 and 2 of the creek, with average concentrations decreasing along the flow path (Table 6-24). The concentrations of the primary COPCs in the tributaries that drain a set of undisturbed foothills east of Woodall Mountain (Tributaries #1 through #4), and confluence with the creek below Reach 2, were generally below the aquatic criteria (Figures 6-32 through 6-35). Average cadmium concentrations drop below its criteria in Reach 3, downgradient of the confluence with tributaries 1 through 4. Total selenium concentrations however, exceeded its water quality criterion in Reach 3 and at its confluence with the Trail Creek (Figures 6-32, 6-35 and Table 6-24). Although selenium concentrations in Reach 3 exceeded the chronic criterion (0.005 mg/L) at PC-2 and PC-1, concentrations were not high at all locations in the reach (e.g., PC-1UP, PC-2B and PC-2C), and were overall lower relative to levels in Reach 2 (Figure 6-35 and Table 6-24).

Other metal/metalloid COPCs that had concentrations exceeding comparison values at one or more locations in Pedro Creek include: arsenic, aluminum, copper, lead, manganese, nickel, silver, and uranium decay products (Appendix K-9).

The average pH of Pedro Creek (8 S.U.) and the seeps (8 S.U.) were circum-neutral (Table 6-25). Average alkalinity, in the creek was 142 mg/L, compared to 203 at the seeps (Table 6-25).

The TDS in the creek averaged 927 mg/L, ranging from 174 mg/L near the mouth to 3180 mg/L in the headwaters below the seeps. The TDS in the seeps average 2784 mg/L (Table 6-25). Total sulfate in the seeps ranged from non-detect to 2180 mg/L (averaged 1812 mg/L). The elevated average concentration for sulfate (537 mg/L) in Reaches 1 through 3 and tributaries 5 and 6 of the creek, relative to levels in Tributaries 1 through 4 (14 mg/L), also indicates mining related effects in the creek.

One livestock pond (PCP-2) is located along the Pedro Creek tributary downgradient of the FSPS pile (Figure 6-30). Selenium is the only COPC exceeding its criteria in this pond (Figures 6-32 through 6-34, Table 6-24). Total selenium concentrations in PCP-2 ranged between 0.0066 mg/L and 0.28 mg/L. In 2015 selenium concentrations ranged from 0.037 to 0.19 mg/L (Table 4-8).

Pedro Creek is typically dry in Reach 2 during base-flow conditions. In Reach 1 and in the headwater tributaries near the overburden pile, little alluvial material is present and consequently only a thin and discontinuous alluvial aquifer is present; with surface water carrying most of the selenium load. The loading analysis in Figure 6-37 depicts the changes in selenium loads in Reaches 1 through 3 during spring flow. In Reach 3, the selenium load transfers between surface water and groundwater.

Two locations on Trail Creek, located upgradient (TC-3) and downgradient (TC-4) of the Pedro Creek confluence, were sampled to assess the effects of Pedro Creek flows on Trail Creek (Figure 6-30). Selenium concentrations in Trail Creek upgradient of Pedro Creek during both high and low flows were well below the chronic aquatic criterion (0.005 mg/L) (Table 6-24). Selenium concentrations in Trail Creek downgradient of Pedro Creek averaged 0.003 mg/L (ranging between 0.0003 mg/L and 0.026 mg/L) (Table 6-24).

In summary, based on data collected since 2001, selenium concentrations in Pedro Creek exceeded the chronic aquatic life water quality criterion (0.005 mg/L) at points from its headwaters to its confluence with the Trail Creek, with locations in close proximity and downgradient of the overburden piles exhibiting higher concentrations (Figures 6-32 and 6-35). Selenium concentrations generally decreased with distance from areas with RMM. Selenium concentrations were below the chronic criterion (0.005 mg/L) in the tributaries draining the foothills.

Sediment Conditions – Sediment samples were collected from 30 locations in the Sub-Basin (Table 6-27, Figures 6-30, 6-32 through 6-34, and 6-38). The locations with the highest sediment COPC concentrations were seeps NES-5 (225 mg/kg) and NES-6 (739 mg/kg), located at the toe of the overburden piles, and creek location PC-5 (227 to 1430 mg/kg) (Table 6-27 and Figure 6-38). The seep locations have been removed as part of the FSPS and NTCRA regrading activities, and the maximum selenium concentrations in the new sedimentation basins at the toe of these piles were 34.5 mg/kg (Northeast Sedimentation

Basin), 27.7 mg/kg (East Sedimentation Basin), and 40.6 mg/kg (FSPS Sedimentation Basin). Selenium, cadmium, chromium, and zinc exceeded their respective sediment screening levels from the creek's headwaters to its mouth, with concentrations decreasing with distance from the headwaters (Table 6-27; Figures 6-32 through 6-34).

Sediment samples were collected on Trail Creek both upgradient (TC-3) and downgradient (TC-4) of the Pedro Creek confluence in order to assess the influence of Pedro Creek on Trail Creek sediments (Figure 6-38). The sediment selenium concentration of the upgradient (TC-3) sample was below the sediment screening level (2 mg/kg) at 0.78 mg/kg. The concentration of the downgradient (TC-4) sample was 3.6 mg/kg, exceeding the sediment screening level (2 mg/kg) (Figure 6-38 and Table 6-27). The sediment cadmium concentration of the upgradient (TC-3) sample at 2.5 mg/kg was above the sediment screening level (1 mg/kg), while the concentration downgradient at TC-4 (0.72 mg/kg) was below the screening level (Figure 6-38 and Table 6-27). The concentrations of chromium, vanadium, and zinc were below screening levels, with the concentrations of chromium and vanadium higher at the upgradient location (TC-3) compared to the downgradient location (TC-4) (Figure 6-38 and Table 6-27).

Other COPCs exceeding criteria at one or more locations include: antimony, arsenic, barium, copper, iron, manganese, mercury, nickel, silver, and uranium decay products (Appendix K, Table K-15.

In summary, the sediment selenium and cadmium concentrations in Pedro Creek were above their respective screening levels throughout the length of the creek, with locations in close proximity and downgradient of the overburden piles exhibiting higher concentrations. There is evidence that sediments containing elevated selenium have been transported into Trail Creek.

Aquatic Biota Tissue – Aquatic biota were sampled at Pedro Creek locations PC-1 and PC-2 to evaluate COPC concentrations in tissue. No headwaters area locations were visited for fish monitoring because these locations (PC-4, PC-4A, PC-5) were dry at the time of sampling in July 2009 (Figure 6-32). Many locations along the main stem of Pedro Creek have been dry when visited for sampling, even when upgradient sections of the creek contained water during the same sampling event. The intermittent nature of the stream is conducive to heavy sediment deposition, with scouring flows during high-flow events. Productive fish habitat along Pedro Creek is limited because of these characteristics.

Periphyton tissue samples were collected from locations PC-1 and PC-2, and aquatic macrophyte samples were collected from PC-1, PC-2, PC-5, and NES-5. Selenium concentrations in periphyton were 6.7 and 6.1 mg/kg at PC-1 and PC-2, respectively (Table 6-28). The aquatic macrophyte (speedwell) sample from NES-5 had a selenium concentration of 362 mg/kg (Table 6-28). Macrophyte selenium concentrations at the main stem Pedro Creek locations varied greatly, with average concentrations of 25.8, 2.6, and 12.1 mg/kg at PC-5, PC-2, and PC-1, respectively.

Benthic macroinvertebrate tissue samples were collected at PC-1 and PC-2, with composite sample selenium concentrations higher in the downgradient (PC-1) sample (36.1 mg/kg) than in the mid-reach (PC-2) sample (11.4 mg/kg) (Figure 6-32 and Table 6-28). However, total benthic macroinvertebrate abundance and benthic density were highest at downgradient Pedro Creek location PC-1 as compared to all other locations monitored for benthic community assessment (Table 4-33). The reach still did not support abundance and diversity of macroinvertebrate species indicative of a healthy community. Fish (speckled dace only) were present at only the downgradient Pedro Creek location, and selenium concentrations ranged from 20.3 to 36.4 mg/kg. All fish selenium concentrations were above the EPA Criterion for fish tissue (8 mg/kg) (Table 6-28 and Figure 6-32).

6.3.3.2 Riparian Conditions

Soil, vegetation and biological tissue samples were collected from riparian locations, overbank locations, and upland locations within the Pedro Creek Sub-Basin to assess COPC transport from the ODA (Figures 6-39 and 6-40).

Riparian Soil and Overbank Conditions – Riparian and overbank soil samples were collected from 42 locations within the Pedro Creek Sub-Basin (Figures 6-39 and 6-40). The average concentration of selenium in riparian soils (22 locations in the reaches and tributaries) was 12 mg/kg and ranged from 0.22 to 42 mg/kg (Table 6-29). The ecological soil screening level for selenium of 0.52 mg/kg (based EPA's plant EcoSSL) was exceeded at 19 of the 22 sample locations. Twelve other COPCs exceeded EcoSSLs in the Pedro Creek Sub-Basin. These COPCs were antimony, arsenic, cadmium, chromium, copper, nickel, lead, manganese, silver, vanadium, zinc, and uranium decay products. Selenium concentrations in locations between the former the angle-of-repose overburden pile and its sedimentation basin ranged between 0.52 mg/kg and 252 mg/kg (average 66 mg/kg).

Twenty soil samples along four main transects were collected to assess the extent of overbank deposition (Table 6-29 and Figure 6-40). The headwaters area of Pedro Creek below the ODA is predominantly diffuse flow, with no defined creek channeling. Well-defined channelization of Pedro Creek begins in the area near PC-5 and extends to the creek mouth. The "overbank" samples upgradient of PC-5 were collected from approved locations downgradient from the ODA and are representative of on-the-ground conditions in the area; though likely not representative of overbank deposition. The farthest downgradient location (PCO-10) had relatively low concentrations of selenium in soils, with a concentration of 0.48 mg/kg. The next transect upgradient (PCO-05 through PCO-07 and PCO-13 through PCO-16), crossing the creek at the PC-5 location, also exhibited relatively low selenium concentrations in most samples, with concentrations decreasing with distance from the stream channel. The sample collected from PCO-06 had a selenium concentration of 68 mg/kg, but all other samples along that transect had concentrations ranging from 0.54 to 2.8 mg/kg. The next upgradient transect (PCO-23 through PCO-28) exhibited a similar trend, with the highest concentrations measured

at PCO-24 and PCO-25 (48 and 47 mg/kg, respectively), the samples closest to the creek channel. The other transect sample selenium concentrations ranged from 0.68 to 6.6 mg/kg (Table 6-29). Finally, the most upgradient transect (PCO-17 though PCO-22) included four samples downgradient from the NES-5 seep. Soil selenium concentrations were highest in samples collected from the black shale material (refer to Appendix L for field forms). Selenium concentrations in samples collected along this transect ranged from 2.5 to 717 mg/kg.

Riparian Vegetation Conditions – Riparian vegetation samples were collected at 13 of the same locations in the reaches and tributaries as the riparian soil samples, plus 3 additional locations (Figures 6-39 and 6-40). Vegetation selenium concentrations in riparian composite samples from the 16 locations averaged 17 mg/kg and ranged from non-detect to 82.4 mg/kg (Table 6-29). Selenium concentrations in locations between the former the angle-of-repose overburden pile and its sedimentation basin ranged between 0.04 mg/kg and 155 mg/kg (average 49 mg/kg).

Riparian Biota Conditions – Terrestrial invertebrates and small mammals were sampled from three locations within the Pedro Creek Sub-Basin, namely NT5-05, PC-3 and PC-5 (Figure 6-39 and Table 6-29). The selenium concentrations in invertebrates and mammals were as follows:

- 91 mg/kg and 13 mg/kg, respectively, at the riparian area near NT5-05;
- 30.3 mg/kg and 3.7 mg/kg, respectively, at the riparian area near PC-5; and
- 10.2 mg/kg and 1.2 mg/kg, respectively, at the riparian area near PC-3.

6.3.3.3 Erosion Transport

To evaluate erosional transport (i.e., due to runoff or wind) of overburden material, surface and subsurface soil samples as well as washed and unwashed vegetation samples were collected in 2009 (Figures 6-30) from locations downgradient of the overburden pile subject of the 2013 NTCRA (NT5-05 through NT5-10). These 2009 results were presented and discussed in detail in the 2009 Data Summary Report (Formation 2010b) and that discussion is excerpted here. Soil sampling location NT5-05 was situated at the base of the ODA and in the vicinity of the NES-5 seep. Location NT5-06 was approximately 350 feet from the pile, in the vicinity of the former sedimentation basin where seep NES-5 used to discharge. The additional locations were all in the forested area at varying distances to the east of the pile: NT5-09 (approximately 150 feet from the pile), NT5-10 (approximately 475 feet from the pile), and NT5-07 and NT5-08 (approximately 860 feet from the pile each).[40]

Although selenium concentrations are generally lower in each of the subsurface samples compared to the surface samples, most appear to be proportional to the surface concentration,

[40] Refer to Figure 3-1, Formation (2010b), and Appendix I for raw data.

indicating that surface and subsurface concentrations are correlated. Samples from NT5-05 and NT5-06 reflected influence from the pile. Samples from the location closest to the pile (e.g., NT5-09) indicated that erosion of the pile material during storm could be transported beyond the toe. Field crews specifically recorded black shale material at several of these sampling locations (e.g., NT5-05, NT5-06, NT5-09, and NT5-10). Soil selenium concentrations at NT5-07 (0.72 mg/kg in the surface and 0.44 mg/kg in the subsurface, Table 6-29) were within the range of levels in undisturbed areas on both the eastern and western slopes of the Aspen Range (NT8 and ST11 transects), where concentrations ranged from 0.2 to 0.7 mg/kg in the surface and 0.14 to 3.5 mg/kg in the subsurface (Appendix K Table K-1).

Samples collected at TP-15 through TP-19 (from 0 to 12 inches), within approximately 300 feet of the pile (Figure 6-30), had selenium concentrations ranging from 0.34 mg/kg to 0.92 mg/kg (average 0.61 mg/kg) (Appendix K Table K-1). For comparison, locations NT5-02 through NT5-04 are on the ODA, upslope from NT5-05 (Figure 3-1, Appendix K Table K-1). At these three locations, the maximum selenium concentrations in surface and subsurface soils were 81.5 mg/kg and 77.6 mg/kg, with average concentrations of 52.4 and 49.4 mg/kg. These data indicate that erosional transport of seleniferous material much beyond the toe of the angle-of-repose pile is limited.

Erosion and transport due to wind was evaluated by comparing selenium concentrations for paired washed and unwashed browse vegetation samples collected in 2009 (Appendix K Table K-6; Formation 2010b). Selenium concentrations in washed and unwashed browse composite samples collected in 2009 from sampling locations known to have black shale material (i.e., NT5-05, NT5-06, NT5-09, and NT5-10) ranged from 6.6 to 30.4 mg/kg. Selenium concentrations in both washed and unwashed browse composite samples collected in 2009 from locations lacking the black shale material (i.e., NT5-07 and NT5-08) ranged from 0.03 to 0.18 mg/kg. If selenium-containing dust was being deposited on the plant surfaces, it would be expected that at locations directly adjacent to the overburden pile in the unwashed vegetation would have a significantly higher concentration than the washed vegetation. The concentration of selenium in the browse sample collected from trees growing at the edge of the pile at NT5-05 was 21.5 mg/kg in the unwashed sample and 30.4 mg/kg in the washed sample. Of the four locations closest to the pile, two locations had higher selenium concentrations in the washed sample and two locations had higher selenium concentrations in the unwashed sample. In addition, a review of other analytes for the NT5-05 sample also found that eight other analytes also had higher concentrations in the washed sample (Formation 2010b).

The absence of a relationship between washed and unwashed samples suggests COPC concentrations of unwashed vegetation are associated with plant tissue rather than overburden-derived dust deposited on the plant surface. This shows that dust transport from the angle-of-repose overburden pile (subsequently subject of the 2013 NTCRA) was unlikely to contribute significantly to COPC concentrations on plants in the downwind areas. The lack of airborne

transport from ODAs to nearby vegetation (and soil) can be explained by the relatively coarse grain size of the overburden material.

6.3.3.4 Summary of Conditions in Pedro Creek Sub-Basin

The source of selenium and other COPCs in this Sub-Basin are the ODAs in the headwaters area. Pedro Creek in begins as a diffuse flows downgradient of these ODAs and becomes a well-defined channel in the area near PC-5 (Figure 6-30). Although average selenium concentrations in Pedro Creek surface water decreased rapidly with distance from the ODAs, maximum concentrations exceeded the chronic aquatic life water quality criterion (0.005 mg/L) throughout the creek (Table 6-24, Figures 6-32 and 6-35), and contributions to Trail Creek during high flow were indicated. Selenium concentrations measured in Pedro Creek sediments also decreased downstream of the ODAs (Figure 6-32 and 6-38). Transport of sediment from Pedro Creek to Trail Creek appears to have contributed selenium to sediment in Trail Creek downgradient from their confluence (Table 4-29).

Riparian soil samples (surface and subsurface) had an average selenium concentration of 12 mg/kg (ranging from 0.22 to 42 mg/kg). Riparian vegetation samples had selenium concentrations averaging 16.7 mg/kg and ranging from non-detect to 82 mg/kg (Table 6-29). The “overbank” soil samples have lower selenium concentrations, and any deposition of sediment or riparian soil beyond stream channels has not resulted in elevated COPC concentrations at the overbank-sample locations. Selenium concentrations in aquatic biota (i.e., fish, invertebrates, periphyton, and plants) in Pedro Creek indicate transfer from surface water and sediments to the local biota.

Runoff from undisturbed foothills east of Woodall Mountain contribute surface water and sediment to the Pedro Creek drainage. Surface water and sediment selenium concentrations in samples collected from the tributaries east of the foothills were below the criteria. The area with RMM, where selenium concentrations exceed comparison values, is limited to land between Woodall Mountain ridge and the first set of foothills.

6.3.4 Conditions in Camp G Creek Sub-Basin

Camp G Creek Sub-Basin spans an area of approximately 2,978 acres (Figure 2-3). The RMM in this sub-basin include the South Woodall Panel in-pit ODA and the waste rock piles associated with Camp G and Camp H adits. The ODA and the waste rock piles are situated in the headwaters of Camp G Creek (Figure 6-41) and cover an area of approximately 12.4 acres (Table 2-3). Most of the RMM (approximately 8 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 1 and 3 acres atop the Wells Formation and Dinwoody Formation (Table 2-3), respectively. No prior reclamation has been performed at these areas. Camp G Creek is an intermittent stream that flows into Trail Creek upgradient of

its confluence with the UBR. Camp G Creek originates in a drainage formed between the base of Woodall Mountain and the foothills to the east. Tables 6-30 through 6-36 and Figures 6-41 through 6-50 summarize the data for Camp G Creek Sub-Basin.

6.3.4.1 Aquatic Conditions

Aquatic conditions within the Camp G Creek Sub-Basin were evaluated at 14 locations (Table 6-31 and Figure 6-41). Surface water bodies within this sub-basin include three springs, Camp G Creek, and a pond (Figure 6-41). Spring runoff (precipitation and snowmelt) is the primary source of water in Camp G Creek. Creek flow is greatest during the spring snowmelt with flow decreasing significantly throughout the summer and fall (Figure 6-42 and Table 6-30). During the summer and fall, sections of the creek often become dry, with flows present mainly in the lower reaches of the creek. Base flow in the lower reaches is sustained by shallow groundwater discharge to the creek. Camp G Creek is a gaining stream, where water volume increases farther downstream due to groundwater contributions. Figure 6-42 presents a summary of average flows within the reaches of Camp G Creek. During both high- and low-flow periods, Camp G Creek is a gaining stream both above and below Tributary #1.

Surface Water Conditions – Fourteen locations were monitored within the Camp G Sub-Basin for surface water quality (Figures 3-7 and 6-41) to allow for spatial and temporal evaluation of mining-related effects along Camp G Creek. Monitoring locations included eleven locations along Camp G Creek (CGC-0, CGC-1, CGC-2, CGC-2A, CGC-3, CGC-3A, CGC-4, CGC4A, CGC-5, CGC-UPTC, and CGCT1-1) and three spring locations (CS-1_CND, JS-1, and JRLD). Two additional surface water sampling locations, one upgradient and one downgradient of Camp G Creek's confluence with Trail Creek were monitored to evaluate contributions from the Camp G Sub-Basin to Trail Creek.

Figures 6-43 through 6-47 present summaries of maximum primary COPCs concentrations relative to the aquatic criteria for all locations where surface water samples were collected. Maximum COPC concentrations were lowest upgradient of the waste rock piles and greatest immediately downgradient and in close proximity to the piles. COPC concentrations generally decreased with increasing distance from the waste rock piles located in the upper Camp G Creek Sub-Basin.

Primary COPC concentrations in Reach 1, at the uppermost headwater location (CGC-5) upgradient of both waste rock piles, were below their respective chronic aquatic life water quality criterion (Figure 6-46 and Table 6-31). Downgradient of the Camp G portal area in Reach 2, total selenium concentrations increased to levels exceeding the chronic criterion (0.005 mg/L), whereas cadmium, chromium, vanadium and zinc remained below their criteria (Table 6-31 and Figure 6-46). In Reach 3, total selenium concentrations remain above the chronic criterion (Table 6-31 and Figure 6-46). Although selenium concentrations in Reach 3 exceeded the chronic criterion (0.005 mg/L), concentrations were lower relative to levels in

Reach 2, and only one sample collected from the location furthest upgradient on Reach 3 exceeded the acute criterion (0.026 mg/L) (Table 6-31). Tributary 1, which drains an undisturbed area, enters Camp G Creek downgradient of Reach 3. Concentrations of all COPCs in Tributary 1 were below the aquatic criteria. In the furthest downstream main stem reach (Reach 4), all sampling locations had COPC concentrations below the aquatic criteria (Table 6-31 and Figure 6-46).

As shown on Figure 6-47, total selenium concentrations have minimal seasonal variation, and tend to vary spatially (i.e., between the different reach segments). The loading analysis presented in Figure 6-48 shows higher selenium loads in Reaches 2 and 3 compared to Reach 4 downgradient. Camp G Creek Tributary #1 enters the creek between Reaches 3 and 4, providing additional flow and some dilution. However, the larger portion of the load reduction is due to the surface water intermingling with the shallow groundwater present in the area, thereby diluting the overall selenium load to the creek. Selenium concentrations in the creek appear to decrease substantially in this area as the surface water intermingles with shallow groundwater, thereby reducing the overall selenium load to the creek.

The meadow topography and presence of abundant natural springs (JS-1, JRLD, and CS-1_CND) in the vicinity of Reaches 3 and 4 indicate the occurrence of surface water/groundwater interactions. Concentrations of the primary COPCs in the springs are below their respective aquatic life criteria except for on zinc result (Table 6-31). Radionuclide constituents were below comparison values (Table 6-33).

Two locations were sampled on Trail Creek (TC-1 and TC-2), upgradient and downgradient of the confluence with Camp G Creek, to determine whether Camp G Creek has any influence on Trail Creek (Table 6-31 and Figure 6-41). Surface water samples have been collected from these locations during spring and fall seasons since 2008. Primary COPC concentrations both upgradient and downgradient of Camp G Creek during both high and low flow periods were well below the chronic aquatic life water quality criteria (Table 6-31 and Figure 6-46).

The only other COPC that exceeded a surface water comparison value (the human health criterion) at a sampling location within the Camp G Creek Sub-Basin was total manganese (Appendix K, Table K-9). The background value for total manganese was calculated to be between 0.26 and 0.36 mg/L for high and base flow conditions, respectively (Table 4-8), while the human health comparison value for manganese is 0.05 mg/L.

The average pH of Camp G Creek (7.9 S.U.) and the springs (7.6 S.U.) were circum-neutral. Average alkalinity in the creek was 197 mg/L (Table 6-32). The TDS in the creek averaged 228 mg/L, ranging 175 near the mouth to 300 mg/L below the waste rock piles. The TDS in the springs average 250 mg/L (Table 6-32). Sulfate concentrations average 16.4 mg/L in the creek and 16.8 mg/L in the springs. The low sulfate levels in the creek support that the waste rock

piles contain less Meade-Peak-Member shales/mudstones (which contain the seleniferous and metal sulfides and organic matter).

In summary, based on data collected since 2001, selenium concentrations in Camp G Creek exceeded the chronic aquatic water quality criterion (0.005 mg/L) in Reaches 2 and 3 (Table 6-31 and Figure 6-46). Selenium concentrations decreased rapidly with distance from the waste rock piles. Selenium concentrations were below the chronic criterion (0.005 mg/L) in the lower-most reach (Reach 4) and at the mouth of the creek. In addition, COPC concentrations at the groundwater springs (JS-1, JRLD, and CS-1_CND) remained below the aquatic life criteria. Total selenium concentrations at locations in the Camp G Creek Sub-Basin exhibited minimal seasonal variation, and tended to vary more spatially (i.e., between the different reach segments) than temporally (i.e., between high- and low-flow periods).

Sediment Conditions – Sediment samples were collected from 11 locations in the Camp G Creek Sub-Basin (Figure 6-49) to assess the influence of the waste rock piles on creek sediments (Table 6-34). Selenium, cadmium, and zinc exceeded their respective sediment screening levels in Reach 2 and Camp H drainage. Selenium and cadmium continue to exceed their respective screening levels in Reach 3. The low gradient of the creek in Reaches 2 and 3, coupled with stream pooling and ponding within those reaches, allow for deposition of fine sediment. As a result, selenium appears to have accumulated in Reach 2 and Reach 3 sediment but not farther downgradient. In Reach 4 all COPC concentrations are below the screening levels, except for Cadmium. Both spring locations sampled, CS-1_CND and JS-1, had selenium concentrations in sediment below the sediment screening level (2 mg/kg) but exceeded the sediment screening level for cadmium (1 mg/kg) (Table 6-34 and Figure 6-49).

Sediment samples were also collected on Trail Creek both upgradient and downgradient of the confluence with Camp G Creek in order to assess the influence of Camp G Creek on Trail Creek sediment (Figures 6-43 and 6-49). The primary COPC concentrations in both the upgradient and downgradient samples were below the sediment screening levels (Figure 6-49). Therefore, Camp G Creek does not appear to have affected Trail Creek sediment. Sediments from the PCP-2 pond (located in the Pedro Creek Sub-Basin) were excavated and placed in a pit located in the Camp G Creek Sub-Basin. These excavated sediments were sampled in 2014, and the results are presented in Table 6-34 (location SedDisposal).

Other COPCs exceeding chronic criteria at one or more locations where total selenium exceeded the sediment screening level (2 mg/kg) include barium, cadmium, chromium, iron, manganese, nickel and zinc (Appendix K, Table K-15). However, most of the COPCs were in the range of background levels (Table 4-7).

In summary, the extent of sediment with selenium concentrations above its screening level of 2 mg/kg is limited in the Camp G Creek Sub-Basin to Reach 2, Reach 3, and the Camp H Creek tributary sampling locations. As noted above, the physical conditions along Reach 2 and Reach

3 facilitate sediment deposition, and there is no evidence that sediment containing elevated selenium has been transported farther downgradient within the Camp G Sub-Basin or to Trail Creek. The other COPCs present at concentrations above their comparison values were also limited in spatial extent except for barium, cadmium, and manganese, which are typically present in background sediment at concentrations above comparison values.

Aquatic Biota Tissue – Aquatic macrophyte samples were collected from locations CGC-4A, CGC-1 and CGC-0 (Table 3-5 and Figure 6-43). Macrophyte species sampled were white-water buttercup, speedwell, and sedges (Table 6-35). Macrophyte selenium concentrations were lowest in the Reach 4 samples from CGC-1, averaging 0.38 mg/kg. Average macrophyte selenium concentrations at the other locations were 4.9 mg/kg at the Reach 2 samples from CGC-4A (upgradient) and 3.3 mg/kg at the Reach 4 samples from CGC-0 (downgradient) (Figure 6-43 and Table 6-35). Periphyton samples were not collected at the Camp G Creek locations due to lack of suitable substrate for periphyton.

Benthic macroinvertebrate tissue samples were also collected at those same locations, and tissue selenium concentrations followed a similar pattern to macrophyte sample concentrations. Benthic macroinvertebrate selenium concentrations were lowest in the Reach 4 samples from CGC-1, at 1.4 mg/kg. Benthic macroinvertebrate selenium levels at the other locations were 65.2 mg/kg at the Reach 2 samples from CGC-4A (upgradient) and 5.4 mg/kg at the Reach 4 samples from CGC-0 (downgradient) (Figure 6-43 and Table 6-35). The taxa and relative abundance of the taxa represented in the tissue samples are shown in Table 4-20.

No fish were captured during electrofishing efforts at the upgradient Reach 2 location (CGC-4A) or at Reach 4 location CGC-1 on Camp G Creek. As described in Section 5.5.2.3, minimal flows, poor habitat, and obstructions such as beaver dams are likely reasons for lack of fish in these upper areas. Forty-five fish were found in Camp G Creek (at location CGC-0 just upgradient of the confluence with Trail Creek), mainly consisting of speckled dace (Table 6-35). One mountain sucker, one Paiute sculpin, and two redside shiners were also captured, making this location the one with the largest number of fish taxa encountered at the Site. The average selenium concentrations in fish samples (mainly speckled dace) from CGC-0 (6.4 mg/kg) were generally lower than concentrations found in fish collected from State Land Creek (18.7 mg/kg) and Pedro Creek (27.6 mg/kg) (Tables 6-21, 6-28 and 6-35). Selenium concentrations in 7 of the 10 fish tissue samples were below the EPA criterion for fish tissue (8 mg/kg) (Figure 6-43 and Table 6-35).

6.3.4.2 Riparian Conditions

Riparian conditions within the Camp G Creek Sub-Basin were evaluated at 5 locations (Table 6-36 and Figure 6-50).

Riparian Soil Conditions – Riparian soil samples were collected from 5 locations within the Camp G Creek Sub-Basin (Table 6-36 and Figure 6-41). The average concentration of selenium in riparian surface soils was 1 mg/kg and ranged from 0.2 to 2.4 mg/kg (Table 6-36). The average concentration of selenium in riparian subsurface soils was 0.9 mg/kg and ranged from 0.2 to 2.4 mg/kg (Table 6-36). The ecological soil screening level for selenium of 0.52 mg/kg (based EPA's plant EcoSSL) was exceeded at two of the five locations in both surface and subsurface samples, and at one location in just the subsurface soil sample. However, most surface soil samples had selenium concentrations below the background level of 2.3 mg/kg (Table 4-7).

Six other COPCs exceeded EcoSSLs at one location (CGC-1) where total selenium exceeded 0.52 mg/kg (Appendix K, Table K-1). These COPCs were arsenic, cadmium, lead, manganese, vanadium and zinc. Concentrations of all six COPCs measured at CGC-1 were well below corresponding soil background concentrations for those metals (Table 4-8).

Riparian Vegetation Conditions – Riparian vegetation samples were collected at the same 5 locations as soil samples in the Camp G Creek Sub-Basin. Selenium concentrations in riparian vegetation samples collected from the most upgradient location, CR-01 on Reach 2, averaged 5.7 mg/kg and ranged from 0.48 mg/kg to 11.2 mg/kg (Table 6-36). Selenium concentrations in riparian vegetation downgradient in Reach 3 decreased from Reach 2 (range 0.08 to 0.49 mg/kg, average 0.24 mg/kg). Selenium was not detected in any of the riparian vegetation samples collected from Reach 4 location CGC-1, the most downgradient location in the Camp G Creek drainage.

Riparian Biota Conditions – Terrestrial invertebrates and small mammals were sampled from one riparian location (CGC-1) within the Camp G Creek Sub-Basin (Figure 6-50 and Table 6-36). The selenium concentration in invertebrates, primarily small flies and hemiptera (true bugs) (Table 4-18), was 1.33 mg/kg (Table 6-36). The concentration in the small mammal composite sample, consisting of one meadow vole and one shrew (Table 4-20), was 0.17 mg/kg (Table 6-36).

6.3.4.3 Summary of Conditions in Camp G Creek Sub-Basin

Sources of selenium and other COPCs in this Sub-Basin are the waste rock piles associated with the underground mining. The waste rock piles are well vegetated with re-established vegetation. Selenium concentrations in Camp G Creek surface water exceeded the chronic aquatic life water quality criterion (0.005 mg/L) in Reaches 2 and 3 at locations in close proximity and downgradient of the waste rock piles. Selenium concentrations decreased rapidly with distance from the waste rock piles. Selenium concentrations were below the chronic criterion in the lower-most reach (Reach 4) and at the mouth of the creek. In addition, selenium concentrations at the groundwater springs (JS-1, JRLD, and CS-1_CND) remained below the chronic criterion.

Sediment concentrations measured in Camp G Creek sediment indicate limited contributions from the waste rock piles. Similar to surface water trends, Reaches 2 and 3 also had the highest sediment concentrations in the creek, likely due to the low gradient of the creek and stream pooling and ponding within those reaches allowing for sediment deposition and retention. Although selenium may accumulate in Reach 2 and Reach 3 sediment, it does not appear to be transported farther downgradient. Sediment selenium concentrations measured at Reach 4, as well as in both spring locations sampled, were below the sediment screening level (2 mg/kg).

Selenium concentrations in riparian media also showed a trend of decreasing selenium concentrations from upgradient to downgradient locations, indicating minimal transport of selenium through riparian media in the Camp G Creek Sub-Basin.

The undisturbed foothills east of Woodall Mountain contribute unaffected surface water and sediment to the Camp G Creek drainage. Surface water and sediment selenium concentrations in the tributaries east of the foothills were below the respective criteria. The mining-affected area, where selenium concentrations exceed comparison values in Camp G Creek Sub-Basin, is limited to land between Woodall Mountain ridge and the first set of foothills to the east.

6.3.5 Conditions in Western Woodall Mountain Sub-Basin

The Western Woodall Mountain Sub-Basin is located along the northwestern border of the Site (Table 2-3 and Figure 2-3). It includes the Woodall Spring complex and Woodall Mountain drainages (WMC1 through WMC5), and covers an area of approximately 1,744 acres (Table 2-3). The RMM (approximately 176 acres) in this sub-basin include in-pit and external ODAs associated with the Woodall Panels located on the west side of the divide (Figure 6-51). Most of the RMM (approximately 64 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 112 acres atop the Wells Formation (Table 2-3), respectively . All of the ODAs have been previously regraded and revegetated. The overburden pile with known or potential pooling areas is the pile situated in the western pit (Figure 5-1). Tables 6-37 through 6-41 and Figures 6-51 through 6-56 summarize the data for the Western Woodall Mountain Sub-Basin.

6.3.5.1 Aquatic Conditions

As previously described in Section 5, the high-gradient drainages (WMC1 through WMC5) in the Western Woodall Mountain Sub-Basin are situated atop Wells Formation outcrop and are generally dry. The surface water flows in this sub-basin occur in the Woodall Spring complex (Figure 6-51 ad Table 6-37). Surface water is present in the Woodall Spring complex year-round as a result of discharge from a series of springs and wetlands. The surface water from

the complex collects and contributes flow to an irrigation ditch. The ditch starts below a large pooled area, and a weir controls the flow into the ditch.

Surface Water Conditions – Twenty-two locations were monitored for surface water quality (Figure 3-7) to allow for spatial and temporal evaluation of mining-related effects in this sub-basin. The Woodall Mountain drainages (WMC1 through WMC5) were visited during the 2003, 2004, and 2008 spring snowmelt seasons, and were found to be dry when other areas of the Site (e.g., mine panel ponds and drainages) contained water (Table 6-37), indicating that flow in these draws only occurs during rapid snowmelt or large precipitation events, if at all. One surface water sample (WM-OP1) was collected in spring 2009 from a pooling area on overburden material situated between WMC4 and WMC5. Of the primary COPCs, selenium and vanadium concentrations in the pooling area exceeded their respective aquatic criteria (Figures 6-52 through 6-55 and Table 6-38).

A number of samples have been collected from the Woodall Springs complex since 2003 by both Simplot and Monsanto. The primary COPC concentrations in all of these samples measured below the chronic aquatic life water quality criteria (Figures 6-52 through 6-55 and Table 6-38), except for zinc, which had concentrations at or slightly above its criterion (Figure 6-55 and Table 6-38). Among the radionuclide constituents, gross Alpha exceeded comparison values (Table 6-40). None of the other COPCs exceeded surface water comparison values at any location within the Western Woodall Mountain Sub-Basin (Appendix K, Table K-9).

The average pH of Woodall Springs (7 S.U.) is circum-neutral (Table 6-39). Average alkalinity in the springs was 444 mg/L (Table 6-39). The TDS in the springs average 486 mg/L (Table 6-39). The elevated TDS indicates a more regional groundwater with longer flow paths and longer residence times. The low average sulfate levels (average 33 mg/L) in the springs are consistent with the fact that there are minimal mining related releases from the Woodall Mountain ODAs to the Woodall Mountain drainages.

Sediment Conditions – Sediment conditions in the dry Woodall Creek drainages were evaluated in order to delineate the extent of COPC transport from RMM (Table 6-41 and Figure 6-56). Sediment samples were collected at 13 locations along the dry Woodall Mountain draws within this sub-basin. The primary COPC concentrations exceeded their respective sediment screening levels (Table 4-6) at several of the locations (Figure 6-56). The drainages where total selenium concentrations were greatest were WMC4, WMC5, and WMC2. Total selenium concentrations at the mouths of the WMC2 and WMC3 drainages were below the screening (2 mg/kg) and background (3 mg/kg) (Table 4-7) values; concentrations at the mouths of the WMC1, WMC4, and WMC5 drainages were slightly above those values.

Sediment samples were collected from five locations in the Woodall Mountain springs area. Concentrations for chromium, vanadium, and zinc were below their respective screening levels. Total cadmium concentrations were at or below its screening level. Total selenium

concentrations were at or below the screening (2 mg/kg) and background (3 mg/kg) values (Table 6-41 and Figure 6-56) at all except one spring location (WS-4). Location WS-4 is situated on the far eastern edge of the complex in the travertine deposits and in close proximity to the road fill and embankment. Selenium concentrations at the rest of the springs averaged 1.3 mg/kg and ranged from 0.2 to 2.4 mg/kg.

The sediment data for the Woodall Mountain drainages and the Woodall Spring complex indicate that transport via erosion from the ODAs is limited, as the average selenium concentrations in sediments within the drainages decreased from 13 mg/kg near the headwaters to 3.6 mg/kg (near background levels) at the mouths, compared to average selenium concentration on the ODAs of 63 mg/kg (Table 6-2). The existing sampling locations adequately delineate the extent of downgradient sediment transport in this sub-basin.

Aquatic Biota – Aquatic tissue samples were not collected in this sub-basin due to the lack of aquatic habitat.

6.3.5.2 Riparian Conditions

The high-gradient drainages in Western Woodall Mountain Sub-Basin do not have the characteristics (e.g., stream, banks) to support riparian areas. Therefore, riparian soil, vegetation, and biota samples were not collected.

6.3.5.3 Summary of Conditions in Western Woodall Mountain Sub-Basin

The Western Woodall Mountain drainages (WMC1 through WMC5) typically do not contain surface water. Runoff in contact with the in-pit overburden piles remains contained within the pit. Although total selenium concentrations in surface water in contact with overburden material in ODAs can exceed the chronic aquatic life water quality criterion (0.005 mg/L), and may be subject to transport in the drainages, selenium concentrations in the Woodall Springs complex (downgradient of the drainages), are below the chronic criterion (0.005 mg/L), indicating no significant mining-related effects.

Selenium concentrations in the drainage sediments measured above the screening (2 mg/kg) and background (3 mg/kg) levels, but decrease from upgradient to downgradient, indicating limited transport of materials from the overburden piles. Selenium concentrations in the Woodall Springs complex sediments, situated downgradient of western Woodall Mountain panels, also indicate limited mining-related effects.

6.3.6 Conditions in Old Tailings Pond Sub-Basin

The Old Tailings Pond Sub-Basin covers an area of approximately 712 acres (Table 2-3 and Figure 2-3). RMM in this Sub-Basin consist of approximately 217 acres. Most of the RMM (approximately 59 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 49, 23, and 86 acres atop the Wells Formation, Dinwoody Formation, and the unconsolidated alluvium/colluvium (Table 2-3), respectively. All of the ODAs in this sub-basin have been previously regraded and revegetated. The tailings in the Old Tailings Pond have not been regraded or revegetated, although some vegetation has naturally re-established. The only areas with known or potential runoff pooling are the Old Tailings Pond, the former emergency ore-slurry containment area, and part of the southwestern pit on Woodall Mountain (Figure 5-3). Tables 6-42 through 6-45 and Figures 6-57 through 6-62 summarize the data for the Old Tailings Pond Sub-Basin.

6.3.6.1 Aquatic Conditions

The surface water bodies in this sub-basin are limited to seasonal pooling areas on the Old Tailings Pond, in the former emergency ore-slurry containment area, and in the southern part of the southwestern pit on Woodall Mountain (Figure 6-57). Woodall Mountain drainage WMC6 is also located in the sub-basin but is generally dry.

Surface Water Conditions – Selenium, cadmium and vanadium concentrations in the seasonal runoff pools (Figures 6-58 through 6-61 and Table 6-42) exceeded their respective aquatic life water quality criteria. Four of the nine selenium samples also exceeded the human health water quality criterion (0.17 mg/L) (Figure 6-61 and Table 6-42). The only other COPCs that exceeded surface water comparison values in pooling areas atop the Old Tailings Pond are copper and manganese (Appendix K, Table K-9).

A Dinwoody borrow area was developed in the Old Tailings Pond Sub-Basin as part of the Pedro Creek NTCRA construction. Sedimentation basins were constructed in the borrow area to collect stormwater and sediment from the disturbed areas until vegetation establishes in the area. Surface water samples were collected from the north sedimentation basin (NBorrowSedBasin) three times between 2013 and 2014. Selenium concentrations were below the screening levels for all three of these samples. One of the samples exceeded the screening levels for cadmium, and two exceeded for vanadium.

The average pH of pooling water atop the Old Tailings Pond Woodall Springs (8 S.U.) is circum-neutral (Table 6-43). Average alkalinity and sulfate in the pools was 156 mg/L and 293 mg/L, respectively (Table 6-43).

Woodall Mountain drainage WMC6 was visited during the 2003, 2004, 2007, and 2008 spring snowmelt seasons and was found to be dry when other areas of the Site (e.g., Old Tailings Pond seasonal pools) contained water.

Sediment Conditions – Sediment samples were collected from three locations along WMC6 (Figures 6-58 through 6-60 and 6-62). Selenium, cadmium, chromium, and zinc concentrations in WMC6 in close proximity to the ODA exceeded their respective screening levels. Near the mouth of WMC6, all but zinc was below its sediment screening level (Figure 6-62 and Table 6-45). These results indicate that transport of overburden material into the WMC6 drainage is limited.

Tailings Conditions – Surface samples collected from the Old Tailings Pond had selenium, cadmium, chromium, vanadium and zinc concentrations of 11 mg/kg, 114 mg/kg, 434 mg/kg, 670 mg/kg, and 893 mg/kg, respectively (Table 6-45). Samples were also collected from five borings advanced through the Old Tailings Pond. Each boring terminated in native ground below the historical tailings. Selenium results are presented in Table 6-45. The selenium concentrations were above the screening level and relatively similar through the tailings (average 38 mg/kg, ranging from 4.3 to 104 mg/kg). The native ground encountered below the tailings was typically below the screening level.

Aquatic Habitat and Biota – Aquatic tissue samples were not collected in this sub-basin due to the lack of aquatic habitat.

6.3.6.2 Riparian Conditions

The high-gradient WMC6 drainage does not have the characteristics (e.g., stream, banks) to support riparian areas. Therefore, riparian soil, vegetation, and biota samples were not collected.

6.3.6.3 Summary of Conditions in Old Tailings Pond Sub-Basin

The Western Woodall Mountain drainage (WMC6) typically does not contain surface water. Runoff in contact with the regraded overburden pile in the West Pit remains contained within the pit. Selenium, cadmium, and vanadium concentrations in the runoff pools atop the Old Tailings Pond exceeded their respective aquatic life water quality criteria (Figures 6-61 and Table 6-42). COPC concentrations in WMC6 sediment samples decreased with distance removed from the ODA. Sediment selenium concentrations at the mouth of the creek are below the sediment screening level of 2 mg/kg. Considering that WMC6 is typically dry, that the selenium concentration at the mouth of the drainage is below screening (2 mg/kg) and background (3 mg/kg) levels, and the fact that tailings remain contained within the Old Tailings Pond, there is no transport of selenium to offsite areas downgradient of this sub-basin.

6.3.7 Conditions in French Drain Sub-Basin

The French Drain Sub-Basin covers an area of approximately 708 acres (Table 2-3 and Figure 2-3), and includes the Former Mill Site and Townsite area, the sewage lagoons, the New Tailings Pond, and in-pit and external ODAs associated with the West and Middle Limb panels (Figure 6-63). The total RMM in this Sub-Basin covers an area of approximately 303 acres (Table 2-3). The Former Mill Site and Townsite areas do not contain any overburden piles. Most of the RMM (approximately 109 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 29, 10, 27, and 128 acres atop the Wells Formation, Dinwoody Formation, Salt Lake Formation, and the unconsolidated alluvium/colluvium (Table 2-3), respectively. All of the ODAs in this sub-basin have been previously regraded and revegetated. Table 6-46 through 6-51 and Figures 6-63 through 6-70 summarize the data for the French Drain Sub-Basin.

6.3.7.1 Aquatic Conditions

There are no creeks flowing in the French Drain Sub-Basin. The surface water bodies present include the New Tailings Pond, small pooling areas (SWP-4, SWP-4A, SWP-5, and SWP-6), two seeps (SWS-1 and SWS-3), and a French Drain channel (FD-1). The French Drain (FD-1) conveys water from the upgradient seeps and pools (Figure 6-63) and has flows averaging 0.1 cfs (Table 6-46). The French Drain does not flow into any of the offsite creeks west of Conda. Pooling areas SWP-5 and SWP-6, as well as seep SWS-1, have been consistently dry when visited for monitoring (Table 6-46).

Surface Water Conditions – Water quality was monitored at five surface water locations (Figure 6-63 and Table 6-47), as well the former sewage lagoons. The former sewage lagoons were being evaluated as sources of nitrate to the surrounding groundwater due to the potential for direct precipitation to pool and infiltrate. The lack of significant pooling at the time of sampling events, prevented the collection of any surface water from the lagoons.

The location with the highest COPC concentrations was seep SWS-3 discharging downgradient of the reclaimed West Limb overburden piles atop the Rex Chert Member in an area of the Adit Number 2 portal (Figures 6-64 through 6-68 and Table 6-47). Average selenium, cadmium, and zinc concentrations at this seep exceed their respective chronic and acute aquatic life criteria. The Gross Alpha concentrations in the seeps exceeded the human health comparison value of 15 pCi/L (Table 6-49).

The water contained in SWP-4 and SWP-4A is likely pooling seepage and runoff from the upgradient areas. The French Drain conveys water from the SWS-3 seepage and SWP-4 pooling area on the east side (upgradient) of the former haul road. On the west side of the haul road, water from the French Drain only contains selenium concentrations above its aquatic life criteria. The French Drain flows northward towards the Former Conda Townsite and is ultimately lost to infiltration in the valley floor.

The average pH of the surface water bodies were circum-neutral and ranged from 7.3 S.U. (SWS-3) to 8.8 S.U. (TP-1) (Table 6-48). Average alkalinity ranged from 298 mg/L (TP-1) to 413 mg/L (SWP-4A) (Table 6-48). The average TDS concentrations of the pooling areas (852 mg/L) are much lower than FD-1, SWS-3, and TP-1, which range from 760 mg/L (FD-1) to 1,400 mg/L (TP-1). Additionally, SWS-3 and FD-1 have similar average sulfate concentrations (434 mg/L and 440 mg/L, respectively), which are elevated with respect to the average concentration detected in the pooling areas (330 mg/L). The greatest average sulfate concentration was detected in TP-1 at 722 mg/L, which primarily contains groundwater extracted from offsite wells completed in the Olivine Basalt. Stable isotope data was collected from both SWS-3 and FD-1 and had similar concentrations of the hydrogen-deuterium and O^{18} stable isotopes (Table 6-49). The isotope information, in addition to the similar TDS and sulfate concentrations in FD-1 and SWS-3, support that these waters originate from the same source. It is proposed that infiltration into the Wells Formation along the axial trace of the Conda Anticline, mixes with infiltration into the West Limb Panel pit which has seeped into Adit Number 2, and with regional Wells Formation groundwater upwelling along the extensional fault zone to form the source of waters at SWS-3. Flows at SWS-3 and consequently in the French Drain are greatest during the spring snowmelt, with the amount of water flowing decreasing significantly during the summer and fall (Table 6-46).

Other COPCs that exceeded a surface water comparison value within the French Drain Sub-Basin were arsenic, copper, nickel, manganese, and thallium (Appendix K, Table K-9).

Sediment Conditions – Sediment samples were collected from the French Drain channel, pond SWP-4, and seep SWS-3 (Table 6-50 and Figure 6-63). Selenium, cadmium, chromium, and zinc concentrations exceeded their respective screening levels (Table 6-50 and Figure 6-69).

Other COPCs that exceeded a sediment comparison value within the French Drain Sub-Basin were aluminum, arsenic, barium, cadmium, chromium, copper, manganese, mercury, nickel, and silver (Appendix K, Table K-15).

Tailings and Sewage-Lagoon Material Conditions – Samples collected from the New Tailings Pond had average selenium, cadmium, chromium, vanadium and zinc concentrations of 7.2 mg/kg, 31.6 mg/kg, 99 mg/kg, 183 mg/kg, and 254 mg/kg, respectively (Table 6-50). Samples from the sewage lagoon had average selenium, cadmium, chromium, vanadium and zinc concentrations of 19.9 mg/kg, 62 mg/kg, 411 mg/kg, 619 mg/kg, and 754 mg/kg, respectively (Table 6-50).

Aquatic Biota – Aquatic tissue samples were collected from SWP-4 and TP-1 (New Tailings Pond). The macrophyte sample (*Eleocharis sp.*) collected from the SWP-4 pond had a selenium concentration of 150 mg/kg, and selenium concentration in the composite macroinvertebrate sample from that location measured 430 mg/kg (Table 6-51). No fish are

present in the pooling areas or in the French Drain channel. The macrophyte sample (bulrush) collected from the NTP location TP-1 had a selenium concentration of 0.78 mg/kg, and the selenium concentration in the composite macroinvertebrate sample from that location measured 4.4 mg/kg (Table 6-51), both much lower than concentrations at SWP-4.

6.3.7.2 Riparian Conditions

Riparian conditions were evaluated at SWP-4 (Figure 6-70 and Table 6-51).

Riparian Soil Conditions – The concentration of selenium in riparian soil samples at SWP-4 exceeded the ecological soil screening level of 0.52 mg/kg (based on EPA's plant EcoSSL) in both soil-depth horizon (surface and subsurface) samples, measuring 23 mg/kg and 22 mg/kg, respectively (Table 6-51). The concentration of selenium in riparian soil samples at SQ-02 (New Tailings Pond) were lower than at SWP-4, but also exceeded the ecological soil screening level of 0.52 mg/kg, with surface and subsurface soil samples measuring 8.4 and 6.2 mg/kg, respectively. Other COPCs that exceeded a soil comparison value within the French Drain Sub-Basin, including SQ-02, were antimony, arsenic, cadmium, chromium, copper, lead (surface only), nickel, vanadium, and zinc (Appendix K, K-1). Both surface and subsurface samples from SWP-4 exceeded comparison values for those COPCs in all cases except lead, where only the surface sample exceeded.

Riparian Vegetation Conditions – Riparian vegetation samples at SWP-4 averaged 5.9 mg/kg and ranged from 2.5 mg/kg to 8.7 mg/kg (Table 6-51). Riparian vegetation samples at TP-1 (New Tailings Pond) averaged 2.3 mg/kg and ranged from 0.3 mg/kg to 6.3 mg/kg (Table 6-51).

Riparian Biota Conditions – Terrestrial invertebrates and small mammals were sampled at SWP-4 (Figure 6-70 and Table 6-51). The selenium concentration in invertebrates, primarily hemiptera (true bugs), orthoptera (grasshoppers and crickets), and ephemeroptera (mayflies) (Table 4-20), was 5.3 mg/kg (Table 6-51). The concentration in the small mammal composite sample, consisting of one chipmunk and one deer mouse (Table 4-22), was 26 mg/kg (Table 6-51).

6.3.7.3 Summary of Conditions in French Drain Sub-Basin

The primary-COPC concentrations exceeded aquatic life water quality criteria in French Drain Sub-Basin surface water (Figure 6-67). COPC concentrations were highest in the ODA seep SWS-3 and generally lowest in the New Tailings Pond. French Drain COPC concentrations did not exceed aquatic life water quality criterion, except for selenium. Similarly, primary COPC concentrations in sediment exceeded screening levels at each of the locations (Figure 6-69), except for chromium.

6.3.8 Conditions in Shield and Jouglard Canyons Sub-Basin

The Shield and Jouglard Canyons Sub-Basin covers an area of approximately 2,091 acres (Table 2-3 and Figure 2-3). There are four springs in this sub-basin: Hoorah Hollow Spring (HH-1), Jouglard Canyon Spring (JCS-1), Formation Spring (FM-1), and Southwest Spring (SWS-2). It also includes Hoorah Hollow Pond (HHP-1), a Pit Lake (NL4P-1), and several other ponds. There are approximately 223 acres of areas with RMM, including portions of the West and Middle Limb, North Trail, and Grace Panels. Most of the RMM (approximately 85 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 91, 15, and 33 acres atop the Wells Formation, Dinwoody Formation, and the unconsolidated alluvium/colluvium (Table 2-3), respectively. Table 6-52 through 6-58 and Figures 6-71 through 6-77 summarize the data for Shield and Jouglard Canyons Sub-Basins.

6.3.8.1 Aquatic Conditions

Aquatic conditions within the Shield and Jouglard Canyons Sub-Basin were evaluated at 14 locations (Figure 6-71). Flows at the seep and springs ranged from pooled to 0.002 cfs at SWS-2; 0.004 to 0.06 cfs at HH-1; pooled to 0.05 cfs at JCS-1; and 0.8 to 2.8 cfs at FM-1 (Table 6-52). Hoorah Hollow spring exhibits perennial spring flow and discharges into Hoorah Hollow pond (HHP-1). Discharges from JCS-1 and SWS-2 flow overland for a short distance before infiltrating into the ground surface. The amount of water flowing within this sub-basin decreases significantly throughout the summer and fall (Table 6-52). Surface water originating within the sub-basin does not flow out of the sub-basin.

Surface Water Conditions – Fourteen locations were monitored for surface water quality (Table 6-53 and Figures 3-7 and 6-71) to allow for spatial and temporal evaluation of mining-related effects in Shield and Jouglard Canyons Sub-Basin.

Figures 6-72 through 6-75, Plate 3, and Table 6-53 summarize the concentrations of the primary COPCS relative to the respective aquatic criteria for all locations where surface water was sampled. Selenium, cadmium, vanadium, and zinc were detected at concentrations greater than both the chronic and acute aquatic life criteria within the Shield and Jouglard Canyon Sub-Basin (Table 6-53 and Figure 6-75). Selenium and cadmium were detected at concentrations greater than the respective human health benchmark within the pit lake (Table 6-53 and Appendix K Table K-9). Maximum selenium concentrations were detected in the samples collected from the pit lake (NL4P-1) and the runoff water accumulating within the NL4P pit (NL4P-OP1).

The concentration of primary COPCs detected at Hoorah Hollow Spring (HH-1), Formation Spring (FM-1), and Jouglard Canyon Spring (JCS-1) were all less than the chronic aquatic life criteria; therefore, they did not exhibit any influence from past mining activities (Figure 6-75 and Table 6-53). Total selenium concentrations detected at SWS-2, a seep downgradient of an

ODA, were at times greater than the chronic aquatic life criteria, with an average concentration of 0.005 mg/L (ranging between non-detect and 0.02 mg/L).

Selenium concentrations in the Pit Lake (NL4P-1) were significantly greater than the concentrations measured in the springs and ranged from 0.04 mg/L to 0.4 mg/L (Figure 6-75 and Table 6-53). Three opportunistic runoff samples (NL4P-OP1, NL4P-OP2, and NL4P-OP3) were also collected in close proximity to the Pit Lake in May 2009 at locations that are typically dry. NL4P-OP1 and NL4P-OP2 were samples of runoff water collected before entering the Pit Lake (i.e., upgradient of the lake), and selenium was detected at concentrations of 0.18 and 0.12 mg/L, respectively. The NL4P-OP3 sample was collected from pooled snowmelt water located within the open pit to the south of the Pit Lake, and had a selenium concentration of 0.0036 mg/L.

Surface water samples collected from other ponds in the Shield and Jouglard Canyons Sub-Basin (HHP-1, SWP-1, SWP-2, and SWP-3) had selenium concentrations ranging from non-detect to 0.08 mg/L. Hoorah Hollow Pond (HHP-1) does not to exhibit impacts from past mining activities, with an average selenium concentration (0.0006 mg/L) below the chronic aquatic life water quality criterion (0.005 mg/L) and a range between 0.0003 and 0.001 mg/L. One sample was collected from SWP-1, with a detected selenium concentration (0.003 mg/L) below the chronic aquatic life criteria. SWP-7 was dry when visited. Average selenium concentrations detected at SWP-2 were elevated but below the chronic aquatic life criteria (0.005 mg/L) with an average concentration of 0.003 mg/L and ranging from 0.0005 mg/L to 0.0096 mg/L. Selenium concentrations detected in SWP-3 exceeded both the chronic (0.005 mg/L) and acute (0.02 mg/L) aquatic life water quality criteria, averaging 0.03 mg/L and ranging between 0.001 mg/L and 0.08 mg/L.

The average pH of Formation Springs (7.5 S.U.), Hoorah Hollow (8 S.U.), and Jouglard Canyon Springs (7.4 S.U.) are all circum-neutral (Table 6-54). Average alkalinity in the Formation Springs, Hoorah Hollow, and Jouglard Canyon Springs are 518 mg/L, 253 mg/L, and 256 mg/L, respectively (Table 6-54). The TDS in the Formation Springs, Hoorah Hollow, and Jouglard Canyon Springs average 540 mg/L, 292 mg/L, and 367 mg/L, respectively (Table 6-54). The average sulfate levels in Formation Springs (31 mg/L), Hoorah Hollow (12 mg/L), and Jouglard Canyon Springs (47 mg/L) are low. The average TDS and sulfate concentrations in the Pit Lake were 279.2 mg/L and 136 mg/L, respectively. The relatively low TDS and sulfate levels in the Pit Lake indicate that the water in the lake has a relatively short flow path and contact time with minerals in the surrounding formations and adjacent overburden pile. The low average COPC and sulfate concentrations in Formation Springs indicate that mining-related releases have had limited adverse effects on the spring. The high alkalinity and TDS levels are likely from regional groundwater with longer residence times in the Wells Formation.

Other primary COPCs that were detected at concentrations greater than the aquatic life screening criteria at sampling locations within the Shield and Jouglard Sub-Basin included

aluminum, arsenic, lead, manganese, and nickel. The Gross Alpha concentrations in the pit lake exceeded the human health comparison value of 15 pCi/L (Table 6-55).

Sediment Conditions – Sediment data were collected at four springs (FM-1, HH-1, JCS-1, and SWS-2), three ponds (HHP-1, SWP-2, and SWP-3), the Pit Lake (NL4P-1), and four locations associated with the Dinwoody borrow area used for the Pedro Creek NTCRA (Table 6-56 and Figure 6-71) within the Shield and Jouglard Canyon Sub-Basin. Table 6-56, Figure 76 and Plate 7 summarize the concentration of the primary COPCs in sediment. Selenium, cadmium, chromium, and zinc were detected at concentrations greater than the respective ecological sediment screening criteria (Tables 4-6 and 6-56) within the Shield and Jouglard Canyon Sub-Basin.

The greatest concentrations of primary COPCs were detected in the Pit Lake sediments (NL4P-1). The average selenium concentration in Pit Lake sediment was 200 mg/kg (Table 6-56 and Figure 6-76). The average cadmium, chromium, and zinc concentration detected, from two sampling events, at NL4P-1 were 94.7 mg/kg, 455 mg/kg, and 882 mg/kg, respectively. The second highest concentration of zinc was detected in the sediment samples collected from pond SWP-3 at 890 mg/kg. Additionally, pond SWP-3 had the second greatest detected selenium, cadmium, and chromium concentrations at 47.1 mg/kg, 14.9 mg/kg, and 278 mg/kg, respectively.

Selenium concentrations detected at the springs HH-1 and JCS-1 were below the sediment screening level (2 mg/kg), with concentrations of 0.81 mg/kg and 0.93 mg/kg, respectively. The concentration of selenium detected in the sample collected at FM-1 exceeded the sediment screening criteria at 5.9 mg/kg.

Sediment selenium concentrations at the SWP-2 pond were below the sediment screening level (2 mg/kg), with a concentration of 0.32 mg/kg; at the HHP-1 pond, average concentrations were just above the screening level, at 2.1 mg/kg. Selenium concentrations in the meadows, based on sediment samples collected from SWS-2 and SWP-3, averaged 27 mg/kg (ranging between 7.2 mg/kg and 47 mg/kg). The comparatively high concentrations in the meadows are likely due to releases from nearby West Limb ODA material. The slightly elevated selenium concentration in sediment from the Formation Spring sample (5.9 mg/kg) was similar to concentrations in sediment at two of the Woodall Springs locations (WS-1 at 2.4 mg/kg and WS-4 at 5.1 mg/kg). The background sediment selenium concentration is 3 mg/kg.

Other COPCs exceeding chronic criteria at one or more locations where total selenium exceeded the sediment screening level (2 mg/kg) include arsenic, antimony, barium, cadmium, chromium, copper, iron, manganese, mercury, nickel, silver, and zinc (Appendix K, Table K-14).

Aquatic Biota – Aquatic tissue samples were collected from the Pit Lake (NL4P-1) and Hoorah Hollow Pond (HHP-1). Aquatic macrophytes collected from the Pit Lake had an average

selenium concentration of 162 mg/kg. Benthic macroinvertebrates collected from the same location exhibited a selenium concentration of 102 mg/kg. High selenium concentrations may be associated with or due to potential effects from the West Limb Panel ODA. The average detected selenium concentration of aquatic macrophyte samples collected from the pond HHP-1 was 2.4 mg/kg (not including 2 non-detect results), and selenium in the composite macroinvertebrate sample from that location measured 17 mg/kg. One tiger salamander (Ambystoma tigrinum) was also captured, and retained for tissue analysis, from Hoorah Hollow Pond using a minnow trap, and the selenium concentration in the salamander sample was 6.2 mg/kg (Figure 6-77 and Table 6-57).

6.3.8.2 Riparian Conditions

Riparian conditions within the Shield and Jouglard Canyons Sub-Basin were evaluated at three locations (Figure 6-58).

Riparian Soil Conditions – Riparian soil samples were collected from three locations within the Shield and Jouglard Sub-Basin (Table 6-58 and Figure 6-77). The soil samples collected from an area adjacent to the Hoorah Hollow Pond (HHP-1) showed selenium concentrations of 0.59 and 0.43 mg/kg in surface and subsurface soils, respectively (Table 6-58). The soil samples collected from the wetland area near Meadow Spring (SQ-03) showed selenium concentrations of 2.7 and 2.5 mg/kg in surface and subsurface soils, respectively. Selenium in subsurface soil samples collected from a Dinwoody test pit in the Hoorah Hollow area ranged from 0.46 mg/kg to 0.75 mg/kg (Table 6-58).

Riparian Vegetation Conditions – Riparian vegetation samples were collected at Hoorah Hollow Pond and the area near Meadow Spring. Vegetation selenium concentrations in two composite samples from Hoorah Hollow Pond measured non-detect and 0.11 mg/kg. Vegetation selenium concentrations in composite samples from the Meadow Spring location averaged 0.58 mg/kg and ranged from 0.28 to 1.1 mg/kg (Figure 6-77 and Table 6-58).

Riparian Biota Conditions – Riparian biota samples were collected from an area directly adjacent to Hoorah Hollow Pond. The selenium concentration in terrestrial invertebrate composite sample at this location, mainly containing orthoptera (grasshoppers and crickets) and hemiptera (true bugs) (Table 4-20), was 2.1 mg/kg (Figure 6-77 and Table 6-58). The selenium concentration of the small mammal composite sample, consisting of two deer mice and two prairie voles, was 0.75 mg/kg (Figure 6-77 and Table 6-58).

6.3.8.3 Erosion Transport

To evaluate the erosional transport of overburden material due to runoff, concentrations of selenium in surface soils at the perimeter of the angle-of-repose Grace-Panel pile were

compared to locations on the pile (Figures 3-1 and 6-59; Appendix K Table K-1). Location ST10-05 is located on the eastern portion of the pile, locations ST10-03 and ST10-04 are on the pile, and location ST10-06 is adjacent to the pile to the east (within approximately 350 ft).

On the eastern edge of the pile (location ST10-05), selenium concentrations in surface soils range from 75.8 to 82.1 mg/kg (with an average concentration of 79 mg/kg). On the pile (based on ST10-03 and ST10-04), surface soil selenium concentrations ranged from 24.6 to 49.9 mg/kg (with an average concentration of 37.6 mg/kg). In contrast, the selenium concentration in surface soils at the location downgradient of the pile (ST10-06) was much lower, averaging 0.4 mg/kg in surface soils. This concentration was within the range of levels in undisturbed areas on both the eastern and western slopes of the Aspen Range (NT8 and ST11 transects), where concentrations ranged from 0.2 to 0.7 mg/kg in surface soils (Appendix K Table K-1). These data indicate that although concentrations along the edge of the angle-or-repose are slightly higher than other portions of the ODA, that there is no evidence of transport of materials from the pile to nearby locations.

6.3.8.4 Summary of Conditions in Shield and Jouglard Canyons Sub-Basin

Surface water selenium concentrations were below the chronic criterion (0.005 mg/L) at the Hoorah Hollow pond, spring, and runoff collection locations. Concentrations were also below the chronic criterion at the other sub-basin springs. The Pit Lake and Meadow Spring selenium levels were elevated above comparison values (Figures 6-75 and Table 6-53). Sediment selenium concentrations were below the sediment screening level of 2 mg/kg at the SWP-2 pond and at the HH-1 and JCS-1 springs, but elevated at the FM-1 and SWS-2 springs, the SWP-3 and HHP-1 ponds, and the Pit Lake. However, information indicates that the Pit Lake is isolated from the springs.

6.3.9 Conditions in Margarette Creek/Trail Canyon Sub-Basin

The Margarette Creek/Trail Canyon Sub-Basin is located along the southern border of the Site (Figure 2-3). This sub-basin has diverse topography with a variety of slopes and aspects. It includes the Margarette Creek and Trail Canyon drainages and covers an area of approximately 1,822 acres (Table 2-3). The RMM in this Sub-Basin covers an area of 75 acres. Approximately 29 acres is atop the Rex Chert and Meade Peak Members of the Phosphoria, 46 acres atop the Wells Formation, and less than one tenth of an acre atop the Dinwoody Formation (Table 2-3). The external ODA, approximately 38 acres, has been reclaimed (Figure 2-3). Tables 6-59 through 6-62 and Figures 6-78 through 6-82 summarize the data for the Margarette Creek/Trail Canyon Sub-Basin.

6.3.9.1 Aquatic Conditions

The surface water drainages in this sub-basin include the Margarette Creek drainage and Trail Canyon drainages (Figure 6-78). These drainages may flow during heavy rainfall, rain-on-snow events, or snowmelt, but are generally dry through most of the year. A pond along Trail Canyon Creek (Trail Canyon Pond) is located upstream of the confluence of Margarette Creek.

Surface Water Conditions – Five surface water locations have been monitored within the Margarette Creek/Trail Canyon Sub-Basin, but four of the locations (MC-1, TCC-1, TCC-1A, TCC-1B, and SWP-8) have been dry when visited. Samples were collected from the Trail Canyon pond (TCC-2) located near the top of the canyon (Table 6-59 and Figure 6-78) during 2003, 2004, 2008, and 2009.

Figures 6-79 through 6-82, Plate 3, and Table 6-59 summarize the concentrations of the primary COPCs relative to the respective aquatic criteria for locations where surface water samples were collected from May 2003 through August 2009. None of the primary COPCs exceeded their respective chronic or acute aquatic life criteria for the surface water samples collected within the Margarette Creek/Trail Canyon Sub-Basin. The average pH of TCC-2 is circum-neutral (8.9 S.U.) (Table 6-60). Average alkalinity was 122 mg/L. The TDS of TCC-2 averaged 162 mg/L, with sulfate averaging 6 mg/L (Table 6-60). The low COPC and sulfate levels at TCC-2 indicate that mining-related releases have had no adverse effects at this location.

The only COPC that exceeded surface water comparison values within the Margarette Creek/Trail Canyon Sub-Basin was total manganese (Appendix K-9), but concentrations were at or below background levels (Table 4-7).

Sediment Conditions – Sediment samples were collected within predominately dry Margarette Creek/Trail Canyon Sub-Basin drainages were collected in order spatially characterize conditions in the Margarette Creek/Trail Canyon Sub-Basin from one location along Margarette Creek (MC-1) and four locations along Trail Canyon Creek (TCC-1, TCC-1A, TCC-1B, and TCC-2). Figures 6-79 through 6-82, Plate 7, and Tables 6-62, summarize the concentrations of primary COPCs detected in sediment.

Selenium, cadmium, chromium, and zinc are the primary COPCs detected in sediment at concentrations greater than the respective ecological sediment screening levels within the Margarette Creek/Trail Canyon Sub-Basin. The greatest concentrations of COPCs were detected at MC-1, which is located in close proximity to an ODA. The selenium concentration of the MC-1 sediment sample, located nearest to the historic North Trail Panel mining operations, was 109 mg/kg. Sediment selenium concentrations from the three samples collected along Trail Canyon Creek ranged from 0.37 to 0.76 mg/kg, with all samples below the sediment screening value (Table 6-62).

Cadmium and zinc were also detected along Trail Canyon Creek at concentrations greater than the respective ecological screening levels, however, cadmium and zinc are typically present in background sediment at concentrations above the screening value and the concentrations detected along Trail Creek are within the range of background conditions (Table 4-7). Generally, the concentrations of COPCs in sediment samples decreased with distance downgradient along Margarette and Trail Canyon Creeks. This trend indicates that transport via erosion from the ODA is limited.

Aquatic Biota – Lack of water precluded the sampling of aquatic tissue in this sub-basin.

6.3.9.2 Riparian Conditions

The dry Margarette Creek and Trail Canyon Creek drainages do not have the characteristics (e.g., stream, banks) to support riparian areas. Therefore, riparian soil, vegetation, and biota samples were not collected.

6.3.9.3 Summary of Conditions in Margarette Creek/Trail Canyon Sub-Basin

Drainages in the Margarette Creek/Trail Canyon Sub-Basin generally do not contain water. Although surface water may contact overburden material in the North Trail Panel ODA, and COPC concentrations in sediment immediately downgradient of the ODA at station MC-1 in Margarette Creek were elevated above sediment screening levels, concentrations of COPCs in sediment along Trail Canyon Creek (downgradient of the confluence with Margarette Creek), were below the comparison value. This indicates limited transport of materials from the ODA and indicates no significant mining-related effects from the North Trail Panel have occurred on Trail Canyon Creek.

6.3.10 Conditions in Southwest Conda Sub-Basin

The Southwest Conda Sub-Basin is located in the southwest corner of the Site (Figure 2-3) and covers an area of approximately 695 acres (Table 2-3). Mining did not occur in this sub-basin, so there are no waste materials present that can release selenium and other COPCs to surface water and sediments. Media samples from this sub-basin are likely representative of baseline conditions.

6.3.10.1 Aquatic Conditions

Similar to the west side of Woodall Mountain, there are no perennial streams on the west side of the Southwest Conda Sub-Basin hill; only draws and gullies that may flow during rain and snowmelt events (Figure 6-83). Sediment samples were collected from the beds of an

ephemeral draws, but the locations were dry during spring and fall sampling events in 2008 and 2009, and therefore, surface water samples were not collected. For this reason as well, aquatic sampling was not conducted in this sub-basin.

Sediment samples were collected at two locations along the Southwest Conda draw. Concentrations at the upgradient location (SCC-2) and downgradient location (SCC-1) were 0.6 and 0.66 mg/kg, respectively (Table 6-63). Sediment selenium concentrations were below the screening (2 mg/kg) value at both locations sampled.

6.3.10.2 Riparian Conditions

The dry draw on the Southwest Conda hill does not have the characteristics (e.g., stream, banks) to support riparian areas. Therefore, riparian soil, vegetation, and biota samples were not collected.

6.3.10.3 Summary of Conditions in Southwest Conda Sub-Basin

Because mining did not occur within this sub-basin, there is no overburden present to release selenium and other COPCs into water and sediments. This is reflected in the two sediment samples collected, which both measured well below the comparison value (2 mg/kg). No perennial drainages exist within the sub-basin, just dry draws. It is likely that conditions in this sub-basin are representative of baseline conditions.

6.3.11 Conditions Offsite

This section discusses the extent of Conda-related releases offsite to the UBR and the Bear River subwatersheds. Figure 6-84 presents the monitoring locations considered as part of this offsite analysis.

6.3.11.1 Upper Blackfoot River Subwatershed

As previously discussed, several historic and active mining operations are present along the UBR upgradient of Conda, as well as across the river from Conda. By the time the UBR flows past the Site, it is a multi-order river receiving flow from several drainages including Lanes, Diamond, Mill Canyon, Dry Valley, Maybe, Chicken, Angus, Wooley Valley, and Slug Creeks. Site drainages flowing into UBR include State Land Creek, Pedro Creek, and Camp G Creek. State Land Creek discharges directly to the UBR. Pedro and Camp G Creeks discharge to Trail Creek before it discharges into the UBR (Figure 6-84).

Conditions in the Upper Blackfoot River

In evaluating potential Site related effects on UBR, it is important to consider the magnitude of surface water flows in the river and the Site tributaries. Flows in the UBR and Site drainages (Table 4-28) are as follows:

- Flows in the UBR (based on USGS gauge 13063000 from 2001 through 2012) range between 20 and 80 cfs (low flow), and between 400 and 1,500 cfs (high flow);[41]
- Flows at the mouth of Trail Creek range between 0.6 and 6.4 cfs (low flow), and between 1.2 and 23 cfs (high flow);
- Pedro Creek contributes up to 0.2 cfs (low flow) and, and between 0.007 and 4 cfs (high flow) to Trail Creek; and
- Camp G Creek contributes up to 0.7 cfs (low flow), and between 2.5 and 3 cfs (high flow) to Trail Creek; and
- Flows at the mouth of State Land Creek range between 0.03 and 0.3 cfs (low flow), and between 0.07 and 12 cfs (high flow).

Based on the above data, it is concluded that Site tributary flows represent a small fraction of the overall seasonal high and low flows occurring in the UBR.

Surface Water Conditions – Figures 6-85 and Table 6-64 summarize the selenium concentrations in UBR surface water near the Site. From upgradient to downgradient, the average total selenium concentrations (Table 6-64) in the UBR surface water, and at the mouths of the Site tributaries, were as follows:

- 0.0037 mg/L (ranging from non-detect to 0.0084[42] mg/L) upgradient of Trail Creek;
- 0.0029 mg/L (ranging from non-detect to 0.026 mg/L) on Trail Creek,
    - With Pedro Creek and Camp G Creek contributing average selenium concentrations of 0.028 mg/L and 0.0026 mg/L, respectively;
- 0.0032 mg/L (ranging from non-detect to 0.008 mg/L) downgradient of Trail Creek;
- 0.0036 mg/L (ranging from 0.0015 to 0.0089 mg/L) upgradient of State Land Creek,
    - With State Land Creek contributing an average selenium concentration of 0.0084 mg/L (ranging from 0.00057 to 0.04 mg/L); and
- 0.0033 mg/L (ranging from non-detect to 0.0085 mg/L) downgradient of State Land Creek.

[41] The USGS Blackfoot River gauge (13063000) is located approximately 5 miles upgradient of the Blackfoot Reservoir and downgradient of the Site.
[42] Upper values of the ranges presented include the maximum detected concentrations. In the summary statistics tables, both the maximum value and maximum detected value are presented.

Based on the average and range of these selenium concentrations in surface water, transport of COPCs has occurred from the Mined Area and into the Non-Mined part of the Site. Impacts to surface water in the UBR remain indiscernible, based on the existing data (Tables 4-8 and 6-64). Conda mining-related impacts on the UBR are greatest during periods of high runoff when contaminated surface water and sediment in State Land Creek can reach the UBR. The chronic criteria for chromium, nickel, and zinc were not exceeded. Cadmium exceeded its chronic criterion only three times, and for each sample, the exceedance was reported as a less than detectable concentration. [43]

Sediment Conditions – Figures 6-86 and Table 6-65 summarize the selenium concentrations in UBR sediment near the Site. All sediment COPC concentration data presented herein are on a dry weight basis. Selenium concentrations in sediments in the UBR upgradient and downgradient of the Site, and in the Site tributaries, were as follows:

- 0.85 mg/kg (ranging from 0.5 to 1.4 mg/kg) upgradient of Trail Creek;
- 3.6 mg/kg on Trail Creek,
    - With Pedro Creek and Camp G Creek contributing average selenium concentrations of 3.8 mg/kg and 0.96 mg/kg, respectively;
- 0.96 mg/kg (ranging from non-detect to 1.4 mg/kg) downgradient of Trail Creek;
- 0.89 mg/kg upgradient of State Land Creek;
    - With State Land Creek contributing an average selenium concentration of 2.1 mg/kg (ranging from 1.1 to 3 mg/kg); and
- 0.79 mg/kg downgradient of State Land Creek.

Selenium concentrations in sediments at all UBR locations were less than the 2 mg/kg screening level. Pedro Creek, State Land Creek and Trail Creek had the only concentrations of selenium in sediments that exceeded the comparison value (2 mg/kg). Of the Site tributaries, Pedro Creek (3.8 mg/kg) had the highest average sediment selenium concentration, followed by State Land Creek (2.1 mg/kg). The selenium concentration in sediment (0.96 mg/kg) in Camp G Creek was less than the 2 mg/kg comparison value.

Aquatic Biota Conditions – To evaluate extent of mining-related effects in aquatic biota, this discussion focuses on the concentrations of selenium in fish tissues.[44] Because multiple species of fish may be captured, fish were divided into salmonids (trout) and non-salmonids (primarily forage fish). Table 6-66 summarizes the selenium concentrations in UBR fish tissue near the Site, Figure 6-87 summarizes salmonid data, and Figure 6-88 non-salmonid data. All

[43] Currently, there is no State of Idaho water quality standard or National Criterion for vanadium. Michigan's Tier 2 values developed for the Great Lakes were used to assess vanadium. The Tier 2 value for vanadium (0.027 mg/L) is extremely conservative because it is based on limited effects data. None of the offsite surface water concentrations in the UBR, Trail Creek, or Trail Canyon Creek exceeded this value.

[44] Due to the paucity of available UBR fish tissue data, tissue samples collected prior to 2001 were also included in this analysis.

fish tissue data are presented on a dry weight basis (mg/kg dw) for whole body tissues. Refer to Figure 6-84 for a map of fish tissue sampling locations.

Selenium concentrations in fish tissues from the UBR are as follows:

- No trout tissue data were available for locations upgradient of Trail Creek. A forage fish tissue sample from ST022 upgradient of Trail Creek had a selenium concentration of 12 mg/kg. This concentration exceeded the EPA fish tissue criterion of 8 mg/kg.
- At ST021 near the Fox Ranch, trout tissue selenium concentrations averaged 4.5 mg/kg (ranging from 2.2 to 7.1 mg/kg). No trout tissue concentrations of selenium at this site exceeded the comparison value (8 mg/kg). Forage fish tissue samples from ST021 averaged 9.9 mg/kg (ranging from 8.1 to 13 mg/kg). The forage fish tissue concentrations exceeded the comparison value (8 mg/kg).
- One forage fish sampled was collected at ST230, where the selenium concentration was 9 mg/kg, exceeding the comparison value (8 mg/kg).
- Selenium concentrations in forage fish from State Land Creek averaged 17.7 mg/kg (ranged from 15.2 to 19.8 mg/kg). All forage fish tissue concentrations for selenium from State Land Creek exceeded the comparison value (8 mg/kg). No trout were observed or captured on State Land Creek.
- One forage fish tissue sampled was collected at MST020, just downgradient of State Land Creek, and had a selenium tissue concentration of 11 mg/kg, exceeding the comparison value (8 mg/kg).

Conditions in Trail Creek

On Trail Creek, the range of locations encompasses those upgradient of Camp G Creek to its mouth. As previously discussed, Camp G Creek and Pedro G Creek discharge into Trail Creek, with Pedro Creek's confluence downgradient of the Camp G confluence.

Surface Water Conditions – Average surface water concentrations of selenium in Trail Creek from upgradient (of Camp G Creek) to downgradient (near its discharge to the UBR) are presented below (Table 6-64):

- 0.0002 mg/L (ranging from non-detect to 0.0004 mg/L) upgradient of Camp G Creek;
- 0.0027 mg/L (ranging from 0.0007 to 0.0042 mg/L) at the mouth of Camp G Creek;
- 0.0009 mg/L (ranging from non-detect to 0.0026 mg/L) downgradient of Camp G Creek;
- 0.0007 mg/L (ranging from (0.0002 to 0.0011 mg/L) upgradient of Pedro Creek;
- 0.028 mg/L (ranging from 0.0037 to 0.14 mg/L) at the mouth of Pedro Creek; and
- 0.003 mg/L (ranging from 0.00029 to 0.026 mg/L) downgradient of Pedro Creek.

Based on the average and range of these selenium concentrations in surface water, transport of COPCs has occurred from the Mined Area and into the Non-Mined part of the Site. Impacts to surface water in the Trail Creek are measureable. Conda mining-related impacts on Trail Creek are greatest during periods of high runoff when contaminated surface water and sediment in Pedro Creek can reach this waterbody.

Sediment Conditions – Average selenium concentrations in Trail Creek and tributary sediments were as follows (Table 6-65):

- 0.32 mg/kg (ranging from 0.15 to 0.48 mg/kg) upgradient of Camp G Creek;
- 0.96 mg/kg at the mouth of Camp G Creek;
- 0.41 mg/kg downgradient of Camp G Creek;
- 0.78 mg/kg upgradient of Pedro Creek;
- 3.8 mg/kg (ranging from 1.2 to 6.4 mg/kg) at the mouth of Pedro Creek; and
- 3.6 mg/kg downgradient of Pedro Creek.

Aquatic Biota Conditions – Selenium concentrations in fish tissues from Trail Creek and tributaries were as follows (Table 6-66 and Figures 6-85 through 6-88):

- Selenium concentrations in trout tissues averaged 4.2 mg/kg (ranging from 2.8 to 6.4 mg/kg) at TC-5 upgradient of Camp G Creek on Trail Creek. All selenium concentrations from this site did not exceed the screening benchmark (8 mg/kg). Selenium concentrations in forage fish tissues averaged 5.5 mg/kg (ranging from 2.6 to 7.5 mg/kg). All selenium concentrations in forage fish tissues at TC-5 were less than the screening benchmark (8 mg/kg).
- At TC-1, also upgradient of Camp G Creek on Trail Creek, forage fish tissue samples averaged 5.3 mg/kg selenium (ranging from 1.5 to 12.5 mg/kg). Of the 11 samples collected at this location, only one exceeded the screening benchmark (8 mg/kg). No trout were observed or captured at TC-1.
- Downgradient of Camp G Creek, at TC located at the Trail Creek road bridge, selenium in forage fish tissues averaged 5.7 mg/kg (ranging from 2.2 to 10.5 mg/kg). Similar to the TC-1 site, only one fish tissue concentration exceeded the screening benchmark.
- In Camp G Creek, forage fish tissue concentrations collected near its mouth averaged 6.4 mg/kg (ranging from 2.0 to 10.4 mg/kg). Three of the 10 sampled collected exceeded the screening benchmark (8 mg/kg). No trout were observed or captured on Camp G Creek.
- There were no samples for fish tissues in Trail Creek downgradient of Pedro Creek. In Pedro Creek, forage fish tissue concentrations of selenium averaged 27.6 mg/kg (ranging from 20.3 to 36.4 mg/kg). All selenium tissue concentrations from Pedro Creek

fish exceeded the screening benchmark (8 mg/kg). No trout were observed or captured on Pedro Creek.

6.3.11.2 Bear River Subwatershed

As previously discussed, Conda drainages that could potentially convey flow into the Bear River subwatershed during large storm events, include the dry draws along the western side of Woodall Mountain Panels and the dry draw in North Trail Panel. Throughout the period of monitoring no active flows were recorded at the mouths of these draws. The draws are likely ephemeral at best, flowing only in response to precipitation heavy enough to cause runoff.

Sediment data are available for the Woodall Mountain Creek draws (WMC1-WMC5) and were previously discussed in Section 6.3.5. At the mouth of these draws, selenium concentrations at WMC1-1, WMC2-1, WMC3-1, WMC4-1A, and WMC5-1A were 5.7, 1.6, 0.59, 5.2, and 4.9 mg/kg, respectively. With little or no flows present, no aquatic habitat is present and thus little if any exposure occurs to aquatic biota from these drainages.

In the Trail Canyon Creek drainage at the south end of the Site, Margarette Creek (MC-1) and Trail Canyon Creek (TCC-1, TCC-1A, and TCC-2) locations were monitored. A single sediment sample was collected in 2008 for Margarette Creek where selenium was 109 mg/kg; however, this sample was not in the creek but in a sedimentation basin downgradient of the ODA. At TCC-2, surface water concentrations of selenium were detected at less than 0.001 mg/L. Sediment selenium at this location was measured once and was 0.24 mg/kg. Trail Canyon Creek generally has no flow further downgradient from TCC-2, and only sediment data were collected. All sediment concentrations of selenium in Trail Canyon Creek were less than the 2 mg/kg screening level. Similar to the Woodall Mountain Creek draws, Trail Canyon Creek appears to be ephemeral and may trend towards intermittent, due to some spring inflows. While the sedimentation basins on Margarette Creek had elevated selenium levels in sediments, it appears that the basin is effective in preventing releases from entering Trail Canyon Creek as all sediment concentrations of selenium in Trail Canyon Creek were low.

6.3.11.3 Summary of Conditions Offsite

Surface Water – For total selenium, Conda tributary effects on the UBR are unmeasurable. Two factors influence this: (1) the UBR has flow volumes many times those of the tributary streams discharging to the UBR; and (2) existing selenium concentrations in the UBR upgradient of the Site may mask any tributary inputs from Conda, as the average selenium concentrations at locations upgradient of Trail Creek and State Land Creek are relatively unchanged.

The range of selenium concentrations at locations downgradient of State Land Creek and Trail Creek inflows are more variable. Episodic high-flow events from tributary inflows may temporarily increase selenium concentrations at localized points in the UBR, but these increases lack duration and sufficient frequency to sustain lasting effects. Furthermore, when these episodic events occur, high flows are subsequently also occurring in the UBR, effectively diluting concentrations contributed by the Site tributary inflows. Based on the available surface water quality data for the UBR, Conda tributary discharges appear to have no measurable change in the UBR selenium concentrations than that observed for the upgradient baseline conditions.

In Trail Creek surface waters, selenium concentrations are typically low and below the chronic aquatic life criterion (0.005 mg/L); however, at Trail Creek below Pedro Creek, high flows during 2011 resulted in high selenium concentrations in Trail Creek corresponding to elevated concentrations that occurred in Pedro Creek. Of the two tributaries to Trail Creek from the Site, Pedro Creek appears to have the most potential for effects to Trail Creek. Selenium concentrations at the mouth of Camp G Creek were consistently lower than the chronic criterion, while Pedro Creek selenium concentrations were consistently elevated. In terms of potential effects of the Conda Site to offsite waterbodies, the largest effect is in Trail Creek due to discharges from Pedro Creek.

In the Bear River subwatershed, contributions of selenium via the surface water pathway appear to be extremely limited due to the lack of connectivity and flows.

Sediments – Selenium concentrations in sediments of the UBR upgradient and downgradient of Site tributaries are lower than the screening level for selenium in sediments. Similar to surface waters, there is no apparent changes in concentrations in the UBR that suggests selenium is being transported to the UBR in significant quantities that would alter selenium concentrations in sediments.

In the Bear River Drainage, contributions of selenium via the sediment pathway appear to be extremely limited due to the lack of flows.

Aquatic Biota – Based on the limited trout tissue data, it could be concluded that tissue concentrations of selenium were increasing from upgradient to downgradient. The forage fish tissue data, however, are more abundant and lead to an alternative conclusion. Limited data in the upper sections of the UBR influenced by Trail Creek do not provide enough information to suggest that Trail Creek is affecting tissue concentrations in the UBR. Based on average concentrations, the selenium concentrations in tissues appear to be declining downgradient in the UBR. However, the average concentrations downgradient are more variable and have the highest and lowest concentrations measured. Elevated concentrations of selenium in fish tissues from State Land Creek provide some indication that it is a source of selenium for aquatic biota in this creek and possibly to the UBR. However, it is also clear based on concentrations of

selenium in fish tissue from the UBR upgradient from State Land Creek and the Site that elevated selenium concentrations in different media are occurring upgradient of the Site as well.

In Trail Creek, tissue concentrations of both forage fish and trout from upgradient of Camp G Creek were all less than the EPA criterion (8 mg/kg). Limited exceedances of the comparison value occurred in forage fish tissues from locations immediately upgradient and downgradient of Camp G Creek and concentrations at both locations were similar to those observed for Camp G Creek fish.

Pedro Creek had clearly elevated concentrations of selenium in fish tissues. However, no samples of fish tissue were available from Trail Creek downgradient of Pedro Creek to discern what effect Pedro Creek selenium, if any, has on Trail Creek prior to its discharge to the UBR.

6.4 Extent of Mining-Related Effects in Groundwater

The extent of mining-related effects in groundwater can be adequately described by evaluating concentrations of the primary COPCs at the existing groundwater wells, springs and seeps in and around the Site. Data from the monitoring wells (Figure 3-14) are the primary sources of information to evaluate the nature and extent of mining-related effects. Data obtained from the sampling of former water-supply wells (wells identified with "-I" [e.g., GW-11-IW] on Figure 3-14) are also used if well construction details are available and samples were obtained using low-flow sampling techniques ensuring that samples are representative of aquifer pore-water (i.e., not stagnant casing water). Data from samples collected from active production wells, where pumps are operating at high flow rates, are used only qualitatively to help the evaluation of groundwater flow direction and the extent of any Site-affected groundwater. Samples from active production wells (GW-NW7-IW and GW-NW8-IW) will not be used for exposure point calculations in the Risk Assessment to evaluate reasonable maximum exposure conditions.

The following sub-sections present the evaluation of COPC transport in the hydrostratigraphic units along the east and west side of the Aspen Range at the Site.

6.4.1 Groundwater Conditions on the East Side of the Aspen Range

As previously discussed, groundwater at the Site on the east side of the Aspen Range can be classified into three hydrostratigraphic systems:

- A shallow system within the valley floor consisting of interconnected unconsolidated alluvium/colluvium within each of the Sub-Basins,
- An intermediate system comprised of the Dinwoody Formation, and Phosphoria Formation (Rex Chert and Meade Peak Members) which is interconnected across the Sub-Basins, and

- A deep system forming part of the regional Wells Formation aquifer; also interconnected across the Sub-Basins.

The RMM acting as sources of elevated concentrations of COPCs in groundwater on the east side of the Aspen Range, include the eastern portion of the Woodall Mountain Panels, and the waste rock piles (Figure 2-86). The RMM cover an area of approximately 467 acres on the east side of Aspen Range (Table 2-3), with approximately:

- 7 acres atop unconsolidated alluvial/colluvial deposits;
- 68 acres atop Dinwoody Formation outcrop areas;
- 241 acres atop Phosphoria Formation (Rex Chert and Meade Peak Members) outcrop areas; and
- 151 acres atop Wells Formation outcrop areas.

Concentrations of the primary COPCs are summarized in Tables 4-8 and 6-67 and Plate 5. Concentrations of the primary COPCs are compared to their respective comparison values (water quality standards [WQS]; Table 4-6). Concentrations of the general chemistry parameters are summarized in Table 6-68 and Plate 6.

6.4.1.1 North Woodall Mountain Sub-Basin

As previously discussed, Conda mining operations did not extend into North Woodall Mountain Sub-Basin. Groundwater is present in each of the three hydrostratigraphic systems.

Shallow Hydrostratigraphic System - A thin zone of saturated alluvium and/or colluvium is present along the eastern flank of the Aspen Range. The unconsolidated alluvium/colluvium deposits lie atop weathered Dinwoody Formation, and the lower hydraulic conductivity of this bedrock unit promotes perching of groundwater in the unconsolidated materials. Groundwater flow direction in this sub-basin is toward the west/northwest (Figure 5-23). There are a total of three wells (MW-5A, MW-7A, and MW-10A) screened within the shallow groundwater systems in this Sub-Basin (Figure 6-89). In addition, there are two creek locations (NWC-2, and SW06-W), and one spring (SW05-SP) (Figure 6-14), where during base-flow conditions groundwater discharges occur that can be used to evaluate shallow groundwater conditions. Monitoring wells MW-7A and MW-10A are located along the drainages in the North Woodall Mountain Creek Sub-Basin (Figure 6-89 and Plate 5).

Concentrations of the primary COPCs in the North Woodall Mountain shallow hydrostratigraphic system (Figure 6-89, Table 6-67, and Plate 5) are below their respective MCLs. The low concentrations for sulfate in the SW and GW locations in North Woodall Mountain also indicate that there are no measurable mining-related effects (Table 6-68, Table 4-25, Appendix K-11). This is consistent with the fact that there are no RMM in this Sub-Basin. Considering that none

of the COPCs exceed MCLs at these wells, the groundwater can be considered representative of baseline conditions in the shallow hydrostratigraphic system. Major-ion chemistry data indicate that the shallow hydrostratigraphic system in this Sub-Basin is a calcium-bicarbonate type water (Figure 6-90).

Intermediate Hydrostratigraphic System – There are three wells (MW-6D, MW-11Da and MW-11Db) screened within the intermediate groundwater flow system (Figure 6-91) in this Sub-Basin. In addition, there is one spring (SW05-SP) where groundwater discharges occur, representative of the intermediate hydrostratigraphic system. Wells MW-6D, MW-11Da and MW-11Db are completed in the Dinwoody Formation and the groundwater flow direction is toward the north/northwest (Figure 5-24). Concentrations of the primary COPCs are low and do not exceed the MCLs (Table 6-67, Figure 6-91 and Plate 5). Concentrations for sulfate and TDS in the Dinwoody Formation were also low and below comparison values (Table 6-68 and Plate 6). Major-ion chemistry data indicate that the intermediate groundwater system in this Sub-Basin is a calcium-bicarbonate type water (Figure 6-90).

Deep Hydrostratigraphic System – There are two wells (MW-4W and MW-12W) screened within the Wells Formation in this Sub-Basin and two monitoring locations (WS-1, WS-2, WS-3 and SW07-SP) in the Woodall Springs complex, that are representative of the deep hydrostratigraphic system. (Figure 6-92). Monitoring well MW-12W is located on the ridge above the Fish Pond. The well is completed in a confined portion of the Wells Formation aquifer, which is overlain by the Rex Chert and Meade Peak Members of the Phosphoria Formation at this location (Appendix G). Monitoring well MW-4W is situated on the east side of the extensional fault zone in an area of groundwater flow convergence and discharge. Groundwater in this Sub-Basin flows north-northwestwardly (Figure 5-25). Concentrations of the primary COPCs in MW-4W and MW-12W are low (Table 6-67) and below the MCLs (Table 6-67, Figure 6-92 and Plate 5). Sulfate concentrations are also low (Table 6-68), consistent with the fact that there are no overburden piles where weathering would result into the release of metals and sulfate. The low dissolved calcium, magnesium, and TDS concentrations (Table 6-68) present in groundwater samples from MW-12W indicate that the groundwater has had a short flow path in the Wells Formation, consistent with locally-recharged groundwater. The higher dissolved calcium, magnesium, and TDS concentrations (Table 6-68) present in groundwater samples from MW-4W, as well as springs WS-1 and SW07-SP, indicate that the groundwater in this area has a longer flow path in the Wells Formation, consistent with regional groundwater. Major-ion chemistry data indicate that groundwater in the deep hydrostratigraphic system is a calcium-bicarbonate type water (Figure 6-93).

6.4.1.2 State Land Creek Sub-Basin

The areas with RMM in State Land Creek Sub-Basin consist of approximately 253 acres of ODAs situated along Woodall Mountain ridge. Most of the RMM (approximately 135 acres) is atop the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 84, 27,

and 7 acres atop the Wells Formation, Dinwoody Formation, and the unconsolidated alluvium/colluvium (Table 2-3), respectively.

Shallow Hydrostratigraphic System - Shallow groundwater is present in the unconsolidated alluvium/colluvium deposits situated atop of weathered Dinwoody Formation. There are five wells (MW-3A, GW-25-MA, GW-27-MA, GW-47-MA, and GW-48-MA[45]) screened within the shallow groundwater flow system (Figure 6-89) in this Sub-Basin. These wells are located along the drainages in the State Land Creek Sub-Basin (Figure 6-89). Data from surface water sampling locations SLCT3-4 and SLC-3D under base flow conditions can also be used to evaluate groundwater conditions. Of the primary COPCs, selenium exceeded its MCL at two of the six locations (GW-25-MA and GW-47-MA) (Table 6-8, Table 6-67); concentrations of the primary COPCs were below MCLs in GW-27-MA, GW-48-MA, MW-3A, SLCT3-4 and SLC-3D (Tables 4-8 and 6-67). . Concentrations of all primary COPCs decreased with distance from the ODAs, based on GW-25-MA, GW-47-MA, SLC-3D (during baseflow), and GW-27-MA (Table 6-67, Plate 5). The approximate horizontal and vertical extents of groundwater with concentrations of selenium exceeding MCL are shown in Figures 6-89 and 6-94 respectively. The Gross Alpha concentrations in the seeps exceeded the human health comparison value of 15 pCi/L (Table 6-69).

Concentrations of sulfate and TDS also decreased with distance from the ODAs (Table 6-68 and Plate 6). Major-ion chemistry data indicate that groundwater in the shallow hydrostratigraphic system in this Sub-Basin is predominantly calcium-bicarbonate type water (Figure 6-95), but there is calcium-sulfate type water located at GW-25-MA and GW-47-MA, which are the monitoring wells closest to the ODA (Figure 6-95).

Intermediate Hydrostratigraphic System – There are two wells (MW-2R and GW-26-MD) screened within the intermediate groundwater flow system (Figure 6-91) in this Sub-Basin. Well MW-2R is completed in the Rex Chert and GW-26-MD is completed in the Dinwoody Formation. Groundwater flow direction is towards the east (Figure 5-24). At MW-2R, the concentrations of the primary COPCs are below their respective MCLs, although selenium was slightly above the MCL right after installation in 2005 (Table 6-67, Figure 6-91, and Plate 5). At GW-26-MD, the concentrations of the primary COPCs are also below their respective MCLs (Table 6-67). Concentrations for sulfate and TDS in these wells were also low (Table 6-68 and Plate 6). Major-ion chemistry data indicate that the groundwater in the intermediate system in this Sub-Basin is a magnesium and calcium-bicarbonate type water (Figure 6-95). The approximate horizontal and vertical extents of groundwater with concentrations of selenium exceeding MCL are shown in Figures 6-91 and 6-94, respectively.

[45] This well was dry during years 2001 through 2014. It was sampled in 2015 and results are presented on Table 4-8.

Deep Hydrostratigraphic System – There are three wells (GW-39-MW, GW-40-MW, and MW-1W) screened within the Wells Formation in this Sub-Basin (Figure 6-92). Wells GW-39-MW and GW-40-MW are completed in close proximity to the northernmost ODAs at the Site. Well GW-39-MW is deeper than GW-40-MW (Figure 6-94), and considering the bedding dip, likely intercepts groundwater that has had a longer flow path through the upgradient overburden pile. Monitoring well MW-1W is located near the crest of the ridge dividing the State Land Creek Sub-Basin from the North Woodall Mountain Sub-Basin.

Selenium concentrations in GW-39-MW (with groundwater elevations ranging between 6,493.0 and 6,498.1 ft amsl [Table 5-2]) have been slowly increasing (Table 6-67). In 2015, the maximum selenium concentration (0.056 mg/L) exceeded the MCL (Table 4-8). Selenium concentrations in GW-40-MW (with groundwater elevations ranging between 6,636.8 and 6,648.0 ft amsl [Table 5-2]) are more stable, and selenium concentrations remain below the MCL (Tables 4-8 and 6-67). In both wells, concentrations of the other primary COPCs remain below their respective MCLs (Tables 4-8 and 6-67). The approximate horizontal and vertical extent of groundwater with concentrations of selenium that exceeds the MCL is shown in Figures 6-92 and 6-94. There is a strong downward vertical hydraulic gradient at the location of GW-39-MW/GW-40-MW.

Concentrations of selenium, chromium, vanadium, and zinc in MW-1W are below their respective MCLs (Table 6-67 and Plate 5), with cadmium exceeding the MCL. The concentrations of cadmium, chromium, and vanadium in MW-1W are greater than their respective maximum concentrations in GW-39-MW and GW-40-MW (Tables 4-8 and 6-67). The groundwater elevations measured in MW-1W range from 6,580 to 6,592 feet and are about 300 feet above the regional Wells Formation water table, indicating that the groundwater encountered in the Wells Formation at this location may be perched. The groundwater elevation in MW-1W is also about 90 feet higher than the elevation in GW-39-MW (which has selenium concentrations exceeding MCL). The dip of the bedding planes of the consolidated strata is near-vertical in the area of MW-1W. Based on the borehole logs, groundwater was encountered in the Meade Peak Member. The water level in MW-1W extends approximately 90 feet above intervals where Meade Peak Member was encountered. This indicates that the groundwater in this well is in hydraulic communication with the Meade Peak Member. A thin stratigraphic zone including the upper portion of the Wells Formation and the lower portion of the Meade Peak Member could essentially behave as one water-bearing unit if the Meade Peak is sufficiently fractured. The maximum concentrations of cadmium, chromium, and vanadium in MW-1W being greater than their respective maximum concentrations in GW-39-MW and GW-40-MW, indicate that the groundwater in MW-1W has a pathway where additional COPC loading occurs. Considering the selenium concentrations in MW-1W (ranging from 0.011 mg/L to 0.03 mg/L), as well as the greater concentrations of the other COPCs, relative to the wells in close proximity to the ODAs, there is indication that the Meade Peak Member influences

conditions observed in groundwater samples.[46] It is possible that fractures could also be contributing Conda-related COPCs to the groundwater in this area.

It is expected that the concentration of selenium and other COPCs decrease with depth in the Wells Formation. Transport of any releases from the overburden pile to the east, into the Wells Formation, is likely limited, because the releases would have to travel across bedding planes and through the Dinwoody Formation, the Rex Chert and Meade Peak Members.

Major-ion chemistry data indicate that groundwater in the deep hydrostratigraphic system along the east side of the Aspen Range is magnesium- and calcium-bicarbonate type water, including groundwater from two wells (GW-39-MW and GW-40-MW) located close to the ODA (Figure 6-96).

6.4.1.3 Pedro Creek Sub-Basin

The areas with RMM in Pedro Creek Sub-Basin consist of approximately 202 acres of ODAs situated along Woodall Mountain ridge. The RMM is situated on approximately 66 acres underlain by the Wells Formation, 69 acres underlain by Rex Chert, 38 acres underlain by Dinwoody Formation and 28 acres underlain by the Meade Peak (Table 2-3). Approximately 121 acres have been covered with Dinwoody Formation soil for the FSPS and the NTCRA.

Shallow Hydrostratigraphic System - Shallow groundwater is present in the unconsolidated alluvium/colluvium deposits situated atop of weathered Dinwoody Formation. There are four wells (GW-28-MA, GW-30-MA, GW-38-MA[47], GW-41-MA, and GW-45-MA) screened within the shallow groundwater flow system (Figure 6-89) in this Sub-Basin. These wells are located along the drainages in the Pedro Creek Sub-Basin (Figure 6-89). Data from surface water sampling locations NES-5, NES-7, NES-8, PC-5, and PCP-2 under base flow conditions can also be used to evaluate groundwater conditions. Concentrations of the primary COPCs in groundwater decreased with distance from the ODAs based on analysis of groundwater samples collected from GW-28-MA, GW-30-MA, GW-41-MA and surface water samples collected during baseflow conditions at PC-5 (Table 6-67 and Plate 5).

The data from NES-5, NES-7, NES-8, PC-5, and GW-28-MA indicate that in the upper reaches of the Pedro Creek drainage, in the area between the RMM and the first undisturbed foothill to the east, there is a strong relationship between the ODA seepage release and COPC concentrations in groundwater in the alluvial/colluvial deposits downgradient. Selenium, cadmium, chromium, and vanadium, all exceeded their respective MCLs in groundwater

[46] Experiences at Smoky Canyon Mine during the drilling of Wells Formation well MC-MW-5 in an undisturbed area indicate that the elevated selenium concentrations in MW-1W can also be attributed to the drilling through the Meade Peak Member.
[47] Temporary well GW-38-MA is now covered by the regraded NTCRA pile.

downgradient of the ODAs. The Gross Alpha concentration in NES-5 and GW-41-MA exceeded the human health comparison value of 15 pCi/L (Table 6-69). Groundwater at well GW-30-MA, which is located east and near the confluence of the tributary draining the undisturbed foothill, had selenium concentrations exceeding MCLs (Table 6-67, Plate 5). The approximate horizontal and vertical extent of groundwater with concentrations of COPCs that exceed their respective MCLs is shown in Figures 6-89 and 6-94.

Concentrations of sulfate and TDS also decreased with distance from the ODAs (Table 6-68 and Plate 6). Major-ion chemistry data indicate that groundwater in the shallow hydrostratigraphic system in this Sub-Basin is calcium-sulfate type water in close proximity to the ODA (i.e., seeps, GW-38-MA and GW-41-MA) and transitions to calcium-bicarbonate type water at locations along the valley floor (e.g., GW-45-MA) (Figure 6-97).

Intermediate Hydrostratigraphic System – There are four wells (GW-29-MD, GW-42-MD, GW-44-MD, and GW-46-MD) screened within the intermediate groundwater flow system (Figure 6-91) in this Sub-Basin. Concentrations of the primary COPCs in groundwater decreased with distance from the ODAs based on the analysis of groundwater samples collected from these wells (Figure 6-91 and Plate 5). Concentrations of the primary COPCs also decreased with depth, based on comparison of concentrations and the screened elevations at these wells (Tables 3-6 and 6-67). The approximate horizontal and vertical extent of groundwater with concentrations of selenium exceeding MCL is shown in Figures 6-91 and 6-94.

Concentrations of sulfate and TDS in the Dinwoody Formation also decreased with distance and depth from the ODAs (Table 6-68 and Plate 6). Major-ion chemistry data indicate that the intermediate groundwater system in this Sub-Basin is calcium-bicarbonate and calcium-sulfate type water (Figure 6-97).

Deep Hydrostratigraphic System – There are no wells screened within the Wells Formation in this Sub-Basin. It is expected that the concentrations of selenium and other COPCs exceed MCLs in the Wells Formation where overburden piles overlie the unit. Transport of any releases from the overburden pile atop the Dinwoody Formation, and into the Wells Formation, is likely limited, because the releases would have to travel vertically across the bedding plane and through the Dinwoody Formation, the Rex Chert and Meade Peak Members.

6.4.1.4 Camp G Creek Sub-Basin

The areas with RMM in Camp G Creek Sub-Basin consist of approximately 12.4 acres of ODA and wasterock. The ODA (8.5 acres) and waste rock piles present are limited in total areal extent (4 acres), compared to the larger ODAs in State Land (118 acres) and Pedro Creek (103 acres) sub-basins. Most of the ODA RMM (approximately 8 acres) is atop the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 1 and 3 acres atop the Wells Formation and Dinwoody Formation (Table 2-3), respectively. The waste rock piles do not

contain the large proportions of Mudstone and Middle Waste Shale (which are naturally elevated in selenium and other trace metals) like in the ODAs.

Shallow Hydrostratigraphic System - In consideration of the small size of the piles, limited potential for waste-shale content, and access restrictions, wells were not installed in close proximity to the piles. However, groundwater conditions in the shallow hydrostratigraphic system can be evaluated using analyses of surface water samples collected at low-flow from CGC-4A and CGC-5 where Camp G Creek gains flow from groundwater discharge. None of the primary COPCs exceed MCLs in the groundwater discharged at either CGC-4A or CGC-5 (Table 6-67).

The low concentrations for the non-metallic constituents such as sulfate, chloride, fluoride at CGC-4A and CGC-5 (Table 6-68 and Plate 4), also indicate that there are no measurable mining-related effects to groundwater. This is consistent with the fact that there is minimal RMM in this Sub-Basin. Major-ion chemistry data indicate that groundwater in the shallow hydrostratigraphic system in this Sub-Basin is calcium-bicarbonate type water (Figure 6-98).

Intermediate Hydrostratigraphic System – It is expected that the concentrations of the primary COPCs in Dinwoody Formation groundwater are below the MCLs, considering that none of the primary COPCs exceed MCLs at either CGC-4A or CGC-5 during baseflow.

Deep Hydrostratigraphic System – There are no wells screened within the Wells Formation in this Sub-Basin. Since the waste rock piles situated atop of Wells Formation outcrop do not contain the large proportions of Mudstone and Middle Waste Shale, it is not expected that the concentrations of selenium and other COPCs exceed MCLs in the Wells Formation. Transport of any releases from the overburden pile atop the Dinwoody Formation, and into the Wells Formation, is likely limited because the releases would have to travel vertically through the Dinwoody Formation, the Rex Chert and Meade Peak Members and across bedding planes.

6.4.2 Groundwater Conditions on the West Side of the Aspen Range

Groundwater on the west side of the Aspen Range can occur in three separate hydrostratigraphic systems:

- A shallow/uppermost system within the valley floor consisting of unconsolidated alluvium/colluvium;
- An intermediate system comprised of the deeper Olivine Basalt, Salt Lake Formation, Dinwoody Formation, and Phosphoria Formation (Rex Chert and Meade Peak Members); and
- A deep system in the Wells Formation.

The RMM on the west side of the Aspen Range include the internal and external ODAs associated with the Ibex, Middle Limb, West Limb, North Trail and Grace panels, the western portion of the Woodall Mountain panels, and tailings in the Old and New Tailings Ponds (Figure 2-6). The RMM cover an area of approximately 1054 acres on the west side of Aspen Range (Table 2-3), with approximately:

- 59 acres atop Olivine Basalt;
- 48 acres atop Dinwoody Formation outcrop areas;
- 273 acres atop alluvium/colluvium and Salt Lake Formation outcrop areas;
- 345 acres atop Phosphoria Formation (Rex Chert and Meade Peak Members) outcrop areas; and
- 328 acres atop Wells Formation outcrop areas.

Concentrations of the primary COPCs in these hydrostratigraphic systems are summarized in Table 6-70 and Plate 5, and described in the following sub-sections. Concentrations of the general chemistry parameters in these hydrostratigraphic systems are summarized in Table 6-71 and Plate 6.

6.4.2.1 Western Woodall Mountain Sub-Basin

The areas with RMM in Western Woodall Sub-Basin consist of in-pit and external ODAs associated with the Woodall Panels located on the west side of the divide (Figure 6-51). These cover an area of approximately 176 acres and are situated predominantly atop Wells Formation (approximately 112 acres), with additional acreage (approximately 64 acres) overlying the Rex Chert and Meade Peak Members of the Phosphoria Formation.

Shallow Hydrostratigraphic System – The shallow hydrostratigraphic system in this Sub-Basin is limited to the valley-floor area near Woodall Springs, monitored by well GW-A1-MA (Figure 6-89). No shallow groundwater was encountered further south, during the drilling of wells GW-20-MA, A-13-135-MS, and GW-57-MS; and GW-20-MA has remained dry since its installation. Some perched shallow groundwater exists in the valley-floor west of GW-57-MD and A-13-135-MS and is monitored by A-46-028-MA. However, conditions in this area are affected by operations other than conditions related to the Conda Mine. Concentrations of all primary COPCs were below MCLs in GW-A1-MA (Table 6-70), with no detects of selenium and cadmium (Table 6-70). The low average concentrations of sulfate and TDS in GW-A1-MA (Table 6-71 and Plate 6), also indicate that there are no measurable mining-related effects to groundwater. This is consistent with the fact that there is no RMM atop the alluvium/colluvium in this Sub-Basin. Major-ion chemistry data indicate that groundwater in the shallow hydrostratigraphic groundwater at GW-A1-MA is calcium-bicarbonate type water (Figure 6-99).

Intermediate Hydrostratigraphic System – There are two monitoring wells (A-13-135-MS and GW-57-MS) and two production wells (GW-NW7-IS and GW-NW8-IS) screened within the intermediate groundwater flow system (Figure 6-91) in this Sub-Basin. The groundwater flow path is initially influenced by the bedding orientation (strike and dip), with the ultimate direction controlled by the fault zone. In this Sub-Basin, considering the strike and dip information for the bedding (Figure 2-4), groundwater travels west-northwest (Figure 5-24), until reaching the fault zone which likely directs flow to the north-northwest. Concentrations of the primary COPCs in the two monitoring wells as well as the two production wells were below their respective MCLs (Tables 4-8, 6-70 and Plate 5). Nitrate exceeded its MCL in A-13-135-MS (Table 6-71). The approximate horizontal and vertical extent of groundwater with concentrations of COPCs that exceed their respective MCLs are shown in Figures 6-91 and 6-102. Major-ion chemistry data indicate that the intermediate groundwater system in this Sub-Basin is calcium-bicarbonate and calcium-sulfate type water (Figure 6-99).

Deep Hydrostratigraphic System – There is one well (GW-21-MW) screened within the Wells Formation in this Sub-Basin and three locations (WS-4, WS-5, and SW04-SP) in the Woodall Springs complex, that represent the deep hydrostratigraphic system (Figure 6-92). Monitoring well GW-21-MW is situated on the east side of the extensional fault zone. Groundwater in this Sub-Basin flows west-northwest (Figure 5-25). Concentrations of the primary COPCs in GW-21-MW as well as in the springs (WS-4, WS-5, and SW04-SP) are low and do not exceed the MCLs (Table 6-70, Figure 6-92 and Plate 5). Low sulfate concentrations in GW-21-MW as well as in the springs (WS-4, WS-5, and SW04-SP), together with the low COPCs indicate minimal mining-related effects (Tables 6-70 and 6-71, and Plate 6). The low dissolved calcium, magnesium, and TDS concentrations (Table 6-71) present in groundwater samples from GW-21-MW indicate that the groundwater has had a short flow path, consistent with locally-recharged groundwater. The higher dissolved calcium, magnesium, and TDS concentrations (Table 6-71) present in groundwater samples from WS-4, WS-5, and SW04-SP indicate that the groundwater in this area has a longer flow path, consistent with regional groundwater. Major-ion chemistry data indicate that groundwater in the deep hydrostratigraphic system is calcium-bicarbonate type water (Figure 6-100).

6.4.2.2 Old Tailings Pond Sub-Basin

RMM in this Sub-Basin cover an area of approximately 217 acres. Most of the RMM (approximately 86 acres) is underlain by unconsolidated alluvium/colluvium, with approximately 59 acres atop the Rex Chert and Meade Peak Members of the Phosphoria, 49 acres atop the Wells Formation, and 23 acres atop Dinwoody Formation (Table 2-3). All of the ODAs in this sub-basin have been previously regraded and revegetated.

Shallow Hydrostratigraphic System – The shallow hydrostratigraphic system in this Sub-Basin is limited to portions of the valley-floor area west of the Old Tailings Pond, where the unconsolidated deposits are situated atop saturated low-permeability materials such as clay

lenses in the Salt Lake Formation or silty-clay weathered Dinwoody Formation (Figure 2-4). Groundwater does not occur in unconsolidated deposits situated atop the Basalt or Wells Formation, or atop the mountain-front slopes (Figure 2-4).[48] Monitoring well GW-49-MA monitors conditions in that area and is discussed in the French Drain Sub-Basin below. Shallow groundwater exists in a fill area near the south east corner of the Old Tailings Pond. This area is also downgradient of some Mid-Limb Panel overburden piles and is monitored by well GW-18-MA (Figure 6-89). This well is frequently dry, and no shallow surface water was encountered during the drilling of wells GW-19-MS and GW-37-MD nearby. The shallow groundwater in this area is expected to flow westward (towards GW-49-MA), following the pre-mine topography (Figure 3-1). As depicted in Figures 6-89 and 6-102, concentrations of selenium exceeded MCL in GW-18-MA. Pore water samples obtained from soil borings (TP2-SB3 and TP2-SB5) advanced into the Old Tailings Pond, although likely not in communication with the shallow alluvial/colluvial groundwater, show that selenium concentrations in the tailings exceed the MCL. Major-ion chemistry data indicate that the shallow groundwater system in this Sub-Basin is calcium-bicarbonate type water (Figure 6-101).

Intermediate Hydrostratigraphic System – There are two wells (GW-19-MS and GW-37-MD) completed in the intermediate system in close proximity and downgradient of the RMM (Figure 6-91). In addition, a borehole (Boring Location 6; Figure 6-91) was drilled at a location approximately 225 feet east of GW-19-MS, to a depth of 345 ft bgs but due to clean groundwater profile samples collected from 125 to 245 ft bgs, and a thick zone of tight clayey material that was dry from 245 to 345 ft bgs, the borehole was plugged and abandoned; following Agency approval. As previously described, the groundwater flow paths in the Salt Lake and Dinwoody Formations in this area are initially influenced by the bedding orientation (strike and dip) within the limbs of the Conda Anticline and ultimately to the north-northwest conveyed by the plunge of the anticline and the orientation of the low-hydraulic-conductivity extensional fault zone. In this Sub-Basin, considering the strike and dip information for the bedding (Figure 2-4), releases from the overburden piles atop the eastern limb of the Conda Anticline likely travel west-northwest. Once in the saturated portion of intermediate hydrostratigraphic system, flow is to the north-northwest (predominantly controlled by the orientation of the fault zone).

Concentrations of the primary COPCs in GW-19-MS as well as the grab samples obtained from the boring to the north (Boring 6) are low and do not exceed the MCLs (Table 6-70). Low sulfate concentrations in the well and boring, together with the low COPCs indicate minimal mining-related effects (Tables 6-70 and 6-71, and Plate 6). The low concentrations of the primary COPCs in the groundwater at GW-19-MS, as well as in groundwater samples collected during drilling at Boring Location 6 (Figures 6-91 and Table 6-70) and dry clayey conditions at depth indicate that the northerly flow-path for releases from the overburden piles may be

[48] The Salt Lake and Dinwoody Formation weather into less permeable, fine-grained material, forming perched water tables, whereas the Basalt, Rex Chert and Wells Formation do not.

restricted east of the extensional fault zone. It is possible that the uppermost groundwater, due to this clay-rich zone and subsurface folds (in the area with the pre-mine draw [Figure 2-2]), has a preferential westerly flow path. Major-ion chemistry data indicate that the intermediate groundwater system in this Sub-Basin is predominantly calcium-bicarbonate type (Figure 6-101). Figures 6-91 and 6-102 depict the lateral and vertical extent of the selenium plume in the intermediate hydrostratigraphic unit.

Releases from the OTP are likely limited, considering the low concentrations measured for the primary COPCs in groundwater from GW-19-MS as well as in groundwater samples collected during drilling at Boring Location 6 (Table 6-70). Although the COPC concentrations in groundwater samples collected from GW-19-MS are below the MCLs, the higher concentrations for the primary COPCs relative to levels in GW-12-IS, indicate that both GW-19-MS and Boring Location 6 intercept the pathway of limited releases from the OTP. It is postulated that the fault zone acts as a restrictive barrier to groundwater flow from east to west in the intermediate hydrostratigraphic system. The groundwater quality data generally supports this interpretation, as presented in Sub-Section 6.4.2.3.

Deep Hydrostratigraphic System – There are no wells screened within the Wells Formation in this Sub-Basin. Concentrations of selenium and other COPCs may exceed MCLs in the Wells Formation where overburden piles overlie the unit. However, in this Sub-Basin, areas where overburden piles overly the Wells Formation are limited relative to the total outcrop area.

6.4.2.3 French Drain Sub-Basin

The French Drain Sub-Basin includes the Former Mill Site and Townsite area, the sewage lagoons, and the New Tailings Pond. The total RMM in this Sub-Basin covers an area of approximately 303 acres (Table 2-3). The Former Mill Site and Townsite areas do not contain any overburden piles. Most of the RMM (approximately 128 acres) is underlain by the unconsolidated alluvium/colluvium, with approximately 109 acres atop Rex Chert and Meade Peak Members of the Phosphoria, 29 acres atop the Wells Formation, 10 acres atop the Dinwoody Formation, and 27 acres atop the Salt Lake Formation (Table 2-3). All of the ODAs in this sub-basin have been previously regraded and revegetated.

Shallow Hydrostratigraphic System – The French Drain Sub-Basin has the largest shallow hydrostratigraphic system of the Sub-Basins on the western flank of the Aspen Range. Shallow groundwater is monitored in six wells (GW-13- IS[49], GW-16-MA, GW-17-MA, GW-49-MA, GW-52-MA, and GW-54-MA) (Figure 6-89). As depicted in Figures 6-89 and 6-91, concentrations of the primary COPCs were highest in the shallow hydrostratigraphic unit immediately

[49]Well GW-13-IS is a former open-borehole production well in the Former Townsite that has collapsed, except for the upper 15 feet. Water in GW-13-IS likely reflects conditions of local precipitation infiltration.

downgradient of the overburden piles at the location of well GW-16-MA, with average concentrations decreasing at the location of GW-49-MA located further downgradient of the overburden piles. Concentrations generally decreased with distance from the overburden piles along the groundwater flow path; at wells GW-13-IS, GW-17-MA, GW-52-MA, and GW-54-MA (Figure 6-89). Maximum concentrations for sulfate were also generally highest in close proximity to the piles (at the location of GW-16-MA) and decreased with distance from the piles along the groundwater flow path (Plate 6). Major-ion chemistry data indicate that the shallow groundwater system in this Sub-Basin is a calcium-bicarbonate and calcium-sulfate type water (Figure 6-103). Figures 6-89, 6-104, and 6-105 depict the lateral and vertical extent of the selenium plume in the shallow hydrostratigraphic unit.

Intermediate Hydrostratigraphic System – There are ten wells (GW-9-IS, GW-12-MS, GW-15-MS, GW-50-MS, GW-51-MS, GW-53-MS, GW-55-MS, GW-56-MS, GW-57-MS, and A-50-125-MS) completed in the Salt Lake Formation in close proximity and downgradient of the RMM (Figure 6-91). Additional wells are completed in the Olivine Basalt, however there is no groundwater flow path from source areas within the Site to these wells since most of the RMM are situated atop subcropping stratigraphic units that lie below the Olivine Basalt. Only a part of the NTP is situated atop of the Olivine Basalt (Figure 2-4).

The groundwater flow paths in the Salt Lake and Dinwoody Formation in this Sub-Basin are likely initially influenced by bedding orientation (strike and dip), then by the northerly orientation of the extensional fault zone (Figure 2-4). Along the east side of the fault zone, the strike and dip information for the bedding (Figure 2-4) indicate that releases from the overburden piles atop the eastern limb of the Conda Anticline, likely travel north-northwest. Once in the saturated portion of intermediate hydrostratigraphic system, flow is to the north (predominantly controlled by the plunge of the anticline and the orientation of the fault zone).

The concentrations of the primary COPCs along the east side of the fault zone were generally greatest in close proximity to the overburden piles (as observed at wells GW-9-IS and GW-37-MD) and decreased with distance removed from the overburden piles along the groundwater flow path (GW-50-MS, GW-51-MS), with lower concentrations observed at wells GW-57-MS and GW-NW-7-IS[50] (Figure 6-91 and Table 6-70).

It is postulated that the fault zone, in the area where the new wells were installed, acts as a restrictive barrier to groundwater flow from east to west in the intermediate hydrostratigraphic system but may facilitate groundwater flow toward the north. The groundwater quality data generally supports this interpretation. If the fault zone was not a barrier, groundwater elevations and chemical concentrations in monitoring wells GW-53-MS, GW-55-MS, and GW-56-MS would be similar to concentrations measured east of the fault zone in GW-9-IS, GW-50-MS, and GW-

[50] GW-NW-7-IS is a production well with a 361-foot screened interval, and COPC concentrations in this well are included for general comparison purposes only.

51-MS. The concentrations of the primary COPCs in groundwater in these wells along the west side of the fault zone are one to three orders of magnitude lower than concentrations measured on the east side (Figure 6-91 and Table 6-70) and are below the MCLs. However, due to differences in lithology observed during drilling at the newly installed wells on the same side of the fault and as compared with logs of historically installed wells across the fault, there is insufficient information north of wells located in the vicinity of the NTP and OTP to projet with relative certainty the effect on groundwater flow and containment transport from the fault trace in that area. Therefore, it is unclear what significance the fault has as a flow barrier on groundwater flow and contaminant transport further north.

There is a relatively small footprint of overburden atop the Salt Lake Formation along the west side of the fault zone (Figures 2-4 and 6-91), south of GW-15-MS. This overburden pile contributes COPCs to the Salt Lake Formation as is evident from concentrations in groundwater at GW-15-MS (Figure 6-91). Elevated concentrations of COPCs in groundwater in the Salt Lake Formation on the west side of the fault zone are likely limited to only a shallow portion of the aquifer (Figure 6-91), considering that the groundwater in the area of the pile has an upward gradient (GW-15-MS is artesian) and the low concentrations measured in GW-53-MS, GW-55-MS, and GW-56-MS. The elevated concentrations of COPCs in groundwater along the west side of the fault zone is limited to the shallow hydrostratigraphic unit. The concentrations of the primary COPCs measured at A-13-135-MS could be due to releases from the overburden pile south of GW-15-MS, but is likely due to alluvial/colluvial groundwater contributions to the intermediate hydrostratigraphic unit.

Similarity in concentrations of the primary COPCs observed between A-13-135-MS and GW-57-MS (Figures 6-91) indicate that groundwater in this area may not be affected by the fault zone to the degree observed in groundwater samples from wells GW-53-MS, GW-55-MS, and GW-56-MS located to the south. In addition to the possible influence observed at well A-13-135-MS by the overburden pile south of GW-15-MS, migration of the elevated concentrations of COPCs in groundwater from east to west could exist in this area.

Former production well GW-12-IS is an artesian well located in an undisturbed Salt Lake Formation outcrop. Hydrophysical logging performed in September of 2009 indicated that the dominant groundwater inflow zones to the well under ambient conditions come from approximately 113 to 125 feet, 161 to 170 feet, and around 260 feet btoc. A vertical pressure differential measured for the different inflow zones indicate that there is poor vertical hydraulic communication between the different zones. This lack of vertical hydraulic communication is consistent with the fact that the Salt Lake Formation is comprised of interbedded sandstones, siltstones, conglomerates and limestones. Discrete groundwater samples collected from depths of 70, 140, and 254 feet btoc during the HydroPhysical logging indicated that concentrations of the primary COPCs vary between the different water producing zones but remain below their respective MCLs. The concentrations of sulfate and TDS were also low, and similar to springs (HH-1, CS-1_CND, JS-1, JRLD, and JCS). Groundwater at GW-12-IS, in the undisturbed Salt

Lake Formation outcrop area, can be considered representative of baseline water quality conditions in the Salt Lake Formation.

The interaction of surface water, shallow groundwater, and Salt Lake Formation groundwater can be assessed by the major ion (Figure 6-103) and stable isotope ratio data (Table 6-72) for the French Drain surface water and groundwater in GW-16-MA. The major ion ((Figure 6-103)) and isotopic ratio data (Figure 6-72) indicate that the groundwater at GW-9-IS is similar to the water at FD-1. The major-ion chemistry data indicate that the intermediate groundwater system that is closest to the ODAs and is calcium-sulfate/calcium-chloride type water (Figure 6-103). Calcium-bicarbonate type water is present at locations farther from the areas with RMM.

The borehole log for GW-7-IT indicates that the well was drilled into the Thaynes Formation. The borehole log does not indicate that groundwater was encountered in the shallow alluvium/colluvium. No recent groundwater elevation data are available from this production well; however at the time of construction static water level was at 19 feet bgs (approximately an elevation of 6,126 feet amsl). The concentrations of the primary COPCs were below their respective MCLs (Figure 6-91 and Table 6-70).

Two boreholes (BH-13a and BH-13b) situated downgradient of the West Limb ODA were advanced through the Rex Chert Member; however, no groundwater was encountered in either boring. Groundwater was encountered in the Rex Chert Member during the installation of the Wells Formation well GW-11-IW (based on the borehole log in Appendix G). Well GW-11-IW lies right along the fold axis for the Conda Anticline, where fracturing of the Rex Chert is likely. This is consistent with findings from previous investigations by Ralston et al. (1977), Ralston and Mayo (1983) and Winter (1980). The lack of saturated intervals in the Rex Chert encountered in the boreholes advanced in the west limb of the Conda Anticline, indicate that the Rex Chert is likely not a significant source of groundwater within the limbs of the Anticline.

As previously discussed, well GW-11-IW was shut down and the pump removed in 2009, to facilitate the evaluation of HydroPhysical conditions in the well. During ambient testing, boring GW-11-IW exhibited both horizontal and upward-vertical flow in the water producing intervals. The well was sampled from the transition zone from the Dinwoody Formation to the Rex Chert Member interval as well as an interval within the Rex Chert Member only, using a wire-line packer with a discrete point sampler. The sample-depth intervals and selenium concentrations were as follows:

- Dinwoody Formation to Rex Chert Member transition 84 - 88.9 feet: 0.027 mg/L;
- Rex Chert Member 100.02 - 104.92 feet: 0.033 mg/L;

Infiltration through the ODAs situated atop the Salt Lake Formation, Dinwoody Formation, and Rex Chert Member outcrop areas located to the south and on the east side of the fault zone likely contribute COPCs to groundwater that flows westward along the bedding planes until the

contact with the low-permeability extensional fault zone before travelling northward along the plunge of these strata. Figures 6-91, 6-104, and 6-105 depict the lateral and vertical extent of the selenium plume in the shallow hydrostratigraphic unit.

Deep Hydrostratigraphic System – There are two wells (GW-11-IW and GW-14-MW) screened within the Wells Formation in this Sub-Basin, both situated on the east side of the extensional fault zone. Total selenium concentrations were highest in Wells Formation groundwater immediately downgradient of ODAs. Well GW-11-IW, which is currently used as the water supply well for the Conda pump station operations, is located downgradient and in close proximity to the northernmost West Limb ODA. Although the average total selenium concentration in groundwater samples collected from GW-11-IW (0.033 mg/L) was below the MCL (0.05 mg/L), ranging between 0.0048 mg/L and 0.044 mg/L, the elevated concentration indicates that the well intercepts and monitors a groundwater flow pathway of selenium and other COPC migration from the ODA. As previously mentioned, discrete groundwater samples were collected from GW-11-IW during HydroPhysical logging in 2009 (Appendix H) using a wire-line packer. The depth intervals and at which samples were collected and selenium concentrations in those samples were as follows:

- 126.11 - 131.09 feet: 0.034 mg/L; and
- 151.61 - 161.25 feet: 0.031 mg/L.

The similar selenium concentrations measured for the different inflow zones also indicate that the inflow zones may be in vertical communication.

Monitoring well GW-14-MW is located downgradient of the northernmost West Limb ODA (within 130 feet), on the east side of the fault zone. The average total selenium concentration in groundwater samples collected from GW-14-MW (0.00051 mg/L) was below the MCL (0.05 mg/L), ranging between non-detect and 0.0012 mg/L. Major-ion chemistry data indicate that groundwater in the deep hydrostratigraphic system is calcium- and magnesium-bicarbonate type water (Figures 6-106).

6.4.2.4 Shield and Jouglard Canyons Sub-Basin

The areas with RMM in this Sub-Basin cover approximately 224 acres, including portions of the West and Middle Limb, North Trail, and Grace Panels. It also includes a Pit Lake (NL4P-1). Most of the RMM (approximately 85 acres) is underlain by the Rex Chert and Meade Peak Members of the Phosphoria, with approximately 91, 15, and 33 acres atop the Wells Formation, Dinwoody Formation, and unconsolidated alluvium/colluvium (Table 2-3), respectively.

Shallow Hydrostratigraphic System – Shallow groundwater in this Sub-Basin are monitored at wells GW-34-MA and GW-24-MA (Figure 6-89). None of the primary COPCs were detected at concentrations that exceeded their respective MCLs in unconsolidated deposits of the

shallow hydrostratigraphic system at well GW-34-MA. Concentrations of total selenium, cadmium, and vanadium were above their respective MCLs within the Pit Lake area based on analysis of groundwater samples collected from well GW-24-MA. Well GW-34-MA can be considered to reflect baseline conditions in the shallow hydrostratigraphic system. This well is situated along the base of an undisturbed foothill in the southwest corner of the Site across a draw and opposite of a West Limb Panel overburden pile (Figure 5-21). Figure 6-89 presents the approximate extent of where primary COPCs exceed their respective MCLs.

Concentrations of sulfate and TDS were an order of magnitude higher in groundwater samples from well GW-24-MA, than in groundwater samples from well GW-34-MA (Table 6-71 and Plate 6). Groundwater at well GW-24-MA, located within the disturbed pit, is a calcium-sulfate type water (Figure 6-107). Figures 6-89 and 6-108 depict the lateral and vertical extent of the selenium plume in the shallow hydrostratigraphic unit.

Intermediate Hydrostratigraphic System – There are four wells completed in the intermediate hydrostratigraphic system (GW-22-MM, GW-23-MM, GW-32-MD and GW-33-MR) in close proximity and downgradient of the RMM (Figure 6-91).

Groundwater samples from well GW-32-MD and the springs (Hoorah Hollow [HH-1], Jouglard Canyon Spring [JCS-1], and Southwest Spring [SWS-2]) provide information on groundwater conditions in the Dinwoody Formation. Well GW-32-MD is situated on the east side of the fault zone in an area surrounded by West Limb ODAs (Figure 5-24 and Plate 5). Concentrations of the primary COPCs in the Dinwoody Formation were all below their respective MCLs (Figure 5-24, Table 6-70, and Plate 5). The maximum concentrations of the primary COPCs in samples collected from the springs (Hoorah Hollow [HH-1], Jouglard Canyon Spring [JCS-1], and Southwest Spring [SWS-2]) were all below their respective MCLs.

Concentrations of selenium, cadmium, chromium, and vanadium all exceeded their respective MCLs in groundwater in the Meade Peak Member of the Phosphoria (at wells GW-22-MM and GW-23-MM) in the Pit Lake (Table 6-70 and Plate 5). Concentrations of the COPCs, sulfate and TDS in these wells differ significantly from the concentrations in the Pit Lake, indicating that the transfer of COPC between Pit-Lake water and pore-water in the Meade Peak is constrained, and that direct precipitation and runoff provide significant contributions of COPCs to the lake. Well GW-33-MR is located southwest of the pit lake, within the fold axis trace of the Conda Anticline, and downgradient of an adjacent unreclaimed overburden pile placed on the Rex Chert Member outcrop. No shallow alluvial groundwater was encountered during the drilling in this location. Concentrations of selenium, cadmium, and zinc all exceeded their respective MCLs in groundwater in the Rex Chert Member of the Phosphoria (GW-33-MR) (Table 6-70 and Plate 5).

Major-ion chemistry data indicate that the intermediate groundwater in close proximity to the ODAs is calcium-sulfate type, whereas the groundwater at GW-32-MD and the springs is calcium-bicarbonate type waters (Figure 6-107).

Deep Hydrostratigraphic System – Monitoring well GW-31-MW is surrounded by RMM, with West Limb ODAs to the north, east, and west, and the Pit Lake to the south. The average total selenium concentration in groundwater samples collected from GW-31-MW (0.00048 mg/L) was below the MCL (0.05 mg/L). Formation Spring (FM-1) is situated approximately 2,900 feet southwest of the Grace Panel (Plate 3). Formation Spring issues from the Wells Formation at an elevation of approximately 6,135 feet amsl. The average total selenium concentration (0.0019 mg/L) in Formation Spring (FM-1) was below the primary drinking water standard (0.05 mg/L), and concentrations ranged from 0.0015 mg/L to 0.0023 mg/L (Table 6-70). The low average COPC and sulfate concentrations in Formation Spring (FM-1) indicate that mining-related releases have had limited adverse effects on the spring.

Major-ion chemistry data indicate that the deep groundwater in this area surrounded ODAs is magnesium-sulfate type, whereas the groundwater at the springs are calcium-bicarbonate type waters (Figure 6-109). Figures 6-92 and 6-108 depict the lateral and vertical extent of the selenium plume in the deep hydrostratigraphic unit.

6.4.2.5 Margarette Creek/Trail Canyon Sub-Basin

The RMM in this Sub-Basin covers an area of 76 acres. Approximately 47 acres of the RMM lie atop the Wells Formation, 29 acres is atop the Rex Chert and Meade Peak Members of the Phosphoria, and less than one tenth of an acre atop the Dinwoody Formation (Table 2-3). The external ODA, approximately 38 acres, has been reclaimed (Figure 2-3).

Shallow Hydrostratigraphic System – Wells GW-35-MA and GW-36-MA, which are completed in the alluvium/colluvium just downgradient of the North Trail Panel ODA, have been dry since completion. The alluvium/colluvium deposits in this area overlie Wells Formation bedrock. As previously mentioned, the unconsolidated deposits atop Wells Formation do not tend to support saturated groundwater conditions. Infiltration through the North Trail Panel ODA likely travels downward until reaching the regional Wells Formation water table.

Groundwater conditions in the shallow hydrostratigraphic system can be evaluated using base-flow data from surface water monitoring at TCC-2. None of the primary COPCs at TCC-2 exceeded the groundwater human health criterion during base-flow conditions (Table 6-70). The low average concentration of sulfate (Plate 4) during base-flow, also indicates that there are no measurable mining-related effects to groundwater in the shallow hydrostratigraphic system.

Major ion chemistry data indicate that groundwater in at the TCC-2 springs (alluvium/colluvium) is calcium-bicarbonate type water typical of shallow fresh groundwater (Figure 6-110).

Intermediate Hydrostratigraphic System – Groundwater in the intermediate hydrostratigraphic system occurs within the Dinwoody Formation. Larson family wells LRSN-1-DD and LRSN-2-DD are completed into the Dinwoody Formation. The Larson water supply wells are situated approximately 1,500 feet southwest of the edge of the southernmost West Limb Panel disturbance. The Larson wells are completed to 100 feet bgs (GW-LRSN-1-DD) and 120 feet bgs (GW-LRSN-2-DD). There are no recent groundwater elevation data, however, at the time of drilling static groundwater was measured at 25 feet bgs (approximately 6,404 feet amsl) (Appendix G). Concentrations of the primary COPCs in the Larson wells were all below their respective MCLs (Table 6-70 and Plate 5).

Concentrations of sulfate was low at both wells (GW-LRSN-1-DD and GW-LRSN-2-DD), but the wells are more than a mile downgradient of the North Trail Panel ODA. The major-ion chemistry data (Figure 6-110) indicate that the Dinwoody Formation groundwater at the Larson's property is a calcium-bicarbonate type water.

Deep Hydrostratigraphic System – No Wells Formation wells were installed downgradient and east of the North Trail ODA, even though approximately 70 acres of source material was placed on top of the Wells Formation in the Margarette Creek/Trail Canyon Sub-Basin. Monitoring wells in this location would be extremely costly since groundwater in the Wells Formation east of the North Trail ODA would likely be over 1,000 feet deep. This conclusion was reached based on the surface elevation (7,200 feet amsl) in close proximity of the ODA, the elevation where groundwater was first encountered in GW-31-MW (6,175 feet amsl), and the regional water table (approximately 6,200 feet amsl). The Wells Formation well GW-21-MW installed downgradient and in close proximity to the larger ODA (82 acres) in the Western Woodall Sub-Basin, as well as the Wells Formation wells GW-14-MW, GW-31-MW, GW-39-MW, and GW-40-MW, provide a basis for evaluating potential mining-related effects to the Wells Formation (Plate 5).

The groundwater quality in the regional Wells Formation below the North Trail ODA is not expected to degrade with respect to the groundwater quality observed at GW-21-MW, based on the following:

- The North Trail ODA (70 acres) is significantly smaller than the Western Woodall ODA (139 acres);
- The distance of vertical transport of releases to the groundwater table is similar to that at the Western Woodall ODA; and

There is a similar large potential for dispersion, attenuation, and dilution with un-affected groundwater in the large saturated thickness of the Wells Formation.

6.4.2.6 Southwest Conda Sub-Basin

There are no wells installed in this Sub-Basin, since no mining occurred in this Sub-Basin and there are no waste materials present (Table 2-3) that can release selenium and other COPCs to groundwater. The potential for impacts due to any releases from the Grace Panel is minimal, considering the large potential for dispersion, attenuation, and dilution with un-affected groundwater infiltrating in the undisturbed outcrop.

6.4.3 Pit Lake and Groundwater Interaction

As previously mentioned, the Pit Lake is situated in an area where bedding in the bedrock units is near-vertical to overturned (e.g., the Phosphoria Formation is below the Wells Formation in this area). At the northern end of the Pit Lake, the bedding is overturned with east-dipping bedding based on a Rex Chert outcrop (Appendix A). At the southern end of the Pit Lake, the bedding dip is near vertical based on a Rex Chert outcrop (Appendix A). Historical operations documentation indicates that the Pit Lake bottom is at approximately 6,400 feet amsl and comprised of steeply-dipping Meade Peak Member (Appendices B and G). The western shoreline of the Pit Lake is composed of the Meade Peak Member and the Rex Chert Member (Appendix A). The strata outcropping on the eastern shoreline of the Pit Lake contain the Meade Peak Member (Appendix A).

Groundwater Levels – Groundwater levels in the immediate vicinity of the Pit Lake can be evaluated using groundwater elevation data from wells GW-22-MM and GW-23-MM (Meade Peak), GW-24-MA (alluvial/colluvial), and GW-33-MR (Rex Chert). Wells GW-22-MM and GW-23-MM, can go dry in late summer and in the spring/early summer can have groundwater elevations (6,417.2 to 6,424.3 feet amsl) of similar to the water levels in the Pit Lake (ranging from 6,417 to 6,425 feet amsl. Well GW-24-MA is screened between 6,417.1 and 6,427.1 feet amsl and monitors shallow groundwater, within the footprint of pit disturbance that would drain into the Pit Lake. Well GW-33-MR, which is screened between 6,300.3 and 6,310.3 feet amsl, below the bottom of the Pit Lake. Groundwater levels in GW-33-MR ranged between 6,319.9 and 6,351.4 feet amsl (Table 5-2).

Groundwater and Pit Lake Water Quality – The total selenium concentrations in groundwater samples collected from GW-22-MM, GW-23-MM, GW-24-MA, and GW-33-MR exceeded the MCL (0.05 mg/L) (Table 6-70). The average total selenium concentrations in groundwater samples collected from these wells were:

- 7.1 mg/L in GW-22-MM;
- 0.9 mg/L in GW-23-MM;
- 0.5 mg/L in GW-24-MA; and
- 0.3 mg/L in GW-33-MR.

In contrast, total selenium concentrations in the Pit Lake averaged 0.2 mg/L (Table 6-53). Figure 6-89 presents the approximate extent of where primary COPCs exceed their respective MCLs.

Groundwater and Pit Lake Interaction – The Pit Lake is situated atop near-vertical dipping Meade Peak Member that likely extends to great depths. Groundwater level data from GW-22-MM and GW-23-MM, relative to the water level in the Pit Lake, indicate that the lateral extent of interaction between the Pit Lake and groundwater is limited. Water levels in the Pit Lake can drop over 3 feet between the high levels in spring and low levels in the fall (See Appendix M). In June of 2011, the water level in the Pit Lake was above the top-of-casing for GW-22-MM (approximately 6,424 feet amsl), and by September 2011 the water level was at about 6,421 feet amsl (Appendix O). In May of 2009, the concrete pad for GW-22-MM was under Pit-Lake water (Appendix A). Well GW-22-MM was purged dry at that time to monitor the recharge rate, which was approximately 0.02 feet per minute. The slow recharge indicates a low hydraulic conductivity, consistent with the Meade Peak Member characteristics.

In late summer water levels in the Pit Lake may be maintained by precipitation runoff and surrounding groundwater in the unconsolidated deposits in the footprint of the pit as well as the Meade Peak itself. The change in δD and $\delta^{18}O$ isotopic ratios between spring (-14.5 permil $\delta^{18}O$ and -117.5 permil δD) and fall (-5.6 permil $\delta^{18}O$ and -78.2 permil δD) for the Pit Lake are consistent with isotopic fractionation due to evaporation (Tables 4-24 and 4-41).

Groundwater in the fractured Rex Chert Member may be influenced by the Pit Lake, considering that portions of the western shore are composed of Rex Chert Member and the presence of fault structures in the area. However, this interaction may be limited based on the following:

- Spring 2009 groundwater level in the Rex Chert Member well GW-33-MR (6,301.86 feet amsl) indicates that an unsaturated interval of approximately 98 feet exists, at a minimum, between the bottom of the Pit Lake (approximately 6,400 feet amsl) and the water table.
- The δ18O and δD isotope ratios in GW-33-MR in the Spring of 2009 (-17.1 permil δ18O and -129.3 permil δD) were similar to the runoff samples collected from the nearby ODA (-17 permil δ18O and -130 permil δD), but distinct from the Pit Lake (-14.5 permil $\delta^{18}O$ and -117.5 permil δD), indicating that the source of groundwater in the Rex Chert Member at this location is surface runoff, most likely from snowmelt, rather than Pit Lake water.

The Pit Lake is predominantly comprised of runoff received from the surrounding area, with minor contribution of groundwater from the surrounding colluvium and Meade Peak Member. Flow from the Pit Lake into the Meade Peak Member is limited, considering that GW-22-MM, while under Pit Lake water, could be purged dry. Flow from the Pit Lake into the Rex Chert Member also appears limited, with a section of Rex Chert below the bottom of the Pit Lake that

remains unsaturated. The Pit Lake likely has minimal hydraulic connection with the Wells Formation groundwater to the east, considering the near vertical to overturned stratigraphy and the low hydraulic permeability of the Meade Peak Member containing the Pit Lake (i.e., the shores of the Pit Lake are predominantly comprised of the Meade Peak Member, with a small section to the west comprised of the Rex Chert Member).

6.4.4 Summary of Groundwater Conditions

The groundwater quality data indicate that the ODAs are sources of selenium and other COPCs in groundwater. Summary discussions for groundwater in specific areas of the Site are provided in the following subsections.

6.4.4.1 East Side of the Aspen Range

In summary, interpretation of the lithologic and groundwater quality data collected indicates that the uppermost water-bearing zones are the alluvium/colluvium and the Dinwoody Formation. Groundwater in the alluvium is heavily influenced by seasonal effects. Selenium concentrations in groundwater decreased with depth and distance from the ODAs.

Groundwater selenium concentrations (Table 4-8), in hydrostratigraphic order, ranged from:

- 0.019 to 15.4 mg/L in the alluvium/colluvium in close proximity to the ODAs (GW-25-MA, GW-28-MA, GW-41-MA, GW-43-MA, and GW-45-MA);
- 0.001 to 0.1 mg/L in the alluvium/colluvium in the valley floor (GW-27-MA, GW-30-MA, GW-47-MA, and GW-48-MA);
- 0.1 to 0.5 mg/L in the Dinwoody Formation in close proximity to the ODAs (GW-42-MD, GW-44-MD, and GW-46-MA);
- 0.00074 to 0.04 mg/L in the Dinwoody Formation (GW-26-MD and GW-29-MD); and
- 0.0098 to 0.056 mg/L in the Wells Formation (GW-39-MW and GW-40-MW).

6.4.4.2 West Side of the Aspen Range

In summary, interpretation of the lithologic and groundwater quality data collected indicates that the uppermost water-bearing zones are the alluvium/colluvium, the Salt Lake Formation, and the Dinwoody Formation. The extensional fault zone may act as a restrictive barrier to groundwater flow from east to west within portions of the Conda Mine site. Groundwater flow is generally from east to west with a north-northwest component near the fault zone. Contributions to the groundwater flow system resulting from leakage from the Pit Lake is likely

minimal due to the confinement of the lake within strata of very low hydraulic conductivity. Selenium concentrations in groundwater decreased with depth and distance from the ODAs.

Groundwater selenium concentrations (Table 4-8), in hydrostratigraphic order, ranged from:

- 0.00091 to 1.7 mg/L in the alluvium and colluvium (GW-16-MA, GW-17-MA, GW-18-MA, GW-24-MA, GW-34-MA, GW-49-MA, GW-52-MA, and GW-54-MA);
- 0.0004 to 0.05 mg/L in the Olivine Basalt (A-50, A-15, A-27, A-28, A-29, A-30, A-33, A-35, A-46, GW-8-IBS and GW-10-IBS)
- Non-detect to 0.6 mg/L in the Salt Lake Formation (GW-9-IS, GW-15-MS, GW-19-MS, GW-50-MS, GW-51-MS, GW-53-MS, GW-55-MS, GW-56-MS, GW-57-MS, A-13, A-14, GW-NW7-IS, and GW-NW8-IS);
- 0.0066 to 1.1 mg/L in the Dinwoody Formation (GW-32-MD and GW-37-MD);
- 0.22 to 0.37 mg/L in the Rex Chert Member (GW-33-MR);
- 0.75 to 20 mg/L in the Meade Peak Member (GW-22-MM and GW-23-MM); and
- Non-detect to 0.044 mg/L in the Wells Formation (GW-11-IW, GW-14-MW, GW-21-MW, and GW-31-MW).

7.0 FATE AND TRANSPORT

This section presents a discussion of the Site COPC sources and the processes controlling the release of COPCs, their fate and transport, and the exposure pathways for receptors. The fate and transport pathways are primarily discussed in the context of selenium, since selenium has the greatest extent of contamination and potential for unacceptable exposures for ecological receptors. For human receptors, although arsenic poses a greater risk than selenium and the other primary COPCs, its occurrence at elevated concentrations correspond spatially with areas of elevated selenium concentrations. Like selenium, arsenic is present in sulfides where they typically substitute for iron or other metals (Herring and Grauch 2004; Desborough and Poole 1983). However, arsenic exceeds comparison and background values at lower frequencies and magnitudes, as well as smaller spatial scale, than selenium. Therefore, the selenium-based fate and transport is considered representative of the fate and transport of all COPCs.

7.1 Summary of Site Conditions

RI findings related to the distribution of RMM, geologic and hydrogeologic setting, and the land uses that dictate exposure pathways for potential receptors are summarized in this subsection to provide context for the subsequent discussions of fate and transport.

7.1.1 Mining Process

During the early years of mining (1920 to 1956), the ore was extracted through underground mining. From 1956 to 1984 surface mining techniques were the preferred method of mining as a result of improvements in earth-moving equipment. During the process of extracting the ore, materials naturally enriched with selenium and other COPCs were removed and placed in waste rock piles (during underground mining) and ODAs (during surface mining). The ODAs constructed during the period of surface mining enveloped most of the waste rock piles, except for the piles in the Camp G Creek Sub-Basin associated with the development of the crosscut to the Trail Creek Syncline (Figure 2-8).

Crushing and drying were the only treatments used for beneficiation of the phosphate ore at Conda. The tailings produced during this process were placed in the tailings ponds. The ore was initially shipped to a fertilizer production facility in Anaconda, Montana until the facility was dismantled and shipped to Pocatello, Idaho where it was reassembled and continues in operation as the Don Plant. No fertilizer production occurred at Conda.

7.1.2 RMM Sources of COPCs

Past mining activities to extract and process the phosphate ore present in the Meade Peak Member of the Phosphoria Formation have resulted in areas with RMM that contain elevated concentrations of COPCs. The main RMM at Conda include: overburden piles placed external to pits or as backfill within the pit, waste rock piles, and tailings in the Old and New Tailings Ponds. The boundaries of the RMM are well defined, both from an aerial extent of disturbance and COPC concentrations (Plate 1). These areas with RMM contain the minerals that through weathering release COPCs into the environment. The overburden piles, waste rock piles, and tailings are physically, mineralogically and chemically distinct from one another and vary in their COPC content and potential to release COPCs.

Open pits that have not been backfilled with overburden are not considered to be significant sources of COPCs to the environment. There is little opportunity for selenium and other COPCs to be released by runoff flowing across the exposed Meade Peak Phosphatic Shale in the pit walls and floor, and into the Wells Formation, due to the brief contact time between runoff and the seleniferous material and preferential along-bedding infiltration (Figure 5-9). There is the potential for releases from exposed seleniferous materials along the pit floor.

Overburden Piles - The ODAs are composed of varying mixtures of gravel-, sand-, silt-, and clay-sized material derived from Dinwoody Formation, Rex Chert Member, Waste Shale and Mudstone, and Wells Formation limestone generated during the excavation of the pits. Each ODA varies in the proportions of Dinwoody Formation, Rex Chert, Waste Shale, Mudstone, and Wells Formation limestone. No efforts were made during mining and overburden disposal to segregate lithologically distinct overburden-rock materials. Therefore, ODAs contain a heterogeneous and random mix of materials. The relative mix of distinct overburden-rock lithologies exerts a strong influence on selenium and other COPC concentrations among the various ODAs within the site.

Waste Rock Piles - The waste rock piles that remain at Conda are situated in the Camp G Creek Sub-Basin. Because the adits were advanced in the Wells Formation, and access points were driven along the ore, the waste rock piles contain significantly less Mudstone and Middle Waste Shale compared to the ODAs, and are predominantly composed of Wells Formation.

Tailings - The tailings are generally very fine grained clay- and silt-sized particles. In the 1976 feasibility study for the New Tailings Pond, the maximum grain size of the tailings material was about the No. 100 U.S. Standard Sieve, with about 75 percent passing the No. 200 sieve (Dames and Moore 1976). Samples collected from the Old Tailings Pond in 2015, indicated that the particle size in the top two to three feet of tailings material consisted of 44 to 69 percent silt and 31 to 66 percent clay, with 99 to 100 percent of particles passing the No. 200 sieve in the underlying tailings material (Formation 2015a). Considering these properties, the tailings are

considered to have relatively low permeability; however ponded water that originates from snowmelt or precipitation events can infiltrate into the tailings.

As previously discussed, the overburden piles contain the largest amounts of Mudstone and Middle Waste Shale and consequently have relatively high average concentrations of selenium. The overburden piles, tailings, and waste rock piles contain similar concentration ranges for cadmium and chromium. The tailings have greater concentrations of vanadium and zinc relative to the overburden and waste rock piles (Table 6-2). Of these COPC sources, the overburden piles cover the largest area within the Site (Figure 2-8).

7.1.3 Geology, Hydrogeology, and Hydrologic Setting

As previously described, the Site is located along the north-south trending Aspen Range (Figure 1-1).

7.1.3.1 Geology

The geology at the Site consists predominantly of consolidated carbonate and clastic sedimentary rocks. Lava flows composed of Olivine Basalt occur primarily west of the Site in the Blackfoot Bridge and Bear River Valleys (Figure 2-4). The general stratigraphy of the consolidated deposits (Figure 5-8) from youngest to oldest is:

- Travertine (Quaternary);
- Olivine Basalt (Tertiary-Quaternary);
- Salt Lake Formation (Tertiary);
- Thaynes Formation (Triassic);
- Dinwoody Formation (Triassic);
- Phosphoria Formation, Cherty Shale Member (Permian);
- Phosphoria Formation, Rex Chert Member (Permian);
- Phosphoria Formation, Meade Peak Member (Permian; with various sub-members, described below);
- Park City Formation (Permian); and
- Wells Formation (Pennsylvanian/Permian).

The geologic structure of the area is dominated by northwest-trending folds and normal faults. Distinct geologic and structural controls exist along the Aspen Range ridgeline and along its eastern and western flanks.

Aspen Range Ridge – The Aspen Range ridge is a northwest-trending, northward plunging anticline that extends from Shield Canyon to Woodall Mountain (Figure 2-4 and Figures 5-13 and 5-20). Relatively flat lying rocks of the Wells Formation in the core of the anticline outcrop along the ridge crest. Erosion has removed the overlying Phosphoria and Dinwoody Formations along the anticlinal axis but these units outcrop along the east side of the range. Recharge to the Wells Formation in outcrop areas along the ridge contributes to the regional Wells Formation groundwater system. Groundwater in the Wells Formation is unconfined in outcrop areas and confined/semi-confined where overlain by the Meade Peak Member of the Phosphoria Formation. Phosphoria and Dinwoody formation strata on the east limb of the anticline dip 40 to 60 degrees east and are cut by eastward-trending transverse or tear faults. Wells Formation strata on the west limb dip 30 degrees west. The west flank of the Aspen Range anticline is truncated by a series of northwest-trending normal faults.

In the Woodall Mountain area, where the Woodall mine panels are located, the structure is more complex. At Woodall Mountain Peak, two additional folds are exposed east of the Aspen Range anticline; a small syncline with relatively flat limbs in the Western Woodall mine panel and a small anticline in the East Woodall panel. Strata on the west side of Woodall Mountain Peak (Figures 5-13 and 5-20) have been cut by several northwest-trending normal faults and the Phosphoria and Dinwoody Formations have been removed by faulting and subsequent erosion.

East Side of the Aspen Range Ridge - Along the east side of Aspen Range ridge the topography is controlled by the northwest-trending, northward plunging Trail Creek Syncline. Dinwoody Formation strata that outcrop on the east limb dip 15 to 30 degrees west, and Dinwoody and Phosphoria Formation strata that outcrop on the west limb dip 40 to 60 degrees east (Figures 2-4 and 5-9 through 5-20). The major phosphate outcrop at the Conda Mine is the Meade Peak Member outcrop along the west limb of the syncline, which extends for about 12 miles (Schwarze 1967). The Rex Chert Member of the Phosphoria Formation, which is resistant to weathering, forms a ledge below the slope of the Meade Peak Member. The Salt Lake and Thaynes formations outcrop only in the foothills east of Woodall Mountain. Any groundwater in the Salt Lake and Thaynes Formations on the east side would receive recharge from the undisturbed foothills to the east. The Dinwoody Formation is overlain by unconsolidated deposits in the valley floor.

The west limb of the Trail Creek Syncline is cut by two fairly large and several smaller eastward-trending transverse faults along the east side of the Aspen Range (Figure 2-4). One of the larger transverse faults cuts the strata in the NTCRA area and the other is aligned with Shield Canyon. Displacement along the Shield Canyon fault is estimated to be approximately 1,000 feet (Appendix B, 1964-1965 Annual Report).

West Side of the Aspen Range Ridge – The west side of Aspen Range ridge is dominated by the Conda Anticline and the extensional fault zone along the western front of the range (Figures 2-4, 5-9 through 5-11, and 5-13 through 5-16). Rock outcrops on the Conda Anticline consist of

resistant units in the Wells Formation, Rex Chert Member of the Phosphoria Formation, and Dinwoody Formation. The northwest-trending, northward plunging Conda Anticline extends from Trail Canyon to the Former Conda Townsite. The nose of the anticline is cut by a number of echelon faults that offset beds of the Rex Chert and Meade Peak members of the Phosphoria Formation. Wells Formation strata outcrop along the crest of the anticline and Phosphoria Formation beds are exposed on both the west and east flanks. The Salt Lake Formation outcrops in the Conda Valley on the west side of the anticline. Strata along the west limb of the anticline dip 45 to 60 degrees west and strata along the east limb dip 30 to 60 degrees east. The east limb of the Conda Anticline is truncated by a northwest-trending normal fault north of Jouglard Canyon.

The largest and most influential fault is the extensional fault located west of the Conda Anticline near the edge of the valley. Offset along the extensional fault has dropped the Wells Formation to great depth in the Bear River Valley west of the Site. The Wells Formation is overlain by thousands of feet of Tertiary sediments which are covered by flows of Olivine Basalt. The extensional fault functions as a restrictive barrier to groundwater flow. Upwelling of regional Wells Formation groundwater has occurred in the upthrown block along the fault trace and several springs with travertine deposits are present along the fault.

7.1.3.2 Hydrogeology

The local hydrostratigraphic systems at the Site consist of unconfined and confined systems within the geologic strata. A shallow unconfined groundwater hydrostratigraphic system is present in the unconsolidated alluvium/colluvium deposits. Shallow unconsolidated groundwater flow systems are present in the lower reaches of the draws and in the valley floors along the eastern and western flanks of the Aspen Range. Intermediate hydrostratigraphic systems within the Site occur in the consolidated deposits overlying the Meade Peak Member of the Phosphoria Formation. A deep hydrostratigraphic system occurs within the Wells Formation underlying the Meade Peak Member of the Phosphoria Formation. Groundwater recharge to the hydrostratigraphic systems in consolidated deposits occurs in outcrop areas through downward percolation of precipitation and snowmelt. The majority of the precipitation at the Site occurs as snow during the winter months, with accumulation greatest on the east slopes of Woodall Mountain. Precipitation is generally greatest in May, with July and August typically having the least precipitation. Most of the recharge to the groundwater systems occurs during spring snowmelt.

Shallow Hydrostratigraphic System - Where present in the draws and the transition zones, the groundwater in the shallow hydrostratigraphic systems is underlain by saturated low-permeability materials such as clay lenses in the Salt Lake Formation or silty-clay weathered Dinwoody Formation. Groundwater typically does not occur in unconsolidated colluvial deposits in the draws formed within Basalt, Rex Chert Member, or Wells Formation. The systems along the draws and the transition zones from the mountain front into the valley floors are not vertically

extensive. Groundwater flow paths in the shallow hydrostratigraphic system typically mimic the topography, joining the more extensive groundwater present in the valley floors (Figure 5-23).

Intermediate Hydrostratigraphic System – Groundwater forming part of the intermediate hydrostratigraphic system at the Site can occur in the Olivine Basalt, Salt Lake Formation, and Dinwoody Formation, as well as the Rex Chert and Meade Peak Members of the Phosphoria Formation (Figure 5-22).

Releases of COPCs from the tailings atop the Olivine Basalt travel westward before joining the southern overall flows in the basalt. Releases of COPCs from the ODAs atop the Salt Lake Formation directly infiltrate into the sandstone portions of the unit, whereas less infiltration occurs where the ODAs overlie clayey lenses of the Salt Lake Formation. Groundwater flow follows the dip of the bedding, with greater flow expected parallel to bedding than across. The presence of clayey lenses in the Salt Lake Formation results in confined-artesian conditions within the formation. The transport of COPCs in the Salt Lake Formation may occur at differing rates within the different flow zones.

Being an interbedded silty-limestone, the Dinwoody Formation can contain highly jointed and fractured zones which transmit considerable amounts of groundwater. The weathered Dinwoody typically forms dense clayey soils of lower hydraulic conductivity. Where the ODAs overlie highly weathered Dinwoody, less groundwater infiltration occurs. Releases of COPCs from the ODAs situated atop weathered portions of the Dinwoody Formation, or unconsolidated deposits overlying the Dinwoody Formation, likely have a flow component along the weathered clayey layer. The rate of infiltration into this interbedded silty-limestone unit is dependent of the extent of weathering and the slope of the outcrop area. In areas where the Dinwoody Formation is fractured (e.g., near structural features), and where the thickness of the alluvial/colluvial deposits are thin, releases can directly infiltrate the unit.

The low hydraulic-conductivity Meade Peak Member is considered an aquitard. Wells completed in the Meade Peak (e.g., GW-22-MM and GW-23-MM) indicate that the unit is sufficiently tight to preclude rapid discharge of groundwater. In May of 2009, the concrete pad for GW-22-MM was submerged under Pit Lake water. Well GW-22-MM was purged dry to monitor the recharge rate; which was approximately 0.02 feet per minute. The slow recharge indicates a low hydraulic conductivity, consistent with the Meade Peak characteristics. Releases from overburden materials overlying the Meade Peak (typically only within in-pit ODAs), may become “perched” atop the Meade Peak. The aquitard characteristic of the Meade Peak Member of the Phosphoria Formation impedes transport from the overlying Dinwoody Formation and Rex Chert into the underlying Wells Formation aquifer.

The intermediate hydrostratigraphic system, underlying RMM on the east side of the Aspen Range, is within the Dinwoody Formation and spans across the entire Site. Groundwater flowing to the east within the Dinwoody Formation remains deep below the ground surface (up

to an estimated 2,000 feet bgs [Mansfield 1927]). Groundwater flow direction in the intermediate hydrostratigraphic system along the east side of the Aspen Range is towards the east (Figure 5-23).

The intermediate hydrostratigraphic system, underlying RMM on the west side of the Aspen Range, is composed of groundwater within the Olivine Basalt, Salt Lake Formation, and the Dinwoody Formation.

Deep Hydrostratigraphic System – Groundwater forming part of the deep hydrostratigraphic system can occur at various depths throughout the Site, ranging from 6199.7 (GW-21-MW) to 6648 (GW-40-MW) feet amsl. It is unconfined in outcrop areas and confined where overlain by the Meade Peak Member. Recharge to the Wells Formation along outcrop areas contributes groundwater to the regional Wells Formation aquifer. Recharge likely moves rapidly through weathered and fractured portions of the outcrop areas along the ridge of Aspen Range. The Wells Formation exhibits the highest bulk hydraulic conductivity in the area.

As a unit with interbedded sandstone, limestone, and dolomite, as well as highly fractured zones, the Wells Formation has the highest overall hydraulic conductivity. Zones of high hydraulic conductivity exist along bedding-plane joints and fractures in the sandstone and limestone deposits, whereas zones of low hydraulic conductivity can exist in the more massive deposits. The settings of external overburden atop the Wells Formation outcrop and in-pit overburden atop exposed Wells Formation are expected to provide the greatest opportunity for COPC transport into the Wells Formation. Releases of COPCs travel with infiltrating water in directions following fractures and the bedding angle until reaching the saturated interval, where flow direction and rate are controlled by the hydraulic head and the presence of structural features.

Along the east side of the Aspen Range, groundwater flowing to the east within the Wells Formation remains deep below the ground surface (up to an estimated 3,000 feet bgs [Mansfield 1927]). The Wells Formation does not outcrop at the surface until the vicinity of the Wooley Valley and Slug Creek Valley areas (approximately five to six miles to the east of Woodall Mountain). Groundwater in the regional Wells Formation along the west side of the Aspen Range flows in an overall westerly direction until contacting the extensional fault where it is conveyed north-northwesterly. Locally recharged Wells Formation flows along bedding planes until reaching the regional aquifer. In the Wells Formation underlying RMM around Woodall Mountain Peak, locally infiltrated water flows eastwardly before following the axial trace of the syncline towards the north. In the Wells Formation underlying RMM along the Conda anticline, groundwater flow follows the bedding planes in the limbs of the anticline until being conveyed northwardly along the extensional fault. South of the Jouglard Canyon fault locally infiltrated water flows eastward until reaching the westerly flowing regional groundwater.

The intermediate and deep hydrostratigraphic units are generally the most capable of yielding the amount of groundwater necessary for potential domestic water-supply use. The groundwater within the shallow hydrostratigraphic systems could also yield adequate amounts of water for potential domestic water-supply use, but would require multiple wells due to the limited vertical extent. The differences in the relative amounts of outcrop areas overlain by source areas, snow accumulation, and controls on groundwater flow (faulting and folding) likely effect the degree to which the underlying groundwater is impacted.

7.1.3.3 Hydrology

The Aspen Range divides the Site, with the west side draining to the Bear River Basin and the east side and northern portion draining to the Blackfoot River Basin. As previously described, a number of local drainages exist along the western and eastern portions of the Aspen Range. Drainages in the western and southern portions are much smaller and drier than the drainages in the eastern and northern portions of the Site. These drainages are in Wells Formation outcrop areas and quickly lose flow to infiltration. The French Drain however does flow year-round.

On the east side of the Aspen Range in the UBR subwatershed, the drainages with intermittent flow on the east side of the Aspen Range are Camp G Creek, Pedro Creek, and State Land Creek. Pedro Creek and Camp G Creek drain east toward Trail Creek. Trail Creek enters the Blackfoot River downgradient of its confluence with Pedro Creek and upgradient of both the State Land Creek confluence and the Blackfoot Reservoir. State Land Creek, as well as the northern portion of Woodall Mountain and the smaller North Woodall Creek, drain north to the Blackfoot River. The headwaters areas of these drainages typically only contain flow during spring runoff. Flow in Camp G Creek, Pedro Creek, and State Land Creek is often lost to the subsurface in the upper reaches and then resurfaces downgradient in the lower reaches. The mouths of each of these three drainages typically contain flow but can also go dry in the fall during low precipitation years.

Several undisturbed foothill ridges are present between the plains along the eastern perimeter of the Site and the Woodall Mountain Ridge of the Aspen Range in the western portion of the Site (Figure 2-2). Similarly, areas of undisturbed foothills exist southwest of the Woodall Mountain Ridge of the Aspen Range (Figure 2-2). These foothills contribute clean runoff to the drainages downgradient from the Site.

7.1.4 Exposure Pathways for Receptors

Land uses in the area are associated with natural resource development, agricultural production, livestock grazing, and recreational use. In addition, tribal members may exercise off-reservation treaty rights, including gathering, hunting, fishing, and practicing tribal cultural

activities (BLM 2010). Residential use in the vicinity of the Conda Mine is limited in occurrence relative to natural resource development, agricultural, livestock grazing, and recreational uses. Terrestrial wildlife use of the Site is typical for the area. Aquatic life at the Site is limited due to the lack of suitable habitat. The CSMs for human receptors, ecological receptors, and livestock are shown in Figures 7-1 through 7-3, respectively.

7.2 COPC Release Processes

Release of COPCs from the RMM occurs through physical and chemical weathering processes as well as direct uptake by plants. The weathering of RMM results in the release of selenium and other COPCs more readily than when the material was undisturbed. The rate of weathering alteration and oxidation of minerals in the RMM is controlled by the amount of oxygen available and the infiltration of water through these materials. This is similar to the processes that form acid-rock drainage (ARD) in metal and coal mine waste rock dumps and tailings; however, the RMM has sufficient neutralizing capacity to inhibit the formation of widespread acidic and biological conditions that enhance sulfide oxidation reactions and the subsequent release of selenium from sulfide minerals. Accelerated release of selenium and other COPCs due to ARD formation is not a concern associated with the overburden at the Site. In general, the water infiltrating through RMM is expected to result in releases of constituents to groundwater.

The mineralogical form of selenium and other COPCs in the RMM plays a large role in their potential for release of COPCs to the environment. When present in relatively insoluble solid forms, selenium and other COPCs may not be released into the environment, even if present in elevated concentrations in the RMM, or they may be released so slowly that there are no measurable changes in concentrations in adjacent environmental media. In contrast, selenium and other COPCs in relatively soluble forms are readily released to water.

Several previous studies (Montgomery Watson 1999, Bond 2000, Herring et al. 2000, Maxim Technologies 2000a, Munkers 2000, Moyle and Causey 2001) have described general characteristics of materials excavated as part of the phosphate mining, including their mineralogy, chemical composition, trace element contents, weathering, and leaching characteristics. The principal findings of these studies as they relate to COPC release mechanisms are described in the following subsections.

7.2.1 Physical and Chemical Weathering

Physical and chemical weathering of overburden shale is accelerated by conditions that are created by handling and disposal activities during active mining. Physical weathering by wind, temperature changes, and water can break RMM into smaller particles, thereby increasing the surface area available for weathering. Chemical weathering results from interaction with oxygen and water when the materials are excavated and exposed to surface conditions.

The constituents that are released from RMM at surface and near-surface conditions include any of the metals and metalloids that are associated with the weathering minerals in the shales. Herring and Grauch (2004) reported that Meade Peak shales react relatively quickly with water, with even weathered portions of the shale releasing selenium and trace metals and metalloids within the first hour of contact. This suggests that there is a source of readily soluble selenium and trace metals and metalloids in relatively unweathered Meade Peak Member shale that can be released by short-term (24-hour) leaching even under anoxic conditions. Recently, saturated and unsaturated column testing for the Blackfoot Bridge EIS verified that there is an initial release of soluble selenium (Whetstone 2009a, BLM 2009a). However, this testing indicated that the initial selenium release was substantially reduced under saturated conditions. It also found that beyond the first leaching cycle, unsaturated and oxidizing conditions were required for long-term selenium release and that concentrations decreased rapidly with additional leaching cycles.

Weathering of sulfides and, to a lesser extent, the organic matter present in the shales mobilizes some constituents more than others. Highly weathered shales from the Meade Peak have been observed to have significantly lower concentrations of sulfur, nickel, selenium and zinc than in less-weathered shales (Herring and Grauch 2004). In contrast, cadmium, chromium, copper, and vanadium appear to be enriched within the weathered shales when compared to the less-weathered shales. This suggests that nickel, selenium, and zinc are more readily mobilized via weathering than cadmium, chromium, copper, and vanadium. Therefore, less-weathered waste shales have the highest potential for release of nickel, selenium, and zinc. The more-weathered waste shales may have higher concentrations of cadmium, chromium, copper, and vanadium than the less-weathered shales as a result of relative enrichment of certain constituents due to numerous weathering reactions taking place within a variably weathered section of Meade Peak Shale. Because those COPCs are not as readily mobilized from the weathered shale, the more-weathered shales have relatively lower potential for release of metals. This effect is also predicted for selenium, where concentrations in water passing through overburden are relatively high initially, but decrease over time (Maxim 2004a, 2004b; Whetstone 2009a).

Weathering takes place in surface and near-surface undisturbed shales, before mining disturbance, but also during mine-pit excavation and subsequent storage and handling for disposal (Herring and Grauch 2004). Consequently, the shales disposed together in RMM can have highly variable weathering histories. The extent of shale weathering in the final disposal setting does not show regular variability with depth because shales with different weathering histories were mixed together randomly by mining activities. Later studies in the southeastern Idaho Phosphate Mining Resource Area by Tetra Tech (2008) found no evidence of ongoing weathering reactions or of regular and predictable concentration variations with depth in similar overburden disposal settings. The study found little oxygen or water present within external ODAs of various ages, and concluded that weathering was either no longer taking place or proceeding very slowly in the final disposal setting, which includes both backfill and external

disposal settings. This supports the conclusion that COPC releases from overburden will diminish over time after the material is placed. In addition, releases are limited in areas where there is little or no interaction with water and oxygen, such as in residual underground workings or panel highwalls that remain relatively dry.

In summary, there are two distinct mechanisms for COPC release from RMM: (1) interaction with infiltrating water/leaching, and (2) weathering of RMM. Interaction between readily soluble solids that contain COPCs and infiltrating water can occur whenever the materials are exposed to water including during excavation, handling and storage, and disposal of overburden materials in pit backfills or external disposal areas. Dissolution of soluble solids and release of associated COPCs to infiltrating water likely represents a relatively short-term release mechanism that takes place primarily during overburden handling and initial disposal. Weathering operates by oxidation of minerals or organic matter to release bound COPCs, including selenium. Oxidation processes may begin as soon as overburden is excavated, and they may continue in the final disposal setting. Available data from the Smoky Canyon Mine and other sites (Tetra Tech 2008) indicate that sulfide oxidation processes may be relatively inhibited at depth within ODAs, thereby limiting the rate of weathering by oxidation and essentially immobilizing most COPCs, including selenium, once final disposal conditions have been established within an ODA. Weathering of primary rock-forming minerals typically leads to the formation of secondary minerals through precipitation reactions, which generally reduces the mobility of constituents released from overburden. Mineral precipitation can occur on the surface of oxidizing minerals (i.e., incongruent dissolution), or due to physical processes such as evaporation, which can increase chemical concentrations above solubility limits (Alpers and Blowes 1994). These examples represent end-members of secondary mineral precipitate solubility within and on an ODA.

7.2.2 Vegetation Uptake

Direct uptake by vegetation is also a pathway for transport of COPCs to the environment; although mostly a concern for selenium. Direct uptake occurs where vegetation is growing on seleniferous materials, as confirmed by the elevated selenium concentrations detected in plant tissue. Even though plant uptake of selenium from growth media on overburden material and in seep areas is not a pathway for physical transport of selenium outside of areas with RMM, this process represents a potential exposure pathway to receptors. Terry et al. (2000) summarizes the mechanisms of selenium uptake and distribution in plants. A detailed discussion of selenium bioaccumulation and toxicity will be presented in the SSERA, but factors that are important to selenium transport in terrestrial plants are summarized below.

Selenium is taken up by plants primarily through root absorption from soils, interstitial water, or shallow groundwater. Selenate is the form of selenium most readily taken up by plants, although organically transformed selenium such as seleno-methionine and seleno-cysteine are also readily absorbed when present. Selenate is taken up into the roots by the same molecular

active uptake system as sulfur, and rapidly transferred to the shoot where grazing animals can become exposed during feeding. Selenite is not taken up by active transport system, and is generally not an important factor in accumulation of selenium in plants. Selenite is rapidly transformed to seleno-methionine in the roots, and neither of these forms is transported to the shoot to a great extent. Therefore, when selenate is abundant, active uptake and rapid transfer from root to shoot can lead to significant accumulation of selenium in plants, primarily in new leaf growth.

Selenium accumulation in plants is potentially important to assessing and managing environmental risk at the Site. Some plant species, including species in the genera *Aster* and *Astragalus*, can hyperaccumulate selenium to levels that are acutely toxic to grazing livestock. Concentrations in these species can be greater than 1,000 mg/kg (Mackowiak and Amacher 2010). Hyperaccumulating plant species, especially *Aster* spp., have been responsible for acute livestock poisoning at the Conda Site.

Many other plant species, including common grasses and forb species, cannot tolerate high selenium levels and do not accumulate selenium to high levels More moderate levels of selenium can be responsible for chronic selenosis in livestock, and possibly in wildlife species. However, there is no direct evidence that chronic selenosis has occurred in livestock or wildlife at the Conda Site or in its vicinity. No systematic studies have been conducted to determine if chronic selenosis is occurring in wildlife at the Conda Site or in its vicinity.

7.2.3 Mobility in the Environment

Once released to infiltrating water, subsequent aqueous transport of COPCs may take place, although the mobility of those constituents depends on the chemical conditions within the overburden area and nearby environmental media. The mobility of the COPCs released from RMM depends primarily on the following chemical factors:

- Oxidation-reduction potential and pH of pore water and/or receiving water;
- Minerals present in the overburden materials; and
- Any biogeochemical transformations that take place due to microbial activity.

Attenuation Due to Sorption – Release and subsequent mobility in the environment are controlled to some extent by the geochemical properties of the different COPCs. The dissolved form (i.e., aqueous speciation) of the chemical and its charge in solution may also increase or decrease its potential for transport. For example, two of the COPCs (selenium and vanadium) are present in natural waters mostly as oxyanions, while others (e.g., cadmium, chromium, copper, nickel, and zinc) are present in natural waters mostly in cationic forms.

Sorption to solids is a common natural attenuation process that reduces the mass flux of dissolved constituents transported by the flow of surface water or groundwater. Secondary iron oxyhydroxides (e.g., ferrihydrite), as well as certain iron, aluminum, and silica oxides, hydroxides, and oxyhydroxides, can sorb both cations and anions from solution. The degree to which sorption attenuates transport of COPCs depends on the sorption site density, affinity of the dissolved chemical for the solid phase (Benjamin and Leckie 1981), solid surface charge, concentrations of competing ions (e.g., sulfate, phosphate, nitrate, etc.), and ionic strength of the solution (Stumm and Morgan 1981). The diagram in Figure 7-4 illustrates the differing affinities of the dissolved metals cadmium, copper, lead, and zinc for sorption to solids (diagram is from Benjamin and Leckie 1981).

Generally, sorption of anions is greater at lower pH because the net surface charge of the solid is more positive, enhancing the electrostatic attraction of the anions for the solid surface. Conversely, cations are more strongly adsorbed at higher pH because of the more negative net surface charge at alkaline conditions (Langmuir 1997).

In general, in oxic-alkaline conditions, selenium exists as selenate (SeO_4^{2-}). However, as conditions become less oxidizing the less mobile form selenite (SeO_3^{2-}) becomes more stable. Strongly reducing conditions can result in the formation of elemental selenium followed by selenides (H_2Se or HSe^-). Factors that can reduce or limit the solubility of selenium in water include adsorption of selenium into mineral surfaces with iron, manganese, and aluminum hydroxides and oxyhydroxides (Hayes et al. 1987, Balistrieri and Chao 1990, Rajan 1979) and well as into clay and carbonate minerals (Bar-Yosef and Meek 1987, Cowan et al. 1990). In general, the oxidized form of selenium (selenate) is much less strongly adsorbed to mineral surfaces than is selenite. Redox potential and pH both affect selenium solubility and sorption reactions, with reducing conditions and lower pH favoring sorption (Neal 1990, McLean and Bledsoe 1992). Therefore, oxidizing conditions tend to result in more mobile forms of selenium. Conversely, the more reduced the conditions, the lower the selenium mobility. Selenium is typically present in both surface water and groundwater in its oxidized form, selenate.

Water quality data collected for seeps emanating from external ODAs are useful indicators for identifying the COPCs that are relatively mobile in aqueous solution. Compared to waters sampled in undisturbed areas (e.g., TCC-2, HH-1, JRLD, CS-1_CND), drainages and seeps have elevated concentrations of dissolved cadmium, manganese, nickel, selenium, and zinc. These are the shale-overburden constituents that appear most readily mobilized and transported via water from ODAs.

The relative attenuation of selenium and other COPCs released from overburden solids can be evaluated using water quality data collected along surface and subsurface flow pathways from the ODAs. Removal of cadmium, manganese, nickel, and zinc from solutions that infiltrate downward (based on concentrations in seeps) into deeper groundwater flow systems is suggested by the much lower concentrations of these constituents in groundwater from

locations in close proximity to the ODAs (e.g., GW-21-MW, GW-31-MW, GW-32-MD, GW-39-MW, GW-40-MW, GW-28-MA, GW-42-MD, and GW-46-MD). The reductions in dissolved cadmium, manganese, nickel, and zinc concentrations observed between concentrations in seeps and these wells are not likely due to dilution alone, because selenium concentrations are not similarly reduced. Even though cadmium, manganese, nickel, and zinc concentrations are typically not detectable in these wells, the dissolved selenium concentrations remain elevated. Given these observations, some attenuation of metals transport appears to take place along subsurface flow pathways, but selenium appears relatively mobile (i.e., transport is attenuated to a lesser degree) when compared to the other constituents that are released from shale overburden to ODA seeps.

Attenuation of cadmium and selenium transport by groundwater flow was evaluated as part of the groundwater impact analysis conducted for the Smoky Canyon Mine Panels F and G EIS (Buck and Mayo 2005, NewFields 2006). The empirical data presented in these studies demonstrate that both cadmium and selenium experience attenuation during groundwater transport, with cadmium being more highly attenuated than selenium. The potential for attenuation of other mobile constituents of shale overburden, including selenium, was also evaluated in support of similar impact analyses conducted for Monsanto's Blackfoot Bridge Mine (Whetstone 2006) and Agrium's Dry Valley Mine (Enviromin 2006). These studies also found that selenium may be attenuated during groundwater transport within the Wells Formation aquifer by sorption to mineral solids present in the Wells Formation limestone.

Attenuation Due to Biogeochemical Transformations – The potential exists for attenuation of selenium during transport through overburden or environmental media due to biologically mediated reduction of selenate to less mobile selenite and subsequent adsorption. Further reduction may result in precipitation as elemental selenium or as a selenide. If mobile selenium forms are present, or if the surface of an ODA is oxygenated, selenium may be released and transported by infiltrating water. However, if the interior of the ODA or mine pit backfill is oxygen deficient, it is possible for selenium to be reduced through biological processes, become less mobile, and be retained in the overburden environment through adsorption or precipitation. Such anoxic conditions are indicated by some ODA seepages (Herring 2004). In contrast, if an ODA is well aerated, reduction of selenium is less likely and selenium transport through the overburden is more likely. Factors that affect the air flow into an ODA can include composition (i.e., material grain size), physical configuration (e.g., compaction, location of fine and coarse material), level of saturation, and placement and type of closure cover. Because of their configurations (limited surface area), backfilled pits generally have lower potential to release selenium than ODAs.

Redox reaction rates involving selenium are rapid compared to transport rates in the environment (Pickering et al. 1995), both for oxidation and reduction. Microbial activity can be an important process that affects the redox cycling of selenium in the environment. Selenate in solution can be reduced to elemental selenium and precipitated by a number of anaerobic

bacteria that are present in a wide range of sediment types (Stolz et al. 2002). The remobilization of selenium through microbially mediated oxidation can also occur, however, the rates of oxidation are generally three to four orders of magnitude less than the reductive part of the cycle (Stolz et al. 2002). The microbial mediation of selenium to volatile methylated selenium species may also be a factor in the persistence of selenium in soil and water (Neal 1990).

In summary, selenium concentrations in surface water and groundwater serve as useful indicators to assess chemical release and transport from ODAs. Selenium appears to be one of the most mobile constituents present in ODA seep waters because its transport is not as strongly attenuated by the mechanisms described above as the other constituents. In addition, the selenium concentrations in some of the seep waters that emanate from ODAs are considerably higher than in either local surface waters or groundwater. For this reason, selenium concentrations remain detectable in natural waters that receive selenium originating from ODAs, whereas the concentrations of other mobile shale-overburden constituents are either more readily attenuated or they become diluted to less than detectable levels in downgradient waters. Given all of the above, selenium concentrations provide the best tool for delineating extent of releases related to the overburden source areas and evaluating both surface and subsurface aqueous transport processes across the Site.

7.3 Groundwater Transport Pathway Model and Uncertainties

As previously discussed, COPCs can be mobilized to groundwater as a result incident precipitation and runoff infiltrating through RMM and percolating into underlying groundwater flow systems. Groundwater transport pathways of concern are those where concentrations of selenium were observed to exceed the MCL.

Selenium and other COPCs are transported into groundwater where seepages or runoff from the ODAs traverse then infiltrate into weathered outcrop areas of the various geologic units. The transport and partitioning of COPCs released from the ODA between the surface water pathway and the underlying groundwater is dependent predominantly upon the topography and the infiltration capacity of the underlying units. The controlling factors for the magnitude of transport via the groundwater pathway are:

- The slope of the contact between the ODAs and the natural ground surfaces (i.e., less infiltration occurs in areas where the contact is steep);
- The hydraulic conductivity of the unit underlying the ODA (i.e., less infiltration occurs into units of lower hydraulic conductivity);
- The proportion of ODA materials overlying higher hydraulic conductivity geologic strata (e.g., Wells Formation and alluvium/colluvium deposits) versus lower hydraulic conductivity strata (e.g., Rex Chert);

- The degree of secondary permeability due to joints and fractures along structural features; and
- The proportion of overburden material located atop consolidated formation outcrop areas external to mine pits versus the proportion located on consolidated formations in pit floors. The ODAs external to the mine pits and atop Rex Chert have a relatively large component of runoff versus infiltration.

The key groundwater transport pathways are discussed relative to the RMM areas within the aforementioned distinct geologic settings.

7.3.1 Transport in East Side Sub-Basins

Past mining disturbances along the east side of the Aspen Range include panels along the east side of Woodall Mountain and waste rock piles associated with the underground workings. There are no mining-related disturbances in North Woodall Mountain Sub-Basin.

7.3.1.1 Transport in State Land Creek Sub-Basin

The COPC sources in the State Land Creek Sub-Basin are the overburden piles situated below Woodall Mountain Peak (Figure 2-8). The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Rex Chert and Meade Peak Members of the Phosphoria - 135 acres
- Wells Formation - 84 acres
- Dinwoody Formation – 27 acres
- Unconsolidated alluvium/colluvium deposits – 7 acres

Geological and Hydrogeological Controls – The main structural feature influencing groundwater flow and transport in this Sub-Basin is the Trail Creek Syncline. Beds of the Phosphoria and Dinwoody formations dip uniformly 40 to 60 degrees east along the western limb of the syncline (Figures 2-4 and 5-9 through 5-20). Groundwater potential in the shallow hydrostratigraphic system mimics the topography and the general direction of groundwater flow is to the east. Groundwater within the intermediate and deep hydrostratigraphic systems flows to the east, following the bedding planes in the west limb of the Trail Creek Syncline. Along Woodall Mountain Peak, the dominant controls are a synclinal fold and a north-northwest striking fault (Figure 2-4). It is possible that fractures along the fault zone and fold axis (Figure 2-4) can preferentially transport Conda-related COPC releases northward. The syncline plunges to the north and has relatively flat limbs (Figures 5-10 and 5-13).

COPC Distribution - The water quality data for seeps emanating along the lower overburden pile (Table 4-23) provides insight into concentrations of COPCs that can infiltrate into the shallow, intermediate and deep hydrostratigraphic systems (Figure 7-5). During the spring snowmelt runoff infiltrates through the piles, accumulates concentrations of COPCs, then percolates into the underlying units. The infiltration rate depends on surface conditions (i.e., sloped vs. flat areas) and the percolation rate depends on the hydraulic properties of the underlying unit (i.e., higher infiltration and percolation rates in gravelly/sandy materials vs. silty/clayey materials and massive materials). The transport of COPCs in groundwater is largely within the unconsolidated alluvium/colluvium deposits. The COPC concentrations in the alluvium/colluvium (shallow hydrostratigraphic system) decrease along the groundwater flow path to levels below MCLs east of the foothills as a result of dispersion, attenuation and dilution due to mixing with clean recharge that occurs along the foothills. Transport of COPCs in groundwater affected by releases from RMM entering the Phosphoria Formation likely limited to flow within fractures present in the Rex Chert Member. The COPC concentrations in the Dinwoody Formation exceed MCLs immediately adjacent to the ODA, then quickly decrease to levels below MCLs at GW-26-MD (e.g., total selenium at 0.001 mg/L), due to attenuation, dispersion and diffusion when mixing with clean recharge from undisturbed outcrops along the ridge and foothills. Transport of COPCs in groundwater affected by releases from RMM into the Wells Formation predominantly occurs where the overburden piles are situated atop the Wells Formation west of the open pit. The dominant geologic controls on groundwater flow and transport of COPCs are the synclinal an anticlinal folds along Woodall Mountain Peak, the west limb of the Trail Creek Syncline, and a north-northwest striking fault (Figure 2-4). The syncline, atop which most of the Woodall Mountain ODAs are situated plunges to the north and has relatively flat limbs (Figures 5-10 and 5-13). The COPCs released from the overburden piles, together with locally recharged groundwater, flow along the bedding planes towards the axial trace of the syncline (Figure 7-5). Groundwater in this fold is likely perched atop the remaining Meade Peak Member of the Phosphoria Formation and any flow would be north-northwesterly along the plunge. Groundwater affected by releases from ODAs atop the east limb of the anticlinal fold percolates into the unsaturated Wells Formation and travels downward along the eastwardly dipping and northward plunging bedding planes mixing with unaffected groundwater recharge in the surrounding undisturbed Wells Formation until reaching the regional Wells Formation groundwater table (approximately at 6,200 feet amsl). It is possible that fractures trending parallel with the anticline fold axis could form preferential flow paths of contamination towards the north. Considering that the bedding under the northern portion of the ODA atop the east limb of the anticline and west limb of the Trail Creek Syncline dip 40 to 60 degrees east, deeper stratigraphic parts of the system could receive releases from a larger footprint of the overburden-piles. Transport of any releases from the easternmost overburden pile, into the Wells Formation, may be limited because the releases would have to travel vertically across bedding planes through the Dinwoody Formation, the Rex Chert and Meade Peak Members.

Receptors - A potential pathway that would expose receptors to elevated COPC concentrations in the groundwater in this Sub-Basin would be if domestic wells were to be installed in close

proximity to the overburden piles. It is unlikely that drinking water supply wells would be completed solely in the shallow hydrostratigraphic system, since shallow wells would not yield a constant and sufficient supply of water for domestic use. Groundwater in the alluvium/colluvium fluctuates seasonally and monitoring wells completed in the shallow system generally go dry in the summer. It is more likely that wells would be screened across multiple water producing zones. Another potential pathway would be exposure of livestock and wildlife receptors to elevated COPC concentrations in surface water in streams and ponds (e.g., SLP-1 and SLp-2).

7.3.1.2 Transport in Pedro Creek Sub-Basin

The COPC sources in the Pedro Creek Sub-Basin are the overburden piles situated below Woodall Mountain Peak (Figure 2-8). The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Rex Chert and Meade Peak Members of the Phosphoria - 97 acres
- Wells Formation - 66 acres
- Dinwoody Formation – 38 acres

Geological and Hydrogeological Controls – The main structural feature influencing groundwater flow and transport in this Sub-Basin is the Trail Creek Syncline. Similar to the conditions in State Land Creek Sub-Basin, bedding within the Phosphoria and Dinwoody Formations dip 40 to 60 degrees east (Figures 2-4 and 5-9 through 5-20). There is a large transverse fault in the NTCRA area near the headwaters of Pedro Creek (Figure 2-4). Fractures associated with this fault and others may allow for infiltration of precipitation and contribution to groundwater flow in the Wells and Phosphoria Formations. Groundwater potential in the shallow hydrostratigraphic system mimics the topography and the general direction of groundwater flow is to the east. Groundwater within the intermediate and deep hydrostratigraphic systems also flows to the east, following the bedding planes in the west limb of the Trail Creek Syncline.

COPC Distribution - The water quality data for seeps emanating along the toe of the NTCRA pile (Table 4-23) provides insight into the concentrations of COPCs that can migrate into the shallow, intermediate and deep hydrostratigraphic systems (Figure 7-6). During the spring snowmelt runoff infiltrates though RMM and accumulates concentrations of COPCs, then percolates into the underlying units. The infiltration rate depends on surface conditions and the percolation rate depends on the hydraulic properties of the underlying units (i.e., higher infiltration and percolation rates in gravelly/sandy materials vs. silty/clayey materials and massive materials). The transport of COPCs in groundwater is largely within the unconsolidated alluvium/colluvium deposits. The COPC concentrations in the alluvium/colluvium (shallow hydrostratigraphic system) decrease along the groundwater flow path to levels below MCLs east of the foothills as a result of dispersion, attenuation and dilution due to mixing with clean

recharge from undisturbed outcrop areas along the foothills. The COPC concentrations in the intermediate hydrostratigraphic system exceed MCLs immediately adjacent to the ODA, then quickly decrease to levels below the MCLs at GW-29-MD (e.g., total selenium at 0.03 mg/L) due to attenuation, dispersion and diffusion when mixing with clean recharge from undisturbed outcrops along the ridge and foothills.

The transport of COPCs in groundwater affected by releases from the overburden piles situated atop the Wells Formation along the slope of Woodall Mountain Peak occurs in a similar manner as in State Land Creek Sub-Basin (Figure 7-5). Conditions in the Wells Formation, are likely similar to those observed in State Land Creek Sub-Basin (Figure 6-97 at wells GW-39-MW and GW-40-MW). Groundwater that percolated into the unsaturated Wells Formation travels downward along the eastwardly dipping bedding planes; mixing with groundwater recharge in the surrounding undisturbed Wells Formation until reaching the regional Wells Formation groundwater table (approximately at 6,200 feet amsl). Transport of any releases from the easternmost overburden pile, into the Wells Formation, is likely limited, because the releases would have to travel vertically across bedding planes through the Dinwoody Formation, the Rex Chert and Meade Peak Members.

Receptors - A potential pathway that would expose receptors to elevated COPC concentrations in the groundwater in this Sub-Basin would be if domestic wells were to be installed in close proximity to the overburden piles. It is unlikely that drinking water supply wells would be completed solely in the shallow hydrostratigraphic system, since shallow wells would not yield a constant and sufficient supply of water for domestic use. Groundwater in the alluvium/colluvium fluctuates seasonally and monitoring wells completed in the shallow system generally go dry in the summer. It is more likely that wells would be screened across multiple water producing zones. Another potential pathway would be exposure of livestock and wildlife receptors to elevated COPC concentrations in surface water in streams and ponds (e.g., PCP-2).

7.3.1.3 Transport in Camp G Creek Sub-Basin

The COPC sources in the Camp G Creek Sub-Basin are the waste rock piles associated with the underground workings and an overburden pile situated along Woodall Ridge (Figure 2-8). The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Rex Chert and Meade Peak Members of the Phosphoria - 8 acres
- Dinwoody Formation - 3 acres
- Wells Formation – 1 acre

Geological and Hydrogeological Controls – The main structural feature influencing groundwater flow and transport in this Sub-Basin is the Trail Creek Syncline. Similar to the conditions in State Land and Pedro Creek Sub-Basins, bedding within the Phosphoria and

Dinwoody Formations dip 40 to 60 degrees east (Figures 2-4 and 5-9 through 5-20). Groundwater potential in the shallow hydrostratigraphic system mimics the topography and the general direction of groundwater flow is to the east. Groundwater within the intermediate and deep hydrostratigraphic systems also flow to the east following the bedding planes in the west limb of the Trail Creek Syncline.

COPC Distribution - Considering the small size of the piles in this Sub-Basin (12 acres compared to the 118 acres in State Land and 103 acres in Pedro Creek Sub-Basins) and low potential for waste-shale content, it is likely that the extent of COPC contamination in groundwater is minimal. The low average concentrations of COPCs, sulfate, and fluoride in groundwater (Plate 5), indicate that there are minimal mining-related effects to groundwater. Transport of any releases into the Wells Formation, is likely limited, because the releases would have to travel vertically across bedding planes through the Dinwoody Formation, the Rex Chert and Meade Peak Members.

Receptors - A potential pathway that would expose receptors to elevated COPC concentrations in the groundwater in this Sub-Basin would be if domestic wells were to be installed in close proximity to the overburden piles. There is domestic and potential cultural use of groundwater from springs emerging from the Dinwoody Formation in this area. A nearby ranch currently uses water from a Dinwoody Formation spring (JRLD), issuing from the foothills, for domestic purposes.

7.3.2 Transport in West Side of Sub-Basins

Past mining disturbances along the west side include panels along the Woodall Mountain Peak, West Limb, Middle Limb, Ibex, North Trail, and Grace Panels, and the tailings ponds (Figure 2-8). There are no mining-related disturbances in the Southwest Conda Sub-Basin.

7.3.2.1 Transport in Western Woodall Sub-Basin

The COPC sources in the Western Woodall Sub-Basin are the overburden piles located along Woodall Mountain Peak (Figure 2-8), situated atop the Phosphoria and Wells Formation. The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Wells Formation - 112 acres
- Rex Chert and Meade Peak Members of the Phosphoria - 64 acres

Geological and Hydrogeological Controls – The main geological features that influence groundwater flow and transport around Woodall Mountain Peak are a synclinal fold and a north-northwest striking fault (Figure 2-4). The syncline plunges to the north and has relatively flat limbs (Figures 5-10 and 5-13). Groundwater containing COPCs released from the infiltration of

precipitation through the overburden piles atop the Phosphoria, mixes with the local groundwater and flows along the bedding planes towards the axial trace of the syncline (Figure 7-5). Groundwater is likely perched atop the remaining Meade Peak Member of the Phosphoria Formation and flows to the north-northwest along the plunge of the fold. Groundwater containing COPCs released by the infiltration of precipitation through the overburden piles situated atop the Wells Formation west of the synclinal fold travels to the northeast along the adjacent anticline that plunges to the north (Figure 2-4); mixing with groundwater recharge in the surrounding undisturbed Wells Formation until reaching the regional Wells Formation groundwater table (approximately at 6,200 feet amsl).

COPC Distribution – Considering that the ODAs atop Wells Formation outcrop in this Sub-Basin are situated along the east limb of the anticline, COPCs released would travel northward along the plunge of the anticline and the potential for impacts could be evaluated at Woodall Springs and well MW-4W. Concentrations of the primary COPCs in Woodall Springs and MW-4W are low (Table 6-67) and meet MCLs (Figure 6-92 and Plate 5).

Receptors – There is no potential for receptors to be exposed to elevated COPC concentrations in the groundwater in this Sub-Basin. Dispersion and attenuation in the thick vadose zone, mixing with un-affected recharge in the Wells Formation and dilution due to mixing with the much greater volume of groundwater in the Wells Formation aquifer results in the low COPC concentrations observed in the Wells Formation groundwater.

7.3.2.2 Transport in Old Tailings Pond Sub-Basin

The COPC sources in this Sub-Basin are: the overburden pile situated west of the Woodall Ridge saddle (Figure 2-8), the overburden piles of the Ibex and Mid Limb Panels, and the Old Tailings Pond. The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Unconsolidated Alluvium/Colluvium - 86 acres
- Rex Chert and Meade Peak Members of the Phosphoria - 59 acres
- Wells Formation – 49 acres
- Dinwoody Formation – 23 acres

Geology and Hydrogeology – The overburden pile situated near the saddle lies atop the Wells Formation which is influenced by the flat synclinal structure under Woodall Mountain Peak (Figure 2-4) and east-dipping bedding planes The geological structural that control groundwater flow and transport in the lower elevations of this Sub-Basin include the east limb of the northwest-trending, northward plunging Conda Anticline, folds associated with smaller anticlinal features, and the extensional fault zone along the western front of the range (Figures 2-4). The extensional fault may function as a restrictive barrier to east-west groundwater flow across the

fault. However, it is uncertain to what degree the fault zone is a barrier to flow from horst to graben along its entire length. Groundwater flow is controlled by bedding dip and fault zones and has a west-northwest flow direction (Figure 5-24).

COPC Distribution - The water quality data for shallow well GW-18-MA located at the toe of overburden piles provides insight into the concentrations of COPCs in groundwater that can migrate into the shallow, intermediate and deep hydrostratigraphic systems. The low concentrations of the primary COPCs in the groundwater at GW-19-MS, as well as at Boring Location 6 (Figures 6-91 and Table 6-70) and dry clayey conditions at depth indicate that the northerly flow-path for groundwater affected by releases from the overburden piles may be restricted. Concentrations of the primary COPCs at GW-57-MS (Figure 6-91) are below the MCL and indicate that the northward migration of groundwater affected by releases from the Ibex and Mid Limb Panel ODAs is limited to the fault zone.

Receptors - A potential pathway that could expose receptors to elevated COPC concentrations in the groundwater in this Sub-Basin would be if domestic wells were to be installed in close proximity to the overburden piles. Currently there is no potential for domestic or cultural use of groundwater in this area.

7.3.2.3 Transport in French Drain Sub-Basin

The French Drain Sub-Basin includes the Former Mill Site and Townsite area, the sewage lagoons, the New Tailings Pond, and ODAs associated with the West and Middle Limb panels. The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Unconsolidated Alluvium/Colluvium - 128 acres
- Rex Chert and Meade Peak Members of the Phosphoria - 109 acres
- Wells Formation – 29 acres
- Salt Lake Formation – 27 acres
- Dinwoody Formation – 10 acres

Geology and Hydrogeology – The direction of groundwater flow and transport is heavily influenced dominated by the presence of the Conda Anticline and the extensional fault zone along the western front of the range (Figures 2-4, 5-9 through 5-11, and 5-13 through 5-16). The Conda Anticline trends to the northwest and plunges northward. Strata along the west limb dip at an angle of 45 to 60 degrees and strata along the east limb dip at an angle of 30 to 60 degrees. The extensional fault is located west of the Conda Anticline and is a regional feature with a large influence on groundwater flow. Offset along the extensional fault has dropped the Wells Formation to great depth in the Bear River Valley west of the Site. The Wells Formation is overlain by thousands of feet of Tertiary sediments which are covered by flows of Olivine Basalt. The Salt Lake Formation outcrops in this Sub-Basin south of the New Tailings Pond.

The extensional fault zone may function as a restrictive barrier to east-west groundwater flows in the intermediate and deep hydrostratigraphic system. However, it is uncertain to what degree the fault zone is a barrier to flow from horst to grabben along its entire length. Upwelling of locally recharged regional Wells Formation groundwater occurs in the upthrown block along the fault trace and several springs with travertine deposits are present along the fault. The regional groundwater is forced upward along the fault zone, largely due to the lower permeability of the Salt Lake Formation relative to the Wells Formation. Groundwater flow is controlled by bedding dip and fault zones. General flow directions are to the north-northwest on both the east and west side of the fault zone (Figure 5-24).

COPC Distribution - The water quality data for a seep emanating along toes of the overburden piles (SWS-3) and wells in close proximity to piles (e.g., GW-15-MS, GW-49-MA) provide insight into the COPC concentration that can infiltrate into the shallow, intermediate and deep hydrostratigraphic systems (Figure 7-7). It is postulated that the source of waters at SWS-3 is infiltration into the Wells Formation along the axial trace of the Conda Anticline as well as infiltration into the West Limb Panel pit which has seeped into Adit Number 2, mixed with Regional Wells Formation groundwater upwelling along the extensional fault zone. The COPC concentrations are highest in the seep and groundwater in the shallow hydrostratigraphic system (FD-1, GW-16-MA, and GW-17-MA [Figure 6-89]). The New Tailings Pond contributes to COPC concentrations in the shallow alluvium/colluvium hydrostratigraphic system decreasing along the groundwater flow path (Figures 6-89 and 6-91). The COPC concentrations in the intermediate hydrostratigraphic system exceed MCL immediately adjacent to the ODAs, decreasing to levels below the MCLs along the groundwater flow path. The COPC concentrations in the deep hydrostratigraphic systems remain below MCLs (GW-14-MW) in relatively close proximity to the overburden piles (Figure 6-92 and Plate 5). This is consistent with the fact that the amount of Wells Formation outcrop covered with overburden is minimal, and that any releases from overburden piles atop the other units would have to travel vertically across the bedding plane and through the Rex Chert and Meade Peak Members to reach groundwater in the Wells Formation.

Receptors - A potential pathway that could expose receptors to elevated COPC concentrations in the groundwater in this Sub-Basin would be if domestic-use wells were to be installed in close proximity to the overburden piles. Currently there is no potential for domestic or cultural use of groundwater in this area.

7.3.2.4 Transport in Shield and Jouglard Canyon Sub-Basin

The areas with RMM in this Sub-Basin cover approximately 205 acres, including portions of the West and Middle Limb, North Trail, and Grace Panels. It also includes a Pit Lake (NL4P-1). The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Rex Chert and Meade Peak Members of the Phosphoria - 85 acres

- Wells Formation – 91 acres
- Unconsolidated Alluvium/Colluvium – 33 acres
- Dinwoody Formation - 15 acres

Geology and Hydrogeology – The direction of groundwater flow and transport is heavily influenced by the presence of the Conda Anticline, the extensional fault zone and a few normal faults (Figures 2-4, 5-9 through 5-11, and 5-13 through 5-19). The east limb of the Conda Anticline is truncated by a northwest-trending normal fault north of Jouglard Canyon. The Conda Anticline is offset by a fairly large tear fault in the Jouglard Canyon area that is exposed in the West Limb mine panel (Figures 2-4 and 5-14). Strata in the hanging wall near the northeast end of the Pit Lake are overturned and dip 80 degrees east. Strata along the footwall section of the West Limb panel dip 70 degrees west to nearly vertical. The ore body along the bottom of the pit is near vertical. In the Middle Limb panel, the footwall ore has been thrust eastward under the Wells Formation and the ore section may be repeated at depth (Appendix B, 1972-1973 Annual Report). Farther south, both limbs of the Conda Anticline are truncated by a fault in Trail Canyon (Figure 2-4).

Grace Panel is located in the western section of the Sub-Basin in a fault block west of the Conda Anticline and on the nose of a small northwest-trending, southward-plunging syncline. The block is bounded on the north by an east-west tear fault, and on the east and west by northwest-trending, high-angle normal faults. Groundwater flow is controlled by bedding dip and fault zones, with general flow directions westward in the shallow, intermediate, and deep systems.

COPC Distribution - The COPC concentrations in the intermediate hydrostratigraphic system exceed MCLs within and immediately adjacent to the Pit Lake, decreasing to levels below the MCLs along the groundwater flow path. The COPC concentrations in the deep hydrostratigraphic systems remain below MCLs in relatively close proximity to the overburden piles (Figure 6-92 and Plate 5). Seepage from the Pit Lake into the Rex Chert Member appears to be limited since a significant thickness of unsaturated strata are present between the bottom of the Pit Lake and groundwater in the Rex Chert Member. The Pit Lake has no direct hydraulic connection with the Wells Formation groundwater to the east. The near vertical to overturned strata of the Meade Peak Member almost completely surround the Pit Lake and form a hydraulic barrier limiting seepage and groundwater flow. A small section of the along the western portion of the Pit Lake is underlain by the Rex Chert Member (Figure 7-8).

Receptors - A potential pathway that would expose receptors to elevated COPC concentrations in the groundwater would be complete if domestic wells were to be installed in close proximity to the overburden piles. Currently there is domestic and potential cultural use of groundwater from springs emerging from the Wells Formation in this area. Formation Springs is used as a drinking water source for the town of Soda Springs. Dispersion and attenuation in the thick

vadose zone, mixing with un-affected recharge in the Wells Formation, and dilution due to mixing with the much greater volume of groundwater in the Wells Formation aquifer results in the low COPC concentrations observed in the Wells Formation groundwater.

7.3.2.5 Transport in Margarette Creek and Trail Canyon Sub-Basin

The areas with RMM in this Sub-Basin cover approximately 75 acres. The approximate acreages of overburden piles atop the geology in the Sub-Basin are:

- Wells Formation – 46 acres
- Rex Chert and Meade Peak Members of the Phosphoria - 29 acres

Geology and Hydrogeology – The main structural feature influencing groundwater flow and transport in this Sub-Basin is the Trail Creek Syncline. Beds of strata in this area dip 40 to 60 degrees east (Figures 2-4). Groundwater in the canyon floor likely flows westward along Trail Canyon Creek. Groundwater within the intermediate hydrostratigraphic unit likely flows along bedding planes towards the canyon floor. Groundwater in the deep hydrostratigraphic system, in the area with RMM, flows to the east, following the dip of bedding planes along the west limb of the Trail Creek Syncline.

COPC Distribution - Groundwater affected by releases from the overburden piles, situated atop the Wells Formation, travels downward along the eastwardly dipping bedding planes; mixing with groundwater originating from recharge areas in the surrounding undisturbed Wells Formation until reaching the regional Wells Formation groundwater table (approximately at 6,200 feet amsl) (Figure 7-9).

Receptors - A potential pathway that would expose receptors to elevated COPC concentrations in the groundwater would be completed if domestic wells were to be installed in close proximity to the overburden piles. Dispersion and attenuation in the thick vadose zone, mixing with un-affected recharge in the Wells Formation, and dilution due to mixing with the much greater volume of groundwater in the Wells Formation aquifer results in the low COPC concentrations observed in the Wells Formation groundwater.

7.3.3 Uncertainties

Lateral and vertical dimensions of the extent of affected groundwater downgradient of source areas has been evaluated using the network of monitoring wells. The extent of groundwater concentrations that exceed MCLs has been delineated but with some uncertainty. The magnitude of attenuation, dispersion and dilution of the COPCs along the various groundwater flow pathways can be estimated with some uncertainty. Expansions in the scope of the groundwater investigation during the RI allowed for the collection of sufficient information related

to the identification of the COPC sources, release mechanisms, geologic and hydrogeologic controls (i.e., groundwater recharge and flow directions, bedding controls, etc.) in conjunction with the existing groundwater monitoring data, allow for generally estimating and bounding the extent of effects. Specific investigation related uncertainties are described in the following paragraphs.

East Side of Woodall Mountain - There are uncertainties regarding COPC concentrations in the consolidated deposits in Camp G Creek Sub-Basin since no wells were completed in this Sub-Basin. However, the limited aerial extent of the waste rock piles (4 acres) and the below MCL concentrations measured at locations where groundwater discharges into the creek during base-flow conditions as well as at the springs, indicate that there are no measurable mining-related effects to groundwater. Conditions in the Camp G Creek Sub-Basin are significantly better than in State Land and Pedro Creek Sub-Basins and do not warrant additional investigation. There are also uncertainties regarding releases into the Wells Formation being transported northward from Conda towards the area where permitted Blackfoot Bridge Mine mining is to occur (in between MW-1W and the northernmost Woodall Mountain ODA). There are no wells between MW-1W and well pair GW-39-MW/GW-40-MW to evaluate the conditions. It is possible that fractures along the anticlinal-fold axis underlying this area of Woodall Mountain ODAs could provide for preferential northward flow paths for COPCs releases.

West Side of Woodall Mountain – There are uncertainties regarding the vertical extent of COPCs exceeding MCLs in the intermediate hydrostratigraphic system in the Jouglard and Shield Canyons and Margarette Creek/Trail Canyon Sub-Basins Conda Valley. However, the current understanding of the hydrogeological controls (near vertical bedding planes and fault zone functioning as a barrier), and the known extent of the COPC sources, as well as data from the wells and springs data, indicate that the mining-related effects are limited to groundwater that occurs in close proximity to the ODAs in these Sub-Basins. Conditions in these Sub-Basins are significantly better than in the French Drain and Old Tailings Pond Creek Sub-Basins and do not warrant additional investigation.

7.4 Surface Water Transport Pathway Model and Uncertainties

Pathways for surface water transport from areas with RMM, other than those groundwater sources already discussed above, include ODA seep flow and surface runoff from external overburden piles and waste rock piles

7.4.1 Transport by Runoff and Stream Flow

Surface water transport of overburden solids and related COPCs can take place when precipitation runoff flows over exposed materials (e.g., in unvegetated areas). Selenium and other COPCs may be transported by erosion of solids; COPCs may also be released from solids

by dissolution and transport in aqueous form. The suspended and dissolved solids transported by surface runoff are generally only transported a short distance overland as runoff water is quickly lost to infiltration (especially on the west side). During storm events, the surface runoff pathways have a greater reach, and the suspended and dissolved solids are transported over longer distances. As runoff water infiltrates, the larger solids are deposited on the surface and the dissolved selenium and other COPCs may be transported to the groundwater system or sorbed to solid surfaces in soil or bedrock. The extent to which aqueous transport is limited by chemical attenuation depends on the physical and mineral characteristics of subsurface soil and rock.

Stormwater sedimentation basins capture surface runoff, and entrained solids, downgradient of most of the ODAs before that runoff can enter streams. Across the Site, the erosion transport pathway results in accumulations of overburden solids in sedimentation basins and portions of the drainages, which may act as secondary sources. These sedimentation basins and upper portions of drainages are limited in areal extent and contain relatively small volumes of overburden solids compared to the primary source areas.

Surface water runoff and erosion transport of overburden materials vary with the condition and setting of the source materials. There is no transport of eroded overburden materials in North Woodall Mountain and Southwest Conda Sub-Basins. Potential sediment transport pathways from areas with RMM to local surface water drainages were evaluated in the RI by comparing selenium concentrations from undisturbed areas to locations downgradient of RMM. The primary transport of COPCs into local drainages occurs due to erosion of overburden and waste rock piles. The tailings remain contained in the tailings ponds. Plate 7 depicts locations where maximum selenium concentrations exceeded the sediment screening level (2 mg/kg).

There are stormwater sedimentation basins downgradient of most of the ODAs. With the exception of during high storm runoff events, sediment that is eroded in stormwater runoff from the ODAs is collected in the detention basins before it can enter streams. The results of the RI sediment sampling show decreasing concentrations of selenium with distance from the ODAs and the waste rock piles (Plates 1 and 7). Concentrations of selenium also decrease laterally from the defined channels bottoms. The lateral extent of overbank area sampling, within the drainage immediately downgradient from the angle-of-repose overburden pile in the headwaters of Pedro Creek, showed selenium concentrations lower than the sediment screening level (2 mg/kg).

Physical transport of the overburden material can occur due to dislodgement from the slopes of the piles. However this type of material transport does not extend significantly beyond the toes of the pile, relative to water controlled erosion. Based on all of the above, the locations of surface water runoff and erosion transport pathways at the Site are as follows:

- State Land Creek Sub-Basin

- Surface water runoff and erosion on the ODAs placed along the Woodall Panel Pit, with downslope transport contained by the pit.
- Minimal erosion on vegetated ODAs east of the pit, with the extent of transport limited by the existing sedimentation basins.
- Pedro Creek Sub-Basin
- Surface water runoff and erosion on the ODAs placed along the Woodall Ridge, with the extent of transport limited by existing sedimentation basins.
- Minimal erosion of vegetated ODAs and covered NTCRA, with transport reduced by the existing sedimentation basins.
- Camp G Creek Sub-Basin
- Minimal surface water runoff and erosion on the naturally vegetated waste rock piles.
- Western Woodall Mountain Sub-Basin
- Surface water runoff, erosion, and transport of overburden materials occurs to a lesser extent than elsewhere in the Site due to less snow accumulation and greater infiltration rates into the high hydraulic-conductivity Wells Formation underlying the ODAs.
- Old Tailings Pond Sub-Basin
- Surface water runoff, erosion, and transport of overburden materials occurs to a lesser extent than elsewhere in the Site due to less snow accumulation and greater infiltration rates into the high hydraulic-conductivity Wells Formation underlying the ODAs.
- No transport of tailings materials occurs, because the water is contained within the dams.
- French Drain Sub-Basin
- Surface water runoff and erosion on the ODAs placed along the Ibex Panels, and the West and Middle Limb Panels, with the extent of transport limited by existing sedimentation basins.
- Minimal erosion of revegetated overburden piles.
- Shields and Jouglard Canyon Sub-Basin
- Surface water runoff and erosion on the ODAs placed along the West and Middle Limb Panels, with the extent of transport limited by existing sedimentation basins and the Pit Lake.
- Minimal erosion of revegetated overburden piles.
- Margarette Creek and Trail Canyon Sub-Basin
- Surface water runoff and erosion on the ODAs placed along the North Trail Panel, with the extent of transport limited by existing sedimentation basins.

- Minimal erosion of revegetated overburden piles.

Plate 3 depicts locations where maximum selenium concentrations exceeded the chronic aquatic life water quality criterion (0.005 mg/L).

Co-located surface water flow and selenium concentration data were compiled, and the selenium mass loads were computed for each measurement date to assess the fate and transport of selenium in area surface waters. The average selenium loading data for the mouths of State Land Creek (0.1 lbs/day), Pedro Creek (0.4 lbs/day), and Camp G Creek (0.05 lbs/day) calculated for the spring 2009 high-flow, provide an indication that State Land Creek, Pedro Creek, and Camp G Creek transport relatively small selenium mass loads to the receiving water bodies (i.e., Trail Creek and UBR) during spring runoff.

7.4.2 Transport by Seeps

The seeps investigated for the RI represent surface drainage from the external ODAs, and depending on the magnitude of flow, seeps can transport selenium and other COPCs to nearby soil, hyporheic water in nearby drainages, and uppermost groundwater flow units. The ODA seeps present at the Site are from ODAs situated on the east side, and at SWS-3 on the west side, where parts or all of the ODAs sit atop Rex Chert Member and Dinwoody Formation bedrock. Overland flow and/or hyporheic flow represent the dominant pathway for transport of selenium and other COPCs from the ODAs to surface water drainages and shallow groundwater. Plate 3 depicts locations where maximum selenium concentrations exceeded the chronic aquatic life water quality criterion (0.005 mg/L).

7.4.3 Uncertainties

The mechanisms of surface water and sediment transport from the COPC source areas are well understood. No additional surface water sampling locations are needed in order to support the risk management decision process.

7.5 Dust Transport Pathway Model

The mechanisms responsible for dust transport are the same for each of the source types. Weathering of waste shale into dust size particles can take place when those materials are exposed at the surface. Weathering and transport of waste shale dust, however, is minimal as a result of its typical coarse grain composition and the existing reclamation. Discussions of erosional transport (due to runoff or wind) of overburden material in the State Land Creek and Pedro Creek Sub-Basins are presented in Sections 6.3.2.3 and 6.3.3.3, respectively. RI data have shown that dust transport is not a significant pathway, and it is therefore not considered further in the RI/FS.

7.6 Uptake by Vegetation Model

Plant uptake of selenium and other COPCs from growth media is not a pathway for physical transport away from the areas with RMM. However, this process does represent a potential exposure pathway to human and ecological receptors. Soils may receive selenium and other COPCs transported via surface water, ODA seeps, or shallow groundwater flow and then act as a secondary source, primarily via plant uptake from soil. Certain plant species (termed "hyperaccumulators" and further discussed in Section 6.2) have the ability to accumulate selenium at concentrations higher than observed in the soil/overburden. Outside of the ODAs, plant uptake of selenium remains low relative to uptake on ODAs because soil selenium concentrations are lower (Plate 1).

The concentrations of selenium in soil and vegetation growing on the ODAs are discussed in Sections 5 and 6. The selenium concentrations in vegetation varied substantially among the ODAs across the Site, and within the ODAs. Several studies support the finding that plant selenium uptake occurs when roots have access to plant-available selenium in the overburden material (Mackowiak and Amacher 2005, 2006a, 2006b, 2010; Mackowiak et al. 2004). The studies and Site-specific data indicate that selenium uptake varies by plant species, with selenium-accumulator plants (e.g., forbs and legumes) generally having higher uptake relative to the low-selenium-accumulator species (e.g., grasses).

The mechanisms of vegetation uptake of COPC from the source areas are well understood. The ongoing FSPS will provide additional information to support future risk management decisions. More detailed discussion of the uptake of selenium and other COPCs by vegetation, as it pertains to the risk assessments, will be provided as part of the SSHHRA and SSERA.

7.7 Open Pits and Underground Workings Model

As previously described, portions of the underground workings remain, including portions of the adits and the crosscut. Some sub-level raises and drifts, and vents, remain in areas where surface mining did not occur or where parts of the ore body were left in place. Several open pits remain which have not been backfilled with overburden materials.

The open pits and underground workings are not expected to be significant sources of COPC releases. This is because the surface area of waste shale remaining exposed in the underground workings and long the pit walls are relatively minimal. Surface mining has removed much of the workings within the ore body and the adits and crosscut are within the Wells Formation (Figure 2-7). The process of chemical weathering and oxidation of minerals in the waste-shale exposed along the pit walls and in the workings is greatly reduced as a result of the limited contact time with water. The only water coming into contact with the steep pit walls are as a result of direct precipitation. There was practically no water underground but the ore was reportedly just moist enough to prevent formation of dust (Fertilizer Department 1930).

Although the underground workings do not intersect the intermediate and deep regional systems, adits, drifts, stopes, and raises can act as transport conduits for infiltrating water in areas where surface excavations have intersected portions of the underground workings. Portions of the Meade Peak Member within the limbs of the Conda Anticline and the Trail Creek Syncline folds remain below the open pit excavations; therefore, there remains a zone of low hydraulic conductivity separating the shallow alluvium/colluvium, and Dinwoody Formations from the Wells Formation.

It is believed that the underground workings are not in contact with groundwater from the Wells Formation since the deepest portions of the underground workings, the adits, are at approximately 6,255 ft elevation the workings extend upward from the adits. Photos of Adit No. 1 in Appendix A show the dry adit.

7.8 Summary

As discussed above, pathways for transport of selenium (and other COPCs) identified at the Site are:

- Release from overburden in backfilled pits, open pits, and external ODAs to underlying groundwater;
- Transport in the shallow groundwater and discharge to surface water;
- Surface water runoff from ODAs (i.e., stormwater runoff and seeps from ODA toes);
- Sediment transport from ODAs during high runoff events; and
- Direct uptake by plants growing on overburden.

Table 7-1 summarizes these transport pathways by environmental medium and source area.

Overburden disposed in backfilled mine pits and in external ODAs are the sources of selenium (and other COPCs) to the environment. The different bedrock units disposed together as overburden (Meade Peak Shale, Rex Chert, and Cherty Shale) are chemically and mineralogically distinct from one another. The primary sources of COPCs within the overburden are the sulfides and organic matter present in the Mudstone and Middle Waste Shale units of the Meade Peak Member. The overburden is a mixture of materials and, while it exhibits variable characteristics on a small scale, it has similar source characteristics when evaluated on an ODA scale. Release of COPCs from overburden materials occurs through physical and chemical weathering processes as well as direct uptake by plants. The physical setting of the different ODAs present within the Site and the type of reclamation completed in each of those areas influence the relative importance of these pathways in terms mass of selenium (and other COPCs) released and transported. These factors are summarized below for each of the transport pathways listed above.

The ratio of infiltrating water to the mass of seleniferous overburden within an ODA is a factor in the rates of selenium and other COPCs releases as well as mass transport to groundwater flow systems. The shallow alluvial groundwater flow system and intermediate flow systems contain groundwater with elevated selenium concentrations resulting from releases from ODAs. The selenium concentrations in the deeper Wells Formation aquifer remain below the MCL (0.05 mg/L). As previously described, for human receptors, arsenic poses a greater risk than selenium and the other primary COPCs. The occurrence of arsenic at elevated concentrations correspond spatially with areas of elevated selenium concentrations, albeit at lower frequencies, magnitudes, and smaller spatial scale than selenium.

The primary pathway for transport of selenium and other COPCs from main source areas is to surface water and the uppermost shallow and intermediate groundwater systems. The degree of infiltration and associated transport of selenium released from overburden is controlled by both the setting and the extent of flat and pooling areas on the overburden piles. In general, water that infiltrates through overburden placed in backfilled pits continues through the unsaturated Wells Formation at the base of the pits and on to the Wells Formation aquifer. Water infiltrating through external ODAs can be expressed as seepage at the toe of the ODA or infiltrated into the underlying units.

Selenium and other COPCs are transported to streams along the east side of the Site. The transport of selenium and other COPCs released from the ODAs is largely partitioned within the surface water (when present) and shallow groundwater systems (e.g., groundwater in the unconsolidated deposits, Salt Lake Formation, or Dinwoody Formation). During the spring runoff pulse, larger portions of the COPC releases are transported in the surface water system. The COPC concentrations are highest in the seeps, surface water, and shallow unconsolidated deposits groundwater, decreasing with depth into the consolidated-formation groundwater. The selenium loads in the streams do not show significant seasonal trends. Selenium concentrations decrease downgradient as unaffected water enters the stream systems from groundwater discharge and overland flow from the undisturbed foothills.

Transport of selenium and other COPCs into the consolidated formations primarily occurs at locations where ODAs directly overlie outcrop areas, with the rate of infiltration dependent on surface conditions (i.e., bedding dip and surface slopes) and hydraulic conductivity properties of the underlying unit. Infiltrated water released by the ODAs not transmitted into the underlying units emerges as seep flow at the toes of the ODAs. In areas where the overburden material overlies steeply sloping outcrop, the releases predominantly move along the steep contact, especially if the underlying unit has a low hydraulic conductivity (e.g., clayey weathered Dinwoody and Rex Chert).

Selenium and other COPC released from ODAs overlying the Salt Lake Formation and Dinwoody Formation may directly infiltrate these units or flow along the low-hydraulic-conductivity weathered outcrop portions of these units. Selenium and other COPC releases

from ODAs overlying the Rex Chert directly infiltrate this unit where fractured. The massive and low-hydraulic-conductivity properties of the Rex Chert limit the transport of ODA releases into this unit. Overburden materials overlying the Wells Formation are expected to provide the greatest opportunity for selenium and other COPC releases to the Wells Formation. The aquitard characteristic of the Meade Peak Member of the Phosphoria Formation impedes transport of selenium and other COPCs from the consolidated formations above the Meade Peak into the underlying Wells Formation aquifer.

The transport of solids by erosion and sediment transport is limited by the coarse texture of the overburden and the best management practices (BMPs; e.g., soil cover, revegetation) that have been implemented during past mining operations to control runoff and erosion from the ODAs. In addition, an extensive network of detention ponds is maintained to capture runoff from ODAs at the mine and prevent runoff from ODAs from directly entering natural stream drainages. To the extent that COPC transport takes place by erosion of the RMM via surface water runoff from ODAs, those surface pathways are minimized by the sedimentation ponds.

Uptake of selenium by vegetation growing on unreclaimed or partially reclaimed overburden is considered a potential exposure pathway. Plant uptake of selenium also occurs in soils that are saturated with water originating from overburden seeps, with localized effects of seeps on vegetation selenium concentrations focused where the root zone is consistently saturated with seep water. Selenium concentrations in vegetation may be correlated with selenium concentrations in the soil, with greater variability at higher concentrations. Selenium concentrations in vegetation are typically lower when reclamation using cover material has been implemented. Certain plant species have the ability to accumulate selenium and other COPCs at concentrations that are higher than observed in the associated overburden/soil. Some of these selenium accumulator and hyperaccumulator species have been observed on reclaimed ODAs at Conda.

8.0 SUMMARY AND CONCLUSIONS

The following subsections present a summary of RI activities and conclusions with respect to COPC sources, transport pathways, and potential exposure routes, using selenium as the indicator COPC.

8.1 Summary of RI Activities

Phosphate mining started at Conda in April 1920, with the Anaconda Copper Mining Company's development of the underground mine and construction of mining-support facilities. Mining was solely underground until the commencement of surface mining in 1952. Both underground and surface operations existed until April 1, 1956, when underground operations ceased. Surface mining at Conda continued from 1956 until 1984, when mining ended. The beneficiation process at Conda involved screening, crushing, washing, and drying of the ore in preparation for shipment to offsite fertilizer processing plants in Anaconda, Montana and Pocatello, Idaho.

Mining-related features at Conda include underground workings, waste rock piles, open pits, ODAs (overburden placed external to pits or as backfill within the pit), and mill tailings. Of these features, the ODAs cover the largest area (Table 2-3 and Figure 2-8). Prior to the onset of the RI, the primary focus of reclamation activities was on backfilling mine panels with overburden; regrading external ODAs with steep side slopes to gentler slopes (3:1 or flatter); placing topsoil on the ODAs wherever feasible; and seeding the ODAs with a mix of grasses, alfalfa, and clover. When sufficient topsoil was not available for stockpiling and later use, Mudstone and Waste Shale were used as a substitute due to their high organic content.

In the mid-1990s, after several horses were diagnosed with selenosis at a nearby mine, concerns regarding selenium toxicity in livestock grazing on and near southeast Idaho phosphate mines prompted investigations by the mining companies and Agencies to evaluate risks associated with historical operations. At that time, Simplot halted reclamation activities to await state and federal direction on how to proceed with addressing selenium. Therefore, some of the ODAs at Conda remained unreclaimed. In 2000, IDEQ was designated as the lead Agency for an area wide investigation. An Area-Wide Risk Assessment was published in 2002 and an Area-Wide Risk Management Plan was published in 2004.

In 2003, in anticipation of an AOC for the Conda Mine, Simplot began working with the Agencies to collect site-characterization information at Conda. In 2008, Simplot voluntarily entered into an AOC to conduct the RI/FS for the Site, and investigation and monitoring activities have been ongoing since. The RI focuses predominantly on information collected from 2001 to 2014, as part of the Area-Wide and Conda-specific investigations. Findings from studies performed prior

to 2001 are used qualitatively, where appropriate. Data obtained in 2015 that provide new information are also used to refine the interpretations where possible.

Since the onset of the RI, in collaboration with the Agencies, Simplot has completed some improvements at the Site, including:

- Maintenance work on the stormwater controls (e.g., cleaning sedimentation basins and removing pooling areas atop overburden piles);
- Regraded previously unreclaimed overburden piles in the Pedro Creek Sub-Basin and covered with Dinwoody Formation soil (approximately 144 acres, Table 2-3 and Figure 2-8) as part of selenium plant uptake pilot study and a NTCRA:
- The FSPS information will be used in the FS to support the development and screening of remedial alternatives as well as detailed analysis of alternatives; and
- Performed a NTCRA at the previously unreclaimed angle-of-repose pile situated in the headwaters of the mainstem of Pedro Creek, to begin improving conditions in the creek.

8.2 Conclusions

This subsection summarizes the conclusions of the RI with respect to COPC sources, transport pathways, and potential exposure routes at the Conda Mine, using selenium as the indicator COPC. This subsection also describes uncertainties and presents recommendations.

8.2.1 Sources of COPCs

Mudstone and Waste Shale present in the phosphate ore host rock (Figure 5-9) are naturally enriched in selenium and other metals/metalloids. When the Mudstone and Waste Shale are exposed to air and water through the process of mining, chemical weathering (primarily oxidation) of the metal-sulfide minerals occurs, and selenium and other metals/metalloids associated with the minerals can be released and transported into the environment. These materials are present in the ODAs, Tailings ponds, and waste rock piles, mixed together with non-seleniferous materials from the Dinwoody Formation, Rex Chert Member, and Wells Formation. The aerial extents of the ODAs, tailings impoundments, and waste rock piles are well defined (Figure 2-8).

The ODAs have the greatest amounts of Mudstone and Waste Shale materials, have the largest aerial extent (Table 2-3 and Figure 2-8), and have the greatest selenium concentrations (Figures 6-6 and 8-1). The material properties of the ODAs allow for percolation of precipitation through the weathered Mudstone and Waste Shale, releasing COPCs directly into groundwater and surface water. Tailings are limited in extent and are lower in selenium concentrations compared to the ODAs (Figures 6-6 and 8-1). However, the fine-grained particle size of the tailings reduces exposure to the weathering effects of air and water and thus lower amounts of

COPCs are released into groundwater and surface water. Waste rock piles generated during the underground mining operations are smaller in extent and are lowest in selenium content (Figures 6-6 and 8-1). This is because the adits constructed to access the ore were advanced in the Wells Formation (Figure 2-7), and the workings were advanced along the ore body with minimal excavations beyond the targeted ore zones (i.e., minimal excavations into the Mudstone and Waste Shale units).

The areal extent of Mudstone and Waste Shale exposed along pit walls or pit bottoms are significantly less than the areal extent of overburden piles, tailings impoundments, and waste rock piles. The underground workings are believed to play even a smaller role as a COPC source, since the surface mining pits have intersected much of the workings that existed in the ore body. Any remaining workings and exposed Mudstone and Waste Shale within are not in direct contact with much moisture. Therefore, the open pits (i.e., pits not containing any ODAs) and the underground workings are not believed to be significant sources of selenium and other COPCs.

Releases are greatest where water has long contact time with Mudstone and Waste Shale, either in pools atop ODAs and tailings, or through longer flow paths of infiltrated water in overburden piles. Releases of COPCs are limited where there is little weathering of the Mudstone and Waste Shale and little or no interaction with water and oxygen, such as in tailings piles, underground workings or panel highwalls that remain relatively dry.

Releases of COPCs at Conda are predominantly via infiltration into ODAs and discharge at the base of the ODAs. The most significant releases occur at ODAs where greater infiltration of precipitation occurs. These include ODAs with flat or negatively sloped surfaces, ODAs that accumulate significant snow and rain, and ODAs that are poorly vegetated. The magnitude of releases is evident from the selenium concentrations measured in seeps at the overburden piles and groundwater in the Pit Lake. There are no seepages at the tailings pond or at the wasterock piles.

The ODAs with unreclaimed overburden piles that exist at the Site include: ODAs along the top of the eastern Woodall Mountain slopes, and the ODA on the south side of the Pit Lake. However releases from the piles at these ODAs do not result into overland flows offsite. Runoff from the piles atop the eastern Woodall Mountain slopes flow into the open pit to the east. Runoff from the pile situated to the south of the Pit Lake flow into the Pit Lake.

8.2.2 Extent of COPC Transport

As previously mentioned, transport of COPCs released at the abovementioned sources is predominantly via shallow groundwater and surface water runoff in the spring. Sediment transport can occur as a result of erosion during precipitation and runoff events. Selenium uptake by plants growing on ODAs, although not considered physical transport, represents a

potential exposure pathway to receptors. Transport via these mechanisms varies based on the setting, surface topography, vegetative conditions, surface water run-on/runoff, and hydrogeologic properties of the original ground. Air transport of overburden dust particles from the ODAs is negligible, and transport to riparian soils is limited.

8.2.2.1 Surface Water and Sediment Transport

East Side of the Aspen Range - Along the east side of the Site, transport of COPCs from ODAs into the surrounding surface water and sediment at the Site is most significant in the Pedro Creek Sub-Basin (Table 8-1 and Figure 6-32). Average selenium concentrations in Pedro Creek surface water occur above the chronic aquatic life criterion along the entire length of the creek (Figures 6-35 and 8-2, and Plate 3) during both spring runoff and base-flow conditions. Average selenium concentrations exceed the acute aquatic life criterion in the ODA seeps and within the upper reaches of the creek (Figure 6-35). Selenium concentrations in Trail Creek surface water both upgradient and downgradient of Pedro Creek, indicate that there are measurable effects from Pedro Creek on water quality in Trail Creek (Figure 6-85). Sediment selenium concentrations exceed its screening level along its entire length as well (Figures 6-38 and 8-3, and Plate 7). However, selenium concentrations in Trail Creek sediments both upgradient and downgradient of Pedro Creek, show that there are no measurable effects from Pedro Creek on Trail Creek sediments (Figure 6-86). Surface water and sediments transported within tributaries originating from the undisturbed foothills east of the mine contribute to the decrease in selenium concentrations in Pedro Creek downstream from its confluences with these tributaries.

State Land Creek Sub-Basin has the second largest extent of mining-related releases to surface water and sediment. Average selenium concentrations exceeded the chronic aquatic life water quality criterion from State Land Creek's headwaters to its confluence with the Blackfoot River (Figure 8-2), but only during spring runoff events (Figures 6-22 and 6-25). Selenium concentrations in the Blackfoot River both upgradient and downgradient of State Land Creek, show that there are no measurable effects from State Land Creek surface water on the UBR. Sediment selenium concentrations measured in State Land Creek followed a similar trend to surface water. Sediment selenium concentrations exceeded the sediment screening level in all reaches (Figure 8-3 and Plate 7), but there are no indications of effects to the Blackfoot River (Figure 6-86).

Camp G Creek Sub-Basin has the most limited extent of mining-related releases to surface water and sediment. Selenium concentrations in Camp G Creek surface water exceeded the chronic aquatic life water quality criterion in Reaches 2 and 3 (Figure 8-2 and Plate 3) at locations in close proximity and downgradient of the waste rock piles (Figures 6-43 and 6-46). Selenium concentrations decreased rapidly with distance from the waste rock piles. Selenium concentrations were below the chronic criterion in the lower-most reach (Reach 4) and at the mouth of the creek. In addition, selenium concentrations at the springs (JS-1, JRLD, and CS-

1_CND) remained below the chronic criterion (0.005 mg/L). Sediment concentrations measured in Camp G Creek indicate limited contributions from the waste rock piles (Table 8-1 and Figure 8-3). Reaches 2 and 3 also had the highest sediment concentrations in the creek, likely due to the low gradient of the creek and stream pooling and ponding within those reaches allowing for sediment deposition and retention. Sediment selenium concentrations measured at Reach 4 were below the sediment screening level (Figure 6-49).

West Side of the Aspen Range - Along the west side of the Site, transport of COPCs from ODAs into the surrounding drainages is limited. In the Western Woodall Mountain Sub-Basin, the Woodall Mountain drainages (WMC1 through WMC6) are generally dry when other areas of the Site (e.g., mine panel ponds and east side drainages) contain water. Total selenium concentrations in sediment at the mouths of the western Woodall Mountain drainages (WMC1 through WMC6) were below or only slightly above the screening level (Figures 6-56 and 6-62), with no measurable effects to sediments in the Woodall Springs complex (Figures 6-56 and 8-3, and Plate 7).

Transport of COPCs from ODAs into the surrounding surface water and sediment along the west side is most significant in the French Drain and Shield and Jouglard Canyons Sub-Basins. The only areas where flowing water bodies occur are within the French Drain (FD-1), Hoorah Hollow (HH-1), and Jouglard Canyon Springs (JCS-1). Selenium concentrations in French Drain exceeded chronic and acute aquatic life water quality criteria (Figures 6-67 and 8-2, and Plate 3). Similarly, selenium concentrations in sediment exceeded its screening level (Figures 6-69 and 8-3). Selenium concentrations in Hoorah Hollow (HH-1) and Jouglard Canyon Springs (JCS-1) surface water and sediment did not exceed aquatic life criteria or the sediment screening level (Figures 6-75 and 6-76). The Pit Lake, seep ponds SWP4 and SWP-4A, and pools atop the Old Tailings Pond have the highest selenium concentrations.

Transport of COPCs in Margarette Creek/Trail Canyon and Southwest Conda Sub-Basins is limited. The Margarette Creek drainage is generally dry when other areas of the Site (e.g., mine panel ponds and east side drainages) contain water. Total selenium concentrations in sediment at the mouth of the drainage exceeded the screening level (Figures 6-82 and 8-3, and Plate 7), with no measurable effects to sediments in Trail Canyon Creek (Figure 6-82).

Summary - While Site sources have released selenium and other COPCs to the surrounding environment, offsite effects are not at discernable levels.

- On the east side, selenium concentrations in UBR surface water and sediment remain unchanged upgradient and downgradient of the Site; and

- On the west side, selenium concentration in surface water adjacent to the Site (e.g., Woodall Springs, Formation Springs, and Trail Canyon Creek) remain below the MCL. Sediment concentrations at the mouths of the dry drainages remain below comparison values.

Previously reclaimed ODAs with established vegetation cover are less of a concern. However, if pooling areas exist atop the vegetated piles, or in sedimentation basins containing eroded materials, releases of COPCs to surface water can continue to occur; albeit at a lower magnitude than at unreclaimed ODAs. Selenium concentrations in the seepage and shallow alluvial/colluvial groundwater downgradient of the reclaimed ODAs are lower in magnitude and extent.

Among the sub-basins contributing flow offsite, Pedro Creek Sub-Basin had the greatest degree of mining-related effects, followed by State Land Creek Sub-basin. Camp G Creek Sub-Basin shows minimal effects. None of the remaining sub-basins contribute flow offsite. Shield and Jouglard Canyon Sub-Basin, with its Pit Lake had the next greatest effects to surface water and groundwater, followed by the French Drain Sub-basin.

8.2.2.2 Groundwater Transport

Groundwater at the Site can be classified into three hydrostratigraphic systems:

- Shallow systems within the Sub-Basin floors consisting of interconnected unconsolidated alluvium/colluvium,
- Intermediate systems comprised of the Olivine Basalt, Salt Lake, Dinwoody Formation, and Phosphoria Formation (Rex Chert and Meade Peak Members), and
- A deep system comprised of locally recharged and regional Wells Formation aquifer.

Shallow Hydrostratigraphic Systems - Horizontal transport in groundwater is mostly in shallow hydrostratigraphic systems and limited to within the individual extent of the drainages along both the east and west sides of the Aspen Range. The lateral extent of where average selenium concentrations exceeded the MCL (0.05 mg/L) in the shallow hydrostratigraphic systems is presented on Figure 6-89, with the vertical extent depicted in Figures 6-94, 6-102, 6-104, 6-105, and 6-108. The groundwater plumes, containing elevated COPC concentrations, in the shallow hydrostratigraphic system along the east side of the Aspen Range do not appear to have extended beyond the second set of foothills (Figure 6-89). The groundwater plumes in the shallow hydrostratigraphic system along the west side of the Aspen Range do not appear to have extended much beyond the New Tailings Pond north or westward, or much westward beyond the meadows area (Figure 6-89). Vertically, the plumes in the shallow hydrostratigraphic system extend to the contact with the consolidated deposits (Figures 6-94, 6-102, 6-104, 6-105, and 6-108). The Pedro Creek and French Drain Sub-Basins have the largest extent of shallow groundwater contamination, followed by State Land Creek Sub-Basin and Shield and Jouglard Canyon Sub-Basin (Figure 8-2 and Plate 5).

Intermediate Hydrostratigraphic Systems - The lateral extent of where average selenium concentrations exceeded the MCL (0.05 mg/L) in the intermediate hydrostratigraphic systems is

presented on Figure 6-91, with the vertical extent depicted in Figures 6-94, 6-102, 6-104, 6-105, and 6-108. The groundwater plumes, containing elevated COPC concentrations, in the intermediate hydrostratigraphic system along the east side of the Aspen Range do not appear to have extended beyond the first set of foothills. The groundwater plumes in the intermediate hydrostratigraphic system along the west side of the Aspen Range do not appear to have extended westward beyond the mine boundary, based on concentrations measured in offsite wells. However, the groundwater plume in the intermediate hydrostratigraphic system in between the NTP and OTP does extend outside the mine boundary northward (Figure 6-91). The Pedro Creek and French Drain Sub-Basins have the largest extent of intermediate groundwater contamination, followed by State Land Creek Sub-Basin and Shield and Jouglard Canyon Sub-Basin (Figure 8-2 and Plate 5. In the Shield and Jouglard Canyons Sub-Basin the plume appears to be localized around the Pit Lake, considering the groundwater quality data, stratigraphy, ODAs, and water quality in the springs. Based on the groundwater monitoring intervals (Table 5-2) in the State Land Creek and Pedro Creek Sub-Basins, the plumes extend to depths between approximately 130 to 170 feet bgs, considering the below MCL concentrations in wells GW-29-MD and GW-26-MD, respectively (Figure 6-94). The vertical extent of the plume in the Camp G Creek Sub-Basin is expected to be minimal considering the limited amount of seleniferous-material content in the waste rock piles and areal extent of the piles. On the west side, in the former townsite area, the plumes do not extend deeper than approximately 285 feet bgs based on the below MCL concentrations in GW-51-MS (Figure 6-105). In the Pit Lake area, considering that the bedding in the Rex Chert is near vertical (Figure 6-108), and since flow in the Rex Chert is predominantly fracture-flow, it is difficult to evaluate the vertical extent of groundwater with COPC concentrations above the MCL. Transport of groundwater from the Rex Chert into the Dinwoody Formation or Wells Formation is unlikely, considering the low cross-bedding hydraulic conductivity in the near vertical Rex Chert and Meade Peak.

Deep Hydrostratigraphic System - Significant transport to the Wells Formation is not evident. Selenium concentrations were below the MCL (0.05 mg/L) in most of the wells advanced into the Wells Formation (Figure 6-92), except for GW-39-MW. Well GW-39-MW (0.056 mg/L, max) is the closed in proximity to RMM, adjacent to the pit and approximately 125 feet downgradient of an ODA (Table 4-8 and Figure 6-92). Wells GW-14-MW (0.0012 mg/L, max) and GW-31-MW (0.0008 mg/L, max) are also in close proximity to RMM, at approximately 525 feet and 600 feet, respectively. As indicated by the data from these wells, elevated selenium concentrations within the Wells Formation are likely limited to areas in close proximity of the footprint of ODAs lying atop outcrop areas. Releases in the Wells Formation likely get rapidly diluted and dispersed with clean recharge from undisturbed areas and the long flow paths from the sources to the regional water table. Contamination in the locally recharged Wells Formation groundwater (i.e., within the footprint of the ODAs atop the Wells Formation outcrop along Woodall ridge), could extend down to the regional water table. However, the vertical extent of contamination in the regional Wells Formation groundwater is limited, considering that the selenium concentrations in

the regional groundwater in close proximity of ODAs remain below the MCL (e.g., GW-14-MW at 0.0012 mg/L and GW-31-MW at 0.0008 mg/L, max).

Summary - While Site sources have released selenium and other COPCs to the surrounding environment, effects to offsite groundwater are relatively well confined.

- On the east side, groundwater concentrations are elevated in close proximity to ODAs, but decrease due to recharge from outcrops in undisturbed areas between the ODAs and the undisturbed foothills:
- Shallow alluvial/colluvial groundwater selenium, concentrations drop to levels approaching (GW-30-MA) or below (GW-27-MA) the MCL near the second set of foothills (Figure 6-89);
- Dinwoody groundwater selenium concentrations drop below the MCL near the first set of foothills (GW-26-MD and GW-29-MD, Figure 6-91); and
- Wells Formation groundwater data do not indicate extensive areal impacts to the aquifer (i.e., where concentrations exceed the MCL, Figure 6-92).

- On the west side, although groundwater selenium concentrations are elevated near source areas, any transport is predominantly in the shallow and intermediate systems (Figures 6-89 and 6-90), and restricted by the extensional fault zone to the east side of the fault. Selenium concentrations in the shallow and intermediate groundwater systems decrease rapidly with distance from the ODAs and remain below the MCL in the Wells Formation.

8.2.2.3 Plant Uptake of Selenium

The ODAs contain vegetation with the highest selenium concentrations (Figures 6-7 and 8-1). Direct uptake of selenium and other COPCs occurs where vegetation is growing in Mudstones and Waste Shale. However, a contributing factor is the type of vegetation. Hyperaccumulators can have relatively high concentrations of selenium, even when not growing directly on Mudstones and Waste Shale. Plants growing on parts of the ODAs containing higher amounts of Dinwoody Formation or Wells Formation materials, relative to Mudstones and Waste Shale accumulate less selenium. Therefore ODAs can have plants with selenium concentrations below the maximum tolerable dietary level for livestock of 5 mg/kg. This is reflected by the plant selenium concentrations ranging from non-detect to 7,180 mg/kg. In addition, out of the 532 total results for all vegetation samples collected from 82 locations on ODAs, 206 vegetation results from 48 locations had selenium concentrations under the maximum tolerable dietary level for livestock of 5 mg/kg.

In general, most hyperaccumulator and other forb species can contain selenium concentrations that exceed the maximum tolerable dietary level for livestock (5 mg/kg), and aster, gumweed, and alfalfa have the highest selenium concentrations.

8.2.3 Exposure Pathways

The exposure pathways for human receptors, ecological receptors, and livestock are shown in Figures 7-1 through 7-3, respectively. As previously described, for human receptors, arsenic poses a greater risk than selenium and the other primary COPCs. However, the occurrence of arsenic at elevated concentrations corresponds spatially with areas of elevated selenium concentrations. A detailed summary of the potential human, ecological, and livestock receptors are presented in the Site-Specific Human Health Risk Assessment (Formation Environmental 2016b), Site-Specific Ecological Risk Assessment (Formation Environmental 2016c), and the Site-Specific Livestock Risk Assessment (Formation Environmental 2016d).

8.2.4 Uncertainties and Recommendations

Uncertainties related to the nature and extent of mining-related effects are with respect to the magnitude of releases into groundwater at individual ODAs, actual rates of attenuation, dispersion and dilution of the COPCs along the groundwater flow pathways, individual influences of fault structures, and definitive dimensions of the COPC plumes. These uncertainties do not impede the process of finalizing the RI and the evaluation of risk. And, fully removing these uncertainties will not improve the process of identifying and selecting remedial alternatives to begin reducing effects to the environment, or the ability to predict the performance of alternatives as part of the FS.

Significant information exists to allow for making informed risk management and remedy selection decisions to protect human health and the environment at Conda as well as meet ARARs.

9.0 PROPOSED PRELIMINARY REMEDIAL ACTION OBJECTIVES (RAO)

Preliminary RAOs identified for each environmental medium were initially provided in Section 5.2.1 of the Work Plan (NewFields 2008a). Based on the Site model described above, preliminary RAOs were refined and are listed below. Note that some of the preliminary RAOs identified may be further refined or deleted depending on the findings of the SSHHRA and SSERA.

9.1 RMM and Soils

Human Health - Prevent exposure of humans to mine materials and soils that contain levels of COPCs that pose unacceptable risks through ingestion, inhalation, and/or direct contact.

Environment - Reduce erosion of, and infiltration through, waste rock, tailings, and contaminated soils and release of COPCs to surface water that pose unacceptable risks to aquatic receptors. Prevent exposure of terrestrial receptors and avian predators (through food chain biomagnification) to levels of COPCs that pose unacceptable risks.

Livestock - Prevent exposure of livestock receptors to levels of COPCs in soil that pose unacceptable risks.

9.2 Vegetation

Human Health - Prevent exposure of humans to vegetation that contains levels of COPCs that pose unacceptable risks through ingestion of vegetation and ingestion of locally derived foods from wild game or livestock.

Environment - Prevent exposure of ecological receptors (including wildlife) to vegetation that contains levels of COPCs that pose unacceptable risks through ingestion.

Livestock - Prevent exposure of livestock receptors to vegetation that contains levels of COPCs that pose unacceptable risks through ingestion.

9.3 Groundwater

Human Health - Prevent exposure of humans to groundwater that contains COPCs at concentrations above primary MCLs or above target cancer risk and non-cancer hazard levels for COPCs lacking primary MCLs.

Environment - Prevent or reduce discharge of contaminated groundwater at levels that pose a risk to aquatic biota (through groundwater/surface water interaction) and terrestrial receptors.

Livestock - Prevent future livestock-watering use of groundwater with COPCs above MCLs.

9.4 Surface Water

Human Health - Prevent exposure of humans to water in streams, the Pit Lake, storm water basins or ponds that contain levels of COPCs that pose unacceptable risks.

Environment - Prevent exposure of aquatic receptors (including terrestrial and avian wildlife) to water in streams, the Pit Lake, storm water basins or ponds that contain levels of COPCs that pose unacceptable risks through ingestion.

Livestock - Prevent exposure of livestock receptors to water in streams and seeps that contains levels of COPCs that pose unacceptable risks through ingestion.

9.5 Sediment

Human Health - Prevent exposure of humans to sediments in the drainages and ponds/basins that contain levels of COPCs that pose unacceptable risks through ingestion, inhalation, and/or direct contact.

Environment - Prevent exposure of ecological receptors (including wildlife) and grazing livestock to sediments in the drainages and ponds/basins that contain levels of COPCs that pose unacceptable risks through incidental ingestion and/or uptake via the food chain.

10.0 REFERENCES

Adams, D.J. and T.M Pickett. 1998. Microbial and Cell-Free Selenium Bioreduction in Mining Waters. In Environmental Chemistry of Selenium. Edited by Frankenberger and Engberg. Marcel Dekker, Inc. Chapter 24. February.

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Public Health Assessment for southeast Idaho Phosphate Mining Resource Area. February.

Alpers, C.N. and D.W. Blowes. 1994. Environmental Geochemistry of Sulfide Oxidation. ACS Symposium Series 550. American Chemical Society, Washington D.C., 681 p.

American Society for Testing and Materials (ASTM). 2000. Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), ASTM D 2488-90, Vol. 04.08, 320-329.

Armstrong, F.C. and E.R. Cressman. 1963. The Bannock Thrust Zone Southeastern Idaho. United States Geological Survey Professional Paper 374-J, 33p.

Balistrieri, L.S. and T.T. Chao. 1990. Adsorption of Selenium by Amorphous Iron Oxy-Hydroxide and Manganese Dioxide. Geochimica et Cosmochimica Acta, Vol. 54, p. 739-751.

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. USEPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

Bar-Yosef, B. and D. Meek. 1987. Selenium Adsorption by Kaolinite and Montmorillonite. Soil Science, Vol. 144, No. 1, July 1987, p. 11-19.

Benjamin, M.M., and J.O. Leckie. 1981. Multiple-site adsorption of Cd, Cu, Zn and Pb on amorphous iron oxyhydroxide, J. Colloid Interf. Sci., v. 79, p. 209-221.

Bond, M.M. 2000. Characterization and Control of Selenium Releases from Mining in the Idaho Phosphate Region. University of Idaho Master's Thesis, February.

Buck, B. and A. Mayo, 2005. Evaluation of the Potential for Cadmium and Selenium Attenuation – F and G Panels, Smoky Canyon Mine, Memorandum to J. Blair, S. Gerwe, L. Hamann, January 12, 2005.

Bureau of Land Management (BLM). 1997. Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management. August.

Bureau of Land Management (BLM). 2009a. Draft Environmental Impact Statement (DEIS), Blackfoot Bridge Mine. Caribou County, ID. In cooperation with U.S. Army Corps of Engineers, Idaho Department of Lands, and Idaho Department of Environmental Quality. July.

Bureau of Land Management (BLM). 2009b. E-mail from Jason Sturm (BLM) to Robbert-Paul Smit (Formation Environmental) on November 3, 2009 with an attachment titled "Idaho BLM Special Status Animal Species For Districts and Field Offices (no date).

Bureau of Land Management (BLM). 2010. Proposed Resource Management Plan and Final Environmental Impact Statement. Volume I - Executive Summary, Chapters 1, 2, and 3. U.S. Department of Interior, Bureau of Land Management, Pocatello Field Office/Idaho Falls District. April 2010.

Bureau of Land Management (BLM). 2011. Final Environmental Impact Statement (FEIS), Blackfoot Bridge Mine. Caribou County, ID. In cooperation with U.S. Army Corps of Engineers, Idaho Department of Lands, and Idaho Department of Environmental Quality. March.

Bureau of Land Management (BLM). 2012. Range Pastures of Idaho. Spatial Data Set. BLM, Idaho State Office, Boise, ID. Available at http://cloud.insideidaho.org/webApps/util/zip.ashx?fn=http://cloud.insideidaho.org/data/blm/RANGE_NOC_GrazingPastures_PUB_100K_POLY.shp. Accessed: January 2012.

Chapman, P.M., W.J. Adams, M.L. Brooks, C.G. Delos, S.N. Luoma, H.M. Ohlendorf, T.S. Presser and D.P. Shaw (eds). 2010. Ecological Assessment of Selenium in the Aquatic Environment. SETAC Press, Pensacola, FL, USA.

Corbet, T.F. 1980. Interactions Between Open Mining and Groundwater Flow Systems at the East Area of the Gay Mine. Idaho Water Resources Research Institute.

Cowan, C.E., J.M. Zachara, and C.T. Resch. 1990. Solution ion effects on the surface exchange of selenite on calcite. Geochemica et Cosmochimica Acta, vol. 58, pp. 2223-2234.

Cowardin, L.M, V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deep Water Habitats of the United States. Performed for U.S Department of the Interior Fish and Wildlife Service.

Dames and Moore. 1976. Report on Feasibility Study For New Tailings Pond Near Conda, Idaho for J.R. Simplot Company. March.

Dames and Moore. 1979. Final Report Review of Radiological Data Relative to Phosphate Mining in Idaho and of the Implications of Pending Regulations. January.

Desborough, G.A. and F.G. Poole, 1983. Metal concentrations in some marine black shales of the United States. In Cameron Volume on Unconventional Mineral Deposits, W.C. Shanks, ed., American Institute of Mining, Metallurgical and Petroleum Engineers, Inc., Guinn Printing Inc., Hoboken N.J., p. 99–110.

Desborough, G., E. DeWitt, J. Jones, A. Meier, G. Meeker. 1999. Preliminary Mineralogical and Chemical Studies Related to the Potential Mobility of Selenium and Associated Elements in Phosphoria Formation Strata, southeastern Idaho. United States Geological Survey Open File Report 99-129.

Dion N. P. 1969. Hydrologic Reconnaissance of the Bear River Basin in southeastern Idaho. Water Information Bulletin No. 13, U.S. Geological Survey in cooperation with Idaho Department of Water Administration.

Dion N. P. 1974. An Estimate of Leakage from Blackfoot Reservoir to Bear River Basin, SE Idaho. Water Information Bulletin No. 34, U.S. Geological Survey in cooperation with Idaho Department of Water Administration.

Enviromin Inc. 2006. Agrium Dry Valley Mine Adsorption Batch Test Results, Phase I Data. Prepared for Agrium Dry Valley Mine Operations, May 31, 2006.

Fertilizer Department (Phosphate Mine at Conda). 1930. A Summary of Anaconda Copper Mining Company at Conda (typed circa 1930).

Fessler, A.J. 2003. Selenium Toxicity in Sheep Grazing on Reclaimed Phosphate Mining Sites. University of Idaho Thesis. August. (individual sample data provided to MFG by K. Gower of Simplot in September 2003).

Formation Environmental (Formation). 2008. Draft Conda/Woodall Mountain Mine May 2008 Data Validation Summary. Prepared for J.R. Simplot Company. August.

Formation Environmental (Formation). 2009a. Draft Conda/Woodall Mountain Mine Fall 2008 Data Validation Summary Report. Prepared for J.R. Simplot Company. January.

Formation Environmental (Formation). 2009b. Draft Conda/Woodall Mountain Mine Spring 2009 Data Validation Summary. Prepared for J.R. Simplot Company. August.

Formation Environmental (Formation). 2010a. Geotechnical Sampling and Analysis Work Plan for the Pedro Creek Overburden Disposal Area. Prepared for J.R. Simplot Company. May.

Formation Environmental (Formation). 2010b. Final Conda/Woodall Mountain Mine 2009 Data Summary Report. Prepared for J.R. Simplot Company. December.

Formation Environmental (Formation). 2010c. Draft Final Conda/Woodall Mountain Mine RI/FS East Side of Woodall Mountain Groundwater Monitoring Network Evaluation. Prepared for J.R. Simplot Company. November.

Formation Environmental (Formation). 2010d. Draft Conda/Woodall Mountain Mine Summer - Fall 2009 Data Validation Summary. Prepared for J.R. Simplot Company. January.

Formation Environmental (Formation). 2010e. Draft Conda/Woodall Mountain Mine Spring 2010 Data Validation Summary Report. Prepared for J.R. Simplot Company. October.

Formation Environmental (Formation). 2011a. Final Conda/Woodall Mountain Mine RI/FS Groundwater Data Gap Analysis. Prepared for J.R. Simplot Company. February.

Formation Environmental (Formation). 2011b. Draft Conda/Woodall Mountain Mine Spring 2011 Data Validation Summary Report. Prepared for J.R. Simplot Company. September.

Formation Environmental (Formation). 2011c. Draft Conda/Woodall Mountain Mine Summer - Fall 2010 Data Validation Summary Report. Prepared for J.R. Simplot Company. March.

Formation Environmental (Formation). 2012a. Final Field-Scale Plant Uptake Pilot Study Work Plan, Conda/Woodall Mountain Mine. Prepared for J.R. Simplot Company. August.

Formation Environmental (Formation). 2012b. Draft Conda/Woodall Mountain Mine Fall 2011 Data Validation Summary Report. Prepared for J.R. Simplot Company. January.

Formation Environmental (Formation). 2012c. Draft Conda/Woodall Mountain Mine Spring 2012 Data Validation Summary Report. Prepared for J.R. Simplot Company. June.

Formation Environmental (Formation). 2012d. Draft Conda/Woodall Mountain Mine Spring 2012 Data Validation Summary Report. Prepared for J.R. Simplot Company. August.

Formation Environmental (Formation). 2012e. Final Site-Specific Human Health Risk Assessment Baseline Problem Formulation, Conda/Woodall Mountain Mine. Prepared for J.R. Simplot Company. October.

Formation Environmental (Formation). 2012f. Final Site-Specific Ecological Risk Assessment Baseline Problem Formulation, Conda/Woodall Mountain Mine. Prepared for J.R. Simplot Company. October.

Formation Environmental (Formation). 2012g. Final Field-Scale Plant Uptake Pilot study, Conda/Woodall Mountain Mine. Prepared for J.R. Simplot Company. July

Formation Environmental (Formation). 2013a. Draft Conda/Woodall Mountain Mine Summer - Fall 2012 Data Validation Summary. Prepared for J.R. Simplot Company. January.

Formation Environmental (Formation). 2013b. Final Site Specific Livestock Risk Assessment Baseline Problem Formulation, Conda/Woodall Mountain Mine. Prepared for J.R. Simplot Company. June.

Formation Environmental (Formation) 2013c. Draft Conda/Woodall Mountain Mine Pedro Creek-Non-Time-Critical Removal Action (NTCRA). Intermi Construction Summary Report. Prepared for J.R. Simplot Company. June.

Formation Environmental (Formation), 2013d. Draft Conda/Woodall Mountain Mine Remedial Investigation Report. Prepared for J.R. Simplot Company. July.

Formation Environmental (Formation). 2014a. Final Conda/Woodall Mountain Mine West Side Groundwater Supplemental Investigation Work Plan. Prepared for J.R. Simplot Company. September.

Formation Environmental (Formation) 2014b. Draft Final Conda/Woodall Mountain Mine Remedial Investigation Report. Prepared for J.R. Simplot Company. April.

Formation Environmental (Formation). 2014c. Final Remedial Investigation Report Smoky Canyon Mine RI/FS. Prepared for J.R. Simplot Company. September.

Formation Environmental (Formation). 2015a. Draft Conda/Woodall Mountain Mine West Side Supplemental Groundwater Investigation Data Summary Report. Prepared for J.R. Simplot Company. May.

Formation Environmental (Formation). 2015b. Final Conda/Woodall Mountain Mine Pedro Creek Sub-Basin Post-Removal Site Control Plan. Prepared for J.R. Simplot Company. July.

Formation Environmental (Formation). 2016a. Final Conda/Woodall Mountain Mine West Side Supplemental Groundwater Investigation Data Summary Report. Prepared for J.R. Simplot Company. January.

Formation Environmental (Formation). 2016b. Draft Final Conda/Woodall Mountain Mine RI/FS Site-Specific Human Health Risk Assessment Report. Prepared for J.R. Simplot Company. March.

Formation Environmental (Formation). 2016c. Draft Final Conda/Woodall Mountain Mine RI/FS Site-Specific Ecological Risk Assessment Report. Prepared for J.R. Simplot Company. March.

Formation Environmental (Formation). 2016d. Draft Final Conda/Woodall Mountain Mine RI/FS Site-Specific Livestock Risk Assessment Report. Prepared for J.R. Simplot Company. April.

Grafe, C.S. 2002. Idaho Small Stream Ecological Assessment Framework: An Integrated Approach. Idaho Department of Environmental Quality; Boise, Idaho.

Grauch, R.I., G.A. Desborough, G.P. Meeker, A.L. Foster, R.G. Tysdal, J.R. Herring, H.A. Lowers, B.A. Ball, R.A. Zielinski, and E.A. Johnson. 2004. "Petrogenesis and Mineralogic Residence of Selected Elements in the Meade Peak Phosphatic Shale Member of the Permian Phosphoria Formation, southeast Idaho." pp. 189-226 in Life Cycle of the Phosphoria Formation: From Deposition to Post-Mining Environment, ed. J. R. Hein, Vol. 8 of Handbook of Exploration and Environmental Geochemistry, ed. M. Hall Elsevier B.V., Amsterdam.

Hamilton, S.J. and K.J. Buhl. 2004. Selenium in water, sediment, plants, invertebrates, and fish in the Blackfoot River drainage. Water, Air, and Soil Pollution, Vol. 159, p. 3-34.

Hamilton, S.J. and K.J. Buhl. 2005. Selenium in the Blackfoot, Salt, and Bear River Watersheds. Environmental Monitoring and Assessment, Vol. 104, p. 309-339.

HDR Engineering, Inc. (HDR). 2001. Conda Mine Summary Report. Prepared for J.R. Simplot Company. August.

Hayes , K.F., A.L. Roe, G.E. Brown, K.O. Hodgson, and G.A. Parks. 1987. In-Situ X-Ray Adsorption Study of Surface Complexes: Selenium Oxyanions on Alpha-FeOOH. Science. Vol. 238, p. 783-786.

Hladun, K.R., O. Kaftanoglu, D.R. Parker, K.D. Tran, and J.T. Trumble. 2013. Effects of Selenium on Development, Survival, and Accumulation in the Honeybee (*Apis Mellifera* L.). Environmental Toxicology and Chemistry. Vol. 32, No. 11, pp 2584-2592.

Hein, J.R., B. McIntyre, R.B. Perkins, D.R. Piper and J. Evans. 2002. Composition of the Rex Chert and Associated Rocks of the Permian Phosphoria Formation: Soda Springs Area,

SE Idaho. USGS Open-File Report, U.S. Department of the Interior, U.S. Geological Survey.

Herring, J.R., R.I. Grauch, R.G. Tysdal, S.A. Wilson, G.A. Desborough. 2000. Chemical Composition of Weathered and Less Weathered Strata of the Meade Peak Phosphatic Shlae Member of the Permian Phosphoria Formation, D. Measured Sections G and H, Sage Creek area of the Webster Range, Caribou County, Idaho. United States Geological Survey Open File Report 99-147-D.

Herring, J.R. 2004. Rock Leachate Geochemistry of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation, southeast Idaho. Chapter 13 in Handbook of Exploration and Environmental Geochemistry, Volume 8 - Life Cycle of the Phosphoria Formation: FINAL – Revision 2 MWH May 2011RI/FS WORK PLAN P4 PRODUCTION RI/FS Page 8-4 From Deposition to Post-Mining Environment, J.R. Hein editor, Elseveir B.V., Amsterdam, p. 367 – 397.

Herring, J.R., and R.I. Grauch. 2004. Lithogeochemistry of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation, southeast Idaho. Chapter 12 in Handbook of Exploration and Environmental Geochemistry, Volume 8 - Life Cycle of the Phosphoria Formation: From Deposition to Post-Mining Environment, J.R. Hein editor, Elseveir B.V., Amsterdam, p. 321 – 366.

Hladun, K.R., Kaftanoglu, O; Parker, D.R.; Tran, K.D., and Trumble, J.T.; 2013, Effects of Selenium on Development , Survival, and Accumulation in the Honeybee (Apis Mellifera L.); Environmental Toxicaology and Chemistry; Vol. 32, No. 11; pp 2584-2592.

Idaho Administrative Procedures Act (IDAPA). 2009. 13.01.06 – Rules Governing Classification and Protection of Wildlife. Idaho Department of Fish and Game.

Idaho Administrative Procedures Act (IDAPA). 2011. 13.01.06 – Rules Governing Classification and Protection of Wildlife. Idaho Department of Fish and Game. Available at http://adminrules.idaho.gov/rules/2011/13/0106.pdf.

Idaho Administrative Procedures Act (IDAPA). 2015a. Idaho Administrative Code. Department of Environmental Quality. Water Quality Standards. IDAPA 58.01.02, Section 210. Available at http://adminrules.idaho.gov/rules/current/58/0102.pdf. Accessed April 12, 2016.

Idaho Administrative Procedures Act (IDAPA). 2015b. Idaho Administrative Code. Department of Environmental Quality. Ground Water Quality Rule. Tables II & III. IDAPA 58.01.11, Section 200. Accessed from the official state website: http://adminrules.idaho.gov/rules/2013/58/0111.pdf on April 13, 2016.

Idaho Administrative Procedures Act (IDAPA). 2013c. 13.01.06 – Rules Governing Classification and Protection of Wildlife. Idaho Department of Fish and Game. Available at http://adminrules.idaho.gov/rules/2013/13/0106.pdf.

Idaho Department of Environmental Quality (IDEQ). 2004. Beneficial Use Reconnaissance Program Field Manual for Streams. Beneficial Use Reconnaissance Program, Technical Advisory Committee. Boise, Idaho.

Idaho Department of Environmental Quality (IDEQ). 2005. Water Quality Sampling for Metals, Selenium Area-Wide Investigation, southeast Idaho Phosphate Mining Resource Area. March and December.

Idaho Department of Environmental Quality (IDEQ). 2006. Water Quality Sampling for Metals, Selenium Area-Wide Investigation, southeast Idaho Phosphate Mining Resource Area. December.

Idaho Department of Environmental Quality (IDEQ). 2007. Water Quality Sampling for Metals, Selenium Area-Wide Investigation, southeast Idaho Phosphate Mining Resource Area. December.

Idaho Department of Environmental Quality (IDEQ). 2011a. Select IDEQ, IDFG, and GYC data from database maintained by IDFG and distributed by IDEQ at the Idaho Fish Sampling Protocol Technical Team Annual Meeting. March.

Idaho Department of Environmental Quality (IDEQ). 2014. Idaho Department of Environmental Quality Final 2012 Integrated Report: Boise, ID. July.

Idaho Department of Environmental Quality (IDEQ), US Environmental Protection Agency (EPA), Bureau of Land Management (BLM). 2012 Administrative Settlement Agreement and Order on Consent for Performance of a Removal action at Conda/Woodall Mountain Phosphate Mine, Pedro Creek Overburden Disposal Area in southeastern Idaho. October 11, 2012.

Idaho Department of Fish and Game (IDFG). 1997. Atlas of Idaho's Wildlife: Integrating Gap Analysis and Natural Heritage Information. Compiled and Written by: C.R. Groves, B. Butterfield, A. Lippincott, B. Csuti, J. M. Scott; Editor: A. Lippincott; A Cooperative Project of: Idaho Department of Fish and Game, Nongame and Endangered Wildlife Program, Idaho Conservation Data Center, The Nature Conservancy, Conservation Science Division, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho, and U.S. Geological Survey; Published by: Idaho Department of Fish and Game, Nongame and Endangered Wildlife Program, Boise, ID.

Idaho Department of Fish and Game (IDFG). 2009. Personal communication - R. Sallabanks (IDFG) and R. Rawlinson (Formation Environmental), by phone on July 21, 2009.

Idaho Department of Fish and Game (IDFG). 2010a. Request for List of Special-Status Species Occurrences in the Vicinity of the J.R. Simplot Company's Conda/Woodall Mountain Mine to Support Baseline Ecological Risk Assessment was sent to Jim Mende of the Department of Fish and Game; October 21, 2009. Verbal response in May 2010 indicated that the Idaho Fish and Wildlife Information System (IFWIS) staff should be contacted.

Idaho Department of Fish and Game (IDFG). 2010b. E-mail communication containing Geographic Information System (GIS) shapefiles of at-risk species locations within 2 miles of the project area, received from George Stephens, Idaho Fish and Wildlife Information System (IFWIS), IDFG, Boise, ID. May 5, 2010.

Idaho Department of Fish and Game (IDFG). 2012. E-mail communication containing location information for Idaho at-risk species designated by the Comprehensive Wildlife Conservation Strategy (CWCS). Data are part of the Idaho Fish and Wildlife Information System (IFWIS) managed by the Idaho Department of Fish and Game (IDFG). Data for Caribou County, ID received October 30, 2012.

Idaho Department of Water Administration. 1974. An Estimate of Leakage From Blackfoot Reservoir to Bear River Basin, southeastern Idaho. Idaho Department of Water Administration Water Information Bulletin No. 34. February.

Idaho Department of Water Resources (IDWR). 2001. Domestic, Commercial, Municipal, and Industrial Water Demand Assessment and Forecast in Ada and Canyon Counties, Idaho. IDWR, USGS, COMPASS, and Idaho Economics. December.

JBR Environmental Consultants, Inc. (JBR). 2001. Data Report for Soil/Growth Medium and Vegetation Sampling at the J.R. Simplot Smoky Canyon Mine. Prepared for J.R. Simplot Company. June.

JBR Environmental Consultants, Inc. (JBR). 2011. Wetlands and Waters of the United States Survey Delineation Report, Conda/Woodall Mountain Mine, Pedro Creek Removal Action, Caribou County, ID. Prepared for J.R. Simplot Company. November.

Jessup, B and J. Gerritsen. 2000. Development of a Multimetric Index for Biological Assessment of Idaho Streams Using Benthic Macroinvertebrates. Prepared for the Idaho Department of Environmental Quality. Tetra Tech, Inc. Owings Mills, Maryland.

Knudsen, A.C., Gunter, M.E., and J.R. Herring. 2001. Preliminary Mineralogical Characterization of Weathered and Less-Weathered Strata of the Meade Peak Phosphatic Shlae Member of the Permian Phosphoria Formation, Measured Sections A and B, central part of Rasumussen Ridge, Caribou County, Idaho. United States Geological Survey Open File Report 00-116.

Knudsen, A.C., and M.E. Gunter. 2004. The Effects of Weathering on the Mineralogy of the Phosphoria Formation, southeast Idaho. In Life Cycle of the Phosphoria Formation: From Deposition to Post-Mining Environment, ed. J. R. Hein, Vol. 8 of Handbook of Exploration and Environmental Geochemistry, ed. M. Hall Elsevier B.V., Amsterdam.

Lee, W.H. 2000. A History of Phosphate Mining in southeastern Idaho. USGS Open File Report 00-425, Version 1.0. p. 169-187.

Langmuir, D. 1997. *Aqueous Environmental Geochemistry*. Prentice-Hall, Inc. pp. 370-371. Lee, W.H. 2000. A History of Phosphate Mining in southeastern Idaho. USGS Open File Report 00-425, Version 1.0.

Lemly, A.D. 2002. Selenium assessment in aquatic ecosystems. U.S. Forest Service, Blacksburg, VA. as cited in U.S. Environmental Protection Agency (USEPA). 2012. Freshwater sediment screening benchmarks. Mid-Atlantic Risk Assessment. Available at http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fwsed/screenbench.htm. Last updated March 20, 2012.

Love, S.L., K. Noble, and S. Parkinson. 2009. Introduction to Short Season Gardening in Idaho. Short-Season, High-Altitude Gardening, University of Idaho Extension, Bulletin 857. Published by the University of Idaho. April.

MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, G. Sloane, and T. Biernacki. 2003. Development and Evaluation of Numerical Sediment Quality Assessment Guidelines (SQAGs) for Florida Inland Waters. Florida Department of Environmental Protection. Tallahassee, FL.

Mackowiak, C. L., M. C. Amacher, J. O. Hall and J. R. Herring. 2004. Uptake of selenium and other contaminant elements into plants and implications for grazing animals in southeast Idaho. In J. R. Hein (ed.) Life Cycle of the Phosphoria Formation: From Deposition to the Post-Mining Environment. Elsevier B. V. Amsterdam, The Netherlands. p. 527-555.

Mackowiak, C.L., and M.C. Amacher. 2005. Draft Plant Uptake of Selenium from Soils Overlying Unmined Sedimentary Rock Units and Potential Use of these Soils as Capping Materials for Revegetated waste rock Dumps. April.

Mackowiak, C.L. and M.C. Amacher. 2006a. Draft Plant Uptake of Selenium at Mountain Fuel Mine: Assessment and Mitigation. September.

Mackowiak, C.L. and M.C. Amacher. 2006b. Draft Plant Uptake of Selenium at Champ Mine: Assessment and Mitigation. July.

Mackowiak, C.L. and M.C. Amacher. 2010. Draft Selenium uptake by western mountain aster at Wooley Valley Unit 4 waste rock dump. An e-report for the Caribou-Targhee National Forest and Region 4 for the ECAP/AML-funded research project 'Remediation of phosphate mine waste rock'. May.

Mansfield, G.R. 1927. Geography, geology, and mineral resources of part of southeastern Idaho, with descriptions of Carboniferous and Triassic fossils. USGS Professional Paper 152.

Maxim Technologies, Inc. (Maxim). 2000a. Vegetation Baseline Report. Smoky Canyon Mine, Caribou County, Idaho. Maxim Project Number 2000601.310. Prepared for J.R. Simplot Company.

Maxim Technologies, Inc. (Maxim). 2000b. Draft Baseline Study for Smoky Canyon Mine Panels B & C. Wildlife Resources. Maxim Project Number 2000601.320. p. 34 plus appendices.

Maxim Technologies, Inc. (Maxim). 2000c. Final Baseline Study for Smoky Canyon Mine, Overburden Environmental Geochemistry, Caribou County, Idaho. Prepared for J.R. Simplot Company. November.

Maxim Technologies, Inc. (Maxim). 2000d. Final baseline technical report: water resources. First, second and third quarter, 2000. Smoky Canyon Mine, Caribou County, Idaho. Maxim project no. 2000601.310. November.

Maxim Technologies, Inc. (Maxim). 2001a. Revised Draft Baseline Study for Smoky Canyon Mine Panels B & C Soil Resources, Caribou County, Idaho. Prepared for J.R. Simplot Company.

Maxim Technologies, Inc. (Maxim). 2001b. Revised final baseline technical report: water resources. Smoky Canyon Mine, Caribou County, Idaho. Maxim project no. 2000601.310. April.

Maxim Technologies, Inc. (Maxim). 2002a. Final Baseline Study For Smoky Canyon Mine Panels B & C - Vegetation Resources. Smoky Canyon Mine Caribou County, Idaho. Prepared for J.R. Simplot Company.

Maxim Technologies, Inc. (Maxim). 2002b. Final Baseline Study for Smoky Canyon Mine Panels B & C: Wildlife Resources. Smoky Canyon Mine, Caribou County, Idaho. Maxim Project Number: 2000601.330. Prepared for J.R. Simplot Company. March 13.

Maxim Technologies, Inc. (Maxim). 2003. Plan of study: fisheries and aquatic resources. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho, October.

Maxim Technologies, Inc. (Maxim). 2004a. Baseline Technical Report: Wildlife Resources. Manning and Deer Creek Phosphate Lease Areas (Panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho.

Maxim Technologies, Inc. (Maxim). 2004b. Baseline Technical Report: Fisheries and Aquatic Resources. Manning and Deer Creek Phosphate Lease Area (Panels F & G). Smoky Canyon Mine. February.

Maxim Technologies, Inc. (Maxim). 2004c. Baseline technical report: water resources. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho. June.

Maxim Technologies, Inc. (Maxim). 2004d. Baseline technical report: geology, minerals and topography. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho. July.

Maxim Technologies, Inc. (Maxim). 2004e. Addendum, baseline technical report: surface water resources. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho. November.

Maxim Technologies, Inc. (Maxim). 2004f. Baseline technical report: vegetation resources. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho.

Maxim Technologies, Inc. (Maxim). 2005a. 2005 Water Resources Monitoring. Manning Creek and Deer Creek Phosphate Lease Areas (Panels F & G) Smoky Canyon Mine Caribou County, Idaho. Prepared for J.R. Simplot Company. December.

Maxim Technologies, Inc. (Maxim). 2005b. Addendum baseline technical report: fisheries and aquatic resources. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho.

Maxim Technologies, Inc. (Maxim). 2006. Second addendum to baseline technical report: fisheries and aquatic resources. Manning and Deer Creek phosphate lease areas (panels F & G), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company, Pocatello, Idaho.

Mabey, D.R. and S.S. Oriel. 1970. Gravity and Magnetic Anomalies in the Soda Springs Region, Southeastern Idaho – Geophysical Field Investigations. United States Geological Survey Professional Paper 646-E.

Mayo, A.L., A.B. Muller, and D.R. Ralston. 1985. Hydrogeochemistry of the Meade thrust allochthon southeastern Idaho, and its relevance to the stratigraphic and structural groundwater flow control: Journal of Hydrology, vol. 76, n. 1/2, p. 27-61.

McKelvey, K.S., K. B. Aubry, and Y. K. Ortega. 2000. History and distribution of lynx in the contiguous United States. Pages 207-264 In Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, and J. R. Squires. (Tech. Eds.) Ecology and conservation of lynx in the United States. Univ. Press of Colorado. Boulder, CO. 480 pp

McLean, J.E., and B.E. Beldsoe. 1992. Behavior of Metals in Soils. USEPA Groundwater Issue, EPA/540/S-92/018, p. 25.

MFG, Inc. (MFG). 2003a. Field Sampling Plan, J.R. Simplot Company Smoky Canyon Mine, Caribou County, Idaho. August.

MFG, Inc. (MFG). 2003b. Quality Assurance Project Plan, J.R. Simplot Company Smoky Canyon Mine, Caribou County, Idaho. July.

MFG, Inc. (MFG). 2003c. Spring 2003 Surface Water Quality Sampling and Analysis Plan, J.R. Simplot Company Conda Mine, Caribou County, Idaho. April.

MFG, Inc. (MFG). 2003d. Soil and Vegetation Sampling and Analysis Plan, J.R. Simplot Company Conda Mine, Caribou County, Idaho. September.

MFG, Inc. (MFG). 2004. Spring 2004 Surface Water, Groundwater, Soil and Vegetation Sampling and Analysis Plan, J.R. Simplot Company Conda Mine, Caribou County, Idaho. March .

Michigan Department of Environmental Quality (DEQ). 2015. Water Quality Values. Surface Water Assessment Section. Rule 57. Available at http://www.michigan.gov/documents/deq/wrd-swas-rule57_372470_7.pdf. Document dated Dec 1, 2015; Accessed on April 13, 2016.

Montgomery Watson. 1998a. Idaho Mining Association Selenium Subcommittee, Final 1997 Regional Interim Surface Water Survey Report, southeast Idaho Phosphate Resource Area Selenium Project. February.

Montgomery Watson. 1998b. Idaho Mining Association Selenium Subcommittee, J.R. Simplot Company, Preliminary Draft Fall 1997 Conda Mine Vegetation Survey Report, southeast Idaho Phosphate Resource Area Selenium Project. January.

Montgomery Watson. 1999. Final 1998 Regional Investigation Report, southeast Idaho Phosphate Resource Area Selenium Project. Idaho Mining Association Selenium Subcommittee. December.

Montgomery Watson. 2000. Idaho Mining Association Selenium Subcommittee, 1999 Interim Investigation Data Report, southeast Idaho Phosphate Resource Area Selenium Project. October.

Montgomery Watson. 2001. Draft 1999-2000 Regional Investigation Data Report for Surface Water, Sediment and Aquatic Biota Sampling Activities, May – June 2000, southeast Idaho Phosphate Resource Area Selenium Project. Idaho Mining Association Selenium Subcommittee. July.

Montgomery Watson Harza (MWH). 2002a. Final Spring 2001 Area-Wide Investigation Data Report, southeast Idaho Phosphate Resource Area Selenium Project. Prepared for the Idaho Mining Association, Selenium Subcommittee. March.

Montgomery Watson Harza (MWH). 2002b. Final Summer 2001 Area-Wide Investigation Data Summary, southeast Idaho Phosphate Resource Area Selenium Project. Prepared for the Idaho Mining Association, Selenium Subcommittee. July.

Montgomery Watson Harza (MWH). 2004. Comprehensive Site Investigation Sampling and Analysis Plan - Final. southeast Idaho Mine-Specific Selenium Program. April.

Montgomery Watson Harza (MWH). 2005. Memorandum, Phase I Site Investigation Summary Report for P4 Production's Enoch Valley, Henry, and Ballard Mines. southeast Idaho Mine-Specific Selenium Program. April.

Montgomery Watson Harza (MWH). 2009. 2007 and 2008 Data Summary Report: Mines Site Investigation, Final - Revision 2. August.

Moyle, P.R. and J.D. Causey. 2001. Chemical Composition of Samples Collected from waste rock Dumps and Other Mining-Related Features at Selected Phosphate Mines in

southeastern Idaho, Western Wyoming, and Northern Utah. United States Geological Survey Open File Report 01-411.

Munkers, J. P. 2000. Abiotic and Biotic Processes in the Release and Control of Selenium in the Western Phosphate Resource Area. University of Idaho Master's Thesis. December 18.

National Oceanic and Atmospheric Association (NOAA). 1988. Freeze/Frost Data. National Climatic Data Center, Asheville, North Carolina. Climatography of the U.S. No. 20, Supplement No. 1. January.

National Oceanic and Atmospheric Association (NOAA). 2008. Screening Quick Reference Tables (SQuiRTs). NOAA Office of Response and Restoration Division, NOAA OR&R Report 08-1, Seattle, WA. Available at http://response.restoration.noaa.gov/book_shelf/122_NEW-SQuiRTs.pdf.

National Research Council (NRC). 2005. Mineral Tolerance of Animals. Second Revised Edition. Committee on Minerals and Toxic Substances in Diets and Water for Animals, Board on Agriculture and Natural Resources, Division on Earth and Life Studies. National Academies Press: Washington, D.C.

National Water and Climate Center (NWCC). 2012. Snowpack Telemetry (SNOTEL) Information website. Accessed September 21, 2012. http://www.wcc.nrcs.usda.gov/snow.

NatureServe. 2012. NatureServe Explorer: Whitebark Pine. Ecology and life history information last updated November 22, 2010. Available at http://www.natureserve.org/explorer/. Accessed April 2012.

Neal, R.H. 1990. Selenium in Heavy Metals in Soils, B.J. Alloway, ed., John Wiley and Sons, Inc., New York, p. 237 – 260.

NewFields. 2005. Site Investigation Report for the Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company. July.

NewFields. 2006. Engineering Evaluation/Cost Analysis (EE/CA), Smoky Canyon Mine, Caribou County, Idaho. Prepared for J.R. Simplot Company. May.

NewFields. 2007. Conda/Woodall Mountain Mine Surface Water, Groundwater, Soil and Vegetation Sampling and Analysis Plan. Prepared for J.R. Simplot Company. April.

NewFields. 2008a. Final Conda\Woodall Mountain Remedial Investigation and Feasibility Study Work Plan. Prepared for J.R. Simplot Company. December.

NewFields. 2008b. Final Conda\Woodall Mountain RI/FS Sampling and Analysis Plan. Prepared for J.R. Simplot Company. September.

NewFields. 2008c. Conda/Woodall Mountain Mine Interim RI/FS Sampling and Analysis Plan, Spring 2008. Prepared for J.R. Simplot Company. April.

NewFields. 2009a. Final Addendum to the Conda/Woodall Mountain RI/FS Sampling and Analysis Plan for Small Mammal and Terrestrial Invertebrate Sampling. Prepared for J.R. Simplot Company. August.

NewFields. 2009b. Final Conda/Woodall Mountain Mine 2008 Data Summary Report. Prepared for J.R. Simplot Company. May.

NewFields. 2009c. Conda/Woodall Mountain Mine RI/FS Biological Selenium Removal Treatment System Pilot Study Work Plan. Prepared for J.R. Simplot Company. June.

NewFields. 2009d. Conda/Woodall Mountain Mine RI/FS Biological Selenium Removal Treatment System Pilot Study Plan Sampling and Analysis Plan. Prepared for J.R. Simplot Company. June.

Perkins, R.B., and A.L. Foster. 2004. "Mineral Affinities and Distribution of Selenium and Other Trace Elements in Black Shale and Phosphorite of the Phosphoria Formation." From Deposition to Post-Mining Environment, ed. J. R. Hein, Vol. 8 of Handbook of Exploration and Environmental Geochemistry, ed. M. Hall Elsevier B.V., Amsterdam.

Petrun, R.M. 1999. Field guide to the southeast Idaho Phosphate District, *in* Hughes, S.S., and Thackray, G.D., eds., Guidebook to the Geology of Eastern Idaho: Idaho Museum of Natural History, p. 269-279.

Pickering I., G. Brown, and T. Tokunaga. 1995. Quantitative Speciation of Selenium in Soils Using X-Ray Absorption Spectroscopy. Environmental Science and Technology. vol. 29, No. 9, p. 2456-2459.

Ralston, D.R., O.M.J. Mohammad, M.J. Robinette and J.K. Edwards. 1977. Solutions to Water Resource Problems Associated with Open-Pit Mining in the Phosphate Area of southeastern Idaho, Completion Report for Groundwater Study Contract No. 50-897, College of Mines, University of Idaho, Moscow, ID.

Ralston, D., A. Mayo, J. Arrigo, J. Baglio, L. Coleman, J. Hubbell, and K. Souder. 1981. Thermal Groundwater Flow Systems in the Thrust Zone in southeastern Idaho. Prepared for Idaho Department of Water Resources by Idaho Water and Energy Resources Research Institute, University of Idaho, Moscow, Idaho. April 1981. p. 336.

Ralston, D.R. and A.L. Mayo. 1983. Thermal Ground Water Flow Systems in the Thrust Zone in Southeastern Idaho, Research Technical Report. Prepared for United States Department of Energy Office of Scientific and Technical Information. DOE/ET/28407-4. May 1983.

Rajan, S. 1979. Adsorption of Selenite, Phosphate, and Sulfate on Hydrous Alumina. Journal of Soil Science. No. 30, p. 709-718.

Ratti, J. T., A. Rocklage, and E. O. Garton. 2002. Analysis of Selenium Levels in Bird Eggs and Assessment of the Effects of Selenium on Avian Reproduction in southeast Idaho. Department of Fish and Wildlife Resources, University of Idaho, Moscow, Idaho.

Ratti, J. T., A.M Moser, E. O. Garton, Miller R. 2006. Selenium Levels in Bird Eggs and Effects on Avian Reproduction. Journal of Wildlife Management vol. 70, p. 572-578.

Schwarze, D.M. 1967. History of the Conda Operation – Underground to Strip Mining. Intermountain Association Geologists, Anatomy of the Western Phosphate Field, A Guide to the Geologic Occurrence Exploration Methods Mining Engineering Recovery Technology. Fifteenth Annual Field Conference.

Sheppard, S.C., M.I. Sheppard, M.O. Gallerand, B. Sanipelli. 2005. Derivation of ecotoxicity thresholds for uranium. Journal of Environmental Radioactivity. Vol. 79(1), p. 55-83.

J.R. Simplot Company (Simplot). 1968. Conda Mine 1967 Annual Report. February.

J.R. Simplot Company (Simplot). 1973. Conda Mine 1972-73 Annual Report. November.

J.R. Simplot Company (Simplot). 1979. Conda Mine 1978 – 1979 Annual Report. September.

J.R. Simplot Company (Simplot). 2008. Personal Communication (email): Reagents Used in Flotation Circuit.

Skorupa, J., S. Detwiler, and R. Brassfield. 2002. Reconnaissance Survey of Selenium in Water and Avian Eggs at Selected Sites Within the Phosphate Mining Region Near Soda Springs, Idaho: May-June 1999. U.S. Fish and Wildlife Service (USFWS), Sacramento, CA; Department of Animal Science, University of California, Davis, CA; USFWS, Chubbuck, ID. August.

Stahl, R.L. 1975. Detection and Delineation of Faults by Surface Resistivity Measurements, Conda Mine, Caribou County, Idaho. U.S. Department of the Interior.

Stolz, J.F., P. Basu, and R.S. Oremland. 2002. Microbial transformation of elements: the case of arsenic and selenium. International Microbiology, v.5, p. 201-207.

Stumm, W. & J.J. Morgan. 1981. Aquatic Chemistry: An Introduction Emphasizing Chemical Equilibria in Natural Waters. 2nd ed. New York: Wiley-Interscience, p. 780.

Terry, N., A.M. Zayed, M.P. de Souza, and A.S. Tarun. 2000. Selenium in Higher Plants. Annu. Rev. Plant Physiol. Plant Mol. Biol. Vol. 51, p. 401–32.

TetraTech EM, Inc. (TTEMI). 2002. Final Area Wide Human Health and Ecological Risk Assessment, Selenium Project, southeast Idaho Phosphate Mining Resource Area. Prepared for Idaho Department of Environmental Quality. December.

TetraTech EM, Inc. (TTEMI). 2004. Final 2003 Supplement to 2001 Total Maximum Daily Load Baseline Monitoring Report, Selenium Project, southeast Idaho Phosphate Mining Resource Area. January.

Tetra Tech. 2008. Geochemical Characterization of Phosphate Mining Overburden, Characterization of Solids and Vapor Composition in Overburden Disposal Facilities with Implications for Weathering and Selenium Release, prepared for the Idaho Phosphate Working Group. February.

TFM 1950. Conda Fertilizer Mill Addition for Treatment of Hangingwall Ore: Resume of Changes and Additions Required.

United States Census Bureau. 2010. Data downloaded from U.S. Census 2010 website. http://www.census.gov/popfinder/.

U.S. Department of Agriculture (USDA). 2013. PLANTS database. USDA, National Resources Conservation Service (NRCS). Available at http://plants.usda.gov/. Accessed June 2013.

U.S. Environmental Protection Agency (USEPA). 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. Interim Final EPA/540?G-89/004. U.S. EPA, Office of Emergency and Remedial Response.

U.S. Environmental Protection Agency (USEPA). 1989. Risk Assessment Guidance for Superfund (RAGS). Volume I, Human Health Evaluation Manual (Part A). Interim Final. EPA/540/1-89/002. U.S. EPA, Office of Emergency and Remedial Response.

U.S. Environmental Protection Agency (USEPA). 1992. Guidance for Data Usability in Risk Assessment (Part A), Publication 9285.7-09A, Office of Emergency and Remedial Response, PB92-963356.

U.S. Environmental Protection Agency (USEPA). 1998. EPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, Office of Research and Development. EPA/600/R-98/018. February.

U.S. Environmental Protection Agency (USEPA). 2002. Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8, Office of Environmental Information.

U.S. Environmental Protection Agency (USEPA). 2005. Guidance for Developing Ecological Soil Screening Levels (EcoSSLs). EPA Office of Solid Waste and Emergency Response (OSWER), OSWER Directive 9285.7-55. Published November 2003, Revised November 2005 and subsequent contaminant-specific EcoSSL documents.

U.S. Environmental Protection Agency (USEPA). 2012. Freshwater sediment screening benchmarks. Mid-Atlantic Risk Assessment. Available at http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fwsed/screenbench.htm. Last updated March 20, 2012.

U.S. Environmental Protection Agency (USEPA). 2013. National Recommended Water Quality Criteria (NRWQC) for Priority Pollutants. EPA Office of Water, Office of Science and Technology (4304T). Available at http://www.epa.gov/waterscience/criteria/wqctable/. Website updated January 2013. Accessed April 2013.

U.S. Environmental Protection Agency (EPA). 2014. Preliminary Remediation Goals (PRGs) for Radionuclides. Available at http://epa-prgs.ornl.gov/radionuclides/download.html. Tables released November 2014; website accessed April 13, 2016.

U.S. Environmental Protection Agency (USEPA). 2016a. Draft Aquatic Life Ambient Water Quality Criterion for selenium – Freshwater 2015. Office of Water, EPA 822-P-15-001, July 2015.

U.S. Environmental Protection Agency (USEPA). 2016b. Risk-Based Screening Table - Generic Tables; Regional Screening Level Tables (November 2015). Available at http://www.epa.gov/risk/risk-based-screening-table-generic-tables. (Website last updated March 7, 2016; accessed April 11, 2016). Includes links to associated regional screening levels (RSLs)

U.S. Environmental Protection Agency (EPA). 2016c. Preliminary Remediation Goals (PRGs) for Radionuclides. Available at http://epa-prgs.ornl.gov/radionuclides/download.html. Tables released November 2014; website accessed April 11, 2016.

U.S. Environmental Protection Agency (EPA). 2016d. National Recommended Water Quality Criteria (NRWQC) - Aquatic Life Criteria Table. Available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table. Website updated January 25, 2016; accessed April 13, 2016.

U.S. Environmental Protection Agency (EPA). 2016e. National Recommended Water Quality Criteria (NRWQC) - Human Health Criteria Table. Available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table. Website updated March 25, 2016; accessed April 13, 2016.

U.S. Environmental Protection Agency (EPA). 2016f. National Primary Drinking Water Standards and National Secondary Drinking Water Standards. Available at http://water.epa.gov/drink/contaminants/index.cfm. (Website last updated February 16, 2016; accessed April 13, 2016).

U.S. Fish and Wildlife Service (USFWS). 2009a. National Wetlands Inventory (NWI), Wetlands Digital Data. Available at http://www.fws.gov/wetlands/data/index.html. Accessed December 2009.

U.S. Fish and Wildlife Service (USFWS). 2009b. Request for Special Status Species Occurrences in the Vicinity of the J.R. Simplot Company's Conda/Woodall Mountain Mine to Support Baseline Ecological Risk Assessment. File #1050.4015; TAILS#14420-2009-TA-0470; Letter from Damien Miller (USFWS) to Formation Environmental. July 21, 2009.

U.S. Fish and Wildlife Service (USFWS). 2009c. Request for Special Status Species Occurrences in the Vicinity of the J.R. Simplot Company's Conda/Woodall Mountain Mine to Support Baseline Ecological Risk Assessment. File #1050.4015; TAILS#14420-2009-TA-0470; Letter from Damien Miller (USFWS) to Formation Environmental. July 21, 2009.

U.S. Fish and Wildlife Service (USFWS). 2009d. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of Canada Lynx. Federal Register. Rules and Regulations. Vol. 74, No. 36. Department of the Interior. February 2009.U.S. Fish and Wildlife Service (USFWS). 2011. U.S Fish and Wildlife Service – Idaho Fish and Wildlife Office, Endangered, Threatened, Proposed, and Candidate Species (With Associated Proposed

and Critical Habitats), updated 8/17/2011. USFWS, Idaho Fish and Wildlife Office, Boise, ID.

U.S. Fish and Wildlife Service (USFWS). 2012a. U. S. Fish and Wildlife Service. Publication date (Oct. 1, 2012). National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available at http://www.fws.gov/wetlands/.

U.S. Fish and Wildlife Service (USFWS). 2012b. USFWS Species Profile: Canada Lynx, U.S. Fish and Wildlife Service, Department of the Interior, last updated April 16, 2012.

U.S. Fish and Wildlife Service (USFWS). 2012c. USFWS Species Profile: North American Wolverine, U.S. Fish and Wildlife Service, Department of the Interior, last updated April 13, 2012.

U.S. Fish and Wildlife Service (USFWS). 2012d. USFWS Species Profile: Greater Sage-Grouse, U.S. Fish and Wildlife Service, Department of the Interior, last updated April 16, 2012.

U.S. Fish and Wildlife Service (USFWS). 2012e. USFWS Endangered Species: Whitebark Pine, Mountain-Prairie Region, U.S. Fish and Wildlife Service, Department of the Interior, last updated July 18, 2011.

U.S. Fish and Wildlife Service (USFWS). 2013. U.S Fish and Wildlife Service – Idaho Fish and Wildlife Office; Listed, Candidate, and Proposed Species & Designated And Proposed Critical Habitat in Idaho, revised 10/23/2013. USFWS, Idaho Fish and Wildlife Office, Boise, ID. Available at http://www.fws.gov/idaho/pdf/IdahoSpeciesList102313List.pdf. Website last updated December 3, 2013; accessed December 26, 2013.

U.S. Forest Service (USFS) and National Park Service (NPS). 1998. Wild and Scenic Rivers and the Use of Eminent Domain. Technical Report of the Interagency Wild and Scenic Rivers Coordinating Council. November.

U.S. Forest Service (USFS). 2003. Final Environmental Impact Statement for Caribou Revised Forest Plan. U.S. Department of Agriculture, Forest Service, Caribou-Targhee National Forest, Idaho Falls, Idaho.

U.S. Forest Service (USFS). 2009. E-mail communication from Ann Keysor (USFS) to Formation Environmental; in response to request for special status species occurrences in the vicinity of the J.R. Simplot Company's Conda/Woodall Mountain Mine. October 30, 2009.

U.S. Forest Service (USFS). 2010. Telephone communication from James Capurso (USFS fisheries biologist) to Formation Environmental; regarding species of concern listed on USFS's 10/30/2009 list from A. Keysor. May 5, 2010.

U.S. Forest Service (USFS). 2011a. Range Management: 2011 Grazing Allotments (Soda Springs Ranger District). Caribou-Targhee National Forest, U.S. Forest Service. Available at http://www.fs.usda.gov/detailfull/ctnf/landmanagement/resourcemanagement/?cid=STELPRDB5144786&width=full.

U.S. Forest Service (USFS). 2011b. Intermountain Region (R4) Threatened, Endangered, Proposed, and Sensitive Species, July 27, 2011 update, Known/Suspected Distribution by Forest. Available at http://www.fs.fed.us/r4/resources/tes/r4_tes_lst.pdf. July 27, 2011.

U.S. Geological Survey (USGS). 2002. Selenium and other trace elements in water, sediment, aquatic plants, aquatic invertebrates, and fish from streams in southeastern Idaho near phosphate mining operations: June. Final Report as part of the USGS Western U.S. Phosphate Project. Prepared by S.J. Hamilton, K.J. Buhl, P.J. Lamothe. U.S. Department of the Interior, U.S. Geological Survey, Columbia Environmental Research Center, Field Research Station, Yankton, SD. October.

U.S. Geological Survey (USGS). 2003. Selenium and other trace elements in water, sediment, aquatic plants, aquatic invertebrates, and fish from streams in southeastern Idaho near phosphate mining operations: May 2001. Final Report as part of the USGS Western U.S. Phosphate Project. Prepared by S.J. Hamilton and K.J. Buhl, U.S. Department of the Interior, U.S. Geological Survey, Columbia Environmental Research Center, Field Research Station, Yankton, SD. May.

U.S. Geological Survey (USGS). 2009. Northwest Regional Gap Analysis Project (NWGAP), Regional Data by State – Idaho. Available at http://gap.uidaho.edu/index.php/gap-home/Northwest-GAP/landcover/download-data-by-state. Updated August 2009; Accessed January 2010.

U.S. Geological Survey (USGS). 2013. Federal Standards and Procedures for the National Watershed Boundary Dataset (WBD)

U.S. National Oceanic and Atmospheric Association (NOAA). 2008. Screening Quick Reference Tables (SQuiRTs). NOAA Office of Response and Restoration Division, NOAA OR&R Report 08-1, Seattle, WA. Available at http://response.restoration.noaa.gov/sites/default/files/SQuiRTs.pdf.

Western Regional Climate Center (WRCC). 2012. Historical Climate Information website. Accessed September 21, 2012. http://www.wrcc.dri.edu/index.html.

Whetstone (Whetstone Associates, Inc.). 2006. Baseline Study Plan for Geochemical Characterization Blackfoot Bridge Mine EIS Project. Prepared for U.S. Department of Interior Bureau of Land Management, on behalf of Monsanto Corporation / P4 Production Blackfoot Bridge Mine, March.

Whetstone. 2009a. Final Baseline Geochemical Characterization Study, Blackfoot Bridge Mine EIS. Prepared for U.S. Department of Interior Bureau of Land Management, on behalf of Monsanto Corporation / P4 Production Blackfoot Bridge Mine. December.

Whetstone. 2009b. Water Resources Baseline Characterization Report, Blackfoot Bridge Mine EIS. Prepared for U.S. Department of Interior Bureau of Land Management on behalf of Monsanto / P4 Production Blackfoot Bridge Mine.

Whetstone. 2009c. Addendum A Final Water Resources Baseline Characterization Report, Blackfoot Bridge Mine EIS, Summary of Surface Water and Groundwater Monitoring Results May 2008 through July 2009. Prepared for U.S. Department of Interior Bureau of Land Management on behalf of Monsanto / P4 Production Blackfoot Bridge Mine. July.

Whetstone. 2010. Addendum B Final Water Resources Baseline Characterization Report, Blackfoot Bridge Mine EIS, Summary of Surface Water and Groundwater Monitoring Results for October 2009. Prepared for U.S. Department of Interior Bureau of Land Management on behalf of Monsanto / P4 Production Blackfoot Bridge Mine. January.

Winter, G.V. 1980. Groundwater Flow Systems in the Phosphate Sequence. University of Idaho Master's Thesis. March.

Table 1-1
List of Chemicals of Concern for Conda

Chemicals of Potential Concern
Aluminum
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Chromium
Cobalt
Copper
Iron
Lead
Manganese
Mercury
Molybdenum
Nickel
Selenium, total recoverable
Silver
Thallium
Uranium
Vanadium
Zinc
Volatile Organic Compounds[1]
Semi-volatile Organic Compounds[1]
Poly Aromatic Hydrocarbons[1]
Nitrate
Orthophosphate, as P
Total Phosphorus

Notes: 1-Former Conda Townsite only.

Table 2-1
Monthly Climate Summaries for Conda, Idaho

Parameter	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Maximum Temperature [1]	F	29	32.6	39.3	47.9	60.4	71.6	80.3	79	68.3	55.9	38.8	29.5	52.9
Average Minimum Temperature [1]	F	8.9	9.5	16.1	25.3	34.3	41.5	46.3	43.4	33.9	27.1	18.2	9.3	26.2
Average Total Precipitation [1]	inches	2.25	1.97	2.06	1.74	1.86	1.41	1.21	1.42	1.47	1.70	1.82	2.26	21.17
Average Total Snowfall [2]	inches	25.6	18.7	15.6	7.4	2.1	0.2	0.0	0.0	0.3	3.7	13.5	22.1	109.3
Average Snow Depth [2]	inches	17	15	7	0	0	0	0	0	0	0	1	6	4

Notes:

Based on data tabulated by the Western Regional Climate Center.

Western Regional Climate Center. 2016. Historical Climate Information website. Accessed May 2, 2016. http://www.wrcc.dri.edu/index.html.

[1] Based on tabulated data for the Conda weather station (#102071) from 1971 - 2000.

[2] Based on period of record data for the Conda weather station (#102071) from January 1939 through April 1978.

SNOTEL temperature and precipitation data from the Slug Creek Divide (Site 761) are more recent (1978 to 2014) and monthly averages fall within similar ranges.

The Slug Creek Divide station is located at approximately 7225 feet amsl.

National Water and Climate Center. 2016. Snowpack Telemetry (SNOTEL) Information website. Accessed May 2, 2016. http://www.wcc.nrcs.usda.gov/snow.

Table 2-2
Surface Mine Panel Overburden Volumes and Reclamation Summary

Mine Area	Panel	Mining Operation Pit Numbers	Overall mining Period	Description	Overburden Volumes (cubic yards)		Property Ownership (%)				
					Removed	Backfilled	Panel Acreage	Simplot	BLM	State	Private
Woodall Mountain	Woodall	W-2	1959-1967	Woodall #2	492,363	--	435	91%	9%	0%	0%
		W-3	1959-1966	Woodall #3	896,353	1,196,100					
		W-4	--	Woodall #4	371,824	--					
		W-5	1959-1982	Woodall #5	4,045,851	3,018,238					
		W-6	1959-1973	Woodall #6	4,225,921	751,400					
		W-7	1964-1975	Woodall #7	2,174,856	972,800					
		W-8	1971-1974	Woodall #8	686,629	17,400					
		W-9	1973-1975	Woodall #9	816,673	390,100					
		W-10	1980-1980	Woodall #10	2,508,639	--					
		W-11	1980-1984	Woodall #11	4,724,986	3,656,812					
		W-12	1981-1982	Woodall #12	1,529,442	--					
		W-13	1982-1984	Woodall #13	8,586,268	--					
		W-14	1981-1984	Woodall #14	3,640,750	--					
	East Woodall	EW-1	1975-1982	East Woodall #1	8,108,016	5,648,765	139	19%	81%	0%	0%
		EW-2	1964-1980	East Woodall #2	9,776,096	5,452,102					
		EW-3	1975-1981	East Woodall #3	5,024,304	4,364,011					
	South Woodall	SW-1	1966-1970	South Woodall #1	944,634	1,422,893	161	48%	51%	0%	0.1%
		SW-2	1971-1975	South Woodall #2	1,668,119	1,688,100					
		SW-3	1984-1984	South Woodall #3	622,944	--					
West and Middle Limb	Middle Limb	ML-1	1959-1968	Middle Limb #1	1,905,882	--	145	99%	1%	0%	0%
		ML-2	1959-1970	Middle Limb #2	893,402	--					
		ML-3	1964-1965	Middle Limb #3	9,045	--					
		ML-4	1959-1965	Middle Limb #4	707,830	--					
	West Limb	WL-1,2	1959-1974	West Limb #1,#2	4,772,117	243,300	395	99%	0.5%	0%	0.1%
		WL-3	1959-1977	West Limb #3	1,800,595	554,000					
		WL-4	1964-1975	West Limb #4	334,825	--					
		WL-5	1966-1973	West Limb #5	662,764	155,000					
		WL-6	--	West Limb #6	1,429,571	--					
Ibex	Ibex	Ibex	1964-1973	Ibex	187,195	4,700	62	70%	30%	0%	0%
Grace	Grace	G-1	1959-1966	Grace #1	245,146	--	12	100%	0%	0%	0%
		G-2	1959-1963	Grace #2	2,795	--					
North Trail	North Trail	North Trail	1964-1978	North Trail	3,486,041	--	74	73%	27%	0%	0%

Table 2-3
Summary of Geological Unit Outcrop and Residual Mining Materials Covering Outcrop Areas

Sub-Basin (acres)		Formation	Distribution of RMM and Undisturbed Areas (acres)						
			Undisturbed	Eroded Overburden in Sedimentation Basin	Overburden in pit	Overburden external to pit	NTCRA and FSPS	Waste rock	Tailings
North Woodall Mountain	1004	Meade Peak Member	35	--	--	--	--	--	--
		Rex Chert Member	91	--	--	--	--	--	--
		Wells	347	--	--	--	--	--	--
		Alluvium/Colluvium	34	--	--	--	--	--	--
		Travertine	168	--	--	--	--	--	--
		Dinwoody	328	--	--	--	--	--	--
State Land Creek	2830	Meade Peak Member	21	--	34	18	--	--	--
		Rex Chert Member	75	0.1	57	26	--	--	--
		Wells	133	0.4	16	67	--	--	--
		Alluvium/Colluvium	1218	1	--	6	--	--	--
		Dinwoody	1121	1	--	26	--	--	--
		Salt Lake	10	--	--	--	--	--	--
Pedro creek	1864	Meade Peak Member	5	--	3.9	11.6	12.6	--	--
		Rex Chert Member	24	--	29	7	34	--	--
		Wells	71	--	1	26	39	--	--
		Alluvium/Colluvium	874	--	--	--	0.03	--	--
		Dinwoody	464	--	--	2	36	--	--
		Thaynes Limestone	200	--	--	--	--	--	--
		Salt Lake	24	--	--	--	--	--	--
Camp G Creek	2978	Meade Peak Member	43	--	--	4.6	--	0.3	--
		Rex Chert Member	93	--	--	3.1	--	0.5	--
		Wells	180	--	--	0.8	--	0.05	--
		Alluvium/Colluvium	1047	--	--	--	--	--	--
		Dinwoody	1418	--	--	--	--	3.1	--
		Thaynes Limestone	177	--	--	--	--	--	--
		Salt Lake	7	--	--	--	--	--	--
Western Woodall Mountain	1744	Meade Peak Member	0.004	--	17	1	5	--	--
		Rex Chert Member	0.001	--	--	38	3	--	--
		Wells	837	1	32	78	1	--	--
		Olivine basalt	7	--	--	--	--	--	--
		Travertine	296	--	--	--	--	--	--
		Alluvium/Colluvium	254	--	--	--	--	--	--
		Dinwoody	175	--	--	--	--	--	--
Old Tailings Pond	712	Meade Peak Member	1	--	8	14	2	--	--
		Rex Chert Member	36	--	8	19	9	--	--
		Wells	326	0.2	9	36	4	--	--
		Alluvium/Colluvium	93	--	--	1	--	--	85
		Dinwoody	37	--	--	23	--	--	0.5
French Drain	826	Meade Peak Member	1	--	33	6	--	--	--
		Rex Chert Member	9	--	19	51	--	--	--
		Wells	36	--	14	15	--	--	--
		Alluvium/Colluvium	231	--	--	26	--	--	102
		Olivine basalt	59	--	--	--	--	--	59
		Dinwoody	51	--	--	10	--	--	0.2
		Salt Lake	77	--	--	17	--	--	10
Shield and Jouglard Canyons	2091	Meade Peak Member	42	--	30	7	--	--	--
		Rex Chert Member	192	--	21	27	--	--	--
		Wells	865	--	18	73	--	--	--
		Olivine basalt	0.1	--	--	--	--	--	--
		Travertine	204	--	--	--	--	--	--
		Alluvium/Colluvium	209	--	2	31	--	--	--
		Dinwoody	355	--	0.2	15	--	--	--
		Salt Lake	0.002	--	--	0.004	--	--	--
Margarette Creek/Trail Canyon	1822	Meade Peak Member	37	--	11	0.8	--	--	--
		Rex Chert Member	124	--	17	0.1	--	--	--
		Wells	1090	--	4	43	--	--	--
		Alluvium/Colluvium	161	--	--	--	--	--	--
		Travertine	3	--	--	--	--	--	--
		Dinwoody	332	--	0.1	0.02	--	--	--
Southwest Conda	695	Meade Peak Member	13	--	--	--	--	--	--
		Rex Chert Member	24	--	--	--	--	--	--
		Wells	89	--	--	--	--	--	--
		Alluvium/Colluvium	1	--	--	--	--	--	--
		Olivine basalt	135	--	--	--	--	--	--
		Travertine	26	--	--	--	--	--	--
		Dinwoody	261	--	--	--	--	--	--
		Salt Lake	145	--	--	--	--	--	--
Total	16,565		15,044	3	385	728	144	4	257

Table 2-4
Summary of Selenium Concentrations in Soil and Vegetation on the FSPS and NTCRA Piles

Description		2015 (Year 3) - Root-Zone Soil Total Selenium (mg/kg) [1, a]	2015 (Year 3) - Vegetation (Total Selenium mg/kg)			2014 (Year 2) - Root-Zone Soil Total Selenium (mg/kg) [1, a]	2014 (Year 2) - Vegetation (Total Selenium mg/kg)			2013 (Year 1) - Root-Zone Soil Total Selenium (mg/kg) [1, a]	2013 (Year 1) - Vegetation (Total Selenium mg/kg)			2012 (Year 0) - Soil Total Selenium (mg/kg)		
			Grass	Forb	Accumulator		Grass	Forb	Accumulator		Grass	Forb	Alfalfa	Root-Zone [2, c]	Overburden [3, c]	
														Post-amended	Post-amended	Pre-amended
Direct Revegetation of Unamended Overburden	FSPS Plot 9A	62.6	5.94	41.5		70.3	11.5	48.3		81.9	21.5	52.2	28.3		ns	75.4
	FSPS Plot 12A	36.9	11.6	7.12		26.5	21.8	96.5		58.3	136	ns	ns			39.6
	FSPS Plot 20A	nd	5.38	4.35		9.4	5.82	36		9.1	24.6	16	259			29.7
Direct Revegetation of Sulfur-Amended Overburden	FSPS Plot 13B	23.5	5.35	14.9		39.4	5.29	114		29.3	37.9	ns	128		13.7	17.8
	FSPS Plot 16B	nd	14.2	25.5		44.6	15.7	256		60.7	37.2	339	426		37.4	56.1
	FSPS Plot 18B	12.2	2.74	1.75		14.7	2.99	75.4		15.5	12.8	12.3	127		22.6	12.2
Direct Revegetation of Manure-Amended Overburden	FSPS Plot 11C	nd	11.6	13.7		34.9	24	97		36.4	94.5	61.4	264		47.2	41
	FSPS Plot 17C	19.1	9.52	17.3		20.2	20.6	94.6		21.8	109	47.1	328		5.7	5
	FSPS Plot 21C	42.4	6.81	21		12.8	5.09	38.1	10.8	37.2	15.4	27.3	34		6.5	27.2
12 inches of Dinwoody Soil Cover	FSPS Plot 6D	1.6	1.11	0.4		0.85	1.42	73.7		1.8	2.19	9.47	26.5	1.2		22.7
	FSPS Plot 10D	nd	1.68	1.54		0.64	3.24	31.3		0.84	3.98	10.6	13.5	0.62		48.4
	FSPS Plot 14D	1.5	0.65	0.51	0.6	0.42	1.29	5.21		0.89	2.61	2.36	3.05	1.5		8.5
18 inches of Dinwoody Soil Cover	FSPS Plot 5E	nd	1.73	0.27		2.4	3.72	8.15		1.8	3.15	40.5	5.46	1		37.4
	FSPS Plot 7E	1.7	0.45	0.51	1.07	1.7	0.66	2.8		0.93	1.08	1.15	2.6	1.4		48.7
	FSPS Plot 19E	1.7	3.47	2.88		1.7	3.68	76.6		0.76	7.5	11.4	61.1	1.2		67.6
18 inches of Dinwoody Soil Cover with 12 inches of Rex Chert Capillary Break	FSPS Plot 1F	2.1	4.3	37.6	3.47	1.7	0.9	37.3		1.5	0.58	4.08	14.3	0.77		143
	FSPS Plot 3F	nd	2.32	1.41		2.3	1.6	14.3		0.83	0.56	16.4	13.9	1		129
	FSPS Plot 15F	1.8	0.78	1.39		1.6	1.24	21		1.1	3.46	0.92	6.52	1		10.8
24 inches of Dinwoody Soil cover with 24 inches of Rex Chert Capillary Break	FSPS Plot 2G	1.5	1.59	2.49	2.82	1.9	0.48	19.9		0.73	0.29	0.76	0.79	0.95		309
	FSPS Plot 4G	nd	0.75	0.24		1.8	0.26	1.7		0.62	0.34	0.43	0.34	0.95		114
	FSPS Plot 8G	1.6	0.49	0.3		1.5	0.27	1.99		1.1	0.2	0.38	0.36	0.63		119
Soil Cover on Non-Study Potion of FSPS Pile, Comprised of Salvaged Topsoil	PRSC DU5-1	15.7	3.96	1.1		NA										
	PRSC DU5-2	7.5	2.17	0.53												
	PRSC DU5-3	nd	3.43	14.7												
NTCRA Soil Cover	PRSC DU1	0.4	3.21	18.4												
	PRSC DU2	0.29	4.52	45.5												
	PRSC DU3	0.53	1.83	14	1.44											
	PRSC DU4	0.27	3.85	12.9	195											

Notes:

ns - Not sampled (vegetation). Overburden material was not treated and resampling was not necessary (soils).

nd - Samples not analyzed bt SM 3114C

mg/kg - milligrams per kilogram

1 - Year 3, Year 2 and Year 1 composite root-zone soil samples collected from 0 to 12 inches; 36 subsamples per test plot.

2 - Year 0 composite root-zone soil samples collected from visible root zone within 0 to 12 inches; 30 subsamples per test plot.

3 - Year 0 composite overburden samples collected from 0 to 12 inches; 30 subsamples per test plot.

a - Analyzed by SM 3114C. See FSPS report for details.

Results presented on a dry-weight basis.

Table 2-5
Grazing Allotment Summary

Allotment Name	Allotment Number	Management Agency	Livestock	Season of Use	Animal Unit Months (AUMs)	Notes from BLM (2012a)	Allotment Area		Conda Mined Area		Conda Non-Mined Area		Allotment Area Outside of Mined/Non-Mined Areas
							Total Acres	Ownership Info	Total Acres, %	Ownership Info	Total Acres, %	Ownership Info	Total Acres, %
Woodall Spring	04338	BLM	Cattle	May 15 to September 30	57	Potentially impacted by selenium (Figure 12).	1613	75.6% Private; 24% BLM; 0.4% Simplot	7 (0.4%)	100% Simplot	1139 (70.6%)	68% Private; 32% BLM	467 (29.0%)
Woodall Ranch	04386	BLM	Cattle	May 16 to September 30	32	Potentially impacted by selenium (Figure 12).	645	74% Private; 26% BLM	None		150 (23.3%)	70% BLM; 30% Private	495 (76.7%)
Woodall Mountain	04554	BLM	Sheep	May 16 to September 30	216 total (153 suspended)	1180 public land acres affected by selenium.[b]	6890	61.5% Simplot; 25.2% BLM; 12.2% Private; 1.1% County	2820 (40.9%)	61% Simplot; 39% BLM	3588 (52.1%)	63% Simplot; 18% Private; 17% BLM; 2% County	482 (7.0%)
Conda Mine	10020	BLM	NA	NA	NA	--	437	93% BLM; 5% Simplot; 2% Private	392 (89.7%)	94% BLM; 6% Simplot	45 (10.3%)	82% BLM; 18% Private	None
Trail Canyon-1	04226	BLM	Sheep	May 1 to September 30	34 total (4 suspended)	123 public land acres affected by selenium.[b]	832	36% BLM; 33% Simplot; 30% Private; 1% County	436 (52.4%)	63% Simplot; 37% BLM	353 (42.4%)	59% Private; 39% BLM; 2% County	43 (5.2%)
Trail Canyon-2	04289	BLM	Sheep	May 1 to September 15	35 total (5 suspended)	25 public land acres affected by selenium.[b]	832	79.5% Private; 20.3% BLM; 0.2% Simplot	2 (0.2%)	100% Simplot	457 (55%)	63% Private; 37% BLM	373 (44.8%)
North Sulphur and Trail	14031	BLM	Sheep	May 15 to July 15	324	--	5022	50.1% Private; 37.1% BLM; 11.4% State of Idaho; 1.3% Simplot; County 0.1%	None		47 (0.9%)	96% BLM; 4% County	4975 (99.1%)
North Sulphur	20220	USFS	Sheep	June 16 to September 5	(a)	--	5953	99.5% USFS; 0.2% Simplot; 0.2% BLM; 0.1% Private	2 (0.03%)	100% Simplot	99 (1.7%)	96% USFS; 4% Simplot	5852 (98.3%)

Notes:

BLM = Bureau of Land Management

NA = Not Applicable

One Animal Unit Month (AUM) is equal to the amount of forage used to support one cow and one calf for one month (approximately 800 pounds of forage).

(a) - AUM information not provided; total of 1,050 ewes/lambs permitted in 2011 (USFS 2011).

(b) - Grazing allotments are indefinitely closed to sheep grazing due to elevated levels of selenium in water and plants. Closure will remain in place until such time selenium levels can be reduced to acceptable levels through containment or capping (BLM 2012a).

-- = No notes specifically provided for this allotment in text or Figure 12 of BLM (2012a).

Sources:

Bureau of Land Management (BLM). 2010. Proposed Resource Management Plan and Final Environmental Impact Statement. Volume I - Executive Summary, Chapters 1, 2, and 3. U.S. Department of Interior, Bureau of Land Management, Pocatello Field Office/Idaho Falls District. April 2010.

Bureau of Land Management (BLM). 2012a. Record of Decision and Approved Pocatello Resource Management Plan. Includes Attachment I – Supplement Information Report. U.S. Department of Interior, Bureau of Land Management, Pocatello Field Office/Idaho Falls District. April 2012.

Bureau of Land Management (BLM). 2012b. Range Pastures of Idaho (RANGE_NOC_GrazingPastures_PUB_100K_POLY.shp). Spatial Data Set. BLM, Idaho State Office, Boise, ID. Available at http://cloud.insideidaho.org/data/blm. Dated Jan 2012; accessed Nov 2015.

U.S. Forest Service (USFS). 2011. Range Management: 2011 Grazing Allotments (Soda Springs Ranger District). Caribou-Targhee National Forest, U.S. Forest Service. Available at http://www.fs.usda.gov/detailfull/ctnf/landmanagement/resourcemanagement/?cid=STELPRDB5144786&width=full.

U.S. Forest Service (USFS). 2008. Range allotments shapefile - in Geographic Information System (GIS) coverages provided by Caribou National Forest, via e-mail. April 2008.

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
Camp G Creek Sub-Basin										
Borrow 1	Potential borrow source of Rex Chert, located north of the switchbacks leading to Camp G Creek on the South Woodall Panel ODA	NA	458617	4732083	OC	Overburden	X (0-6")			
CGC-1	Camp G Creek sampling location in valley between the first and second set of foothills east of Woodall Mountain. Upstream of Jouglard Ranch's eastern boundary fence and west of where the valley narrows between two ridges.	NA	461073	4732330	RV	Original Ground	X (0-12")	X	X	X
CP-01	Camp G Creek pasture area location in northern portion of valley between the first and second set of Woodall Mountain foothills. Southwest of northern ridge where valley narrows.	NA	460551	4732385	PS	Original Ground	X (0-12")	X		
CP-02	Camp G Creek pasture area location in southern portion of valley between the first and second set of Woodall Mountain foothills. Southwest of southern ridge where valley narrows.	NA	460838	4731811	PS	Original Ground	X (0-12")	X		
CP-03	Camp G Creek pasture area location in southern most portion of Jouglard Ranch and east of Dredge house on hill.	NA	460898	4731151	PS	Original Ground	X (0-12")	X		
CR-01	Camp G Creek riparian area location along the main stem of Camp G Creek upgradient from the confluence with Camp H Creek. Near surface water location CGC-4A.	NA	459445	4731346	RV	Original Ground	X (0-12")	X		
CR-02	Camp G Creek riparian area location along Camp H Creek in treed area upstream of the confluence with Camp G Creek.	NA	459455	4731644	RV	Original Ground	X (0-12")	X		
CR-03	Camp G Creek riparian area locations along the main stem of Camp G Creek where it flows between ridges of the first set of Woodall Mountain foothills. Near surface water locations CGC-2 and CGC-3.	NA	460303	4731647	RV	Original Ground	X (0-12")	X		
CR-04		NA	460143	4731689	RV	Original Ground	X (0-12")	X		
Dredge Ranch	Camp G Creek pasture area location near Jouglard Ranch homes.	NA	460858	4731749	PS	Original Ground	X (0-12")			
RD-25	Former haul road sampling stations located along the down slope shoulder of the first and third Camp H area switchbacks from the top.	NA	458774	4731730	RD	Haul roads	X (2-12")			
RD-26		NA	458884	4731700	RD	Haul roads	X (2-12")			
ST12-01	Transect sampling stations located on the Camp H waste rock pile to delineate extent of disturbance	NA	458844	4731500	OD	Waste Rock	X (0-12")	X		
ST12-02		NA	458923	4731520	OD	Waste Rock	X (0-12")	X		
ST12-03		NA	458989	4731530	UL	Original Ground	X (0-12")	X		
ST3-01	Transect sampling stations locate on the Camp G waste rock pile to delineate extent of disturbance	NA	459403	4731071	UL	Original Ground	X (0-12")	X		
ST3-02		NA	459242	4730894	OD	Waste Rock	X (0-12")	X		
ST3-03		NA	459200	4730879	UL	Original Ground	X (0-12")	X		
French Drain Sub-Basin										
Con	"Area 2 Control" sampling locations for Fessler thesis, located southwest of former Conda townsite	NA	456223	4730504	PS	Original Ground	X (0-20")	X		
LoSe	"Area 1 Group 1" sampling locations for Fessler thesis, located in the West Limb Panel ODA	NA	456925	4729711	OD	Overburden	X (0-20")	X		
NQ-13	Opportunistic sampling location in the western portion of the West Limb Panel ODA south of the French Drain	NA	456457	4730041	OD	Overburden	X (0-12")	X	X	X
NQ-14	Opportunistic sampling location in the middle portion of the West Limb Panel ODA	NA	456890	4729429	OD	Overburden	X (0-12")	X	X	X
RD-19	Roadway sampling locations along the down slope shoulder of the road through the West Limb Panel ODA	NA	456587	4729980	RD	Haul roads	X (2-12")			
RD-20		NA	456770	4729570	RD	Haul roads	X (2-12")			
SQ-02	Soil and Vegetation Sampling Location	NA	456183	4731293	TD	Tailings	X (0-12")	X		
ST1-02	Middle Limb Panel ODA locations	NA	457447	4730554	OD	Overburden	X (0-12")	X		
ST1-03		NA	457426	4730346	OD	Overburden	X (0-12")	X		
ST4-01	Northern-most sampling locations in the ST4 transect running north-south through the northern portion of the West Limb Panel ODA	NA	456695	4730386	OD	Overburden	X (0-12")	X		
ST4-02		NA	456755	4730150	OD	Overburden	X (0-12")	X		
ST4-03		NA	456763	4729977	OD	Overburden	X (0-12")	X		
ST4-04		NA	456825	4729583	OD	Overburden	X (0-12")	X		
ST8-01	Transect originating in former Conda townsite area and extending south beyond the French Drain area into the West Limb Panel ODA	NA	456483	4730675	LL	Former Mill/Townsite	X (0-12")	X		
ST8-02		NA	456453	4730489	LL	Original Ground	X (0-12")	X		
ST8-03		NA	456454	4730216	OD	Overburden	X (0-12")	X		
ST8-04		NA	456471	4729991	OD	Overburden	X (0-12")	X		
ST9-01	Just south of former Conda townsite near monitoring well GW-12	NA	456237	4730550	LL	Original Ground	X (0-12")			
ST9-02	Former Conda townsite east of New Tailings Pond	NA	456308	4730940	LL	Former Mill/Townsite	X (0-36")			
ST9-03	Former Conda townsite locations at sewage lagoons	NA	456272	4731040	LL	Former Mill/Townsite	X (0-12")			
ST9-04		NA	456212	4731100	LL	Former Mill/Townsite	X (0-12")			
ST9-05		NA	456288	4731170	LL	Former Mill/Townsite	X (0-12")			
ST9-06	On east side of road to sewage lagoons and former Conda townsite	NA	456309	4731320	LL	Former Mill/Townsite	X (0-12")			
ST9-07	Just south of former Conda townsite	NA	456432	4730490	LL	Original Ground	X (0-12")			
ST9-08	Former Conda townsite	NA	456509	4730880	LL	Former Mill/Townsite	X (0-36")			

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
ST9-09	Former Conda mill site	NA	456759	4730980	LL	Former Mill/Townsite	X (0-12")			
ST9-10	Former Conda mill site and along former rail bed	NA	456623	4731090	LL	Former Mill/Townsite	X (0-12")			
ST9-11	Along abandoned rail line south of former Conda mill site	NA	456650	4730470	LL	Former Mill/Townsite	X (0-12")			
ST9-12		NA	456726	4730820	LL	Former Mill/Townsite	X (0-12")			
ST9-14	Former Conda mill site.	NA	456266	4730868	LL	Former Mill/Townsite	X (0-12")			
ST9-15		NA	456358	4730801	LL	Former Mill/Townsite	X (0-12")			
ST9-16		NA	456335	4730858	LL	Former Mill/Townsite	X (0-12")			
ST9-17		NA	456424	4730731	LL	Former Mill/Townsite	X (0-12")	X	X	X
ST9-18		NA	456436	4730804	LL	Former Mill/Townsite	X (0-12")			
ST9-23	Former Conda mill site	NA	456656	4731032	LL	Former Mill/Townsite	X (0-36")			
ST9-24		NA	456715	4730992	LL	Former Mill/Townsite	X (0-36")			
ST9-25		NA	456716	4730894	LL	Former Mill/Townsite	X (0-36")			
ST9-26		NA	456797	4730988	LL	Former Mill/Townsite	X (0-36")			
ST9-27		NA	456872	4730959	LL	Former Mill/Townsite	X (0-36")			
SWP-4	Southwest Pond #4: Western-most (middle) pond in forested depression area just south of Conda townsite	NA	456713	4730071	PD	Overburden	X (0-12")	X	X	X
WD062	Middle Limb Panel ODA location	NA	457353	4730493	OD	Overburden	X (no data)	X	X	X
WD068	West Limb Panel ODA location	NA	456825	4729735	OD	Overburden	X (no data)			
Margarette Creek/Trail Canyon Sub-Basin										
NQ-17	Opportunistic sampling location in the North Trail Panel ODA uphill of the road that crosses the ODA	NA	459731	4728522	OD	Overburden	X (0-12")	X	X	X
PET-6	Mammal sampling transect	NA	460011	4729093	UL	Original Ground				X
RD-14	Former haul road sampling stations located along the down slope shoulder of the road to North Trail Panel ODA	NA	459459	4727950	RD	Haul roads	X (2-12")			
RD-15		NA	459694	4728290	RD	Haul roads	X (2-12")			
ST7-01	Transect along Margarette Creek through North Trail Panel ODA	NA	459814	4728524	OD	Overburden	X (0-12")	X		
ST7-02		NA	459815	4728506	OD	Overburden	X (0-12")	X		
ST7-03		NA	459884	4728052	OD	Overburden	X (0-12")	X		
WD069	Southeast portion of North Trail Panel ODA	NA	460021	4728338	OD	Overburden	X (no data)			
North Woodall Mountain Sub-Basin										
NT8-01	Northern sampling locations along east side NT8 transect; these locations are at the southern end of the Blackfoot Bridge Mine Mid Pit and East Overburden stockpile areas	NA	457759	4736390	UL	Original Ground	X (0-12")	X		
NT8-02		NA	457827	4736200	UL	Original Ground	X (0-12")	X		
NWC-2	North Woodall Creek intermittent stream, just downstream of large beaver pond; in an area that has seen recent construction activities associated with the East Overburden Pile area of the Blackfoot Bridge Mine	NA	457912	4737670	RV	Original Ground	X (0-12")	X	X	X
Old Tailings Pond Sub-Basin										
NQ-08	Opportunistic sampling location south of the road in the southern portion of the Woodall Panel ODA	NA	457594	4732632	OD	Overburden	X (0-12")	X	X	X
NQ-10	Opportunistic sampling location in the northern portion of the Ibex Panel ODA	NA	457706	4731006	OD	Overburden	X (0-12")	X	X	X
NQ-11	Opportunistic sampling location in the northern portion of the Middle Limb Panel ODA	NA	457267	4730721	OD	Overburden	X (0-12")	X	X	X
NQ-18	Opportunistic sampling location within footprint of the Old Tailings Pond	NA	457055	4731211	TD	Tailings	X (0-12")	X	X	X
NT4-05	Southern-most sampling location in NT4 transect running north-south through East Woodall Panel and Woodall Panel ODAs; this location is located in the southern portion of the Woodall Panel ODA	NA	457773	4732822	OD	Overburden	X (0-12")	X		
RD-01	Former haul road sampling stations located along the down slope shoulder of the road to Woodall Mountain	NA	457843	4732480	RD	Haul roads	X (2-12")			
RD-02		NA	457775	4732040	RD	Haul roads	X (2-12")			
RD-03		NA	457977	4731590	RD	Haul roads	X (2-12")			
RD-04		NA	457956	4731140	RD	Haul roads	X (2-12")			
RD-05	Former haul road sampling stations located along the down slope shoulder of the road within Ibex Panel	NA	458015	4730650	RD	Haul roads	X (2-12")			
RD-06	Former haul road sampling stations located along the down slope shoulder of the road to Ibex Panel	NA	457703	4730560	RD	Haul roads	X (2-12")			
RD-16	Former haul road sampling stations located along the down slope shoulder of the road to Woodall Mountain	NA	457676	4731980	RD	Haul roads	X (2-12")			
RD-17		NA	457687	4731690	RD	Haul roads	X (2-12")			
RD-18		NA	457490	4731310	RD	Haul roads	X (2-12")			
SQ-01	Within footprint of the Old Tailings Pond	NA	456871	4731391	TD	Tailings	X (0-12")	X		
SQ-01A		NA	456688	4731395	TD	Tailings	X (0-12")	X		
SQ-01B		NA	456926	4731205	TD	Tailings	X (0-12")	X		
SQ-04	In Frog Pond (former ore slurry overflow storage area)	NA	457108	4730970	MN	Tailings	X (0-12")			
ST1-01	Northern portion of the Middle Limb Panel ODA	NA	457139	4730877	OD	Overburden	X (0-12")	X		

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
ST13-01	Transect just east of Old Tailings Pond to delineate extent of contamination from Slurry Dump area	NA	457302	4731320	OS	Original Ground	X (0-12")	X		
ST13-02		NA	457280	4731250	OS	Tailings	X (0-12")	X		
ST13-03		NA	457225	4731170	OS	Tailings	X (0-12")	X		
ST13-04		NA	457154	4731060	OS	Tailings	X (0-36")	X		
ST15-01	Along the uphill toe of the Old Tailings Pond run-on control dam	NA	457396	4731190	UL	Original Ground	X (0-12")	X		
ST15-02		NA	457372	4731170	UL	Original Ground	X (0-12")	X		
ST2-01	Transect through the Ibex Panel ODA	NA	457785	4731230	OD	Overburden	X (0-12")	X		
ST2-02		NA	457755	4731089	OD	Overburden	X (0-12")	X		
ST2-03		NA	457703	4730959	OD	Overburden	X (0-12")	X		
ST2-04		NA	457883	4730743	OD	Overburden	X (0-12")	X		
ST2-05		NA	457903	4730598	OD	Overburden	X (0-12")	X		
TP2-SB1	Old Tailings Pond easternmost soil boring	NA	457188.29	4731191	SB	Tailings	X (0-24")			
TP2-SB2	Old Tailings Pond middle east soil boring	NA	457080.77	4731184	SB	Tailings	X (0-24")			
TP2-SB3	Old Tailings Pond middle soil boring	NA	456961.47	4731198	SB	Tailings	X (0-24")			
TP2-SB4	Old Tailings Pond middle west soil boring	NA	456873.95	4731247	SB	Tailings	X (0-24")			
TP2-SB5	Old Tailings Pond westernmost soil boring	NA	456764.27	4731382	SB	Tailings	X (0-24")			
West Pit-MT1	Mammal sampling transect near the entrance of the West Pit	NA	457648	4732904	OD	Dinwoody Cover				X
Pedro Creek Sub-Basin										
BCS	In Big Canyon on the South Woodall Panel ODA	NA	458548	4732320	UL	Original Ground		X		
ESedBasinC	Center collection basin at the East Sedimentation Basin of the NTCRA	NA	458567.08	4732732	PD	Original Ground	X			
ESedBasinN	North most collection basin at the East Sedimentation Basin of the NTCRA	NA	458570.74	4732747	PD	Original Ground	X			
ESedBasinS	Southern collection basin at the East Sedimentation Basin of the NTCRA	NA	458564.67	4732716	PD	Original Ground	X			
FSPS Upgradient	Twenty-four soil samples collected from salvaged topsoil upgradient of the FSPS piles	NA	Area west of pile		UL	Original Ground	X (0-12")			
FSPS-10D	Conda Field-Scale Pilot Study Test Plot 10D (12 inches of Dinwoody soil cover)	NA	458732.13	4732339	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-11C	Conda Field-Scale Pilot Study Test Plot 11C (Direct revegetation of manure-amended overburden)	NA	458750.67	4732372	OD	Overburden	X (0-12")	X		
FSPS-12A	Conda Field-Scale Pilot Study Test Plot 12A (Direct revegetation of un-amended overburden)	NA	458739.76	4732391	OD	Overburden	X (0-12")	X		
FSPS-13B	Conda Field-Scale Pilot Study Test Plot 13B (Direct revegetation of sulfur-amended overburden)	NA	458736.03	4732414	OD	Overburden	X (0-12")	X		
FSPS-14D	Conda Field-Scale Pilot Study Test Plot 14D (12 inches of Dinwoody soil cover)	NA	458699.97	4732422	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-15F	Conda Field-Scale Pilot Study Test Plot 15F (18 inches of Dinwoody soil cover with 12 inches of Rex Chert capillary break)	NA	458688.25	4732438	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-16B	Conda Field-Scale Pilot Study Test Plot 16B (Direct revegetation of sulfur-amended overburden)	NA	458747.03	4732323	OD	Overburden	X (0-12")	X		
FSPS-17C	Conda Field-Scale Pilot Study Test Plot 17C (Direct revegetation of manure-amended overburden)	NA	458729.02	4732435	OD	Overburden	X (0-12")	X		
FSPS-18B	Conda Field-Scale Pilot Study Test Plot 18B (Direct revegetation of sulfur-amended overburden)	NA	458716.66	4732453	OD	Overburden	X (0-12")	X		
FSPS-19E	Conda Field-Scale Pilot Study Test Plot 19E (18 inches of Dinwoody soil cover)	NA	458637.45	4732358	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-1F	Conda Field-Scale Pilot Study Test Plot 1F (18 inches of Dinwoody soil cover with 12 inches of Rex Chert capillary break)	NA	458689.66	4732341	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-20A	Conda Field-Scale Pilot Study Test Plot 20A (Direct revegetation of un-amended overburden)	NA	458703.31	4732471	OD	Overburden	X (0-12")	X		
FSPS-21C	Conda Field-Scale Pilot Study Test Plot 21C (Direct revegetation of manure-amended overburden)	NA	458730.4	4732477	OD	Overburden	X (0-12")	X		
FSPS-2G	Conda Field-Scale Pilot Study Test Plot 2G (24 inches of Dinwoody soil cover with 24 inches of Rex Chert capillary break)	NA	458680.26	4732359	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-3F	Conda Field-Scale Pilot Study Test Plot 3F (18 inches of Dinwoody soil cover with 12 inches of Rex Chert capillary break)	NA	458663.37	4732375	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-4G	Conda Field-Scale Pilot Study Test Plot 4G (24 inches of Dinwoody soil cover with 24 inches of Rex Chert capillary break)	NA	458702.61	4732325	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-5E	Conda Field-Scale Pilot Study Test Plot 5E (18 inches of Dinwoody soil cover)	NA	458719.06	4732358	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-6D	Conda Field-Scale Pilot Study Test Plot 6D (12 inches of Dinwoody soil cover)	NA	458708	4732378	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-7E	Conda Field-Scale Pilot Study Test Plot 7E (18 inches of Dinwoody soil cover)	NA	458696.31	4732395	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-8G	Conda Field-Scale Pilot Study Test Plot 8G (24 inches of Dinwoody soil cover with 24 inches of Rex Chert capillary break)	NA	458670.77	4732410	Dinwoody	Dinwoody Cover	X (0-12")	X		
FSPS-9A	Conda Field-Scale Pilot Study Test Plot 9A (Direct revegetation of un-amended overburden)	NA	458714.93	4732307	OD	Overburden	X (0-12")	X		
FSPS-Area	Conda Field-Scale Pilot Study - sample from overburden in general FSPS area (not from a specific test plot)	NA	458693.89	4732361	OD	Overburden	X (0-12")			
FSPS-DTrtmt	Conda Field-Scale Pilot Study D-treatment test plots (12 inches of Dinwoody soil cover)	NA	458708	4732378	Dinwoody	Dinwoody Cover		X		
FSPS-ETrtmt	Conda Field-Scale Pilot Study E-treatment test plots (18 inches of Dinwoody soil cover)	NA	458696.31	4732395	Dinwoody	Dinwoody Cover		X		
FSPS-1	Conda Field-Scale Pilot Study Area - mammal sampling location	NA	458672	4732326	OD	Dinwoody Cover				X
LD	Sampling location within the NT6 transect in the southwest portion of the South Woodall Panel ODA	NA	458193	4732145	OD	Overburden		X		
NQ-03	Opportunistic sampling location on Pedro Creek just downstream of surface water sampling location PC-5	NA	458929	4733414	RV	Original Ground	X (0-12")	X		
NQ-04	Opportunistic sampling location in the middle of the South Woodall Panel ODA; west of construction activities associated with the Field Scale Pilot Study initiated in 2012	NTCRA	458377	4732451	OD	Overburden (now covered)	X (0-12")	X		

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
NQ-07	Opportunistic sampling location in the southern portion of the East Woodall Panel ODA	NA	458023	4733405	OD	Overburden	X (0-12")	X	X	X
NQ-19	Opportunistic sampling location on the upslope area above Pedro Creek ODA on the South Woodall Panel ODA	NTCRA	458010	4732726	OD	Overburden (now covered)	X (0-12")			
NQ-20	Opportunistic sampling location on the upslope area above Pedro Creek ODA on the South Woodall Panel ODA	NTCRA	457963	4732691	OD	Overburden (now covered)	X (0-12")			
NQ-21	Opportunistic sampling location on the upslope area above Pedro Creek ODA on the South Woodall Panel ODA	NTCRA	457991	4732763	OD	Overburden (now covered)	X (0-12")			
NQ-22	Opportunistic sampling location on the upslope area above Pedro Creek ODA on the Woodall Panel ODA	NTCRA	457952	4732857	OD	Overburden (now covered)	X (0-12")			
NQ-23	Opportunistic sampling location on the upslope area above Pedro Creek ODA on the South Woodall Panel ODA	NTCRA	458036	4732844	OD	Overburden (now covered)	X (0-12")			
NQ-24	Opportunistic sampling location on the upslope area above Pedro Creek ODA on the South Woodall Panel ODA	NTCRA	458043	4732803	OD	Overburden (now covered)	X (0-12")			
NQ-25	Opportunistic sampling locations in the reclaimed area upgradient of the road on the East Woodall Panel ODA north of the Pedro Creek ODA	NA	458016	4733327	OD	Overburden	X (0-12")			
NQ-26		NA	458004	4733347	OD	Overburden	X (0-12")			
NQ-27		NA	457971	4733324	OD	Overburden	X (0-12")			
NQ-28	Opportunistic sampling location in the reclaimed area adjacent to the road on the East Woodall Panel ODA north of the Pedro Creek ODA	NA	458030	4733164	OD	Overburden	X (0-12")			
NQ-29	Opportunistic sampling location at the northern end of the Pedro Creek ODA on the Woodall Panel ODA, above the road north of the maintenance area	NA	458006	4733052	OD	Overburden	X (0-8")			
NQ-30	Opportunistic sampling location at the northwest end of the Pedro Creek ODA on the Woodall Panel ODA, above the road and northern portion of the maintenance area	NA	457921	4732921	OD	Overburden	X (0-8")			
NQ-31	Opportunistic sampling location on the Woodall Panel ODA upgradient of the Pedro Creek ODA	NA	457860	4733052	OD	Overburden	X (0-12")			
NQ-32		NA	457822	4732852	OD	Overburden	X (0-12")			
NQ-33	downgradient of silt fence south of the east sediment basin in centerline of mass wasting debris flow	NA	458562.55	4732681	UL	Original ground	X (0-4")			
NQ-34	northeast most reach of visible debris downgradient of east sediment basin	NA	458664.46	4732778	UL	Original ground	X (0-4")			
NTCRA-MT1	NTCRA mammal sampling transect on the upslope area of the regraded pile	NA	458068	4732825	OD	Dinwoody Cover				X
NT4-04	NT4 transect originating on the East Woodall Panel ODA and extending southward to the Woodall Panel ODA; this location is the terminus of the transect on the Woodall Panel ODA	NA	457842	4733127	OD	Overburden	X (0-12")	X		
NT5-01	NT5 transect trending northeast in the northern portion of the South Woodall Panel ODA (across the Pedro Creek ODA)	NTCRA	457951	4732626	OD	Overburden (now covered)	X (0-12")	X		
NT5-02		NTCRA	458077	4732713	OD	Overburden (now covered)	X (0-12")	X		
NT5-03		NTCRA	458191	4732795	OD	Overburden (now covered)	X (0-12")	X		
NT5-04		NTCRA	458284	4732915	OD	Overburden (now covered)	X (0-12")	X		
NT5-05	Continuation of the NT5 transect extending northeast from the South Woodall Panel ODA; sampled to characterize potential dust transport from the ODA	NTCRA	458461	4732989	OD	Overburden (now covered)	X (0-12")	X	X	X
NT5-06		NTCRA	458533	4733091	UL	Overburden (now covered)	X (0-12")	X		
NT5-07		NA	458688	4733140	UL	Original Ground	X (0-12")	X		
NT5-08	Further continuation of the NT5 transect south of NT5-05, -06, and -07, and east of the South Woodall Panel ODA footprint; sampled to characterize potential dust transport from the ODA	NA	458738	4732940	UL	Original Ground	X (0-12")	X		
NT5-09		NTCRA	458524	4732830	UL	Original Ground (now covered)	X (0-12")	X		
NT5-10		NA	458624	4732850	OD	Original Ground	X (0-12")	X		
NT5-11	Location within the NT5 transect downgradient of black shale dump, sampled to aid in identifying the extent of subsurface soil contamination due to groundwater seepage from the ODA	NA	458724	4732863	UL	Original Ground	X (0-12")			
NT6-01	NT6 transect in the southeast portion of the South Woodall Panel ODA	NA	458066	4732185	OD	Overburden	X (0-12")	X		
NT6-02		NA	458284	4732156	OD	Overburden	X (0-12")	X		
NT6-03		NA	458348	4732216	OD	Overburden	X (0-12")	X		
NT7-01	NT7 transect in the eastern portion of the South Woodall Panel ODA; in 2012, this area saw disturbance associated with construction of the Field Scale Pilot Study that affected all three sampling locations	FSPS	458538	4732493	OD	Overburden (now covered)	X (0-12")	X		
NT7-02		FSPS	458661	4732435	OD	Overburden (now covered)	X (0-12")	X		
NT7-03		FSPS	458638	4732323	UL	Original Ground (now covered)	X (0-12")	X		
NT9-01	NT9 sampling location near bottom of mass wasting area from Woodall Mountain ODAs, but on contour to north and not directly downslope of Pedro Creek ODA	NA	458557	4733146	UL	Original Ground	X (0-12")	X		
NT9-02	Lowest NT9 transect sampling location downslope of mass wasting area from Woodall Mountain ODAs; in transition zone at toe of ODA materials	NTCRA	458511	4733116	OD	Overburden (now covered)	X (0-12")	X		
NT9-03	Middle sampling location on NT9 transect on mass wasting area from Woodall Mountain ODAs	NTCRA	458447	4733141	OD	Overburden (now covered)	X (0-12")	X		
NT9-04	NT9 transect sampling location on main slope of mass wasting area from Woodall Mountain ODAs	NTCRA	458176	4733109	OD	Overburden (now covered)	X (0-12")	X		
NT9-05	Uppermost NT9 transect sampling location at the top of the mass wasting area from the Woodall Mountain ODAs	NA	458060	4733103	OD	Overburden	X (0-12")	X		
NT10-1	Transect 10, the south edge of observed material transported from uphill areas	NA	458621.68	4732729	UL	Original ground	X (0-4")			
NT10-2	Transect 10, between NT10-1 and NT10-3 along transect	NA	458619	4732734	UL	Original ground	X (0-4")			
NT10-3	Transect 10, at centerline of debris flow	NA	458616.67	4732739	UL	Original ground	X (0-4")			
NT10-4	Transect 10, between NT10-3 and NT10-5 along transect	NA	458612	4732745	UL	Original ground	X (0-4")			
NT10-5	Transect 10, at observed north edge of debris flow	NA	458607.09	4732751	UL	Original ground	X (0-4")			
NT11-1	Transect 11, at south edge of debris flow	NA	458643.88	4732759	UL	Original ground	X (0-4")			

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
NT11-2	Transect 11, equally spaced between NT11-1 and NT11-3	NA	458639	4732765	UL	Original ground	X (0-4")			
NT11-3	Transect 11, north edge of debris flow	NA	458634.21	4732770	UL	Original ground	X (0-4")			
PC-2	Pedro Creek at upstream end of small canyon and downstream of tributary inflows	NA	460717	4733859	RV	Original Ground		X	X	X
PC-3	Pedro Creek just upstream of the road crossing	NA	459662	4734011	RV	Original Ground	X (0-12")	X	X	X
PC-5	Main stem of upper Pedro Creek in aspen grove	NA	458881	4733378	RV	Original Ground	X (0-12")	X		
PCO-01	Overbank locations downgradient of Pedro Creek ODA in Pedro Creek headwaters area	NA	458489	4733430	UL	Original Ground	X (0-4")			
PCO-02		NA	458568	4733310	UL	Original Ground	X (0-4")			
PCO-03		NA	458780	4733060	UL	Original Ground	X (0-4")			
PCO-04		NA	458849	4732950	UL	Original Ground	X (0-4")			
PCO-05		NA	458713	4733580	UL	Original Ground	X (0-4")			
PCO-06		NA	458880	4733380	UL	Original Ground	X (0-4")			
PCO-07		NA	458887	4733380	UL	Original Ground	X (0-4")			
PCO-08		NA	459024	4733220	UL	Original Ground	X (0-4")			
PCO-09		NA	458830	4733710	UL	Original Ground	X (0-4")			
PCO-10		NA	458941	4733590	UL	Original Ground	X (0-4")			
PCO-11		NA	459140	4733390	UL	Original Ground	X (0-4")			
PCO-12		NA	459234	4733300	UL	Original Ground	X (0-4")			
PCO-13		NA	458869	4733391	UL	Original Ground	X (0-4")			
PCO-14		NA	458874	4733384	UL	Original Ground	X (0-4")			
PCO-15		NA	458885	4733374	UL	Original Ground	X (0-4")			
PCO-16		NA	458891	4733369	UL	Original Ground	X (0-4")			
PCO-17		NTCRA	458538	4733085	UL	Overburden (now covered)	X (0-4")			
PCO-18		NTCRA	458533	4733089	UL	Overburden (now covered)	X (0-4")			
PCO-19		NTCRA	458523	4733091	UL	Overburden (now covered)	X (0-4")			
PCO-20		NTCRA	458539	4733080	UL	Overburden (now covered)	X (0-4")			
PCO-21		NTCRA	458546	4733078	UL	Overburden (now covered)	X (0-4")			
PCO-22		NTCRA	458549	4733069	UL	Overburden (now covered)	X (0-4")			
PCO-23		NA	458661	4733195	UL	Original Ground	X (0-4")			
PCO-24		NA	458662	4733191	UL	Original Ground	X (0-4")			
PCO-25		NA	458664	4733181	UL	Original Ground	X (0-4")			
PCO-26		NA	458666	4733172	UL	Original Ground	X (0-4")			
PCO-27		NA	458669	4733167	UL	Original Ground	X (0-4")			
PCO-28		NA	458671	4733158	UL	Original Ground	X (0-4")			
PCP-1	Pedro Creek Pond #1: Reported location of stock pond, but no evidence of pond found	NA	458765	4732948	PD	Original Ground		X		
PCP-2	Pedro Creek Pond #2: Stock pond near head of Pedro Creek Tributary #5	NA	458754	4732727	PD	Original Ground		X		
PET-4	Pedro Creek mammal sampling transect located on the north facing slope of the NTCRA	NA	458275	4732980	OD	Overburden (now covered)				X
PP-01	Pedro Creek pasture area location just south of the main stem of Pedro Creek between surface water locations PC-2 and PC-3	NA	460087	4733844	PS	Original Ground	X (0-12")	X		
PP-02	Pedro Creek pasture area location south of the main stem of Pedro Creek and east of Pedro Creek Tributaries #2 and #3	NA	460821	4733484	PS	Original Ground	X (0-12")	X		
PP-03	Pedro Creek pasture area location just south of Pedro Creek Tributary #1 along the road	NA	460380	4733008	PS	Original Ground	X (0-12")	X		
PR-01	Pedro Creek riparian area location in treed area at surface water location PC-5	NA	458880	4733384	RV	Original Ground	X (0-12")	X		
PR-02	Pedro Creek riparian area location in treed area between surface water locations PC-3 and PC-4	NA	459357	4733845	RV	Original Ground	X (0-12")	X		
PR-03	Pedro Creek riparian area location at surface water location PC-3	NA	459666	4734008	RV	Original Ground	X (0-12")	X		
PR-04	Pedro Creek riparian area location between surface water location PC-3 and PC-2	NA	460190	4733984	RV	Original Ground	X (0-12")	X		
PR-05	Pedro Creek riparian area location at surface water location PC-2	NA	460681	4733856	RV	Original Ground	X (0-12")	X		
TP-12	Test Pit located in the mass wasting area north of Pedro Crk ODA	NTCRA	458264	4733118	OD	Overburden (now covered)	X (0-12")			
TP-13	Test Pit located in the mass wasting area north of Pedro Crk ODA	NTCRA	458321	4733103	OD	Overburden (now covered)	X (0-12")			
TP-14	Test Pit located in the mass wasting area north of Pedro Crk ODA	NTCRA	458440	4733128	OD	Overburden (now covered)	X (0-12")			
TP-15	Test Pit located NE of NES-5 along fence line	NTCRA	458509	4733077	UL	Original Ground (now covered)	X (0-12")			
TP-16	Test Pit located SE of NES-5 35 feet south of fence line.	NTCRA	458550	4733009	UL	Original Ground (now covered)	X (0-12")			
TP-17	East of Pedro Crk ODA toe in foot print of design toe of slope, 265 feet south of TP-16	NTCRA	458578	4732933	UL	Original Ground (now covered)	X (0-12")			
TP-18	Approximately 555 feet south of TP-17	NTCRA	458564	4732765	UL	Original Ground (now covered)	X (0-12")			

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
TP-19	On the southern flanks of the Pedro Crk ODA near good top soil stockpile.	NTCRA	458493	4732663	UL	Original Ground (now covered)	X (0-12")			
UD	Eastern portion of the Woodall Panel ODA in the mass wasting area north of the Pedro Creek ODA	NTCRA	458109	4733197	OD	Overburden (now covered)		X		
WD072	Eastern portion of the Woodall Panel ODA	NA	458009	4733099	OD	Overburden	X (no data)			
Shield and Jouglard Canyons Sub-Basin										
Borrow 2	Potential borrow source of Rex Chert, located along the road north of Hoorah Hollow Pond	NA	457687	4730224	OC	Overburden	X (0-6")			
HHP-1	Hoorah Hollow Pond	NA	457760	4729819	PD	Original Ground	X (0-12")	X	X	X
HiSe	"Area 3 Group 3" sampling locations for Fessler thesis, located in the West Limb Panel ODA on the slope SW of the road to the Pit Lake	NA	457087	4728661	OD	Overburden	X (0-20")	X		
NQ-12	Opportunistic sampling location in the eastern portion of the West Limb Panel ODA at the border with Middle Limb Panel ODA	NA	457343	4729745	OD	Overburden	X (0-12")	X	X	X
NQ-15	Opportunistic sampling location in the western portion of the West Limb Panel ODA	NA	456929	4728830	OD	Overburden	X (0-12")	X	X	X
NQ-16	Opportunistic sampling location in the West Limb Panel ODA on the west slope above the Pit Lake	NA	457542	4728425	OD	Overburden	X (0-12")	X	X	X
PET-5	Mammal transect sample location West Limb Panel	NA	457383	4729071	OD	Overburden				X
RD-08	Former haul road sampling stations located along the down slope shoulder of the road to North Trail Panel ODA	NA	458095	4730080	RD	Haul roads	X (2-12")			
RD-09		NA	458432	4729730	RD	Haul roads	X (2-12")			
RD-10		NA	458606	4729450	RD	Haul roads	X (2-12")			
RD-11		NA	458684	4729220	RD	Haul roads	X (2-12")			
RD-12		NA	458839	4728780	RD	Haul roads	X (2-12")			
RD-13		NA	459112	4728390	RD	Haul roads	X (2-12")			
RD-21	Former haul road sampling stations located along the down slope shoulder of the road to Grace Panel ODA	NA	456688	4728930	RD	Haul roads	X (2-12")			
RD-22		NA	456448	4728670	RD	Haul roads	X (2-12")			
RD-23	Former haul road sampling stations located along the down slope shoulder of the road through the West Limb Panel ODA	NA	456879	4729140	RD	Haul roads	X (2-12")			
RD-24		NA	457122	4728720	RD	Haul roads	X (2-12")			
SQ-03	Wetland area in the vicinty of Meadow Spring	NA	456765	4728785	UL	Original Ground	X (0-12")	X		
ST10-03	Sampling locations in the ST10 transect running east-west from native areas through the Grace Panel ODA; these locations are within the Grace Panel ODA	NA	455945	4728450	OD	Overburden	X (0-12")	X		
ST10-04		NA	456087	4728500	OD	Overburden	X (0-12")	X	X	X
ST10-05		NA	456189	4728520	OD	Overburden	X (0-12")	X		
ST10-06	Eastern-most sampling location in the ST10 transect running east-west from native areas through the Grace Panel ODA; this location is east of the ODA	NA	456302	4728510	UL	Original Ground	X (0-12")	X		
ST14-01	Exploratory prospect hole in forested area approximately 1/3 mile north of Trail Canyon Creek	NA	458542	4728270	OD	Waste Rock	X (0-12")	X		
ST4-05	Southern-most sampling locations in the ST4 transect running north-south and curving east through the northern portion of the West Limb Panel ODA	NA	456956	4729240	OD	Overburden	X (0-12")	X		
ST4-06		NA	457290	4729113	OD	Overburden	X (0-12")	X		
ST5-01	Transect located in the eastern portion of the West Limb Panel ODA	NA	457164	4729550	OD	Overburden	X (0-12")	X		
ST5-02		NA	457184	4729620	OD	Overburden	X (0-12")	X		
ST5-03		NA	457204	4729697	OD	Overburden	X (0-12")	X		
ST6-01	Transect located in the southern portion of the West Limb Panel west of the Pit Lake	NA	457151	4728663	OD	Overburden	X (0-12")	X		
ST6-02		NA	457353	4728454	OD	Overburden	X (0-12")	X		
ST6-03		NA	457494	4728427	OD	Overburden	X (0-12")	X		
ST7-00	Transect along Margarette Creek through North Trail Panel ODA; this location is located just north of the ODA	NA	459792	4729124	UL	Original Ground	X (0-12")	X		
TP-5	Test pits advanced for Dinwoody Formation borrow material, located near the junction of roads going to Hoorah Hollow and North Trail Panel ODA	NA	457809	4730342	UL	Original Ground	X (0-99.6")			
TP-5a		NA	457900	4730364	UL	Original Ground	X (0-90")			
TP-5b		NA	458003	4730258	UL	Original Ground	X (0-66")			
TP-6	Test pit advanced for Dinwoody Formation borrow material, located north of Hoorah Hollow Pond	NA	457792	4730157	UL	Original Ground	X (0-96")			
TP-7	Test pits advanced for Dinwoody Formation borrow material, located approximately one mile southeast of the junction on the road to North Trail Panel ODA	NA	458689	4729178	UL	Original Ground	X (0-108")			
TP-8		NA	458805	4729381	UL	Original Ground	X (0-96")			
TP-9	Test pit advanced for Dinwoody Formation borrow material, located north of Hoorah Hollow Pond	NA	457954	4730018	UL	Original Ground	X (0-90")			
TP-10	Test pit advanced for Dinwoody Formation borrow material, located in Hoorah Hollow	NA	457932	4729546	UL	Original Ground	X (0-120")			
TP-11	Test pit advanced for Dinwoody Formation borrow material, located north of Hoorah Hollow Pond	NA	457903	4729977	UL	Original Ground	X (0-78")			
Southwest Conda Sub-Basin										
ST10-01	Western-most sampling locations in the ST10 transect running east-west from native areas through the Grace Panel ODA; these locations are just west of the ODA	NA	455660	4728410	UL	Original Ground	X (0-12")	X		
ST10-02		NA	455800	4728370	OD	Original Ground	X (0-12")	X		

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
ST11-01	East-west transect in native undisturbed area north of Grace Panel	NA	455491	4729160	UL	Original Ground	X (0-12")	X		
ST11-02		NA	455573	4729200	UL	Original Ground	X (0-12")	X	X	X
ST11-03		NA	455669	4729220	UL	Original Ground	X (0-12")	X		
ST11-04		NA	455724	4729230	UL	Original Ground	X (0-12")	X		
State Land Creek Sub-Basin										
NQ-01	Opportunistic sampling location on the south side of the road by northeast seeps (NES) on the eastern end of the East Woodall Panel ODA	NA	458390	4734792	OD	Overburden	X (0-12")	X		
NQ-02	Opportunistic sampling location on the east side of the East Woodall Panel ODA between northeast seeps NES-3 and NES-4	NA	458347	4734595	OD	Overburden	X (0-12")	X		
NQ-06	Opportunistic sampling location on the north side of Woodall Mountain at the end of the road on the Woodall Panel ODA	NA	457505	4734691	OD	Overburden	X (0-12")	X	X	X
NT1-01	NT1 transect originating at a native area and extending south through the northern portion of the Woodall Panel ODA	NA	457661	4735019	UL	Original Ground	X (0-12")	X		
NT1-02		NA	457639	4734988	OD	Overburden	X (0-12")	X		
NT1-03		NA	457565	4734666	OD	Overburden	X (0-12")	X		
NT1-04		NA	457624	4734425	OD	Overburden	X (0-12")	X		
NT1-05		NA	457586	4734321	OD	Overburden	X (0-12")	X		
NT2-01	NT2 transect trending eastward in the eastern portion of the East Woodall Panel ODA	NA	458046	4734564	OD	Overburden	X (0-12")	X		
NT2-02		NA	458190	4734601	OD	Overburden	X (0-12")	X		
NT2-03		NA	458350	4734648	OD	Overburden	X (0-12")	X		
NT2-04	Continuation of the NT2 transect extending east from the East Woodall Panel ODA to native areas; sampled to characterize potential dust transport from the ODA	NA	458389	4734710	OD	Overburden	X (0-12")	X	X	X
NT2-05		NA	458490	4734710	UL	Original Ground	X (0-12")	X		
NT2-06		NA	458627	4734740	UL	Original Ground	X (0-12")	X		
NT4-01	NT4 transect originating on the East Woodall Panel ODA and extending southward to the Woodall Panel ODA; these locations are in the southern portion of the East Woodall Panel ODA	NA	458021	4733774	OD	Overburden	X (0-12")	X		
NT4-02		NA	457901	4733557	OD	Overburden	X (0-12")	X		
NT4-03		NA	457900	4733457	OD	Overburden	X (0-12")	X		
NT8-03	Southern sampling locations along east side NT8 transect	NA	457904	4735970	UL	Original Ground	X (0-12")	X	X	X
NT8-04		NA	457972	4735750	UL	Original Ground	X (0-12")	X		
NT8-05		NA	458048	4735530	UL	Original Ground	X (0-12")	X		
NT8-06		NA	458132	4735330	UL	Original Ground	X (0-12")	X		
PET-1	Mammal transect sample location on the East Woodall mine panel	NA	458300	4734665	OD	Overburden				X
PET-3	Mammal transect sample location on the East Woodall mine panel downslope from the road	NA	458133	4733898	OD	Overburden				X
SLC-2	State Land Creek just downstream of the confluence with State Land Creek Tributary #3	NA	459495	4736545	RV	Original Ground	X (0-12")	X	X	X
SLC-3	State Land Creek just upstream of the fence marking the southern boundary of the State Land, directly west of SLCT1-1	NA	459206	4734741	RV	Original Ground	X (0-12")	X	X	X
SP-01	State Land Creek pasture area location just north of Tributary #2 and west of the main stem of State Land Creek	NA	459397	4736007	PS	Original Ground	X (0-12")	X		
SP-02	State Land Creek pasture area location just north of the main stem of State Land Creek and south of Tributary #2	NA	459526	4735213	PS	Original Ground	X (0-12")	X		
SP-03	State Land Creek pasture area location just south of the main stem of State Land Creek	NA	459641	4734964	PS	Original Ground	X (0-12")	X		
SP-04	State Land Creek pasture area location just south of State Land Creek Tributary #1	NA	459981	4734684	PS	Original Ground	X (0-12")	X		
SR-01	State Land Creek riparian area location on the main stem of State Land Creek at surface water location SLC-3	NA	459238	4734758	RV	Original Ground	X (0-12")	X		
SR-02	State Land Creek riparian area location on the main stem of State Land Creek upstream of Tributary #1 and Tributary #2	NA	459809	4735298	RV	Original Ground	X (0-12")	X		
SR-03	State Land Creek riparian area location on the main stem of State Land Creek upstream of Tributary #2 confluence at surface water location SLC-3C	NA	459948	4735659	RV	Original Ground	X (0-12")	X		
SR-04	State Land Creek riparian area location on the main stem of State Land Creek between Tributary #2 and Tributary #3 confluences	NA	459565	4736263	RV	Original Ground	X (0-12")	X		
SR-05	State Land Creek riparian area location on the main stem of State Land Creek at surface water location SLC-2	NA	459500	4736511	RV	Original Ground	X (0-12")	X		
Western Woodall Mountain Sub-Basin										
NT3-01	NT3 transect running north-south along the west side of the Woodall Panel ODA	NA	457145	4734121	OD	Overburden	X (0-12")	X		
NT3-02		NA	457164	4733903	OD	Overburden	X (0-12")	X		
NT3-03		NA	457172	4733622	OD	Overburden	X (0-12")	X		
NT3-04		NA	457228	4733237	OD	Overburden	X (0-12")	X		
NT3-05		NA	457280	4732966	OD	Overburden	X (0-12")	X		
NT3-06		NA	457378	4732815	OD	Overburden	X (0-12")	X		
NT3-07		NA	457428	4732652	UL	Original Ground	X (0-12")	X		
PET-2		NA	457252	4734263	OD	Overburden				X

Table 3-1
Terrestrial Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored			
							Soils (Depth)	Vegetation	Invertebrates	Small Mammals
Offsite										
MST020	Blackfoot River below State Land Creek	NA	458913	4739705	RV	Offsite	X (no data)	X		
MST231	Blackfoot River below confluence with State Land Creek	NA	454818	4739820	RV	Offsite	X (0-2")	X		
ST232	Blackfoot River at Blackfoot River County Park near intersection of State Highway 34 and Blackfoot River Road (also GYC9)	NA	454780	4741131	RV	Offsite	X (0-2")	X		
ST019	Blackfoot River below Ballard Creek and immediately upstream of the Monsanto Haul Road	NA	458545	4740323	RV	Offsite	X (no data)	X		
ST021	Blackfoot River below Trail Creek at Fox Ranch	NA	461564	4737906	RV	Offsite	X (no data)	X		
ST022	Blackfoot River below Wooley Valley Creek where North Trail Road crosses the river	NA	463453	4735061	RV	Offsite	X (no data)	X		
ST076	Trail Creek above Blackfoot River	NA	461840	4736206	RV	Offsite	X (no data)	X	X	X
ST230	Blackfoot River above State Land Creek	NA	459228	4739303	RV	Offsite	X (no data)	X		

Notes:

Coordinates are in UTM NAD 83 Zone 12 meters

1 - Locations in FSPS or NTCRA areas that were sampled prior to regrading of the piles and placement of Dinwoody soil cover.

Acronyms:

NA = No Applicable

NTCRA = Non-Time Critical Removal Action

FSPS = Field-Scale Pilot Study

Station Type: LL = Lowland; MN: Mine Structure; OC: Outcrop; OD: Overburden Disposal Area; OS: Ore Storage Area; PD: Pond; PS: Pasture; RD: Roadway; RV: River/Stream; TD: Tailings Deposit; UL: Upland

Material Type: Residual Mining Materials including Overburden, Tailings, Waste Rock, Haul Roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are in the vicinity of the Blackfoot River or Trail Creek.

Table 3-2
Aquatic Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored						
							Surface Water	Sediment	Aquatic Vegetation	Benthic Invertebrate Tissue	Fish Tissue	Habitat Quality	Benthic Community
Camp G Creek Sub-Basin													
CGC-0	Mouth of Camp G Creek upstream of Trail Creek confluence	NA	463461	4733586	RV	Original Ground	X	X	AVM	X	X	X	X
CGC-1	Camp G Creek just upstream of Jouglard Ranch boundary fence near valley constriction	NA	461073	4732330	RV	Original Ground	X	X	AVM	X		X	
CGC-1A	Camp G Creek, downstream of CGC-1 and on the north-most limb after the river splits	NA	461469	4732749	RV	Original Ground		X					
CGC-2	Camp G Creek just upstream of fence around western side of Jouglard Ranch houses and north of Camp G Creek road	NA	460532	4731693	RV	Original Ground	X						
CGC-2A	Alternate sampling location for CGC-2 on stream at culvert near ranch house after two legs/tributaries rejoin	NA	460623	4731677	RV	Original Ground	X						
CGC-3	Camp G Creek beaver pond downstream of gulch coming into Camp G Creek from the west	NA	459753	4731660	RV	Original Ground	X						
CGC-3A	Camp G Creek beaver pond downstream of CGC-3 beaver pond	NA	460013	4731700	RV	Original Ground	X	X					
CGC-3B	Camp G Creek downstream of beaver ponds above Jouglard Ranch houses and upstream of CGC-2	NA	460287	4731781	RV	Original Ground		X					
CGC-4	Camp G Creek downstream of Camp G waste rock pile	NA	459459	4731096	RV	Original Ground	X	X					
CGC-4A	Camp G Creek beaver pond downstream of CGC-4	NA	459423	4731355	RV	Original Ground	X	X	AVM	X		X	
CGC-4B	Camp G Creek just upstream of confluence with Camp H Creek	NA	459647	4731586	RV	Original Ground	X						
CGC-4C	Camp G Creek just downstream of Camp H Creek and upstream of beaver ponds	NA	459686	4731624	RV	Original Ground	X						
CGC-5	Camp G Creek upstream of Camp G waste rock pile	NA	459416	4730752	RV	Original Ground	X	X					
CGC-6	Camp H Creek downstream of Camp G waste rock pile and just upstream of CHC-1	NA	459481	4731630	RV	Original Ground		X					
CGCA-1	Camp G Creek adit approximately 750 feet west of Camp G Creek	NA	459189	4730927	AD	Waste rock	X						
CGCT1-1	Camp G Creek Tributary #1: Upstream of the culvert under the ranch road near the entrance gate to the Jouglard Ranch	NA	460989	4731537	RV	Original Ground	X						
CGC-UPTC	Camp G Creek just upstream of Trail Creek confluence (one-time sampling location during high runoff event)	NA	463500	4733702	RV	Original Ground	X						
CHC-1	Camp H Creek approximately 300 feet upstream of the confluence with Camp G Creek	NA	459537	4731631	RV	Waste rock	X						
CHCA-1	Camp H Creek adit	NA	458865	4731499	AD	Waste rock	X						
CS-1_CND	Corral Spring just southeast of sheep corrals near entrance gate to Jouglard Ranch	NA	461124	4731523	SP (spring)	Original Ground	X	X					
JRLD	Spring on Jouglard property piped to new Dredge house	NA	460662	4731142	SP (spring)	Original Ground	X						
JS-1	Jouglard Spring, a spring historically used for drinking water at the Jouglard Ranch	NA	460447	4731563	SP (spring)	Original Ground	X	X					
SedDisposal	Disposal site where the mobile screen plant was set up for processing Rex Chert (western side of Woodall Mountain at the north end of the open pit mining area along the road that leads to the switch-back road and into the headwaters of Camp G Creek).	NA	458592.57	4732007.8	MP	Overburden		X					
French Drain Sub-Basin													
FD-1	French Drain channel just south of the former Conda townsite	NA	456468	4730322	FD	Overburden	X	X					
NTP-1	New Tailings Pond	NA	456043	4731090	TP	Tailings		X					
NTP-2	New Tailings Pond	NA	455512	4731150	TP	Tailings		X					
NTP-3	New Tailings Pond	NA	455906	4730950	TP	Tailings		X					
SWP-4	Southwest Pond #4: Western-most (middle) pond in forested depression area just south of Conda townsite	NA	456713	4730071	PD	Overburden	X	X	AVM	X			
SWP-4A	Southwest Pond #4A: Northern-most pond in forested depression area on West Limb Panel ODA south of Conda Townsite and southwest of SWP-4	NA	456632	4729987	PD	Overburden	X						
SWP-5	Southwest Pond #5: Ponded area at base of mined area on the Middle Limb Panel ODA	NA	457331	4730218	PD	Overburden	X						
SWP-6	Southwest Pond #6: West Limb Panel ODA pond; no historical evidence of a seep, just an area of potential ponding	NA	456821	4730429	PD	Overburden	X						
SWS-1	Southwest Seep #1: Possible seep area above reclaimed pile south of French Drain	NA	456479	4729912	SP (seep)	Overburden	X						
SWS-3	Southwest Seep #3: West Limb Panel ODA seep potentially draining the underground workings at Adit No. 2 above SWP-4A	NA	456664	4729904	SP (seep)	Overburden	X	X					
TP-1	Conda Mine Townsite Tailings Pond #1: Sample collection point from southeast corner	NA	456061	4730796	TP	Tailings	X	X	AVM	X			
Margarette Creek/Trail Canyon Sub-Basin													
MC-1	Margarette Creek catch basin downstream of the North Trail Panel ODA and upstream of Trail Canyon, near monitoring well GW-36	NA	459863	4728113	RV	Overburden	X	X					
SWP-8	Southwest Pond #8: Potential ponded area at base of the North Trail Panel ODA	NA	460141	4728246	PD	Overburden	X						
TCC-1	Trail Canyon drainage channel near the mouth of Trail Canyon; channel appears to be mostly for road runoff	NA	456463	4727218	RV	Original Ground	X	X					
TCC-1A	Trail Creek along Trail Canyon Road upstream from Larsen house	NA	458089	4727406	RV	Original Ground		X					
TCC-1B	Trail Creek downstream of Margrette Creek	NA	459861	4727744	RV	Original Ground		X					
TCC-2	Trail Canyon pond just south of the Trail Canyon Road and just west of the top the Trail Canyon	NA	460325	4727890	PD	Original Ground	X	X					
North Woodall Mountain Sub-Basin													
NWC-1	Downstream end of North Woodall Creek drainage south of railroad tracks; this location has recently been disturbed due to initial construction activities associated with the East Overburden stockpile area of the Blackfoot Bridge Mine	NA	457662	4737869	RV	Original Ground	X	X					
NWC-2	North Woodall Creek intermittent stream, just downstream of large beaver pond; in an area that has seen recent construction activities associated with the East Overburden Pile area of the Blackfoot Bridge Mine	NA	457912	4737670	RV	Original Ground	X	X	AVM	X		X	X
SW03-L	Wetland-K (Fish Pond at the mouth of North Woodall Creek) at Monsanto Haul Road	NA	457345	4737965	PD	Original Ground	X						
SW05-SP	Wetland-C in upper reaches of North Woodall Creek; this location has recently been disturbed due to initial construction activities associated with the East Overburden stockpile area of the Blackfoot Bridge Mine	NA	458192	4736769	SP (spring)	Original Ground	X						
SW06-W	Wetland-G in middle North Woodall Creek just upstream of surface water location NWC-2; this location has recently been disturbed due to construction activities associated with the future East Overburden Pile portion of the Blackfoot Bridge Mine	NA	457956	4737492	SP (spring)	Original Ground	X						
SW07-SP	Spring pond, north of Woodall Spring	NA	456209	4736803	SP (spring)	Original Ground	X						
SW07-SP(S)	Spring pond, north of Woodall Spring, south outlet	NA	456201	4736733	SP (spring)	Original Ground	X						
WS-1	Woodall Spring 1: Western portion of pond that collects flow from nearby spring-fed ponds in Woodall Springs complex, sample collection point in pond east of outflow structure	NA	456040	4736749	SP (spring)	Original Ground	X	X					
WS-2	Woodall Spring 2: Ponded spring location in northern portion of Woodall Springs complex	NA	456309	4737112	SP (spring)	Original Ground	X	X					
WS-3	Woodall Spring 3: generally dry depression in northern portion of Woodall Springs complex	NA	456302	4737212	SP (spring)	Original Ground	X	X					
Old Tailings Pond Sub-Basin													
IB-1	Outfall from culvert at the north dinwoody borrow sediment basin	NA	457779.91	4730384.9	RV	Original ground	X	X					
NBorrowSedBasin	Northern most sedimentation basin at the Dinwoody Borrow area	NA	457783	4730368	PD	Original Ground	X						
NEP-7	Northeast Pond #7: Potential ponding area at base of the Woodall Panel ODA on the southern side of Woodall Mountain	NTCRA	457635	4733030	PD	Overburden (now covered)	X						
SWInfiltBasin	Sedimentation basin located at the saddle area going from the westside to the eastside	NA	457872	4732532	PD	Original Ground	X						
TP-2	Conda Mine Tailings Pond #2: Sample collection point from northern most pond in center of vegetated Old Tailings Pond	NA	456990	4731345	TP	Tailings	X	X					
TP-2A	Conda Mine Tailings Pond #2A: Sample collection point from pond south of TP-2 pond in center of vegetated Old Tailings Pond	NA	456999	4731207	TP	Tailings	X						

Table 3-2
Aquatic Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored						
							Surface Water	Sediment	Aquatic Vegetation	Benthic Invertebrate Tissue	Fish Tissue	Habitat Quality	Benthic Community
TP-2B	Conda Mine Tailings Pond #2B: Southern portion of Old Tailings Pond near SQ-4 and frog pond	NA	457075	4730961	TP	Tailings	X						
TP-2C	Conda Mine Tailings Pond #2C: Northwest portion of Old Tailings Pond near dam	NA	456676	4731550	TP	Tailings	X						
TP-2D	Conda Mine Tailings Pond #2D: Southeast portion of Old Tailings Pond	NA	457130	4731122	TP	Tailings	X						
WInfiltBasin	Infiltration Basin at the West Pit Area of the NTCRA	NA	457670	4733026	PD	Overburden	X						
WMC6-1	Woodall Mountain Creek #6: diversion channel just north of Old Tailings Pond area and upstream of the road	NA	457198	4731613	RV	Original Ground	X	X					
WMC6-2	Woodall Mountain Creek #6: Upstream end of Woodall Mountain Creek #6 just south of Woodall Panel ODA	NA	457628	4732308	RV	Original Ground	X	X					
WMC6-2A	Woodall Mountain Creek #6: midstream reach approximately midway between WMC6-1 and WMC6-2	NA	457386	4732000	RV	Original Ground		X					
Pedro Creek Sub-Basin													
ESedBasinC	Center collection basin at the East Sedimentation Basin of the NTCRA	NA	458567	4732732	PD	Original Ground	X						
ESedBasinN	North most collection basin at the East Sedimentation Basin of the NTCRA	NA	458571	4732747	PD	Original Ground	X						
ESedBasinS	Southern collection basin at the East Sedimentation Basin of the NTCRA	NA	458565	4732716	PD	Original Ground	X						
ESedBasinToe	Water flowing at East Sed Basin outfall toe from water flowing along toe of embankment to the south	NA	458589.73	4732725.7	SP (Seep)	Original ground	X						
FSPSBasin	Sedimentation basin for the FSPS area	NA	458767	4732525	PD	Original Ground	X						
FSPSSeep	Seep near the toe of the FSPS area south of the FSPS sedimentation basin	FSPS	458750	4732463	SP (Seep)	Overburden	X						
FSPSSeepPond	Seep collection basin adjacent to the FSPS sedimetation basin	NA	458761	4732489	PD (Seep pond)	Overburden	X						
NED-1	Large detention pond northeast of the Pedro Creek ODA downgradient of NES-5	NTCRA	458538	4733092	PD	Overburden (now covered)	X						
NEP-1	Northeast Pond #1 (also called Dredge Pond): Area of potential runoff pooling along toe of overburden pile in the South Woodall Panel ODA; generally dry; this pile was regraded in 2012 as part of construction efforts for the Field Scale Pilot Study	NTCRA	458808	4732310	PD	Original Ground	X						
NEP-2	Northeast Pond #2: diked pond within fenced area downstream of NES-5	NTCRA	458568	4733092	PD	Overburden (now covered)	X						
NEP-3	Southeast Pond #3: ponding area at the southeastern toe of the Pedro Creek ODA northwest of NES-6 and NEP-1 area	NTCRA	458408	4732519	PD	Overburden (now covered)	X						
NEP-4A	Northeast Pond #4a: catch pond on northeastern side of small reclaimed area on the southern side of Woodall Mountain and west of the road near where the road crests from the west to east side of the mountain, west of Pond NEP-4B and northwest of Pond NEP-4C	NTCRA	458002	4732889	PD	Overburden (now covered)	X						
NEP-4B	Northeast Pond #4b: ponded water just west of road where the road crests from the west to east side of Woodall Mountain, just east of Pond NEP-4A and north of Pond NEP-4C.	NTCRA	458091	4732918	PD	Overburden (now covered)	X						
NEP-4C	Northeast Pond #4c: ponded water in long slender depression just west of the road that crests from the west to east side of Woodall Mountain, south of ponds NEP-4A and NEP-4B.	NTCRA	458012	4732672	PD	Overburden (now covered)	X						
NES-5	Northeast Seep #5: Seep within the fenced area at the northeast toe of the Pedro Creek ODA	NTCRA	458482	4733016	SP (seep)	Overburden	X	X	AVM				
NES-6	Northeast Seep #6: Localized moisture at toe of overburden pile in the South Woodall Panel ODA; generally dry; this pile was regraded in 2012 as part of construction efforts for the Field Scale Pilot Study	FSPS	458728	4732313	SP (seep)	Overburden (now covered)	X	X					
NES-7	Northeast Seep 7: Conda Mine Waste Dump Seep south of NES-5	NTCRA	458559	4732773	SP (Seep)	Overburden	X						
NES-8	Northeast Seep 8: north of NES-7 along east face of NTCRA adjacent to east ditch and road	NA	458569	4732835	SP (Seep)	Overburden	X						
NESedBasinC	Basin between NES-5 seep collection basin and BasinN at the NE Sedimentation Basin of the NTCRA	NA	458543	4733114	PD	Original Ground	X						
NESedBasinN	Northern most cell of the NE Sedimentation Basin of the NTCRA	NA	458556	4733131	PD	Original Ground	X						
NESedBasinS	Basin that collect runoff from the East runoff ditch at the NE Basin of the NTCRA	NA	458566	4733074	PD	Original Ground	X						
NESeep5Pond	Collection basin for NES-5 seep water at the NE Sedimentation Basin of the NTCRA	NA	458556	4733077	PD (Seep pond)	Overburden	X						
NESeep7Pond	Collection basin for NES-7 seep water at the East Sedimentation Basin of the NTCRA	NA	458566	4732765	PD (Seep pond)	Overburden	X						
NRC-1	North runoff chute (pipe) around steep unreclaimed portion of the Pedro Creek ODA	NTCRA	458483	4733023	PP	Overburden (now covered)	X						
PC-1	Main stem of Pedro Creek downstream of lowest stock pond and upstream of irrigation diversion ditch and Trail Creek confluence	NA	462565	4734336	RV	Original Ground	X	X	AVM/AVP	X	X	X	X
PC-1UP	Pedro Creek 50 feet upstream of pond upstream of PC-1 location	NA	462494	4734235	RV	Original Ground	X						
PC-2	Main stem of Pedro Creek at upstream end of small canyon and downstream of tributary inflows	NA	460717	4733859	RV	Original Ground	X	X	AVM/AVP	X		X	
PC-2A	Main stem of Pedro Creek just upstream of fence near mouth of small canyon approximately 800 feet downstream of sampling location PC-2	NA	460966	4733804	RV	Original Ground	X						
PC-2B	Main stem of lower Pedro Creek downstream of small canyon near where the road meets the creek on the northern side of the fence	NA	461657	4733959	RV	Original Ground	X						
PC-2C	Main stem of lower Pedro Creek just upstream (west side) of fence where the road ends	NA	462137	4734053	RV	Original Ground	X						
PC-2D	Main stem of Pedro Creek upstream of stock pond on the western side of Trail Creek Valley	NA	462392	4734177	RV	Original Ground	X						
PC-2E	Main stem of Pedro Creek approximately 1,600 feet downstream of confluence with Tributary #4	NA	461126	4733763	RV	Original Ground		X					
PC-3	Main stem of Pedro Creek just upstream of lower road crossing	NA	459662	4734011	RV	Original Ground	X	X					
PC-3A	Main stem of Pedro Creek ponded area along channel downstream of road crossing between PC-3 and confluence with Pedro Creek tributaries	NA	459941	4733978	RV	Original Ground	X	X					
PC-3B	Main stem of Pedro Creek just upstream of confluence with Pedro Creek tributaries	NA	460623	4733867	RV	Original Ground	X						
PC-4	Main stem of Pedro Creek downstream of PC-5 and upstream of Pedro Creek Tributary #5 and the road	NA	459052	4733478	RV	Original Ground	X	X					
PC-4A	Main stem of Pedro Creek in aspen grove and small canyon upstream of PC-3	NA	459226	4733767	RV	Original Ground	X	X					
PC-5	Main stem of upper Pedro Creek in aspen grove	NA	458881	4733378	RV	Original Ground	X	X	AVM				
PC-6	Headwaters area of Pedro Creek upstream of PC-5	NA	458819	4733295	RV	Original Ground	X	X					
PC-7	Headwaters area of Pedro Creek upstream of PC-6 and below NES spring	NA	458596	4733191	RV	Original Ground		X					
PC-8	Pedro Creek drainage northeast of NTCRA, downgradient of PC-9	NA	458685.68	4733192.7	RV	Original ground	X	X					
PC-9	Toe of outfall of NESedBasin North spillway	NA	458580.03	4733130.6	RV	Original ground	X	X					
PCP-1	Pedro Creek Pond #1: Reported location of stock pond, but no evidence of pond found	NA	458765	4732948	PD	Original Ground	X						
PCP-2	Pedro Creek Pond #2: Stock pond near head of Pedro Creek Tributary #5	NA	458754	4732727	PD	Original Ground	X	X					
PCT-0	Intermittent tributary to Pedro Creek north of main stem and Tributary #5 in headwaters area	NA	458712	4733543	RV	Original Ground	X						
PCT1-0	Pedro Creek Tributary #1: tributary #1 of Pedro Creek at the mouth just upstream of confluence with Tributary #4	NA	460512	4733692	RV	Original Ground	X						
PCT1-1	Pedro Creek Tributary #1: spring located west of road in small string of willows, flow exists for only about 500 ft and does not cross the road	NA	460209	4732819	RV	Original Ground	X						
PCT1-2	Pedro Creek Tributary #1: on Tributary #1 upstream of Tributary #4 and main stem confluence	NA	460556	4733794	RV	Original Ground		X					
PCT2-1	Pedro Creek Tributary #2: upstream of road crossing, no historic flow but channel was visible	NA	460273	4733206	RV	Original Ground	X						
PCT2-2	Pedro Creek Tributary #2: upstream of trees in a spring area near willows	NA	459766	4732842	RV	Original Ground	X						
PCT3-1	Pedro Creek Tributary #3: spring area just upstream of willows north and east of road	NA	459996	4733355	RV	Original Ground	X						
PCT4-0	Pedro Creek Tributary #4: on Tributary #4 of Pedro Creek at the mouth just upstream of confluence with Tributary #1 and main stem of Pedro Creek	NA	460462	4733754	RV	Original Ground	X						
PCT4-1	Pedro Creek Tributary #4: spring just east of road and upstream of small historic dike	NA	459594	4733639	RV	Original Ground	X						
PCT5-1	Pedro Creek Tributary #5: mouth of small tributary draining the basin containing PCP-2 and entering Pedro Creek from the south; south of monitoring wells GW-28/29	NA	459076	4733401	RV	Original Ground	X						

Table 3-2
Aquatic Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored						
							Surface Water	Sediment	Aquatic Vegetation	Benthic Invertebrate Tissue	Fish Tissue	Habitat Quality	Benthic Community
PCT5-2	Pedro Creek Tributary #5: head of small tributary draining the basin containing PCP-2 and entering Pedro Creek from the south, approximately 1/4 mile from PCP-2	NA	458817	4733081	RV	Original Ground	X						
PCT6-1	Pedro Creek Tributary #6 in Pedro Creek headwaters area	NA	458709	4732843	RV	Original Ground	X						
PCT6-2	Pedro Creek drainage east of ESedBasin complex	NA	458622.04	4732734	RV	Original ground	X	X					
PCT6-3	Downgradient of SEInfiltBasin outfall culvert	NA	458417	4732398.1	RV	Original ground	X	X					
PCT6-4	Downgradient of FSPSBasin complex and south of GW-45/46	NA	458801.24	4732611.7	RV	Original ground	X	X					
PCT6-5	Toe of spillway and FSPS Sed Basin	NA	458773	4732545	RV	Original ground	X	X					
SEInfiltBasin	Southeast infitration basin at the southern end of the NTCRA	NA	458366	4732344	PD	Original Ground	X						
Shield and Jouglard Canyons Sub-Basin													
BorrowOp	Opportunistic pooling area sample location at Dinwoody Formation Borrow Area	NA	457855	4729911	PD	Original Ground	X						
FM-1	Formation Creek at headwaters downgradient of Formation Spring, just upstream of first footbridge east of the Formation Spring parking lot	NA	454569	4727021	SP (spring)	Original Ground	X	X					
HH-1	Hoorah Hollow flow from springs approximately 500 feet upstream of old picnic area	NA	458235	4729522	SP (spring)	Original Ground	X	X					
HH-OP1	Area where overflow from Hoorah Hollow Pond and runoff enter underground workings	NA	457513	4729772	RV	Original Ground	X						
HHP-1	Hoorah Hollow Pond	NA	457760	4729819	PD	Original Ground	X	X	AVM	X	X		
HHT1-1	Upgradient, outside disturbance of same drainage for HHT1-2	NA	457989.51	4729898.1	RV	Original ground	X	X					
HHT1-2	Outfall culvert below south borrow sediment basin	NA	457807.96	4729839	RV	Original ground	X	X					
HHT-OP	Upgradient tributary from the south dinwoody borrow sediment basin outfall	NA	457851	4729882	RV	Original ground	X	X					
JCS-1	Jouglard Canyon Spring: spring in small park in Jouglard Canyon upgradient and east of the Pit Lake	NA	458191	4728626	SP (spring)	Original Ground	X	X					
NL4P-1	NL4 Pond (Pit Lake) near Jouglard Canyon	NA	457582	4728552	PD	Overburden	X	X	AVM	X			
NL4P-OP1	Opportunistic runoff water sampling location from runoff southeast of Pit Lake	NA	457582	4728448	RV	Overburden	X						
NL4P-OP2	Opportunistic runoff water sampling location from runoff south of Pit Lake	NA	457609	4728435	RV	Overburden	X						
NL4P-OP3	Opportunistic ponded runoff water sampling location south of Pit Lake and southwest of SWP-1	NA	457647	4728003	PD	Overburden	X						
SBorrowSedBasin	Southern most sedimentation basin at the Dinwoody Borrow Area	NA	457838.64	4729857.2	PD	Original ground	X	X					
SWP-1	Southwest Pond #1: Pond located at base of small mine cut south of Pit Lake on West Limb Panel ODA	NA	457682	4728045	PD	Overburden	X						
SWP-2	Southwest Pond #2: Stock pond south of reclaimed area west of the Pit Lake	NA	457221	4728353	PD	Original Ground	X	X					
SWP-3	Southwest Pond #3: Pond east of the Grace Panel ODA and west of the road to the Pit Lake	NA	456737	4728732	PD	Original Ground	X	X					
SWP-7	Southwest Pond #7: Pond on eastern portion of West Limb Panel ODA north of Pit Lake	NA	457712	4729101	PD	Overburden	X						
SWS-2	Southwest Spring #2: Meadow seep south of SWP-3 and above (west of) reclaimed area	NA	456739	4728656	SP (spring)	Overburden	X	X					
Southwest Conda Sub-Basin													
SCC-1	Upstream end of Southwest Conda drainage	NA	455631	4728750	RV	Original Ground	X	X					
SCC-2	Downstream end of Southwest Conda drainage	NA	455405	4728840	RV	Original Ground	X	X					
State Land Creek Sub-Basin													
AWI012-22	Main stem of State Land Creek downstream of confluence with Tributary #2 and upstream of Tributary #3, near SLC-3E	NA	459599	4736122	RV	Original Ground	X						
NEP-5	Northeast Pond #5: pond area at base of mined eastern portion of East Woodall Panel ODA on the eastern side of Woodall Mountain at the base of a steep road section	NA	458048	4733737	PD	Overburden	X						
NEP-6	Northeast Pond #6: pond area at base of mined portion of East Woodall Panel ODA on the northeastern side of Woodall Mountain near the area that was graded for drill rig access for the installation of monitoring wells GW-39/40; to the north a detention basin was expanded to contain runoff from Woodall Mountain	NA	457843	4734813	PD	Overburden	X						
NES-1	Northeast Seep #1: northwestern most seep on the northeastern side of Woodall Mountain; seep collects in a pond and does not flow beyond the fenced boundary	NA	458227	4734803	SP (seep)	Overburden	X	X					
NES-1A	Northeast Seep #1A: seep area on the northeastern side of Woodall Mountain just east of NES-1 and fenced on the northern side; seep collects in a marshy area and does not flow beyond the marsh	NA	458257	4734786	SP (seep)	Overburden	X	X					
NES-1B	Northeast Seep #1B: seep on the northeastern side of Woodall Mountain just east of seep NES-1a. Seep flows to the north of NES-2 and then joins NES-2 discharge in a marshy area approximately 200 feet downstream of NES-2	NA	458332	4734800	SP (seep)	Overburden	X	X					
NES-2	Northeast Seep #2: Seep on the northeastern side of Woodall Mountain in fenced area upstream of collection pond near the southwestern corner of the fenced boundary	NA	458340	4734740	SP (seep)	Overburden	X	X					
NES-2A	Northeast Seep #2A: Seep approximately 50 feet west of NES-2	NA	458324	4734725	SP (seep)	Overburden	X						
NES-3	Northeast Seep #3: Seep on the northeastern side of Woodall Mountain and south of NES-2, located halfway up the reclaimed slope within a fenced area	NA	458360	4734675	SP (seep)	Overburden	X	X					
NES-4	Northeast Seep #4: Seep on the northeastern side of Woodall Mountain and south of NES-3, located halfway up the reclaimed slope within a fenced area	NA	458358	4734565	SP (seep)	Overburden	X	X					
SLC	State Land Creek approximately 0.5 km above confluence with Blackfoot River, 1.2 km south of private haul road near the USGS gaging station, accessed from Blackfoot River Road.	NA	458987	4739151	RV	Original Ground	X	X	AVM	X	X		
SLC-0	Main stem of State Land Creek in canyon just upstream of confluence with the Blackfoot River	NA	459014	4739167	RV	Original Ground	X	X	AVM	X	X	X	X
SLC-1	Lower State Land Creek upstream of the northern fenced boundary of the State Land near the beaver ponds	NA	459047	4737930	RV	Original Ground	X	X	AVM	X	X	X	
SLC-2	State Land Creek downstream of tributary inflows, just downstream of State Land Creek Tributary #3	NA	459495	4736545	RV	Original Ground	X	X	AVM/AVP	X	X	X	
SLC-3	Main stem of State Land Creek just upstream of the fence marking the southern boundary of the State Land, directly west of SLCT1-1, just west of the lower road crossing	NA	459206	4734741	RV	Original Ground	X	X					
SLC-3A	Main stem of State Land Creek approximately 400 feet downstream of the lower road crossing	NA	459344	4734823	RV	Original Ground	X	X					
SLC-3B	Main stem of State Land Creek downstream of confluence with ephemeral tributary to main stem and sampling location SLC-5C	NA	459738	4735270	RV	Original Ground	X						
SLC-3C	Main stem of State Land Creek just upstream of confluence with Tributary #1	NA	459968	4735619	RV	Original Ground	X						
SLC-3D	Main stem of State Land Creek just downstream of confluence with Tributary #1 and upstream of Tributary #2	NA	459957	4735647	RV	Original Ground	X	X					
SLC-3E	Main stem of State Land Creek downstream of confluence with Tributary #2 and upstream of Tributary #3	NA	459615	4736123	RV	Original Ground	X	X					
SLC-3F	Main stem of State Land Creek upstream of Tributary #2 confluence	NA	459876	4735927	RV	Original Ground		X					
SLC-4	Main stem of State Land Creek upstream of SLC-3 and west of SLP-1	NA	458967	4734574	RV	Original Ground	X						
SLC-5	On ephemeral tributary to main stem of State Land Creek in headwaters area, just downstream of monitoring wells GW-25/26 and east of northeast seeps	NA	458718	4734704	RV	Original Ground	X						
SLC-5A	On ephemeral tributary to main stem of State Land Creek, upstream of lower road crossing	NA	459037	4734777	RV	Original Ground	X						
SLC-5B	On ephemeral tributary to main stem of State Land Creek, at lower road crossing	NA	459222	4734886	RV	Original Ground	X						

Table 3-2
Aquatic Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored						
							Surface Water	Sediment	Aquatic Vegetation	Benthic Invertebrate Tissue	Fish Tissue	Habitat Quality	Benthic Community
SLC-5C	On ephemeral tributary to main stem of State Land Creek, just upstream of confluence with the main stem of State Land Creek	NA	459644	4735209	RV	Original Ground	X						
SLC-6	On ephemeral tributary to main stem of State Land Creek in headwaters area, just upstream of monitoring wells GW-25/26 and east of northeast seeps	NA	458551	4734724	RV	Original Ground	X						
SLC-7	Main stem of State Land Creek at headwater of drainage	NA	458655	4734331	RV	Original Ground	X						
SLC-8	On ephemeral tributary to main stem of State Land Creek in headwaters area, approximately 500 feet south of monitoring wells GW-25/26	NA	458649	4734563	RV	Original Ground		X					
SLCT1-0	State Land Creek Tributary #1: Just upstream of confluence with the main stem of State Land Creek	NA	459988	4735595	RV	Original Ground	X						
SLCT1-1	State Land Creek Tributary #1: Just upstream of fence marking the southern border of State Land	NA	459840	4734735	RV	Original Ground	X						
SLCT2-0	State Land Creek Tributary #2: Just upstream of confluence with the main stem of State Land Creek 200 feet upstream of monitoring well GW-27	NA	459749	4736003	RV	Original Ground	X	X					
SLCT2-1	State Land Creek Tributary #2: On Tributary #2 downstream of where smaller channels converge east of the road	NA	459123	4735700	RV	Original Ground	X						
SLCT2-2	State Land Creek Tributary #2: mouth of southern limb of Tributary #2 of State Land Creek just upstream of road crossing	NA	458758	4735369	RV	Original Ground	X	X					
SLCT2-2A	State Land Creek Tributary #2: Mouth of small drainage coming into State Land Creek Tributary #2 (northern limb of Tributary #2), upstream of road crossing	NA	458758	4735462	RV	Original Ground	X						
SLCT2-2B	State Land Creek Tributary #2: Creek bottom on Tributary #2 downstream from the road crossing and confluence of smaller tributary channels	NA	458954	4735584	RV	Original Ground	X	X					
SLCT2-3	State Land Creek Tributary #2: southern limb of Tributary #2 near western border of State Land property	NA	458602	4735064	RV	Original Ground	X						
SLCT2-4	State Land Creek Tributary #2: southern limb of Tributary #2 just downstream of former catch pond just north of northeast seeps and road	NA	458140	4734875	RV	Original Ground	X						
SLCT2-5	State Land Creek Tributary #2: Bottom of a dry creek on the southern limb of Tributary #2 near headwaters and 200 feet north of monitoring wells GW39/40	NA	457841	4734867	RV	Original Ground		X					
SLCT3-0	State Land Creek Tributary #3: just upstream of confluence with the main stem of State Land Creek	NA	459484	4736433	RV	Original Ground	X	X					
SLCT3-1	State Land Creek Tributary #3: just upstream of road crossing on Tributary #3	NA	458251	4736154	RV	Original Ground	X	X					
SLCT3-4	Diffuse seepage flowing from beneath a willow tree just south of spring upstream of beaver ponds on northern tributary (Tributary #3) of State Land Creek	NA	457958	4735982	SP (spring)	Original Ground	X	X					
SLCT3-5	Diffuse seepage on northern tributary (Tributary #3) of State Land Creek	NA	457957	4735990	SP (spring)	Original Ground	X	X					
SLP-1	State Land Pond #1: south of main stem of State Land Creek just west of road	NA	459181	4734588	PD	Original Ground	X	X					
SLP-2	State Land Pond #2: northwest of State Land Creek Tributary #1 and just north of the southern State Land property boundary	NA	459752	4734840	PD	Original Ground	X	X					
SLP-3	State Land Pond #3: south of State Land Creek Tributary #2 near center of State Land property section	NA	459391	4735491	PD	Original Ground	X	X					
SW02-SP	Wetland-A (on State Land Creek Tributary #3)	NA	458131	4736102	SP (spring)	Original Ground	X						
SW08-ST	Main stem of State Land Creek between Tributary #2 and Tributary #3	NA	459640	4736110	RV	Original Ground	X						
SW09-ST	Main stem of State Land Creek between SLC-1 and SLC	NA	458789	4738819	RV	Original Ground	X						
SW13-ST	State Land Creek, upstream of confluence with Tributary #1	NA	459966	4735517	RV	Original Ground	X						
SW14-ST	State Land Creek Tributary #2, southern limb	NA	458230	4734903	RV	Original Ground	X						
SW15-ST	State Land Creek Tributary #2, northern limb	NA	458234	4735207	RV	Original Ground	X						
Western Woodall Mountain Sub-Basin													
NEP-8	Northeast Pond #8: Potential ponding area at base of the Woodall Panel ODA on the southwestern side of Woodall Mountain	NA	457386	4733271	PD	Overburden	X						
SW04-SP	Woodall Spring	NA	456211	4736281	SP (spring)	Original Ground	X						
SW04-SP(N)	Woodall Spring, north outlet	NA	456192	4736476	SP (spring)	Original Ground	X						
SW04-SP(S)	Woodall Spring, south outlet	NA	456186	4736177	SP (spring)	Original Ground	X						
WMC1-1	Woodall Mountain Creek #1: Downstream end of channel near mouth of steep canyon on north end of Woodall Mountain east of the Monsanto Haul Road and southern portion of the Woodall Springs complex.	NA	456520	4735460	RV	Original Ground	X	X					
WMC1-2	Woodall Mountain Creek #1: Upstream end of Woodall Mountain Creek #1 at the north end of Woodall Mountain	NA	456980	4735150	RV	Original Ground	X	X					
WMC2-1	Woodall Mountain Creek #2: Downstream end of channel near mouth of steep canyon on northwest side of Woodall Mountain east of the Monsanto Haul Road and Agrium Tailings Ponds	NA	455992	4734570	RV	Original Ground	X	X					
WMC2-1A	Woodall Mountain Creek #2: Midstream location on northwest side of Woodall Mountain approximately just upstream of monitoring wells GW-20/21.	NA	456219	4734407	RV	Original Ground		X					
WMC2-2	Woodall Mountain Creek #2: Upstream end of Woodall Mountain Creek #2 on northwest side of Woodall Mountain	NA	456966	4734451	RV	Original Ground	X	X					
WMC3-1	Woodall Mountain Creek #3: Downstream end of Woodall Mountain Creek #3 east of the Monsanto Haul Road and Agrium Tailings Ponds	NA	456449	4734099	RV	Original Ground	X	X					
WMC3-2	Woodall Mountain Creek #3: Upstream end of Woodall Mountain Creek #3	NA	456902	4734030	RV	Original Ground	X	X					
WMC4-1	Woodall Mountain Creek #4: Midstream location on west side of Woodall Mountain approximately 700 feet upstream of WMC4-1A	NA	456554	4733300	RV	Original Ground	X	X					
WMC4-1A	Woodall Mountain Creek #4: Downstream end of channel near mouth of steep canyon on west side of Woodall Mountain near Agrium borrow pit	NA	456221	4733313	RV	Original Ground		X					
WMC4-2	Woodall Mountain Creek #4: Upstream end of Woodall Mountain Creek #4 on west side of Woodall Mountain	NA	457075	4733480	RV	Original Ground	X	X					
WMC5-1	Woodall Mountain Creek #5: Downstream end of channel near mouth of steep canyon on southwestern side of Woodall Mountain east of the Monsanto Haul Road	NA	456369	4732790	RV	Original Ground	X	X					
WMC5-1A	Woodall Mountain Creek #5: Midstream location on southwestern side of Woodall Mountain approximately 400 feet upstream of WMC5-1	NA	456259	4732838	RV	Original Ground		X					
WMC5-2	Woodall Mountain Creek #5: Upstream end of Woodall Mountain Creek #5 on southwestern side of Woodall Mountain	NA	456802	4732650	RV	Original Ground	X	X					
WM-OP1	Opportunistic runoff pooling location on the road on top of Woodall Mountain near terrestrial sampling location NT3-04	NA	457230	4733239	PD	Overburden	X						
WS-4	Woodall Spring 4: Woodall Springs complex just west of the Monsanto Haul Road	NA	456211	4736234	SP (spring)	Original Ground	X	X					
WS-5	Woodall Spring 5: Southern spring within Woodall Springs complex	NA	455973	4735376	SP (spring)	Original Ground	X	X					
Offsite													
AWI012-03	Blackfoot River off of Blackfoot River Road just east of China Hat	NA	454750	4740977	RV	Offsite	X						
AWI012-04	Blackfoot River at Monsanto Haul Road west of Blackfoot River Road crossing	NA	458531	4740456	RV	Offsite	X						
AWI012-06	Blackfoot River at North Trail Road bridge	NA	463411	4735072	RV	Offsite	X						
AWI012-31	Trail Creek at Lower Trail Creek Road, downstream of Camp G Creek	NA	463420	4734055	RV	Offsite	X						
BFR-1	Blackfoot River downstream of State Land Creek confluence	NA	459045	4739644	RV	Offsite	X	X					
BFR-2	Blackfoot River upstream of State Land Creek confluence	NA	459045	4739596	RV	Offsite	X	X					
BFR-3	Blackfoot River downstream of Trail Creek confluence at Fox Ranch Bridge	NA	461646	4737864	RV	Offsite	X	X					
BFR-4	Blackfoot River upstream of Trail Creek confluence at bridge on North Trail Road	NA	463435	4735088	RV	Offsite	X	X					
BFR-DS	Blackfoot River downstream of State Land Creek confluence (proxy for BFR-1 during high runoff event)	NA	459056	4739720	RV	Offsite	X						
BFR-US	Blackfoot River upstream of State Land Creek confluence (proxy for BFR-2 during high runoff event)	NA	459155	4739678	RV	Offsite	X						
BGS	Blackfoot River at Monsanto Haul Road and railroad tracks, accessed from Blackfoot River Road crossing	NA	458578	4740429	RV	Offsite	X	X	AVM	X	X		

Table 3-2
Aquatic Monitoring Locations

Station Name	Station Description	Superseded by Site Activities[1]	Easting	Northing	Station Type	Material Type	Media and Biota Monitored						
							Surface Water	Sediment	Aquatic Vegetation	Benthic Invertebrate Tissue	Fish Tissue	Habitat Quality	Benthic Community
MST020	Blackfoot River below State Land Creek	NA	458913	4739705	RV	Offsite	X	X		X	X		
MST231	Blackfoot River below Woodall Mountain Creek	NA	454818	4739820	RV	Offsite	X	X		X	X		
ST019	Blackfoot River below Ballard Creek	NA	458545	4740323	RV	Offsite	X	X		X	X		
ST021	Blackfoot River below Trail Creek	NA	461564	4737906	RV	Offsite	X	X		X	X		
ST022	Blackfoot River below Wooley Valley Creek	NA	463453	4735061	RV	Offsite	X	X		X	X		
ST230	Blackfoot River above State Land Creek	NA	459228	4739303	RV	Offsite	X	X		X	X		
ST232	Blackfoot River at Blackfoot River County Park near intersection of State Highway 34 and Blackfoot River Road (also GYC9)	NA	454780	4741131	RV	Offsite	X	X	AVM	X	X		
SW01-W	Wetland-N (north property boundary), west of Monsanto Haul Road; northeast of Blackfoot Bridge Mine North Pit	NA	457271	4739229	SP (spring)	Offsite	X						
SW10-ST	Blackfoot River at residential road crossing northeast of Blackfoot Bridge Mine North Pit Area	NA	457046	4739470	RV	Offsite	X						
SW11-ST	Blackfoot River downstream of SW10-ST and northwest of Blackfoot Bridge Mine North Pit area	NA	455741	4739383	RV	Offsite	X						
SW16-SP	Gardner Spring, east of Monsanto Haul Road	NA	457777	4739313	SP (spring)	Offsite	X						
SW17-W	Wetland X Pond, north of Woodall Springs complex; this area has recently undergone disturbance associated with construction activities associated with the Blackfoot Bridge Mine North Pit Area	NA	456643	4738299	PD	Offsite	X						
SW18-SP	Wetland X Spring, north of Woodall Springs complex; north of the future water management ponds of the Blackfoot Bridge Mine	NA	456040	4738174	SP (spring)	Offsite	X						
SW19-SP	Blackfoot River Spring - downstream, north of Woodall Springs complex near SW11-ST	NA	455762	4739356	SP (spring)	Offsite	X						
SW20-SP	Blackfoot River Spring, northwest of Blackfoot Bridge Mine North Pit area	NA	456045	4739242	SP (spring)	Offsite	X						
SW21-SP	Blackfoot River Spring - upstream, north of Woodall Springs complex and downstream of SW10-ST; near the boundary of the Blackfoot Bridge Mine North Pit	NA	456873	4739323	SP (spring)	Offsite	X						
TC-1	Trail Creek just upstream of Camp G Creek	NA	463566	4733709	RV	Offsite	X	X	AVM/AVP	X	X	X	X
TC-2	Trail Creek just downstream of Camp G Creek	NA	463504	4733727	RV	Offsite	X	X					
TC-3	Trail Creek upstream of Pedro Creek confluence	NA	462528	4734992	RV	Offsite	X	X					
TC-4	Trail Creek downstream of Pedro Creek confluence	NA	462457	4735057	RV	Offsite	X	X					
TC-5	Trail Creek on State of Idaho land north of South Trail Road	NA	464016	4728670	RV	Offsite	X				X		
TRATT003	Trail Creek downstream of Camp G Creek	NA	463460	4733889	RV	Offsite	X						

Notes:

Coordinates are in UTM NAD 83 Zone 12 meters

1 - Locations in FSPS or NTCRA areas that were sampled prior to regrading of the piles and placement of Dinwoody soil cover.

Acronyms:

NA = No Applicable

NTCRA = Non-Time Critical Removal Action

FSPS = Field-Scale Pilot Study

Station Type: AD = Adit; FD = French Drain; PD = Pond; PP = Pipe; RV = River/Stream; SP = Spring/Seep; TP = Tailings Pond; MP - Mine Pit

Material Type: Residual Mining Materials including Overburden, Tailings, and Waste Rock. Original ground locations are outside of mining-related disturbances. Offsite locations are in the vicinity of the Blackfoot River or Trail Creek.

Aquatic Vegetation Types: AVM = Macrophytes; AVP = Periphyton

Table 3-3
Aquatic Tissue/Population
Investigation Stream Section Boundaries

Location	Upstream		Downstream	
	Easting	Northing	Easting	Northing
Camp G Creek Sub-Basin				
CGC-0	463461	4733586	463498	4733631
CGC-1	461063	4732346	461106	4732395
CGC-4A	459427	4731305	459441	4731387
Pedro Creek Sub-Basin				
PC-1	462577	4734258	462560	4734327
PC-2	460614	4733827	460694	4733854
State Land Creek Sub-Basin				
SLC-0	459011	4739166	459080	4739203
SLC-1	458869	4738211	458884	4738301
SLC-2	459506	4736476	459508	4736559
Offsite				
TC-1	463600	4733638	463563	4733709
TC-5	463986	4728598	464016	4728670

Notes:

Coordinates are in UTM NAD 83 Zone 12 meters

Table 3-4
Geotechnical Sampling Locations

Station Name	Description	Easting	Northing
TP-1	2010 Test Pits in the Vicinity of the Pedro Creek ODA Angle-of-Repose Pile	458041	4732793
TP-2		458416	4733038
TP-3		458504	4732906
TP-4		458498	4732835
TP-12	2012 Test Pits in the Vicinity of the Pedro Creek ODA Angle-of-Repose Pile	458264	4733118
TP-12A		458264	4733123
TP-12B		458264	4733129
TP-13		458321	4733103
TP-13A		458321	4733108
TP-14		458440	4733128
TP-14A		458440	4733133
TP-15		458509	4733077
TP-16		458550	4733009
TP-17		458578	4732933
TP-18		458564	4732765
TP-19		458493	4732663
CD0612-TFP1-SL001	2012 Composite Geotechnical Samples of Overburden Material	See Figure 3-9 for approximate locations.	
CD0612-TFP2-SL001			
CD0612-TFP3-SL001			
B-1	2010 Borings through the Pedro Creek ODA Angle-of-Repose Pile	458274	4732932
B-2		458128	4732825
B-3		458312	4732799
TP-5	2010 Test Pits in Dinwoody Formation and Rex Chert Outcrops	457809	4730342
TP-6		457792	4730157
TP-5A		457900	4730364
TP-5B		458003	4730258
TP-7		458689	4729178
TP-8		458805	4729381
TP-9		457954	4730018
TP-10		457932	4729546
TP-11		457903	4729977
ETP-1		457826	4730499
ETP-2		457819	4730475
ETP-3		457844	4730440
Borrow #1		458617	4732083
Borrow #2		457687	4730224
Dinwoody	2012 FSPS Construction Composite Samples	See Figure 3-9 for approximate locations.	
Top Soil			
Rex Chert			
CD0612-FSP1-SL001	2012 FSPS Construction Composite Samples of Overburden Material		
CD0612-FSP2-SL001			
CD0612-FSP3-SL001			
TP2-SB1	2014 Old Tailings Pond Well Drilling Samples of Tailings	457188.2895	4731191.122
TP2-SB2		457080.7699	4731184.118
TP2-SB3		456961.4741	4731197.794
TP2-SB4		456873.9541	4731246.884
TP2-SB5		456764.2742	4731382.08

Notes:

Coordinates are in UTM NAD 83 Zone 12 meters

FSPS = Field Scale Pilot Study

Table 3-5
Groundwater Monitoring Locations

Station Name	Station Description	Easting	Northing	Hydrostratigraphic Unit
Camp G Creek Sub-Basin				
CS-1_CND	Corral Spring just southeast of sheep corrals near entrance gate to Jouglard Ranch	461124	4731523	Dinwoody
JRLD	Spring on Jouglard property piped to new Dredge house	460662	4731142	Dinwoody
JS-1	Jouglard Spring, a spring historically used for drinking water at the Jouglard Ranch	460447	4731563	Dinwoody
French Drain Sub-Basin				
Shallow Hydrostratigraphic Unit				
SWS-1	Southwest Seep #1: Possible seep area above reclaimed pile south of French Drain	456479	4729912	Salt Lake
SWS-3	Southwest Seep #3: West Limb Panel ODA seep potentially draining the underground workings at Adit No. 2 above SWP-4A	456664	4729904	Salt Lake
GW-16-MA	Alluvial well located in the former Conda townsite	456384	4730795	Alluvium/Colluvium
GW-17-MA	Alluvial well located at the north end of the former sewage lagoons and east of New Tailings Pond	456271	4731199	Alluvium/Colluvium
GW-49-MA	West Side monitoring well installed in the location of Boring 1	456528	4731291	Alluvium/Colluvium
GW-52-MA	West Side monitoring well installed in the location of Boring 2	456299	4730848	Alluvium/Colluvium
GW-54-MA	West Side monitoring well installed in the location of Boring 3	456308	4731252	Alluvium/Colluvium
Intermediate Hydrostratigraphic Unit				
A-50-070-MB	Agrium basalt monitoring well located south of the Agrium Plant area along the Conda Road	455843	4731411.15	Basalt
A-50-100-MB	Agrium basalt monitoring well located south of the Agrium Plant area along the Conda Road	455832	4731409.81	Basalt
A-50-125-MS	Agrium Salt Lake formation monitoring well located south of the Agrium Plant area along the Conda Road	455837	4731410.49	Salt Lake
A-58-075-MB	Agrium basalt monitoring well located in the Agrium Plant Area	455738	4731657.91	Basalt
A-58-105-MB	Agrium basalt monitoring well located in the Agrium Plant Area	455732	4731657.92	Basalt
GW-9-IS*	Simplot Well #9: Production well located northeast of the Conda townsite, west of the former mill and 25 feet from GW-13	456554	4730889	Salt Lake
GW-12-IS*	Simplot Well #12: Artesian production well located south of Conda townsite and northwest of French Drain	456270	4730563	Salt Lake
GW-13-IS*	Well with orange lid located northeast of Conda townsite and west of the former mill, approximately 25 feet southeast of production well GW-9	456558	4730881	Salt Lake
GW-15-MS	Artesian well located just north of the French Drain	456444	4730360	Salt Lake
GW-50-MS	West Side monitoring well installed in the location of Boring 1	456528	4731291	Salt Lake
GW-51-MS	West Side monitoring well installed in the location of Boring 1	456528	4731291	Salt Lake
GW-53-MS	West Side monitoring well installed in the location of Boring 2	456299	4730848	Salt Lake
GW-55-MS	West Side monitoring well installed in the location of Boring 3	456308	4731252	Salt Lake
GW-56-MS	West Side monitoring well installed in the location of Boring 3	456308	4731252	Salt Lake
GW-MWB-MBS	Agrium shallow monitoring well located south of Agrium facility just north of GW-MW9	455748	4731586	Basalt/Salt Lake
GW-NW9-IBS*	Agrium production well located south of Agrium facility just south of GW-MWB	455719	4731526	Basalt/Salt Lake
MW-A-110-MB	Well abandoned by Agrium	455545	4731603	Basalt
Deep Hydrostratigraphic Unit				
GW-11-IW*	Conda Mine Water Supply Well #11: Well located on road south of Old Tailings Pond in former mill area, housed in a corrugated metal building	456811	4730906	Wells
GW-14-MW	Wells Formation well located at southern end of former rail line south of former mill	456689	4730625	Wells
Margarette Creek/Trail Canyon Sub-Basin				
Shallow Hydrostratigraphic Unit				
GW-35-MA	Alluvial well located in the Margarette Creek drainage south of the North Trail Panel ODA, just south of monitoring well GW-36	459878	4728034	Alluvium/Colluvium
GW-36-MA	Alluvial well located in the Margarette Creek drainage south of the North Trail Panel ODA, just north of monitoring well GW-35	459865	4728111	Alluvium/Colluvium
Intermediate Hydrostratigraphic Unit				
GW-LRSN-1-DD**	Larson residence domestic well; sample collected from outdoor spigot near front door	457218	4727461	Dinwoody
GW-LRSN-2-DD**	Larson pasture supply well; hand-pump well located in pasture southeast of Larson residence	457356	4727390	Dinwoody

Table 3-5
Groundwater Monitoring Locations

Station Name	Station Description	Easting	Northing	Hydrostratigraphic Unit
North Woodall Mountain Sub-Basin				
Shallow Hydrostratigraphic Unit				
SW05-SP	Wetland-C in upper reaches of North Woodall Creek; this location has recently been disturbed due to initial construction activities associated with the East Overburden stockpile area of the Blackfoot Bridge Mine	458192	4736769	Dinwoody
SW06-W	Wetland-G in middle North Woodall Creek just upstream of surface water location NWC-2; this location has recently been disturbed due to construction activities associated with the future East Overburden Pile portion of the Blackfoot Bridge Mine	457956	4737492	Dinwoody
SW07-SP	Spring pond, north of Woodall Spring	456209	4736803	Wells
SW07-SP(S)	Spring pond, north of Woodall Spring, south outlet	456201	4736733	Wells
WS-1	Woodall Spring 1: Western portion of pond that collects flow from nearby spring-fed ponds in Woodall Springs complex, sample collection point in pond east of outflow structure	456040	4736749	Wells
WS-2	Woodall Spring 2: Ponded spring location in northern portion of Woodall Springs complex	456309	4737112	Wells
WS-3	Woodall Spring 3: generally dry depression in northern portion of Woodall Springs complex	456302	4737212	Wells
MW-7A	Blackfoot Bridge alluvial monitoring well located in upper reaches of North Woodall Creek next to MW-6D; this location has recently seen disturbance associated with construction of the East Overburden Pile area of the mine	458026	4737277	Alluvium
MW-10A	Blackfoot Bridge alluvial monitoring well located near mouth of North Woodall Creek adjacent to the railroad tracks and Fish Pond, northeast of nested monitoring wells MW-Da and MW-11Db; in an area that has seen recent construction activity associated with the north end of the Mid Pit and East Overburen Pile areas	457630	4737869	Alluvium
Intermediate Hydrostratigraphic Unit				
MW-6D	Blackfoot Bridge Dinwoody monitoring well located in upper reaches of North Woodall Creek next to MW-7A; this location has recently seen disturbance associated with construction of the East Overburden Pile area of the mine	458030	4737274	Dinwoody
MW-11Da	Blackfoot Bridge Dinwoody monitoring well located near mouth of North Woodall Creek adjacent to the railroad tracks and Fish Pond, southwest of monitoring well MW-10A and nested with MW-11Db; in an area that has seen recent construction activity associated with the north end of the Mid Pit and East Overburen Pile areas	457590	4737851	Dinwoody
MW-11Db	Blackfoot Bridge Dinwoody monitoring well located near mouth of North Woodall Creek adjacent to the railroad tracks and Fish Pond, southwest of monitoring well MW-10A and nested with MW-11Da; in an area that has seen recent construction activity associated with the north end of the Mid Pit and East Overburen Pile areas	457590	4737851	Dinwoody
Deep Hydrostratigraphic Unit				
MW-12W	Blackfoot Bridge Wells Formation monitoring well located south of Monsanto Haul Road and west of North Woodall Creek; this location has recently seen disturbance associated with construction in the Mid Pit area	457282	4737699	Wells
Old Tailings Pond Sub-Basin				
Shallow Hydrostratigraphic Unit				
GW-18-MA	Alluvial well located north of the Middle Limb Panel ODA and east of the former emergency slurry storage area, approximately 100 feet south of GW-37	457236	4730980	Alluvium/Colluvium
Intermediate Hydrostratigraphic Unit				
GW-19-MS	Monitoring well located northwest of the Old Tailings Pond along the main road around the north side of pond	456754	4731649	Salt Lake
GW-37-MD	Dinwoody Formation well located north of the Middle Limb Panel ODA and east of the former emergency slurry storage area, approximately 100 feet north of GW-18	457219	4731011	Dinwoody
Pedro Creek Sub-Basin				
Shallow Hydrostratigraphic Unit				
ESedBasinToe	Water flowing at East Sed Basin outfall toe from water flowing along toe of embankment to the south	458589.73	4732725.66	Dinwoody
FSPSSeep	Seep near the toe of the FSPS area south of the FSPS sedimentation basin	458750	4732463	Dinwoody
NES-5	Northeast Seep #5: Seep within the fenced area at the northeast toe of the Pedro Creek ODA	458482	4733016	Dinwoody
NES-6	Northeast Seep #6: Localized moisture at toe of overburden pile in the South Woodall Panel ODA; generally dry; this pile was regraded in 2012 as part of construction efforts for the Field Scale Pilot Study	458728	4732313	Dinwoody
NES-7	Northeast Seep 7: Conda Mine Waste Dump Seep south of NES-5	458559	4732773	Dinwoody
NES-8	Northeast Seep 8: north of NES-7 along east face of NTCRA adjacent to east ditch and road	458569	4732835	Dinwoody

Table 3-5
Groundwater Monitoring Locations

Station Name	Station Description	Easting	Northing	Hydrostratigraphic Unit
GW-28-MA	Alluvial well located of east of the Pedro Creek ODA and nested with monitoring well GW-29	459030	4733452	Alluvium/Colluvium
GW-30-MA	Alluvial well located near confluence of Pedro Creek and Pedro Creek tributaries, just upstream of surface water monitoring location PC-2	460615	4733829	Alluvium/Colluvium
GW-38-MA	Temporary shallow alluvial well at toe of unreclaimed angle-of-repose overburden pile in the Pedro Creek ODA	458503	4732902	Alluvium/Colluvium
GW-41-MA	Alluvial well located at the northeast sedimentation basin and nested with monitoring well GW-42	458574	4733103	Alluvium/Colluvium
GW-45-MA	Alluvial well located downgradient of the FSPS sedimentation basin and nested with GW-46	458791	4732669	Alluvium/Colluvium
Intermediate Hydrostratigraphic Unit				
GW-29-MD	Dinwoody Formation well located of east of the Pedro Creek ODA and nested with monitoring well GW-28	459030	4733452	Dinwoody
GW-42-MD	Dinwoody Formation well located at the northeast sedimentation basin and nested with monitoring well GW-41	458574	4733103	Dinwoody
GW-44-MD	Dinwoody Formation well located at the east sedimentation basin	458576	4732759	Dinwoody
GW-46-MD	Dinwoody Formation well located downgradient of the FSPS sedimentation basin and nested with GW-45	458791	4732669	Dinwoody
Shield and Jouglard Canyons Sub-Basin				
Shallow Hydrostratigraphic Unit				
FM-1	Formation Creek at headwaters downgradient of Formation Spring, just upstream of first footbridge east of the Formation Spring parking lot	454569	4727021	Wells
HH-1	Hoorah Hollow flow from springs approximately 500 feet upstream of old picnic area	458235	4729522	Dinwoody
JCS-1	Jouglard Canyon Spring: spring in small park in Jouglard Canyon upgradient and east of the Pit Lake	458191	4728626	Dinwoody
SWS-2	Southwest Spring #2: Meadow seep south of SWP-3 and above (west of) reclaimed area	456739	4728656	Dinwoody
GW-24-MA	Alluvial well located north of the Pit Lake	457576	4728610	Colluvium
GW-34-MA	Alluvial well located southeast of meadow spring and west of the Pit Lake and the West Limb Panel ODA	457160	4728383	Alluvium/Colluvium
Intermediate Hydrostratigraphic Unit				
GW-22-MM	Alluvial well located along the eastern edge of the Pit Lake	457617	4728522	Meade Peak
GW-23-MM	Alluvial well located along the northern edge of the Pit Lake	457572	4728574	Meade Peak
GW-32-MD	Dinwoody Formation well located in the West Limb Panel ODA just east of the haul road and southwest of GW-31	457060	4728913	Dinwoody
GW-33-MR	Rex Chert well southwest of the Pit Lake in the southern portion of the West Limb Panel ODA	457527	4728445	Rex Chert
Deep Hydrostratigraphic Unit				
GW-31-MW	Wells Formation well located in the West Limb Panel ODA east of Meadow Spring on the east side of the haul road northeast of GW-32	457112	4729003	Wells
State Land Creek Sub-Basin				
Shallow Hydrostratigraphic Unit				
NES-1	Northeast Seep #1: northwestern most seep on the northeastern side of Woodall Mountain; seep collects in a pond and does not flow beyond the fenced boundary	458227	4734803	Dinwoody
NES-1A	Northeast Seep #1A: seep area on the northeastern side of Woodall Mountain just east of NES-1 and fenced on the northern side; seep collects in a marshy area and does not flow beyond the marsh	458257	4734786	Dinwoody
NES-1B	Northeast Seep #1B: seep on the northeastern side of Woodall Mountain just east of seep NES-1a. Seep flows to the north of NES-2 and then joins NES-2 discharge in a marshy area approximately 200 feet downstream of NES-2	458332	4734800	Dinwoody
NES-2	Northeast Seep #2: Seep on the northeastern side of Woodall Mountain in fenced area upstream of collection pond near the southwestern corner of the fenced boundary	458340	4734740	Dinwoody
NES-2A	Northeast Seep #2A: Seep approximately 50 feet west of NES-2	458324	4734725	Dinwoody
NES-3	Northeast Seep #3: Seep on the northeastern side of Woodall Mountain and south of NES-2, located halfway up the reclaimed slope within a fenced area	458360	4734675	Dinwoody
NES-4	Northeast Seep #4: Seep on the northeastern side of Woodall Mountain and south of NES-3, located halfway up the reclaimed slope within a fenced area	458358	4734565	Dinwoody
SLCT3-4	Diffuse seepage flowing from beneath a willow tree just south of spring upstream of beaver ponds on northern tributary (Tributary #3) of State Land Creek	457958	4735982	Dinwoody
SLCT3-5	Diffuse seepage on northern tributary (Tributary #3) of State Land Creek	457957	4735990	Dinwoody
SW02-SP	Wetland-A (on State Land Creek Tributary #3)	458131	4736102	Dinwoody

Table 3-5
Groundwater Monitoring Locations

Station Name	Station Description	Easting	Northing	Hydrostratigraphic Unit
GW-25-MA	Alluvial well located of east of the East Woodall Panel ODA, nested with GW-26	458649	4734732	Alluvium/Colluvium
GW-27-MA	Alluvial well located near confluence of State Land Creek and State Land Creek Tributary #2	459779	4736049	Alluvium/Colluvium
GW-47-MA	Alluvial well located just north of former Jouglard gate along State Land Creek	459246	4734762	Alluvium/Colluvium
GW-48-MA	Alluvial well located downgradient of GW-25/26	459041	4735126	Alluvium/Colluvium
MW-3A	Blackfoot Bridge alluvial monitoring well located south of State Land Creek Tributary #3 just south of monitoring well MW-2R	458183	4736086	Alluvium
Intermediate Hydrostratigraphic Unit				
GW-26-MD	Dinwoody Formation well located of east of the East Woodall Panel ODA, nested with GW-25	458649	4734732	Dinwoody
MW-2R	Blackfoot Bridge Rex Chert monitoring well located south of State Land Creek Tributary #3 just north of monitoring well MW-3A	458185	4736091	Rex Chert
Deep Hydrostratigraphic Unit				
GW-39-MW	Wells Formation well located at the north end of Woodall Mountain just above where the road turns sharply to the east, nested with monitoring well GW-40	457845	4734812	Wells
GW-40-MW	Wells Formation well located at the north end of Woodall Mountain just above where the road turns sharply to the east, nested with monitoring well GW-39	457845	4734812	Wells
MW-1W	Blackfoot Bridge Wells Formation monitoring well located between the upper reaches of North Woodall Mountain Creek and State Land Creek Tributary #3	457745	4736064	Wells
Western Woodall Mountain Sub-Basin				
Shallow Hydrostratigraphic Unit				
SW04-SP	Woodall Spring	456211	4736281	Wells
SW04-SP(N)	Woodall Spring, north outlet	456192	4736476	Wells
SW04-SP(S)	Woodall Spring, south outlet	456186	4736177	Wells
WS-4	Woodall Spring 4: Woodall Springs complex just west of the Monsanto Haul Road	456211	4736234	Wells
WS-5	Woodall Spring 5: Southern spring within Woodall Springs complex	455973	4735376	Wells
SW01-W	Wetland-N (north property boundary), west of Monsanto Haul Road; northeast of Blackfoot Bridge Mine North Pit	457271	4739229	Dinwoody
SW16-SP	Gardner Spring, east of Monsanto Haul Road	457777	4739313	Dinwoody
SW18-SP	Wetland X Spring, north of Woodall Springs complex; north of the future water management ponds of the Blackfoot Bridge Mine	456040	4738174	Alluvium
SW19-SP	Blackfoot River Spring - downstream, north of Woodall Springs complex near SW11-ST	455762	4739356	Alluvium
SW20-SP	Blackfoot River Spring, northwest of Blackfoot Bridge Mine North Pit area	456045	4739242	Alluvium
SW21-SP	Blackfoot River Spring - upstream, north of Woodall Springs complex and downstream of SW10-ST; near the boundary of the Blackfoot Bridge Mine North Pit	456873	4739323	Wells
GW-20-MA	Alluvial well located east of the Monsanto Haul Road on Woodall Mountain Creek #2, nested with GW-21	456148	4734430	Alluvium/Colluvium
GW-A1-MA	Agrium shallow monitoring well located northeast of Agrium tailings pond #4 just west of the Monsanto Haul Road	456051	4734862	Alluvium
MW-5A	Blackfoot Bridge alluvial monitoring well located along Monsanto Haul Road east of the Woodall Springs complex	456429	4737133	Alluvium
Intermediate Hydrostratigraphic Unit				
A-13-135-MS	Agrium Salt Lake formation monitoring well located east of the Agrium Plant	456193	4731733	Salt Lake
A-46-028-MA	Agrium soil-bedrock monitoring well located in the Agrium Plant Area	455729	4732104	Alluvium/Colluvium
GW-57-MS	West Side monitoring well installed in the location of Boring 5	456325	4731828	Salt Lake
GW-NW7-IW*	Nu-West Well #7: Production well used for boiler feed water, located east of Agrium facility, west of Woodall Mountain, and southwest of production well GW-NW8	456316	4731963	Wells
GW-NW8-IW*	Nu-West Well #8: Production well used for boiler feed water, located east of Agrium facility, west of Woodall Mountain, and northeast of production well GW-NW7	456411	4732144	Wells
Deep Hydrostratigraphic Unit				
GW-21-MW	Wells Formation well located east of the Monsanto Haul Road on Woodall Mountain Creek #2, nested with GW-20	456148	4734430	Wells
MW-4W	Blackfoot Bridge Wells Formation monitoring well located along Monsanto Haul Road east of the Woodall Springs complex	456390	4737218	Wells

Table 3-5
Groundwater Monitoring Locations

Station Name	Station Description	Easting	Northing	Hydrostratigraphic Unit
Offsite (north)				
Shallow Hydrostratigraphic Unit				
MW-13A	Monsanto alluvial monitoring well located northwest of the North Pit area of the Blackfoot Bridge Mine facilities, just west of monitoring well MW-14W	456309	4739232	Alluvium
MW-9A	Monsanto alluvial monitoring well that has recently undergone construction associated with the south end of the North Pit area of the Blackfoot Bridge Mine	456963	4737929	Alluvium
WMP-MW-1-A	New Monsanto alluvial monitoring well located northwest of the water management ponds at the Blackfoot Bridge Mine	456247	4738035	Alluvium
WMP-MW-2-A	New Monsanto alluvial monitoring well located southeast of the water management ponds at the Blackfoot Bridge Mine	456472	4737663	Alluvium
WMP-MW-3-A	New Monsanto alluvial monitoring well located northeast of the water management ponds at the Blackfoot Bridge Mine	456565	4738033	Alluvium
Intermediate Hydrostratigraphic Unit				
MW-18Da	Blackfoot Bridge Dinwoody monitoring well located east of Blackfoot Bridge Mine facilities and west of Haul Road, nested with MW-18Db	457489	4738926	Dinwoody
MW-18Db	Blackfoot Bridge Dinwoody monitoring well located east of Blackfoot Bridge Mine facilities and west of Haul Road, nested with MW-18Da	457489	4738926	Dinwoody
MW-22B	Monsanto basalt formation monitoring well located north of the North Pit area of the Blackfoot Bridge Mine facilities, just east of monitoring well MW-14W	456497	4739248	Basalt
Deep Hydrostratigraphic Unit				
MW-23W	Monsanto basalt formation monitoring well located north of the North Pit area of the Blackfoot Bridge Mine facilities, just east of monitoring well MW-24W	456800	4739226	Wells
MW-24W	Monsanto basalt formation monitoring well located north of the North Pit area of the Blackfoot Bridge Mine facilities, just east of monitoring well MW-22B	456647	4739257	Wells
MW-8W	Monsanto Wells Formation monitoring well that has recently undergone construction associated with the south end of the North Pit area of the Blackfoot Bridge Mine	456959	4737932	Wells
MW-14W	Monsanto Wells Formation monitoring well located northwest of the North Pit area of the Blackfoot Bridge Mine just east of monitoring well MW-13A	456332	4739238	Wells
MW-17W	Blackfoot Bridge Wells Formation monitoring well located north of the North Pit area of the Blackfoot Bridge Mine	456848	4739153	Wells
Offsite (west)				
Intermediate Hydrostratigraphic Unit				
A-14-180-MS	Agrium Salt Lake formation monitoring well located east of the Agrium Sanitary Sewer Lagoons	456015	4732396	Salt Lake
A-15-105-MB	Agrium basalt monitoring well located east of the Agrium Sanitary Sewer Lagoons	456013	4732402	Basalt
A-16-190-MS	Agrium Salt Lake formation monitoring well located east of Agrium Tailings Pond 1	455944	4733296	Salt Lake
A-17-150-MS	Agrium Salt Lake formation monitoring well located east of Agrium Tailings Pond 4	455899	4734526	Salt Lake
A-27-090-MB	Agrium basalt monitoring well located east of Monsanto Haul Road and west of Agrium Plant	455335	4731886	Basalt
A-27-135-MB	Agrium basalt monitoring well located east of Monsanto Haul Road and west of Agrium Plant	455334	4731890	Basalt
A-28-110-MB	Agrium basalt monitoring well located south of Agrium East Cooling Pond	454713	4731243	Basalt
A-28-165-MB	Agrium basalt monitoring well located south of Agrium East Cooling Pond	454719	4731244	Basalt
A-29-145-MB	Agrium basalt monitoring well located south of Agrium West Cooling Pond	454513	4731187	Basalt
A-29-195-MB	Agrium basalt monitoring well located south of Agrium West Cooling Pond	454514	4731193	Basalt
A-30-135-MB	Agrium basalt monitoring well located south of Agrium West Cooling Pond	454430	4731171	Basalt
A-30-175-MB	Agrium basalt monitoring well located south of Agrium West Cooling Pond	454431	4731177	Basalt
A-33-070-MB	Agrium basalt monitoring well located in the Agrium Plant Area	455502	4731647	Basalt
A-33-170-MB	Agrium basalt monitoring well located in the Agrium Plant Area	455495	4731651	Basalt
A-35-080-MB	Agrium basalt monitoring well located in the Agrium Plant Area	455511	4731875	Basalt
A-35-155-MB	Agrium basalt monitoring well located in the Agrium Plant Area	455510	4731881	Basalt
A-36-105-MBS	Agrium basalt-sedimentary monitoring well located in the Agrium Plant Area	455632	4731871	Basalt/Salt Lake
A-36-145-MS	Agrium sedimentary monitoring well located in the Agrium Plant Area	455625	4731871	Salt Lake
A-49-095-MB	Agrium basalt monitoring well located west of Agrium Plant along Monsanto Haul Road	455064	4731473	Basalt

Table 3-5
Groundwater Monitoring Locations

Station Name	Station Description	Easting	Northing	Hydrostratigraphic Unit
A-49-135-MB	Agrium basalt monitoring well located west of Agrium Plant along Monsanto Haul Road	455070	4731486	Basalt
A-49-185-MS	Agrium Salt Lake formation monitoring well located west of Agrium Plant along Monsanto Haul Road	455067	4731480	Salt Lake
A-54-135-MB	Agrium basalt monitoring well located south of the Agrium cooling ponds along the Conda Road	454543	4730874	Basalt
A-54-225-MB	Agrium basalt monitoring well located south of the Agrium cooling ponds along the Conda Road	454544	4730868	Basalt
A-54-310-MS	Agrium sedimentary monitoring well located south of the Agrium cooling ponds along the Conda Road	454545	4730863	Salt Lake
A-70-135-MB	Agrium basalt monitoring well located southwest of the Conda New Tailings Pond near the Monsanto Haul Road	454895	4730753	Basalt
GW-10-IBS*	Simplot Well #10: Production well located southeast of Wells #7 and #8 along railroad tracks and road to Conda	454719	4730842	Basalt/Salt Lake
GW-7-IT*	Simplot Well #7: Production well located along railroad tracks and road to Conda southwest of Well #8	455014	4731314	Thaynes
GW-8-IBS*	Simplot Well #8: Well located along railroad tracks and road to Conda southwest of Well #8	455143	4731390	Basalt/Salt Lake

Notes:

Coordinates are in UTM NAD 83 Zone 12 meters

* Water supply Wells constructed for industrial use

** Water supply Wells constructed for domestic use

Table 3-6
Groundwater Well Construction Details

Well ID	Northing	Easting	Formation Screened	Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Measured Stick-Up (ft)	Well Screen Interval (ft btoc)	Well Screen Interval (ft amsl)	Casing Type	Well Completion Date	Depth to Water During Drilling (ft bgs)	GW Elevation (ft amsl)	Total Depth of Well (ft btoc)
A-13-135-MS	4731733	456193	Salt Lake	6204.0	6205.3	1.3	115.0 - 135.0	6070.3 - 6090.3	NA	8/22/2011	NA	NA	135.0
A-14-180-MS	4732396	456015	Salt Lake	6191.1	6192.5	1.4	160.0 - 180.0	6012.5 - 6032.5	NA	8/9/2011	NA	NA	180.0
A-15-105-MB	4732402	456013	Basalt	6191.0	6192.4	1.4	85.0 - 105.0	6087.4 - 6107.4	NA	10/18/2011	NA	NA	105.0
A-16-190-MS	4733296	455944	Salt Lake	6243.8	6244.9	1.1	170.0 - 190.0	6054.9 - 6074.9	NA	8/17/2011	NA	NA	190.0
A-17-150-MS	4734526	455899	Salt Lake	6198.0	6198.9	0.9	130.0 - 150.0	6048.9 - 6068.9	NA	8/31/2011	NA	NA	150.0
A-27-090-MB	4731886	455335	Basalt	6151.6	6153.4	1.7	70.0 - 90.0	6063.4 - 6083.4	4" Sch 40 PVC	10/8/2012	NA	NA	90.0
A-27-135-MB	4731890	455334	Basalt	6151.5	6152.8	1.3	125.0 - 135.0	6017.8 - 6027.8	4" Sch 40 PVC	10/10/2012	NA	NA	135.0
A-28-110-MB	4731243	454713	Basalt	6141.0	6142.7	1.7	90.0 - 110.0	6032.7 - 6052.7	4" Sch 40 PVC	10/13/2012	NA	NA	110.0
A-28-165-MB	4731244	454719	Basalt	6140.9	6142.8	1.8	145.0 - 165.0	5977.8 - 5997.8	4" Sch 40 PVC	10/16/2012	NA	NA	165.0
A-29-145-MB	4731187	454513	Basalt	6145.9	6147.8	1.8	135.0 - 145.0	6002.8 - 6012.8	4" Sch 40 PVC	10/17/2012	NA	NA	145.0
A-29-195-MB	4731193	454514	Basalt	6145.9	6147.6	1.7	180.0 - 195.0	5952.6 - 5967.6	4" Sch 40 PVC	10/20/2012	NA	NA	195.0
A-30-135-MB	4731171	454430	Basalt	6114.9	6116.4	1.5	125.0 - 135.0	5981.4 - 5991.4	4" Sch 40 PVC	11/13/2012	NA	NA	135.0
A-30-175-MB	4731177	454431	Basalt	6115.4	6116.8	1.5	165.0 - 175.0	5941.8 - 5951.8	4" Sch 40 PVC	11/10/2012	NA	NA	175.0
A-33-070-MB	4731647	455502	Basalt	6158.3	6160.4	2.1	60.0 - 70.0	6090.4 - 6100.4	NA	7/24/2013	60	6098.3	70.0
A-33-170-MB	4731651	455495	Basalt	6158.4	6160.6	2.2	160.0 - 170.0	5990.6 - 6000.6	NA	7/23/2013	NA	NA	170.0
A-35-080-MB	4731875	455511	Basalt	6157.4	6159.0	1.6	60.0 - 80.0	6079.0 - 6099.0	4" Sch 40 PVC	12/1/2012	60	6097.4	80.0
A-35-155-MB	4731881	455510	Basalt	6157.4	6158.9	1.6	135.0 - 155.0	6003.9 - 6023.9	4" Sch 40 PVC	12/1/2012	NA	NA	155.0
A-36-105-MBS	4731871	455632	Basalt/Salt Lake	6159.4	6160.5	1.0	95.0 - 105.0	6055.5 - 6065.5	4" Sch 40 PVC	12/6/2012	NA	NA	105.0
A-36-145-MS	4731871	455625	Salt Lake	6159.4	6160.5	1.2	125.0 - 145.0	6015.5 - 6035.5	4" Sch 40 PVC	12/5/2012	104	6055.4	145.0
A-46-028-MA	4732104	455729	Alluvium/Colluvium	6161.0	6163.6	2.6	18.0 - 28.0	6135.6 - 6145.6	NA	2/1/2013	NA	NA	28.0
A-49-095-MB	4731473	455064	Basalt	6145.7	6147.8	2.1	85.0 - 95.0	6052.8 - 6062.8	NA	7/18/2013	NA	NA	95.0
A-49-135-MB	4731486	455070	Basalt	6146.2	6148.2	2.1	125.0 - 135.0	6013.2 - 6023.2	NA	7/17/2013	77	6069.2	135.0
A-49-185-MS	4731480	455067	Salt Lake	6146.2	6148.1	1.9	175.0 - 185.0	5963.1 - 5973.1	NA	7/15/2013	NA	NA	185.0
A-50-070-MB	4731411	455843	Basalt	6180.4	6182.9	2.5	60.0 - 70.0	6112.9 - 6122.9	NA	6/30/2013	59	6121.4	70.0
A-50-100-MB	4731410	455832	Basalt	6180.9	6183.3	2.4	90.0 - 100.0	6083.3 - 6093.3	NA	7/1/2013	62	6118.9	100.0
A-50-125-MS	4731410	455837	Salt Lake	6180.6	6183.0	2.5	115.0 - 125.0	6058.0 - 6068.0	NA	7/1/2013	62	6118.6	125.0
A-54-135-MB	4730874	454543	Basalt	6140.2	6142.3	2.2	115.0 - 135.0	6007.3 - 6027.3	NA	8/1/2013	NA	NA	135.0
A-54-225-MB	4730868	454544	Basalt	6140.3	6142.4	2.1	210.0 - 225.0	5917.4 - 5932.4	NA	8/1/2013	NA	NA	225.0
A-54-310-MS	4730863	454545	Salt Lake	6140.3	6142.5	2.2	290.0 - 310.0	5832.5 - 5852.5	NA	7/1/2013	NA	NA	310.0
A-58-075-MB	4731658	455738	Basalt	6175.8	6178.2	2.4	65.0 - 75.0	6103.2 - 6113.2	NA	10/20/2013	53	6122.8	75.0
A-58-105-MB	4731658	455732	Basalt	6175.5	6177.8	2.3	90.0 - 105.0	6072.8 - 6087.8	NA	10/20/2013	53	6122.5	105.0
A-70-135-MB	4730753	454895	Basalt	6134.6	6137.2	2.6	125.0 135.0	6002.2 - 6012.2	NA	8/1/2014	NA	NA	138.0
GW-7-IT	4731314	455014	Thaynes	6145.0	6146.0	NA	50.0 - 295.0	5851.0 - 6096.0	Steel pipe	5/14/1965	19	6126.0	300.0
GW-8-IBS	4731390	455143	Basalt/Salt Lake	6149.0	6150.0	NA	97.0 - 144 [a]	NA - 6053.0	Steel	NA	26	6123.0	144.0
GW-9-IS	4730889	456554	Salt Lake	6193.3	6193.8	NA	90.0 - 145 [a]	NA - 6103.8	Steel	7/7/1965	0	6193.3	145.0
GW-10-IBS	4730842	454719	Basalt/Salt Lake	6142.0	6143.0	NA	60.0 - 210.0	5933.0 - 6083.0	Steel Pipe	11/2/1965	57.0	6085.0	221.0
GW-11-IW	4730906	456811	Wells	6254.0	6255.0	NA	45.0 - 140.0	6115.0 - 6210.0	Steel Pipe	8/24/1965	30.0	6224.0	260.0
GW-12-IS	4730563	456270	Salt Lake	6224.0	6226.0	NA	90.0 - 253.0	5973.0 - 6136.0	Steel	9/28/1978	85.0	6139.0	390.0

Table 3-6
Groundwater Well Construction Details

Well ID	Northing	Easting	Formation Screened	Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Measured Stick-Up (ft)	Well Screen Interval (ft btoc)	Well Screen Interval (ft amsl)	Casing Type	Well Completion Date	Depth to Water During Drilling (ft bgs)	GW Elevation (ft amsl)	Total Depth of Well (ft btoc)
GW-13-IS	4730881	456558	Salt Lake	6193.0	6194.4	NA	NA NA	NA - NA	Steel	NA	NA	NA	NA
GW-14-MW	4730625	456689	Wells	6227.3	6230.1	2.7	179.7 - 189.7	6040.4 - 6050.4	2" Sch 80 PVC	10/21/2008	171.0	6056.3	189.7
GW-15-MS	4730360	456444	Salt Lake	6238.3	6241.1	2.8	22.8 - 32.8	6208.3 - 6218.3	1.5" Sch 40 PVC	9/22/2008	21.0	6217.3	32.8
GW-16-MA	4730795	456384	Alluvium/Colluvium	6193.1	6196.0	2.9	24.9 - 34.9	6161.1 - 6171.1	1.5" Sch 40 PVC	9/22/2008	23.0	6170.1	34.9
GW-17-MA	4731199	456271	Alluvium/Colluvium	6182.3	6185.0	2.7	31.1 - 41.1	6143.9 - 6153.9	1.5" Sch 40 PVC	9/24/2008	33.0	6149.3	41.1
GW-18-MA	4730980	457236	Alluvium/Colluvium	6360.9	6364.0	3.1	21.6 - 31.6	6332.4 - 6342.4	1.5" Sch 40 PVC	9/24/2008	Dry	NA	31.6
GW-19-MS	4731649	456754	Salt Lake	6288.9	6291.8	2.9	107.2 - 127.2	6164.6 - 6184.6	2" Sch 40 PVC	10/10/2008	105.0	6183.9	127.2
GW-20-MA	4734430	456148	Alluvium/Colluvium	6320.9	6323.2	2.3	36.3 - 41.3	6281.9 - 6286.9	2" Sch 80 PVC	10/29/2008	dry	NA	41.3
GW-21-MW	4734430	456148	Wells	6320.9	6323.1	2.1	178.1 - 188.1	6135.0 - 6145.0	2" Sch 80 PVC	10/29/2008	165.0	6155.9	188.1
GW-22-MM	4728522	457617	Meade Peak	6421.1	6423.9	2.8	7.3 - 12.3	6411.6 - 6416.6	1.5" Sch 40 PVC	9/23/2008	dry	NA	12.3
GW-23-MM	4728574	457572	Meade Peak	6428.3	6431.4	3.1	7.6 - 12.6	6418.8 - 6423.8	1.5" Sch 40 PVC	9/23/2008	dry	NA	12.6
GW-24-MA	4728610	457576	Colluvium	6436.1	6439.0	2.9	11.9 - 21.9	6417.1 - 6427.1	1.5" Sch 40 PVC	9/23/2008	dry	NA	21.9
GW-25-MA	4734732	458649	Alluvium/Colluvium	6562.4	6564.8	2.4	11.4 - 16.4	6548.4 - 6553.4	2" Sch 40 PVC	10/3/2008	11.6	6550.8	16.4
GW-26-MD	4734732	458649	Dinwoody	6562.4	6564.8	2.4	147.4 - 167.4	6397.4 - 6417.4	2" Sch 80 PVC	10/3/2008	146.0	6416.4	167.4
GW-27-MA	4736049	459779	Alluvium/Colluvium	6362.2	6365.2	3.0	5.0 - 15.0	6350.2 - 6360.2	1.5" Sch 40 PVC	9/25/2008	5.5	6356.7	15.0
GW-28-MA	4733452	459030	Alluvium/Colluvium	6588.8	6590.7	1.9	5.4 - 15.4	6575.3 - 6585.3	2" Sch 80 PVC	10/1/2008	dry	NA	15.4
GW-29-MD	4733452	459030	Dinwoody	6588.8	6590.9	2.1	108.6 - 128.6	6462.3 - 6482.3	2" Sch 80 PVC	10/1/2008	117.0	6471.8	128.6
GW-30-MA	4733829	460615	Alluvium/Colluvium	6368.3	6371.8	3.5	5.5 - 15.5	6356.3 - 6366.3	1.5" Sch 40 PVC	9/25/2008	7.2	6361.1	15.5
GW-31-MW	4729003	457112	Wells	6466.1	6469.3	3.1	345.1 - 365.1	6104.2 - 6124.2	2" Sch 80 PVC	10/13/2008	340.0	6126.1	365.1
GW-32-MD	4728913	457060	Dinwoody	6462.4	6465.0	2.7	41.7 - 51.7	6413.3 - 6423.3	2" Sch 80 PVC	10/23/2008	45.0	6417.4	51.7
GW-33-MR	4728445	457527	Rex Chert	6506.3	6509.4	3.1	199.1 - 209.1	6300.3 - 6310.3	2" Sch 40 PVC	10/27/2008	200.0	6306.3	209.1
GW-34-MA	4728383	457160	Alluvium/Colluvium	6481.7	6484.9	3.2	23.2 - 33.2	6451.7 - 6461.7	1.5" Sch 40 PVC	9/24/2008	dry	NA	33.2
GW-35-MA	4728034	459878	Alluvium/Colluvium	6895.2	6898.3	3.1	22.1 - 32.1	6866.2 - 6876.2	1.5" Sch 40 PVC	9/25/2008	dry	NA	32.1
GW-36-MA	4728111	459865	Alluvium/Colluvium	6911.5	6914.4	2.9	12.9 - 22.9	6891.5 - 6901.5	1.5" Sch 40 PVC	9/27/2008	dry	NA	22.9
GW-37-MD	4731011	457219	Dinwoody	6367.2	6371.0	3.8	62.0 - 72.0	6299.0 - 6309.0	2" Sch 80 PVC	10/1/2009	40.0	6327.2	72.6
GW-38-MA	4732902	458503	Alluvium/Colluvium	6836.1	6836.1	NA [b]	0.0 - 5.0	6831.1 - 6836.1	2" Sch 40 PVC	5/28/2010	0.5	6835.6	5.0
GW-39-MW	4734812	457845	Wells	6893.1	6896.5	3.4	413.4 - 423.4	6473.1 - 6483.1	4" Carbon Steel	10/29/2011	230	6663.1	425.9
GW-40-MW	4734812	457845	Wells	6893.1	6896.5	3.4	213.4 - 283.4	6613.1 - 6683.1	4" Carbon Steel	10/31/2011	230	6663.1	285.9
GW-41-MA	4733103	458574	Alluvium/Colluvium	6769.8	6769.5	-0.27 [c]	19.7 - 29.7	6739.8 - 6749.8	2" Sch 40 PVC	11/4/2013	19	6750.8	30.1
GW-42-MD	4733103	458574	Dinwoody	6769.8	6769.5	-0.32 [c]	104.7 - 124.7	6644.8 - 6664.8	2" Sch 40 PVC	11/4/2013	105	6664.8	125.1
GW-43-MA	4732728	458629	Alluvium/Colluvium	6740.0	6742.6	3.0	7.6 - 17.6	6725.0 - 6735.0	2" Sch 40 PVC	6/23/2014	NA	NA	17.0
GW-44-MD	4732759	458576	Dinwoody	6776.1	NA	-0.5 [c]	104.5 - 124.5	NA - NA	2" Sch 40 PVC	11/6/2013	105	6671.1	125.0
GW-45-MA	4732669	458791	Alluvium/Colluvium	NA	6743.8	3.0	11.0 - 21.0	6722.8 - 6732.8	2" Sch 40 PVC	11/7/2013	17	NA	21.4
GW-46-MD	4732669	458791	Dinwoody	NA	6744.0	3.0	28.0 - 48.0	6696.0 - 6716.0	2" Sch 40 PVC	11/7/2013	17	NA	48.5
GW-47-MA	4734762	459246	Alluvium/Colluvium	6452.3	6454.9	2.5	18.0 28.0	6426.9 - 6436.9	2" Sch 40 PVC	6/24/2014	dry	NA	28.0

Table 3-6
Groundwater Well Construction Details

Well ID	Northing	Easting	Formation Screened	Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Measured Stick-Up (ft)	Well Screen Interval (ft btoc)	Well Screen Interval (ft amsl)	Casing Type	Well Completion Date	Depth to Water During Drilling (ft bgs)	GW Elevation (ft amsl)	Total Depth of Well (ft btoc)
GW-48-MA	4735126	459041	Alluvium/Colluvium	6450.4	6452.9	2.5	9.0 - 19.0	6433.9 - 6443.9	2" Sch 40 PVC	6/24/2014	dry	NA	19.0
GW-49-MA	4731291	456528	Alluvium/Colluvium	6202.36	6204.27	1.9	66.9 - 86.9	6117.4 - 6137.4	2" Sch 80 PVC	10/24/2014	58	6144.4	87
GW-50-MS	4731291	456528	Salt Lake	6202.36	6204.35	2	187 - 207	5997.4 - 6017.4	2" Sch 80 PVC	10/24/2014	58	6144.4	207
GW-51-MS	4731291	456528	Salt Lake	6202.36	6204.35	2	265 - 285	5919.4 - 5939.4	Steel	10/24/2014	58	6144.4	286
GW-52-MA	4730848	456299	Alluvium/Colluvium	6187.49	6189.09	1.6	41.6 - 61.6	6127.5 - 6147.5	2" Sch 80 PVC	10/28/2014	220	5967.5	62
GW-53-MS	4730848	456299	Salt Lake	6187.49	6188.94	1.45	211.5 - 232	5957.4 - 5977.4	Steel	10/28/2014	220	5967.5	232
GW-54-MA	4731252	456308	Alluvium/Colluvium	6186.87	6188.56	1.7	36.7 - 56.7	6131.9 - 6151.9	2" Sch 80 PVC	10/22/2014	112	6074.9	57
GW-55-MS	4731252	456308	Salt Lake	6186.87	6188.53	1.7	111.7 - 132	6056.8 - 6076.8	2" Sch 80 PVC	10/22/2014	112	6074.9	132
GW-56-MS	4731252	456308	Salt Lake	6186.87	6188.37	1.5	285.5 - 306	5882.9 - 5902.9	Steel	10/22/2014	112	6074.9	307
GW-57-MS	4731828	456325	Salt Lake	6238.94	6241.14	2.2	222.2 - 242	5998.9 - 6018.9	Steel	11/21/2014	203	6035.9	247
GW-A1-MA	4734843	456045	Alluvium	6222.9	6225.0	2.2	55.0 - 65.0	6160.0 - 6170.0	NA	11/4/1999	NA	NA	65.0
GW-LRSN-1-DD	4727461	457218	Dinwoody	6429.0	6430.0	NA	NA - NA	NA - NA	Steel	10/3/1964	0	6429.0	100.0
GW-LRSN-2-DD	4727390	457356	Dinwoody	6426.9	6428.0	NA	NA - NA	NA - NA	Steel	NA	0	6426.9	120.0
GW-MWB-MBS	4731591	455658	Basalt/Salt Lake	6166.1	6167.8	1.7	60.0 - 120.0	6047.8 - 6107.8	2" Sch 40 PVC	11/25/2004	114	6052.1	120.0
GW-NW1-IBS	4731424	455412	Basalt/Salt Lake	NA	NA	0.0	45.0 - 240.0	NA - NA	Steel	10/13/1964	38	NA	280.0
GW-NW7-IS	4731914	456322	Salt Lake	6245.4	NA	NA	104.0 - 465.0	NA - NA	Steel	9/30/1988	100-121	NA	503.0
GW-NW8-IS	4732143	456448	Salt Lake	6308.9	NA	NA	367.0 - 527.0	NA - NA	Steel	9/23/1992	350-354	NA	600.0
GW-NW9-IIBS	4731523	455628	Basalt/Salt Lake	6170.5	NA	NA	40.0 - 100.0	NA - NA	Steel	2/20/2000	45	6125.5	255.0
MW-1W	4736064	457745	Wells	6688.9	6690.8	1.9	222.9 - 232.9	6457.9 - 6467.9	3" Sch 80 PVC	11/2/2005	175-180	NA	237.9
MW-2R	4736091	458185	Rex Chert	6515.6	6517.5	1.9	342.9 - 352.9	6164.6 - 6174.6	2" Sch 80 PVC	10/18/2005	235-240	NA	357.9
MW-3A	4736086	458183	Alluvium	6515.8	6517.9	2.1	17.1 - 27.1	6490.8 - 6500.8	2" Sch 40 PVC	10/11/2005	Dry	NA	32.1
MW-4W	4737218	456390	Wells	6243.3	6245.1	1.8	81.8 - 91.8	6153.3 - 6163.3	2" Sch 40 PVC	10/16/2005	95	6148.3	96.8
MW-5A	4737133	456429	Alluvium	6243.5	6245.2	1.7	33.2 - 43.2	6202.0 - 6212.0	2" Sch 40 PVC	11/9/2005	28.59	6214.9	48.2
MW-6D	4737274	458030	Dinwoody	6369.3	6371.3	2.0	110.3 - 120.3	6251.0 - 6261.0	2" Sch 40 PVC	9/30/2005	35-40	NA	125.3
MW-7A	4737277	458026	Alluvium	6370.4	6371.9	1.5	21.5 - 31.5	6340.4 - 6350.4	2" Sch 40 PVC	10/1/2005	27	6343.4	36.5
MW-8W	4737932	456959	Wells	6205.7	6207.3	1.6	72.6 - 82.6	6124.7 - 6134.7	2" Sch 40 PVC	10/14/2005	20 - 25	NA	87.6
MW-9A	4737929	456963	Alluvium	6205.9	6207.7	1.8	16.8 - 26.8	6180.9 - 6190.9	2" Sch 40 PVC	10/15/2005	20	6185.9	31.8
MW-10A	4737869	457630	Alluvium	6282.5	6284.5	2.0	10.0 - 20.0	6264.5 - 6274.5	2" Sch 40 PVC	9/28/2005	6.19	6276.3	30.0
MW-11Da	4737851	457590	Dinwoody	6287.4	6289.4	1.9	30.4 - 40.4	6249.0 - 6259.0	2" Sch 40 PVC	9/27/2005	40	6247.4	45.4
MW-11Db	4737851	457590	Dinwoody	6287.4	6289.0	1.6	149.6 - 159.6	6129.4 - 6139.4	2" Sch 40 PVC	9/27/2005	40	6247.4	164.6
MW-12W	4737699	457282	Wells	6405.4	6407.3	1.9	260.9 - 270.9	6136.4 - 6146.4	3" Sch 80 PVC	11/7/2005	18	6387.4	275.9
MW-13A	4739232	456309	Alluvium	6155.5	6157.2	1.8	8.8 - 18.8	6138.5 - 6148.5	2" Sch 40 PVC	11/11/2005	10-15	-36502.5	23.8
MW-14W	4739238	456332	Wells	6156.5	6159.1	2.5	85.0 - 90.0	6069.1 - 6074.1	3" Stainless Steel	11/14/2005	-29.99	6186.5	122.5
MW-17W	4739153	456848	Wells	6362.4	6364.2	1.8	196.8 - 216.8	6147.4 - 6167.4	4" Sch 80 PVC	10/10/2007	155	6207.4	221.8
MW-18Da	4738926	457489	Dinwoody	6292.5	6293.0	0.5	20.5 - 25.5	6267.5 - 6272.5	2" Sch 40 PVC	10/8/2007	10-15	-36365.5	30.0
MW-18Db	4738926	457489	Dinwoody	6292.0	6293.9	1.9	109.9 - 119.9	6174.0 - 6184.0	2" Sch 40 PVC	10/8/2007	10-15	-36366.0	124.9
MW-22B	4739248	456497	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
MW-23W	4739226	456800	Wells	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
MW-24W	4739257	456647	Wells	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA

Table 3-6
Groundwater Well Construction Details

Well ID	Northing	Easting	Formation Screened	Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Measured Stick-Up (ft)	Well Screen Interval (ft btoc)	Well Screen Interval (ft amsl)	Casing Type	Well Completion Date	Depth to Water During Drilling (ft bgs)	GW Elevation (ft amsl)	Total Depth of Well (ft btoc)
MW-A-110-MB	4731603	455545	Basalt	6157.9	6159.2	1.4	61.4 - 111.4	6047.9 - 6097.9	2" Sch 80 PVC	NA	88	6069.9	110.0
KM-1-MA	4738035	456247	Alluvium	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
KM-10-MB	4737663	456472	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
Lish Well-DB	4738033	456565	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
MF Well-IB	4726427	453039	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
Nelson Well-DB	4726427	453048	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
Torgesen Well-DB	4728315	453721	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
White Well-DB	4726812	453766	Basalt	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
WMP-MW-1-A	4733641	454746	Alluvium	6159.0	NA	NA	50.0 - 60.0	NA - NA	NA	6/1/1967	NA	NA	225.0
WMP-MW-2-A	4729192	453734	Alluvium	NA	NA	NA	NA NA	NA - NA	NA	NA	NA	NA	NA
WMP-MW-3-A	4732498	453864	Alluvium	6143.5	6144.7	1.2	185.0 - 225.0	5919.7 - 5959.7	Steel	12/11/1970	185	5958.5	225.0

Notes:
- Northing and Easting coordinates are in UTM NAD 83 Zone 12 meters.
- Shallow Hydrostratigraphic Unit includes: Alluvium, Alluvium/Colluvium, Colluvium
- Intermediate Hydrostratigraphic Unit includes: Alluvium/Colluvium, Basalt, Basalt/Salt Lake, Dinwoody, Meade Peak, Rex Chert, Salt Lake, Sedimentary, Thaynes
- Deep Hydrostratigraphic Unit includes: Wells

[a] No screened interval; open hole depths.
[b] During summer 2012, GW-38 was destroyed during NTCRA construction activities
[c] Flush mount completed wells

Acronyms:
ft amsl = feet above mean sea level; ft bgs = feet below ground surface; ft btoc = feet below top of casing; TOC = top of casing
NA = Information not available

Table 4-1
Remedial Investigation Laboratory and Field Analyses

Groundwater	Surface Water	Sediment and Soil	Vegetation/Biota
Field Measurements			
Groundwater Elevation	Discharge		
Temperature	Temperature		
pH	pH		
Conductivity	Conductivity		
Dissolved Oxygen	Dissolved Oxygen		
Turbidity	Turbidity		
Oxidation Reduction Potential (ORP)	Oxidation Reduction Potential (ORP)		
Laboratory Measurements			
Metals (Total and Dissolved for Aqueous and Total for Solids)			
Aluminum	Aluminum	Aluminum	Aluminum
Antimony	Antimony	Antimony	Antimony
Arsenic	Arsenic	Arsenic	Arsenic
Barium	Barium	Barium	Barium
Beryllium	Beryllium	Beryllium	Beryllium
Boron	Boron	Boron	Boron
Cadmium	Cadmium	Cadmium	Cadmium
Chromium	Chromium	Chromium	Chromium
Cobalt	Cobalt	Cobalt	Cobalt
Copper	Copper	Copper	Copper
Iron	Iron	Iron	Iron
Lead	Lead	Lead	Lead
Manganese	Manganese	Manganese	Manganese
Mercury	Mercury	Mercury	Mercury
Molybdenum	Molybdenum	Molybdenum	Molybdenum
Nickel	Nickel	Nickel	Nickel
Selenium	Selenium	Selenium	Selenium
Silver	Silver	Silver	Silver
Thallium	Thallium	Thallium	Thallium
Uranium	Uranium	Uranium	Uranium
Vanadium	Vanadium	Vanadium	Vanadium
Zinc	Zinc	Zinc	Zinc
Organics (Former Mill and Townsite only)			
Volatile Organic Compounds (VOCs) [1]		Volatile Organic Compounds (VOCs) [1]	
Semi-volatile Organic Compounds (SVOCs) [1]		Semi-volatile Organic Compounds (SVOCs) [1]	
Polycyclic Aromatic Hydrocarbons (PAHs) [1]		Polycyclic Aromatic Hydrocarbons (PAHs) [1]	

Table 4-1
Remedial Investigation Laboratory and Field Analyses

Groundwater	Surface Water	Sediment and Soil	Vegetation/Biota
General Anions/Cations (Total and Dissolved)			
Calcium	Calcium		
Magnesium	Magnesium		
Potassium	Potassium		
Sodium	Sodium		
Chloride	Chloride		
Fluoride	Fluoride		
Sulfate	Sulfate		
Other Analyses			
Alkalinity	Alkalinity	Moisture Content	Percent Solids
Bicarbonate	Bicarbonate		
Carbonate	Carbonate		
Hydroxide	Hydroxide		
Hardness	Hardness		
Ammonia	Ammonia		
Nitrate + Nitrite	Nitrate + Nitrite		
Nitrate	Nitrate		
Phosphorus	Phosphorus		
Total Dissolved Solids (TDS)	Total Dissolved Solids (TDS)		
Total Suspended Solids (TSS)	Total Suspended Solids (TSS)		
Total Organic Carbon (TOC)	Total Organic Carbon (TOC)		
Stable Isotopes (for a subset of locations)	Stable Isotopes (for a subset of locations)		
Gross Alpha (for a subset of locations)	Gross Alpha (for a subset of locations)		
Gross Beta (for a subset of locations)	Gross Beta (for a subset of locations)		

Notes:

Table lists analyses associated with Simplot sampling events to support the RI.

[1] Former Conda Mill and Townsite (soils and groundwater) only.

Table 4-2
Screening Values Used in Evaluating Soils

Analytes		Ecological	Human Health
		EPA EcoSSLs [1]	EPA Regional Screening Levels [2,3]
Analyte	Units		Industrial Soil
Metals			
Aluminum	mg/kg	--	1,100,000
Antimony	mg/kg	0.27 [b]	470
Arsenic	mg/kg	18 [c]	3
Barium	mg/kg	330 [d]	220,000
Beryllium	mg/kg	21 [b]	2,300
Boron	mg/kg	--	230,000
Cadmium	mg/kg	0.36 [b]	980
Chromium	mg/kg	26 [a]	1,800,000
Cobalt	mg/kg	13 [c]	350
Copper	mg/kg	28 [a]	47,000
Iron	mg/kg	--	820,000
Lead	mg/kg	11 [a]	800
Manganese	mg/kg	220 [c]	26,000
Mercury	mg/kg	--	350
Molybdenum	mg/kg	--	5,800
Nickel	mg/kg	38 [c]	22,000
Selenium	mg/kg	0.52 [c]	5,800
Silver	mg/kg	4.2 [a]	5,800
Thallium	mg/kg	--	12
Uranium	mg/kg	--	3,500
Vanadium	mg/kg	7.8 [a]	5,800
Zinc	mg/kg	46 [a]	350,000
Polycyclic Aromatic Hydrocarbons (PAHs)			
Acenaphthene	mg/kg	--	45,000
Acenaphthylene	mg/kg	--	--
Anthracene	mg/kg	--	230,000
Benzo[a]anthracene	mg/kg	--	2.9
Benzo[a]pyrene	mg/kg	--	0.29
Benzo[b]fluoranthene	mg/kg	--	2.9
Benzo(ghi)perylene	mg/kg	--	--
Benzo[k]fluoranthene	mg/kg	--	29
Chrysene	mg/kg	--	290
Dibenz[a,h]anthracene	mg/kg	--	0.29
Fluoranthene	mg/kg	--	30,000
Fluorene	mg/kg	--	30,000
Indeno[1,2,3-cd]pyrene	mg/kg	--	2.9
Naphthalene	mg/kg	--	17
Phenanthrene	mg/kg	--	--
Pyrene	mg/kg	--	23,000
Styrene	mg/kg	--	35,000
Semi-Volatile Organic Compounds (SVOCs)			
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	--	0.064
1,2-Diphenyl hydrazine	mg/kg	--	2.9
1-Methylnaphthalene	mg/kg	--	73
2,3,4,6-Tetrachlorophenol	mg/kg	--	25,000
2,3,5,6-Tetrachlorophenol	mg/kg	--	--
2,4,5-Trichlorophenol	mg/kg	--	82,000
2,4,6-Trichlorophenol	mg/kg	--	210
2,4-Dichlorophenol	mg/kg	--	2,500
2,4-Dimethylphenol	mg/kg	--	16,000
2,4-Dinitrophenol	mg/kg	--	1,600
2,4-Dinitrotoluene	mg/kg	--	7.4
2,6-Dinitrotoluene	mg/kg	--	1.5
2-Chloronaphthalene	mg/kg	--	60,000
2-Chlorophenol	mg/kg	--	5,800
2-Methylnaphthalene	mg/kg	--	3,000
2-Methylphenol	mg/kg	--	41,000
2-Nitroaniline	mg/kg	--	8,000
2-Nitrophenol	mg/kg	--	--
3,3'-Dichlorobenzidine	mg/kg	--	5.1
3+4-Methylphenol	mg/kg	--	41,000
3-Nitroaniline	mg/kg	--	--
4,6-Dinitro-2-methylphenol	mg/kg	--	66
4-Bromophenyl-phenylether	mg/kg	--	--
4-Chloro-3-methylphenol	mg/kg	--	--

Table 4-2
Screening Values Used in Evaluating Soils

Analytes		Ecological	Human Health
		EPA EcoSSLs [1]	EPA Regional Screening Levels [2,3]
Analyte	Units		Industrial Soil
4-Chloroaniline	mg/kg	--	11
4-Chlorophenyl-phenylether	mg/kg	--	--
4-Nitroaniline	mg/kg	--	110
4-Nitrophenol	mg/kg	--	--
Aniline	mg/kg	--	400
Benzidine	mg/kg	--	0.01
Benzyl alcohol	mg/kg	--	82,000
bis(2-Chloroethoxy)methane	mg/kg	--	2,500
bis(2-Chloroethyl)ether	mg/kg	--	1
bis(2-chloroisopropyl)ether	mg/kg	--	47000
bis(2-Ethylhexyl)phthalate	mg/kg	--	160
Butylbenzylphthalate	mg/kg	--	1200
Carbazole	mg/kg	--	--
Dibenzofuran	mg/kg	--	1,000
Diethylphthalate	mg/kg	--	660,000
Dimethylphthalate	mg/kg	--	--
Di-n-butylphthalate	mg/kg	--	82,000
Di-n-octylphthalate	mg/kg	--	8,200
Hexachlorobenzene	mg/kg	--	0.96
Hexachlorobutadiene	mg/kg	--	5.3
Hexachlorocyclopentadiene	mg/kg	--	7.5
Hexachloroethane	mg/kg	--	8
Isophorone	mg/kg	--	2,400
Nitrobenzene	mg/kg	--	22
Nitrosodimethylamine	mg/kg	--	0.034
n-Nitroso-di-n-propylamine	mg/kg	--	0.33
n-Nitrosodiphenylamine	mg/kg	--	470
Pentachlorophenol	mg/kg	2.1 [a]	4
Phenol	mg/kg	--	250,000
Pyridine	mg/kg	--	1,200
Volatile Organic Compounds (VOCs)			
1,1,1,2-Tetrachloroethane	mg/kg	--	8.8
1,1,1-Trichloroethane	mg/kg	--	36,000
1,1,2,2-Tetrachloroethane	mg/kg	--	2.7
1,1,2-Trichloroethane	mg/kg	--	5
1,1-Dichloroethane	mg/kg	--	16
1,1-Dichloroethene	mg/kg	--	1,000
1,1-Dichloropropene	mg/kg	--	8.2
1,2,3-Trichlorobenzene	mg/kg	--	930
1,2,3-Trichloropropane	mg/kg	--	0.11
1,2,4-Trichlorobenzene	mg/kg	--	110
1,2,4-Trimethylbenzene	mg/kg	--	240
1,2-Dibromoethane	mg/kg	--	0.16
1,2-Dichlorobenzene	mg/kg	--	9,300
1,2-Dichloroethane	mg/kg	--	2
1,2-Dichloropropane	mg/kg	--	4.4
1,3,5-Trimethylbenzene	mg/kg	--	12,000
1,3-Dichlorobenzene	mg/kg	--	--
1,3-Dichloropropane	mg/kg	--	23,000
1,4-Dichlorobenzene	mg/kg	--	11
2,2-Dichloropropane	mg/kg	--	4.4
2-Chlorotoluene	mg/kg	--	23,000
2-hexanone	mg/kg	--	1,300
4-Chlorotoluene	mg/kg	--	23,000
Acetone	mg/kg	--	670,000
Acrylonitrile	mg/kg	--	1.1
Benzene	mg/kg	--	5.1
Bromobenzene	mg/kg	--	1,800
Bromochloromethane	mg/kg	--	630
Bromodichloromethane	mg/kg	--	1.3
Bromoform	mg/kg	--	86
Bromomethane	mg/kg	--	30
Carbon disulfide	mg/kg	--	3,500
Carbon Tetrachloride	mg/kg	--	2.9
Chlorobenzene	mg/kg	--	1,300
Chloroethane	mg/kg	--	57,000
Chloroform	mg/kg	--	1.4

Table 4-2
Screening Values Used in Evaluating Soils

Analytes		Ecological	Human Health
		EPA EcoSSLs [1]	EPA Regional Screening Levels [2,3]
Analyte	Units		Industrial Soil
Chloromethane	mg/kg	--	460
cis-1,2-dichloroethene	mg/kg	--	2,300
cis-1,3-Dichloropropene	mg/kg	--	--
Dibromochloromethane	mg/kg	--	39
Dibromomethane	mg/kg	--	99
Dichlorodifluoromethane	mg/kg	--	370
Ethylbenzene	mg/kg	--	25
Isopropylbenzene	mg/kg	--	9,900
m+p-Xylene	mg/kg	--	2,500
Methyl ethyl ketone (MEK)	mg/kg	--	190,000
Methyl isobutyl ketone (MIBK)	mg/kg	--	140,000
Methylene chloride	mg/kg	--	1000
Methyl-t-butyl ether (MTBE)	mg/kg	--	210
n-Butylbenzene	mg/kg	--	58,000
n-Propylbenzene	mg/kg	--	24,000
o-Xylene	mg/kg	--	2,800
p-isopropyltoluene	mg/kg	--	--
sec-Butylbenzene	mg/kg	--	120,000
tert-Butylbenzene	mg/kg	--	120,000
Tetrachloroethene	mg/kg	--	100
Toluene	mg/kg	--	47,000
trans-1,2-Dichloroethene	mg/kg	--	23000
trans-1,3-Dichloropropene	mg/kg	--	--
Trichloroethene	mg/kg	--	6
Trichlorofluoromethane	mg/kg	--	350,000
Vinyl Chloride	mg/kg	--	1.7

Notes:

Conservative screening values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

1 - U.S. Environmental Protection Agency (EPA). 2005. Guidance for Developing Ecological Soil Screening Levels (EcoSSLs). EPA Office of Solid Waste and Emergency Response (OSWER), OSWER Directive 9285.7-55. Published November 2003, Revised November 2005 and subsequent contaminant-specific EcoSSL documents.

The lowest EPA EcoSSL was selected for the Ecological Screening Level

a. Avian EPA EcoSSL
b. Mammal EPA EcoSSL
c. Plants EPA EcoSSL
d. Inverts EPA EcoSSL

2 - U.S. Environmental Protection Agency (USEPA). 2016a. Risk-Based Screening Table - Generic Tables; Regional Screening Level Tables (November 2015). Available at http://www.epa.gov/risk/risk-based-screening-table-generic-tables. (Website last updated March 7, 2016; accessed April 11, 2016). Includes links to associated regional screening levels (RSLs).

The minimum RSL for the carcinogenic (TR = 1E-06) or noncarcinogenic (THQ = 1) effect for industrial (composite worker) soil was selected.

Information about criteria chosen for specific inorganic analytes is as follows:

Antimony (metallic), Arsenic (inorganic), Beryllium and compounds, Boron and Borates only, Cadmium (diet), Chromium III (insoluble salts), Lead and Compounds, Manganese (non-diet), Mercuric Chloride (and other mercury salts), Nickel (soluble salts), Thallium (soluble salts), Uranium (soluble salts), Vanadium and compounds, Zinc and compounds. Nitrate value used for Nitrate + Nitrite, as N.

Information about criteria chosen for specific organics analytes is as follows:

1,3-Dichloropropene used for 1,1-Dichloropropene. 1,2-Dichloropropane used for 2,2-Dichloropropane. Dibutyl Phthalate used for Di-n-butylphthalate. Dinitro-o-cresol, 4,6- used for 4,6-Dinitro-2-methylphenol. p-chloroaniline used for 4-Chloroaniline. o-chlorotoluene used for 4-Chlorotoluene and 2-Chlorotoluene. o-cresol used for 2-Methylphenol. Nitrosodimethylamine, N- used for Nitrosodimethylamine. Propyl benzene used for n-propylbenzene. Lesser of the RSLs for m-cresol and p-cresol used for 3+4-Methylphenol . Xylenes used for m+p-Xylene.

1,1-Dichloroethene is also known as Dichloroethylene, 1,1-. bis(2-chloroisopropyl)ether is also known as Bis(2-chloro-1-methylethyl) ether. Chloroethane is also known as ethyl chloride. Dibromomethane is also known as Methylene bromide. Isopropylbenzene is also known as cumene. 2-Chloronaphthalene is also known as beta-Chloronaphthalene. Methyl Ethyl Ketone is also known as 2-Butanone. Methyl Isobutyl Ketone is also known as 4-methyl-2-pentanone. cis-1,2-Dichloroethene is also known as Dichloroethylene, 1,2-cis-. trans-1,2-Dichloroethene is also known as Dichloroethylene, 1,2-trans-. Tetrachloroethene is also known as Tetrachloroethylene. Trichloroethene is also known as Trichloroethylene.

Table 4-3
Water Quality Criteria and Standards Used in Evaluating Surface Water

Analytes	Units	Aquatic Life[1,2,4]		Human Health[1,3,4]
		Acute (CMC) (mg/L)	Chronic (CCC) (mg/L)	Water and Organism Consumption (mg/L)
Metals				
Aluminum	mg/L	0.75 [a,h] (total)	0.087 [a,h] (total)	--
Antimony	mg/L	--	1.6 [e] (total)	0.0056 (total)
Arsenic	mg/L	0.34 (dissolved)	0.15 (dissolved)	0.01 (total)
Barium	mg/L	1.25 f[j] (total)	0.44 [f,j] (total)	1.0 [b] (total)
Beryllium	mg/L	0.06 [f,j] (total)	0.0067 [f,j] (total)	0.004 [c] (total)
Boron	mg/L	34 [f] (total)	7.2 [f] (total)	--
Cadmium	mg/L	0.0013 [j] (dissolved)	0.0006 [j] (dissolved)	0.005 [c] (total)
Chromium (III)	mg/L	0.57 [j] (dissolved)	0.074 [j] (dissolved)	0.1 [c, i] (total)
Cobalt	mg/L	0.37 [f] (total)	0.1 [f] (total)	--
Copper	mg/L	0.017 [j] (dissolved)	0.011 [j] (dissolved)	1.3 [a] (total)
Iron	mg/L	--	1 [e] (total)	--
Lead	mg/L	0.065 [j] (dissolved)	0.0025 [j] (dissolved)	0.015 [c] (total)
Manganese	mg/L	2.99 [g,j] (dissolved)	1.65 [g,j] (dissolved)	0.05 [b] (total)
Mercury	mg/L	0.0014 [a] (dissolved)	0.00077 [a] (dissolved)	0.002 [c] (total)
Molybdenum	mg/L	29 [f] (total)	3.2 [f] (total)	--
Nickel	mg/L	0.47 [j] (dissolved)	0.052 [j] (dissolved)	0.61 (total)
Selenium	mg/L	0.02 [k] (total)	0.005 [k] (total)	0.17 (total)
Silver	mg/L	0.0034 [j] (dissolved)	--	--
Thallium	mg/L	0.047 [f] (total)	0.0072 [f] (total)	0.00024 (total)
Uranium	mg/L	2.4 [g,j] (dissolved)	1.5 [g,j] (dissolved)	0.03 [c] (total)
Vanadium	mg/L	0.079 [f] (total)	0.027 [f] (total)	--
Zinc	mg/L	0.12 [j] (dissolved)	0.12 [j] (dissolved)	7.4 (total)
Other analytes				
Gross Alpha	pCi/L	--	--	15 [c] (total)
Gross Beta	pCi/L	--	--	50 [d]
pH	SU	--	6.5-9 [a]	5-9 [b] (total)
Radium 226 (Ra-226+D)	pCi/L	--	--	5 [c] (total)
Radium 228 (Ra-228+D)	pCi/L	--	--	5 [c] (total)
Thorium 230 (Th-230)	pCi/L			5 [c] (total)
Uranium 234 (U-234)	pCi/L			5 [c] (total)
Uranium 235 (U-235+D)	pCi/L			5 [c] (total)
Uranium 238 (U-238+D)	pCi/L	--	--	5 [c] (total)
Uranium Total	pCi/L	--	--	5 [c] (total)

Notes:

Criteria/standards are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

1. Unless noted otherwise, values are the Idaho State "Numeric criteria for toxic substances for waters designated for aquatic life, recreation, or domestic water supply use". IDAPA 58.01.02, Section 210 (IDAPA 2015a).

2. Unless otherwise noted values reflect dissolved concentrations in water samples (i.e., filtered using 0.45 um pore size)

3. Human Health values reflect concentration in unfiltered water samples.

CMC - Criterion Maximum Concentration CCC - Criterion Continuous Concentration

4. Idaho does not identify an aquatic life or human health (organism + water) numeric criterion for some analytes. If not, then values are from the following sources:

a. National Recommended Water Quality Criteria - Aquatic Life Criteria Table (EPA 2016a)

b. National Recommended Water Quality Criteria - Human Health Criteria Table (EPA 2016b)

c. Maximum Contaminant Level (MCL) value for Radium 226 and 228 (Ra-226 and Ra-228) from National Primary Drinking Water Standards and National Secondary Drinking Water Standards (EPA 2016c). Applied to Uranium decay products assuming secular equilibrium.

d. Value based on 4 millirems/year effective dose equivalent from IDAPA ground water quality rule (IDAPA 2015b), which is roughly equivalent to 50 pCi/L.

e. EPA (1986) Quality Criteria for Water 1986 ("The Gold Book").

f. Aquatic Maximum Value (AMV) and Final Chronic Value (FCV) values from Michigan DEQ 2015; expressed as total concentration.

g. CDHPE (2016) - Classifications and Numeric Standards for the Arkansas River System. Metals are stated as dissolved unless otherwise specified.

h. Value for Aluminum is for pH between 6.5 and 9, and is based on total recoverable metal in the water column.

i. Maximum Contaminant Level (MCL) for total Chromium used for Chromium III

j. Aquatic life criteria for some metals are expressed as a function of total hardness (mg/L as calcium carbonate) and the pollutant's water effect ratio (WER); refer to Table 4-5 for the benchmarks for each sub-basin. For comparative purposes only, the example values displayed in this table are shown as dissolved metal and correspond to a total harness of one hundred (100) mg/L and a water effect ratio of one (1.0).

k. Criterion expressed as total recoverable (unfiltered) concentration.

Sources:

Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC). 2016. Reg. Number 32. Classifications and Numeric Standards for the Arkansas River System, updated March 2016. Available at https://www.colorado.gov/pacific/cdphe/water-quality-control-commission-regulations.

Idaho Administrative Procedures Act (IDAPA). 2015a. Idaho Administrative Code. Department of Environmental Quality. Water Quality Standards. IDAPA 58.01.02, Section 210. Available at http://adminrules.idaho.gov/rules/current/58/0102.pdf. Accessed April 12, 2016.

Idaho Administrative Procedures Act (IDAPA). 2015b. Idaho Administrative Code. Department of Environmental Quality. Ground Water Quality Rule. Tables II & III. IDAPA 58.01.11, Section 200. Accessed from the official state website: http://adminrules.idaho.gov/rules/2013/58/0111.pdf on April 13, 2016.

Michigan Department of Environmental Quality (DEQ). 2015. Water Quality Values. Surface Water Assessment Section. Rule 57. Available at http://www.michigan.gov/documents/deq/wrd-swas-rule57_372470_7.pdf. Document dated Dec 1, 2015; Accessed on April 13, 2016.

U.S. Environmental Protection Agency (EPA). 1986. Quality Criteria for Water 1986 ("The Gold Book"). EPA 440/5-86-001. May 1, 1986.

U.S. Environmental Protection Agency (EPA). 2016a. National Recommended Water Quality Criteria (NRWQC) - Aquatic Life Criteria Table. Available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table. Website updated January 25, 2016; accessed April 13, 2016.

U.S. Environmental Protection Agency (EPA). 2016b. National Recommended Water Quality Criteria (NRWQC) - Human Health Criteria Table. Available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table. Website updated March 25, 2016; accessed April 13, 2016.

U.S. Environmental Protection Agency (EPA). 2016c. National Primary Drinking Water Standards and National Secondary Drinking Water Standards. Available at http://water.epa.gov/drink/contaminants/index.cfm. (Website last updated February 16, 2016; accessed April 13, 2016).

Table 4-4
Hardness-Based Aquatic Life Water Quality Criteria Used in Evaluating Surface Water

Hardness Calculation Group[1]		Number of Hardness Values[2]	Min Hardness	Max Hardness	Avg Hardness	Median Hardness	95LCL Hardness[3]	Hardness Value used in Calculations[4]	CMC (Acute) Aquatic Life Hardness-Based Comparison Values (mg/L)[5]											CCC (Chronic) Aquatic Life Hardness-Based Comparison Values (mg/L)[5]										
Description	Abbreviation		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Man-ganese	Nickel	Silver	Zinc	Uranium	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Man-ganese	Nickel	Silver[6]	Zinc	Uranium
Camp G Creek Sub-basin - creek	CGC-Crk	45	173	277	213.6	212	207	207	2.705	0.204	0.002	1.033	0.034	0.163	3.804	0.866	0.012	0.217	5.353	0.948	0.023	0.0009	0.13	0.02	0.006	2.102	0.096	nc	0.219	3.344
Camp G Creek Sub-basin - spring	CGC-Spg	18	183	290	220.4	202	202	202	2.643	0.197	0.002	1.015	0.033	0.158	3.776	0.850	0.012	0.213	5.224	0.926	0.022	0.0009	0.13	0.02	0.006	2.086	0.094	nc	0.215	3.263
French Drain Sub-Basin - creek/spring/pond	FD-CrkSpgPd	27	0.836	911	728.5	772	660	400	5.452	0.619	0.004	1.773	0.063	0.377	4.738	1.513	0.037	0.379	11.070	1.911	0.069	0.0014	0.23	0.04	0.015	2.618	0.168	nc	0.382	6.915
French Drain Sub-Basin - New Tailings Pond	FD-NTP	8	0.716	828	623.1	684	407	400	5.452	0.619	0.004	1.773	0.063	0.377	4.738	1.513	0.037	0.379	11.070	1.911	0.069	0.0014	0.23	0.04	0.015	2.618	0.168	nc	0.382	6.915
Margarette Creek/Trail Canyon Sub-Basin - pond	MCTC-PD	4	113	155	128.8	124	99	113	1.422	0.074	0.001	0.630	0.019	0.075	3.110	0.519	0.004	0.130	2.749	0.499	0.008	0.0006	0.08	0.01	0.003	1.718	0.058	nc	0.131	1.717
North Woodall Mountain Sub-Basin - creek/spring/pond	NWM-CrkSpgPd	94	29.9	933	339.2	207	290	290	3.873	0.360	0.003	1.363	0.046	0.250	4.257	1.152	0.022	0.289	7.766	1.357	0.040	0.0011	0.18	0.03	0.010	2.352	0.128	nc	0.291	4.851
Offsite - Blackfoot River	OffN-Spg	17	577	978	749.4	723	681	400	5.452	0.619	0.004	1.773	0.063	0.377	4.738	1.513	0.037	0.379	11.070	1.911	0.069	0.0014	0.23	0.04	0.015	2.618	0.168	nc	0.382	6.915
Offsite - Blackfoot River	Offsite-BFR	111	115	357	180.9	182	176	176	2.272	0.155	0.002	0.903	0.029	0.132	3.601	0.754	0.009	0.189	4.466	0.796	0.017	0.0008	0.12	0.02	0.005	1.990	0.084	nc	0.190	2.790
Offsite North - spring	OffN-Spg	43	168	878	308.5	213	249	249	3.295	0.279	0.003	1.203	0.040	0.206	4.046	1.013	0.017	0.254	6.567	1.155	0.031	0.0010	0.16	0.02	0.008	2.235	0.113	nc	0.256	4.102
Offsite - Trail Creek	Offsite-TC	64	165	225	196.0	198	192	192	2.502	0.180	0.002	0.973	0.032	0.148	3.712	0.814	0.011	0.204	4.937	0.877	0.020	0.0009	0.13	0.02	0.006	2.051	0.090	nc	0.206	3.084
Old Tailings Pond Sub-Basin - pooled areas	OTP-pool	3	52.9	84.3	71.4	77	31	53	0.635	0.021	0.001	0.338	0.009	0.029	2.415	0.273	0.001	0.068	1.191	0.222	0.002	0.0004	0.04	0.01	0.001	1.334	0.030	nc	0.069	0.744
Old Tailings Pond Sub-Basin - Tailings Pond	OTP-TP	6	128	828	434.7	400	148	148	1.891	0.116	0.002	0.784	0.025	0.106	3.400	0.651	0.007	0.163	3.692	0.663	0.013	0.0007	0.10	0.02	0.004	1.878	0.072	nc	0.164	2.306
Pedro Creek Sub-Basin - creek/spring/seeps	PC-CrkSpgSeeps	107	2.06	2770	979.4	669	813	400	5.452	0.619	0.004	1.773	0.063	0.377	4.738	1.513	0.037	0.379	11.070	1.911	0.069	0.0014	0.23	0.04	0.015	2.618	0.168	nc	0.382	6.915
Pedro Creek Sub-Basin - pond/pooled areas	PC-PDPOOL	45	0.443	1340	319.6	204	224	224	2.937	0.232	0.002	1.101	0.036	0.180	3.903	0.925	0.014	0.232	5.830	1.029	0.026	0.0009	0.14	0.02	0.007	2.156	0.103	nc	0.234	3.641
Shield and Jouglard Canyons Sub-Basin - Formation Creek	SJC-FormCrk	6	517	569	535.7	531.5	517	400	5.452	0.619	0.004	1.773	0.063	0.377	4.738	1.513	0.037	0.379	11.070	1.911	0.069	0.0014	0.23	0.04	0.015	2.618	0.168	nc	0.382	6.915
Shield and Jouglard Canyons Sub-Basin - ODA pond	SJC-ODApond	4	108	182	156.0	167	102	108	1.356	0.068	0.001	0.607	0.018	0.071	3.063	0.500	0.004	0.125	2.615	0.475	0.008	0.0006	0.08	0.01	0.003	1.692	0.056	nc	0.126	1.633
Shield and Jouglard Canyons Sub-Basin - pond	SJC-PD	18	129	1190	349.0	257.5	225	225	2.954	0.235	0.002	1.106	0.036	0.181	3.910	0.929	0.014	0.233	5.863	1.035	0.026	0.0009	0.14	0.02	0.007	2.160	0.103	nc	0.235	3.662
Shield and Jouglard Canyons Sub-Basin - Pit Lake	SJC-PitLake	16	122	249	193.0	194.5	175	175	2.259	0.153	0.002	0.899	0.029	0.131	3.595	0.750	0.009	0.188	4.440	0.792	0.017	0.0008	0.12	0.02	0.005	1.986	0.083	nc	0.189	2.773
Shield and Jouglard Canyons Sub-Basin - pooled areas	SJC-pool	4	28	238	119.4	105.75	nc	28	0.323	0.007	0.000	0.201	0.005	0.013	1.954	0.159	0.000	0.040	0.591	0.113	0.001	0.0003	0.03	0.00	0.000	1.080	0.018	nc	0.040	0.369
Shield and Jouglard Canyons Sub-Basin - spring	SJC-Spg	14	248	689	318.7	283	253	253	3.348	0.286	0.003	1.218	0.041	0.210	4.067	1.026	0.017	0.257	6.677	1.173	0.032	0.0010	0.16	0.03	0.008	2.247	0.114	nc	0.259	4.171
State Land Creek Sub-Basin - creek/spring	SLC-CrkSpg	142	29.3	1740	377.6	172.5	300	300	4.009	0.381	0.003	1.399	0.048	0.261	4.303	1.185	0.023	0.297	8.049	1.405	0.042	0.0011	0.18	0.03	0.010	2.377	0.132	nc	0.299	5.028
State Land Creek Sub-Basin - pond	SLC-PD	3	34.5	122	77.1	74.8	nc	35	0.403	0.010	0.001	0.238	0.006	0.017	2.095	0.190	0.001	0.048	0.743	0.141	0.001	0.0003	0.03	0.00	0.001	1.157	0.021	nc	0.048	0.464
State Land Creek Sub-Basin - spring	SLC-Spg	22	65.6	154	115.9	126	103	103	1.289	0.063	0.001	0.584	0.018	0.067	3.016	0.480	0.004	0.120	2.483	0.452	0.007	0.0006	0.08	0.01	0.003	1.666	0.053	nc	0.121	1.551
Western Woodall Mountain Sub-Basin - pooled areas	WW-pool	1	121	121	121.0	121	nc	121	1.530	0.083	0.001	0.666	0.020	0.082	3.181	0.550	0.005	0.138	2.964	0.536	0.009	0.0006	0.09	0.01	0.003	1.758	0.061	nc	0.139	1.851
Western Woodall Mountain Sub-Basin - spring/pond	WW-SpgPd	31	394	523	481.0	489	470	400	5.452	0.619	0.004	1.773	0.063	0.377	4.738	1.513	0.037	0.379	11.070	1.911	0.069	0.0014	0.23	0.04	0.015	2.618	0.168	nc	0.382	6.915
							Based on 100 mg/L (Table 4-3)	100	1.249	0.060	0.0013	0.570	0.017	0.065	2.986	0.47	0.0034	0.117	2.402	0.438	0.007	0.0006	0.074	0.011	0.0025	1.650	0.052	nc	0.118	1.501

Notes:

Criteria/standards are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Aquatic life criteria for some metals are expressed as a function of total hardness (mg/L as calcium carbonate) and the pollutant's water effect ratio (WER); the values in this table correspond to a water effect ratio of one (1.0).

[1] Hardness values were aggregated based on the types of stations (and variability in hardness values) within each sub-basin.

[2] Based on all available analytical hardness data from unfiltered samples from 2001-2014 from datasets of data use level "A".

[3] 95th lower confidence limit (95LCL) on the mean. If the calculated 95LCL value was less than the minimum or if the sample size is less than 6, then the minimum is presented.

[4] According to IDAPA (2015) and USEPA (2016), the minimum hardness allowed for use in those equations shall not be less than 25 mg/L, as calcium carbonate, even if the actual ambient hardness is less than 25 mg/L as calcium carbonate. For cadmium, the minimum hardness for use in those equations shall not be less than 10 mg/L, as calcium carbonate. The maximum hardness allowed for use in those equations shall not be greater than 400 mg/L, as calcium carbonate, even if the actual ambient hardness is greater than four hundred 400 mg/L as calcium carbonate. Therefore, the 95LCL value was used unless it exceeded 400 mg/L (in which case 400 mg/L was used) or unless it was less than 25 mg/L (in which case 25 mg/L was used).

[5] The hardness-based equations are from IDAPA 2015 Water Quality Standards IDAPA 58.01.02, Michigan DEQ (2015), or CDPHE (2016).

[6] Chronic hardness-based comparison values do not exist for silver (Table 4-3).

nc - not calculated

Sources:

Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission (WQCC). 2016. Reg. Number 32. Classifications and Numeric Standards for the Arkansas River System, updated March 2016. Available at https://www.colorado.gov/pacific/cdphe/water-quality-control-commission-regulations.

Idaho Administrative Procedures Act (IDAPA). 2015. Idaho Administrative Code. Department of Environmental Quality. Water Quality Standards. IDAPA 58.01.02, Section 210. Available at http://adminrules.idaho.gov/rules/current/58/0102.pdf. Accessed April 12, 2016.

Michigan Department of Environmental Quality (DEQ). 2015. Water Quality Values. Surface Water Assessment Section. Rule 57. Available at http://www.michigan.gov/documents/deq/wrd-swas-rule57_372470_7.pdf. Document dated Dec 1, 2015; Accessed on April 13, 2016.

U.S. Environmental Protection Agency (EPA). 2016. National Recommended Water Quality Criteria (NRWQC) - Aquatic Life Criteria Table. Available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table. Website updated January 25, 2016; accessed April 13, 2016.

Table 4-5
Screening Values Used in Evaluating Sediment

Analytes		Sediment Screening Levels
Analyte	**Units**	
Metals		
Aluminum	mg/kg	25,500 [d]
Antimony	mg/kg	3 [c]
Arsenic	mg/kg	9.8 [a]
Barium	mg/kg	20 [a]
Beryllium	mg/kg	--
Boron	mg/kg	235.5 [g]
Cadmium	mg/kg	1 [a]
Chromium	mg/kg	43 [a]
Cobalt	mg/kg	50 [a]
Copper	mg/kg	32 [a]
Iron	mg/kg	20,000 [b]
Lead	mg/kg	36 [a]
Manganese	mg/kg	460 [b]
Mercury	mg/kg	0.18 [a]
Molybdenum	mg/kg	3742 [h]
Nickel	mg/kg	23 [a]
Selenium	mg/kg	2 [f]
Silver	mg/kg	1 [a]
Thallium	mg/kg	0.858 [i]
Uranium	mg/kg	100 [e]
Vanadium	mg/kg	--
Zinc	mg/kg	120 [a]

Notes:

Conservative screening values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

The TEC was selected as the comparison benchmark. If a TEC value was not available, then lowest of the alternative values was used.

a. SQAGS TEC

b. NOAA SQuiRTs LEL

c. NOAA SQuiRTs UETs

d. NOAA SQuiRTs ARCS

e. PNEC

f. USEPA/Lemly

g. IC25 - *L. variegatus* and *L. siliquoidea* (Sheppard et al. 2005)

h. NOEC 10 day survival and growth *H. azteca* (Liber et al. 2011)

i. Threshold is sediment concentration resulting in 2% of the Lethal Body concentration (25) for 4 week *Hyallela* bioaccumulation test (Borgman et al. 1998)

ARCS - Assessment and Remediation of Contaminated Sediments
LELs- Lowest Effect Levels
PNEC - Predicted No-Effect Concentration
SQAGS - sediment quality assessment guidelines
SQuiRTs - screening quick reference tables
TEC - Threshold Effect Concentration
UETs - Upper Effect Levels

Sources:

Borgmann, U., V. Cheam, W.P. Norwood, and J.Lechner. 1998. Toxicity and bioaccumulation of thallium in Hyallela azteca, with comparison to other metals and prediction of environmental impact. Env Pollution 99: 105-114.

MacDonald, D.D., C.G. Ingersoll, D.E. Smorong, R.A. Lindskoog, G. Sloane, and T. Biernacki. 2003. Development and Evaluation of Numerical Sediment Quality Assessment Guidelines (SQAGs) for Florida Inland Waters. Florida Department of Environmental Protection, Tallahassee, FL.

U.S. National Oceanic and Atmospheric Association (NOAA). 2008. Screening Quick Reference Tables (SQuiRTs). NOAA Office of Response and Restoration Division, NOAA OR&R Report 08-1, Seattle, WA. Available at http://response.restoration.noaa.gov/sites/default/files/SQuiRTs.pdf.

Sheppard, S.C., M.I. Sheppard, M.O. Gallerand, B. Sanipelli. 2005. Derivation of ecotoxicity thresholds for uranium. Journal of Environmental Radioactivity 79(1):55-83.

Lemly, A.D. 2002. Selenium assessment in aquatic ecosystems. U.S. Forest Service, Blacksburg, VA. as cited in U.S. Environmental Protection Agency (USEPA). 2012. Freshwater sediment screening benchmarks. Mid-Atlantic Risk Assessment. Available at http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fwsed/screenbench.htm. Last updated September 25, 2013.

Liber K, Doig LE, White-Sobey SL. 2011. Toxicity of uranium, molybdenum, nickel, and arsenic to Hyalella azteca and Chironomus dilutus in water-only and spiked sediment toxicity tests. Ecotoxicology and Environmental Safety, 74(5), 1171-1179

Table 4-6
Water Quality Criteria and Standards Used in Evaluating Groundwater

Analytes	Units	Standard Value[1,2]	Secondary Standard Value[3]
Metals			
Aluminum	mg/L	--	0.05 to 0.2
Antimony	mg/L	0.006	--
Arsenic	mg/L	0.05	--
Barium	mg/L	2	--
Beryllium	mg/L	0.004	--
Boron	mg/L	--	--
Cadmium	mg/L	0.005	--
Chromium	mg/L	0.1	--
Cobalt	mg/L	--	--
Copper	mg/L	1.3	1
Iron	mg/L	--	0.3
Lead	mg/L	0.015	--
Manganese	mg/L	--	0.05
Mercury	mg/L	0.002	--
Molybdenum	mg/L	--	--
Nickel	mg/L	--	--
Selenium	mg/L	0.05	--
Silver	mg/L	--	0.1
Thallium	mg/L	0.002	--
Uranium	mg/L	0.03 [a]	--
Vanadium	mg/L	0.053 [b]	--
Zinc	mg/L	--	5
Radionuclides			
Gross Alpha	pCi/L	15	--
Gross Beta	pCi/L	50 [d]	--
Radium 226 (Ra-226+D)	pCi/L	5 [c]	--
Radium 228 (Ra-228+D)	pCi/L	5 [c]	--
Thorium 230 (Th-230)	pCi/L	5 [c]	--
Uranium 234 (U-234)	pCi/L	5 [c]	--
Uranium 235 (U-235+D)	pCi/L	5 [c]	--
Uranium 238 (U-238+D)	pCi/L	5 [c]	--
Uranium Total	pCi/L	5 [c]	--
Polycyclic Aromatic Hydrocarbon (PAHs)			
Acenaphthene	mg/L	--	--
Acenaphthylene	mg/L	--	--
Anthracene	mg/L	--	--
Benzo[a]anthracene	mg/L	--	--
Benzo[a]pyrene	mg/L	0.0002	--
Benzo[b]fluoranthene	mg/L	--	--
Benzo(ghi)perylene	mg/L	--	--
Benzo[k]fluoranthene	mg/L	--	--
Chrysene	mg/L	--	--
Dibenz[a,h]anthracene	mg/L	--	--
Fluoranthene	mg/L	--	--
Fluorene	mg/L	--	--
Indeno[1,2,3-cd]pyrene	mg/L	--	--
Naphthalene	mg/L	--	--
Phenanthrene	mg/L	--	--
Pyrene	mg/L	--	--
Styrene	mg/L	0.1	--

Table 4-6
Water Quality Criteria and Standards Used in Evaluating Groundwater

Analytes	Units	Standard Value[1,2]	Secondary Standard Value[3]
Semi-Volatile Organic Compounds (SVOCs)			
1,2-Diphenyl hydrazine	mg/L	--	--
1-Methylnaphthalene	mg/L	--	--
2,3,4,6-Tetrachlorophenol	mg/L	--	--
2,3,5,6-Tetrachlorophenol	mg/L	--	--
2,4,5-Trichlorophenol	mg/L	--	--
2,4,6-Trichlorophenol	mg/L	--	--
2,4-Dichlorophenol	mg/L	--	--
2,4-Dimethylphenol	mg/L	--	--
2,4-Dinitrophenol	mg/L	--	--
2,4-Dinitrotoluene	mg/L	--	--
2,6-Dinitrotoluene	mg/L	--	--
2-Chloronaphthalene	mg/L	--	--
2-Chlorophenol	mg/L	--	--
2-Methylnaphthalene	mg/L	--	--
2-Methylphenol	mg/L	--	--
2-Nitroaniline	mg/L	--	--
2-Nitrophenol	mg/L	--	--
3,3'-Dichlorobenzidine	mg/L	--	--
3+4-Methylphenol	mg/L	--	--
3-Nitroaniline	mg/L	--	--
4,6-Dinitro-2-methylphenol	mg/L	--	--
4-Bromophenyl-phenylether	mg/L	--	--
4-Chloro-3-methylphenol	mg/L	--	--
4-Chloroaniline	mg/L	--	--
4-Chlorophenyl-phenylether	mg/L	--	--
4-Nitroaniline	mg/L	--	--
4-Nitrophenol	mg/L	--	--
Aniline	mg/L	--	--
Benzidine	mg/L	--	--
Benzyl alcohol	mg/L	--	--
bis(2-Chloroethoxy)methane	mg/L	--	--
bis(2-Chloroethyl)ether	mg/L	--	--
bis(2-chloroisopropyl)ether	mg/L	--	--
bis(2-Ethylhexyl)phthalate	mg/L	0.006	--
Butylbenzylphthalate	mg/L	--	--
Carbazole	mg/L	--	--
Dibenzofuran	mg/L	--	--
Diethylphthalate	mg/L	--	--
Dimethylphthalate	mg/L	--	--
Di-n-butylphthalate	mg/L	--	--
Di-n-octylphthalate	mg/L	--	--
Hexachlorobenzene	mg/L	0.001	--
Hexachlorobutadiene	mg/L	--	--
Hexachlorocyclopentadiene	mg/L	0.05	--
Hexachloroethane	mg/L	--	--
Isophorone	mg/L	--	--
Nitrobenzene	mg/L	--	--
Nitrosodimethylamine	mg/L	--	--
n-Nitroso-di-n-propylamine	mg/L	--	--
n-Nitrosodiphenylamine	mg/L	--	--
Pentachlorophenol	mg/L	0.001	--
Phenol	mg/L	--	--
Pyridine	mg/L	--	--

Table 4-6
Water Quality Criteria and Standards Used in Evaluating Groundwater

Analytes	Units	Standard Value[1,2]	Secondary Standard Value[3]
Volatile Organic Compounds (VOCs)			
1,1,1,2-Tetrachloroethane	mg/L	--	--
1,1,1-Trichloroethane	mg/L	0.2	--
1,1,2,2-Tetrachloroethane	mg/L	--	--
1,1,2-Trichloroethane	mg/L	0.005	--
1,1-Dichloroethane	mg/L	--	--
1,1-Dichloroethene	mg/L	0.007	--
1,1-Dichloropropene	mg/L	--	--
1,2,3-Trichlorobenzene	mg/L	--	--
1,2,3-Trichloropropane	mg/L	--	--
1,2,4-Trichlorobenzene	mg/L	0.07	--
1,2,4-Trimethylbenzene	mg/L	--	--
1,2-Dibromo-3-chloropropane(DBCP)	mg/L	--	--
1,2-Dibromoethane	mg/L	--	--
1,2-Dichlorobenzene	mg/L	0.6	--
1,2-Dichloroethane	mg/L	0.005	--
1,2-Dichloropropane	mg/L	0.005	--
1,3,5-Trimethylbenzene	mg/L	--	--
1,3-Dichlorobenzene	mg/L	0.6	--
1,3-Dichloropropane	mg/L	--	--
1,4-Dichlorobenzene	mg/L	0.075	--
2,2-Dichloropropane	mg/L	--	--
2-Chlorotoluene	mg/L	--	--
2-hexanone (MBK)	mg/L	--	--
4-Chlorotoluene	mg/L	--	--
Acetone	mg/L	--	--
Acrylonitrile	mg/L	--	--
Benzene	mg/L	0.005	--
Bromobenzene	mg/L	--	--
Bromochloromethane	mg/L	--	--
Bromodichloromethane	mg/L	0.1	--
Bromoform	mg/L	0.1	--
Bromomethane	mg/L	--	--
Carbon disulfide	mg/L	--	--
Carbon Tetrachloride	mg/L	0.005	--
Chlorobenzene	mg/L	0.1 [a]	--
Chloroethane (Ethyl Chloride)	mg/L	--	--
Chloroform	mg/L	0.002	--
Chloromethane	mg/L	--	--
cis-1,2-dichloroethene	mg/L	0.07	--
cis-1,3-Dichloropropene	mg/L	--	--
Dibromochloromethane	mg/L	0.1	--
Dibromomethane (Ethylene dibromide)	mg/L	0.00005	--
Dichlorodifluoromethane	mg/L	--	--
Ethylbenzene	mg/L	0.7	--

Table 4-6
Water Quality Criteria and Standards Used in Evaluating Groundwater

Analytes	Units	Standard Value[1,2]	Secondary Standard Value[3]
Isopropylbenzene (Cumene)	mg/L	--	--
m+p-Xylene	mg/L	10 [e]	--
Methyl ethyl ketone (MEK)	mg/L	--	--
Methyl isobutyl ketone (MIBK)	mg/L	--	--
Methylene chloride (Dichloromethane)	mg/L	0.005	--
methyl-t-butyl ether (MTBE)	mg/L	--	--
n-Butylbenzene	mg/L	--	--
n-Propylbenzene	mg/L	--	--
o-Xylene	mg/L	--	--
p-isopropyltoluene	mg/L	--	--
sec-Butylbenzene	mg/L	--	--
tert-Butylbenzene	mg/L	--	--
Tetrachloroethene	mg/L	0.005	--
Toluene	mg/L	1	--
trans-1,2-Dichloroethene	mg/L	0.1	--
trans-1,3-Dichloropropene	mg/L	--	--
Trichloroethene	mg/L	0.005	--
Trichlorofluoromethane	mg/L	--	--
Vinyl Chloride	mg/L	0.002	--
Other analytes			
Chloride	mg/L	--	250
Color	color units	--	15
Corrosivity	no units	--	non-corrosive
Fluoride	mg/L	4	2
Foaming Agents	mg/L	--	0.5
Nitrate, as N	mg/L	10	--
Nitrite, as N	mg/L	1	--
Nitrate + Nitrite, as N	mg/L	10	--
Odor	threshold odor number	--	3
pH	no units	--	6.5-8.5
Sulfate	mg/L	--	250
TDS	mg/L	--	500

Notes:

Standards are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

1. Unless otherwise stated, values are Idaho State Numerical Ground Water Quality Standards, Primary Constituent Standards. Table II. IDAPA 58.01.11 Section 200. (IDAPA 2015).

2. All values reflect unfiltered (total) concentrations in water samples.

3. Secondary standard values are the U.S. Environmental Protection Agency (EPA) National Secondary Drinking Water Regulations (non-enforceable guidelines) (EPA 2016). (These values are also available in Idaho State Numerical Ground Water Quality Standards, Secondary Constituent Standards. Table III. IDAPA 58.01.11 Section 200. [IDAPA 2015]). Generally based on aesthetic qualities.

a. Maximum Contaminant Level (MCL) value from EPA 2016.

b. Vanadium value is Human NonCancer Value (HNV) from Michigan DEQ 2015; expressed as total concentration.

c. Maximum Contaminant Level (MCL) value for Radium 226 and 228 (Ra-226 and Ra-228) from National Primary Drinking Water Standards and National Secondary Drinking Water Standards (EPA 2016). Applied to Uranium decay products assuming secular equilibrium.

d. Value based on 4 millirems/year effective dose equivalent (IDAPA 2015), which is roughly equivalent to 50 pCi/L.

e. Xylenes (total) value used for m+p-Xylene.

Sources:

Idaho Administrative Procedures Act (IDAPA). 2015. Idaho Administrative Code. Department of Environmental Quality. Ground Water Quality Rule. Tables II & III. IDAPA 58.01.11, Section 200. Accessed from the official state website: http://adminrules.idaho.gov/rules/2013/58/0111.pdf on April 13, 2016.

Michigan Department of Environmental Quality (DEQ). 2015. Water Quality Values. Surface Water Assessment Section. Rule 57. Available at http://www.michigan.gov/documents/deq/wrd-swas-rule57_372470_7.pdf. Document dated Dec 1, 2015; Accessed on April 13, 2016.

U.S. Environmental Protection Agency (EPA). 2016. National Primary Drinking Water Standards and National Secondary Drinking Water Standards. Available at http://water.epa.gov/drink/contaminants/index.cfm. (Website last updated February 16, 2016; accessed April 13, 2016).

Table 4-7
Summary of Background Values by Media

Analyte	Soil (mg/kg)						Vegetation (mg/kg)						Surface Water (mg/L)												Sediment (mg/kg)		
	Surface			Subsurface			Forage Mixed			Browse Mixed			Base Flow						High Flow								
													Dissolved			Total			Dissolved			Total					
	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL	95/95 UPL	95-95 UTL	95 USL
Aluminum	20017	21200	21200	21180	21600	21600	215	215	215	121.5	141	141	0.04	0.04	0.1	3.4	7.9	7.9	0.6	0.7	2	2.2	4.6	4.6	22306	25478	26294
Antimony	1.5	1.5	1.5	1.6	1.8	1.8	0.06	0.06	0.06	0.05	0.05	0.05	0.003	0.003	0.003				0.003	0.003	0.003				1.5	1.5	1.5
Arsenic	9.4	9.6	9.6	9.8	10.7	10.7	0.20	0.2	0.2	0.1	0.1	0.1	0.003	0.003	0.01	0.002	0.002	0.002	0.003	0.003	0.003	0.002	0.002	0.002	6	6	6
Barium	439	441	441	324	353	367	102	102	102	136	136	136	0.5	0.6	0.6	0.1	0.1	0.1	0.4	0.5	0.7	0.1	0.2	0.2	223	238	238
Beryllium	1.2	1.2	1.2	1.3	1.3	1.3	0.008	0.008	0.008	0.005	0.005	0.005	0.0009	0.0009	0.0009										1.3	1.4	1.4
Boron	14.4	14.6	14.6	15.1	16.2	16.2	50	50	50	44	44	44	0.03	0.03	0.04	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03	10.3	11.5	11.9
Cadmium	6.5	8.1	9	7	8	8	1.1	1.2	1.2	3.3	4.8	4.9	0.0001	0.0003	0.1	0.0002	0.0003	0.001	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003	6.6	6.6	6.6
Chromium	45.7	47.6	47.6	46.8	47.1	47.1	0.5	0.6	0.6	0.5	0.5	0.5	0.002	0.003	0.5	0.01	0.01	0.01	0.002	0.002	0.004	0.003	0.004	0.01	99	102	102
Cobalt	16	17.7	18.4	14.9	16.9	17.6	0.3	0.3	0.3	0.8	0.9	0.9	0.01	0.01	0.01	0.002	0.002	0.002	0.002	0.002	0.002	0.002			11	11	11
Copper	33.6	35.1	35.1	32.1	32.6	32.6	7.2	7.3	7.3	9.4	10.7	10.7	0.01	0.03	0.5	0.02	0.070	0.070	0.004	0.004	0.01	0.005			29.3	29.8	29.8
Iron	26943	27300	27300	27560	28100	28100	304	304	304	188.3	196	196	0.2	0.2	50	2.6	5.7	5.7	0.6	1	2.3	3.5	4.1	4.1	23,700	23,700	23,700
Lead	25.8	27.1	27.1	22.6	24.4	26.6	0.3	0.3	0.3	0.2	0.2	0.2	0.003			0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.01	0.01	18.1	18.1	18.1
Manganese	4100	4110	4110	3390	3600	3600	248	343	305	503	705	705	0.3	0.3	0.5	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.3	2260	2260	2260
Mercury	0.2	0.2	0.3	0.1	0.2	0.3	0.02	0.02	0.02	0.03	0.03	0.03	0.00003	0.00003	0.00005				0.0002	0.0002	0.2	0.0001			0.2	0.2	0.2
Molybdenum	2.9	3	3	4	4.5	4.5	3.25	3.3	3.3	1.3	1.3	1.3	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	0.1	0.01	0.01	0.01	2.5	2.5	2.5
Nickel	41	46	46	52	52	52	2	2.2	2.2	4.5	4.8	4.8	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.004	0.01	0.01	84.8	86.6	86.6
Selenium	2.3	2.9	2.9	1.2	3.5	3.5	1.5	1.5	1.5	0.82	0.82	0.82	0.002	0.003	0.003	0.002	0.003	0.004	0.003	0.003	0.01	0.003	0.003	0.01	7.1	13.7	13.7
Silver	0.3	0.4	0.4	0.4	0.5	0.5	0.1	0.1	0.1	0.03	0.03	0.03				0.002	0.002	0.002	0.001						0.3	0.4	0.4
Thallium	6	6.8	6.8	4.6	6.8	6.8	0.05	0.05	0.05	0.01	0.01	0.01	0.0001			0.0001	0.0001	0.0001				0.0001			0.8	0.9	1
Uranium	2	2.2	2.2	2.9	3.6	4.8	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.002	0.002	0.002	0.03	0.03	0.03	0.001	0.001	0.001	10.8	11	11
Vanadium	49	53	56	56	76	76	0.7	0.7	0.7	0.8	0.8	0.8	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	0.1	0.01	0.01	0.01	40.2	45.4	46.3
Zinc	225	241	241	157	180	212	37	38	38	117	124	124	0.03	0.04	0.1	0.1	0.100	0.100	0.1	0.1	0.1	0.02	0.02	0.02	282	283	283

Notes:

Values shaded gray exceed one of the following criteria: Ecological Acute Criteria, Ecological Chronic Criteria, or Human Health Criteria. Please see Tables 4-2 through 4-6 for media-specific benchmarks.

Blank Cell - No data available

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium							Cadmium						
			Summer 2015 (Jun-Aug)	2015		2001-2014		Average		Summer 2015 (Jun-Aug)	2015		2001-2014		Average	
				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014		MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Soil (Total Fraction, [mg/kg])																
			Eco: 0.52, HH: 5,800							**Eco: 0.36, HH: 980**						
Pedro Creek Sub-Basin [1]	FSPS-10D	Dinwoody Cover		NA		0.62	0.84	0.7	0.7	4.6	4.6	4.6	3.5	3.5	4.05	3.5
	FSPS-11C	Overburden		NA		34.9	47.2	40	39.5	32.5	32.5	32.5	29.7	29.7	31.1	29.7
	FSPS-12A	Overburden	36.9	36.9	36.9	26.5	58.3	41	42.4	39.7	39.7	39.7	24.8	24.8	32.25	24.8
	FSPS-13B	Overburden	23.5	23.5	23.5	13.7	39.4	26	27.5	24.2	24.2	24.2	30.6	30.6	27.4	30.6
	FSPS-14D	Dinwoody Cover	1.5	1.5	1.5	0.42	1.5	1	0.9	5.4	5.4	5.4	5.8	5.8	5.6	5.8
	FSPS-15F	Dinwoody Cover	1.8	1.8	1.8	1	1.6	1	1.2	6.6	6.6	6.6	6.9	6.9	6.75	6.9
	FSPS-16B	Overburden	NA	NA		37.4	60.7	48	47.6	28.2	28.2	28.2	33.2	33.2	30.7	33.2
	FSPS-17C	Overburden	19.1	19.1	19.1	5.7	21.8	17	15.9	16.9	16.9	16.9	18.8	18.8	17.85	18.8
	FSPS-18B	Overburden	12.2	12.2	12.2	14.7	22.6	16	17.6	14.9	14.9	14.9	17.5	17.5	16.2	17.5
	FSPS-19E	Dinwoody Cover	1.7	1.7	1.7	0.76	1.7	1	1.2	6	6	6	5.8	5.8	5.9	5.8
	FSPS-1F	Dinwoody Cover	2.1	2.1	2.1	0.77	1.7	2	1.3	5.2	5.2	5.2	4.9	4.9	5.05	4.9
	FSPS-20A	Overburden	NA	NA		9.1	9.4	9	9.3	26.5	26.5	26.5	24.9	24.9	25.7	24.9
	FSPS-21C	Overburden	42.4	42.4	42.4	6.5	37.2	25	18.8	23.4	23.4	23.4	24.5	24.5	23.95	24.5
	FSPS-2G	Dinwoody Cover	1.5	1.5	1.5	0.73	1.9	1	1.2	5.2	5.2	5.2	6.2	6.2	5.7	6.2
	FSPS-3F	Dinwoody Cover	NA	NA		0.83	2.3	1	1.4	5.3	5.3	5.3	7.5	7.5	6.4	7.5
	FSPS-4G	Dinwoody Cover	NA	NA		0.62	1.8	1	1.1	4.9	4.9	4.9	4	4	4.45	4
	FSPS-5E	Dinwoody Cover	NA	NA		1	2.4	2	1.7	5.2	5.2	5.2	5.3	5.3	5.25	5.3
	FSPS-6D	Dinwoody Cover	1.6	1.6	1.6	0.85	1.8	1	1.3	6	6	6	7.3	7.3	6.65	7.3
	FSPS-7E	Dinwoody Cover	1.7	1.7	1.7	0.93	1.7	1	1.3	5.9	5.9	5.9	6.1	6.1	6	6.1
	FSPS-8G	Dinwoody Cover	1.6	1.6	1.6	0.63	1.5	1	1.1	5.8	5.8	5.8	5.7	5.7	5.75	5.7
	FSPS-9A	Overburden	62.6	62.6	62.6	70.3	81.9	72	76.1	24.9	24.9	24.9	28.4	28.4	26.65	28.4
	PRSC-DU1	Dinwoody Cover	0.4	0.4	0.4	NA		0.4	NA	1.4	1.4	1.4	NA		1.4	NA
	PRSC-DU2	Dinwoody Cover	0.29	0.29	0.29			0.3		1.3	1.3	1.3			1.3	
	PRSC-DU3	Dinwoody Cover	0.53	0.53	0.53			1		1.3	1.3	1.3			1.3	
	PRSC-DU4	Dinwoody Cover	0.27	0.27	0.27			0.3		1.2	1.2	1.2			1.2	
	PRSC-DU5	Dinwoody Cover	7.5, 15.7	7.5	15.7			12		19, 19, 20	19	20			19	
Vegetation (Total Fraction, [mg/kg])																
Pedro Creek Sub-Basin	FSPS-10D	Dinwoody Cover	1.54, 1.68	1.54	1.68	3.24	31.3	9	13	0.222, 0.293	0.222	0.293	0.275	1.77	0.6	1.0
	FSPS-11C	Overburden	11.6, 13.7	11.6	13.7	24	264	81	108	0.362, 1.46	0.362	1.46	0.497	1.57	1.0	1.0
	FSPS-12A	Overburden	7.12, 11.6	7.12	11.6	21.8	136	55	85	0.923, 4.79	0.923	4.79	0.633	3.85	2.5	2.2
	FSPS-13B	Overburden	5.35, 14.9	5.35	14.9	5.29	128	51	71	1.2, 10.3	1.2	10.3	0.644	7.17	4.8	3.9
	FSPS-14D	Dinwoody Cover	0.6, 0.51, 0.65	0.51	0.65	1.29	5.21	2	3	3.53, 0.284, 0.313	0.284	3.53	0.189	0.85	1.0	0.5
	FSPS-15F	Dinwoody Cover	0.78, 1.39	0.78	1.39	0.92	21	5	7	0.094, 0.92	0.094	0.92	0.257	0.851	0.5	0.6
	FSPS-16B	Overburden	14.2, 25.5	14.2	25.5	15.7	426	159	215	0.636, 0.761	0.636	0.761	0.773	2.11	1.1	1.4
	FSPS-17C	Overburden	9.52, 17.3	9.52	17.3	20.6	328	89	120	0.392, 2.32	0.392	2.32	0.42	2.61	1.4	1.5
	FSPS-18B	Overburden	1.75, 2.74	1.75	2.74	2.99	127	34	46	1.43, 2.43	1.43	2.43	0.925	6.83	2.9	3.9
	FSPS-19E	Dinwoody Cover	2.88, 3.47	2.88	3.47	3.68	76.6	24	32	0.172, 1.19	0.172	1.19	0.372	1.22	0.7	0.8
	FSPS-1F	Dinwoody Cover	3.47, 37.6, 4.3	3.47	37.6	0.58	37.3	13	11	4.14, 1.13, 0.151	0.151	4.14	0.209	1.61	1.4	0.9
	FSPS-20A	Overburden	4.35, 5.38	4.35	5.38	5.82	259	50	68	1.29, 5.08	1.29	5.08	1.02	5.23	3.2	3.1
	FSPS-21C	Overburden	6.81, 21	6.81	21	5.09	38.1	20	22	0.602, 3.62	0.602	3.62	1.23	9.27	3.7	4.8
	FSPS-2G	Dinwoody Cover	2.82, 2.49, 1.59	1.59	2.82	0.29	19.9	4	4	3.97, 0.704, 0.188	0.188	3.97	0.175	1.54	1.3	0.9

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium							Vanadium						
			Summer 2015 (Jun-Aug)	2015		2001-2014		Average		Summer 2015 (Jun-Aug)	2015		2001-2014		Average	
				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014		MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Soil (Total Fraction, [mg/kg])																
			Eco: 26, HH: 1,800,000							**Eco: 7.8, HH: 5,800**						
Pedro Creek Sub Basin [1]	FSPS-10D	Dinwoody Cover	*40.7*	*40.7*	*40.7*	*27.6*	*27.6*	*34.15*	*27.6*	*47.1*	*47.1*	*47.1*	7.5	7.5	*27.3*	7.5
	FSPS-11C	Overburden	*388*	*388*	*388*	*320*	*320*	*354*	*320*	*206*	*206*	*206*	*148*	*148*	*177*	*148*
	FSPS-12A	Overburden	*396*	*396*	*396*	*308*	*308*	*352*	*308*	*228*	*228*	*228*	*125*	*125*	*176.5*	*125*
	FSPS-13B	Overburden	*346*	*346*	*346*	*275*	*275*	*310.5*	*275*	*154*	*154*	*154*	*134*	*134*	*144*	*134*
	FSPS-14D	Dinwoody Cover	*50*	*50*	*50*	*31.5*	*31.5*	*40.75*	*31.5*	*49.2*	*49.2*	*49.2*	*10.9*	*10.9*	*30.05*	*10.9*
	FSPS-15F	Dinwoody Cover	*64.2*	*64.2*	*64.2*	*52.7*	*52.7*	*58.45*	*52.7*	*85.6*	*85.6*	*85.6*	*74.5*	*74.5*	*80.05*	*74.5*
	FSPS-16B	Overburden	*417*	*417*	*417*	*332*	*332*	*374.5*	*332*	*202*	*202*	*202*	*183*	*183*	*192.5*	*183*
	FSPS-17C	Overburden	*157*	*157*	*157*	*224*	*224*	*190.5*	*224*	*116*	*116*	*116*	*112*	*112*	*114*	*112*
	FSPS-18B	Overburden	*139*	*139*	*139*	*167*	*167*	*153*	*167*	*123*	*123*	*123*	*62*	*62*	*92.5*	*62*
	FSPS-19E	Dinwoody Cover	*40.4*	*40.4*	*40.4*	*87.3*	*87.3*	*63.85*	*87.3*	*67.5*	*67.5*	*67.5*	*67.1*	*67.1*	*67.3*	*67.1*
	FSPS-1F	Dinwoody Cover	*43*	*43*	*43*	*47.5*	*47.5*	*45.25*	*47.5*	*71.8*	*71.8*	*71.8*	*64.9*	*64.9*	*68.35*	*64.9*
	FSPS-20A	Overburden	*280*	*280*	*280*	*186*	*186*	*233*	*186*	*172*	*172*	*172*	*121*	*121*	*146.5*	*121*
	FSPS-21C	Overburden	*272*	*272*	*272*	*232*	*232*	*252*	*232*	*199*	*199*	*199*	*138*	*138*	*168.5*	*138*
	FSPS-2G	Dinwoody Cover	*46.6*	*46.6*	*46.6*	*51.3*	*51.3*	*48.95*	*51.3*	*67*	*67*	*67*	*70.5*	*70.5*	*68.75*	*70.5*
	FSPS-3F	Dinwoody Cover	*39.8*	*39.8*	*39.8*	*63.1*	*63.1*	*51.45*	*63.1*	*62.4*	*62.4*	*62.4*	*80.5*	*80.5*	*71.45*	*80.5*
	FSPS-4G	Dinwoody Cover	*44*	*44*	*44*	*46.4*	*46.4*	*45.2*	*46.4*	*56*	*56*	*56*	*61.8*	*61.8*	*58.9*	*61.8*
	FSPS-5E	Dinwoody Cover	*50.6*	*50.6*	*50.6*	*52*	*52*	*51.3*	*52*	*69.5*	*69.5*	*69.5*	*73.8*	*73.8*	*71.65*	*73.8*
	FSPS-6D	Dinwoody Cover	*47.1*	*47.1*	*47.1*	*36.5*	*36.5*	*41.8*	*36.5*	*52.4*	*52.4*	*52.4*	*16.8*	*16.8*	*34.6*	*16.8*
	FSPS-7E	Dinwoody Cover	*49.3*	*49.3*	*49.3*	*49.5*	*49.5*	*49.4*	*49.5*	*51.3*	*51.3*	*51.3*	*72.8*	*72.8*	*62.05*	*72.8*
	FSPS-8G	Dinwoody Cover	*55.1*	*55.1*	*55.1*	*65.4*	*65.4*	*60.25*	*65.4*	*69*	*69*	*69*	*68*	*68*	*68.5*	*68*
	FSPS-9A	Overburden	*514*	*514*	*514*	*362*	*362*	*438*	*362*	*238*	*238*	*238*	*207*	*207*	*222.5*	*207*
	PRSC-DU1	Dinwoody Cover	*66.1*	*66.1*	*66.1*	NA		*66.1*	*NA*	*30*	*30*	*30*	NA		*30*	NA
	PRSC-DU2	Dinwoody Cover	*61.1*	*61.1*	*61.1*			*61.1*		*30*	*30*	*30*			*30*	
	PRSC-DU3	Dinwoody Cover	*58.4*	*58.4*	*58.4*			*58.4*		*32*	*32*	*32*			*32*	
	PRSC-DU4	Dinwoody Cover	*69.3*	*69.3*	*69.3*			*69.3*		*35*	*35*	*35*			*35*	
	PRSC-DU5	Dinwoody Cover	*344, 356, 362*	*344*	*362*			*354*		*129, 133, 136*	*129*	*136*			*133*	
Vegetation (Total Fraction, [mg/kg])																
Pedro Creek Sub Basin	FSPS-10D	Dinwoody Cover	0.65, 0.68	0.65	0.68	0.25	0.45	0.5	0.4	0.25, 1.54	0.25	1.54	0.12	0.164	0.5	0.1
	FSPS-11C	Overburden	1.41, 2.84	1.41	2.84	0.54	1.13	1.5	0.8	0.26, 1.31	0.26	1.31	0.25	0.36	0.5	0.3
	FSPS-12A	Overburden	0.68, 1	0.68	1	0.73	0.93	0.8	0.8	0.37, 0.54	0.37	0.54	0.22	0.53	0.4	0.4
	FSPS-13B	Overburden	0.65, 6.38	0.65	6.38	0.57	0.67	2.1	0.6	0.32, 3.09	0.32	3.09	0.15	0.26	1.0	0.2
	FSPS-14D	Dinwoody Cover	1.71, 3.23, 1.39	1.39	3.23	0.6	0.62	1.5	0.6	1.29, 1.38, 0.7	0.7	1.38	0.256	0.432	0.8	0.3
	FSPS-15F	Dinwoody Cover	0.58, 1.87	0.58	1.87	0.26	0.55	0.8	0.4	0.09, 0.76	0.09	0.76	0.177	0.192	0.3	0.2
	FSPS-16B	Overburden	1	0.68	2.9	0.75	1.26	1.4	1.0	0.3, 1.49	0.3	1.49	0.33	0.4	0.6	0.4
	FSPS-17C	Overburden	1.28, 2.33	1.28	2.33	1.17	1.21	1.5	1.2	0.42, 0.91	0.42	0.91	0.53	0.63	0.6	0.6
	FSPS-18B	Overburden	1.06, 11.6	1.06	11.6	0.49	0.63	3.4	0.6	0.64, 5.83	0.64	5.83	0.17	0.24	1.7	0.2
	FSPS-19E	Dinwoody Cover	0.75, 3.06	0.75	3.06	0.34	0.48	1.2	0.4	0.2, 1.26	0.2	1.26	0.057	0.057	0.5	0.1
	FSPS-1F	Dinwoody Cover	2.74, 3.82, 1.01	1.01	3.82	0.21	0.53	1.7	0.4	2.48, 4.15, 0.18	0.18	4.15	0.069	0.069	1.7	0.1
	FSPS-20A	Overburden	0.35, 0.92	0.35	0.92	0.97	1.92	1.0	1.4	0.24, 0.54	0.24	0.54	0.54	0.72	0.5	0.6
	FSPS-21C	Overburden	1.01, 3.37	1.01	3.37	0.86	1.17	1.5	1.0	0.41, 2.59	0.41	2.59	0.3	0.817	1.0	0.6
	FSPS-2G	Dinwoody Cover	0.97, 5.5, 0.8	0.8	5.5	0.35	0.49	1.6	0.4	0.18, 3.74, 0.19	0.18	3.74	0.108	0.108	1.1	0.1

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc									Flow (SW) and Depth to Water (GW)			
			Summer 2015 (Jun-Aug)	2015		2001-2014		2015		Average		2001-2014		2015	
				MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Soil (Total Fraction, [mg/kg])															
			Eco: 46, HH: 350,000									**NA**			
Pedro Creek Sub Basin [1]	FSPS-10D	Dinwoody Cover	*83.2*	*83.2*	*83.2*	*126*	*126*	*83.2*	*83.2*	*104.6*	*126*	NA			
	FSPS-11C	Overburden	*445*	*445*	*445*	*643*	*643*	*445*	*445*	*544*	*643*				
	FSPS-12A	Overburden	*453*	*453*	*453*	*518*	*518*	*453*	*453*	*485.5*	*518*				
	FSPS-13B	Overburden	*402*	*402*	*402*	*502*	*502*	*402*	*402*	*452*	*502*				
	FSPS-14D	Dinwoody Cover	*98.7*	*98.7*	*98.7*	*160*	*160*	*98.7*	*98.7*	*129.35*	*160*				
	FSPS-15F	Dinwoody Cover	*136*	*136*	*136*	*130*	*130*	*136*	*136*	*133*	*130*				
	FSPS-16B	Overburden	*476*	*476*	*476*	*656*	*656*	*476*	*476*	*566*	*656*				
	FSPS-17C	Overburden	*317*	*317*	*317*	*498*	*498*	*317*	*317*	*407.5*	*498*				
	FSPS-18B	Overburden	*369*	*369*	*369*	*578*	*578*	*369*	*369*	*473.5*	*578*				
	FSPS-19E	Dinwoody Cover	*103*	*103*	*103*	*123*	*123*	*103*	*103*	*113*	*123*				
	FSPS-1F	Dinwoody Cover	*112*	*112*	*112*	*126*	*126*	*112*	*112*	*119*	*126*				
	FSPS-20A	Overburden	*480*	*480*	*480*	*564*	*564*	*480*	*480*	*522*	*564*				
	FSPS-21C	Overburden	*512*	*512*	*512*	*746*	*746*	*512*	*512*	*629*	*746*				
	FSPS-2G	Dinwoody Cover	*137*	*137*	*137*	*136*	*136*	*137*	*137*	*136.5*	*136*				
	FSPS-3F	Dinwoody Cover	*108*	*108*	*108*	*162*	*162*	*108*	*108*	*135*	*162*				
	FSPS-4G	Dinwoody Cover	*127*	*127*	*127*	*125*	*125*	*127*	*127*	*126*	*125*				
	FSPS-5E	Dinwoody Cover	*112*	*112*	*112*	*139*	*139*	*112*	*112*	*125.5*	*139*				
	FSPS-6D	Dinwoody Cover	*108*	*108*	*108*	*195*	*195*	*108*	*108*	*151.5*	*195*				
	FSPS-7E	Dinwoody Cover	*104*	*104*	*104*	*139*	*139*	*104*	*104*	*121.5*	*139*				
	FSPS-8G	Dinwoody Cover	*140*	*140*	*140*	*133*	*133*	*140*	*140*	*136.5*	*133*				
	FSPS-9A	Overburden	*1050*	*1050*	*1050*	*1260*	*1260*	*1050*	*1050*	*1155*	*1260*				
	PRSC-DU1	Dinwoody Cover	*100*	*100*	*100*	NA		*100*	*100*	*100*	*NA*				
	PRSC-DU2	Dinwoody Cover	*99*	*99*	*99*			*99*	*99*	*99*					
	PRSC-DU3	Dinwoody Cover	*115*	*115*	*115*			*115*	*115*	*115*					
	PRSC-DU4	Dinwoody Cover	*103*	*103*	*103*			*103*	*103*	*103*					
	PRSC-DU5	Dinwoody Cover	*420, 437, 443*	*420*	*443*			*420*	*443*	*433*					
Vegetation (Total Fraction, [mg/kg])															
Pedro Creek Sub Basin	FSPS-10D	Dinwoody Cover	11.7, 13.6	11.7	13.6	19.4	54.8	11.7	13.6	25	37	NA			
	FSPS-11C	Overburden	17.5, 24	17.5	24	22.6	62.9	17.5	24	32	43				
	FSPS-12A	Overburden	16.8, 22	16.8	22	18.6	72.8	16.8	22	33	46				
	FSPS-13B	Overburden	23.2, 97.1	23.2	97.1	18.8	120	23.2	97.1	65	69				
	FSPS-14D	Dinwoody Cover	64.7, 16.3, 15.2	15.2	64.7	18.1	56	15.2	64.7	34	37				
	FSPS-15F	Dinwoody Cover	11.4, 21.3	11.4	21.3	20.7	60.3	11.4	21.3	28	41				
	FSPS-16B	Overburden	24.6, 25.3	24.6	25.3	25.5	65.6	24.6	25.3	35	46				
	FSPS-17C	Overburden	18.6, 48.7	18.6	48.7	29.7	106	18.6	48.7	51	68				
	FSPS-18B	Overburden	35.5, 57.1	35.5	57.1	26.1	93.2	35.5	57.1	53	60				
	FSPS-19E	Dinwoody Cover	14.2, 22.2	14.2	22.2	25.1	65.4	14.2	22.2	32	45				
	FSPS-1F	Dinwoody Cover	61.8, 29, 12.3	12.3	61.8	24.8	223	12.3	61.8	70	124				
	FSPS-20A	Overburden	27, 61.9	27	61.9	31.8	74.7	27	61.9	49	53				
	FSPS-21C	Overburden	27.5, 60.9	27.5	60.9	38.5	156	27.5	60.9	70	87				
	FSPS-2G	Dinwoody Cover	53.2, 23.8, 11.5	11.5	53.2	21.8	105	11.5	53.2	43	63				

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium							Cadmium						
			Summer 2015 (Jun-Aug)	2015		2001-2014		Average		Summer 2015 (Jun-Aug)	2015		2001-2014		Average	
				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014		MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Vegetation (Total Fraction, [mg/kg])																
			Eco: 0.52, HH: 5,800							**Eco: 0.36, HH: 980**						
Pedro Creek Sub-Basin	FSPS-3F	Dinwoody Cover	1.41, 2.32	1.41	2.32	0.56	16.4	7	9	0.112, 0.17	0.112	0.17	0.248	1.23	0.4	0.7
	FSPS-4G	Dinwoody Cover	0.24, 0.75	0.24	0.75	0.26	1.7	1	1	0.085, 0.171	0.085	0.171	0.214	0.673	0.3	0.4
	FSPS-5E	Dinwoody Cover	0.27, 1.73	0.27	1.73	3.15	40.5	9	12	0.167, 0.389	0.167	0.389	0.253	1.07	0.5	0.7
	FSPS-6D	Dinwoody Cover	0.4, 1.11	0.4	1.11	1.42	73.7	16	23	0.256, 0.333	0.256	0.333	0.396	1.46	0.6	0.9
	FSPS-7E	Dinwoody Cover	1.07, 0.51, 0.45	0.45	1.07	0.66	2.8	1	2	2.32, 0.806, 0.116	0.116	2.32	0.381	1.11	0.9	0.7
Pedro Creek Sub-Basin	FSPS-8G	Dinwoody Cover	0.3, 0.49	0.3	0.49	0.2	1.99	1	1	0.107, 0.483	0.107	0.483	0.21	0.887	0.4	0.5
	FSPS-9A	Overburden	5.94, 41.5	5.94	41.5	11.5	52.2	30	32	0.687, 2.9	0.687	2.9	1.35	3.5	2.1	2.4
	FSPS-DTrtmt	Dinwoody Cover	0.89, 0.77, 0.67, 0.29, 0.28, 0.36, 1.79, 1.16, 1.45	0.28	1.79	0.69	2.11	1	1	0.167, 0.16, 0.216, 0.043, 0.041, 0.024, 0.275, 0.295, 0.242	0.024	0.295	0.332	0.674	0.3	0.5
	FSPS-ETrtmt	Dinwoody Cover	1.32, 1.87, 4.33, 3.41, 0.94, 1.33, 1.21, 0.96, 0.83	0.83	4.33	1.14	3.93	2	2	0.084, 0.09, 0.061, 0.02, 0.02, 0.022, 0.219, 0.207, 0.223	0.02	0.223	0.205	0.765	0.3	0.4
	PRSC-DU1	Dinwoody Cover	3.21, 18.4	3.21	18.4	NA		11	NA	0.347, 1.91	0.347	1.91	NA		1.1	NA
	PRSC-DU2	Dinwoody Cover	4.52, 45.5	4.52	45.5			25		0.221, 2.04	0.221	2.04			1.1	
	PRSC-DU3	Dinwoody Cover	1.44, 2.15, 14, 1.83	1.44	14			5		2.82, 0.258, 1.11, 0.254	0.254	2.82			1.1	
	PRSC-DU4	Dinwoody Cover	195, 12.9, 3.85	3.85	195			71		0.438, 0.678, 0.197	0.197	0.678			0.4	
	PRSC-DU5	Dinwoody Cover	4.12, 10.8, 1.1, 0.53, 14.7, 3.96, 2.17, 3.43	0.53	14.7			5		8.73, 39.3, 6.7, 2.13, 6.82, 1.4, 1.13, 1.19	1.13	39.3			8.4	

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium							Vanadium						
			Summer 2015 (Jun-Aug)	2015		2001-2014		Average		Summer 2015 (Jun-Aug)	2015		2001-2014		Average	
				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014		MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Vegetation (Total Fraction, [mg/kg])																
			Eco: 26, HH: 1,800,000							**Eco: 7.8, HH: 5,800**						
Pedro Creek Sub-Basin	FSPS-3F	Dinwoody Cover	0.64, 2.58	0.64	2.58	0.35	0.51	1.0	0.4	0.11, 1.22	0.11	1.22	0.043	0.043	0.5	0.04
	FSPS-4G	Dinwoody Cover	0.7, 3.32	0.7	3.32	0.21	0.59	1.2	0.4	0.09, 0.11	0.09	0.11	0.036	0.037	0.1	0.04
	FSPS-5E	Dinwoody Cover	0.24, 0.35	0.24	0.35	0.27	0.49	0.3	0.4	0.06, 0.09	0.06	0.09	0.127	0.185	0.1	0.2
	FSPS-6D	Dinwoody Cover	0.67, 2.15	0.67	2.15	0.2	0.45	0.9	0.3	0.25, 1.05	0.25	1.05	0.108	0.192	0.4	0.2
	FSPS-7E	Dinwoody Cover	0.36, 0.29, 0.44	0.29	0.44	0.24	0.54	0.4	0.4	0.2, 0.15, 0.1	0.1	0.2	0.108	0.236	0.2	0.2
Pedro Creek Sub-Basin	FSPS-8G	Dinwoody Cover	0.51, 1.9	0.51	1.9	0.29	0.66	0.8	0.5	0.09, 0.2	0.09	0.2	0.009	0.033	0.1	0.02
	FSPS-9A	Overburden	0.34, 10.2	0.34	10.2	0.76	0.79	3.0	0.8	0.11, 7.18	0.11	7.18	0.3	0.58	2.0	0.4
	FSPS-DTrtmt	Dinwoody Cover	0.55, 0.61, 0.39, 0.76, 0.51, 0.57, 0.43, 0.66, 0.59	0.39	0.76	0.57	1.46	0.8	1.0	0.05, 0.05, 0.06, 0.17, 0.1, 0.1, 0.29, 0.26, 0.23	0.05	0.29	0.568	0.635	0.3	0.6
	FSPS-ETrtmt	Dinwoody Cover	0.51, 0.36, 0.37, 0.31, 0.4, 0.38, 0.69, 0.71, 0.67	0.31	0.71	0.49	1.21	0.6	0.7	0.04, 0.03, 0.03, 0.04, 0.06, 0.05, 0.16, 0.26, 0.18	0.03	0.26	0.393	0.602	0.2	0.5
	PRSC-DU1	Dinwoody Cover	0.38, 0.47	0.38	0.47	NA		0.4	NA	0.08, 0.14	0.08	0.14	NA		0.1	NA
	PRSC-DU2	Dinwoody Cover	0.27, 0.34	0.27	0.34			0.3		0.1, 0.1	0.1	0.1			0.1	
	PRSC-DU3	Dinwoody Cover	0.47, 0.51, 0.53, 0.63	0.47	0.63			0.5		0.25, 0.17, 0.3, 0.13	0.13	0.3			0.2	
	PRSC-DU4	Dinwoody Cover	1.2, 0.49, 0.56	0.49	1.2			0.8		1, 0.24, 0.13	0.13	1			0.5	
	PRSC-DU5	Dinwoody Cover	1.42, 0.39, 1.22, 1.26, 2.7, 1.01, 0.54, 0.56	0.39	2.7			1.1		0.78, 0.12, 0.79, 0.89, 1.69, 0.41, 0.2, 0.26	0.12	1.69			0.6	

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc									Flow (SW) and Depth to Water (GW)			
			Summer 2015 (Jun-Aug)	2015		2001-2014		2015		Average		2001-2014		2015	
				MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Vegetation (Total Fraction, [mg/kg])															
			Eco: 46, HH: 350,000									**NA**			
Pedro Creek Sub Basin	FSPS-3F	Dinwoody Cover	12.3, 12.4	12.3	12.4	29.3	57.8	12.3	12.4	28	44				
	FSPS-4G	Dinwoody Cover	6.9, 11.6	6.9	11.6	20.7	41.8	6.9	11.6	20	31				
	FSPS-5E	Dinwoody Cover	12.1, 14.8	12.1	14.8	20.9	48.3	12.1	14.8	24	35				
	FSPS-6D	Dinwoody Cover	13.6, 17.7	13.6	17.7	17.4	59.4	13.6	17.7	27	38				
	FSPS-7E	Dinwoody Cover	33.6, 16.7, 10.4	10.4	33.6	24.7	50.4	10.4	33.6	27	38				
Pedro Creek Sub Basin	FSPS-8G	Dinwoody Cover	11.7, 18.1	11.7	18.1	40.8	46	11.7	18.1	29	43	NA			
	FSPS-9A	Overburden	50.3, 117	50.3	117	63.8	136	50.3	117	92	100				
	FSPS-DTrtmt	Dinwoody Cover	11.4, 10.4, 11.8, 10, 10.2, 11.5, 11.4, 14.5, 12.1	10	14.5	16.2	25.2	10	14.5	16	21				
	FSPS-ETrtmt	Dinwoody Cover	11.5, 10.7, 10.2, 13.4, 12, 11.6, 15.1, 12.6, 14.7	10.2	15.1	20.7	26.8	10.2	15.1	18	23				
	PRSC-DU1	Dinwoody Cover	13.2, 42.3	13.2	42.3	NA		13.2	42.3	28	NA				
	PRSC-DU2	Dinwoody Cover	16.6, 55.9	16.6	55.9			16.6	55.9	36					
	PRSC-DU3	Dinwoody Cover	36.6, 25, 35.9, 13.4	13.4	36.6			13.4	36.6	28					
	PRSC-DU4	Dinwoody Cover	106, 24.5, 14.3	14.3	106			14.3	106	48					
	PRSC-DU5	Dinwoody Cover	115, 193, 46.6, 37.3, 61.1, 31, 26.8, 24.3	24.3	193			24.3	193	67					

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium							Cadmium						
			Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014		MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Mammal Tissue (Total Fraction, [mg/kg])																
Old Tailings Pond Sub-Basin	WestPit-01	Dinwoody Cover	12.5, 22.9, 18.7	12.5	22.9	NA		18.0	NA	0.525, 0.158, 0.354	0.158	0.525	NA		0.3	NA
Pedro Creek Sub-Basin	FSPS-01	Dinwoody Cover	21.3, 7.13, 6.17	6.17	21.3			11.5		0.412, 0.156, 0.216	0.156	0.412			0.3	
	NTCRA-01	Dinwoody Cover	14.5, 42.2, 38	14.5	42.2			31.6		0.489, 0.832, 1.26	0.489	1.26			0.9	
	PET-4	Dinwoody Cover	5.34, 26.4, 19.9, 125	5.34	125			44.2		0.094, 0.201, 0.127, 0.075	0.075	0.201			0.1	
Shield and Jouglard Canyons Sub-Basin	PET-5	Overburden	48.4, 5.69, 30.7	5.69	48.4			28.3		0.801, 0.456, 0.394	0.394	0.801			0.6	
	PET-6	Native Dinwoody	0.95, 1.02, 0.97, 2.39, 0.59, 0.86, 0.88, 1.18, 1.25, 1.97, 1.95, 0.91	0.59	2.39			1.2		0.251, 0.225, 0.2, 3.76, 0.068, 0.404, 0.335, 0.049, 0.182, 0.065, 0.119, 0.097	0.049	3.76			0.5	
State Land Creek Sub-Basin	PET-1	Overburden	52.3, 24.4, 61.4, 42.3, 83.9	24.4	83.9			52.9		0.488, 0.549, 0.197, 1.24, 0.143	0.143	1.24			0.5	
	PET-3	Overburden	72.5, 14.2, 7.21, 4.99, 33.1, 70.4	4.99	72.5			33.7		0.558, 0.192, 0.102, 0.07, 0.064, 0.088	0.064	0.558			0.2	
Western Woodall Mountain Sub-Basin	PET-2	Overburden	117, 52.4, 77.9	52.4	117			82.4		0.222, 0.298, 0.175	0.175	0.298			0.2	

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium							Vanadium						
			Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014		MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Mammal Tissue (Total Fraction, [mg/kg])																
Old Tailings Pond Sub-Basin	WestPit-01	Dinwoody Cover	10.8, 3.95, 1.02	1.02	10.8	NA		5.3	NA	1.25, 0.454, 0.326	0.326	1.25	NA		0.7	NA
Pedro Creek Sub Basin	FSPS-01	Dinwoody Cover	2.18, 3.4, 3.68	2.18	3.68			3.1		0.783, 1.48, 2.3	0.783	2.3			1.5	
	NTCRA-01	Dinwoody Cover	6.65, 3.37, 5.66	3.37	6.65			5.2		0.938, 0.465, 1.35	0.465	1.35			0.9	
	PET-4	Dinwoody Cover	1.53, 1.83, 1.57, 0.58	0.58	1.83			1.4		0.513, 0.521, 0.513, 0.187	0.187	0.521			0.4	
Shield and Jouglard Canyons Sub-Basin	PET-5	Overburden	0.99, 5.71, 2.11	0.99	5.71			2.9		0.167, 1.23, 0.409	0.167	1.23			0.6	
	PET-6	Native Dinwoody	3.77, 3.18, 8.64, 0.99, 6.3, 4.9, 5.97, 0.31, 0.68, 0.33, 1.42, 0.62	0.31	8.64			3.1		0.313, 0.502, 0.27, 0.145, 0.131, 0.498, 0.181, 0.09, 0.075, 0.153, 0.993, 0.319	0.075	0.993			0.3	
State Land Creek Sub-Basin	PET-1	Overburden	3.78, 2.11, 3.62, 1.1, 1.15	1.1	3.78			2.4		0.865, 0.494, 0.955, 0.195, 0.219	0.195	0.955			0.5	
	PET-3	Overburden	2.45, 1.44, 0.85, 0.65, 0.65, 0.92	0.65	2.45			1.2		0.306, 0.346, 0.184, 0.086, 0.137, 0.256	0.086	0.346			0.2	
Western Woodall Mountain Sub-Basin	PET-2	Overburden	3.37, 2.74, 0.69	0.69	3.37			2.3		0.759, 0.76, 0.184	0.184	0.76			0.6	

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc									Flow (SW) and Depth to Water (GW)			
			Fall 2015 (Sept-Nov)	2015		2001-2014		2015		Average		2001-2014		2015	
				MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Mammal Tissue (Total Fraction, [mg/kg])															
Old Tailings Pond Sub-Basin	WestPit-01	Dinwoody Cover	122, 102, 117	102	122	NA		102	122	114	NA	NA			
Pedro Creek Sub-Basin	FSPS-01	Dinwoody Cover	101, 123, 606	101	606			101	606	277					
	NTCRA-01	Dinwoody Cover	95.3, 114, 98.1	95.3	114			95.3	114	102					
	PET-4	Dinwoody Cover	407, 149, 539, 239	149	539			149	539	334					
Shield and Jouglard Canyons Sub-Basin	PET-5	Overburden	342, 103, 241	103	342			103	342	229					
	PET-6	Native Dinwoody	124, 105, 103, 146, 109, 99.2, 104, 149, 97.2, 88.3, 124, 99.2	88.3	149			88.3	149	112					
State Land Creek Sub-Basin	PET-1	Overburden	133, 131, 97.3, 127, 84.7	84.7	133			84.7	133	115					
	PET-3	Overburden	295, 669, 649, 1280, 508, 289	289	1280			289	1280	615					
Western Woodall Mountain Sub-Basin	PET-2	Overburden	410, 890, 246	246	890			246	890	515					

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium									Cadmium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Surface Water (Total Fraction for Se and V, Dissolved for Cd, Cr, Zn [mg/l])																				
Comparison Values >>			**Acute Eco: 0.02, Chronic Eco: 0.005, HH: 0.17**									**Acute Eco: 0.0013, Chronic Eco: 0.0006, HH: NA**								
Camp G Creek Sub-Basin	CGC-0	Original Ground	0.0025		0.0014	0.0014	0.0025	0.0007	0.0042	0.002	0.003	ND		ND	ND	ND	ND	ND	ND	ND
	JRLD	Original Ground			0.00069	0.00069	0.00069	0.0005	0.0007	0.001	0.001			ND	ND	ND	ND	ND	ND	ND
	JS-1	Original Ground	0.00038		0.0007	0.00038	0.0007	0.0002	0.0009	0.0005	0.0005	ND		0.000094	0.000094	0.000094	0.000046	0.000046	0.00007	0.000046
French Drain Sub-Basin	FD-1	Overburden	0.161		0.14	0.14	0.161	0.009	0.504	0.2	0.2	ND		ND	ND	ND	0.00002	0.00019	0.00008	0.00008
	SWS-3	Overburden				Dry		0.304	0.868	0.5	0.5				Dry		0.003	0.0046	0.004	0.004
	TP-1	Tailings	0.0024		0.0027	0.0024	0.0027	0.00073	0.01	0.003	0.004	ND		0.00008	0.00008	0.00008	0.000044	0.0002	0.000087	0.000088
Old Tailings Pond Sub-Basin	IB-1	Original Ground				Dry		Dry			Dry				Dry		Dry			Dry
	NBorrowSedBasin	Original Ground				Dry		0.0018	0.0028	0.002	0.002				Dry		0.00024	0.0012	0.0007	0.0007
	WInfiltBasin	Dinwoody Cover				Dry		Dry			Dry				Dry		Dry			Dry
Pedro Creek Sub-Basin	ESedBasinC	Original Ground				Dry		0.114	3.079	1.1	1.1				Dry		0.00075	0.00075	0.0008	0.0008
	ESedBasinN	Original Ground				Dry		2.84	2.84	2.8	2.8				Dry		0.00018	0.00018	0.0002	0.0002
	ESedBasinS	Original Ground		0.026	0.01	0.01	0.026	0.929	0.929	0.3	0.9			0.00011	0.00011	0.00011	0.00085	0.00085	0.0005	0.0009
	FSPSBasin	Original Ground	0.277	0.158	0.031	0.031	0.277	0.029	0.673	0.3	0.3	0.000092	0.00017	ND	0.000092	0.00017	0.00019	0.0014	0.0005	0.0007
	FSPSSeep	Overburden	0.738	0.698	0.529	0.529	0.738	0.854	1.52	1.1	1.3	0.0022	0.0026	0.0016	0.0016	0.0026	0.0017	0.0018	0.002	0.002
	FSPSSeepPond	Overburden	0.742			0.742	0.742	0.924	1.31	1.1	1.2	0.0014			0.0014	0.0014	0.00041	0.0019	0.001	0.001
	NES-5	Overburden	6.83	7.8		6.83	7.8	0.535	8.95	4.3	4.1	0.018	0.0063		0.0063	0.018	0.001	0.022	0.01	0.01
	NES-7	Overburden				Dry		2.03	3.35	2.7	2.7				Dry		NA		Dry	NA
	NES-8	Overburden			1.83	1.83	1.83	9.83	9.83	5.8	9.8			0.00057	0.00057	0.00057	NA		0.0006	NA
	NESedBasinC	Original Ground	6.83	3.74	0.096	0.096	6.83	0.0455	5.87	2.3	1.8	0.0015	0.00059	0.000096	0.000096	0.0015	0.00023	0.00082	0.0006	0.0005
	NESedBasinN	Original Ground	1.07	0.365, 0.624	0.118	0.118	1.07	0.0456	4.44	1.5	1.9	ND	0.00036	ND	0.00036	0.00036	0.0002	0.0017	0.0009	0.0010
	NESedBasinS	Original Ground	0.192	0.0133	0.0083	0.0083	0.192	0.123	4.04	0.8	1.1	ND	0.00018	ND	0.00018	0.00018	0.00007	0.0012	0.0006	0.0007
	NESeep5Pond	Overburden	6.36	7.51	4.61	4.61	7.51	2.72	8.574	6.2	6.1	0.0035	0.0095	0.0014	0.0014	0.0095	0.0014	0.018	0.008	0.01
	NESeep7Pond	Overburden	5.44		0.369	0.369	5.44	6.57	7.43	5.0	7.0	0.0011		0.00051	0.00051	0.0011	0.0031	0.0062	0.003	0.005
Pedro Creek Sub-Basin	PC-1	Original Ground	0.0659		0.003	0.003	0.0659	0.0037	0.138	0.03	0.03	ND		ND	ND	ND	0.00004	0.00004	0.00004	0.00004
	PC-2	Original Ground	0.0041	0.0033	0.0052	0.0033	0.0052	0.0017	0.365	0.03	0.03	ND	ND	ND	ND	ND	0.00004	0.00033	0.0001	0.0001
	PC-3	Original Ground	0.568			0.568	0.568	0.55	0.951	0.7	0.8	0.00076			0.00076	0.00076	0.0018	0.0018	0.001	0.002
	PC-4	Original Ground	1.58	1.68	0.621	0.621	1.68	0.71	3.5	2.0	2.2	0.001	0.00035	0.000083	0.000083	0.001	0.00095	0.0035	0.002	0.002
	PC-5	Original Ground	1.74	2.67	0.667	0.667	2.67	1.13	4.08	2.2	2.4	0.0014	0.00099	0.00052	0.00052	0.0014	0.00098	0.0021	0.001	0.002
	PC-6	Original Ground	1.9			1.9	1.9	2.13	3.33	2.5	2.7	0.0017			0.0017	0.0017	0.0035	0.0035	0.003	0.004
	PC-8	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PC-9	Original Ground				Dry		1.88	1.88	1.9	1.9				Dry		0.0021	0.0021	0.0021	0.0021
	PCP-2	Original Ground	0.194	0.163	0.037	0.037	0.194	0.0066	0.284	0.09	0.08	ND	ND	ND	ND	ND	0.000048	0.000048	0.000048	0.000048
	PCT6-1	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-2	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-3	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-4	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-5	Original ground				Dry		0.419	0.568	0.49	0.5				Dry		0.00085	0.0015	0.001	0.001
	SEInfiltBasin	Original Ground	0.0024	0.006	0.005	0.0024	0.006	0.00092	0.0171	0.006	0.01	0.00015	0.00025	0.00024	0.00015	0.00025	0.000098	0.00035	0.0002	0.0002
	SWInfiltBasin	Original Ground		0.022	0.012	0.012	0.022	0.0104	0.0268	0.02	0.02			0.00033	0.00033	0.00033	0.00037	0.00058	0.0004	0.0005

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium									Vanadium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Surface Water (Total Fraction for Se and V, Dissolved for Cd, Cr, Zn [mg/l])																				
Comparison Values >>			**Acute Eco: 0.57, Chronic Eco: 0.074, HH: NA**									**Acute Eco: 0.079, Chronic Eco: 0.027, HH: NA**								
Camp G Creek Sub-Basin	CGC-0	Original Ground	ND		ND	ND	ND	ND	ND	ND	ND	0.0014		0.001	0.001	0.0014	0.00055	0.0011	0.001	0.001
	JRLD	Original Ground			0.0013	0.0013	0.0013	ND	ND	0.001	ND			ND	ND	ND	ND	ND	ND	ND
	JS-1	Original Ground	ND		0.0014	0.0014	0.0014	0.0014	0.0014	0.001	0.001	ND		0.00092	0.00092	0.00092	0.00075	0.0046	0.002	0.003
French Drain Sub-Basin	FD-1	Overburden	ND		0.001	0.001	0.001	0.0006	0.0079	0.003	0.004	0.0036		0.0022	0.0022	0.0036	0.0016	0.0039	0.003	0.003
	SWS-3	Overburden				Dry		0.0009	0.0019	0.001	0.001				ND	ND	0.0104	0.016	0.01	0.01
	TP-1	Tailings	ND		ND	ND	ND	0.0003	0.00047	0.0004	0.0004	0.021		0.016	0.016	0.021	0.015	0.0363	0.02	0.02
Old Tailings Pond Sub-Basin	IB-1	Original Ground				Dry		Dry			Dry				Dry		Dry			Dry
	NBorrowSedBasin	Original Ground				Dry		0.0274	0.0274	0.03	0.03				Dry		0.052	*0.129*	*0.09*	*0.09*
	WInfiltBasin	Dinwoody Cover				Dry		Dry			Dry				Dry		Dry			Dry
Pedro Creek Sub Basin	ESedBasinC	Original Ground				Dry		0.002	0.002	0.002	0.002				Dry		0.0068	0.0122	0.01	0.01
	ESedBasinN	Original Ground				Dry		0.003	0.003	0.003	0.003				Dry		0.0657	0.0657	0.07	0.07
	ESedBasinS	Original Ground			0.0027	0.0027	0.0027	0.0018	0.0018	0.002	0.002		0.020	0.036	0.02	0.036	0.0085	0.0085	0.02	0.009
	FSPSBasin	Original Ground	ND	0.0014	0.002	0.0014	0.002	0.002	0.0096	0.004	0.006	0.0058	0.0109	0.012	0.0058	0.012	0.0085	0.0361	0.02	0.02
	FSPSSeep	Overburden	ND	0.0012	0.0014	0.0012	0.0014	ND	ND	0.001	ND	0.0094	0.0141	*0.093*	0.0094	*0.093*	0.0043	0.0081	0.03	0.006
	FSPSSeepPond	Overburden	ND			ND	ND	0.0025	0.0025	0.003	0.003	0.012			0.012	0.012	0.0095	0.019	0.01	0.01
	NES-5	Overburden	0.0048	0.0028		0.0028	0.0048	0.0021	0.015	0.006	0.007	0.023	0.0267		0.023	0.0267	0.0172	0.0308	0.02	0.02
	NES-7	Overburden				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	NES-8	Overburden			0.0011	0.0011	0.0011	NA		0.0011	NA			0.0025	0.0025	0.0025	NA		0.003	NA
	NESedBasinC	Original Ground	0.0048	ND	0.0012	0.0012	0.0048	0.0021	0.0021	0.003	0.002	ND	0.0055	0.0053	0.0053	0.0055	0.0039	0.0433	0.01	0.02
	NESedBasinN	Original Ground	0.0024	0.0011	0.0011	0.0011	0.0024	0.0024	0.0024	0.002	0.002	0.0063	*0.0036, 0.0067*	0.0064	0.0036	0.0067	0.006	0.0342	0.01	0.01
	NESedBasinS	Original Ground	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0095	0.0067	0.0062	0.0062	0.0095	0.0071	0.0105	0.008	0.009
	NESeep5Pond	Overburden	0.0036	0.0031	0.0035	0.0031	0.0036	0.002	0.004	0.003	0.003	0.0178	0.0272	0.021	0.0178	0.0272	0.0179	0.0291	0.02	0.02
	NESeep7Pond	Overburden	0.0028		0.0012	0.0012	0.0028	0.0039	0.0039	0.003	0.004	0.0044		0.042	0.0044	0.042	0.0066	0.0114	0.02	0.009
Pedro Creek Sub Basin	PC-1	Original Ground	ND		ND	ND	ND	0.0002	0.00096	0.0006	0.0006	0.002		0.0035	0.002	0.0035	0.0026	0.0051	0.003	0.004
	PC-2	Original Ground	ND	ND	ND	ND	ND	0.0002	0.0002	0.0002	0.0002	ND	0.0015	0.0012	0.0012	0.0015	0.0012	0.0039	0.002	0.002
	PC-3	Original Ground	ND			ND	ND	0.0004	0.0004	0.0004	0.0004	ND			ND	ND	ND	ND	ND	ND
	PC-4	Original Ground	ND	0.0015	0.0016	0.0015	0.0016	0.0004	0.0014	0.001	0.0009	0.0069	0.0061	0.0056	0.0056	0.0069	0.0028	0.0051	0.005	0.004
	PC-5	Original Ground	ND	0.001	0.0014	0.001	0.0014	ND	ND	0.0012	ND	ND	0.0059	0.005	0.005	0.0059	0.001	0.004	0.004	0.003
	PC-6	Original Ground	ND			ND	ND	ND	ND	ND	ND	0.0048			0.0048	0.0048	0.0042	0.0042	0.005	0.004
	PC-8	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PC-9	Original Ground				Dry		ND	ND	Dry	ND				Dry		0.0064	0.0064	0.006	0.006
	PCP-2	Original Ground	ND	ND	ND	ND	ND	0.0003	0.0003	0.0003	0.0003	ND	0.0014	0.0025	0.0014	0.0025	0.0011	0.0069	0.003	0.004
	PCT6-1	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-2	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-3	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-4	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	PCT6-5	Original ground				Dry		0.0017	0.0017	0.002	0.002				Dry		0.0176	0.0184	0.02	0.02
	SEInfiltBasin	Original Ground	0.006	0.0024	0.0047	0.0024	0.006	0.0017	0.0076	0.004	0.004	0.017	0.0757	0.044	0.017	0.0757	0.0151	0.0397	0.04	0.03
	SWInfiltBasin	Original Ground			0.0025	0.0025	0.0025	0.0025	0.0055	0.004	0.004		0.067	0.038	0.038	0.067	0.062	*0.123*	0.07	*0.09*

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc											Flow (SW) and Depth to Water (GW)			
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		2015		Average		2001-2014		2015	
						MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Surface Water (Total Fraction for Se and V, Dissolved for Cd, Cr, Zn [mg/l])																	
Comparison Values >>			**Acute Eco: 0.12, Chronic Eco: 0.12, HH: NA**											**NA**			
Camp G Creek Sub-Basin	CGC-0	Original Ground	0.0015		0.0014	0.0014	0.0015	ND	ND	0.0014	0.0015	0.001	ND	0.636	3.137	0.887	0.937
	JRLD	Original Ground			0.012	0.012	0.012	0.052	0.0942	0.012	0.012	0.05	0.07	Pipe		Dry	
	JS-1	Original Ground	0.0053		ND	0.0053	0.0053	ND	ND	0.0053	0.0053	0.005	ND	0.017	1.135	0.009	0.101
French Drain Sub-Basin	FD-1	Overburden	0.012		0.0085	0.0085	0.012	0.0076	0.0525	0.0085	0.012	0.02	0.03	0.007	0.378	Overgrown	
	SWS-3	Overburden				Dry		*0.283*	*0.328*	Dry		*0.30*	*0.30*	0.010	0.051	Dry	
	TP-1	Tailings	0.0013		ND	0.0013	0.0013	0.002	0.03	0.0013	0.0013	0.007	0.008	Ponded		Ponded	
Old Tailings Pond Sub-Basin	IB-1	Original Ground				Dry		Dry		Dry			Dry	Dry		Dry	
	NBorrowSedBasin	Original Ground				Dry		0.0062	0.0398	Dry		0.02	0.02	Dry/Ponded		Dry	
	WInfiltBasin	Dinwoody Cover				Dry		Dry		Dry			Dry	Dry		Dry	
Pedro Creek Sub-Basin	ESedBasinC	Original Ground				Dry		0.0036	0.0096	Dry		0.007	0.007	Dry/Ponded		Dry	
	ESedBasinN	Original Ground				Dry		0.0094	0.0094	Dry		0.009	0.009	Dry/Ponded		Dry	
	ESedBasinS	Original Ground			ND	ND	ND	0.0109	0.0109	ND	ND	0.01	0.01	Dry/Ponded		Dry	
	FSPSBasin	Original Ground	0.0058	0.0021	ND	0.0021	0.0058	0.0042	0.0595	0.0021	0.0058	0.02	0.03	Ponded		Ponded	
	FSPSSeep	Overburden	0.038	0.0219	0.0064	0.0064	0.038	0.0393	0.0423	0.0064	0.038	0.03	0.04	0.006	0.007	Diffuse Flow	0.00004 - 0.0026
	FSPSSeepPond	Overburden	0.012			0.012	0.012	0.0201	0.0347	0.012	0.012	0.02	0.03	Dry/Ponded		Dry/Ponded	
	NES-5	Overburden	*1.53*	*1.44*		*1.44*	*1.53*	*0.26*	*1.78*	*1.44*	*1.53*	*0.8*	*0.7*	0.002	0.0646	Dry/Ponded	
	NES-7	Overburden				Dry		NA		Dry		Dry	NA	Ponded/Dry		Dry	
	NES-8	Overburden			0.0021	0.0021	0.0021	NA		0.0021	0.0021	0.002	NA	0.0002	0.0002	Dry	0.00004
	NESedBasinC	Original Ground	0.0085	0.0132	ND	0.0085	0.0132	0.0041	0.034	0.0085	0.0132	0.02	0.02	Dry/Ponded		Ponded	
	NESedBasinN	Original Ground	ND	0.0073	ND	0.0073	0.0073	0.0074	0.0394	0.0073	0.0073	0.02	0.02	Dry/Ponded		Ponded	
	NESedBasinS	Original Ground	ND	ND	ND	ND	ND	0.0023	0.014	ND	ND	0.007	0.007	Dry/Ponded		Ponded	
	NESeep5Pond	Overburden	*0.796*	*1.58*	*0.978*	*0.796*	*1.58*	*0.635*	*1.65*	*0.796*	*1.58*	*1.2*	*1.2*	Ponded		Ponded	
	NESeep7Pond	Overburden	0.027		0.0018	0.0018	0.027	*0.19*	*0.589*	0.0018	0.027	*0.2*	*0.4*	Dry/Ponded		Dry/Ponded	
Pedro Creek Sub-Basin	PC-1	Original Ground	0.011		ND	0.011	0.011	NA		0.011	0.011	0.01	NA	0.0075	4.0711	Low water/Ponded	
	PC-2	Original Ground	ND	0.0015	0.0014	0.0014	0.0015	0.0021	0.0186	0.0014	0.0015	0.006	0.009	0.0118	1.2560	0.0586	0.1256
	PC-3	Original Ground	0.015			0.015	0.015	0.03	0.03	0.015	0.015	0.02	0.03	0.0408	2.0801	Dry	0.1436
	PC-4	Original Ground	0.015	0.0066	0.0041	0.0041	0.015	0.014	0.04	0.0041	0.015	0.02	0.03	0.0037	0.3486	Diffuse Flow	0.0697
	PC-5	Original Ground	0.016	0.0218	0.012	0.012	0.0218	0.0117	0.0335	0.012	0.0218	0.02	0.02	0.0010	0.2784	Diffuse Flow	0.006 - 0.086
	PC-6	Original Ground	0.018			0.018	0.018	0.033	0.033	0.018	0.018	0.03	0.03	Dry/Low water		Dry	
	PC-8	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	PC-9	Original Ground				Dry		0.0747	0.0747	Dry		0.07	0.07	Dry		Dry	
	PCP-2	Original Ground	ND	0.0014	ND	0.0014	0.0014	0.0004	0.0073	0.0014	0.0014	0.004	0.004	0.023	0.023	Ponded	
	PCT6-1	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	PCT6-2	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	PCT6-3	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	PCT6-4	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	PCT6-5	Original ground				Dry		0.0204	0.0667	Dry		0.04	0.04	0.011	1.36	Dry	
	SEInfiltBasin	Original Ground	ND	0.0023	0.0097	0.0023	0.0097	0.0043	0.022	0.0023	0.0097	0.01	0.01	Dry/Ponded		Ponded	
	SWInfiltBasin	Original Ground			0.0028	0.0028	0.0028	0.0088	0.0116	0.0028	0.0028	0.008	0.01	Dry/Ponded		Dry	

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium									Cadmium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Surface Water (Total Fraction for Se and V, Dissolved for Cd, Cr, Zn [mg/l])																				
Comparison Values >>			**Acute Eco: 0.02, Chronic Eco: 0.005, HH: 0.17**									**Acute Eco: 0.0013, Chronic Eco: 0.0006, HH: NA**								
Shield and Jouglard Canyons Sub-Basin	HHP-1	Original Ground	***0.0011, 0.00082***	0.00039	ND	0.00039	0.0011	0.00033	0.0014	0.001	0.001	ND, 0.00015	ND	ND	0.00015	0.00015	0.00027	0.0005	0.0003	0.0004
	HHT1-1	Original Ground				Dry		NA		NA	NA				Dry		NA		Dry	NA
	HHT1-2	Original Ground				Dry		NA		NA	NA				Dry		NA		Dry	NA
	NL4P-1	Overburden	*0.0411*		*0.02*	*0.02*	*0.0411*	*0.0386*	***0.406***	***0.2***	***0.2***	*0.0015*		0.00024	0.00024	*0.0015*	0.00018	*0.0062*	*0.002*	*0.002*
	SBorrowSedBasin	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
State Land Creek Sub-Basin	SLC-0	Original Ground	0.0013		ND	0.0013	0.0013	0.00057	*0.0401*	0.007	0.01	0.00011		ND	0.00011	0.00011	0.000045	0.000046	0.000067	0.000046
Offsite-Blackfoot River	BFR-1	Offsite	0.0028		0.0013	0.0013	0.0028	0.0015	0.0085	0.003	0.003	ND		ND	ND	ND	0.000043	0.000043	0.000043	0.000043
	BFR-2	Offsite	0.0028		0.0013	0.0013	0.0028	0.0015	0.0089	0.003	0.004	ND		0.00016	0.00016	0.00016	ND	ND	0.0002	ND
	BFR-3	Offsite	0.003		0.0013	0.0013	0.003	0.0015	0.008	0.003	0.003	ND		ND	ND	ND	ND	ND	ND	ND
	BFR-4	Offsite	0.0028		0.0014	0.0014	0.0028	0.0015	0.0084	0.003	0.004	ND		ND	ND	ND	ND	ND	ND	ND
Offsite-Trail Creek	TC-1	Offsite	0.00043		ND	0.00043	0.00043	0.00023	0.0004	0.0003	0.0003	ND		ND	ND	ND	ND	ND	ND	ND
	TC-2	Offsite	0.0025		0.0007	0.0007	0.0025	0.00022	0.0026	0.001	0.001	ND		ND	ND	ND	0.00008	0.0001	0.00008	0.00008
	TC-3	Offsite	0.00086		ND	0.00086	0.00086	0.00024	0.0011	0.001	0.001	ND		ND	ND	ND	ND	ND	ND	ND
	TC-4	Offsite	0.00062		ND	0.00062	0.00062	0.00029	*0.0262*	0.003	0.003	ND		ND	ND	ND	ND	ND	ND	ND

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium									Vanadium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Surface Water (Total Fraction for Se and V, Dissolved for Cd, Cr, Zn [mg/l])																				
Comparison Values >>			**Acute Eco: 0.57, Chronic Eco: 0.074, HH: NA**									**Acute Eco: 0.079, Chronic Eco: 0.027, HH: NA**								
Shield and Jouglard Canyons Sub-Basin	HHP-1	Original Ground	ND, ND	0.001	ND	0.001	0.001	0.0004	0.0031	0.001	0.001	*0.0014, 0.0019*	0.0013	0.0013	0.0013	0.0019	0.0011	0.0095	0.003	0.004
	HHT1-1	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	HHT1-2	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
	NL4P-1	Overburden	0.0025		ND	0.0025	0.0025	0.00099	0.0041	0.002	0.002	0.044		0.042	0.042	0.044	0.0418	*0.11*	0.06	0.07
	SBorrowSedBasin	Original Ground				Dry		NA		Dry	NA				Dry		NA		Dry	NA
State Land Creek Sub-Basin	SLC-0	Original Ground	ND		ND	ND	ND	0.0013	0.0013	0.001	0.001	0.0015		ND	0.0015	0.0015	0.0013	0.0026	0.002	0.002
Offsite-Blackfoot River	BFR-1	Offsite	ND		ND	ND	ND	0.0014	0.0014	0.001	0.001	0.0018		0.00091	0.00091	0.0018	0.0011	0.0026	0.002	0.002
	BFR-2	Offsite	ND		0.0012	0.0012	0.0012	ND	ND	0.001	ND	0.0016		ND	0.0016	0.0016	0.001	0.003	0.002	0.002
	BFR-3	Offsite	ND		ND	ND	ND	ND	ND	ND	ND	0.0021		ND	0.0021	0.0021	0.00079	0.0033	0.002	0.002
	BFR-4	Offsite	ND		0.0014	0.0014	0.0014	0.0009	0.0009	0.001	0.0009	0.002		ND	0.002	0.002	0.00084	0.002	0.002	0.001
Offsite-Trail Creek	TC-1	Offsite	ND		ND	ND	ND	ND	ND	ND	ND	ND		0.0018	0.0018	0.0018	0.0005	0.00088	0.001	0.001
	TC-2	Offsite	ND		ND	ND	ND	0.00094	0.00094	0.0009	0.0009	0.0014		0.0013	0.0013	0.0014	0.0011	0.0016	0.001	0.001
	TC-3	Offsite	ND		ND	ND	ND	0.0012	0.0012	0.001	0.001	0.00093		ND	0.00093	0.00093	0.0005	0.00093	0.0007	0.0007
	TC-4	Offsite	ND		ND	ND	ND	0.0012	0.0012	0.001	0.001	0.00089		ND	0.00089	0.00089	0.00063	0.0011	0.0009	0.0009

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc											Flow (SW) and Depth to Water (GW)			
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		2015		Average		2001-2014		2015	
						MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Surface Water (Total Fraction for Se and V, Dissolved for Cd, Cr, Zn [mg/l])																	
		Comparison Values >>	**Acute Eco: 0.12, Chronic Eco: 0.12, HH: NA**											**NA**			
Shield and Jouglard Canyons Sub-Basin	HHP-1	Original Ground	*0.003, 0.0038*	0.0053	ND	0.003	0.0053	0.001	0.015	0.003	0.0053	0.005	0.006	0.013	0.0299	Ponded	
	HHT1-1	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	HHT1-2	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
	NL4P-1	Overburden	0.0051		0.0012	0.0012	0.0051	0.0029	0.0363	0.0012	0.0051	0.01	0.01	Ponded		Ponded	
	SBorrowSedBasin	Original Ground				Dry		NA		Dry		Dry	NA	NA		Dry	
State Land Creek Sub-Basin	SLC-0	Original Ground	0.023		0.0013	0.0013	0.023	0.0061	0.0061	0.0013	0.023	0.01	0.006	0.011	4.637	0.1035	0.2437
Offsite-Blackfoot River	BFR-1	Offsite	0.013		ND	0.013	0.013	ND	ND	0.013	0.013	0.013	ND	38	421	64	161
	BFR-2	Offsite	0.0016		ND	0.0016	0.0016	0.006	0.006	0.0016	0.0016	0.004	0.006	38	421	64	161
	BFR-3	Offsite	ND		ND	ND	ND	0.0054	0.0054	ND	ND	0.005	0.005	43	714	64	161
	BFR-4	Offsite	0.0017		ND	0.0017	0.0017	0.0057	0.0057	0.0017	0.0017	0.004	0.006	43	803	64	161
Offsite-Trail Creek	TC-1	Offsite	0.0014		ND	0.0014	0.0014	ND	ND	0.0014	0.0014	0.001	ND	1.16	23.21	0.87	2.17
	TC-2	Offsite	0.0014		0.0035	0.0014	0.0035	0.0035	0.0035	0.0014	0.0035	0.003	0.004	1.73	18.19	1.43	3.75
	TC-3	Offsite	0.0024		0.002	0.002	0.0024	0.0064	0.0064	0.002	0.0024	0.004	0.006	1.34	9.82	Ponded	
	TC-4	Offsite	0.0056		ND	0.0056	0.0056	0.0052	0.0052	0.0056	0.0056	0.005	0.005	0.62	9.12	Ponded/Muddy	

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium									Cadmium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Groundwater (Total Fraction, [mg/l])*																				
		Comparison Values >>	**Eco: NA, HH: 0.05**									**Eco: NA, HH: 0.005**								
French Drain Sub-Basin	GW-11-IW	Wells	0.0324		0.034	0.0324	0.034	0.0048	0.0444	0.03	0.03	0.00024		0.000079	0.000079	0.00024	0.000083	0.00029	0.0002	0.0002
	GW-12-IS	Salt Lake	0.00035, 0.00029		ND	0.00029	0.00035	0.00021	0.0011	0.0004	0.0004	ND, 0.00013		ND	0.00013	0.00013	0.000044	0.00057	0.0002	0.0002
	GW-13-IS	Salt Lake				Dry		0.00046	0.0009	0.0007	0.0007				Dry		0.00038	0.00038	0.0004	0.0004
	GW-14-MW	Wells	ND		ND	ND	ND	0.00024	0.0012	0.0005	0.0005	0.0003		0.000099	0.000099	0.0003	0.000039	0.000633	0.0003	0.0003
	GW-15-MS	Salt Lake	**0.0811, 0.0789**		**0.122**	**0.0789**	**0.122**	**0.0786**	**0.192**	**0.10**	**0.10**	ND, 0.0001		ND	0.0001	0.0001	0.000057	0.00023	0.0001	0.0001
	GW-16-MA	Alluv/Colluv	**0.0983, 0.101**		**0.081**	**0.081**	**0.101**	0.04	**0.136**	**0.09**	**0.09**	0.0024, 0.0018		0.00096	0.00096	0.0024	0.00023	0.002	0.001	0.001
	GW-17-MA	Alluv/Colluv	0.021, 0.0172		0.021	0.0172	0.021	0.008	**0.0604**	0.026	0.03	**0.011, 0.0063**		0.0023	0.0023	**0.011**	0.00039	**0.019**	**0.01**	**0.01**
	GW-49-MA	Alluv/Colluv	0.0213, 0.031		0.044	0.0213	0.044	0.0229	0.0452	0.033	0.03	0.00029, 0.00036		0.00028	0.00028	0.00036	0.00034	0.00049	0.0004	0.0004
	GW-50-MS	Salt Lake	**0.561, 0.548**		**0.606**	**0.548**	**0.606**	**0.51**	**0.594**	**0.56**	**0.55**	0.00039, 0.00051		0.00027	0.00027	0.00051	0.00097	**0.0092**	0.002	**0.005**
	GW-51-MS	Salt Lake	0.0265, 0.0253		0.021	0.021	0.0265	0.0277	0.028	0.026	0.03	0.000088, ND		0.000095	0.000088	0.000095	0.00017	0.0025	0.001	0.001
	GW-52-MA	Alluv/Colluv	0.0195, 0.0189		0.027	0.0189	0.027	0.0216	0.0216	0.022	0.02	0.00017, 0.000079		0.000076	0.000076	0.00017	0.0011	0.0011	0.0004	0.001
	GW-53-MS	Salt Lake	ND, 0.00029		ND	0.00029	0.00029	ND	ND	0.0003	ND	0.000096, ND		ND	0.000096	0.000096	ND	ND	0.0001	ND
	GW-54-MA	Alluv/Colluv	0.0044, 0.006		0.014	0.0044	0.014	0.0051	0.0056	0.007	0.005	0.00028, 0.0012		0.00064	0.00028	0.0012	0.00017	0.0027	0.001	0.001
	GW-55-MS	Salt Lake	ND, 0.0011		0.0014	0.0011	0.0014	0.001	0.001	0.001	0.001	0.00012, ND		0.00022	0.00012	0.00022	0.00022	0.00022	0.0002	0.0002
	GW-56-MS	Salt Lake	0.0036, 0.0033		0.0032	0.0032	0.0036	0.0034	0.0042	0.004	0.004	ND, ND		ND	ND	ND	0.00037	0.00037	0.0004	0.0004
French Drain Sub-Basin	GW-9-IS	Salt Lake	**0.182, 0.172**		**0.253**	**0.172**	**0.253**	**0.0574**	**0.289**	**0.22**	**0.22**	0.00035, 0.00028		0.00038	0.00028	0.00038	0.00013	0.00039	0.0003	0.0003
Margarette Creek/Trail Canyon Sub-Basin	GW-35-MA	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	GW-36-MA	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
Old Tailings Pond Sub-Basin	GW-18-MA	Alluv/Colluv				Dry		**0.847**	**1.15**	**0.98**	**0.98**				Dry		**0.0555**	**0.0727**	**0.06**	**0.06**
	GW-19-MS	Salt Lake	0.0028, 0.0026		0.0029	0.0026	0.0029	0.0016	0.0043	0.002	0.002	ND, ND		0.00014	0.00014	0.00014	0.00013	0.0014	0.001	0.001
	GW-37-MD	Dinwoody	**1.08, 1.05**		**1.06**	**1.05**	**1.08**	**0.839**	**1.11**	**0.99**	**0.97**	0.0002, 0.000074		0.000078	0.000074	0.0002	0.00004	0.00004	0.0001	0.0000
	TP2-SB1	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	TP2-SB2	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	TP2-SB3	Alluv/Colluv				Dry		**3.6**	**3.6**	**3.6**	**3.6**				Dry		**0.158**	**0.158**	**0.16**	**0.16**
	TP2-SB4	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	TP2-SB5	Alluv/Colluv				Dry		**12.4**	**12.4**	**12.4**	**12.4**				Dry		**28.9**	**28.9**	**28.9**	**28.9**
Pedro Creek Sub-Basin	GW-28-MA	Alluv/Colluv	**1.3**	**1.33**	**1.29**	**1.29**	**1.33**	**0.133**	**15.4**	**2.7**	**3.0**	0.00084	0.00065	0.00045	0.00045	0.00084	0.00025	**0.048**	**0.007**	**0.010**
	GW-29-MD	Dinwoody	0.0374	0.044	0.043	0.0374	0.044	0.0275	0.0356	0.03	0.03	ND	ND	ND	ND	ND	0.00006	0.00006	0.0001	0.0001
	GW-30-MA	Alluv/Colluv	**0.101**	0.004	0.0012	0.0012	**0.101**	0.0014	**0.0635**	0.03	0.02	0.000099	0.000096	ND	0.000096	0.000099	0.000081	0.00072	0.0002	0.0003
	GW-41-MA	Alluv/Colluv	**6.84**	**7.18**	**0.298**	**0.298**	**7.18**	**1.42**	**5.15**	**3.5**	**2.7**	**0.0085**	**0.0057**	0.0043	0.0043	**0.0085**	0.0024	**0.023**	**0.007**	**0.008**
	GW-42-MD	Dinwoody	**0.504**	**0.502**	**0.437**	**0.437**	**0.504**	**0.42**	**0.485**	**0.46**	**0.46**	0.000077	ND	ND	0.000077	0.000077	0.000076	0.00064	0.0003	0.0004
	GW-43-MA	Alluv/Colluv	**0.398**			**0.398**	**0.398**	Dry		**0.40**	Dry	0.00015			0.00015	0.00015	Dry		0.0002	Dry
	GW-44-MD	Dinwoody	**0.435**	**0.224**	**0.298**	**0.224**	**0.435**	0.0473	**0.603**	**0.24**	**0.20**	ND	ND	ND	ND	ND	0.000051	0.00027	0.0002	0.0002
	GW-45-MA	Alluv/Colluv	**0.15**	**0.264**	**0.203**	**0.15**	**0.264**	**0.247**	**0.376**	**0.27**	**0.32**	ND	0.000099	ND	0.000099	0.000099	0.000035	0.0002	0.0001	0.0001
	GW-46-MD	Dinwoody	**0.107**	**0.194**	**0.168**	**0.107**	**0.194**	**0.115**	**0.259**	**0.17**	**0.18**	ND	ND	ND	ND	ND	0.00033	0.00033	0.0003	0.0003
Shield and Jouglard Canyons Sub-Basin	GW-22-MM	Meade Peak	**20.2**			**20.2**	**20.2**	**1.35**	**12**	**8.9**	**7.1**	**10.8**			**10.8**	**10.8**	**4.24**	**5.81**	**7.0**	**5.0**
	GW-23-MM	Meade Peak				Dry		**0.746**	**0.947**	**0.85**	**0.85**				Dry		**0.185**	**0.185**	**0.19**	**0.19**
	GW-24-MA	Colluvium	**2.21**			**2.21**	**2.21**	**0.593**	**1.72**	**1.2**	**1.0**	**0.035**			**0.035**	**0.035**	**0.0269**	**0.03**	**0.03**	**0.03**
	GW-31-MW	Wells	0.00059		ND	0.00059	0.00059	0.00027	0.0008	0.000	0.0005	0.00019		0.00038	0.00019	0.00038	ND	ND	0.0003	ND
	GW-32-MD	Dinwoody	**0.0817**		0.026	0.026	**0.0817**	0.0066	0.0309	0.024	0.02	0.00016		ND	0.00016	0.00016	0.00007	0.00007	0.0001	0.0001
	GW-33-MR	Rex Chert	**0.439**		**0.508**	**0.439**	**0.508**	**0.215**	**0.488**	**0.34**	**0.31**	0.0042		0.0027	0.0027	0.0042	0.00094	0.0014	0.002	0.001
	GW-34-MA	Alluv/Colluv	0.0023			0.0023	0.0023	0.00091	0.0026	0.002	0.002	0.0036			0.0036	0.0036	0.00039	0.00039	0.0020	0.0004

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium									Vanadium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Groundwater (Total Fraction, [mg/l])*																				
		Comparison Values >>	**Eco: NA, HH: 0.1**									**Eco: NA, HH: 0.053**								
French Drain Sub-Basin	GW-11-IW	Wells	ND		0.0013	0.0013	0.0013	0.00044	0.0016	0.001	0.001	ND		ND	ND	ND	ND	ND	ND	ND
	GW-12-IS	Salt Lake	ND, ND		ND	ND	ND	0.0012	0.0096	0.005	0.005	0.0018, 0.0041		0.0019	0.0018	0.0041	0.0017	0.02	0.005	0.006
	GW-13-IS	Salt Lake				Dry		0.0011	0.0011	0.001	0.001				Dry		0.00095	0.00095	0.001	0.001
	GW-14-MW	Wells	ND		0.0014	0.0014	0.0014	0.0026	0.0115	0.005	0.007	0.00094		0.00094	0.00094	0.00094	0.00055	0.012	0.003	0.005
	GW-15-MS	Salt Lake	ND, ND		0.0014	0.0014	0.0014	ND	ND	0.001	ND	0.0032, 0.0033		0.003	0.003	0.0033	0.002	0.0034	0.003	0.003
	GW-16-MA	Alluv/Colluv	**0.102, 0.0814**		0.0388	0.0388	**0.102**	0.0031	0.077	0.04	0.02	**0.067, 0.072**		0.038	0.038	**0.072**	0.0061	0.051	0.03	0.02
	GW-17-MA	Alluv/Colluv	**0.185, 0.149**		0.072	0.072	**0.185**	0.0096	**0.295**	**0.15**	**0.16**	**0.104, 0.112**		0.05	0.05	**0.112**	0.011	**0.198**	**0.10**	**0.11**
	GW-49-MA	Alluv/Colluv	0.0028, 0.002		0.0028	0.002	0.0028	0.0033	0.0045	0.003	0.004	0.004, 0.0047		0.0036	0.0036	0.0047	0.0031	0.0058	0.004	0.004
	GW-50-MS	Salt Lake	0.007, 0.0101		0.0061	0.0061	0.0101	0.0146	**0.129**	0.03	0.07	0.0049, 0.0077		0.0051	0.0049	0.0077	0.012	**0.0773**	0.02	0.04
	GW-51-MS	Salt Lake	0.0029, ND		0.0033	0.0029	0.0033	0.0038	**0.265**	0.07	**0.13**	0.0025, 0.0026		0.0023	0.0023	0.0026	0.0026	0.034	0.009	0.02
	GW-52-MA	Alluv/Colluv	0.0065, 0.0038		0.0042	0.0038	0.0065	0.0393	0.0393	0.01	0.04	0.006, 0.0052		0.0046	0.0046	0.006	0.028	0.028	0.01	0.03
	GW-53-MS	Salt Lake	0.0066, 0.0178		0.0042	0.0042	0.0178	0.003	0.003	0.008	0.003	ND, 0.0027		ND	0.0027	0.0027	0.0041	0.0041	0.003	0.004
	GW-54-MA	Alluv/Colluv	0.004, 0.0241		0.0132	0.004	0.0241	0.0113	**0.121**	0.03	0.07	0.0058, 0.026		0.014	0.0058	0.026	0.02	0.0478	0.02	0.03
	GW-55-MS	Salt Lake	0.089, 0.0919		0.0791	0.0791	0.0919	0.0545	0.0545	0.08	0.05	0.0049, 0.0083		0.015	0.0049	0.015	0.012	0.012	0.01	0.01
	GW-56-MS	Salt Lake	0.004, 0.0111		0.0704	0.004	0.0704	0.0021	0.0333	0.02	0.02	ND, 0.0018		ND	0.0018	0.0018	0.0019	0.0084	0.004	0.005
French Drain Sub-Basin	GW-9-IS	Salt Lake	0.0023, ND		0.0026	0.0023	0.0026	0.0013	0.0085	0.003	0.003	0.0072, 0.0059		0.0063	0.0059	0.0072	0.0028	0.0066	0.006	0.005
Margarette Creek/Trail Canyon Sub-Basin	GW-35-MA	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	GW-36-MA	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
Old Tailings Pond Sub-Basin	GW-18-MA	Alluv/Colluv				Dry		**1.28**	**1.9**	**1.6**	**1.6**				Dry		**0.907**	**1.04**	**0.97**	**0.97**
	GW-19-MS	Salt Lake	0.002, 0.0031		0.0063	0.002	0.0063	0.0013	0.0126	0.005	0.005	0.0053, 0.0064		0.0061	0.0053	0.0064	0.0044	0.0145	0.007	0.007
	GW-37-MD	Dinwoody	0.0303, 0.0121		0.0104	0.0104	0.0303	0.0011	0.0011	0.01	0.001	0.024, 0.01		0.0088	0.0088	0.024	0.00085	0.00085	0.01	0.001
	TP2-SB1	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	TP2-SB2	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	TP2-SB3	Alluv/Colluv				Dry		**1.65**	**1.65**	**1.7**	**1.7**				Dry		**2.99**	**2.99**	**3.0**	**3.0**
	TP2-SB4	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	TP2-SB5	Alluv/Colluv				Dry		**3.22**	**3.22**	**3.2**	**3.2**				Dry		**27.7**	**27.7**	**27.7**	**27.7**
Pedro Creek Sub Basin	GW-28-MA	Alluv/Colluv	ND	0.0012	0.002	0.0012	0.002	**0.321**	**0.321**	**0.1**	**0.3**	0.0011	0.0013	0.0013	0.0011	0.0013	0.0012	**0.398**	**0.08**	**0.20**
	GW-29-MD	Dinwoody	ND	ND	0.0019	0.0019	0.0019	0.001	0.0033	0.002	0.002	0.0016	0.0014	0.0014	0.0014	0.0016	0.00092	0.0051	0.002	0.002
	GW-30-MA	Alluv/Colluv	ND	ND	ND	ND	ND	0.002	0.0248	0.009	0.009	0.0012	ND	0.00092	0.00092	0.0012	0.0025	0.0287	0.007	0.009
	GW-41-MA	Alluv/Colluv	0.024	0.0024	0.0028	0.0024	0.0237	0.0324	**0.666**	**0.15**	**0.35**	0.019	0.0064	0.0025	0.0025	0.019	0.0039	**0.606**	**0.08**	**0.13**
	GW-42-MD	Dinwoody	0.0094	0.0016	0.0032	0.0016	0.0094	0.0017	0.0958	0.02	0.03	0.0074	0.0011	0.0018	0.0011	0.0074	0.00095	**0.0874**	0.02	0.02
	GW-43-MA	Alluv/Colluv	ND			ND	ND	Dry		ND	Dry	0.0013			0.0013	0.0013	Dry		0.001	Dry
	GW-44-MD	Dinwoody	0.0052	ND	0.0021	0.0021	0.0052	0.0032	0.0509	0.01	0.02	0.0053	ND	0.0013	0.0013	0.0053	0.0016	**0.0635**	0.013	0.018
	GW-45-MA	Alluv/Colluv	ND	ND	0.0014	0.0014	0.0014	0.0037	0.0037	0.003	0.004	ND	0.001	ND	0.001	0.001	0.0046	0.0046	0.003	0.005
	GW-46-MD	Dinwoody	0.004	ND	ND	0.004	0.004	0.0349	0.0349	0.02	0.03	0.0045	ND	ND	0.0045	0.0045	0.0012	0.0345	0.01	0.02
Shield and Jouglard Canyons Sub-Basin	GW-22-MM	Meade Peak	0.0136			0.0136	0.0136	0.0819	**0.913**	**0.3**	**0.5**	**8.6**			**8.6**	**8.6**	**16.8**	**21**	**15.5**	**18.9**
	GW-23-MM	Meade Peak				Dry		**2.66**	**2.66**	**2.7**	**2.7**				Dry		**3.01**	**3.01**	**3.0**	**3.0**
	GW-24-MA	Colluvium	0.0103			0.0103	0.0103	0.0069	0.0428	0.02	0.02	0.028			0.028	0.028	0.047	**0.0681**	0.05	**0.06**
	GW-31-MW	Wells	ND		0.0033	0.003	0.0033	0.0017	0.0033	0.003	0.003	0.0011		0.0022	0.0011	0.0022	0.00073	0.0025	0.002	0.001
	GW-32-MD	Dinwoody	0.0032		0.002	0.002	0.0032	0.0021	0.0041	0.003	0.003	0.0031		ND	0.0031	0.0031	0.00088	0.0049	0.003	0.003
	GW-33-MR	Rex Chert	0.0502		0.0206	0.0206	0.0502	0.0018	0.0057	0.017	0.004	0.032		0.0138	0.0138	0.032	0.0016	0.0041	0.011	0.003
	GW-34-MA	Alluv/Colluv	**0.12**			**0.12**	**0.12**	0.0515	0.0515	0.09	0.05	**0.055**			**0.055**	**0.055**	0.0138	0.0138	0.034	0.014

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc											Flow (SW) and Depth to Water (GW)			
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		2015		Average		2001-2014		2015	
						MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Groundwater (Total Fraction, [mg/l])*																	
		Comparison Values >>	**Eco: NA, HH: 5**											**na**			
French Drain Sub-Basin	GW-11-IW	Wells	0.021		0.02	0.02	0.021	0.0186	0.32	0.02	0.021	0.08	0.09	Pumping	13.05	Pumping	
	GW-12-IS	Salt Lake	0.0038, 0.0043		ND	0.0038	0.0043	0.011	0.302	0.0038	0.0043	0.06	0.07	Pumping		Artesian	
	GW-13-IS	Salt Lake				Dry		0.0064	0.0064	Dry		0.01	0.01	Dry	4.16 - 13.55	Dry	
	GW-14-MW	Wells	0.009		0.0035	0.0035	0.009	0.0225	0.0687	0.0035	0.009	0.03	0.04	3.45	172.72	6.77	6.88
	GW-15-MS	Salt Lake	0.0058, 0.0016		ND	0.0016	0.0058	0.0029	0.0058	0.0016	0.0058	0.004	0.004	Artesian		Artesian	
	GW-16-MA	Alluv/Colluv	0.195, 0.216		0.102	0.102	0.216	0.0123	0.193	0.102	0.216	0.1	0.1	7.42	28.34	22.72	26.65
	GW-17-MA	Alluv/Colluv	0.256, 0.313		0.123	0.123	0.313	0.016	0.636	0.123	0.313	0.3	0.3	25.23	36.28	32.4	35.65
	GW-49-MA	Alluv/Colluv	ND, ND		0.002	0.002	0.002	0.0054	0.0081	0.002	0.002	0.01	0.01	55.18	55.72	52.78	57.09
	GW-50-MS	Salt Lake	ND, 0.013		0.0016	0.0016	0.013	0.029	0.261	0.0016	0.013	0.08	0.15	58.84	59.2	57.4	61.36
	GW-51-MS	Salt Lake	ND, ND		0.0015	0.0015	0.0015	0.0077	0.19	0.0015	0.0015	0.07	0.10	63.95	64.51	63.3	66.54
	GW-52-MA	Alluv/Colluv	0.0093, 0.0072		0.016	0.0072	0.016	0.077	0.077	0.0072	0.016	0.03	0.08	33.63	33.63	27.94	33.53
	GW-53-MS	Salt Lake	ND, 0.011		0.0018	0.0018	0.011	ND	ND	0.0018	0.011	0.01	ND	70.76	70.76	34.06	38.15
	GW-54-MA	Alluv/Colluv	0.0076, 0.077		0.037	0.0076	0.077	0.011	0.154	0.0076	0.077	0.06	0.08	38.91	39.06	36.26	39.88
	GW-55-MS	Salt Lake	ND, ND		0.0083	0.0083	0.0083	0.02	0.02	0.0083	0.0083	0.01	0.02	48.08	58.87	46.8	49.61
	GW-56-MS	Salt Lake	ND, 0.0068		0.0017	0.0017	0.0068	0.0256	0.0256	0.0017	0.0068	0.01	0.03	46.2	46.44	44.57	47.2
French Drain Sub-Basin	GW-9-IS	Salt Lake	ND, ND		0.003	0.003	0.003	0.002	0.055	0.003	0.003	0.02	0.02	10.09	39.5	27.02	31.89
Margarette Creek/Trail Canyon Sub-Basin	GW-35-MA	Alluv/Colluv				Dry		Dry		Dry			Dry	Dry		Dry	
	GW-36-MA	Alluv/Colluv				Dry		Dry		Dry			Dry	Dry		Dry	22.53
Old Tailings Pond Sub-Basin	GW-18-MA	Alluv/Colluv				Dry		4.22	**5**	Dry		4.6	4.6	Dry	26.23-30.16	Dry	
	GW-19-MS	Salt Lake	ND, ND		0.012	0.012	0.012	0.0039	0.027	0.012	0.012	0.01	0.01	82.52	90.73	Dry	87.59-88.89
	GW-37-MD	Dinwoody	0.069, 0.031		0.022	0.022	0.069	ND	ND	0.022	0.069	0.04	ND	38.42	45.83	42.58	43.01
	TP2-SB1	Alluv/Colluv				Dry		Dry		Dry			Dry	Dry		Dry	
	TP2-SB2	Alluv/Colluv				Dry		Dry		Dry			Dry	Dry		Dry	
	TP2-SB3	Alluv/Colluv				Dry		3.88	3.88	Dry		3.9	3.9	13	13	Dry	
	TP2-SB4	Alluv/Colluv				Dry		Dry		Dry			Dry	Dry		Dry	
	TP2-SB5	Alluv/Colluv				Dry		**307**	**307**	Dry		**307**	**307**	Not measured		Dry	
Pedro Creek Sub Basin	GW-28-MA	Alluv/Colluv	0.0028	ND	0.0016	0.0016	0.0028	0.0092	1.99	0.0016	0.0028	0.5	1.0	Dry	5 - 14.75	5.33	7.96
	GW-29-MD	Dinwoody	ND	ND	0.0035	0.0035	0.0035	0.0057	0.0083	0.0035	0.0035	0.01	0.01	62.79	95.17	61.12	87.88
	GW-30-MA	Alluv/Colluv	0.016	ND	0.0016	0.0016	0.016	0.0104	0.0512	0.0016	0.016	0.02	0.02	3.75	13.89	5.11	10.79
	GW-41-MA	Alluv/Colluv	0.082	0.077	0.029	0.029	0.082	0.0191	1.69	0.029	0.082	0.3	0.4	10.77	23.43	16.98	19.64
	GW-42-MD	Dinwoody	0.02	ND	0.0038	0.0038	0.02	0.0085	0.217	0.0038	0.02	0.05	0.08	72.52	92.4	74.26	84.67
	GW-43-MA	Alluv/Colluv	0.0097			0.0097	0.0097	Dry		0.0097	0.0097	0.01	Dry	Dry		11.17	16.71
	GW-44-MD	Dinwoody	0.014	ND	0.0033	0.0033	0.014	0.0045	0.13	0.0033	0.014	0.03	0.04	64.32	96.98	66.98	84.83
	GW-45-MA	Alluv/Colluv	0.003	ND	0.0021	0.0021	0.003	0.0013	0.0128	0.0021	0.003	0.005	0.01	5.27	16.03	9.54	15.21
	GW-46-MD	Dinwoody	0.0094	ND	ND	0.0094	0.0094	0.0031	0.0778	0.0094	0.0094	0.03	0.04	5.72	17.65	9.41	15.25
Shield and Jouglard Canyons Sub-Basin	GW-22-MM	Meade Peak	**26.5**			**26.5**	**26.5**	**7.16**	**10.9**	**26.5**	**26.5**	**14.9**	**9.0**	Dry	2.8-6.84	7.05	12.25
	GW-23-MM	Meade Peak				Dry		**5.59**	**5.59**	Dry		**5.6**	**5.6**	Dry	7.15-10.93	Dry	12
	GW-24-MA	Colluvium	0.369			0.369	0.369	0.295	0.302	0.369	0.369	0.3	0.3	Dry	10.17-18.12	12.1	21.68
	GW-31-MW	Wells	0.0086		0.012	0.0086	0.012	0.004	0.0216	0.0086	0.012	0.01	0.01	18.58	193	31.28	31.39
	GW-32-MD	Dinwoody	0.0088		0.0095	0.0088	0.0095	0.0042	0.0134	0.0088	0.0095	0.01	0.01	1.84	20.92	16.19	19.29
	GW-33-MR	Rex Chert	0.329		0.133	0.133	0.329	0.0749	0.097	0.133	0.329	0.13	0.09	157.99	189.5	171.3	171.68
	GW-34-MA	Alluv/Colluv	0.2			0.2	0.2	0.0413	0.0413	0.2	0.2	0.12	0.04	Dry	17.3-31.2	31.25	31.7

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Selenium									Cadmium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Groundwater (Total Fraction, [mg/l])*																				
		Comparison Values >>	**Eco: NA, HH: 0.05**									**Eco: NA, HH: 0.005**								
State Land Creek Sub-Basin	GW-25-MA	Alluv/Colluv	**0.578**		**0.185**	**0.185**	**0.578**	0.019	**1.8**	**0.29**	**0.28**	0.0002		0.00017	0.00017	0.0002	0.000279	0.0008	0.0003	0.0005
	GW-26-MD	Dinwoody	0.0011		0.0023	0.0011	0.0023	0.00074	0.0019	0.001	0.001	0.00054		0.00013	0.00013	0.00054	0.00024	0.00024	0.0003	0.0002
	GW-27-MA	Alluv/Colluv	0.00026		ND	0.00026	0.00026	0.00021	0.0033	0.001	0.001	ND		ND	ND	ND	0.000098	0.000609	0.0003	0.0003
	GW-39-MW	Wells	**0.0519**	**0.056**	**0.053**	**0.0519**	**0.056**	0.0345	0.0483	0.04	0.04	ND	ND	ND	ND	ND	0.000012	0.00031	0.0001	0.0001
	GW-40-MW	Wells	0.0155	0.015	0.014	0.014	0.0155	0.0098	0.0165	0.01	0.01	ND	ND	ND	ND	ND	0.000043	0.00023	0.0001	0.0001
	GW-47-MA	Alluv/Colluv	**0.479**		**0.617**	**0.479**	**0.617**	**0.573**	**0.705**	**0.61**	**0.65**	0.00088		0.00061	0.00061	0.00088	0.00062	0.0018	0.001	0.001
	GW-48-MA	Alluv/Colluv	0.0012			0.0012	0.0012	Dry		0.001	Dry	0.0001			0.0001	0.0001	Dry		0.0001	Dry
Western Woodall Mountain Sub-Basin	A-13-135-MS	Salt Lake	0.0196			0.0196	0.0196	0.0208	0.0208	0.02	0.02	ND			ND	ND	ND	ND	ND	ND
	Boring6 [2]	Salt Lake	0.00087, 0.00084, 0.00074, 0.00062, 0.00058, 0.00067, 0.00061			0.00058	0.00087	NA		0.001	NA	0.0011, 0.0005, 0.0009, 0.00024, ND, 0.002, 0.00017			0.00017	0.002	NA		0.001	NA
	GW-20-MA	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	GW-21-MW	Wells	0.00069		ND	0.00069	0.00069	0.00043	0.0013	0.001	0.001	0.000		0.00015	0.00015	0.00044	0.0014	0.0014	0.001	0.001
	GW-57-MS	Salt Lake	0.0438, 0.0215, 0.0442		0.046	0.0215	0.046	0.0264	0.0264	0.04	0.03	ND, 0.0011, ND		ND	0.0011	0.0011	ND	ND	0.001	ND
	GW-NW7-IS	Salt Lake				No Access		0.003	0.021	0.014	0.014				No Access		ND	ND	ND	ND
Offsite Southwest	GW-10-IBS	Basalt/Salt Lake	0.0056		0.0067	0.0056	0.0067	0.00068	0.0107	0.006	0.006	0.00036		0.00019	0.00019	0.00036	0.00009	0.00019	0.0002	0.0002
	GW-7-IT	Thaynes	0.005			0.005	0.005	0.0057	0.021	0.009	0.01	0.00036			0.00036	0.00036	0.00049	0.000725	0.001	0.001
	GW-8-IBS	Basalt/Salt Lake	0.0046		0.0057	0.0046	0.0057	0.00036	0.0228	0.008	0.008	0.00027		0.0002	0.0002	0.00027	0.00023	0.00064	0.0003	0.0004

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Chromium									Vanadium								
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average		Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		Average	
						MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014				MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014
Groundwater (Total Fraction, [mg/l])*																				
		Comparison Values >>	**Eco: NA, HH: 0.1**									**Eco: NA, HH: 0.053**								
State Land Creek Sub-Basin	GW-25-MA	Alluv/Colluv	ND		ND	ND	ND	0.001	0.0017	0.001	0.001	0.0012		0.0025	0.0012	0.0025	0.0013	0.0056	0.002	0.003
	GW-26-MD	Dinwoody	0.0325		0.0138	0.0138	0.0325	0.0017	0.0126	0.02	0.007	0.031		0.0147	0.0147	0.031	0.00052	0.0084	0.01	0.003
	GW-27-MA	Alluv/Colluv	ND		0.001	0.001	0.001	0.0017	0.0017	0.001	0.002	ND		ND	ND	ND	0.00084	0.0077	0.003	0.003
	GW-39-MW	Wells	0.0038	0.0021	0.0018	0.0018	0.0038	0.0013	0.0034	0.002	0.002	0.003	0.0024	0.0028	0.0024	0.003	0.0024	0.003	0.003	0.003
	GW-40-MW	Wells	ND	0.0019	ND	0.0019	0.0019	0.00084	0.0029	0.002	0.002	0.003	0.0021	0.0022	0.0021	0.003	0.0025	0.0057	0.004	0.004
	GW-47-MA	Alluv/Colluv	0.0026		0.0035	0.0026	0.0035	0.0269	0.0269	0.01	0.03	0.0028		0.0031	0.0028	0.0031	0.002	0.0311	0.008	0.01
	GW-48-MA	Alluv/Colluv	0.0041			0.0041	0.0041	Dry		0.004	Dry	0.0033			0.0033	0.0033	Dry		0.003	Dry
Western Woodall Mountain Sub-Basin	A-13-135-MS	Salt Lake	0.0035			0.0035	0.0035	0.0032	0.0032	0.003	0.003	0.0038			0.0038	0.0038	NA		0.004	NA
	Boring6 [2]	Salt Lake	0.0103, 0.0034, 0.0042, ND, ND, 0.0076, 0.0065			0.0034	0.0103	NA		0.006	NA	0.0103, 0.0045, 0.0053, 0.0019, ND, 0.0072, 0.0059			0.0019	0.0103	NA		0.006	NA
	GW-20-MA	Alluv/Colluv				Dry		Dry			Dry				Dry		Dry			Dry
	GW-21-MW	Wells	0.008		0.0054	0.0054	0.0078	0.0026	0.0088	0.005	0.004	0.0038		0.0025	0.0025	0.0038	0.0019	0.0037	0.003	0.002
	GW-57-MS	Salt Lake	0.0044, 0.0987, 0.0125		0.0054	0.0044	0.0987	0.0086	0.0086	0.026	0.009	0.0039, 0.011, 0.0057		0.0049	0.0039	0.011	0.0048	0.0048	0.006	0.005
	GW-NW7-IS	Salt Lake				No Access		0.002	0.0029	0.002	0.002				No Access		0.003	0.003	0.003	0.003
Offsite Southwest	GW-10-IBS	Basalt/Salt Lake	ND		0.002	0.002	0.002	0.00082	0.0018	0.001	0.001	0.0061		0.0057	0.0057	0.0061	0.0043	0.0069	0.006	0.005
	GW-7-IT	Thaynes	0.0019			0.0019	0.0019	0.001	0.0026	0.002	0.002	0.0059			0.0059	0.0059	0.003	0.0055	0.005	0.004
	GW-8-IBS	Basalt/Salt Lake	0.003		0.0026	0.0026	0.003	0.0007	0.0033	0.002	0.002	0.0052		0.0045	0.0045	0.0052	0.0029	0.0045	0.004	0.003

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Sub-Basin	Station	Material Type at Station	Zinc											Flow (SW) and Depth to Water (GW)			
			Spring 2015 (Mar-May)	Summer 2015 (Jun-Aug)	Fall 2015 (Sept-Nov)	2015		2001-2014		2015		Average		2001-2014		2015	
						MinDet	MaxDet	MinDet	MaxDet	MinDet	MaxDet	2001-2015	2001-2014	Min	Max	Min	Max
Groundwater (Total Fraction, [mg/l])*																	
		Comparison Values >>	**Eco: NA, HH: 5**											**na**			
State Land Creek Sub-Basin	GW-25-MA	Alluv/Colluv	0.0031		0.0026	0.0026	0.0031	0.0032	0.0109	0.0026	0.0031	0.01	0.01	4.35	15.23	6.88	12.4
	GW-26-MD	Dinwoody	0.129		0.039	0.039	0.129	0.005	0.034	0.039	0.129	0.05	0.02	140.71	148.65	145.75	147.36
	GW-27-MA	Alluv/Colluv	0.0059		ND	0.0059	0.0059	0.0039	0.0166	0.0059	0.0059	0.01	0.01	3.57	8.57	4.12	5.88
	GW-39-MW	Wells	0.0318	ND	0.0014	0.0014	0.0318	0.0026	0.0026	0.0014	0.0318	0.01	0.00	398.43	403.52	409.11	409.39
	GW-40-MW	Wells	0.0045	ND	ND	0.0045	0.0045	0.0042	0.153	0.0045	0.0045	0.03	0.04	248.5	259.74	250.96	261.13
	GW-47-MA	Alluv/Colluv	0.0061		0.0061	0.0061	0.0061	0.0066	0.0977	0.0061	0.0061	0.03	0.04	13.1	20.3	10.59	23.62
	GW-48-MA	Alluv/Colluv	0.0081			0.0081	0.0081	Dry		0.0081	0.0081	0.01	Dry	Dry		Dry	16.86
Western Woodall Mountain Sub-Basin	A-13-135-MS	Salt Lake	0.0018			0.0018	0.0018	NA		0.0018	0.0018	0.002	NA	81.65	85.56	95.57	95.57
	Boring6 [2]	Salt Lake	0.0218, 0.008, 0.0134, 0.0043, ND, 0.0278, 0.018			0.0043	0.0278	NA		0.0043	0.0278	0.02	NA	NA		73.2	245
	GW-20-MA	Alluv/Colluv				Dry		Dry		Dry			Dry	Dry		Dry	40.1
	GW-21-MW	Wells	0.024		0.0052	0.0052	0.024	0.0028	0.017	0.0052	0.024	0.01	0.01	117.89	174.5	122.72	123.19
	GW-57-MS	Salt Lake	0.0023, 0.077, 0.0158		0.0025	0.0023	0.077	0.0095	0.0095	0.0023	0.077	0.02	0.01	172.75	172.75	175.5	183.19
	GW-NW7-IS	Salt Lake				No Access		0.002	0.008	No Access		0.01	0.01	Pumping		No Access	
Offsite Southwest	GW-10-IBS	Basalt/Salt Lake	0.114		0.168	0.114	0.168	0.0482	0.261	0.114	0.168	0.13	0.12	Pumping		Pumping	
	GW-7-IT	Thaynes	0.02			0.02	0.02	0.0063	0.0456	0.02	0.02	0.02	0.03	Pumping	64.6	Pumping/No Access	
	GW-8-IBS	Basalt/Salt Lake	0.0084		0.0044	0.0044	0.0084	0.0033	0.0033	0.0044	0.0084	0.005	0.003	38.01	65.16	53.07	54.62

Table 4-8
Summary of Available Analytical Data for Locations Sampled in 2015

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

MinDet = Minimum detected result at the given location.

MaxDet = Maximum detected result at the given location.

Average = Average detected result at the given location.

NA = not analyzed, not available, or otherwise not applicable.

mg/kg = milligrams per kilogram. Results for soil and vegetation are on a dry weight basis.

COPC = Chemical of Potential Concern

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

1 - FSPS soil samples were composite samples collected from the root-zone within 0-12 inch interval. Only selenium results analyzed using method 3114C are included. Depth-profile sample results collected from a subset of plots are not included.

2 - Boring 6 results are for dissolved fraction only.

More information about ecological ("Eco") and human health ("HH") soil comparison values is provided on Tables 4-2 through 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of Soil comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Exceedances of Surface Water comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value.

Exceedances of Groundwater comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

XX-X Indicates a location where maximum 2015 selenium concentrations exceed comparison criteria, where previously (2001-2014) there were not any selenium exceed

XX-X Indicates a location where maximum 2015 COPC concentrations exceed comparison criteria, where there have not been any selenium exceedances (2001-2015).

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Selenium					Cadmium					Chromium				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: 0.52, HH: 5800					Eco: 0.36, HH: 980					Eco: 26, HH: 1800000				
Station	**Material Type**	**Depth Class**															
Camp G Creek Sub-Basin																	
Borrow 1	Overburden	Surface	1.7	4	2.85	2	100%	na	na	na	na	na	na	na	na	na	na
CGC-1	Original Ground	Subsurface	0.38	0.38	0.38	1	100%	3.6	3.6	3.6	1	100%	25.6	25.6	25.6	1	100%
CGC-1	Original Ground	Surface	0.63	0.63	0.63	1	100%	4	4	4	1	100%	22.1	22.1	22.1	1	100%
CP-01	Original Ground	Subsurface	1	1	1	1	100%	na	na	na	na	na	na	na	na	na	na
CP-01	Original Ground	Surface	1.2	1.2	1.2	1	100%	na	na	na	na	na	na	na	na	na	na
CP-02	Original Ground	Subsurface	0.64	0.64	0.64	1	100%	na	na	na	na	na	na	na	na	na	na
CP-02	Original Ground	Surface	2.2	2.2	2.2	1	100%	na	na	na	na	na	na	na	na	na	na
CP-03	Original Ground	Subsurface	0.17	0.17	0.17	1	100%	na	na	na	na	na	na	na	na	na	na
CP-03	Original Ground	Surface	0.92	0.92	0.92	1	100%	na	na	na	na	na	na	na	na	na	na
CR-01	Original Ground	Subsurface	2.4	2.4	2.4	1	100%	na	na	na	na	na	na	na	na	na	na
CR-01	Original Ground	Surface	2.4	2.4	2.4	1	100%	na	na	na	na	na	na	na	na	na	na
CR-02	Original Ground	Subsurface	0.88	0.88	0.88	1	100%	na	na	na	na	na	na	na	na	na	na
CR-02	Original Ground	Surface	2	2	2	1	100%	na	na	na	na	na	na	na	na	na	na
CR-03	Original Ground	Subsurface	0.17	0.17	0.17	1	100%	na	na	na	na	na	na	na	na	na	na
CR-03	Original Ground	Surface	0.52	0.52	0.52	1	100%	na	na	na	na	na	na	na	na	na	na
CR-04	Original Ground	Subsurface	0.36	0.36	0.36	1	100%	na	na	na	na	na	na	na	na	na	na
CR-04	Original Ground	Surface	0.26	0.26	0.26	1	100%	na	na	na	na	na	na	na	na	na	na
Dredge Ranch	Original Ground	Subsurface	0.59	0.98	0.733	3	100%	na	na	na	na	na	na	na	na	na	na
RD-25	Haul roads	Subsurface	4.2	4.2	4.2	1	100%	5	5	5	1	100%	77.9	77.9	77.9	1	100%
RD-26	Haul roads	Subsurface	0.91	0.91	0.91	1	100%	1.5	1.5	1.5	1	100%	29.6	29.6	29.6	1	100%
ST12-01	Waste Rock	Subsurface	6.8	10.4	8.6	2	100%	71.7	92.6	82.2	2	100%	589	593	591	2	100%
ST12-01	Waste Rock	Surface	8.6	10.5	9.55	2	100%	71.7	85.5	78.6	2	100%	486	507	497	2	100%
ST12-02	Waste Rock	Subsurface	3.4	30.1	16.8	2	100%	25.1	58	41.6	2	100%	193	575	384	2	100%
ST12-02	Waste Rock	Surface	4.8	26.1	15.5	2	100%	27.9	56.3	42.1	2	100%	168	437	303	2	100%
ST12-03	Original Ground	Subsurface	0.63	1.3	0.965	2	100%	17	21.4	19.2	2	100%	33.3	49.1	41.2	2	100%
ST12-03	Original Ground	Surface	3.3	4.1	3.7	2	100%	21.1	24.5	22.8	2	100%	54.1	60.5	57.3	2	100%
ST3-01	Original Ground	Subsurface	0.7	7.5	4.1	2	100%	11.7	25.3	18.5	2	100%	28.8	238	133	2	100%
ST3-01	Original Ground	Surface	0.76	13.4	7.08	2	100%	12.9	38	25.5	2	100%	30.7	315	173	2	100%
ST3-02	Waste Rock	Subsurface	15.9	33.6	24.8	2	100%	58.7	66.8	62.8	2	100%	523	559	541	2	100%
ST3-02	Waste Rock	Surface	17.8	31.5	24.7	2	100%	62.1	81.2	71.7	2	100%	502	666	584	2	100%
ST3-03	Original Ground	Subsurface	0.5	0.5	0.5	1	100%	8	8	8	1	100%	31.8	31.8	31.8	1	100%
ST3-03	Original Ground	Surface	0.55	0.55	0.55	1	100%	9	9	9	1	100%	32.6	32.6	32.6	1	100%
French Drain Sub-Basin																	
Con	Original Ground	Subsurface	0.62	2.1	0.919	12	100%	na	na	na	na	na	na	na	na	na	na
LoSe	Overburden	Subsurface	14	59	29.9	12	100%	na	na	na	na	na	na	na	na	na	na
NQ-13	Overburden	Subsurface	30.2	30.2	30.2	1	100%	20.8	20.8	20.8	1	100%	519	519	519	1	100%
NQ-13	Overburden	Surface	26	26	26	1	100%	21.8	21.8	21.8	1	100%	549	549	549	1	100%
NQ-14	Overburden	Subsurface	44.7	44.7	44.7	1	100%	31.3	31.3	31.3	1	100%	390	390	390	1	100%
NQ-14	Overburden	Surface	57	57	57	1	100%	21.9	21.9	21.9	1	100%	420	420	420	1	100%
RD-19	Haul roads	Subsurface	46.5	46.5	46.5	1	100%	23.6	23.6	23.6	1	100%	634	634	634	1	100%
RD-20	Haul roads	Subsurface	15.1	15.1	15.1	1	100%	12.8	12.8	12.8	1	100%	135	135	135	1	100%
SQ-02	Tailings	Subsurface	6.2	6.2	6.2	1	100%	20	20	20	1	100%	246	246	246	1	100%
SQ-02	Tailings	Surface	8.4	8.4	8.4	1	100%	25.9	25.9	25.9	1	100%	274	274	274	1	100%
ST1-02	Overburden	Subsurface	2.6	2.6	2.6	1	100%	9	9	9	1	100%	70.8	70.8	70.8	1	100%
ST1-02	Overburden	Surface	4.2	4.2	4.2	1	100%	13.1	13.1	13.1	1	100%	85.3	85.3	85.3	1	100%
ST1-03	Overburden	Subsurface	89.9	89.9	89.9	1	100%	17.2	17.2	17.2	1	100%	553	553	553	1	100%
ST1-03	Overburden	Surface	39	39	39	1	100%	22.7	22.7	22.7	1	100%	463	463	463	1	100%
ST4-01	Overburden	Subsurface	29.9	29.9	29.9	1	100%	12.2	12.2	12.2	1	100%	366	366	366	1	100%
ST4-01	Overburden	Surface	35.9	35.9	35.9	1	100%	11.9	11.9	11.9	1	100%	331	331	331	1	100%
ST4-02	Overburden	Subsurface	17.7	17.7	17.7	1	100%	14.9	14.9	14.9	1	100%	261	261	261	1	100%
ST4-02	Overburden	Surface	24.1	24.1	24.1	1	100%	14.3	14.3	14.3	1	100%	251	251	251	1	100%
ST4-03	Overburden	Subsurface	39.4	39.4	39.4	1	100%	14.6	14.6	14.6	1	100%	274	274	274	1	100%
ST4-03	Overburden	Surface	30	30	30	1	100%	14.2	14.2	14.2	1	100%	236	236	236	1	100%
ST4-04	Overburden	Subsurface	68.9	68.9	68.9	1	100%	11	11	11	1	100%	490	490	490	1	100%
ST4-04	Overburden	Surface	53.4	53.4	53.4	1	100%	16	16	16	1	100%	474	474	474	1	100%
ST8-01	Former Mill/Townsite	Subsurface	0.77	0.77	0.77	1	100%	6.4	6.4	6.4	1	100%	54.2	54.2	54.2	1	100%
ST8-01	Former Mill/Townsite	Surface	3	3	3	1	100%	13.9	13.9	13.9	1	100%	105	105	105	1	100%
ST8-02	Original Ground	Subsurface	3.7	3.7	3.7	1	100%	8.7	8.7	8.7	1	100%	67	67	67	1	100%
ST8-02	Original Ground	Surface	4	4	4	1	100%	10.5	10.5	10.5	1	100%	74.8	74.8	74.8	1	100%
ST8-03	Overburden	Subsurface	37.4	37.4	37.4	1	100%	8.4	8.4	8.4	1	100%	410	410	410	1	100%
ST8-03	Overburden	Surface	24.6	24.6	24.6	1	100%	7	7	7	1	100%	390	390	390	1	100%
ST8-04	Overburden	Subsurface	15.7	15.7	15.7	1	100%	93.8	93.8	93.8	1	100%	535	535	535	1	100%
ST8-04	Overburden	Surface	13.3	13.3	13.3	1	100%	41.3	41.3	41.3	1	100%	496	496	496	1	100%
ST9-01	Original Ground	Subsurface	0.25	0.25	0.25	1	100%	0.91	0.91	0.91	1	100%	20.7	20.7	20.7	1	100%
ST9-01	Original Ground	Surface	0.48	0.48	0.48	1	100%	2.3	2.3	2.3	1	100%	23.1	23.1	23.1	1	100%
ST9-02	Former Mill/Townsite	Subsurface	0.34	20.5	7.19	3	100%	1.4	38.2	14.3	3	100%	22.4	406	157	3	100%
ST9-02	Former Mill/Townsite	Surface	24	24	24	1	100%	38.3	38.3	38.3	1	100%	375	375	375	1	100%
ST9-03	Former Mill/Townsite	Subsurface	26	26	26	1	100%	76.2	76.2	76.2	1	100%	590	590	590	1	100%
ST9-03	Former Mill/Townsite	Surface	23.5	23.5	23.5	1	100%	75.5	75.5	75.5	1	100%	548	548	548	1	100%
ST9-04	Former Mill/Townsite	Subsurface	25.1	25.1	25.1	1	100%	103	103	103	1	100%	596	596	596	1	100%
ST9-04	Former Mill/Townsite	Surface	29.5	29.5	29.5	1	100%	89.6	89.6	89.6	1	100%	526	526	526	1	100%
ST9-05	Former Mill/Townsite	Subsurface	1.2	1.2	1.2	1	100%	2.6	2.6	2.6	1	100%	27.3	27.3	27.3	1	100%
ST9-05	Former Mill/Townsite	Surface	14.1	14.1	14.1	1	100%	24	24	24	1	100%	177	177	177	1	100%
ST9-06	Former Mill/Townsite	Subsurface	0.5	0.5	0.5	1	100%	2.4	2.4	2.4	1	100%	37.9	37.9	37.9	1	100%
ST9-06	Former Mill/Townsite	Surface	0.98	0.98	0.98	1	100%	7.6	7.6	7.6	1	100%	58.1	58.1	58.1	1	100%
ST9-07	Original Ground	Subsurface	0.72	0.72	0.72	1	100%	2.2	2.2	2.2	1	100%	28.8	28.8	28.8	1	100%
ST9-07	Original Ground	Surface	0.54	0.54	0.54	1	100%	1.9	1.9	1.9	1	100%	32.9	32.9	32.9	1	100%
ST9-08	Former Mill/Townsite	Subsurface	0.59	16.4	10.7	3	100%	6.5	60.1	39.3	3	100%	32.2	855	552	3	100%
ST9-08	Former Mill/Townsite	Surface	27.1	27.1	27.1	1	100%	53.1	53.1	53.1	1	100%	635	635	635	1	100%
ST9-09	Former Mill/Townsite	Subsurface	18.2	18.2	18.2	1	100%	70.9	70.9	70.9	1	100%	215	215	215	1	100%
ST9-09	Former Mill/Townsite	Surface	14.4	14.4	14.4	1	100%	56.2	56.2	56.2	1	100%	237	237	237	1	100%
ST9-10	Former Mill/Townsite	Subsurface	16.6	16.6	16.6	1	100%	71.7	71.7	71.7	1	100%	327	327	327	1	100%
ST9-10	Former Mill/Townsite	Surface	16.2	16.2	16.2	1	100%	78.2	78.2	78.2	1	100%	321	321	321	1	100%
ST9-11	Former Mill/Townsite	Subsurface	3.6	3.6	3.6	1	100%	15	15	15	1	100%	133	133	133	1	100%
ST9-11	Former Mill/Townsite	Surface	6.5	6.5	6.5	1	100%	9.7	9.7	9.7	1	100%	56.1	56.1	56.1	1	100%
ST9-12	Former Mill/Townsite	Subsurface	8	8	8	1	100%	39.3	39.3	39.3	1	100%	313	313	313	1	100%
ST9-12	Former Mill/Townsite	Surface	7.9	7.9	7.9	1	100%	33.5	33.5	33.5	1	100%	231	231	231	1	100%
ST9-14	Former Mill/Townsite	Subsurface	0.77	0.77	0.77	1	100%	4.7	4.7	4.7	1	100%	40.7	40.7	40.7	1	100%
ST9-14	Former Mill/Townsite	Surface	0.93	0.93	0.93	1	100%	5.7	5.7	5.7	1	100%	40.1	40.1	40.1	1	100%
ST9-15	Former Mill/Townsite	Subsurface	1.7	1.7	1.7	1	100%	8.4	8.4	8.4	1	100%	50.9	50.9	50.9	1	100%
ST9-15	Former Mill/Townsite	Surface	4.2	4.2	4.2	1	100%	16.5	16.5	16.5	1	100%	88	88	88	1	100%
ST9-16	Former Mill/Townsite	Subsurface	22	22	22	1	100%	71.9	71.9	71.9	1	100%	438	438	438	1	100%
ST9-16	Former Mill/Townsite	Surface	22	22	22	1	100%	60.1	60.1	60.1	1	100%	483	483	483	1	100%
ST9-17	Former Mill/Townsite	Subsurface	5	5	5	1	100%	35.6	35.6	35.6	1	100%	169	169	169	1	100%
ST9-17	Former Mill/Townsite	Surface	7.2	7.2	7.2	1	100%	45	45	45	1	100%	224	224	224	1	100%
ST9-18	Former Mill/Townsite	Subsurface	1.1	1.1	1.1	1	100%	8	8	8	1	100%	43.9	43.9	43.9	1	100%
ST9-18	Former Mill/Townsite	Surface	1.2	1.2	1.2	1	100%	8.5	8.5	8.5	1	100%	44.8	44.8	44.8	1	100%
ST9-23	Former Mill/Townsite	Subsurface	1.2	11.9	6	3	100%	7.5	70.8	37.8	3	100%	46.7	275	166	3	100%
ST9-23	Former Mill/Townsite	Surface	13.9	13.9	13.9	1	100%	103	103	103	1	100%	306	306	306	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Selenium					Cadmium					Chromium				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: 0.52, HH: 5800					Eco: 0.36, HH: 980					Eco: 26, HH: 1800000				
Station	**Material Type**	**Depth Class**															
ST9-24	Former Mill/Townsite	Subsurface	8.8	11.1	10.2	3	100%	61.9	74.3	67.8	3	100%	256	273	263	3	100%
ST9-24	Former Mill/Townsite	Surface	20.9	20.9	20.9	1	100%	96.6	96.6	96.6	1	100%	358	358	358	1	100%
ST9-25	Former Mill/Townsite	Subsurface	1.8	12.2	5.67	3	100%	7.4	42.6	21.9	3	100%	58.9	244	151	3	100%
ST9-25	Former Mill/Townsite	Surface	17.1	17.1	17.1	1	100%	46.8	46.8	46.8	1	100%	288	288	288	1	100%
ST9-26	Former Mill/Townsite	Subsurface	8.1	17.3	11.5	3	100%	17.9	72.6	39.3	3	100%	57.1	479	281	3	100%
ST9-26	Former Mill/Townsite	Surface	5.6	5.6	5.6	1	100%	17.6	17.6	17.6	1	100%	237	237	237	1	100%
ST9-27	Former Mill/Townsite	Subsurface	0.27	7.6	3.32	3	100%	1.1	16.7	7.53	3	100%	25.3	96.9	52.8	3	100%
ST9-27	Former Mill/Townsite	Surface	7.6	7.6	7.6	1	100%	17.6	17.6	17.6	1	100%	51.1	51.1	51.1	1	100%
SWP-4	Overburden	Subsurface	22.1	22.1	22.1	1	100%	24	24	24	1	100%	331	331	331	1	100%
SWP-4	Overburden	Surface	23.4	23.4	23.4	1	100%	23.4	23.4	23.4	1	100%	257	257	257	1	100%
WD062	Overburden	Surface	28	36	32.3	3	100%	21	28	24.3	3	100%	560	670	633	3	100%
WD068	Overburden	Surface	15	15	15	1	100%	14	14	14	1	100%	580	580	580	1	100%
Margarette Creek/Trail Canyon Sub-Basin																	
NQ-17	Overburden	Subsurface	43.2	43.2	43.2	1	100%	34.7	34.7	34.7	1	100%	357	357	357	1	100%
NQ-17	Overburden	Surface	34.2	34.2	34.2	1	100%	34	34	34	1	100%	369	369	369	1	100%
RD-14	Haul roads	Subsurface	2.6	2.6	2.6	1	100%	6.3	6.3	6.3	1	100%	60.4	60.4	60.4	1	100%
RD-15	Haul roads	Subsurface	1.6	1.6	1.6	1	100%	2.1	2.1	2.1	1	100%	47.9	47.9	47.9	1	100%
ST7-01	Overburden	Subsurface	57.2	65.8	61.5	2	100%	31.3	33.4	32.4	2	100%	389	498	444	2	100%
ST7-01	Overburden	Surface	50.7	72.3	61.5	2	100%	30.4	31.4	30.9	2	100%	404	435	420	2	100%
ST7-02	Overburden	Subsurface	56.1	73.4	64.8	2	100%	35.4	110	72.7	2	100%	477	494	486	2	100%
ST7-02	Overburden	Surface	45.4	80.5	63	2	100%	31.5	33	32.3	2	100%	372	435	404	2	100%
ST7-03	Overburden	Subsurface	32.2	32.2	32.2	1	100%	10.2	10.2	10.2	1	100%	263	263	263	1	100%
ST7-03	Overburden	Surface	35.8	35.8	35.8	1	100%	12.2	12.2	12.2	1	100%	306	306	306	1	100%
WD069	Overburden	Surface	58	58	58	1	100%	92	92	92	1	100%	1300	1300	1300	1	100%
North Woodall Mountain Sub-Basin																	
NT8-01	Original Ground	Subsurface	0.17	0.27	0.22	2	100%	0.65	1.3	0.975	2	100%	28.9	31.9	30.4	2	100%
NT8-01	Original Ground	Surface	0.22	0.36	0.29	2	100%	1.5	2.1	1.8	2	100%	32	32.9	32.5	2	100%
NT8-02	Original Ground	Subsurface	0.14	0.16	0.15	2	100%	0.96	0.96	0.96	2	50%	44.7	46.6	45.7	2	100%
NT8-02	Original Ground	Surface	0.23	0.36	0.295	2	100%	0.8	1.9	1.35	2	100%	38.4	40.6	39.5	2	100%
NWC-2	Original Ground	Subsurface	0.17	0.17	0.17	1	100%	1.2	1.2	1.2	1	100%	14.5	14.5	14.5	1	100%
NWC-2	Original Ground	Surface	0.3	0.3	0.3	1	100%	1.8	1.8	1.8	1	100%	16	16	16	1	100%
Old Tailings Pond Sub-Basin																	
NQ-08	Overburden	Subsurface	32.8	32.8	32.8	1	100%	40.7	40.7	40.7	1	100%	440	440	440	1	100%
NQ-08	Overburden	Surface	32.1	32.1	32.1	1	100%	37.8	37.8	37.8	1	100%	513	513	513	1	100%
NQ-10	Overburden	Subsurface	20.2	20.2	20.2	1	100%	27.2	27.2	27.2	1	100%	351	351	351	1	100%
NQ-10	Overburden	Surface	21.7	21.7	21.7	1	100%	31.8	31.8	31.8	1	100%	290	290	290	1	100%
NQ-11	Overburden	Subsurface	19.2	19.2	19.2	1	100%	54.4	54.4	54.4	1	100%	504	504	504	1	100%
NQ-11	Overburden	Surface	20.6	20.6	20.6	1	100%	51.9	51.9	51.9	1	100%	523	523	523	1	100%
NQ-18	Tailings	Subsurface	54.6	54.6	54.6	1	100%	124	124	124	1	100%	1550	1550	1550	1	100%
NQ-18	Tailings	Surface	57.5	57.5	57.5	1	100%	115	115	115	1	100%	1520	1520	1520	1	100%
NT4-05	Overburden	Subsurface	8	8	8	1	100%	75.4	75.4	75.4	1	100%	876	876	876	1	100%
NT4-05	Overburden	Surface	9	9	9	1	100%	69.8	69.8	69.8	1	100%	979	979	979	1	100%
RD-01	Haul roads	Subsurface	3.4	3.4	3.4	1	100%	9.1	9.1	9.1	1	100%	85.2	85.2	85.2	1	100%
RD-02	Haul roads	Subsurface	2	2	2	1	100%	6.1	6.1	6.1	1	100%	43	43	43	1	100%
RD-03	Haul roads	Subsurface	1.4	1.4	1.4	1	100%	4.6	4.6	4.6	1	100%	44.1	44.1	44.1	1	100%
RD-04	Haul roads	Subsurface	0.12	0.12	0.12	1	100%	na	na	na	1	0%	4.5	4.5	4.5	1	100%
RD-05	Haul roads	Subsurface	1	1	1	1	100%	7.4	7.4	7.4	1	100%	67.1	67.1	67.1	1	100%
RD-06	Haul roads	Subsurface	3	3	3	1	100%	2.9	2.9	2.9	1	100%	46.3	46.3	46.3	1	100%
RD-16	Haul roads	Subsurface	4.4	4.4	4.4	1	100%	12.3	12.3	12.3	1	100%	84.2	84.2	84.2	1	100%
RD-17	Haul roads	Subsurface	15.7	15.7	15.7	1	100%	54.1	54.1	54.1	1	100%	443	443	443	1	100%
RD-18	Haul roads	Subsurface	0.61	0.61	0.61	1	100%	na	na	na	1	0%	34.8	34.8	34.8	1	100%
SQ-01	Tailings	Subsurface	38.2	38.2	38.2	1	100%	73.9	73.9	73.9	1	100%	825	825	825	1	100%
SQ-01	Tailings	Surface	34.2	34.2	34.2	1	100%	69.3	69.3	69.3	1	100%	726	726	726	1	100%
SQ-01A	Tailings	Subsurface	61.8	67.2	64.5	2	100%	106	106	106	1	100%	1450	1450	1450	1	100%
SQ-01A	Tailings	Surface	52.1	53.4	52.8	2	100%	94.8	94.8	94.8	1	100%	1430	1430	1430	1	100%
SQ-01B	Tailings	Subsurface	36.1	55.4	45.8	2	100%	84.9	84.9	84.9	1	100%	1210	1210	1210	1	100%
SQ-01B	Tailings	Surface	75.8	112	93.9	2	100%	109	109	109	1	100%	1680	1680	1680	1	100%
SQ-04	Tailings	Subsurface	26.6	26.6	26.6	1	100%	101	101	101	1	100%	363	363	363	1	100%
SQ-04	Tailings	Surface	36.1	36.1	36.1	1	100%	104	104	104	1	100%	601	601	601	1	100%
ST1-01	Overburden	Subsurface	34.4	34.4	34.4	1	100%	18.6	18.6	18.6	1	100%	460	460	460	1	100%
ST1-01	Overburden	Surface	40	40	40	1	100%	16.5	16.5	16.5	1	100%	534	534	534	1	100%
ST13-01	Original Ground	Subsurface	4	5.9	4.95	2	100%	12	19.2	15.6	2	100%	98.1	128	113	2	100%
ST13-01	Original Ground	Surface	5.5	12.1	8.8	2	100%	22.1	34.7	28.4	2	100%	162	315	239	2	100%
ST13-02	Tailings	Subsurface	9.7	34.5	22.1	2	100%	42.3	107	74.7	2	100%	371	714	543	2	100%
ST13-02	Tailings	Surface	12.5	17.8	15.2	2	100%	63	71.4	67.2	2	100%	231	431	331	2	100%
ST13-03	Tailings	Subsurface	41.4	48.5	45	2	100%	100	104	102	2	100%	577	711	644	2	100%
ST13-03	Tailings	Surface	20.7	23.4	22.1	2	100%	108	118	113	2	100%	561	695	628	2	100%
ST13-04	Tailings	Subsurface	10.5	18.4	15.9	4	100%	30.6	93.4	60.8	4	100%	348	779	512	4	100%
ST13-04	Tailings	Surface	19.9	22.1	21	2	100%	97.4	104	101	2	100%	378	444	411	2	100%
ST15-01	Original Ground	Subsurface	12	18.1	15.1	2	100%	11.7	14.6	13.2	2	100%	124	136	130	2	100%
ST15-01	Original Ground	Surface	17.3	21.2	19.3	2	100%	17.6	19.6	18.6	2	100%	144	207	176	2	100%
ST15-02	Original Ground	Subsurface	11.1	17.7	14.4	2	100%	13.1	28.5	20.8	2	100%	153	230	192	2	100%
ST15-02	Original Ground	Surface	12.9	22.9	17.9	2	100%	19.3	22	20.7	2	100%	209	217	213	2	100%
ST2-01	Overburden	Subsurface	49.6	56.8	53.2	2	100%	17.7	18	17.9	2	100%	304	415	360	2	100%
ST2-01	Overburden	Surface	50.1	74.8	62.5	2	100%	16.7	19.9	18.3	2	100%	299	333	316	2	100%
ST2-02	Overburden	Subsurface	8.7	8.7	8.7	1	100%	5	5	5	1	100%	84.5	84.5	84.5	1	100%
ST2-02	Overburden	Surface	16.4	16.4	16.4	1	100%	8.6	8.6	8.6	1	100%	136	136	136	1	100%
ST2-03	Overburden	Subsurface	133	187	160	2	100%	9.9	19.3	14.6	2	100%	677	785	731	2	100%
ST2-03	Overburden	Surface	100	401	251	2	100%	12.9	14.6	13.8	2	100%	590	615	603	2	100%
ST2-04	Overburden	Subsurface	8.3	8.3	8.3	1	100%	101	101	101	1	100%	988	988	988	1	100%
ST2-04	Overburden	Surface	6.6	6.6	6.6	1	100%	103	103	103	1	100%	1250	1250	1250	1	100%
ST2-05	Overburden	Subsurface	8.3	8.3	8.3	1	100%	19.7	19.7	19.7	1	100%	517	517	517	1	100%
ST2-05	Overburden	Surface	6	6	6	1	100%	28	28	28	1	100%	526	526	526	1	100%
TP2-SB1	Tailings	Subsurface	0.54	44.3	18.5	4	100%	1.9	94	33.5	4	100%	22.5	1100	411	4	100%
TP2-SB2	Tailings	Subsurface	0.28	49.6	27.5	5	100%	1.8	118	69.4	5	100%	18.3	1570	1022	5	100%
TP2-SB3	Tailings	Subsurface	0.74	80.9	42.9	7	100%	4	131	80.5	7	100%	55.1	1630	1189	7	100%
TP2-SB4	Tailings	Subsurface	0.28	104	40.5	7	86%	1.2	174	82.7	7	100%	24	2100	1131	7	100%
TP2-SB5	Tailings	Subsurface	9.6	41.2	28.4	10	100%	63.6	121	81.6	10	100%	635	1570	954	10	100%
Pedro Creek Sub-Basin																	
ESedBasinC	Original Ground	Surface	0.17	0.21	0.19	2	100%	na	na	na	na	na	na	na	na	na	na
ESedBasinN	Original Ground	Surface	0.56	0.56	0.56	1	100%	na	na	na	na	na	na	na	na	na	na
ESedBasinS	Original Ground	Surface	0.16	0.16	0.16	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-10D	Dinwoody cover	Composite	0.62	0.84	0.7	3	100%	3.5	3.5	3.5	1	100%	27.6	27.6	27.6	1	100%
FSPS-10D	Dinwoody cover	DepthProfile	0.47	0.63	0.557	3	100%	na	na	na	na	na	na	na	na	na	na
FSPS-10D	Dinwoody cover	Overburden	48.4	48.4	48.4	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-11C	Overburden	Composite	34.9	47.2	39.5	3	100%	29.7	29.7	29.7	1	100%	320	320	320	1	100%
FSPS-11C	Overburden	Overburden	41	41	41	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-12A	Overburden	Composite	26.5	58.3	42.4	2	100%	24.8	24.8	24.8	1	100%	308	308	308	1	100%
FSPS-12A	Overburden	Overburden	39.6	39.6	39.6	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-13B	Overburden	Composite	13.7	39.4	27.5	3	100%	30.6	30.6	30.6	1	100%	275	275	275	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Selenium					Cadmium					Chromium				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: 0.52, HH: 5800					Eco: 0.36, HH: 980					Eco: 26, HH: 1800000				
Station	**Material Type**	**Depth Class**															
FSPS-13B	Overburden	Overburden	17.8	17.8	17.8	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	Composite	0.42	1.5	0.937	3	100%	5.8	5.8	5.8	1	100%	31.5	31.5	31.5	1	100%
FSPS-14D	Dinwoody cover	DepthProfile	1.8	2.1	1.97	3	100%	5.2	5.7	5.5	3	100%	38.3	71.5	50	3	100%
FSPS-14D	Dinwoody cover	Overburden	8.5	8.5	8.5	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-15F	Dinwoody cover	Composite	1	1.6	1.23	3	100%	6.9	6.9	6.9	1	100%	52.7	52.7	52.7	1	100%
FSPS-15F	Dinwoody cover	Overburden	10.8	10.8	10.8	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-16B	Overburden	Composite	37.4	60.7	47.6	3	100%	33.2	33.2	33.2	1	100%	332	332	332	1	100%
FSPS-16B	Overburden	Overburden	56.1	56.1	56.1	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-17C	Overburden	Composite	5.7	21.8	15.9	3	100%	18.8	18.8	18.8	1	100%	224	224	224	1	100%
FSPS-17C	Overburden	Overburden	5	5	5	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-18B	Overburden	Composite	14.7	22.6	17.6	3	100%	17.5	17.5	17.5	1	100%	167	167	167	1	100%
FSPS-18B	Overburden	Overburden	12.2	12.2	12.2	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Composite	0.76	1.7	1.22	3	100%	5.8	5.8	5.8	1	100%	87.3	87.3	87.3	1	100%
FSPS-19E	Dinwoody cover	DepthProfile	0.58	7.8	2.38	5	100%	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Overburden	67.6	67.6	67.6	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Composite	0.77	1.7	1.32	3	100%	4.9	4.9	4.9	1	100%	47.5	47.5	47.5	1	100%
FSPS-1F	Dinwoody cover	DepthProfile	0.56	0.9	0.756	5	100%	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Overburden	143	143	143	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-20A	Overburden	Composite	9.1	9.4	9.25	2	100%	24.9	24.9	24.9	1	100%	186	186	186	1	100%
FSPS-20A	Overburden	Overburden	29.7	29.7	29.7	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-21C	Overburden	Composite	6.5	37.2	18.8	3	100%	24.5	24.5	24.5	1	100%	232	232	232	1	100%
FSPS-21C	Overburden	Overburden	27.2	27.2	27.2	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Composite	0.73	1.9	1.19	3	100%	6.2	6.2	6.2	1	100%	51.3	51.3	51.3	1	100%
FSPS-2G	Dinwoody cover	DepthProfile	0.6	1.7	0.9	7	100%	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Overburden	309	309	309	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	Composite	0.83	2.3	1.38	3	100%	7.5	7.5	7.5	1	100%	63.1	63.1	63.1	1	100%
FSPS-3F	Dinwoody cover	DepthProfile	0.9	1.8	1.26	5	100%	3	6.5	5.24	5	100%	32.3	41.6	36.9	5	100%
FSPS-3F	Dinwoody cover	Overburden	129	129	129	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	Composite	0.62	1.8	1.12	3	100%	4	4	4	1	100%	46.4	46.4	46.4	1	100%
FSPS-4G	Dinwoody cover	DepthProfile	0.8	2.2	1.48	7	100%	4.8	6.3	5.49	7	100%	31.1	60.3	49.2	7	100%
FSPS-4G	Dinwoody cover	Overburden	114	114	114	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	Composite	1	2.4	1.73	3	100%	5.3	5.3	5.3	1	100%	52	52	52	1	100%
FSPS-5E	Dinwoody cover	DepthProfile	0.99	1.8	1.34	5	100%	4.5	6.8	5.54	5	100%	30.3	53.6	40.5	5	100%
FSPS-5E	Dinwoody cover	Overburden	37.4	37.4	37.4	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-6D	Dinwoody cover	Composite	0.85	1.8	1.28	3	100%	7.3	7.3	7.3	1	100%	36.5	36.5	36.5	1	100%
FSPS-6D	Dinwoody cover	Overburden	22.7	22.7	22.7	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-7E	Dinwoody cover	Composite	0.93	1.7	1.34	3	100%	6.1	6.1	6.1	1	100%	49.5	49.5	49.5	1	100%
FSPS-7E	Dinwoody cover	Overburden	48.7	48.7	48.7	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-8G	Dinwoody cover	Composite	0.63	1.5	1.08	3	100%	5.7	5.7	5.7	1	100%	65.4	65.4	65.4	1	100%
FSPS-8G	Dinwoody cover	Overburden	119	119	119	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-9A	Overburden	Composite	70.3	81.9	76.1	2	100%	28.4	28.4	28.4	1	100%	362	362	362	1	100%
FSPS-9A	Overburden	Overburden	75.4	75.4	75.4	1	100%	na	na	na	na	na	na	na	na	na	na
FSPS-Area	Overburden	Overburden	48.6	48.6	48.6	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-03	Original Ground	Subsurface	7.4	7.4	7.4	1	100%	9.5	9.5	9.5	1	100%	107	107	107	1	100%
NQ-03	Original Ground	Surface	9.6	9.6	9.6	1	100%	10.5	10.5	10.5	1	100%	89.9	89.9	89.9	1	100%
NQ-04	Overburden (now covered	Subsurface	20.8	20.8	20.8	1	100%	18.8	18.8	18.8	1	100%	336	336	336	1	100%
NQ-04	Overburden (now covered	Surface	17.4	17.4	17.4	1	100%	16.9	16.9	16.9	1	100%	344	344	344	1	100%
NQ-07	Overburden	Subsurface	13.7	13.7	13.7	1	100%	22.9	22.9	22.9	1	100%	190	190	190	1	100%
NQ-07	Overburden	Surface	15.2	15.2	15.2	1	100%	21.5	21.5	21.5	1	100%	233	233	233	1	100%
NQ-19	Overburden (now covered	Subsurface	33.5	33.5	33.5	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-20	Overburden (now covered	Subsurface	23.4	23.4	23.4	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-21	Overburden (now covered	Subsurface	24.8	24.8	24.8	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-22	Overburden (now covered	Subsurface	18.5	18.5	18.5	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-23	Overburden (now covered	Subsurface	12.9	12.9	12.9	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-24	Overburden (now covered	Subsurface	6.2	6.2	6.2	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-25	Overburden	Subsurface	18.1	18.1	18.1	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-25	Overburden	Surface	19.2	19.2	19.2	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-26	Overburden	Subsurface	21.8	21.8	21.8	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-26	Overburden	Surface	23	23	23	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-27	Overburden	Subsurface	69.6	69.6	69.6	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-27	Overburden	Surface	63.4	63.4	63.4	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-28	Overburden	Subsurface	23.6	23.6	23.6	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-28	Overburden	Surface	23.6	23.6	23.6	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-29	Overburden	Subsurface	17	17	17	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-30	Overburden	Subsurface	1.1	1.1	1.1	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-31	Overburden	Subsurface	1.9	1.9	1.9	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-31	Overburden	Surface	2.9	2.9	2.9	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-32	Overburden	Subsurface	0.27	0.27	0.27	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-32	Overburden	Surface	0.42	0.42	0.42	1	100%	na	na	na	na	na	na	na	na	na	na
NQ-33	Original ground	Surface	23.5	23.5	23.5	1	100%	11	11	11	1	100%	180	180	180	1	100%
NQ-34	Original ground	Surface	16.1	16.1	16.1	1	100%	6.3	6.3	6.3	1	100%	85.7	85.7	85.7	1	100%
NT10-1	Original ground	Surface	14.7	14.7	14.7	1	100%	6.2	6.2	6.2	1	100%	91.6	91.6	91.6	1	100%
NT10-2	Original ground	Surface	17.7	17.7	17.7	1	100%	8.4	8.4	8.4	1	100%	118	118	118	1	100%
NT10-3	Original ground	Surface	17	17	17	1	100%	8.4	8.4	8.4	1	100%	108	108	108	1	100%
NT10-4	Original ground	Surface	12.2	12.2	12.2	1	100%	6.1	6.1	6.1	1	100%	75.3	75.3	75.3	1	100%
NT10-5	Original ground	Surface	29.4	29.4	29.4	1	100%	8.6	8.6	8.6	1	100%	240	240	240	1	100%
NT11-1	Original ground	Surface	24.6	24.6	24.6	1	100%	8	8	8	1	100%	114	114	114	1	100%
NT11-2	Original ground	Surface	16	16	16	1	100%	6.6	6.6	6.6	1	100%	88.2	88.2	88.2	1	100%
NT11-3	Original ground	Surface	16.6	16.6	16.6	1	100%	6.3	6.3	6.3	1	100%	86.1	86.1	86.1	1	100%
NT4-04	Overburden	Subsurface	3.9	3.9	3.9	1	100%	19.4	19.4	19.4	1	100%	205	205	205	1	100%
NT4-04	Overburden	Surface	4.9	4.9	4.9	1	100%	23.7	23.7	23.7	1	100%	257	257	257	1	100%
NT5-01	Overburden (now covered	Subsurface	22.4	22.4	22.4	1	100%	73.1	73.1	73.1	1	100%	722	722	722	1	100%
NT5-01	Overburden (now covered	Surface	28.9	28.9	28.9	1	100%	101	101	101	1	100%	809	809	809	1	100%
NT5-02	Overburden (now covered	Subsurface	38	38	38	1	100%	29	29	29	1	100%	643	643	643	1	100%
NT5-02	Overburden (now covered	Surface	38.2	38.2	38.2	1	100%	27	27	27	1	100%	615	615	615	1	100%
NT5-03	Overburden (now covered	Subsurface	77.6	77.6	77.6	1	100%	13.9	13.9	13.9	1	100%	843	843	843	1	100%
NT5-03	Overburden (now covered	Surface	81.5	81.5	81.5	1	100%	19.9	19.9	19.9	1	100%	840	840	840	1	100%
NT5-04	Overburden (now covered	Subsurface	32.6	32.6	32.6	1	100%	19.5	19.5	19.5	1	100%	676	676	676	1	100%
NT5-04	Overburden (now covered	Surface	37.4	37.4	37.4	1	100%	13.8	13.8	13.8	1	100%	683	683	683	1	100%
NT5-05	Overburden (now covered	Subsurface	58.7	252	125	3	100%	16.5	27.4	21.1	3	100%	245	700	403	3	100%
NT5-05	Overburden (now covered	Surface	80.4	231	135	3	100%	17	28	24.3	3	100%	200	689	492	3	100%
NT5-06	Overburden (now covered	Subsurface	1.3	79.6	49.6	3	100%	1.5	29.5	19.8	3	100%	41.1	587	388	3	100%
NT5-06	Overburden (now covered	Surface	3.2	95.7	63.8	3	100%	3.2	29.1	18.3	3	100%	40.2	649	401	3	100%
NT5-07	Original Ground	Subsurface	0.44	0.56	0.5	2	100%	3.9	5.4	4.65	2	100%	19.1	21.8	20.5	2	100%
NT5-07	Original Ground	Surface	0.72	2.4	1.56	2	100%	5.9	7.7	6.8	2	100%	20.9	28.1	24.5	2	100%
NT5-08	Original Ground	Subsurface	0.87	2.5	1.69	2	100%	4.6	5.9	5.25	2	100%	31.2	32.7	32	2	100%
NT5-08	Original Ground	Surface	2	4.4	3.2	2	100%	6.1	6.8	6.45	2	100%	34.9	35.5	35.2	2	100%
NT5-09	iginal Ground (now covere	Subsurface	7.4	31.7	19.6	2	100%	2.8	9.4	6.1	2	100%	78.8	353	216	2	100%
NT5-09	iginal Ground (now covere	Surface	16.9	41.1	29	2	100%	5	12.1	8.55	2	100%	147	378	263	2	100%
NT5-10	Original Ground	Subsurface	5.2	32.1	18.7	2	100%	4	7.4	5.7	2	100%	50.8	200	125	2	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Selenium					Cadmium					Chromium				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: 0.52, HH: 5800					Eco: 0.36, HH: 980					Eco: 26, HH: 1800000				
Station	**Material Type**	**Depth Class**															
NT5-10	Original Ground	Surface	31.2	56.9	44.1	2	100%	11.7	15.6	13.7	2	100%	319	446	383	2	100%
NT5-11	Original Ground	Subsurface	2.9	2.9	2.9	1	100%	4.9	4.9	4.9	1	100%	24.5	24.5	24.5	1	100%
NT5-11	Original Ground	Surface	11.4	11.4	11.4	1	100%	6.5	6.5	6.5	1	100%	61.4	61.4	61.4	1	100%
NT6-01	Overburden	Subsurface	1.4	1.4	1.4	1	100%	4.4	4.4	4.4	1	100%	94.1	94.1	94.1	1	100%
NT6-01	Overburden	Surface	2.5	2.5	2.5	1	100%	10	10	10	1	100%	175	175	175	1	100%
NT6-02	Overburden	Subsurface	6.9	6.9	6.9	1	100%	22.2	22.2	22.2	1	100%	421	421	421	1	100%
NT6-02	Overburden	Surface	8.7	8.7	8.7	1	100%	32.1	32.1	32.1	1	100%	480	480	480	1	100%
NT6-03	Overburden	Subsurface	31.1	31.1	31.1	1	100%	22.7	22.7	22.7	1	100%	657	657	657	1	100%
NT6-03	Overburden	Surface	na	na	na	1	0%	21.8	21.8	21.8	1	100%	628	628	628	1	100%
NT7-01	Overburden (now covered	Subsurface	37.8	37.8	37.8	1	100%	12.8	12.8	12.8	1	100%	259	259	259	1	100%
NT7-01	Overburden (now covered	Surface	55.8	55.8	55.8	1	100%	12.7	12.7	12.7	1	100%	256	256	256	1	100%
NT7-02	Overburden (now covered	Subsurface	80.1	80.1	80.1	1	100%	22.7	22.7	22.7	1	100%	580	580	580	1	100%
NT7-02	Overburden (now covered	Surface	156	156	156	1	100%	19	19	19	1	100%	668	668	668	1	100%
NT7-03	iginal Ground (now covere	Subsurface	0.53	0.53	0.53	1	100%	1.9	1.9	1.9	1	100%	34.3	34.3	34.3	1	100%
NT7-03	iginal Ground (now covere	Surface	0.91	0.91	0.91	1	100%	3.4	3.4	3.4	1	100%	37.8	37.8	37.8	1	100%
NT9-01	Original Ground	Subsurface	0.53	0.53	0.53	1	100%	3.2	3.2	3.2	1	100%	27.8	27.8	27.8	1	100%
NT9-01	Original Ground	Surface	0.84	0.84	0.84	1	100%	4	4	4	1	100%	29.1	29.1	29.1	1	100%
NT9-02	Overburden (now covered	Subsurface	25.1	25.1	25.1	1	100%	23.1	23.1	23.1	1	100%	321	321	321	1	100%
NT9-02	Overburden (now covered	Surface	39.3	39.3	39.3	1	100%	23.4	23.4	23.4	1	100%	285	285	285	1	100%
NT9-03	Overburden (now covered	Subsurface	50.7	50.7	50.7	1	100%	22.9	22.9	22.9	1	100%	332	332	332	1	100%
NT9-03	Overburden (now covered	Surface	54.7	54.7	54.7	1	100%	29.8	29.8	29.8	1	100%	387	387	387	1	100%
NT9-04	Overburden (now covered	Subsurface	85.3	85.3	85.3	1	100%	31.7	31.7	31.7	1	100%	541	541	541	1	100%
NT9-04	Overburden (now covered	Surface	75.2	75.2	75.2	1	100%	28.6	28.6	28.6	1	100%	561	561	561	1	100%
NT9-05	Overburden	Subsurface	110	110	110	1	100%	22.2	22.2	22.2	1	100%	685	685	685	1	100%
NT9-05	Overburden	Surface	98.6	98.6	98.6	1	100%	21.6	21.6	21.6	1	100%	570	570	570	1	100%
PC-3	Original Ground	Subsurface	0.22	0.22	0.22	1	100%	3.5	3.5	3.5	1	100%	30.7	30.7	30.7	1	100%
PC-3	Original Ground	Surface	0.36	0.36	0.36	1	100%	4.5	4.5	4.5	1	100%	27	27	27	1	100%
PC-5	Original Ground	Subsurface	0.25	0.25	0.25	1	100%	2.6	2.6	2.6	1	100%	20.8	20.8	20.8	1	100%
PC-5	Original Ground	Surface	0.51	0.51	0.51	1	100%	4	4	4	1	100%	22.1	22.1	22.1	1	100%
PCO-01	Original Ground	Surface	0.88	0.88	0.88	1	100%	2.3	2.3	2.3	1	100%	21.8	21.8	21.8	1	100%
PCO-02	Original Ground	Surface	1.9	1.9	1.9	1	100%	15.9	15.9	15.9	1	100%	33.3	33.3	33.3	1	100%
PCO-03	Original Ground	Surface	1.4	1.4	1.4	1	100%	7.8	7.8	7.8	1	100%	52	52	52	1	100%
PCO-04	Original Ground	Surface	0.41	0.41	0.41	1	100%	0.35	0.35	0.35	1	100%	23.9	23.9	23.9	1	100%
PCO-05	Original Ground	Surface	0.69	0.69	0.69	1	100%	4.4	4.4	4.4	1	100%	24.1	24.1	24.1	1	100%
PCO-06	Original Ground	Surface	68.3	68.3	68.3	1	100%	14.5	14.5	14.5	1	100%	144	144	144	1	100%
PCO-07	Original Ground	Surface	1.2	1.2	1.2	1	100%	7.2	7.2	7.2	1	100%	35.3	35.3	35.3	1	100%
PCO-08	Original Ground	Surface	0.42	0.42	0.42	1	100%	1.8	1.8	1.8	1	100%	20.3	20.3	20.3	1	100%
PCO-09	Original Ground	Surface	0.37	0.37	0.37	1	100%	3.3	3.3	3.3	1	100%	19	19	19	1	100%
PCO-10	Original Ground	Surface	0.48	0.48	0.48	1	100%	2.1	2.1	2.1	1	100%	23.2	23.2	23.2	1	100%
PCO-11	Original Ground	Surface	0.44	0.44	0.44	1	100%	0.59	0.59	0.59	1	100%	24.8	24.8	24.8	1	100%
PCO-12	Original Ground	Surface	0.35	0.35	0.35	1	100%	0.77	0.77	0.77	1	100%	18.6	18.6	18.6	1	100%
PCO-13	Original Ground	Surface	0.92	0.92	0.92	1	100%	7.2	7.2	7.2	1	100%	26	26	26	1	100%
PCO-14	Original Ground	Surface	2.8	2.8	2.8	1	100%	8.2	8.2	8.2	1	100%	29.8	29.8	29.8	1	100%
PCO-15	Original Ground	Surface	1.3	1.3	1.3	1	100%	8.3	8.3	8.3	1	100%	31.1	31.1	31.1	1	100%
PCO-16	Original Ground	Surface	0.54	0.54	0.54	1	100%	3.7	3.7	3.7	1	100%	19.1	19.1	19.1	1	100%
PCO-17	Overburden (now covered	Surface	120	120	120	1	100%	44.6	44.6	44.6	1	100%	595	595	595	1	100%
PCO-18	Overburden (now covered	Surface	53.3	53.3	53.3	1	100%	27.6	27.6	27.6	1	100%	364	364	364	1	100%
PCO-19	Overburden (now covered	Surface	28.8	28.8	28.8	1	100%	21.3	21.3	21.3	1	100%	216	216	216	1	100%
PCO-20	Overburden (now covered	Surface	119	119	119	1	100%	34.9	34.9	34.9	1	100%	573	573	573	1	100%
PCO-21	Overburden (now covered	Surface	717	717	717	1	100%	30.7	30.7	30.7	1	100%	442	442	442	1	100%
PCO-22	Overburden (now covered	Surface	2.5	2.5	2.5	1	100%	5.3	5.3	5.3	1	100%	27.6	27.6	27.6	1	100%
PCO-23	Original Ground	Surface	6.6	6.6	6.6	1	100%	15.9	15.9	15.9	1	100%	50.2	50.2	50.2	1	100%
PCO-24	Original Ground	Surface	47.9	47.9	47.9	1	100%	18.8	18.8	18.8	1	100%	377	377	377	1	100%
PCO-25	Original Ground	Surface	46.7	46.7	46.7	1	100%	20	20	20	1	100%	389	389	389	1	100%
PCO-26	Original Ground	Surface	1.2	1.2	1.2	1	100%	6.8	6.8	6.8	1	100%	20.7	20.7	20.7	1	100%
PCO-27	Original Ground	Surface	0.75	0.75	0.75	1	100%	5.9	5.9	5.9	1	100%	20	20	20	1	100%
PCO-28	Original Ground	Surface	0.68	0.68	0.68	1	100%	5.5	5.5	5.5	1	100%	20.7	20.7	20.7	1	100%
PP-01	Original Ground	Subsurface	0.21	0.21	0.21	1	100%	na	na	na	na	na	na	na	na	na	na
PP-01	Original Ground	Surface	0.25	0.25	0.25	1	100%	na	na	na	na	na	na	na	na	na	na
PP-02	Original Ground	Subsurface	0.32	0.32	0.32	1	100%	na	na	na	na	na	na	na	na	na	na
PP-02	Original Ground	Surface	0.39	0.39	0.39	1	100%	na	na	na	na	na	na	na	na	na	na
PP-03	Original Ground	Subsurface	0.23	0.23	0.23	1	100%	na	na	na	na	na	na	na	na	na	na
PP-03	Original Ground	Surface	0.38	0.38	0.38	1	100%	na	na	na	na	na	na	na	na	na	na
PR-01	Original Ground	Subsurface	10.7	10.7	10.7	1	100%	na	na	na	na	na	na	na	na	na	na
PR-01	Original Ground	Surface	27.8	27.8	27.8	1	100%	na	na	na	na	na	na	na	na	na	na
PR-02	Original Ground	Subsurface	1.2	1.2	1.2	1	100%	na	na	na	na	na	na	na	na	na	na
PR-02	Original Ground	Surface	6.4	6.4	6.4	1	100%	na	na	na	na	na	na	na	na	na	na
PR-03	Original Ground	Subsurface	42.3	42.3	42.3	1	100%	na	na	na	na	na	na	na	na	na	na
PR-03	Original Ground	Surface	21.6	21.6	21.6	1	100%	na	na	na	na	na	na	na	na	na	na
PR-04	Original Ground	Subsurface	1.7	1.7	1.7	1	100%	na	na	na	na	na	na	na	na	na	na
PR-04	Original Ground	Surface	8.1	8.1	8.1	1	100%	na	na	na	na	na	na	na	na	na	na
PR-05	Original Ground	Subsurface	5.2	5.2	5.2	1	100%	na	na	na	na	na	na	na	na	na	na
PR-05	Original Ground	Surface	38.9	38.9	38.9	1	100%	na	na	na	na	na	na	na	na	na	na
TP-12	Overburden (now covered	Subsurface	36.1	36.1	36.1	1	100%	na	na	na	na	na	na	na	na	na	na
TP-13	Overburden (now covered	Subsurface	55.9	55.9	55.9	1	100%	na	na	na	na	na	na	na	na	na	na
TP-14	Overburden (now covered	Subsurface	39.2	39.2	39.2	1	100%	na	na	na	na	na	na	na	na	na	na
TP-15	iginal Ground (now covere	Subsurface	0.55	0.55	0.55	1	100%	na	na	na	na	na	na	na	na	na	na
TP-16	iginal Ground (now covere	Subsurface	0.52	0.52	0.52	1	100%	na	na	na	na	na	na	na	na	na	na
TP-17	iginal Ground (now covere	Subsurface	0.74	0.74	0.74	1	100%	na	na	na	na	na	na	na	na	na	na
TP-18	iginal Ground (now covere	Subsurface	0.34	0.34	0.34	1	100%	na	na	na	na	na	na	na	na	na	na
TP-19	iginal Ground (now covere	Subsurface	0.92	0.92	0.92	1	100%	na	na	na	na	na	na	na	na	na	na
WD072	Overburden	Surface	34	34	34	1	100%	9.9	9.9	9.9	1	100%	1100	1100	1100	1	100%
Shield and Jouglard Canyons Sub-Basin																	
Borrow 2	Overburden	Surface	5.8	9.1	7.45	2	100%	na	na	na	na	na	na	na	na	na	na
HHP-1	Original Ground	Subsurface	0.43	0.43	0.43	1	100%	2.2	2.2	2.2	1	100%	24.8	24.8	24.8	1	100%
HHP-1	Original Ground	Surface	0.59	0.59	0.59	1	100%	2.6	2.6	2.6	1	100%	23.7	23.7	23.7	1	100%
HiSe	Overburden	Subsurface	3.9	90	35.5	12	100%	na	na	na	na	na	na	na	na	na	na
NQ-12	Overburden	Subsurface	20.8	20.8	20.8	1	100%	31.1	31.1	31.1	1	100%	283	283	283	1	100%
NQ-12	Overburden	Surface	27.1	27.1	27.1	1	100%	26.6	26.6	26.6	1	100%	288	288	288	1	100%
NQ-15	Overburden	Subsurface	0.15	0.15	0.15	1	100%	1.6	1.6	1.6	1	100%	19.1	19.1	19.1	1	100%
NQ-15	Overburden	Surface	0.46	0.46	0.46	1	100%	2.8	2.8	2.8	1	100%	20.4	20.4	20.4	1	100%
NQ-16	Overburden	Subsurface	114	114	114	1	100%	108	108	108	1	100%	502	502	502	1	100%
NQ-16	Overburden	Surface	144	144	144	1	100%	119	119	119	1	100%	590	590	590	1	100%
RD-08	Haul roads	Subsurface	3	3	3	1	100%	0.097	0.097	0.097	1	100%	34.8	34.8	34.8	1	100%
RD-09	Haul roads	Subsurface	0.084	0.084	0.084	1	100%	na	na	na	1	0%	21.8	21.8	21.8	1	100%
RD-10	Haul roads	Subsurface	2.1	2.1	2.1	1	100%	na	na	na	1	0%	29.7	29.7	29.7	1	100%
RD-11	Haul roads	Subsurface	2.4	2.4	2.4	1	100%	2.5	2.5	2.5	1	100%	45.8	45.8	45.8	1	100%
RD-12	Haul roads	Subsurface	0.38	0.38	0.38	1	100%	na	na	na	1	0%	18.5	18.5	18.5	1	100%
RD-13	Haul roads	Subsurface	0.55	0.55	0.55	1	100%	na	na	na	1	0%	12.3	12.3	12.3	1	100%
RD-21	Haul roads	Subsurface	17.1	17.1	17.1	1	100%	34.9	34.9	34.9	1	100%	326	326	326	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Selenium					Cadmium					Chromium				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: 0.52, HH: 5800					Eco: 0.36, HH: 980					Eco: 26, HH: 1800000				
Station	**Material Type**	**Depth Class**															
RD-22	Haul roads	Subsurface	0.34	0.34	0.34	1	100%	na	na	na	1	0%	24	24	24	1	100%
RD-23	Haul roads	Subsurface	4.9	4.9	4.9	1	100%	20.8	20.8	20.8	1	100%	79.4	79.4	79.4	1	100%
RD-24	Haul roads	Subsurface	32.9	32.9	32.9	1	100%	42.7	42.7	42.7	1	100%	270	270	270	1	100%
SQ-03	Original Ground	Subsurface	2.5	2.5	2.5	1	100%	na	na	na	na	na	na	na	na	na	na
SQ-03	Original Ground	Surface	2.7	2.7	2.7	1	100%	na	na	na	na	na	na	na	na	na	na
ST10-03	Overburden	Subsurface	41.2	93.1	67.2	2	100%	15.5	26.4	21	2	100%	244	599	422	2	100%
ST10-03	Overburden	Surface	48.4	49.9	49.2	2	100%	39.8	56.4	48.1	2	100%	563	566	565	2	100%
ST10-04	Overburden	Subsurface	23.1	23.3	23.2	2	100%	35.6	47.5	41.6	2	100%	512	578	545	2	100%
ST10-04	Overburden	Surface	24.6	27.5	26.1	2	100%	37.1	44.7	40.9	2	100%	584	630	607	2	100%
ST10-05	Overburden	Subsurface	72.4	107	89.7	2	100%	12.3	16.7	14.5	2	100%	479	687	583	2	100%
ST10-05	Overburden	Surface	75.8	82.1	79	2	100%	18.6	22.1	20.4	2	100%	440	680	560	2	100%
ST10-06	Original Ground	Subsurface	0.15	0.16	0.155	2	100%	1.2	1.6	1.4	2	100%	13.9	13.9	13.9	2	100%
ST10-06	Original Ground	Surface	0.36	0.44	0.4	2	100%	1.8	4.7	3.25	2	100%	11.9	18.4	15.2	2	100%
ST14-01	Waste Rock	Subsurface	10.8	12.1	11.5	2	100%	10.9	19	15	2	100%	35.1	463	249	2	100%
ST14-01	Waste Rock	Surface	5.2	52.5	28.9	2	100%	19.1	19.6	19.4	2	100%	63.9	341	202	2	100%
ST4-05	Overburden	Subsurface	55.3	77.5	66.4	2	100%	11.5	12	11.8	2	100%	403	488	446	2	100%
ST4-05	Overburden	Surface	91.8	101	96.4	2	100%	9.8	11.8	10.8	2	100%	330	560	445	2	100%
ST4-06	Overburden	Subsurface	191	2800	1496	2	100%	7.9	19.9	13.9	2	100%	391	409	400	2	100%
ST4-06	Overburden	Surface	134	165	150	2	100%	9.9	13.1	11.5	2	100%	358	366	362	2	100%
ST5-01	Overburden	Subsurface	43.4	43.4	43.4	1	100%	11.3	11.3	11.3	1	100%	369	369	369	1	100%
ST5-01	Overburden	Surface	42.2	42.2	42.2	1	100%	11.3	11.3	11.3	1	100%	333	333	333	1	100%
ST5-02	Overburden	Subsurface	84.3	84.3	84.3	1	100%	15.8	15.8	15.8	1	100%	572	572	572	1	100%
ST5-02	Overburden	Surface	32	32	32	1	100%	16.3	16.3	16.3	1	100%	460	460	460	1	100%
ST5-03	Overburden	Subsurface	24.9	24.9	24.9	1	100%	15.4	15.4	15.4	1	100%	486	486	486	1	100%
ST5-03	Overburden	Surface	32.9	32.9	32.9	1	100%	20	20	20	1	100%	541	541	541	1	100%
ST6-01	Overburden	Subsurface	37.2	37.2	37.2	1	100%	72.5	72.5	72.5	1	100%	574	574	574	1	100%
ST6-01	Overburden	Surface	48.2	48.2	48.2	1	100%	93.4	93.4	93.4	1	100%	629	629	629	1	100%
ST6-02	Overburden	Subsurface	39	39	39	1	100%	11.5	11.5	11.5	1	100%	278	278	278	1	100%
ST6-02	Overburden	Surface	60.5	60.5	60.5	1	100%	13.1	13.1	13.1	1	100%	283	283	283	1	100%
ST6-03	Overburden	Subsurface	40.1	40.1	40.1	1	100%	79.6	79.6	79.6	1	100%	448	448	448	1	100%
ST6-03	Overburden	Surface	53.2	53.2	53.2	1	100%	88.3	88.3	88.3	1	100%	452	452	452	1	100%
ST7-00	Original Ground	Subsurface	0.49	0.49	0.49	1	100%	2.1	2.1	2.1	1	100%	16.8	16.8	16.8	1	100%
ST7-00	Original Ground	Surface	2.9	2.9	2.9	1	100%	7.7	7.7	7.7	1	100%	38.3	38.3	38.3	1	100%
TP-10	Original Ground	Subsurface	0.46	0.75	0.633	3	100%	1.6	3.9	2.53	3	100%	29	37.9	33.7	3	100%
TP-11	Original Ground	Subsurface	0.23	0.41	0.333	3	100%	1.2	1.9	1.47	3	100%	20.2	33	25.1	3	100%
TP-5	Original Ground	Subsurface	1.4	4.5	2.6	3	100%	3.7	12.7	7.3	3	100%	52.6	77	63.1	3	100%
TP-5a	Original Ground	Subsurface	0.24	2.9	1.57	2	100%	1.5	14.7	8.1	2	100%	31.9	75	53.5	2	100%
TP-5b	Original Ground	Subsurface	0.32	0.48	0.393	3	100%	1.7	3.2	2.23	3	100%	22	31.2	26.4	3	100%
TP-6	Original Ground	Subsurface	1.2	1.4	1.3	3	100%	6.1	8.9	7.2	3	100%	44.4	78.4	59	3	100%
TP-7	Original Ground	Subsurface	0.1	0.22	0.163	3	100%	0.68	1.1	0.867	3	100%	20.3	27.8	25.1	3	100%
TP-8	Original Ground	Subsurface	0.22	0.73	0.543	3	100%	1.2	4	2.23	3	100%	31.8	34.9	32.9	3	100%
TP-9	Original Ground	Subsurface	0.19	0.63	0.363	3	100%	0.94	1.5	1.21	3	100%	21.6	36.1	26.9	3	100%
Southwest Conda Sub-Basin																	
ST10-01	Original Ground	Subsurface	2	6.8	4.4	2	100%	5.3	19.6	12.5	2	100%	40.5	96.9	68.7	2	100%
ST10-01	Original Ground	Surface	5.8	5.9	5.85	2	100%	14.7	17.6	16.2	2	100%	80.6	94	87.3	2	100%
ST10-02	Original Ground	Subsurface	19.5	34	26.8	2	100%	73	85.7	79.4	2	100%	348	477	413	2	100%
ST10-02	Original Ground	Surface	25.9	68	47	2	100%	76.4	80.5	78.5	2	100%	429	436	433	2	100%
ST11-01	Original Ground	Subsurface	0.27	0.29	0.28	2	100%	1.6	3	2.3	2	100%	23.7	27	25.4	2	100%
ST11-01	Original Ground	Surface	0.37	0.43	0.4	2	100%	2.7	4.8	3.75	2	100%	22.4	27.2	24.8	2	100%
ST11-02	Original Ground	Subsurface	0.22	0.28	0.25	2	100%	1.3	1.7	1.5	2	100%	18.5	24.9	21.7	2	100%
ST11-02	Original Ground	Surface	0.31	0.32	0.32	2	100%	2.1	3.4	2.75	2	100%	22.7	27.6	25.2	2	100%
ST11-03	Original Ground	Subsurface	0.14	0.22	0.18	2	100%	1.2	1.4	1.3	2	100%	21.6	22.9	22.3	2	100%
ST11-03	Original Ground	Surface	0.33	0.39	0.36	2	100%	4	4.2	4.1	2	100%	25.2	28.6	26.9	2	100%
ST11-04	Original Ground	Subsurface	0.16	3.5	1.83	2	100%	1.2	3	2.1	2	100%	22.3	39	30.7	2	100%
ST11-04	Original Ground	Surface	0.17	0.37	0.27	2	100%	1.1	1.5	1.3	2	100%	21.7	22.3	22	2	100%
State Land Creek Sub-Basin																	
NQ-01	Overburden	Subsurface	16.5	16.5	16.5	1	100%	3.1	3.1	3.1	1	100%	51.5	51.5	51.5	1	100%
NQ-01	Overburden	Surface	19	19	19	1	100%	4.6	4.6	4.6	1	100%	73.2	73.2	73.2	1	100%
NQ-02	Overburden	Subsurface	171	171	171	1	100%	21.5	21.5	21.5	1	100%	707	707	707	1	100%
NQ-02	Overburden	Surface	81.1	81.1	81.1	1	100%	16.3	16.3	16.3	1	100%	528	528	528	1	100%
NQ-06	Overburden	Subsurface	18.6	18.6	18.6	1	100%	15.7	15.7	15.7	1	100%	263	263	263	1	100%
NQ-06	Overburden	Surface	16.9	16.9	16.9	1	100%	18.4	18.4	18.4	1	100%	204	204	204	1	100%
NT1-01	Original Ground	Subsurface	0.51	0.51	0.51	1	100%	0.35	0.35	0.35	1	100%	16.4	16.4	16.4	1	100%
NT1-01	Original Ground	Surface	0.98	0.98	0.98	1	100%	1.8	1.8	1.8	1	100%	24.5	24.5	24.5	1	100%
NT1-02	Overburden	Subsurface	29.8	29.8	29.8	1	100%	13.2	13.2	13.2	1	100%	231	231	231	1	100%
NT1-02	Overburden	Surface	22.9	22.9	22.9	1	100%	14.6	14.6	14.6	1	100%	265	265	265	1	100%
NT1-03	Overburden	Subsurface	45.1	45.1	45.1	1	100%	22.4	22.4	22.4	1	100%	371	371	371	1	100%
NT1-03	Overburden	Surface	35	35	35	1	100%	18.7	18.7	18.7	1	100%	300	300	300	1	100%
NT1-04	Overburden	Subsurface	13.8	13.8	13.8	1	100%	9.6	9.6	9.6	1	100%	206	206	206	1	100%
NT1-04	Overburden	Surface	14.9	14.9	14.9	1	100%	11.3	11.3	11.3	1	100%	253	253	253	1	100%
NT1-05	Overburden	Subsurface	2.2	2.2	2.2	1	100%	8	8	8	1	100%	44.2	44.2	44.2	1	100%
NT1-05	Overburden	Surface	3.1	3.1	3.1	1	100%	9.1	9.1	9.1	1	100%	45.8	45.8	45.8	1	100%
NT2-01	Overburden	Subsurface	67	67	67	1	100%	43.7	43.7	43.7	1	100%	577	577	577	1	100%
NT2-01	Overburden	Surface	78.4	78.4	78.4	1	100%	48.7	48.7	48.7	1	100%	651	651	651	1	100%
NT2-02	Overburden	Subsurface	88.3	88.3	88.3	1	100%	13.4	13.4	13.4	1	100%	805	805	805	1	100%
NT2-02	Overburden	Surface	91.8	91.8	91.8	1	100%	18.2	18.2	18.2	1	100%	871	871	871	1	100%
NT2-03	Overburden	Subsurface	45.9	45.9	45.9	1	100%	17.9	17.9	17.9	1	100%	729	729	729	1	100%
NT2-03	Overburden	Surface	39.4	39.4	39.4	1	100%	17.6	17.6	17.6	1	100%	720	720	720	1	100%
NT2-04	Overburden	Subsurface	0.88	0.88	0.88	1	100%	0.87	0.87	0.87	1	100%	18.5	18.5	18.5	1	100%
NT2-04	Overburden	Surface	0.58	1.2	0.89	2	100%	0.86	0.86	0.86	2	50%	19	20.8	19.9	2	100%
NT2-05	Original Ground	Subsurface	0.74	0.74	0.74	1	100%	1.3	1.3	1.3	1	100%	18.8	18.8	18.8	1	100%
NT2-05	Original Ground	Surface	1.1	1.1	1.1	2	100%	1.2	1.8	1.5	2	100%	21.2	21.7	21.5	2	100%
NT2-06	Original Ground	Subsurface	0.89	0.89	0.89	1	100%	2.2	2.2	2.2	1	100%	18.5	18.5	18.5	1	100%
NT2-06	Original Ground	Surface	0.7	0.9	0.8	2	100%	2.3	2.6	2.45	2	100%	20.9	22.6	21.8	2	100%
NT4-01	Overburden	Subsurface	42.3	42.3	42.3	1	100%	20	20	20	1	100%	630	630	630	1	100%
NT4-01	Overburden	Surface	34.6	34.6	34.6	1	100%	20.6	20.6	20.6	1	100%	494	494	494	1	100%
NT4-02	Overburden	Subsurface	16.6	16.6	16.6	1	100%	9.2	9.2	9.2	1	100%	146	146	146	1	100%
NT4-02	Overburden	Surface	20.5	20.5	20.5	1	100%	9.8	9.8	9.8	1	100%	224	224	224	1	100%
NT4-03	Overburden	Subsurface	85.5	85.5	85.5	1	100%	33.9	33.9	33.9	1	100%	339	339	339	1	100%
NT4-03	Overburden	Surface	66.3	66.3	66.3	1	100%	33.6	33.6	33.6	1	100%	335	335	335	1	100%
NT8-03	Original Ground	Subsurface	0.41	0.43	0.42	2	100%	1	1.6	1.3	2	100%	39.3	47.1	43.2	2	100%
NT8-03	Original Ground	Surface	0.43	0.51	0.47	2	100%	2.2	2.6	2.4	2	100%	42.1	47.6	44.9	2	100%
NT8-04	Original Ground	Subsurface	0.18	0.27	0.23	2	100%	0.73	2	1.37	2	100%	21.2	24.8	23	2	100%
NT8-04	Original Ground	Surface	0.25	0.36	0.31	2	100%	1.3	2.5	1.9	2	100%	21.1	22.8	22	2	100%
NT8-05	Original Ground	Subsurface	0.34	0.43	0.39	2	100%	2	3.5	2.75	2	100%	21.8	22.6	22.2	2	100%
NT8-05	Original Ground	Surface	0.43	0.57	0.5	2	100%	3.1	4.7	3.9	2	100%	20.1	22.6	21.4	2	100%
NT8-06	Original Ground	Subsurface	0.31	0.54	0.43	2	100%	1	1.8	1.4	2	100%	19.4	20.6	20	2	100%
NT8-06	Original Ground	Surface	0.71	0.73	0.72	2	100%	1.8	3.4	2.6	2	100%	17.3	21.5	19.4	2	100%
SLC-2	Original Ground	Subsurface	0.68	0.68	0.68	1	100%	3	3	3	1	100%	32.3	32.3	32.3	1	100%
SLC-2	Original Ground	Surface	1.1	1.1	1.1	1	100%	3.1	3.1	3.1	1	100%	32.2	32.2	32.2	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Selenium					Cadmium					Chromium				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: 0.52, HH: 5800					Eco: 0.36, HH: 980					Eco: 26, HH: 1800000				
Station	**Material Type**	**Depth Class**															
SLC-3	Original Ground	Subsurface	0.38	0.38	0.38	1	100%	*5.7*	*5.7*	*5.7*	1	100%	*40.5*	*40.5*	*40.5*	1	100%
SLC-3	Original Ground	Surface	0.41	0.41	0.41	1	100%	*6.5*	*6.5*	*6.5*	1	100%	*38.4*	*38.4*	*38.4*	1	100%
SP-01	Original Ground	Subsurface	0.23	0.23	0.23	1	100%	na	na	na	na	na	na	na	na	na	na
SP-01	Original Ground	Surface	0.31	0.31	0.31	1	100%	na	na	na	na	na	na	na	na	na	na
SP-02	Original Ground	Subsurface	0.29	0.29	0.29	1	100%	na	na	na	na	na	na	na	na	na	na
SP-02	Original Ground	Surface	0.35	0.35	0.35	1	100%	na	na	na	na	na	na	na	na	na	na
SP-03	Original Ground	Subsurface	0.33	0.33	0.33	1	100%	na	na	na	na	na	na	na	na	na	na
SP-03	Original Ground	Surface	0.35	0.35	0.35	1	100%	na	na	na	na	na	na	na	na	na	na
SP-04	Original Ground	Subsurface	0.31	0.31	0.31	1	100%	na	na	na	na	na	na	na	na	na	na
SP-04	Original Ground	Surface	*1*	*1*	*1*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-01	Original Ground	Subsurface	*0.52*	*0.52*	*0.52*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-01	Original Ground	Surface	*0.56*	*0.56*	*0.56*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-02	Original Ground	Subsurface	0.36	0.36	0.36	1	100%	na	na	na	na	na	na	na	na	na	na
SR-02	Original Ground	Surface	*0.95*	*0.95*	*0.95*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-03	Original Ground	Subsurface	*0.55*	*0.55*	*0.55*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-03	Original Ground	Surface	*0.74*	*0.74*	*0.74*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-04	Original Ground	Subsurface	*0.82*	*0.82*	*0.82*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-04	Original Ground	Surface	*1.9*	*1.9*	*1.9*	1	100%	na	na	na	na	na	na	na	na	na	na
SR-05	Original Ground	Subsurface	0.43	0.43	0.43	1	100%	na	na	na	na	na	na	na	na	na	na
SR-05	Original Ground	Surface	*1.1*	*1.1*	*1.1*	1	100%	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																	
NT3-01	Overburden	Subsurface	*210*	*210*	*210*	1	100%	*16.2*	*16.2*	*16.2*	1	100%	*878*	*878*	*878*	1	100%
NT3-01	Overburden	Surface	*137*	*137*	*137*	1	100%	*18.5*	*18.5*	*18.5*	1	100%	*816*	*816*	*816*	1	100%
NT3-02	Overburden	Subsurface	*39.2*	*259*	*149*	2	100%	*16.4*	*22.3*	*19.4*	2	100%	*337*	*895*	*616*	2	100%
NT3-02	Overburden	Surface	*86.9*	*193*	*140*	2	100%	*10.8*	*20.7*	*15.8*	2	100%	*511*	*784*	*648*	2	100%
NT3-03	Overburden	Subsurface	*88*	*88*	*88*	1	100%	*19.8*	*19.8*	*19.8*	1	100%	*569*	*569*	*569*	1	100%
NT3-03	Overburden	Surface	*80.7*	*80.7*	*80.7*	1	100%	*20*	*20*	*20*	1	100%	*531*	*531*	*531*	1	100%
NT3-04	Overburden	Subsurface	*14.7*	*14.7*	*14.7*	1	100%	*36.7*	*36.7*	*36.7*	1	100%	*418*	*418*	*418*	1	100%
NT3-04	Overburden	Surface	*16.4*	*16.4*	*16.4*	1	100%	*37.6*	*37.6*	*37.6*	1	100%	*420*	*420*	*420*	1	100%
NT3-05	Overburden	Subsurface	*44.6*	*44.6*	*44.6*	1	100%	*24.7*	*24.7*	*24.7*	1	100%	*586*	*586*	*586*	1	100%
NT3-05	Overburden	Surface	*44.6*	*44.6*	*44.6*	1	100%	*20.5*	*20.5*	*20.5*	1	100%	*643*	*643*	*643*	1	100%
NT3-06	Overburden	Subsurface	*12.9*	*12.9*	*12.9*	1	100%	*89.6*	*89.6*	*89.6*	1	100%	*698*	*698*	*698*	1	100%
NT3-06	Overburden	Surface	*16.2*	*16.2*	*16.2*	1	100%	*62.4*	*62.4*	*62.4*	1	100%	*538*	*538*	*538*	1	100%
NT3-07	Original Ground	Subsurface	*13.3*	*13.3*	*13.3*	1	100%	*24.9*	*24.9*	*24.9*	1	100%	*352*	*352*	*352*	1	100%
NT3-07	Original Ground	Surface	*14.7*	*14.7*	*14.7*	1	100%	*32*	*32*	*32*	1	100%	*476*	*476*	*476*	1	100%
Offsite-Blackfoot River																	
MST020	Offsite	Surface	*1.7*	*1.7*	*1.7*	1	100%	*1.1*	*1.1*	*1.1*	1	100%	*28*	*28*	*28*	1	100%
MST231	Offsite	Surface	na	na	na	1	0%	*1.1*	*1.1*	*1.1*	1	100%	19	19	19	1	100%
ST019	Offsite	Surface	*1.5*	*1.5*	*1.5*	1	100%	*3.7*	*3.7*	*3.7*	1	100%	*31*	*31*	*31*	1	100%
ST021	Offsite	Surface	*1.2*	*1.2*	*1.2*	1	100%	*1.6*	*1.6*	*1.6*	1	100%	*32*	*32*	*32*	1	100%
ST022	Offsite	Surface	*0.93*	*0.93*	*0.93*	1	100%	*1.9*	*1.9*	*1.9*	1	100%	25	25	25	1	100%
ST230	Offsite	Surface	*1.9*	*1.9*	*1.9*	1	100%	*0.91*	*0.91*	*0.91*	1	100%	20	20	20	1	100%
ST232	Offsite	Surface	na	na	na	1	0%	*2*	*2*	*2*	1	100%	*30*	*30*	*30*	1	100%
Offsite-Trail Creek																	
ST076	Offsite	Surface	*1.3*	*1.7*	*1.5*	3	100%	*1.4*	*2.4*	*2.07*	3	100%	*45*	*50*	*48*	3	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: 7.8, HH: 5800					Eco: 46, HH: 350000				
Station	**Material Type**	**Depth Class**										
Camp G Creek Sub-Basin												
Borrow 1	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
CGC-1	Original Ground	Subsurface	*18.2*	*18.2*	*18.2*	1	100%	*80.7*	*80.7*	*80.7*	1	100%
CGC-1	Original Ground	Surface	*20.9*	*20.9*	*20.9*	1	100%	*95.3*	*95.3*	*95.3*	1	100%
CP-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CP-01	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
CP-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CP-02	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
CP-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CP-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
CR-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CR-01	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
CR-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CR-02	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
CR-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CR-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
CR-04	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
CR-04	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
Dredge Ranch	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
RD-25	Haul roads	Subsurface	*75*	*75*	*75*	1	100%	*287*	*287*	*287*	1	100%
RD-26	Haul roads	Subsurface	*22*	*22*	*22*	1	100%	*107*	*107*	*107*	1	100%
ST12-01	Waste Rock	Subsurface	*1450*	*1620*	*1535*	2	100%	*880*	*887*	*884*	2	100%
ST12-01	Waste Rock	Surface	*1280*	*1440*	*1360*	2	100%	*801*	*816*	*809*	2	100%
ST12-02	Waste Rock	Subsurface	*404*	*874*	*639*	2	100%	*424*	*1020*	*722*	2	100%
ST12-02	Waste Rock	Surface	*382*	*932*	*657*	2	100%	*487*	*852*	*670*	2	100%
ST12-03	Original Ground	Subsurface	*39.6*	*72*	*55.8*	2	100%	*476*	*520*	*498*	2	100%
ST12-03	Original Ground	Surface	*117*	*137*	*127*	2	100%	*570*	*605*	*588*	2	100%
ST3-01	Original Ground	Subsurface	*30.5*	*469*	*250*	2	100%	*274*	*479*	*377*	2	100%
ST3-01	Original Ground	Surface	*34.5*	*582*	*308*	2	100%	*287*	*701*	*494*	2	100%
ST3-02	Waste Rock	Subsurface	*546*	*1030*	*788*	2	100%	*1120*	*1170*	*1145*	2	100%
ST3-02	Waste Rock	Surface	*725*	*1090*	*908*	2	100%	*1030*	*1100*	*1065*	2	100%
ST3-03	Original Ground	Subsurface	*33*	*33*	*33*	1	100%	*212*	*212*	*212*	1	100%
ST3-03	Original Ground	Surface	*34.7*	*34.7*	*34.7*	1	100%	*241*	*241*	*241*	1	100%
French Drain Sub-Basin												
Con	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
LoSe	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-13	Overburden	Subsurface	*234*	*234*	*234*	1	100%	*784*	*784*	*784*	1	100%
NQ-13	Overburden	Surface	*283*	*283*	*283*	1	100%	*916*	*916*	*916*	1	100%
NQ-14	Overburden	Subsurface	*326*	*326*	*326*	1	100%	*881*	*881*	*881*	1	100%
NQ-14	Overburden	Surface	*302*	*302*	*302*	1	100%	*911*	*911*	*911*	1	100%
RD-19	Haul roads	Subsurface	*156*	*156*	*156*	1	100%	*1080*	*1080*	*1080*	1	100%
RD-20	Haul roads	Subsurface	*116*	*116*	*116*	1	100%	*484*	*484*	*484*	1	100%
SQ-02	Tailings	Subsurface	*315*	*315*	*315*	1	100%	*416*	*416*	*416*	1	100%
SQ-02	Tailings	Surface	*360*	*360*	*360*	1	100%	*451*	*451*	*451*	1	100%
ST1-02	Overburden	Subsurface	*86.8*	*86.8*	*86.8*	1	100%	*210*	*210*	*210*	1	100%
ST1-02	Overburden	Surface	*115*	*115*	*115*	1	100%	*258*	*258*	*258*	1	100%
ST1-03	Overburden	Subsurface	*221*	*221*	*221*	1	100%	*950*	*950*	*950*	1	100%
ST1-03	Overburden	Surface	*236*	*236*	*236*	1	100%	*721*	*721*	*721*	1	100%
ST4-01	Overburden	Subsurface	*175*	*175*	*175*	1	100%	*736*	*736*	*736*	1	100%
ST4-01	Overburden	Surface	*147*	*147*	*147*	1	100%	*530*	*530*	*530*	1	100%
ST4-02	Overburden	Subsurface	*139*	*139*	*139*	1	100%	*548*	*548*	*548*	1	100%
ST4-02	Overburden	Surface	*128*	*128*	*128*	1	100%	*545*	*545*	*545*	1	100%
ST4-03	Overburden	Subsurface	*167*	*167*	*167*	1	100%	*610*	*610*	*610*	1	100%
ST4-03	Overburden	Surface	*155*	*155*	*155*	1	100%	*535*	*535*	*535*	1	100%
ST4-04	Overburden	Subsurface	*136*	*136*	*136*	1	100%	*940*	*940*	*940*	1	100%
ST4-04	Overburden	Surface	*180*	*180*	*180*	1	100%	*921*	*921*	*921*	1	100%
ST8-01	Former Mill/Townsite	Subsurface	*85.1*	*85.1*	*85.1*	1	100%	*203*	*203*	*203*	1	100%
ST8-01	Former Mill/Townsite	Surface	*161*	*161*	*161*	1	100%	*301*	*301*	*301*	1	100%
ST8-02	Original Ground	Subsurface	*90.7*	*90.7*	*90.7*	1	100%	*321*	*321*	*321*	1	100%
ST8-02	Original Ground	Surface	*95.3*	*95.3*	*95.3*	1	100%	*439*	*439*	*439*	1	100%
ST8-03	Overburden	Subsurface	*118*	*118*	*118*	1	100%	*801*	*801*	*801*	1	100%
ST8-03	Overburden	Surface	*116*	*116*	*116*	1	100%	*784*	*784*	*784*	1	100%
ST8-04	Overburden	Subsurface	*488*	*488*	*488*	1	100%	*947*	*947*	*947*	1	100%
ST8-04	Overburden	Surface	*482*	*482*	*482*	1	100%	*724*	*724*	*724*	1	100%
ST9-01	Original Ground	Subsurface	*30*	*30*	*30*	1	100%	*94.9*	*94.9*	*94.9*	1	100%
ST9-01	Original Ground	Surface	*35.8*	*35.8*	*35.8*	1	100%	*112*	*112*	*112*	1	100%
ST9-02	Former Mill/Townsite	Subsurface	*28.3*	*758*	*289*	3	100%	*80*	*1260*	*483*	3	100%
ST9-02	Former Mill/Townsite	Surface	*703*	*703*	*703*	1	100%	*1640*	*1640*	*1640*	1	100%
ST9-03	Former Mill/Townsite	Subsurface	*903*	*903*	*903*	1	100%	*973*	*973*	*973*	1	100%
ST9-03	Former Mill/Townsite	Surface	*769*	*769*	*769*	1	100%	*901*	*901*	*901*	1	100%
ST9-04	Former Mill/Townsite	Subsurface	*909*	*909*	*909*	1	100%	*1070*	*1070*	*1070*	1	100%
ST9-04	Former Mill/Townsite	Surface	*824*	*824*	*824*	1	100%	*968*	*968*	*968*	1	100%
ST9-05	Former Mill/Townsite	Subsurface	*42*	*42*	*42*	1	100%	*84.7*	*84.7*	*84.7*	1	100%
ST9-05	Former Mill/Townsite	Surface	*268*	*268*	*268*	1	100%	*532*	*532*	*532*	1	100%
ST9-06	Former Mill/Townsite	Subsurface	*55.3*	*55.3*	*55.3*	1	100%	*150*	*150*	*150*	1	100%
ST9-06	Former Mill/Townsite	Surface	*86*	*86*	*86*	1	100%	*199*	*199*	*199*	1	100%
ST9-07	Original Ground	Subsurface	*42*	*42*	*42*	1	100%	*217*	*217*	*217*	1	100%
ST9-07	Original Ground	Surface	*55.1*	*55.1*	*55.1*	1	100%	*238*	*238*	*238*	1	100%
ST9-08	Former Mill/Townsite	Subsurface	*36.7*	*1260*	*776*	3	100%	*153*	*1150*	*814*	3	100%
ST9-08	Former Mill/Townsite	Surface	*984*	*984*	*984*	1	100%	*1080*	*1080*	*1080*	1	100%
ST9-09	Former Mill/Townsite	Subsurface	*476*	*476*	*476*	1	100%	*653*	*653*	*653*	1	100%
ST9-09	Former Mill/Townsite	Surface	*413*	*413*	*413*	1	100%	*596*	*596*	*596*	1	100%
ST9-10	Former Mill/Townsite	Subsurface	*576*	*576*	*576*	1	100%	*677*	*677*	*677*	1	100%
ST9-10	Former Mill/Townsite	Surface	*553*	*553*	*553*	1	100%	*688*	*688*	*688*	1	100%
ST9-11	Former Mill/Townsite	Subsurface	*249*	*249*	*249*	1	100%	*288*	*288*	*288*	1	100%
ST9-11	Former Mill/Townsite	Surface	*115*	*115*	*115*	1	100%	*186*	*186*	*186*	1	100%
ST9-12	Former Mill/Townsite	Subsurface	*390*	*390*	*390*	1	100%	*870*	*870*	*870*	1	100%
ST9-12	Former Mill/Townsite	Surface	*299*	*299*	*299*	1	100%	*456*	*456*	*456*	1	100%
ST9-14	Former Mill/Townsite	Subsurface	*44.1*	*44.1*	*44.1*	1	100%	*253*	*253*	*253*	1	100%
ST9-14	Former Mill/Townsite	Surface	*49.4*	*49.4*	*49.4*	1	100%	*264*	*264*	*264*	1	100%
ST9-15	Former Mill/Townsite	Subsurface	*82.7*	*82.7*	*82.7*	1	100%	*284*	*284*	*284*	1	100%
ST9-15	Former Mill/Townsite	Surface	*156*	*156*	*156*	1	100%	*332*	*332*	*332*	1	100%
ST9-16	Former Mill/Townsite	Subsurface	*640*	*640*	*640*	1	100%	*725*	*725*	*725*	1	100%
ST9-16	Former Mill/Townsite	Surface	*716*	*716*	*716*	1	100%	*819*	*819*	*819*	1	100%
ST9-17	Former Mill/Townsite	Subsurface	*338*	*338*	*338*	1	100%	*393*	*393*	*393*	1	100%
ST9-17	Former Mill/Townsite	Surface	*397*	*397*	*397*	1	100%	*454*	*454*	*454*	1	100%
ST9-18	Former Mill/Townsite	Subsurface	*56.5*	*56.5*	*56.5*	1	100%	*254*	*254*	*254*	1	100%
ST9-18	Former Mill/Townsite	Surface	*60.3*	*60.3*	*60.3*	1	100%	*406*	*406*	*406*	1	100%
ST9-23	Former Mill/Townsite	Subsurface	*82.4*	*470*	*292*	3	100%	*133*	*568*	*384*	3	100%
ST9-23	Former Mill/Townsite	Surface	*487*	*487*	*487*	1	100%	*651*	*651*	*651*	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: 7.8, HH: 5800					Eco: 46, HH: 350000				
Station	**Material Type**	**Depth Class**										
ST9-24	Former Mill/Townsite	Subsurface	446	499	471	3	100%	539	574	561	3	100%
ST9-24	Former Mill/Townsite	Surface	627	627	627	1	100%	882	882	882	1	100%
ST9-25	Former Mill/Townsite	Subsurface	97.1	409	268	3	100%	198	732	503	3	100%
ST9-25	Former Mill/Townsite	Surface	445	445	445	1	100%	561	561	561	1	100%
ST9-26	Former Mill/Townsite	Subsurface	120	725	375	3	100%	212	908	558	3	100%
ST9-26	Former Mill/Townsite	Surface	194	194	194	1	100%	455	455	455	1	100%
ST9-27	Former Mill/Townsite	Subsurface	28.3	80	48.3	3	100%	64.3	244	142	3	100%
ST9-27	Former Mill/Townsite	Surface	58.6	58.6	58.6	1	100%	147	147	147	1	100%
SWP-4	Overburden	Subsurface	211	211	211	1	100%	768	768	768	1	100%
SWP-4	Overburden	Surface	186	186	186	1	100%	665	665	665	1	100%
WD062	Overburden	Surface	250	290	267	3	100%	790	860	827	3	100%
WD068	Overburden	Surface	230	230	230	1	100%	590	590	590	1	100%
Margarette Creek/Trail Canyon Sub-Basin												
NQ-17	Overburden	Subsurface	385	385	385	1	100%	847	847	847	1	100%
NQ-17	Overburden	Surface	374	374	374	1	100%	869	869	869	1	100%
RD-14	Haul roads	Subsurface	62.3	62.3	62.3	1	100%	162	162	162	1	100%
RD-15	Haul roads	Subsurface	31.1	31.1	31.1	1	100%	131	131	131	1	100%
ST7-01	Overburden	Subsurface	321	396	359	2	100%	863	867	865	2	100%
ST7-01	Overburden	Surface	310	326	318	2	100%	782	818	800	2	100%
ST7-02	Overburden	Subsurface	415	701	558	2	100%	844	1580	1212	2	100%
ST7-02	Overburden	Surface	303	342	323	2	100%	767	915	841	2	100%
ST7-03	Overburden	Subsurface	117	117	117	1	100%	604	604	604	1	100%
ST7-03	Overburden	Surface	142	142	142	1	100%	696	696	696	1	100%
WD069	Overburden	Surface	920	920	920	1	100%	1900	1900	1900	1	100%
North Woodall Mountain Sub-Basin												
NT8-01	Original Ground	Subsurface	28.5	29.9	29.2	2	100%	64.2	67.3	65.8	2	100%
NT8-01	Original Ground	Surface	35.4	38.2	36.8	2	100%	78.7	88.6	83.7	2	100%
NT8-02	Original Ground	Subsurface	32	36.2	34.1	2	100%	43.5	63	53.3	2	100%
NT8-02	Original Ground	Surface	31.7	33.6	32.7	2	100%	62.6	90.7	76.7	2	100%
NWC-2	Original Ground	Subsurface	23	23	23	1	100%	67.8	67.8	67.8	1	100%
NWC-2	Original Ground	Surface	25.2	25.2	25.2	1	100%	94.5	94.5	94.5	1	100%
Old Tailings Pond Sub-Basin												
NQ-08	Overburden	Subsurface	355	355	355	1	100%	949	949	949	1	100%
NQ-08	Overburden	Surface	331	331	331	1	100%	1040	1040	1040	1	100%
NQ-10	Overburden	Subsurface	318	318	318	1	100%	671	671	671	1	100%
NQ-10	Overburden	Surface	291	291	291	1	100%	770	770	770	1	100%
NQ-11	Overburden	Subsurface	716	716	716	1	100%	1240	1240	1240	1	100%
NQ-11	Overburden	Surface	733	733	733	1	100%	1200	1200	1200	1	100%
NQ-18	Tailings	Subsurface	2400	2400	2400	1	100%	2900	2900	2900	1	100%
NQ-18	Tailings	Surface	2340	2340	2340	1	100%	2610	2610	2610	1	100%
NT4-05	Overburden	Subsurface	845	845	845	1	100%	1140	1140	1140	1	100%
NT4-05	Overburden	Surface	997	997	997	1	100%	1300	1300	1300	1	100%
RD-01	Haul roads	Subsurface	106	106	106	1	100%	166	166	166	1	100%
RD-02	Haul roads	Subsurface	56.2	56.2	56.2	1	100%	92.2	92.2	92.2	1	100%
RD-03	Haul roads	Subsurface	67.5	67.5	67.5	1	100%	120	120	120	1	100%
RD-04	Haul roads	Subsurface	5.9	5.9	5.9	1	100%	5.5	5.5	5.5	1	100%
RD-05	Haul roads	Subsurface	75.5	75.5	75.5	1	100%	178	178	178	1	100%
RD-06	Haul roads	Subsurface	34.9	34.9	34.9	1	100%	193	193	193	1	100%
RD-16	Haul roads	Subsurface	126	126	126	1	100%	223	223	223	1	100%
RD-17	Haul roads	Subsurface	602	602	602	1	100%	724	724	724	1	100%
RD-18	Haul roads	Subsurface	26.1	26.1	26.1	1	100%	70.1	70.1	70.1	1	100%
SQ-01	Tailings	Subsurface	1140	1140	1140	1	100%	1260	1260	1260	1	100%
SQ-01	Tailings	Surface	1000	1000	1000	1	100%	1080	1080	1080	1	100%
SQ-01A	Tailings	Subsurface	2270	2270	2270	1	100%	2680	2680	2680	1	100%
SQ-01A	Tailings	Surface	2090	2090	2090	1	100%	2440	2440	2440	1	100%
SQ-01B	Tailings	Subsurface	1860	1860	1860	1	100%	2270	2270	2270	1	100%
SQ-01B	Tailings	Surface	2610	2610	2610	1	100%	2930	2930	2930	1	100%
SQ-04	Tailings	Subsurface	776	776	776	1	100%	955	955	955	1	100%
SQ-04	Tailings	Surface	1180	1180	1180	1	100%	1220	1220	1220	1	100%
ST1-01	Overburden	Subsurface	226	226	226	1	100%	1090	1090	1090	1	100%
ST1-01	Overburden	Surface	191	191	191	1	100%	1070	1070	1070	1	100%
ST13-01	Original Ground	Subsurface	178	233	206	2	100%	336	434	385	2	100%
ST13-01	Original Ground	Surface	263	504	384	2	100%	441	638	540	2	100%
ST13-02	Tailings	Subsurface	611	1240	926	2	100%	703	1320	1012	2	100%
ST13-02	Tailings	Surface	396	736	566	2	100%	545	935	740	2	100%
ST13-03	Tailings	Subsurface	917	1130	1024	2	100%	980	1280	1130	2	100%
ST13-03	Tailings	Surface	940	1080	1010	2	100%	1120	1160	1140	2	100%
ST13-04	Tailings	Subsurface	531	1130	736	4	100%	668	1260	857	4	100%
ST13-04	Tailings	Surface	636	655	646	2	100%	792	798	795	2	100%
ST15-01	Original Ground	Subsurface	229	230	230	2	100%	539	568	554	2	100%
ST15-01	Original Ground	Surface	238	374	306	2	100%	576	915	746	2	100%
ST15-02	Original Ground	Subsurface	261	332	297	2	100%	582	602	592	2	100%
ST15-02	Original Ground	Surface	309	358	334	2	100%	598	860	729	2	100%
ST2-01	Overburden	Subsurface	187	210	199	2	100%	671	719	695	2	100%
ST2-01	Overburden	Surface	166	195	181	2	100%	565	769	667	2	100%
ST2-02	Overburden	Subsurface	60.8	60.8	60.8	1	100%	202	202	202	1	100%
ST2-02	Overburden	Surface	91.9	91.9	91.9	1	100%	341	341	341	1	100%
ST2-03	Overburden	Subsurface	166	253	210	2	100%	741	1160	951	2	100%
ST2-03	Overburden	Surface	182	221	202	2	100%	787	853	820	2	100%
ST2-04	Overburden	Subsurface	1260	1260	1260	1	100%	1040	1040	1040	1	100%
ST2-04	Overburden	Surface	1600	1600	1600	1	100%	1230	1230	1230	1	100%
ST2-05	Overburden	Subsurface	393	393	393	1	100%	698	698	698	1	100%
ST2-05	Overburden	Surface	410	410	410	1	100%	647	647	647	1	100%
TP2-SB1	Tailings	Subsurface	30	1160	507	4	100%	87	1310	610	4	100%
TP2-SB2	Tailings	Subsurface	26.7	1970	1204	5	100%	83.1	2930	1543	5	100%
TP2-SB3	Tailings	Subsurface	48.6	2350	1578	7	100%	157	3320	2135	7	100%
TP2-SB4	Tailings	Subsurface	26.7	2820	1424	7	100%	62.6	4610	1888	7	100%
TP2-SB5	Tailings	Subsurface	751	1720	1173	10	100%	758	2530	1524	10	100%
Pedro Creek Sub-Basin												
ESedBasinC	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
ESedBasinN	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
ESedBasinS	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
FSPS-10D	Dinwoody cover	Composite	7.5	7.5	7.5	1	100%	126	126	126	1	100%
FSPS-10D	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na
FSPS-10D	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-11C	Overburden	Composite	148	148	148	1	100%	643	643	643	1	100%
FSPS-11C	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-12A	Overburden	Composite	125	125	125	1	100%	518	518	518	1	100%
FSPS-12A	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-13B	Overburden	Composite	134	134	134	1	100%	502	502	502	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: 7.8, HH: 5800					Eco: 46, HH: 350000				
Station	**Material Type**	**Depth Class**										
FSPS-13B	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	Composite	*10.9*	*10.9*	*10.9*	1	100%	*160*	*160*	*160*	1	100%
FSPS-14D	Dinwoody cover	DepthProfile	*56.7*	*64.8*	*61.8*	3	100%	*127*	*146*	*137*	3	100%
FSPS-14D	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-15F	Dinwoody cover	Composite	*74.5*	*74.5*	*74.5*	1	100%	*130*	*130*	*130*	1	100%
FSPS-15F	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-16B	Overburden	Composite	*183*	*183*	*183*	1	100%	*656*	*656*	*656*	1	100%
FSPS-16B	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-17C	Overburden	Composite	*112*	*112*	*112*	1	100%	*498*	*498*	*498*	1	100%
FSPS-17C	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-18B	Overburden	Composite	*62*	*62*	*62*	1	100%	*578*	*578*	*578*	1	100%
FSPS-18B	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Composite	*67.1*	*67.1*	*67.1*	1	100%	*123*	*123*	*123*	1	100%
FSPS-19E	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Composite	*64.9*	*64.9*	*64.9*	1	100%	*126*	*126*	*126*	1	100%
FSPS-1F	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-20A	Overburden	Composite	*121*	*121*	*121*	1	100%	*564*	*564*	*564*	1	100%
FSPS-20A	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-21C	Overburden	Composite	*138*	*138*	*138*	1	100%	*746*	*746*	*746*	1	100%
FSPS-21C	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Composite	*70.5*	*70.5*	*70.5*	1	100%	*136*	*136*	*136*	1	100%
FSPS-2G	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	Composite	*80.5*	*80.5*	*80.5*	1	100%	*162*	*162*	*162*	1	100%
FSPS-3F	Dinwoody cover	DepthProfile	*44.8*	*69.5*	*59.5*	5	100%	*95.8*	*141*	*125*	5	100%
FSPS-3F	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	Composite	*61.8*	*61.8*	*61.8*	1	100%	*125*	*125*	*125*	1	100%
FSPS-4G	Dinwoody cover	DepthProfile	*55.9*	*76.2*	*70.1*	7	100%	*109*	*145*	*130*	7	100%
FSPS-4G	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	Composite	*73.8*	*73.8*	*73.8*	1	100%	*139*	*139*	*139*	1	100%
FSPS-5E	Dinwoody cover	DepthProfile	*56.3*	*68.5*	*62.5*	5	100%	*122*	*142*	*130*	5	100%
FSPS-5E	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-6D	Dinwoody cover	Composite	*16.8*	*16.8*	*16.8*	1	100%	*195*	*195*	*195*	1	100%
FSPS-6D	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-7E	Dinwoody cover	Composite	*72.8*	*72.8*	*72.8*	1	100%	*139*	*139*	*139*	1	100%
FSPS-7E	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-8G	Dinwoody cover	Composite	*68*	*68*	*68*	1	100%	*133*	*133*	*133*	1	100%
FSPS-8G	Dinwoody cover	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-9A	Overburden	Composite	*207*	*207*	*207*	1	100%	*1260*	*1260*	*1260*	1	100%
FSPS-9A	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
FSPS-Area	Overburden	Overburden	na	na	na	na	na	na	na	na	na	na
NQ-03	Original Ground	Subsurface	*94.9*	*94.9*	*94.9*	1	100%	*320*	*320*	*320*	1	100%
NQ-03	Original Ground	Surface	*83.5*	*83.5*	*83.5*	1	100%	*320*	*320*	*320*	1	100%
NQ-04	Overburden (now covered	Subsurface	*153*	*153*	*153*	1	100%	*483*	*483*	*483*	1	100%
NQ-04	Overburden (now covered	Surface	*151*	*151*	*151*	1	100%	*488*	*488*	*488*	1	100%
NQ-07	Overburden	Subsurface	*165*	*165*	*165*	1	100%	*601*	*601*	*601*	1	100%
NQ-07	Overburden	Surface	*217*	*217*	*217*	1	100%	*679*	*679*	*679*	1	100%
NQ-19	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-20	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-21	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-22	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-23	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-24	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-25	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-25	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
NQ-26	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-26	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
NQ-27	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-27	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
NQ-28	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-28	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
NQ-29	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-30	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-31	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-31	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
NQ-32	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-32	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
NQ-33	Original ground	Surface	*105*	*105*	*105*	1	100%	*325*	*325*	*325*	1	100%
NQ-34	Original ground	Surface	*72.8*	*72.8*	*72.8*	1	100%	*261*	*261*	*261*	1	100%
NT10-1	Original ground	Surface	*72.5*	*72.5*	*72.5*	1	100%	*238*	*238*	*238*	1	100%
NT10-2	Original ground	Surface	*80.3*	*80.3*	*80.3*	1	100%	*262*	*262*	*262*	1	100%
NT10-3	Original ground	Surface	*86.5*	*86.5*	*86.5*	1	100%	*250*	*250*	*250*	1	100%
NT10-4	Original ground	Surface	*65.1*	*65.1*	*65.1*	1	100%	*177*	*177*	*177*	1	100%
NT10-5	Original ground	Surface	*118*	*118*	*118*	1	100%	*440*	*440*	*440*	1	100%
NT11-1	Original ground	Surface	*106*	*106*	*106*	1	100%	*430*	*430*	*430*	1	100%
NT11-2	Original ground	Surface	*75.6*	*75.6*	*75.6*	1	100%	*241*	*241*	*241*	1	100%
NT11-3	Original ground	Surface	*79.4*	*79.4*	*79.4*	1	100%	*280*	*280*	*280*	1	100%
NT4-04	Overburden	Subsurface	*176*	*176*	*176*	1	100%	*388*	*388*	*388*	1	100%
NT4-04	Overburden	Surface	*232*	*232*	*232*	1	100%	*455*	*455*	*455*	1	100%
NT5-01	Overburden (now covered	Subsurface	*961*	*961*	*961*	1	100%	*1090*	*1090*	*1090*	1	100%
NT5-01	Overburden (now covered	Surface	*1070*	*1070*	*1070*	1	100%	*1620*	*1620*	*1620*	1	100%
NT5-02	Overburden (now covered	Subsurface	*295*	*295*	*295*	1	100%	*950*	*950*	*950*	1	100%
NT5-02	Overburden (now covered	Surface	*252*	*252*	*252*	1	100%	*966*	*966*	*966*	1	100%
NT5-03	Overburden (now covered	Subsurface	*281*	*281*	*281*	1	100%	*1250*	*1250*	*1250*	1	100%
NT5-03	Overburden (now covered	Surface	*393*	*393*	*393*	1	100%	*1130*	*1130*	*1130*	1	100%
NT5-04	Overburden (now covered	Subsurface	*262*	*262*	*262*	1	100%	*1020*	*1020*	*1020*	1	100%
NT5-04	Overburden (now covered	Surface	*215*	*215*	*215*	1	100%	*1030*	*1030*	*1030*	1	100%
NT5-05	Overburden (now covered	Subsurface	*144*	*253*	*193*	3	100%	*560*	*1060*	*823*	3	100%
NT5-05	Overburden (now covered	Surface	*104*	*390*	*248*	3	100%	*530*	*1050*	*841*	3	100%
NT5-06	Overburden (now covered	Subsurface	*52.2*	*400*	*280*	3	100%	*122*	*1170*	*787*	3	100%
NT5-06	Overburden (now covered	Surface	*48.8*	*402*	*242*	3	100%	*143*	*1310*	*791*	3	100%
NT5-07	Original Ground	Subsurface	*24.9*	*31*	*28*	2	100%	*109*	*112*	*111*	2	100%
NT5-07	Original Ground	Surface	*28*	*41.8*	*34.9*	2	100%	*120*	*177*	*149*	2	100%
NT5-08	Original Ground	Subsurface	*38.7*	*41.2*	*40*	2	100%	*157*	*168*	*163*	2	100%
NT5-08	Original Ground	Surface	*44.9*	*47.9*	*46.4*	2	100%	*172*	*182*	*177*	2	100%
NT5-09	iginal Ground (now covere	Subsurface	*63.4*	*157*	*110*	2	100%	*260*	*684*	*472*	2	100%
NT5-09	iginal Ground (now covere	Surface	*92.6*	*155*	*124*	2	100%	*446*	*990*	*718*	2	100%
NT5-10	Original Ground	Subsurface	*53.5*	*118*	*85.8*	2	100%	*177*	*585*	*381*	2	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: 7.8, HH: 5800					Eco: 46, HH: 350000				
Station	**Material Type**	**Depth Class**										
NT5-10	Original Ground	Surface	179	182	181	2	100%	732	905	819	2	100%
NT5-11	Original Ground	Subsurface	28.6	28.6	28.6	1	100%	155	155	155	1	100%
NT5-11	Original Ground	Surface	48.5	48.5	48.5	1	100%	265	265	265	1	100%
NT6-01	Overburden	Subsurface	57.9	57.9	57.9	1	100%	133	133	133	1	100%
NT6-01	Overburden	Surface	109	109	109	1	100%	237	237	237	1	100%
NT6-02	Overburden	Subsurface	263	263	263	1	100%	667	667	667	1	100%
NT6-02	Overburden	Surface	354	354	354	1	100%	776	776	776	1	100%
NT6-03	Overburden	Subsurface	235	235	235	1	100%	680	680	680	1	100%
NT6-03	Overburden	Surface	238	238	238	1	100%	692	692	692	1	100%
NT7-01	Overburden (now covered	Subsurface	116	116	116	1	100%	456	456	456	1	100%
NT7-01	Overburden (now covered	Surface	118	118	118	1	100%	447	447	447	1	100%
NT7-02	Overburden (now covered	Subsurface	216	216	216	1	100%	904	904	904	1	100%
NT7-02	Overburden (now covered	Surface	224	224	224	1	100%	854	854	854	1	100%
NT7-03	iginal Ground (now covere	Subsurface	33.3	33.3	33.3	1	100%	129	129	129	1	100%
NT7-03	iginal Ground (now covere	Surface	38.4	38.4	38.4	1	100%	149	149	149	1	100%
NT9-01	Original Ground	Subsurface	39.3	39.3	39.3	1	100%	79.4	79.4	79.4	1	100%
NT9-01	Original Ground	Surface	40.2	40.2	40.2	1	100%	86.1	86.1	86.1	1	100%
NT9-02	Overburden (now covered	Subsurface	150	150	150	1	100%	545	545	545	1	100%
NT9-02	Overburden (now covered	Surface	163	163	163	1	100%	604	604	604	1	100%
NT9-03	Overburden (now covered	Subsurface	173	173	173	1	100%	559	559	559	1	100%
NT9-03	Overburden (now covered	Surface	207	207	207	1	100%	690	690	690	1	100%
NT9-04	Overburden (now covered	Subsurface	274	274	274	1	100%	905	905	905	1	100%
NT9-04	Overburden (now covered	Surface	351	351	351	1	100%	1030	1030	1030	1	100%
NT9-05	Overburden	Subsurface	276	276	276	1	100%	959	959	959	1	100%
NT9-05	Overburden	Surface	216	216	216	1	100%	727	727	727	1	100%
PC-3	Original Ground	Subsurface	34.8	34.8	34.8	1	100%	117	117	117	1	100%
PC-3	Original Ground	Surface	40.4	40.4	40.4	1	100%	146	146	146	1	100%
PC-5	Original Ground	Subsurface	27.3	27.3	27.3	1	100%	102	102	102	1	100%
PC-5	Original Ground	Surface	29	29	29	1	100%	126	126	126	1	100%
PCO-01	Original Ground	Surface	31.9	31.9	31.9	1	100%	112	112	112	1	100%
PCO-02	Original Ground	Surface	44.2	44.2	44.2	1	100%	344	344	344	1	100%
PCO-03	Original Ground	Surface	52.6	52.6	52.6	1	100%	221	221	221	1	100%
PCO-04	Original Ground	Surface	32.3	32.3	32.3	1	100%	105	105	105	1	100%
PCO-05	Original Ground	Surface	36.4	36.4	36.4	1	100%	145	145	145	1	100%
PCO-06	Original Ground	Surface	117	117	117	1	100%	522	522	522	1	100%
PCO-07	Original Ground	Surface	38.2	38.2	38.2	1	100%	231	231	231	1	100%
PCO-08	Original Ground	Surface	29.2	29.2	29.2	1	100%	89.8	89.8	89.8	1	100%
PCO-09	Original Ground	Surface	27.4	27.4	27.4	1	100%	119	119	119	1	100%
PCO-10	Original Ground	Surface	34.5	34.5	34.5	1	100%	112	112	112	1	100%
PCO-11	Original Ground	Surface	38.1	38.1	38.1	1	100%	109	109	109	1	100%
PCO-12	Original Ground	Surface	26.3	26.3	26.3	1	100%	58.8	58.8	58.8	1	100%
PCO-13	Original Ground	Surface	34.9	34.9	34.9	1	100%	187	187	187	1	100%
PCO-14	Original Ground	Surface	37	37	37	1	100%	223	223	223	1	100%
PCO-15	Original Ground	Surface	36.7	36.7	36.7	1	100%	217	217	217	1	100%
PCO-16	Original Ground	Surface	26.5	26.5	26.5	1	100%	115	115	115	1	100%
PCO-17	Overburden (now covered	Surface	454	454	454	1	100%	1420	1420	1420	1	100%
PCO-18	Overburden (now covered	Surface	241	241	241	1	100%	888	888	888	1	100%
PCO-19	Overburden (now covered	Surface	204	204	204	1	100%	796	796	796	1	100%
PCO-20	Overburden (now covered	Surface	419	419	419	1	100%	1410	1410	1410	1	100%
PCO-21	Overburden (now covered	Surface	281	281	281	1	100%	1110	1110	1110	1	100%
PCO-22	Overburden (now covered	Surface	36.2	36.2	36.2	1	100%	142	142	142	1	100%
PCO-23	Original Ground	Surface	57.4	57.4	57.4	1	100%	310	310	310	1	100%
PCO-24	Original Ground	Surface	192	192	192	1	100%	765	765	765	1	100%
PCO-25	Original Ground	Surface	208	208	208	1	100%	823	823	823	1	100%
PCO-26	Original Ground	Surface	28.8	28.8	28.8	1	100%	143	143	143	1	100%
PCO-27	Original Ground	Surface	28.1	28.1	28.1	1	100%	135	135	135	1	100%
PCO-28	Original Ground	Surface	28.7	28.7	28.7	1	100%	119	119	119	1	100%
PP-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PP-01	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PP-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PP-02	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PP-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PP-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PR-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PR-01	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PR-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PR-02	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PR-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PR-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PR-04	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PR-04	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
PR-05	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
PR-05	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
TP-12	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-13	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-14	Overburden (now covered	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-15	iginal Ground (now covere	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-16	iginal Ground (now covere	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-17	iginal Ground (now covere	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-18	iginal Ground (now covere	Subsurface	na	na	na	na	na	na	na	na	na	na
TP-19	iginal Ground (now covere	Subsurface	na	na	na	na	na	na	na	na	na	na
WD072	Overburden	Surface	140	140	140	1	100%	1100	1100	1100	1	100%
Shield and Jouglard Canyons Sub-Basin												
Borrow 2	Overburden	Surface	na	na	na	na	na	na	na	na	na	na
HHP-1	Original Ground	Subsurface	23.2	23.2	23.2	1	100%	125	125	125	1	100%
HHP-1	Original Ground	Surface	25.5	25.5	25.5	1	100%	135	135	135	1	100%
HiSe	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na
NQ-12	Overburden	Subsurface	134	134	134	1	100%	571	571	571	1	100%
NQ-12	Overburden	Surface	188	188	188	1	100%	659	659	659	1	100%
NQ-15	Overburden	Subsurface	25.8	25.8	25.8	1	100%	134	134	134	1	100%
NQ-15	Overburden	Surface	30.7	30.7	30.7	1	100%	162	162	162	1	100%
NQ-16	Overburden	Subsurface	757	757	757	1	100%	1490	1490	1490	1	100%
NQ-16	Overburden	Surface	896	896	896	1	100%	1630	1630	1630	1	100%
RD-08	Haul roads	Subsurface	26.6	26.6	26.6	1	100%	159	159	159	1	100%
RD-09	Haul roads	Subsurface	27.3	27.3	27.3	1	100%	81.8	81.8	81.8	1	100%
RD-10	Haul roads	Subsurface	27.2	27.2	27.2	1	100%	154	154	154	1	100%
RD-11	Haul roads	Subsurface	41.9	41.9	41.9	1	100%	163	163	163	1	100%
RD-12	Haul roads	Subsurface	24.4	24.4	24.4	1	100%	73.8	73.8	73.8	1	100%
RD-13	Haul roads	Subsurface	15.2	15.2	15.2	1	100%	37.5	37.5	37.5	1	100%
RD-21	Haul roads	Subsurface	309	309	309	1	100%	950	950	950	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: 7.8, HH: 5800					Eco: 46, HH: 350000				
Station	**Material Type**	**Depth Class**										
RD-22	Haul roads	Subsurface	32.5	32.5	32.5	1	100%	84.5	84.5	84.5	1	100%
RD-23	Haul roads	Subsurface	97.1	97.1	97.1	1	100%	254	254	254	1	100%
RD-24	Haul roads	Subsurface	410	410	410	1	100%	557	557	557	1	100%
SQ-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SQ-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
ST10-03	Overburden	Subsurface	121	191	156	2	100%	403	1130	767	2	100%
ST10-03	Overburden	Surface	345	446	396	2	100%	937	1010	974	2	100%
ST10-04	Overburden	Subsurface	396	400	398	2	100%	938	1010	974	2	100%
ST10-04	Overburden	Surface	401	470	436	2	100%	977	1170	1074	2	100%
ST10-05	Overburden	Subsurface	147	217	182	2	100%	1010	1440	1225	2	100%
ST10-05	Overburden	Surface	161	195	178	2	100%	787	1360	1074	2	100%
ST10-06	Original Ground	Subsurface	16.1	17.1	16.6	2	100%	64.2	91.5	77.9	2	100%
ST10-06	Original Ground	Surface	16.8	25.2	21	2	100%	58.3	132	95.2	2	100%
ST14-01	Waste Rock	Subsurface	34.6	354	194	2	100%	254	727	491	2	100%
ST14-01	Waste Rock	Surface	63.6	233	148	2	100%	396	649	523	2	100%
ST4-05	Overburden	Subsurface	140	168	154	2	100%	632	632	632	2	100%
ST4-05	Overburden	Surface	147	158	153	2	100%	473	580	527	2	100%
ST4-06	Overburden	Subsurface	171	198	185	2	100%	219	542	381	2	100%
ST4-06	Overburden	Surface	110	139	125	2	100%	422	484	453	2	100%
ST5-01	Overburden	Subsurface	140	140	140	1	100%	418	418	418	1	100%
ST5-01	Overburden	Surface	137	137	137	1	100%	442	442	442	1	100%
ST5-02	Overburden	Subsurface	210	210	210	1	100%	855	855	855	1	100%
ST5-02	Overburden	Surface	175	175	175	1	100%	674	674	674	1	100%
ST5-03	Overburden	Subsurface	146	146	146	1	100%	656	656	656	1	100%
ST5-03	Overburden	Surface	183	183	183	1	100%	681	681	681	1	100%
ST6-01	Overburden	Subsurface	531	531	531	1	100%	910	910	910	1	100%
ST6-01	Overburden	Surface	622	622	622	1	100%	1030	1030	1030	1	100%
ST6-02	Overburden	Subsurface	99.3	99.3	99.3	1	100%	226	226	226	1	100%
ST6-02	Overburden	Surface	133	133	133	1	100%	249	249	249	1	100%
ST6-03	Overburden	Subsurface	605	605	605	1	100%	1210	1210	1210	1	100%
ST6-03	Overburden	Surface	646	646	646	1	100%	1190	1190	1190	1	100%
ST7-00	Original Ground	Subsurface	23.7	23.7	23.7	1	100%	100	100	100	1	100%
ST7-00	Original Ground	Surface	56	56	56	1	100%	194	194	194	1	100%
TP-10	Original Ground	Subsurface	31.3	32.5	32	3	100%	82	186	135	3	100%
TP-11	Original Ground	Subsurface	26.7	37	31.2	3	100%	60.9	80.9	72.8	3	100%
TP-5	Original Ground	Subsurface	50.7	88.6	66.6	3	100%	142	178	160	3	100%
TP-5a	Original Ground	Subsurface	73.8	94.6	84.2	2	100%	143	208	176	2	100%
TP-5b	Original Ground	Subsurface	25.7	34.3	29.8	3	100%	54.3	111	77.5	3	100%
TP-6	Original Ground	Subsurface	48.1	121	81.6	3	100%	122	200	165	3	100%
TP-7	Original Ground	Subsurface	31	34.6	33.2	3	100%	42.6	63.5	55.4	3	100%
TP-8	Original Ground	Subsurface	32.1	37.7	35.3	3	100%	78.5	165	116	3	100%
TP-9	Original Ground	Subsurface	26.7	39.3	31.6	3	100%	53.6	94.6	69.4	3	100%
Southwest Conda Sub-Basin												
ST10-01	Original Ground	Subsurface	34.5	97.6	66.1	2	100%	209	411	310	2	100%
ST10-01	Original Ground	Surface	82.3	90.1	86.2	2	100%	347	400	374	2	100%
ST10-02	Original Ground	Subsurface	316	438	377	2	100%	856	1310	1083	2	100%
ST10-02	Original Ground	Surface	361	392	377	2	100%	1090	1240	1165	2	100%
ST11-01	Original Ground	Subsurface	33.9	47.3	40.6	2	100%	70.9	119	95	2	100%
ST11-01	Original Ground	Surface	36	50.4	43.2	2	100%	78.2	130	104	2	100%
ST11-02	Original Ground	Subsurface	29.7	38.8	34.3	2	100%	50.9	91.6	71.3	2	100%
ST11-02	Original Ground	Surface	36.5	43.4	40	2	100%	68.6	111	89.8	2	100%
ST11-03	Original Ground	Subsurface	31.2	35.1	33.2	2	100%	67.6	88	77.8	2	100%
ST11-03	Original Ground	Surface	40.2	44.8	42.5	2	100%	93.1	125	109	2	100%
ST11-04	Original Ground	Subsurface	34	41	37.5	2	100%	94.4	147	121	2	100%
ST11-04	Original Ground	Surface	35.1	35.5	35.3	2	100%	90.8	101	95.9	2	100%
State Land Creek Sub-Basin												
NQ-01	Overburden	Subsurface	52.3	52.3	52.3	1	100%	191	191	191	1	100%
NQ-01	Overburden	Surface	63.4	63.4	63.4	1	100%	260	260	260	1	100%
NQ-02	Overburden	Subsurface	285	285	285	1	100%	1120	1120	1120	1	100%
NQ-02	Overburden	Surface	217	217	217	1	100%	879	879	879	1	100%
NQ-06	Overburden	Subsurface	146	146	146	1	100%	726	726	726	1	100%
NQ-06	Overburden	Surface	127	127	127	1	100%	660	660	660	1	100%
NT1-01	Original Ground	Subsurface	16.2	16.2	16.2	1	100%	34.9	34.9	34.9	1	100%
NT1-01	Original Ground	Surface	25.3	25.3	25.3	1	100%	67.2	67.2	67.2	1	100%
NT1-02	Overburden	Subsurface	201	201	201	1	100%	552	552	552	1	100%
NT1-02	Overburden	Surface	220	220	220	1	100%	599	599	599	1	100%
NT1-03	Overburden	Subsurface	206	206	206	1	100%	848	848	848	1	100%
NT1-03	Overburden	Surface	152	152	152	1	100%	673	673	673	1	100%
NT1-04	Overburden	Subsurface	141	141	141	1	100%	418	418	418	1	100%
NT1-04	Overburden	Surface	128	128	128	1	100%	490	490	490	1	100%
NT1-05	Overburden	Subsurface	30.4	30.4	30.4	1	100%	214	214	214	1	100%
NT1-05	Overburden	Surface	35.1	35.1	35.1	1	100%	226	226	226	1	100%
NT2-01	Overburden	Subsurface	542	542	542	1	100%	1340	1340	1340	1	100%
NT2-01	Overburden	Surface	577	577	577	1	100%	1490	1490	1490	1	100%
NT2-02	Overburden	Subsurface	288	288	288	1	100%	1050	1050	1050	1	100%
NT2-02	Overburden	Surface	294	294	294	1	100%	1190	1190	1190	1	100%
NT2-03	Overburden	Subsurface	248	248	248	1	100%	1040	1040	1040	1	100%
NT2-03	Overburden	Surface	233	233	233	1	100%	1010	1010	1010	1	100%
NT2-04	Overburden	Subsurface	28.2	28.2	28.2	1	100%	52.6	52.6	52.6	1	100%
NT2-04	Overburden	Surface	29.2	31.2	30.2	2	100%	50.1	53.3	51.7	2	100%
NT2-05	Original Ground	Subsurface	27.5	27.5	27.5	1	100%	71.5	71.5	71.5	1	100%
NT2-05	Original Ground	Surface	31.8	32.4	32.1	2	100%	83.3	91.5	87.4	2	100%
NT2-06	Original Ground	Subsurface	24.9	24.9	24.9	1	100%	86.6	86.6	86.6	1	100%
NT2-06	Original Ground	Surface	29.9	31.8	30.9	2	100%	94.3	107	101	2	100%
NT4-01	Overburden	Subsurface	305	305	305	1	100%	1170	1170	1170	1	100%
NT4-01	Overburden	Surface	257	257	257	1	100%	846	846	846	1	100%
NT4-02	Overburden	Subsurface	63.2	63.2	63.2	1	100%	374	374	374	1	100%
NT4-02	Overburden	Surface	83	83	83	1	100%	451	451	451	1	100%
NT4-03	Overburden	Subsurface	306	306	306	1	100%	442	442	442	1	100%
NT4-03	Overburden	Surface	310	310	310	1	100%	426	426	426	1	100%
NT8-03	Original Ground	Subsurface	31.2	39.3	35.3	2	100%	76.5	132	104	2	100%
NT8-03	Original Ground	Surface	36.3	37.1	36.7	2	100%	115	139	127	2	100%
NT8-04	Original Ground	Subsurface	30.2	33.9	32.1	2	100%	81.9	87	84.5	2	100%
NT8-04	Original Ground	Surface	30	32.3	31.2	2	100%	93.7	99.3	96.5	2	100%
NT8-05	Original Ground	Subsurface	30.7	30.8	30.8	2	100%	73.8	76	74.9	2	100%
NT8-05	Original Ground	Surface	29.3	31.2	30.3	2	100%	79.8	107	93.4	2	100%
NT8-06	Original Ground	Subsurface	29.1	31.4	30.3	2	100%	79	92.6	85.8	2	100%
NT8-06	Original Ground	Surface	24.5	32.7	28.6	2	100%	99.5	113	106	2	100%
SLC-2	Original Ground	Subsurface	31	31	31	1	100%	131	131	131	1	100%
SLC-2	Original Ground	Surface	33	33	33	1	100%	138	138	138	1	100%

Table 4-9
Summary of Detected Metals Results in Soils

		Analyte >>	Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: 7.8, HH: 5800					Eco: 46, HH: 350000				
Station	**Material Type**	**Depth Class**										
SLC-3	Original Ground	Subsurface	*38.1*	*38.1*	*38.1*	1	100%	*171*	*171*	*171*	1	100%
SLC-3	Original Ground	Surface	*37.4*	*37.4*	*37.4*	1	100%	*178*	*178*	*178*	1	100%
SP-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SP-01	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SP-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SP-02	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SP-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SP-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SP-04	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SP-04	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SR-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SR-01	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SR-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SR-02	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SR-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SR-03	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SR-04	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SR-04	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
SR-05	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na
SR-05	Original Ground	Surface	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin												
NT3-01	Overburden	Subsurface	*305*	*305*	*305*	1	100%	*1060*	*1060*	*1060*	1	100%
NT3-01	Overburden	Surface	*289*	*289*	*289*	1	100%	*1400*	*1400*	*1400*	1	100%
NT3-02	Overburden	Subsurface	*232*	*532*	*382*	2	100%	*852*	*1260*	*1056*	2	100%
NT3-02	Overburden	Surface	*182*	*332*	*257*	2	100%	*1220*	*1320*	*1270*	2	100%
NT3-03	Overburden	Subsurface	*254*	*254*	*254*	1	100%	*1010*	*1010*	*1010*	1	100%
NT3-03	Overburden	Surface	*246*	*246*	*246*	1	100%	*1050*	*1050*	*1050*	1	100%
NT3-04	Overburden	Subsurface	*571*	*571*	*571*	1	100%	*570*	*570*	*570*	1	100%
NT3-04	Overburden	Surface	*454*	*454*	*454*	1	100%	*583*	*583*	*583*	1	100%
NT3-05	Overburden	Subsurface	*247*	*247*	*247*	1	100%	*1040*	*1040*	*1040*	1	100%
NT3-05	Overburden	Surface	*218*	*218*	*218*	1	100%	*927*	*927*	*927*	1	100%
NT3-06	Overburden	Subsurface	*811*	*811*	*811*	1	100%	*1310*	*1310*	*1310*	1	100%
NT3-06	Overburden	Surface	*606*	*606*	*606*	1	100%	*1040*	*1040*	*1040*	1	100%
NT3-07	Original Ground	Subsurface	*385*	*385*	*385*	1	100%	*750*	*750*	*750*	1	100%
NT3-07	Original Ground	Surface	*390*	*390*	*390*	1	100%	*757*	*757*	*757*	1	100%
Offsite-Blackfoot River												
MST020	Offsite	Surface	*31*	*31*	*31*	1	100%	*80*	*80*	*80*	1	100%
MST231	Offsite	Surface	*22*	*22*	*22*	1	100%	*61*	*61*	*61*	1	100%
ST019	Offsite	Surface	*41*	*41*	*41*	1	100%	*120*	*120*	*120*	1	100%
ST021	Offsite	Surface	*33*	*33*	*33*	1	100%	*100*	*100*	*100*	1	100%
ST022	Offsite	Surface	*26*	*26*	*26*	1	100%	*63*	*63*	*63*	1	100%
ST230	Offsite	Surface	*22*	*22*	*22*	1	100%	*60*	*60*	*60*	1	100%
ST232	Offsite	Surface	*31*	*31*	*31*	1	100%	*71*	*71*	*71*	1	100%
Offsite-Trail Creek												
ST076	Offsite	Surface	*50*	*54*	*51.7*	3	100%	*110*	*110*	*110*	3	100%

Table 4-9
Summary of Detected Metals Results in Soils
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

na = not analyzed.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

FSPS soil samples are composite samples collected from the root-zone within 0-12 inch interval. Additional depth-profile sample results were collected from a subset of plots. Overburden samples were collected prior to FSPS plot construction.

More information about ecological ("Eco") and human health ("HH") soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

NA = comparison value not available.

Table 4-10
Summary of Detected Volatile Organic Compound (VOC) Results in Soils

		Analyte >>	1,2,4-Trimethylbenzene					1,3,5-Trimethylbenzene					Diesel				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: 240					Eco: NA, HH: 12000					Eco: NA, HH: NA				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-03	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface	0.0278	0.0278	0.0278	1	100%				1	0%				1	0%
ST9-04	Former Mill/Townsite	Surface	0.0517	0.0517	0.0517	1	100%	0.0527	0.0527	0.0527	1	100%	63.8	63.8	63.8	1	100%
		Subsurface	0.0579	0.0579	0.0579	1	100%	0.0408	0.0408	0.0408	1	100%	71.8	71.8	71.8	1	100%
ST9-05	Former Mill/Townsite	Surface				1	0%				1	0%	32.4	32.4	32.4	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface	0.0304	0.0304	0.0304	1	100%	0.0175	0.0175	0.0175	1	100%	28.2	28.2	28.2	1	100%
		Subsurface	0.0265	0.0265	0.0265	1	100%	0.0186	0.0186	0.0186	1	100%	41.5	41.5	41.5	1	100%
ST9-10	Former Mill/Townsite	Surface	0.0219	0.0219	0.0219	1	100%				1	0%	41.4	41.4	41.4	1	100%
		Subsurface	0.024	0.024	0.024	1	100%	0.0168	0.0168	0.0168	1	100%	37.2	37.2	37.2	1	100%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface				1	0%				1	0%	90.5	90.5	90.5	1	100%
		Subsurface				1	0%				1	0%	87.4	87.4	87.4	1	100%

Table 4-10
Summary of Detected Volatile Organic Compound (VOC) Results in Soils

		Analyte >>	Gasoline					Lube Oil					m+p-Xylene				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 2500				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%	101	101	101	1	100%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-03	Former Mill/Townsite	Surface				1	0%	113	113	113	1	100%				1	0%
		Subsurface				1	0%				1	0%	0.0481	0.0481	0.0481	1	100%
ST9-04	Former Mill/Townsite	Surface	11.9	11.9	11.9	1	100%	128	128	128	1	100%	0.0668	0.0668	0.0668	1	100%
		Subsurface	11.4	11.4	11.4	1	100%	178	178	178	1	100%	0.0571	0.0571	0.0571	1	100%
ST9-05	Former Mill/Townsite	Surface				1	0%	237	237	237	1	100%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface				1	0%	188	188	188	1	100%				1	0%
		Subsurface				1	0%	172	172	172	1	100%				1	0%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%	128	128	128	1	100%				1	0%
		Subsurface	5.19	5.19	5.19	1	100%	101	101	101	1	100%				1	0%
ST9-10	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%	106	106	106	1	100%				1	0%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface				1	0%	764	764	764	1	100%				1	0%
		Subsurface				1	0%	695	695	695	1	100%				1	0%

Table 4-10
Summary of Detected Volatile Organic Compound (VOC) Results in Soils

		Analyte >>	Methyl ethyl ketone (MEK)					o-Xylene					Tetrachloroethene				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: 190000					Eco: NA, HH: 2800					Eco: NA, HH: 100				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-03	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-04	Former Mill/Townsite	Surface				1	0%	0.0222	0.0222	0.0222	1	100%				1	0%
		Subsurface				1	0%	0.0286	0.0286	0.0286	1	100%				1	0%
ST9-05	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%				1	0%	0.026	0.026	0.026	1	100%
		Subsurface				1	0%				1	0%	0.019	0.019	0.019	1	100%
ST9-10	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%	0.019	0.019	0.019	1	100%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface	0.0807	0.0807	0.0807	1	100%				1	0%				1	0%
		Subsurface	0.0903	0.0903	0.0903	1	100%				1	0%				1	0%

Table 4-10
Summary of Detected Volatile Organic Compound (VOC) Results in Soils

		Analyte >>	Toluene					Trichloroflouromethane				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: 47000					Eco: NA, HH: 350000				
Station	**Material Type**	**Depth Class**										
French Drain Sub-Basin												
ST9-01	Original Ground	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-03	Former Mill/Townsite	Surface	0.075	0.075	0.075	1	100%				1	0%
		Subsurface	0.05	0.05	0.05	1	100%				1	0%
ST9-04	Former Mill/Townsite	Surface	0.032	0.032	0.032	1	100%				1	0%
		Subsurface	0.051	0.051	0.051	1	100%				1	0%
ST9-05	Former Mill/Townsite	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-07	Original Ground	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface	0.039	0.039	0.039	1	100%	0.0755	0.0755	0.0755	1	100%
		Subsurface				1	0%	0.011	0.011	0.011	1	100%
ST9-10	Former Mill/Townsite	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%
		Subsurface				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface	0.027	0.027	0.027	1	100%				1	0%
		Subsurface				1	0%				1	0%

Table 4-10
Summary of Detected Volatile Organic Compound (VOC) Results in Soils
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

VOC = volatile organic compound

na = not analyzed.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

More information about ecological ("Eco") and human health ("HH") soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

NA = comparison value not available.

Table 4-11
Summary of Detected Semi-Volatile Organic Compound (SVOC) Results in Soils

		Analyte>>	1-Methylnaphthalene					2-Methylnaphthalene					bis(2-Ethylhexyl)phthalate				
		Information Type>>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units>>	mg/kg					mg/kg					mg/kg				
		Comparison Value>>	Eco: NA, HH: 73					Eco: NA, HH: 3000					Eco: NA, HH: 160				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface				1	0%				1	0%	0.14	0.14	0.14	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-03	Former Mill/Townsite	Surface				1	0%	0.08	0.08	0.08	1	100%				1	0%
		Subsurface	0.05	0.05	0.05	1	100%	0.08	0.08	0.08	1	100%				1	0%
ST9-04	Former Mill/Townsite	Surface	0.09	0.09	0.09	1	100%	0.13	0.13	0.13	1	100%	0.1	0.1	0.1	1	100%
		Subsurface	0.08	0.08	0.08	1	100%	0.12	0.12	0.12	1	100%				1	0%
ST9-05	Former Mill/Townsite	Surface				1	0%				1	0%	0.16	0.16	0.16	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface				1	0%	0.05	0.05	0.05	1	100%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%	0.05	0.05	0.05	1	100%				1	0%
		Subsurface	0.05	0.05	0.05	1	100%	0.06	0.06	0.06	1	100%				1	0%
ST9-10	Former Mill/Townsite	Surface	0.05	0.05	0.05	1	100%	0.08	0.08	0.08	1	100%				1	0%
		Subsurface	0.05	0.05	0.05	1	100%	0.06	0.06	0.06	1	100%				1	0%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface	0.07	0.07	0.07	1	100%	0.1	0.1	0.1	1	100%	0.11	0.11	0.11	1	100%
		Subsurface	0.1	0.1	0.1	1	100%	0.12	0.12	0.12	1	100%				1	0%

Table 4-11
Summary of Detected Semi-Volatile Organic Compound (SVOC) Results in Soils
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

na = not analyzed.

SVOC = semi-volatile organic compound

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

More information about ecological ("Eco") and human health ("HH") soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

NA = comparison value not available.

Table 4-12
Summary of Detected Polycyclic Aromatic Hydrocarbon (PAH) Results in Soils

		Analyte >>	Benzo[a]anthracene					Benzo[a]pyrene					Benzo[b]fluoranthene				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: 2.9					Eco: NA, HH: 0.29					Eco: NA, HH: 2.9				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface	0.05	0.05	0.05	1	100%	0.09	0.09	0.09	1	100%	0.08	0.08	0.08	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%	0.07	0.07	0.07	1	100%
ST9-03	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-04	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%	0.05	0.05	0.05	1	100%
ST9-05	Former Mill/Townsite	Surface	0.05	0.05	0.05	1	100%	0.05	0.05	0.05	1	100%	0.05	0.05	0.05	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface	0.14	0.14	0.14	1	100%	0.16	0.16	0.16	1	100%	0.18	0.18	0.18	1	100%
		Subsurface	0.1	0.1	0.1	1	100%	0.11	0.11	0.11	1	100%	0.09	0.09	0.09	1	100%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-10	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface	0.08	0.08	0.08	1	100%	0.07	0.07	0.07	1	100%	0.09	0.09	0.09	1	100%
		Subsurface	0.07	0.07	0.07	1	100%	0.05	0.05	0.05	1	100%	0.27	0.27	0.27	1	100%

Table 4-12
Summary of Detected Polycyclic Aromatic Hydrocarbon (PAH) Results in Soils

		Analyte >>	Benzo(ghi)perylene					Benzo[k]fluoranthene					Chrysene				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: NA					Eco: NA, HH: 29					Eco: NA, HH: 290				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface	0.13	0.13	0.13	1	100%	0.08	0.08	0.08	1	100%	0.05	0.05	0.05	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%	0.07	0.07	0.07	1	100%
		Subsurface				1	0%				1	0%	0.07	0.07	0.07	1	100%
ST9-03	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-04	Former Mill/Townsite	Surface				1	0%				1	0%	0.06	0.06	0.06	1	100%
		Subsurface				1	0%				1	0%	0.09	0.09	0.09	1	100%
ST9-05	Former Mill/Townsite	Surface	0.05	0.05	0.05	1	100%				1	0%	0.07	0.07	0.07	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface	0.12	0.12	0.12	1	100%	0.18	0.18	0.18	1	100%	0.17	0.17	0.17	1	100%
		Subsurface	0.11	0.11	0.11	1	100%	0.09	0.09	0.09	1	100%	0.12	0.12	0.12	1	100%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%				1	0%	0.05	0.05	0.05	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-10	Former Mill/Townsite	Surface				1	0%				1	0%	0.07	0.07	0.07	1	100%
		Subsurface				1	0%				1	0%	0.06	0.06	0.06	1	100%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface	0.09	0.09	0.09	1	100%	0.07	0.07	0.07	1	100%	0.11	0.11	0.11	1	100%
		Subsurface				1	0%				1	0%				1	0%

Table 4-12
Summary of Detected Polycyclic Aromatic Hydrocarbon (PAH) Results in Soils

		Analyte >>	Dibenz[a,h]anthracene					Fluoranthene					Indeno[1,2,3-cd]pyrene				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: 0.29					Eco: NA, HH: 30000					Eco: NA, HH: 2.9				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface	0.1	0.1	0.1	1	100%	0.05	0.05	0.05	1	100%	0.14	0.14	0.14	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-03	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%	0.05	0.05	0.05	1	100%				1	0%
ST9-04	Former Mill/Townsite	Surface				1	0%	0.07	0.07	0.07	1	100%				1	0%
		Subsurface				1	0%	0.08	0.08	0.08	1	100%				1	0%
ST9-05	Former Mill/Townsite	Surface				1	0%	0.07	0.07	0.07	1	100%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface				1	0%	0.2	0.2	0.2	1	100%	0.1	0.1	0.1	1	100%
		Subsurface				1	0%	0.12	0.12	0.12	1	100%	0.09	0.09	0.09	1	100%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-10	Former Mill/Townsite	Surface				1	0%	0.06	0.06	0.06	1	100%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface				1	0%	0.29	0.29	0.29	1	100%				1	0%
		Subsurface				1	0%	0.17	0.17	0.17	1	100%				1	0%

Table 4-12
Summary of Detected Polycyclic Aromatic Hydrocarbon (PAH) Results in Soils

		Analyte >>	Naphthalene					Phenanthrene					Pyrene				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg				
		Comparison Value >>	Eco: NA, HH: 17					Eco: NA, HH: NA					Eco: NA, HH: 23000				
Station	**Material Type**	**Depth Class**															
French Drain Sub-Basin																	
ST9-01	Original Ground	Surface				1	0%				1	0%	0.06	0.06	0.06	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-02	Former Mill/Townsite	Surface				1	0%	0.07	0.07	0.07	1	100%				1	0%
		Subsurface				1	0%	0.07	0.07	0.07	1	100%				1	0%
ST9-03	Former Mill/Townsite	Surface	0.08	0.08	0.08	1	100%	0.1	0.1	0.1	1	100%				1	0%
		Subsurface	0.09	0.09	0.09	1	100%	0.12	0.12	0.12	1	100%	0.05	0.05	0.05	1	100%
ST9-04	Former Mill/Townsite	Surface	0.06	0.06	0.06	1	100%	0.15	0.15	0.15	1	100%	0.06	0.06	0.06	1	100%
		Subsurface	0.08	0.08	0.08	1	100%	0.19	0.19	0.19	1	100%	0.07	0.07	0.07	1	100%
ST9-05	Former Mill/Townsite	Surface				1	0%	0.05	0.05	0.05	1	100%	0.07	0.07	0.07	1	100%
		Subsurface				1	0%				1	0%				1	0%
ST9-06	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-07	Original Ground	Surface	0.05	0.05	0.05	1	100%	0.06	0.06	0.06	1	100%	0.18	0.18	0.18	1	100%
		Subsurface				1	0%				1	0%	0.11	0.11	0.11	1	100%
ST9-08	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-09	Former Mill/Townsite	Surface				1	0%	0.06	0.06	0.06	1	100%				1	0%
		Subsurface				1	0%	0.06	0.06	0.06	1	100%				1	0%
ST9-10	Former Mill/Townsite	Surface				1	0%	0.07	0.07	0.07	1	100%	0.06	0.06	0.06	1	100%
		Subsurface				1	0%	0.08	0.08	0.08	1	100%				1	0%
ST9-11	Former Mill/Townsite	Surface				1	0%				1	0%				1	0%
		Subsurface				1	0%				1	0%				1	0%
ST9-12	Former Mill/Townsite	Surface	0.09	0.09	0.09	1	100%	0.24	0.24	0.24	1	100%	0.16	0.16	0.16	1	100%
		Subsurface	0.09	0.09	0.09	1	100%	0.15	0.15	0.15	1	100%	0.1	0.1	0.1	1	100%

Table 4-12
Summary of Detected Polycyclic Aromatic Hydrocarbon (PAH) Results in Soils
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

na = not analyzed.

PAH = polycyclic aromatic hydrocarbon

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

More information about ecological ("Eco") and human health ("HH") soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

NA = comparison value not available.

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Ammonia, as N					Carbon, Organic					Carbon, Total					Clay					Electrical Conductivity					Fluoride					Nitrate + Nitrite, as N				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					%					%					%					umhos/cm					mg/kg					mg/kg				
		Comparison Value >>	NA					NA					NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																																			
Camp G Creek Sub-Basin																																					
Dredge Ranch	Original Ground	Subsurface	2.8	3.6	3.27	3	100%	na	na	na	na	na	4.2	5.2	4.77	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST3-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	5.08	5.08	5.08	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.74	0.74	0.74	1	100%
ST3-02	Waste Rock	Subsurface	na	na	na	na	na	na	na	na	na	na	4.61	4.61	4.61	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.68	1.68	1.68	1	100%
ST3-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	2.56	2.56	2.56	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.39	1.39	1.39	1	100%
French Drain Sub-Basin																																					
Con	Original Ground	Subsurface	2.2	5.7	4.1	12	100%	na	na	na	na	na	1.5	5.1	2.9	12	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
LoSe	Overburden	Subsurface	3	11	5.15	12	100%	na	na	na	na	na	3	6.3	4.55	12	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SQ-02	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	2.5	2.5	2.5	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.53	1.53	1.53	1	100%
ST1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.93	2.93	2.93	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	15.73	15.73	15.7	1	100%
ST1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.04	3.04	3.04	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.37	2.37	2.37	1	100%
ST4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.1	3.1	3.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.54	3.54	3.54	1	100%
ST4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.02	3.02	3.02	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	11.26	11.26	11.3	1	100%
ST4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.91	3.91	3.91	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	13.08	13.08	13.1	1	100%
ST4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.56	5.56	5.56	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.26	3.26	3.26	1	100%
ST8-01	Former Mill/Townsite	Subsurface	na	na	na	na	na	na	na	na	na	na	4.12	4.12	4.12	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.84	3.84	3.84	1	100%
ST8-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	6.61	6.61	6.61	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	33.41	33.41	33.4	1	100%
ST8-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	4.28	4.28	4.28	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.34	7.34	7.34	1	100%
ST8-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.5	3.5	3.5	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	15.94	15.94	15.9	1	100%
WD062	Overburden	Surface	na	na	na	na	na	3.4	3.9	3.67	3	100%	na	na	na	na	na	25.1	26	25.6	3	100%	680	690	683	3	100%	640	960	817	3	100%	na	na	na	na	na
WD068	Overburden	Surface	na	na	na	na	na	1.9	1.9	1.9	1	100%	na	na	na	na	na	21.2	21.2	21.2	1	100%	480	480	480	1	100%	1000	1000	1000	1	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																																					
ST7-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.91	5.91	5.91	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.2	7.2	7.2	1	100%
ST7-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	4.99	4.99	4.99	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10.98	10.98	11	1	100%
ST7-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.87	3.87	3.87	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.38	1.38	1.38	1	100%
WD069	Overburden	Surface	na	na	na	na	na	8.8	8.8	8.8	1	100%	na	na	na	na	na	34.2	34.2	34.2	1	100%	500	500	500	1	100%	930	930	930	1	100%	na	na	na	na	na
Old Tailings Pond Sub-Basin																																					
NT4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.32	3.32	3.32	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.22	2.22	2.22	1	100%
SQ-01	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	3.8	3.8	3.8	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.32	0.32	0.32	1	100%
ST1-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.34	3.34	3.34	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.49	1.49	1.49	1	100%
ST2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.72	3.72	3.72	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.18	2.18	2.18	1	100%
ST2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.27	2.27	2.27	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.03	7.03	7.03	1	100%
ST2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.21	5.21	5.21	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.37	3.37	3.37	1	100%
ST2-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.65	3.65	3.65	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.14	4.14	4.14	1	100%
ST2-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.08	2.08	2.08	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.6	2.6	2.6	1	100%
TP2-SB1	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.4	7.1	4.83	4	100%	na	na	na	na	na
TP2-SB2	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.5	5.2	4.24	5	100%	na	na	na	na	na
TP2-SB3	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.7	5.1	4.37	7	100%	na	na	na	na	na
TP2-SB4	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.5	6.5	4.54	7	100%	na	na	na	na	na
TP2-SB5	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.6	6	4.44	10	100%	na	na	na	na	na
Pedro Creek Sub-Basin																																					
FSPS-10D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-11C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-12A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-13B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Nitrate, as N					Nitrogen, Total					Nitrogen-TKN					Organic Matter					Particle Size > 2 mm					pH				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					%					mg/kg					%					%					SU				
		Comparison Value >>	NA					NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																														
Camp G Creek Sub-Basin																																
Dredge Ranch	Original Ground	Subsurface	1.3	2.5	1.93	3	100%	0.35	0.43	0.39	3	100%	na	na	na	na	na	6.2	7.7	7.2	3	100%	na	na	na	na	na	6.7	7	6.83	3	100%
ST3-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	4240	4240	4240	1	100%	5.7	5.7	5.7	1	100%	na	na	na	na	na	6.9	6.9	6.9	1	100%
ST3-02	Waste Rock	Subsurface	na	na	na	na	na	na	na	na	na	na	3560	3560	3560	1	100%	4.76	4.76	4.76	1	100%	na	na	na	na	na	6.97	6.97	6.97	1	100%
ST3-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	4610	4610	4610	1	100%	8.24	8.24	8.24	1	100%	na	na	na	na	na	6.37	6.37	6.37	1	100%
French Drain Sub-Basin																																
Con	Original Ground	Subsurface	1	4.6	2.64	7	100%	0.07	0.31	0.18	12	100%	na	na	na	na	na	2.5	7.6	4.74	12	100%	na	na	na	na	na	6.2	7.8	6.78	12	100%
LoSe	Overburden	Subsurface	0.9	6.1	2.51	9	100%	0.29	0.69	0.513	12	100%	na	na	na	na	na	3.7	8.9	6.77	11	100%	na	na	na	na	na	6.5	7.5	7.05	12	100%
SQ-02	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	754	754	754	1	100%	3.81	3.81	3.81	1	100%	na	na	na	na	na	7.94	7.94	7.94	1	100%
ST1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1220	1220	1220	1	100%	4.84	4.84	4.84	1	100%	na	na	na	na	na	8.03	8.03	8.03	1	100%
ST1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1020	1020	1020	1	100%	7.11	7.11	7.11	1	100%	na	na	na	na	na	7.68	7.68	7.68	1	100%
ST4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1130	1130	1130	1	100%	6.99	6.99	6.99	1	100%	na	na	na	na	na	7.61	7.61	7.61	1	100%
ST4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1220	1220	1220	1	100%	5.66	5.66	5.66	1	100%	na	na	na	na	na	6.09	6.09	6.09	1	100%
ST4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1440	1440	1440	1	100%	6.76	6.76	6.76	1	100%	na	na	na	na	na	6.8	6.8	6.8	1	100%
ST4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1740	1740	1740	1	100%	12.12	12.12	12.1	1	100%	na	na	na	na	na	7.51	7.51	7.51	1	100%
ST8-01	Former Mill/Townsite	Subsurface	na	na	na	na	na	na	na	na	na	na	2680	2680	2680	1	100%	6.25	6.25	6.25	1	100%	na	na	na	na	na	7.53	7.53	7.53	1	100%
ST8-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	2560	2560	2560	1	100%	10.55	10.55	10.6	1	100%	na	na	na	na	na	7.27	7.27	7.27	1	100%
ST8-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	7890	7890	7890	1	100%	9.5	9.5	9.5	1	100%	na	na	na	na	na	7.39	7.39	7.39	1	100%
ST8-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3110	3110	3110	1	100%	6.01	6.01	6.01	1	100%	na	na	na	na	na	7.34	7.34	7.34	1	100%
WD062	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	0	0	3	100%	7.2	7.2	7.2	3	100%
WD068	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	48	48	48	1	100%	7.6	7.6	7.6	1	100%
Margarette Creek/Trail Canyon Sub-Basin																																
ST7-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1540	1540	1540	1	100%	8.4	8.4	8.4	1	100%	na	na	na	na	na	7.67	7.67	7.67	1	100%
ST7-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1290	1290	1290	1	100%	8.71	8.71	8.71	1	100%	na	na	na	na	na	7.72	7.72	7.72	1	100%
ST7-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1060	1060	1060	1	100%	6.87	6.87	6.87	1	100%	na	na	na	na	na	7.46	7.46	7.46	1	100%
WD069	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	41	41	41	1	100%	7.1	7.1	7.1	1	100%
Old Tailings Pond Sub-Basin																																
NT4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1260	1260	1260	1	100%	6.45	6.45	6.45	1	100%	na	na	na	na	na	7.91	7.91	7.91	1	100%
SQ-01	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	1110	1110	1110	1	100%	8.26	8.26	8.26	1	100%	na	na	na	na	na	8.08	8.08	8.08	1	100%
ST1-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1250	1250	1250	1	100%	6.72	6.72	6.72	1	100%	na	na	na	na	na	7.65	7.65	7.65	1	100%
ST2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1100	1100	1100	1	100%	6.4	6.4	6.4	1	100%	na	na	na	na	na	7.72	7.72	7.72	1	100%
ST2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1230	1230	1230	1	100%	5.11	5.11	5.11	1	100%	na	na	na	na	na	7.28	7.28	7.28	1	100%
ST2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1630	1630	1630	1	100%	9.61	9.61	9.61	1	100%	na	na	na	na	na	7.4	7.4	7.4	1	100%
ST2-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1550	1550	1550	1	100%	7.11	7.11	7.11	1	100%	na	na	na	na	na	7.66	7.66	7.66	1	100%
ST2-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	928	928	928	1	100%	4.96	4.96	4.96	1	100%	na	na	na	na	na	7.54	7.54	7.54	1	100%
TP2-SB1	Tailings	Subsurface	na	na	na	4	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB2	Tailings	Subsurface	na	na	na	5	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB3	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB4	Tailings	Subsurface	na	na	na	7	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB5	Tailings	Subsurface	na	na	na	9	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																																
FSPS-10D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-11C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-12A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-13B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Phosphorus					Olsen Ortho-Phosphate					Olsen Phosphorus					Potassium (NaHCO3 digestion)				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg				
		Comparison Value >>	NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																				
Camp G Creek Sub-Basin																						
Dredge Ranch	Original Ground	Subsurface	25	44	37.3	3	100%	na	na	na	na	na	na	na	na	na	na	200	240	227	3	100%
ST3-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST3-02	Waste Rock	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST3-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
French Drain Sub-Basin																						
Con	Original Ground	Subsurface	51	190	99.3	12	100%	na	na	na	na	na	na	na	na	na	na	500	1200	690	12	100%
LoSe	Overburden	Subsurface	35	55	44.1	12	100%	na	na	na	na	na	na	na	na	na	na	42	290	159	12	100%
SQ-02	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-01	Former Mill/Townsite	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD062	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD068	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																						
ST7-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST7-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST7-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD069	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Old Tailings Pond Sub-Basin																						
NT4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SQ-01	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB1	Tailings	Subsurface	na	na	na	na	na	21.9	42	31.8	4	100%	1270	3670	2440	4	100%	na	na	na	na	na
TP2-SB2	Tailings	Subsurface	na	na	na	na	na	22.9	27.7	24.8	5	100%	1340	3650	3076	5	100%	na	na	na	na	na
TP2-SB3	Tailings	Subsurface	na	na	na	na	na	52.5	98.1	68.2	7	100%	1680	61600	50797.1	7	100%	na	na	na	na	na
TP2-SB4	Tailings	Subsurface	na	na	na	na	na	20.2	132	50.2	7	100%	1970	3190	2771.4	7	100%	na	na	na	na	na
TP2-SB5	Tailings	Subsurface	na	na	na	na	na	46.8	134	95.4	10	100%	29000	62400	36860	10	100%	na	na	na	na	na
Pedro Creek Sub-Basin																						
FSPS-10D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-11C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-12A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-13B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-14D	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Sand					Silt					Sodium					Sulfur					TOC				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	%					%					mg/kg					%					%				
		Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																									
Camp G Creek Sub-Basin																											
Dredge Ranch	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.036	0.051	0.044	3	100%	na	na	na	na	na
ST3-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST3-02	Waste Rock	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST3-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
French Drain Sub-Basin																											
Con	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.024	0.06	0.041	6	100%	na	na	na	na	na
LoSe	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.08	0.42	0.263	12	100%	na	na	na	na	na
SQ-02	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-01	Former Mill/Townsite	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-02	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST8-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD062	Overburden	Surface	27.5	29.5	28.8	3	100%	44.9	46.5	45.6	3	100%	800	970	900	3	100%	na	na	na	na	na	na	na	na	na	na
WD068	Overburden	Surface	47.2	47.2	47.2	1	100%	32.4	32.4	32.4	1	100%	950	950	950	1	100%	na	na	na	na	na	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																											
ST7-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST7-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST7-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD069	Overburden	Surface	23	23	23	1	100%	42.8	42.8	42.8	1	100%	2300	2300	2300	1	100%	na	na	na	na	na	na	na	na	na	na
Old Tailings Pond Sub-Basin																											
NT4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SQ-01	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST2-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB1	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB2	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB3	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB4	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP2-SB5	Tailings	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																											
FSPS-10D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.016	0.031	0.024	2	100%	na	na	na	na	na
FSPS-11C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.277	0.38	0.329	2	100%	na	na	na	na	na
FSPS-12A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.269	0.317	0.293	2	100%	na	na	na	na	na
FSPS-13B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.379	0.43	0.405	2	100%	na	na	na	na	na
FSPS-14D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.046	0.051	0.048	2	100%	na	na	na	na	na
FSPS-14D	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.045	0.073	0.055	3	100%	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Ammonia, as N					Carbon, Organic					Carbon, Total					Clay					Electrical Conductivity					Fluoride					Nitrate + Nitrite, as N				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					%					%					%					umhos/cm					mg/kg					mg/kg				
		Comparison Value >>	NA					NA					NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																																				
FSPS-15F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-16B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-17C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-18B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-20A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-21C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-6D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-7E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-8G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-9A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	3.15	3.15	3.15	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.71	3.71	3.71	1	100%
NQ-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	3.28	3.28	3.28	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.01	1.01	1.01	1	100%
NT4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1.67	1.67	1.67	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.05	1.05	1.05	1	100%
NT5-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	3.12	3.12	3.12	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.2	6.2	6.2	1	100%
NT5-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	4.09	4.09	4.09	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.32	0.32	0.32	1	100%
NT5-03	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	8.5	8.5	8.5	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.57	2.57	2.57	1	100%
NT5-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	3.45	3.45	3.45	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.24	2.24	2.24	1	100%
NT5-05	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	7.19	7.19	7.19	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.28	3.28	3.28	1	100%
NT5-06	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	5.51	5.51	5.51	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.7	2.7	2.7	1	100%
NT6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.58	2.58	2.58	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.48	1.48	1.48	1	100%
NT6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1.9	1.9	1.9	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10.16	10.16	10.2	1	100%
NT6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.49	3.49	3.49	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.23	1.23	1.23	1	100%
NT7-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	2.44	2.44	2.44	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.71	3.71	3.71	1	100%
NT7-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	5.55	5.55	5.55	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na				1	0%
NT7-03	Original Ground (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1.2	1.2	1.2	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.11	3.11	3.11	1	100%
WD072	Overburden	Surface	na	na	na	na	na	4.6	4.6	4.6	1	100%	na	na	na	na	na	25.1	25.1	25.1	1	100%	2900	2900	2900	1	100%	680	680	680	1	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																																						
HiSe	Overburden	Subsurface	3.1	6.8	4.71	12	100%	na	na	na	na	na	2.9	8.3	4.2	12	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.05	5.05	5.05	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.57	2.57	2.57	1	100%
ST4-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.2	5.2	5.2	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.37	0.37	0.37	1	100%
ST5-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.34	3.34	3.34	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.67	5.67	5.67	1	100%
ST5-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	6.61	6.61	6.61	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.42	2.42	2.42	1	100%
ST5-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.71	3.71	3.71	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.71	5.71	5.71	1	100%
ST6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.62	2.62	2.62	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.97	0.97	0.97	1	100%
ST6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.66	2.66	2.66	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.78	1.78	1.78	1	100%
ST6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.85	2.85	2.85	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.57	0.57	0.57	1	100%
ST7-00	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	1.61	1.61	1.61	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.61	0.61	0.61	1	100%

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Nitrate, as N					Nitrogen, Total					Nitrogen-TKN					Organic Matter					Particle Size > 2 mm					pH				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					%					mg/kg					%					%					SU				
		Comparison Value >>	NA					NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																														
FSPS-15F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-16B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-17C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-18B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-20A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-21C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-6D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-7E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-8G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-9A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	1820	1820	1820	1	100%	8.86	8.86	8.86	1	100%	na	na	na	na	na	6.81	6.81	6.81	1	100%
NQ-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1210	1210	1210	1	100%	5.49	5.49	5.49	1	100%	na	na	na	na	na	7.71	7.71	7.71	1	100%
NT4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	590	590	590	1	100%	2.33	2.33	2.33	1	100%	na	na	na	na	na	7.21	7.21	7.21	1	100%
NT5-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1320	1320	1320	1	100%	4.33	4.33	4.33	1	100%	na	na	na	na	na	7.91	7.91	7.91	1	100%
NT5-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	2090	2090	2090	1	100%	8.94	8.94	8.94	1	100%	na	na	na	na	na	7.87	7.87	7.87	1	100%
NT5-03	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	2200	2200	2200	1	100%	15.19	15.19	15.2	1	100%	na	na	na	na	na	7.18	7.18	7.18	1	100%
NT5-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1050	1050	1050	1	100%	6.13	6.13	6.13	1	100%	na	na	na	na	na	7.95	7.95	7.95	1	100%
NT5-05	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1990	1990	1990	1	100%	11.33	11.33	11.3	1	100%	na	na	na	na	na	6.89	6.89	6.89	1	100%
NT5-06	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1590	1590	1590	1	100%	10.12	10.12	10.1	1	100%	na	na	na	na	na	7.59	7.59	7.59	1	100%
NT6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5540	5540	5540	1	100%	3.7	3.7	3.7	1	100%	na	na	na	na	na	7.39	7.39	7.39	1	100%
NT6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2200	2200	2200	1	100%	3.43	3.43	3.43	1	100%	na	na	na	na	na	7.36	7.36	7.36	1	100%
NT6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1560	1560	1560	1	100%	8.2	8.2	8.2	1	100%	na	na	na	na	na	7.38	7.38	7.38	1	100%
NT7-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	940	940	940	1	100%	4.85	4.85	4.85	1	100%	na	na	na	na	na	7.54	7.54	7.54	1	100%
NT7-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	1730	1730	1730	1	100%	9.54	9.54	9.54	1	100%	na	na	na	na	na	7.53	7.53	7.53	1	100%
NT7-03	Original Ground (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	628	628	628	1	100%	2.85	2.85	2.85	1	100%	na	na	na	na	na	6.43	6.43	6.43	1	100%
WD072	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	51	51	51	1	100%	7	7	7	1	100%
Shield and Jouglard Canyons Sub-Basin																																
HiSe	Overburden	Subsurface	0.9	7.5	4.4	7	100%	0.18	0.59	0.343	12	100%	na	na	na	na	na	3.7	13	5.98	12	100%	na	na	na	na	na	0.4	7.3	6.18	12	100%
ST4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1930	1930	1930	1	100%	11.41	11.41	11.4	1	100%	na	na	na	na	na	7.56	7.56	7.56	1	100%
ST4-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1490	1490	1490	1	100%	9.57	9.57	9.57	1	100%	na	na	na	na	na	5.91	5.91	5.91	1	100%
ST5-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1470	1470	1470	1	100%	6.87	6.87	6.87	1	100%	na	na	na	na	na	7.62	7.62	7.62	1	100%
ST5-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1810	1810	1810	1	100%	13.02	13.02	13	1	100%	na	na	na	na	na	7.18	7.18	7.18	1	100%
ST5-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1870	1870	1870	1	100%	7.42	7.42	7.42	1	100%	na	na	na	na	na	7.34	7.34	7.34	1	100%
ST6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	6410	6410	6410	1	100%	5.19	5.19	5.19	1	100%	na	na	na	na	na	7.15	7.15	7.15	1	100%
ST6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2480	2480	2480	1	100%	6.4	6.4	6.4	1	100%	na	na	na	na	na	6.17	6.17	6.17	1	100%
ST6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2260	2260	2260	1	100%	5.19	5.19	5.19	1	100%	na	na	na	na	na	7.04	7.04	7.04	1	100%
ST7-00	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	534	534	534	1	100%	4.09	4.09	4.09	1	100%	na	na	na	na	na	7.23	7.23	7.23	1	100%

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Phosphorus					Olsen Ortho-Phosphate					Olsen Phosphorus					Potassium (NaHCO3 digestion)				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg				
		Comparison Value >>	NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																				
FSPS-15F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-16B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-17C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-18B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-19E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-1F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-20A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-21C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-2G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-3F	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-4G	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-5E	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-6D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-7E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-8G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-9A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-03	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-05	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-06	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT7-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT7-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT7-03	Original Ground (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD072	Overburden	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																						
HiSe	Overburden	Subsurface	25	190	77.8	12	100%	na	na	na	na	na	na	na	na	na	na	56	340	169	12	100%
ST4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST5-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST5-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST5-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST7-00	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Sand					Silt					Sodium					Sulfur					TOC				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	%					%					mg/kg					%					%				
		Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																									
FSPS-15F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.022	0.044	0.033	2	100%	na	na	na	na	na
FSPS-16B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.412	0.515	0.464	2	100%	na	na	na	na	na
FSPS-17C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.116	0.191	0.154	2	100%	na	na	na	na	na
FSPS-18B	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.175	0.291	0.233	2	100%	na	na	na	na	na
FSPS-19E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.032	0.032	0.032	2	100%	na	na	na	na	na
FSPS-1F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.021	0.03	0.026	2	100%	na	na	na	na	na
FSPS-20A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.077	0.171	0.124	2	100%	na	na	na	na	na
FSPS-21C	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.151	0.168	0.16	2	100%	na	na	na	na	na
FSPS-2G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.024	0.046	0.035	2	100%	na	na	na	na	na
FSPS-3F	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.02	0.03	0.025	2	100%	na	na	na	na	na
FSPS-3F	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.026	0.036	0.03	5	100%	na	na	na	na	na
FSPS-4G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.024	0.031	0.028	2	100%	na	na	na	na	na
FSPS-4G	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.024	0.094	0.038	7	100%	na	na	na	na	na
FSPS-5E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.019	0.037	0.028	2	100%	na	na	na	na	na
FSPS-5E	Dinwoody cover	DepthProfile	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.042	0.05	0.047	5	100%	na	na	na	na	na
FSPS-6D	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.04	0.042	0.041	2	100%	na	na	na	na	na
FSPS-7E	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.014	0.038	0.026	2	100%	na	na	na	na	na
FSPS-8G	Dinwoody cover	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.037	0.038	0.038	2	100%	na	na	na	na	na
FSPS-9A	Overburden	Composite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.29	1.78	1.54	2	100%	na	na	na	na	na
NQ-03	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-03	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-04	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-05	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT5-06	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT7-01	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT7-02	Overburden (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT7-03	Original Ground (now covered)	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WD072	Overburden	Surface	28.3	28.3	28.3	1	100%	46.6	46.6	46.6	1	100%	1500	1500	1500	1	100%	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																											
HiSe	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.078	0.91	0.295	12	100%	na	na	na	na	na
ST4-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST4-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST5-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST5-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST5-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST6-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST6-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST6-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST7-00	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Ammonia, as N					Carbon, Organic					Carbon, Total					Clay					Electrical Conductivity					Fluoride					Nitrate + Nitrite, as N				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					%					%					%					umhos/cm					mg/kg					mg/kg				
		Comparison Value >>	NA					NA					NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																																			
State Land Creek Sub-Basin																																					
NQ-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.73	3.73	3.73	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.75	1.75	1.75	1	100%
NQ-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.26	5.26	5.26	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.25	5.25	5.25	1	100%
NT1-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	1.94	1.94	1.94	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10.02	10.02	10	1	100%
NT1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3	3	3	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.11	5.11	5.11	1	100%
NT1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	4.35	4.35	4.35	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	9.53	9.53	9.53	1	100%
NT1-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.12	3.12	3.12	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.31	7.31	7.31	1	100%
NT1-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1.79	1.79	1.79	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	23.74	23.74	23.7	1	100%
NT2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	4.35	4.35	4.35	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	8.88	8.88	8.88	1	100%
NT2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	8.06	8.06	8.06	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.79	2.79	2.79	1	100%
NT2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	4.09	4.09	4.09	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.36	3.36	3.36	1	100%
NT4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	4.56	4.56	4.56	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.28	0.28	0.28	1	100%
NT4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1.74	1.74	1.74	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.66	0.66	0.66	1	100%
NT4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.03	3.03	3.03	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.54	4.54	4.54	1	100%
Western Woodall Mountain Sub-Basin																																					
NT3-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	8.46	8.46	8.46	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.28	6.28	6.28	1	100%
NT3-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	9.68	9.68	9.68	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.94	7.94	7.94	1	100%
NT3-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	5.1	5.1	5.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.49	3.49	3.49	1	100%
NT3-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.14	3.14	3.14	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.1	4.1	4.1	1	100%
NT3-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	3.03	3.03	3.03	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.99	2.99	2.99	1	100%
NT3-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2.7	2.7	2.7	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.11	3.11	3.11	1	100%
NT3-07	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	3.03	3.03	3.03	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.1	4.1	4.1	1	100%
Offsite-Blackfoot River																																					
MST020	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST231	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek																																					
ST076	Offsite	Surface	na	na	na	na	na	5.8	6.2	6	3	100%	na	na	na	na	na	29	29.5	29.2	3	100%	540	670	610	3	100%	74	150	118	3	100%	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Nitrate, as N					Nitrogen, Total					Nitrogen-TKN					Organic Matter					Particle Size > 2 mm					pH				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					%					mg/kg					%					%					SU				
		Comparison Value >>	NA					NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																														
State Land Creek Sub-Basin																																
NQ-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1970	1970	1970	1	100%	9.45	9.45	9.45	1	100%	na	na	na	na	na	7.33	7.33	7.33	1	100%
NQ-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1680	1680	1680	1	100%	9.06	9.06	9.06	1	100%	na	na	na	na	na	7.43	7.43	7.43	1	100%
NT1-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	1790	1790	1790	1	100%	5.25	5.25	5.25	1	100%	na	na	na	na	na	7.66	7.66	7.66	1	100%
NT1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1130	1130	1130	1	100%	4.17	4.17	4.17	1	100%	na	na	na	na	na	7.68	7.68	7.68	1	100%
NT1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1210	1210	1210	1	100%	6.32	6.32	6.32	1	100%	na	na	na	na	na	7.65	7.65	7.65	1	100%
NT1-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	549	549	549	1	100%	4.59	4.59	4.59	1	100%	na	na	na	na	na	7.8	7.8	7.8	1	100%
NT1-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1460	1460	1460	1	100%	3.65	3.65	3.65	1	100%	na	na	na	na	na	7.1	7.1	7.1	1	100%
NT2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1320	1320	1320	1	100%	7.26	7.26	7.26	1	100%	na	na	na	na	na	7.56	7.56	7.56	1	100%
NT2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1810	1810	1810	1	100%	15.18	15.18	15.2	1	100%	na	na	na	na	na	7.39	7.39	7.39	1	100%
NT2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1030	1030	1030	1	100%	7.69	7.69	7.69	1	100%	na	na	na	na	na	7.65	7.65	7.65	1	100%
NT4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1700	1700	1700	1	100%	6.74	6.74	6.74	1	100%	na	na	na	na	na	7.51	7.51	7.51	1	100%
NT4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	436	436	436	1	100%	1.32	1.32	1.32	1	100%	na	na	na	na	na	8.03	8.03	8.03	1	100%
NT4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	805	805	805	1	100%	6.25	6.25	6.25	1	100%	na	na	na	na	na	7.72	7.72	7.72	1	100%
Western Woodall Mountain Sub-Basin																																
NT3-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2860	2860	2860	1	100%	10.71	10.71	10.7	1	100%	na	na	na	na	na	7.16	7.16	7.16	1	100%
NT3-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	2910	2910	2910	1	100%	15.49	15.49	15.5	1	100%	na	na	na	na	na	7.23	7.23	7.23	1	100%
NT3-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1270	1270	1270	1	100%	6.98	6.98	6.98	1	100%	na	na	na	na	na	7.39	7.39	7.39	1	100%
NT3-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	492	492	492	1	100%	3.96	3.96	3.96	1	100%	na	na	na	na	na	7.82	7.82	7.82	1	100%
NT3-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	732	732	732	1	100%	5.53	5.53	5.53	1	100%	na	na	na	na	na	7.83	7.83	7.83	1	100%
NT3-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	1100	1100	1100	1	100%	5.57	5.57	5.57	1	100%	na	na	na	na	na	7.91	7.91	7.91	1	100%
NT3-07	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	1000	1000	1000	1	100%	6	6	6	1	100%	na	na	na	na	na	7.88	7.88	7.88	1	100%
Offsite-Blackfoot River																																
MST020	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.5	7.5	7.5	1	100%
MST231	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.4	7.4	7.4	1	100%
ST232	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek																																
ST076	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	29	44	37.3	3	100%	7.4	7.6	7.53	3	100%

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Phosphorus					Olsen Ortho-Phosphate					Olsen Phosphorus					Potassium (NaHCO3 digestion)				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg				
		Comparison Value >>	NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																				
State Land Creek Sub-Basin																						
NQ-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																						
NT3-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-07	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Blackfoot River																						
MST020	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST231	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek																						
ST076	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

		Analyte >>	Sand					Silt					Sodium					Sulfur					TOC				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	%					%					mg/kg					%					%				
		Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Material Type**	**Depth Class**																									
State Land Creek Sub-Basin																											
NQ-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-01	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT1-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT2-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT2-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT2-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT4-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																											
NT3-01	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-02	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-03	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-04	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-05	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-06	Overburden	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NT3-07	Original Ground	Subsurface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Blackfoot River																											
MST020	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST231	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.9	2.9	2.9	1	100%
ST022	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	Offsite	Surface	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.4	2.4	2.4	1	100%
Offsite-Trail Creek																											
ST076	Offsite	Surface	12.5	14.2	13.2	3	100%	56.7	58.5	57.6	3	100%	120	170	137	3	100%	na	na	na	na	na	na	na	na	na	na

Table 4-13
Summary of Detected General Chemistry Results in Soils

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

N = Nitrogen; TKN = Total Kjeldahl Nitrogen; NaHCO3 = sodium bicarbonate; mm = millimeter; TOC = total organic carbon

If results are from different sources then they may reflect different analytical methodology.

FSPS soil samples are composite samples collected from the root-zone within 0-12 inch interval. Additional depth-profile sample results were collected from a subset of plots.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins.

NA = comparison value not available.

Table 4-14
Geotechnical Results

Location	Depth (ft)	Soil Classification (2010 Data) Soil Description (2012 Data) (remarks)	Dry Unit Weight (pcf)	In-Situ Moisture (%)	Passing No. 200 (%)	Atterberg Limits		Organic Content (%)	Maximum Density (pcf) at Optimum Moisture (%)[2]	Shear Strength		Hydraulic Conductivity (cm/sec)	Unconfined Compressive Strength (Max psf)	Consolidation (Compression Index, C_c)	Sulfate Soundness Loss (%)	Specific Gravity	Absorption (%)	Borrow Area Selenium (mg/kg)
						LL	PI			Phi Angle	Cohesion (psf)					Bulk SSD		
2010 Test Pits in the Vicinity of the Pedro Creek ODA Angle-of-Repose Pile																		
TP-1	0-9	Silty Gravel with Sand		9.6	15			2.6	137.0 @ 8.5[3]									
TP-2	0-2	Lean Clayey Gravel with Sand		14.4	30			3.6										NA
TP-2	18-27	Lean Clayey Gravel with Sand		13.2	28	32	16											NA
TP-2	20	Lean Clayey Sand with Gravel	115.9[4]	14.6									2,641					NA
TP-3 TP-4	0-1 0-2	Silt with Sand		17.9	74			7.8										NA
TP-3	4	Fat Clay	94.7	26.7		58	43							0.216				NA
TP-3	5-11	Silt with Sand		21.6	73													NA
TP-3	9	Sandy Lean Clay		67.5	64	48	23											NA
TP-4	2.5-5	Lean Clay with Sand		52.5	74	30	11											NA
TP-4	3	Lean Clay	103.6	23.0						DS=31.1°	150			0.01				NA
TP-4	6	Lean Clay with Sand	99.2	21.7		47	32											NA
2012 Test Pits in the Vicinity of the Pedro Creek ODA Angle-of-Repose Pile																		
TP-12	0-4	Silty Gravel with Sand			16	NP	NV											
TP-12	3		85.1	12.5														
TP-12B	13	Silty Gravel with Sand			15													
TP-12B	4-16	Silty Gravel with Sand			23				125.0 @ 10.5[3]									
TP-12B	16		114.6	13.9														
TP-13	0-3.5	Clayey Gravel with Sand			24	29	8											
TP-13A	3.5	Silty/Clayey Sand with Gravel	99.5	11.3	33													
TP-13A	8.8-10.1	Silty Loam (USDA Classification)			81													
TP-13A	9.2		86.2	27.7														
TP-13A	10.1	Lean Clay	99.3	21.3						DS=26.3°	160			0.003				
TP-13A	16	Sandy Silt/Clay			52				112.5@16.9									
TP-14	0-4	Clayey Gravel with Sand			20	28	9											
TP-15	1-4.5	Clayey Sand with Gravel			25				111.5@13.0[3]									
TP-15	4		86.0	10.7														
TP-16	1.5-4	Clayey Gravel with Sand			19	43	28											
TP-17	3.25-3.5		93.7	7.8														
TP-17	3.5-4	Clayey Gravel with Sand			30													
TP-18	3.5-4.5	Poorly Graded Gravel with Clay and Sand			6.5	34	15		119.0@13.5[3]	DS=21.5°	540							
TP-19	0-3	Clayey Sand with Gravel			26	41	17											
TP-19	5.5-6.5	Clayey Gravel with Sand			13	45	23											
2012 Composite Geotechnical Samples of Overburden Material																		
TPF1	NA	Clayey Silty Sandy Gravel			20.2	24	4		111.8 @ 14.8									
TPF2	NA	Silty Sandy Gravel			18.9	22	3		113.0 @ 16.4									
TPF3	NA	Silty Sandy Gravel			20.5	19	3		134.7 @ 6.0[3]									
2010 Borings through the Pedro Creek ODA Angle-of-Repose Pile																		
B-1	0-100	Lean Clayey Gravel with Sand			23	28	10		124.8 @ 10.4	DS=39.1°	25							
B-1	116-118	Silty Sand with Gravel		12.5	22													
B-1	60-62	Silty Gravel with Sand		37	31	26	1											
B-1	62-64	Poorly Graded Gravel with Silt and Sand	108.4[4]	17.0		29	5			DS=45.4°[5]	90							
B-1	94-95	Silty Gravel with Sand	96.2	20.3	41					Triax=39.4°	0							
B-1	95-96	Silt with Sand and Gravel	115.2	17.9	51					Triax=34.0°	920							
B-2	20-22	Silty Gravel		6.0	12													
B-3	16-18	Silty Clayey Gravel with Sand	110.5	12.2	27	24	4					$2.9x10^{-5}$						

Table 4-14
Geotechnical Results

Location	Depth (ft)	Soil Classification (2010 Data) Soil Description (2012 Data) (remarks)	Dry Unit Weight (pcf)	In-Situ Moisture (%)	Passing No. 200 (%)	Atterberg Limits		Organic Content (%)	Maximum Density (pcf) at Optimum Moisture (%)[2]	Shear Strength		Hydraulic Conductivity (cm/sec)	Unconfined Compressive Strength (Max psf)	Consolidation (Compression Index, C_c)	Sulfate Soundness Loss (%)	Specific Gravity	Absorption (%)	Borrow Area Selenium (mg/kg)
						LL	PI			Phi Angle	Cohesion (psf)					Bulk SSD		
2010 Test Pits in Dinwoody Formation and Rex Chert Outcrops																		
TP-5 TP-6	0.9-2.3 1-4	Sandy Silt		12.8	57			3.2										1.2-4.5
TP-5 TP-6	0-0.9 0-1	Silt with Sand		15.7	77			7.5										1.2-4.5
TP-5	2.3-8.3	Silty Sand with Gravel		17.9	36	27	1		111.5 @ 13.5[3]									1.2-4.5
TP-5A	1-7.5	Silty Gravel with Sand			19			4.6										0.24-2.9
TP-5B	1-3.5	Silty Gravel with Sand			27			2.7										0.24-2.9
	3.5-5.5	Silty Gravel with Sand			24			3.0										0.24-2.9
TP-7	0-1.2 1.2-3.2	Sandy Silt		19.3	60			5.5										NA
Average Dinwoody Formation Material Properties at Smoky Canyon Mine	1-2	Silty Clay Gravel with Sand	114	17.3	62	35	14	1.8										ND
Rex Chert #1	-	Poorly Graded Gravel with Sand			2.4			3							1.5	2.293	3.5	1.7-5.8
Rex Chert #2	-	Poorly Graded Gravel with Sand			1.5			3							1.0	2.450	2.2	1.7-5.8
2012 FSPS Construction																		
Dinwoody					0.6-4.6	25-33	8-16		103.5@9.5 - 123.0@20.0									
Top Soil									113.6@7.6 - 119.0@16.9									
Rex Chert					2.4 - 4.5													
ODA Material									110.5@10.5 - 128.0@16.8									
2014 West Side Groundwater Supplemental Investigation																		
TP2-SB1	0-2	Silt with Sand	91.7	17		NV	NV											
TP2-SB1	10-12	Fat Clay	94.3	27.9		52	22											
TP2-SB1	12-14	Lean Clay				44	18											
TP2-SB1	20-22	Lean Clay	86.7	34.7		45	20											
TP2-SB1	22-24	Sandy Lean Clay				27	18											
TP2-SB2	0-2	Lean Clay	80.7	25.5		46	22											
TP2-SB2	10-12	Lean Clay	76.2	43.6		49	24											
TP2-SB2	12-14	Lean Clay				47	22											
TP2-SB2	20-22	Fat Clay	73.9	44.8		55	24											
TP2-SB2	22-24	Fat Clay				59	22											
TP2-SB2	30-32	Lean Clay	93.2	23.1		32	19											
TP2-SB2	32-34	Silty-Clay				28	22											
TP2-SB2	39-41	Clayey Gravel with Sand				28	17											
TP2-SB3	0-2	Lean Clay	79.9	29.4		39	20											
TP2-SB3	10-12	Lean Clay	80.4	39.9		48	21											
TP2-SB3	20-22	Fat Clay	78.6	41		54	21											
TP2-SB3	22-24	Lean Clay				46	21											
TP2-SB3	30-32	Fat Clay	77.1	41.6		54	18											
TP2-SB3	32-34	Fat Clay				52	22											
TP2-SB3	40-42	Lean Clay	84	35.6		48	21											
TP2-SB3	42-44	Lean Clay				34	20											
TP2-SB3	47-49	Lean Clay	88.4	32.9		48	20											
TP2-SB3	50-52	Lean Clay				48	22											
TP2-SB3	55-57	Lean Clay				36	17											
TP2-SB4	0-2	Lean Clay	83.5	24.6		42	22											
TP2-SB4	10-12	Lean Clay				38	20											
TP2-SB4	30-32	Lean Clay	89.2	30.6		43	23											
TP2-SB4	32-34	Lean Clay				39	21											
TP2-SB4	40-42	Lean Clay	83.4	37.5		49	22											
TP2-SB4	42-44	Fat Clay				54	22											
TP2-SB4	50-52	Lean Clay	109.8	16.4		34	18											

Table 4-14
Geotechnical Results

Location	Depth (ft)	Soil Classification (2010 Data) Soil Description (2012 Data) (remarks)	Dry Unit Weight (pcf)	In-Situ Moisture (%)	Passing No. 200 (%)	Atterberg Limits		Organic Content (%)	Maximum Density (pcf) at Optimum Moisture (%)[2]	Shear Strength		Hydraulic Conductivity (cm/sec)	Unconfined Compressive Strength (Max psf)	Consolidation (Compression Index, C_c)	Sulfate Soundness Loss (%)	Specific Gravity	Absorption (%)	Borrow Area Selenium (mg/kg)
						LL	PI			Phi Angle	Cohesion (psf)					Bulk SSD		
TP2-SB4	52-54	Lean Clay				38	18											
TP2-SB4	55-57	Lean Clay				36	17											
TP2-SB5	0-2	Lean Clay	112.8	20.1		30	19											
TP2-SB5	22-24	Silt				NV	NV											
TP2-SB5	30-32	Lean Clay	87.7	34.2		42	22											
TP2-SB5	32-34	Lean Clay				29	21											
TP2-SB5	40-42	Lean Clay	89	32.2		42	22											
TP2-SB5	42-44	Fat Clay				56	21											
TP2-SB5	50-52	Lean Clay	88.3	32.2		41	22											
TP2-SB5	52-54	Lean Clay				36	19											
TP2-SB5	60-62	Lean Clay	98.2	24.9		33	20											
TP2-SB5	62-64	Lean Clay				32	21											
TP2-SB5	70-72	Lean Clay	100.7	24.9		29	18											
TP2-SB5	72-74	Lean Clay				35	20											
TP2-SB5	82-84	NO SAMPLE																
TP2-SB5	92-94	Lean Clay				33	20											
TP2-SB5	102-104	Silty Clayey Gravel with Sand				20	16											

Notes:
Data are from 2010 and 2012 geotecnical investigations to support the Conda FSPS and NTCRA efforts.
[1] Data tested by Strata Geotechnical
[2] Results of Standard Proctor test (ASTM D-698)
[3] Maximum dry density and optimum moistures are rock-corrected values
[4] Value represents tube dry weight
[5] Up to 0.5" gravel observed in shear plane, which may artificially increase friction angle

NA = not applicable
ND = not detected
NP = non-plastic
NV = non-viscous
ft = foot
pcf = pounds per cubic foot
LL = liquid limit
FSPS = Field Scale Pilot Study
PI = plasticity index
psf = pounds per square foot
cm/sec = centimeters per second
Cc = compression index
SSD = saturated surface dry
mg/kg = milligrams per killogram
% = percent
NTCRA = Non-Time-Critical Removal Action

Table 4-15
Summary of Detected Metals Results in Vegetation

		Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
Station	**Disturbed Status**	**Washed/ Unwashed**																									
Camp G Creek Sub-Basin																											
CGC-1	Original Ground	Washed	na	na	na	5	0	0.2	4.87	1.55	5	1	0.2	0.2	0.2	5	0.2	0.21	0.21	0.21	5	0.2	23.1	124	59.5	5	1
CP-01	Original Ground	Washed	0.19	0.76	0.382	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CP-02	Original Ground	Washed	0.86	0.92	0.89	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CP-03	Original Ground	Washed	0.12	0.18	0.15	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CR-01	Original Ground	Washed	0.48	11.2	5.69	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CR-02	Original Ground	Washed	0.56	1.9	1.23	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CR-03	Original Ground	Washed	0.08	0.37	0.224	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CR-04	Original Ground	Washed	0.14	0.49	0.315	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST12-01	Waste Rock	Washed	0.19	0.35	0.243	3	1	3.34	6.53	4.7	3	1	1.9	6.9	4.4	3	0.6667	0.55	19.3	8.76	3	1	122	216	158	3	1
ST12-02	Waste Rock	Washed	0.07	23.4	8.13	3	1	1.72	4.92	3.65	3	1	0.3	1.2	0.833	3	1	0.85	3.36	2.31	3	1	74	107	93.6	3	1
ST12-03	Original Ground	Washed	0.48	0.71	0.595	2	1	1.42	2.04	1.73	2	1	0.2	0.3	0.25	2	1	0.41	0.63	0.52	2	1	73.9	81.7	77.8	2	1
ST3-01	Original Ground	Unwashed	1.5	1.5	1.5	1	1	0.94	0.94	0.94	1	1	0.77	0.77	0.77	1	1	1.4	1.4	1.4	1	1	61.8	61.8	61.8	1	1
ST3-01	Original Ground	Washed	0.12	22.7	2.44	16	1	0.94	2.4	1.86	6	1	0.31	11.1	2.78	6	1	0.18	26.9	6.41	6	1	28.8	133	95.3	6	1
ST3-02	Waste Rock	Unwashed	4.3	4.3	4.3	1	1	1.9	1.9	1.9	1	1	0.55	0.55	0.55	1	1	0.78	0.78	0.78	1	1	246	246	246	1	1
ST3-02	Waste Rock	Washed	0.64	35.7	10.5	17	1	1.4	30.9	10.6	6	1	0.46	2	1.02	6	1	0.67	4.5	1.98	6	1	60	351	178	6	1
ST3-03	Original Ground	Washed	0.55	1.5	1	3	1	0.76	0.76	0.76	1	1	0.43	0.43	0.43	1	1	0.6	0.6	0.6	1	1	29.9	29.9	29.9	1	1
French Drain Sub-Basin																											
Con	Original Ground	Unknown	0.042	0.78	0.194	25	0.96	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
LoSe	Overburden	Unknown	0.25	13	2.65	23	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-13	Overburden	Washed	1.38	1.38	1.38	1	1	1.1	1.1	1.1	1	1	na	na	na	1	0	0.13	0.13	0.13	1	1	58.5	58.5	58.5	1	1
NQ-14	Overburden	Washed	29.3	29.3	29.3	1	1	0.339	0.339	0.339	1	1	na	na	na	1	0	na	na	na	1	0	23.5	23.5	23.5	1	1
SQ-02	Tailings	Unwashed	1.9	1.9	1.9	1	1	0.59	0.59	0.59	1	1	1.2	1.2	1.2	1	1	1.6	1.6	1.6	1	1	20.4	20.4	20.4	1	1
SQ-02	Tailings	Washed	0.34	6.3	2.37	11	1	0.49	5	1.77	4	1	0.49	5.5	1.98	4	1	0.53	9.7	3.48	4	1	10.3	147	52.3	4	1
ST1-02	Overburden	Unwashed	0.31	0.31	0.31	1	1	0.6	0.6	0.6	1	1	0.29	0.29	0.29	1	1	0.28	0.28	0.28	1	1	24.3	24.3	24.3	1	1
ST1-02	Overburden	Washed	0.16	3	0.587	9	1	0.25	0.48	0.363	3	1	0.15	0.38	0.28	3	1	0.15	0.44	0.313	3	1	5.4	51.8	31.4	3	1
ST1-03	Overburden	Washed	5.3	76.9	38.2	3	1	1.9	1.9	1.9	1	1	0.4	0.4	0.4	1	1	0.39	0.39	0.39	1	1	80.6	80.6	80.6	1	1
ST4-01	Overburden	Washed	1.6	9.3	5.4	3	1	0.68	0.68	0.68	1	1	0.79	0.79	0.79	1	1	0.79	0.79	0.79	1	1	44.2	44.2	44.2	1	1
ST4-02	Overburden	Washed	3.2	6.5	5.4	3	1	1	1	1	1	1	0.78	0.78	0.78	1	1	0.55	0.55	0.55	1	1	29.7	29.7	29.7	1	1
ST4-03	Overburden	Unwashed	17.8	17.8	17.8	1	1	1.4	1.4	1.4	1	1	0.82	0.82	0.82	1	1	0.63	0.63	0.63	1	1	27.9	27.9	27.9	1	1
ST4-03	Overburden	Washed	7.5	129	56.5	12	1	0.85	6	2.08	5	1	0.32	2.9	1.01	5	1	0.33	3.1	0.964	5	1	22.2	216	99.2	5	1
ST4-04	Overburden	Washed	13.9	51.3	27.7	4	1	0.52	0.52	0.52	1	1	0.94	0.94	0.94	1	1	0.52	0.52	0.52	1	1	58.1	58.1	58.1	1	1
ST8-01	Former Mill/Townsite	Washed	0.19	0.68	0.51	4	1	0.1	0.1	0.1	1	1	0.78	0.78	0.78	1	1	0.88	0.88	0.88	1	1	14.9	14.9	14.9	1	1
ST8-02	Original Ground	Unwashed	0.75	0.75	0.75	1	1	0.18	0.18	0.18	1	1	0.85	0.85	0.85	1	1	0.51	0.51	0.51	1	1	16.6	16.6	16.6	1	1
ST8-02	Original Ground	Washed	0.31	7.3	1.61	15	1	0.05	1.9	0.732	6	1	0.23	1.8	0.892	6	1	0.17	2.2	0.887	6	1	15.9	50.8	25.6	6	1
ST8-03	Overburden	Unwashed	19.5	19.5	19.5	1	1	3.6	3.6	3.6	1	1	2.2	2.2	2.2	1	1	1.1	1.1	1.1	1	1	56.5	56.5	56.5	1	1
ST8-03	Overburden	Washed	4.8	63.9	20.8	13	1	0.51	6.5	3.32	5	1	0.32	2	0.974	5	1	0.28	0.94	0.552	5	1	41.4	200	78.3	5	1
ST8-04	Overburden	Washed	1.6	54.6	23.1	3	1	1.9	1.9	1.9	1	1	0.51	0.51	0.51	1	1	0.59	0.59	0.59	1	1	55.5	55.5	55.5	1	1
ST9-17	Former Mill/Townsite	Washed	1.7	2.18	1.94	2	1	0.057	0.917	0.487	2	1	0.2	0.2	0.2	2	1	0.13	0.34	0.235	2	1	11.9	51.9	31.9	2	1
SWP-4	Overburden	Unwashed	8.74	8.74	8.74	1	1	0.154	0.154	0.154	1	1	na	na	na	1	0	0.13	0.13	0.13	1	1	44.3	44.3	44.3	1	1
SWP-4	Overburden	Washed	2.46	6.56	4.51	2	1	0.185	0.945	0.565	2	1	na	na	na	2	0	0.11	0.19	0.15	2	1	39.1	70.3	54.7	2	1
WD062	Overburden	Washed	1.5	20	7.97	3	1	1.2	1.6	1.47	3	1	0.69	0.81	0.747	3	1	0.34	1	0.69	3	1	82	120	97.7	3	1
Margarette Creek/Trail Canyon Sub-Basin																											
NQ-17	Overburden	Unwashed	11.2	11.2	11.2	1	1	0.731	0.731	0.731	1	1	0.2	0.2	0.2	1	1	0.19	0.19	0.19	1	1	62.2	62.2	62.2	1	1
NQ-17	Overburden	Washed	2.45	2.45	2.45	1	1	0.994	0.994	0.994	1	1	na	na	na	1	0	0.28	0.28	0.28	1	1	50.7	50.7	50.7	1	1
ST7-01	Overburden	Washed	1.3	106	46.9	12	1	1.4	1.6	1.53	4	1	0.36	0.62	0.44	4	1	0.23	0.65	0.403	4	1	44.5	112	66.2	4	1
ST7-02	Overburden	Unwashed	9.7	9.7	9.7	1	1	1.9	1.9	1.9	1	1	0.3	0.3	0.3	1	1	0.36	0.36	0.36	1	1	52.1	52.1	52.1	1	1
ST7-02	Overburden	Washed	7	32	18	12	1	1.2	2.2	1.93	4	1	0.25	0.44	0.355	4	1	0.08	0.56	0.33	4	1	41.7	96.9	70.7	4	1
ST7-03	Overburden	Washed	19.1	189	84.2	3	1	0.58	0.58	0.58	1	1	0.95	0.95	0.95	1	1	0.33	0.33	0.33	1	1	26.6	26.6	26.6	1	1
North Woodall Mountain Sub-Basin																											
NT8-01	Original Ground	Washed	0.1	0.64	0.3	5	0.6	0.293	0.532	0.413	2	1	na	na	na	2	0	0.15	0.26	0.205	2	1	28.2	50.3	39.3	2	1
NT8-02	Original Ground	Unwashed	0.03	0.03	0.03	1	1	0.578	0.578	0.578	1	1	na	na	na	1	0	0.21	0.21	0.21	1	1	46.4	46.4	46.4	1	1
NT8-02	Original Ground	Washed	0.1	0.1	0.1	2	0.5	0.303	0.54	0.422	2	1	na	na	na	2	0	0.22	0.24	0.23	2	1	24.3	41.7	33	2	1
NWC-2	Original Ground	Washed	0.04	0.37	0.205	4	0.5	0.133	1.76	0.615	4	1	0.3	0.6	0.45	4	0.5	0.21	0.67	0.365	4	1	37.6	112	58.7	4	1

Table 4-15
Summary of Detected Metals Results in Vegetation

		Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
Station	**Disturbed Status**	**Washed/ Unwashed**																									
Old Tailings Pond Sub-Basin																											
NQ-08	Overburden	Unwashed	66	66	66	1	1	1.21	1.21	1.21	1	1	0.4	0.4	0.4	1	1	0.4	0.4	0.4	1	1	50.4	50.4	50.4	1	1
NQ-08	Overburden	Washed	61.7	61.7	61.7	1	1	1.97	1.97	1.97	1	1	0.4	0.4	0.4	1	1	0.41	0.41	0.41	1	1	57.9	57.9	57.9	1	1
NQ-10	Overburden	Unwashed	1.26	1.26	1.26	1	1	0.156	0.156	0.156	1	1	0.2	0.2	0.2	1	1	0.11	0.11	0.11	1	1	28.3	28.3	28.3	1	1
NQ-10	Overburden	Washed	1.02	1.69	1.36	2	1	0.166	0.678	0.422	2	1	0.3	0.3	0.3	2	0.5	0.11	0.23	0.17	2	1	25.1	29.6	27.4	2	1
NQ-11	Overburden	Washed	1.26	1.4	1.33	2	1	0.391	0.623	0.507	2	1	na	na	na	2	0	0.21	0.21	0.21	2	0.5	34.8	58.3	46.6	2	1
NQ-18	Tailings	Washed	25.7	31.5	28.6	2	1	1.14	13.5	7.32	2	1	0.2	0.3	0.25	2	1	0.26	0.76	0.51	2	1	90.3	128	109	2	1
NT4-05	Overburden	Washed	0.23	0.54	0.385	4	1	3.7	3.7	3.7	1	1	1.2	1.2	1.2	1	1	1.2	1.2	1.2	1	1	49.2	49.2	49.2	1	1
SQ-01	Tailings	Unwashed	62.8	62.8	62.8	1	1	3.3	3.3	3.3	1	1	0.88	0.88	0.88	1	1	0.9	0.9	0.9	1	1	104	104	104	1	1
SQ-01	Tailings	Washed	11.8	632	111	14	1	1.1	65.6	16	5	1	0.69	1.2	0.912	5	1	0.7	2.1	1.09	5	1	34.6	445	141	5	1
SQ-01A	Tailings	Washed	94.4	116	105	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SQ-01B	Tailings	Washed	26.7	106	46.6	8	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST1-01	Overburden	Washed	0.36	2.4	1.29	3	1	1.1	1.1	1.1	1	1	0.63	0.63	0.63	1	1	0.57	0.57	0.57	1	1	62.9	62.9	62.9	1	1
ST13-01	Original Ground	Unwashed	0.6	0.6	0.6	1	1	0.678	0.678	0.678	1	1	0.4	0.4	0.4	1	1	0.43	0.43	0.43	1	1	29.9	29.9	29.9	1	1
ST13-01	Original Ground	Washed	0.9	1.25	1.08	2	1	0.51	1.45	0.98	2	1	0.2	0.6	0.4	2	1	0.43	0.96	0.695	2	1	26.4	29.1	27.8	2	1
ST13-02	Tailings	Washed	6.43	29.5	18	2	1	0.327	0.417	0.372	2	1	0.3	0.3	0.3	2	0.5	0.31	0.73	0.52	2	1	18.3	35.5	26.9	2	1
ST13-03	Tailings	Washed	21.6	50.8	36.2	2	1	1.18	12.2	6.69	2	1	0.2	0.7	0.45	2	1	0.44	1.4	0.92	2	1	77.2	111	94.1	2	1
ST13-04	Tailings	Unwashed	3.64	3.64	3.64	1	1	1.97	1.97	1.97	1	1	0.3	0.3	0.3	1	1	0.45	0.45	0.45	1	1	37.5	37.5	37.5	1	1
ST13-04	Tailings	Washed	3.62	33	18.3	2	1	2.22	46.7	24.5	2	1	0.2	0.7	0.45	2	1	0.49	1.09	0.79	2	1	37.2	519	278	2	1
ST15-01	Original Ground	Unwashed	35.5	35.5	35.5	1	1	0.46	0.46	0.46	1	1	na	na	na	1	0	0.22	0.22	0.22	1	1	28.5	28.5	28.5	1	1
ST15-01	Original Ground	Washed	3.23	25.3	14.3	2	1	0.449	0.804	0.627	2	1	0.2	0.2	0.2	2	0.5	0.24	0.24	0.24	2	0.5	25	47.8	36.4	2	1
ST15-02	Original Ground	Washed	0.56	4.15	2.36	2	1	0.349	0.476	0.413	2	1	0.2	0.2	0.2	2	0.5	0.32	0.37	0.345	2	1	18.3	29.7	24	2	1
ST2-01	Overburden	Washed	26.5	213	118	4	1	0.31	0.31	0.31	1	1	0.34	0.34	0.34	1	1	0.28	0.28	0.28	1	1	19.7	19.7	19.7	1	1
ST2-02	Overburden	Washed	10.1	465	154	4	1	0.29	0.29	0.29	1	1	0.24	0.24	0.24	1	1	0.19	0.19	0.19	1	1	11.7	11.7	11.7	1	1
ST2-03	Overburden	Unwashed	186	186	186	1	1	0.26	0.26	0.26	1	1	0.36	0.36	0.36	1	1	0.27	0.27	0.27	1	1	41.4	41.4	41.4	1	1
ST2-03	Overburden	Washed	85.2	7180	1133	11	1	0.28	1.2	0.663	4	1	0.26	1.2	0.523	4	1	0.19	0.72	0.37	4	1	17	72.8	49	4	1
ST2-04	Overburden	Washed	0.38	0.54	0.445	4	1	3.3	3.3	3.3	1	1	2.6	2.6	2.6	1	1	4	4	4	1	1	103	103	103	1	1
ST2-05	Overburden	Unwashed	0.42	0.42	0.42	1	1	0.67	0.67	0.67	1	1	0.84	0.84	0.84	1	1	0.77	0.77	0.77	1	1	39.9	39.9	39.9	1	1
ST2-05	Overburden	Washed	0.22	39	3.8	15	1	0.44	1.6	1.02	6	1	0.28	2.1	1.1	6	1	0.25	2.2	1.04	6	1	15.7	97.3	50.6	6	1
Pedro Creek Sub-Basin																											
BCS	Original Ground	Unknown	0.5	43	10.6	10	0.7	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPS-10D	Dinwoody Cover	Washed	3.24	31.3	12.5	5	1	0.275	1.77	1.02	2	1	0.25	0.45	0.35	2	1	0.12	0.164	0.142	2	1	19.4	54.8	37.1	2	1
FSPS-11C	Overburden	Washed	24	264	108	5	1	0.497	1.57	1.03	2	1	0.54	1.13	0.835	2	1	0.25	0.36	0.305	2	1	22.6	62.9	42.8	2	1
FSPS-12A	Overburden	Washed	21.8	136	84.8	3	1	0.633	3.85	2.24	2	1	0.73	0.93	0.83	2	1	0.22	0.53	0.375	2	1	18.6	72.8	45.7	2	1
FSPS-13B	Overburden	Washed	5.29	128	71.3	4	1	0.644	7.17	3.91	2	1	0.57	0.67	0.62	2	1	0.15	0.26	0.205	2	1	18.8	120	69.4	2	1
FSPS-14D	Dinwoody Cover	Washed	1.29	5.21	2.9	5	1	0.189	0.85	0.52	2	1	0.6	0.62	0.61	2	1	0.256	0.432	0.344	2	1	18.1	56	37.1	2	1
FSPS-15F	Dinwoody Cover	Washed	0.92	21	6.63	5	1	0.257	0.851	0.554	2	1	0.26	0.55	0.405	2	1	0.177	0.192	0.185	2	1	20.7	60.3	40.5	2	1
FSPS-16B	Overburden	Washed	15.7	426	215	5	1	0.773	2.11	1.44	2	1	0.75	1.26	1.01	2	1	0.33	0.4	0.365	2	1	25.5	65.6	45.6	2	1
FSPS-17C	Overburden	Washed	20.6	328	120	5	1	0.42	2.61	1.52	2	1	1.17	1.21	1.19	2	1	0.53	0.63	0.58	2	1	29.7	106	67.9	2	1
FSPS-18B	Overburden	Washed	2.99	127	46.1	5	1	0.925	6.83	3.88	2	1	0.49	0.63	0.56	2	1	0.17	0.24	0.205	2	1	26.1	93.2	59.7	2	1
FSPS-19E	Dinwoody Cover	Washed	3.68	76.6	32.1	5	1	0.372	1.22	0.796	2	1	0.34	0.48	0.41	2	1	0.057	0.057	0.057	2	0.5	25.1	65.4	45.3	2	1
FSPS-1F	Dinwoody Cover	Washed	0.58	37.3	11.4	5	1	0.209	1.61	0.91	2	1	0.21	0.53	0.37	2	1	0.069	0.069	0.069	2	0.5	24.8	223	124	2	1
FSPS-20A	Overburden	Washed	5.82	259	68.3	5	1	1.02	5.23	3.13	2	1	0.97	1.92	1.45	2	1	0.54	0.72	0.63	2	1	31.8	74.7	53.3	2	1
FSPS-21C	Overburden	Washed	5.09	38.1	21.8	6	1	1.23	9.27	4.79	3	1	0.86	1.17	0.983	3	1	0.3	0.817	0.605	3	1	38.5	156	87.4	3	1
FSPS-2G	Dinwoody Cover	Washed	0.29	19.9	4.44	5	1	0.175	1.54	0.858	2	1	0.35	0.49	0.42	2	1	0.108	0.108	0.108	2	0.5	21.8	105	63.4	2	1
FSPS-3F	Dinwoody Cover	Washed	0.56	16.4	9.35	5	1	0.248	1.23	0.739	2	1	0.35	0.51	0.43	2	1	0.043	0.043	0.043	2	0.5	29.3	57.8	43.6	2	1
FSPS-4G	Dinwoody Cover	Washed	0.26	1.7	0.614	5	1	0.214	0.673	0.444	2	1	0.21	0.59	0.4	2	1	0.036	0.037	0.0365	2	1	20.7	41.8	31.3	2	1
FSPS-5E	Dinwoody Cover	Washed	3.15	40.5	12.2	5	1	0.253	1.07	0.662	2	1	0.27	0.49	0.38	2	1	0.127	0.185	0.156	2	1	20.9	48.3	34.6	2	1
FSPS-6D	Dinwoody Cover	Washed	1.42	73.7	22.7	5	1	0.396	1.46	0.928	2	1	0.2	0.45	0.325	2	1	0.108	0.192	0.15	2	1	17.4	59.4	38.4	2	1
FSPS-7E	Dinwoody Cover	Washed	0.66	2.8	1.66	5	1	0.381	1.11	0.746	2	1	0.24	0.54	0.39	2	1	0.108	0.236	0.172	2	1	24.7	50.4	37.6	2	1
FSPS-8G	Dinwoody Cover	Washed	0.2	1.99	0.64	5	1	0.21	0.887	0.549	2	1	0.29	0.66	0.475	2	1	0.009	0.033	0.021	2	1	40.8	46	43.4	2	1
FSPS-9A	Overburden	Washed	11.5	52.2	32.4	5	1	1.35	3.5	2.43	2	1	0.76	0.79	0.775	2	1	0.3	0.58	0.44	2	1	63.8	136	99.9	2	1
FSPS-DTrtmt	Dinwoody Cover	Washed	0.69	2.11	1.2	9	1	0.332	0.674	0.475	9	1	0.57	1.46	0.994	9	1	0.568	0.635	0.608	9	0.3333	16.2	25.2	20.6	9	1
FSPS-ETrtmt	Dinwoody Cover	Washed	1.14	3.93	2.24	9	1	0.205	0.765	0.44	9	1	0.49	1.21	0.747	9	1	0.393	0.602	0.493	9	0.3333	20.7	26.8	23.5	9	1
LD	Overburden	Unknown	0.5	4.8	2.08	20	0.8	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-03	Original Ground	Washed	1.7	44.6	12.2	16	1	0.47	1.3	0.714	5	1	0.26	0.73	0.516	5	1	0.2	0.63	0.422	5	1	24.5	78.1	41	5	1
NQ-04	Overburden (now covered)	Washed	9.1	71.1	36.1	5	1	0.9	0.9	0.9	1	1	0.29	0.29	0.29	1	1	0.24	0.24	0.24	1	1	19.6	19.6	19.6	1	1
NQ-07	Overburden	Washed	19.4	19.4	19.4	1	1	2.26	2.26	2.26	1	1	0.9	0.9	0.9	1	1	0.59	0.59	0.59	1	1	52.8	52.8	52.8	1	1
NT4-04	Overburden	Washed	0.87	11.3	3.67	14	1	1.4	9.1	3.56	5	1	0.57	1.3	0.842	5	1	0.69	1.6	0.95	5	1	24.2	42.4	32.3	5	1
NT5-01	Overburden (now covered)	Washed	28.6	168	81.8	6	1	2.9	2.9	2.9	1	1	2.6	2.6	2.6	1	1	4	4	4	1	1	134	134	134	1	1
NT5-02	Overburden (now covered)	Washed	20	55.1	38.3	4	1	2.8	2.8	2.8	1	1	3.5	3.5	3.5	1	1	2.3	2.3	2.3	1	1	76.1	76.1	76.1	1	1
NT5-03	Overburden (now covered)	Unwashed	9.5	9.5	9.5	1	1	2.3	2.3	2.3	1	1	2.6	2.6	2.6	1	1	1.8	1.8	1.8	1	1	251	251	251	1	1
NT5-03	Overburden (now covered)	Washed	5.5	39.4	19	9	1	1.5	2.4	1.83	3	1	0.62	6.4	4.37	3	1	0.54	5.3	3.58	3	1	99.9	312	197	3	1

Table 4-15
Summary of Detected Metals Results in Vegetation

		Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
Station	**Disturbed Status**	**Washed/ Unwashed**																									
NT5-04	Overburden (now covered)	Washed	2.9	140	51.2	3	1	1.6	1.6	1.6	1	1	3.6	3.6	3.6	1	1	1.7	1.7	1.7	1	1	228	228	228	1	1
NT5-05	Overburden (now covered)	Unwashed	21.5	21.9	21.7	2	1	0.58	3.48	2.03	2	1	0.3	0.3	0.3	2	1	0.17	0.23	0.2	2	1	30.1	97.7	63.9	2	1
NT5-05	Overburden (now covered)	Washed	20.4	155	59.4	5	1	0.691	4.53	1.99	3	1	0.3	1.2	0.667	3	1	0.19	0.7	0.37	3	1	34.8	156	93.2	3	1
NT5-06	Overburden (now covered)	Unwashed	7.95	37.8	22.9	2	1	0.93	1.08	1.01	2	1	0.6	0.6	0.6	2	0.5	0.52	0.52	0.52	2	0.5	26.3	49	37.7	2	1
NT5-06	Overburden (now covered)	Washed	6.56	106	65.9	15	0.9333	0.42	2.2	1.29	7	1	0.36	1.1	0.598	7	0.8571	0.27	0.94	0.468	7	0.8571	12.6	173	65.2	7	1
NT5-07	Original Ground	Unwashed	na	na	na	1	0	1.65	1.65	1.65	1	1	0.3	0.3	0.3	1	1	0.39	0.39	0.39	1	1	42	42	42	1	1
NT5-07	Original Ground	Washed	0.1	0.1	0.1	2	0.5	0.391	1.62	1.01	2	1	na	na	na	2	0	0.35	0.35	0.35	2	0.5	21.8	40	30.9	2	1
NT5-08	Original Ground	Unwashed	0.18	5	2.59	2	1	1.18	3.78	2.48	2	1	0.2	0.2	0.2	2	1	0.15	0.18	0.165	2	1	22.4	89.7	56.1	2	1
NT5-08	Original Ground	Washed	15.6	15.6	15.6	2	0.5	0.485	3.66	2.07	2	1	0.2	0.2	0.2	2	1	0.15	0.21	0.18	2	1	23.3	90.6	57	2	1
NT5-09	Original Ground (now covered)	Unwashed	14	14	14	1	1	0.714	0.714	0.714	1	1	na	na	na	1	0	0.25	0.25	0.25	1	1	54.7	54.7	54.7	1	1
NT5-09	Original Ground (now covered)	Washed	9.79	25.9	17.8	2	1	0.464	0.656	0.56	2	1	0.2	0.3	0.25	2	1	0.2	0.24	0.22	2	1	33.7	52.8	43.3	2	1
NT5-10	Original Ground	Unwashed	9.96	9.96	9.96	1	1	1.29	1.29	1.29	1	1	0.2	0.2	0.2	1	1	0.16	0.16	0.16	1	1	67.7	67.7	67.7	1	1
NT5-10	Original Ground	Washed	10.5	18.5	14.5	2	1	0.3	1.29	0.795	2	1	0.5	0.5	0.5	2	0.5	0.15	0.31	0.23	2	1	37.8	83.9	60.9	2	1
NT6-01	Overburden	Washed	0.19	11.1	0.915	20	1	0.14	0.83	0.421	8	1	0.22	1.7	0.668	8	1	0.24	1.9	0.589	8	1	13.1	77.8	27.9	8	1
NT6-02	Overburden	Washed	0.98	1.2	1.09	3	1	1.4	1.4	1.4	1	1	0.48	0.48	0.48	1	1	0.62	0.62	0.62	1	1	22.1	22.1	22.1	1	1
NT6-03	Overburden	Washed	3	8.2	5.3	4	1	0.43	0.43	0.43	1	1	0.93	0.93	0.93	1	1	0.58	0.58	0.58	1	1	18.4	18.4	18.4	1	1
NT7-01	Overburden (now covered)	Unwashed	118	118	118	1	1	0.73	0.73	0.73	1	1	0.96	0.96	0.96	1	1	0.69	0.69	0.69	1	1	96.2	96.2	96.2	1	1
NT7-01	Overburden (now covered)	Washed	10.3	214	77.6	10	1	0.74	4.4	2.97	5	1	0.5	3.3	1.81	5	1	0.41	2.5	1.32	5	1	75.1	184	119	5	1
NT7-02	Overburden (now covered)	Unwashed	45.5	45.5	45.5	1	1	0.91	0.91	0.91	1	1	2.1	2.1	2.1	1	1	1.4	1.4	1.4	1	1	41.7	41.7	41.7	1	1
NT7-02	Overburden (now covered)	Washed	0.33	555	97.6	16	1	0.53	7.5	2.94	6	1	0.48	6.2	3.33	6	1	0.34	3.6	2.01	6	1	31.7	278	112	6	1
NT7-03	Original Ground (now covered)	Washed	0.15	0.65	0.345	4	1	0.34	0.34	0.34	1	1	0.48	0.48	0.48	1	1	0.49	0.49	0.49	1	1	33	33	33	1	1
NT9-01	Original Ground	Washed	0.04	0.57	0.393	3	1	0.454	2.42	1.35	3	1	0.32	1.64	0.827	3	1	0.24	0.51	0.39	3	1	28.5	103	56.6	3	1
NT9-02	Overburden (now covered)	Washed	22.7	34.9	30.1	3	1	0.698	2.13	1.58	3	1	0.29	1.38	0.67	3	1	0.23	0.26	0.243	3	1	19.1	106	61.8	3	1
NT9-03	Overburden (now covered)	Washed	39.1	62.2	50.7	2	1	0.488	0.533	0.511	2	1	0.3	1.7	1	2	1	0.27	0.33	0.3	2	1	27.5	32.6	30.1	2	1
NT9-04	Overburden (now covered)	Washed	118	143	131	2	1	1.96	2.66	2.31	2	1	0.55	1.6	1.08	2	1	0.39	0.74	0.565	2	1	90	101	95.5	2	1
NT9-05	Overburden	Washed	50.3	50.9	50.6	2	1	1.25	1.58	1.42	2	1	0.73	1.49	1.11	2	1	0.4	0.43	0.415	2	1	66.9	67.8	67.4	2	1
PC-2	Original Ground	Unwashed	4.27	4.27	4.27	1	1	2.14	2.14	2.14	1	1	13	13	13	1	1	8.38	8.38	8.38	1	1	74.3	74.3	74.3	1	1
PC-3	Original Ground	Unwashed	0.4	0.56	0.48	2	1	0.544	0.58	0.562	2	1	0.3	0.3	0.3	2	1	0.19	0.32	0.255	2	1	17.7	31.5	24.6	2	1
PC-3	Original Ground	Washed	0.07	0.46	0.22	3	1	0.523	1.06	0.752	3	1	0.2	0.3	0.25	3	0.6667	0.18	0.27	0.217	3	1	18.8	28.2	22.3	3	1
PC-5	Original Ground	Washed	1.04	1.77	1.41	3	0.6667	0.499	2.24	1.37	2	1	0.2	0.5	0.35	2	1	0.32	0.81	0.565	2	1	26.7	52.4	39.6	2	1
PCP-1	Original Ground	Unknown	2.9	36	15.2	5	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCP-2	Original Ground	Unknown	2.9	27	10.5	5	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PP-01	Original Ground	Washed	0.1	0.12	0.11	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PP-02	Original Ground	Washed	0.12	0.82	0.267	9	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PP-03	Original Ground	Washed	0.1	0.23	0.165	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PR-01	Original Ground	Washed	8.7	35.2	21.7	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PR-02	Original Ground	Washed	4.5	36	20.3	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PR-03	Original Ground	Washed	1.1	40.6	16	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PR-04	Original Ground	Washed	1.7	20.2	11	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PR-05	Original Ground	Washed	13.2	82.4	44.8	8	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
UD	Overburden (now covered)	Unknown	0.5	50	14.4	20	0.9	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																											
HHP-1	Original Ground	Washed	0.11	0.11	0.11	2	0.5	0.08	0.904	0.492	2	1	na	na	na	2	0	0.11	0.16	0.135	2	1	13	63.9	38.5	2	1
HiSe	Overburden	Unknown	0.33	110	14.1	33	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NQ-12	Overburden	Unwashed	9.43	9.43	9.43	1	1	1.18	1.18	1.18	1	1	na	na	na	1	0	0.18	0.18	0.18	1	1	32.9	32.9	32.9	1	1
NQ-12	Overburden	Washed	3.26	8.23	5.75	2	1	0.506	3.57	2.04	2	1	0.2	0.2	0.2	2	0.5	0.2	0.22	0.21	2	1	33.2	91.2	62.2	2	1
NQ-15	Overburden	Washed	0.07	0.29	0.164	5	1	0.126	0.316	0.221	2	1	0.2	0.2	0.2	2	1	na	na	na	2	0	21.8	28.5	25.2	2	1
NQ-16	Overburden	Washed	36.6	117	76.8	2	1	2.82	9.86	6.34	2	1	0.4	1.4	0.9	2	1	0.65	4.3	2.48	2	1	105	117	111	2	1
SQ-03	Original Ground	Washed	0.28	1.1	0.583	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST10-03	Overburden	Washed	6.19	15.5	10.8	2	1	2.54	2.65	2.6	2	1	3.5	4	3.75	2	1	5.17	6.67	5.92	2	1	89	127	108	2	1
ST10-04	Overburden	Washed	15.3	68.4	34.9	6	1	1.56	1.64	1.6	2	1	0.3	0.6	0.45	2	1	0.35	0.77	0.56	2	1	59.4	124	91.7	2	1
ST10-05	Overburden	Unwashed	40.5	40.5	40.5	1	1	1.39	1.39	1.39	1	1	0.3	0.3	0.3	1	1	0.17	0.17	0.17	1	1	98.7	98.7	98.7	1	1
ST10-05	Overburden	Washed	37.5	170	104	2	1	0.328	1.4	0.864	2	1	1.8	1.8	1.8	2	0.5	0.16	1.01	0.585	2	1	77.5	78.5	78	2	1
ST10-06	Original Ground	Unwashed	na	na	na	1	0	0.185	0.185	0.185	1	1	na	na	na	1	0	0.24	0.24	0.24	1	1	17.3	17.3	17.3	1	1
ST10-06	Original Ground	Washed	na	na	na	2	0	0.234	0.658	0.446	2	1	na	na	na	2	0	0.21	0.22	0.215	2	1	19.5	43.3	31.4	2	1
ST14-01	Waste Rock	Washed	0.56	0.67	0.615	2	1	1.76	1.8	1.78	2	1	0.2	1.4	0.8	2	1	0.15	0.62	0.385	2	1	65.1	68.1	66.6	2	1
ST4-05	Overburden	Washed	10.6	79.4	40.5	4	1	0.92	0.92	0.92	1	1	0.48	0.48	0.48	1	1	0.4	0.4	0.4	1	1	32.7	32.7	32.7	1	1
ST4-06	Overburden	Washed	21.8	70.5	50.3	3	1	1.4	1.4	1.4	1	1	0.4	0.4	0.4	1	1	0.21	0.21	0.21	1	1	34	34	34	1	1
ST5-01	Overburden	Washed	0.31	17.3	5.43	4	1	0.81	0.81	0.81	1	1	0.28	0.28	0.28	1	1	0.28	0.28	0.28	1	1	18.6	18.6	18.6	1	1
ST5-02	Overburden	Unwashed	4.4	4.4	4.4	1	1	2.5	2.5	2.5	1	1	0.38	0.38	0.38	1	1	0.39	0.39	0.39	1	1	30.9	30.9	30.9	1	1
ST5-02	Overburden	Washed	0.62	21.5	5.35	13	1	0.83	2.8	1.97	5	1	0.31	0.96	0.572	5	1	0.43	0.86	0.656	5	1	21	146	51.5	5	1
ST5-03	Overburden	Washed	1.6	3.6	2.27	3	1	0.85	0.85	0.85	1	1	0.5	0.5	0.5	1	1	0.46	0.46	0.46	1	1	29.1	29.1	29.1	1	1

Table 4-15
Summary of Detected Metals Results in Vegetation

		Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
Station	**Disturbed Status**	**Washed/ Unwashed**																									
ST6-01	Overburden	Washed	12.8	46.9	25.4	6	1	6.4	6.4	6.4	1	1	3.4	3.4	3.4	1	1	6	6	6	1	1	119	119	119	1	1
ST6-02	Overburden	Unwashed	14.5	14.5	14.5	1	1	1.7	1.7	1.7	1	1	0.68	0.68	0.68	1	1	0.48	0.48	0.48	1	1	44.2	44.2	44.2	1	1
ST6-02	Overburden	Washed	1	64.4	20	15	1	0.87	12.3	4.43	6	1	0.51	2.7	1.04	6	1	0.33	1.7	0.665	6	1	31.7	301	116	6	1
ST6-03	Overburden	Washed	35.1	367	109	6	1	2.4	2.4	2.4	1	1	53.5	53.5	53.5	1	1	3.2	3.2	3.2	1	1	117	117	117	1	1
ST7-00	Original Ground	Unwashed	0.38	0.38	0.38	1	1	0.29	0.29	0.29	1	1	0.89	0.89	0.89	1	1	0.82	0.82	0.82	1	1	42.4	42.4	42.4	1	1
ST7-00	Original Ground	Washed	0.05	0.64	0.322	13	1	0.26	4	1.11	5	1	0.23	0.54	0.438	5	1	0.24	0.62	0.48	5	1	22.2	34.3	28.9	5	1
Southwest Conda Sub-Basin																											
ST10-01	Original Ground	Washed	0.53	1.23	0.88	2	1	0.635	1.2	0.918	2	1	0.3	0.3	0.3	2	0.5	0.22	0.27	0.245	2	1	39.8	44.5	42.2	2	1
ST10-02	Original Ground	Washed	2.81	14.7	5.93	6	1	2.11	4.26	3.19	2	1	0.3	1	0.65	2	1	0.59	0.93	0.76	2	1	48	113	80.5	2	1
ST11-01	Original Ground	Washed	na	na	na	2	0	0.168	0.374	0.271	2	1	0.4	0.5	0.45	2	1	0.59	0.79	0.69	2	1	18.4	20.3	19.4	2	1
ST11-02	Original Ground	Unwashed	0.04	0.2	0.12	2	1	0.155	0.155	0.155	1	1	0.3	0.3	0.3	1	1	0.45	0.45	0.45	1	1	15.7	15.7	15.7	1	1
ST11-02	Original Ground	Washed	0.07	0.72	0.24	4	1	0.176	0.351	0.264	2	1	0.4	0.5	0.45	2	1	0.48	0.57	0.525	2	1	17	17.2	17.1	2	1
ST11-03	Original Ground	Washed	na	na	na	2	0	0.14	0.333	0.237	2	1	0.3	0.4	0.35	2	1	0.44	0.54	0.49	2	1	16.5	19.8	18.2	2	1
ST11-04	Original Ground	Washed	0.03	0.18	0.0833	6	0.5	0.152	0.277	0.215	2	1	0.3	0.3	0.3	2	1	0.39	0.43	0.41	2	1	18.5	18.8	18.7	2	1
State Land Creek Sub-Basin																											
NQ-01	Overburden	Unwashed	12.2	12.2	12.2	1	1	0.35	0.35	0.35	1	1	0.41	0.41	0.41	1	1	0.29	0.29	0.29	1	1	25.3	25.3	25.3	1	1
NQ-01	Overburden	Washed	2.4	32.6	16.9	15	1	0.31	2.7	1.06	6	1	0.18	0.53	0.298	6	1	0.12	0.54	0.275	6	1	12.8	205	69.7	6	1
NQ-02	Overburden	Washed	8.1	49.2	31.4	3	1	1.2	1.2	1.2	1	1	0.49	0.49	0.49	1	1	0.25	0.25	0.25	1	1	73.2	73.2	73.2	1	1
NQ-06	Overburden	Washed	0.07	0.83	0.377	4	0.75	1.22	1.22	1.22	1	1	0.2	0.2	0.2	1	1	na	na	na	1	0	39	39	39	1	1
NT1-01	Original Ground	Unwashed	0.6	0.6	0.6	1	1	0.09	0.09	0.09	1	1	0.32	0.32	0.32	1	1	0.17	0.17	0.17	1	1	4.9	4.9	4.9	1	1
NT1-01	Original Ground	Washed	0.07	24	2.25	13	1	0.1	0.68	0.318	4	1	0.23	0.7	0.395	4	1	0.19	0.75	0.368	4	1	8	24.5	15.4	4	1
NT1-02	Overburden	Washed	12	38.4	26.9	3	1	1.2	1.2	1.2	1	1	2.8	2.8	2.8	1	1	0.83	0.83	0.83	1	1	39.4	39.4	39.4	1	1
NT1-03	Overburden	Washed	0.11	8.2	1.1	12	1	0.38	0.83	0.65	4	1	0.19	0.31	0.258	4	1	0.18	0.4	0.268	4	1	18.7	55.5	34.8	4	1
NT1-04	Overburden	Washed	0.21	0.67	0.433	3	1	0.52	0.52	0.52	1	1	0.51	0.51	0.51	1	1	0.47	0.47	0.47	1	1	29.7	29.7	29.7	1	1
NT1-05	Overburden	Washed	0.16	0.29	0.218	5	1	0.94	0.94	0.94	1	1	0.46	0.46	0.46	1	1	0.47	0.47	0.47	1	1	13.6	13.6	13.6	1	1
NT2-01	Overburden	Unwashed	16.6	16.6	16.6	1	1	2.7	2.7	2.7	1	1	0.46	0.46	0.46	1	1	0.39	0.39	0.39	1	1	83	83	83	1	1
NT2-01	Overburden	Washed	14	51.9	30.3	4	1	2.3	2.3	2.3	1	1	0.39	0.39	0.39	1	1	0.42	0.42	0.42	1	1	124	124	124	1	1
NT2-02	Overburden	Unwashed	92	92	92	1	1	0.94	0.94	0.94	1	1	1.2	1.2	1.2	1	1	0.65	0.65	0.65	1	1	95.7	95.7	95.7	1	1
NT2-02	Overburden	Washed	0.45	172	63	4	1	1.4	1.4	1.4	1	1	1.8	1.8	1.8	1	1	0.49	0.49	0.49	1	1	116	116	116	1	1
NT2-03	Overburden	Washed	3.9	24.3	10.2	7	1	0.71	2.2	1.3	4	1	0.43	2.3	1.33	4	1	0.23	1.2	0.683	4	1	44.6	164	89.4	4	1
NT2-04	Overburden	Unwashed	1.95	1.95	1.95	1	1	0.661	0.661	0.661	1	1	na	na	na	1	0	0.26	0.26	0.26	1	1	39.5	39.5	39.5	1	1
NT2-04	Overburden	Washed	0.9	11.5	6.2	2	1	0.187	0.821	0.504	2	1	0.3	0.3	0.3	2	0.5	0.23	0.23	0.23	2	0.5	19.2	44.8	32	2	1
NT2-05	Original Ground	Unwashed	1.19	1.19	1.19	1	1	0.717	0.717	0.717	1	1	0.2	0.2	0.2	1	1	na	na	na	1	0	54.6	54.6	54.6	1	1
NT2-05	Original Ground	Washed	2.56	4.13	3.35	2	1	0.158	0.63	0.394	2	1	0.2	0.2	0.2	2	0.5	na	na	na	2	0	18.7	54.2	36.5	2	1
NT2-06	Original Ground	Unwashed	0.81	0.81	0.81	1	1	3.01	3.01	3.01	1	1	0.2	0.2	0.2	1	1	na	na	na	1	0	102	102	102	1	1
NT2-06	Original Ground	Washed	0.76	1.67	1.22	2	1	0.325	2.99	1.66	2	1	na	na	na	2	0	0.2	0.23	0.215	2	1	31.3	108	69.7	2	1
NT4-01	Overburden	Washed	0.9	63.6	37	4	1	2.1	2.1	2.1	1	1	2.4	2.4	2.4	1	1	2	2	2	1	1	61.1	61.1	61.1	1	1
NT4-02	Overburden	Washed	0.89	35.2	16.6	4	1	2.6	2.6	2.6	1	1	1.4	1.4	1.4	1	1	0.88	0.88	0.88	1	1	37.4	37.4	37.4	1	1
NT4-03	Overburden	Washed	0.8	27	17.3	4	1	1.9	1.9	1.9	1	1	1.2	1.2	1.2	1	1	1.4	1.4	1.4	1	1	24.4	24.4	24.4	1	1
NT8-03	Original Ground	Washed	0.13	0.24	0.185	5	0.4	0.199	1.12	0.66	2	1	na	na	na	2	0	0.17	0.26	0.215	2	1	27.5	54.2	40.9	2	1
NT8-04	Original Ground	Washed	na	na	na	2	0	0.574	0.982	0.778	2	1	na	na	na	2	0	0.16	0.3	0.23	2	1	29.5	45	37.3	2	1
NT8-05	Original Ground	Washed	0.13	0.13	0.13	2	0.5	1.19	2.42	1.81	2	1	na	na	na	2	0	0.16	0.21	0.185	2	1	28.7	62.9	45.8	2	1
NT8-06	Original Ground	Unwashed	na	na	na	1	0	0.334	0.334	0.334	1	1	na	na	na	1	0	na	na	na	1	0	34.2	34.2	34.2	1	1
NT8-06	Original Ground	Washed	na	na	na	2	0	0.771	1.81	1.29	2	1	na	na	na	2	0	0.18	0.18	0.18	2	0.5	34.8	79.2	57	2	1
SLC-2	Original Ground	Washed	0.07	0.58	0.266	5	1	0.313	8.63	2.87	4	1	0.2	0.7	0.433	4	0.75	0.29	0.92	0.46	4	1	20.2	158	66.1	4	1
SLC-3	Original Ground	Unwashed	1.19	1.19	1.19	1	1	0.724	0.724	0.724	1	1	0.4	0.4	0.4	1	1	0.36	0.36	0.36	1	1	44.9	44.9	44.9	1	1
SLC-3	Original Ground	Washed	0.53	1.18	0.855	2	1	0.732	1.17	0.951	2	1	0.4	0.4	0.4	2	0.5	0.17	0.33	0.25	2	1	17	42.9	30	2	1
SP-01	Original Ground	Washed	0.09	0.21	0.141	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SP-02	Original Ground	Washed	0.09	0.15	0.12	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SP-03	Original Ground	Washed	0.11	0.36	0.193	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SP-04	Original Ground	Washed	0.08	0.17	0.125	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SR-01	Original Ground	Washed	0.39	6.9	2.33	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SR-02	Original Ground	Washed	0.08	0.1	0.09	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SR-03	Original Ground	Washed	0.15	0.39	0.251	10	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SR-04	Original Ground	Washed	0.55	0.95	0.75	2	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SR-05	Original Ground	Washed	0.43	1.1	0.672	9	1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																											
NT3-01	Overburden	Washed	15.6	48.4	30.6	3	1	1.3	1.3	1.3	1	1	0.64	0.64	0.64	1	1	0.52	0.52	0.52	1	1	223	223	223	1	1
NT3-02	Overburden	Unwashed	27.6	27.6	27.6	1	1	0.98	0.98	0.98	1	1	1.6	1.6	1.6	1	1	1	1	1	1	1	120	120	120	1	1
NT3-02	Overburden	Washed	5.6	169	52.7	10	1	0.88	2.1	1.26	4	1	1.1	2.2	1.5	4	1	0.68	2.5	1.21	4	1	81.5	140	113	4	1
NT3-03	Overburden	Washed	4.3	124	51.3	5	1	2.6	2.6	2.6	1	1	2.6	2.6	2.6	1	1	2.1	2.1	2.1	1	1	153	153	153	1	1
NT3-04	Overburden	Washed	4.8	14.1	9.67	3	1	1.1	1.1	1.1	1	1	0.67	0.67	0.67	1	1	0.66	0.66	0.66	1	1	25.8	25.8	25.8	1	1

Table 4-15
Summary of Detected Metals Results in Vegetation

		Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
Station	**Disturbed Status**	**Washed/ Unwashed**																									
NT3-05	Overburden	Washed	1.4	44.8	12.1	5	1	1.1	1.1	1.1	1	1	0.68	0.68	0.68	1	1	0.57	0.57	0.57	1	1	36.4	36.4	36.4	1	1
NT3-06	Overburden	Washed	0.48	3.9	1.59	4	1	1.8	1.8	1.8	1	1	0.64	0.64	0.64	1	1	0.73	0.73	0.73	1	1	36.9	36.9	36.9	1	1
NT3-07	Original Ground	Unwashed	9.1	9.1	9.1	1	1	0.86	0.86	0.86	1	1	0.65	0.65	0.65	1	1	0.55	0.55	0.55	1	1	33.3	33.3	33.3	1	1
NT3-07	Original Ground	Washed	4.4	177	34.5	13	1	0.91	8.4	2.63	5	1	0.34	6.3	1.71	5	1	0.3	7.9	1.93	5	1	23.3	113	44.8	5	1
Offsite-Blackfoot River																											
MST020	Offsite	Unknown	na	na	na	1	0	0.093	0.093	0.093	1	1	na	na	na	na	na	na	na	na	na	na	44	44	44	1	1
MST231	Offsite	Unknown	na	na	na	1	0	na	na	na	1	0	na	na	na	na	na	na	na	na	na	na	38	38	38	1	1
ST019	Offsite	Unknown	na	na	na	1	0	0.63	0.63	0.63	1	1	na	na	na	na	na	na	na	na	na	na	28	28	28	1	1
ST021	Offsite	Unknown	na	na	na	1	0	na	na	na	1	0	na	na	na	na	na	na	na	na	na	na	19	19	19	1	1
ST022	Offsite	Unknown	na	na	na	1	0	0.29	0.29	0.29	1	1	na	na	na	na	na	na	na	na	na	na	25	25	25	1	1
ST230	Offsite	Unknown	na	na	na	1	0	0.06	0.06	0.06	1	1	na	na	na	na	na	na	na	na	na	na	28	28	28	1	1
ST232	Offsite	Unknown	na	na	na	1	0	na	na	na	1	0	na	na	na	na	na	na	na	na	na	na	9.3	9.3	9.3	1	1
Offsite-Trail Creek																											
ST076	Offsite	Washed	0.52	0.73	0.613	3	1	0.18	0.24	0.217	3	1	1.6	1.8	1.7	3	1	0.38	0.68	0.51	3	1	27	33	29.7	3	1

Table 4-15
Summary of Detected Metals Results in Vegetation
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

"Washed" = vegetation samples rinsed with deionized (DI) water (or DI water plus detergent) prior to analysis; "Unwashed" = vegetation samples were not rinsed prior to analysis; "Unknown" = insufficient information to determine if samples were rinsed or not.

na = not analyzed.

NA = comparison value not available.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

[1]Vegetation sampled in 2013 in plots with overburden/amended overburden

[2]Vegetation sampled in 2013 in plots with Dinwoody-covered overburden

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
Camp G Creek Sub-Basin							
CGC-0	CD0709-CGC0-AVM002	7/9/2009	Aquatic	single-species	N	Speedwell	Unwashed
	CD0709-CGC0-AVM001	7/9/2009	Aquatic	single-species	N	White-water Buttercup	Unwashed
CGC-1	CD0709-CGC1-AVM002	7/10/2009	Aquatic	single-species	N	Sedge	Unwashed
	CD0709-CGC1-AVM001	7/10/2009	Aquatic	single-species	N	Speedwell	Unwashed
	CD0809-CGC1-VGBRO001	8/11/2009	Browse	mixed-species	N	Willow (75), Shrubby cinquefoil (25)	Washed
	CD0809-CGC1-VGSAG001	8/11/2009	Browse	single-species	N	Sage	Washed
	CD0809-CGC1-VGWIL001	8/11/2009	Browse	single-species	N	Willow	Washed
	CD0809-CGC1-VGFOR001	8/11/2009	Forage	mixed-species	Y	Spikerush (5), Aster (5), Cinquefoil (10), Timothy grass (15), Clover (5), Bluegrass (30), Rush (15), Sedge (15)	Washed
	CD0809-CGC1-VGAST001	8/11/2009	Forb	single-species	Y	Aster	Washed
CGC-4A	CD0709-CGC4A-AVM002	7/11/2009	Aquatic	single-species	N	Beaked sedge	Unwashed
	CD0709-CGC4A-AVM001	7/11/2009	Aquatic	single-species	N	Speedwell	Unwashed
CP-01	CP-01-VG1-BRO	6/3/2004	Browse	single-species	N	Cinquefoil	Washed
	CP-01-VG1-POT	6/3/2004	Forb	single-species	N	Cinquefoil	Washed
	CP-01-VG1-YAR	6/3/2004	Forb	single-species	N	Yarrow	Washed
	CP-01-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Timothy grass	Washed
	CP-01-VG1-GRA	6/3/2004	Grass	mixed-species	N	Timothy grass, Bluegrass, Sedge	Washed
	CP-01-VG1-BRO	7/12/2004	Browse	single-species	N	Cinquefoil	Washed
	CP-01-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	CP-01-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	CP-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Timothy grass	Washed
	CP-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Timothy grass, Bluegrass, Sedge	Washed
CP-02	CP-02-VG1-FOR	6/3/2004	Grass	single-species	N	Timothy grass	Washed
	CP-02-VG1-FOR	7/12/2004	Grass	single-species	N	Timothy grass	Washed
CP-03	CP-03-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CP-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
CR-01	CR-01-VG1-BRO	6/3/2004	Browse	single-species	N	Willow	Washed
	CR-01-VG1-GER	6/3/2004	Forb	single-species	N	Geranium	Washed
	CR-01-VG1-LUP	6/3/2004	Forb	single-species	N	Lupine	Washed
	CR-01-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CR-01-VG1-GRA	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CR-01-VG1-BRO	7/12/2004	Browse	single-species	N	Willow	Washed
	CR-01-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	CR-01-VG1-LUP	7/12/2004	Forb	single-species	N	Lupine	Washed
	CR-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CR-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
CR-02	CR-02-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Smooth brome	Washed
	CR-02-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Smooth brome	Washed
CR-03	CR-03-VG1-BRO	6/3/2004	Browse	mixed-species	N	Willow, Cinquefoil	Washed
	CR-03-VG1-GER	6/3/2004	Forb	single-species	N	Geranium	Washed
	CR-03-VG1-LUP	6/3/2004	Forb	single-species	N	Lupine	Washed
	CR-03-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CR-03-VG1-GRA	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CR-03-VG1-BRO	7/12/2004	Browse	mixed-species	N	Willow, Cinquefoil	Washed
	CR-03-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	CR-03-VG1-LUP	7/12/2004	Forb	single-species	N	Lupine	Washed
	CR-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	CR-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
CR-04	CR-04-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Timothy grass, Rush	Washed
	CR-04-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Timothy grass	Washed
ST12-01	CD0809-ST1201-VGBRO001	8/10/2009	Browse	mixed-species	N	Cherry (35), Serviceberry (15), Aspen (25), Snowberry (1), Rose (9), Antelope bitterbrush (15)	Washed
	CD0809-ST1201-VGFOR001	8/10/2009	Forage	mixed-species	Y	Purple aster (35), Pussytoes (1), Slender wheatgrass (10), Needlegrass (9), Smooth brome (20), Lupine (25)	Washed
	CD0809-ST1201-VGAST001	8/10/2009	Forb	single-species	Y	Aster	Washed
ST12-02	CD0809-ST1202-VGBRO001	8/10/2009	Browse	mixed-species	N	Antelope bitterbrush (65), Douglas fir (5), Snowberry (5), Serviceberry (15), Aspen (10)	Washed
	CD0809-ST1202-VGFOR001	8/10/2009	Forage	mixed-species	Y	Great Basin wildrye (15), Slender wheatgrass (10), Goldenrod (5), Purple aster (20), Buckwheat (15), Smooth brome (25), Bluegrass (5), Sedge (5)	Washed
	CD0809-ST1202-VGAST001	8/10/2009	Forb	single-species	Y	Aster	Washed
ST12-03	CD0809-ST1203-VGBRO001	8/10/2009	Browse	mixed-species	N	Serviceberry (25), Cherry (35), Douglas fir (10), Aspen (10), Rose (5), Snowberry (15)	Washed
	CD0809-ST1203-VGFOR001	8/10/2009	Forage	mixed-species	N	Unknown forb (10), False lily of the valley (50), Bluegrass (5), Meadow rue (5), Geranium (15), Sweetcicely (8), Sandwort (2), Yarrow (1), Brome (2), Dandelion (2)	Washed
ST3-01	ST3-01-B	9/16/2003	Browse	mixed-species	N	Aspen, Snowberry, Mountain maple	Washed
	ST3-01-HA1-1	9/16/2003	Forb	single-species	Y	Aster	Washed
	ST3-01-NHA2	9/16/2003	Forb	single-species	N	Cinquefoil	Washed
	ST3-01-NHA1	9/16/2003	Forb	single-species	N	Mullein	Washed
	ST3-01-UW FORAGE	9/16/2003	Grass	mixed-species	N	Bluegrass, Sedge	Unwashed
	ST3-01-G	9/16/2003	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	ST3-01-W FORAGE	9/16/2003	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	ST3-01-VG1-BRO	6/3/2004	Browse	mixed-species	N	Mountain maple, Aspen	Washed
	ST3-01-VG1-GER	6/3/2004	Forb	single-species	N	Geranium	Washed
	ST3-01-VG1-BAL	6/3/2004	Forb	single-species	N	Strawberry	Washed
	ST3-01-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Thickspike wheatgrass	Washed
	ST3-01-VG1-GRA	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Thickspike wheatgrass	Washed
	ST3-01-VG1-BRO	7/12/2004	Browse	mixed-species	N	Mountain maple, Aspen	Washed
	ST3-01-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	ST3-01-VG1-FRA	7/12/2004	Forb	single-species	N	Strawberry	Washed
	ST3-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Thickspike wheatgrass	Washed
	ST3-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Thickspike wheatgrass	Washed
ST3-02	ST3-02-B	9/16/2003	Browse	mixed-species	N	Mountain maple, Aspen, Sage, Blueberry	Washed
	ST3-02-UW FORAGE	9/16/2003	Forage	mixed-species	N	White clover, Prairie junegrass, Slender wheatgrass, Bluegrass	Unwashed
	ST3-02-W FORAGE	9/16/2003	Forage	mixed-species	N	White clover, Prairie junegrass, Slender wheatgrass, Bluegrass	Washed
	ST3-02-HA1	9/16/2003	Forb	single-species	Y	Aster	Washed
	ST3-02-NHA2	9/16/2003	Forb	single-species	N	Goldenrod	Washed
	ST3-02-NHA1	9/16/2003	Forb	single-species	N	White clover	Washed
	ST3-02-G-1	9/16/2003	Grass	mixed-species	N	Prairie junegrass, Slender wheatgrass, Bluegrass, Great Basin wildrye	Washed
	ST3-02-VG1-BRO	6/3/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	ST3-02-VG1-FOR	6/3/2004	Forage	mixed-species	N	White clover, Prairie junegrass, Slender wheatgrass, Bluegrass	Washed
	ST3-02-VG1-MUL	6/3/2004	Forb	single-species	N	Mullein	Washed
	ST3-02-VG1-CIR	6/3/2004	Forb	single-species	N	Thistle	Washed
	ST3-02-VG1-GRA	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Western wheatgrass	Washed
	ST3-02-VG1-BRO	7/12/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	ST3-02-VG1-FOR	7/12/2004	Forage	mixed-species	N	White clover, Prairie junegrass, Slender wheatgrass, Bluegrass	Washed
	ST3-02-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST3-02-VG1-MUL	7/12/2004	Forb	single-species	N	Mullein	Washed
	ST3-02-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	ST3-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Western wheatgrass	Washed
ST3-03	ST3-03 FORAGE	9/16/2003	Forage	mixed-species	N	White clover, Timothy grass, Thickspike wheatgrass, Bluegrass	Washed
	ST3-03-VG1-FOR	6/3/2004	Forage	mixed-species	N	White clover, Timothy grass, Thickspike wheatgrass, Bluegrass	Washed
	ST3-03-VG1-FOR	7/12/2004	Forage	mixed-species	N	White clover, Timothy grass, Thickspike wheatgrass, Bluegrass	Washed
French Drain Sub-Basin							
Con	Con-VG20020528-10	5/28/2002	Forb	single-species	N	Yarrow	Unknown
	Con-VG20020528-01	5/28/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020528-02	5/28/2002	Grass	single-species	N	Kentucky bluegrass	Unknown
	Con-VG20020528-03	5/28/2002	Grass	single-species	N	Kentucky bluegrass	Unknown
	Con-VG20020528-04	5/28/2002	Grass	single-species	N	Kentucky bluegrass	Unknown
	Con-VG20020528-05	5/28/2002	Grass	single-species	N	Quack grass	Unknown
	Con-VG20020528-06	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	Con-VG20020528-07	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	Con-VG20020528-08	5/28/2002	Unknown	single-species	N	Unknown	Unknown
	Con-VG20020528-09	5/28/2002	Unknown	single-species	N	Unknown	Unknown
	Con-VG20020604-01	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020604-02	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020604-03	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020604-04	6/4/2002	Grass	single-species	N	Kentucky bluegrass	Unknown
	Con-VG20020604-05	6/4/2002	Grass	single-species	N	Kentucky bluegrass	Unknown
	Con-VG20020604-06	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	Con-VG20020604-07	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	Con-VG20020611-01	6/11/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020611-02	6/11/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020611-03	6/11/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020611-04	6/11/2002	Grass	single-species	N	Kentucky bluegrass	Unknown
	Con-VG20020625-01	6/25/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020625-02	6/25/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020625-03	6/25/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	Con-VG20020625-04	6/25/2002	Unknown	single-species	N	Unknown	Unknown

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
LoSe	LoSe-VG20020528-01	5/28/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020528-02	5/28/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020528-03	5/28/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020528-04	5/28/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020528-05	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	LoSe-VG20020604-01	6/4/2002	Forb	single-species	Y	Alfalfa	Unknown
	LoSe-VG20020604-02	6/4/2002	Forb	single-species	Y	Alfalfa	Unknown
	LoSe-VG20020604-03	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020604-04	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020604-05	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020604-06	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	LoSe-VG20020604-07	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	LoSe-VG20020611-01	6/11/2002	Forb	single-species	Y	Alfalfa	Unknown
	LoSe-VG20020611-02	6/11/2002	Forb	single-species	Y	Alfalfa	Unknown
	LoSe-VG20020611-03	6/11/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020611-04	6/11/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020611-05	6/11/2002	Grass	single-species	N	Smooth brome	Unknown
	LoSe-VG20020611-06	6/11/2002	Grass	single-species	N	Smooth brome	Unknown
	LoSe-VG20020625-01	6/25/2002	Forb	single-species	Y	Alfalfa	Unknown
	LoSe-VG20020625-02	6/25/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020625-03	6/25/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	LoSe-VG20020625-04	6/25/2002	Grass	single-species	N	Smooth brome	Unknown
	LoSe-VG20020625-05	6/25/2002	Unknown	single-species	N	Unknown	Unknown
NQ-13	CD0809-NQ13-VGFOR001	8/4/2009	Forage	mixed-species	Y	Alfalfa (40), Intermediate wheatgrass (60)	Washed
NQ-14	CD0809-NQ14-VGFOR001	8/11/2009	Forage	mixed-species	Y	Thickspike wheatgrass (60), Alfalfa (30), Brome (10)	Washed
SQ-02	SQ-02-UW FORAGE	9/28/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Unwashed
	SQ-02-W FORAGE	9/28/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
	SQ-02-NHA1	9/28/2003	Forb	single-species	Y	Alfalfa	Washed
	SQ-02-NHA2	9/28/2003	Forb	single-species	N	Dandelion	Washed
	SQ-02-G	9/28/2003	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Western wheatgrass, Bluegrass	Washed
	SQ-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-02-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	SQ-02-VG1-GRA	5/26/2004	Grass	mixed-species	N	Smooth brome, Bluegrass, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-02-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	SQ-02-VG1-DAN	7/12/2004	Forb	single-species	N	Dandelion	Washed
	SQ-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Bluegrass, Thickspike wheatgrass, Western wheatgrass	Washed
ST1-02	ST1-02-UW FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Unwashed
	ST1-02-W FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-02-NHA1-1	9/19/2003	Forb	single-species	Y	Alfalfa	Washed
	ST1-02	9/19/2003	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-02-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST1-02-VG1-GRA	5/25/2004	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-02-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST1-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
ST1-03	ST1-03 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST1-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST1-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
ST4-01	ST4-01 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST4-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST4-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
ST4-02	ST4-02 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
ST4-03	ST4-03-UW FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Unwashed
	ST4-03 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-03-NHA1	9/19/2003	Forb	single-species	Y	Alfalfa	Washed
	ST4-03-HA1	9/19/2003	Forb	single-species	Y	Aster	Washed
	ST4-03-NHA2	9/19/2003	Forb	single-species	N	Blackfoot groundsmoke	Washed
	ST4-03-G-1	9/19/2003	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-03-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST4-03-VG1-GRA	5/25/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-03-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST4-03-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST4-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
ST4-04	ST4-04 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-04-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-04-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST4-04-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
ST8-01	ST8-01 FORAGE	9/17/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-01-VG1-GUM	7/12/2004	Forb	single-species	Y	Curlycup gumweed	Washed
ST8-02	ST8-02-B	9/17/2003	Browse	mixed-species	N	Gooseberry	Washed
	ST8-02-UW FORAGE	9/17/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Unwashed
	ST8-02-W FORAGE	9/17/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-02-HA1-1	9/17/2003	Forb	single-species	Y	Aster	Washed
	ST8-02-NHA1	9/17/2003	Forb	single-species	N	Kochia	Washed
	ST8-02-NHA2	9/17/2003	Forb	single-species	N	Yarrow	Washed
	ST8-02-G	9/17/2003	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-02-VG1-BRO	5/25/2004	Browse	single-species	N	Gooseberry	Washed
	ST8-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-02-VG1-YAR	5/25/2004	Forb	single-species	N	Yarrow	Washed
	ST8-02-VG1-GRA	5/25/2004	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-02-VG1-BRO	7/12/2004	Browse	single-species	N	Gooseberry	Washed
	ST8-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Squirreltail	Washed
	ST8-02-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST8-02-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	ST8-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Squirreltail	Washed
ST8-03	ST8-03-B	9/17/2003	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	ST8-03-UW FORAGE	9/17/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Smooth brome, Bluegrass	Unwashed
	ST8-03-W FORAGE	9/17/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Smooth brome, Bluegrass	Washed
	ST8-03-NHA1	9/17/2003	Forb	single-species	Y	Alfalfa	Washed
	ST8-03-HA1	9/17/2003	Forb	single-species	Y	Aster	Washed
	ST8-03-G	9/17/2003	Grass	mixed-species	N	Western wheatgrass, Smooth brome, Bluegrass	Washed
	ST8-03-VG1-BRO	5/25/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	ST8-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST8-03-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST8-03-VG1-GRA	5/25/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST8-03-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	ST8-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST8-03-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST8-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
ST8-04	ST8-04 FORAGE	9/17/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass	Washed
	ST8-04-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass	Washed
	ST8-04-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass	Washed
ST9-17	CD0809-ST917-VGBRO001	8/4/2009	Browse	mixed-species	N	Cottonwood (20), Lilac (20), Rose (20), Juniper (20), Sage (20)	Washed
	CD0809-ST917-VGFOR001	8/4/2009	Forage	mixed-species	N	Intermediate wheatgrass (80), Field bindweed (1), Smooth brome (17), Dandelion (1)	Washed
SWP-4	CD0709-SWP4-AVM001	7/10/2009	Aquatic	single-species	N	Spikerush	Unwashed
	CD0809-SWP4-VGBRO001	8/4/2009	Browse	mixed-species	N	Aspen (50), Serviceberry (15), Snowberry (15), Cherry (15)	Washed
	CD0809-SWP4-VGFOR002	8/4/2009	Forage	mixed-species	N	Thickspike wheatgrass (20), Smooth brome (20), Roughleaf ricegrass (40), Lupine (10), Dandelion (1), Creeping bentgrass (10), Bluegrass (1), Sedge (1)	Unwashed
	CD0809-SWP4-VGFOR001	8/4/2009	Forage	mixed-species	N	Thickspike wheatgrass (20), Smooth brome (20), Roughleaf ricegrass (40), Lupine (10), Dandelion (1), Creeping bentgrass (10), Bluegrass (1), Sedge (1)	Washed
TP-1	CD0709-TP1-AVM001	7/10/2009	Aquatic	single-species	N	Duckweed	Unwashed
	CD0709-TP1-AVM002	7/10/2009	Aquatic	single-species	N	Soft-stem bulrush	Unwashed
WD062	082701VEWD062-1-1	8/27/2001	Unknown	Unknown	N	Unknown	Washed
	082701VEWD062-1-2	8/27/2001	Unknown	Unknown	N	Unknown	Washed
	082701VEWD062-1-3	8/27/2001	Unknown	Unknown	N	Unknown	Washed
Margarette Creek/Trail Canyon Sub-Basin							
NQ-17	CD0809-NQ17-VGFOR002	8/5/2009	Forage	mixed-species	Y	Smooth brome (35), Astragalus (30), Alfalfa (25), Thickspike wheatgrass (15)	Unwashed
	CD0809-NQ17-VGFOR001	8/5/2009	Forage	mixed-species	Y	Smooth brome (35), Astragalus (30), Alfalfa (25), Thickspike wheatgrass (15)	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
ST7-01	ST7-01 FORAGE	9/21/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST7-01-NHA1-1	9/21/2003	Forb	single-species	Y	Alfalfa	Washed
	ST7-01-HA1	9/21/2003	Forb	single-species	Y	Milkvetch	Washed
	ST7-01-G-1	9/21/2003	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST7-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
ST7-01	ST7-01-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST7-01-VG1-ASG	5/25/2004	Forb	single-species	Y	Milkvetch	Washed
	ST7-01-VG1-GRA	5/25/2004	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST7-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST7-01-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST7-01-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
	ST7-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
ST7-02	ST7-02-OW FORAGE	9/21/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Unwashed
	ST7-02-W FORAGE	9/21/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST7-02-NHA1	9/21/2003	Forb	single-species	Y	Alfalfa	Washed
	ST7-02-HA1-1	9/21/2003	Forb	single-species	Y	Milkvetch	Washed
	ST7-02-G	9/21/2003	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	ST7-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST7-02-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST7-02-VG1-ASG	5/25/2004	Forb	single-species	Y	Milkvetch	Washed
	ST7-02-VG1-GRA	5/25/2004	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST7-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST7-02-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST7-02-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
	ST7-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
ST7-03	ST7-03 FORAGE	9/21/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST7-03-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
	ST7-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
North Woodall Mountain Sub-Basin							
NT8-01	CD0809-NT801-VGBRO001	8/9/2009	Browse	mixed-species	N	Serviceberry (25), Cherry (25), Aspen (25), Snowberry (25)	Washed
	CD0809-NT801-VGFOR001	8/9/2009	Forage	mixed-species	Y	Sedge (20), Lupine (20), Yarrow (5), Aster (10), Fescue (5), Sweetcicely (2), Giant hyssop (5), Strawberry (3), Bluegrass (20), Larkspur (5), Bentgrass (5)	Washed
	CD0809-NT801-VGAST001	8/9/2009	Forb	single-species	Y	Aster	Washed
	CD0809-NT801-VGLUP001	8/9/2009	Forb	single-species	N	Lupine	Washed
	CD0809-NT801-VGGRA001	8/9/2009	Grass	mixed-species	N	Bluegrass (50), Sedge (50)	Washed
NT8-02	CD0809-NT802-VGBRO002	8/9/2009	Browse	mixed-species	N	Aspen (30), Rose (15), Snowberry (25), Serviceberry (30)	Unwashed
	CD0809-NT802-VGBRO001	8/9/2009	Browse	mixed-species	N	Aspen (30), Rose (15), Snowberry (25), Serviceberry (30)	Washed
	CD0809-NT802-VGFOR001	8/9/2009	Forage	mixed-species	Y	Sedge (5), Meadow rue (5), Geranium (20), Aster (20), Lupine (15), Strawberry (5), Sweetcicely (5), Yarrow (2), Yampah (3), Unknown grass (20)	Washed
NWC-2	CD0709-NWC2-AVM002	7/11/2009	Aquatic	single-species	N	Macoun's buttercup	Unwashed
	CD0709-NWC2-AVM001	7/11/2009	Aquatic	single-species	N	Spikerush	Unwashed
	CD0809-NWC2-VGBRO001	8/9/2009	Browse	mixed-species	N	Snowberry (25), Serviceberry (35), Rose (15), Aspen (25)	Washed
	CD0809-NWC2-VGSAG001	8/9/2009	Browse	single-species	N	Sage	Washed
	CD0809-NWC2-VGWIL001	8/9/2009	Browse	single-species	N	Willow	Washed
	CD0809-NWC2-VGFOR001	8/9/2009	Forage	mixed-species	N	Brome (1), Sweetcicely (5), Geranium (5), Lupine (10), Dandelion (5), Strawberry (5), Timothy grass (1), Unknown forb (5), Cinquefoil (5), Mahonia (50), False lily of the valley (8)	Washed
Offsite-Blackfoot River							
BGS	BGS-3	5/1/2001	Aquatic	single-species	N	White-water buttercup	Unknown
MST020	MST020-avg-VGRV-SEP04	9/1/2004	Unknown	mixed-species	N	Riparian veg composite	Unknown
MST231	MST231-VG-Sep04	9/1/2004	Unknown	Unknown	N	Unknown	Unknown
ST019	MST019-VGRV-SEP04	9/1/2004	Unknown	mixed-species	N	Riparian veg composite	Unknown
ST021	MST021-VGRV-SEP04	9/1/2004	Unknown	mixed-species	N	Riparian veg composite	Unknown
ST022	MST022-avg-VGRV-SEP04	9/1/2004	Unknown	mixed-species	N	Riparian veg composite	Unknown
ST230	MST230-VGRV-SEP04	9/1/2004	Unknown	mixed-species	N	Riparian veg composite	Unknown
ST232	MST232-VG-Sep04	9/1/2004	Unknown	Unknown	N	Unknown	Unknown
	GYC9-VG_9A	7/13/2005	Aquatic	single-species	N	Northern watermilfoil	Unknown
Offsite-Trail Creek							
ST076	090801VEST076-1	9/8/2001	Unknown	Unknown	N	Unknown	Washed
	090801VEST076-2	9/8/2001	Unknown	Unknown	N	Unknown	Washed
	090801VEST076-3	9/8/2001	Unknown	Unknown	N	Unknown	Washed
TC-1	CD0709-TC1-AVM002	7/9/2009	Aquatic	single-species	N	Rush	Unwashed
	CD0709-TC1-AVM001	7/9/2009	Aquatic	single-species	N	White-water Buttercup	Unwashed
Old Tailings Pond Sub-Basin							
NQ-08	CD0809-NQ08-VGFOR002	8/10/2009	Forage	mixed-species	Y	Intermediate wheatgrass (30), Western wheatgrass (15), Astragalus (10), Alfalfa (15), Bluebunch wheatgrass (20), Yellow sweet clover (10)	Unwashed
	CD0809-NQ08-VGFOR001	8/10/2009	Forage	mixed-species	Y	Intermediate wheatgrass (30), Western wheatgrass (15), Astragalus (10), Alfalfa (15), Bluebunch wheatgrass (20), Yellow sweet clover (10)	Washed
NQ-10	CD0809-NQ10-VGBRO001	8/5/2009	Browse	mixed-species	N	Sage (25), Antelope bitterbrush (25), Cherry (25), Snowberry (25)	Washed
	CD0809-NQ10-VGFOR002	8/5/2009	Grass	mixed-species	N	Intermediate wheatgrass (25), Brome (75)	Unwashed
	CD0809-NQ10-VGFOR001	8/5/2009	Grass	mixed-species	N	Intermediate wheatgrass (25), Brome (75)	Washed
NQ-11	CD0809-NQ11-VGBRO001	8/11/2009	Browse	mixed-species	N	Cherry (20), Snowberry (60), Aspen (10), Serviceberry (10)	Washed
	CD0809-NQ11-VGFOR001	8/11/2009	Forage	mixed-species	Y	Brome (45), Alfalfa (15), Intermediate wheatgrass (40)	Washed
NQ-18	CD0809-NQ18-VGBRO001	8/4/2009	Browse	single-species	N	Willow	Washed
	CD0809-NQ18-VGFOR001	8/4/2009	Forage	mixed-species	N	Spikerush (80), Western wheatgrass (2), Dock (8), Dandelion (5), foxtail barely (5)	Washed
NT4-05	NT04-05 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass	Washed
	NT4-05-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass	Washed
	NT4-05-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass	Washed
	NT4-05-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
SQ-01	SQ-01-B	9/28/2003	Browse	single-species	N	Willow	Washed
	SQ-01-UW FORAGE	9/28/2003	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Unwashed
	SQ-01-W FORAGE	9/28/2003	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-01-NHA1	9/28/2003	Forb	single-species	Y	Alfalfa	Washed
	SQ-01-NHA2	9/28/2003	Forb	single-species	N	Mullein	Washed
	SQ-01-G	9/28/2003	Grass	mixed-species	N	Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-01-VG1-BRO	5/26/2004	Browse	single-species	N	Willow	Washed
	SQ-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-01-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	SQ-01-VG1-GRA	5/26/2004	Grass	mixed-species	N	Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-01-VG1-BRO	7/12/2004	Browse	single-species	N	Willow	Washed
	SQ-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
	SQ-01-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	SQ-01-VG1-MUL	7/12/2004	Forb	single-species	N	Mullein	Washed
	SQ-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Smooth brome, Thickspike wheatgrass, Western wheatgrass	Washed
SQ-01A	SQ-01A-VG1-FOR	6/3/2004	Forage	mixed-species	Y	Bluegrass, Great Basin wildrye, Alfalfa	Washed
	SQ-01A-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Bluegrass, Great Basin wildrye, Alfalfa	Washed
SQ-01B	SQ-01B-VG1-BRO	6/3/2004	Browse	single-species	N	Willow	Washed
	SQ-01B-VG1-DAN	6/3/2004	Forb	single-species	N	Dandelion	Washed
	SQ-01B-VG1-FOR	6/3/2004	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
	SQ-01B-VG1-GRA	6/3/2004	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
	SQ-01B-VG1-BRO	7/12/2004	Browse	single-species	N	Willow	Washed
	SQ-01B-VG1-DAN	7/12/2004	Forb	single-species	N	Dandelion	Washed
	SQ-01B-VG1-FOR	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
SQ-01B	SQ-01B-VG1-GRA	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
ST1-01	ST1-01 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST1-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
ST13-01	CD0809-ST1301-VGBRO002	8/8/2009	Browse	mixed-species	N	Antelope bitterbrush (20), Snowberry (30), Sage (30), Serviceberry (20)	Unwashed
	CD0809-ST1301-VGBRO001	8/8/2009	Browse	mixed-species	N	Antelope bitterbrush (20), Snowberry (30), Sage (30), Serviceberry (20)	Washed
	CD0809-ST1301-VGFOR001	8/8/2009	Forage	mixed-species	Y	Great Basin wildrye (25), Sedge (10), Penstemon (5), festuca (5), Brome (5), Bluegrass (5), Yarrow (5), Roughleaf ricegrass (25), Hollygrape (5), Aster (10)	Washed
ST13-02	CD0809-ST1302-VGBRO001	8/8/2009	Browse	mixed-species	N	Cherry (25), Rose (25), Aspen (25), Snowberry (25)	Washed
	CD0809-ST1302-VGFOR001	8/8/2009	Grass	mixed-species	N	Slender wheatgrass (10), Bluegrass (5), Wheatgrass (40), Roughleaf ricegrass (15), Brome (30)	Washed
ST13-03	CD0809-ST1303-VGBRO001	8/8/2009	Browse	mixed-species	N	Aspen (30), Snowberry (10), Serviceberry (10), Sage (10), Antelope bitterbrush (10), Cherry (10), Willow (10), Rose (10)	Washed
	CD0809-ST1303-VGFOR001	8/8/2009	Forage	mixed-species	N	Bluegrass (5), Foxtail barley (5), Wheatgrass (35), Yellow sweet clover (10), White sweet clover (10), Brome (35)	Washed
ST13-04	CD0809-ST1304-VGBRO001	8/8/2009	Browse	single-species	N	Willow	Washed
	CD0809-ST1304-VGFOR002	8/8/2009	Forage	mixed-species	Y	Wheatgrass (45), Bluegrass (10), Alfalfa (15), Yellow sweet clover (15), White sweet clover (15)	Unwashed
	CD0809-ST1304-VGFOR001	8/8/2009	Forage	mixed-species	Y	Wheatgrass (45), Bluegrass (10), Alfalfa (15), Yellow sweet clover (15), White sweet clover (15)	Washed
ST15-01	CD0809-ST1501-VGBRO001	8/8/2009	Browse	mixed-species	N	Sage (10), Serviceberry (30), Snowberry (25), Aspen (25), Cherry (10)	Washed
	CD0809-ST1501-VGFOR002	8/8/2009	Forage	mixed-species	Y	Aster (10), Roughleaf ricegrass (30), Brome (30), Wheatgrass (30)	Unwashed
	CD0809-ST1501-VGFOR001	8/8/2009	Forage	mixed-species	Y	Aster (10), Roughleaf ricegrass (30), Brome (30), Wheatgrass (30)	Washed
ST15-02	CD0809-ST1502-VGBRO001	8/8/2009	Browse	mixed-species	N	Aspen (5), Rose (5), Serviceberry (24), Snowberry (22), Sage (22), Cherry (22)	Washed
	CD0809-ST1502-VGFOR001	8/8/2009	Forage	mixed-species	Y	Brome (25), Roughleaf ricegrass (25), Wheatgrass (25), Sedge (10), Aster (10), Yarrow (5)	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
ST2-01	ST2-01 FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Smooth brome, Bluegrass	Washed
	ST2-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
	ST2-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
	ST2-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
ST2-02	ST2-02 FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST2-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST2-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST2-02-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
ST2-03	ST2-03-UW FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Idaho fescue	Unwashed
	ST2-03-W FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Idaho fescue	Washed
	ST2-03-NHA1	9/22/2003	Forb	single-species	Y	Alfalfa	Washed
ST2-03	ST2-03-HA1-1	9/22/2003	Forb	single-species	Y	Aster	Washed
	ST2-03-G	9/22/2003	Grass	mixed-species	N	Bluegrass, Smooth brome, Idaho fescue, Crested wheatgrass	Washed
	ST2-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Idaho fescue	Washed
	ST2-03-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST2-03-VG1-GRA	5/25/2004	Grass	mixed-species	N	Bluegrass, Smooth brome, Idaho fescue	Washed
	ST2-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Smooth brome, Idaho fescue	Washed
	ST2-03-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST2-03-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST2-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Smooth brome, Idaho fescue	Washed
ST2-04	ST2-04 FORAGE	9/22/2003	Grass	mixed-species	N	Bluegrass, Smooth brome	Washed
	ST2-04-VG1-FOR	5/25/2004	Grass	mixed-species	N	Bluegrass, Smooth brome	Washed
	ST2-04-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST2-04-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Smooth brome	Washed
ST2-05	ST2-05-B-1	9/22/2003	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	ST2-05-UW FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Bluegrass, Idaho fescue	Unwashed
	ST2-05-W FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Bluegrass, Idaho fescue	Washed
	ST2-05-NHA1	9/22/2003	Forb	single-species	Y	Alfalfa	Washed
	ST2-05-HA1	9/22/2003	Forb	single-species	Y	Aster	Washed
	ST2-05-NHA2	9/22/2003	Forb	single-species	N	Lupine	Washed
	ST5-05-G-1	9/22/2003	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST2-05-VG1-BRO	5/25/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	ST2-05-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Idaho fescue	Washed
	ST2-05-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST2-05-VG1-GRA	5/25/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
	ST2-05-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	ST2-05-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Bluegrass, Idaho fescue	Washed
	ST2-05-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST2-05-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST2-05-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
Pedro Creek Sub-Basin							
Plot 9A	CD0813-FSPS9A-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS9A-VGF001	8/21/2013	Forb	Mixed-species	N	Dyer's Woad (90), Prickly lettuce (10)	Washed
	CD0813-FSPS9A-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (95), Mountain brome (2), Smooth brome (3)	Washed
	CD0814-FSPS9A-VGF001	8/6/2014	Forb	Mixed-species	N	Dyer's woad (75), Yellow sweet clover (25)	Washed
	CD0814-FSPS9A-VGG001	8/6/2014	Grass	Mixed-species	N	Slender wheatgrass (70), Intermediate wheatgrass (25), Smooth brome (5)	Washed
Plot 12A	CD0813-FSPS12A-VGG001	8/20/2013	Grass	Mixed-species	N	Intermediate wheatgrass (85), Smooth brome (15)	Washed
	CD0814-FSPS12A-VGF001	8/5/2014	Forb	Mixed-species	N	Yellow sweet clover (70), Prickly lettuce (30)	Washed
	CD0814-FSPS12A-VGG001	8/5/2014	Grass	Mixed-species	N	Intermediate wheatgrass (80), Orchard grass (15), Smooth brome (5)	Washed
Plot 20A	CD0813-FSPS20A-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS20A-VGF001	8/21/2013	Forb	Mixed-species	N	Goosefoot (80), Geranium (10), Dyer's woad (10)	Washed
	CD0813-FSPS20A-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (90), Mountain brome (5), Smooth brome (5)	Washed
	CD0814-FSPS20A-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (55), Tall annual willowherb (35), Prickly lettuce (5), Dyer's woad (5)	Washed
	CD0814-FSPS20A-VGG001	8/6/2014	Grass	Mixed-species	N	Intermediate wheatgrass (50), Slender wheatgrass (30), Smooth brome (15), Orchard grass (5)	Washed
Plot 13B	CD0813-FSPS13B-VGA001	8/20/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS13B-VGG001	8/20/2013	Grass	Mixed-species	N	Intermediate wheatgrass (75), Smooth brome (15), Mountain brome (5), Orchard grass (5)	Washed
	CD0814-FSPS13B-VGF001	8/5/2014	Forb	Mixed-species	N	Yellow sweet clover (60), Prickly lettuce (40)	Washed
	CD0814-FSPS13B-VGG001	8/5/2014	Grass	Mixed-species	N	Intermediate wheatgrass (90), Smooth brome (5), Orchard grass (5)	Washed
Plot 16B	CD0813-FSPS16B-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS16B-VGF001	8/21/2013	Forb	Mixed-species	N	Dyer's Woad (90), Goosefoot (8), Silverleaf phacelia (2)	Washed
	CD0813-FSPS16B-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (90), Mountain brome (5), Smooth brome (5)	Washed
	CD0814-FSPS16B-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (70), Dyer's woad (30)	Washed
	CD0814-FSPS16B-VGG001	8/6/2014	Grass	Mixed-species	N	Slender wheatgrass (50), Intermediate wheatgrass (30), Orchard grass (15), Smooth brome (5)	Washed
Plot 18B	CD0813-FSPS18B-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS18B-VGF001	8/21/2013	Forb	Mixed-species	N	Goosefoot (70), Silverleaf phacelia (15), Erect knotweed (15)	Washed
	CD0813-FSPS18B-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (95), Mountain brome (3), Smooth brome (2)	Washed
	CD0814-FSPS18B-VGF001	8/5/2014	Forb	Mixed-species	N	Yellow sweet clover (80), Prickly lettuce (20)	Washed
	CD0814-FSPS18B-VGG001	8/5/2014	Grass	Mixed-species	N	Intermediate wheatgrass (85), Smooth brome (10), Western wheatgrass (5)	Washed
Plot 11C	CD0813-FSPS11C-VGA001	8/20/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS11C-VGF001	8/20/2013	Forb	Mixed-species	N	Goosefoot (60), Nettle (5), Prickly lettuce (10), Common mullein (5), Silverleaf phacelia (5), Showy goldeneye (10), Burningbush (5)	Washed
	CD0813-FSPS11C-VGG001	8/20/2013	Grass	Mixed-species	N	Intermediate wheatgrass (40), Smoth brome (35), Orchard grass (25)	Washed
	CD0814-FSPS11C-VGF001	8/5/2014	Forb	Mixed-species	N	Yellow sweet clover (95), White sweetclover (5)	Washed
	CD0814-FSPS11C-VGG001	8/5/2014	Grass	Mixed-species	N	Intermediate wheatgrass (40), Smooth brome (40), Western wheatgrass (15), Orchard grass (5)	Washed
Plot 17C	CD0813-FSPS17C-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS17C-VGF001	8/21/2013	Forb	Mixed-species	N	Goosefoot (65), Silverleaf phacelia (35)	Washed
	CD0813-FSPS17C-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (90), Mountain brome (5), Smooth brome (5)	Washed
	CD0814-FSPS17C-VGF001	8/5/2014	Forb	Mixed-species	N	Yellow sweet clover (50), Prickly lettuce (45), Silverleaf phacelia (5)	Washed
	CD0814-FSPS17C-VGG001	8/5/2014	Grass	Mixed-species	N	Intermediate wheatgrass (85), Smooth brome (10), Orchard grass (5)	Washed
Plot 21C	CD0813-FSPS21C-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS21C-VGF001	8/21/2013	Forb	Mixed-species	N	Goosefoot (70), Silverleaf phacelia (30)	Washed
	CD0813-FSPS21C-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (85), Mountain brome (5), Smooth brome (5), Orchard grass (5)	Washed
	CD0814-FSPS21C-VGASAN001	8/5/2014	Forb	Single-species	N	Sainfoin	Washed
	CD0814-FSPS21C-VGF001	8/5/2014	Forb	Mixed-species	N	Yellow sweet clover (80), White sweet clover (15), Silverleaf phacelia (5)	Washed
	CD0814-FSPS21C-VGG001	8/5/2014	Grass	Mixed-species	N	Intermediate wheatgrass (80), Smooth brome (15), Orchard grass (5)	Washed
Plot 6D	CD0813-FSPS6D-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS6D-VGF001	8/21/2013	Forb	Mixed-species	Y	Common mullein (20), Dyer's woad (15), Erect knotweed (5), Showy goldeneye (10), Prickly lettuce (40), Goosefoot (8), Curly gumweed (2)	Washed
	CD0813-FSPS6D-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (85), Orchard grass (8), Smooth brome (5), Mountain brome (2)	Washed
	CD0814-FSPS6D-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (90), White sweet clover (10)	Washed
	CD0814-FSPS6D-VGG001	8/6/2014	Grass	Mixed-species	N	Orchard grass (65), Slender wheatgrass (20), Intermediate wheatgrass (10), Smooth brome (5)	Washed
Plot 10D	CD0813-FSPS10D-VGA001	8/20/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS10D-VGF001	8/20/2013	Forb	Mixed-species	N	Goosefoot (30), Unknown forb (20), Prickly lettuce (15), Dyer's woad (15), Canada goldenrod (10), Common mullein (10)	Washed
	CD0813-FSPS10D-VGG001	8/20/2013	Grass	Mixed-species	N	Intermediate wheatgrass (80), Smooth brome (10), Mountain brome (5), Orchard grass (5)	Washed
	CD0814-FSPS10D-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (98), White sweet clover (2)	Washed
	CD0814-FSPS10D-VGG001	8/6/2014	Grass	Mixed-species	N	Slender wheatgrass (60), Intermediate wheatgrass (10), Orchard grass (15), Smooth brome (13), Sheep fescue (2)	Washed
Plot 14D	CD0813-FSPS14D-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS14D-VGF001	8/22/2013	Forb	Mixed-species	N	Goosefoot (75), Common mullein (15), Prickly lettuce (10)	Washed
	CD0813-FSPS14D-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (85), Mountain brome (10), Smooth brome (5)	Washed
	CD0814-FSPS14D-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (90), Mullein (10)	Washed
	CD0814-FSPS14D-VGG001	8/6/2014	Grass	Mixed-species	N	Intermediate wheatgrass (30), Western wheatgrass (30), Slender wheatgrass (30), Smooth brome (5), Sheep fescue (5)	Washed
Plot 05E	CD0813-FSPS5E-VGA001	8/20/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS5E-VGF001	8/20/2013	Forb	Mixed-species	N	Common mullein (35), Goosefoot (35), Valerian (25), Showy goldeneye (5)	Washed
	CD0813-FSPS5E-VGG001	8/20/2013	Grass	Mixed-species	N	Intermediate wheatgrass (50), Smooth brome (20), Slender wheatgrass (15), Mountain brome (10), Orchard grass (3), Sheep fescue (2)	Washed
	CD0814-FSPS5E-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (60), White sweet clover (30), Dyer's woad (5), Silverleaf phacelia (3), Curly dock (1)	Washed
	CD0814-FSPS5E-VGG001	8/6/2014	Grass	Mixed-species	N	Orchard grass (50), Slender wheatgrass (30), Intermediate wheatgrass (15), Smooth brome (5)	Washed
Plot 7E	CD0813-FSPS7E-VGA001	8/21/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS7E-VGF001	8/21/2013	Forb	Mixed-species	N	Goosefoot (40), Prickly lettuce (30), Common mullein (20), Silverleaf phacelia (10)	Washed
	CD0813-FSPS7E-VGG001	8/21/2013	Grass	Mixed-species	N	Intermediate wheatgrass (75), Smooth brome (15), Mountain brome (5), Orchard grass (5)	Washed
	CD0814-FSPS7E-VGF001	8/6/2014	Forb	Mixed-species	N	Yellow sweet clover (80), Dyer's woad (20)	Washed
	CD0814-FSPS7E-VGG001	8/6/2014	Grass	Mixed-species	N	Intermediate wheatgrass (40), Slender wheatgrass (40), Orchard grass (15), Smooth brome (5)	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
Plot 19E	CD0813-FSPS19E-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS19E-VGF001	8/22/2013	Forb	Mixed-species	N	Goosefoot (60), Common mullein (20), Prickly lettuce (15), Houndstongue (5)	Washed
	CD0813-FSPS19E-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (75), Smooth brome (15), Mountain brome (5)	Washed
	CD0814-FSPS19E-VGF001	8/7/2014	Forb	Mixed-species	N	Yellow sweet clover (70), White sweet clover (20), Dyer's woad (10)	Washed
	CD0814-FSPS19E-VGG001	8/7/2014	Grass	Mixed-species	N	Western wheatgrass (50), Intermediate wheatgrass (25), Slender wheatgrass (20), Orchard grass (5)	Washed
Plot 1F	CD0813-FSPS1F-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS1F-VGF001	8/22/2013	Forb	Mixed-species	N	Goosefoot (70), Prickly lettuce (20), Silverleaf phacelia (10)	Washed
	CD0813-FSPS1F-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (90), Smooth brome (5), Mountain brome (5)	Washed
	CD0814-FSPS1F-VGF001	8/7/2014	Forb	Mixed-species	N	Yellow sweet clover (80), White sweet clover (20)	Washed
	CD0814-FSPS1F-VGG001	8/7/2014	Grass	Mixed-species	N	Western wheatgrass (40), Slender wheatgrass (30), Intermediate wheatgrass (15), Orchard grass (15)	Washed
Plot 3F	CD0813-FSPS3F-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS3F-VGF001	8/22/2013	Forb	Mixed-species	N	Goosefoot (40), Silverleaf phacelia (40), Prickly lettuce (10), Common mullein (10)	Washed
	CD0813-FSPS3F-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (80), Smooth brome (10), Mountain brome (10)	Washed
	CD0814-FSPS3F-VGF001	8/7/2014	Forb	Mixed-species	N	Yellow sweet clover (75), Dyer's woad (25)	Washed
	CD0814-FSPS3F-VGG001	8/7/2014	Grass	Mixed-species	N	Intermediate wheatgrass (40), Slender wheatgrass (20), Western wheatgrass (20), Sheep fescue (10), Smooth brome (5), Orchard grass (5)	Washed
Plot 15F	CD0813-FSPS15F-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS15F-VGF001	8/22/2013	Forb	Mixed-species	N	Goosefoot (40), Dyer's woad (20), Silverleaf phacelia (15), Common mullein (15), Common yarrow (10)	Washed
	CD0813-FSPS15F-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (85), Smooth brome (10), Mountain brome (5)	Washed
	CD0814-FSPS15F-VGF001	8/6/2014	Forb	Single-species	N	Yellow sweet clover	Washed
	CD0814-FSPS15F-VGG001	8/6/2014	Grass	Mixed-species	N	Intermediate wheatgrass (40), Slender wheatgrass (40), Western wheatgrass (15), Smooth brome (5)	Washed
Plot 2G	CD0813-FSPS2G-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS2G-VGF001	8/22/2013	Forb	Mixed-species	N	Goosefoot (70), Prickly lettuce (15), Silverleaf phacelia (10), Houndstongue (5)	Washed
	CD0813-FSPS2G-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (80), Smooth brome (10), Mountain brome (10)	Washed
	CD0814-FSPS2G-VGF001	8/7/2014	Forb	Mixed-species	N	Yellow sweet clover (80), Dyer's woad (20)	Washed
	CD0814-FSPS2G-VGG001	8/7/2014	Grass	Mixed-species	N	Western wheatgrass (50), Slender wheatgrass (25), Intermediate wheatgrass (15), Orchard grass (10)	Washed
Plot 4G	CD0813-FSPS4G-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS4G-VGF001	8/22/2013	Forb	Mixed-species	Y	Goosefoot (40), Prickly lettuce (35), Common mullein (20), Curlycup gumweed (5)	Washed
	CD0813-FSPS4G-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (90), Smooth brome (5), Mountain brome (5)	Washed
	CD0814-FSPS4G-VGF001	8/7/2014	Forb	Single-species	N	Yellow sweet clover	Washed
	CD0814-FSPS4G-VGG001	8/7/2014	Grass	Mixed-species	N	Intermediate wheatgrass (30), Western wheatgrass (30), Slender wheatgrass (20), Orchard grass (20)	Washed
Plot 8G	CD0813-FSPS8G-VGA001	8/22/2013	Forb	Single-species	Y	Alfalfa	Washed
	CD0813-FSPS8G-VGF001	8/22/2013	Forb	Mixed-species	N	Common mullein (50), Silverleaf phacelia (25), Goosefoot (20), Prickly lettuce (5)	Washed
	CD0813-FSPS8G-VGG001	8/22/2013	Grass	Mixed-species	N	Intermediate wheatgrass (80), Smooth brome (10), Mountain brome (5), Orchard grass (3), Big bluegrass (2)	Washed
	CD0814-FSPS8G-VGF001	8/7/2014	Forb	Mixed-species	N	Yellow sweet clover (90), White sweet clover (5), Dyer's woad (5)	Washed
	CD0814-FSPS8G-VGG001	8/7/2014	Grass	Mixed-species	N	Intermediate wheatgrass (35), Western wheatgrass (30), Slender wheatgrass (20), Sheep fescue (10), Smooth brome (5)	Washed
BCS	BCS-10	6/26/2001	Browse	single-species	N	Mountain snowberry	Unknown
	BCS-8	6/26/2001	Browse	single-species	N	Mountain snowberry	Unknown
	BCS-1	6/26/2001	Browse	single-species	N	Saskatoon serviceberry	Unknown
	BCS-7	6/26/2001	Browse	single-species	N	Saskatoon serviceberry	Unknown
	BCS-4	6/26/2001	Forb	single-species	N	Silvery lupine	Unknown
	BCS-6	6/26/2001	Grass	single-species	N	Smallwing sedge	Unknown
	BCS-2	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	BCS-9	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	BCS-5	6/26/2001	Grass	single-species	N	Timothy grass	Unknown
	BCS-3	6/26/2001	Grass	single-species	N	Western needlegrass	Unknown
LD	LD-11	6/26/2001	Forb	single-species	Y	Alfalfa	Unknown
	LD-14	6/26/2001	Forb	single-species	Y	Alfalfa	Unknown
	LD-16	6/26/2001	Forb	single-species	Y	Alfalfa	Unknown
	LD-2	6/26/2001	Forb	single-species	Y	Alfalfa	Unknown
	LD-20	6/26/2001	Forb	single-species	Y	Alfalfa	Unknown
	LD-4	6/26/2001	Forb	single-species	Y	Alfalfa	Unknown
	LD-1	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	LD-13	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	LD-17	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	LD-6	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	LD-8	6/26/2001	Grass	single-species	N	Smooth brome	Unknown
	LD-10	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-12	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-15	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-18	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-19	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-3	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-5	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-7	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	LD-9	6/26/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
NES-5	CD0709-NES5-AVM001	7/10/2009	Aquatic	single-species	N	Speedwell	Unwashed
NQ-03	NQ-03-B	9/25/2003	Browse	mixed-species	N	Sage, Snowberry	Washed
	NQ-03-HA1	9/25/2003	Forb	single-species	Y	Aster	Washed
NQ-03	NQ-03-NHA1	9/25/2003	Forb	single-species	N	Geranium	Washed
	NQ-03-G	9/25/2003	Grass	mixed-species	N	Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
	NQ-03-W FORAGE	9/25/2003	Grass	mixed-species	N	Timothy grass, Bluegrass, Orchard grass, Prairie junegrass	Washed
	NQ-03-VG1-BRO	6/2/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	NQ-03-VG1-GER	6/2/2004	Forb	single-species	N	Geranium	Washed
	NQ-03-VG1-LUP	6/2/2004	Forb	single-species	N	Lupine	Washed
	NQ-03-VG1-GRA	6/2/2004	Grass	mixed-species	N	Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
	NQ-03-VG1-FOR	6/2/2004	Grass	mixed-species	N	Timothy grass, Bluegrass, Orchard grass, Prairie junegrass	Washed
	NQ-03-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Snowberry	Washed
	NQ-03-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NQ-03-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	NQ-03-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	NQ-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
	NQ-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Timothy grass, Bluegrass, Orchard grass, Prairie junegrass	Washed
NQ-04	NQ-04-W FORAGE	9/26/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	NQ-04-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	NQ-04-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	NQ-04-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NQ-04-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NQ-07	CD0809-NQ07-VGFOR001	8/10/2009	Forage	mixed-species	Y	Alfalfa (50), Western wheatgrass (5), Bluebunch wheatgrass (15), Phacelia (5), Thickspike wheatgrass (15), Astragalus (10)	Washed
NT4-04	NT4-04 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Orchard grass	Washed
NT4-04	NT4-04-NHA1	9/27/2003	Forb	single-species	Y	Alfalfa	Washed
	NT4-04-HA1	9/27/2003	Forb	single-species	Y	Milkvetch	Washed
	NT4-04-NHA2	9/27/2003	Forb	single-species	N	Yarrow	Washed
	NT4-04-G-1	9/27/2003	Grass	mixed-species	N	Thickspike wheatgrass, Timothy grass, Orchard grass, Crested wheatgrass	Washed
	NT4-04-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Orchard grass	Washed
	NT4-04-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NT4-04-VG1-ASG	5/26/2004	Forb	single-species	Y	Milkvetch	Washed
	NT4-04-VG1-GRA	5/26/2004	Grass	mixed-species	N	Timothy grass, Thickspike wheatgrass, Crested wheatgrass, Orchard grass	Washed
	NT4-04-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Orchard grass	Washed
	NT4-04-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT4-04-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
	NT4-04-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	NT4-04-VG1-GRA	7/12/2004	Grass	mixed-species	N	Timothy grass, Thickspike wheatgrass, Crested wheatgrass, Orchard grass	Washed
NT5-01	NT5-01 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT5-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT5-01-VG1-ASG	5/26/2004	Forb	single-species	Y	Milkvetch	Washed
	NT5-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT5-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT5-01-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT5-02	NT5-02 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Orchard grass, Thickspike wheatgrass	Washed
	NT5-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT5-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT5-02-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
NT5-03	NT5-03-UW-FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Unwashed
	NT5-03-W FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Washed
	NT5-03-NHA1	9/27/2003	Forb	single-species	Y	Alfalfa	Washed
	NT5-03-G-1	9/27/2003	Grass	mixed-species	N	Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Washed
	NT5-03-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Washed
	NT5-03-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NT5-03-VG1-GRA	5/26/2004	Grass	mixed-species	N	Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Washed
	NT5-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Washed
	NT5-03-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT5-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Thickspike wheatgrass, Crested wheatgrass, Timothy grass, Smooth brome	Washed
NT5-04	NT5-04 FORAGE	9/27/2003	Forage	mixed-species	N	Yellow sweet clover, Cheatgrass, Smooth brome, Thickspike wheatgrass	Washed
	NT5-04-VG1-FOR	5/26/2004	Forage	mixed-species	N	Yellow sweet clover, Cheatgrass, Smooth brome, Crested wheatgrass	Washed
	NT5-04-VG1-FOR	7/12/2004	Forage	mixed-species	N	Yellow sweet clover, Cheatgrass, Smooth brome, Crested wheatgrass	Washed
NT5-05	NT5-05 FORAGE	9/25/2003	Grass	mixed-species	N	Smooth brome, Crested wheatgrass, Thickspike wheatgrass, Orchard grass	Washed
	NT5-05-VG1-FOR	5/26/2004	Grass	mixed-species	N	Smooth brome, Crested wheatgrass, Thickspike wheatgrass, Orchard grass	Washed
	NT5-05-VG1-FOR	7/12/2004	Grass	mixed-species	N	Smooth brome, Crested wheatgrass, Thickspike wheatgrass, Orchard grass	Washed
	CD0809-NT505-VGBRO002	8/5/2009	Browse	mixed-species	N	Snowberry (20), Rose (20), Aspen (20), Cherry (20), Serviceberry (20)	Unwashed
	CD0809-NT505-VGBRO001	8/5/2009	Browse	mixed-species	N	Snowberry (20), Rose (20), Aspen (20), Cherry (20), Serviceberry (20)	Washed
	CD0809-NT505-VGFOR002	8/5/2009	Forage	mixed-species	Y	Mullein (1), Timothy grass (5), Orchard grass (65), Yellow sweet clover (2), Slender wheatgrass (10), Brome (10), Lupine (2), Aster (1), Strawberry (2), Sweetcicely (2)	Unwashed
	CD0809-NT505-VGFOR001	8/5/2009	Forage	mixed-species	Y	Mullein (1), Timothy grass (5), Orchard grass (65), Yellow sweet clover (2), Slender wheatgrass (10), Brome (10), Lupine (2), Aster (1), Strawberry (2), Sweetcicely (2)	Washed
NT5-06	NT5-06-UW FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Orchard grass, Thickspike wheatgrass	Unwashed
	NT5-06-W FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Orchard grass, Thickspike wheatgrass	Washed
	NT5-06-NHA1	9/25/2003	Forb	single-species	Y	Alfalfa	Washed
	NT5-06-HA1	9/25/2003	Forb	single-species	Y	Aster	Washed
	NT5-06-NHA2	9/25/2003	Forb	single-species	N	Yellow sweet clover	Washed
	NT5-06-G	9/25/2003	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Orchard grass, Timothy grass	Washed
	NT5-06-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Yellow sweet clover, Orchard grass, Timothy grass, Thickspike wheatgrass	Washed
	NT5-06-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NT5-06-VG1-GRA	5/26/2004	Grass	mixed-species	N	Orchard grass, Timothy grass, Thickspike wheatgrass	Washed
	NT5-06-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Yellow sweet clover, Orchard grass, Timothy grass, Thickspike wheatgrass	Washed
	NT5-06-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT5-06-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT5-06-VG1-SWT	7/12/2004	Forb	single-species	N	Yellow sweet clover	Washed
	NT5-06-VG1-GRA	7/12/2004	Grass	mixed-species	N	Orchard grass, Timothy grass, Thickspike wheatgrass	Washed
	CD0809-NT506-VGBRO002	8/10/2009	Browse	mixed-species	N	Aspen (20), Rose (20), Snowberry (20), Serviceberry (20), Cherry (20)	Unwashed
	CD0809-NT506-VGBRO001	8/10/2009	Browse	mixed-species	N	Aspen (20), Rose (20), Snowberry (20), Serviceberry (20), Cherry (20)	Washed
	CD0809-NT506-VGFOR001	8/10/2009	Forage	mixed-species	N	Orchard grass (33), Yellow clover (33), Brome (34)	Washed
NT5-07	CD0809-NT507-VGBRO002	8/10/2009	Browse	mixed-species	N	Rose (15), Snowberry (15), Serviceberry (25), Aspen (25), Douglas fir (20)	Unwashed
	CD0809-NT507-VGBRO001	8/10/2009	Browse	mixed-species	N	Rose (15), Snowberry (15), Serviceberry (25), Aspen (25), Douglas fir (20)	Washed
	CD0809-NT507-VGFOR001	8/10/2009	Forage	mixed-species	N	Orcahrd grass (25), Sweetcicely (25), Brome (50)	Washed
NT5-08	CD0809-NT508-VGBRO002	8/6/2009	Browse	mixed-species	N	Aspen (80), Serviceberry (20)	Unwashed
	CD0809-NT508-VGBRO001	8/6/2009	Browse	mixed-species	N	Aspen (80), Serviceberry (20)	Washed
	CD0809-NT508-VGBRO003	8/6/2009	Browse	mixed-species	N	Snowberry (50), Sage (50)	Unwashed
	CD0809-NT508-VGFOR001	8/6/2009	Forage	mixed-species	Y	Geranium (40), Fescue (1), Bluegrass (10), Sedge (1), Aster (5), Buckwheat (4), Muhly (2), Cinquefoil (35), Brome (1), Timothy grass (1)	Washed
NT5-09	CD0809-NT509-VGBRO002	8/10/2009	Browse	mixed-species	N	Rose (20), Douglas fir (15), Serviceberry (20), Snowberry (20), Sage (5), Aspen (20)	Unwashed
	CD0809-NT509-VGBRO001	8/10/2009	Browse	mixed-species	N	Rose (20), Douglas fir (15), Serviceberry (20), Snowberry (20), Sage (5), Aspen (20)	Washed
	CD0809-NT509-VGFOR001	8/10/2009	Forage	mixed-species	Y	Geranium (30), Purple aster (20), Brome (50)	Washed
NT5-10	CD0809-NT510-VGBRO002	8/6/2009	Browse	mixed-species	N	Rose (25), Snowberry (25), Serviceberry (25), Aspen (25)	Unwashed
	CD0809-NT510-VGBRO001	8/6/2009	Browse	mixed-species	N	Rose (25), Snowberry (25), Serviceberry (25), Aspen (25)	Washed
	CD0809-NT510-VGFOR001	8/6/2009	Forage	mixed-species	Y	Aster (20), Timothy grass (5), Geranium (20), Cinquefoil (5), Fescue (1), Meadow rue (5), Slender wheatgrass (2), Hollygrape (20), Lupine (10), Strawberry (5), Brome (2), Cinquefoil (5)	Washed
NT6-01	NT6-01-B	9/16/2003	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	NT6-01 FORAGE	9/16/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Slender wheatgrass, Timothy grass, Smooth brome	Washed
	NT6-01-NHA1	9/16/2003	Forb	single-species	Y	Alfalfa	Washed
	NT6-01-HA2	9/16/2003	Forb	single-species	Y	Aster	Washed
	NT6-01-HA1	9/16/2003	Forb	single-species	Y	Milkvetch	Washed
	NT6-01-NHA2	9/16/2003	Forb	single-species	N	Penstemon	Washed
	NT6-01-HA3	9/16/2003	Forb	single-species	Y	Tansyaster	Washed
	NT6-01-G	9/16/2003	Grass	mixed-species	N	Western wheatgrass, Timothy grass, Slender wheatgrass, Smooth brome	Washed
	NT6-01-VG1-BRO	5/25/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	NT6-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Slender wheatgrass, Timothy grass, Smooth brome	Washed
	NT6-01-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	NT6-01-VG1-ASG	5/25/2004	Forb	single-species	Y	Milkvetch	Washed
	NT6-01-VG1-GRA	5/25/2004	Grass	mixed-species	N	Thickspike wheatgrass, Slender wheatgrass, Timothy grass, Smooth brome	Washed
	NT6-01-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	NT6-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Slender wheatgrass, Timothy grass, Smooth brome	Washed
	NT6-01-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT6-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT6-01-VG1-GUM	7/12/2004	Forb	single-species	Y	Curlycup gumweed	Washed
	NT6-01-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
	NT6-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Thickspike wheatgrass, Slender wheatgrass, Timothy grass, Smooth brome	Washed
NT6-02	NT6-02 FORAGE	9/16/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass	Washed
	NT6-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass	Washed
	NT6-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass	Washed
NT6-03	NT6-03-W FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT6-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT6-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT6-03-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT7-01	NT7-01-HA1	9/26/2003	Forb	single-species	Y	Aster	Washed
	NT7-01-NHA2	9/26/2003	Forb	single-species	N	Chrysanthemum	Washed
	NT7-01-NHA1	9/26/2003	Forb	single-species	N	Yarrow	Washed
	NT7-01-UW FORAGE	9/26/2003	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Bluegrass, Idaho fescue	Unwashed
	NT7-01-G	9/26/2003	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Bluegrass, Idaho fescue	Washed
	NT7-01-W FORAGE	9/26/2003	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Bluegrass, Idaho fescue	Washed
	NT7-01-VG1-BRO	5/26/2004	Browse	single-species	N	Burning bush	Washed
	NT7-01-VG1-FOR	5/26/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Bluegrass, Idaho fescue	Washed
	NT7-01-VG1-GRA	5/26/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Bluegrass, Idaho fescue	Washed
	NT7-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT7-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Bluegrass, Idaho fescue	Washed
NT7-02	NT7-02-B	9/26/2003	Browse	single-species	N	Burning bush	Washed
	NT7-02-HA1-1	9/26/2003	Forb	single-species	Y	Aster	Washed
	NT7-02-NHA2	9/26/2003	Forb	single-species	N	Groundsmoke	Washed
NT7-02	NT7-02-NHA1	9/26/2003	Forb	single-species	N	Yarrow	Washed
	NT7-02-UW FORAGE	9/26/2003	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Unwashed
	NT7-02-G	9/26/2003	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
	NT7-02-W FORAGE	9/26/2003	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
	NT7-02-VG1-BRO	5/26/2004	Browse	mixed-species	N	Sage, Burning bush	Washed
	NT7-02-VG1-POT	5/26/2004	Forb	single-species	N	Cinquefoil	Washed
	NT7-02-VG1-FOR	5/26/2004	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
	NT7-02-VG1-GRA	5/26/2004	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
	NT7-02-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Burning bush	Washed
	NT7-02-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT7-02-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	NT7-02-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
	NT7-02-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
	NT7-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Indian ricegrass	Washed
NT7-03	NT7-03 FORAGE	9/26/2003	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
	NT7-03-VG1-FOR	5/26/2004	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
	NT7-03-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT7-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Sedge	Washed
NT9-01	CD0910-NT901-VGBRO001	9/22/2010	Browse	mixed-species	N	Saskatoon serviceberry (33.3), Aspen (33.3), Snowberry (33.3)	Washed
	CD0910-NT901-VGFOR001	9/22/2010	Forage	mixed-species	Y	Orchard grass (30), Columbia needlegrass (20), Creeping hollygrape (10), Nettleleaf giant hyssop (10), Cinquefoil (10), Bluegrass (10), Aster (5), Meadow rue (5)	Washed
	CD0910-NT901-VGAST001	9/22/2010	Forb	single-species	Y	Aster	Washed
NT9-02	CD0910-NT902-VGBRO001	9/22/2010	Browse	mixed-species	N	Saskatoon serviceberry (50), Snowberry (50)	Washed
	CD0910-NT902-VGFOR001	9/22/2010	Forage	mixed-species	Y	Brome (25), Wheatgrass (25), Orchard grass (10), Alfalfa (35), Showy goldeneye (5)	Washed
	CD0910-NT902-VGALF001	9/22/2010	Forb	single-species	Y	Alfalfa	Washed
NT9-03	CD0910-NT903-VGFOR001	9/22/2010	Forage	mixed-species	Y	Wheatgrass (30), Brome (30), Alfalfa (40)	Washed
	CD0910-NT903-VGALF001	9/22/2010	Forb	single-species	Y	Alfalfa	Washed
NT9-04	CD0910-NT904-VGFOR001	9/22/2010	Forage	mixed-species	Y	Wheatgrass (35), Brome (15), Alfalfa (50)	Washed
	CD0910-NT904-VGALF001	9/22/2010	Forb	single-species	Y	Alfalfa	Washed
NT9-05	CD0910-NT905-VGFOR001	9/22/2010	Forage	mixed-species	Y	Wheatgrass (35), Alfalfa (50), Brome (15)	Washed
	CD0910-NT905-VGALF001	9/22/2010	Forb	single-species	Y	Alfalfa	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
PC-1	CD0709-PC1-AVM002	7/10/2009	Aquatic	single-species	N	Sedge	Unwashed
	CD0709-PC1-AVM001	7/10/2009	Aquatic	single-species	N	Spikerush	Unwashed
PC-2	CD0709-PC2-VGT001	7/11/2009	Forb	single-species	N	Onion	Unwashed
	CD0709-PC2-AVM002	7/11/2009	Aquatic	single-species	N	Sedge	Unwashed
	CD0709-PC2-AVM001	7/11/2009	Aquatic	single-species	N	Speedwell	Unwashed
PC-3	CD0809-PC3-VGBRO002	8/6/2009	Browse	mixed-species	N	Serviceberry (10), Rose (10), Sage (50), Shrubby cinquefoil (10), Snowberry (10), Antelope bitterbrush (10)	Unwashed
	CD0809-PC3-VGBRO001	8/6/2009	Browse	mixed-species	N	Serviceberry (10), Rose (10), Sage (50), Shrubby cinquefoil (10), Snowberry (10), Antelope bitterbrush (10)	Washed
	CD0809-PC3-VGSAG001	8/6/2009	Browse	single-species	N	Sage	Washed
	CD0809-PC3-VGFOR002	8/6/2009	Forage	mixed-species	Y	Lupine (15), Cinquefoil (40), Timothy grass (5), Sedge (5), Aster (5), Unknown forb (5), Buckwheat (5), Fescue (5), Geranium (15)	Unwashed
	CD0809-PC3-VGFOR001	8/6/2009	Forage	mixed-species	Y	Lupine (15), Cinquefoil (40), Timothy grass (5), Sedge (5), Aster (5), Unknown forb (5), Buckwheat (5), Fescue (5), Geranium (15)	Washed
PC-5	CD0809-PC5-VGBRO001	8/10/2009	Browse	mixed-species	N	Aspen (25), Serviceberry (25), Snowberry (25), Rose (25)	Washed
	CD0809-PC5-VGFOR001	8/10/2009	Forage	mixed-species	N	Geranium (10), Bluegrass (10), Canada wildrye (10), Orchard grass (50), Timothy grass (20), Western coneflower (10)	Washed
	CD0809-PC5-VGGRA001	8/10/2009	Grass	mixed-species	N	Orchard grass (33), Timothy grass (33), Canada wildrye (33)	Washed
	CD0809-PC5-VGAVM002	8/10/2009	Aquatic	single-species	N	Beaked sedge	Unwashed
	CD0809-PC5-VGAVM001	8/10/2009	Aquatic	single-species	N	Speedwell	Washed
PCP-1	LSP-5	6/26/2001	Browse	single-species	N	Saskatoon serviceberry	Unknown
	LSP-3	6/26/2001	Grass	single-species	N	Fowl mannagrass	Unknown
	LSP-1	6/26/2001	Grass	single-species	N	Nebraska sedge	Unknown
	LSP-4	6/26/2001	Grass	single-species	N	Orchard grass	Unknown
	LSP-2	6/26/2001	Grass	single-species	N	Smallwing sedge	Unknown
PCP-2	USP-2	6/26/2001	Browse	single-species	N	Mountain snowberry	Unknown
	USP-5	6/26/2001	Browse	single-species	N	Saskatoon serviceberry	Unknown
	USP-4	6/26/2001	Forb	single-species	N	Silky lupine	Unknown
	USP-1	6/26/2001	Grass	single-species	N	Orchard grass	Unknown
	USP-3	6/26/2001	Grass	single-species	N	Smallwing sedge	Unknown
PP-01	PP-01-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PP-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
PP-02	PP-02-VG1-BRO	6/3/2004	Browse	mixed-species	N	Sage, Fringed sage	Washed
	PP-02-VG1-POT	6/3/2004	Forb	single-species	N	Cinquefoil	Washed
	PP-02-VG1-ANT	6/3/2004	Forb	single-species	N	Pussytoes	Washed
	PP-02-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
	PP-02-VG1-GRA	6/3/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
	PP-02-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Fringed sage	Washed
	PP-02-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	PP-02-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
	PP-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
PP-03	PP-03-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
	PP-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Idaho fescue	Washed
PR-01	PR-01-VG1-BRO	6/2/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	PR-01-VG1-DAN	6/2/2004	Forb	single-species	N	Dandelion	Washed
	PR-01-VG1-GER	6/2/2004	Forb	single-species	N	Geranium	Washed
	PR-01-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-01-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge, Smooth brome, Orchard grass	Washed
	PR-01-VG1-BRO	7/12/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	PR-01-VG1-DAN	7/12/2004	Forb	single-species	N	Dandelion	Washed
	PR-01-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	PR-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Smooth brome, Orchard grass	Washed
PR-02	PR-02-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-02-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
PR-03	PR-03-VG1-BRO	6/2/2004	Browse	single-species	N	Sage	Washed
	PR-03-VG1-POT	6/2/2004	Forb	single-species	N	Cinquefoil	Washed
	PR-03-VG1-GER	6/2/2004	Forb	single-species	N	Geranium	Washed
	PR-03-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-03-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-03-VG1-BRO	7/12/2004	Browse	single-species	N	Sage	Washed
	PR-03-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	PR-03-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	PR-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
PR-04	PR-04-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge, Timothy grass	Washed
	PR-04-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Timothy grass	Washed
PR-05	PR-05-VG1-BRO	6/2/2004	Browse	mixed-species	N	Sage, Willow	Washed
	PR-05-VG1-POT	6/2/2004	Forb	single-species	N	Cinquefoil	Washed
	PR-05-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-05-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-05-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Willow	Washed
	PR-05-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	PR-05-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	PR-05-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
UD	UD-10	6/25/2001	Forb	single-species	Y	Alfalfa	Unknown
	UD-11	6/25/2001	Forb	single-species	Y	Alfalfa	Unknown
	UD-14	6/25/2001	Forb	single-species	Y	Alfalfa	Unknown
	UD-16	6/25/2001	Forb	single-species	Y	Alfalfa	Unknown
	UD-1	6/25/2001	Grass	single-species	N	Crested wheatgrass	Unknown
	UD-13	6/25/2001	Grass	single-species	N	Crested wheatgrass	Unknown
	UD-18	6/25/2001	Grass	single-species	N	Crested wheatgrass	Unknown
	UD-4	6/25/2001	Grass	single-species	N	Crested wheatgrass	Unknown
	UD-7	6/25/2001	Grass	single-species	N	Crested wheatgrass	Unknown
	UD-9	6/25/2001	Grass	single-species	N	Crested wheatgrass	Unknown
	UD-15	6/25/2001	Grass	single-species	N	Smooth brome	Unknown
	UD-19	6/25/2001	Grass	single-species	N	Smooth brome	Unknown
UD	UD-2	6/25/2001	Grass	single-species	N	Smooth brome	Unknown
	UD-5	6/25/2001	Grass	single-species	N	Smooth brome	Unknown
	UD-8	6/25/2001	Grass	single-species	N	Smooth brome	Unknown
	UD-12	6/25/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
UD	UD-17	6/25/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	UD-20	6/25/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	UD-3	6/25/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
	UD-6	6/25/2001	Grass	single-species	N	Thickspike wheatgrass	Unknown
Shield and Jouglard Canyons Sub-Basin							
HHP-1	CD0709-HHP1-AVM004	7/8/2009	Aquatic	single-species	N	Duckweed	Unwashed
	CD0709-HHP1-AVM002	7/8/2009	Aquatic	single-species	N	Speedwell	Unwashed
	CD0709-HHP1-AVM001	7/8/2009	Aquatic	single-species	N	Spikerush	Unwashed
	CD0709-HHP1-AVM003	7/8/2009	Aquatic	single-species	N	White-water Buttercup	Unwashed
	CD0809-HHP1-VGBRO001	8/4/2009	Browse	mixed-species	N	Sage (50), Aspen (50)	Washed
	CD0809-HHP1-VGFOR001	8/4/2009	Forage	mixed-species	N	Sedge (65), wheatgrass (10), Rush (3), Bluegrass (5), Smooth brome (15), Houndstongue (1), Horsetail (1)	Washed
HiSe	HiSe-VG20020528-01	5/28/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020528-02	5/28/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020528-03	5/28/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020528-04	5/28/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020528-05	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020528-06	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020528-07	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020528-08	5/28/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020604-01	6/4/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020604-02	6/4/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020604-03	6/4/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020604-04	6/4/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020604-05	6/4/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	HiSe-VG20020604-06	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020604-07	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020604-08	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020604-09	6/4/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020611-01	6/11/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020611-02	6/11/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020611-03	6/11/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020611-04	6/11/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020611-05	6/11/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020611-06	6/11/2002	Grass	single-species	N	Smooth brome	Unknown

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
HiSe	HiSe-VG20020611-07	6/11/2002	Grass	single-species	N	Unknown	Unknown
	HiSe-VG20020611-08	6/11/2002	Grass	single-species	N	Unknown	Unknown
	HiSe-VG20020625-01	6/25/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020625-02	6/25/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020625-03	6/25/2002	Forb	single-species	Y	Alfalfa	Unknown
	HiSe-VG20020625-08	6/25/2002	Forb	single-species	N	Sainfoin	Unknown
	HiSe-VG20020625-04	6/25/2002	Grass	single-species	N	Intermediate wheatgrass	Unknown
	HiSe-VG20020625-05	6/25/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020625-06	6/25/2002	Grass	single-species	N	Smooth brome	Unknown
	HiSe-VG20020625-07	6/25/2002	Grass	single-species	N	Smooth brome	Unknown
NL4P-1	CD0709-NL4P1-AVM001	7/8/2009	Aquatic	single-species	N	Spikerush	Unwashed
	CD0709-NL4P1-AVM002	7/8/2009	Aquatic	single-species	N	Western dock	Unwashed
NQ-12	CD0809-NQ12-VGBRO001	8/5/2009	Browse	mixed-species	N	Lilac (60), Cottonwood (5), Cottonwood hybrid (5), Sage (3), Juniper (2), Honeysuckle (25)	Washed
	CD0809-NQ12-VGFOR002	8/5/2009	Forage	mixed-species	Y	Smooth brome (50), Alfalfa (25), Aster (15), Wheatgrass (10)	Unwashed
	CD0809-NQ12-VGFOR001	8/5/2009	Forage	mixed-species	Y	Smooth brome (50), Alfalfa (25), Aster (15), Wheatgrass (10)	Washed
NQ-15	CD0809-NQ15-VGBRO001	8/11/2009	Browse	mixed-species	N	Sage (40), Serviceberry (10), Snowberry (50)	Washed
	CD0809-NQ15-VGFOR001	8/11/2009	Forage	mixed-species	Y	Aster (5), Bluegrass (5), Sedge (15), Buckwheat (5), Geranium (35), Lupine (10), Yarrow (5), Unknown grass (5), Penstemon (10), Brome (5)	Washed
	CD0809-NQ15-VGAST001	8/11/2009	Forb	single-species	Y	Aster	Washed
	CD0809-NQ15-VGGRA001	8/11/2009	Grass	mixed-species	N	Brome (35), Bluegrass (35), Unknown grass (20), Needlegrass (10)	Washed
	CD0809-NQ15-VGSMB001	8/11/2009	Grass	single-species	N	Smooth brome	Washed
NQ-16	CD0809-NQ16-VGBRO001	8/5/2009	Browse	mixed-species	N	Aspen (20), Serviceberry (20), Antelope bitterbrush (20), Snowbrush ceanothus (10), Cherry (20), Snowberry (10)	Washed
	CD0809-NQ16-VGFOR001	8/5/2009	Forage	mixed-species	Y	Timothy grass (45), Aster (15), Thickspike wheatgrass (10), Alfalfa (10), Fescue (1), Tall annual willowherb (7), Smoothstem blazingstar (5), Brome (5), Sweet clover (2)	Washed
SQ-03	SQ-03-VG1-BRO	6/3/2004	Browse	mixed-species	N	Willow, Sage	Washed
	SQ-03-VG1-POT	6/3/2004	Forb	single-species	N	Cinquefoil	Washed
	SQ-03-VG1-YAR	6/3/2004	Forb	single-species	N	Yarrow	Washed
	SQ-03-VG1-FOR	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Rush	Washed
	SQ-03-VG1-GRA	6/3/2004	Grass	mixed-species	N	Bluegrass, Sedge, Rush	Washed
	SQ-03-VG1-BRO	7/12/2004	Browse	mixed-species	N	Willow, Sage	Washed
	SQ-03-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	SQ-03-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	SQ-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Rush	Washed
	SQ-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Rush	Washed
ST10-03	CD0809-ST1003-VGBRO001	8/7/2009	Browse	mixed-species	N	Snowberry (10), Antelope bitterbrush (10), Sage (80)	Washed
	CD0809-ST1003-VGFOR001	8/7/2009	Forage	mixed-species	Y	Indian ricegrass (40), Curlycup gumweed (20), Sweet clover (15), Wheatgrass (10), Buckwheat (10), Bluegrass (5)	Washed
ST10-04	CD0809-ST1004-VGBRO001	8/7/2009	Browse	mixed-species	N	Antelope bitterbrush, Snowberry, Serviceberry, Sage	Washed
	CD0809-ST1004-VGFOR001	8/7/2009	Forage	mixed-species	Y	Buckwheat (35), Curlycup gumweed (5), Slender wheatgrass (10), Yarrow (2), Reedgrass (35), Purple aster (10), Lupine (3)	Washed
	CD0809-ST1004-VGAST001	8/7/2009	Forb	single-species	Y	Aster	Washed
	CD0809-ST1004-VGCCG001	8/7/2009	Forb	single-species	Y	Curlycup gumweed	Washed
	CD0809-ST1004-VGGRA001	8/7/2009	Grass	mixed-species	N	Reedgrass (30), thickspike (30), Slender wheatgrass (30), Bluegrass (10)	Washed
	CD0809-ST1004-VGBGR001	8/7/2009	Grass	single-species	N	Reedgrass	Washed
ST10-05	CD0809-ST1005-VGBRO002	8/9/2009	Browse	mixed-species	N	Aspen (20), Snowberry (20), Serviceberry (20), Sage (20), Antelope bitterbrush (20)	Unwashed
	CD0809-ST1005-VGBRO001	8/9/2009	Browse	mixed-species	N	Aspen (20), Snowberry (20), Serviceberry (20), Sage (20), Antelope bitterbrush (20)	Washed
	CD0809-ST1005-VGFOR001	8/9/2009	Forage	mixed-species	Y	Tall annual willowherb (5), Slender wheatgrass (5), Aster (5), Roughleaf ricegrass (20), Great Basin wildrye (15), Buckwheat (20), Brome (5), Phacelia (15)	Washed
ST10-06	CD0809-ST1006-VGBRO001	8/9/2009	Browse	mixed-species	N	Aspen (20), Snowberry (20), Antelope bitterbrush (20), Serviceberry (20), Sage (20)	Washed
	CD0809-ST1006-VGFOR002	8/9/2009	Forage	mixed-species	Y	Snakeweed (2), Desertparsley (1), Aster (2), Needlegrass (50), Unknown forb (10), Great Basin wildrye (5), Bluegrass (2), Unknown forb (5), Roughleaf ricegrass (6), Buckwheat (2), Lupine (2), Geranium (2), False lily of the valley (10), Brome (1)	Unwashed
	CD0809-ST1006-VGFOR001	8/9/2009	Forage	mixed-species	Y	Snakeweed (2), Desertparsley (1), Aster (2), Needlegrass (50), Unknown forb (10), Great Basin wildrye (5), Bluegrass (2), Unknown forb (5), Roughleaf ricegrass (6), Buckwheat (2), Lupine (2), Geranium (2), False lily of the valley (10), Brome (1)	Washed
ST14-01	CD0809-ST1401-VGBRO001	8/9/2009	Browse	mixed-species	N	Snowbrush ceanothus (20), Snowberry (20), Serviceberry (20), Aspen (20), Currant (20)	Washed
	CD0809-ST1401-VGFOR001	8/9/2009	Forage	mixed-species	Y	Hollygrape (20), Meadow rue (20), Aster (20), Sedge (20), Wheatgrass (20)	Washed
ST4-05	ST4-05 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Thickspike wheatgrass	Washed
	ST4-05-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Thickspike wheatgrass	Washed
	ST4-05-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Thickspike wheatgrass	Washed
	ST4-05-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
ST4-06	ST4-06 FORAGE	9/19/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome, Bluegrass	Washed
	ST4-06-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
	ST4-06-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Bluegrass	Washed
ST5-01	ST5-01 FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST5-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST5-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST5-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
ST5-02	ST5-02-B	9/22/2003	Browse	single-species	N	Locust	Washed
	ST5-02-UW FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Unwashed
	ST5-02-W FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST5-02-NHA1	9/22/2003	Forb	single-species	Y	Alfalfa	Washed
	ST5-02-HA1	9/22/2003	Forb	single-species	Y	Aster	Washed
	ST5-02-G	9/22/2003	Grass	mixed-species	N	Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	ST5-02-VG1-BRO	5/25/2004	Browse	single-species	N	Locust	Washed
	ST5-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST5-02-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
ST5-02	ST5-02-VG1-GRA	5/25/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST5-02-VG1-BRO	7/12/2004	Browse	single-species	N	Locust	Washed
	ST5-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST5-02-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST5-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
ST5-03	ST5-03 FORAGE	9/22/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST5-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST5-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
ST6-01	ST6-01 FORAGE	9/18/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	ST6-01-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST6-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Thickspike wheatgrass	Washed
	ST6-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	ST6-01-VG1-GUM	7/12/2004	Forb	single-species	Y	Curlycup gumweed	Washed
	ST6-01-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
ST6-02	ST6-02-UW FORAGE	9/18/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Unwashed
	ST6-02-W FORAGE	9/18/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
	ST6-02-NHA1	9/18/2003	Forb	single-species	Y	Alfalfa	Washed
ST6-02	ST6-02-HA1	9/18/2003	Forb	single-species	Y	Aster	Washed
	ST6-02-NHA2	9/18/2003	Forb	single-species	N	Blackfoot groundsmoke	Washed
	ST6-02-HA2	9/18/2003	Forb	single-species	Y	Curlycup gumweed	Washed
	ST6-02-G-1	9/18/2003	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
	ST6-02-VG1-BRO	5/25/2004	Browse	single-species	N	Locust	Washed
	ST6-02-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
	ST6-02-VG1-ALF	5/25/2004	Forb	single-species	Y	Alfalfa	Washed
	ST6-02-VG1-GRA	5/25/2004	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
	ST6-02-VG1-BRO	7/12/2004	Browse	single-species	N	Locust	Washed
	ST6-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
	ST6-02-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	ST6-02-VG1-GUM	7/12/2004	Forb	single-species	Y	Curlycup gumweed	Washed
	ST6-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
ST6-03	ST6-03 FORAGE	9/18/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass, Bluegrass	Washed
	ST6-03-VG1-FOR	5/25/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass	Washed
	ST6-03-VG1-ASG	5/25/2004	Forb	single-species	Y	Milkvetch	Washed
	ST6-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Timothy grass	Washed
	ST6-03-VG1-GUM	7/12/2004	Forb	single-species	Y	Curlycup gumweed	Washed
	ST6-03-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
ST7-00	ST7-00-B	9/27/2003	Browse	mixed-species	N	Aspen, Snowberry	Washed
	ST7-00-NHA1	9/27/2003	Forb	single-species	N	Geranium	Washed
	ST7-00-NHA2	9/27/2003	Forb	single-species	N	Penstemon	Washed
	ST7-00-UW FORAGE	9/27/2003	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Unwashed
	ST7-00-G	9/27/2003	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Washed
	ST7-00-W FORAGE	9/27/2003	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Washed
	ST7-00-VG1-BRO	5/26/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	ST7-00-VG1-GER	5/26/2004	Forb	single-species	N	Geranium	Washed
	ST7-00-VG1-FOR	5/26/2004	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Washed
	ST7-00-VG1-GRA	5/26/2004	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Washed
	ST7-00-VG1-BRO	7/12/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	ST7-00-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	ST7-00-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Washed
	ST7-00-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Timothy grass, Western wheatgrass	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
Southwest Conda Sub-Basin							
ST10-01	CD0809-ST1001-VGBRO001	8/9/2009	Browse	mixed-species	N	Snowberry (30), Antelope bitterbrush (25), Sage (25), Serviceberry (20)	Washed
	CD0809-ST1001-VGFOR001	8/9/2009	Forage	mixed-species	Y	Yarrow (15), Buckwheat (5), Roughleaf ricegrass (20), Thickspike wheatgrass (2), Bluegrass (10), Phacelia (5), Snakeweed (5), Slender wheatgrass (2), Unknown forbs (10), Arrowleaf balsamroot(15), Hollygrape (10), Cheatgrass (1)	Washed
ST10-02	CD0809-ST1002-VGBRO001	8/9/2009	Browse	mixed-species	N	Snowberry (25), Antelope bitterbrush (25), Sage (25), Serviceberry (25)	Washed
	CD0809-ST1002-VGFOR001	8/9/2009	Forage	mixed-species	Y	Roughleaf ricegrass (15), Cheatgrass (5), Buckwheat (15), Intermediate wheatgrass (15), Crested wheatgrass (20), Snakeweed (25), Slender wheatgrass (5)	Washed
	CD0809-ST1002-VGAST001	8/9/2009	Forb	single-species	Y	Aster	Washed
	CD0809-ST1002-VGGRA001	8/9/2009	Grass	mixed-species	N	Crested wheatgrass (40), Intermediate wheatgrass (40), Slender wheatgrass (10), Bluegrass (10)	Washed
	CD0809-ST1002-VGCWG001	8/9/2009	Grass	single-species	N	Crested wheatgrass	Washed
	CD0809-ST1002-VGRRG001	8/9/2009	Grass	single-species	N	Roughleaf ricegrass	Washed
ST11-01	CD0809-ST1101-VGBRO001	8/7/2009	Browse	mixed-species	N	Serviceberry (5), Antelope bitterbrush (25), Sage (35), Rabbitbrush (35)	Washed
	CD0809-ST1101-VGFOR001	8/7/2009	Forage	mixed-species	Y	Buckwheat (20), Bluegrass (33), Snakeweed (30), Arrowleaf balsamroot (5) , Needlegrass (5), Alyssum (2), Aster (5)	Washed
ST11-02	CD0809-ST1102-VGBRO001	8/7/2009	Browse	mixed-species	N	Sage (25), Rabbitbrush (25), Antelope bitterbrush (25), Snowberry (25)	Washed
	CD0809-ST1102-VGFOR002	8/7/2009	Forage	mixed-species	Y	Snakeweed (10), Reedgrass (8), Bluegrass (65), Aster (3), Arrowleaf balsamroot (8), Buckwheat (4), Alyssum (2)	Unwashed
	CD0809-ST1102-VGFOR001	8/7/2009	Forage	mixed-species	Y	Snakeweed (10), Reedgrass (8), Bluegrass (65), Aster (3), Arrowleaf balsamroot (8), Buckwheat (4), Alyssum (2)	Washed
	CD0809-ST1102-VGAST001	8/7/2009	Forb	single-species	Y	Aster	Washed
	CD0809-ST1102-VGGRA001	8/7/2009	Grass	mixed-species	N	Bluegrass (40), Reedgrass (40), Needlegrass (20)	Washed
	CD0809-ST1102-VGPOA002	8/7/2009	Grass	single-species	N	Bluegrass	Unwashed
ST11-03	CD0809-ST1103-VGBRO001	8/7/2009	Browse	mixed-species	N	Sage (30), Snowberry (30), Rabbitbrush (20), Antelope bitterbrush (20)	Washed
	CD0809-ST1103-VGFOR001	8/7/2009	Forage	mixed-species	Y	Bluegrass (20), Arrowleaf balsamroot (20), Snakeweed (20), Buckwheat (10), Aster (2), Reedgrass (17), Alyssum (1), Needlegrass (10)	Washed
ST11-04	CD0809-ST1104-VGBRO001	8/7/2009	Browse	mixed-species	N	Sage (35), Snowberry (35), Rabbitbrush (20), Antelope bitterbrush (10)	Washed
	CD0809-ST1104-VGFOR001	8/7/2009	Forage	mixed-species	Y	Bluegrass (45), Aster (15), Snakeweed (30), Milkvetch (5), Reedgrass (5)	Washed
	CD0809-ST1104-VGAST001	8/7/2009	Forb	single-species	Y	Aster	Washed
	CD0809-ST1104-VGANT001	8/7/2009	Forb	single-species	Y	Milkvetch	Washed
	CD0809-ST1104-VGGRA001	8/7/2009	Grass	mixed-species	N	Bluegrass (60), Reedgrass (40)	Washed
	CD0809-ST1104-VGPOA001	8/7/2009	Grass	single-species	N	Bluegrass	Washed
State Land Creek Sub-Basin							
NQ-01	NQ-01-B	9/26/2003	Browse	mixed-species	N	Aspen, Snowberry	Washed
	NQ-01-UW FORAGE	9/26/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Bluebunch wheatgrass, Timothy grass	Unwashed
	NQ-01-W FORAGE	9/26/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Bluebunch wheatgrass, Timothy grass	Washed
	NQ-01-NHA1	9/26/2003	Forb	single-species	Y	Alfalfa	Washed
	NQ-01-HA1	9/26/2003	Forb	single-species	Y	Aster	Washed
	NQ-01-NHA2	9/26/2003	Forb	single-species	N	Thistle	Washed
	NQ-01-G	9/26/2003	Grass	mixed-species	N	Smooth brome, Bluegrass, Bluebunch wheatgrass, Timothy grass	Washed
	NQ-01-VG1-BRO	5/26/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	NQ-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
	NQ-01-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NQ-01-VG1-GRA	5/26/2004	Grass	mixed-species	N	Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
	NQ-01-VG1-BRO	7/12/2004	Browse	mixed-species	N	Aspen, Snowberry	Washed
	NQ-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
	NQ-01-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NQ-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NQ-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Bluegrass, Bluebunch wheatgrass	Washed
NQ-02	NQ-02-W FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass	Washed
	NQ-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass	Washed
	NQ-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Bluegrass	Washed
NQ-06	CD0809-NQ06-VGFOR001	8/11/2009	Forage	mixed-species	Y	Alfalfa (35), Thickspike wheatgrass (15), Brome (25), Astragalus (10), Bluebunch wheatgrass (15)	Washed
	CD0809-NQ06-VGALF001	8/11/2009	Forb	single-species	Y	Alfalfa	Washed
	CD0809-NQ06-VGGRA001	8/11/2009	Grass	mixed-species	N	Brome (70), Bluebunch wheatgrass (15), Thickspike wheatgrass (15)	Washed
	CD0809-NQ06-VGSMB001	8/11/2009	Grass	single-species	N	Smooth brome	Washed
NT1-01	NT1-01-B	9/26/2003	Browse	single-species	N	Sage	Washed
	NT1-01-UW FORAGE	9/26/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Thickspike wheatgrass, Bluegrass	Unwashed
	NT1-01-W FORAGE	9/26/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Thickspike wheatgrass, Bluegrass	Washed
	NT1-01-NHA1	9/26/2003	Forb	single-species	N	Yarrow	Washed
	NT1-01-G	9/26/2003	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Bluegrass	Washed
	NT1-01-VG1-BRO	5/26/2004	Browse	single-species	N	Sage	Washed
	NT1-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Thickspike wheatgrass, Bluegrass	Washed
	NT1-01-VG1-YAR	5/26/2004	Forb	single-species	N	Yarrow	Washed
	NT1-01-VG1-GRA	5/26/2004	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Bluegrass	Washed
	NT1-01-VG1-BRO	7/12/2004	Browse	single-species	N	Sage	Washed
	NT1-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Thickspike wheatgrass, Bluegrass	Washed
	NT1-01-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT1-01	NT1-01-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	NT1-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Bluegrass	Washed
NT1-02	NT1-02-W FORAGE	9/26/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT1-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT1-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
NT1-03	NT1-03 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Western wheatgrass, Crested wheatgrass, Thickspike wheatgrass	Washed
	NT1-03-NHA1	9/24/2003	Forb	single-species	Y	Alfalfa	Washed
	NT1-03-HA1	9/24/2003	Forb	single-species	Y	Milkvetch	Washed
	NT1-03-G	9/24/2003	Grass	mixed-species	N	Smooth brome, Western wheatgrass, Thickspike wheatgrass, Crested wheatgrass	Washed
	NT1-03-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT1-03-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NT1-03-VG1-ASG	5/26/2004	Forb	single-species	Y	Milkvetch	Washed
	NT1-03-VG1-GRA	5/26/2004	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT1-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT1-03-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT1-03-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
	NT1-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Smooth brome, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
NT1-04	NT1-04 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT1-04-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT1-04-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
NT1-05	NT1-05 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT1-05-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT1-05-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT1-05-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT1-05-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
Southwest Conda Sub-Basin							
NT2-01	NT2-01-UW FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Unwashed
	NT2-01-W FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Western wheatgrass	Washed
	NT2-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Crested wheatgrass, Smooth brome	Washed
NT2-01	NT2-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT2-01-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
NT2-02	NT2-02-UW FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Crested wheatgrass, Smooth brome, Thickspike wheatgrass	Unwashed
	NT2-02-W FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Crested wheatgrass, Smooth brome, Thickspike wheatgrass	Washed
	NT2-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Crested wheatgrass, Smooth brome, Thickspike wheatgrass	Washed
	NT2-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Crested wheatgrass, Smooth brome, Thickspike wheatgrass	Washed
	NT2-02-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT2-03	NT2-03 FORAGE	9/25/2003	Forage	mixed-species	Y	Alfalfa, Smooth brome, Crested wheatgrass	Washed
	NT2-03-NHA1-1	9/25/2003	Forb	single-species	Y	Alfalfa	Washed
	NT2-03-HA1	9/25/2003	Forb	single-species	Y	Aster	Washed
	NT2-03-G	9/25/2003	Grass	mixed-species	N	Smooth brome, Crested wheatgrass	Washed
	NT2-03-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Crested wheatgrass	Washed
	NT2-03-VG1-GRA	5/26/2004	Grass	mixed-species	N	Smooth brome, Crested wheatgrass	Washed
	NT2-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Smooth brome, Crested wheatgrass	Washed
NT2-04	CD0809-NT204-VGBRO002	8/10/2009	Browse	mixed-species	N	Aspen (45), Serviceberry (45), Cherry (10)	Unwashed
	CD0809-NT204-VGBRO001	8/10/2009	Browse	mixed-species	N	Aspen (45), Serviceberry (45), Cherry (10)	Washed
	CD0809-NT204-VGFOR001	8/10/2009	Forage	mixed-species	Y	Yellow sweet clover (20), Alfalfa (20), Astragalus (5), Wheatgrass (30), Brome (10), Orchard grass (10), Timothy grass (5)	Washed
NT2-05	CD0809-NT205-VGBRO002	8/11/2009	Browse	mixed-species	N	Aspen (35), Serviceberry (65)	Unwashed
	CD0809-NT205-VGBRO001	8/11/2009	Browse	mixed-species	N	Aspen (35), Serviceberry (65)	Washed
	CD0809-NT205-VGFOR001	8/11/2009	Forage	mixed-species	N	Cinquefoil (40), Bluegrass (10), Brome (20), Yampah (5), Timothy grass (10), Lupine (10), Sedge (5)	Washed
NT2-06	CD0809-NT206-VGBRO002	8/11/2009	Browse	mixed-species	N	Aspen (75), Serviceberry (25)	Unwashed
	CD0809-NT206-VGBRO001	8/11/2009	Browse	mixed-species	N	Aspen (75), Serviceberry (25)	Washed
	CD0809-NT206-VGFOR001	8/11/2009	Forage	mixed-species	Y	Cinquefoil (30), Timothy grass (15), Bluegrass (15), Sedge (15), Yampah (5), Aster (15)	Washed
NT4-01	NT4-01 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT4-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT4-01-VG1-ASG	5/26/2004	Forb	single-species	Y	Milkvetch	Washed
	NT4-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
NT4-02	NT04-02 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Washed
	NT4-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Washed
	NT4-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Washed
	NT4-02-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT4-03	NT4-03 FORAGE	9/27/2003	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT4-03-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT4-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Thickspike wheatgrass, Smooth brome, Western wheatgrass	Washed
	NT4-03-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT8-03	CD0809-NT803-VGBRO001	8/9/2009	Browse	mixed-species	N	Serviceberry (20), Snowberry (20), Sage (20), Aspen (20), Rose (10), Antelope bitterbrush (10)	Washed
	CD0809-NT803-VGFOR001	8/9/2009	Forage	mixed-species	Y	Goldenweed (15), Roughleaf ricegrass (10), Lupine (10), Yarrow (10), Bluegrass (15), Buckwheat (12), Giant hyssop (5), Geranium (10), Cinquefoil (10), Sedge (3)	Washed
	CD0809-NT803-VGAST001	8/9/2009	Forb	single-species	Y	Aster	Washed
	CD0809-NT803-VGPOT001	8/9/2009	Forb	single-species	N	Cinquefoil	Washed
	CD0809-NT803-VGPOA001	8/9/2009	Grass	single-species	N	Bluegrass	Washed
NT8-04	CD0809-NT804-VGBRO001	8/9/2009	Browse	mixed-species	N	Aspen (33), Serviceberry (33), Snowberry (33)	Washed
	CD0809-NT804-VGFOR001	8/9/2009	Forage	mixed-species	Y	Bluegrass (15), Geranium (15), Giant hyssop (15), Yampah (5), Lupine (15), Aster (15), Yarrow (5), Cinquefoil (15)	Washed
NT8-05	CD0809-NT805-VGBRO001	8/9/2009	Browse	mixed-species	N	Aspen (40), Serviceberry (25), Snowberry (10), Rose (25)	Washed
	CD0809-NT805-VGFOR001	8/9/2009	Forage	mixed-species	Y	Cinquefoil (15), Yampah (10), Geranium (15), Aster (15), Sweetcicely (15), Bluegrass (15), Lupine (15)	Washed
NT8-06	CD0809-NT806-VGBRO001	8/9/2009	Browse	mixed-species	N	Aspen (40), Snowberry (40), Serviceberry (20)	Washed
	CD0809-NT806-VGFOR002	8/9/2009	Forage	mixed-species	Y	Aster (20), Geranium (20), Bluegrass (5), Goldenweed (20), Yarrow (3), Giant hyssop (4), Yampah (3), Sweetcicely (5), Arrowleaf balsamroot (20)	Unwashed
	CD0809-NT806-VGFOR001	8/9/2009	Forage	mixed-species	Y	Aster (20), Geranium (20), Bluegrass (5), Goldenweed (20), Yarrow (3), Giant hyssop (4), Yampah (3), Sweetcicely (5), Arrowleaf balsamroot (20)	Washed
SLC	SLC-3	5/1/2001	Aquatic	single-species	N	White-water buttercup	Unknown
SLC-0	CD0709-SLC0-AVM002	7/8/2009	Aquatic	single-species	N	Speedwell	Unwashed
	CD0709-SLC0-AVM001	7/8/2009	Aquatic	single-species	N	White-water Buttercup	Unwashed
SLC-1	CD0709-SLC1-AVM002	7/7/2009	Aquatic	single-species	N	Speedwell	Unwashed
	CD0709-SLC1-AVM001	7/7/2009	Aquatic	single-species	N	White-water Buttercup	Unwashed
SLC-2	CD0709-SLC2-AVM001	7/7/2009	Aquatic	single-species	N	White-water Buttercup	Unwashed
	CD0809-SLC2-VGBRO001	8/10/2009	Browse	mixed-species	Y	Sage (25), Willow (30), Shrubby cinquefoil (20), Snowberry (10), Snakeweed (15)	Washed
	CD0809-SLC2-VGSAG001	8/10/2009	Browse	single-species	N	Sage	Washed
	CD0809-SLC2-VGWIL001	8/10/2009	Browse	single-species	N	Willow	Washed
	CD0809-SLC2-VGFOR001	8/10/2009	Forage	mixed-species	N	Sedge (20), Yarrow (5),Rush (5), Bluegrass (20), Cinquefoil (20), Geranium (20), Lupine (5), Toadflax (5)	Washed
	CD0809-SLC2-VGAST001	8/10/2009	Forb	single-species	Y	Aster	Washed
SLC-3	CD0809-SLC3-VGBRO001	8/6/2009	Browse	single-species	N	Sage	Washed
	CD0809-SLC3-VGFOR002	8/6/2009	Forage	mixed-species	Y	Cinquefoil (50), Timothy grass (10), Sedge (10), Aster (5), Geranium (5), Fescue (5), Yarrow (2), Lupine (10), Buckwheat (3)	Unwashed
	CD0809-SLC3-VGFOR001	8/6/2009	Forage	mixed-species	Y	Cinquefoil (50), Timothy grass (10), Sedge (10), Aster (5), Geranium (5), Fescue (5), Yarrow (2), Lupine (10), Buckwheat (3)	Washed
SP-01	SP-01-VG1-BRO	6/2/2004	Browse	single-species	N	Sage	Washed
	SP-01-VG1-GER	6/2/2004	Forb	single-species	N	Geranium	Washed
	SP-01-VG1-YAR	6/2/2004	Forb	single-species	N	Yarrow	Washed
	SP-01-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-01-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-01-VG1-BRO	7/12/2004	Browse	single-species	N	Sage	Washed
	SP-01-VG1-GER	7/12/2004	Forb	single-species	N	Geranium	Washed
	SP-01-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	SP-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SP-02	SP-02-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-02-VG2-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SP-03	SP-03-VG1-BRO	6/2/2004	Browse	single-species	N	Sage	Washed
	SP-03-VG1-POT	6/2/2004	Forb	single-species	N	Cinquefoil	Washed
	SP-03-VG1-DAN	6/2/2004	Forb	single-species	N	Dandelion	Washed
	SP-03-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-03-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-03-VG1-BRO	7/12/2004	Browse	single-species	N	Willow	Washed
	SP-03-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
SP-03	SP-03-VG1-DAN	7/12/2004	Forb	single-species	N	Dandelion	Washed
	SP-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SP-04	SP-04-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SP-04-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SR-01	SR-01-VG1-BRO	6/2/2004	Browse	mixed-species	N	Sage, Snowberry	Washed
	SR-01-VG1-POT	6/2/2004	Forb	single-species	N	Cinquefoil	Washed
	SR-01-VG1-YAR	6/2/2004	Forb	single-species	N	Yarrow	Washed
	SR-01-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge, Fescue	Washed
	SR-01-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge, Fescue	Washed
	SR-01-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Snowberry	Washed
	SR-01-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	SR-01-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	SR-01-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Fescue	Washed
	SR-01-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge, Fescue	Washed
SR-02	SR-02-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-02-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SR-03	SR-03-VG1-BRO	6/2/2004	Browse	mixed-species	N	Willow, Sage, Fringed sage, Cinquefoil	Washed
	SR-03-VG1-POT	6/2/2004	Forb	single-species	N	Cinquefoil	Washed
	SR-03-VG1-YAR	6/2/2004	Forb	single-species	N	Yarrow	Washed
	SR-03-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-03-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-03-VG1-BRO	7/12/2004	Browse	mixed-species	N	Willow, Sage, Fringed sage, Cinquefoil	Washed
	SR-03-VG1-POT	7/12/2004	Forb	single-species	N	Cinquefoil	Washed
	SR-03-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	SR-03-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-03-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SR-04	SR-04-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-04-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
SR-05	SR-05-VG1-BRO	6/2/2004	Browse	single-species	N	Willow	Washed
	SR-05-VG1-CIR	6/2/2004	Forb	single-species	N	Thistle	Washed
	SR-05-VG1-YAR	6/2/2004	Forb	single-species	N	Yarrow	Washed
	SR-05-VG1-FOR	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-05-VG1-GRA	6/2/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-05-VG1-BRO	7/12/2004	Browse	single-species	N	Willow	Washed
	SR-05-VG1-YAR	7/12/2004	Forb	single-species	N	Yarrow	Washed
	SR-05-VG1-FOR	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
	SR-05-VG1-GRA	7/12/2004	Grass	mixed-species	N	Bluegrass, Sedge	Washed
Western Woodall Mountain Sub-Basin							
NT3-01	NT3-01 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-01-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-01-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
NT3-02	NT3-02-UW FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Unwashed
	NT3-02-W FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-02-NHA1-1	9/24/2003	Forb	single-species	Y	Alfalfa	Washed
	NT3-02-NHA2	9/24/2003	Forb	single-species	N	Blackfoot groundsmoke	Washed
	NT3-02-G-1	9/24/2003	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass	Washed
	NT3-02-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-02-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NT3-02-VG1-GRA	5/26/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-02-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-02-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT3-02-VG1-GRA	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
NT3-03	NT3-03 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-03-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-03-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-03-VG1-AST	7/12/2004	Forb	single-species	Y	Aster	Washed
	NT3-03-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT3-04	NT3-04 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-04-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-04-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
NT3-05	NT3-05 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-05-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-05-VG1-ASG	5/26/2004	Forb	single-species	Y	Milkvetch	Washed
	NT3-05-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-05-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed

Table 4-16
Summary of Terrestrial and Aquatic Vegetation Species Collected

Location	Sample Name	Sample Date	Vegetation Type	Vegetation Sample Mix	Contains Selenium-Accumulating Species[1]	Vegetation Standard Species	Wash Staus
NT3-06	NT3-06 FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-06-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-06-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass, Smooth brome	Washed
	NT3-06-VG1-ASG	7/12/2004	Forb	single-species	Y	Milkvetch	Washed
NT3-07	NT3-07-B-1	9/24/2003	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	NT3-07-UW FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Unwashed
	NT3-07-W FORAGE	9/24/2003	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Washed
	NT3-07-NHA1	9/24/2003	Forb	single-species	Y	Alfalfa	Washed
	NT3-07-NHA2	9/24/2003	Forb	single-species	N	Thistle	Washed
	NT3-07-G	9/24/2003	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass	Washed
	NT3-07-VG1-BRO	5/26/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	NT3-07-VG1-FOR	5/26/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Washed
	NT3-07-VG1-ALF	5/26/2004	Forb	single-species	Y	Alfalfa	Washed
	NT3-07-VG1-GRA	5/26/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass	Washed
	NT3-07-VG1-BRO	7/12/2004	Browse	mixed-species	N	Sage, Antelope bitterbrush	Washed
	NT3-07-VG1-FOR	7/12/2004	Forage	mixed-species	Y	Alfalfa, Western wheatgrass, Thickspike wheatgrass	Washed
	NT3-07-VG1-ALF	7/12/2004	Forb	single-species	Y	Alfalfa	Washed
	NT3-07-VG1-GRA	7/12/2004	Grass	mixed-species	N	Western wheatgrass, Thickspike wheatgrass	Washed

Notes:

The number in parentheses indicates the approximate percentage of species in the sample (where that information is available).

Table includes both terrestrial and aquatic vegetation sample information.

Vegetation type for terrestrial vegetation samples: browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Vegetation type for aquatic vegetation samples is listed as "aquatic", to distinguish from terrestrial vegetation samples.

Refer to Table 4-17 for more information about plant nomenclature.

1- Selenium-accumulating species include those species that may accumulate concentrations of selenium. Refer to Section 6 for more information.

Table and footnotes present information for samples collected from 2001 onward of "A" data use level only.

Table 4-17
Summary of Vegetation Community and Habitat Characterization

Location	Location Description	Sampling Location Type	Vegetation Community Description Method	Relative Percent Cover of Vegetation Types[1]					Brief Habitat Description[4]
				Subsample Quadrat	Non-vegetation[2]	Browse[3]	Forb	Grass	
Camp G Creek Sub-Basin									
CGC-1	Camp G Creek just upstream of Jougelard Ranch boundary fence near the valley constriction	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	Riparian area dominated by willows with open areas of grasses (timothy grass, blue grass), rushes, sedges and forbs (cinquefoil, clover, and aster); Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
				2	0%	0%	61%	39%	
				3	0%	0%	38%	62%	
				4	0%	0%	26%	74%	
				5	0%	0%	53%	47%	
ST12-01	West half of waste rock pile (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	48%	3%	41%	8%	Open area above waste rock pile, surrounded by forested area (Douglas fir, aspen); characterized by grasses (wheatgrasses, needlegrass), forbs (aster, lupine), shrubs (cherry, serviceberry, rose, antelope bitterbrush), and litter/bare ground; Rocky Mountain Aspen Forest and Woodland/Inter-Mountain Basins Montane Sagebrush Steppe.
				2	29%	0%	23%	48%	
				3	38%	5%	35%	22%	
				4	48%	24%	0%	28%	
				5	31%	19%	48%	2%	
ST12-02	East half of waste rock pile (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	16%	35%	1%	48%	Open area on waste rock pile, surrounded by forested area (Douglas fir, aspen); characterized by grasses (wildrye, brome), forbs (aster, buckwheat), shrubs (serviceberry, snowberry, antelope bitterbrush), and bare ground; Rocky Mountain Aspen Forest and Woodland/Inter-Mountain Basins Montane Sagebrush Steppe.
				2	72%	0%	28%	0%	
				3	61%	20%	2%	16%	
				4	41%	25%	33%	2%	
				5	2%	44%	29%	25%	
ST12-03	Native location east of waste rock pile (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	21%	5%	43%	31%	Densely wooded area adjacent to waste rock pile; characterized by tree overstory (Douglas fir, aspen), and understory of grasses (bluegrass, brome), forbs (geranium, strawberry, sweetcicely), shrubs (serviceberry, snowberry, cherry, rose), and litter; Rocky Mountain Aspen Forest and Woodland.
				2	44%	28%	20%	8%	
				3	23%	14%	49%	14%	
				4	37%	40%	24%	0%	
				5	44%	40%	16%	0%	
French Drain Sub-Basin									
NQ-13	ODA - West Limb Panel (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	3%	0%	28%	69%	At top of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome) and forbs (alfalfa, salsify).
				2	0%	0%	0%	100%	
				3	24%	0%	0%	76%	
				4	20%	0%	0%	80%	
				5	31%	0%	31%	38%	
NQ-14	ODA - West Limb Panel (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	On slope of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome) and forbs (alfalfa).
				2	0%	0%	0%	100%	
				3	0%	0%	9%	91%	
				4	0%	0%	23%	77%	
				5	0%	0%	20%	80%	
ST9-17	Conda Townsite	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	3%	97%	Former townsite area characterized by grasses (wheatgrasses, brome) with shrubs and trees (sage, cottonwood, juniper, lilac, rose scattered) throughout the area.
				2	0%	0%	3%	97%	
				3	0%	0%	2%	98%	
				4	0%	0%	0%	100%	
				5	0%	0%	9%	91%	
SWP-4	Southwest Pond #4: Western-most (middle) pond in forested depression area just south of Conda Townsite	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	Pond area with reclaimed upland area on one side and forested area on other side. Margin of pond with cattails, rushes, and sedges; reclaimed area with grasses (wheatgrasses, brome); forested area with aspen, shrubs (serviceberry, cherry, snowberry), and forbs (lupine, geranium); Rocky Mountain Aspen Forest and Woodland/Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
				2	0%	0%	0%	100%	
				3	21%	1%	24%	53%	
				4	0%	5%	3%	92%	
				5	0%	0%	5%	95%	
Margarette Creek/Trail Canyon Sub-Basin									
NQ-17	ODA - North Trail Panel (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	15%	0%	41%	44%	On slope of reclaimed ODA area; characterized by grasses (wheatgrasses, brome), forbs (aster, milkvetch), and moderate bare ground.
				2	18%	0%	55%	27%	
				3	17%	0%	25%	58%	
				4	0%	0%	46%	54%	
				5	5%	0%	36%	59%	

Table 4-17
Summary of Vegetation Community and Habitat Characterization

Location	Location Description	Sampling Location Type	Vegetation Community Description Method	Relative Percent Cover of Vegetation Types[1]					Brief Habitat Description[4]
				Subsample Quadrat	Non-vegetation[2]	Browse[3]	Forb	Grass	
North Woodall Mountain Sub-Basin									
NT8-01	North Woodall and State Land Creek Sub-basins native area	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	0%	0%	30%	70%	Forested native area; characterized by a tree overstory (Douglas fir, aspen) and an understory of grasses (bluegrass, sedges), shrubs (serviceberry, cherry, snowberry), and forbs (lupine, aster, geranium, sweetcicely); Rocky Mountain Aspen Forest and Woodland/Middle Rocky Mountain Montane Douglas-fir Forest and Woodland.
				2	0%	0%	64%	36%	
				3	0%	0%	54%	46%	
				4	6%	0%	35%	60%	
				5	14%	0%	28%	57%	
NT8-02	North Woodall and State Land Creek Sub-basins native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Forested native area; characterized by a tree overstory (Douglas fir, aspen) and an understory of grasses (bluegrass, sedges), shrubs (serviceberry, cherry, snowberry), and forbs (lupine, aster, geranium, sweetcicely); Rocky Mountain Aspen Forest and Woodland.
NWC-2	North Woodall Creek intermittent stream, just downstream of large beaver pond	Terrestrial Sampling Location	Qualitative/ Quantitative	1	30%	21%	30%	19%	Densely forested riparian area of an intermittent creek with beaver ponded areas; characterized by an aspen overstory and an understory of grasses (sedges, brome), shrubs (serviceberry, grapeholly, rose), forbs (lupine, geranium, sweetcicely, cinquefoil, yarrow, strawberry), and litter layer; Rocky Mountain Aspen Forest and Woodland/Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
				2	10%	7%	73%	11%	
				3	24%	12%	53%	12%	
				4	28%	3%	62%	7%	
				5	27%	19%	49%	4%	
Old Tailings Pond Sub-Basin									
NQ-08	ODA - Woodall Panel (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	73%	0%	0%	27%	On slope of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome, orchard grass), forbs (alfalfa, yellow sweet clover, phacelia), and significant bare ground/rock cover.
				2	25%	0%	17%	58%	
				3	7%	0%	58%	35%	
				4	35%	0%	20%	45%	
				5	56%	0%	0%	44%	
NQ-10	ODA - Ibex/Middle Limb Panels (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	At top of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome) and shrubs (sage, snowberry, cherry, antelope bitterbrush).
				2	0%	0%	0%	100%	
				3	0%	0%	0%	100%	
				4	0%	0%	5%	95%	
				5	0%	0%	0%	100%	
NQ-11	ODA - Ibex/Middle Limb Panels (Reclaimed), near Fish Pond	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	At top of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome), forbs (alfalfa, salsify), and shrubs (aspen, cherry, snowberry, serviceberry).
				2	0%	0%	0%	100%	
				3	14%	0%	32%	54%	
				4	10%	0%	0%	90%	
				5	0%	0%	9%	91%	
NQ-18	Old Tailings Pond	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	Old Tailings Pond area; wet meadow characterized by grasses/sedges (spikerush, wheatgrass, barley), forbs (dock); with clumps of cattail and groups of willows.
				2	0%	0%	3%	97%	
				3	0%	0%	26%	74%	
				4	0%	0%	6%	94%	
				5	0%	0%	10%	90%	
ST13-01	East portion of Old Tailings Pond (soil and vegetation) - Native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Densely shrubbed hillside to the east of the eastern Old Tailings Pond; characterized by shrubs (antelope bitterbrush, serviceberry, sage, snowberry), grasses (wildrye, ricegrass, brome), and forbs (aster, grapeholly); Inter-Mountain Basins Big Sagebrush Steppe.
ST13-02	East portion of Old Tailings Pond (soil and vegetation) - Former Ore Slurry Dump area	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	4%	0%	0%	96%	Grassy/shrubby area along edge of the eastern Old Tailings Pond; characterized by grasses (wheatgrasses, brome, ricegrass), forbs (thistle, Dyer's woad, dock), and shrubs (aspen, cherry, rose, snowberry).
				2	0%	0%	0%	100%	
				3	0%	0%	0%	100%	
				4	0%	0%	0%	100%	
				5	0%	0%	0%	100%	
ST13-03	East portion of Old Tailings Pond (soil and vegetation) - Former Ore Slurry Dump area	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	21%	0%	11%	68%	Grassy/shrubby area along edge of the eastern Old Tailings Pond; characterized by grasses (wheatgrasses, brome, foxtail barley), forbs (yellow sweet clover, Dyer's woad), and shrubs (aspen, cherry, rose, snowberry).
				2	0%	0%	2%	98%	
				3	0%	0%	54%	46%	
				4	0%	4%	1%	96%	
				5	19%	0%	0%	81%	

Table 4-17
Summary of Vegetation Community and Habitat Characterization

Location	Location Description	Sampling Location Type	Vegetation Community Description Method	Relative Percent Cover of Vegetation Types[1]					Brief Habitat Description[4]
				Subsample Quadrat	Non-vegetation[2]	Browse[3]	Forb	Grass	
ST13-04	East portion of Old Tailings Pond (soil and vegetation) - Former Ore Slurry Dump area	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	3%	0%	3%	93%	Grassy/shrubby area along edge of the eastern Old Tailings Pond; characterized by dense willows, grasses (wheatgrasses, foxtail barley), and forbs (yellow sweet clover, alfalfa).
				2	0%	12%	42%	46%	
				3	0%	0%	0%	100%	
				4	9%	0%	38%	53%	
				5	15%	0%	0%	85%	
ST15-01	Along the base of the Old Tailings Pond run-on control dam	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1		0%	38%	62%	Dense grassy/shrubby area next to steep impoundment wall; characterized by grasses (ricegrass, brome, wheatgrasses), forbs (aster, thistle), and shrubs (aspen,sage, serviceberry, snowberry, cherry); Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland/Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
				2	0%	0%	54%	46%	
				3	0%	0%	27%	73%	
				4	0%	0%	0%	100%	
				5	0%	0%	39%	61%	
ST15-02	Along the base of the Old Tailings Pond run-on control dam	Soil/Veg Sampling Location	Qualitative	qualitative info only					Grassy/shrubby area next to steep impoundment wall; characterized by grasses (ricegrass, brome, wheatgrasses), forbs (aster, thistle), and shrubs (aspen,sage, serviceberry, snowberry, cherry); Northern Rocky Mountain Lower Montane, Foothill and Valley Grassland/Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
Pedro Creek Sub-Basin									
NQ-07	ODA - Woodall Panel (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	30%	0%	27%	43%	On slope of a reclaimed ODA area; characterized by grasses (wheatgrasses), forbs (alfalfa, milkvetch, salsify, phacelia), and significant bare ground/rock cover.
				2	46%	0%	35%	18%	
				3	36%	0%	9%	55%	
				4	18%	0%	64%	18%	
				5	42%	0%	42%	16%	
NT5-05	Soil and Vegetation Sampling Location - Dust Transect	Terrestrial Sampling Location	Qualitative/ Quantitative	1	18%	0%	55%	27%	Sampling area includes sparsely-vegetated eastern slope of ODA with significant bare ground, grasses (orchard grass) and forbs (sweet clover, tall annual willowherb) and the forested area to east of ODA (adjacent to seep) characterized by tree overstory (Douglas fir, aspen) and understory with grasses (wheatgrasses, sedges, brome, timothy grass), forbs (lupine, sweetcicely, strawberry), and shrubs (snowberry, rose, cherry, serviceberry); Rocky Mountain Aspen Forest and Woodland.
				2	69%	0%	0%	31%	
				3	5%	0%	1%	94%	
				4	0%	15%	77%	8%	
				5	41%	8%	14%	37%	
NT5-06	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Open meadow area within forested area to east of ODA; characterized by tree overstory (Douglas fir, aspen) and understory with grasses (orchard grass, brome), forbs (yellow sweet clover, aster, geranium), and shrubs (snowberry, rose, cherry, serviceberry); Rocky Mountain Aspen Forest and Woodland.
NT5-07	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Densely shrubby forested area to east of ODA; characterized by tree overstory (Douglas fir, aspen) and understory with grasses (orchard grass, brome), forbs (yellow sweet clover, aster, geranium), and shrubs (snowberry, rose, cherry, serviceberry); Rocky Mountain Aspen Forest and Woodland.
NT5-08	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	0%	3%	50%	46%	Sagebrush-forest transition area to east of ODA; characterized by aspen, sage, grasses (timothy grass, brome), forbs (geranium, cinquefoil, aster), and shrubs (snowberry, serviceberry); Rocky Mountain Aspen Forest and Woodland/Inter-Mountain Basins Big Sagebrush Steppe.
				2	0%	0%	37%	63%	
				3	7%	1%	22%	70%	
				4	17%	3%	40%	40%	
				5	0%	14%	68%	18%	
NT5-09	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Densely shrubby forested area to east of ODA; characterized by tree overstory (Douglas fir, aspen) and understory with grasses (brome), forbs (aster, geranium, lupine, strawberry), and shrubs (snowberry, rose, cherry, serviceberry, sage); Rocky Mountain Aspen Forest and Woodland.
NT5-10	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	28%	6%	51%	15%	Densely shrubby forested area to east of ODA; characterized by tree overstory (Douglas fir, aspen) and understory with grasses (timothy grass, brome), forbs (aster, geranium, lupine, strawberry), shrubs (snowberry, rose, serviceberry), and bare ground; Rocky Mountain Aspen Forest and Woodland.
				2	42%	8%	37%	12%	
				3	15%	4%	60%	21%	
				4	34%	27%	38%	0%	
				5	12%	28%	46%	14%	

Table 4-17
Summary of Vegetation Community and Habitat Characterization

Location	Location Description	Sampling Location Type	Vegetation Community Description Method	Relative Percent Cover of Vegetation Types[1]					Brief Habitat Description[4]
				Subsample Quadrat	Non-vegetation[2]	Browse[3]	Forb	Grass	
PC-3	Pedro Creek just upstream of lower road crossing	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	56%	44%	Sagebrush-dominated riparian area; characterized by shrubs (sage, antelope bitterbrush, shrubby cinquefoil, snowberry), with grasses (timothy grass, fescue, sedges), forbs (aster, buckwheat, lupine, cinquefoil, yampah), and bare ground; Inter-Mountain Basins Big Sagebrush Steppe.
				2	0%	0%	48%	52%	
				3	21%	0%	60%	19%	
				4	52%	1%	24%	23%	
				5	3%	1%	50%	47%	
PC-5	Upper Pedro Creek downgradient of overburden seep area in aspen grove	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	0%	3%	33%	64%	Densely forested riparian area; characterized by a aspen overstory and an understory of grasses (orchard grass, timothy grass, wildrye), shrubs (rose, snowberry), and forbs (coneflower, geranium, balsamroot, meadow rue); Rocky Mountain Aspen Forest and Woodland.
				2	0%	18%	36%	47%	
				3	3%	13%	30%	55%	
				4	0%	0%	29%	71%	
				5	0%	1%	47%	52%	
Shield and Jouglard Canyons Sub-Basin									
HHP-1	Hoorah Hollow Pond	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	0%	100%	Pond area dominated by margin of spikerush, rushes, sedges, buttercup, duckweed; upland area adjacent to pond characterized by grasses (wheatgrasses, needlegrass, brome), forbs (thistle, yarrow, pennycress); surrounded by sage/aspen; Rocky Mountain Lower Montane Riparian Woodland and Shrubland/Inter-Mountain Basins Big Sagebrush Steppe/Rocky Mountain Aspen Forest and Woodland.
				2	0%	0%	13%	88%	
				3	0%	0%	1%	99%	
				4	0%	0%	23%	77%	
				5	0%	0%	0%	100%	
NQ-12	ODA - Ibex/Middle Limb Panels (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	4%	0%	30%	67%	At base of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome) and forbs (alfalfa, aster); with area of ornamental trees/shrubs (lilacs, honeysuckle, juniper, sagebrush, cottonwood).
				2	10%	0%	29%	62%	
				3	5%	0%	57%	38%	
				4	5%	0%	36%	59%	
				5	0%	0%	13%	88%	
NQ-15	ODA - West Limb Panel (Reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	2%	32%	66%	On slope of a reclaimed ODA area; characterized by grasses (bluegrass, sedges, brome), forbs (lupine, aster, geranium, buckwheat), and dense shrubs (sage, snowberry, serviceberry, rabbitbrush).
				2	0%	7%	43%	49%	
				3	0%	2%	68%	30%	
				4	0%	3%	74%	23%	
				5	0%	0%	49%	51%	
NQ-16	ODA - West Limb Panel (Nonreclaimed), west slope above Pit Lake	Terrestrial Sampling Location	Qualitative/ Quantitative	1	21%	0%	57%	21%	On steep shale slope of an ODA area above Pit Lake; characterized by grasses (timothy grass, orchard grass, brome), forbs (aster, sweet clover, blazingstar, yarrow, tall annual willowherb, phacelia), shrubs (serviceberry, aspen, antelope bitterbrush), and significant bare ground.
				2	0%	0%	36%	64%	
				3	24%	0%	19%	57%	
				4	38%	0%	47%	15%	
				5	0%	0%	44%	56%	
ST10-03	Grace Panel (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	46%	0%	8%	46%	Sparsely-vegetated area in pit bottom; characterized by significant bare ground, grasses (wheatgrasses, ricegrass), and forbs (gumweed, yellow sweet clover); with shrubs (sage, antelope bitterbrush, snowberry) on slopes of pit.
				2	64%	0%	18%	18%	
				3	11%	6%	52%	31%	
				4	0%	0%	37%	63%	
				5	54%	11%	11%	24%	
ST10-04	Grace Panel (soil and vegetation)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	25%	31%	33%	12%	On east-facing slope of ODA area with significant cover by shrubs (sage, antelope bitterbrush, snowberry, serviceberry) and bare ground/rock, with grasses (wheatgrasses, reedgrass) and forbs (buckwheat, aster, gumweed); this ODA has not been reclaimed but has well-established native growth; Northern Rocky Mountain Montane-Foothill Deciduous Shrubland.
				2	31%	1%	41%	27%	
				3	24%	11%	44%	21%	
				4	27%	5%	28%	41%	
				5	14%	15%	64%	7%	
ST10-05	Location east of Grace Panel (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	9%	4%	57%	30%	Sagebrush slope below ODA area, with transition to forested drainage; characterized by grasses (wheatgrasses, ricegrass, wildrye), forbs (aster, buckwheat, phacelia), shrubs (aspen, serviceberry, sage, antelope bitterbrush), and bare ground; Inter-Mountain Basins Big Sagebrush Steppe.
				2	35%	6%	35%	23%	
				3	3%	27%	10%	60%	
				4	29%	31%	37%	3%	
				5	27%	0%	39%	34%	
ST10-06	Native location west of the ODA (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Sagebrush slope below ODA area, with transition to forested drainage; characterized by grasses (wheatgrasses, ricegrass, wildrye), forbs (aster, buckwheat, lupine), shrubs (aspen, serviceberry, sage, antelope bitterbrush), and bare ground; Inter-Mountain Basins Big Sagebrush Steppe.

Table 4-17
Summary of Vegetation Community and Habitat Characterization

Location	Location Description	Sampling Location Type	Vegetation Community Description Method	Relative Percent Cover of Vegetation Types[1]					Brief Habitat Description[4]
				Subsample Quadrat	Non-vegetation[2]	Browse[3]	Forb	Grass	
ST14-01	Soil and Vegetation Sampling Location - Potential Waste Rock area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Forested area in vicinity of potential waste rock area; characterized by aspen overstory and understory with grasses (wheatgrasses, sedges), forbs (grapeholly, meadowrue), and shrubs (snowbrush, snowberry, serviceberry); Rocky Mountain Aspen Forest and Woodland.
Southwest Conda Sub-Basin									
ST10-01	Native location west of the ODA (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Densely shrubbed native area west of ODA; characterized by shrubs (sage, antelope bitterbrush, serviceberry, snowberry), grasses (wheatgrasses, ricegrass, bluegrass), and forbs (yarrow, snakeweed, balsamroot); Inter-Mountain Basins Big Sagebrush Steppe.
ST10-02	Native location west of the ODA (soil and vegetation)	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	8%	0%	16%	76%	Densely shrubbed native area west of ODA; characterized by shrubs (sage, antelope bitterbrush, serviceberry, snowberry), grasses (wheatgrasses, ricegrass, bluegrass), forbs (snakeweed, buckwheat, desertparsley), and bare ground/litter; Inter-Mountain Basins Big Sagebrush Steppe.
				2	31%	0%	1%	67%	
				3	5%	10%	23%	62%	
				4	14%	0%	0%	86%	
				5	11%	16%	41%	32%	
ST11-01	South Conda Sub-basin native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Native area on dry, west-facing slope; characterized by shrubs (sage, rabbitbrush, antelope bitterbrush), grasses (reedgrass, needlegrass), forbs (snakeweed, aster, alyssum, salsify, balsamroot), and significant bare ground; Inter-Mountain Basins Big Sagebrush Steppe.
ST11-02	South Conda Sub-basin native area	Terrestrial Sampling Location	Qualitative/ Quantitative	1	43%	6%	22%	29%	Native area on dry, west-facing slope; characterized by shrubs (sage, rabbitbrush, antelope bitterbrush), grasses (reedgrass, bluegrass), forbs (snakeweed, aster, alyssum, salsify, balsamroot), and significant bare ground; Inter-Mountain Basins Big Sagebrush Steppe.
				2	41%	10%	8%	41%	
				3	31%	12%	26%	31%	
				4	17%	1%	58%	25%	
				5	25%	13%	14%	48%	
ST11-03	South Conda Sub-basin native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Native area on dry, west-facing slope; characterized by shrubs (sage, rabbitbrush, antelope bitterbrush), grasses (reedgrass, needlegrass), forbs (snakeweed, aster, alyssum, salsify, balsamroot), and significant bare ground; Inter-Mountain Basins Big Sagebrush Steppe.
ST11-04	South Conda Sub-basin native area	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	31%	0%	20%	48%	Native area on side of dry slope; characterized by shrubs (sage, rabbitbrush, antelope bitterbrush), grasses (reedgrass, needlegrass), forbs (snakeweed, aster, alyssum, salsify, balsamroot), and significant bare ground; Inter-Mountain Basins Big Sagebrush Steppe.
				2	43%	16%	0%	41%	
				3	39%	0%	42%	18%	
				4	36%	16%	25%	23%	
				5	37%	19%	11%	33%	
State Land Creek Sub-Basin									
NQ-06	North side of Woodall Mountain ODA - Woodall Panel (reclaimed)	Terrestrial Sampling Location	Qualitative/ Quantitative	1	5%	0%	35%	60%	On slope of a reclaimed ODA area; characterized by grasses (wheatgrasses and brome) and forbs (alfalfa and milkvetch).
				2	5%	0%	14%	81%	
				3	16%	0%	0%	84%	
				4	0%	0%	28%	72%	
				5	0%	0%	29%	71%	
NT2-04	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	0%	0%	56%	44%	Base of a reclaimed ODA area; characterized by grasses (wheatgrasses, brome, timothy grass, orchard grass), forbs (alfalfa, milkvetch, yellow sweet clover); adjacent to a forested area (aspen, serviceberry, cherry).
				2	0%	0%	32%	68%	
				3	0%	0%	0%	100%	
				4	0%	0%	59%	41%	
				5	12%	0%	43%	45%	

Table 4-17
Summary of Vegetation Community and Habitat Characterization

Location	Location Description	Sampling Location Type	Vegetation Community Description Method	Relative Percent Cover of Vegetation Types[1]					Brief Habitat Description[4]
				Subsample Quadrat	Non-vegetation[2]	Browse[3]	Forb	Grass	
NT2-05	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative/ Quantitative	1	0%	2%	34%	64%	Forested area to east of ODA; characterized by tree overstory (Douglas fir, aspen) and understory with grasses (timothy grass, orchard grass), forbs (cinquefoil, aster, lupine, yampah), and shrubs (serviceberry); Rocky Mountain Aspen Forest and Woodland.
				2	0%	9%	22%	69%	
				3	0%	0%	47%	53%	
				4	0%	0%	69%	31%	
				5	0%	0%	44%	56%	
NT2-06	Soil and Vegetation Sampling Location - Dust Transect	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Forest-sagebrush transition area to east of ODA; characterized by aspen with grasses (timothy grass, brome), forbs (cinquefoil, aster, lupine, yampah), and shrubs (sage, serviceberry, rose); Rocky Mountain Aspen Forest and Woodland/Inter-Mountain Basins Big Sagebrush Steppe.
NT8-03	North Woodall and State Land Creek Sub-basins native area	Terrestrial Sampling Location	Qualitative/ Quantitative	1	8%	0%	76%	16%	Forested native area, adjacent to an open slope near road; characterized by grasses (ricegrass, bluegrass, wild rye), shrubs (aspen, rose, antelope bitterbrush, snowberry, seviceberry), forbs (geranium, cinquefoil, goldenweed, yarrow, mullein), and moderate bare ground; Rocky Mountain Aspen Forest and Woodland.
				2	37%	6%	39%	18%	
				3	6%	13%	65%	16%	
				4	5%	29%	29%	38%	
				5	4%	8%	50%	38%	
NT8-04	North Woodall and State Land Creek Sub-basins native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Forested native area; characterized by a tree overstory (Douglas fir, aspen) and an understory of grasses (bluegrass, sedges), shrubs (serviceberry, snowberry), and forbs (lupine, aster, geranium, yarrow); Rocky Mountain Aspen Forest and Woodland.
NT8-05	North Woodall and State Land Creek Sub-basins native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Forested native area; characterized by a tree overstory (Douglas fir, aspen) and an understory of grasses (bluegrass, timothy grass), shrubs (serviceberry, rose, snowberry), and forbs (lupine, aster, geranium, sweetcicely); Rocky Mountain Aspen Forest and Woodland.
NT8-06	North Woodall and State Land Creek Sub-basins native area	Soil/Vegetation Sampling Location	Qualitative	qualitative info only					Forested native area and adjacent open meadow; characterized by a tree overstory (Douglas fir, aspen) and an understory of grasses (bluegrass, ricegrass), shrubs (serviceberry, snowberry), and forbs (aster, geranium, balsamroot, sweetcicely); Rocky Mountain Aspen Forest and Woodland.
SLC-2	State Land Creek downstream of tributary inflow, just downstream of State Land Creek Tributary #3	Terrestrial Sampling Location	Qualitative/ Quantitative	1	2%	0%	48%	50%	Open riparian area in sagebrush-dominated valley, with clumps of willows and sage, grasses (bluegrass, rushes, sedges), and forbs (cinquefoil, yarrow, geranium, lupine); Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
				2	3%	0%	34%	64%	
				3	0%	13%	70%	17%	
				4	2%	7%	62%	29%	
				5	0%	0%	50%	50%	
SLC-3	State Land Creek just upstream of the fence marking the southern boundary of the State Land, directly west of SLCT1-1	Terrestrial Sampling Location	Qualitative/ Quantitative	1	0%	0%	50%	50%	Sagebrush-dominated riparian area; characterized by sage with grasses (timothy grass, sedges), and forbs (cinquefoil, aster, yarrow, lupine); Rocky Mountain Lower Montane Riparian Woodland and Shrubland.
				2	0%	0%	57%	43%	
				3	0%	0%	47%	53%	
				4	0%	1%	63%	36%	
				5	0%	0%	54%	46%	

Notes:

Browse includes shrubs and other woody vegetation; forbs include herbaceous vegetation; grass includes grasses and other graminoids (e.g., sedges, rushes).

[1] Although actual percent cover can exceed 100% in areas with dense vegetation; vegetation percent cover on this table has been normalized to 100%.

[2] Non-vegetation refers to bare ground, litter, rock, standing dead, pinecones, cow pies, etc.

[3] Percentages for browse are low because vegetation community quadrats focused on herbaceous vegetation.

[4] Includes a brief description of the types of habitats and representative vegetation types (using common names for species); not an exhaustive list of all species present in area. Land cover types based on data from USGS NWGAP (2009).

Refer to 2009 Data Summary Report (Formation Environmental 2010) for full details about vegetation sampling activities and results.

Table 4-18
Summary of Vegetation Species Nomenclature

Common Name	Scientific Name (and alternatives)	Selenium-Accumulating Species[1]	Vegetation Type[2]
Alfalfa	*Medicago sativa*	Y	Forb
Alyssum	*Alyssum* spp.		Forb
Antelope bitterbrush	*Purshia tridentata*		Browse
Arrowleaf balsamroot	*Balsamorhiza sagittata*		Forb
Aspen	*Populus tremuloides*		Browse
Aster	*Aster* spp. (*Symphyotrichum* spp., *Xylorhiza* spp.)	Y	Forb
Astragalus	*Astragalus* spp.	Y	Forb
Balsamroot	*Balsamorhiza* spp.		Forb
Barley	*Hordeum* spp.		Grass
Beaked sedge	*Carex rostrata*		Grass
Bentgrass	*Agrostis* spp.		Grass
Big bluegrass	*Poa secunda*		Grass
Blackfoot groundsmoke	*Gayophytum racemosum*		Forb
Blazingstar	*Mentzelia* spp.	Y	Forb
Bluebunch wheatgrass	*Pseudoroegneria spicata*		Grass
Bluegrass	*Poa* spp.		Grass
Brome	*Bromus* spp.		Grass
Buckwheat	*Eriogonum* spp.		Forb
Burning bush	*Euonymous* spp., *Bassia* spp.		Browse, Forb
Buttercup	*Ranunculus* spp.		Forb
Canada goldenrod	*Solidago canadensis*		Forb
Canada wildrye	*Elymus canadensis*		Grass
Cattail	*Typha* spp.		Forb
Cheatgrass	*Bromus tectorum*		Grass
Cherry	*Prunus* spp.		Browse
Chrysanthemum	*Leucanthemum* spp., *Chrysanthemum* spp.		Forb
Cinquefoil	*Potentilla* spp.		Forb
Clover	*Trifolium* spp.		Forb
Columbia needlegrass	*Achnatherum nelsonii* (*Stipa columbiana*)		Grass
Common yarrow	*Achillea millefolium*		Forb
Coneflower	*Echinacea* spp., *Ratibida* spp.		Forb
Cottonwood	*Populus* spp.		Browse
Cottonwood hybrid	*Populus* spp.		Browse
Creeping bentgrass	*Agrostis stolonifera*		Grass
Crested wheatgrass	*Agropyron cristatum*		Grass
Curlycup gumweed	*Grindelia squarrosa*	Y	Forb
Curly dock	*Rumex crispus*		Forb
Currant	*Ribes* spp.		Browse
Dandelion	*Taraxacum officinale*		Forb
Desertparsley	*Lomatium* spp.		Forb
Dock	*Rumex* spp.		Forb
Douglas fir	*Pseudotsuga menziesii*		Browse
Duckweed	*Lemna* spp.		Aquatic
Dyer's woad	*Isatis tinctoria*		Forb
Erect knotweed	*Polygonum erectum*		Forb
False lily of the valley	*Maianthemum* spp.		Forb
Fescue	*Festuca* spp.		Grass
Festuca	*Festuca* spp.		Grass
Field bindweed	*Convolvulus arvensis*		Forb
Fowl mannagrass	*Glyceria striata*		Grass
Foxtail barley	*Hordeum jubatum*		Grass
Fringed sage	*Artemisia frigida*		Forb, Browse
Geranium	*Geranium* spp.		Forb
Giant hyssop	*Agastache* spp.		Forb
Goldenrod	*Solidago* spp.		Forb
Gooseberry	*Ribes* spp.		Browse
Goosefoot	*Chenopodium* spp.		Grass
Goldenweed	*Pyrrocoma* spp., *Haplopappus* spp., *Machaeranthera* spp.	Y	Forb
Great Basin wildrye	*Leymus cinereus*		Grass
Groundsmoke	*Gayophytum* spp.		Forb
Gumweed	*Grindelia* spp.	Y	Forb
Hollygrape	*Mahonia* spp.		Forb
Honeysuckle	*Lonicera* spp.		Browse
Horsetail	*Equisetum* spp.		Grass
Houndstongue	*Cynoglossum officianale*		Forb
Idaho fescue	*Festuca idahoensis*		Grass
Intermediate wheatgrass	*Thinopyrum intermedium* , *Agropyron intermedium*		Grass
Indian ricegrass	*Achnatherum hymenoides* , *Oryzopsis hymenoides*		Grass
Juniper	*Juniperus* spp.		Browse
Kentucky bluegrass	*Poa pratensis*		Grass
Kochia	*Bassia* spp., *Kochia* spp.		Forb
Larkspur	*Delphinium* spp.		Forb
Lilac	*Syringa* spp.		Browse
Locust	*Robinia* spp.		Browse
Lupine	*Lupinus* spp.		Forb
Macoun's buttercup	*Ranunculus macounii*		Forb
Mahonia	*Mahonia s* pp.		Forb
Meadow rue	*Thalictrum* spp.		Forb
Milkvetch	*Astragalus* spp.	Y	Forb
Mountain brome	*Bromus marginatus*		Grass
Mountain maple	*Acer spicatum*		Browse
Mountain snowberry	*Symphoricarpos oreophilus*		Browse
Muhly	*Muhlenbergia* spp.		Grass
Mullein	*Verbascum thapsus*		Forb
Nebraska sedge	*Carex nebraskensis*		Grass
Needlegrass	*Stipa* spp.		Grass
Nettle	*Urtica* spp.		Forb
Nettleleaf giant hyssop	*Agastache urticifolia*		Forb
Northern watermilfoil	*Myriophyllum* spp.		Aquatic
Onion	*Allium* spp.		Forb
Orchard grass	*Dactylis glomerata*		Grass
Pennycress	*Thlaspi* spp.		Forb

Table 4-18
Summary of Vegetation Species Nomenclature

Common Name	Scientific Name (and alternatives)	Selenium-Accumulating Species[1]	Vegetation Type[2]
Penstemon	*Penstemon* spp.		Forb
Phacelia	*Phacelia* spp.		Forb
Prairie junegrass	*Koeleria* spp.		Grass
Prickly lettuce	*Lactuca serriola*		Forb
Purple aster	*Aster* spp. (*Symphyotrichum* spp., *Xylorhiza* spp.)	Y	Forb
Pussytoes	*Antennaria* spp.		Forb
Quack grass	*Elymus repens*		Grass
Rabbitbrush	*Chrysothamnus* spp., *Ericameria* spp.		Browse
Reedgrass	*Calamagrostis* spp.		Grass
Ricegrass	*Oryzopsis* spp.		Grass
Rose	*Rosa* spp.		Forb
Roughleaf ricegrass	*Oryzopsis asperifolia*		Grass
Rush	*Juncus* spp.		Grass
Sage	*Artemisia* spp.		Browse
Sainfoin	*Onobrychis viciifolia*		Forb
Sandwort	*Arenaria* spp. , *Moehringia spp.*		Forb
Salsify	*Tragopogon* spp.		Forb
Saskatoon serviceberry	*Amelanchier alnifolia*		Browse
Sedge	*Carex* spp.		Grass
Serviceberry	*Amelanchier* spp.		Browse
Sheep fescue	*Festuca ovina*		Grass
Showy goldeneye	*Heliomeris multiflora*		Forb
Shrubby cinquefoil	*Dasiphora fruticosa, Potentilla fruticosa*		Browse
Silky lupine	*Lupinus sericeus*		Forb
Silverleaf phacelia	*Phacelia hastata*		Forb
Silvery lupine	*Lupinus argenteus*		Forb
Slender wheatgrass	*Elymus trachycaulus*		Grass
Smallwing sedge	*Carex microptera*		Grass
Smooth brome	*Bromus inermis*		Grass
Smoothstem blazingstar	*Mentzelia laevicaulis*	Y	Forb
Snakeweed	*Gutierrezia* spp.	Y	Browse
Snowberry	*Symphoricarpos* spp.		Browse
Snowbrush	*Ceanothus* spp.		Browse
Snowbrush ceanothus	*Ceanothus velutinus*		Browse
Soft-stem bulrush	*Schoenoplectus tabernaemontani*		Grass
Speedwell	*Veronica* spp.		Forb
Spikerush	*Eleocharis*		Grass
Squirreltail	*Elymus elymoides*		Grass
Strawberry	*Fragaria* spp.		Forb
Sweetcicely	*Osmorhiza* spp.		Forb
Tall annual willowherb	*Epilobium brachycarpum*		Forb
Tansyaster	*Machaeranthera* spp.	Y	Forb
Thickspike wheatgrass	*Elymus lanceolatus*		Grass
Thistle	*Cirsium* spp., *Carduus* spp.		Forb
Timothy grass	*Phleum pratense*		Grass
Toadflax	*Linaria* spp.		Forb
Valerian	*Valeriana* spp.		Forb
Western coneflower	*Rudbeckia occidentalis*		Forb
Western dock	*Rumex aquaticus*		Forb
Western wheatgrass	*Pascopyrum smithii*		Grass
White clover	*Trifolium repens*		Forb
White-water Buttercup	*Ranunculus* spp.		Forb
Wildrye	*Elymus* spp.		Grass
Willow	*Salix* spp.		Browse
Yampah	*Perideridia* spp.		Forb
Yarrow	*Achillea* spp.		Forb
Yellow/white sweet clover	*Melilotus officinalis* (*Melilotus* spp.)	Y	Forb

Notes:

Species were generally identified to genus level. Although not required by the sampling guidance, species level information was often gathered during the evaluation of vegetation life-forms (e.g., grass, shrub, forb, and aquatic) and is presented, where available.

Data were obtained from a variety of sources and so this table presents inferences for the scientific name in the cases where only common name information was provided.

Nomenclature based primarily on USDA (2014); common alternatives provided in some cases.

1- Selenium-accumulating species include those species that may accumulate concentrations of selenium. Refer to Section 6 for more information.

2 - Vegetation type for terrestrial species: browse category includes shrubs and other woody vegetation; forb category includes herbaceous broadleaf vegetation; grass category include grasses and/or other graminoids (e.g., sedges, rushes).

Source:

U.S. Department of Agriculture (USDA). 2014. PLANTS database. Available at http://plants.usda.gov/; accessed January 2014.

Table 4-19
Summary of Detected Metals Results in Terrestrial Invertebrates

	Analyte>>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units>>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Value >>	NA					NA					NA					NA					NA				
Station	Material Type																									
Camp G Creek Sub-Basin																										
CGC-1	Original Ground	1.33	1.33	1.33	1	100%	0.571	0.571	0.571	1	100%	0.68	0.68	0.68	1	100%	0.59	0.59	0.59	1	100%	174	174	174	1	100%
French Drain Sub-Basin																										
NQ-13	Overburden	13.8	13.8	13.8	1	100%	3.17	3.17	3.17	1	100%	0.45	0.45	0.45	1	100%	0.27	0.27	0.27	1	100%	246	246	246	1	100%
NQ-14	Overburden	41.7	41.7	41.7	1	100%	3.86	3.86	3.86	1	100%	0.32	0.32	0.32	1	100%	0.27	0.27	0.27	1	100%	170	170	170	1	100%
ST9-17	Former Mill/Townsite	4.98	4.98	4.98	1	100%	0.896	0.896	0.896	1	100%	0.36	0.36	0.36	1	100%	0.59	0.59	0.59	1	100%	148	148	148	1	100%
SWP-4	Overburden	5.26	5.26	5.26	1	100%	2.99	2.99	2.99	1	100%	1.03	1.03	1.03	1	100%	0.43	0.43	0.43	1	100%	218	218	218	1	100%
WD062	Overburden	13	29	20	3	100%	4.6	7	5.53	3	100%	2.9	4.7	3.6	3	100%	0.22	0.54	0.353	3	100%	270	290	277	3	100%
Margarette Creek/Trail Canyon Sub-Basin																										
NQ-17	Overburden	14.1	14.1	14.1	1	100%	2.37	2.37	2.37	1	100%	0.28	0.28	0.28	1	100%	0.3	0.3	0.3	1	100%	144	144	144	1	100%
North Woodall Mountain Sub-Basin																										
NWC-2	Original Ground	3.18	3.18	3.18	1	100%	1.9	1.9	1.9	1	100%	2.32	2.32	2.32	1	100%	2.74	2.74	2.74	1	100%	439	439	439	1	100%
Old Tailings Pond Sub-Basin																										
NQ-08	Overburden	107	107	107	1	100%	2.09	2.09	2.09	1	100%	9.44	9.44	9.44	1	100%	6.09	6.09	6.09	1	100%	171	171	171	1	100%
NQ-10	Overburden	25.1	25.1	25.1	1	100%	1.29	1.29	1.29	1	100%	0.3	0.3	0.3	1	100%	0.32	0.32	0.32	1	100%	177	177	177	1	100%
NQ-11	Overburden	7.75	7.75	7.75	1	100%	16.4	16.4	16.4	1	100%	0.3	0.3	0.3	1	100%	0.56	0.56	0.56	1	100%	229	229	229	1	100%
NQ-18	Tailings	39.2	39.2	39.2	1	100%	2.86	2.86	2.86	1	100%	0.67	0.67	0.67	1	100%	1.08	1.08	1.08	1	100%	183	183	183	1	100%
Pedro Creek Sub-Basin																										
NQ-07	Overburden	36.9	36.9	36.9	1	100%	2.74	2.74	2.74	1	100%	1.52	1.52	1.52	1	100%	0.99	0.99	0.99	1	100%	141	141	141	1	100%
NT5-05	Overburden (now covered)	91.3	91.3	91.3	1	100%	2.3	2.3	2.3	1	100%	51.7	51.7	51.7	1	100%	10.1	10.1	10.1	1	100%	207	207	207	1	100%
PC-3	Original Ground	10.2	10.2	10.2	1	100%	2.44	2.44	2.44	1	100%	0.29	0.29	0.29	1	100%	0.33	0.33	0.33	1	100%	144	144	144	1	100%
PC-5	Original Ground	30.3	30.3	30.3	1	100%	2.85	2.85	2.85	1	100%	0.88	0.88	0.88	1	100%	0.53	0.53	0.53	1	100%	213	213	213	1	100%
Shield and Jouglard Canyons Sub-Basin																										
HHP-1	Original Ground	2.06	2.06	2.06	1	100%	1.17	1.17	1.17	1	100%	0.27	0.27	0.27	1	100%	0.26	0.26	0.26	1	100%	148	148	148	1	100%
NQ-12	Overburden	14.8	14.8	14.8	1	100%	4.72	4.72	4.72	1	100%	0.63	0.63	0.63	1	100%	0.38	0.38	0.38	1	100%	188	188	188	1	100%
NQ-15	Overburden	0.25	0.25	0.25	1	100%	2.38	2.38	2.38	1	100%	0.16	0.16	0.16	1	100%	0.24	0.24	0.24	1	100%	161	161	161	1	100%
NQ-16	Overburden	120	120	120	1	100%	4.2	4.2	4.2	1	100%	3.94	3.94	3.94	1	100%	4.71	4.71	4.71	1	100%	220	220	220	1	100%
ST10-04	Overburden	61.6	61.6	61.6	1	100%	7.33	7.33	7.33	1	100%	28.7	28.7	28.7	1	100%	9.67	9.67	9.67	1	100%	186	186	186	1	100%
Southwest Conda Sub-Basin																										
ST11-02	Original Ground	0.52	0.52	0.52	1	100%	0.809	0.809	0.809	1	100%	1.91	1.91	1.91	1	100%	2.65	2.65	2.65	1	100%	137	137	137	1	100%
State Land Creek Sub-Basin																										
NQ-06	Overburden	1.52	1.52	1.52	1	100%	3.65	3.65	3.65	1	100%	0.11	0.11	0.11	1	100%	0.37	0.37	0.37	1	100%	152	152	152	1	100%
NT2-04	Overburden	16.7	16.7	16.7	1	100%	1.43	1.43	1.43	1	100%	0.39	0.39	0.39	1	100%	0.22	0.22	0.22	1	100%	138	138	138	1	100%
NT8-03	Original Ground	0.62	0.62	0.62	1	100%	0.526	0.526	0.526	1	100%	1.18	1.18	1.18	1	100%	0.58	0.58	0.58	1	100%	138	138	138	1	100%
SLC-2	Original Ground	2.1	2.1	2.1	1	100%	2.19	2.19	2.19	1	100%	3.55	3.55	3.55	1	100%	3.35	3.35	3.35	1	100%	151	151	151	1	100%
SLC-3	Original Ground	3.9	3.9	3.9	1	100%	2.43	2.43	2.43	1	100%	0.12	0.12	0.12	1	100%	0.14	0.14	0.14	1	100%	139	139	139	1	100%
Offsite-Trail Creek																										
ST076	Offsite	1.3	2.4	1.83	3	100%	0.36	0.37	0.365	2	100%	2.3	3.1	2.7	2	100%	0.46	2.1	1.28	2	100%	170	180	175	2	100%

Table 4-19
Summary of Detected Metals Results in Terrestrial Invertebrates

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

Table 4-20
Terrestrial Invertebrate Sample Composition

Location	Date	Order						
		Coleoptera	Diptera	Hemiptera	Hymenoptera	Lepidoptera	Orthoptera	Others
Camp G Creek Sub-Basin								
CGC-1	8/11/2009	3%	40%	40%	5%	0%	10%	*Araneae (2%)*
French Drain Sub-Basin								
NQ-13	8/4/2009	3%	1%	40%	5%	5%	40%	*Araneae (1%); Odonata (5%)*
NQ-14	8/11/2009	1%	0%	15%	7%	2%	75%	---
ST9-17	8/4/2009	10%	0%	30%	4%	0%	50%	*Neuroptera (1%); Odonata (5%)*
SWP-4	8/4/2009	1%	3%	40%	1%	0%	35%	*Dermaptera (5%); Ephemeroptera (15%)*
WD062	8/27/2001	Three (3) terrestrial invertebrate samples collected. No additional information available.						
Margarette Creek/Trail Canyon Sub-Basin								
NQ-17	8/5/2009	5%	0%	40%	10%	0%	40%	*Odonata (5%)*
North Woodall Mountain Sub-Basin								
NWC-2	8/9/2009	10%	65%	5%	5%	0%	0%	*Araneae (3%); Ephemeroptera (6%); Neuroptera (3%); Opiliones (3%)*
Old Tailings Pond Sub-Basin								
NQ-08	8/10/2009	2%	1%	1%	5%	0%	90%	*Araneae (1%)*
NQ-10	8/5/2009	3%	1%	2%	4%	0%	90%	---
NQ-11	8/11/2009	3%	2%	50%	5%	5%	28%	*Araneae (2%); Odonata (5%)*
NQ-18	8/4/2009	3%	2%	5%	0%	0%	90%	---
Pedro Creek Sub-Basin								
NQ-07	8/10/2009	5%	5%	10%	20%	0%	50%	*Homoptera (10%)*
NT5-05	8/5/2009	5%	5%	20%	0%	0%	60%	*Araneae (3%); Ephemeroptera (5%); Trichoptera (2%)*
PC-3	8/6/2009	5%	5%	70%	0%	0%	10%	*Araneae (5%); Opiliones (5%)*
PC-5	8/10/2009	0%	90%	2%	8%	0%	0%	---
Shield and Jouglard Canyons Sub-Basin								
HHP-1	8/4/2009	9%	10%	25%	1%	4%	40%	*Araneae (3%); Opiliones (8%)*
NQ-12	8/5/2009	4%	1%	30%	10%	0%	55%	---
NQ-15	8/11/2009	3%	2%	50%	3%	2%	40%	---
NQ-16	8/5/2009	8%	0%	11%	11%	0%	60%	*Odonata (10%)*
ST10-04	8/7/2009	0%	2%	30%	3%	5%	50%	*Araneae (5%); Ephemeroptera (5%)*
Southwest Conda Sub-Basin								
ST11-02	8/7/2009	10%	3%	10%	5%	0%	70%	*Araneae (1%); Neuroptera (1%)*
State Land Creek Sub-Basin								
NQ-06	8/11/2009	6%	3%	20%	8%	35%	25%	*Araneae (2%); Ephemeroptera (1%)*
NT2-04	8/10/2009	3%	2%	15%	40%	0%	40%	---
NT8-03	8/9/2009	0%	2%	2%	35%	8%	45%	*Opiliones (8%)*
SLC-2	8/10/2009	0%	20%	30%	8%	10%	30%	*Araneae (1%); Trichoptera (1%)*
SLC-3	8/6/2009	0%	2%	50%	3%	1%	40%	*Araneae (3%); Trichoptera (1%)*
Offsite								
ST076	9/8/2001	Three (3) terrestrial invertebrate samples collected. No additional information available.						

Notes:

Table presents information for samples collected from 2001 onward of "A" data use level only.

Table 4-21
Summary of Detected Metals Results in Small Mammal Tissue

	Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Value >>	NA					NA					NA					NA					NA				
Station	MaterialType																									
Camp G Creek Sub-Basin																										
CGC-1	Original Ground	0.17	0.17	0.17	1	100%	1.22	1.22	1.22	1	100%	1.75	1.75	1.75	1	100%	0.38	0.38	0.38	1	100%	575	575	575	1	100%
French Drain Sub-Basin																										
NQ-13	Overburden	21.3	21.3	21.3	1	100%	0.407	0.407	0.407	1	100%	7.16	7.16	7.16	1	100%	0.69	0.69	0.69	1	100%	1600	1600	1600	1	100%
NQ-14	Overburden	36.2	36.2	36.2	1	100%	0.339	0.339	0.339	1	100%	1.7	1.7	1.7	1	100%	0.63	0.63	0.63	1	100%	522	522	522	1	100%
ST9-17	Former Mill/Townsite	4.54	4.54	4.54	1	100%	0.603	0.603	0.603	1	100%	2.21	2.21	2.21	1	100%	1	1	1	1	100%	1110	1110	1110	1	100%
SWP-4	Overburden	25.7	25.7	25.7	1	100%	0.237	0.237	0.237	1	100%	2.62	2.62	2.62	1	100%	0.62	0.62	0.62	1	100%	933	933	933	1	100%
WD062	Overburden	7.3	23.3	15	3	100%	0.107	0.4	0.227	3	100%	1.67	2.7	2.14	3	100%	0.33	0.53	0.433	3	67%	43.33	73.33	54.4	3	100%
Margarette Creek/Trail Canyon Sub-Basin																										
NQ-17	Overburden	22.4	22.4	22.4	1	100%	0.349	0.349	0.349	1	100%	3.41	3.41	3.41	1	100%	1.49	1.49	1.49	1	100%	342	342	342	1	100%
North Woodall Mountain Sub-Basin																										
NWC-2	Original Ground	1.88	1.88	1.88	1	100%	0.323	0.323	0.323	1	100%	1.96	1.96	1.96	1	100%	0.53	0.53	0.53	1	100%	741	741	741	1	100%
Old Tailings Pond Sub-Basin																										
NQ-08	Overburden	48.2	48.2	48.2	1	100%	0.498	0.498	0.498	1	100%	5.73	5.73	5.73	1	100%	1.86	1.86	1.86	1	100%	349	349	349	1	100%
NQ-10	Overburden	34.7	34.7	34.7	1	100%	0.209	0.209	0.209	1	100%	2.19	2.19	2.19	1	100%	0.77	0.77	0.77	1	100%	832	832	832	1	100%
NQ-11	Overburden	15.3	15.3	15.3	1	100%	0.467	0.467	0.467	1	100%	3.19	3.19	3.19	1	100%	1.44	1.44	1.44	1	100%	678	678	678	1	100%
NQ-18	Tailings	11.3	11.3	11.3	1	100%	0.757	0.757	0.757	1	100%	2.12	2.12	2.12	1	100%	1.8	1.8	1.8	1	100%	415	415	415	1	100%
Pedro Creek Sub-Basin																										
NQ-07	Overburden	35.1	35.1	35.1	1	100%	0.564	0.564	0.564	1	100%	2.58	2.58	2.58	1	100%	0.92	0.92	0.92	1	100%	336	336	336	1	100%
NT5-05	Overburden	13.4	13.4	13.4	1	100%	0.214	0.214	0.214	1	100%	1.86	1.86	1.86	1	100%	0.6	0.6	0.6	1	100%	563	563	563	1	100%
PC-3	Original Ground	1.2	1.2	1.2	1	100%	0.23	0.23	0.23	1	100%	2.02	2.02	2.02	1	100%	0.29	0.29	0.29	1	100%	463	463	463	1	100%
PC-5	Original Ground	3.74	3.74	3.74	1	100%	0.585	0.585	0.585	1	100%	2.81	2.81	2.81	1	100%	0.66	0.66	0.66	1	100%	1090	1090	1090	1	100%
Shield and Jouglard Canyons Sub-Basin																										
HHP-1	Original Ground	0.75	0.75	0.75	1	100%	0.241	0.241	0.241	1	100%	1.65	1.65	1.65	1	100%	0.4	0.4	0.4	1	100%	764	764	764	1	100%
NQ-12	Overburden	12.8	12.8	12.8	1	100%	0.349	0.349	0.349	1	100%	3.8	3.8	3.8	1	100%	1.15	1.15	1.15	1	100%	533	533	533	1	100%
NQ-15	Overburden	0.63	0.63	0.63	1	100%	0.471	0.471	0.471	1	100%	2.91	2.91	2.91	1	100%	1.19	1.19	1.19	1	100%	1140	1140	1140	1	100%
NQ-16	Overburden	28.7	28.7	28.7	1	100%	0.725	0.725	0.725	1	100%	4.49	4.49	4.49	1	100%	2.09	2.09	2.09	1	100%	389	389	389	1	100%
ST10-04	Overburden	55.4	55.4	55.4	1	100%	0.52	0.52	0.52	1	100%	5.2	5.2	5.2	1	100%	1.22	1.22	1.22	1	100%	405	405	405	1	100%
Southwest Conda Sub-Basin																										
ST11-02	Original Ground	0.32	0.32	0.32	1	100%	0.183	0.183	0.183	1	100%	1.58	1.58	1.58	1	100%	0.93	0.93	0.93	1	100%	570	570	570	1	100%
State Land Creek Sub-Basin																										
NQ-06	Overburden	3	3	3	1	100%	0.338	0.338	0.338	1	100%	3.45	3.45	3.45	1	100%	0.94	0.94	0.94	1	100%	597	597	597	1	100%
NT2-04	Overburden	20.5	20.5	20.5	1	100%	0.185	0.185	0.185	1	100%	2.67	2.67	2.67	1	100%	0.79	0.79	0.79	1	100%	640	640	640	1	100%
NT8-03	Original Ground	0.6	0.6	0.6	1	100%	0.446	0.446	0.446	1	100%	2.63	2.63	2.63	1	100%	0.88	0.88	0.88	1	100%	798	798	798	1	100%
SLC-2	Original Ground	2.5	2.5	2.5	1	100%	0.149	0.149	0.149	1	100%	1.95	1.95	1.95	1	100%	0.38	0.38	0.38	1	100%	832	832	832	1	100%
SLC-3	Original Ground	6.5	6.5	6.5	1	100%	1.28	1.28	1.28	1	100%	1.56	1.56	1.56	1	100%	0.42	0.42	0.42	1	100%	554	554	554	1	100%
Offsite-Trail Creek																										
ST076	Offsite	0.9	1.43	1.17	2	100%	0.015	0.026	0.0205	2	100%	2.5	2.633	2.57	2	100%				2	0%	36.7	46.7	41.7	2	100%

Table 4-21
Summary of Detected Metals Results in Small Mammal Tissue

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Results for WD062 and ST076 were reported in wet-weight basis; results on this table are presented as dry weight after conversion using 30% solids (based on average of percent solids from other small mammal tissue samples).

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

Table 4-22
Small Mammal Sample Composition and Trapping Observations

Location	Date	Sample Composition	Total Deer Mouse Captures		Total Harvest Mouse Captures		Total Meadow Vole Captures		Total Chipmunk Captures		Total Erimine Captures		Other Captures	
			Number	Average Weight	Number	Average Weight	Number	Average Weight	Number	Average Weight	Number	Average Weight	Number	Average Weight
Camp G Creek Sub-Basin														
CGC-1	8/16/2009	1 Meadow Vole 1 Shrew					1	15.9					1 Shrew	4
French Drain Sub-Basin														
NQ-13	8/11/2009	3 Deer Mice 1 Ermine	3	17.7							1	30+		
NQ-14	8/13/2009	4 Deer Mice	4	14.5										
ST9-17	8/11/2009	2 Deer Mice 2 Meadow Voles	2	20.5			5	21.3						
SWP-4	8/12/2009	3 Deer Mice 1 Chipmunk	3	18.3					1	30+	1	30+		
WD062	8/22/2001	Three (3) small mammal samples collected. No additional information available.												
Margarette Creek/Trail Canyon Sub-Basin														
PET 6	9/15-9/19/2015	3 Deer Mice 8 Voles	3	15			3	17.6					5 Long-Tailed Voles	26.6
NQ-17	8/14/2009	5 Deer Mice	8	19.2										
North Woodall Mountain Sub-Basin														
NWC-2	8/15/2009	2 Deer Mice 2 Red-backed Voles	2	17									2 Red-backed Voles	16
Old Tailings Pond Sub-Basin														
NQ-08	8/13/2009	1 Deer Mouse 4 Harvest Mice	5	17.6	5	13								
NQ-10	8/11/2009	5 Deer Mice	10	18.7										
NQ-11	8/12/2009	5 Deer Mice	5	NR										
NQ-18	8/13/2009	1 Deer Mouse 1 Meadow Vole	1	23.5			1	21						
West Pit	9/17-9/18/2015	3 Deer Mice	3	18.8										
Pedro Creek Sub-Basin														
FSPS-MT	9/19-9/20/2015	3 Deer Mice	3	18.3										
NQ-07	8/13/2009	5 Deer Mice	9	18.1	2	12.5								
NT5-05*	8/13/2009	2 Deer Mice 1 Chipmunk	2	17					1	30+			2 Bushy Tailed Woodrat	NR
NTCRA-MT	9/16/2015	3 Deer Mice	3	24.6										
PC-3	8/14/2009	2 Deer Mice 1 Ermine	2	17							1	30+		
PC-5	8/15/2009	4 Deer Mice	4	19										
PET-4	9/19/2015	4 Deer Mice	4	17.1										

Table 4-22
Small Mammal Sample Composition and Trapping Observations

Location	Date	Sample Composition	Total Deer Mouse Captures		Total Harvest Mouse Captures		Total Meadow Vole Captures		Total Chipmunk Captures		Total Erimine Captures		Other Captures	
			Number	Average Weight	Number	Average Weight	Number	Average Weight	Number	Average Weight	Number	Average Weight	Number	Average Weight
Western Woodall Mountain Sub-Basin														
PET-2	9/16 and 9/19/2015	3 Deer Mice	3	15.6										
Shield and Jouglard Canyons Sub-Basin														
HHP-1	8/11/2009	2 Deer Mice 2 Prairie Voles	2	17.3									2 Sage-brush Voles	22
NQ-12	8/13/2009	4 Deer Mice	4	18.5										
NQ-15	8/12/2009	2 Deer Mice 2 Meadow Voles	2	13.8			2	29						
NQ-16	8/12/2009	2 Deer Mice 1 Chipmunk	2	16.5					1	30+				
PET-5	9/19/2015	3 Deer Mice	3	19.2										
ST10-04	8/12/2009	5 Deer Mice	9	14.6										
Southwest Conda Sub-Basin														
ST11-02	8/12/2009	4 Deer Mice 1 Harvest Mouse	4	13.3	1	12								
State Land Creek Sub-Basin														
NQ-06	8/13/2009	3 Deer Mice	3	16										
NT2-04	8/13/2009	5 Deer Mice	6	15										
NT8-03	8/14/2009	2 Deer Mice 1 Meadow Vole 2 Chipmunk	3	17.3	1	13	1	26	2	30+				
PET-1	9/17 and 9/19/2015	3 Deer Mice 2 Voles	3	15.2			1	21					1 Long-Tailed Vole	29
PET-3	9/16-9/19/2015	3 Deer Mice 3 Voles	3	18.7			2	13.5					1 Long-Tailed Vole	16
SLC-2	8/14/2009	1 Deer Mouse 1 Meadow Vole	1	16			1	24						
SLC-3	8/14/2009	1 Deer Mouse	1	16										
Offsite														
ST076	9/5/2001	Three (2) small mammal samples collected. No additional information available.												

Notes:

Table presents information for samples collected from 2001 onward of "A" data use level only.

All weight measurements presented in grams.

NR = Not recorded.

* = Sample collected on angle-of-repose pile prior to NTCRA regrading and Dinwoody cover placement.

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Selenium, Dissolved					Selenium, Total					Cadmium, Dissolved					Cadmium, Total					Chromium, Dissolved					Chromium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17					Acute Eco:0.0013, Chronic Eco: 0.0006, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.005					Acute Eco:0.57, Chronic Eco: 0.074, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.1				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																														
Camp G Creek Sub-Basin																																	
CGC-0	RV	CGC-Crk	Original Ground	0.0006	0.004	0.00233	7	100%	0.00066	0.0042	0.00252	7	100%				2	0%	4.3E-05	4.3E-05	4.3E-05	2	50%				2	0%				2	0%
CGC-1	RV	CGC-Crk	Original Ground	0.00026	0.0026	0.00121	9	56%	0.0003	0.0016	0.00086	9	78%				9	0%	0.00007	0.00009	0.00008	4	50%	0.0003	0.0003	0.0003	9	11%	0.0012	0.0042	0.0027	4	50%
CGC-2	RV	CGC-Crk	Original Ground				6	0%	0.00049	0.00049	0.00049	6	17%				6	0%						0.0001	0.0002	0.00017	6	50%					
CGC-2A	RV	CGC-Crk	Original Ground	0.0072	0.0072	0.0072	1	100%	0.0072	0.0072	0.0072	1	100%				1	0%									1	0%					
CGC-3	RV	CGC-Crk	Original Ground	0.0092	0.027	0.0163	5	100%	0.01	0.026	0.0166	5	100%	0.0001	0.0001	0.0001	1	100%						0.0005	0.0005	0.0005	1	100%					
CGC-3A	RV	CGC-Crk	Original Ground	0.00053	0.0177	0.00866	9	100%	0.00032	0.018	0.00886	9	100%	3.5E-05	3.5E-05	3.5E-05	5	20%	0.00006	0.00007	6.5E-05	3	67%	0.0011	0.0011	0.0011	5	20%				3	0%
CGC-4	RV	CGC-Crk	Original Ground	0.004	0.004	0.004	1	100%	0.003	0.003	0.003	1	100%				1	0%						0.0006	0.0006	0.0006	1	100%					
CGC-4A	RV	CGC-Crk	Original Ground	0.002	0.0346	0.0197	14	100%	0.002	0.0438	0.0212	14	100%				8	0%	0.0019	0.0019	0.0019	4	25%	0.0011	0.0011	0.0011	8	13%	0.0082	0.0082	0.0082	4	25%
CGC-5	RV	CGC-Crk	Original Ground	0.00029	0.00041	0.00036	5	60%	0.00028	0.00048	0.00036	5	80%				5	0%	0.00007	0.00007	0.00007	2	50%	0.0006	0.0006	0.0006	5	20%	0.0025	0.0025	0.0025	2	50%
CGCT1-1	RV	CGC-Crk	Original Ground				3	0%	0.002	0.002	0.002	3	33%				3	0%						0.0003	0.0003	0.0003	3	33%					
CGC-UPTC	RV	CGC-Crk	Original Ground	0.0028	0.0028	0.0028	1	100%	0.0028	0.0028	0.0028	1	100%																				
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	0.00041	0.0007	0.00052	3	100%	0.00039	0.0005	0.00045	4	100%				3	0%	0.00009	0.00009	0.00009	3	33%	0.0014	0.0014	0.0014	3	33%				3	0%
JRLD	SP (Spring)	CGC-Spg	Original Ground	0.00048	0.00089	0.0006	6	100%	0.00045	0.00068	0.00056	6	100%				2	0%	0.00002	0.00002	0.00002	2	50%				2	0%				2	0%
JS-1	SP (Spring)	CGC-Spg	Original Ground	0.00024	0.00054	0.00035	11	82%	0.00024	0.00085	0.00045	11	91%	4.6E-05	4.6E-05	4.6E-05	6	17%	0.00014	0.00015	0.00014	4	50%	0.0014	0.0014	0.0014	6	17%	0.0021	0.0021	0.0021	4	25%
French Drain Sub-Basin																																	
FD-1	FD	FD-CrkSpgPd	Overburden	0.0092	0.479	0.169	15	100%	0.009	0.504	0.176	16	100%	0.00002	0.00019	0.00008	12	25%	0.00029	0.00029	0.00029	6	17%	0.0006	0.0079	0.00425	12	17%	0.001	0.0021	0.00143	6	50%
SWP-4	PD	FD-CrkSpgPd	Overburden	0.0068	0.508	0.197	9	100%	0.0253	0.568	0.21	9	100%	0.00006	0.0003	0.00018	5	40%	0.00017	0.0061	0.00314	3	67%	0.002	0.002	0.002	5	20%	0.0024	0.0036	0.003	3	67%
SWP-4A	PD	FD-CrkSpgPd	Overburden	0.0728	0.182	0.127	2	100%	0.0594	0.174	0.117	2	100%				2	0%									2	0%					
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	0.297	0.832	0.505	8	100%	0.304	0.868	0.526	8	100%	0.003	0.0046	0.0038	4	100%	0.00366	0.0118	0.00795	3	100%	0.0009	0.0019	0.00125	4	75%	0.0033	0.0107	0.007	3	67%
TP-1	TP	FD-NTP	Tailings	0.00061	0.0034	0.00237	10	90%	0.00073	0.01	0.00353	10	100%	4.4E-05	0.0002	8.8E-05	10	60%	0.00011	0.00064	0.00026	6	67%	0.0003	0.00047	0.00039	10	20%	0.0014	0.0023	0.0019	6	50%
Margarette Creek/Trail Canyon Sub-Basin																																	
TCC-2	PD	MCTC-PD	Original Ground	0.00023	0.00053	0.00035	6	67%	0.00023	0.00072	0.00042	6	83%				6	0%				3	0%	0.0004	0.0004	0.0004	6	17%	0.0013	0.014	0.00587	3	100%
North Woodall Mountain Sub-Basin																																	
NWC-1	RV	WM-CrkSpgP	Original Ground	0.00024	0.00024	0.00024	1	100%	0.00021	0.00021	0.00021	1	100%				1	0%				1	0%				1	0%				1	0%
NWC-2	RV	WM-CrkSpgP	Original Ground	0.00024	0.00043	0.00031	4	75%	0.00021	0.0005	0.00036	4	50%				4	0%				4	0%	0.0011	0.0011	0.0011	4	25%				4	0%
SW03-L	PD	WM-CrkSpgP	Original Ground	0.00028	0.00066	0.00047	19	11%	0.00031	0.002	0.00103	19	21%				19	0%						0.00171	0.004	0.0029	19	16%					
SW05-SP	SP (Spring)	WM-CrkSpgP	Original Ground	0.00025	0.0031	0.0011	19	21%	0.0004	0.0031	0.00122	19	26%				19	0%						0.00098	0.003	0.00243	19	26%					
SW06-W	SP (Spring)	WM-CrkSpgP	Original Ground	0.00034	0.00068	0.00051	18	17%	0.00025	0.001	0.00055	18	22%				18	0%						0.00025	0.003	0.00148	18	28%					
SW07-SP	SP (Spring)	WM-CrkSpgP	Original Ground	0.001	0.0048	0.0029	19	100%	0.001	0.0048	0.00273	19	100%				19	0%						0.00026	0.023	0.00678	19	37%					
WS-1	SP (Spring)	WM-CrkSpgP	Original Ground	0.00053	0.0032	0.00196	8	88%	0.0015	0.004	0.00224	8	88%	4.3E-05	4.3E-05	4.3E-05	6	17%				3	0%	0.0007	0.0012	0.00103	6	50%				3	0%
WS-2	SP (Spring)	WM-CrkSpgP	Original Ground	0.00093	0.002	0.00159	6	100%	0.0011	0.0028	0.00178	6	100%	6.1E-05	6.1E-05	6.1E-05	4	25%	0.00007	0.00029	0.00018	4	50%	0.0014	0.0014	0.0014	4	50%	0.001	0.0015	0.00125	4	50%
WS-3	SP (Spring)	WM-CrkSpgP	Original Ground				2	0%				2	0%																				
Old Tailings Pond Sub-Basin																																	
NBorrowSedBasin	PD	OTP-pool	Original Ground	0.00091	0.00091	0.00091	2	50%	0.0018	0.0028	0.0023	3	100%	0.00024	0.0012	0.00072	2	100%	0.0021	0.0046	0.00335	2	100%	0.0274	0.0274	0.0274	2	50%	0.0642	0.0907	0.0775	2	100%
NEP-7	PD	OTP-pool	rburden (now cove	0.0512	0.0512	0.0512	1	100%	0.0509	0.0509	0.0509	1	100%																				
TP-2	TP	OTP-TP	Tailings	0.24	0.298	0.269	2	100%	0.23	0.329	0.28	2	100%	0.0008	0.0012	0.001	2	100%	0.0046	0.0046	0.0046	1	100%	0.0007	0.0011	0.0009	2	100%	0.0036	0.0036	0.0036	1	100%
TP-2A	TP	OTP-TP	Tailings	0.0717	0.136	0.103	3	100%	0.109	0.26	0.161	3	100%	0.00055	0.0048	0.0021	3	100%						0.00034	0.0021	0.00145	3	100%					
TP-2B	TP	OTP-TP	Tailings	0.0367	0.0367	0.0367	1	100%	0.0426	0.0426	0.0426	1	100%				1	0%				1	0%				1	0%	0.0011	0.0011	0.0011	1	100%
TP-2C	TP	OTP-TP	Tailings	0.0317	0.0317	0.0317	1	100%	0.0318	0.0318	0.0318	1	100%	0.0015	0.0015	0.0015	1	100%	0.002	0.002	0.002	1	100%				1	0%	0.0023	0.0023	0.0023	1	100%
TP-2D	TP	OTP-TP	Tailings	0.574	0.574	0.574	1	100%	0.634	0.634	0.634	1	100%				1	0%				1	0%				1	0%	0.0014	0.0014	0.0014	1	100%
Pedro Creek Sub-Basin																																	
ESedBasinC	PD	PC-PDPOOL	Original Ground	0.972	1.66	1.32	2	100%	0.114	3.079	1.15	7	100%	0.00075	0.00075	0.00075	2	50%	0.00014	0.001	0.00057	2	100%	0.002	0.002	0.002	2	50%	0.0043	0.0111	0.0077	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	2.84	2.84	2.84	1	100%	2.84	2.84	2.84	1	100%	0.00018	0.00018	0.00018	1	100%	0.0012	0.0012	0.0012	1	100%	0.003	0.003	0.003	1	100%	0.0627	0.0627	0.0627	1	100%
ESedBasinS	PD	PC-PDPOOL	Original Ground	0.931	0.931	0.931	1	100%	0.929	0.929	0.929	1	100%	0.00085	0.00085	0.00085	1	100%	0.0011	0.0011	0.0011	1	100%	0.0018	0.0018	0.0018	1	100%	0.008	0.008	0.008	1	100%
ESedBasinToe	SP (Seep)	C-CrkSpgSee	Original ground	1.06	2.21	1.64	2	100%	1.13	2.29	1.71	2	100%	0.00052	0.0011	0.00081	2	100%	0.00059	0.002	0.0013	2	100%				2	0%	0.0017	0.0424	0.0221	2	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	0.0576	0.583	0.344	6	100%	0.029	0.673	0.349	16	100%	0.00019	0.0014	0.00073	5	80%	0.00038	0.0021	0.00146	5	100%	0.002	0.0096	0.0058	5	40%	0.0052	0.0435	0.0233	5	100%
FSPSSeep	SP (Seep)	C-CrkSpgSee	Overburden	0.85	1.39	1.11	3	100%	0.854	1.52	1.27	7	100%	0.0017	0.0018	0.0018	2	100%	0.0017	0.0019	0.0018	2	100%				2	0%				2	0%
FSPSSeepPond	PD (Seep pond	C-CrkSpgSee	Overburden	0.91	1.31	1.13	3	100%	0.924	1.31	1.18	3	100%	0.00041	0.0019	0.00127	3	100%	0.00076	0.0021	0.00149	3	100%	0.0025	0.0025	0.0025	3	33%	0.0022	0.009	0.00537	3	100%
NED-1	PD	PC-PDPOOL	rburden (now cove	3.34	3.34	3.34	1	100%	3.36	3.36	3.36	1	100%																				
NEP-1	PD	PC-PDPOOL	Original Ground						0.0077	0.0082	0.0079	3	100%				3	0%						0.0022	0.0022	0.0022	3	33%					
NEP-4a	PD	PC-PDPOOL	rburden (now cove	0.0248	0.234	0.118	4	100%	0.0203	0.359	0.146	4	100%	0.00072	0.0017	0.00117	3	100%				1	0%	0.0047	0.0091	0.00647	3	100%	0.0066	0.0066	0.0066	1	100%

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Vanadium, Dissolved					Vanadium, Total					Zinc, Dissolved					Zinc, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.079, Chronic Eco: 0.027, HH: NA					Acute Eco:0.12, Chronic Eco: 0.12, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 7.4				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
Camp G Creek Sub-Basin																							
CGC-0	RV	CGC-Crk	Original Ground	0.00083	0.00083	0.00083	2	50%	0.00055	0.0011	0.00083	2	100%				2	0%	0.0054	0.0054	0.0054	2	50%
CGC-1	RV	CGC-Crk	Original Ground				9	0%	0.00047	0.0044	0.00212	4	75%	0.0019	0.0019	0.0019	9	11%	0.0038	0.0112	0.0075	4	50%
CGC-2	RV	CGC-Crk	Original Ground	0.00037	0.00037	0.00037	6	17%						0.01	0.01	0.01	6	33%					
CGC-2A	RV	CGC-Crk	Original Ground				1	0%									1	0%					
CGC-3	RV	CGC-Crk	Original Ground				1	0%						0.01	0.01	0.01	1	100%					
CGC-3A	RV	CGC-Crk	Original Ground	0.00042	0.00063	0.00055	5	60%	0.00075	0.0018	0.00115	3	100%	0.0055	0.0055	0.0055	5	20%				3	0%
CGC-4	RV	CGC-Crk	Original Ground				1	0%									1	0%					
CGC-4A	RV	CGC-Crk	Original Ground	0.00028	0.0015	0.00082	8	50%	0.00053	0.0143	0.00408	4	100%				8	0%	0.0383	0.0383	0.0383	4	25%
CGC-5	RV	CGC-Crk	Original Ground	0.00029	0.00029	0.00029	5	20%	0.00049	0.0023	0.0014	2	100%				5	0%	0.0051	0.0051	0.0051	2	50%
CGCT1-1	RV	CGC-Crk	Original Ground				3	0%						0.0027	0.0027	0.0027	3	33%					
CGC-UPTC	RV	CGC-Crk	Original Ground																				
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	0.00053	0.00053	0.00053	3	33%	0.00082	0.00096	0.00089	3	67%				3	0%				3	0%
JRLD	SP (Spring)	CGC-Spg	Original Ground				2	0%				2	0%	0.052	0.0942	0.0731	2	100%	0.05	0.0995	0.0748	2	100%
JS-1	SP (Spring)	CGC-Spg	Original Ground	0.0002	0.0002	0.0002	6	17%	0.00075	0.0046	0.00268	4	50%				6	0%	0.0143	0.0143	0.0143	4	25%
French Drain Sub-Basin																							
FD-1	FD	FD-CrkSpgPd	Overburden	0.00079	0.0074	0.0029	12	100%	0.0016	0.0039	0.00276	6	83%	0.0076	0.0525	0.0268	12	92%	0.006	0.0571	0.026	6	100%
SWP-4	PD	FD-CrkSpgPd	Overburden	0.005	0.0123	0.00703	5	80%	0.0028	0.0066	0.00523	3	100%	0.0014	0.02	0.0093	5	100%	0.0064	0.0216	0.014	3	67%
SWP-4A	PD	FD-CrkSpgPd	Overburden	0.003	0.0067	0.00485	2	100%						0.0058	0.0213	0.0136	2	100%					
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	0.0095	0.0111	0.0101	4	100%	0.0104	0.016	0.0128	3	100%	*0.283*	*0.328*	*0.304*	4	100%	0.287	0.389	0.326	3	100%
TP-1	TP	FD-NTP	Tailings	0.014	0.0431	0.0253	10	100%	0.015	0.0363	0.0245	6	100%	0.002	0.03	0.00808	10	50%	0.0038	0.0067	0.0054	6	67%
Margarette Creek/Trail Canyon Sub-Basin																							
TCC-2	PD	MCTC-PD	Original Ground	0.00049	0.0026	0.00131	6	67%	0.0012	0.0126	0.00597	3	100%	0.0025	0.0025	0.0025	6	17%	0.0083	0.0462	0.0273	3	67%
North Woodall Mountain Sub-Basin																							
NWC-1	RV	WM-CrkSpgP	Original Ground	0.0012	0.0012	0.0012	1	100%	0.0015	0.0015	0.0015	1	100%				1	0%				1	0%
NWC-2	RV	WM-CrkSpgP	Original Ground	0.0019	0.0033	0.0024	4	75%	0.002	0.0035	0.00265	4	100%				4	0%				4	0%
SW03-L	PD	WM-CrkSpgP	Original Ground				11	0%						0.0029	0.11	0.0607	19	21%					
SW05-SP	SP (Spring)	WM-CrkSpgP	Original Ground	0.001	0.001	0.001	11	9%						0.0083	0.09	0.0596	19	21%					
SW06-W	SP (Spring)	WM-CrkSpgP	Original Ground	0.001	0.001	0.001	11	9%						0.0028	0.11	0.0532	18	22%					
SW07-SP	SP (Spring)	WM-CrkSpgP	Original Ground				11	0%						0.0024	*0.24*	*0.136*	19	21%					
WS-1	SP (Spring)	WM-CrkSpgP	Original Ground	0.0006	0.0011	0.00081	6	50%	0.0006	0.00071	0.00066	3	100%	0.0014	0.02	0.0107	6	33%	0.0078	0.0078	0.0078	3	33%
WS-2	SP (Spring)	WM-CrkSpgP	Original Ground				4	0%	0.00064	0.0016	0.00097	4	100%				4	0%	0.01	0.01	0.01	4	25%
WS-3	SP (Spring)	WM-CrkSpgP	Original Ground																				
Old Tailings Pond Sub-Basin																							
NBorrowSedBasin	PD	OTP-pool	Original Ground	0.0088	0.0395	0.0242	2	100%	0.052	*0.129*	*0.0905*	2	100%	0.0062	0.0398	0.023	2	100%	0.107	0.165	0.136	2	100%
NEP-7	PD	OTP-pool	rburden (now cove																				
TP-2	TP	OTP-TP	Tailings	0.0416	0.064	0.0528	2	100%	0.048	0.048	0.048	1	100%	0.0055	0.03	0.0178	2	100%	0.038	0.038	0.038	1	100%
TP-2A	TP	OTP-TP	Tailings	0.0276	0.209	0.0897	3	100%						0.0052	0.0174	0.0113	3	67%					
TP-2B	TP	OTP-TP	Tailings	0.0356	0.0356	0.0356	1	100%	0.038	0.038	0.038	1	100%	0.0134	0.0134	0.0134	1	100%	0.022	0.022	0.022	1	100%
TP-2C	TP	OTP-TP	Tailings	0.0352	0.0352	0.0352	1	100%	0.0378	0.0378	0.0378	1	100%	0.0021	0.0021	0.0021	1	100%	0.007	0.007	0.007	1	100%
TP-2D	TP	OTP-TP	Tailings	0.0143	0.0143	0.0143	1	100%	0.0143	0.0143	0.0143	1	100%	0.0137	0.0137	0.0137	1	100%	0.0134	0.0134	0.0134	1	100%
Pedro Creek Sub-Basin																							
ESedBasinC	PD	PC-PDPOOL	Original Ground	0.0043	0.0049	0.0046	2	100%	0.0068	0.0122	0.0095	2	100%	0.0036	0.0096	0.0066	2	100%	0.0093	0.0297	0.0195	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	0.0045	0.0045	0.0045	1	100%	0.0657	0.0657	0.0657	1	100%	0.0094	0.0094	0.0094	1	100%	0.18	0.18	0.18	1	100%
ESedBasinS	PD	PC-PDPOOL	Original Ground	0.0058	0.0058	0.0058	1	100%	0.0085	0.0085	0.0085	1	100%	0.0109	0.0109	0.0109	1	100%	0.0223	0.0223	0.0223	1	100%
ESedBasinToe	SP (Seep)	C-CrkSpgSee	Original ground	0.0024	0.0024	0.0024	2	50%	0.0024	0.0274	0.0149	2	100%	0.014	0.0303	0.0222	2	100%	0.0192	0.128	0.0736	2	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	0.0061	0.02	0.0097	5	100%	0.0085	0.0361	0.0196	5	100%	0.0042	0.0595	0.0278	5	80%	0.0161	0.101	0.0689	5	100%
FSPSSeep	SP (Seep)	C-CrkSpgSee	Overburden	0.0047	0.0074	0.00605	2	100%	0.0043	0.0081	0.0062	2	100%	0.0393	0.0423	0.0408	2	100%	0.0395	0.0417	0.0406	2	100%
FSPSSeepPond	PD (Seep pond	C-CrkSpgSee	Overburden	0.0089	0.015	0.0115	3	100%	0.0095	0.019	0.0141	3	100%	0.0201	0.0347	0.0274	3	67%	0.017	0.0389	0.0267	3	100%
NED-1	PD	PC-PDPOOL	rburden (now cove																				
NEP-1	PD	PC-PDPOOL	Original Ground	0.0028	0.003	0.00293	3	100%									3	0%					
NEP-4a	PD	PC-PDPOOL	rburden (now cove	0.0212	0.0453	0.0335	3	100%	0.0222	0.0222	0.0222	1	100%	0.0066	0.02	0.0125	3	100%	0.0323	0.0323	0.0323	1	100%

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Selenium, Dissolved					Selenium, Total					Cadmium, Dissolved					Cadmium, Total					Chromium, Dissolved					Chromium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17					Acute Eco:0.0013, Chronic Eco: 0.0006, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.005					Acute Eco:0.57, Chronic Eco: 0.074, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.1				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																															
NES-5	SP (Seep)	C-CrkSpgSee	Overburden	0.28	8.96	4.1	21	100%	***0.535***	***8.95***	***4.05***	29	100%	0.001	*0.022*	*0.0097*	16	100%	**0.006**	**0.021**	**0.0133**	9	100%	0.0021	0.015	0.00656	16	100%	0.0028	0.0136	0.00553	9	89%
NES-7	SP (Seep)	C-CrkSpgSee	Overburden						***2.03***	***3.35***	***2.69***	2	100%																					
NES-8	SP (Seep)	C-CrkSpgSee	Overburden						***9.83***	***9.83***	***9.83***	1	100%						0.00022	0.00022	0.00022	1	100%						0.003	0.003	0.003	1	100%
NESedBasinC	PD	PC-PDPOOL	Original Ground	0.0399	5.7	2.41	4	100%	*0.0455*	***5.87***	***1.84***	8	100%	0.00023	0.00082	0.00047	4	75%	0.00097	0.0021	0.00139	4	100%	0.0021	0.0021	0.0021	4	25%	0.0023	0.0643	0.0236	4	75%
NESedBasinN	PD	PC-PDPOOL	Original Ground	0.306	4.41	2.14	4	100%	*0.0456*	***4.44***	***1.92***	9	100%	0.0002	*0.0017*	0.00099	4	100%	0.0011	0.0036	0.0019	4	100%	0.0024	0.0024	0.0024	4	25%	0.0018	0.0444	0.0165	4	75%
NESedBasinS	PD	PC-PDPOOL	Original Ground	0.49	3.51	1.89	3	100%	*0.123*	***4.04***	***1.07***	7	100%	7.2E-05	0.0012	0.00074	3	100%	0.00028	0.0015	0.00096	3	100%				3	0%	0.0044	0.0055	0.00487	3	100%
NESeep5Pond	PD (Seep pond	C-CrkSpgSee	Overburden	5.05	8.51	7.13	4	100%	***2.72***	***8.574***	***6.15***	10	100%	*0.0014*	*0.018*	*0.0102*	4	100%	0.0038	**0.019**	**0.0117**	4	100%	0.002	0.004	0.0028	4	100%	0.0021	0.0044	0.00315	4	100%
NESeep7Pond	PD (Seep pond	C-CrkSpgSee	Overburden	6.54	7.42	6.98	2	100%	***6.57***	***7.43***	***7***	2	100%	*0.0031*	*0.0062*	*0.0047*	2	100%	0.0031	**0.0062**	0.00465	2	100%	0.0039	0.0039	0.0039	2	50%	0.003	0.0063	0.00465	2	100%
NRC-1	PP	C-CrkSpgSee	rburden (now cove	0.0233	0.0233	0.0233	1	100%	*0.0274*	*0.0484*	*0.0379*	2	100%																					
PC-1	RV	C-CrkSpgSee	Original Ground	0.0036	0.128	0.0257	13	100%	0.0037	*0.138*	*0.0277*	13	100%	0.00004	0.00004	0.00004	5	20%	0.00007	0.00007	0.00007	3	33%	0.0002	0.00096	0.00058	5	40%	0.0011	0.0017	0.0014	3	67%
PC-1UP	RV	C-CrkSpgSee	Original Ground	0.0013	0.0013	0.0013	1	100%	0.0022	0.0022	0.0022	1	100%																					
PC-2	RV	C-CrkSpgSee	Original Ground	0.00046	0.346	0.0319	21	90%	0.0017	***0.365***	*0.0331*	21	95%	3.7E-05	0.00033	0.00012	11	36%	5.4E-05	0.0003	0.00016	6	50%	0.0002	0.0002	0.0002	11	9%	0.0058	0.0058	0.0058	6	17%
PC-2B	RV	C-CrkSpgSee	Original Ground						0.0015	0.0015	0.0015	1	100%																					
PC-2C	RV	C-CrkSpgSee	Original Ground						0.0011	0.0011	0.0011	1	100%																					
PC-3	RV	C-CrkSpgSee	Original Ground	0.54	0.97	0.757	4	100%	***0.55***	***0.951***	***0.758***	4	100%	*0.0018*	*0.0018*	*0.0018*	1	100%						0.0004	0.0004	0.0004	1	100%					
PC-3A	RV	C-CrkSpgSee	Original Ground	0.424	0.535	0.48	2	100%	0.0076	***0.56***	***0.326***	3	100%	0.00054	0.00066	0.0006	2	100%	0.00075	0.00075	0.00075	1	100%				2	0%				1	0%
PC-4	RV	C-CrkSpgSee	Original Ground	0.684	3.5	2.15	11	100%	***0.71***	***3.5***	***2.23***	11	100%	0.00095	*0.0035*	*0.0023*	7	100%	0.00093	0.0026	0.00161	3	100%	0.0004	0.0014	0.0009	7	29%				3	0%
PC-5	RV	C-CrkSpgSee	Original Ground	1.15	3.71	2.19	12	100%	***1.13***	***4.08***	***2.37***	13	100%	0.00098	*0.0021*	*0.0015*	5	100%	0.00077	0.0021	0.00172	4	100%				5	0%				4	0%
PC-6	RV	C-CrkSpgSee	Original Ground	3.2	3.2	3.2	1	100%	***2.13***	***3.33***	***2.73***	2	100%	*0.0035*	*0.0035*	*0.0035*	1	100%	0.0035	0.0035	0.0035	1	100%				1	0%	0.0027	0.0027	0.0027	1	100%
PC-9	RV	C-CrkSpgSee	Original ground	1.74	1.74	1.74	1	100%	***1.88***	***1.88***	***1.88***	1	100%	*0.0021*	*0.0021*	*0.0021*	1	100%	0.0022	0.0022	0.0022	1	100%				1	0%				1	0%
PCP-2	PD	PC-PDPOOL	Original Ground	0.0052	0.281	0.089	15	100%	0.0066	***0.284***	*0.0815*	20	100%	4.8E-05	4.8E-05	4.8E-05	9	11%	6.3E-05	0.00017	0.00012	6	67%	0.0003	0.0003	0.0003	9	11%	0.001	0.0028	0.0019	6	33%
PCT-0	RV	C-CrkSpgSee	Original Ground	0.00032	0.00032	0.00032	1	100%	0.00053	0.00053	0.00053	1	100%																					
PCT1-1	RV	C-CrkSpgSee	Original Ground	0.00082	0.00082	0.00082	3	33%	0.00041	0.00079	0.0006	3	67%				3	0%						0.0004	0.0004	0.0004	3	33%					
PCT2-2	RV	C-CrkSpgSee	Original Ground	0.0016	0.0016	0.0016	2	50%	0.0012	0.0053	0.00325	2	100%				2	0%									2	0%					
PCT3-1	RV	C-CrkSpgSee	Original Ground	0.00066	0.00066	0.00066	3	33%	0.00025	0.00082	0.00054	3	67%				3	0%						0.0003	0.0003	0.0003	3	33%					
PCT4-0	RV	C-CrkSpgSee	Original Ground						0.0012	0.0012	0.0012	1	100%																					
PCT4-1	RV	C-CrkSpgSee	Original Ground	0.00047	0.003	0.00202	3	100%	0.001	0.004	0.0025	3	100%				3	0%						0.0006	0.0006	0.0006	3	33%					
PCT5-1	RV	C-CrkSpgSee	Original Ground	0.16	0.16	0.16	1	100%	***0.172***	***0.172***	***0.172***	1	100%	0.0001	0.0001	0.0001	1	100%						0.0002	0.0002	0.0002	1	100%					
PCT5-2	RV	C-CrkSpgSee	Original Ground	0.061	0.061	0.061	1	100%	*0.0636*	*0.0636*	*0.0636*	1	100%																					
PCT6-5	RV	C-CrkSpgSee	Original ground	0.403	0.51	0.457	2	100%	***0.419***	***0.568***	***0.494***	2	100%	0.00085	*0.0015*	0.00118	2	100%	0.0021	0.0021	0.0021	2	100%	0.0017	0.0017	0.0017	2	50%	0.0219	0.0229	0.0224	2	100%
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	0.00062	0.0021	0.00134	3	100%	0.00092	0.0171	0.00624	5	100%	9.8E-05	0.00035	0.00022	3	100%	0.00051	0.002	0.0014	3	100%	0.0017	0.0076	0.00447	3	100%	0.0134	0.0489	0.0335	3	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	0.0071	0.0215	0.0143	2	100%	0.0104	*0.0268*	0.0186	2	100%	0.00037	0.00058	0.00048	2	100%	0.0039	**0.0066**	**0.00525**	2	100%	0.0025	0.0055	0.004	2	100%	0.0837	**0.108**	0.0959	2	100%
Shield and Jouglard Canyons Sub-Basin																																		
BorrowOp	PD	SJC-pool	Original Ground						0.0024	0.0067	0.00455	2	100%																					
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	0.001	0.0024	0.0018	8	100%	0.0015	0.0023	0.00185	8	100%	7.7E-05	0.0001	8.9E-05	6	33%	0.0001	0.00011	0.0001	3	67%	0.0004	0.0014	0.00103	6	50%	0.0026	0.0026	0.0026	3	33%
HH-1	SP (Spring)	SJC-Spg	Original Ground	0.00029	0.00084	0.00052	6	67%	0.00035	0.004	0.00114	6	83%	5.8E-05	5.8E-05	5.8E-05	6	17%	6.8E-05	0.00015	0.00011	3	67%	0.0003	0.0003	0.0003	6	17%	0.0017	0.0026	0.00215	3	67%
HH-OP1	RV	SJC-PD	Original Ground	0.00058	0.00058	0.00058	1	100%	0.00069	0.00069	0.00069	1	100%																					
HHP-1	PD	SJC-PD	Original Ground	0.00031	0.00082	0.00054	14	86%	0.00033	0.0014	0.00064	15	93%	0.00027	0.0005	0.00039	10	20%	5.2E-05	0.00058	0.00031	6	67%	0.0004	0.0031	0.0013	10	30%	0.0024	0.0066	0.0044	6	50%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	0.00071	0.00098	0.00086	4	100%	0.00076	0.0012	0.00092	4	100%				4	0%	0.0002	0.0002	0.0002	3	33%				4	0%	0.0023	0.0054	0.00385	3	67%
NL4P-1	PD	SJC-PitLake	Overburden	0.0352	0.392	0.186	17	100%	*0.0386*	***0.406***	***0.19***	19	100%	0.00018	*0.0062*	*0.0021*	9	67%	0.00039	**0.0113**	0.00457	6	83%	0.00099	0.0041	0.00195	9	89%	0.0016	0.0315	0.0117	6	100%

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Vanadium, Dissolved					Vanadium, Total					Zinc, Dissolved					Zinc, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.079, Chronic Eco: 0.027, HH: NA					Acute Eco:0.12, Chronic Eco: 0.12, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 7.4				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
NES-5	SP (Seep)	C-CrkSpgSee	Overburden	0.01	0.0302	0.0186	16	100%	0.0172	0.0308	0.0219	9	100%	*0.26*	*1.78*	*0.713*	16	100%	0.423	1.76	1	9	100%
NES-7	SP (Seep)	C-CrkSpgSee	Overburden																				
NES-8	SP (Seep)	C-CrkSpgSee	Overburden									1	0%									1	0%
NESedBasinC	PD	PC-PDPOOL	Original Ground	0.0033	0.0072	0.0053	4	100%	0.0039	0.0433	0.0157	4	100%	0.0041	0.034	0.0183	4	75%	0.021	0.126	0.0541	4	100%
NESedBasinN	PD	PC-PDPOOL	Original Ground	0.005	0.01	0.00673	4	100%	0.006	0.0342	0.014	4	100%	0.0074	0.0394	0.0181	4	100%	0.0176	0.102	0.0466	4	100%
NESedBasinS	PD	PC-PDPOOL	Original Ground	0.0041	0.0066	0.00543	3	100%	0.0071	0.0105	0.00873	3	100%	0.0023	0.014	0.0068	3	100%	0.0115	0.0219	0.0161	3	100%
NESeep5Pond	PD (Seep pond	C-CrkSpgSee	Overburden	0.0198	0.0293	0.0235	4	100%	0.0179	0.0291	0.0226	4	100%	*0.635*	*1.65*	*1.18*	4	100%	0.583	1.63	1.18	4	100%
NESeep7Pond	PD (Seep pond	C-CrkSpgSee	Overburden	0.0059	0.0096	0.00775	2	100%	0.0066	0.0114	0.009	2	100%	*0.19*	*0.589*	*0.39*	2	100%	0.204	0.586	0.395	2	100%
NRC-1	PP	C-CrkSpgSee	rburden (now cove																				
PC-1	RV	C-CrkSpgSee	Original Ground	0.0016	0.0037	0.00247	5	60%	0.0026	0.0051	0.0037	3	100%				5	0%				3	0%
PC-1UP	RV	C-CrkSpgSee	Original Ground																				
PC-2	RV	C-CrkSpgSee	Original Ground	0.00048	0.0026	0.00129	11	73%	0.0012	0.0039	0.00202	6	83%	0.0021	0.0186	0.009	11	36%	0.003	0.0125	0.00563	6	67%
PC-2B	RV	C-CrkSpgSee	Original Ground																				
PC-2C	RV	C-CrkSpgSee	Original Ground																				
PC-3	RV	C-CrkSpgSee	Original Ground				1	0%						0.03	0.03	0.03	1	100%					
PC-3A	RV	C-CrkSpgSee	Original Ground	0.0025	0.0026	0.00255	2	100%	0.0035	0.0035	0.0035	1	100%	0.011	0.011	0.011	2	50%	0.0117	0.0117	0.0117	1	100%
PC-4	RV	C-CrkSpgSee	Original Ground	0.002	0.0042	0.00315	7	86%	0.0028	0.0051	0.00403	3	100%	0.014	0.04	0.0253	7	100%	0.0144	0.0258	0.021	3	100%
PC-5	RV	C-CrkSpgSee	Original Ground	0.00062	0.0044	0.00268	5	100%	0.001	0.004	0.00253	4	100%	0.0117	0.0335	0.0223	5	100%	0.016	0.0352	0.0253	4	100%
PC-6	RV	C-CrkSpgSee	Original Ground	0.0032	0.0032	0.0032	1	100%	0.0042	0.0042	0.0042	1	100%	0.033	0.033	0.033	1	100%	0.039	0.039	0.039	1	100%
PC-9	RV	C-CrkSpgSee	Original ground	0.0053	0.0053	0.0053	1	100%	0.0064	0.0064	0.0064	1	100%	0.0747	0.0747	0.0747	1	100%	0.0775	0.0775	0.0775	1	100%
PCP-2	PD	PC-PDPOOL	Original Ground	0.0015	0.0029	0.00218	9	56%	0.0011	0.0069	0.00354	6	83%	0.00041	0.0073	0.00433	9	44%	0.0035	0.0108	0.00636	6	83%
PCT-0	RV	C-CrkSpgSee	Original Ground																				
PCT1-1	RV	C-CrkSpgSee	Original Ground	0.00054	0.00054	0.00054	3	33%									3	0%					
PCT2-2	RV	C-CrkSpgSee	Original Ground	0.00072	0.0034	0.00206	2	100%						0.0083	0.0083	0.0083	2	50%					
PCT3-1	RV	C-CrkSpgSee	Original Ground	0.00053	0.00053	0.00053	3	33%						0.0024	0.01	0.0062	3	67%					
PCT4-0	RV	C-CrkSpgSee	Original Ground																				
PCT4-1	RV	C-CrkSpgSee	Original Ground	0.00028	0.00028	0.00028	3	33%									3	0%					
PCT5-1	RV	C-CrkSpgSee	Original Ground				1	0%						0.01	0.01	0.01	1	100%					
PCT5-2	RV	C-CrkSpgSee	Original Ground																				
PCT6-5	RV	C-CrkSpgSee	Original ground	0.0056	0.0062	0.0059	2	100%	0.0176	0.0184	0.018	2	100%	0.0204	0.0667	0.0436	2	100%	0.102	0.119	0.111	2	100%
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	0.0066	0.012	0.00853	3	100%	0.0151	0.0397	0.0289	3	100%	0.0043	0.022	0.0122	3	100%	0.0298	0.121	0.0859	3	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	0.0122	0.014	0.0131	2	100%	0.062	*0.123*	*0.0925*	2	100%	0.0088	0.0116	0.0102	2	100%	0.153	0.268	0.211	2	100%
Shield and Jouglard Canyons Sub-Basin																							
BorrowOp	PD	SJC-pool	Original Ground																				
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	0.00073	0.00088	0.0008	6	50%	0.00072	0.00072	0.00072	3	33%	0.0033	0.02	0.00888	6	100%	0.0066	0.0118	0.00843	3	100%
HH-1	SP (Spring)	SJC-Spg	Original Ground	0.00088	0.0016	0.00119	6	50%	0.001	0.0027	0.0017	3	100%	0.01	0.011	0.0105	6	33%	0.0034	0.0046	0.00393	3	100%
HH-OP1	RV	SJC-PD	Original Ground																				
HHP-1	PD	SJC-PD	Original Ground	0.00071	0.0046	0.0025	10	80%	0.0011	0.0095	0.00383	6	100%	0.00099	0.015	0.00562	10	40%	0.0075	0.017	0.0128	6	67%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	0.00052	0.0022	0.00137	4	100%	0.0013	0.0085	0.0049	3	67%				4	0%	0.0032	0.019	0.0111	3	67%
NL4P-1	PD	SJC-PitLake	Overburden	0.043	0.12	0.0667	9	100%	0.0418	*0.11*	0.068	6	100%	0.0029	0.0363	0.0149	9	78%	0.0056	0.0739	0.0285	6	83%

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Selenium, Dissolved					Selenium, Total					Cadmium, Dissolved					Cadmium, Total					Chromium, Dissolved					Chromium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17					Acute Eco:0.0013, Chronic Eco: 0.0006, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.005					Acute Eco:0.57, Chronic Eco: 0.074, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.1				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																														
NL4P-OP1	RV	SJC-pool	Overburden	0.196	0.196	0.196	1	100%	***0.182***	***0.182***	***0.182***	1	100%	*0.0243*	*0.0243*	*0.0243*	1	100%	**0.0246**	**0.0246**	**0.0246**	1	100%	0.0013	0.0013	0.0013	1	100%	0.0175	0.0175	0.0175	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	0.071	0.071	0.071	1	100%	*0.115*	*0.115*	*0.115*	1	100%	*0.0042*	*0.0042*	*0.0042*	1	100%	**0.0489**	**0.0489**	**0.0489**	1	100%	0.0034	0.0034	0.0034	1	100%	**1.09**	**1.09**	**1.09**	1	100%
NL4P-OP3	PD	SJC-pool	Overburden	0.0022	0.0022	0.0022	1	100%	0.0036	0.0036	0.0036	1	100%	*0.0015*	*0.0015*	*0.0015*	1	100%	**0.0082**	**0.0082**	**0.0082**	1	100%	0.0154	0.0154	0.0154	1	100%	0.0685	0.0685	0.0685	1	100%
SWP-1	PD	SJC-pool	Overburden				1	0%	0.003	0.003	0.003	1	100%	*0.0027*	*0.0027*	*0.0027*	1	100%						0.0254	0.0254	0.0254	1	100%					
SWP-2	PD	SJC-ODApond	Original Ground	0.00023	0.0097	0.00384	4	75%	0.00053	0.0096	0.00341	4	100%	0.0002	0.0002	0.0002	3	33%	0.00007	0.00007	0.00007	2	50%	0.0003	0.0003	0.0003	3	33%	0.0012	0.0012	0.0012	2	50%
SWP-3	PD	SJC-PD	Original Ground	0.0014	0.0781	0.0293	7	100%	0.0014	*0.0803*	*0.0288*	7	100%	0.00002	0.00034	0.00012	7	57%	0.00016	0.00051	0.00034	3	67%	0.0004	0.0004	0.0004	7	14%	0.0025	0.0025	0.0025	3	33%
SWS-2	SP (Spring)	SJC-Spg	Original ground	0.00055	0.0102	0.00546	9	67%	0.00024	0.0179	0.00524	10	90%				6	0%				3	0%	0.0048	0.0048	0.0048	6	17%	0.0014	0.0044	0.00307	3	100%
State Land Creek Sub-Basin																																	
AWI012-22	RV	SLC-CrkSpg	Original Ground						0.003	*0.032*	0.015	6	100%				4	0%						0.0003	0.0006	0.00043	4	100%					
NEP-6	PD	SLC-CrkSpg	Overburden	0.0108	0.23	0.12	2	100%	0.0138	***0.228***	*0.121*	2	100%	0.00035	0.00035	0.00035	1	100%						0.017	0.017	0.017	1	100%					
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	0.0427	1.28	0.397	5	100%	*0.023*	***1.34***	***0.344***	6	100%	0.00019	0.00019	0.00019	4	25%				1	0%	0.0017	0.0017	0.0017	4	25%	0.0014	0.0014	0.0014	1	100%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	0.75	1.37	0.975	3	100%	***0.77***	***1.5***	***1.03***	3	100%	0.00086	*0.0014*	0.00119	3	100%	0.001	0.001	0.001	1	100%	0.0004	0.0004	0.0004	3	33%				1	0%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	1.78	2.16	2.04	4	100%	***1.88***	***2.29***	***2.15***	4	100%	0.00007	0.0001	8.5E-05	3	67%	0.00009	0.00009	0.00009	1	100%	0.0002	0.0002	0.0002	3	33%				1	0%
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	0.0591	2.23	1.14	14	100%	*0.0567*	***2.45***	***0.992***	15	100%	*0.0033*	*0.012*	*0.0071*	9	100%	**0.0054**	**0.009**	**0.00707**	3	100%	0.0011	0.012	0.00362	9	100%	0.0031	0.0043	0.0037	3	67%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	1.82	1.82	1.82	1	100%	***2.02***	***2.02***	***2.02***	1	100%																				
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	3.44	3.44	3.44	1	100%	***2.2***	***3.94***	***3.07***	2	100%	*0.0046*	*0.0046*	*0.0046*	1	100%						0.0068	0.0068	0.0068	1	100%					
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	0.0013	0.01	0.00496	5	100%	0.0048	***0.42***	*0.0898*	6	100%	7.6E-05	*0.0061*	*0.0031*	5	40%	0.00027	0.00027	0.00027	1	100%	0.0004	0.017	0.0087	5	40%				1	0%
SLC	RV	SLC-CrkSpg	Original Ground				1	0%									1	0%									1	0%					
SLC-0	RV	SLC-CrkSpg	Original Ground	0.00049	0.0351	0.00732	13	92%	0.00057	*0.0401*	0.00745	14	100%	4.5E-05	4.6E-05	4.6E-05	6	33%	5.5E-05	0.00006	5.8E-05	5	40%	0.0013	0.0013	0.0013	6	17%	0.001	0.0013	0.00115	5	40%
SLC-1	RV	SLC-CrkSpg	Original Ground	0.0014	0.005	0.0032	4	50%	0.0014	0.003	0.00193	4	75%				4	0%				1	0%	0.0003	0.0016	0.00095	4	50%				1	0%
SLC-2	RV	SLC-CrkSpg	Original Ground	0.00047	0.0406	0.0104	12	100%	0.0013	*0.0414*	0.00774	13	100%	3.7E-05	0.00006	4.6E-05	12	25%	6.3E-05	0.00035	0.00018	7	57%	0.0005	0.0017	0.0011	12	17%	0.001	0.0066	0.00335	7	57%
SLC-3	RV	SLC-CrkSpg	Original Ground	0.136	0.325	0.255	3	100%	***0.32***	***0.39***	***0.347***	3	100%	0.0007	0.0007	0.0007	1	100%						0.0003	0.0003	0.0003	1	100%					
SLC-3A	RV	SLC-CrkSpg	Original Ground	0.171	0.171	0.171	1	100%	*0.122*	***0.194***	*0.158*	2	100%	0.00061	0.00061	0.00061	1	100%	0.00052	0.00052	0.00052	1	100%				1	0%				1	0%
SLC-3C	RV	SLC-CrkSpg	Original Ground						0.0006	0.0006	0.0006	1	100%																				
SLC-3D	RV	SLC-CrkSpg	Original Ground	0.00047	0.0905	0.0357	6	83%	0.00023	*0.1*	*0.0271*	7	100%	0.00011	0.00012	0.00012	3	67%				2	0%				3	0%	0.0021	0.0021	0.0021	2	50%
SLC-3E	RV	SLC-CrkSpg	Original Ground	0.0029	0.0491	0.0184	3	100%	0.0033	*0.0545*	0.0164	4	100%	0.00006	0.0001	0.00008	3	67%	0.00007	0.00074	0.00041	3	67%	0.0015	0.0015	0.0015	3	33%	0.0012	0.0097	0.00413	3	100%
SLC-5	RV	SLC-CrkSpg	Original Ground	0.254	0.766	0.51	2	100%	***0.263***	***0.782***	***0.436***	3	100%																				
SLC-6	RV	SLC-CrkSpg	Original Ground	0.683	1.04	0.862	2	100%	*0.146*	***1.11***	***0.652***	3	100%																				
SLCT1-0	RV	SLC-CrkSpg	Original Ground						0.00036	0.00036	0.00036	1	100%																				
SLCT1-1	RV	SLC-CrkSpg	Original Ground				1	0%				1	0%	0.0001	0.0001	0.0001	1	100%						0.0006	0.0006	0.0006	1	100%					
SLCT2-0	RV	SLC-CrkSpg	Original Ground	0.0028	0.079	0.0237	11	100%	0.0027	*0.0911*	*0.0226*	13	100%	0.00005	0.00005	0.00005	5	40%	0.00013	0.00029	0.00019	3	100%	0.0013	0.0013	0.0013	5	20%	0.0022	0.0048	0.0035	3	67%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	0.00032	0.07	0.0238	3	100%	0.0011	*0.071*	*0.0254*	3	100%	0.0004	0.0004	0.0004	3	33%						0.0003	0.0003	0.0003	3	33%					
SLCT2-2	RV	SLC-CrkSpg	Original Ground						0.0113	0.0113	0.0113	1	100%																				
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	0.002	0.002	0.002	1	100%	0.0023	0.0023	0.0023	1	100%				1	0%				1	0%				1	0%	0.0017	0.0017	0.0017	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground	0.592	0.592	0.592	1	100%	***0.58***	***0.58***	***0.58***	1	100%																				
SLCT3-0	RV	SLC-CrkSpg	Original Ground	0.00037	0.00093	0.0006	4	75%	0.00061	0.0011	0.00086	4	100%	0.00005	0.00006	5.5E-05	2	100%				1	0%				2	0%				1	0%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	0.00024	0.008	0.00321	3	100%	0.00073	0.0013	0.00102	3	67%				3	0%						0.0005	0.0005	0.0005	3	33%					
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	0.0019	0.0031	0.0025	2	100%	0.0029	0.0036	0.00325	2	100%	4.8E-05	4.8E-05	4.8E-05	2	50%	0.00011	0.00011	0.00011	2	50%				2	0%	0.0016	0.0016	0.0016	2	50%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	0.0011	0.0011	0.0011	1	100%	0.0016	0.0016	0.0016	1	100%	0.00006	0.00006	0.00006	1	100%	0.00015	0.00015	0.00015	1	100%				1	0%	0.0032	0.0032	0.0032	1	100%
SLP-1	PD	SLC-PD	Original Ground	0.0121	0.0293	0.0207	2	100%	0.0123	*0.0285*	*0.0204*	2	100%	0.00009	0.00009	0.00009	2	50%	0.00017	0.00017	0.00017	1	100%				2	0%	0.0012	0.0012	0.0012	1	100%
SLP-2	PD	SLC-PD	Original Ground	0.0006	0.0006	0.0006	2	50%	0.0007	***0.202***	*0.101*	2	100%	0.00009	0.00016	0.00013	2	100%	0.00015	0.00015	0.00015	1	100%	0.00047	0.00047	0.00047	2	50%	0.0014	0.0014	0.0014	1	100%
SLP-3	PD	SLC-PD	Original Ground	0.00037	0.00083	0.0006	2	100%	0.0011	0.0012	0.00115	2	100%	0.00005	0.00005	0.00005	2	50%				1	0%	0.00034	0.00034	0.00034	2	50%	0.0024	0.0024	0.0024	1	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	0.0005	0.002	0.00131	19	47%	0.00066	0.002	0.00147	19	58%				19	0%						0.00064	0.002	0.00137	19	32%					
SW08-ST	RV	SLC-CrkSpg	Original Ground	0.002	0.074	0.0219	18	100%	0.00221	*0.083*	*0.0217*	18	100%	0.0001	0.00013	0.00011	18	22%						0.0004	0.002	0.00125	18	28%					
SW09-ST	RV	SLC-CrkSpg	Original Ground	0.00067	0.035	0.0142	19	53%	0.00059	*0.038*	0.0121	19	63%				19	0%						0.0004	0.003	0.00156	19	26%					
SW13-ST	RV	SLC-CrkSpg	Original Ground	0.00082	0.1	0.0504	13	15%	0.00031	*0.101*	*0.034*	13	23%	7.6E-05	0.0003	0.00016	13	23%						0.00036	0.003	0.00136	13	23%					
SW14-ST	RV	SLC-CrkSpg	Original Ground	0.201	0.965	0.602	3	100%	***0.193***	***0.983***	***0.619***	3	100%	0.0007	*0.0015*	0.00107	3	100%									3	0%					
SW15-ST	RV	SLC-CrkSpg	Original Ground	0.00061	0.00061	0.00061	3	33%	0.00061	0.00061	0.00061	3	33%	0.0002	0.0002	0.0002	3	33%						0.00094	0.005	0.00251	3	100%					
Western Woodall Mountain Sub-Basin																																	
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	0.001	0.004	0.00264	19	89%	0.001	0.004	0.00257	19	89%				19	0%						0.00042	0.014	0.00416	19	42%					

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Vanadium, Dissolved					Vanadium, Total					Zinc, Dissolved					Zinc, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.079, Chronic Eco: 0.027, HH: NA					Acute Eco:0.12, Chronic Eco: 0.12, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 7.4				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
NL4P-OP1	RV	SJC-pool	Overburden	0.0391	0.0391	0.0391	1	100%	0.0584	0.0584	0.0584	1	100%	*1.07*	*1.07*	*1.07*	1	100%	1.14	1.14	1.14	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	0.09	0.09	0.09	1	100%	*1.22*	*1.22*	*1.22*	1	100%	0.0386	0.0386	0.0386	1	100%	1.24	1.24	1.24	1	100%
NL4P-OP3	PD	SJC-pool	Overburden	0.0872	0.0872	0.0872	1	100%	*0.158*	*0.158*	*0.158*	1	100%	0.015	0.015	0.015	1	100%	0.178	0.178	0.178	1	100%
SWP-1	PD	SJC-pool	Overburden	0.108	0.108	0.108	1	100%						0.06	0.06	0.06	1	100%					
SWP-2	PD	SJC-ODApond	Original Ground	0.0019	0.0019	0.0019	3	33%	0.0027	0.0027	0.0027	2	50%	0.0032	0.0032	0.0032	3	33%				2	0%
SWP-3	PD	SJC-PD	Original Ground	0.0012	0.008	0.0036	7	100%	0.0029	0.0056	0.00397	3	100%	0.0034	0.0747	0.0244	7	57%	0.0029	0.0766	0.028	3	100%
SWS-2	SP (Spring)	SJC-Spg	Original ground	0.00055	0.0019	0.00115	6	83%	0.00056	0.0058	0.00295	3	100%	0.0033	0.009	0.00615	6	33%	0.0052	0.0275	0.0145	3	100%
State Land Creek Sub-Basin																							
AWI012-22	RV	SLC-CrkSpg	Original Ground	0.0014	0.003	0.00237	4	100%						0.01	0.01	0.01	4	75%					
NEP-6	PD	SLC-CrkSpg	Overburden	0.0128	0.0128	0.0128	1	100%						0.0107	0.0107	0.0107	1	100%					
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	0.00051	0.001	0.00076	4	50%				1	0%	0.0038	0.02	0.0136	4	75%	0.0046	0.0046	0.0046	1	100%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	0.0019	0.0037	0.0028	3	67%	0.0042	0.0042	0.0042	1	100%	0.0257	0.0416	0.0324	3	100%	0.0241	0.0241	0.0241	1	100%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	0.00086	0.00086	0.00086	3	33%	0.00051	0.00051	0.00051	1	100%				3	0%				1	0%
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	0.0027	0.0074	0.00533	9	89%	0.0053	0.007	0.00603	3	100%	*0.14*	*0.593*	*0.359*	9	100%	0.259	0.495	0.361	3	100%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden																				
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	0.021	0.021	0.021	1	100%						*0.56*	*0.56*	*0.56*	1	100%					
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	0.00095	0.0096	0.00389	5	80%	0.0065	0.0065	0.0065	1	100%	0.0033	*0.35*	*0.177*	5	40%	0.0098	0.0098	0.0098	1	100%
SLC	RV	SLC-CrkSpg	Original Ground	0.001	0.001	0.001	1	100%						0.01	0.01	0.01	1	100%					
SLC-0	RV	SLC-CrkSpg	Original Ground	0.00056	0.0021	0.00139	6	83%	0.0013	0.0026	0.0021	5	100%	0.0061	0.0061	0.0061	6	17%	0.0064	0.0064	0.0064	5	20%
SLC-1	RV	SLC-CrkSpg	Original Ground	0.00045	0.00098	0.00072	4	50%				1	0%	0.0013	0.01	0.00447	4	75%				1	0%
SLC-2	RV	SLC-CrkSpg	Original Ground	0.00065	0.0039	0.00218	12	67%	0.0011	0.0054	0.00346	7	100%	0.0028	0.014	0.0084	12	17%	0.002	0.068	0.0207	7	71%
SLC-3	RV	SLC-CrkSpg	Original Ground				1	0%						0.01	0.01	0.01	1	100%					
SLC-3A	RV	SLC-CrkSpg	Original Ground	0.0012	0.0012	0.0012	1	100%	0.0014	0.0014	0.0014	1	100%				1	0%				1	0%
SLC-3C	RV	SLC-CrkSpg	Original Ground																				
SLC-3D	RV	SLC-CrkSpg	Original Ground	0.00091	0.0021	0.00151	3	67%	0.0025	0.0037	0.0031	2	100%				3	0%	0.0025	0.0025	0.0025	2	50%
SLC-3E	RV	SLC-CrkSpg	Original Ground	0.0019	0.0024	0.0021	3	100%	0.0029	0.0079	0.0054	3	67%				3	0%	0.002	0.0223	0.0104	3	100%
SLC-5	RV	SLC-CrkSpg	Original Ground																				
SLC-6	RV	SLC-CrkSpg	Original Ground																				
SLCT1-0	RV	SLC-CrkSpg	Original Ground																				
SLCT1-1	RV	SLC-CrkSpg	Original Ground				1	0%						0.01	0.01	0.01	1	100%					
SLCT2-0	RV	SLC-CrkSpg	Original Ground	0.0013	0.0024	0.00198	5	80%	0.0016	0.0042	0.00323	3	100%				5	0%	0.0036	0.0081	0.0052	3	100%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	0.00059	0.0012	0.0009	3	67%						0.00092	0.01	0.00546	3	67%					
SLCT2-2	RV	SLC-CrkSpg	Original Ground																				
SLCT2-2B	RV	SLC-CrkSpg	Original Ground				1	0%	0.0045	0.0045	0.0045	1	100%				1	0%	0.006	0.006	0.006	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground																				
SLCT3-0	RV	SLC-CrkSpg	Original Ground	0.0021	0.0025	0.0023	2	100%	0.0031	0.0031	0.0031	1	100%				2	0%				1	0%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	0.001	0.0017	0.00135	3	67%									3	0%					
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	0.00074	0.00088	0.00081	2	100%	0.001	0.0019	0.00145	2	100%				2	0%	0.003	0.003	0.003	2	50%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	0.0014	0.0014	0.0014	1	100%	0.0032	0.0032	0.0032	1	100%				1	0%	0.008	0.008	0.008	1	100%
SLP-1	PD	SLC-PD	Original Ground	0.0014	0.0018	0.0016	2	100%	0.0021	0.0021	0.0021	1	100%	0.0062	0.0087	0.00745	2	100%	0.0092	0.0092	0.0092	1	100%
SLP-2	PD	SLC-PD	Original Ground	0.0023	0.0023	0.0023	2	100%	0.0038	0.0038	0.0038	1	100%	0.0058	0.0058	0.0058	2	50%	0.0036	0.0036	0.0036	1	100%
SLP-3	PD	SLC-PD	Original Ground	0.0083	0.0098	0.00905	2	100%	0.0113	0.0113	0.0113	1	100%				2	0%	0.0053	0.0053	0.0053	1	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	0.001	0.001	0.001	11	9%						0.0039	0.07	0.0396	19	26%					
SW08-ST	RV	SLC-CrkSpg	Original Ground	0.0018	0.0018	0.0018	11	9%						0.0051	0.12	0.0588	18	22%					
SW09-ST	RV	SLC-CrkSpg	Original Ground	0.0008	0.0008	0.0008	11	9%						0.0036	0.1	0.0609	19	21%					
SW13-ST	RV	SLC-CrkSpg	Original Ground	0.0013	0.0013	0.0013	7	14%						0.0032	0.11	0.0566	13	15%					
SW14-ST	RV	SLC-CrkSpg	Original Ground				1	0%						0.0056	0.0056	0.0056	3	33%					
SW15-ST	RV	SLC-CrkSpg	Original Ground				2	0%									3	0%					
Western Woodall Mountain Sub-Basin																							
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	0.0007	0.0007	0.0007	11	9%						0.0026	*0.26*	*0.135*	19	26%					

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Selenium, Dissolved					Selenium, Total					Cadmium, Dissolved					Cadmium, Total					Chromium, Dissolved					Chromium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17					Acute Eco:0.0013, Chronic Eco: 0.0006, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.005					Acute Eco:0.57, Chronic Eco: 0.074, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 0.1				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																														
WM-OP1	PD	WW-pool	Overburden	0.065	0.065	0.065	1	100%	*0.0758*	*0.0758*	*0.0758*	1	100%	0.0004	0.0004	0.0004	1	100%	0.00056	0.00056	0.00056	1	100%	0.0077	0.0077	0.0077	1	100%	0.0147	0.0147	0.0147	1	100%
WS-4	SP (Spring)	WW-SpgPd	Original Ground	0.0012	0.0028	0.002	6	100%	0.0012	0.0033	0.00213	6	100%				4	0%	0.00031	0.00031	0.00031	4	25%	0.0013	0.0013	0.0013	4	25%	0.002	0.0028	0.0024	4	50%
WS-5	SP (Spring)	WW-SpgPd	Original Ground	0.00027	0.00038	0.00031	6	67%	0.00027	0.00057	0.00038	6	67%	7.5E-05	7.5E-05	7.5E-05	4	25%	0.00008	0.00008	0.00008	4	25%	0.0011	0.0011	0.0011	4	25%	0.0022	0.0022	0.0022	4	25%
Offsite-Blackfoot River																																	
AWI012-03	RV	Offsite-BFR	Offsite						0.002	0.006	0.0045	6	100%	0.0002	0.0002	0.0002	6	17%						0.0002	0.0004	0.0003	6	83%					
AWI012-04	RV	Offsite-BFR	Offsite						0.002	0.006	0.00475	4	100%				4	0%						0.0003	0.0004	0.00037	4	75%					
AWI012-06	RV	Offsite-BFR	Offsite						0.002	0.006	0.00475	4	100%				4	0%						0.0002	0.0004	0.0003	4	75%					
BFR-1	RV	Offsite-BFR	Offsite	0.0015	0.0085	0.00331	13	100%	0.0015	0.0085	0.00325	13	100%	4.3E-05	4.3E-05	4.3E-05	5	20%				5	0%	0.0014	0.0014	0.0014	5	20%				5	0%
BFR-2	RV	Offsite-BFR	Offsite	0.0015	0.009	0.00328	13	100%	0.0015	0.0089	0.00352	13	100%				5	0%	6.8E-05	6.8E-05	6.8E-05	5	20%				5	0%	0.0012	0.002	0.0016	5	40%
BFR-3	RV	Offsite-BFR	Offsite	0.0015	0.0079	0.0034	15	100%	0.0015	0.008	0.0034	15	100%				5	0%	0.00011	0.00011	0.00011	5	20%				5	0%	0.0017	0.003	0.00235	5	40%
BFR-4	RV	Offsite-BFR	Offsite	0.0015	0.0084	0.00351	15	100%	0.0016	0.0084	0.00359	15	100%				5	0%				5	0%	0.0009	0.0009	0.0009	5	20%	0.0012	0.0014	0.0013	5	40%
BFR-DS	RV	Offsite-BFR	Offsite	0.0047	0.0047	0.0047	1	100%	0.0049	0.0049	0.0049	1	100%																				
BFR-US	RV	Offsite-BFR	Offsite	0.005	0.005	0.005	1	100%	0.0048	0.0048	0.0048	1	100%																				
BGS	RV	Offsite-BFR	Offsite				1	0%									1	0%									1	0%					
MST020	RV	Offsite-BFR	Offsite						0.0015	0.005	0.00338	6	67%				6	0%									2	0%					
MST231	RV	Offsite-BFR	Offsite														1	0%															
ST019	RV	Offsite-BFR	Offsite						0.0017	0.006	0.0031	14	50%				14	0%						0.00053	0.00053	0.00053	2	50%					
ST021	RV	Offsite-BFR	Offsite						0.0023	0.005	0.00365	4	50%				4	0%															
ST022	RV	Offsite-BFR	Offsite						0.0015	0.005	0.00338	6	67%				6	0%									2	0%					
ST230	RV	Offsite-BFR	Offsite						0.0027	0.0027	0.0027	2	50%				1	0%															
ST232	RV	Offsite-BFR	Offsite						0.0013	0.004	0.00224	3	100%				3	0%						0.00064	0.00064	0.00064	2	50%					
SW10-ST	RV	Offsite-BFR	Offsite	0.001	0.007	0.0028	19	79%	0.001	0.008	0.00304	19	84%				19	0%						0.0003	0.004	0.00188	19	21%					
SW11-ST	RV	Offsite-BFR	Offsite	0.001	0.007	0.00253	19	79%	0.001	0.008	0.00272	19	79%				19	0%						0.00075	0.003	0.00176	19	26%					
SW19-SP	SP (Spring)	OffN-Spg	Offsite				6	0%				6	0%				6	0%						0.00062	0.0102	0.00407	6	50%					
SW20-SP	SP (Spring)	OffN-Spg	Offsite				4	0%				6	0%	0.00042	0.00042	0.00042	6	17%						0.0007	0.00531	0.00301	6	33%					
SW21-SP	SP (Spring)	OffN-Spg	Offsite	0.001	0.0079	0.00445	5	40%	0.0079	0.0079	0.0079	5	20%	0.00034	0.00043	0.00039	5	80%						0.0009	0.00732	0.00291	5	80%					
Offsite-Blackfoot River vicinity																																	
SW01-W	SP (Spring)	OffN-Spg	Offsite	0.0007	0.001	0.00093	19	47%	0.00062	0.003	0.00153	19	47%	0.00029	0.00029	0.00029	19	5%						0.0011	0.5	0.127	19	21%					
SW16-SP	SP (Spring)	OffN-Spg	Offsite	0.00033	0.0005	0.00042	12	17%	0.00038	0.00039	0.00039	12	17%				12	0%						0.00048	0.0018	0.00104	12	42%					
SW17-W	PD	OffN-Spg	Offsite				6	0%				6	0%				6	0%						0.0006	0.00194	0.00127	6	33%					
SW18-SP	SP (Spring)	OffN-Spg	Offsite	0.00077	0.0822	0.0415	6	33%	0.00077	0.00077	0.00077	6	17%				6	0%						0.00051	0.00458	0.0017	6	67%					
Offsite-Trail Creek																																	
AWI012-31	RV	Offsite-TC	Offsite									2	0%				2	0%						0.0002	0.0005	0.00035	2	100%					
TC-1	RV	Offsite-TC	Offsite	0.00021	0.00035	0.00027	16	56%	0.00023	0.00039	0.00028	16	75%				6	0%				6	0%				6	0%	0.001	0.001	0.001	6	17%
TC-2	RV	Offsite-TC	Offsite	0.00022	0.0026	0.00083	15	93%	0.00023	0.0026	0.00101	15	93%	0.00008	0.00008	0.00008	5	20%	7.6E-05	7.6E-05	7.6E-05	5	20%	0.00094	0.00094	0.00094	5	20%				5	0%
TC-3	RV	Offsite-TC	Offsite	0.00024	0.001	0.00057	15	100%	0.00024	0.0011	0.00067	15	93%				5	0%				5	0%	0.0012	0.0012	0.0012	5	20%	0.0011	0.0011	0.0011	5	20%
TC-4	RV	Offsite-TC	Offsite	0.00035	0.0271	0.00292	15	100%	0.00029	*0.0262*	0.00312	15	93%				5	0%	8.6E-05	8.6E-05	8.6E-05	5	20%	0.0012	0.0012	0.0012	5	20%	0.0012	0.0014	0.0013	5	40%
TC-5	RV	Offsite-TC	Offsite									1	0%									1	0%						0.00067	0.00067	0.00067	1	100%
TRATT003	RV	Offsite-TC	Offsite				3	0%				3	0%				3	0%				3	0%	0.001	0.001	0.001	3	33%				3	0%

Table 4-23
Summary of Detected Metals Results in Surface Water

			Analyte >>	Vanadium, Dissolved					Vanadium, Total					Zinc, Dissolved					Zinc, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L	mg/L			mg/L	mg/L
			Comparison Value >>	NA					Acute Eco:0.079, Chronic Eco: 0.027, HH: NA					Acute Eco:0.12, Chronic Eco: 0.12, HH: NA					Acute Eco:NA, Chronic Eco: NA, HH: 7.4				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
WM-OP1	PD	WW-pool	Overburden	0.0273	0.0273	0.0273	1	100%	0.0311	0.0311	0.0311	1	100%				1	0%	0.0167	0.0167	0.0167	1	100%
WS-4	SP (Spring)	WW-SpgPd	Original Ground				4	0%	0.00077	0.0029	0.00156	4	75%	0.0029	0.0029	0.0029	4	25%	0.005	0.019	0.012	4	50%
WS-5	SP (Spring)	WW-SpgPd	Original Ground	0.00047	0.00047	0.00047	4	25%	0.00059	0.0015	0.0011	4	75%				4	0%	0.0046	0.0062	0.0054	4	50%
Offsite-Blackfoot River																							
AWI012-03	RV	Offsite-BFR	Offsite	0.0003	0.0012	0.00062	6	100%						0.01	0.01	0.01	6	17%					
AWI012-04	RV	Offsite-BFR	Offsite	0.0002	0.0013	0.00073	4	100%						0.01	0.01	0.01	4	25%					
AWI012-06	RV	Offsite-BFR	Offsite	0.0003	0.0011	0.00068	4	100%						0.01	0.02	0.015	4	50%					
BFR-1	RV	Offsite-BFR	Offsite	0.00062	0.0016	0.00094	5	100%	0.0011	0.0026	0.00164	5	100%				5	0%	0.002	0.012	0.00495	5	80%
BFR-2	RV	Offsite-BFR	Offsite	0.00064	0.0014	0.00089	5	100%	0.001	0.003	0.0017	5	100%	0.006	0.006	0.006	5	20%	0.0035	0.0066	0.0046	5	80%
BFR-3	RV	Offsite-BFR	Offsite	0.00048	0.00094	0.00076	5	100%	0.00079	0.0033	0.00172	5	100%	0.0054	0.0054	0.0054	5	20%	0.0053	0.0072	0.00625	5	40%
BFR-4	RV	Offsite-BFR	Offsite	0.00059	0.00095	0.00082	5	80%	0.00084	0.002	0.00149	5	80%	0.0057	0.0057	0.0057	5	20%	0.0053	0.0084	0.00685	5	40%
BFR-DS	RV	Offsite-BFR	Offsite																				
BFR-US	RV	Offsite-BFR	Offsite																				
BGS	RV	Offsite-BFR	Offsite	0.002	0.002	0.002	1	100%						0.006	0.006	0.006	1	100%					
MST020	RV	Offsite-BFR	Offsite	0.00092	0.0013	0.00111	6	33%						0.005	0.0062	0.0056	6	33%					
MST231	RV	Offsite-BFR	Offsite	0.001	0.001	0.001	1	100%									1	0%					
ST019	RV	Offsite-BFR	Offsite	0.0005	0.0012	0.0009	14	71%						0.0054	0.007	0.0062	14	14%					
ST021	RV	Offsite-BFR	Offsite	0.00095	0.007	0.00398	4	50%									4	0%					
ST022	RV	Offsite-BFR	Offsite	0.00087	0.0015	0.00119	6	33%						0.002	0.004	0.003	6	33%					
ST230	RV	Offsite-BFR	Offsite	0.00097	0.00097	0.00097	2	50%									2	0%					
ST232	RV	Offsite-BFR	Offsite	0.0011	0.0017	0.0014	3	67%						0.0066	0.011	0.0088	3	67%					
SW10-ST	RV	Offsite-BFR	Offsite	0.001	0.001	0.001	11	9%						0.01	0.11	0.0567	19	16%					
SW11-ST	RV	Offsite-BFR	Offsite	0.0009	0.0009	0.0009	11	9%						0.0036	*0.17*	0.108	19	21%					
SW19-SP	SP (Spring)	OffN-Spg	Offsite				2	0%									6	0%					
SW20-SP	SP (Spring)	OffN-Spg	Offsite	0.0018	0.0018	0.0018	2	50%						0.04	0.04	0.04	6	17%					
SW21-SP	SP (Spring)	OffN-Spg	Offsite	0.0033	0.0033	0.0033	2	50%						0.0394	0.047	0.042	5	80%					
Offsite-Blackfoot River vicinity																							
SW01-W	SP (Spring)	OffN-Spg	Offsite	0.0008	0.0008	0.0008	11	9%						0.0144	0.12	0.0786	19	21%					
SW16-SP	SP (Spring)	OffN-Spg	Offsite	0.0005	0.0005	0.0005	4	25%									12	0%					
SW17-W	PD	OffN-Spg	Offsite				2	0%									6	0%					
SW18-SP	SP (Spring)	OffN-Spg	Offsite				2	0%									6	0%					
Offsite-Trail Creek																							
AWI012-31	RV	Offsite-TC	Offsite	0.0007	0.0007	0.0007	2	50%									2	0%					
TC-1	RV	Offsite-TC	Offsite				6	0%	0.0005	0.00088	0.00062	6	83%				6	0%				6	0%
TC-2	RV	Offsite-TC	Offsite				5	0%	0.0011	0.0016	0.0014	5	60%	0.0035	0.0035	0.0035	5	20%	0.0019	0.0087	0.00528	5	80%
TC-3	RV	Offsite-TC	Offsite				5	0%	0.0005	0.00093	0.00068	5	60%	0.0064	0.0064	0.0064	5	20%	0.0031	0.0057	0.0044	5	40%
TC-4	RV	Offsite-TC	Offsite				5	0%	0.00063	0.0011	0.00087	5	80%	0.0052	0.0052	0.0052	5	20%	0.0028	0.0051	0.00395	5	40%
TC-5	RV	Offsite-TC	Offsite									1	0%						0.0014	0.0014	0.0014	1	100%
TRATT003	RV	Offsite-TC	Offsite	0.00087	0.001	0.00094	3	67%	0.0013	0.0013	0.0013	3	33%	0.013	0.066	0.031	3	100%	0.01	0.01	0.01	3	33%

Table 4-23
Summary of Detected Metals Results in Surface Water

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/L = milligrams per liter

Station Type: FD = French Drain; PD = Pond; PP = Pipe; RV = River/Stream; SP = Spring/Seep; TP = Tailings Pond

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins.

More information about ecological ("Eco") and human health ("HH") surface water comparison values is provided on Table 4-3. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value.

NA = comparison value not available.

Table 4-24
Summary of Detected Radiochemistry and Isotope Results in Surface Water

		Analyte >>	Deuterium Excess					Gross Alpha					Gross Beta					Hydrogen-Deuterium Stable Isotope					O18 Stable Isotope				
		Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
		Units >>	ppt					pCi/L					pCi/L					ppt					ppt				
		Comparison Value >>	NA					HH: 15 pCi/L					HH: 50 pCi/L					NA					NA				
Station	**Station Type**	**Material Type**																									
Camp G Creek Sub-Basin																											
CS-1_CND	SP (Spring)	Original Ground	7.1	7.1	7.1	1	100%	6	6	6	3	33%				3	0%	-129.9	-129.9	-130	1	100%	-17.1	-17.1	-17.1	1	100%
JS-1	SP (Spring)	Original Ground	7.6	7.6	7.6	1	100%	4.4	4.4	4.4	3	33%	14.3	14.3	14.3	3	33%	-130.6	-130.6	-131	1	100%	-17.3	-17.3	-17.3	1	100%
French Drain Sub-Basin																											
FD-1	FD	Overburden	8.9	8.9	8.9	1	100%	13.7	**25.6**	**19.7**	5	40%				5	0%	-127.1	-127.1	-127	1	100%	-17	-17	-17	1	100%
SWS-3	SP (Seep)	Overburden	6.7	6.7	6.7	1	100%	5.6	10.8	8.67	3	100%				3	0%	-129.1	-129.1	-129	1	100%	-17	-17	-17	1	100%
TP-1	TP	Tailings	na	na	na	na	na	10.4	10.4	10.4	3	33%	7.6	7.9	7.75	3	67%	na	na	na	na	na	na	na	na	na	na
North Woodall Mountain Sub-Basin																											
WS-1	SP (Spring)	Original Ground	8.2	8.2	8.2	1	100%	7.6	7.6	7.6	3	33%				3	0%	-135.2	-135.2	-135	1	100%	-17.9	-17.9	-17.9	1	100%
WS-2	SP (Spring)	Original Ground	7.2	7.2	7.2	1	100%	5.1	**22.2**	13.7	3	67%				3	0%	-134.2	-134.2	-134	1	100%	-17.7	-17.7	-17.7	1	100%
Old Tailings Pond Sub-Basin																											
TP-2B	TP	Tailings	na	na	na	na	na	**16.1**	**16.1**	**16.1**	1	100%	8.9	8.9	8.9	1	100%	na	na	na	na	na	na	na	na	na	na
TP-2C	TP	Tailings	na	na	na	na	na	4.3	4.3	4.3	1	100%	4	4	4	1	100%	na	na	na	na	na	na	na	na	na	na
TP-2D	TP	Tailings	na	na	na	na	na	**23.6**	**23.6**	**23.6**	1	100%	6	6	6	1	100%	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																											
NEP-4a	PD	Overburden (now covered)	na	na	na	na	na	4.2	4.2	4.2	1	100%				1	0%	na	na	na	na	na	na	na	na	na	na
NES-5	SP (Seep)	Overburden	3.6	3.6	3.6	1	100%	**24.1**	**24.1**	**24.1**	3	33%				3	0%	-130.1	-130.1	-130	1	100%	-16.7	-16.7	-16.7	1	100%
PC-2	RV	Original Ground	na	na	na	na	na	5.2	7.2	6.2	2	100%	3.8	3.8	3.8	2	50%	na	na	na	na	na	na	na	na	na	na
PC-3A	RV	Original Ground	na	na	na	na	na	8.9	8.9	8.9	1	100%	4.2	4.2	4.2	1	100%	na	na	na	na	na	na	na	na	na	na
PC-5	RV	Original Ground	na	na	na	na	na	**17.2**	**17.2**	**17.2**	2	50%				2	0%	na	na	na	na	na	na	na	na	na	na
PCP-2	PD	Original Ground	-35.2	-35.2	-35.2	1	100%	2.1	2.1	2.1	1	100%				1	0%	-74.6	-74.6	-74.6	1	100%	-4.9	-4.9	-4.9	1	100%
Shield and Jouglard Canyons Sub-Basin																											
FM-1	SP (Spring)	Original Ground	7.8	7.8	7.8	1	100%	6.1	6.8	6.43	3	100%				3	0%	-134.5	-134.5	-135	1	100%	-17.8	-17.8	-17.8	1	100%
HH-1	SP (Spring)	Original Ground	6.9	6.9	6.9	1	100%				3	0%				3	0%	-128.9	-128.9	-129	1	100%	-17	-17	-17	1	100%
HHP-1	PD	Original Ground	4.8	4.8	4.8	1	100%				2	0%				2	0%	-125.9	-125.9	-126	1	100%	-16.3	-16.3	-16.3	1	100%
NL4P-1	PD	Overburden	-33.3	-33.3	-33.3	1	100%	2.3	12.2	6.87	3	100%	37.2	37.2	37.2	3	33%	-78.2	-78.2	-78.2	1	100%	-5.6	-5.6	-5.6	1	100%
NL4P-OP3	PD	Overburden	na	na	na	na	na	**112**	**112**	**112**	1	100%	**292**	**292**	**292**	1	100%	na	na	na	na	na	na	na	na	na	na
SWP-3	PD	Original Ground	6.1	6.1	6.1	1	100%	7.7	7.7	7.7	1	100%				1	0%	-116.2	-116.2	-116	1	100%	-15.3	-15.3	-15.3	1	100%
SWS-2	SP (Spring)	Original ground	7.6	7.6	7.6	1	100%	7	7	7	3	33%	3.8	4.6	4.2	3	67%	-128.1	-128.1	-128	1	100%	-17	-17	-17	1	100%
JCS-1	SP (Spring)	Original Ground	5.7	5.7	5.7	1	100%	2.7	4.8	3.75	3	67%	3.9	5.6	4.6	3	100%	-128.1	-128.1	-128	1	100%	-16.7	-16.7	-16.7	1	100%
State Land Creek Sub-Basin																											
NES-1	SP (Seep)	Overburden	na	na	na	na	na	4.6	4.6	4.6	1	100%				1	0%	na	na	na	na	na	na	na	na	na	na
NES-1a	SP (Seep)	Overburden	na	na	na	na	na	na	na	na	1	0%				1	0%	na	na	na	na	na	na	na	na	na	na
NES-1b	SP (Seep)	Overburden	na	na	na	na	na	**18.5**	**18.5**	**18.5**	1	100%				1	0%	na	na	na	na	na	na	na	na	na	na
NES-2	SP (Seep)	Overburden	6.3	6.3	6.3	1	100%	12.4	**18.7**	**15.4**	3	100%	10.6	10.6	10.6	3	33%	-130.4	-130.4	-130	1	100%	-17.1	-17.1	-17.1	1	100%
NES-4	SP (Seep)	Overburden	4.7	4.7	4.7	1	100%	**16.4**	**16.4**	**16.4**	1	100%				1	0%	-128.6	-128.6	-129	1	100%	-16.7	-16.7	-16.7	1	100%
SLC-2	RV	Original Ground	na	na	na	na	na				2	0%				2	0%	na	na	na	na	na	na	na	na	na	na
SLC-3A	RV	Original Ground	na	na	na	na	na				1	0%				1	0%	na	na	na	na	na	na	na	na	na	na
SLC-3D	RV	Original Ground	na	na	na	na	na	5.1	11.6	8.35	2	100%	9.8	9.8	9.8	2	50%	na	na	na	na	na	na	na	na	na	na
SLC-3E	RV	Original Ground	na	na	na	na	na	4.8	4.8	4.8	1	100%	4	4	4	1	100%	na	na	na	na	na	na	na	na	na	na
SLCT2-0	RV	Original Ground	na	na	na	na	na	3	3	3	2	50%				2	0%	na	na	na	na	na	na	na	na	na	na
SLCT2-2B	RV	Original Ground	na	na	na	na	na				1	0%				1	0%	na	na	na	na	na	na	na	na	na	na
SLCT3-4	SP (Spring)	Original Ground	6.7	6.7	6.7	1	100%	2.6	3.2	2.9	2	100%				2	0%	-134.1	-134.1	-134	1	100%	-17.6	-17.6	-17.6	1	100%
SLCT3-5	SP (Spring)	Original Ground	na	na	na	na	na				1	0%				1	0%	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																											
WM-OP1	PD	Overburden	na	na	na	na	na	8.4	8.4	8.4	1	100%				1	0%	na	na	na	na	na	na	na	na	na	na
WS-4	SP (Spring)	Original Ground	7.8	7.8	7.8	1	100%				1	0%				1	0%	-135.3	-135.3	-135	1	100%	-17.9	-17.9	-17.9	1	100%
WS-5	SP (Spring)	Original Ground	4.9	4.9	4.9	1	100%				1	0%				1	0%	-128.3	-128.3	-128	1	100%	-16.6	-16.6	-16.6	1	100%

Table 4-24
Summary of Detected Radiochemistry and Isotope Results in Surface Water

Radium 226					Radium 228					Thorium 230				
Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
pCi/L					pCi/L					pCi/L				
HH: 5 pCi/L					HH: 5 pCi/L					HH: 0.38				
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
0	0	0	1	0%	0	0	0	1	0%	0	0	0	1	0%
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
0.25	0.52	0.385	2	100%	0	0	0	2	0%	0.6	0.6	0.6	2	50%
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
0.85	0.85	0.85	1	100%	0	0	0	1	0%	0	0	0	1	0%
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-24
Summary of Detected Radiochemistry and Isotope Results in Surface Water

Uranium 234					Uranium 235					Uranium 238					Uranium Total				
Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
pCi/L					pCi/L					pCi/L					pCi/L				
HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L				
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1.3	1.3	1.3	1	100%	0	0	0	1	0%	1.1	1.1	1.1	1	100%	2.3	2.3	2.3	1	100%
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
1.3	1.3	1.3	2	100%	0.3	0.3	0.3	2	50%	0.7	0.7	0.7	2	50%	1.5	2.3	1.9	2	100%
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
0.5	0.5	0.5	1	100%	0	0	0	1	0%	0.2	0.2	0.2	1	100%	0.7	0.7	0.7	1	100%
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-24
Summary of Detected Radiochemistry and Isotope Results in Surface Water

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

pCi/L = picocuries per liter; ppt = parts per trillion

Station Type: FD = French Drain; PD = Pond; PP = Pipe; RV = River/Stream; SP = Spring/Seep; TP = Tailings Pond

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins.

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water human health comparison value.

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Calcium, Dissolved					Calcium, Total					Chloride, Dissolved					Chloride, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
Camp G Creek Sub-Basin																							
CGC-0	RV	CGC-Crk	Original Ground	66.6	70.5	68.6	2	100%	60.5	69.6	65	7	100%	na	na	na	na	na	7.38	9.3	8.32	7	100%
CGC-1	RV	CGC-Crk	Original Ground	59.3	74.7	64.8	8	100%	57.9	74.4	64.5	5	100%	na	na	na	na	na	4.74	9.03	6.43	8	100%
CGC-2	RV	CGC-Crk	Original Ground	63.1	65.8	64.5	6	100%	na	na	na	na	na	na	na	na	na	na	5	6.5	5.47	5	100%
CGC-2A	RV	CGC-Crk	Original Ground	54.3	54.3	54.3	1	100%	na	na	na	na	na	na	na	na	na	na	4.15	4.15	4.15	1	100%
CGC-3	RV	CGC-Crk	Original Ground	61.6	61.6	61.6	1	100%	49.3	64.8	58.7	4	100%	na	na	na	na	na	2.92	4.52	3.67	5	100%
CGC-3A	RV	CGC-Crk	Original Ground	53.8	57.3	55.7	5	100%	49.6	67.5	58.1	7	100%	na	na	na	na	na	2.97	5.71	4.31	8	100%
CGC-4	RV	CGC-Crk	Original Ground	66.8	66.8	66.8	1	100%	na	na	na	na	na	na	na	na	na	na	2	2	2	1	100%
CGC-4A	RV	CGC-Crk	Original Ground	55.4	72.2	63.1	7	100%	52.6	75.9	65.8	11	100%	na	na	na	na	na	2.34	3.58	2.71	13	100%
CGC-5	RV	CGC-Crk	Original Ground	58.7	66.8	63.4	5	100%	58	65.8	61.9	2	100%	na	na	na	na	na	1.92	2.4	2.15	4	100%
CGC-UPTC	RV	CGC-Crk	Original Ground	na	na	na	na	na	56.9	56.9	56.9	1	100%	na	na	na	na	na	6.59	6.59	6.59	1	100%
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	53.1	59.6	55.6	3	100%	53.5	58.1	56	3	100%	na	na	na	na	na	6.51	6.85	6.73	3	100%
CGCT1-1	RV	CGC-Crk	Original Ground	54.2	70.1	61.7	3	100%	na	na	na	na	na	na	na	na	na	na	3	3.41	3.21	2	100%
JS-1	SP (Spring)	CGC-Spg	Original Ground	64.1	68.9	66.6	6	100%	64.2	71.6	67.9	9	100%	na	na	na	na	na	4.36	4.77	4.55	10	100%
JRLD	SP (Spring)	CGC-Spg	Original Ground	84.3	93.4	88.9	2	100%	85.3	97.9	90.9	6	100%	na	na	na	na	na	3.71	4.55	3.97	6	100%
French Drain Sub-Basin																							
SWP-4A	PD	FD-CrkSpgPd	Overburden	173	205	189	2	100%	na	na	na	na	na	na	na	na	na	na	9.44	9.44	9.44	1	100%
FD-1	FD	FD-CrkSpgPd	Overburden	190	263	239	11	100%	208	256	240	11	100%	na	na	na	na	na	5.86	9.1	7.19	15	100%
SWP-4	PD	FD-CrkSpgPd	Overburden	139	175	160	5	100%	114	181	149	7	100%	na	na	na	na	na	3	9.06	4.88	8	100%
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	209	237	220	4	100%	193	246	219	7	100%	na	na	na	na	na	6.07	7.35	6.79	7	100%
TP-1	TP	FD-NTP	Tailings	116	155	137	9	100%	119	151	134	7	100%	na	na	na	na	na	37.392	54.8	45.5	9	100%
Margarette Creek/Trail Canyon Sub-Basin																							
TCC-2	PD	MCTC-PD	Original Ground	20	41.9	32.3	6	100%	28.9	43.3	36.4	3	100%	na	na	na	na	na	4.13	15.9	7.97	5	100%
North Woodall Mountain Sub-Basin																							
NWC-1	RV	NWM-CrkSpgPd	Original Ground	47.6	47.6	47.6	1	100%	46.8	46.8	46.8	1	100%	na	na	na	na	na	4.82	4.82	4.82	1	100%
NWC-2	RV	NWM-CrkSpgPd	Original Ground	47.1	59.5	54.3	4	100%	45.7	60.7	53.2	4	100%	na	na	na	na	na	4.88	6.24	5.5	4	100%
SW03-L	PD	NWM-CrkSpgPd	Original Ground	24	57	42.3	9	100%	28	56.8	41.9	10	100%	na	na	na	na	na	5	11.2	7.84	19	100%
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	38	65	55.7	9	100%	23.5	71.3	52.8	9	100%	na	na	na	na	na	3.01	9	5.5	18	94%
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	11	65	50.9	9	100%	8.5	65.2	48.5	10	100%	na	na	na	na	na	2	7.1	4.89	19	95%
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	161	214	184	9	100%	16.7	211	169	10	100%	na	na	na	na	na	2	6.06	4.01	19	95%
WS-1	SP (Spring)	WW-SpgPd	Original Ground	131	154	147	6	100%	148	163	153	5	100%	na	na	na	na	na	3	4.82	3.77	7	100%
WS-2	SP (Spring)	WW-SpgPd	Original Ground	165	188	175	4	100%	166	223	192	6	100%	na	na	na	na	na	3.82	5.22	4.41	6	83%
WS-3	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	269	275	272	2	100%	na	na	na	na	na	3.71	5.86	4.79	2	100%
Old Tailings Pond Sub-Basin																							
NEP-7	PD	OTP-pool	Overburden (now covered)	na	na	na	na	na	23.9	23.9	23.9	1	100%	na	na	na	na	na	0.49	0.49	0.49	1	100%
TP-2	TP	OTP-TP	Tailings	77.7	224	151	2	100%	80.4	80.4	80.4	1	100%	na	na	na	na	na	5.55	17	11.3	2	100%
TP-2A	TP	OTP-TP	Tailings	93.5	164	129	2	100%	128.312	128.312	128	1	100%	na	na	na	na	na	5.48	10.474	7.98	2	100%
TP-2B	TP	OTP-TP	Tailings	67.7	67.7	67.7	1	100%	68	68	68	1	100%	na	na	na	na	na	2.71	2.71	2.71	1	100%
TP-2C	TP	OTP-TP	Tailings	41	41	41	1	100%	38.9	38.9	38.9	1	100%	na	na	na	na	na	1.54	1.54	1.54	1	100%
TP-2D	TP	OTP-TP	Tailings	184	184	184	1	100%	187	187	187	1	100%	na	na	na	na	na	7.44	7.44	7.44	1	100%
NBorrowSedBasin	PD	OTP-pool	Original Ground	10.4	20.5	15.5	2	100%	15	24	19.5	2	100%	na	na	na	na	na	0.6	0.98	0.79	2	100%
Pedro Creek Sub-Basin																							
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	na	na	na	na	na	29.9	31.5	30.7	2	100%	na	na	na	na	na	0.29	0.29	0.29	2	50%
ESedBasinC	PD	PC-PDPOOL	Original Ground	123	135	129	2	100%	124	137	131	2	100%	na	na	na	na	na	6.77	10.5	8.64	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	252	252	252	1	100%	266	266	266	1	100%	na	na	na	na	na	10.5	10.5	10.5	1	100%
ESedBasinS	PD	PC-PDPOOL	Original Ground	130	130	130	1	100%	131	131	131	1	100%	na	na	na	na	na	6.57	6.57	6.57	1	100%
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	198	278	238	2	100%	194	283	239	2	100%	na	na	na	na	na	5.18	6.53	5.86	2	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	36.7	150	91.1	5	100%	37.2	155	89.3	6	100%	na	na	na	na	na	2.37	11.2	7.22	6	100%
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	176	204	190	2	100%	177	215	199	3	100%	na	na	na	na	na	14.1	24.1	19.1	3	100%
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	156	196	173	3	100%	154	199	172	3	100%	na	na	na	na	na	12.7	17.7	15	3	100%
NEP-1	PD	PC-PDPOOL	Original Ground	30	32	31	3	100%	na	na	na	na	na	na	na	na	na	na	4.9	5	4.93	3	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Calcium, Dissolved					Calcium, Total					Chloride, Dissolved					Chloride, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	22	47.9	34.4	3	100%	36.2	48.8	42.5	2	100%	na	na	na	na	na	1.84	2.06	1.97	3	100%
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	487	610	547	15	100%	429	594	515	19	100%	na	na	na	na	na	4.75	16.5	8.33	24	100%
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	567	567	567	1	100%	na	na	na	na	na	20.6	20.6	20.6	1	100%
NESedBasinC	PD	PC-PDPOOL	Original Ground	45.1	585	248	4	100%	50.6	589	250	4	100%	na	na	na	na	na	1.54	12.7	6.24	4	100%
NESedBasinN	PD	PC-PDPOOL	Original Ground	169	589	309	4	100%	171	589	311	4	100%	na	na	na	na	na	4.86	13.7	8.41	4	100%
NESedBasinS	PD	PC-PDPOOL	Original Ground	54.2	712	321	3	100%	54.4	723	324	3	100%	na	na	na	na	na	2.2	16.4	8.02	3	100%
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	522	576	551	4	100%	516	565	541	4	100%	na	na	na	na	na	11.1	14.5	12.2	4	100%
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	491	520	506	2	100%	492	553	523	2	100%	na	na	na	na	na	10.1	12	11.1	2	100%
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	8.01	19.9	13.1	3	100%	9.32	22.2	15.4	3	100%	na	na	na	na	na	0.75	1.95	1.48	3	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	13.7	31.5	22.6	2	100%	21.9	37.3	29.6	2	100%	na	na	na	na	na	1.07	3.43	2.25	2	100%
PC-1	RV	PC-CrkSpgSeeps	Original Ground	48	67.6	59.6	4	100%	49	62.6	55.7	12	100%	na	na	na	na	na	4.98	10.5	7.87	13	100%
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	48.4	48.4	48.4	1	100%	na	na	na	na	na	8.74	8.74	8.74	1	100%
PC-2	RV	PC-CrkSpgSeeps	Original Ground	55	76.3	62.2	9	100%	54.7198	71.3	61.9	17	100%	na	na	na	na	na	3.31	4.91	4.2	20	100%
PC-2B	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-2C	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-3	RV	PC-CrkSpgSeeps	Original Ground	219	219	219	1	100%	79.9	137	114	3	100%	na	na	na	na	na	2.97	3.3	3.08	4	100%
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	82.1	95.2	88.7	2	100%	92.6	92.6	92.6	1	100%	na	na	na	na	na	3.33	3.62	3.48	2	100%
PC-4	RV	PC-CrkSpgSeeps	Original Ground	241	423	326	5	100%	35.6162	428	265	8	100%	na	na	na	na	na	3.48	9.13	4.73	10	100%
PC-5	RV	PC-CrkSpgSeeps	Original Ground	244	455	374	3	100%	214	531	377	12	100%	na	na	na	na	na	3.59	16.7	6.71	12	100%
PC-6	RV	PC-CrkSpgSeeps	Original Ground	402	402	402	1	100%	215	396	306	2	100%	na	na	na	na	na	3.28	7.96	5.62	2	100%
PC-9	RV	PC-CrkSpgSeeps	Original ground	190	190	190	1	100%	191	191	191	1	100%	na	na	na	na	na	6.06	6.06	6.06	1	100%
PCP-2	PD	PC-PDPOOL	Original Ground	21	64.6	38.7	8	100%	19.8	81.7	50.4	12	100%	na	na	na	na	na	1.38	13.7	4.99	14	100%
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	10.9	10.9	10.9	1	100%	na	na	na	na	na	3.14	3.14	3.14	1	100%
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	60.6	64.4	62.8	3	100%	na	na	na	na	na	na	na	na	na	na	1.88	2	1.94	2	100%
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	65.5	78.6	72.1	2	100%	na	na	na	na	na	na	na	na	na	na	3.88	3.88	3.88	1	100%
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	11.3	61.3	43.5	3	100%	na	na	na	na	na	na	na	na	na	na	3.73	3.73	3.73	2	50%
PCT4-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	60.7	64.7	63.3	3	100%	na	na	na	na	na	na	na	na	na	na	4	4.52	4.26	2	100%
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	57.6	57.6	57.6	1	100%	na	na	na	na	na	na	na	na	na	na	3	3	3	1	100%
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	47.4	47.4	47.4	1	100%	na	na	na	na	na	3.27	3.27	3.27	1	100%
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	76.8	93.8	85.3	2	100%	78.6	91.5	85.1	2	100%	na	na	na	na	na	5.29	7.91	6.6	2	100%
NED-1	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	290	290	290	1	100%	na	na	na	na	na	4.14	4.14	4.14	1	100%
Shield and Jouglard Canyons Sub-Basin																							
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	144	161	150	6	100%	142	149	146	5	100%	na	na	na	na	na	3.47	4.29	3.87	7	100%
HH-OP1	RV	SJC-PD	Original Ground	na	na	na	na	na	70.2	70.2	70.2	1	100%	na	na	na	na	na	4.5	4.5	4.5	1	100%
HH-1	SP (Spring)	SJC-Spg	Original Ground	82.5	88.8	85	6	100%	85.1	87.5	86	3	100%	na	na	na	na	na	5.92	7.83	6.74	5	100%
HHP-1	PD	SJC-PD	Original Ground	20.5	84.7	58.3	10	100%	25.3	75.4	62.3	11	100%	na	na	na	na	na	4.28	8.36	5.51	14	100%
NL4P-1	PD	SJC-PitLake	Overburden	38.6	134	79.5	9	100%	38.7	77.3	60.6	15	100%	na	na	na	na	na	0.613	2.11	1.3	18	100%
NL4P-OP1	RV	SJC-pool	Overburden	61.3	61.3	61.3	1	100%	63.9	63.9	63.9	1	100%	na	na	na	na	na	0.594	0.594	0.594	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	16.5	16.5	16.5	1	100%	83	83	83	1	100%	na	na	na	na	na	1.4	1.4	1.4	1	100%
NL4P-OP3	PD	SJC-pool	Overburden	10.1	10.1	10.1	1	100%	12.4	12.4	12.4	1	100%	na	na	na	na	na	2.46	2.46	2.46	1	100%
SWP-1	PD	SJC-pool	Overburden	8.7	8.7	8.7	1	100%	na	na	na	na	na	na	na	na	na	na	1	1	1	1	100%
SWP-2	PD	SJC-ODApond	Original Ground	37.8	53.7	46.4	3	100%	47.1	55.2	52.1	3	100%	na	na	na	na	na	3.8	5.52	4.86	4	75%
SWP-3	PD	SJC-PD	Original Ground	72.7	349	169	6	100%	14.2683	347	163	4	100%	na	na	na	na	na	3.78	15.4	8.22	6	100%
SWS-2	SP (Spring)	SJC-Spg	Original ground	75.1	120	86.7	6	100%	71.2	195	103	7	100%	na	na	na	na	na	4.23	9	5.86	9	100%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	79	93.6	87.1	4	100%	85.9	94.3	91.3	3	100%	na	na	na	na	na	12.8	19.4	16.6	3	100%
State Land Creek Sub-Basin																							
NEP-6	PD	SLC-CrkSpg	Overburden	16.9	16.9	16.9	1	100%	60.4	60.4	60.4	1	100%	na	na	na	na	na	2.53	2.53	2.53	1	100%
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	76.4	200	127	4	100%	78.3	242	149	3	100%	na	na	na	na	na	2	4.18	3.16	5	100%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	191	204	199	3	100%	188	188	188	1	100%	na	na	na	na	na	2.76	3	2.88	2	100%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	337	400	373	3	100%	319	395	357	2	100%	na	na	na	na	na	2.25	3	2.62	3	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Calcium, Dissolved					Calcium, Total					Chloride, Dissolved					Chloride, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	389	550	454	8	100%	390	451	420	10	100%	na	na	na	na	na	3.1	6.39	4.79	14	100%
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	560	560	560	1	100%	498	498	498	1	100%	na	na	na	na	na	4.3	5.8	5.05	2	100%
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	418	484	445	5	100%	464	494	479	2	100%	na	na	na	na	na	4.55	8.28	6.34	5	100%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	391	391	391	1	100%	na	na	na	na	na	4.95	4.95	4.95	1	100%
AWI012-22	RV	SLC-CrkSpg	Original Ground	42.7	48.2	45.7	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	60	60	60	1	100%	na	na	na	na	na	12	12	12	1	100%
SLC-0	RV	SLC-CrkSpg	Original Ground	46.8	68.9	58.6	6	100%	47.5	71.6	59	12	100%	na	na	na	na	na	5.96	14.4	9.42	13	100%
SLC-1	RV	SLC-CrkSpg	Original Ground	51.5	74.6	58.6	4	100%	53.2	53.2	53.2	1	100%	na	na	na	na	na	7	19.7	11.8	3	100%
SLC-2	RV	SLC-CrkSpg	Original Ground	39.5	58	47.4	11	100%	41.0202	53	46.9	8	100%	na	na	na	na	na	4	5.29	4.8	11	100%
SLC-3	RV	SLC-CrkSpg	Original Ground	61.9	61.9	61.9	1	100%	58.1	81.1	69.6	2	100%	na	na	na	na	na	2	3.84	3.17	3	100%
SLC-3A	RV	SLC-CrkSpg	Original Ground	51.1	51.1	51.1	1	100%	47.2	47.2	47.2	1	100%	na	na	na	na	na	3.21	3.21	3.21	1	100%
SLC-3C	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-3D	RV	SLC-CrkSpg	Original Ground	32.4	45.6	41	3	100%	31.5	51.5	45.3	5	100%	na	na	na	na	na	3.27	8.45	5.18	6	100%
SLC-3E	RV	SLC-CrkSpg	Original Ground	45.6	50.9	47.6	3	100%	43.9	50.3	47.7	3	100%	na	na	na	na	na	4.49	6.22	5.07	3	100%
SLC-5	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	228	247	238	2	100%	na	na	na	na	na	2.75	3.01	2.88	2	100%
SLC-6	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	286	294	290	2	100%	na	na	na	na	na	2.82	3.54	3.18	2	100%
SW08-ST	RV	SLC-CrkSpg	Original Ground	33	52	45.3	9	100%	23.2	53.6	40.5	9	100%	na	na	na	na	na	2.85	6.1	4.58	18	94%
SW09-ST	RV	SLC-CrkSpg	Original Ground	32	68	56.2	9	100%	28.5	75.6	53.1	10	100%	na	na	na	na	na	3	13	8.58	19	100%
SLP-1	PD	SLC-PD	Original Ground	35.6	63.3	49.5	2	100%	35.4	35.4	35.4	1	100%	na	na	na	na	na	2.84	2.84	2.84	1	100%
SLP-2	PD	SLC-PD	Original Ground	6.14	9.76	7.95	2	100%	9.79	9.79	9.79	1	100%	na	na	na	na	na	2.9	2.9	2.9	1	100%
SLP-3	PD	SLC-PD	Original Ground	20.6	30.1	25.4	2	100%	20.8	20.8	20.8	1	100%	na	na	na	na	na	6.21	6.21	6.21	1	100%
SLCT1-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT1-1	RV	SLC-CrkSpg	Original Ground	30.9	30.9	30.9	1	100%	na	na	na	na	na	na	na	na	na	na	4	4	4	1	100%
SLCT2-0	RV	SLC-CrkSpg	Original Ground	29.9	47.7	41.5	4	100%	33.6	54.9	45.2	10	100%	na	na	na	na	na	3.1	5.95	4.44	11	100%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	36.9	48	42.9	3	100%	na	na	na	na	na	na	na	na	na	na	2	4.79	3.4	2	100%
SLCT2-2	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	46	46	46	1	100%	46.2	46.2	46.2	1	100%	na	na	na	na	na	4.39	4.39	4.39	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	68.9	68.9	68.9	1	100%	na	na	na	na	na	3.38	3.38	3.38	1	100%
SLCT3-0	RV	SLC-CrkSpg	Original Ground	33.3	33.3	33.3	1	100%	23	32.4	27.4	4	100%	na	na	na	na	na	3.58	5.2	4.32	4	100%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	32.1	36.2	33.5	3	100%	na	na	na	na	na	na	na	na	na	na	3	4.44	3.72	2	100%
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	37.7	38.6	38.2	2	100%	38.4	39.4	38.9	2	100%	na	na	na	na	na	3.77	4.38	4.08	2	100%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	28.6	28.6	28.6	1	100%	28.7	28.7	28.7	1	100%	na	na	na	na	na	3.4	3.4	3.4	1	100%
SW13-ST	RV	SLC-CrkSpg	Original Ground	31	55	44	5	100%	13.4	51	36.9	8	100%	na	na	na	na	na	2.52	10	6.5	13	92%
SW14-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	33	91	64.1	3	100%	na	na	na	na	na	2.23	4	2.94	3	100%
SW15-ST	RV	SLC-CrkSpg	Original Ground	11	11	11	1	100%	8.75	23.5	16.1	2	100%	na	na	na	na	na	2.57	4	3.29	3	67%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	19	40	32.4	9	100%	18.3	43.2	30.9	10	100%	na	na	na	na	na	2.68	5.48	4	19	95%
Western Woodall Mountain Sub-Basin																							
WM-OP1	PD	WW-pool	Overburden	34.6	34.6	34.6	1	100%	36.1	36.1	36.1	1	100%	na	na	na	na	na	1.11	1.11	1.11	1	100%
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	126	141	134	9	100%	125	150	138	10	100%	na	na	na	na	na	2	5.72	3.72	19	95%
WS-4	SP (Spring)	WW-SpgPd	Original Ground	128	136	133	4	100%	127	140	133	6	100%	na	na	na	na	na	3.72	4.36	4.13	6	100%
WS-5	SP (Spring)	OffW-Spg	Original Ground	101	128	115	4	100%	94.6	129	110	6	100%	na	na	na	na	na	4.35	5.1	4.68	6	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Calcium, Dissolved					Calcium, Total					Chloride, Dissolved					Chloride, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																				
Offsite-Blackfoot River																							
AWI012-03	RV	Offsite-BFR	Offsite	53.2	66.8	58.9	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-04	RV	Offsite-BFR	Offsite	52.7	59.4	55.9	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-06	RV	Offsite-BFR	Offsite	52.3	60	56	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
BFR-1	RV	Offsite-BFR	Offsite	49.3	58.4	53.3	5	100%	45.8	59.4	52.7	13	100%	na	na	na	na	na	2.05	3.27	2.72	13	100%
BFR-2	RV	Offsite-BFR	Offsite	47.3	59.1	52.4	5	100%	44.7	60.3	52.6	13	100%	na	na	na	na	na	1.85	3.4	2.73	13	100%
BFR-3	RV	Offsite-BFR	Offsite	49.1	57.8	53	5	100%	44	60	53.3	15	100%	na	na	na	na	na	1.96	3.32	2.71	15	100%
BFR-4	RV	Offsite-BFR	Offsite	46.7	57.8	53.2	5	100%	45.6	58.4	52.3	15	100%	na	na	na	na	na	1.96	3.31	2.49	15	100%
BFR-DS	RV	Offsite-BFR	Offsite	na	na	na	na	na	51.2	51.2	51.2	1	100%	na	na	na	na	na	2.67	2.67	2.67	1	100%
BFR-US	RV	Offsite-BFR	Offsite	na	na	na	na	na	50.8	50.8	50.8	1	100%	na	na	na	na	na	2.7	2.7	2.7	1	100%
BGS	RV	Offsite-BFR	Offsite	na	na	na	na	na	50	50	50	1	100%	na	na	na	na	na	3	3	3	1	100%
MST020	RV	Offsite-BFR	Offsite	42	67	52.3	6	100%	na	na	na	na	na	2.1	4.1	2.8	6	100%	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	26	79	49.6	14	100%	na	na	na	na	na	2.1	3.5	2.58	6	100%	na	na	na	na	na
ST021	RV	Offsite-BFR	Offsite	41	58	52.5	4	100%	na	na	na	na	na	2	2.5	2.35	4	100%	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	43	58	49.3	6	100%	na	na	na	na	na	1.9	2.6	2.22	5	100%	na	na	na	na	na
ST230	RV	Offsite-BFR	Offsite	58	72	65	2	100%	na	na	na	na	na	2	2.6	2.3	2	100%	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	45	57	51	2	100%	na	na	na	na	na	2.9	2.9	2.9	2	100%	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	28	60	45.2	9	100%	36	57.5	48.5	10	100%	na	na	na	na	na	2	4.5	3.23	19	95%
SW11-ST	RV	Offsite-BFR	Offsite	44	66	52	9	100%	38	102	60.9	10	100%	na	na	na	na	na	2	4	2.89	19	95%
SW19-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	141	293	238	6	100%	na	na	na	na	na	3.9	7.37	5.33	6	83%
SW20-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	122	248	178	6	100%	na	na	na	na	na	5.1	6.9	5.83	6	100%
SW21-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	149	189	172	5	100%	na	na	na	na	na	7.3	9.33	8.72	5	100%
Offsite-Blackfoot River vicinity																							
SW01-W	SP (Spring)	OffN-Spg	Offsite	55	71	62	9	100%	48.5	74.8	62.6	10	100%	na	na	na	na	na	6	14	11	19	100%
SW16-SP	SP (Spring)	OffN-Spg	Offsite	64	65	64.5	2	100%	50.2	66	58.2	10	100%	na	na	na	na	na	5.74	13	9.79	12	100%
SW17-W	PD	OffN-Spg	Offsite	na	na	na	na	na	47.6	209	132	6	100%	na	na	na	na	na	4.3	9.2	6.8	6	100%
SW18-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	140	168	155	6	100%	na	na	na	na	na	4	6.02	5.1	6	83%
Offsite-Trail Creek																							
AWI012-31	RV	Offsite-TC	Offsite	63.8	67.8	65.8	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TC-1	RV	Offsite-TC	Offsite	54.5	67.5	60.3	6	100%	48.5	65.8	58.8	16	100%	na	na	na	na	na	4.67	8.01	6.35	16	100%
TC-2	RV	Offsite-TC	Offsite	55.3	68.2	61.7	5	100%	49.7	68	60.2	15	100%	na	na	na	na	na	5.44	8.78	7.05	15	100%
TC-3	RV	Offsite-TC	Offsite	54.3	69.2	62.2	5	100%	49.3	69.4	59.9	15	100%	na	na	na	na	na	5.54	8.65	7.12	15	100%
TC-4	RV	Offsite-TC	Offsite	55.3	66.2	62.2	5	100%	48.9	69.7	59.6	15	100%	na	na	na	na	na	5.61	8.75	7.13	15	100%
TC-5	RV	Offsite-TC	Offsite	na	na	na	na	na	50.8	50.8	50.8	1	100%	na	na	na	na	na	3.41	3.41	3.41	1	100%
TRATT003	RV	Offsite-TC	Offsite	46	54	51	3	100%	45	55	51	3	100%	na	na	na	na	na	5.7	7.9	6.77	3	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Fluoride, Total					Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	0.16	0.19	0.172	7	86%	12.7	13.9	13.3	2	100%	11.6	13.6	12.7	7	100%	0.683	1.22	0.952	2	100%	0.701	1.31	1.01	2	100%
CGC-1	RV	CGC-Crk	Original Ground	0.1	0.387	0.222	6	67%	9.59	12.3	10.6	8	100%	10.1	12.3	11	5	100%	0.376	0.967	0.642	8	100%	0.424	1.14	0.88	4	100%
CGC-2	RV	CGC-Crk	Original Ground	0.1	0.2	0.167	5	60%	9.1	10.5	9.82	6	100%	na	na	na	na	na	0.6	0.817	0.742	5	100%	na	na	na	na	na
CGC-2A	RV	CGC-Crk	Original Ground	na	na	na	na	na	10.7	10.7	10.7	1	100%	na	na	na	na	na	0.566	0.566	0.566	1	100%	na	na	na	na	na
CGC-3	RV	CGC-Crk	Original Ground	0.073	0.179	0.12	5	100%	14.5	14.5	14.5	1	100%	12.2	15.4	14	4	100%	0.9	0.9	0.9	1	100%	na	na	na	na	na
CGC-3A	RV	CGC-Crk	Original Ground	0.072	0.392	0.174	8	75%	10.1	13.3	11.5	5	100%	11.3	16	13.5	7	100%	0.616	0.79	0.68	4	100%	0.626	0.83	0.738	3	100%
CGC-4	RV	CGC-Crk	Original Ground	0.1	0.1	0.1	1	100%	15.4	15.4	15.4	1	100%	na	na	na	na	na	0.7	0.7	0.7	1	100%	na	na	na	na	na
CGC-4A	RV	CGC-Crk	Original Ground	0.073	0.209	0.129	11	91%	13.4	19.7	16.4	7	100%	13.2	21.2	16.8	11	100%	0.632	1.38	0.861	7	100%	0.671	2.19	1.1	4	100%
CGC-5	RV	CGC-Crk	Original Ground	0.1	0.177	0.127	4	100%	14.5	16.8	15.6	5	100%	14.9	16.7	15.8	2	100%	0.692	0.827	0.764	4	100%	0.736	1.02	0.878	2	100%
CGC-UPTC	RV	CGC-Crk	Original Ground	0.17	0.17	0.17	1	100%	na	na	na	na	na	10.8	10.8	10.8	1	100%	na	na	na	na	na	na	na	na	na	na
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	0.162	0.428	0.251	3	100%	11.7	13	12.3	3	100%	11.9	12.7	12.4	3	100%	0.561	0.747	0.65	3	100%	0.621	0.791	0.681	3	100%
CGCT1-1	RV	CGC-Crk	Original Ground	0.1	0.108	0.104	2	100%	7.93	9.62	8.75	3	100%	na	na	na	na	na	0.4	0.575	0.488	2	100%	na	na	na	na	na
JS-1	SP (Spring)	CGC-Spg	Original Ground	0.108	0.229	0.149	10	30%	6.37	7.13	6.6	6	100%	6.48	7.38	6.96	9	100%	0.457	0.529	0.491	5	100%	0.451	0.964	0.605	4	100%
JRLD	SP (Spring)	CGC-Spg	Original Ground	0.1	0.15	0.125	6	33%	9.57	10.5	10	2	100%	9.52	11	10.2	6	100%	0.521	0.53	0.526	2	100%	0.535	0.57	0.553	2	100%
French Drain Sub-Basin																												
SWP-4A	PD	FD-CrkSpgPd	Overburden	0.422	0.422	0.422	1	100%	47	48	47.5	2	100%	na	na	na	na	na	3.5	3.5	3.5	1	100%	na	na	na	na	na
FD-1	FD	FD-CrkSpgPd	Overburden	0.13	0.629	0.392	13	92%	47.6	60.5	53	11	100%	44.7	62.4	52	11	100%	1	4.51	3.05	11	100%	2.07	4.23	3.19	6	100%
SWP-4	PD	FD-CrkSpgPd	Overburden	0.66	1.16	0.834	8	100%	60.4	76.4	69.2	5	100%	49.6	86	69.9	7	100%	2.3	5.28	3.99	4	100%	3.56	5.45	4.69	3	100%
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	0.264	0.686	0.498	7	100%	54.2	67.7	58.3	4	100%	49.3	71.8	57.4	7	100%	1.99	2.09	2.05	3	100%	2.04	2.08	2.05	3	100%
TP-1	TP	FD-NTP	Tailings	0.13	0.55	0.327	8	38%	79.1	113	91.9	9	100%	83	109	89.6	7	100%	8.29	13.4	10.9	9	100%	8.31	13.9	10.8	6	100%
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	0.214	0.798	0.458	5	100%	6.96	10.2	9.29	6	100%	6.66	11.3	9.26	3	100%	0.8	4.35	1.79	5	100%	1.07	3.16	2.13	3	100%
North Woodall Mountain Sub-Basin																												
NWC-1	RV	NWM-CrkSpgPd	Original Ground	0.135	0.135	0.135	1	100%	8.17	8.17	8.17	1	100%	8.12	8.12	8.12	1	100%	1.67	1.67	1.67	1	100%	1.65	1.65	1.65	1	100%
NWC-2	RV	NWM-CrkSpgPd	Original Ground	0.105	0.25	0.171	4	100%	9.14	12.7	10.9	4	100%	9.21	12.9	10.7	4	100%	1.78	2.42	1.96	4	100%	1.82	2.27	1.95	4	100%
SW03-L	PD	NWM-CrkSpgPd	Original Ground	0.34	0.62	0.454	19	100%	8	18	13.9	9	100%	10.5	18	14	10	100%	1	3.1	1.84	9	89%	0.75	3.75	2.51	10	100%
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	0.16	0.25	0.197	18	100%	7	14	11.3	9	100%	4.78	13.4	10.7	9	100%	1	3	1.94	9	89%	1.43	3	2.08	9	100%
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	0.11	0.25	0.186	19	100%	2	15	11.3	9	100%	2.1	13.7	10.2	10	100%	1	2	1.43	9	89%	0.872	2.7	1.62	10	100%
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	0.31	0.68	0.511	19	100%	43	50	46.2	9	100%	41.7	48.3	44.9	10	100%	1.5	2	1.8	9	67%	1.36	2	1.61	10	100%
WS-1	SP (Spring)	WW-SpgPd	Original Ground	0.303	0.496	0.387	7	100%	37.3	40.7	38.9	6	100%	38.5	44.1	40.2	5	100%	1.24	1.5	1.33	5	100%	1.19	1.21	1.2	3	100%
WS-2	SP (Spring)	WW-SpgPd	Original Ground	0.441	0.73	0.583	6	100%	43.7	46.7	45.5	4	100%	43.2	54	47.9	6	100%	1.49	2.16	1.79	4	100%	1.66	2.51	1.94	4	100%
WS-3	SP (Spring)	WW-SpgPd	Original Ground	0.83	0.88	0.855	2	100%	na	na	na	na	na	59.6	63.3	61.5	2	100%	na	na	na	na	na	na	na	na	na	na
Old Tailings Pond Sub-Basin																												
NEP-7	PD	OTP-pool	Overburden (now covered)	0.35	0.35	0.35	1	100%	na	na	na	na	na	4.2	4.2	4.2	1	100%	na	na	na	na	na	na	na	na	na	na
TP-2	TP	OTP-TP	Tailings	0.6	0.803	0.702	2	100%	21.1	65.1	43.1	2	100%	21.9	21.9	21.9	1	100%	6.54	7.9	7.22	2	100%	6.81	6.81	6.81	1	100%
TP-2A	TP	OTP-TP	Tailings	na	na	na	na	na	26.3	65.4	45.9	2	100%	45.5783	45.5783	45.6	1	100%	6.46	8.42	7.44	2	100%	na	na	na	na	na
TP-2B	TP	OTP-TP	Tailings	1.44	1.44	1.44	1	100%	8.2	8.2	8.2	1	100%	8.35	8.35	8.35	1	100%	6.5	6.5	6.5	1	100%	6.54	6.54	6.54	1	100%
TP-2C	TP	OTP-TP	Tailings	0.554	0.554	0.554	1	100%	7.89	7.89	7.89	1	100%	7.61	7.61	7.61	1	100%	6.78	6.78	6.78	1	100%	6.65	6.65	6.65	1	100%
TP-2D	TP	OTP-TP	Tailings	0.461	0.461	0.461	1	100%	43.5	43.5	43.5	1	100%	44.1	44.1	44.1	1	100%	3.79	3.79	3.79	1	100%	3.83	3.83	3.83	1	100%
NBorrowSedBasin	PD	OTP-pool	Original Ground	0.25	0.27	0.26	2	100%	1.64	2.8	2.22	2	100%	3.76	5.94	4.85	2	100%	1.74	2.07	1.91	2	100%	3.72	4.91	4.32	2	100%
Pedro Creek Sub-Basin																												
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	0.14	0.26	0.2	2	100%	na	na	na	na	na	2.64	3.07	2.86	2	100%	na	na	na	na	na	na	na	na	na	na
ESedBasinC	PD	PC-PDPOOL	Original Ground	0.79	0.81	0.8	2	100%	28.7	29.2	29	2	100%	30.5	31.6	31.1	2	100%	1.52	2.42	1.97	2	100%	1.85	2.83	2.34	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	0.8	0.8	0.8	1	100%	66.3	66.3	66.3	1	100%	80.4	80.4	80.4	1	100%	2.77	2.77	2.77	1	100%	10.4	10.4	10.4	1	100%
ESedBasinS	PD	PC-PDPOOL	Original Ground	0.75	0.75	0.75	1	100%	27.5	27.5	27.5	1	100%	28.8	28.8	28.8	1	100%	2.11	2.11	2.11	1	100%	2.33	2.33	2.33	1	100%
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	0.29	0.38	0.335	2	100%	43.1	58.7	50.9	2	100%	42.3	62.5	52.4	2	100%	1.48	2.03	1.76	2	100%	1.47	3.4	2.44	2	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	0.37	0.93	0.512	6	100%	6.54	31.9	19.7	5	100%	6.69	33.6	19.1	6	100%	2.72	4.79	3.45	5	100%	2.89	6.15	4	5	100%
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	0.12	0.43	0.317	3	100%	35.2	41.2	38.2	2	100%	35.1	44.2	40.2	3	100%	2.23	2.28	2.26	2	100%	2.12	2.4	2.26	2	100%
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	0.38	0.56	0.47	3	100%	34.7	40.7	36.8	3	100%	34.2	41.5	36.7	3	100%	2.5	2.76	2.61	3	100%	2.75	2.88	2.81	3	100%
NEP-1	PD	PC-PDPOOL	Original Ground	0.22	0.23	0.223	3	100%	8.4	8.6	8.47	3	100%	na	na	na	na	na	1.8	1.9	1.87	3	100%	na	na	na	na	na

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Fluoride, Total					Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	0.276	0.681	0.419	3	100%	10.2	12.4	11.2	3	100%	7.22	12.6	9.91	2	100%	2.06	3.8	2.93	2	100%	2.09	2.09	2.09	1	100%
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	1.3	3.82	2.43	23	100%	170	318	239	15	100%	161	321	222	19	100%	3.5	6.82	4.98	15	100%	3.62	6.02	5.01	9	100%
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	1.09	1.09	1.09	1	100%	na	na	na	na	na	158	158	158	1	100%	na	na	na	na	na	1.95	1.95	1.95	1	100%
NESedBasinC	PD	PC-PDPOOL	Original Ground	0.67	1.96	1.13	4	100%	11.3	328	117	4	100%	16	329	118	4	100%	2.93	7.66	4.7	4	100%	3.96	8.01	6.14	4	100%
NESedBasinN	PD	PC-PDPOOL	Original Ground	1.11	1.99	1.54	4	100%	62.3	325	147	4	100%	62.7	332	150	4	100%	3.71	7.61	5.45	4	100%	3.96	9.62	6.63	4	100%
NESedBasinS	PD	PC-PDPOOL	Original Ground	0.7	1.77	1.08	3	100%	26.9	392	160	3	100%	28.7	404	165	3	100%	0.826	7.78	3.71	3	100%	1.12	8.43	4.03	3	100%
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	2.49	3.79	2.91	4	100%	257	322	296	4	100%	249	313	290	4	100%	4.53	5.8	5.18	4	100%	4.43	5.84	5.18	4	100%
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	1.31	1.63	1.47	2	100%	151	163	157	2	100%	153	168	161	2	100%	4.41	4.75	4.58	2	100%	4.64	5	4.82	2	100%
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	0.39	0.59	0.5	3	100%	2.16	4.82	3.49	3	100%	3.03	7.01	5.55	3	100%	0.617	3.01	1.51	3	100%	1.43	4.93	3.57	3	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	0.35	0.35	0.35	2	100%	4.3	5.63	4.97	2	100%	8.14	8.72	8.43	2	100%	1.34	3.57	2.46	2	100%	4.68	6.37	5.53	2	100%
PC-1	RV	PC-CrkSpgSeeps	Original Ground	0.102	0.278	0.192	12	100%	11.6	14.5	12.7	4	100%	10.8	14.1	12.3	12	100%	0.564	1.5	1.05	5	100%	1.06	1.36	1.22	3	100%
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	0.15	0.15	0.15	1	100%	na	na	na	na	na	11.9	11.9	11.9	1	100%	na	na	na	na	na	na	na	na	na	na
PC-2	RV	PC-CrkSpgSeeps	Original Ground	0.078	0.515	0.15	18	78%	7.25	24.8	10.3	9	100%	7.1625	12.4	9.05	17	100%	0.325	1.22	0.798	9	100%	0.414	1.2	0.888	5	100%
PC-2B	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-2C	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-3	RV	PC-CrkSpgSeeps	Original Ground	0.099	0.3	0.185	4	100%	79.9	79.9	79.9	1	100%	26.9	49.9	39.7	3	100%	2.3	2.3	2.3	1	100%	na	na	na	na	na
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	0.425	0.425	0.425	1	100%	27.7	32.8	30.3	2	100%	32.6	32.6	32.6	1	100%	1.35	1.67	1.51	2	100%	1.67	1.67	1.67	1	100%
PC-4	RV	PC-CrkSpgSeeps	Original Ground	0.022	0.94	0.422	8	88%	94.1	179	134	5	100%	83.5	185	126	8	100%	2.68	5.88	3.48	5	100%	2.74	6.02	4.38	2	100%
PC-5	RV	PC-CrkSpgSeeps	Original Ground	0.057	0.82	0.474	11	55%	98	189	157	3	100%	85.4	235	158	12	100%	2.75	4.73	3.56	4	100%	2.77	4.83	3.85	3	100%
PC-6	RV	PC-CrkSpgSeeps	Original Ground	0.44	0.44	0.44	2	50%	169	169	169	1	100%	85	169	127	2	100%	5.19	5.19	5.19	1	100%	5.22	5.22	5.22	1	100%
PC-9	RV	PC-CrkSpgSeeps	Original ground	1.13	1.13	1.13	1	100%	64.5	64.5	64.5	1	100%	64.6	64.6	64.6	1	100%	4.23	4.23	4.23	1	100%	4.18	4.18	4.18	1	100%
PCP-2	PD	PC-PDPOOL	Original Ground	0.105	0.281	0.187	14	100%	6.12	12.9	9.98	8	100%	8.45	14.8	11.7	12	100%	0.106	5.9	2.34	7	100%	1.04	4.01	2.05	4	100%
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	0.14	0.14	0.14	1	100%	na	na	na	na	na	2.7	2.7	2.7	1	100%	na	na	na	na	na	na	na	na	na	na
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	0.114	0.2	0.157	2	100%	8.07	15.5	10.6	3	100%	na	na	na	na	na	0.4	0.858	0.629	2	100%	na	na	na	na	na
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	0.114	0.114	0.114	1	100%	8.55	10.4	9.48	2	100%	na	na	na	na	na	1.26	1.26	1.26	1	100%	na	na	na	na	na
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	0.103	0.2	0.152	2	100%	2	8.81	6.46	3	100%	na	na	na	na	na	0.738	0.738	0.738	2	50%	na	na	na	na	na
PCT4-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	0.1	0.1	0.1	2	50%	8.01	8.62	8.28	3	100%	na	na	na	na	na	0.5	0.625	0.563	2	100%	na	na	na	na	na
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	0.2	0.2	0.2	1	100%	12.6	12.6	12.6	1	100%	na	na	na	na	na	0.9	0.9	0.9	1	100%	na	na	na	na	na
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	0.19	0.19	0.19	1	100%	na	na	na	na	na	11	11	11	1	100%	na	na	na	na	na	na	na	na	na	na
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	0.34	0.47	0.405	2	100%	14.9	20.7	17.8	2	100%	15.8	19.9	17.9	2	100%	2.65	3.2	2.93	2	100%	3.18	3.7	3.44	2	100%
NED-1	PD	PC-PDPOOL	Overburden (now covered)	1.38	1.38	1.38	1	100%	na	na	na	na	na	121	121	121	1	100%	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																												
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	0.257	0.396	0.329	7	100%	38.9	41	40.2	6	100%	39.6	40.9	40	5	100%	1.36	1.58	1.46	5	100%	1.34	1.43	1.38	3	100%
HH-OP1	RV	SJC-PD	Original Ground	0.24	0.24	0.24	1	100%	na	na	na	na	na	16.3	16.3	16.3	1	100%	na	na	na	na	na	na	na	na	na	na
HH-1	SP (Spring)	SJC-Spg	Original Ground	0.109	0.2	0.159	5	80%	9.8	12.2	10.8	6	100%	10.3	11	10.8	3	100%	0.605	1.22	0.903	5	100%	0.726	0.964	0.861	3	100%
HHP-1	PD	SJC-PD	Original Ground	0.104	0.2	0.16	14	100%	15	22.7	18.5	10	100%	15.9	19.6	18.1	11	100%	0.297	2.6	1.15	9	89%	0.406	1.71	1.12	6	100%
NL4P-1	PD	SJC-PitLake	Overburden	0.58	1.32	0.771	18	100%	6.12	16.2	10.6	9	100%	6.16	11.2	9.2	15	100%	0.111	2	0.936	8	88%	0.149	1.59	0.721	6	83%
NL4P-OP1	RV	SJC-pool	Overburden	0.954	0.954	0.954	1	100%	2.78	2.78	2.78	1	100%	2.97	2.97	2.97	1	100%	0.767	0.767	0.767	1	100%	0.952	0.952	0.952	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	0.211	0.211	0.211	1	100%	2.94	2.94	2.94	1	100%	7.45	7.45	7.45	1	100%	0.925	0.925	0.925	1	100%	7.12	7.12	7.12	1	100%
NL4P-OP3	PD	SJC-pool	Overburden	0.891	0.891	0.891	1	100%	1.72	1.72	1.72	1	100%	2.06	2.06	2.06	1	100%	2.69	2.69	2.69	1	100%	3.2	3.2	3.2	1	100%
SWP-1	PD	SJC-pool	Overburden	0.4	0.4	0.4	1	100%	1.5	1.5	1.5	1	100%	na	na	na	na	na	1.9	1.9	1.9	1	100%	na	na	na	na	na
SWP-2	PD	SJC-ODApond	Original Ground	0.123	0.22	0.184	4	100%	3.3	10.3	7.55	3	100%	9.12	10.7	10.1	3	100%	0.649	3.2	1.66	3	100%	0.718	1.22	0.969	2	100%
SWP-3	PD	SJC-PD	Original Ground	0.3	0.904	0.516	4	100%	16.5	78.2	41.6	6	100%	23.2	77.9	47.8	4	100%	0.5	7.54	2.06	6	100%	0.767	7.7	3.59	3	100%
SWS-2	SP (Spring)	SJC-Spg	Original ground	0.095	0.307	0.201	9	100%	17.6	25	20.2	6	100%	17.1	49.1	24.7	7	100%	0.662	1.5	1.01	5	80%	0.688	3.14	1.81	3	100%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	0.201	0.277	0.237	3	100%	12.3	22.4	17.6	4	100%	13.6	22.9	18.7	3	100%	2.35	2.79	2.58	3	100%	2.4	3.8	3.01	3	100%
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	0.31	0.31	0.31	1	100%	1.29	1.29	1.29	1	100%	11.8	11.8	11.8	1	100%	na	na	na	na	na	na	na	na	na	na
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	0.06	0.609	0.334	5	100%	19.1	48	31.3	4	100%	20	59.3	35.7	3	100%	0.9	2.1	1.45	3	100%	1.42	1.42	1.42	1	100%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	0.1	0.37	0.235	2	100%	40	40.9	40.6	3	100%	38.4	38.4	38.4	1	100%	2.3	3.03	2.67	2	100%	3	3	3	1	100%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	0.1	0.1	0.1	3	33%	77.2	90.3	84.4	3	100%	73	92.6	82.8	2	100%	2.1	2.81	2.46	2	100%	2.73	2.73	2.73	1	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Fluoride, Total					Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	0.152	1.26	0.74	11	100%	94.3	140	113	8	100%	10.8695	121	95.1	10	100%	2.1	4.13	3.37	8	100%	3.15	3.86	3.56	3	100%
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	1.32	1.4	1.36	2	100%	120	120	120	1	100%	121	121	121	1	100%	2.4	2.4	2.4	1	100%	na	na	na	na	na
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	0.294	1.02	0.689	5	100%	92.9	112	101	5	100%	105	121	113	2	100%	4.1	5.7	5.13	4	100%	5.41	5.41	5.41	1	100%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	1.12	1.12	1.12	1	100%	na	na	na	na	na	134	134	134	1	100%	na	na	na	na	na	na	na	na	na	na
AWI012-22	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	8.7	10.7	10.1	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	13.4	13.4	13.4	1	100%	14	14	14	1	100%	na	na	na	na	na	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	0.11	0.241	0.2	12	100%	10.1	15.1	12.9	6	100%	10.7	15.7	13.1	12	100%	0.993	1.69	1.27	6	100%	1.16	1.63	1.38	5	100%
SLC-1	RV	SLC-CrkSpg	Original Ground	0.147	0.2	0.167	3	100%	11	18.2	13.4	4	100%	12.7	12.7	12.7	1	100%	1.27	2.36	1.78	3	100%	1.39	1.39	1.39	1	100%
SLC-2	RV	SLC-CrkSpg	Original Ground	0.132	0.311	0.186	9	100%	8.79	11	10.4	11	100%	9.5462	12	10.6	8	100%	0.76	1.34	1.01	10	100%	0.71	1.65	1.12	6	100%
SLC-3	RV	SLC-CrkSpg	Original Ground	0.162	0.24	0.201	3	67%	13.9	13.9	13.9	1	100%	15.1	18.2	16.7	2	100%	1.2	1.2	1.2	1	100%	na	na	na	na	na
SLC-3A	RV	SLC-CrkSpg	Original Ground	na	na	na	1	0%	12	12	12	1	100%	11.1	11.1	11.1	1	100%	1.49	1.49	1.49	1	100%	1.38	1.38	1.38	1	100%
SLC-3C	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-3D	RV	SLC-CrkSpg	Original Ground	0.119	0.34	0.207	5	100%	6.14	11.8	9.2	3	100%	6.14	11.7	10.1	5	100%	0.911	1.69	1.38	3	100%	1.61	1.81	1.71	2	100%
SLC-3E	RV	SLC-CrkSpg	Original Ground	0.139	0.2	0.164	3	100%	10.1	11.1	10.5	3	100%	9.57	11.2	10.6	3	100%	1	1.6	1.28	3	100%	1.14	2.4	1.58	3	100%
SLC-5	RV	SLC-CrkSpg	Original Ground	0.07	0.174	0.122	2	100%	na	na	na	na	na	53	54.3	53.7	2	100%	na	na	na	na	na	na	na	na	na	na
SLC-6	RV	SLC-CrkSpg	Original Ground	0.036	0.036	0.036	2	50%	na	na	na	na	na	65.7	67.2	66.5	2	100%	na	na	na	na	na	na	na	na	na	na
SW08-ST	RV	SLC-CrkSpg	Original Ground	0.12	0.28	0.167	18	100%	8	12	10.2	9	100%	5.32	11.4	9.09	9	100%	1	2	1.2	9	67%	0.72	1.8	1.22	9	100%
SW09-ST	RV	SLC-CrkSpg	Original Ground	0.14	0.24	0.176	19	100%	7	16	12.8	9	100%	6.24	18.5	12.1	10	100%	1	2	1.16	9	100%	0.931	2	1.53	10	100%
SLP-1	PD	SLC-PD	Original Ground	0.405	0.405	0.405	1	100%	8.11	15.2	11.7	2	100%	8.21	8.21	8.21	1	100%	1.29	1.29	1.29	1	100%	1.31	1.31	1.31	1	100%
SLP-2	PD	SLC-PD	Original Ground	0.119	0.119	0.119	1	100%	1.35	2.5	1.93	2	100%	2.44	2.44	2.44	1	100%	3.9	3.9	3.9	1	100%	3.84	3.84	3.84	1	100%
SLP-3	PD	SLC-PD	Original Ground	0.241	0.241	0.241	1	100%	5.61	8.31	6.96	2	100%	5.58	5.58	5.58	1	100%	3.99	3.99	3.99	1	100%	4.21	4.21	4.21	1	100%
SLCT1-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT1-1	RV	SLC-CrkSpg	Original Ground	0.2	0.2	0.2	1	100%	5.4	5.4	5.4	1	100%	na	na	na	na	na	1.6	1.6	1.6	1	100%	na	na	na	na	na
SLCT2-0	RV	SLC-CrkSpg	Original Ground	0.132	0.201	0.161	9	100%	6.57	10.6	9.21	4	100%	7.66	11.7	10	10	100%	0.861	1.68	1.13	5	100%	0.935	2.02	1.42	3	100%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	0.132	0.2	0.166	2	100%	9	11	10.2	3	100%	na	na	na	na	na	0.881	1.1	0.991	2	100%	na	na	na	na	na
SLCT2-2	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	0.163	0.163	0.163	1	100%	12.4	12.4	12.4	1	100%	12.4	12.4	12.4	1	100%	1.63	1.63	1.63	1	100%	1.66	1.66	1.66	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground	0.3	0.3	0.3	1	100%	na	na	na	na	na	17.9	17.9	17.9	1	100%	na	na	na	na	na	na	na	na	na	na
SLCT3-0	RV	SLC-CrkSpg	Original Ground	0.117	0.2	0.17	3	100%	9.25	9.25	9.25	1	100%	6.19	8.79	7.36	4	100%	1.03	2.08	1.56	2	100%	2.01	2.01	2.01	1	100%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	0.1	0.113	0.107	2	100%	8.4	10.5	9.23	3	100%	na	na	na	na	na	0.5	0.982	0.741	2	100%	na	na	na	na	na
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	0.146	0.146	0.146	2	50%	10.1	10.4	10.3	2	100%	10	11	10.5	2	100%	0.582	0.784	0.683	2	100%	0.59	0.817	0.704	2	100%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	na	na	na	1	0%	7.3	7.3	7.3	1	100%	7.19	7.19	7.19	1	100%	0.942	0.942	0.942	1	100%	1.04	1.04	1.04	1	100%
SW13-ST	RV	SLC-CrkSpg	Original Ground	0.12	0.24	0.182	13	100%	5	14	10.7	5	100%	2.63	12.4	8.43	8	100%	1	6	2.04	5	100%	0.479	2.95	1.76	8	100%
SW14-ST	RV	SLC-CrkSpg	Original Ground	0.16	0.26	0.193	3	100%	na	na	na	na	na	7.95	21	15	3	100%	na	na	na	na	na	1.19	1.6	1.36	3	100%
SW15-ST	RV	SLC-CrkSpg	Original Ground	0.17	0.19	0.18	3	100%	2	2	2	1	100%	1.81	5.9	3.86	2	100%	2	2	2	1	100%	1.26	1.44	1.35	2	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	0.096	0.19	0.144	19	84%	5	11	8.83	9	100%	4.81	11.2	8.3	10	100%	0.6	1.6	1.13	9	67%	0.85	2.3	1.39	10	100%
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	0.447	0.447	0.447	1	100%	7.35	7.35	7.35	1	100%	7.51	7.51	7.51	1	100%	1.65	1.65	1.65	1	100%	1.71	1.71	1.71	1	100%
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	0.23	0.43	0.289	19	100%	35	39	37	9	100%	34.8	37.8	36.4	10	100%	1	1.2	1.07	9	67%	1.03	1.3	1.15	10	100%
WS-4	SP (Spring)	WW-SpgPd	Original Ground	0.253	0.466	0.346	6	100%	36	38.2	37.1	4	100%	35.9	39	37.1	6	100%	1.07	1.2	1.15	4	100%	1.1	1.37	1.21	4	100%
WS-5	SP (Spring)	OffW-Spg	Original Ground	0.33	0.521	0.408	6	100%	39.4	44.3	41.3	4	100%	38.2	44	40.4	6	100%	0.868	1.55	1.3	4	100%	0.869	1.46	1.27	4	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Fluoride, Total					Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	na	na	na	na	na	9.4	14.5	11.5	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-04	RV	Offsite-BFR	Offsite	na	na	na	na	na	9	11.7	10.4	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-06	RV	Offsite-BFR	Offsite	na	na	na	na	na	9.1	11.9	10.5	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
BFR-1	RV	Offsite-BFR	Offsite	0.1	0.15	0.128	13	85%	9.77	13.6	11.5	5	100%	8.07	13.8	12	13	100%	0.542	1.49	0.991	5	100%	0.65	1.39	1.04	5	100%
BFR-2	RV	Offsite-BFR	Offsite	0.106	0.274	0.145	13	92%	8.51	13.8	11.4	5	100%	8.22	13.8	11.9	13	100%	0.541	1.31	0.967	5	100%	0.631	1.5	1.05	5	100%
BFR-3	RV	Offsite-BFR	Offsite	0.092	0.172	0.128	15	93%	8.82	13.5	11.4	5	100%	8.76	14	11.8	15	100%	0.551	1.29	0.933	5	100%	0.6	1.56	1.02	5	100%
BFR-4	RV	Offsite-BFR	Offsite	0.091	0.191	0.134	15	100%	8.35	13.7	11.5	5	100%	8.33	13.9	11.6	15	100%	0.596	1.23	0.892	5	100%	0.614	1.33	0.984	5	100%
BFR-DS	RV	Offsite-BFR	Offsite	0.15	0.15	0.15	1	100%	na	na	na	na	na	9.93	9.93	9.93	1	100%	na	na	na	na	na	na	na	na	na	na
BFR-US	RV	Offsite-BFR	Offsite	0.16	0.16	0.16	1	100%	na	na	na	na	na	9.88	9.88	9.88	1	100%	na	na	na	na	na	na	na	na	na	na
BGS	RV	Offsite-BFR	Offsite	na	na	na	na	na	11.4	11.4	11.4	1	100%	12	12	12	1	100%	na	na	na	na	na	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	na	na	na	na	na	8.6	13	10.7	6	83%	na	na	na	na	na	0.5	1.4	0.812	6	83%	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	na	na	na	na	na	7.5	14	11.6	14	93%	na	na	na	na	na	0.61	1.5	1	6	83%	na	na	na	na	na
ST021	RV	Offsite-BFR	Offsite	na	na	na	na	na	10.1	11	10.7	4	75%	na	na	na	na	na	0.67	0.8	0.757	4	75%	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	na	na	na	na	na	7.9	13	10.3	6	83%	na	na	na	na	na	0.5	1.3	0.788	6	83%	na	na	na	na	na
ST230	RV	Offsite-BFR	Offsite	na	na	na	na	na	11	12	11.5	2	100%	na	na	na	na	na	0.63	0.8	0.715	2	100%	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	na	na	na	na	na	8.2	17	12.6	2	100%	na	na	na	na	na	0.9	1.6	1.25	2	100%	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	0.095	0.18	0.131	19	95%	6	14	11.1	9	100%	6.1	14.3	11.2	10	100%	0.6	1	0.9	9	44%	0.51	2	1.09	10	90%
SW11-ST	RV	Offsite-BFR	Offsite	0.11	0.36	0.173	19	100%	7	17	12.9	9	100%	6.4	25.2	14	10	100%	0.8	1.3	1.04	9	56%	0.841	2	1.25	10	100%
SW19-SP	SP (Spring)	OffN-Spg	Offsite	0.9	1.28	1.05	6	100%	na	na	na	na	na	57.8	70.4	62	6	100%	na	na	na	na	na	2.5	12.2	5.23	6	100%
SW20-SP	SP (Spring)	OffN-Spg	Offsite	0.98	1.21	1.09	6	100%	na	na	na	na	na	50	83.2	69.3	6	100%	na	na	na	na	na	2.4	6.5	4.24	6	100%
SW21-SP	SP (Spring)	OffN-Spg	Offsite	0.6	0.74	0.672	5	100%	na	na	na	na	na	51.3	60	54.9	5	100%	na	na	na	na	na	2.3	6.45	3.27	5	100%
Offsite-Blackfoot River vicinity																												
SW01-W	SP (Spring)	OffN-Spg	Offsite	0.17	0.31	0.225	19	100%	12	16	14.7	9	100%	11.4	18.7	14.9	10	100%	1	2	1.57	9	78%	1.2	2	1.47	10	100%
SW16-SP	SP (Spring)	OffN-Spg	Offsite	0.07	0.2	0.142	12	100%	11	11	11	2	100%	10	11.2	10.9	10	100%	1.1	1.1	1.1	2	100%	1	1.35	1.18	10	100%
SW17-W	PD	OffN-Spg	Offsite	0.59	1	0.88	6	100%	na	na	na	na	na	15.2	86.6	55.5	6	100%	na	na	na	na	na	2.68	6.3	4.36	6	100%
SW18-SP	SP (Spring)	OffN-Spg	Offsite	0.6	0.71	0.643	6	100%	na	na	na	na	na	41	53.6	47.5	6	100%	na	na	na	na	na	1.52	2.3	1.91	6	100%
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	na	na	na	na	na	11.5	12.4	12	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TC-1	RV	Offsite-TC	Offsite	0.057	0.187	0.129	16	88%	10.5	11.7	11.1	6	100%	9.99	11.8	11.1	16	100%	0.603	1.18	0.876	6	100%	0.64	1.26	0.908	6	100%
TC-2	RV	Offsite-TC	Offsite	0.075	0.2	0.137	15	93%	11	12.1	11.5	5	100%	10.4	12.6	11.5	15	100%	0.915	1.36	1.07	5	100%	0.923	1.52	1.14	5	100%
TC-3	RV	Offsite-TC	Offsite	0.099	0.192	0.146	15	100%	10.8	12.5	11.7	5	100%	10.8	12.8	11.6	15	100%	0.642	1.54	1.16	5	100%	0.659	1.55	1.17	5	100%
TC-4	RV	Offsite-TC	Offsite	0.095	0.353	0.157	15	100%	10.9	12.5	11.7	5	100%	10.6	12.9	11.6	15	100%	0.694	1.61	1.18	5	100%	0.701	1.56	1.21	5	100%
TC-5	RV	Offsite-TC	Offsite	na	na	na	1	0%	na	na	na	na	na	9.85	9.85	9.85	1	100%	na	na	na	na	na	0.469	0.469	0.469	1	100%
TRATT003	RV	Offsite-TC	Offsite	0.14	0.14	0.14	3	33%	11	14	12	3	100%	12	13	12.3	3	100%	0.68	0.73	0.705	2	100%	0.69	0.79	0.74	2	100%

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Sodium, Dissolved					Sodium, Total					Sulfate, Dissolved					Sulfate, Total					Sulfate, Total (field)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	6.38	7.45	6.92	2	100%	6.36	7.33	6.85	2	100%	na	na	na	na	na	6.42	27.8	14.5	7	100%	na	na	na	na	na
CGC-1	RV	CGC-Crk	Original Ground	4.83	6.36	5.63	8	100%	5.24	6.35	5.71	4	100%	na	na	na	na	na	9.297	20	12	9	100%	na	na	na	na	na
CGC-2	RV	CGC-Crk	Original Ground	5	5.6	5.35	5	100%	na	na	na	na	na	na	na	na	na	na	3.94	5.38	4.87	6	50%	na	na	na	na	na
CGC-2A	RV	CGC-Crk	Original Ground	4.44	4.44	4.44	1	100%	na	na	na	na	na	na	na	na	na	na	14.2	14.2	14.2	1	100%	na	na	na	na	na
CGC-3	RV	CGC-Crk	Original Ground	5.5	5.5	5.5	1	100%	na	na	na	na	na	na	na	na	na	na	15.6	30	20.3	5	100%	na	na	na	na	na
CGC-3A	RV	CGC-Crk	Original Ground	4.54	5.18	4.94	4	100%	4.66	5.21	4.94	3	100%	na	na	na	na	na	7.42	20.6	14.3	9	100%	na	na	na	na	na
CGC-4	RV	CGC-Crk	Original Ground	5	5	5	1	100%	na	na	na	na	na	na	na	na	na	na	10	10	10	1	100%	na	na	na	na	na
CGC-4A	RV	CGC-Crk	Original Ground	3.8	5.83	4.66	7	100%	4.24	5.4	4.66	4	100%	na	na	na	na	na	16.2	36.8	24.2	14	100%	na	na	na	na	na
CGC-5	RV	CGC-Crk	Original Ground	4.1	4.7	4.51	4	100%	4.12	4.46	4.29	2	100%	na	na	na	na	na	13.5	20	15.2	5	100%	na	na	na	na	na
CGC-UPTC	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	9.77	9.77	9.77	1	100%	na	na	na	na	na
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	6.31	7.13	6.63	3	100%	6.56	6.87	6.68	3	100%	na	na	na	na	na	11.7	12.4	12	4	100%	na	na	na	na	na
CGCT1-1	RV	CGC-Crk	Original Ground	5	6.12	5.56	2	100%	na	na	na	na	na	na	na	na	na	na	13.1	20	15.7	3	100%	na	na	na	na	na
JS-1	SP (Spring)	CGC-Spg	Original Ground	4.48	5.03	4.62	5	100%	4.43	5.1	4.72	4	100%	na	na	na	na	na	6.84	7.97	7.61	11	100%	na	na	na	na	na
JRLD	SP (Spring)	CGC-Spg	Original Ground	4.66	5.2	4.93	2	100%	4.68	5.02	4.85	2	100%	na	na	na	na	na	26.7	30.6	29.5	6	100%	na	na	na	na	na
French Drain Sub-Basin																												
SWP-4A	PD	FD-CrkSpgPd	Overburden	16.5	16.5	16.5	1	100%	na	na	na	na	na	na	na	na	na	na	301	368	335	2	100%	na	na	na	na	na
FD-1	FD	FD-CrkSpgPd	Overburden	14.5	17.5	16	11	100%	15.4	17.9	16.7	6	100%	na	na	na	na	na	290	570	440	16	100%	na	na	na	na	na
SWP-4	PD	FD-CrkSpgPd	Overburden	10.6	14.2	12.1	4	100%	11	16.7	13.6	3	100%	na	na	na	na	na	135	483	330	9	100%	na	na	na	na	na
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	14.8	16.8	16	3	100%	15.3	19.1	17.4	3	100%	na	na	na	na	na	369	544	434	8	100%	na	na	na	na	na
TP-1	TP	FD-NTP	Tailings	97.2	128	109	9	100%	104	135	116	6	100%	na	na	na	na	na	503.612	722	590	10	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	4.34	10.6	6.43	5	100%	4.26	7	5.49	3	100%	na	na	na	na	na	2.48	10.1	6.04	6	83%	na	na	na	na	na
North Woodall Mountain Sub-Basin																												
NWC-1	RV	NWM-CrkSpgPd	Original Ground	5.38	5.38	5.38	1	100%	5.38	5.38	5.38	1	100%	na	na	na	na	na	9	9	9	1	100%	na	na	na	na	na
NWC-2	RV	NWM-CrkSpgPd	Original Ground	5.49	6.9	6.09	4	100%	5.65	6.33	5.89	4	100%	na	na	na	na	na	5.87	9.19	7.32	4	100%	na	na	na	na	na
SW03-L	PD	NWM-CrkSpgPd	Original Ground	6	12	9.41	9	100%	6.42	12.1	8.84	10	100%	na	na	na	na	na	2.1	13	7.66	19	84%	na	na	na	na	na
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	5	9	6.9	9	100%	3.13	8	5.99	9	100%	na	na	na	na	na	4.65	13	8.44	18	100%	na	na	na	na	na
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	5	8	6.71	9	100%	2.4	8.58	5.99	10	100%	na	na	na	na	na	1.8	12	7.35	19	95%	na	na	na	na	na
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	3.8	8	5.34	9	100%	3.6	4.39	4.01	10	100%	na	na	na	na	na	25.7	37	32.6	19	100%	na	na	na	na	na
WS-1	SP (Spring)	WW-SpgPd	Original Ground	3.6	3.78	3.69	5	100%	3.45	3.87	3.66	3	100%	na	na	na	na	na	29.7	33.9	31.6	8	100%	na	na	na	na	na
WS-2	SP (Spring)	WW-SpgPd	Original Ground	3.76	4.16	3.94	4	100%	3.84	4.23	3.97	4	100%	na	na	na	na	na	31.1	33.3	32.4	6	100%	na	na	na	na	na
WS-3	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	33.1	33.3	33.2	2	100%	na	na	na	na	na
Old Tailings Pond Sub-Basin																												
NEP-7	PD	OTP-pool	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	23.4	23.4	23.4	1	100%	na	na	na	na	na
TP-2	TP	OTP-TP	Tailings	13.5	45.4	29.5	2	100%	13.9	13.9	13.9	1	100%	na	na	na	na	na	155	710	433	2	100%	na	na	na	na	na
TP-2A	TP	OTP-TP	Tailings	16.4	32	24.2	2	100%	na	na	na	na	na	na	na	na	na	na	185	676	413	3	100%	na	na	na	na	na
TP-2B	TP	OTP-TP	Tailings	3.92	3.92	3.92	1	100%	4.06	4.06	4.06	1	100%	na	na	na	na	na	105	105	105	1	100%	na	na	na	na	na
TP-2C	TP	OTP-TP	Tailings	2.44	2.44	2.44	1	100%	2.42	2.42	2.42	1	100%	na	na	na	na	na	7.59	7.59	7.59	1	100%	na	na	na	na	na
TP-2D	TP	OTP-TP	Tailings	21.8	21.8	21.8	1	100%	22.3	22.3	22.3	1	100%	na	na	na	na	na	399	399	399	1	100%	na	na	na	na	na
NBorrowSedBasin	PD	OTP-pool	Original Ground	0.854	1.23	1.04	2	100%	1.01	1.29	1.15	2	100%	na	na	na	na	na	1.37	2.46	1.92	2	100%	na	na	na	na	na
Pedro Creek Sub-Basin																												
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.98	47.5	27.7	2	100%	na	na	na	na	na
ESedBasinC	PD	PC-PDPOOL	Original Ground	7.96	14.1	11	2	100%	8.59	14.1	11.3	2	100%	na	na	na	na	na	369	380	375	2	100%	na	na	na	na	na
ESedBasinN	PD	PC-PDPOOL	Original Ground	12.3	12.3	12.3	1	100%	13.4	13.4	13.4	1	100%	na	na	na	na	na	758	758	758	1	100%	na	na	na	na	na
ESedBasinS	PD	PC-PDPOOL	Original Ground	7.75	7.75	7.75	1	100%	7.84	7.84	7.84	1	100%	na	na	na	na	na	343	343	343	1	100%	na	na	na	na	na
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	7.91	9.33	8.62	2	100%	7.68	9.74	8.71	2	100%	na	na	na	na	na	378	617	498	2	100%	na	na	na	na	na
FSPSBasin	PD	PC-PDPOOL	Original Ground	2.93	14.7	8.5	5	100%	2.86	14.3	8.39	5	100%	na	na	na	na	na	67.9	402	228	6	100%	na	na	na	na	na
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	21.4	21.6	21.5	2	100%	21.7	22.4	22.1	2	100%	na	na	na	na	na	536	682	612	3	100%	na	na	na	na	na
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	20.4	22.4	21.2	3	100%	20.6	22.5	21.4	3	100%	na	na	na	na	na	439	608	503	3	100%	na	na	na	na	na
NEP-1	PD	PC-PDPOOL	Original Ground	5.1	5.7	5.37	3	100%	na	na	na	na	na	na	na	na	na	na	11	11	11	3	100%	na	na	na	na	na

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Sodium, Dissolved					Sodium, Total					Sulfate, Dissolved					Sulfate, Total					Sulfate, Total (field)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	1.46	2.4	1.93	2	100%	1.51	1.51	1.51	1	100%	na	na	na	na	na	26.3	80	58	4	100%	na	na	na	na	na
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	17.2	30.4	24.5	15	100%	17.4	30.5	24.5	9	100%	na	na	na	na	na	1530	2540	1988	25	100%	na	na	na	na	na
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	40.6	40.6	40.6	1	100%	na	na	na	na	na	1870	1870	1870	1	100%	na	na	na	na	na
NESedBasinC	PD	PC-PDPOOL	Original Ground	6.53	28.8	13.1	4	100%	6.4	28.7	13.2	4	100%	na	na	na	na	na	121	2730	1026	4	100%	na	na	na	na	na
NESedBasinN	PD	PC-PDPOOL	Original Ground	7.76	29.2	16.2	4	100%	7.95	29.7	16.2	4	100%	na	na	na	na	na	618	2810	1329	4	100%	na	na	na	na	na
NESedBasinS	PD	PC-PDPOOL	Original Ground	5.26	34.9	16.7	3	100%	5.34	36	17.2	3	100%	na	na	na	na	na	210	3350	1411	3	100%	na	na	na	na	na
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	23.8	30	26.3	4	100%	23.6	28.8	25.8	4	100%	na	na	na	na	na	2300	2500	2413	4	100%	na	na	na	na	na
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	15.7	16.9	16.3	2	100%	15.7	17.7	16.7	2	100%	na	na	na	na	na	1690	1760	1725	2	100%	na	na	na	na	na
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	2.08	2.62	2.31	3	100%	2.08	2.64	2.39	3	100%	na	na	na	na	na	2.18	13.2	7.56	3	100%	na	na	na	na	na
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	1.33	1.84	1.59	2	100%	1.59	1.86	1.73	2	100%	na	na	na	na	na	7.5	11.3	9.4	2	100%	na	na	na	na	na
PC-1	RV	PC-CrkSpgSeeps	Original Ground	7.14	8.34	7.59	5	100%	6.59	7.64	7.16	3	100%	na	na	na	na	na	13.5	87.1	36.7	13	100%	na	na	na	na	na
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	16.7	16.7	16.7	1	100%	na	na	na	na	na
PC-2	RV	PC-CrkSpgSeeps	Original Ground	5.02	5.96	5.54	9	100%	5.25	5.9	5.69	5	100%	na	na	na	na	na	8.28	254	36.5	21	95%	na	na	na	na	na
PC-2B	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	64	64	64	1	100%	na	na	na	na	na
PC-2C	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	13.5	13.5	13.5	1	100%	na	na	na	na	na
PC-3	RV	PC-CrkSpgSeeps	Original Ground	10.9	10.9	10.9	1	100%	na	na	na	na	na	na	na	na	na	na	242	650	451	4	100%	na	na	na	na	na
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	5.3	5.97	5.64	2	100%	5.98	5.98	5.98	1	100%	na	na	na	na	na	285	618	421	3	100%	na	na	na	na	na
PC-4	RV	PC-CrkSpgSeeps	Original Ground	10.6	19.9	14.3	5	100%	10.6	20.1	15.4	2	100%	na	na	na	na	na	723	1630	1181	11	100%	na	na	na	na	na
PC-5	RV	PC-CrkSpgSeeps	Original Ground	10.8	20	15.8	4	100%	11.1	19.9	16.6	3	100%	na	na	na	na	na	730	2180	1497	13	100%	na	na	na	na	na
PC-6	RV	PC-CrkSpgSeeps	Original Ground	16.9	16.9	16.9	1	100%	16.6	16.6	16.6	1	100%	na	na	na	na	na	707	1510	1109	2	100%	na	na	na	na	na
PC-9	RV	PC-CrkSpgSeeps	Original ground	9.59	9.59	9.59	1	100%	9.8	9.8	9.8	1	100%	na	na	na	na	na	643	643	643	1	100%	na	na	na	na	na
PCP-2	PD	PC-PDPOOL	Original Ground	3.83	9.91	5.47	7	100%	4.16	7.41	5.29	4	100%	na	na	na	na	na	10	122	49.3	15	100%	na	na	na	na	na
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10.5	10.5	10.5	1	100%	na	na	na	na	na
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	3.8	5.24	4.52	2	100%	na	na	na	na	na	na	na	na	na	na	19.1	23.2	20.8	3	100%	na	na	na	na	na
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	5.91	5.91	5.91	1	100%	na	na	na	na	na	na	na	na	na	na	11.6	22.1	16.9	2	100%	na	na	na	na	na
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	4.8	5.82	5.31	2	100%	na	na	na	na	na	na	na	na	na	na	10.5	10.7	10.6	3	67%	na	na	na	na	na
PCT4-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	8.15	8.15	8.15	1	100%	na	na	na	na	na
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	5	5.57	5.29	2	100%	na	na	na	na	na	na	na	na	na	na	7.64	8.32	7.98	3	67%	na	na	na	na	na
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	5.5	5.5	5.5	1	100%	na	na	na	na	na	na	na	na	na	na	110	110	110	1	100%	na	na	na	na	na
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	38	38	38	1	100%	na	na	na	na	na
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	6.4	8.26	7.33	2	100%	6.55	8.58	7.57	2	100%	na	na	na	na	na	192	222	207	2	100%	na	na	na	na	na
NED-1	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1160	1160	1160	1	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																												
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	3.79	4.2	3.98	5	100%	3.77	4.19	3.97	3	100%	na	na	na	na	na	30	33.7	31.3	8	100%	na	na	na	na	na
HH-OP1	RV	SJC-PD	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	21.1	21.1	21.1	1	100%	na	na	na	na	na
HH-1	SP (Spring)	SJC-Spg	Original Ground	5.8	7.1	6.71	5	100%	7.1	7.93	7.44	3	100%	na	na	na	na	na	11.2	13.1	12	6	83%	na	na	na	na	na
HHP-1	PD	SJC-PD	Original Ground	6	9.39	7.28	9	100%	6.8	8.18	7.33	6	100%	na	na	na	na	na	15.2	22	18.4	15	100%	0	25	12.5	2	100%
NL4P-1	PD	SJC-PitLake	Overburden	2.13	4.22	3.06	8	100%	2.13	4.04	2.8	6	100%	na	na	na	na	na	51.8	310	136	19	100%	na	na	na	na	na
NL4P-OP1	RV	SJC-pool	Overburden	0.709	0.709	0.709	1	100%	0.737	0.737	0.737	1	100%	na	na	na	na	na	160	160	160	1	100%	na	na	na	na	na
NL4P-OP2	RV	SJC-pool	Overburden	2.33	2.33	2.33	1	100%	2.76	2.76	2.76	1	100%	na	na	na	na	na	49	49	49	1	100%	na	na	na	na	na
NL4P-OP3	PD	SJC-pool	Overburden	1.29	1.29	1.29	1	100%	1.35	1.35	1.35	1	100%	na	na	na	na	na	0.8	0.8	0.8	1	100%	na	na	na	na	na
SWP-1	PD	SJC-pool	Overburden	1.1	1.1	1.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na
SWP-2	PD	SJC-ODApond	Original Ground	1.5	7.04	4.9	3	100%	6.21	7.91	7.06	2	100%	na	na	na	na	na	16.1	21.7	19.1	4	75%	na	na	na	na	na
SWP-3	PD	SJC-PD	Original Ground	6.16	25.9	13.9	6	100%	10.3	27.1	18.5	3	100%	na	na	na	na	na	19.8	984	346	7	100%	na	na	na	na	na
SWS-2	SP (Spring)	SJC-Spg	Original ground	7.02	11	7.93	5	100%	7.24	7.99	7.67	3	100%	na	na	na	na	na	15	334	88.7	10	100%	na	na	na	na	na
JCS-1	SP (Spring)	SJC-Spg	Original Ground	9.4	13.9	11.9	3	100%	9.69	14.5	12.9	3	100%	na	na	na	na	na	30.7	67.3	46.8	4	100%	na	na	na	na	na
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.62	43.2	22.4	2	100%	na	na	na	na	na
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	7.08	14	10.1	3	100%	7.45	7.45	7.45	1	100%	na	na	na	na	na	263	725	446	6	100%	na	na	na	na	na
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	8.28	9.5	8.89	2	100%	7.66	7.66	7.66	1	100%	na	na	na	na	na	480	574	520	3	100%	na	na	na	na	na
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	8.04	9.8	8.92	2	100%	7.51	7.51	7.51	1	100%	na	na	na	na	na	944	1265	1092	4	100%	na	na	na	na	na

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Sodium, Dissolved					Sodium, Total					Sulfate, Dissolved					Sulfate, Total					Sulfate, Total (field)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	11.5	16.4	13.4	8	100%	11	15.8	13.9	3	100%	na	na	na	na	na	990	1500	1208	15	100%	na	na	na	na	na
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	16	16	16	1	100%	na	na	na	na	na	na	na	na	na	na	1400	1420	1410	2	100%	na	na	na	na	na
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	15	19	17.3	4	100%	19.2	19.2	19.2	1	100%	na	na	na	na	na	980	1240	1085	6	100%	na	na	na	na	na
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1160	1160	1160	1	100%	na	na	na	na	na
AWI012-22	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	11	11	11	1	100%	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	6.35	10.1	8.26	6	100%	7.72	9.63	8.61	5	100%	na	na	na	na	na	5.14	47.8	21.2	14	100%	na	na	na	na	na
SLC-1	RV	SLC-CrkSpg	Original Ground	7.3	13.3	9.46	3	100%	7.4	7.4	7.4	1	100%	na	na	na	na	na	9.3	44.4	25.6	4	100%	na	na	na	na	na
SLC-2	RV	SLC-CrkSpg	Original Ground	5.91	7.49	6.75	10	100%	5.8	7.7	6.6	6	100%	na	na	na	na	na	6.1	67.7	23.7	13	100%	na	na	na	na	na
SLC-3	RV	SLC-CrkSpg	Original Ground	6.9	6.9	6.9	1	100%	na	na	na	na	na	na	na	na	na	na	180	252	206	3	100%	na	na	na	na	na
SLC-3A	RV	SLC-CrkSpg	Original Ground	6.27	6.27	6.27	1	100%	5.79	5.79	5.79	1	100%	na	na	na	na	na	161	227	194	2	100%	na	na	na	na	na
SLC-3C	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	98.7	98.7	98.7	1	100%	na	na	na	na	na
SLC-3D	RV	SLC-CrkSpg	Original Ground	5.47	9.07	6.95	3	100%	6.41	9.04	7.73	2	100%	na	na	na	na	na	5.22	122	61.6	7	100%	na	na	na	na	na
SLC-3E	RV	SLC-CrkSpg	Original Ground	6.55	6.79	6.65	3	100%	5.79	6.89	6.48	3	100%	na	na	na	na	na	8.16	69.5	26.1	4	100%	na	na	na	na	na
SLC-5	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	607	738	652	3	100%	na	na	na	na	na
SLC-6	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	770	831	803	3	100%	na	na	na	na	na
SW08-ST	RV	SLC-CrkSpg	Original Ground	5	9	6.88	9	100%	3.45	7.71	6.05	9	100%	na	na	na	na	na	6	79	31.2	18	94%	na	na	na	na	na
SW09-ST	RV	SLC-CrkSpg	Original Ground	4	14	8.09	9	100%	4.59	10.3	7.84	10	100%	na	na	na	na	na	6.4	54	23	19	100%	na	na	na	na	na
SLP-1	PD	SLC-PD	Original Ground	6.45	6.45	6.45	1	100%	6.56	6.56	6.56	1	100%	na	na	na	na	na	121	229	175	2	100%	na	na	na	na	na
SLP-2	PD	SLC-PD	Original Ground	4.03	4.03	4.03	1	100%	3.61	3.61	3.61	1	100%	na	na	na	na	na	1.07	1.15	1.11	2	100%	na	na	na	na	na
SLP-3	PD	SLC-PD	Original Ground	8.61	8.61	8.61	1	100%	7.69	7.69	7.69	1	100%	na	na	na	na	na	6.31	26	16.2	2	100%	na	na	na	na	na
SLCT1-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	28.1	28.1	28.1	1	100%	na	na	na	na	na
SLCT1-1	RV	SLC-CrkSpg	Original Ground	8.2	8.2	8.2	1	100%	na	na	na	na	na	na	na	na	na	na	20	20	20	1	100%	na	na	na	na	na
SLCT2-0	RV	SLC-CrkSpg	Original Ground	4.48	6.71	5.89	5	100%	5.15	6.53	6.06	3	100%	na	na	na	na	na	8.14	39.7	19	13	100%	na	na	na	na	na
SLCT2-1	RV	SLC-CrkSpg	Original Ground	5.2	6.92	6.06	2	100%	na	na	na	na	na	na	na	na	na	na	7.5	60	28.8	3	100%	na	na	na	na	na
SLCT2-2	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	32.9	32.9	32.9	1	100%	na	na	na	na	na
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	6.48	6.48	6.48	1	100%	6.53	6.53	6.53	1	100%	na	na	na	na	na	59.8	59.8	59.8	1	100%	na	na	na	na	na
SLCT2-4	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	164	164	164	1	100%	na	na	na	na	na
SLCT3-0	RV	SLC-CrkSpg	Original Ground	5.78	6.48	6.13	2	100%	5.65	5.65	5.65	1	100%	na	na	na	na	na	3.38	5.19	4.1	4	100%	na	na	na	na	na
SLCT3-1	RV	SLC-CrkSpg	Original Ground	4	4.63	4.32	2	100%	na	na	na	na	na	na	na	na	na	na	6.36	6.79	6.58	3	67%	na	na	na	na	na
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	3.6	4.07	3.84	2	100%	3.58	3.89	3.74	2	100%	na	na	na	na	na	6.44	7.74	7.09	2	100%	na	na	na	na	na
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	3.98	3.98	3.98	1	100%	3.58	3.58	3.58	1	100%	na	na	na	na	na	9.26	9.26	9.26	1	100%	na	na	na	na	na
SW13-ST	RV	SLC-CrkSpg	Original Ground	5	9	7.76	5	100%	2.94	9.64	6.54	8	100%	na	na	na	na	na	4.32	152	21.3	13	85%	na	na	na	na	na
SW14-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	3.27	6.7	5.02	3	100%	na	na	na	na	na	65.5	259	169	3	100%	na	na	na	na	na
SW15-ST	RV	SLC-CrkSpg	Original Ground	4	4	4	1	100%	2.52	5.51	4.02	2	100%	na	na	na	na	na	8.24	26	17.1	3	67%	na	na	na	na	na
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	3	6	4.53	9	100%	2.64	5.67	4.05	10	100%	na	na	na	na	na	4.31	11	8	19	84%	na	na	na	na	na
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	1.46	1.46	1.46	1	100%	1.51	1.51	1.51	1	100%	na	na	na	na	na	9.23	9.23	9.23	1	100%	na	na	na	na	na
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	3.7	8	5.19	9	100%	3.45	4.2	3.76	10	100%	na	na	na	na	na	25.8	37	31.7	19	100%	na	na	na	na	na
WS-4	SP (Spring)	WW-SpgPd	Original Ground	3.65	3.96	3.82	4	100%	3.67	4.12	3.88	4	100%	na	na	na	na	na	28.9	32.5	30.6	6	100%	na	na	na	na	na
WS-5	SP (Spring)	OffW-Spg	Original Ground	4.45	5.04	4.69	4	100%	4.06	5.13	4.64	4	100%	na	na	na	na	na	23.3	68.6	40.2	6	100%	na	na	na	na	na

Table 4-25
Summary of Detected General Anion and Cation Results in Surface Water

			Analyte >>	Sodium, Dissolved					Sodium, Total					Sulfate, Dissolved					Sulfate, Total					Sulfate, Total (field)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10	20	13.3	3	100%	na	na	na	na	na
AWI012-04	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	20	20	20	1	100%	na	na	na	na	na
AWI012-06	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	20	20	20	1	100%	na	na	na	na	na
BFR-1	RV	Offsite-BFR	Offsite	3.74	4.71	4.14	5	100%	3.64	4.67	4.21	5	100%	na	na	na	na	na	8.75	14.1	12	13	100%	na	na	na	na	na
BFR-2	RV	Offsite-BFR	Offsite	3.72	4.83	4.1	5	100%	3.62	4.64	4.16	5	100%	na	na	na	na	na	8.38	14.4	12	13	100%	na	na	na	na	na
BFR-3	RV	Offsite-BFR	Offsite	3.71	4.7	4.07	5	100%	3.82	4.53	4.15	5	100%	na	na	na	na	na	8.75	14.3	11.9	15	100%	na	na	na	na	na
BFR-4	RV	Offsite-BFR	Offsite	3.57	4.5	3.95	5	100%	3.66	4.38	3.95	5	100%	na	na	na	na	na	8.38	13.8	11.9	15	100%	na	na	na	na	na
BFR-DS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10.5	10.5	10.5	1	100%	na	na	na	na	na
BFR-US	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10.6	10.6	10.6	1	100%	na	na	na	na	na
BGS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	10	10	10	1	100%	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	3.9	4.4	4.12	6	83%	na	na	na	na	na	9.5	14	11.9	6	100%	na	na	na	na	na	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	3.9	5.3	4.38	6	83%	na	na	na	na	na	9.4	14	12	6	100%	na	na	na	na	na	na	na	na	na	na
ST021	RV	Offsite-BFR	Offsite	3.9	4.2	4.03	4	75%	na	na	na	na	na	9.4	12	10.9	4	100%	na	na	na	na	na	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	3.6	4.2	3.82	6	83%	na	na	na	na	na	10	13	11.6	5	100%	na	na	na	na	na	na	na	na	na	na
ST230	RV	Offsite-BFR	Offsite	4.3	4.6	4.45	2	100%	na	na	na	na	na	9.5	11	10.3	2	100%	na	na	na	na	na	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	3.8	4.3	4.05	2	100%	na	na	na	na	na	13	14	13.5	2	100%	na	na	na	na	na	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	3.9	6	4.41	9	100%	3.2	4.9	4.15	10	100%	na	na	na	na	na	8.4	19	13.6	19	95%	na	na	na	na	na
SW11-ST	RV	Offsite-BFR	Offsite	4	8	4.92	9	100%	3.1	4.8	4.14	10	100%	na	na	na	na	na	5	22	14	19	100%	na	na	na	na	na
SW19-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	3.9	4.81	4.24	6	100%	na	na	na	na	na	29.2	33.7	31.5	6	100%	na	na	na	na	na
SW20-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	4.9	7.73	6.35	6	100%	na	na	na	na	na	17.5	42.8	26.7	6	83%	na	na	na	na	na
SW21-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	5.21	5.8	5.55	5	100%	na	na	na	na	na	23.6	27.4	25.8	5	100%	na	na	na	na	na
Offsite-Blackfoot River vicinity																												
SW01-W	SP (Spring)	OffN-Spg	Offsite	9	15	11.5	9	100%	7.7	12.2	10.1	10	100%	na	na	na	na	na	6.85	17	9.75	19	95%	na	na	na	na	na
SW16-SP	SP (Spring)	OffN-Spg	Offsite	11	11	11	2	100%	10.9	14.4	12	10	100%	na	na	na	na	na	12	33.5	17.4	12	100%	na	na	na	na	na
SW17-W	PD	OffN-Spg	Offsite	na	na	na	na	na	6.4	9.26	7.16	6	100%	na	na	na	na	na	3.85	35.1	19.3	6	100%	na	na	na	na	na
SW18-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	3.68	4.57	4.1	6	100%	na	na	na	na	na	19.2	41	27.1	6	83%	na	na	na	na	na
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TC-1	RV	Offsite-TC	Offsite	5.17	6.56	5.72	6	100%	4.96	6.5	5.62	6	100%	na	na	na	na	na	6.54	14.4	9.46	16	100%	na	na	na	na	na
TC-2	RV	Offsite-TC	Offsite	5.67	6.82	6.27	5	100%	5.58	6.5	6.06	5	100%	na	na	na	na	na	6.54	27.1	11.2	15	100%	na	na	na	na	na
TC-3	RV	Offsite-TC	Offsite	5.66	6.91	6.35	5	100%	5.23	6.67	6.08	5	100%	na	na	na	na	na	6.54	19.9	10.7	15	100%	na	na	na	na	na
TC-4	RV	Offsite-TC	Offsite	5.73	6.87	6.35	5	100%	5.3	6.72	6.23	5	100%	na	na	na	na	na	6.81	27.3	12.9	15	100%	na	na	na	na	na
TC-5	RV	Offsite-TC	Offsite	na	na	na	na	na	4.24	4.24	4.24	1	100%	na	na	na	na	na	6.85	6.85	6.85	1	100%	na	na	na	na	na
TRATT003	RV	Offsite-TC	Offsite	5.5	6.1	5.8	2	100%	5.8	6.3	6.05	2	100%	na	na	na	na	na	7	13	9.87	3	100%	na	na	na	na	na

Table 4-25
Summary of Detected Anion and Cation Results in Surface Water
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

mg/L = milligrams per liter

Station Type: FD = French Drain; PD = Pond; PP = Pipe; RV = River/Stream; SP = Spring/Seep; TP = Tailings Pond

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins.

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Alkalinity					Ammonia, as N					Ammonia, Total					Ammonia, Un-Ionized					Bicarbonate, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	189	232	206	7	100%	0.048	0.048	0.048	2	50%	na	na	na	na	na	na	na	na	na	na	189	232	203	7	100%
CGC-1	RV	CGC-Crk	Original Ground	191	234	206	7	100%	0.03	0.032	0.031	6	33%	na	na	na	na	na	na	na	na	na	na	191	234	206	7	100%
CGC-2	RV	CGC-Crk	Original Ground	187	205	195	5	100%	na	na	na	5	0%	na	na	na	na	na	na	na	na	na	na	187	205	195	5	100%
CGC-2A	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-3	RV	CGC-Crk	Original Ground	163	207	192	5	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	163	207	192	5	100%
CGC-3A	RV	CGC-Crk	Original Ground	164	208	192	8	100%	0.03	0.043	0.0365	4	50%	na	na	na	na	na	na	na	na	na	na	164	208	191	8	100%
CGC-4	RV	CGC-Crk	Original Ground	212	212	212	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	212	212	212	1	100%
CGC-4A	RV	CGC-Crk	Original Ground	177	242	220	12	100%	0.03	0.033	0.0315	5	40%	na	na	na	na	na	na	na	na	na	na	177	242	220	12	100%
CGC-5	RV	CGC-Crk	Original Ground	206	236	221	4	100%	na	na	na	4	0%	na	na	na	na	na	na	na	na	na	na	206	236	221	4	100%
CGCT1-1	RV	CGC-Crk	Original Ground	171	208	190	2	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	171	208	190	2	100%
CGC-UPTC	RV	CGC-Crk	Original Ground	184	184	184	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	184	184	184	1	100%
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	183	194	189	3	100%	0.03	0.03	0.03	3	33%	na	na	na	na	na	na	na	na	na	na	183	194	189	3	100%
JRLD	SP (Spring)	CGC-Spg	Original Ground	254	269	259	6	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	254	269	259	6	100%
JS-1	SP (Spring)	CGC-Spg	Original Ground	194	208	199	10	100%	0.032	0.032	0.032	5	20%	na	na	na	na	na	na	na	na	na	na	194	208	199	10	100%
French Drain Sub-Basin																												
FD-1	FD	FD-CrkSpgPd	Overburden	340	443	388	14	100%	0.01	0.036	0.0257	8	38%	na	na	na	na	na	na	na	na	na	na	340	443	388	14	100%
SWP-4	PD	FD-CrkSpgPd	Overburden	262	535	374	8	100%	0.045	0.122	0.0835	4	50%	na	na	na	na	na	na	na	na	na	na	262	535	374	8	100%
SWP-4A	PD	FD-CrkSpgPd	Overburden	413	413	413	1	100%	0.04	0.04	0.04	1	100%	na	na	na	na	na	na	na	na	na	na	413	413	413	1	100%
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	343	393	364	7	100%	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	343	393	364	7	100%
TP-1	TP	FD-NTP	Tailings	245	371	287	9	100%	0.058	0.269	0.129	8	100%	na	na	na	na	na	na	na	na	na	na	194	351	256	9	100%
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	110	149	122	5	100%	0.058	0.06	0.059	5	40%	na	na	na	na	na	na	na	na	na	na	75.1	149	114	5	100%
North Woodall Mountain Sub-Basin																												
SW03-L	PD	NWM-CrkSpgPd	Original Ground	66.5	202	158	19	100%	0.053	0.68	0.154	19	42%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NWC-1	RV	NWM-CrkSpgPd	Original Ground	148	148	148	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	148	148	148	1	100%
NWC-2	RV	NWM-CrkSpgPd	Original Ground	153	220	185	4	100%	0.047	0.047	0.047	4	25%	na	na	na	na	na	na	na	na	na	na	153	220	184	4	100%
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	16.5	224	163	19	100%	0.015	0.08	0.0563	19	32%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	57.8	221	171	18	100%	0.01	0.19	0.0892	18	28%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	287	710	582	19	100%	0.02	0.12	0.062	19	37%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WS-1	SP (Spring)	WW-SpgPd	Original Ground	477	572	528	7	100%	na	na	na	5	0%	na	na	na	na	na	na	na	na	na	na	477	572	528	7	100%
WS-2	SP (Spring)	WW-SpgPd	Original Ground	521	765	634	6	100%	na	na	na	4	0%	na	na	na	na	na	na	na	na	na	na	521	765	634	6	100%
WS-3	SP (Spring)	WW-SpgPd	Original Ground	899	994	947	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	899	994	947	2	100%
Old Tailings Pond Sub-Basin																												
NBorrowSedBasin	PD	OTP-pool	Original Ground	29.1	63.6	46.4	2	100%	0.274	0.274	0.274	2	50%	na	na	na	na	na	na	na	na	na	na	29.1	63.6	46.4	2	100%
NEP-7	PD	OTP-pool	Overburden (now covered)	52	52	52	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	52	52	52	1	100%
TP-2	TP	OTP-TP	Tailings	152	167	160	2	100%	0.087	0.087	0.087	2	50%	na	na	na	na	na	na	na	na	na	na	152	167	160	2	100%
TP-2A	TP	OTP-TP	Tailings	192	192	192	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	192	192	192	1	100%
TP-2B	TP	OTP-TP	Tailings	115	115	115	1	100%	0.058	0.058	0.058	1	100%	na	na	na	na	na	na	na	na	na	na	115	115	115	1	100%
TP-2C	TP	OTP-TP	Tailings	130	130	130	1	100%	0.099	0.099	0.099	1	100%	na	na	na	na	na	na	na	na	na	na	130	130	130	1	100%
TP-2D	TP	OTP-TP	Tailings	285	285	285	1	100%	0.055	0.055	0.055	1	100%	na	na	na	na	na	na	na	na	na	na	285	285	285	1	100%
Pedro Creek Sub-Basin																												
ESedBasinC	PD	PC-PDPOOL	Original Ground	74.3	77.2	75.8	2	100%	0.045	0.872	0.459	2	100%	na	na	na	na	na	na	na	na	na	na	59.1	74.3	66.7	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	128	128	128	1	100%	0.971	0.971	0.971	1	100%	na	na	na	na	na	na	na	na	na	na	128	128	128	1	100%
ESedBasinS	PD	PC-PDPOOL	Original Ground	73.6	73.6	73.6	1	100%	0.86	0.86	0.86	1	100%	na	na	na	na	na	na	na	na	na	na	73.6	73.6	73.6	1	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	55.1	137	82.2	6	100%	0.042	0.112	0.0675	5	80%	na	na	na	na	na	na	na	na	na	na	52.5	110	75.7	6	100%
NED-1	PD	PC-PDPOOL	Overburden (now covered)	85.1	85.1	85.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	85.1	85.1	85.1	1	100%
NEP-1	PD	PC-PDPOOL	Original Ground	100	110	103	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	76	85	81.3	3	100%
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	51	111	90	3	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	32	111	80.3	3	100%
NESedBasinC	PD	PC-PDPOOL	Original Ground	49	168	100	4	100%	0.051	0.276	0.127	4	75%	na	na	na	na	na	na	na	na	na	na	49	168	95.5	4	100%
NESedBasinN	PD	PC-PDPOOL	Original Ground	84.3	137	103	4	100%	0.052	0.43	0.201	4	75%	na	na	na	na	na	na	na	na	na	na	84.3	137	100	4	100%
NESedBasinS	PD	PC-PDPOOL	Original Ground	50.2	170	99.8	3	100%	0.043	0.22	0.132	3	67%	na	na	na	na	na	na	na	na	na	na	50.2	170	99.8	3	100%
PCP-2	PD	PC-PDPOOL	Original Ground	55.6	187	125	14	100%	0.036	0.1	0.0648	6	67%	na	na	na	na	na	na	na	na	na	na	25.3	187	119	14	100%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Alkalinity					Ammonia, as N					Ammonia, Total					Ammonia, Un-Ionized					Bicarbonate, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	29.8	60.3	41.1	3	100%	0.032	0.547	0.208	3	100%	na	na	na	na	na	na	na	na	na	na	29.8	54.7	39.2	3	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	49.6	96.1	72.9	2	100%	0.066	0.928	0.497	2	100%	na	na	na	na	na	na	na	na	na	na	49.6	96.1	72.9	2	100%
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	76.8	120	93	3	100%	0.043	0.043	0.043	3	33%	na	na	na	na	na	na	na	na	na	na	76.8	108	89	3	100%
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	207	264	237	4	100%	0.036	0.093	0.057	4	75%	na	na	na	na	na	na	na	na	na	na	207	264	237	4	100%
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	224	248	236	2	100%	0.043	0.043	0.043	2	50%	na	na	na	na	na	na	na	na	na	na	224	248	236	2	100%
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	21.6	26.7	24.2	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	21.6	26.7	24.2	2	100%
PC-1	RV	PC-CrkSpgSeeps	Original Ground	121	209	167	13	100%	0.048	0.048	0.048	4	25%	na	na	na	na	na	na	na	na	na	na	121	209	161	13	100%
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	176	176	176	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	176	176	176	1	100%
PC-2	RV	PC-CrkSpgSeeps	Original Ground	124	199	174	19	100%	0.032	0.123	0.0775	7	29%	na	na	na	na	na	na	na	na	na	na	124	199	174	19	100%
PC-3	RV	PC-CrkSpgSeeps	Original Ground	58.8	80	64.8	4	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	58.8	80	64.8	4	100%
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	61.1	61.1	61.1	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	61.1	61.1	61.1	1	100%
PC-4	RV	PC-CrkSpgSeeps	Original Ground	90.4	200	113	9	100%	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	90.4	200	113	9	100%
PC-5	RV	PC-CrkSpgSeeps	Original Ground	92	201	136	12	100%	0.031	0.111	0.071	3	67%	na	na	na	na	na	na	na	na	na	na	92	201	136	12	100%
PC-6	RV	PC-CrkSpgSeeps	Original Ground	90.4	154	122	2	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	90.4	154	122	2	100%
PC-9	RV	PC-CrkSpgSeeps	Original ground	97.8	97.8	97.8	1	100%	0.288	0.288	0.288	1	100%	na	na	na	na	na	na	na	na	na	na	97.8	97.8	97.8	1	100%
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	31.1	31.1	31.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	31.1	31.1	31.1	1	100%
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	182	210	196	2	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	182	210	196	2	100%
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	236	236	236	1	100%	0.22	0.22	0.22	1	100%	na	na	na	na	na	na	na	na	na	na	236	236	236	1	100%
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	39	184	112	2	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	39	184	112	2	100%
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	188	194	191	2	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	188	194	191	2	100%
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	61	61	61	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	61	61	61	1	100%
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	134	134	134	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	134	134	134	1	100%
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	66.1	82.9	74.5	2	100%	0.039	0.039	0.039	2	50%	na	na	na	na	na	na	na	na	na	na	66.1	74	70.1	2	100%
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	288	305	297	2	100%	0.096	0.096	0.096	2	50%	na	na	na	na	na	na	na	na	na	na	288	305	297	2	100%
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	63.3	73.4	69.2	3	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	63.3	73.4	69.2	3	100%
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	132	368	223	24	100%	0.01	0.053	0.038	11	27%	na	na	na	na	na	na	na	na	na	na	132	368	223	24	100%
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	233	233	233	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	233	233	233	1	100%
Shield and Jouglard Canyons Sub-Basin																												
HHP-1	PD	SJC-PD	Original Ground	106	265	219	14	100%	0.095	1.48	0.712	8	38%	na	na	na	na	na	na	na	na	na	na	95.5	265	217	14	100%
NL4P-1	PD	SJC-PitLake	Overburden	50	101	76.3	18	100%	0.01	0.202	0.106	8	25%	na	na	na	na	na	na	na	na	na	na	16.5	84.2	53.9	18	100%
NL4P-OP3	PD	SJC-pool	Overburden	34	34	34	1	100%	0.051	0.051	0.051	1	100%	na	na	na	na	na	na	na	na	na	na	34	34	34	1	100%
SWP-1	PD	SJC-pool	Overburden	25	25	25	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	25	25	25	1	100%
SWP-2	PD	SJC-ODApond	Original Ground	102	176	148	4	100%	0.045	0.045	0.045	3	33%	na	na	na	na	na	na	na	na	na	na	102	176	148	4	100%
SWP-3	PD	SJC-PD	Original Ground	195	374	261	5	100%	0.032	0.082	0.057	4	50%	na	na	na	na	na	na	na	na	na	na	195	374	261	5	100%
HH-OP1	RV	SJC-PD	Original Ground	240	240	240	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	240	240	240	1	100%
NL4P-OP1	RV	SJC-pool	Overburden	7.5	7.5	7.5	1	100%	0.053	0.053	0.053	1	100%	na	na	na	na	na	na	na	na	na	na	7.5	7.5	7.5	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	7.2	7.2	7.2	1	100%	0.066	0.066	0.066	1	100%	na	na	na	na	na	na	na	na	na	na	7.2	7.2	7.2	1	100%
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	492	533	518	7	100%	na	na	na	5	0%	na	na	na	na	na	na	na	na	na	na	492	533	518	7	100%
HH-1	SP (Spring)	SJC-Spg	Original Ground	227	264	253	5	100%	na	na	na	5	0%	na	na	na	na	na	na	na	na	na	na	227	264	252	5	100%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	228	275	256	3	100%	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	228	275	256	3	100%
SWS-2	SP (Spring)	SJC-Spg	Original ground	181	371	270	9	100%	0.05	0.05	0.05	4	25%	na	na	na	na	na	na	na	na	na	na	181	371	270	9	100%
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	157	157	157	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	157	157	157	1	100%
SLP-1	PD	SLC-PD	Original Ground	21.6	21.6	21.6	1	100%	0.043	0.043	0.043	1	100%	na	na	na	na	na	na	na	na	na	na	21.6	21.6	21.6	1	100%
SLP-2	PD	SLC-PD	Original Ground	36.7	36.7	36.7	1	100%	0.07	0.07	0.07	1	100%	na	na	na	na	na	na	na	na	na	na	36.7	36.7	36.7	1	100%
SLP-3	PD	SLC-PD	Original Ground	73.8	73.8	73.8	1	100%	0.056	0.056	0.056	1	100%	na	na	na	na	na	na	na	na	na	na	73.8	73.8	73.8	1	100%
AWI012-22	RV	SLC-CrkSpg	Original Ground	99	147	123	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	99	147	123	4	100%
SLC	RV	SLC-CrkSpg	Original Ground	193	193	193	1	100%	na	na	na	na	na	0.02	0.02	0.02	1	100%	na	na	na	1	0%	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	118	242	187	12	100%	0.045	0.055	0.0505	5	80%	na	na	na	na	na	na	na	na	na	na	118	242	187	12	100%
SLC-1	RV	SLC-CrkSpg	Original Ground	141	218	181	3	100%	0.02	0.1	0.06	3	67%	na	na	na	na	na	na	na	na	na	na	141	218	181	3	100%
SLC-2	RV	SLC-CrkSpg	Original Ground	92.2	180	152	10	100%	0.044	0.2	0.0963	6	50%	na	na	na	na	na	na	na	na	na	na	92.2	180	150	10	100%
SLC-3	RV	SLC-CrkSpg	Original Ground	13.8	24	17.5	3	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	13.8	24	17.5	3	100%
SLC-3A	RV	SLC-CrkSpg	Original Ground	15	15	15	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	15	15	15	1	100%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Alkalinity					Ammonia, as N					Ammonia, Total					Ammonia, Un-Ionized					Bicarbonate, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SLC-3D	RV	SLC-CrkSpg	Original Ground	55.5	171	112	5	100%	0.166	0.166	0.166	2	50%	na	na	na	na	na	na	na	na	na	na	55.5	171	112	5	100%
SLC-3E	RV	SLC-CrkSpg	Original Ground	83.2	174	142	3	100%	0.109	0.109	0.109	3	33%	na	na	na	na	na	na	na	na	na	na	83.2	174	142	3	100%
SLC-5	RV	SLC-CrkSpg	Original Ground	128	129	129	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	128	129	129	2	100%
SLC-6	RV	SLC-CrkSpg	Original Ground	145	157	151	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	145	157	151	2	100%
SLCT1-1	RV	SLC-CrkSpg	Original Ground	84	84	84	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	84	84	84	1	100%
SLCT2-0	RV	SLC-CrkSpg	Original Ground	79.7	174	144	10	100%	0.105	0.105	0.105	3	33%	na	na	na	na	na	na	na	na	na	na	79.7	174	144	10	100%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	66	171	119	2	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	66	171	119	2	100%
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	116	116	116	1	100%	0.081	0.081	0.081	1	100%	na	na	na	na	na	na	na	na	na	na	116	116	116	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground	74.1	74.1	74.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	74.1	74.1	74.1	1	100%
SLCT3-0	RV	SLC-CrkSpg	Original Ground	85.1	118	101	4	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	85.1	113	98.1	4	100%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	106	132	119	2	100%	0.1	0.1	0.1	2	50%	na	na	na	na	na	na	na	na	na	na	106	132	119	2	100%
SW08-ST	RV	SLC-CrkSpg	Original Ground	24.7	187	119	18	100%	0.01	0.14	0.0754	18	28%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW09-ST	RV	SLC-CrkSpg	Original Ground	39.5	238	163	19	100%	0.01	0.19	0.0776	19	37%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW13-ST	RV	SLC-CrkSpg	Original Ground	25.1	337	135	13	100%	0.01	0.1	0.0583	13	46%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW14-ST	RV	SLC-CrkSpg	Original Ground	24.2	56.3	41.8	3	100%	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW15-ST	RV	SLC-CrkSpg	Original Ground	16	76.2	38.5	3	100%	0.032	0.077	0.0545	3	67%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	30	151	65.7	5	100%	0.033	0.033	0.033	2	50%	na	na	na	na	na	na	na	na	na	na	30	151	64.9	5	100%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	117	142	130	2	100%	0.033	0.033	0.033	2	50%	na	na	na	na	na	na	na	na	na	na	117	142	130	2	100%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	157	212	181	3	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	157	212	181	3	100%
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	283	425	344	13	100%	0.03	0.03	0.03	5	20%	na	na	na	na	na	na	na	na	na	na	283	425	344	13	100%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	292	292	292	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	292	292	292	1	100%
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	286	290	288	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	286	290	288	2	100%
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	299	477	389	5	100%	0.01	0.038	0.024	3	67%	na	na	na	na	na	na	na	na	na	na	299	477	389	5	100%
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	128	143	136	2	100%	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	128	143	136	2	100%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	88.8	88.8	88.8	1	100%	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	88.8	88.8	88.8	1	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	38.6	142	108	19	100%	0.027	0.12	0.0793	19	21%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	109	109	109	1	100%	0.036	0.036	0.036	1	100%	na	na	na	na	na	na	na	na	na	na	98.1	98.1	98.1	1	100%
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	204	499	444	19	100%	0.01	0.07	0.0457	19	32%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WS-4	SP (Spring)	WW-SpgPd	Original Ground	464	499	477	6	100%	0.181	0.181	0.181	4	25%	na	na	na	na	na	na	na	na	na	na	464	499	477	6	100%
WS-5	SP (Spring)	OffW-Spg	Original Ground	369	472	410	6	100%	0.037	0.04	0.0385	4	50%	na	na	na	na	na	na	na	na	na	na	369	472	410	6	100%
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	147	222	178	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	144	222	177	6	100%
AWI012-04	RV	Offsite-BFR	Offsite	153	189	174	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	151	186	169	4	100%
AWI012-06	RV	Offsite-BFR	Offsite	149	188	172	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	146	183	167	4	100%
BFR-1	RV	Offsite-BFR	Offsite	147	200	179	13	100%	0.039	0.159	0.081	5	60%	na	na	na	na	na	na	na	na	na	na	147	198	176	13	100%
BFR-2	RV	Offsite-BFR	Offsite	149	200	179	13	100%	0.031	0.063	0.047	5	40%	na	na	na	na	na	na	na	na	na	na	149	200	177	13	100%
BFR-3	RV	Offsite-BFR	Offsite	146	202	179	15	100%	0.039	0.209	0.0987	5	60%	na	na	na	na	na	na	na	na	na	na	145	202	176	15	100%
BFR-4	RV	Offsite-BFR	Offsite	141	202	178	15	100%	0.03	0.036	0.032	5	60%	na	na	na	na	na	na	na	na	na	na	141	202	176	15	100%
BFR-DS	RV	Offsite-BFR	Offsite	168	168	168	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	168	168	168	1	100%
BFR-US	RV	Offsite-BFR	Offsite	168	168	168	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	168	168	168	1	100%
BGS	RV	Offsite-BFR	Offsite	166	166	166	1	100%	na	na	na	na	na	0.04	0.04	0.04	1	100%	0.004	0.004	0.004	1	100%	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	130	190	167	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	120	190	155	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST021	RV	Offsite-BFR	Offsite	160	180	173	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	130	190	168	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST230	RV	Offsite-BFR	Offsite	180	190	185	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	130	200	165	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	57.5	196	149	19	100%	0.01	0.19	0.0787	19	37%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW11-ST	RV	Offsite-BFR	Offsite	63.9	359	180	19	100%	0.02	0.16	0.0673	19	42%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW19-SP	SP (Spring)	OffN-Spg	Offsite	818	874	854	6	100%	5E-05	0.53	0.149	6	83%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW20-SP	SP (Spring)	OffN-Spg	Offsite	525	946	734	6	100%	0.031	0.054	0.0425	6	33%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Alkalinity					Ammonia, as N					Ammonia, Total					Ammonia, Un-Ionized					Bicarbonate, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/L					mg/L					mg/L					mg/L					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SW21-SP	SP (Spring)	OffN-Spg	Offsite	541	597	569	5	100%	0.02	0.047	0.0335	5	40%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Blackfoot River vicinity																												
SW17-W	PD	OffN-Spg	Offsite	206	781	520	6	100%	0.054	0.089	0.0675	6	67%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW01-W	SP (Spring)	OffN-Spg	Offsite	87.7	251	209	19	100%	0.01	0.32	0.106	19	47%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW16-SP	SP (Spring)	OffN-Spg	Offsite	59.4	179	152	12	100%	0.01	0.053	0.03	12	33%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW18-SP	SP (Spring)	OffN-Spg	Offsite	531	1080	673	6	100%	0.037	0.9	0.319	6	67%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	201	209	205	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	193	199	196	2	100%
TC-1	RV	Offsite-TC	Offsite	158	208	189	16	100%	0.032	0.032	0.032	6	17%	na	na	na	na	na	na	na	na	na	na	158	208	188	16	100%
TC-2	RV	Offsite-TC	Offsite	167	214	196	15	100%	0.039	0.048	0.0435	5	40%	na	na	na	na	na	na	na	na	na	na	165	214	195	15	100%
TC-3	RV	Offsite-TC	Offsite	165	217	196	15	100%	0.032	0.071	0.0515	5	40%	na	na	na	na	na	na	na	na	na	na	165	217	196	15	100%
TC-4	RV	Offsite-TC	Offsite	166	217	195	15	100%	0.031	0.074	0.0473	5	60%	na	na	na	na	na	na	na	na	na	na	166	217	195	15	100%
TC-5	RV	Offsite-TC	Offsite	179	179	179	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	179	179	179	1	100%
TRATT003	RV	Offsite-TC	Offsite	170	190	180	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	140	190	163	3	100%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Bicarbonate, as HCO3					Carbonate, as CaCO3					Carbonate, as CO3					Hardness, as CaCO3					Hydroxide, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	Station Type	Hardness Calculation Group	Material Type																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	na	na	na	na	na	3.3	8.3	6.27	7	43%	na	na	na	na	na	199	230	215	7	100%	na	na	na	na	na
CGC-1	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	7	0%	na	na	na	na	na	186	237	207	6	100%	na	na	na	2	0%
CGC-2	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	5	0%	na	na	na	na	na	198	204	200	3	100%	na	na	na	5	0%
CGC-2A	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-3	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	5	0%	na	na	na	na	na	173	225	206	5	100%	na	na	na	1	0%
CGC-3A	RV	CGC-Crk	Original Ground	na	na	na	na	na	2.5	2.5	2.5	8	13%	na	na	na	na	na	174	234	200	7	100%	na	na	na	1	0%
CGC-4	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	230	230	230	1	100%	na	na	na	1	0%
CGC-4A	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	12	0%	na	na	na	na	na	186	277	233	11	100%	na	na	na	1	0%
CGC-5	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	4	0%	na	na	na	na	na	206	233	221	3	100%	na	na	na	2	0%
CGCT1-1	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	188	188	188	1	100%	na	na	na	2	0%
CGC-UPTC	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	186	186	186	1	100%	na	na	na	1	0%
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	183	197	191	3	100%	na	na	na	na	na
JRLD	SP (Spring)	CGC-Spg	Original Ground	na	na	na	na	na	na	na	na	6	0%	na	na	na	na	na	252	290	269	6	100%	na	na	na	na	na
JS-1	SP (Spring)	CGC-Spg	Original Ground	na	na	na	na	na	na	na	na	10	0%	na	na	na	na	na	187	209	198	9	100%	na	na	na	1	0%
French Drain Sub-Basin																												
FD-1	FD	FD-CrkSpgPd	Overburden	na	na	na	na	na	na	na	na	13	0%	na	na	na	na	na	0.836	897	742	12	100%	na	na	na	2	0%
SWP-4	PD	FD-CrkSpgPd	Overburden	na	na	na	na	na	na	na	na	8	0%	na	na	na	na	na	489	779	659	8	100%	na	na	na	1	0%
SWP-4A	PD	FD-CrkSpgPd	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	1	0%
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	na	na	na	na	na	na	na	na	7	0%	na	na	na	na	na	686	911	784	7	100%	na	na	na	na	na
TP-1	TP	FD-NTP	Tailings	na	na	na	na	na	20	50.6	34.8	9	89%	na	na	na	na	na	0.716	828	623	8	100%	na	na	na	2	0%
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	na	na	na	na	na	40.2	40.2	40.2	5	20%	na	na	na	na	na	113	155	129	4	100%	na	na	na	2	0%
North Woodall Mountain Sub-Basin																												
SW03-L	PD	NWM-CrkSpgPd	Original Ground	66.5	247	175	19	100%	na	na	na	na	na	1	19	8.67	11	27%	126	200	163	19	100%	na	na	na	na	na
NWC-1	RV	NWM-CrkSpgPd	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	150	150	150	1	100%	na	na	na	na	na
NWC-2	RV	NWM-CrkSpgPd	Original Ground	na	na	na	na	na	4.6	4.6	4.6	4	25%	na	na	na	na	na	152	205	177	4	100%	na	na	na	na	na
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	16.5	274	184	19	100%	na	na	na	na	na	na	na	na	8	0%	29.9	224	168	19	100%	na	na	na	na	na
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	57.8	261	194	18	100%	na	na	na	na	na	5	5	5	8	13%	78.4	233	181	18	100%	na	na	na	na	na
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	287	841	659	19	100%	na	na	na	na	na	na	na	na	8	0%	559	740	647	19	100%	na	na	na	na	na
WS-1	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	7	0%	na	na	na	na	na	532	588	545	6	100%	na	na	na	2	0%
WS-2	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	6	0%	na	na	na	na	na	592	780	676	6	100%	na	na	na	na	na
WS-3	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	932	933	933	2	100%	na	na	na	na	na
Old Tailings Pond Sub-Basin																												
NBorrowSedBasin	PD	OTP-pool	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	52.9	84.3	68.6	2	100%	na	na	na	na	na
NEP-7	PD	OTP-pool	Overburden (now covered)	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	77	77	77	1	100%	na	na	na	na	na
TP-2	TP	OTP-TP	Tailings	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	291	828	560	2	100%	na	na	na	1	0%
TP-2A	TP	OTP-TP	Tailings	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	508.09	508.09	508	1	100%	na	na	na	na	na
TP-2B	TP	OTP-TP	Tailings	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	204	204	204	1	100%	na	na	na	na	na
TP-2C	TP	OTP-TP	Tailings	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	128	128	128	1	100%	na	na	na	na	na
TP-2D	TP	OTP-TP	Tailings	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	649	649	649	1	100%	na	na	na	na	na
Pedro Creek Sub-Basin																												
ESedBasinC	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	18.1	18.1	18.1	2	50%	na	na	na	na	na	435	472	454	2	100%	na	na	na	na	na
ESedBasinN	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	996	996	996	1	100%	na	na	na	na	na
ESedBasinS	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	445	445	445	1	100%	na	na	na	na	na
FSPSBasin	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	2.6	26.4	9.58	6	67%	na	na	na	na	na	120	524	293	6	83%	na	na	na	na	na
NED-1	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	1220	1220	1220	1	100%	na	na	na	1	0%
NEP-1	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	18	27	22.3	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	10.3	19	14.7	3	67%	na	na	na	na	na	120	174	141	3	100%	na	na	na	1	0%
NESedBasinC	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	19.3	19.3	19.3	4	25%	na	na	na	na	na	2.82	731	405	4	100%	na	na	na	na	na
NESedBasinN	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	10.1	10.1	10.1	4	25%	na	na	na	na	na	2.84	1340	684	5	100%	na	na	na	na	na
NESedBasinS	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	3.47	741	333	3	100%	na	na	na	na	na
PCP-2	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	11.4	35.1	20.7	14	29%	na	na	na	na	na	84.2	264	177	14	100%	na	na	na	2	0%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Bicarbonate, as HCO3					Carbonate, as CaCO3					Carbonate, as CO3					Hardness, as CaCO3					Hydroxide, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	5.6	5.6	5.6	3	33%	na	na	na	na	na	35.7	83	61.5	3	100%	na	na	na	na	na
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	88.2	129	109	2	100%	na	na	na	na	na
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	12.1	12.1	12.1	3	33%	na	na	na	na	na	526	669	582	3	100%	na	na	na	na	na
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	4	0%	na	na	na	na	na	2.63	2700	1971	5	100%	na	na	na	na	na
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	1860	2070	1965	2	100%	na	na	na	na	na
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	85.6	91.2	88.4	2	100%	na	na	na	1	0%
PC-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	3.4	24.7	16.8	13	31%	na	na	na	na	na	170	222	192	13	100%	na	na	na	2	0%
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	170	170	170	1	100%	na	na	na	na	na
PC-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	3.6	7.5	5.47	19	16%	na	na	na	na	na	166.13	225	191	18	100%	na	na	na	2	0%
PC-3	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	4	0%	na	na	na	na	na	310	876	555	4	100%	na	na	na	1	0%
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	366	366	366	1	100%	na	na	na	na	na
PC-4	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	9	0%	na	na	na	na	na	858	1830	1297	9	100%	na	na	na	1	0%
PC-5	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	12	0%	na	na	na	na	na	886	2290	1593	12	100%	na	na	na	na	na
PC-6	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	886	1680	1283	2	100%	na	na	na	na	na
PC-9	RV	PC-CrkSpgSeeps	Original ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	743	743	743	1	100%	na	na	na	na	na
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	38.3	38.3	38.3	1	100%	na	na	na	na	na
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	194	194	194	1	100%	na	na	na	2	0%
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	1	0%
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	37	37	37	1	100%	na	na	na	2	0%
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	195	195	195	1	100%	na	na	na	2	0%
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	196	196	196	1	100%	na	na	na	1	0%
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	164	164	164	1	100%	na	na	na	na	na
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	na	na	na	na	na	8.9	8.9	8.9	2	50%	na	na	na	na	na	261	310	286	2	100%	na	na	na	na	na
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	659	964	812	2	100%	na	na	na	na	na
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	587	719	663	3	100%	na	na	na	na	na
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	21	0%	na	na	na	na	na	2.68	2770	2064	20	100%	na	na	na	3	0%
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	2.06	2.06	2.06	1	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																												
HHP-1	PD	SJC-PD	Original Ground	na	na	na	na	na	8.3	10.9	9.2	13	23%	na	na	na	na	na	129	288	235	12	100%	na	na	na	2	0%
NL4P-1	PD	SJC-PitLake	Overburden	na	na	na	na	na	12.6	66.2	36.6	17	65%	na	na	na	na	na	122	249	193	16	100%	na	na	na	4	0%
NL4P-OP3	PD	SJC-pool	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	39.5	39.5	39.5	1	100%	na	na	na	na	na
SWP-1	PD	SJC-pool	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	28	28	28	1	100%	na	na	na	1	0%
SWP-2	PD	SJC-ODApond	Original Ground	na	na	na	na	na	na	na	na	4	0%	na	na	na	na	na	108	182	156	4	100%	na	na	na	2	0%
SWP-3	PD	SJC-PD	Original Ground	na	na	na	na	na	na	na	na	5	0%	na	na	na	na	na	340	1190	644	5	100%	na	na	na	1	0%
HH-OP1	RV	SJC-PD	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	242	242	242	1	100%	na	na	na	1	0%
NL4P-OP1	RV	SJC-pool	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	172	172	172	1	100%	na	na	na	na	na
NL4P-OP2	RV	SJC-pool	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	238	238	238	1	100%	na	na	na	na	na
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	na	na	na	na	na	na	na	na	7	0%	na	na	na	na	na	517	569	536	6	100%	na	na	na	2	0%
HH-1	SP (Spring)	SJC-Spg	Original Ground	na	na	na	na	na	3.2	4.9	4.05	5	40%	na	na	na	na	na	254	264	258	4	100%	na	na	na	2	0%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	270	328	305	3	100%	na	na	na	na	na
SWS-2	SP (Spring)	SJC-Spg	Original ground	na	na	na	na	na	na	na	na	8	0%	na	na	na	na	na	248	689	359	7	100%	na	na	na	1	0%
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	199	199	199	1	100%	na	na	na	na	na
SLP-1	PD	SLC-PD	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	122	122	122	1	100%	na	na	na	na	na
SLP-2	PD	SLC-PD	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	34.5	34.5	34.5	1	100%	na	na	na	na	na
SLP-3	PD	SLC-PD	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	74.8	74.8	74.8	1	100%	na	na	na	na	na
AWI012-22	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	4	0%	na	na	na	na	na	143	164	156	4	100%	na	na	na	3	0%
SLC	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	206	206	206	1	100%	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	12	0%	na	na	na	na	na	163	241	201	12	100%	na	na	na	na	na
SLC-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	174	185	180	2	100%	na	na	na	2	0%
SLC-2	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	3	4.7	3.85	8	25%	na	na	na	na	na	141.74	167	157	6	100%	na	na	na	2	0%
SLC-3	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	207	277	232	3	100%	na	na	na	1	0%
SLC-3A	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	164	164	164	1	100%	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Bicarbonate, as HCO3					Carbonate, as CaCO3					Carbonate, as CO3					Hardness, as CaCO3					Hydroxide, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	Station Type	Hardness Calculation Group	Material Type																									
SLC-3D	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	5	0%	na	na	na	na	na	104	175	155	5	100%	na	na	na	na	na
SLC-3E	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	149	171	163	3	100%	na	na	na	na	na
SLC-5	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	788	839	814	2	100%	na	na	na	na	na
SLC-6	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	984	1010	997	2	100%	na	na	na	na	na
SLCT1-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	99	99	99	1	100%	na	na	na	1	0%
SLCT2-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	10	0%	na	na	na	na	na	115	185	154	10	100%	na	na	na	na	na
SLCT2-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	129	129	129	1	100%	na	na	na	2	0%
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	167	167	167	1	100%	na	na	na	na	na
SLCT2-4	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	246	246	246	1	100%	na	na	na	na	na
SLCT3-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	1.3	11.3	6.3	4	50%	na	na	na	na	na	82.9	117	98.8	4	100%	na	na	na	na	na
SLCT3-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	115	115	115	1	100%	na	na	na	2	0%
SW08-ST	RV	SLC-CrkSpg	Original Ground	24.7	229	135	18	100%	na	na	na	na	na	3	3	3	8	13%	79.8	181	147	18	100%	na	na	na	na	na
SW09-ST	RV	SLC-CrkSpg	Original Ground	39.5	290	182	19	100%	na	na	na	na	na	3	8	5.5	10	20%	97	265	187	19	100%	na	na	na	na	na
SW13-ST	RV	SLC-CrkSpg	Original Ground	25.1	411	152	13	100%	na	na	na	na	na	na	na	na	7	0%	44.2	195	137	13	100%	na	na	na	na	na
SW14-ST	RV	SLC-CrkSpg	Original Ground	24.2	56.3	44.8	3	100%	na	na	na	na	na	na	na	na	2	0%	115	314	222	3	100%	na	na	na	na	na
SW15-ST	RV	SLC-CrkSpg	Original Ground	20	65.1	36.1	3	100%	na	na	na	na	na	11.1	11.1	11.1	2	50%	29.3	83.1	49.5	3	100%	na	na	na	na	na
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	4.3	4.3	4.3	4	25%	na	na	na	na	na	278	849	480	4	100%	na	na	na	1	0%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	626	674	650	2	100%	na	na	na	1	0%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	3	0%	na	na	na	na	na	1100	1370	1260	3	100%	na	na	na	1	0%
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	12	0%	na	na	na	na	na	1370	1730	1504	11	100%	na	na	na	2	0%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	1530	1530	1530	1	100%	na	na	na	na	na
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	1740	1740	1740	1	100%	na	na	na	na	na
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	4	0%	na	na	na	na	na	1500	1730	1607	3	100%	na	na	na	2	0%
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	137	144	141	2	100%	na	na	na	na	na
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	101	101	101	1	100%	na	na	na	na	na
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	38.6	172	122	19	100%	na	na	na	na	na	na	na	na	8	0%	65.6	154	114	19	100%	na	na	na	na	na
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	na	na	na	na	na	10.7	10.7	10.7	1	100%	na	na	na	na	na	121	121	121	1	100%	na	na	na	na	na
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	204	609	501	19	100%	na	na	na	na	na	na	na	na	8	0%	456	523	492	19	100%	na	na	na	na	na
WS-4	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	6	0%	na	na	na	na	na	465	510	486	6	100%	na	na	na	na	na
WS-5	SP (Spring)	OffW-Spg	Original Ground	na	na	na	na	na	na	na	na	6	0%	na	na	na	na	na	394	503	442	6	100%	na	na	na	na	na
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	na	na	na	na	na	2	2	2	6	33%	na	na	na	na	na	172	227	195	6	100%	na	na	na	5	0%
AWI012-04	RV	Offsite-BFR	Offsite	na	na	na	na	na	3	10	5	4	100%	na	na	na	na	na	169	197	183	4	100%	na	na	na	3	0%
AWI012-06	RV	Offsite-BFR	Offsite	na	na	na	na	na	3	8	5.25	4	100%	na	na	na	na	na	168	199	183	4	100%	na	na	na	3	0%
BFR-1	RV	Offsite-BFR	Offsite	na	na	na	na	na	1.8	13.6	6.04	13	54%	na	na	na	na	na	149	199	181	13	100%	na	na	na	na	na
BFR-2	RV	Offsite-BFR	Offsite	na	na	na	na	na	2.5	13.6	8.3	13	31%	na	na	na	na	na	150	203	180	13	100%	na	na	na	na	na
BFR-3	RV	Offsite-BFR	Offsite	na	na	na	na	na	1.2	10.2	5.63	15	40%	na	na	na	na	na	156	196	182	15	100%	na	na	na	na	na
BFR-4	RV	Offsite-BFR	Offsite	na	na	na	na	na	1	14.2	5.62	15	40%	na	na	na	na	na	148	197	178	15	100%	na	na	na	1	0%
BFR-DS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	169	169	169	1	100%	na	na	na	na	na
BFR-US	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	167	167	167	1	100%	na	na	na	na	na
BGS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	174	174	174	1	100%	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST021	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST230	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	57.5	224	161	19	100%	na	na	na	na	na	3	17.6	10.1	12	67%	115	203	163	19	100%	na	na	na	na	na
SW11-ST	RV	Offsite-BFR	Offsite	63.9	359	202	19	100%	na	na	na	na	na	na	na	na	8	0%	121	357	197	19	100%	na	na	na	na	na
SW19-SP	SP (Spring)	OffN-Spg	Offsite	818	874	854	6	100%	na	na	na	na	na	na	na	na	6	0%	641	978	848	6	100%	na	na	na	na	na
SW20-SP	SP (Spring)	OffN-Spg	Offsite	525	946	734	6	100%	na	na	na	na	na	na	na	na	6	0%	577	933	729	6	100%	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Bicarbonate, as HCO3					Carbonate, as CaCO3					Carbonate, as CO3					Hardness, as CaCO3					Hydroxide, as CaCO3				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SW21-SP	SP (Spring)	OffN-Spg	Offsite	541	587	562	5	80%	na	na	na	na	na	na	na	na	5	0%	582	692	656	5	100%	na	na	na	na	na
Offsite-Blackfoot River vicinity																												
SW17-W	PD	OffN-Spg	Offsite	206	781	520	6	100%	na	na	na	na	na	na	na	na	6	0%	199	878	558	6	100%	na	na	na	na	na
SW01-W	SP (Spring)	OffN-Spg	Offsite	87.7	306	236	19	100%	na	na	na	na	na	3	3	3	9	11%	168	264	217	19	100%	na	na	na	na	na
SW16-SP	SP (Spring)	OffN-Spg	Offsite	59.4	218	164	12	100%	na	na	na	na	na	na	na	na	8	0%	171	210	193	12	100%	na	na	na	na	na
SW18-SP	SP (Spring)	OffN-Spg	Offsite	531	1080	673	6	100%	na	na	na	na	na	na	na	na	6	0%	518	621	582	6	100%	na	na	na	na	na
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	na	na	na	na	na	8	10	9	2	100%	na	na	na	na	na	207	220	214	2	100%	na	na	na	2	0%
TC-1	RV	Offsite-TC	Offsite	na	na	na	na	na	1.1	10.9	4.6	16	25%	na	na	na	na	na	165	213	193	16	100%	na	na	na	1	0%
TC-2	RV	Offsite-TC	Offsite	na	na	na	na	na	1.6	12	4.5	15	33%	na	na	na	na	na	169	220	197	15	100%	na	na	na	1	0%
TC-3	RV	Offsite-TC	Offsite	na	na	na	na	na	na	na	na	15	0%	na	na	na	na	na	168	225	197	15	100%	na	na	na	1	0%
TC-4	RV	Offsite-TC	Offsite	na	na	na	na	na	na	na	na	15	0%	na	na	na	na	na	166	225	197	15	100%	na	na	na	1	0%
TC-5	RV	Offsite-TC	Offsite	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	167	167	167	1	100%	na	na	na	na	na
TRATT003	RV	Offsite-TC	Offsite	na	na	na	na	na	18	27	22.5	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Nitrate + Nitrite					Nitrate + Nitrite, as N, Dissolved					Nitrate, as N					Nitrite					Nitrogen-TKN				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	Station Type	Hardness Calculation Group	Material Type																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-1	RV	CGC-Crk	Original Ground	0.048	0.16	0.0849	8	88%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-2	RV	CGC-Crk	Original Ground	0.02	0.02	0.02	5	40%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-2A	RV	CGC-Crk	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-3	RV	CGC-Crk	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-3A	RV	CGC-Crk	Original Ground	0.145	0.17	0.158	4	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-4	RV	CGC-Crk	Original Ground	0.63	0.63	0.63	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-4A	RV	CGC-Crk	Original Ground	0.07	0.085	0.0775	7	29%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-5	RV	CGC-Crk	Original Ground	0.08	0.18	0.13	4	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGCT1-1	RV	CGC-Crk	Original Ground	0.03	0.03	0.03	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CGC-UPTC	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	0.408	0.521	0.447	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
JRLD	SP (Spring)	CGC-Spg	Original Ground	0.0864	0.0864	0.0864	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
JS-1	SP (Spring)	CGC-Spg	Original Ground	0.172	0.215	0.196	5	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
French Drain Sub-Basin																												
FD-1	FD	FD-CrkSpgPd	Overburden	0.02	1.73	0.762	11	64%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWP-4	PD	FD-CrkSpgPd	Overburden	na	na	na	4	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWP-4A	PD	FD-CrkSpgPd	Overburden	0.23	0.23	0.23	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	3.23	4.76	4.19	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-1	TP	FD-NTP	Tailings	0.087	3.06	1.21	9	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	0.082	0.082	0.082	5	20%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
North Woodall Mountain Sub-Basin																												
SW03-L	PD	NWM-CrkSpgPd	Original Ground	0.01	0.14	0.0348	19	47%	na	na	na	na	na	0.01	0.14	0.0367	19	47%	0.0089	0.01	0.0095	19	11%	na	na	na	na	na
NWC-1	RV	NWM-CrkSpgPd	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NWC-2	RV	NWM-CrkSpgPd	Original Ground	na	na	na	4	0%	na	na	na	na	na	0.01	0.01	0.01	1	100%	na	na	na	na	na	na	na	na	na	na
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	0.01	0.26	0.0692	19	63%	na	na	na	na	na	0.01	0.26	0.0813	18	56%	0.01	0.052	0.0232	19	26%	na	na	na	na	na
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	0.01	0.24	0.0584	18	50%	na	na	na	na	na	0.01	0.24	0.0654	17	47%	0.005	0.02	0.0117	18	17%	na	na	na	na	na
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	0.04	0.17	0.0766	19	89%	na	na	na	na	na	0.04	0.17	0.0755	19	89%	0.01	0.01	0.01	19	5%	na	na	na	na	na
WS-1	SP (Spring)	WW-SpgPd	Original Ground	0.02	0.02	0.02	5	20%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
WS-2	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	4	0%	na	na	na	na	na	0.03	0.03	0.03	1	100%	na	na	na	na	na	na	na	na	na	na
WS-3	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Old Tailings Pond Sub-Basin																												
NBorrowSedBasin	PD	OTP-pool	Original Ground	0.492	0.492	0.492	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NEP-7	PD	OTP-pool	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-2	TP	OTP-TP	Tailings	0.03	0.03	0.03	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-2A	TP	OTP-TP	Tailings	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-2B	TP	OTP-TP	Tailings	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-2C	TP	OTP-TP	Tailings	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TP-2D	TP	OTP-TP	Tailings	0.219	0.219	0.219	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																												
ESedBasinC	PD	PC-PDPOOL	Original Ground	3.33	4.13	3.73	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ESedBasinN	PD	PC-PDPOOL	Original Ground	6.21	6.21	6.21	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ESedBasinS	PD	PC-PDPOOL	Original Ground	2.98	2.98	2.98	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPSBasin	PD	PC-PDPOOL	Original Ground	0.985	2.95	1.97	5	40%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NED-1	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NEP-1	PD	PC-PDPOOL	Original Ground	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NESedBasinC	PD	PC-PDPOOL	Original Ground	1.6	4.04	2.72	4	75%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NESedBasinN	PD	PC-PDPOOL	Original Ground	1.52	4.42	3.26	4	75%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NESedBasinS	PD	PC-PDPOOL	Original Ground	1.25	2.37	1.81	3	67%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCP-2	PD	PC-PDPOOL	Original Ground	0.19	0.19	0.19	7	14%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Nitrate + Nitrite					Nitrate + Nitrite, as N, Dissolved					Nitrate, as N					Nitrite					Nitrogen-TKN				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	0.245	1.14	0.825	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	0.681	0.681	0.681	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	4.65	5.37	5.01	3	67%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	0.487	4.96	2.99	4	75%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	9.95	11.6	10.8	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-1	RV	PC-CrkSpgSeeps	Original Ground	0.06	0.142	0.0887	5	80%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-2	RV	PC-CrkSpgSeeps	Original Ground	0.0736	0.273	0.173	9	22%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-3	RV	PC-CrkSpgSeeps	Original Ground	0.02	0.02	0.02	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-4	RV	PC-CrkSpgSeeps	Original Ground	0.17	0.17	0.17	5	20%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-5	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	4	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-6	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PC-9	RV	PC-CrkSpgSeeps	Original ground	4.1	4.1	4.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	0.05	0.05	0.05	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	0.03	0.03	0.03	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	0.24	0.29	0.265	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	0.945	3.11	2.03	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	6.72	7.65	7.19	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	4.96	6.22	5.59	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	0.084	5.62	1.96	15	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																												
HHP-1	PD	SJC-PD	Original Ground	0.02	1.2	0.61	9	22%	na	na	na	na	na	na	0	-5000	2	100%	na	na	na	na	na	na	na	na	na	na
NL4P-1	PD	SJC-PitLake	Overburden	na	na	na	9	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NL4P-OP3	PD	SJC-pool	Overburden	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWP-1	PD	SJC-pool	Overburden	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWP-2	PD	SJC-ODApond	Original Ground	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWP-3	PD	SJC-PD	Original Ground	0.225	0.225	0.225	6	17%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
HH-OP1	RV	SJC-PD	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NL4P-OP1	RV	SJC-pool	Overburden	0.102	0.102	0.102	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NL4P-OP2	RV	SJC-pool	Overburden	0.459	0.459	0.459	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	0.05	0.377	0.142	5	80%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
HH-1	SP (Spring)	SJC-Spg	Original Ground	0.27	0.788	0.518	5	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
JCS-1	SP (Spring)	SJC-Spg	Original Ground	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SWS-2	SP (Spring)	SJC-Spg	Original ground	0.15	0.15	0.15	5	20%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLP-1	PD	SLC-PD	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLP-2	PD	SLC-PD	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLP-3	PD	SLC-PD	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-22	RV	SLC-CrkSpg	Original Ground	na	na	na	1	0%	0.02	0.02	0.02	3	33%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	0.177	0.177	0.177	6	17%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-1	RV	SLC-CrkSpg	Original Ground	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-2	RV	SLC-CrkSpg	Original Ground	0.021	0.64	0.27	11	27%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-3	RV	SLC-CrkSpg	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-3A	RV	SLC-CrkSpg	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Nitrate + Nitrite					Nitrate + Nitrite, as N, Dissolved					Nitrate, as N					Nitrite					Nitrogen-TKN				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SLC-3D	RV	SLC-CrkSpg	Original Ground	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-3E	RV	SLC-CrkSpg	Original Ground	0.141	0.141	0.141	3	33%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-5	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-6	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT1-1	RV	SLC-CrkSpg	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT2-0	RV	SLC-CrkSpg	Original Ground	0.055	0.152	0.0965	5	60%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT2-1	RV	SLC-CrkSpg	Original Ground	0.18	0.18	0.18	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT2-4	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT3-0	RV	SLC-CrkSpg	Original Ground	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT3-1	RV	SLC-CrkSpg	Original Ground	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW08-ST	RV	SLC-CrkSpg	Original Ground	0.02	0.17	0.0911	18	78%	na	na	na	na	na	0.02	0.152	0.0901	18	78%	0.005	0.02	0.015	18	28%	na	na	na	na	na
SW09-ST	RV	SLC-CrkSpg	Original Ground	0.01	0.04	0.0217	19	32%	na	na	na	na	na	0.01	0.068	0.0283	19	37%	0.02	0.02	0.02	19	5%	na	na	na	na	na
SW13-ST	RV	SLC-CrkSpg	Original Ground	0.01	0.33	0.0823	13	46%	na	na	na	na	na	0.01	0.33	0.0737	13	54%	0.008	0.01	0.009	13	15%	na	na	na	na	na
SW14-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	3	0%	na	na	na	na	na	0.071	0.071	0.071	3	33%	0.009	0.009	0.009	3	33%	na	na	na	na	na
SW15-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	3	0%	na	na	na	na	na	na	na	na	3	0%	na	na	na	3	0%	na	na	na	na	na
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	0.23	0.23	0.23	3	33%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	0.11	0.45	0.286	8	63%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	4	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	0.167	0.307	0.237	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	0.213	0.213	0.213	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	0.01	0.202	0.0607	19	53%	na	na	na	na	na	0.01	0.245	0.0726	19	47%	0.005	0.02	0.0138	19	21%	na	na	na	na	na
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	0.05	0.14	0.106	19	89%	na	na	na	na	na	0.05	0.14	0.107	19	84%	0.01	0.01	0.01	19	11%	na	na	na	na	na
WS-4	SP (Spring)	WW-SpgPd	Original Ground	0.0846	0.705	0.314	4	75%	na	na	na	na	na	0.05	0.05	0.05	1	100%	na	na	na	na	na	na	na	na	na	na
WS-5	SP (Spring)	OffW-Spg	Original Ground	0.0651	0.0651	0.0651	4	25%	na	na	na	na	na	0.01	0.01	0.01	1	100%	na	na	na	na	na	na	na	na	na	na
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.06	0.36	0.143	6	67%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-04	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.04	0.05	0.045	4	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
AWI012-06	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.04	0.05	0.045	4	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
BFR-1	RV	Offsite-BFR	Offsite	0.0318	0.243	0.151	5	60%	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na	na	na	na	na	na
BFR-2	RV	Offsite-BFR	Offsite	0.0501	0.0501	0.0501	5	20%	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na	na	na	na	na	na
BFR-3	RV	Offsite-BFR	Offsite	0.0742	0.0742	0.0742	5	20%	na	na	na	na	na	0.04	0.04	0.04	1	100%	na	na	na	na	na	na	na	na	na	na
BFR-4	RV	Offsite-BFR	Offsite	0.0731	0.0731	0.0731	5	20%	na	na	na	na	na	0.01	0.01	0.01	1	100%	na	na	na	na	na	na	na	na	na	na
BFR-DS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
BFR-US	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
BGS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.028	0.028	0.028	1	100%	0.2	0.2	0.2	1	100%
ST019	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	0	0	1	100%	0.2	0.2	0.2	1	100%
ST021	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.2	0.2	0.2	1	100%
ST022	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.02	0.02	0.02	1	100%	0.2	0.2	0.2	1	100%
ST230	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.023	0.023	0.023	1	100%	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	0.01	0.17	0.0578	19	47%	na	na	na	na	na	0.01	0.17	0.0547	19	58%	0.02	0.02	0.02	19	5%	na	na	na	na	na
SW11-ST	RV	Offsite-BFR	Offsite	0.01	0.2	0.0548	19	74%	na	na	na	na	na	0.01	0.2	0.0513	19	74%	0.005	0.02	0.0117	19	16%	na	na	na	na	na
SW19-SP	SP (Spring)	OffN-Spg	Offsite	0.039	0.1	0.073	6	50%	na	na	na	na	na	0.051	0.1	0.077	6	50%	na	na	na	6	0%	na	na	na	na	na
SW20-SP	SP (Spring)	OffN-Spg	Offsite	0.03	0.04	0.035	6	33%	na	na	na	na	na	0.02	0.062	0.038	6	67%	0.141	0.141	0.141	6	17%	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Nitrate + Nitrite					Nitrate + Nitrite, as N, Dissolved					Nitrate, as N					Nitrite					Nitrogen-TKN				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SW21-SP	SP (Spring)	OffN-Spg	Offsite	0.21	0.27	0.232	5	100%	na	na	na	na	na	0.21	0.26	0.235	5	100%	na	na	na	5	0%	na	na	na	na	na
Offsite-Blackfoot River vicinity																												
SW17-W	PD	OffN-Spg	Offsite	0.029	0.029	0.029	6	17%	na	na	na	na	na	0.038	0.038	0.038	6	17%	na	na	na	6	0%	na	na	na	na	na
SW01-W	SP (Spring)	OffN-Spg	Offsite	0.01	1.2	0.188	19	84%	na	na	na	na	na	0.01	1.19	0.195	19	79%	0.006	0.02	0.0132	19	26%	na	na	na	na	na
SW16-SP	SP (Spring)	OffN-Spg	Offsite	5.12	13.9	8.21	12	92%	na	na	na	na	na	5.12	13.9	8.23	12	92%	0.005	0.005	0.005	12	8%	na	na	na	na	na
SW18-SP	SP (Spring)	OffN-Spg	Offsite	0.047	0.047	0.047	6	17%	na	na	na	na	na	0.038	0.038	0.038	6	17%	0.015	0.015	0.015	6	17%	na	na	na	na	na
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	na	na	na	na	na	0.02	0.02	0.02	2	50%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TC-1	RV	Offsite-TC	Offsite	0.094	0.094	0.094	6	17%	na	na	na	na	na	0.01	0.01	0.01	1	100%	na	na	na	na	na	na	na	na	na	na
TC-2	RV	Offsite-TC	Offsite	na	na	na	5	0%	na	na	na	na	na	0.01	0.01	0.01	1	100%	na	na	na	na	na	na	na	na	na	na
TC-3	RV	Offsite-TC	Offsite	na	na	na	5	0%	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na	na	na	na	na	na
TC-4	RV	Offsite-TC	Offsite	0.263	0.263	0.263	5	20%	na	na	na	na	na	0.01	0.01	0.01	1	100%	na	na	na	na	na	na	na	na	na	na
TC-5	RV	Offsite-TC	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TRATT003	RV	Offsite-TC	Offsite	na	na	na	3	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Phosphorus, Dissolved					Phosphorus, Total					TDS					TOC					TSS				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.055	0.15	0.103	2	100%	221	276	238	7	100%	3.9	25.5	14.7	2	100%	5	42	19.3	7	43%
CGC-1	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.02	0.17	0.0668	6	100%	175	260	224	9	100%	1.9	25.3	7.07	6	100%	6	33	13.5	9	67%
CGC-2	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.03	0.07	0.05	5	100%	205	230	215	6	100%	3	5	3.78	5	100%	6	8	7.5	6	67%
CGC-2A	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	na	na	191	191	191	1	100%	na	na	na	na	na	na	na	na	1	0%
CGC-3	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.07	0.07	0.07	1	100%	200	245	223	5	100%	3	3	3	1	100%	5	11	9.25	5	80%
CGC-3A	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.03	0.08	0.0467	4	75%	177	232	215	9	100%	1.19	1.39	1.29	4	50%	1	20	10.8	9	56%
CGC-4	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.02	0.02	0.02	1	100%	230	230	230	1	100%	2	2	2	1	100%	na	na	na	1	0%
CGC-4A	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.02	0.31	0.112	5	100%	179	300	244	14	100%	1.1	20.1	6.63	5	80%	3	130	21.1	14	86%
CGC-5	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.04	0.07	0.05	4	100%	197	286	234	5	100%	1.06	2	1.52	4	75%	7	22	14.5	5	40%
CGCT1-1	RV	CGC-Crk	Original Ground	na	na	na	na	na	0.01	0.01	0.01	2	100%	192	234	212	3	100%	3	9.3	6.15	2	100%	na	na	na	3	0%
CGC-UPTC	RV	CGC-Crk	Original Ground	na	na	na	na	na	na	na	na	na	na	202	202	202	1	100%	na	na	na	na	na	na	na	na	1	0%
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	na	na	na	na	na	0.01	0.03	0.0167	3	100%	195	230	218	3	100%	1.38	1.38	1.38	3	33%	7	16	10.7	3	100%
JRLD	SP (Spring)	CGC-Spg	Original Ground	na	na	na	na	na	na	na	na	2	0%	291	314	305	6	100%	na	na	na	2	0%	na	na	na	6	0%
JS-1	SP (Spring)	CGC-Spg	Original Ground	na	na	na	na	na	0.017	0.02	0.0193	5	80%	171	233	213	11	100%	na	na	na	5	0%	19	97	58	11	18%
French Drain Sub-Basin																												
FD-1	FD	FD-CrkSpgPd	Overburden	na	na	na	na	na	0.09	0.763	0.219	9	100%	760	1180	1039	16	100%	2.97	18.1	6.64	8	100%	6	49	14.8	16	63%
SWP-4	PD	FD-CrkSpgPd	Overburden	na	na	na	na	na	0.09	0.85	0.428	4	100%	685	1016	849	9	100%	10	61.4	30.1	3	100%	2	209	59.3	9	44%
SWP-4A	PD	FD-CrkSpgPd	Overburden	na	na	na	na	na	0.13	0.13	0.13	1	100%	856	873	865	2	100%	12	12	12	1	100%	7	9	8	2	100%
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	na	na	na	na	na	0.02	0.32	0.147	3	100%	980	1210	1034	8	100%	2.43	2.64	2.53	3	100%	22	27	24.5	8	25%
TP-1	TP	FD-NTP	Tailings	na	na	na	na	na	0.82	2	1.34	8	100%	1090	1400	1176	10	100%	4.5	55.4	13.4	8	100%	7	45	29.4	10	80%
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	na	na	na	na	na	0.09	0.47	0.245	5	80%	108	203	162	6	100%	1.69	20.8	8.41	5	100%	6	55	26	6	67%
North Woodall Mountain Sub-Basin																												
SW03-L	PD	NWM-CrkSpgPd	Original Ground	na	na	na	na	na	0.03	0.45	0.112	19	95%	114	249	196	19	100%	na	na	na	na	na	3.6	14	7.87	19	53%
NWC-1	RV	NWM-CrkSpgPd	Original Ground	na	na	na	na	na	0.03	0.03	0.03	1	100%	210	210	210	1	100%	2.45	2.45	2.45	1	100%	na	na	na	1	0%
NWC-2	RV	NWM-CrkSpgPd	Original Ground	0.08	0.08	0.08	1	100%	0.03	0.17	0.103	4	100%	210	267	234	4	100%	2.67	17.4	6.75	4	100%	5	8	6.5	4	50%
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	na	na	na	na	na	0.04	0.71	0.145	19	100%	74	268	209	19	100%	na	na	na	na	na	5	631	79.7	19	84%
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	na	na	na	na	na	0.04	0.273	0.135	18	100%	135	281	213	18	100%	na	na	na	na	na	7	112	35.1	18	78%
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	0.013	0.07	0.0242	19	89%	537	730	627	19	100%	na	na	na	na	na	2	26	10.2	19	26%
WS-1	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	0.01	0.03	0.02	5	60%	492	588	541	8	100%	1.23	4.6	3.23	5	80%	6	8	7	8	25%
WS-2	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	1	0%	0.02	0.11	0.06	4	100%	580	778	648	6	100%	1.03	5.42	3.02	4	100%	9	55	20.7	6	100%
WS-3	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	na	na	na	na	na	913	1000	957	2	100%	na	na	na	na	na	na	na	na	2	0%
Old Tailings Pond Sub-Basin																												
NBorrowSedBasin	PD	OTP-pool	Original Ground	na	na	na	na	na	1.09	1.75	1.42	2	100%	174	222	198	2	100%	1.95	14.2	8.08	2	100%	27	73	50	2	100%
NEP-7	PD	OTP-pool	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	113	113	113	1	100%	na	na	na	na	na	6	6	6	1	100%
TP-2	TP	OTP-TP	Tailings	na	na	na	na	na	0.08	0.43	0.255	2	100%	411	1220	816	2	100%	16	16.1	16.1	2	100%	38	38	38	2	50%
TP-2A	TP	OTP-TP	Tailings	na	na	na	na	na	na	na	na	na	na	498	1190	838	3	100%	na	na	na	na	na	25	74	49.5	3	67%
TP-2B	TP	OTP-TP	Tailings	na	na	na	na	na	0.16	0.16	0.16	1	100%	281	281	281	1	100%	9.17	9.17	9.17	1	100%	7	7	7	1	100%
TP-2C	TP	OTP-TP	Tailings	na	na	na	na	na	0.08	0.08	0.08	1	100%	234	234	234	1	100%	17.3	17.3	17.3	1	100%	na	na	na	1	0%
TP-2D	TP	OTP-TP	Tailings	na	na	na	na	na	0.08	0.08	0.08	1	100%	867	867	867	1	100%	6.8	6.8	6.8	1	100%	10	10	10	1	100%
Pedro Creek Sub-Basin																												
ESedBasinC	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.443	0.599	0.521	2	100%	624	656	640	2	100%	3.44	4.13	3.79	2	100%	10	22	16	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	1.96	1.96	1.96	1	100%	1180	1180	1180	1	100%	5.63	5.63	5.63	1	100%	648	648	648	1	100%
ESedBasinS	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.587	0.587	0.587	1	100%	598	598	598	1	100%	3.38	3.38	3.38	1	100%	5	5	5	1	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.386	2.29	0.961	5	100%	193	714	433	6	100%	4.34	16.6	8.07	5	100%	8	130	34.5	6	100%
NED-1	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	1760	1760	1760	1	100%	na	na	na	na	na	na	na	na	1	0%
NEP-1	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.18	0.19	0.183	3	100%	84	130	103	3	100%	na	na	na	na	na	11	12	11.7	3	100%
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	na	na	na	na	na	0.12	0.13	0.125	2	100%	134	251	193	4	100%	6.9	9	7.95	2	100%	na	na	na	4	0%
NESedBasinC	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.194	1.9	0.832	4	100%	472	3680	1521	4	100%	3.94	10.3	6.47	4	100%	10	94	40.3	4	100%
NESedBasinN	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.266	1.24	0.74	4	100%	944	3760	1890	4	100%	3.75	14	7.94	4	100%	8	151	52.3	4	100%
NESedBasinS	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.238	0.313	0.271	3	100%	356	4520	1954	3	100%	2.61	12.9	6.61	3	100%	9	47	22	3	100%
PCP-2	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.01	1.183	0.294	7	100%	114	319	215	15	100%	2.77	19	10.3	6	100%	6	90	30.8	15	67%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Phosphorus, Dissolved					Phosphorus, Total					TDS					TOC					TSS				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.778	1.22	1.04	3	100%	79	223	156	3	100%	2.38	9.39	4.85	3	100%	18	41	32	3	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	0.105	2.95	1.53	2	100%	170	179	175	2	100%	2.07	7.42	4.75	2	100%	97	160	129	2	100%
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	0.291	0.362	0.318	3	100%	772	999	852	3	100%	2.82	3.51	3.11	3	100%	21	21	21	3	33%
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	0.096	0.177	0.128	4	100%	3140	3500	3355	4	100%	5.35	8.18	6.71	4	100%	7	37	19.8	4	100%
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	0.155	0.201	0.178	2	100%	2560	2640	2600	2	100%	4.7	5.1	4.9	2	100%	7	11	9	2	100%
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	na	na	na	na	na	na	na	na	na	na	41	160	101	2	100%	na	na	na	na	na	49	360	205	2	100%
PC-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.08	0.15	0.113	4	100%	174	283	235	13	100%	4.83	26.1	11.4	4	100%	6	17	9.7	13	77%
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	212	212	212	1	100%	na	na	na	na	na	8	8	8	1	100%
PC-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.01	0.26	0.0753	7	100%	177	416	232	21	100%	1.52	19.1	6.17	7	86%	5	593	59.8	21	62%
PC-3	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.16	0.16	0.16	1	100%	442	970	711	4	100%	4	4	4	1	100%	2	5	3.5	4	50%
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.02	0.02	0.02	1	100%	448	507	478	2	100%	4.5	4.5	4.5	1	100%	5	5	5	2	50%
PC-4	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.04	3.04	1.08	3	100%	1180	2420	1763	11	100%	3.71	4.3	4	3	100%	3	10	7	11	45%
PC-5	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.05	2.16	0.81	3	100%	1210	3180	2198	12	100%	3.27	3.72	3.44	3	100%	6	517	99.8	12	50%
PC-6	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	1.41	1.41	1.41	1	100%	1230	2200	1715	2	100%	5.68	5.68	5.68	1	100%	5	63	34	2	100%
PC-9	RV	PC-CrkSpgSeeps	Original ground	na	na	na	na	na	0.624	0.624	0.624	1	100%	991	991	991	1	100%	3.56	3.56	3.56	1	100%	7	7	7	1	100%
PCT-0	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	76	76	76	1	100%	na	na	na	na	na	26	26	26	1	100%
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.02	0.028	0.024	2	100%	204	220	214	3	100%	3	3	3	2	50%	38	38	38	3	33%
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.698	0.698	0.698	1	100%	232	236	234	2	100%	3.3	3.3	3.3	1	100%	117	432	275	2	100%
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.06	0.156	0.108	2	100%	90	212	166	3	100%	1	9	5	2	100%	8	9	8.5	3	67%
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.028	0.03	0.029	2	100%	203	228	217	3	100%	2	2	2	2	50%	na	na	na	3	0%
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	0.17	0.17	0.17	1	100%	280	280	280	1	100%	4	4	4	1	100%	na	na	na	1	0%
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	na	na	na	na	na	na	na	na	na	na	201	201	201	1	100%	na	na	na	na	na	na	na	na	1	0%
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	na	na	na	na	na	0.603	0.639	0.621	2	100%	379	401	390	2	100%	3.76	4.14	3.95	2	100%	12	29	20.5	2	100%
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	na	na	na	na	na	0.204	1.2	0.702	2	100%	895	1220	1058	2	100%	1.86	5.31	3.59	2	100%	38	38	38	2	50%
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	0.185	0.208	0.197	2	100%	835	1180	1012	3	100%	2.55	2.61	2.58	2	100%	21	21	21	3	33%
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	0.114	7	0.792	14	100%	2410	3600	3025	25	100%	2	29	6.4	11	100%	5	42	17.4	25	48%
NES-8	SP (Seep)	PC-CrkSpgSeeps	Overburden	na	na	na	na	na	na	na	na	na	na	2930	2930	2930	1	100%	na	na	na	na	na	36	36	36	1	100%
Shield and Jouglard Canyons Sub-Basin																												
HHP-1	PD	SJC-PD	Original Ground	na	na	na	na	na	0.03	0.208	0.0963	9	100%	136	300	242	15	100%	2.04	18.9	6.16	8	100%	6	40	18.2	15	73%
NL4P-1	PD	SJC-PitLake	Overburden	0.07	0.07	0.07	1	100%	0.08	0.79	0.306	9	100%	148	561	279	19	100%	3.08	12.5	6.51	8	100%	4	27	9.08	19	68%
NL4P-OP3	PD	SJC-pool	Overburden	na	na	na	na	na	0.24	0.24	0.24	1	100%	100	100	100	1	100%	8.19	8.19	8.19	1	100%	7	7	7	1	100%
SWP-1	PD	SJC-pool	Overburden	na	na	na	na	na	2.3	2.3	2.3	1	100%	60	60	60	1	100%	4	4	4	1	100%	22	22	22	1	100%
SWP-2	PD	SJC-ODApond	Original Ground	na	na	na	na	na	0.04	0.14	0.0867	3	100%	130	220	190	4	100%	2.84	11.5	7.11	3	100%	12	12	12	4	25%
SWP-3	PD	SJC-PD	Original Ground	na	na	na	na	na	0.03	0.46	0.235	4	100%	267	1700	779	7	100%	6	13.2	10.1	4	100%	6	20	13	7	71%
HH-OP1	RV	SJC-PD	Original Ground	na	na	na	na	na	na	na	na	na	na	258	258	258	1	100%	na	na	na	na	na	na	na	na	1	0%
NL4P-OP1	RV	SJC-pool	Overburden	na	na	na	na	na	0.42	0.42	0.42	1	100%	249	249	249	1	100%	2.05	2.05	2.05	1	100%	5	5	5	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	na	na	na	na	na	15.1	15.1	15.1	1	100%	696	696	696	1	100%	118	118	118	1	100%	95	95	95	1	100%
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	na	na	na	na	na	0.01	0.01	0.01	5	60%	530	557	540	8	100%	5	9.75	7.38	5	40%	5	5	5	8	13%
HH-1	SP (Spring)	SJC-Spg	Original Ground	na	na	na	na	na	0.03	0.15	0.078	5	100%	258	320	292	6	100%	1.36	5.7	2.75	5	100%	7	98	27.5	6	100%
JCS-1	SP (Spring)	SJC-Spg	Original Ground	na	na	na	na	na	0.04	0.15	0.0967	3	100%	320	421	367	4	100%	2.81	7.58	4.6	3	100%	7	93	37.5	4	100%
SWS-2	SP (Spring)	SJC-Spg	Original ground	na	na	na	na	na	0.044	0.84	0.257	5	100%	259	901	418	10	100%	1.85	24.7	12.1	4	100%	3	380	95.3	10	80%
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	na	na	53	232	143	2	100%	na	na	na	na	na	28	28	28	2	50%
SLP-1	PD	SLC-PD	Original Ground	na	na	na	na	na	0.08	0.08	0.08	1	100%	190	360	275	2	100%	7.98	7.98	7.98	1	100%	na	na	na	2	0%
SLP-2	PD	SLC-PD	Original Ground	na	na	na	na	na	0.7	0.7	0.7	1	100%	82	82	82	2	100%	24.9	24.9	24.9	1	100%	14	14	14	2	50%
SLP-3	PD	SLC-PD	Original Ground	na	na	na	na	na	0.41	0.41	0.41	1	100%	163	342	253	2	100%	14.8	14.8	14.8	1	100%	14	28	21	2	100%
AWI012-22	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.1	0.21	0.14	4	100%	na	na	na	na	na	3	6	4.5	4	100%	22	22	22	4	25%
SLC	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.05	0.31	0.187	5	100%	197	288	241	13	100%	3.37	6.13	5	5	100%	4	12	8	13	62%
SLC-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.099	0.31	0.17	3	100%	212	296	245	4	100%	6	20.1	12.3	3	100%	6	6	6	4	25%
SLC-2	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.04	0.3	0.15	9	100%	168	260	209	12	100%	2	12	4.67	9	100%	6	71	21.1	12	58%
SLC-3	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.15	0.15	0.15	1	100%	300	388	333	3	100%	3	3	3	1	100%	3	3	3	3	33%
SLC-3A	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.12	0.12	0.12	1	100%	256	256	256	1	100%	4.57	4.57	4.57	1	100%	na	na	na	1	0%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Phosphorus, Dissolved					Phosphorus, Total					TDS					TOC					TSS				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SLC-3D	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.14	0.57	0.355	2	100%	155	253	215	6	100%	4.16	9.8	6.98	2	100%	2	22	11	6	50%
SLC-3E	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.03	0.48	0.213	3	100%	209	223	217	3	100%	1.5	8.66	4.99	3	100%	5	189	68.7	3	100%
SLC-5	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	1060	1070	1065	2	100%	na	na	na	na	na	2	2	2	2	50%
SLC-6	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	1310	1340	1325	2	100%	na	na	na	na	na	3	3	3	2	50%
SLCT1-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.18	0.18	0.18	1	100%	180	180	180	1	100%	19	19	19	1	100%	na	na	na	1	0%
SLCT2-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.05	0.23	0.137	3	100%	147	216	192	11	100%	1.27	4.51	2.83	3	100%	7	143	33.7	11	100%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.032	0.19	0.111	2	100%	170	190	182	3	100%	5	5	5	2	50%	na	na	na	3	0%
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.4	0.4	0.4	1	100%	234	234	234	1	100%	5.34	5.34	5.34	1	100%	14	14	14	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	na	na	na	na	na	320	320	320	1	100%	na	na	na	na	na	na	na	na	1	0%
SLCT3-0	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.13	0.13	0.13	1	100%	114	164	140	4	100%	10.2	10.2	10.2	1	100%	26	26	26	4	25%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.078	0.12	0.099	2	100%	120	140	132	3	100%	2	4	3	2	100%	6	10	7.33	3	100%
SW08-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.08	0.35	0.178	18	100%	150	222	186	18	100%	na	na	na	na	na	10.2	88	28.6	18	78%
SW09-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.06	0.29	0.154	19	100%	159	318	233	19	100%	na	na	na	na	na	1	202	22.6	19	84%
SW13-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.064	1	0.285	13	100%	90	276	175	13	100%	na	na	na	na	na	4	83	34.2	13	46%
SW14-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.21	0.333	0.251	3	100%	179	456	311	3	100%	na	na	na	na	na	na	na	na	3	0%
SW15-ST	RV	SLC-CrkSpg	Original Ground	na	na	na	na	na	0.35	0.693	0.471	3	100%	79	122	101	3	100%	na	na	na	na	na	84	87	85.5	3	67%
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	0.04	0.91	0.334	3	100%	428	1190	733	6	100%	8	9.92	8.96	2	100%	19	62	40.5	6	33%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	0.08	0.13	0.105	2	100%	858	921	896	3	100%	7	10	8.5	2	100%	127	127	127	3	33%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	0.04	0.11	0.075	2	100%	1480	1907	1744	4	100%	6	14.9	10.5	2	100%	12	14	13	4	50%
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	0.02	0.92	0.315	6	100%	1770	2400	2062	15	100%	2.76	17	6.02	5	100%	2	146	25.1	15	80%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	na	na	na	na	na	1950	1950	1950	1	100%	na	na	na	na	na	na	na	na	1	0%
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	1.4	1.4	1.4	1	100%	2200	2370	2285	2	100%	na	na	na	na	na	88	88	88	2	50%
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	na	na	na	na	na	0.15	1.66	0.81	4	100%	1842	2300	1998	6	100%	4.6	23.9	11.8	3	100%	6	290	92	6	100%
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	na	na	na	na	na	0.02	0.04	0.03	2	100%	159	170	165	2	100%	2.16	2.16	2.16	2	50%	5	5	5	2	50%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	na	na	na	na	na	0.17	0.17	0.17	1	100%	154	154	154	1	100%	4.49	4.49	4.49	1	100%	14	14	14	1	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	na	na	na	na	na	0.08	0.25	0.163	19	100%	84	175	145	19	100%	na	na	na	na	na	9	128	27.7	19	74%
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	na	na	na	na	na	0.35	0.35	0.35	1	100%	140	140	140	1	100%	7.56	7.56	7.56	1	100%	12	12	12	1	100%
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	na	na	0.003	0.058	0.0156	19	68%	426	525	490	19	100%	na	na	na	na	na	2	11	5.67	19	16%
WS-4	SP (Spring)	WW-SpgPd	Original Ground	na	na	na	1	0%	0.01	0.31	0.113	4	75%	490	514	501	6	100%	1.29	6.84	4.07	4	50%	5	112	46.8	6	67%
WS-5	SP (Spring)	OffW-Spg	Original Ground	na	na	na	1	0%	0.01	0.06	0.0275	4	100%	403	530	460	6	100%	5.88	7.09	6.52	4	100%	6	11	9.4	6	83%
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.05	0.17	0.107	6	100%	na	na	na	na	na	3	7	5.33	6	100%	10	40	27.5	6	67%
AWI012-04	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.06	0.11	0.075	4	100%	na	na	na	na	na	4	7	5	4	100%	28	28	28	4	25%
AWI012-06	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.05	0.12	0.0825	4	100%	na	na	na	na	na	3	7	5	4	100%	46	46	46	4	25%
BFR-1	RV	Offsite-BFR	Offsite	0.06	0.06	0.06	1	100%	0.03	0.09	0.0468	5	80%	180	222	199	13	100%	1.6	4.59	2.85	5	100%	8	21	13	13	54%
BFR-2	RV	Offsite-BFR	Offsite	0.06	0.06	0.06	1	100%	0.01	0.13	0.0428	5	100%	183	276	205	13	100%	1.58	4.87	3.06	5	100%	1	23	13	13	62%
BFR-3	RV	Offsite-BFR	Offsite	0.06	0.06	0.06	1	100%	0.019	0.12	0.0473	5	80%	180	220	199	15	100%	1.36	4.4	2.78	5	100%	1	48	19.6	15	60%
BFR-4	RV	Offsite-BFR	Offsite	0.06	0.06	0.06	1	100%	0.01	0.09	0.0375	5	80%	182	230	202	15	100%	1.61	4.69	3.24	5	100%	2	28	11.6	15	53%
BFR-DS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	186	186	186	1	100%	na	na	na	na	na	na	na	na	1	0%
BFR-US	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	195	195	195	1	100%	na	na	na	na	na	na	na	na	1	0%
BGS	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	192	5161	1451	4	100%	na	na	na	na	na	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	176	247	225	6	100%	na	na	na	na	na	na	na	na	na	na
ST021	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	176	290	212	6	100%	na	na	na	na	na	na	na	na	na	na
ST230	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	na	na	na	na	na	na	na	na	na	na	182	288	241	8	100%	na	na	na	na	na	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.0082	0.28	0.0776	19	100%	101	228	185	19	100%	na	na	na	na	na	2	528	60.9	19	63%
SW11-ST	RV	Offsite-BFR	Offsite	na	na	na	na	na	0.0075	0.18	0.0757	19	95%	141	355	211	19	100%	na	na	na	na	na	1.5	60	12.8	19	84%
SW19-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	0.013	0.15	0.0518	6	83%	812	949	887	6	100%	na	na	na	na	na	1	6	2.77	6	50%
SW20-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	0.02	0.126	0.073	6	33%	508	10700	2398	6	100%	na	na	na	na	na	1.4	32	14.8	6	67%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

			Analyte >>	Phosphorus, Dissolved					Phosphorus, Total					TDS					TOC					TSS				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>		mg/L					mg/L					mg/L					mg/L					mg/L			
			Comparison Value >>		NA					NA					NA					NA					NA			
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
SW21-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	0.021	0.27	0.0923	5	80%	571	621	603	5	100%	na	na	na	na	na	2.6	143	53.2	5	60%
Offsite-Blackfoot River vicinity																												
SW17-W	PD	OffN-Spg	Offsite	na	na	na	na	na	0.052	0.73	0.243	6	100%	260	838	553	6	100%	na	na	na	na	na	14	391	146	6	83%
SW01-W	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	0.029	1.1	0.176	19	100%	199	306	260	19	100%	na	na	na	na	na	2.5	316	60.9	19	68%
SW16-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	0.03	0.112	0.0726	12	92%	244	293	263	11	91%	na	na	na	na	na	3	9	6	12	17%
SW18-SP	SP (Spring)	OffN-Spg	Offsite	na	na	na	na	na	0.021	1.2	0.516	6	100%	271	608	530	6	100%	na	na	na	na	na	2.2	3290	914	6	100%
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	na	na	na	na	na	0.03	0.03	0.03	2	100%	na	na	na	na	na	4	7	5.5	2	100%	na	na	na	2	0%
TC-1	RV	Offsite-TC	Offsite	0.03	0.03	0.03	1	100%	0.022	0.06	0.0404	6	83%	179	251	212	16	100%	2.24	19.5	5.71	6	100%	3	46	10.9	16	56%
TC-2	RV	Offsite-TC	Offsite	0.04	0.04	0.04	1	100%	0.032	0.1	0.0544	5	100%	191	240	222	14	100%	2.54	4.27	3.53	5	100%	2	20	10.9	14	79%
TC-3	RV	Offsite-TC	Offsite	0.05	0.05	0.05	1	100%	0.038	0.07	0.052	5	80%	192	257	222	15	100%	3.33	5.53	4.24	5	100%	2	25	10	15	40%
TC-4	RV	Offsite-TC	Offsite	0.05	0.05	0.05	1	100%	0.01	0.07	0.0504	5	100%	201	250	226	15	100%	3.6	4.78	4.14	5	100%	1	13	5.75	15	53%
TC-5	RV	Offsite-TC	Offsite	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
TRATT003	RV	Offsite-TC	Offsite	na	na	na	na	na	0.019	0.073	0.0433	3	100%	180	220	193	3	100%	4	7	5.33	3	100%	6	6	6	3	33%

Table 4-26
Summary of Detected General Chemistry Results for Surface Water

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

mg/L = milligrams per liter

N = Nitrogen; CaCO3 = calcium carbonate; HCO3 = bicarbonate ; CO3 = carbonate; TKN - Total Kjeldahl Nitrogen

TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids

Station Type: FD = French Drain; PD = Pond; PP = Pipe; RV = River/Stream; SP = Spring/Seep; TP = Tailings Pond

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins.

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	Conductivity					Iron, Ferrous, Total					ORP					Oxygen, Dissolved (%)					Oxygen, Dissolved (mg/L)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	umhos/cm					mg/L					mV					%					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	290.4	776	453	7	100%	na	na	na	na	na	56.7	261.5	145	7	100%	na	na	na	na	na	7.91	12.62	10.4	7	100%
CGC-1	RV	CGC-Crk	Original Ground	269	685	398	9	100%	na	na	na	na	na	-47.1	187.2	102	6	100%	na	na	na	na	na	6.36	11.83	9.17	9	100%
CGC-2	RV	CGC-Crk	Original Ground	265	354	309	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.91	8.01	6.8	6	100%
CGC-2A	RV	CGC-Crk	Original Ground	456	456	456	1	100%	na	na	na	na	na	89.1	89.1	89.1	1	100%	na	na	na	na	na	9.35	9.35	9.35	1	100%
CGC-3	RV	CGC-Crk	Original Ground	236	419	350	5	100%	na	na	na	na	na	-119	223.2	99.2	4	100%	na	na	na	na	na	6.39	10.8	9.47	5	100%
CGC-3A	RV	CGC-Crk	Original Ground	243	679	357	9	100%	na	na	na	na	na	-115.2	209.8	66.4	7	100%	na	na	na	na	na	6.57	14	9.57	9	100%
CGC-4	RV	CGC-Crk	Original Ground	371	371	371	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.04	7.04	7.04	1	100%
CGC-4A	RV	CGC-Crk	Original Ground	277	801	428	14	100%	na	na	na	na	na	-102.5	207.5	72.4	12	100%	na	na	na	na	na	5.77	24.22	10.7	14	100%
CGC-4B	RV	No SW	Original Ground	301	301	301	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.79	4.79	4.79	1	100%
CGC-4C	RV	No SW	Original Ground	300	300	300	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.32	4.32	4.32	1	100%
CGC-5	RV	CGC-Crk	Original Ground	292	757	423	5	100%	na	na	na	na	na	74.5	127.2	101	2	100%	na	na	na	na	na	7.11	11.57	8.5	5	100%
CGC-UPTC	RV	CGC-Crk	Original Ground	317	317	317	1	100%	na	na	na	na	na	168.1	168.1	168	1	100%	na	na	na	na	na	10.06	10.06	10.1	1	100%
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	264	660	394	4	100%	na	na	na	na	na	-44.7	178.4	94.3	3	100%	na	na	na	na	na	5.96	9.01	7.47	4	100%
CGCT1-1	RV	CGC-Crk	Original Ground	241	325	281	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.96	8.19	6.76	3	100%
JS-1	SP (Spring)	CGC-Spg	Original Ground	263	630	368	11	100%	na	na	na	na	na	19.5	237.1	159	9	100%	na	na	na	na	na	7.21	12.2	9.63	11	100%
JRLD	SP (Spring)	CGC-Spg	Original Ground	407	850	592	6	100%	na	na	na	na	na	179.7	269.4	221	6	100%	na	na	na	na	na	4.76	7.8	5.95	6	100%
French Drain Sub-Basin																												
SWP-4A	PD	FD-CrkSpgPd	Overburden	788	792	790	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.49	7.06	6.78	2	100%
FD-1	FD	FD-CrkSpgPd	Overburden	891	1734	1245	14	100%	na	na	na	na	na	-58	176.3	44.9	11	100%	na	na	na	na	na	6.49	10.65	8.38	14	100%
SWP-4	PD	FD-CrkSpgPd	Overburden	881	1267	1010	8	100%	na	na	na	na	na	-80.6	235.4	98.1	6	100%	na	na	na	na	na	4.29	9.61	6.08	8	100%
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	918	1386	1179	8	100%	na	na	na	na	na	-61.1	231.8	105	7	100%	na	na	na	na	na	3.22	9.7	5.85	8	100%
TP-1	TP	FD-NTP	Tailings	192	1578	1238	9	100%	na	na	na	na	na	-59.6	395.4	151	6	100%	na	na	na	na	na	2.31	16.08	10.3	9	100%
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	135	292	205	6	100%	na	na	na	na	na	-57.7	278	142	3	100%	na	na	na	na	na	7.54	9.31	8.29	6	100%
North Woodall Mountain Sub-Basin																												
NWC-1	RV	NWM-CrkSpgPd	Original Ground	315	315	315	1	100%	na	na	na	na	na	135.5	135.5	136	1	100%	na	na	na	na	na	6.32	6.32	6.32	1	100%
NWC-2	RV	NWM-CrkSpgPd	Original Ground	280	398	328	4	100%	na	na	na	na	na	58.3	148.3	118	4	100%	na	na	na	na	na	6.82	14.51	9.68	4	100%
SW03-L	PD	NWM-CrkSpgPd	Original Ground	209	659	339	18	100%	na	na	na	na	na	na	na	na	na	na	30.5	111.4	84.5	10	100%	2.6	13.87	8.91	18	100%
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	34	440	305	18	100%	na	na	na	na	na	na	na	na	na	na	46	112.7	83	10	100%	5.56	11.19	8.69	18	100%
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	77	696	334	19	100%	na	na	na	na	na	na	na	na	na	na	53.6	87.1	70.3	10	100%	5.17	10.63	7.69	19	100%
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	198	1272	972	18	100%	na	na	na	na	na	na	na	na	na	na	13.8	29.5	22.6	10	100%	1.01	7.03	2.82	18	100%
WS-1	SP (Spring)	WW-SpgPd	Original Ground	5.75	1060	730	8	100%	na	na	na	na	na	47.1	193	137	5	100%	na	na	na	na	na	4.74	10.55	7.85	8	100%
WS-2	SP (Spring)	WW-SpgPd	Original Ground	816	1400	1028	6	100%	na	na	na	na	na	26.6	181.6	78.3	6	100%	na	na	na	na	na	4.57	11.65	8.68	6	100%
WS-3	SP (Spring)	WW-SpgPd	Original Ground	1364	1720	1542	2	100%	na	na	na	na	na	-16	138.2	61.1	2	100%	na	na	na	na	na	2.12	8.62	5.37	2	100%
Old Tailings Pond Sub-Basin																												
NEP-7	PD	OTP-pool	Overburden (now covered)	414	414	414	1	100%	na	na	na	na	na	32.2	32.2	32.2	1	100%	na	na	na	na	na	10.96	10.96	11	1	100%
TP-2	TP	OTP-TP	Tailings	514	957	736	2	100%	na	na	na	na	na	252	252	252	1	100%	na	na	na	na	na	4.94	7.16	6.05	2	100%
TP-2A	TP	OTP-TP	Tailings	879	1033	963	3	100%	na	na	na	na	na	86.8	174.9	131	2	100%	na	na	na	na	na	3.69	6.42	5.31	3	100%
TP-2B	TP	OTP-TP	Tailings	371	371	371	1	100%	na	na	na	na	na	221.7	221.7	222	1	100%	na	na	na	na	na	6.78	6.78	6.78	1	100%
TP-2C	TP	OTP-TP	Tailings	215	215	215	1	100%	na	na	na	na	na	201	201	201	1	100%	na	na	na	na	na	9.61	9.61	9.61	1	100%
TP-2D	TP	OTP-TP	Tailings	1019	1019	1019	1	100%	na	na	na	na	na	242.4	242.4	242	1	100%	na	na	na	na	na	11.73	11.73	11.7	1	100%
NBorrowSedBasin	PD	OTP-pool	Original Ground	105	226.9	156	3	100%	na	na	na	na	na	105.6	334	199	3	100%	na	na	na	na	na	5.7	9.03	7.34	3	100%
Pedro Creek Sub-Basin																												
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	148	148	148	1	100%	na	na	na	na	na	-98.6	-98.6	-98.6	1	100%	na	na	na	na	na	7.03	7.03	7.03	1	100%
ESedBasinC	PD	PC-PDPOOL	Original Ground	848	869	859	2	100%	na	na	na	na	na	141.4	210.1	176	2	100%	na	na	na	na	na	7.08	10.91	9	2	100%
ESedBasinN	PD	PC-PDPOOL	Original Ground	1194	1194	1194	1	100%	na	na	na	na	na	200.5	200.5	201	1	100%	na	na	na	na	na	7.5	7.5	7.5	1	100%

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	pH (field)					pH (lab)					Temperature					Turbidity (field)					Turbidity (lab)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	SU					SU					C					NTU					NTU				
			Comparison Value >>	Eco: 6-9, HH: 5-9					Eco: 6-9, HH: 5-9					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
Camp G Creek Sub-Basin																												
CGC-0	RV	CGC-Crk	Original Ground	7.94	8.83	8.37	7	100%	na	na	na	na	na	7.2	13.98	10.1	7	100%	1.28	5.94	4.02	7	100%	na	na	na	na	na
CGC-1	RV	CGC-Crk	Original Ground	7.33	8.28	7.95	9	100%	7.98	8.26	8.12	2	100%	1.83	18.35	9.87	9	100%	0.98	9.16	5.71	9	100%	na	na	na	na	na
CGC-2	RV	CGC-Crk	Original Ground	7.54	8.3	7.88	6	100%	na	na	na	na	na	3.5	9.6	6.82	6	100%	4.17	10.2	6.44	6	100%	na	na	na	na	na
CGC-2A	RV	CGC-Crk	Original Ground	7.97	7.97	7.97	1	100%	8.07	8.07	8.07	1	100%	4.05	4.05	4.05	1	100%	1.01	1.01	1.01	1	100%	na	na	na	na	na
CGC-3	RV	CGC-Crk	Original Ground	7.86	8.31	8.04	5	100%	na	na	na	na	na	3.69	7.15	5.49	5	100%	0.31	12.4	6.54	4	100%	na	na	na	na	na
CGC-3A	RV	CGC-Crk	Original Ground	7.44	8.43	7.91	9	100%	na	na	na	na	na	3.72	15.62	6.66	9	100%	0.83	9.07	4.17	9	100%	na	na	na	na	na
CGC-4	RV	CGC-Crk	Original Ground	8.46	8.46	8.46	1	100%	na	na	na	na	na	5.5	5.5	5.5	1	100%	3.32	3.32	3.32	1	100%	na	na	na	na	na
CGC-4A	RV	CGC-Crk	Original Ground	6.71	8.22	7.67	14	100%	7.9	8.03	7.97	2	100%	3.5	10.19	6.52	14	100%	0.96	96.32	12.1	13	100%	na	na	na	na	na
CGC-4B	RV	No SW	Original Ground	7.59	7.59	7.59	1	100%	na	na	na	na	na	7.36	7.36	7.36	1	100%	na	na	na	na	na	na	na	na	na	na
CGC-4C	RV	No SW	Original Ground	7.5	7.5	7.5	1	100%	na	na	na	na	na	5.13	5.13	5.13	1	100%	na	na	na	na	na	na	na	na	na	na
CGC-5	RV	CGC-Crk	Original Ground	7.52	8.21	7.89	5	100%	na	na	na	na	na	3.87	9.94	5.97	5	100%	1.27	11.9	6.15	5	100%	na	na	na	na	na
CGC-UPTC	RV	CGC-Crk	Original Ground	8.05	8.05	8.05	1	100%	na	na	na	na	na	12.29	12.29	12.3	1	100%	1.51	1.51	1.51	1	100%	na	na	na	na	na
CS-1_CND	SP (Spring)	CGC-Spg	Original Ground	7.67	7.72	7.7	4	100%	na	na	na	na	na	5.56	8.5	7.3	4	100%	0.9	4.62	2.92	4	100%	na	na	na	na	na
CGCT1-1	RV	CGC-Crk	Original Ground	7.73	7.92	7.81	3	100%	na	na	na	na	na	6.9	7.96	7.52	3	100%	1.43	6.05	3.32	3	100%	na	na	na	na	na
JS-1	SP (Spring)	CGC-Spg	Original Ground	6.87	7.8	7.54	11	100%	na	na	na	na	na	5.07	6.7	5.62	11	100%	0.13	5.83	1.57	11	100%	na	na	na	na	na
JRLD	SP (Spring)	CGC-Spg	Original Ground	6.46	7.73	7.15	6	100%	na	na	na	na	na	10.4	19.8	13.4	6	100%	0.09	3.1	1.1	6	100%	na	na	na	na	na
French Drain Sub-Basin																												
SWP-4A	PD	FD-CrkSpgPd	Overburden	7.79	7.93	7.86	2	100%	na	na	na	na	na	4.6	10	7.3	2	100%	2.24	2.89	2.57	2	100%	na	na	na	na	na
FD-1	FD	FD-CrkSpgPd	Overburden	6.94	8.36	7.77	14	100%	7.7	8.05	7.91	3	100%	3.8	12.8	7.7	14	100%	1.43	8.6	4.18	13	100%	na	na	na	na	na
SWP-4	PD	FD-CrkSpgPd	Overburden	7.49	8.75	8.04	8	100%	na	na	na	na	na	8.45	17.59	11.3	8	100%	0.8	145.9	26.9	7	100%	na	na	na	na	na
SWS-3	SP (Seep)	FD-CrkSpgPd	Overburden	6.99	7.7	7.3	8	100%	na	na	na	na	na	6.27	8.3	7.49	8	100%	0.56	6.32	3.35	7	100%	na	na	na	na	na
TP-1	TP	FD-NTP	Tailings	8.53	9.25	8.89	9	100%	8.68	8.68	8.68	1	100%	8.8	20.67	13.6	9	100%	0.63	18.84	9.3	8	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																												
TCC-2	PD	MCTC-PD	Original Ground	7.85	9.9	8.87	6	100%	na	na	na	na	na	5.1	17.39	9.68	6	100%	1.84	395	126	5	100%	na	na	na	na	na
North Woodall Mountain Sub-Basin																												
NWC-1	RV	NWM-CrkSpgPd	Original Ground	8.17	8.17	8.17	1	100%	na	na	na	na	na	11.65	11.65	11.7	1	100%	2.21	2.21	2.21	1	100%	na	na	na	na	na
NWC-2	RV	NWM-CrkSpgPd	Original Ground	8.17	8.64	8.45	4	100%	na	na	na	na	na	14.6	24.97	19.3	4	100%	2.43	13.27	7	4	100%	na	na	na	na	na
SW03-L	PD	NWM-CrkSpgPd	Original Ground	7.26	9.11	8.04	18	100%	7.6	9.3	8.1	19	100%	6	22.8	11.9	18	100%	na	na	na	na	na	0.6	6.4	2.92	17	100%
SW06-W	SP (Spring)	NWM-CrkSpgPd	Original Ground	7.29	8.62	7.91	18	100%	7.61	8.5	8.01	18	100%	3.71	27.8	12.4	18	100%	na	na	na	na	na	0.8	38	9.03	18	100%
SW05-SP	SP (Spring)	NWM-CrkSpgPd	Original Ground	6.98	7.67	7.42	19	100%	6.6	8	7.74	19	100%	5.8	20.2	10.7	19	100%	na	na	na	na	na	1.8	100	18.2	18	100%
SW07-SP	SP (Spring)	WW-SpgPd	Original Ground	6.25	6.9	6.45	18	100%	6.5	7.38	6.81	19	100%	7.3	18.3	12.7	18	100%	na	na	na	na	na	0.2	12	2.24	17	47%
WS-1	SP (Spring)	WW-SpgPd	Original Ground	6.97	9.2	7.52	8	100%	na	na	na	na	na	6.24	15.5	11.9	8	100%	1.14	20.16	3.94	8	100%	na	na	na	na	na
WS-2	SP (Spring)	WW-SpgPd	Original Ground	7.02	7.93	7.32	6	100%	na	na	na	na	na	10.29	18.01	13.8	6	100%	1.42	12.6	5.09	6	100%	na	na	na	na	na
WS-3	SP (Spring)	WW-SpgPd	Original Ground	6.5	7.02	6.76	2	100%	na	na	na	na	na	12.65	15.6	14.1	2	100%	2.22	3.02	2.62	2	100%	na	na	na	na	na
Old Tailings Pond Sub-Basin																												
NEP-7	PD	OTP-pool	Overburden (now covered)	8.75	8.75	8.75	1	100%	na	na	na	na	na	17.62	17.62	17.6	1	100%	26.15	26.15	26.2	1	100%	na	na	na	na	na
TP-2	TP	OTP-TP	Tailings	7.71	9.13	8.42	2	100%	na	na	na	na	na	7.4	14.69	11	2	100%	1.86	1.86	1.86	1	100%	na	na	na	na	na
TP-2A	TP	OTP-TP	Tailings	7.18	9.08	8.07	3	100%	7.76	7.82	7.79	2	100%	8.3	18.05	13	3	100%	5.23	161	59.1	3	100%	na	na	na	na	na
TP-2B	TP	OTP-TP	Tailings	8.14	8.14	8.14	1	100%	na	na	na	na	na	15.39	15.39	15.4	1	100%	na	na	na	na	na	na	na	na	na	na
TP-2C	TP	OTP-TP	Tailings	8.4	8.4	8.4	1	100%	na	na	na	na	na	18.04	18.04	18	1	100%	na	na	na	na	na	na	na	na	na	na
TP-2D	TP	OTP-TP	Tailings	8.02	8.02	8.02	1	100%	na	na	na	na	na	13.96	13.96	14	1	100%	na	na	na	na	na	na	na	na	na	na
NBorrowSedBasin	PD	OTP-pool	Original Ground	5.94	9.2	7.68	3	100%	na	na	na	na	na	8.3	14.3	10.6	3	100%	276	398	337	2	100%	na	na	na	na	na
Pedro Creek Sub-Basin																												
NRC-1	PP	PC-CrkSpgSeeps	Overburden (now covered)	7.91	7.91	7.91	1	100%	na	na	na	na	na	10.6	10.6	10.6	1	100%	535.3	535.3	535	1	100%	na	na	na	na	na
ESedBasinC	PD	PC-PDPOOL	Original Ground	7.99	9.41	8.7	2	100%	na	na	na	na	na	11.1	16.7	13.9	2	100%	32.6	32.6	32.6	1	100%	na	na	na	na	na
ESedBasinN	PD	PC-PDPOOL	Original Ground	7.88	7.88	7.88	1	100%	na	na	na	na	na	12	12	12	1	100%	na	na	na	na	na	na	na	na	na	na

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	Conductivity					Iron, Ferrous, Total					ORP					Oxygen, Dissolved (%)					Oxygen, Dissolved (mg/L)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	umhos/cm					mg/L					mV					%					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
ESedBasinS	PD	PC-PDPOOL	Original Ground	40.1	40.1	40.1	1	100%	na	na	na	na	na	207.9	207.9	208	1	100%	na	na	na	na	na	7.64	7.64	7.64	1	100%
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	1142	1488	1315	2	100%	na	na	na	na	na	154.2	201.5	178	2	100%	na	na	na	na	na	7.27	8.92	8.1	2	100%
FSPSBasin	PD	PC-PDPOOL	Original Ground	262.2	916	593	7	100%	na	na	na	na	na	59.8	373.1	178	7	100%	na	na	na	na	na	6.59	14.34	10.4	7	100%
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	1083	1510	1296	3	100%	na	na	na	na	na	147.9	243.1	185	3	100%	na	na	na	na	na	9.46	9.73	9.6	3	100%
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	1018	1265	1107	3	100%	na	na	na	na	na	153.6	240.4	188	3	100%	na	na	na	na	na	9.46	12.85	10.8	3	100%
NEP-1	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	157	294	240	4	100%	na	na	na	na	na	-52.2	193.6	70.7	2	100%	na	na	na	na	na	6.48	16.58	10	4	100%
NEP-4b	PD	No SW	Overburden (now covered)	175	196	186	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.5	6.29	5.9	2	100%
NEP-4c	PD	No SW	Overburden (now covered)	80	173	127	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.49	6.14	5.82	2	100%
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	253	6100	2825	21	100%	na	na	na	na	na	-99.6	420.6	129	17	100%	na	na	na	na	na	4.34	14.22	9.45	21	100%
NESedBasinC	PD	PC-PDPOOL	Original Ground	766	3529	1782	4	100%	na	na	na	na	na	166.4	365.3	250	4	100%	na	na	na	na	na	5.69	18.1	10.7	4	100%
NESedBasinN	PD	PC-PDPOOL	Original Ground	1108	3766	1988	5	100%	na	na	na	na	na	156.3	347.5	219	5	100%	na	na	na	na	na	5.49	16.95	10.1	5	100%
NESedBasinS	PD	PC-PDPOOL	Original Ground	522.1	4072	1676	4	100%	na	na	na	na	na	150.5	317.4	213	4	100%	na	na	na	na	na	9.2	11.14	10.3	4	100%
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	3159	3591	3425	5	100%	na	na	na	na	na	171	406.2	250	5	100%	na	na	na	na	na	14.37	25.92	18.1	5	100%
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	2668	2710	2689	2	100%	na	na	na	na	na	186.5	210.2	198	2	100%	na	na	na	na	na	8.22	15.37	11.8	2	100%
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	110.8	176	138	4	100%	na	na	na	na	na	79.1	200.4	154	4	100%	na	na	na	na	na	8.92	11.24	10.1	4	100%
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	123.9	123.9	124	1	100%	na	na	na	na	na	237	237	237	1	100%	na	na	na	na	na	6.8	6.8	6.8	1	100%
PC-1	RV	PC-CrkSpgSeeps	Original Ground	242	406.7	348	13	100%	na	na	na	na	na	-10.3	297.8	135	12	100%	na	na	na	na	na	0.18	12.12	9.01	13	100%
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	374	374	374	1	100%	na	na	na	na	na	68.3	68.3	68.3	1	100%	na	na	na	na	na	9.99	9.99	9.99	1	100%
PC-2	RV	PC-CrkSpgSeeps	Original Ground	234	597	357	21	100%	na	na	na	na	na	-112	274.1	109	18	100%	na	na	na	na	na	0.18	16.85	8.82	21	100%
PC-2B	RV	PC-CrkSpgSeeps	Original Ground	313	313	313	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.08	7.08	7.08	1	100%
PC-2C	RV	PC-CrkSpgSeeps	Original Ground	249	249	249	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.92	7.92	7.92	1	100%
PC-3	RV	PC-CrkSpgSeeps	Original Ground	610	1105	905	4	100%	na	na	na	na	na	-114.3	157.5	24.8	3	100%	na	na	na	na	na	5.43	9.23	7.8	4	100%
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	703	807	772	3	100%	na	na	na	na	na	79.1	84	81.6	2	100%	na	na	na	na	na	6.11	8.18	6.97	3	100%
PC-4	RV	PC-CrkSpgSeeps	Original Ground	1411	2570	1867	11	100%	na	na	na	na	na	-113	211.1	101	9	100%	na	na	na	na	na	6.03	9.46	8.12	11	100%
PC-4A	RV	No SW	Original Ground	1452	1452	1452	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.63	6.63	6.63	1	100%
PC-5	RV	PC-CrkSpgSeeps	Original Ground	1451	3254	2204	13	100%	na	na	na	na	na	-111.5	235.4	108	12	100%	na	na	na	na	na	0.3	9.42	6.84	13	100%
PC-6	RV	PC-CrkSpgSeeps	Original Ground	2341	2341	2341	1	100%	na	na	na	na	na	183.2	183.2	183	1	100%	na	na	na	na	na	7.32	7.32	7.32	1	100%
PC-9	RV	PC-CrkSpgSeeps	Original ground	1229	1229	1229	1	100%	na	na	na	na	na	240.2	240.2	240	1	100%	na	na	na	na	na	8.45	8.45	8.45	1	100%
PCP-2	PD	PC-PDPOOL	Original Ground	162	1277	395	15	100%	na	na	na	na	na	72.1	369.8	166	11	100%	na	na	na	na	na	2.77	13.63	8.67	15	100%
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	135	325	249	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.04	5.95	4.78	3	100%
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	283	314	299	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.3	8.73	7.52	2	100%
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	96	254	198	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.51	5.96	5.42	3	100%
PCT4-0	RV	PC-CrkSpgSeeps	Original Ground	246	246	246	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.6	6.6	6.6	1	100%
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	255	339	287	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.2	9.37	7.34	3	100%
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	360	360	360	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	5.91	5.91	5.91	1	100%
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	268.8	268.8	269	1	100%	na	na	na	na	na	168.9	168.9	169	1	100%	na	na	na	na	na	6.23	6.23	6.23	1	100%
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	539.9	599.1	570	2	100%	na	na	na	na	na	166.1	229	198	2	100%	na	na	na	na	na	10.6	13.01	11.8	2	100%
NED-1	PD	PC-PDPOOL	Overburden (now covered)	1973	1973	1973	1	100%	na	na	na	na	na	-88.6	-88.6	-88.6	1	100%	na	na	na	na	na	8.6	8.6	8.6	1	100%
Shield and Jouglard Canyons Sub-Basin																												
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	580	889	744	8	100%	na	na	na	na	na	-27.8	183.7	111	5	100%	na	na	na	na	na	5.23	10.79	8.57	8	100%
HH-OP1	RV	SJC-PD	Original Ground	476	476	476	1	100%	na	na	na	na	na	-99.6	-99.6	-99.6	1	100%	na	na	na	na	na	8.71	8.71	8.71	1	100%
BorrowOp	PD	SJC-pool	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
HH-1	SP (Spring)	SJC-Spg	Original Ground	347	982	495	6	100%	na	na	na	na	na	80.3	207.1	144	2	100%	na	na	na	na	na	5.67	23.96	10.7	6	100%
HHP-1	PD	SJC-PD	Original Ground	251.6	1871	528	16	100%	na	na	na	na	na	-95.5	308.1	139	10	100%	na	na	na	na	na	4.9	15.87	11.5	14	100%
NL4P-1	PD	SJC-PitLake	Overburden	243.5	1550	432	17	100%	na	na	na	na	na	-96.6	300.1	113	14	100%	na	na	na	na	na	5.24	13.27	8.9	17	100%
NL4P-OP1	RV	SJC-pool	Overburden	285	285	285	1	100%	na	na	na	na	na	112.5	112.5	113	1	100%	na	na	na	na	na	8.53	8.53	8.53	1	100%
NL4P-OP2	RV	SJC-pool	Overburden	125	125	125	1	100%	na	na	na	na	na	105.2	105.2	105	1	100%	na	na	na	na	na	7.47	7.47	7.47	1	100%
NL4P-OP3	PD	SJC-pool	Overburden	43	43	43	1	100%	na	na	na	na	na	-123.6	-123.6	-124	1	100%	na	na	na	na	na	9.85	9.85	9.85	1	100%
SWP-1	PD	SJC-pool	Overburden	64	64	64	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.22	7.22	7.22	1	100%
SWP-2	PD	SJC-ODApond	Original Ground	193	598	354	4	100%	na	na	na	na	na	-103.3	130.8	-16.1	3	100%	na	na	na	na	na	2.71	9.46	6.85	4	100%
SWP-3	PD	SJC-PD	Original Ground	522	1494	909	7	100%	na	na	na	na	na	-64.2	177.7	67.4	5	100%	na	na	na	na	na	1.59	10.22	6.04	7	100%
SWS-2	SP (Spring)	SJC-Spg	Original ground	355	1024	568	9	100%	na	na	na	na	na	-96.43	248.4	67.5	7	100%	na	na	na	na	na	3.37	51.9	12	9	100%

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	pH (field)					pH (lab)					Temperature					Turbidity (field)					Turbidity (lab)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	SU					SU					C					NTU					NTU				
			Comparison Value >>	Eco: 6-9, HH: 5-9					Eco: 6-9, HH: 5-9					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
ESedBasinS	PD	PC-PDPOOL	Original Ground	7.98	7.98	7.98	1	100%	na	na	na	na	na	10.9	10.9	10.9	1	100%	na	na	na	na	na	na	na	na	na	na
ESedBasinToe	SP (Seep)	PC-CrkSpgSeeps	Original ground	7.27	8.15	7.71	2	100%	na	na	na	na	na	6.1	8.6	7.35	2	100%	11.7	11.7	11.7	1	100%	na	na	na	na	na
FSPSBasin	PD	PC-PDPOOL	Original Ground	7.49	10.63	8.79	7	100%	na	na	na	na	na	5.4	23.98	13.5	7	100%	13.8	190	59.9	6	100%	na	na	na	na	na
FSPSSeep	SP (Seep)	PC-CrkSpgSeeps	Overburden	6.61	7.07	6.84	3	100%	na	na	na	na	na	5.7	7.4	6.57	3	100%	0.47	28.15	14.3	2	100%	na	na	na	na	na
FSPSSeepPond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	7.48	9.06	8.22	3	100%	na	na	na	na	na	5.9	17.4	11.2	3	100%	11.7	12.1	11.9	2	100%	na	na	na	na	na
NEP-1	PD	PC-PDPOOL	Original Ground	na	na	na	na	na	9	9.1	9.07	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
NEP-4a	PD	PC-PDPOOL	Overburden (now covered)	8.14	10.21	9.28	4	100%	na	na	na	na	na	5.01	19.09	11.1	4	100%	3.88	5.63	4.85	3	100%	na	na	na	na	na
NEP-4b	PD	No SW	Overburden (now covered)	8.56	8.76	8.66	2	100%	na	na	na	na	na	4.9	17.95	11.4	2	100%	31.3	31.3	31.3	1	100%	na	na	na	na	na
NEP-4c	PD	No SW	Overburden (now covered)	8.99	9.55	9.27	2	100%	na	na	na	na	na	4.6	15.79	10.2	2	100%	24.8	24.8	24.8	1	100%	na	na	na	na	na
NES-5	SP (Seep)	PC-CrkSpgSeeps	Overburden	6.7	8.51	7.84	21	100%	7.9	8.16	8.02	4	100%	6.47	19	9.55	21	100%	0	133.6	14	20	100%	na	na	na	na	na
NESedBasinC	PD	PC-PDPOOL	Original Ground	7.71	9.9	8.33	4	100%	na	na	na	na	na	7.1	23.77	15	4	100%	15.8	564	206	3	100%	na	na	na	na	na
NESedBasinN	PD	PC-PDPOOL	Original Ground	7.12	9.73	8.41	5	100%	na	na	na	na	na	5.5	23.21	13.3	5	100%	11.1	299	90.2	4	100%	na	na	na	na	na
NESedBasinS	PD	PC-PDPOOL	Original Ground	7.22	9.32	8.04	4	100%	na	na	na	na	na	5.6	25.5	12.5	4	100%	9.55	71.6	33.2	3	100%	na	na	na	na	na
NESeep5Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	7.45	8.88	7.98	5	100%	na	na	na	na	na	6.9	17.6	12.2	5	100%	3.59	29.2	16.2	4	100%	na	na	na	na	na
NESeep7Pond	PD (Seep pond)	PC-CrkSpgSeeps	Overburden	7.17	8.17	7.67	2	100%	na	na	na	na	na	10	11.3	10.7	2	100%	11.6	11.6	11.6	1	100%	na	na	na	na	na
SEInfiltBasin	PD	PC-PDPOOL	Original Ground	7.15	10.04	8.69	4	100%	na	na	na	na	na	9	15.5	12.1	4	100%	73.7	299	178	3	100%	na	na	na	na	na
SWInfiltBasin	PD	PC-PDPOOL	Original Ground	7.19	7.19	7.19	1	100%	na	na	na	na	na	13.9	13.9	13.9	1	100%	271	394	333	2	100%	na	na	na	na	na
PC-1	RV	PC-CrkSpgSeeps	Original Ground	8.13	9.5	8.47	13	100%	8.7	8.7	8.7	1	100%	7.2	21.13	13.9	13	100%	1.56	29.41	12.7	13	100%	na	na	na	na	na
PC-1UP	RV	PC-CrkSpgSeeps	Original Ground	8.4	8.4	8.4	1	100%	na	na	na	na	na	6.4	6.4	6.4	1	100%	6.73	6.73	6.73	1	100%	na	na	na	na	na
PC-2	RV	PC-CrkSpgSeeps	Original Ground	7.27	8.7	8.08	21	100%	8.02	8.05	8.04	2	100%	0.1	22.46	12	21	100%	2.01	58.36	10.1	20	100%	na	na	na	na	na
PC-2B	RV	PC-CrkSpgSeeps	Original Ground	7.83	7.83	7.83	1	100%	na	na	na	na	na	7.24	7.24	7.24	1	100%	4.78	4.78	4.78	1	100%	na	na	na	na	na
PC-2C	RV	PC-CrkSpgSeeps	Original Ground	8.34	8.34	8.34	1	100%	na	na	na	na	na	7.41	7.41	7.41	1	100%	2.94	2.94	2.94	1	100%	na	na	na	na	na
PC-3	RV	PC-CrkSpgSeeps	Original Ground	7.6	8.27	7.98	4	100%	na	na	na	na	na	8.8	16.48	12	4	100%	0.33	8	2.68	4	100%	na	na	na	na	na
PC-3A	RV	PC-CrkSpgSeeps	Original Ground	7.64	8.15	7.86	3	100%	7.95	7.95	7.95	1	100%	8.85	19.22	14	3	100%	2.22	4.92	3.81	3	100%	na	na	na	na	na
PC-4	RV	PC-CrkSpgSeeps	Original Ground	7.71	8.22	8.04	11	100%	7.99	7.99	7.99	1	100%	6.7	20.15	10.8	11	100%	0.5	3	1.3	11	100%	na	na	na	na	na
PC-4A	RV	No SW	Original Ground	7.99	7.99	7.99	1	100%	na	na	na	na	na	6.93	6.93	6.93	1	100%	na	na	na	na	na	na	na	na	na	na
PC-5	RV	PC-CrkSpgSeeps	Original Ground	6.81	7.76	7.48	13	100%	7.75	7.75	7.75	1	100%	4	14.73	8.94	13	100%	0	319.9	27.3	13	100%	na	na	na	na	na
PC-6	RV	PC-CrkSpgSeeps	Original Ground	7.33	7.33	7.33	1	100%	na	na	na	na	na	8.2	8.2	8.2	1	100%	4.39	4.39	4.39	1	100%	na	na	na	na	na
PC-9	RV	PC-CrkSpgSeeps	Original ground	7.75	7.75	7.75	1	100%	na	na	na	na	na	7	7	7	1	100%	na	na	na	na	na	na	na	na	na	na
PCP-2	PD	PC-PDPOOL	Original Ground	7.29	10.32	8.5	15	100%	na	na	na	na	na	4.8	20.8	12.3	15	100%	1.56	154	25.4	14	100%	na	na	na	na	na
PCT1-1	RV	PC-CrkSpgSeeps	Original Ground	7.72	8.14	7.94	3	100%	na	na	na	na	na	4.1	9.62	7.57	3	100%	3.95	5.98	5.05	3	100%	na	na	na	na	na
PCT2-2	RV	PC-CrkSpgSeeps	Original Ground	7.73	8.3	8.02	2	100%	na	na	na	na	na	4.4	13.88	9.14	2	100%	180	501	341	2	100%	na	na	na	na	na
PCT3-1	RV	PC-CrkSpgSeeps	Original Ground	7.55	7.91	7.69	3	100%	na	na	na	na	na	6	11.9	8.44	3	100%	0.83	8.63	5.81	3	100%	na	na	na	na	na
PCT4-0	RV	PC-CrkSpgSeeps	Original Ground	8.17	8.17	8.17	1	100%	na	na	na	na	na	8.59	8.59	8.59	1	100%	4.29	4.29	4.29	1	100%	na	na	na	na	na
PCT4-1	RV	PC-CrkSpgSeeps	Original Ground	7.35	7.7	7.53	3	100%	na	na	na	na	na	6	8.5	7.1	3	100%	1.03	4.1	2.32	3	100%	na	na	na	na	na
PCT5-1	RV	PC-CrkSpgSeeps	Original Ground	8.12	8.12	8.12	1	100%	na	na	na	na	na	10.5	10.5	10.5	1	100%	0.73	0.73	0.73	1	100%	na	na	na	na	na
PCT5-2	RV	PC-CrkSpgSeeps	Original Ground	7.52	7.52	7.52	1	100%	na	na	na	na	na	8.9	8.9	8.9	1	100%	1.27	1.27	1.27	1	100%	na	na	na	na	na
PCT6-5	RV	PC-CrkSpgSeeps	Original ground	7.65	9.06	8.36	2	100%	na	na	na	na	na	5.4	13.6	9.5	2	100%	24.1	24.1	24.1	1	100%	na	na	na	na	na
NED-1	PD	PC-PDPOOL	Overburden (now covered)	7.41	7.41	7.41	1	100%	na	na	na	na	na	10.5	10.5	10.5	1	100%	5.89	5.89	5.89	1	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																												
FM-1	SP (Spring)	SJC-FormCrk	Original Ground	7.32	7.69	7.46	8	100%	na	na	na	na	na	6.1	15	11.4	8	100%	0.14	15.15	2.42	8	100%	na	na	na	na	na
HH-OP1	RV	SJC-PD	Original Ground	8.17	8.17	8.17	1	100%	na	na	na	na	na	13.79	13.79	13.8	1	100%	na	na	na	na	na	na	na	na	na	na
BorrowOp	PD	SJC-pool	Original Ground	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	392	392	392	1	100%	na	na	na	na	na
HH-1	SP (Spring)	SJC-Spg	Original Ground	7.57	8.33	8.03	6	100%	na	na	na	na	na	5.24	10.92	7.82	6	100%	0	8.53	3.76	5	100%	na	na	na	na	na
HHP-1	PD	SJC-PD	Original Ground	7.09	8.92	8.01	16	100%	8.3	8.3	8.3	1	100%	6.9	22.9	12.2	16	100%	0	27.1	9.33	15	100%	na	na	na	na	na
NL4P-1	PD	SJC-PitLake	Overburden	6.51	10.75	9.17	17	100%	8	8	8	1	100%	7.7	23.43	12.8	17	100%	0.97	26.6	10.4	16	100%	na	na	na	na	na
NL4P-OP1	RV	SJC-pool	Overburden	8.01	8.01	8.01	1	100%	na	na	na	na	na	16.5	16.5	16.5	1	100%	na	na	na	na	na	na	na	na	na	na
NL4P-OP2	RV	SJC-pool	Overburden	7.6	7.6	7.6	1	100%	na	na	na	na	na	16.61	16.61	16.6	1	100%	na	na	na	na	na	na	na	na	na	na
NL4P-OP3	PD	SJC-pool	Overburden	7.8	7.8	7.8	1	100%	na	na	na	na	na	16.58	16.58	16.6	1	100%	na	na	na	na	na	na	na	na	na	na
SWP-1	PD	SJC-pool	Overburden	9.16	9.16	9.16	1	100%	na	na	na	na	na	8.7	8.7	8.7	1	100%	177	177	177	1	100%	na	na	na	na	na
SWP-2	PD	SJC-ODApond	Original Ground	7.23	8.89	8	4	100%	na	na	na	na	na	9.4	17.4	14.1	4	100%	2.34	6.72	4.03	3	100%	na	na	na	na	na
SWP-3	PD	SJC-PD	Original Ground	7.06	8.41	7.74	7	100%	7.43	7.53	7.48	2	100%	5.39	16.54	10.7	7	100%	1.5	9.71	4.84	7	100%	na	na	na	na	na
SWS-2	SP (Spring)	SJC-Spg	Original ground	7.26	7.89	7.6	9	100%	7.4	7.4	7.4	1	100%	3.2	16.31	9.68	9	100%	1.13	332	53.2	8	100%	na	na	na	na	na

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	Conductivity					Iron, Ferrous, Total					ORP					Oxygen, Dissolved (%)					Oxygen, Dissolved (mg/L)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	umhos/cm					mg/L					mV					%					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
JCS-1	SP (Spring)	SJC-Spg	Original Ground	415	597	484	4	100%	na	na	na	na	na	-83.2	244.5	101	3	100%	na	na	na	na	na	4.55	8.96	6.89	4	100%
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	72	415	244	2	100%	na	na	na	na	na	-102.8	-102.8	-103	1	100%	na	na	na	na	na	6.15	7.88	7.02	2	100%
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	560	1296	776	5	100%	na	na	na	na	na	-127.3	15.6	-73.6	3	100%	na	na	na	na	na	5.14	18.15	8.47	5	100%
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	793	1123	941	3	100%	na	na	na	na	na	127.1	127.1	127	1	100%	na	na	na	na	na	4.33	7.9	5.98	3	100%
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	1432	1952	1659	4	100%	na	na	na	na	na	101.4	173.5	137	2	100%	na	na	na	na	na	4.58	6.8	5.55	4	100%
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	1052	3803	2148	14	100%	na	na	na	na	na	-139.6	221.1	79	10	100%	na	na	na	na	na	3.94	10.24	6.78	14	100%
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	2627	2627	2627	1	100%	na	na	na	na	na	-126.9	-126.9	-127	1	100%	na	na	na	na	na	7.05	7.05	7.05	1	100%
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	1323	4840	2302	5	100%	na	na	na	na	na	-153	-153	-153	1	100%	na	na	na	na	na	2.33	6.32	4.72	5	100%
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	2284	2284	2284	1	100%	na	na	na	na	na	-130.1	-130.1	-130	1	100%	na	na	na	na	na	6.65	6.65	6.65	1	100%
AWI012-22	RV	SLC-CrkSpg	Original Ground	292	330	311	6	100%	na	na	na	na	na	165.1	194.8	180	2	100%	79.5	81.4	80.5	2	100%	8.33333	12.46	9.84	6	100%
SLC	RV	SLC-CrkSpg	Original Ground	600	600	600	1	100%	na	na	na	na	na	na	na	na	na	na	73	73	73	1	100%	8.2	8.2	8.2	1	100%
SLC-0	RV	SLC-CrkSpg	Original Ground	263	1448	457	14	100%	na	na	na	na	na	-133.5	272.8	75.4	13	100%	na	na	na	na	na	5.85	10.17	7.73	14	100%
SLC-1	RV	SLC-CrkSpg	Original Ground	264	751	419	4	100%	na	na	na	na	na	175	175	175	1	100%	na	na	na	na	na	4.93	8.44	6.55	4	100%
SLC-2	RV	SLC-CrkSpg	Original Ground	0.00024	661	194	19	100%	na	na	na	na	na	-13.3	229.2	123	15	100%	na	na	na	na	na	4.9	12.05	9.02	18	100%
SLC-3	RV	SLC-CrkSpg	Original Ground	387	537	457	3	100%	na	na	na	na	na	-102.2	23.3	-39.5	2	100%	na	na	na	na	na	5.59	8.8	7.51	3	100%
SLC-3A	RV	SLC-CrkSpg	Original Ground	332	370	351	2	100%	na	na	na	na	na	65.5	65.5	65.5	1	100%	na	na	na	na	na	6.49	7.21	6.85	2	100%
SLC-3B	RV	No SW	Original Ground	273	273	273	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.42	7.42	7.42	1	100%
SLC-3C	RV	SLC-CrkSpg	Original Ground	221	221	221	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.57	6.57	6.57	1	100%
SLC-3D	RV	SLC-CrkSpg	Original Ground	205	672	405	7	100%	na	na	na	na	na	-106.2	121.4	19.8	6	100%	na	na	na	na	na	6.35	10.8	7.85	7	100%
SLC-3E	RV	SLC-CrkSpg	Original Ground	205	590	404	4	100%	na	na	na	na	na	-8	169.1	84.4	3	100%	na	na	na	na	na	6.15	11.32	8.19	4	100%
SLC-5	RV	SLC-CrkSpg	Original Ground	939	1349	1189	3	100%	na	na	na	na	na	-96.2	149.4	26.6	2	100%	na	na	na	na	na	5.68	8.95	7.54	3	100%
SLC-5A	RV	No SW	Original Ground	579	579	579	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.06	7.06	7.06	1	100%
SLC-6	RV	SLC-CrkSpg	Original Ground	1016	1587	1377	3	100%	na	na	na	na	na	-100.6	158.1	28.8	2	100%	na	na	na	na	na	7.21	8.46	7.76	3	100%
SW08-ST	RV	SLC-CrkSpg	Original Ground	195	413	304	18	100%	na	na	na	na	na	na	na	na	na	na	73.3	99.7	83.1	10	100%	5.6	12.92	9.82	18	100%
SW09-ST	RV	SLC-CrkSpg	Original Ground	174	496	380	18	100%	na	na	na	na	na	na	na	na	na	na	74.1	118.9	84.6	10	100%	5.1	27.33	10.2	18	100%
SLP-1	PD	SLC-PD	Original Ground	339	342	341	2	100%	na	na	na	na	na	131.5	131.5	132	1	100%	na	na	na	na	na	8.37	11.45	9.91	2	100%
SLP-2	PD	SLC-PD	Original Ground	42	98	70	2	100%	na	na	na	na	na	75	75	75	1	100%	na	na	na	na	na	6.92	7	6.96	2	100%
SLP-3	PD	SLC-PD	Original Ground	177	188	183	2	100%	na	na	na	na	na	92.7	92.7	92.7	1	100%	na	na	na	na	na	6.19	96.6	51.4	2	100%
SLCT1-0	RV	SLC-CrkSpg	Original Ground	178	178	178	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	7.74	7.74	7.74	1	100%
SLCT1-1	RV	SLC-CrkSpg	Original Ground	206	206	206	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.07	6.07	6.07	1	100%
SLCT2-0	RV	SLC-CrkSpg	Original Ground	205	591	322	13	100%	na	na	na	na	na	-105	150.2	49	11	100%	na	na	na	na	na	3.36	13.13	8.37	13	100%
SLCT2-1	RV	SLC-CrkSpg	Original Ground	216	246	231	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.45	6.59	5.59	3	100%
SLCT2-2	RV	SLC-CrkSpg	Original Ground	155	155	155	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.59	6.59	6.59	1	100%
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	729	729	729	1	100%	na	na	na	na	na	-74.2	-74.2	-74.2	1	100%	na	na	na	na	na	1.33	1.33	1.33	1	100%
SLCT2-4	RV	SLC-CrkSpg	Original Ground	403	403	403	1	100%	na	na	na	na	na	-133.1	-133.1	-133	1	100%	na	na	na	na	na	8.21	8.21	8.21	1	100%
SLCT3-0	RV	SLC-CrkSpg	Original Ground	174	451	262	4	100%	na	na	na	na	na	-100.3	170.2	78	4	100%	na	na	na	na	na	6.09	8.7	7.24	4	100%
SLCT3-1	RV	SLC-CrkSpg	Original Ground	160	203	180	3	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	4.79	9.1	6.55	3	100%
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	496	544	520	2	100%	na	na	na	na	na	52.3	52.3	52.3	1	100%	na	na	na	na	na	3.4	6.74	5.07	2	100%
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	411	411	411	1	100%	na	na	na	na	na	32	32	32	1	100%	na	na	na	na	na	5.08	5.08	5.08	1	100%
SW13-ST	RV	SLC-CrkSpg	Original Ground	141	418	289	13	100%	na	na	na	na	na	na	na	na	na	na	65.9	88.7	75.1	5	100%	5	16.36	9.76	13	100%
SW14-ST	RV	SLC-CrkSpg	Original Ground	320	670	502	3	100%	na	na	na	na	na	na	na	na	na	na	81	81	81	1	100%	9.6	10.71	10.3	3	100%
SW15-ST	RV	SLC-CrkSpg	Original Ground	93	172	121	3	100%	na	na	na	na	na	na	na	na	na	na	74.3	74.3	74.3	1	100%	7.99	10.14	9.18	3	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	129	370	238	18	100%	na	na	na	na	na	na	na	na	na	na	55	91.4	74.8	10	100%	0.12	10.76	7.21	18	100%
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	221	221	221	1	100%	na	na	na	na	na	142.4	142.4	142	1	100%	na	na	na	na	na	7.47	7.47	7.47	1	100%
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	587	937	845	18	100%	na	na	na	na	na	na	na	na	na	na	4.76	43.8	21.1	11	100%	1.15	42.3	4.83	18	100%
WS-4	SP (Spring)	WW-SpgPd	Original Ground	631	940	785	6	100%	na	na	na	na	na	-66.1	159.4	37.7	6	100%	na	na	na	na	na	1.38	12.91	6.74	6	100%
WS-5	SP (Spring)	OffW-Spg	Original Ground	635	805	698	6	100%	na	na	na	na	na	1.1	63.8	27.4	6	100%	na	na	na	na	na	5.4	9.55	7.15	6	100%
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	323	411.444	358	6	100%	na	na	na	na	na	na	na	na	na	na	82.4	94.7	86.2	5	100%	9.02667	11.27	9.93	6	100%
AWI012-04	RV	Offsite-BFR	Offsite	318	355.333	333	6	100%	na	na	na	na	na	na	na	na	na	na	74.05	84	79.6	5	100%	8.52	9.96	9.15	6	100%
AWI012-06	RV	Offsite-BFR	Offsite	310	354.111	328	6	100%	na	na	na	na	na	na	na	na	na	na	73.8	95.7	85.1	5	100%	8.86	10.43	9.66	6	100%

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	pH (field)					pH (lab)					Temperature					Turbidity (field)					Turbidity (lab)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	SU					SU					C					NTU					NTU				
			Comparison Value >>	Eco: 6-9, HH: 5-9					Eco: 6-9, HH: 5-9					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
JCS-1	SP (Spring)	SJC-Spg	Original Ground	7.06	7.76	7.43	4	100%	na	na	na	na	na	7.46	11.74	9.06	4	100%	3.43	3.69	3.57	3	100%	na	na	na	na	na
State Land Creek Sub-Basin																												
NEP-6	PD	SLC-CrkSpg	Overburden	8.22	9.22	8.72	2	100%	na	na	na	na	na	4.12	20.33	12.2	2	100%	41	158	99.5	2	100%	na	na	na	na	na
NES-1	SP (Seep)	SLC-CrkSpg	Overburden	7.09	7.78	7.48	5	100%	7.5	7.5	7.5	1	100%	5.13	19.75	11.1	5	100%	1.5	20	9.03	4	100%	na	na	na	na	na
NES-1a	SP (Seep)	SLC-CrkSpg	Overburden	7.47	8.43	7.87	3	100%	na	na	na	na	na	3.72	22.4	13.9	3	100%	2.58	151	76.8	2	100%	na	na	na	na	na
NES-1b	SP (Seep)	SLC-CrkSpg	Overburden	7.07	7.32	7.24	4	100%	na	na	na	na	na	4.74	7.98	7.11	4	100%	1.24	4.35	2.49	3	100%	na	na	na	na	na
NES-2	SP (Seep)	SLC-CrkSpg	Overburden	6.82	7.58	7.16	14	100%	7	7.46	7.16	3	100%	6.53	15.21	8.68	14	100%	0.71	464	41	13	100%	na	na	na	na	na
NES-3	SP (Seep)	SLC-CrkSpg	Overburden	7.12	7.12	7.12	1	100%	7.6	7.6	7.6	1	100%	6.3	6.3	6.3	1	100%	12	12	12	1	100%	na	na	na	na	na
NES-4	SP (Seep)	SLC-CrkSpg	Overburden	7.03	7.87	7.4	5	100%	8	8	8	1	100%	5.38	17.7	9.16	5	100%	1.1	63.6	20.6	5	100%	na	na	na	na	na
NES-2A	SP (Seep)	SLC-CrkSpg	Overburden	6.85	6.85	6.85	1	100%	na	na	na	na	na	7.17	7.17	7.17	1	100%	6	6	6	1	100%	na	na	na	na	na
AWI012-22	RV	SLC-CrkSpg	Original Ground	7.75	8.28667	7.94	6	100%	na	na	na	na	na	5.64	14.2367	11	6	100%	0.9	15.4	4.8	6	100%	na	na	na	na	na
SLC	RV	SLC-CrkSpg	Original Ground	8	8	8	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
SLC-0	RV	SLC-CrkSpg	Original Ground	7.18	8.16	7.79	14	100%	8.07	8.07	8.07	1	100%	6.17	20.57	13.4	14	100%	1.69	123.6	14.6	14	100%	na	na	na	na	na
SLC-1	RV	SLC-CrkSpg	Original Ground	7.18	7.78	7.49	4	100%	na	na	na	na	na	9.1	17.24	12.8	4	100%	2.17	6.7	4.17	4	100%	na	na	na	na	na
SLC-2	RV	SLC-CrkSpg	Original Ground	7.32	8.81	8.15	19	100%	7.87	8.3	8.09	5	100%	8.57	21.18	14.2	19	100%	3.2	47.49	16.7	19	100%	na	na	na	na	na
SLC-3	RV	SLC-CrkSpg	Original Ground	7.29	7.5	7.38	3	100%	na	na	na	na	na	11.3	18.75	15.6	3	100%	0.6	13	4.83	3	100%	na	na	na	na	na
SLC-3A	RV	SLC-CrkSpg	Original Ground	7.01	7.71	7.36	2	100%	na	na	na	na	na	11.14	23.16	17.2	2	100%	1.54	1.54	1.54	1	100%	na	na	na	na	na
SLC-3B	RV	No SW	Original Ground	7.51	7.51	7.51	1	100%	na	na	na	na	na	10.97	10.97	11	1	100%	na	na	na	na	na	na	na	na	na	na
SLC-3C	RV	SLC-CrkSpg	Original Ground	8.27	8.27	8.27	1	100%	na	na	na	na	na	7.85	7.85	7.85	1	100%	11.5	11.5	11.5	1	100%	na	na	na	na	na
SLC-3D	RV	SLC-CrkSpg	Original Ground	7.45	8.04	7.81	7	100%	7.77	7.77	7.77	1	100%	8.5	20.12	14.7	7	100%	1.37	27.2	9.05	7	100%	na	na	na	na	na
SLC-3E	RV	SLC-CrkSpg	Original Ground	7.86	8.62	8.21	4	100%	na	na	na	na	na	7.82	18.03	12.2	4	100%	4.01	77.19	41.1	4	100%	na	na	na	na	na
SLC-5	RV	SLC-CrkSpg	Original Ground	7.66	7.98	7.87	3	100%	na	na	na	na	na	7.26	18.64	12.8	3	100%	0.34	15	7.67	2	100%	na	na	na	na	na
SLC-5A	RV	No SW	Original Ground	7.95	7.95	7.95	1	100%	na	na	na	na	na	6.79	6.79	6.79	1	100%	na	na	na	na	na	na	na	na	na	na
SLC-6	RV	SLC-CrkSpg	Original Ground	7.41	8.2	7.76	3	100%	na	na	na	na	na	7.21	16.43	11.2	3	100%	0.44	12	7.78	3	100%	na	na	na	na	na
SW08-ST	RV	SLC-CrkSpg	Original Ground	7.14	8.97	7.88	18	100%	7.5	8.4	7.99	18	100%	0.5	17.6	7.36	18	100%	na	na	na	na	na	3	23	10.9	18	100%
SW09-ST	RV	SLC-CrkSpg	Original Ground	7.26	8.2	7.78	18	100%	7.6	8.5	7.94	19	100%	2.6	23.5	9.84	18	100%	na	na	na	na	na	1.3	31.8	6.37	17	100%
SLP-1	PD	SLC-PD	Original Ground	7.79	7.87	7.83	2	100%	na	na	na	na	na	8.04	24	16	2	100%	4.75	11	7.88	2	100%	na	na	na	na	na
SLP-2	PD	SLC-PD	Original Ground	7.74	9.01	8.38	2	100%	na	na	na	na	na	11.26	25	18.1	2	100%	4.64	4.64	4.64	1	100%	na	na	na	na	na
SLP-3	PD	SLC-PD	Original Ground	7.8	8.44	8.12	2	100%	na	na	na	na	na	11.05	26.3	18.7	2	100%	55.9	55.9	55.9	1	100%	na	na	na	na	na
SLCT1-0	RV	SLC-CrkSpg	Original Ground	7.43	7.43	7.43	1	100%	na	na	na	na	na	8.4	8.4	8.4	1	100%	3.01	3.01	3.01	1	100%	na	na	na	na	na
SLCT1-1	RV	SLC-CrkSpg	Original Ground	7.58	7.58	7.58	1	100%	na	na	na	na	na	13.8	13.8	13.8	1	100%	2.19	2.19	2.19	1	100%	na	na	na	na	na
SLCT2-0	RV	SLC-CrkSpg	Original Ground	7.58	8.45	8.05	13	100%	7.96	8.07	8.02	2	100%	4.73	16.43	11.7	13	100%	2.84	26.92	16.8	13	100%	na	na	na	na	na
SLCT2-1	RV	SLC-CrkSpg	Original Ground	7.39	7.88	7.7	3	100%	na	na	na	na	na	8.93	16.8	11.7	3	100%	1.41	2.61	2.04	3	100%	na	na	na	na	na
SLCT2-2	RV	SLC-CrkSpg	Original Ground	7.96	7.96	7.96	1	100%	na	na	na	na	na	13.11	13.11	13.1	1	100%	3.74	3.74	3.74	1	100%	na	na	na	na	na
SLCT2-2B	RV	SLC-CrkSpg	Original Ground	7.16	7.16	7.16	1	100%	na	na	na	na	na	17.25	17.25	17.3	1	100%	74.88	74.88	74.9	1	100%	na	na	na	na	na
SLCT2-4	RV	SLC-CrkSpg	Original Ground	7.96	7.96	7.96	1	100%	na	na	na	na	na	14.72	14.72	14.7	1	100%	15	15	15	1	100%	na	na	na	na	na
SLCT3-0	RV	SLC-CrkSpg	Original Ground	8.26	8.62	8.4	4	100%	8.58	8.58	8.58	1	100%	14.87	25.43	21.6	4	100%	3.52	24.5	10.7	4	100%	na	na	na	na	na
SLCT3-1	RV	SLC-CrkSpg	Original Ground	8.32	8.78	8.52	3	100%	na	na	na	na	na	11.3	17.5	13.6	3	100%	3.64	6.97	5.72	3	100%	na	na	na	na	na
SLCT3-4	SP (Spring)	SLC-Spg	Original Ground	7.27	7.96	7.62	2	100%	na	na	na	na	na	6.86	12.59	9.73	2	100%	0	11.81	5.91	2	100%	na	na	na	na	na
SLCT3-5	SP (Spring)	SLC-Spg	Original Ground	7.8	7.8	7.8	1	100%	na	na	na	na	na	10.26	10.26	10.3	1	100%	10.16	10.16	10.2	1	100%	na	na	na	na	na
SW13-ST	RV	SLC-CrkSpg	Original Ground	6.73	8.26	7.56	13	100%	7.2	8.4	7.78	13	100%	0.9	16.7	8.32	13	100%	na	na	na	na	na	0.8	33	7.31	12	100%
SW14-ST	RV	SLC-CrkSpg	Original Ground	6.65	7.53	7.1	3	100%	7.1	7.43	7.24	3	100%	2.05	3.4	2.65	3	100%	na	na	na	na	na	0.28	4.66	2.05	3	100%
SW15-ST	RV	SLC-CrkSpg	Original Ground	6.97	8.51	7.65	3	100%	6.8	8.4	7.47	3	100%	2.34	24.81	11	3	100%	na	na	na	na	na	12	57.2	34.6	2	100%
SW02-SP	SP (Spring)	SLC-Spg	Original Ground	7.11	8.04	7.48	18	100%	7.2	8.1	7.72	19	100%	1.7	20	10.3	18	100%	na	na	na	na	na	2.4	131	21.8	17	100%
Western Woodall Mountain Sub-Basin																												
WM-OP1	PD	WW-pool	Overburden	9.02	9.02	9.02	1	100%	na	na	na	na	na	22.32	22.32	22.3	1	100%	7.08	7.08	7.08	1	100%	na	na	na	na	na
SW04-SP	SP (Spring)	WW-SpgPd	Original Ground	6.39	7.2	6.71	18	100%	6.8	7.46	7.06	19	100%	6.3	14.37	11.2	18	100%	na	na	na	na	na	0.07	3.52	0.768	17	35%
WS-4	SP (Spring)	WW-SpgPd	Original Ground	6.91	7.76	7.15	6	100%	na	na	na	na	na	10.38	19.69	13.3	6	100%	1.02	28.53	9.11	6	100%	na	na	na	na	na
WS-5	SP (Spring)	OffW-Spg	Original Ground	7.14	8.62	7.79	6	100%	na	na	na	na	na	5.93	18.05	12.1	6	100%	1.31	11.82	6.23	6	100%	na	na	na	na	na
Offsite-Blackfoot River																												
AWI012-03	RV	Offsite-BFR	Offsite	7.83	8.04	7.94	6	100%	na	na	na	na	na	8.05	13.0367	10.5	3	100%	8.3	22.5	14.7	6	100%	na	na	na	na	na
AWI012-04	RV	Offsite-BFR	Offsite	7.98	8.42667	8.16	6	100%	na	na	na	na	na	7.8	13.1922	10.7	3	100%	3.97778	18.1	12.3	6	100%	na	na	na	na	na
AWI012-06	RV	Offsite-BFR	Offsite	8.07	8.43667	8.21	6	100%	na	na	na	na	na	8.58	12.8467	11	3	100%	3.93333	28.17	17.7	6	100%	na	na	na	na	na

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	Conductivity					Iron, Ferrous, Total					ORP					Oxygen, Dissolved (%)					Oxygen, Dissolved (mg/L)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	umhos/cm					mg/L					mV					%					mg/L				
			Comparison Value >>	NA					NA					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
BFR-1	RV	Offsite-BFR	Offsite	237.3	378.8	328	13	100%	na	na	na	na	na	25.8	258.2	158	13	100%	na	na	na	na	na	7.24	11.83	9.73	13	100%
BFR-2	RV	Offsite-BFR	Offsite	246	378.7	328	13	100%	na	na	na	na	na	-8.3	282.4	158	13	100%	na	na	na	na	na	7.42	12.29	9.64	13	100%
BFR-3	RV	Offsite-BFR	Offsite	253.4	378.5	330	15	100%	na	na	na	na	na	-15.8	245.3	147	15	100%	na	na	na	na	na	7.53	13.46	10.1	15	100%
BFR-4	RV	Offsite-BFR	Offsite	246.1	376.7	324	15	100%	na	na	na	na	na	87.1	226.6	155	15	100%	na	na	na	na	na	7.91	14.25	10.3	15	100%
BFR-DS	RV	Offsite-BFR	Offsite	305	305	305	1	100%	na	na	na	na	na	62	62	62	1	100%	na	na	na	na	na	9.04	9.04	9.04	1	100%
BFR-US	RV	Offsite-BFR	Offsite	305	305	305	1	100%	na	na	na	na	na	58.3	58.3	58.3	1	100%	na	na	na	na	na	9.11	9.11	9.11	1	100%
BGS	RV	Offsite-BFR	Offsite	390	390	390	1	100%	na	na	na	na	na	na	na	na	na	na	99	99	99	1	100%	9.3	9.3	9.3	1	100%
MST020	RV	Offsite-BFR	Offsite	213	375	290	8	100%	0.03	0.03	0.03	1	100%	17	275	159	4	100%	66	141	102	3	100%	7.53	11.2	9.53	3	100%
ST019	RV	Offsite-BFR	Offsite	181	380	307	12	100%	0.02	0.02	0.02	1	100%	141	210	190	6	100%	69	152	93.2	6	100%	7.96	12.1	9.15	6	100%
ST022	RV	Offsite-BFR	Offsite	194	447	285	12	100%	0	0	0	1	100%	140	237	195	6	100%	73	117	87.4	5	100%	8.17	11.28	8.94	5	100%
ST232	RV	Offsite-BFR	Offsite	191	440	332	16	100%	0.02	0.02	0.02	1	100%	138	223	173	8	100%	76	136	96	8	100%	8.67	12.38	9.63	8	100%
SW10-ST	RV	Offsite-BFR	Offsite	210	587	325	18	100%	na	na	na	na	na	na	na	na	na	na	77.7	132.5	93.3	9	100%	5.08	27.3	11.1	18	100%
SW11-ST	RV	Offsite-BFR	Offsite	30.2	599	361	18	100%	na	na	na	na	na	na	na	na	na	na	78.1	126.9	94.7	10	100%	6.46	12.73	10.6	19	100%
SW19-SP	SP (Spring)	OffN-Spg	Offsite	1105	2726	1582	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.87	4.18	2.83	6	100%
SW20-SP	SP (Spring)	OffN-Spg	Offsite	118	1979	964	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	3.54	9.96	6.74	6	100%
SW21-SP	SP (Spring)	OffN-Spg	Offsite	116	1056	795	5	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.29	8.4	7.39	4	100%
Offsite-Blackfoot River vicinity																												
SW01-W	SP (Spring)	OffN-Spg	Offsite	300	781	462	17	100%	na	na	na	na	na	na	na	na	na	na	6.3	110	57.4	10	100%	0.77	10.45	5.91	18	100%
SW16-SP	SP (Spring)	OffN-Spg	Offsite	376	821	465	11	100%	na	na	na	na	na	na	na	na	na	na	50.6	87.7	66.7	4	100%	5.96	23.19	9.28	11	100%
SW17-W	PD	OffN-Spg	Offsite	626	1240	942	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.43	16.12	9.51	6	100%
SW18-SP	SP (Spring)	OffN-Spg	Offsite	802	1879	1093	6	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	2.07	7	4.25	6	100%
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	392	409	401	2	100%	na	na	na	na	na	na	na	na	na	na	108.5	108.5	109	1	100%	10.5	10.89	10.7	2	100%
TC-1	RV	Offsite-TC	Offsite	175.3	675	366	16	100%	na	na	na	na	na	-10.2	261.2	142	16	100%	na	na	na	na	na	7.57	12.2	10.5	16	100%
TC-2	RV	Offsite-TC	Offsite	283	420	359	15	100%	na	na	na	na	na	-19.8	271.6	135	15	100%	na	na	na	na	na	7.27	12.37	10.4	15	100%
TC-3	RV	Offsite-TC	Offsite	270	433	361	15	100%	na	na	na	na	na	-32.2	289.3	153	15	100%	na	na	na	na	na	3.83	11.44	7.57	15	100%
TC-4	RV	Offsite-TC	Offsite	273	437.4	364	15	100%	na	na	na	na	na	-76.1	275.7	122	15	100%	na	na	na	na	na	3.61	10.45	7.24	15	100%
TC-5	RV	Offsite-TC	Offsite	320	320	320	1	100%	na	na	na	na	na	129.2	129.2	129	1	100%	na	na	na	na	na	9.45	9.45	9.45	1	100%
TRATT003	RV	Offsite-TC	Offsite	0.00032	0.00037	0.00035	9	100%	na	na	na	na	na	-0.2	219.3	109	9	100%	na	na	na	na	na	11.84	12.7	12.2	9	100%

Table 4-27
Summary of Surface Water Field Parameters

			Analyte >>	pH (field)					pH (lab)					Temperature					Turbidity (field)					Turbidity (lab)				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	SU					SU					C					NTU					NTU				
			Comparison Value >>	Eco: 6-9, HH: 5-9					Eco: 6-9, HH: 5-9					NA					NA					NA				
Station	**Station Type**	**Hardness Calculation Group**	**Material Type**																									
BFR-1	RV	Offsite-BFR	Offsite	7.06	8.91	8.4	13	100%	na	na	na	na	na	5.6	18.52	11.7	13	100%	2.59	22.19	9.14	13	100%	na	na	na	na	na
BFR-2	RV	Offsite-BFR	Offsite	8.11	8.8	8.44	13	100%	na	na	na	na	na	5.6	18.51	11.6	13	100%	2.31	30.31	9.71	13	100%	na	na	na	na	na
BFR-3	RV	Offsite-BFR	Offsite	8.02	8.81	8.43	15	100%	na	na	na	na	na	3.42	18.29	11.2	15	100%	1.9	33.75	10.4	15	100%	na	na	na	na	na
BFR-4	RV	Offsite-BFR	Offsite	7.55	9.06	8.42	15	100%	na	na	na	na	na	3.79	17.16	10.9	15	100%	1.7	33.19	10.8	15	100%	na	na	na	na	na
BFR-DS	RV	Offsite-BFR	Offsite	8.04	8.04	8.04	1	100%	na	na	na	na	na	12.39	12.39	12.4	1	100%	5.62	5.62	5.62	1	100%	na	na	na	na	na
BFR-US	RV	Offsite-BFR	Offsite	7.9	7.9	7.9	1	100%	na	na	na	na	na	12.42	12.42	12.4	1	100%	3.7	3.7	3.7	1	100%	na	na	na	na	na
BGS	RV	Offsite-BFR	Offsite	8.5	8.5	8.5	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST020	RV	Offsite-BFR	Offsite	6.99	8.6	8.13	4	100%	na	na	na	na	na	8.7	16.6	13.8	4	100%	3.17	16.45	8.43	4	100%	na	na	na	na	na
ST019	RV	Offsite-BFR	Offsite	7.62	8.7	8.22	6	100%	na	na	na	na	na	7.6	16.9	13.2	6	100%	4.52	20.2	8.23	6	100%	na	na	na	na	na
ST022	RV	Offsite-BFR	Offsite	7.45	8.65	8.03	6	100%	na	na	na	na	na	10.3	17.3	11.8	6	100%	2.14	26	15.7	6	100%	na	na	na	na	na
ST232	RV	Offsite-BFR	Offsite	7.21	7.94	7.62	8	100%	na	na	na	na	na	8.5	17.7	13.4	8	100%	3.4	22.1	12.4	8	100%	na	na	na	na	na
SW10-ST	RV	Offsite-BFR	Offsite	6.78	8.97	8.34	19	100%	8.1	9.3	8.43	19	100%	2.9	23.7	10.1	19	100%	na	na	na	na	na	0.8	40	8.86	18	100%
SW11-ST	RV	Offsite-BFR	Offsite	7.09	8.58	7.64	19	100%	7.29	8.2	7.82	19	100%	2.8	21.7	9.91	19	100%	na	na	na	na	na	1	50	10.6	18	100%
SW19-SP	SP (Spring)	OffN-Spg	Offsite	6.38	6.91	6.69	6	100%	6.7	7.62	7.04	6	100%	7.08	13.17	10.2	6	100%	na	na	na	na	na	0.42	13.3	4.16	5	100%
SW20-SP	SP (Spring)	OffN-Spg	Offsite	6.79	8.17	7.19	6	100%	7.15	7.86	7.49	6	100%	6.81	13.16	9.71	6	100%	na	na	na	na	na	0.217	34	8.21	5	100%
SW21-SP	SP (Spring)	OffN-Spg	Offsite	6.88	7.34	7.12	5	100%	7.1	7.91	7.43	5	100%	9.52	10.93	10.2	5	100%	na	na	na	na	na	0.141	73.9	19.1	5	80%
Offsite-Blackfoot River vicinity																												
SW01-W	SP (Spring)	OffN-Spg	Offsite	7.01	8.18	7.6	18	100%	7.4	8.2	7.83	19	100%	4	22	10.6	18	100%	na	na	na	na	na	0.398	28.5	6.47	17	100%
SW16-SP	SP (Spring)	OffN-Spg	Offsite	7.04	8.21	7.4	11	100%	7.5	7.93	7.65	12	100%	6.6	8.6	7.62	11	100%	na	na	na	na	na	0.1	1.62	0.808	10	60%
SW17-W	PD	OffN-Spg	Offsite	7.11	8.21	7.66	6	100%	7.5	8.18	7.82	6	100%	9.8	19.24	14.1	6	100%	na	na	na	na	na	1.4	31.9	13.3	5	100%
SW18-SP	SP (Spring)	OffN-Spg	Offsite	7.03	7.39	7.25	6	100%	7.1	7.91	7.39	6	100%	8.4	13.87	11.9	6	100%	na	na	na	na	na	7	196	57.3	5	100%
Offsite-Trail Creek																												
AWI012-31	RV	Offsite-TC	Offsite	8.13	8.33	8.23	2	100%	na	na	na	na	na	11.67	15.17	13.4	2	100%	0.8	1.5	1.15	2	100%	na	na	na	na	na
TC-1	RV	Offsite-TC	Offsite	6.83	8.62	8.26	16	100%	na	na	na	na	na	4.61	18.59	11.9	16	100%	1.08	13.43	4.42	16	100%	na	na	na	na	na
TC-2	RV	Offsite-TC	Offsite	8.04	8.7	8.36	15	100%	na	na	na	na	na	5.1	18.61	11.8	15	100%	2.08	38.94	7.81	15	100%	na	na	na	na	na
TC-3	RV	Offsite-TC	Offsite	7.35	8.76	7.94	15	100%	na	na	na	na	na	1.6	18.88	11.1	15	100%	0.65	26.79	5.57	15	100%	na	na	na	na	na
TC-4	RV	Offsite-TC	Offsite	7.32	8.43	7.86	15	100%	na	na	na	na	na	1.9	18.8	11.2	15	100%	1.06	10.92	4.43	15	100%	na	na	na	na	na
TC-5	RV	Offsite-TC	Offsite	7.93	7.93	7.93	1	100%	8.09	8.09	8.09	1	100%	6.82	6.82	6.82	1	100%	na	na	na	na	na	na	na	na	na	na
TRATT003	RV	Offsite-TC	Offsite	8.23	8.89	8.62	9	100%	8.3	8.8	8.63	3	100%	13.22	20	16.4	9	100%	-3.2	11	2.83	9	100%	na	na	na	na	na

Table 4-27
Summary of Surface Water Field Parameters

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/L = milligrams per liter; umhos/cm = micromhos per centimeter; mV = millivolts; % = percent; SU = standard units; C = degrees Celsius; NTU = nephelometric turbidity units; ORP = oxidation-reduction potential

Station Type: FD = French Drain; PD = Pond; PP = Pipe; RV = River/Stream; SP = Spring/Seep; TP = Tailings Pond

If results are from different sources then they may reflect different analytical methodology.

Table focuses on results reported as field measurements; other results from environmental samples (lab) also provided for some analytes.

Refer to Appendix I for details about analyte names.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or
Trail Creek sub-basins.

More information about ecological ("Eco") and human health ("HH") surface water comparison values is provided on Table 4-3. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

NA = comparison value not available.

Table 4-28
Surface Water Flows

Station	Station Type	Spring (March through July)								Summer/Fall/Winter (August through February)							
		2001-2007	2008	2009	2010	2011	2012	2013	2014	2001-2007	2008	2009	2010	2011	2012	2013	2014
Camp G Creek Sub-Basin																	
CGC-0	Creek	2.5	--	--	--	--	2.6	3.1	0.8	--	--	--	--	--	0.6	0.7	0.7
CGC-1	Creek	0.3-3.7	--	1.2-2.6	--	--	--	--	--	0.1	0.7	0.6	--	--	--	--	--
CGC-2	Creek	0.08-0.2	--	--	--	--	--	--	--	0.05-0.1	--	--	--	--	--	--	--
CGC-2A	Creek	2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CGC-3	Creek	Dry-0.02	--	--	0.4	High Water	--	--	--	Dry	--	--	Diffuse Flow	0.1	--	--	--
CGC-3A	Creek	Ponded	--	0.8	0.3	High Water	--	--	--	--	Ponded	0.2	0.0	0.3	--	--	--
CGC-4	Creek	Dry-0.007	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--
CGC-4A	Creek	0.05-0.6	--	0.2-0.6	0.11-0.23	1	--	--	--	--	0.02	0.13	0.02-0.03	0.1	--	--	--
CGC-4B	Creek	Ponded	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CGC-4C	Creek	Ponded	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CGC-5	Creek	0.02-0.04	--	0.5	--	--	--	--	--	0.003	--	0.08	--	--	--	--	--
CGCA-1	Adit	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--
CGCT1-1	Creek	0.05-0.4	--	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
CGC-UPTC	Creek	--	--	--	--	10.4	--	--	--	--	--	--	--	--	--	--	--
CHC-1	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHCA-1	Adit	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--
CS-1_CND	Spring	0.002	--	0.3	--	--	--	--	--	--	0.2	0.02	--	--	--	--	--
JRLD	Spring	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--
JS-1	Spring	0.04	--	0.1	--	--	0.3	1.1	0.1	0.05	0.3	1.1	--	--	0.05	0.09	0.02
French Drain Sub-Basin																	
FD-1	French Drain	0.007-0.2	--	0.2	0.04	0.4	--	--	--	0.007	0.02	0.05	--	0.04	--	--	--
SWS-1	Seep	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SWS-3	Seep	0.0	--	0.05	0.01	0.05	--	--	Dry	--	--	0.02	0.02	0.01	--	--	--
Margarette Creek/Trail Canyon Sub-Basin																	
MC-1	Creek	Dry	Dry	Dry	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
TCC-1	Creek	Dry	--	Dry	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
North Woodall Mountain Sub-Basin																	
NWC-1	Creek	--	Dry	0.1	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--
NWC-2	Creek	--	0.06	0.03-0.2	--	--	--	--	--	--	Dry	0.001	--	--	--	--	--
SW05-SP	Spring	0.04-0.7	0.1	0.5	--	--	--	--	--	0.007-0.1	0.002	--	--	--	--	--	--
SW06-W	Spring	0.06-0.7	0.2	1.2	--	--	--	--	--	0.002-0.02	0.01	--	--	--	Dry	--	--
SW07-SP(S)	Spring	0.7-3.5	1.5	--	--	--	--	--	--	2.2-3.5	2.5	--	--	--	--	--	--
WS-1	Spring	4.6	--	Ponded	--	Ponded	--	--	--	2.8	Ponded	Ponded		Ponded	--	--	--
WS-2	Spring	--	Ponded	Ponded	--	Ponded	--	--	--	--	Ponded	Ponded	--	Ponded	--	--	--
WS-3	Spring	--	Dry	Dry	--	Ponded	--	--	--	--	Dry	--	--	Ponded	--	--	--
Old Tailings Pond Sub-Basin																	
IB-1	Outfall	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry
WMC6-1	Creek	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
WMC6-2	Creek	--	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--

Table 4-28
Surface Water Flows

Station	Station Type	Spring (March through July)								Summer/Fall/Winter (August through February)							
		2001-2007	2008	2009	2010	2011	2012	2013	2014	2001-2007	2008	2009	2010	2011	2012	2013	2014
Pedro Creek Sub-Basin																	
ESedBasinToe	Seep	--	--	--	--	--	--	--	Diffuse-0.007	--	--	--	--	--	--	--	--
FSPSSeep	Seep	--	--	--	--	--	--	0.007	Dry-0.03	--	--	--	--	--	--	Dry	Dry-Diffuse Flow
NES-5	Seep	0.009-0.01	--	Ponded-0.03	0.002-0.02	0.06	0.06	--	Diffuse Flow-Ponded	0.002	0.004	0.007	0.01	0.01	0.007	--	Ponded-0.008
NES-6	Seep	Dry	--	Dry	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
NES-7	Seep	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	Dry	Dry
NES-8	Seep	--	--	--	--	--	--	--	0.0002	--	--	--	--	--	--	--	Dry
NRC-1	Pipe	--	--	--	--	Dry-Diffuse Flow	--	--	--	--	--	--	--	--	--	--	--
PC-1	Creek	Dry-0.02	--	0.3-1.9	0.5	4.1	0.6	0.4	Dry	Dry	Dry	0.08	0.05	0.2	0.04	Dry	Dry
PC-1UP	Creek	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-2	Creek	0.01-1.3	--	0.2-0.6	0.05-0.2	1.3	0.1	0.2	0.02	0.01	0.4	0.09	--	0.2	0.05	0.06	0.09
PC-2A	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-2B	Creek	Ponded	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-2C	Creek	0.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-2D	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-3	Creek	Dry-0.04	--		0.2	2.1	Dry	0.1	Dry	Dry	--	--	Dry	Dry	Dry	Dry	Dry
PC-3A	Creek	Ponded-1.0	--	0.3	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--
PC-3B	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-4	Creek	0.02-0.3	--	0.1	Dry-0.1	0.3	0.2	0.08	Diffuse Flow	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry-0.004
PC-4A	Creek	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PC-5	Creek	0.01-0.08	--	0.1	0.02-0.07	0.3	0.1	0.07	0.02	--	Dry	0.001	Dry	Dry	Diffuse Flow	0.02	Dry-0.01
PC-6	Creek	Dry	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry-Diffuse Flow
PC-8	Creek	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry
PC-9	Creek	--	--	--	--	--	--	--	Dry-0.02	--	--	--	--	--	--	--	Dry
PCT-0	Creek	--	--	--	--	Diffuse Flow	--	--	--	--	--	--	--	--	--	--	--
PCT1-0	Creek	--	--	--	--	Dry	--	--	--	--	--	--	--	--	--	--	--
PCT1-1	Creek	0.002-0.006	--	--	--	--	--	--	--	Ponded	--	--	--	--	--	--	--
PCT2-1	Creek	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--
PCT2-2	Creek	0.0	--	--	--	--	--	--	--	Ponded	--	--	--	--	--	--	--
PCT3-1	Creek	0.007-0.01	--	--	--	--	--	--	--	0.009	--	--	--	--	--	--	--
PCT4-0	Creek	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCT4-1	Creek	0.02-0.03	--	--	--	--	--	--	--	0.04	--	--	--	--	--	--	--
PCT5-1	Creek	Dry-0.006	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--
PCT5-2	Creek	--	--	--	--	--	0.01	--	--	--	--	--	--	--	--	--	--
PCT6-1	Creek	--	--	--	--	--	Dry	Dry	Dry	--	--	--	--	--	Dry	Dry	Dry
PCT6-2	Creek	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry
PCT6-3	Creek	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry
PCT6-4	Creek	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry
PCT6-5	Creek	--	--	--	--	--	--	--	0.01-1.4	--	--	--	--	--	--	--	Dry
Shield and Jouglard Canyons Sub-Basin																	
FM-1	Spring	0.8-2.3	--	2.8	--	1.2	--	--	--	1.6	1.7	1.8	--	1.6	--	--	--
HH-1	Spring	0.01	--	Ponded	--		--	--	--	0.004	0.02	0.06	--	--	--	--	--
HH-OP1	Creek	--	--	--	--	Diffuse Flow	--	--	--	--	--	--	--	--	--	--	
HHT1-1	Outfall	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Dry
HHT1-2	Outfall	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	Dry
HHT-OP	Outfall	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--	
JCS-1	Spring	0.01	--	0.05	--	--	--	--	--	--	Ponded	0.001		--	--	--	--
NL4P-OP1	Creek	--	--	0.001	--	--	--	--	--	--	--	--	--	--	--	--	--
NL4P-OP2	Creek	--	--	0.003	--	--	--	--	--	--	--	--	--	--	--	--	--
SWS-2	Spring	Ponded-0.002	--	Ponded	Ponded	Ponded	--	--	--	--	Ponded	Diffuse Flow	Ponded	Ponded	--	--	--

Table 4-28
Surface Water Flows

Station	Station Type	Spring (March through July)								Summer/Fall/Winter (August through February)							
		2001-2007	2008	2009	2010	2011	2012	2013	2014	2001-2007	2008	2009	2010	2011	2012	2013	2014
Southwest Conda Sub-Basin																	
SCC-1	Creek	--	Dry	Dry	--	--	--	--	--	--	Dry	--	--	--	--	--	--
SCC-2	Creek	--	Dry	Dry	--	--	--	--	--	--	Dry	--	--	--	--	--	--
State Land Creek Sub-Basin																	
AWI012-22	Creek	0.07-1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NES-1	Seep	Ponded	--	Ponded	Ponded	Diffuse Flow	--	--	--	Dry	Dry	Diffuse Flow	Dry	Dry	--	--	--
NES-1a	Seep	Ponded-0.01	--	Diffuse Flow	Dry		--	--	--	Dry	Dry	Dry	Dry	Dry	--	--	--
NES-1b	Seep	0.005-0.01	--	0.02	Dry-0.007		--	--	--	Dry	Dry	Dry	Dry	Dry	--	--	--
NES-2	Seep	0.006-0.02	--	0.02	0.005-0.009	0.03	--	--	--	0.002	0.003	0.005	0.004	0.007	--	--	--
NES-2A	Seep	--	--			0.1	--	--	--	--	--	--	--	--	--	--	--
NES-3	Seep	Dry	--	Dry	Dry	Diffuse Flow	--	--	--	Dry	Dry	--	Dry	Dry	--	--	--
NES-4	Seep	0.00007-0.0004	--	Dry	Dry-Diffuse Flow	0.0005	--	--	--	0.001	0.0002	--	Dry	Dry	--	--	--
SLC	Creek	0.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-0	Creek	0.9-4.6	--	0.7-2.1	1.7-1.9	--	1.7	1.7	0.01	--	--	0.23	0.03	0.3	Dry	Dry	1.8
SLC-1	Creek	0.1-0.7	--	0.9	--	--	--	--	--	0.03	--	--	--	--	--	--	--
SLC-2	Creek	0.1-2.9	--	0.4-1.6	--	--	--	--	--	0.03	0.3	0.1	--	--	--	--	--
SLC-3	Creek	Dry-0.01	--	--	0.07	0.6	--	--	--	Dry	--	--	Dry	Dry	--	--	--
SLC-3A	Creek	0.01	--	0.2	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--
SLC-3B	Creek	0.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-3C	Creek	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-3D	Creek	0.003-1.5	--	0.1	0.3	0.8	--	--	--	--	Dry	0.003	Dry	0.1	--	--	--
SLC-3E	Creek	0.20	--	0.8	--	--	--	--	--	--	0.3	0.2	--	--	--	--	--
SLC-4	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-5	Creek	0.002	--	--	Dry-0.03	0.2	--	--	--	--	--	--	Dry	Dry	--	--	--
SLC-5A	Creek	0.001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-5B	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-5C	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLC-6	Creek	Ponded	--	--	Dry-Diffuse Flow	3.2	--	--	--	--	--	--	Dry	Dry	--	--	--
SLC-7	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLCT1-0	Creek	Ponded	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLCT1-1	Creek	Dry-0.002	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--	--
SLCT2-0	Creek	0.2-0.7	--	--	0.2-0.6	0.8	--	--	--	--	0.2	0.1	0.09-0.1	0.1	--	--	--
SLCT2-1	Creek	0.09-0.2	--	--	--	--	--	--	--	0.07	--	--	--	--	--	--	--
SLCT2-2	Creek	0.004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLCT2-2A	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLCT2-2B	Creek	--	--	--	--	--	--	--	--	--	--	0.001	--	--	--	--	--
SLCT2-3	Creek	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SLCT2-4	Creek	Dry	--	--	--	0.05	--	--	--	--	--	--	--	--	--	--	--
SLCT3-0	Creek	Dry-0.1	--	0.07	0.08	0.4	--	--	--	--	Dry	Dry	Dry	Dry	--	--	--
SLCT3-1	Creek	0.007-0.01	--	--	--	--	--	--	--	0.007			--	--	--	--	--
SLCT3-4	Spring	--	--	Diffuse Flow	--	--	--	--	--	--	Diffuse Flow	Dry	--	--	--	--	--
SLCT3-5	Spring	--	--	Diffuse Flow	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--
SW02-SP	Spring	0.09-0.5	1.9		--	--	--	--	--	0.02-0.1	--	--	--	--	--	--	--
SW08-ST	Creek	0.2-3.2	2.2	2.5	--	--	--	--	--	0.01-0.08	0.05	0.1	--	--	Dry	--	--
SW09-ST	Creek	0.3-14.1	3.6	24.6	--	--	--	--	--	0.06-0.5	0.4	0.6	--	--	--	--	--
SW13-ST	Creek	0.03-0.7	0.8	0.7	--	--	--	--	--	Dry-0.01	Dry	--	--	--	--	--	--
SW14-ST	Creek	Dry-0.1	0.02	--	--	--	Dry	--	--	Dry	Dry	Dry	--	Dry	Dry	--	--
SW15-ST	Creek	--	Dry	--	--	--	--	--	--	Dry	Dry	Dry	--	Dry	Dry	--	--

Table 4-28
Surface Water Flows

Station	Station Type	Spring (March through July)								Summer/Fall/Winter (August through February)							
		2001-2007	2008	2009	2010	2011	2012	2013	2014	2001-2007	2008	2009	2010	2011	2012	2013	2014
Western Woodall Mountain Sub-Basin																	
SW04-SP	Spring	--	Ponded	--	--	--	--	--	--	--	Ponded	--	--	--	--	--	--
SW04-SP(N)	Spring	1.5-16.8	7.1	--	--	--	--	--	--	6.6-16.1	12.1	--	--	--	--	--	--
SW04-SP(S)	Spring	1.0-1.9	0.5	--	--	--	--	--	--	Diffuse Flow-4.3	1.4	--	--	--	--	--	--
WMC1-1	Creek	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
WMC1-2	Creek	--	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--
WMC2-1	Creek	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
WMC2-2	Creek	--	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--
WMC3-1	Creek	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
WMC3-2	Creek	--	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--
WMC4-1	Creek	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
WMC4-2	Creek	--	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--
WMC5-1	Creek	Dry	Dry	--	--	--	--	--	--	Dry	Dry	--	--	--	--	--	--
WMC5-2	Creek	--	Dry	--	--	--	--	--	--	--	Dry	--	--	--	--	--	--
WS-4	Spring	--	Ponded	Ponded	--	Ponded	--	--	--	--	Ponded	Ponded	Ponded	--	--	--	--
WS-5	Spring	--	Ponded	Ponded	--	Ponded	--	--	--	--	Ponded	Ponded	Ponded	--	--	--	--
Offsite-Blackfoot River																	
AWI012-03	River	82-98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AWI012-04	River	89-571	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
AWI012-06	River	71-693	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BFR-1	River	--	330	421	385	--	247	176	High Water	--	High Water	High Water	High Water	High Water	38	43	High Water
BFR-2	River	--	330	421	385	--	247	176	High Water	--	High Water	High Water	High Water	High Water	38	43	High Water
BFR-3	River	--	324	421	192-385	714	247	166	High Water	--	51.8	High Water	High Water	High Water	45	43	High Water
BFR-4	River	--	324	421	192-385	803	247	166	High Water	--	High Water	High Water	High Water	High Water	45	43	High Water
BFR-DS	River	--	--	--	--	714	--	--	--	--	--	--	--	--	--	--	--
BFR-US	River	--	--	--	--	714	--	--	--	--	--	--	--	--	--	--	--
BGS	River	54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MST020	River	100	400	--	--	--	--	--	--	23	31	--	--	--	--	--	--
ST019	River	82	465	--	--	--	--	--	--	22.0	37.1	--	--	--	--	--	--
ST022	River	88	400	--	--	--	--	--	--	25.2	41.9	--	--	--	--	--	--
ST232	River	98-106	400	--	--	--	--	--	--	31.5	41	--	--	--	--	--	--
SW10-ST	River	85-706	723	--	--	--	--	--	--	29-92	42	--	--	--	--	--	--
SW21-SP	Spring	--	--	--	--	--	Dry	--	--	--	--	--	--	--	--	--	--
Offsite-Blackfoot River vicinity																	
SW01-W	Spring	0.4	Ponded	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW16-SP	Spring	--	0.1	--	--	--	--	--	--	--	0.04	0.04	--	--	--	--	--
Offsite-Trail Creek																	
AWI012-31	Creek	4-28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TC-1	Creek	--	5.6	8.8-12.3	6.2-6.5	23.2	4.9	5.3	3.4	--	3.4	5.3	2.8	6	1.2	1.8	2.4
TC-2	Creek	--	8.3	18.2	8.9-10.3	High Water	7.4	9.3	3.9	--	3.2	5.6	3.8	6.4	1.7	2.5	3
TC-3	Creek	--	4.4	9.8	2.4	9.5	3.2	Ponded	Diffuse Flow	--	2.3	1.9	1.3	Ponded	Ponded	Ponded	Diffuse Flow
TC-4	Creek	--	2.7	9.1	2.9	High Water	1.2	2.9	Diffuse Flow	--	0.9	1.5	1.4	0.8	0.6	--	Diffuse Flow
TC-5	Creek	--	--	--	--	7.3	--	--	--	--	--	--	--	--	--	--	--

Notes:
All surface water flow rates presented as cubic feet per second (cfs).
Various methods used for collecting flow rates including flumes, Marsh McBirney flow meters, and staff gauges.
If results are from different sources then they may reflect different methodology.
In cases of very high water at Blackfoot River stations, flow was too high to measure safely. Flow data was instead obtained from USGS gauging station (USGS 13063000, HUC 17040207) on Blackfoot River at Monsanto Haul Road near Henry, ID (waterdata.usgs.gov).
Ponds/basins were excluded from table.
Refer to Appendix L for additional information on field forms.
High Water = Stream flows too high for safe measurement
-- = No flow measured during this time frame

Table 4-29
Summary of Detected Metals Results in Sediments

	Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Value >>	Eco: 2					Eco: 1					Eco: 43					NA					Eco: 120				
Station	**Disturbed Status**																									
Camp G Creek Sub-Basin																										
CGC-0	Original Ground	0.96	0.96	0.96	1	100%	1.7	1.7	1.7	1	100%	19.6	19.6	19.6	1	100%	19.2	19.2	19.2	1	100%	73.3	73.3	73.3	1	100%
CGC-1	Original Ground	0.76	1.5	1.13	2	100%	1.3	1.8	1.55	2	100%	16.8	17.4	17.1	2	100%	16.5	17.5	17	2	100%	62.5	67.6	65.1	2	100%
CGC-1A	Original Ground	1.1	1.1	1.1	1	100%	1.8	1.8	1.8	1	100%	14.2	14.2	14.2	1	100%	14.4	14.4	14.4	1	100%	62.5	62.5	62.5	1	100%
CGC-3A	Original Ground	5.2	5.2	5.2	1	100%	3.3	3.3	3.3	1	100%	21.6	21.6	21.6	1	100%	26.5	26.5	26.5	1	100%	140	140	140	1	100%
CGC-3B	Original Ground	6.4	6.4	6.4	1	100%	2.6	2.6	2.6	1	100%	21.6	21.6	21.6	1	100%	27.8	27.8	27.8	1	100%	111	111	111	1	100%
CGC-4	Original Ground	1.1	1.1	1.1	1	100%	2.8	2.8	2.8	1	100%	22.3	22.3	22.3	1	100%	23.6	23.6	23.6	1	100%	113	113	113	1	100%
CGC-4A	Original Ground	6.3	7.9	7.1	2	100%	1.6	2.2	1.9	2	100%	22	22.6	22.3	2	100%	23.2	25.2	24.2	2	100%	114	117	116	2	100%
CGC-5	Original Ground	0.45	0.45	0.45	1	100%	0.93	0.93	0.93	1	100%	23.1	23.1	23.1	1	100%	23.9	23.9	23.9	1	100%	110	110	110	1	100%
CGC-6	Original Ground	4.1	4.1	4.1	1	100%	10.6	10.6	10.6	1	100%	49.5	49.5	49.5	1	100%	113	113	113	1	100%	378	378	378	1	100%
CS-1_CND	Original Ground	1.3	1.3	1.3	1	100%	1	1	1	1	100%	15.9	15.9	15.9	1	100%	17.7	17.7	17.7	1	100%	99.4	99.4	99.4	1	100%
JS-1	Original Ground	0.33	0.33	0.33	1	100%	1.1	1.1	1.1	1	100%	18.5	18.5	18.5	1	100%	27.9	27.9	27.9	1	100%	104	104	104	1	100%
SedDisposal	Overburden	9.4	9.4	9.4	1	100%	6	6	6	1	100%	97.3	97.3	97.3	1	100%	84.3	84.3	84.3	1	100%	299	299	299	1	100%
French Drain Sub-Basin																										
FD-1	Overburden	31.5	31.5	31.5	1	100%	2.2	2.2	2.2	1	100%	20.9	20.9	20.9	1	100%	28.1	28.1	28.1	1	100%	219	219	219	1	100%
NTP-1	Tailings	16.7	16.7	16.7	1	100%	68.8	68.8	68.8	1	100%	210	210	210	1	100%	384	384	384	1	100%	460	460	460	1	100%
NTP-2	Tailings	17	17	17	1	100%	76.6	76.6	76.6	1	100%	223	223	223	1	100%	428	428	428	1	100%	602	602	602	1	100%
NTP-3	Tailings	0.59	0.59	0.59	1	100%	3	3	3	1	100%	20.5	20.5	20.5	1	100%	29.6	29.6	29.6	1	100%	53.2	53.2	53.2	1	100%
SWP-4	Overburden	22.4	360	191	2	100%	11.7	63.6	37.7	2	100%	114	123	119	2	100%	76.6	96	86.3	2	100%	383	1030	707	2	100%
SWS-3	Overburden	624	624	624	1	100%	65.1	65.1	65.1	1	100%	150	150	150	1	100%	137	137	137	1	100%	1220	1220	1220	1	100%
TP-1	Tailings	0.41	1.4	0.905	2	100%	1.7	8.1	4.9	2	100%	20	21.7	20.9	2	100%	31.5	42.5	37	2	100%	62.4	93.6	78	2	100%
Margarette Creek/Trail Canyon Sub-Basin																										
MC-1	Overburden	109	109	109	1	100%	25.7	25.7	25.7	1	100%	375	375	375	1	100%	334	334	334	1	100%	1320	1320	1320	1	100%
TCC-1	Original Ground	0.38	0.38	0.38	1	100%	2.4	2.4	2.4	1	100%	24.8	24.8	24.8	1	100%	28.7	28.7	28.7	1	100%	80.2	80.2	80.2	1	100%
TCC-1A	Original Ground	0.37	0.37	0.37	1	100%	3.3	3.3	3.3	1	100%	26.4	26.4	26.4	1	100%	30	30	30	1	100%	140	140	140	1	100%
TCC-1B	Original Ground	0.76	0.76	0.76	1	100%	7.8	7.8	7.8	1	100%	36.5	36.5	36.5	1	100%	46	46	46	1	100%	187	187	187	1	100%
TCC-2	Original Ground	0.24	0.24	0.24	1	100%	0.85	0.85	0.85	1	100%	24.2	24.2	24.2	1	100%	23.6	23.6	23.6	1	100%	62.8	62.8	62.8	1	100%
North Woodall Mountain Sub-Basin																										
NWC-1	Original Ground	0.26	0.26	0.26	1	100%	na	na	na	1	0%	22	22	22	1	100%	27.4	27.4	27.4	1	100%	98.4	98.4	98.4	1	100%
NWC-2	Original Ground	0.32	0.6	0.46	2	100%	0.091	1.3	0.696	2	100%	21.9	23.3	22.6	2	100%	25.8	29.8	27.8	2	100%	98.5	109	104	2	100%
WS-1	Original Ground	2.4	2.4	2.4	1	100%	0.2	0.2	0.2	1	100%	5.3	5.3	5.3	1	100%	2.4	2.4	2.4	1	100%	26	26	26	1	100%
WS-2	Original Ground	1.8	1.8	1.8	1	100%	0.082	0.082	0.082	1	100%	11.4	11.4	11.4	1	100%	9.9	9.9	9.9	1	100%	35.7	35.7	35.7	1	100%
WS-3	Original Ground	0.21	0.21	0.21	1	100%	0.66	0.66	0.66	1	100%	4.8	4.8	4.8	1	100%	6.1	6.1	6.1	1	100%	10.1	10.1	10.1	1	100%
Old Tailings Pond Sub-Basin																										
IB-1	Original ground	3.2	3.2	3.2	1	100%	7.7	7.7	7.7	1	100%	77.6	77.6	77.6	1	100%	117	117	117	1	100%	1260	1260	1260	1	100%
NBorrowSedBasin	Original Ground	5.1	5.1	5.1	1	100%	12	12	12	1	100%	108	108	108	1	100%	190	190	190	1	100%	290	290	290	1	100%
TP-2	Tailings	11.1	11.1	11.1	1	100%	114	114	114	1	100%	434	434	434	1	100%	670	670	670	1	100%	893	893	893	1	100%
WMC6-1	Original Ground	1.1	1.1	1.1	1	100%	4.1	4.1	4.1	1	100%	31.1	31.1	31.1	1	100%	40.6	40.6	40.6	1	100%	155	155	155	1	100%
WMC6-2	Original Ground	17.9	17.9	17.9	1	100%	43.8	43.8	43.8	1	100%	296	296	296	1	100%	421	421	421	1	100%	496	496	496	1	100%
WMC6-2A	Original Ground	15.4	15.4	15.4	1	100%	44.2	44.2	44.2	1	100%	308	308	308	1	100%	427	427	427	1	100%	563	563	563	1	100%
Pedro Creek Sub-Basin																										
ESedBasinC	Original Ground	6.9	6.9	6.9	1	100%	3.8	3.8	3.8	1	100%	61.8	61.8	61.8	1	100%	65.8	65.8	65.8	1	100%	186	186	186	1	100%
ESedBasinN	Original Ground	3.9	3.9	3.9	1	100%	1.3	1.3	1.3	1	100%	35.2	35.2	35.2	1	100%	41.1	41.1	41.1	1	100%	112	112	112	1	100%
ESedBasinS	Original Ground	27.7	27.7	27.7	1	100%	11	11	11	1	100%	137	137	137	1	100%	122	122	122	1	100%	418	418	418	1	100%
FSPSBasin	Original Ground	40.6	40.6	40.6	1	100%	11	11	11	1	100%	154	154	154	1	100%	126	126	126	1	100%	376	376	376	1	100%
NES-5	Overburden	124	225	175	2	100%	27.4	30.2	28.8	2	100%	364	609	487	2	100%	182	325	254	2	100%	504	1290	897	2	100%
NES-6	Overburden (now covered)	739	739	739	1	100%	27.4	27.4	27.4	1	100%	473	473	473	1	100%	205	205	205	1	100%	1330	1330	1330	1	100%
NESedBasinC	Original Ground	34.5	34.5	34.5	1	100%	6.2	6.2	6.2	1	100%	90.4	90.4	90.4	1	100%	85.2	85.2	85.2	1	100%	339	339	339	1	100%
NESedBasinN	Original Ground	19.5	19.5	19.5	1	100%	8.2	8.2	8.2	1	100%	132	132	132	1	100%	120	120	120	1	100%	403	403	403	1	100%
NESedBasinS	Original Ground	33.5	33.5	33.5	1	100%	8.7	8.7	8.7	1	100%	137	137	137	1	100%	121	121	121	1	100%	344	344	344	1	100%
PC-1	Original Ground	1.2	6.4	3.8	2	100%	0.82	2.6	1.71	2	100%	25.4	28.6	27	2	100%	32.7	33	32.9	2	100%	90.9	101	96	2	100%
PC-2	Original Ground	13.2	29.6	21.4	2	100%	3.2	4.4	3.8	2	100%	33.5	66.2	49.9	2	100%	27.5	48.8	38.2	2	100%	135	240	188	2	100%

Table 4-29
Summary of Detected Metals Results in Sediments

	Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Value >>	Eco: 2					Eco: 1					Eco: 43					NA					Eco: 120				
Station	**Disturbed Status**																									
PC-2E	Original Ground	11.3	11.3	11.3	1	100%	2.5	2.5	2.5	1	100%	29.2	29.2	29.2	1	100%	21	21	21	1	100%	125	125	125	1	100%
PC-3	Original Ground	93.4	93.4	93.4	1	100%	15	15	15	1	100%	189	189	189	1	100%	153	153	153	1	100%	654	654	654	1	100%
PC-3A	Original Ground	96.8	96.8	96.8	1	100%	11.5	11.5	11.5	1	100%	115	115	115	1	100%	101	101	101	1	100%	493	493	493	1	100%
PC-4	Original Ground	88.4	140	114	2	100%	15	15.4	15.2	2	100%	261	300	281	2	100%	163	176	170	2	100%	509	605	557	2	100%
PC-4A	Original Ground	207	207	207	1	100%	17.7	17.7	17.7	1	100%	238	238	238	1	100%	176	176	176	1	100%	824	824	824	1	100%
PC-5	Original Ground	227	1430	829	2	100%	19.6	29	24.3	2	100%	301	356	329	2	100%	179	179	179	2	100%	573	619	596	2	100%
PC-6	Original Ground	65.1	82.2	73.7	2	100%	15.2	18	16.6	2	100%	259	335	297	2	100%	166	167	167	2	100%	487	532	510	2	100%
PC-7	Original Ground	155	155	155	1	100%	20.5	20.5	20.5	1	100%	298	298	298	1	100%	218	218	218	1	100%	887	887	887	1	100%
PC-8	Original ground	19.1	19.1	19.1	1	100%	11	11	11	1	100%	105	105	105	1	100%	91.6	91.6	91.6	1	100%	354	354	354	1	100%
PC-9	Original ground	26.8	26.8	26.8	1	100%	19	19	19	1	100%	245	245	245	1	100%	158	158	158	1	100%	569	569	569	1	100%
PCP-2	Original Ground	2.4	4.9	3.65	2	100%	0.65	0.86	0.755	2	100%	19.8	26	22.9	2	100%	23.4	32.2	27.8	2	100%	79.9	81	80.5	2	100%
PCT1-2	Original Ground	0.84	0.84	0.84	1	100%	1.2	1.2	1.2	1	100%	19.3	19.3	19.3	1	100%	15.8	15.8	15.8	1	100%	108	108	108	1	100%
PCT6-1	Original Ground	53	53	53	1	100%	14	14	14	1	100%	416	416	416	1	100%	173	173	173	1	100%	733	733	733	1	100%
PCT6-2	Original ground	16.5	16.5	16.5	1	100%	9.4	9.4	9.4	1	100%	135	135	135	1	100%	88.9	88.9	88.9	1	100%	337	337	337	1	100%
PCT6-3	Original ground	32.6	32.6	32.6	1	100%	28	28	28	1	100%	521	521	521	1	100%	230	230	230	1	100%	582	582	582	1	100%
PCT6-4	Original ground	5.1	5.1	5.1	1	100%	5	5	5	1	100%	38.6	38.6	38.6	1	100%	50.4	50.4	50.4	1	100%	191	191	191	1	100%
PCT6-5	Original ground	2.8	2.8	2.8	1	100%	2.7	2.7	2.7	1	100%	36	36	36	1	100%	44.1	44.1	44.1	1	100%	142	142	142	1	100%
SEInfiltBasin	Original Ground	10.4	10.4	10.4	1	100%	11	11	11	1	100%	161	161	161	1	100%	97.2	97.2	97.2	1	100%	269	269	269	1	100%
SWInfiltBasin	Original Ground	37.8	37.8	37.8	1	100%	102	102	102	1	100%	846	846	846	1	100%	992	992	992	1	100%	1560	1560	1560	1	100%
Shield and Jouglard Canyons Sub-Basin																										
FM-1	Original Ground	5.9	5.9	5.9	1	100%	5.6	5.6	5.6	1	100%	12.5	12.5	12.5	1	100%	7.8	7.8	7.8	1	100%	252	252	252	1	100%
HH-1	Original Ground	0.81	0.81	0.81	1	100%	2.8	2.8	2.8	1	100%	28.3	28.3	28.3	1	100%	25.5	25.5	25.5	1	100%	112	112	112	1	100%
HHP-1	Original Ground	1.7	2.4	2.05	2	100%	3.5	3.7	3.6	2	100%	29.2	29.2	29.2	2	100%	35.4	35.4	35.4	2	100%	124	135	130	2	100%
HHT1-1	Original ground	0.55	0.55	0.55	1	100%	3.2	3.2	3.2	1	100%	18.5	18.5	18.5	1	100%	21.4	21.4	21.4	1	100%	154	154	154	1	100%
HHT1-2	Original ground	1.2	1.2	1.2	1	100%	1.6	1.6	1.6	1	100%	25.3	25.3	25.3	1	100%	29.3	29.3	29.3	1	100%	145	145	145	1	100%
HHT-OP	Original ground	2.4	2.4	2.4	1	100%	1.3	1.3	1.3	1	100%	27.1	27.1	27.1	1	100%	29.5	29.5	29.5	1	100%	104	104	104	1	100%
JCS-1	Original Ground	0.93	0.93	0.93	1	100%	0.59	0.59	0.59	1	100%	12.4	12.4	12.4	1	100%	15.9	15.9	15.9	1	100%	50.7	50.7	50.7	1	100%
NL4P-1	Overburden	147	253	200	2	100%	81.3	108	94.7	2	100%	329	581	455	2	100%	557	942	750	2	100%	790	973	882	2	100%
SBorrowSedBasin	Original ground	1.2	1.2	1.2	1	100%	1.3	1.3	1.3	1	100%	23.7	23.7	23.7	1	100%	28.7	28.7	28.7	1	100%	91.1	91.1	91.1	1	100%
SWP-2	Original Ground	0.32	0.32	0.32	1	100%	3	3	3	1	100%	29.3	29.3	29.3	1	100%	32.9	32.9	32.9	1	100%	115	115	115	1	100%
SWP-3	Original Ground	47.1	47.1	47.1	1	100%	14.9	14.9	14.9	1	100%	278	278	278	1	100%	177	177	177	1	100%	890	890	890	1	100%
SWS-2	Original ground	7.2	7.2	7.2	1	100%	7.3	7.3	7.3	1	100%	46	46	46	1	100%	54.1	54.1	54.1	1	100%	249	249	249	1	100%
Southwest Conda Sub-Basin																										
SCC-1	Original Ground	0.66	0.66	0.66	1	100%	1.9	1.9	1.9	1	100%	24.9	24.9	24.9	1	100%	30.6	30.6	30.6	1	100%	123	123	123	1	100%
SCC-2	Original Ground	0.6	0.6	0.6	1	100%	3.3	3.3	3.3	1	100%	22.8	22.8	22.8	1	100%	29.3	29.3	29.3	1	100%	142	142	142	1	100%
State Land Creek Sub-Basin																										
NES-1	Overburden	114	114	114	1	100%	3.5	3.5	3.5	1	100%	36.7	36.7	36.7	1	100%	41.2	41.2	41.2	1	100%	112	112	112	1	100%
NES-1a	Overburden	373	373	373	1	100%	21	21	21	1	100%	450	450	450	1	100%	249	249	249	1	100%	1070	1070	1070	1	100%
NES-1b	Overburden	192	192	192	1	100%	3.1	3.1	3.1	1	100%	35.2	35.2	35.2	1	100%	42	42	42	1	100%	132	132	132	1	100%
NES-2	Overburden	50.7	50.7	50.7	1	100%	30.4	30.4	30.4	1	100%	417	417	417	1	100%	184	184	184	1	100%	658	658	658	1	100%
NES-3	Overburden	67.3	67.3	67.3	1	100%	24.1	24.1	24.1	1	100%	604	604	604	1	100%	213	213	213	1	100%	1040	1040	1040	1	100%
NES-4	Overburden	327	327	327	1	100%	15.9	15.9	15.9	1	100%	260	260	260	1	100%	157	157	157	1	100%	613	613	613	1	100%
SLC	Original Ground	2.1	2.1	2.1	1	100%	2.7	2.7	2.7	1	100%	28	28	28	1	100%	28	28	28	1	100%	132	132	132	1	100%
SLC-0	Original Ground	1.1	3	2.05	2	100%	1.7	2.6	2.15	2	100%	30.5	32.4	31.5	2	100%	37	41.5	39.3	2	100%	105	121	113	2	100%
SLC-1	Original Ground	2.4	5.7	4.05	2	100%	2.9	3.7	3.3	2	100%	29.8	31.3	30.6	2	100%	29.6	36.3	33	2	100%	117	139	128	2	100%
SLC-2	Original Ground	1.3	7	4.03	3	100%	2.2	5	3.33	3	100%	28.6	99	57	3	100%	22.9	61	36.8	3	100%	109	177	152	3	100%
SLC-3	Original Ground	20.8	20.8	20.8	1	100%	6.4	6.4	6.4	1	100%	44.8	44.8	44.8	1	100%	58.3	58.3	58.3	1	100%	123	123	123	1	100%
SLC-3A	Original Ground	7.2	7.2	7.2	1	100%	2.7	2.7	2.7	1	100%	34.9	34.9	34.9	1	100%	38.8	38.8	38.8	1	100%	107	107	107	1	100%
SLC-3D	Original Ground	0.52	0.52	0.52	1	100%	7.2	7.2	7.2	1	100%	46.2	46.2	46.2	1	100%	43.3	43.3	43.3	1	100%	143	143	143	1	100%
SLC-3E	Original Ground	7.8	7.8	7.8	1	100%	6.9	6.9	6.9	1	100%	58.7	58.7	58.7	1	100%	41.1	41.1	41.1	1	100%	229	229	229	1	100%
SLC-3F	Original Ground	4.1	4.1	4.1	1	100%	5.3	5.3	5.3	1	100%	30.5	30.5	30.5	1	100%	29	29	29	1	100%	134	134	134	1	100%
SLC-8	Original Ground	0.73	0.73	0.73	1	100%	7.3	7.3	7.3	1	100%	24.8	24.8	24.8	1	100%	33.1	33.1	33.1	1	100%	132	132	132	1	100%

Table 4-29
Summary of Detected Metals Results in Sediments

	Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Value >>	Eco: 2					Eco: 1					Eco: 43					NA					Eco: 120				
Station	**Disturbed Status**																									
SLCT2-0	Original Ground	2.6	2.6	2.6	1	100%	6.7	6.7	6.7	1	100%	45.7	45.7	45.7	1	100%	44.3	44.3	44.3	1	100%	117	117	117	1	100%
SLCT2-2	Original Ground	31	31	31	1	100%	20.3	20.3	20.3	1	100%	139	139	139	1	100%	113	113	113	1	100%	379	379	379	1	100%
SLCT2-2B	Original Ground	5.1	5.1	5.1	1	100%	11.6	11.6	11.6	1	100%	57.1	57.1	57.1	1	100%	48	48	48	1	100%	240	240	240	1	100%
SLCT2-5	Original Ground	25.4	25.4	25.4	1	100%	20.8	20.8	20.8	1	100%	286	286	286	1	100%	151	151	151	1	100%	599	599	599	1	100%
SLCT3-0	Original Ground	0.76	0.76	0.76	1	100%	1.9	1.9	1.9	1	100%	24.4	24.4	24.4	1	100%	22.4	22.4	22.4	1	100%	125	125	125	1	100%
SLCT3-1	Original Ground	1.1	1.1	1.1	1	100%	3.3	3.3	3.3	1	100%	36.9	36.9	36.9	1	100%	46.3	46.3	46.3	1	100%	95.4	95.4	95.4	1	100%
SLCT3-4	Original Ground	13.7	13.7	13.7	1	100%	6.6	6.6	6.6	1	100%	102	102	102	1	100%	24.3	24.3	24.3	1	100%	283	283	283	1	100%
SLCT3-5	Original Ground	6.2	6.2	6.2	1	100%	3.8	3.8	3.8	1	100%	46.2	46.2	46.2	1	100%	22.8	22.8	22.8	1	100%	155	155	155	1	100%
SLP-1	Original Ground	1.5	1.5	1.5	1	100%	0.84	0.84	0.84	1	100%	36.4	36.4	36.4	1	100%	30.7	30.7	30.7	1	100%	106	106	106	1	100%
SLP-2	Original Ground	0.24	0.24	0.24	1	100%	0.58	0.58	0.58	1	100%	17.2	17.2	17.2	1	100%	23.1	23.1	23.1	1	100%	62.9	62.9	62.9	1	100%
SLP-3	Original Ground	0.32	0.32	0.32	1	100%	0.49	0.49	0.49	1	100%	17.2	17.2	17.2	1	100%	23.6	23.6	23.6	1	100%	69.5	69.5	69.5	1	100%
Western Woodall Mountain Sub-Basin																										
WMC1-1	Original Ground	5.7	5.7	5.7	1	100%	10	10	10	1	100%	80	80	80	1	100%	78.9	78.9	78.9	1	100%	308	308	308	1	100%
WMC1-2	Original Ground	8.2	8.2	8.2	1	100%	8.9	8.9	8.9	1	100%	97.2	97.2	97.2	1	100%	82.3	82.3	82.3	1	100%	307	307	307	1	100%
WMC2-1	Original Ground	1.6	1.6	1.6	1	100%	6.2	6.2	6.2	1	100%	44.9	44.9	44.9	1	100%	54	54	54	1	100%	182	182	182	1	100%
WMC2-1A	Original Ground	12.3	12.3	12.3	1	100%	16.1	16.1	16.1	1	100%	143	143	143	1	100%	107	107	107	1	100%	472	472	472	1	100%
WMC2-2	Original Ground	9.6	9.6	9.6	1	100%	9.3	9.3	9.3	1	100%	96.9	96.9	96.9	1	100%	81.3	81.3	81.3	1	100%	360	360	360	1	100%
WMC3-1	Original Ground	0.59	0.59	0.59	1	100%	3	3	3	1	100%	25.8	25.8	25.8	1	100%	25.8	25.8	25.8	1	100%	104	104	104	1	100%
WMC3-2	Original Ground	1.8	1.8	1.8	1	100%	12.5	12.5	12.5	1	100%	31.9	31.9	31.9	1	100%	46.7	46.7	46.7	1	100%	163	163	163	1	100%
WMC4-1	Original Ground	17.9	17.9	17.9	1	100%	12.9	12.9	12.9	1	100%	238	238	238	1	100%	129	129	129	1	100%	524	524	524	1	100%
WMC4-1A	Original Ground	5.2	5.2	5.2	1	100%	5.5	5.5	5.5	1	100%	62.4	62.4	62.4	1	100%	44.9	44.9	44.9	1	100%	240	240	240	1	100%
WMC4-2	Original Ground	26.3	26.3	26.3	1	100%	21.3	21.3	21.3	1	100%	251	251	251	1	100%	209	209	209	1	100%	523	523	523	1	100%
WMC5-1	Original Ground	16.2	16.2	16.2	1	100%	21.1	21.1	21.1	1	100%	269	269	269	1	100%	182	182	182	1	100%	631	631	631	1	100%
WMC5-1A	Original Ground	4.9	4.9	4.9	1	100%	11.7	11.7	11.7	1	100%	72.4	72.4	72.4	1	100%	76.9	76.9	76.9	1	100%	273	273	273	1	100%
WMC5-2	Original Ground	19.1	19.1	19.1	1	100%	22.3	22.3	22.3	1	100%	331	331	331	1	100%	188	188	188	1	100%	684	684	684	1	100%
WS-4	Original Ground	5.1	5.1	5.1	1	100%	0.41	0.41	0.41	1	100%	15.7	15.7	15.7	1	100%	10.7	10.7	10.7	1	100%	95.2	95.2	95.2	1	100%
WS-5	Original Ground	0.63	0.63	0.63	1	100%	1	1	1	1	100%	4.8	4.8	4.8	1	100%	7.9	7.9	7.9	1	100%	13.6	13.6	13.6	1	100%
Offsite-Blackfoot River																										
BFR-1	Offsite	0.55	0.55	0.55	1	100%	0.53	0.53	0.53	1	100%	11.5	11.5	11.5	1	100%	11.6	11.6	11.6	1	100%	35.3	35.3	35.3	1	100%
BFR-2	Offsite	0.89	0.89	0.89	1	100%	0.2	0.2	0.2	1	100%	14.5	14.5	14.5	1	100%	15.3	15.3	15.3	1	100%	49.5	49.5	49.5	1	100%
BFR-3	Offsite	0.66	0.66	0.66	1	100%	0.21	0.21	0.21	1	100%	10.6	10.6	10.6	1	100%	11	11	11	1	100%	31.4	31.4	31.4	1	100%
BFR-4	Offsite	0.66	0.66	0.66	1	100%	0.13	0.13	0.13	1	100%	9.6	9.6	9.6	1	100%	10.3	10.3	10.3	1	100%	30.9	30.9	30.9	1	100%
BGS	Offsite	1	1	1	1	100%	1.5	1.5	1.5	1	100%	17	17	17	1	100%	18	18	18	1	100%	40	40	40	1	100%
MST020	Offsite	0.7	0.7	0.7	3	33%	1.1	1.5	1.36	3	100%	17	30.7	21.6	3	100%	16	30.1	22	3	100%	45	45	45	3	67%
MST231	Offsite	na	na	na	1	0%	0.69	0.69	0.69	1	100%	na	na	na	1	0%	9.7	9.7	9.7	1	100%	24	24	24	1	100%
ST019	Offsite	0.5	0.7	0.6	3	67%	0.99	1.4	1.21	3	100%	19	22	20.3	3	100%	14	17.1	15.4	3	100%	31	38	34.5	3	67%
ST021	Offsite	na	na	na	2	0%	0.8	1.5	1.2	3	100%	14	29	22	3	100%	14	20	17	3	100%	30	95	62.5	3	67%
ST022	Offsite	0.5	0.5	0.5	2	50%	0.98	1.38	1.22	3	100%	13	25	17.7	3	100%	12	19	15	3	100%	26	49	37.5	3	67%
ST230	Offsite	0.83	0.83	0.83	2	50%	1	2.9	1.95	2	100%	13	37	25	2	100%	13	27	20	2	100%	36	39	37.5	2	100%
ST232	Offsite	1.2	1.2	1.2	1	100%	1.1	1.1	1.1	1	100%	16	16	16	1	100%	16	16	16	1	100%	40	40	40	1	100%
Offsite-Trail Creek																										
TC-1	Offsite	0.15	0.48	0.315	2	100%	0.65	0.65	0.65	2	50%	18.1	18.5	18.3	2	100%	17.5	20.8	19.2	2	100%	54.7	56.5	55.6	2	100%
TC-2	Offsite	0.41	0.41	0.41	1	100%	na	na	na	1	0%	17.1	17.1	17.1	1	100%	16.8	16.8	16.8	1	100%	59	59	59	1	100%
TC-3	Offsite	0.78	0.78	0.78	1	100%	2.5	2.5	2.5	1	100%	22.4	22.4	22.4	1	100%	27.7	27.7	27.7	1	100%	69.5	69.5	69.5	1	100%
TC-4	Offsite	3.6	3.6	3.6	1	100%	0.72	0.72	0.72	1	100%	18.4	18.4	18.4	1	100%	16.9	16.9	16.9	1	100%	72.7	72.7	72.7	1	100%

Table 4-29
Summary of Detected Metals Results in Sediments
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

All samples are surface sediments (e.g., 0 to 4 inches).

na = not analyzed.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

More information about ecological ("Eco") sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

NA = comparison value not available.

Table 4-30
Summary of Detected Metals Results in Aquatic Vegetation

			Analyte >>	Selenium					Cadmium					Chromium				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/kg					mg/kg					mg/kg				
			Comparison Value >>	NA					NA					NA				
Station	**Material Type**	**Media**	**Washed/ Unwashed**															
Camp G Creek Sub-Basin																		
CGC-0	Original Ground	AVM	Unwashed	2.36	4.18	3.27	2	100%	0.672	1.57	1.12	2	100%	2.9	4.6	3.75	2	100%
CGC-1	Original Ground	AVM	Unwashed	0.11	0.64	0.375	2	100%	0.031	0.185	0.108	2	100%	0.4	0.9	0.65	2	100%
CGC-4A	Original Ground	AVM	Unwashed	4.79	4.99	4.89	2	100%	0.054	0.619	0.337	2	100%	0.2	0.8	0.5	2	100%
French Drain Sub-Basin																		
SWP-4	Overburden	AVM	Unwashed	153	153	153	1	100%	0.568	0.568	0.568	1	100%	1.1	1.1	1.1	1	100%
TP-1	Tailings	AVM	Unwashed	0.78	5.36	3.07	2	100%	0.093	1.37	0.7315	2	100%	0.5	1.3	0.9	2	100%
North Woodall Mountain Sub-Basin																		
NWC-2	Original Ground	AVM	Unwashed	0.2	0.21	0.205	2	100%	0.124	0.778	0.451	2	100%	0.9	1.4	1.15	2	100%
Pedro Creek Sub-Basin																		
NES-5	Overburden	AVM	Unwashed	362	362	362	1	100%	17.5	17.5	17.5	1	100%	151	151	151	1	100%
PC-1	Original Ground	AVM	Unwashed	9.58	14.6	12.1	2	100%	0.072	0.167	0.12	2	100%	0.5	2.3	1.4	2	100%
		AVP	NA	6.65	6.65	6.65	1	100%	1.44	1.44	1.44	1	100%	14.2	14.2	14.2	1	100%
PC-2	Original Ground	AVM	Unwashed	1.06	4.19	2.63	2	100%	0.043	0.383	0.213	2	100%	0.3	1.7	1	2	100%
		AVP	NA	6.05	6.05	6.05	1	100%	1.34	1.34	1.34	1	100%	12.2	12.2	12.2	1	100%
PC-5	Original Ground	AVM	Unwashed	26.4	26.4	26.4	1	100%	0.199	0.199	0.199	1	100%	0.4	0.4	0.4	1	100%
			Washed	25.1	25.1	25.1	1	100%	1.11	1.11	1.11	1	100%	2.6	2.6	2.6	1	100%
Shield and Jouglard Canyons Sub-Basin																		
HHP-1	Original Ground	AVM	Unwashed	1.81	2.9	2.36	4	50%	0.152	1.14	0.64	4	100%	1.2	5	3.03	4	100%
NL4P-1	Overburden	AVM	Unwashed	147	177	162	2	100%	3.54	7.61	5.58	2	100%	0.3	1.6	0.95	2	100%
State Land Creek Sub-Basin																		
SLC	Original Ground	AVM	Unknown	4.3	4.3	4.3	1	100%	2	2	2	1	100%	5	5	5	1	100%
SLC-0	Original Ground	AVM	Unwashed	5.58	8.21	6.9	2	100%	1.26	3.05	2.16	2	100%	3.4	4.6	4	2	100%
SLC-1	Original Ground	AVM	Unwashed	7.94	8.71	8.33	2	100%	1.68	2.8	2.24	2	100%	7.9	10.1	9	2	100%
SLC-2	Original Ground	AVM	Unwashed	12.1	12.1	12.1	1	100%	3.71	3.71	3.71	1	100%	21.2	21.2	21.2	1	100%
		AVP	NA	5.33	5.33	5.33	1	100%	4.4	4.4	4.4	1	100%	25.9	25.9	25.9	1	100%
Offsite-Blackfoot River																		
BGS	Offsite	AVM	Unknown	7.2	7.2	7.2	1	100%	1	1	1	1	100%	6	6	6	1	100%
ST232	Offsite	AVM	Unknown	22.8	22.8	22.8	1	100%	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek																		
TC-1	Offsite	AVM	Unwashed	0.12	0.24	0.18	2	100%	0.181	0.449	0.315	2	100%	0.3	3.6	1.95	2	100%
		AVP	NA	0.4	0.4	0.399	1	100%	0.425	0.425	0.425	1	100%	8.31	8.31	8.31	1	100%

Table 4-30
Summary of Detected Metals Results in Aquatic Vegetation

			Analyte >>	Vanadium					Zinc				
			Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
			Units >>	mg/kg					mg/kg				
			Comparison Value >>	NA					NA				
Station	**Material Type**	**Media**	**Washed/ Unwashed**										
Camp G Creek Sub-Basin													
CGC-0	Original Ground	AVM	Unwashed	5.37	5.51	5.44	2	100%	37.8	49.9	43.9	2	100%
CGC-1	Original Ground	AVM	Unwashed	0.16	0.4	0.28	2	100%	16.9	25.5	21.2	2	100%
CGC-4A	Original Ground	AVM	Unwashed	0.19	0.53	0.36	2	100%	20.4	24.4	22.4	2	100%
French Drain Sub-Basin													
SWP-4	Overburden	AVM	Unwashed	0.82	0.82	0.82	1	100%	44.8	44.8	44.8	1	100%
TP-1	Tailings	AVM	Unwashed	18.3	31.9	25.1	2	100%	18.3	31.9	25.1	2	100%
North Woodall Mountain Sub-Basin													
NWC-2	Original Ground	AVM	Unwashed	0.28	0.89	0.585	2	100%	36.8	41.2	39	2	100%
Pedro Creek Sub-Basin													
NES-5	Overburden	AVM	Unwashed	114	114	114	1	100%	690	690	690	1	100%
PC-1	Original Ground	AVM	Unwashed	0.19	0.69	0.44	2	100%	16.1	43	29.6	2	100%
		AVP	NA	12.4	12.4	12.4	1	100%	84.8	84.8	84.8	1	100%
PC-2	Original Ground	AVM	Unwashed	0.14	1.41	0.775	2	100%	16.6	40.3	28.5	2	100%
		AVP	NA	9.12	9.12	9.12	1	100%	95.8	95.8	95.8	1	100%
PC-5	Original Ground	AVM	Unwashed	0.28	0.28	0.28	1	100%	26.1	26.1	26.1	1	100%
			Washed	2.79	2.79	2.79	1	100%	35.7	35.7	35.7	1	100%
Shield and Jouglard Canyons Sub-Basin													
HHP-1	Original Ground	AVM	Unwashed	0.89	5.34	2.97	4	100%	30.2	49.4	40.9	4	100%
NL4P-1	Overburden	AVM	Unwashed	0.68	4.12	2.4	2	100%	33.1	92.4	62.8	2	100%
State Land Creek Sub-Basin													
SLC	Original Ground	AVM	Unknown	6	6	6	1	100%	53	53	53	1	100%
SLC-0	Original Ground	AVM	Unwashed	8.67	8.93	8.8	2	100%	49.6	76.8	63.2	2	100%
SLC-1	Original Ground	AVM	Unwashed	8.7	11.8	10.3	2	100%	64.7	117	90.9	2	100%
SLC-2	Original Ground	AVM	Unwashed	9.43	9.43	9.43	1	100%	148	148	148	1	100%
		AVP	NA	15.4	15.4	15.4	1	100%	137	137	137	1	100%
Offsite-Blackfoot River													
BGS	Offsite	AVM	Unknown	7	7	7	1	100%	27	27	27	1	100%
ST232	Offsite	AVM	Unknown	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek													
TC-1	Offsite	AVM	Unwashed	0.19	3.35	1.77	2	100%	24.2	33.9	29.1	2	100%
		AVP	NA	7.16	7.16	7.16	1	100%	37.8	37.8	37.8	1	100%

Table 4-30
Summary of Detected Metals Results in Aquatic Vegetation

Notes:

Includes data from 2001 onward of "A" data use level only.

AVM = aquatic macrophytes; AVP = aquatic periphyton

Count - Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

"Washed" = vegetation samples rinsed with deionized (DI) water (or DI water plus detergent) prior to analysis; "Unwashed" = vegetation samples were not rinsed prior to analysis; "Unknown" = insufficient information to determine if samples were rinsed or not.

NA = comparison value not available.

na = not analyzed.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

Table 4-31
Benthic Macroinvertebrate Tissue Voucher Taxonomy

Order	Genus	Hab/Beh	FFG	Location													
				SLC-0	SLC-1	SLC-2	PC-1	PC-2	CGC-0	CGC-1	CGC-4A	TC-1	NWC-2	HHP-1	NL4P-1	SWP-4	TP-1
Ephemeroptera	*Callibaetis sp.*	SW	CG				2						2	11			
	Ephermerella dorothea infrequens	CN	CG							2							
	Paraleptophlebia sp.	SW	CG		1												
Trichoptera	*Brachycentrus sp.*	CN	F									1					
	Dicosmoecus sp.	CN	SC														
	Halesochila sp.	SP	CG													2	
	Hesperophylax sp.	CN	SH			1					1	1					
	Onocosmoecus sp.	CB	SH							1							
	Parapsyche sp.	CN	P								1						
	Psychoglypha sp.	SP	CG			1		1	3	2							
Odonata	*Aeshnidae sp.*	CB/SP	P					1									
	Aeshna sp.	CB	P	1	1												
	Enallagma sp.	CB	P					1							3		1
	Lestes rectangularis	CB	P				1										
	Sympetrum sp.	CB/SP	P										1	1			
Coleoptera	*Agabus sp.*	SW	P					1		1			2				
	Curculiondae							1									
	Hydaticus sp.	SW	P										3				1
	Peltodytes sp.	CN	SH											1			
	Stictotarsus sp.	SW	P		1		1						1				
	Tropisternus sp.	SW	P				1										
Hemiptera	*Aquarius sp.*	SW	P				1										
	Buenoa sp.	SW	P												1		
	Lethocerus sp.	SW	P												1		
	Sigara sp.	SW	P	2	2		2	1	3			1					2
Diptera	*Dixella sp.*	BU	CG														
	Simulium sp.	CN	F					1			1		1				
Chironomidae (family)	*Chironomidae*	BU/SP	CG/SH/P										2	1	2	3	1
Hirudinea (class)	*Helobdella sp.*		PA/P		1												
Amphipoda	*Gammarus sp.*	SW/BU	CG	6	1	11		1	4	1	1	5					
	Hyallela sp.	SW/BU	OM		5			1	1			4		1			2
			# Counted	**9**	**12**	**13**	**8**	**9**	**11**	**7**	**4**	**12**	**12**	**15**	**7**	**5**	**7**
			Total Taxa	**3**	**7**	**3**	**6**	**9**	**4**	**5**	**4**	**5**	**7**	**5**	**4**	**2**	**5**

Notes:

Functional Feeding Groups (FFG): CG = Collector-Gatherer, SC = Scraper, F = Filterer, P = Predator, SH = Shredder, OM = Omnivore

Habitat/Behavior (Hab/Beh): BU = Burrower, SW = Swimmer, CN = Clinger, CB = Climber, SP = Sprawler, DV = Diver.

In conjunction with collecting a primary benthic macroinvertebrate tissue sample for laboratory analysis, field crews collected an additional sample ("voucher sample") with similar content (i.e., included the same types of species and the relative abundance of those species). The voucher sample was sent to an entomologist for taxonomic identification so that the general contents (species types and relative abundance) would be known. The voucher sample results are presented in this table.

Table and footnotes present information for samples collected from 2001 onward of "A" data use level only.

Samples listed in the table were sampled in July 2009

Additional samples collected had limited if any species information and include:

Offsite - Blackfoot River

- BGS (1 sample, 5/1/2001)
- MST020 (1 sample, 6/1/2004)
- MST231 (2 samples, 6/1/2004)
- ST019 (1 sample, 6/1/2004)
- ST021 (1 sample, 6/1/2004)
- ST022 (1 sample, 6/1/2004)
- ST230 (1 sample, 6/1/2004)
- ST232 (4 samples, 7/13/2005, 6/1/2004)

State Land Creek Sub-Basin

- SLC (1 sample, 5/1/2001)

Table 4-32
Summary of Detected Metals Results in Aquatic Invertebrates

	Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Values >>	NA					NA					NA					NA					NA				
Station	Material Type																									
Camp G Creek Sub-Basin																										
CGC-0	Original Ground	5.38	5.38	5.38	1	100%	0.355	0.355	0.355	1	100%	2.42	2.42	2.42	1	100%	2.91	2.91	2.91	1	100%	125	125	125	1	100%
CGC-1	Original Ground	1.42	1.42	1.42	1	100%	0.787	0.787	0.787	1	100%	2.65	2.65	2.65	1	100%	3.23	3.23	3.23	1	100%	75.9	75.9	75.9	1	100%
CGC-4A	Original Ground	65.2	65.2	65.2	1	100%	2.9	2.9	2.9	1	100%	8.29	8.29	8.29	1	100%	8.1	8.1	8.1	1	100%	218	218	218	1	100%
French Drain Sub-Basin																										
SWP-4	Overburden	428	428	428	1	100%	3.42	3.42	3.42	1	100%	159	159	159	1	100%	35.7	35.7	35.7	1	100%	317	317	317	1	100%
TP-1	Tailings	4.44	4.44	4.44	1	100%	4.22	4.22	4.22	1	100%	15.1	15.1	15.1	1	100%	22.2	22.2	22.2	1	100%	98.9	98.9	98.9	1	100%
North Woodall Mountain Sub-Basin																										
NWC-2	Original Ground	1.65	1.65	1.65	1	100%	2.49	2.49	2.49	1	100%	7.43	7.43	7.43	1	100%	8.49	8.49	8.49	1	100%	89.2	89.2	89.2	1	100%
Pedro Creek Sub-Basin																										
PC-1	Original Ground	36.1	36.1	36.1	1	100%	2.86	2.86	2.86	1	100%	4.32	4.32	4.32	1	100%	3.85	3.85	3.85	1	100%	102	102	102	1	100%
PC-2	Original Ground	11.4	11.4	11.4	1	100%	0.457	0.457	0.457	1	100%	6.06	6.06	6.06	1	100%	4.56	4.56	4.56	1	100%	72.3	72.3	72.3	1	100%
Shield and Jouglard Canyons Sub-Basin																										
HHP-1	Original Ground	17.1	17.1	17.1	1	100%	1.87	1.87	1.87	1	100%	9.51	9.51	9.51	1	100%	7.95	7.95	7.95	1	100%	153	153	153	1	100%
NL4P-1	Overburden	102	102	102	1	100%	32.2	32.2	32.2	1	100%	69.4	69.4	69.4	1	100%	68.7	68.7	68.7	1	100%	188	188	188	1	100%
State Land Creek Sub-Basin																										
SLC	Original Ground	9.7	9.7	9.7	1	100%	1	1	1	1	100%	1	1	1	1	100%	1	1	1	1	100%	130	130	130	1	100%
SLC-0	Original Ground	11	11	11	1	100%	0.66	0.66	0.66	1	100%	3.03	3.03	3.03	1	100%	3.07	3.07	3.07	1	100%	88.2	88.2	88.2	1	100%
SLC-1	Original Ground	7.98	7.98	7.98	1	100%	0.42	0.42	0.42	1	100%	5.35	5.35	5.35	1	100%	5.71	5.71	5.71	1	100%	64.1	64.1	64.1	1	100%
SLC-2	Original Ground	13.8	13.8	13.8	1	100%	1.31	1.31	1.31	1	100%	10.9	10.9	10.9	1	100%	5.41	5.41	5.41	1	100%	81.3	81.3	81.3	1	100%
Offsite-Blackfoot River																										
BGS	Offsite	10.8	10.8	10.8	1	100%	1	1	1	1	100%	4	4	4	1	100%	4	4	4	1	100%	110	110	110	1	100%
MST020	Offsite				1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MST231	Offsite	8.3	46	27.2	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST019	Offsite	7.1	7.1	7.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST021	Offsite	10	10	10	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST022	Offsite	4.2	4.2	4.2	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST230	Offsite	13	13	13	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
ST232	Offsite	13	18.2	16.1	4	75%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite-Trail Creek																										
TC-1	Offsite	0.81	0.81	0.81	1	100%	0.334	0.334	0.334	1	100%	2.42	2.42	2.42	1	100%	3.45	3.45	3.45	1	100%	69.1	69.1	69.1	1	100%

Table 4-32
Summary of Detected Metals Results in Aquatic Invertebrates

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

Table 4-33
Benthic Macroinvertebrate Community Sample Summary

Order	Genus	Habitat/ Behavior	Functional Feeding Groups	Tolerance[1]	Stream	State Land Creek	Pedro Creek	Camp G Creek	Trail Creek	Northwest Conda Creek
					Location	SLC-0	PC-1	CGC-0	TC-1	NWC-2
Ephemeroptera	*Acerpenna pygmaea*	SW	CG	4					4	
	Callibaetis sp.	SW	CG	9						11
	Paraleptophlebia sp.	SW	CG	1		2				
Trichoptera	*Brachycentrus* sp.	CN	F	1				2		
	Psychoglypha sp.	SP/CB	CG	1				1		
	Glyphopsyche sp.	CN	SH	1			7			
Coleoptera	*Agabus* sp.	SW	P	8		2	15			4
	Laccophilus sp.	SW	P	5						1
	Optioservus quadrimaculatus	CN	CG/SC	4		2			2	
	Peltodytes sp.	CN	SH	5						1
	Rhantus sp.	SW	P	5						1
	Tropisternus sp.	SW	P	5			1			
Odonata	*Aeshna* sp.	CB	P	5		1				
	Sympetrum sp.	CB/SP	P	9						1
Hemiptera	*Aquarius* sp.	SW	P	5						2
	Buenoa sp.	SW	P	10		3	1	1		1
Diptera	*Dicranota* sp.	BU	P	3			1			
	Dixella sp.		CG	1		1				3
	Muscidae		P	6			2			
	Tabanidae	SP/BU	P	8						6
	Simulium sp.	CN	F	6		2	143		3	5
Chironomidae (family)	Chironomidae	BU/SP	CG/SH/P	6		11	62		7	113
Oligochaeta (class)	Oligochaeta		CG	5		5		1	2	3
Bivalvia (class)	*Pisidium* sp.	BU	F	8		1				
Gastropoda (class)	*Physella* sp.	CN	SC	8		2				6
Hirudinea (class)	*Helobdella* sp.		PA/P	6					1	2
Tricladida	*Polycelis coronata*		OM	1		2				
Amphipoda	*Gammarus* sp.	SW/BU	OM	6		86	1	11	7	
	Hyallela sp.	SW/BU	CG	8		4		1	6	
Acari (subclass)	Acari		P	8				1	5	
					% Subsampled	**100**	**100**	**100**	**100**	**100**
					Total abundance	**124**	**233**	**18**	**37**	**160**
					Total taxa	**14**	**9**	**7**	**9**	**15**
					Total Counts	**124**	**233**	**18**	**37**	**160**
					Density (#/1m^2)	**446**	**838**	**65**	**133**	**576**

Notes:

Functional Feeding Groups (FFG): CG = Collector-Gatherer, SC = Scraper, F = Filterer, P = Predator, PA = Parasite, SH = Shredder, OM = Omnivore

Habitat/Behavior (Hab/Beh): BU = Burrower, SW = Swimmer, CN = Clinger, CB = Climber, SP = Sprawler, DV = Diver

[1]Tolerance values reflect resistance of organisms to pollution

Reference:

Idaho Department of Health and Wellness. 1993. Protocols for Assessment of Biotic Integrity (Macroinvertebrates) for Wadable Idaho Streams. Division of Environmental Quality. Boise, ID. March.

Table 4-34
Stream Macroinvertebrate Index (SMI) Scores and Condition Ratings

Metrics	Metric Scoring Formulas	Location				
		SLC-0	PC-1	CGC-0	TC-1	NWC-2
Total Taxa	100*(Total Taxa)/95th	38	35	19	24	41
Ephemeroptera Taxa	100*(Ephemeroptera Taxa)/95th	10	0	0	10	10
Plecoptera Taxa	100*(Plecoptera Taxa)/95th	0	0	0	0	0
Trichoptera Taxa	100*(Trichoptera Taxa)/95th	0	11	22	0	0
Percent Plecoptera	100*(%Plectoptera)/95th	0	0	0	0	0
Hilsenhoff Biotic Index (HBI)	100*(10 - HBI)/(10 - 5th)	51	49	56	47	46
Percent 5 Dominant Taxa	100*(100 -%5dom)/(100 - 5th)	26	10	24	46	25
Scraper Taxa	100*(Scraper Taxa)/95th	25	13	0	13	13
Clinger Taxa	100*(Clinger Taxa)/95th	16	16	5	11	16
	SMI Score	**18**	**15**	**14**	**17**	**17**
	Condition Rating	**Minimum Threshold**	**Minimum Threshold**	**Minimum Threshold**	**Minimum Threshold**	**Minimum Threshold**

SMI Bioregion Scoring Thresholds: Central and Southern Mountains

	Score	Condition Rating
Above the 25th percentile of reference	≥59	3
10th to 25th percentile of reference	51-58	2
Minimum to 10th percentile of reference	33 -50	1
Below minimum of reference condition	<33	Minimum threshold

Table 4-35
Summary of Detected Metals Results in Fish Tissue

	Analyte >>	Selenium					Cadmium					Chromium					Vanadium					Zinc				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/kg					mg/kg					mg/kg					mg/kg					mg/kg				
	Comparison Value >>	8					NA					NA					NA					NA				
Station	ROM Type																									
Camp G Creek Sub-Basin																										
CGC-0	Original Ground	2.04	*10.4*	6.44	10	100%	0.05	0.15	0.102	10	100%	0.12	1.2	0.32	10	80%	0.21	2.91	0.81	10	90%	71.7	217	160	10	100%
Pedro Creek Sub-Basin																										
PC-1	Original Ground	*20.3*	*36.4*	*27.6*	6	100%	0.18	0.52	0.323	6	100%	0.77	0.98	0.91	6	50%	0.23	0.97	0.56	6	100%	129	198	174	6	100%
Shield and Jouglard Canyons Sub-Basin																										
HHP-1	Original Ground	6.18	6.18	6.18	1	100%	0.28	0.28	0.276	1	100%	1.68	1.68	1.68	1	100%	1.16	1.16	1.16	1	100%	108	108	108	1	100%
State Land Creek Sub-Basin																										
SLC	Original Ground	*15.2*	*15.2*	*15.2*	1	100%	1.1	1.1	1.1	1	100%	0.6	0.6	0.6	1	100%				1	0%	302	302	302	1	100%
SLC-0	Original Ground	*16.6*	*19.8*	*18.6*	3	100%	0.2	0.25	0.221	3	100%	0.18	1	0.5	3	100%	0.4	1.19	0.68	3	100%	148	227	196	3	100%
SLC-1	Original Ground	*11.8*	*19.4*	*16.4*	10	100%	0.06	0.35	0.167	10	100%	0.11	0.78	0.36	10	60%	0.15	1.01	0.41	10	100%	129	378	218	10	100%
SLC-2	Original Ground	*13.7*	*33.5*	*23.4*	3	100%	0.21	0.55	0.326	3	100%	0.09	2.85	1.04	3	100%	0.22	1.5	0.71	3	100%	75.3	149	117	3	100%
Offsite-Blackfoot River																										
BGS	Offsite	*10.9*	*13.6*	*12*	5	100%	0.3	0.3	0.3	5	20%	0.2	13	2.8	5	100%	1	1	1	5	20%	86	157	127	5	100%
MST020	Offsite	*11*	*11*	*11*	1	100%				1	0%	na	na	na	na	na	0.69	0.69	0.69	1	100%	230	230	230	1	100%
MST231	Offsite	7.2	*14*	*9.5*	3	100%	0.13	0.13	0.13	3	67%	na	na	na	na	na	0.29	0.81	0.5	3	100%	110	160	137	3	100%
ST019	Offsite	*8.8*	*8.8*	*8.8*	1	100%	0.1	0.1	0.1	1	100%	na	na	na	na	na	1.3	1.3	1.3	1	100%	120	120	120	1	100%
ST021	Offsite	*9.6*	*9.6*	*9.6*	1	100%	0.14	0.14	0.14	1	100%	na	na	na	na	na	1.3	1.3	1.3	1	100%	150	150	150	1	100%
ST022	Offsite	*12*	*12*	*12*	1	100%	0.15	0.15	0.15	1	100%	na	na	na	na	na	0.81	0.81	0.81	1	100%	180	180	180	1	100%
ST230	Offsite	*9*	*9*	*9*	1	100%	0.14	0.14	0.14	1	100%	na	na	na	na	na	0.78	0.78	0.78	1	100%	260	260	260	1	100%
ST232	Offsite	*7.7*	*19*	*14*	6	100%	0.13	0.13	0.13	3	33%	na	na	na	na	na	0.44	0.6	0.54	3	100%	99	170	123	3	100%
Offsite-Trail Creek																										
TC-1	Offsite	1.49	*12.5*	5.12	11	100%	0.02	0.14	0.09	11	100%	0.15	3.64	0.84	11	55%	0.11	4.29	0.74	11	100%	82.7	312	218	11	100%
TC-5	Offsite	2.59	7.51	5.06	9	100%	0.03	0.07	0.05	9	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-35
Summary of Detected Metals Results in Fish Tissue

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/kg = milligrams per kilogram. All results are on a dry weight basis.

If results are from different sources then they may reflect different analytical methodology.

All fish tissue samples are whole-body samples.

Material Type: Residual Mining Materials including Overburden, Tailings, Waste rock, Haul roads, and Former Mill/Townsite area. "Now covered" indicates locations that have been covered with Dinwoody soil material as a result of NTCRA and FSPS activities. Original ground locations are outside of mining-related disturbances. Offsite locations are within the Blackfoot River or Trail Creek sub-basins. (NTCRA = Non-Time Critical Removal Action; FSPS = Field-Scale Pilot Study)

More information about fish comparison value is provided in Section 4. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds fish comparison value.

NA = comparison value not available.

Table 4-36
Fish Data Summary

Location	Date	Species	Number Collected	Length (mm)			Weight (g)		
				Average	Minimum	Maximum	Average	Minimum	Maximum
State Land Creek									
SLC	5/1/2001	Speckled Dace	2	No length/weight information available.					
SLC-0	7/8/2009	Redside Shiner	18	38.22	30	50	0.60	0.1	1.3
	7/8/2009	Speckled Dace	11	41.91	34	48	0.69	0.2	1.2
SLC-1	7/72009	Redside Shiner	3	82.67	75	93	5.83	4.3	7
	7/72009	Speckled Dace	10	54.80	38	65	1.88	0.4	3.9
SLC-2	7/72009	Speckled Dace	3	72.33	59	81	4.27	3.8	5.2
	7/72009	Utah Sucker	1	145.00	145	145	30.60	30.6	30.6
Pedro Creek									
PC-1	7/10/2009	Speckled Dace	9	55.78	20	70	2.49	1.3	3.8
PC-2	7/11/2009	no fish captured	0						
Camp G Creek									
CGC-0	7/9/2009	Mountain Sucker	1	106.00	106	106	12.10	12.1	12.1
	7/9/2009	Paiute Sculpin	1	68.00	68	68	4.00	4	4
	7/9/2009	Redside Shiner	3	76.33	68	84	4.77	3.4	6
	7/9/2009	Speckled Dace	40	55.18	27	76	1.84	0.1	4.7
CGC-1	7/10/2009	no fish captured	0						
CGC-4A	7/11/2009	no fish captured	0						
Trail Creek									
TC-1	7/9/2009	Redside Shiner	13	63.69	32	92	2.98	0.3	6.4
	7/9/2009	Speckled Dace	42	52.33	32	74	1.57	0.3	4.7
	7/9/2009	Utah Sucker	2	67.00	67	67	2.10	1.4	2.8
Offsite - Trail Creek									
TC-5	7/9/2011	Brook Trout	3	94.00	54	150	12.27	1	31.9
	7/9/2011	Mottled Sculpin	6	61.00	55	65	2.47	1.9	3.2
Offsite - Blackfoot River									
BGS	5/1/2001	Chub	2	No length/weight information available.					
	5/2/2001	Cutthroat Trout	2						
	5/3/2001	Mottled Sculpin	2						
	5/4/2001	Longnose Dace	2						
	5/5/2001	Redside Shiner	2						
MST020	5/1/2004	Forage Fish	1						
MST231	5/1/2004	Forage Fish	3						
ST019	5/1/2004	Forage Fish	1						
ST021	5/1/2004	Forage Fish	1						
ST022	5/1/2004	Forage Fish	1						
ST230	5/1/2004	Forage Fish	1						
ST232	5/1/2004	Forage Fish	3						
	7/26/2005	Sucker	1						
	7/26/2005	Dace	1						
	7/26/2005	Yellowstone Cutthroat Trout	1						

Notes:
mm = millimeter
g = gram

Table 4-37
Rapid Bioassessment Protocol (RBP) Physical Habitat Summary

Parameter	Location and Score									
	SLC-0	SLC-1	SLC-2	PC-1	PC-2	CGC-0	CGC-1	CGC-4A	TC-1	NWC-2
1. Aquatic Habitat Barriers and Diversion Sinks	16	8	20	16	19	20	18	7	20	3
2. Aquatic Structure as Cover	8	2	4	12	9	9	14	12	12	2
3. Velocity/Depth Regime	11	16	5	13	4	11	11	10	16	6
4. Channel Flow Status	1	14	12	14	14	18	19	17	18	3
5. Channel Alteration	18	16	18	18	19	18	18	19	18	18
6. Frequency of Riffles (or bends)	1	8	1	13	3	1	2	4	5	1
7. Channel Sinuosity	8	7	10	8	10	13	13	10	9	6
8. Bank Stability (score each bank)										
Score - Left Bank	7	5	4	9	9	8	8	9	7	7
Score - Right Bank	6	3	7	6	9	4	8	9	5	7
9. Riparian Vegetation Cover and Disturbance (score each bank)										
Score - Left Bank	7	5	6	5	6	5	7	10	5	9
Score - Right Bank	7	5	6	5	6	5	7	10	5	9
10. Riparian Vegetative Zone Width (score each bank riparian zone)										
Score - Left Bank	7	5	6	5	6	5	8	10	5	9
Score - Right Bank	7	5	6	5	6	5	8	8	5	9
Total Score	**104**	**99**	**105**	**129**	**120**	**122**	**141**	**135**	**130**	**89**
	Marginal	**Marginal**	**Marginal**	**Suboptimal**	**Suboptimal**	**Suboptimal**	**Suboptimal**	**Suboptimal**	**Suboptimal**	**Marginal**

Scoring Criteria	Optimal	Suboptimal	Marginal	Poor
Individual Parameters	16-20	11-15	6-10	1-5
Total Score	166-200	113 -153	60-100	9-47

Table 4-38
Hydrophysical Survey Data

Well ID	Interval of Flow (feet)	Geologic Unit	Interval-Specific Flow Rate during Ambient Testing (gpm)	Interval-Specific Flow Rate during Pumping (gpm)	Transmissivity (ft^2/day)	Interval-Specific FEC (uS/cm)
GW-9-IS	27.1 - 27.4	Salt Lake Formation	0.000	0.02	0.606	672
	31.7 - 35.8		0.000	0.01	0.433	812
	57.2 - 62.1		0.000	0.07	2.110	821
	67.8 - 72.0		0.012	0.013	0.0367	907
	76.7 - 85.5		5.5	12.1	199	793
	89.1 - 90.7		0.000	0.137	4.15	898
	96.2 - 98.6		0.000	0.817	55.1	911
	102.2 - 111.3		-1.6	1.8	102	910
	146.5 - 146.6		-4.0	0.000	120	905
GW-11-IW	90.6 - 94.9	Wells Formation	0.000	6.90	424	510
	110.0 - 114.4		-0.080	5.30	329	508
	114.4 - 126.4		0.110	1.16	64.5	512
	114.4 - 126.4		-0.026			
	132.3 - 147.7		0.000	1.72	106	526
	147.7 - 152.7		0.405	0.88	29.4	515
	147.7 - 152.7		-0.405			
	155.9 - 159.1		0.000	0.09	5.73	532
GW-12-IS	89.7 - 102.0	Salt Lake Formation	0.000	2.59	14.6	382
	107.8 - 107.9		0.000	0.76	4.29	382
	113.4 - 125.0		0.880	0.51	0.282	382
	113.4 - 125.0		-1.3			
	160.9 - 169.9		0.410	1.9	8.21	326
	260.0 - 260.1		2.1	2.3	1.27	326

Notes:

FEC = fluid electric conductivity

gpm = gallons per minute

ft^2 /day = square feet per day

uS/cm = microsiemens per centimeter

Table 4-39
Summary of Detected Metals Results in Groundwater

	Analyte >>	Selenium, Dissolved					Selenium, Total					Cadmium, Dissolved					Cadmium, Total					Chromium, Dissolved					Chromium, Total				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/L					mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison Values >>	Eco: NA, HH: NA					Eco: NA, HH:0.05					Eco: NA, HH: NA					Eco: NA, HH:0.005					Eco: NA, HH: NA					Eco: NA, HH:0.1				
HydroUnit	Station																														
French Drain Sub-Basin																															
Basalt	A-33-070-MB	na	na	na	na	na	0.0038	0.0038	0.0038	1	100%	na	na	na	na	na	0.0041	0.0041	0.0041	1	100%	na	na	na	na	na	0.0032	0.0032	0.0032	1	100%
Basalt	A-33-170-MB	na	na	na	na	na	0.0187	0.0187	0.0187	1	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	1	0%
Basalt	A-50-070-MB	na	na	na	na	na	0.0137	0.0137	0.0137	1	100%	na	na	na	na	na	0.0008	0.0008	0.0008	1	100%	na	na	na	na	na	na	na	na	1	0%
Basalt	A-50-100-MB	na	na	na	na	na	0.0156	0.0156	0.0156	1	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	0.0062	0.0062	0.0062	1	100%
Salt Lake	A-50-125-MS	na	na	na	na	na	0.0192	0.0192	0.0192	1	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	1	0%
na	Boring1	0.024	0.577	0.186	14	100%	0.023	**0.645**	**0.234**	22	100%	0.00035	0.0011	0.00056	14	43%	0.0018	**0.342**	**0.0865**	22	91%	0.0022	0.0115	0.00726	14	36%	0.0187	**2.59**	**0.497**	22	100%
na	Boring2	0.00049	0.00049	0.00049	3	33%	0.00026	0.00068	0.00047	6	33%	na	na	na	3	0%	0.0008	0.0008	0.0008	6	17%	na	na	na	3	0%	0.0064	0.0088	0.0076	6	33%
na	Boring3	0.0022	0.0058	0.0038	3	100%	0.0022	0.0381	0.0172	6	67%	0.000062	0.0001	0.000081	3	67%	0.0006	**0.0634**	**0.0302**	6	67%	na	na	na	3	0%	0.0052	**1.16**	**0.388**	6	83%
Wells	GW-11-IW	0.0221	0.0421	0.0321	21	100%	0.0048	0.0444	0.0317	17	100%	0.00007	0.000152	0.000108	14	50%	0.000083	0.00029	0.000158	10	30%	0.00046	0.0016	0.00108	14	43%	0.00044	0.0016	0.000968	10	50%
Salt Lake	GW-12-IS	0.00026	0.00068	0.000379	18	39%	0.00021	0.0011	0.000395	19	53%	0.00032	0.00056	0.00044	11	18%	0.000044	0.00057	0.000167	12	50%	0.00094	0.00094	0.00094	11	9%	0.0012	0.0096	0.00478	12	33%
Salt Lake	GW-13-IS	0.00047	0.00078	0.000583	3	100%	0.00046	0.00088	0.00069	3	100%	0.00008	0.00008	0.00008	1	100%	0.00038	0.00038	0.00038	1	100%	na	na	na	1	0%	0.0011	0.0011	0.0011	1	100%
Wells	GW-14-MW	0.00024	0.00056	0.000363	11	36%	0.00024	0.0012	0.000481	11	64%	0.000078	0.00016	0.000119	4	50%	0.000039	0.000633	0.000311	4	75%	na	na	na	4	0%	0.0026	0.0115	0.00705	4	50%
Salt Lake	GW-15-MS	0.0765	0.192	0.0981	14	100%	**0.0786**	**0.192**	**0.0986**	14	100%	0.000033	0.000097	0.0000567	5	60%	0.000057	0.00023	0.000144	5	40%	na	na	na	5	0%	na	na	na	5	0%
Alluvium/Colluvium	GW-16-MA	0.0425	0.136	0.0958	13	100%	0.04	**0.136**	**0.0942**	14	100%	0.00017	0.00048	0.000313	4	75%	0.00023	0.002	0.00109	5	100%	0.0183	0.0183	0.0183	4	25%	0.0031	0.077	0.0191	5	100%
Alluvium/Colluvium	GW-17-MA	0.0036	0.0397	0.0172	13	100%	0.008	**0.0604**	0.0272	14	100%	0.00017	0.00085	0.0004	4	75%	0.00039	**0.019**	**0.0122**	5	100%	0.0033	0.0119	0.00655	4	100%	0.0096	**0.295**	**0.163**	5	100%
Alluvium/Colluvium	GW-49-MA	0.0241	0.0456	0.0349	2	100%	0.0229	0.0452	0.0341	2	100%	0.00026	0.00042	0.00034	2	100%	0.00034	0.00049	0.000415	2	100%	0.0025	0.0025	0.0025	2	50%	0.0033	0.0045	0.0039	2	100%
Salt Lake	GW-50-MS	0.526	0.592	0.559	2	100%	**0.51**	**0.594**	**0.552**	2	100%	0.00031	0.00031	0.00031	2	100%	0.00097	**0.0092**	**0.00509**	2	100%	0.0034	0.0058	0.0046	2	100%	0.0146	**0.129**	0.0718	2	100%
Salt Lake	GW-51-MS	0.0281	0.0283	0.0282	2	100%	0.0277	0.028	0.0279	2	100%	0.00013	0.00017	0.00015	2	100%	0.00017	0.0025	0.00134	2	100%	na	na	na	2	0%	0.0038	**0.265**	**0.134**	2	100%
Alluvium/Colluvium	GW-52-MA	0.023	0.023	0.023	1	100%	0.0216	0.0216	0.0216	1	100%	0.000049	0.000049	0.000049	1	100%	0.0011	0.0011	0.0011	1	100%	na	na	na	1	0%	0.0393	0.0393	0.0393	1	100%
Salt Lake	GW-53-MS	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	0.0019	0.0019	0.0019	1	100%	0.003	0.003	0.003	1	100%
Alluvium/Colluvium	GW-54-MA	0.0048	0.0051	0.00495	2	100%	0.0051	0.0056	0.00535	2	100%	0.000051	0.000051	0.000051	2	50%	0.00017	0.0027	0.00144	2	100%	0.0076	0.0661	0.0369	2	100%	0.0113	**0.121**	0.0662	2	100%
Salt Lake	GW-55-MS	na	na	na	1	0%	0.001	0.001	0.001	1	100%	0.000034	0.000034	0.000034	1	100%	0.00022	0.00022	0.00022	1	100%	0.0416	0.0416	0.0416	1	100%	0.0545	0.0545	0.0545	1	100%
Salt Lake	GW-56-MS	0.0038	0.0039	0.00385	2	100%	0.0034	0.0042	0.0038	2	100%	na	na	na	2	0%	0.00037	0.00037	0.00037	2	50%	na	na	na	2	0%	0.0021	0.0333	0.0177	2	100%
Salt Lake	GW-9-IS	0.0751	0.284	0.217	18	100%	**0.0574**	**0.289**	**0.223**	19	100%	0.00024	0.00035	0.000312	11	45%	0.00013	0.00039	0.000323	12	92%	0.001	0.0019	0.0014	11	27%	0.0013	0.0085	0.00255	12	67%
Basalt/Salt Lake	GW-MWB-MBS	0.0042	0.0239	0.015	6	100%	0.004	0.027	0.0146	14	100%	0.0026	0.173	0.0621	6	100%	0.002	**0.586**	**0.12**	14	100%	0.0026	0.0142	0.0076	6	50%	0.001	0.05	0.0187	14	21%
Basalt/Salt Lake	GW-NW9-IBS	0.0076	0.0324	0.0136	6	100%	0.005	0.0155	0.0103	15	93%	0.0047	0.0126	0.00838	6	100%	0.0041	**0.238**	**0.0493**	15	100%	0.0011	0.003	0.00213	6	50%	0.0022	**0.29**	**0.151**	15	27%
Basalt	MW-A-110-MB	0.0032	0.0077	0.00513	6	100%	0.0025	0.0109	0.00577	6	100%	0.0214	0.0295	0.0248	6	100%	**0.0148**	**0.025**	**0.0205**	6	100%	0.0017	0.0031	0.00235	6	67%	na	na	na	6	0%
na	NTP-PZ-02	0.0107	0.0136	0.0122	2	100%	0.0093	0.0164	0.0129	2	100%	0.00083	0.00084	0.000835	2	100%	0.0013	**0.012**	**0.00665**	2	100%	na	na	na	2	0%	0.0047	0.0226	0.0137	2	100%
Margarette Creek/Trail Canyon Sub-Basin																															
Dinwoody	GW-LRSN-1-DD	0.00025	0.00069	0.000453	9	100%	0.00025	0.00085	0.000568	10	90%	0.000033	0.00004	0.0000365	3	67%	0.000047	0.00059	0.000319	4	50%	na	na	na	3	0%	0.0012	0.0048	0.003	4	50%
Dinwoody	GW-LRSN-2-DD	0.00031	0.00043	0.000356	9	89%	0.00036	0.00054	0.000435	10	100%	0.00018	0.00035	0.000265	3	67%	0.0001	0.0018	0.000877	4	75%	na	na	na	3	0%	0.00053	0.0047	0.00278	4	100%
North Woodall Mountain Sub-Basin																															
Alluvium	MW-10A	0.0005	0.003	0.00128	18	28%	0.00043	0.0005	0.000477	20	15%	0.00008	0.000095	0.000085	18	17%	0.00008	0.000086	0.000082	18	17%	0.00032	0.00259	0.000852	18	28%	0.00037	0.00063	0.00047	18	22%
Dinwoody	MW-11Da	0.0005	0.003	0.00135	4	100%	0.0005	0.0005	0.0005	4	50%	0.00008	0.00008	0.00008	4	50%	0.00008	0.00008	0.00008	4	50%	0.00051	0.00252	0.00122	4	75%	0.00054	0.0016	0.000815	5	80%
Dinwoody	MW-11Db	0.00026	0.003	0.00099	17	35%	0.00027	0.0058	0.00174	19	21%	0.00008	0.00008	0.00008	17	12%	0.00008	0.0018	0.00094	17	12%	0.00034	0.00282	0.00105	17	35%	0.00028	0.0285	0.00802	18	22%
Wells	MW-12W	0.0005	0.0014	0.0008	17	18%	0.0005	0.00321	0.00144	19	26%	0.00008	0.0016	0.00095	17	94%	0.0009	**0.0147**	0.0026	18	100%	0.00028	0.003	0.000953	17	41%	0.00032	0.0665	0.0141	18	44%
Wells	MW-4W	0.0005	0.0014	0.00095	16	13%	0.0005	0.007	0.00375	18	11%	0.00008	0.00008	0.00008	16	6%	0.00007	0.00055	0.0003	17	24%	0.0005	0.0124	0.00463	16	19%	0.00033	0.0052	0.00158	17	35%
Alluvium	MW-5A	0.001	0.0048	0.00293	16	94%	0.001	0.00423	0.0027	19	89%	0.00008	0.00008	0.00008	16	6%	0.0002	0.00033	0.000265	16	13%	0.0004	0.0074	0.00191	16	31%	0.00048	0.0113	0.00326	17	59%
Dinwoody	MW-6D	0.0005	0.0014	0.000825	17	47%	0.00046	0.001	0.000677	19	32%	0.00008	0.00008	0.00008	17	12%	0.00008	0.00036	0.00022	17	12%	0.0005	0.0035	0.00134	17	41%	0.00047	0.0048	0.00132	18	44%
Alluvium	MW-7A	0.0005	0.0014	0.0008	17	18%	0.0005	0.0014	0.0008	19	16%	0.000065	0.00008	0.000075	17	18%	0.000052	0.0005	0.000158	17	29%	0.00037	0.00239	0.00102	17	41%	0.0005	0.0049	0.00167	18	44%
Old Tailings Pond Sub-Basin																															
Alluvium/Colluvium	GW-18-MA	0.855	0.855	0.855	1	100%	**0.847**	**1.15**	**0.976**	3	100%	na	na	na	na	na	**0.0555**	**0.0727**	**0.0641**	2	100%	na	na	na	na	na	**1.28**	**1.9**	**1.59**	2	100%
Salt Lake	GW-19-MS	0.0013	0.0037	0.00209	11	100%	0.0016	0.0043	0.00241	12	92%	0.0001	0.00011	0.000105	4	50%	0.00013	0.0014	0.000653	5	60%	0.0009	0.0041	0.00215	4	100%	0.0013	0.0126	0.00518	5	100%
Dinwoody	GW-37-MD	0.833	1.17	0.958	8	100%	**0.839**	**1.11**	**0.967**	8	100%	0.00005	0.00005	0.00005	2	50%	0.00004	0.00004	0.00004	2	50%	na	na	na	2	0%	0.0011	0.0011	0.0011	2	50%
Tailings	TP2-SB3	3.35	3.35	3.35	1	100%	**3.6**	**3.6**	**3.6**	1	100%	0.05	0.05	0.05	1	100%	**0.158**	**0.158**	**0.158**	1	100%	na	na	na	1	0%	**1.65**	**1.65**	**1.65**	1	100%
Tailings	TP2-SB5	na	na	na	na	na	**12.4**	**12.4**	**12.4**	1	100%	na	na	na	na	na	**28.9**	**28.9**	**28.9**	1	100%	na	na	na	na	na	**3.22**	**3.22**	**3.22**	1	100%
Pedro Creek Sub-Basin																															
Alluvium/Colluvium	GW-28-MA	0.727	2.16	1.28	11	100%	**0.133**	**15.4**	**3.01**	13	100%	0.00024	0.0017	0.000887	5	60%	0.00025	**0.048**	**0.0102**	5	100%	na	na	na	5	0%	**0.321**	**0.321**	**0.321**	5	20%
Dinwoody	GW-29-MD	0.0255	0.0363	0.0304	16	100%	0.0275	0.0356	0.0322	16	100%	0.000114	0.000114	0.000114	6	17%	0.00006	0.00006	0.00006	6	17%	na	na	na	6	0%	0.001	0.0033	0.0019	6	50%
Alluvium/Colluvium	GW-30-MA	0.0012	0.0634	0.0218	15	100%	0.0014	**0.0635**	0.0235	15	100%	0.00012	0.00012	0.00012	5	20%	0.000081	0.00072	0.000298	5	100%	na	na	na	5	0%	0.002	0.0248	0.00918	5	80%
Alluvium/Colluvium	GW-38-MA	0.163	0.383	0.295	3	100%	0.0436	**0.446**	**0.261**	4	100%	na	na	na	1	0%	0.0028	0.0039	0.00335	2	100%	na	na	na	1	0%	0.0482	**1.22**	**0.634**	2	100%
Alluvium/Colluvium	GW-41-MA	1.33	5.12	2.58	5	100%	**1.42**	**5.15**	**2.68**	5	100%	0.0023	0.0053	0.00396	5	100%	0.0024	**0.023**	**0.008**	5	100%	0.0054	0.0118	0.0086	5	40%	0.0324	**0.666**	**0.349**	5	40%
Dinwoody	GW-42-MD	0.405	0.483	0.447	5	100%	**0.42**	**0.485**	**0.455**	5	100%	na	na	na	5	0%	0.000076	0.00064	0.000358	5	40%	0.0025	0.0025	0.0025	5	20%	0.0017	0.0958	0.0273	5	80%
Dinwoody	GW-44-MD	0.0311	0.601	0.186	5	100%	0.0473	**0.603**	**0.2**	5	100%	na	na	na	5	0%	0.000051	0.00027	0.000161	5	40%	0.0046	0.0046	0.0046	5	20%	0.0032	0.0509	0.0194	5	60%
Alluvium/Colluvium	GW-45-MA	0.247	0.38	0.318	4	100%	**0.247**	**0.376**	**0.318**	4	100%	0.000061	0.000061	0.000061	4	25%	0.000035	0.0002	0.000118	4	50%	0.0042	0.0042	0.0042	4	25%	0.0037	0.0037	0.0037	4	25%
Dinwoody	GW-46-MD	0.124	0.255	0.173	5	100%	**0.115**	**0.259**	**0.175**	5	100%	na	na	na	5	0%	0.00033	0.00033	0.00033	5	20%	0.002	0.002	0.002	5	20%	0.0349	0.0349	0.0349	5	20%
Shield and Jouglard Canyons Sub-Basin																															
Meade Peak	GW-22-MM	1.34	10.1	6.25	6	100%	**1.35**	**12**	**7.07**	6	100%	4.43	6.98	5.71	2	100%	**4.24**	**5.81**	**5.03**	2	100%	0.0643	0.0786	0.0715	2	100%	0.0819	**0.913**	**0.497**	2	100%
Meade Peak	GW-23-MM	0.507	0.684	0.596	2	100%	**0.746**	**0.947**	**0.847**	2	100%	0.0047	0.0047	0.0047	1	100%	**0.185**	**0.185**	**0.185**	1	100%	0.0064	0.0064	0.0064	1	100%	**2.66**	**2.66**	**2.66**	1	100%
Colluvium	GW-24-MA	0.554	1.46	0.928	7	100%	**0.593**	**1.72**	**1.01**	7	100%	0.0168	0.025	0.0209	2	100%	**0.0269**	**0.03**	**0.0285**	2	100%	0.0053	0.0053	0.0053	2	50%	0.0069	0.0428	0.0249	2	100%
Wells	GW-31-MW	0.0009	0.0009	0.0009	10	10%	0.00027	0.00083	0.000455	10	40%	0.000087	0.000087	0.000087	4	25%	na	na	na	4	0%	0.0011	0.0014	0.00125	4	50%	0.0017	0.0033	0.0025	4	50%
Dinwoody	GW-32-MD	0.0065	0.0326	0.0177	10	100%	0.0066	0.0309	0.0178	10	100%	na	na	na	4	0%	0.00007	0.00007	0.00007	4	25%	0.0012	0.0025	0.00167	4	75%	0.0021	0.0041	0.00297	4	75%
Rex Chert	GW-33-MR	0.163	0.514	0.302	10	100%	**0.215**	**0.488**	**0.313**	10	100%	0.001	0.0017	0.00133	4	100%	0.00094	0.0014	0.00119	4	100%	0.0018	0.0019	0.00185	4	50%	0.0018	0.0057	0.0039	4	75%
Alluvium/Colluvium	GW-34-MA	0.00049	0.0026	0.00147	6	83%	0.00091	0.0026	0.00167	6	100%	na	na	na	1	0%	0.00039	0.00039	0.00039	1	100%	0.0478	0.0478	0.0478	1	100%	0.0515	0.0515	0.0515	1	100%

Table 4-39
Summary of Detected Metals Results in Groundwater

	Analyte >>	Vanadium, Dissolved					Vanadium, Total					Zinc, Dissolved					Zinc, Total					Uranium, Dissolved					Uranium, Total				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/L					mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison Values >>	Eco: NA, HH: NA					Eco: NA, HH:0.053					Eco: NA, HH: NA					Eco: NA, HH: 5					Eco: NA, HH: NA					Eco: NA, HH:0.03				
HydroUnit	Station																														
French Drain Sub-Basin																															
Basalt	A-33-070-MB	na	na	na	na	na	0.0098	0.0098	0.0098	1	100%	na	na	na	na	na	0.0313	0.0313	0.0313	1	100%	na	na	na	na	na	na	na	na	na	na
Basalt	A-33-170-MB	na	na	na	na	na	0.0042	0.0042	0.0042	1	100%	na	na	na	na	na	0.0141	0.0141	0.0141	1	100%	na	na	na	na	na	na	na	na	na	na
Basalt	A-50-070-MB	na	na	na	na	na	0.0125	0.0125	0.0125	1	100%	na	na	na	na	na	0.0898	0.0898	0.0898	1	100%	na	na	na	na	na	na	na	na	na	na
Basalt	A-50-100-MB	na	na	na	na	na	0.0068	0.0068	0.0068	1	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-50-125-MS	na	na	na	na	na	0.0033	0.0033	0.0033	1	100%	na	na	na	na	na	0.0148	0.0148	0.0148	1	100%	na	na	na	na	na	na	na	na	na	na
na	Boring1	0.00095	0.017	0.0048	14	86%	0.0178	**1.974**	**0.374**	22	100%	0.0055	0.036	0.0141	14	71%	0.0708	**13.716**	2.3	22	100%	0.0015	0.0035	0.00255	11	100%	0.0022	**0.0819**	0.0235	11	100%
na	Boring2	na	na	na	3	0%	0.0019	0.01	0.0066	6	50%	na	na	na	3	0%	0.0093	0.0351	0.0237	6	83%	0.00062	0.00083	0.000747	3	100%	0.00073	0.0011	0.000903	3	100%
na	Boring3	0.0015	0.0017	0.0016	3	100%	0.0083	**0.655**	**0.184**	6	83%	0.0068	0.0338	0.0167	3	100%	0.0637	3.261	0.919	6	83%	0.0014	0.0029	0.002	3	100%	0.0016	0.0298	0.0112	3	100%
Wells	GW-11-IW	0.00022	0.00022	0.00022	15	7%	na	na	na	8	0%	0.0095	0.319	0.0809	15	100%	0.0186	0.32	0.0942	8	100%	0.00337	0.004	0.00369	8	100%	0.00307	0.0041	0.00359	8	100%
Salt Lake	GW-12-IS	0.00055	0.0066	0.003	12	83%	0.0017	0.02	0.00634	10	100%	0.0054	0.312	0.107	12	42%	0.011	0.302	0.0669	10	90%	0.0005	0.0061	0.00217	10	40%	0.00052	0.00052	0.00052	10	20%
Salt Lake	GW-13-IS	na	na	na	1	0%	0.00095	0.00095	0.00095	1	100%	na	na	na	1	0%	0.0064	0.0064	0.0064	1	100%	na	na	na	1	0%	na	na	na	1	0%
Wells	GW-14-MW	na	na	na	4	0%	0.00055	0.012	0.00455	4	75%	0.0098	0.0179	0.0143	4	75%	0.0225	0.0687	0.0395	4	75%	0.0045	0.00796	0.0059	4	100%	0.00461	0.00845	0.00614	4	100%
Salt Lake	GW-15-MS	0.0018	0.0032	0.00262	5	100%	0.002	0.0034	0.00296	5	100%	0.0036	0.0036	0.0036	5	20%	0.0029	0.0058	0.00435	5	40%	0.0057	0.00599	0.00587	5	100%	0.00582	0.00656	0.00612	5	100%
Alluvium/Colluvium	GW-16-MA	0.0034	0.018	0.00783	4	100%	0.0061	0.051	0.0174	5	100%	0.048	0.048	0.048	4	25%	0.0123	0.193	0.0511	5	100%	0.00378	0.0051	0.00443	4	100%	0.0036	0.0061	0.00474	5	100%
Alluvium/Colluvium	GW-17-MA	0.0039	0.0078	0.0053	4	100%	0.011	**0.198**	**0.108**	5	100%	0.0131	0.015	0.0141	4	50%	0.016	0.636	0.348	5	100%	0.0029	0.00309	0.00301	4	100%	0.0032	0.0162	0.0109	5	100%
Alluvium/Colluvium	GW-49-MA	0.0023	0.0038	0.00305	2	100%	0.0031	0.0058	0.00445	2	100%	na	na	na	2	0%	0.0054	0.0081	0.00675	2	100%	0.0036	0.0036	0.0036	2	100%	0.0037	0.0038	0.00375	2	100%
Salt Lake	GW-50-MS	0.0031	0.0044	0.00375	2	100%	0.012	**0.0773**	0.0447	2	100%	na	na	na	2	0%	0.029	0.261	0.145	2	100%	0.0033	0.004	0.00365	2	100%	0.0036	0.0059	0.00475	2	100%
Salt Lake	GW-51-MS	0.0014	0.0016	0.0015	2	100%	0.0026	0.034	0.0183	2	100%	0.0059	0.0059	0.0059	2	50%	0.0077	0.19	0.0989	2	100%	0.0017	0.0019	0.0018	2	100%	0.002	0.0031	0.00255	2	100%
Alluvium/Colluvium	GW-52-MA	0.0031	0.0031	0.0031	1	100%	0.028	0.028	0.028	1	100%	na	na	na	1	0%	0.077	0.077	0.077	1	100%	0.0024	0.0024	0.0024	1	100%	0.0041	0.0041	0.0041	1	100%
Salt Lake	GW-53-MS	0.0031	0.0031	0.0031	1	100%	0.0041	0.0041	0.0041	1	100%	na	na	na	1	0%	na	na	na	1	0%	0.0018	0.0018	0.0018	1	100%	0.0018	0.0018	0.0018	1	100%
Alluvium/Colluvium	GW-54-MA	0.0063	0.015	0.0107	2	100%	0.02	0.0478	0.0339	2	100%	na	na	na	2	0%	0.011	0.154	0.0825	2	100%	0.0029	0.0029	0.0029	2	50%	0.0019	0.003	0.00245	2	100%
Salt Lake	GW-55-MS	0.0022	0.0022	0.0022	1	100%	0.012	0.012	0.012	1	100%	na	na	na	1	0%	0.02	0.02	0.02	1	100%	na	na	na	1	0%	0.00019	0.00019	0.00019	1	100%
Salt Lake	GW-56-MS	0.0014	0.0014	0.0014	2	50%	0.0019	0.0084	0.00515	2	100%	na	na	na	2	0%	0.0256	0.0256	0.0256	2	50%	0.0021	0.0023	0.0022	2	100%	0.002	0.0026	0.0023	2	100%
Salt Lake	GW-9-IS	0.00088	0.0059	0.00432	12	100%	0.0028	0.0066	0.00549	10	100%	0.0069	0.0562	0.0246	12	33%	0.002	0.055	0.0188	10	60%	0.00099	0.00726	0.00542	10	100%	0.00201	0.00816	0.00611	10	100%
Basalt/Salt Lake	GW-MWB-MBS	0.0201	0.0905	0.0501	5	100%	0.03	**0.54**	**0.205**	8	75%	0.0092	2.19	0.893	5	100%	0.509	**7.9**	2.92	8	100%	na	na	na	na	na	na	na	na	na	na
Basalt/Salt Lake	GW-NW9-IBS	0.01	0.017	0.0147	5	100%	0.004	**0.93**	**0.285**	9	67%	0.0539	0.117	0.0882	5	100%	0.049	3.05	0.772	9	100%	na	na	na	na	na	na	na	na	na	na
Basalt	MW-A-110-MB	0.0059	0.0135	0.0083	5	80%	na	na	na	na	na	0.0814	0.126	0.108	5	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	NTP-PZ-02	0.006	0.0081	0.00705	2	100%	0.0089	0.0484	0.0287	2	100%	0.0074	0.0126	0.01	2	100%	0.022	0.178	0.1	2	100%	0.011	0.013	0.012	2	100%	0.011	0.015	0.013	2	100%
Margarette Creek/Trail Canyon Sub-Basin																															
Dinwoody	GW-LRSN-1-DD	0.00068	0.0011	0.00089	4	50%	0.00057	0.00093	0.00077	3	100%	0.0252	0.257	0.0943	4	100%	0.037	0.054	0.0441	3	100%	0.00097	0.000981	0.000976	3	67%	0.00099	0.00106	0.00103	3	67%
Dinwoody	GW-LRSN-2-DD	0.00069	0.0015	0.00102	4	100%	0.0032	0.0063	0.005	3	100%	0.107	0.643	0.298	4	100%	0.699	3.05	1.57	3	100%	0.000355	0.00044	0.000398	3	67%	0.00053	0.000563	0.000547	3	67%
North Woodall Mountain Sub-Basin																															
Alluvium	MW-10A	0.0016	0.0016	0.0016	10	20%	0.001	0.001	0.001	10	20%	0.005	0.005	0.005	18	11%	0.0037	0.005	0.00435	18	22%	0.000701	0.000701	0.000701	10	20%	0.000769	0.000769	0.000769	10	20%
Dinwoody	MW-11Da	0.0013	0.0013	0.0013	2	50%	0.0012	0.0012	0.0012	2	50%	0.005	0.0121	0.00737	4	75%	0.0054	0.0158	0.00888	5	80%	0.001	0.00111	0.00106	2	100%	0.00113	0.00141	0.00127	2	100%
Dinwoody	MW-11Db	0.0012	0.0012	0.0012	9	11%	0.0017	0.0017	0.0017	9	11%	0.0027	0.005	0.00423	17	18%	0.0023	0.339	0.075	18	28%	0.000973	0.00101	0.000992	9	22%	0.00101	0.00119	0.0011	9	22%
Wells	MW-12W	0.0097	0.0099	0.0098	9	22%	0.0295	**0.0703**	0.0499	9	22%	0.005	0.019	0.0112	17	59%	0.01	0.328	0.0457	18	94%	0.00105	0.00115	0.0011	9	22%	0.00221	0.00343	0.00282	9	22%
Wells	MW-4W	0.0005	0.0005	0.0005	9	11%	0.0005	0.0005	0.0005	9	11%	0.0027	0.0426	0.0161	16	31%	0.0038	0.0426	0.0196	17	35%	0.000254	0.000254	0.000254	9	11%	0.000272	0.000272	0.000272	9	11%
Alluvium	MW-5A	0.002	0.002	0.002	9	11%	0.002	0.0175	0.00975	9	22%	0.0031	0.0215	0.0124	16	25%	0.0025	0.0454	0.0155	17	47%	0.000818	0.000818	0.000818	9	11%	0.000807	0.00126	0.00103	9	22%
Dinwoody	MW-6D	na	na	na	9	0%	0.0009	0.005	0.00295	9	22%	0.005	0.005	0.005	17	12%	0.0042	0.0316	0.0114	18	28%	0.00202	0.0021	0.00206	9	22%	0.00209	0.00221	0.00215	9	22%
Alluvium	MW-7A	0.0017	0.0017	0.0017	9	11%	0.0022	0.0022	0.0022	9	11%	0.0021	0.005	0.00403	17	18%	0.005	0.0172	0.0111	17	12%	0.00135	0.00168	0.00152	9	22%	0.00137	0.00179	0.00158	9	22%
Old Tailings Pond Sub-Basin																															
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	**0.907**	**1.04**	**0.974**	2	100%	na	na	na	na	na	4.22	**5**	4.61	2	100%	na	na	na	na	na	**0.0491**	**0.0631**	**0.0561**	2	100%
Salt Lake	GW-19-MS	0.0042	0.0052	0.0048	4	100%	0.0044	0.0145	0.00706	5	100%	0.0045	0.008	0.00625	4	50%	0.0039	0.027	0.0106	5	80%	0.0029	0.0039	0.00337	4	100%	0.0029	0.0037	0.00344	4	100%
Dinwoody	GW-37-MD	na	na	na	2	0%	0.00085	0.00085	0.00085	2	50%	na	na	na	2	0%	na	na	na	2	0%	0.0017	0.00198	0.00184	2	100%	0.0017	0.00182	0.00176	2	100%
Tailings	TP2-SB3	0.015	0.015	0.015	1	100%	**2.99**	**2.99**	**2.99**	1	100%	0.593	0.593	0.593	1	100%	3.88	3.88	3.88	1	100%	0.043	0.043	0.043	1	100%	**0.079**	**0.079**	**0.079**	1	100%
Tailings	TP2-SB5	na	na	na	na	na	**27.7**	**27.7**	**27.7**	1	100%	na	na	na	na	na	**307**	**307**	**307**	1	100%	na	na	na	na	na	**2.7**	**2.7**	**2.7**	1	100%
Pedro Creek Sub-Basin																															
Alluvium/Colluvium	GW-28-MA	0.0014	0.0014	0.0014	5	20%	0.0012	**0.398**	**0.2**	5	40%	0.0018	0.0096	0.00467	5	60%	0.0092	1.99	1	5	40%	0.00058	0.0047	0.00203	5	60%	0.000141	**0.05**	0.0129	5	80%
Dinwoody	GW-29-MD	0.00049	0.0014	0.000855	6	67%	0.00092	0.0051	0.00238	6	83%	0.0013	0.0082	0.00475	6	33%	0.0057	0.0083	0.007	6	33%	0.00044	0.0076	0.00225	6	67%	0.00044	0.000528	0.000487	6	67%
Alluvium/Colluvium	GW-30-MA	0.00088	0.00088	0.00088	5	20%	0.0025	0.0287	0.00948	5	80%	0.002	0.0069	0.00445	5	40%	0.0104	0.0512	0.0223	5	80%	0.00027	0.00033	0.0003	5	40%	0.0003	0.00116	0.000668	5	80%
Alluvium/Colluvium	GW-38-MA	na	na	na	1	0%	**0.0535**	**1.45**	**0.752**	2	100%	0.0093	0.0093	0.0093	1	100%	0.13	3.25	1.69	2	100%	na	na	na	1	0%	0.00368	0.006	0.00484	2	100%
Alluvium/Colluvium	GW-41-MA	0.002	0.011	0.0054	5	100%	0.0039	**0.606**	**0.129**	5	100%	0.0075	0.033	0.0189	5	80%	0.0191	1.69	0.366	5	100%	0.0049	0.035	0.0202	5	80%	0.0047	**0.046**	0.0269	5	100%
Dinwoody	GW-42-MD	0.0026	0.0026	0.0026	5	20%	0.00095	**0.0874**	0.0248	5	80%	0.0033	0.0075	0.0054	5	40%	0.0085	0.217	0.0815	5	60%	0.0013	0.0014	0.00133	5	80%	0.0013	0.0062	0.00238	5	100%
Dinwoody	GW-44-MD	0.0018	0.003	0.0024	5	40%	0.0016	**0.0635**	0.0179	5	80%	0.0043	0.0066	0.0055	5	60%	0.0045	0.13	0.0378	5	80%	0.0022	0.0028	0.00255	5	80%	0.0023	0.003	0.00265	5	80%
Alluvium/Colluvium	GW-45-MA	0.0049	0.0049	0.0049	4	25%	0.0046	0.0046	0.0046	4	25%	0.0125	0.0125	0.0125	4	25%	0.0013	0.0128	0.00705	4	50%	0.00091	0.0017	0.00135	4	100%	0.00093	0.0018	0.00136	4	100%
Dinwoody	GW-46-MD	na	na	na	5	0%	0.0012	0.0345	0.0179	5	40%	0.0028	0.0059	0.00435	5	40%	0.0031	0.0778	0.0373	5	60%	0.00046	0.00053	0.000498	5	80%	0.00046	0.0017	0.000742	5	100%
Shield and Jouglard Canyons Sub-Basin																															
Meade Peak	GW-22-MM	16.1	18.5	17.3	2	100%	**16.8**	**21**	**18.9**	2	100%	6.63	8.54	7.59	2	100%	**7.16**	**10.9**	**9.03**	2	100%	0.00111	0.00111	0.00111	2	50%	**0.0805**	**0.0805**	**0.0805**	2	50%
Meade Peak	GW-23-MM	0.161	0.161	0.161	1	100%	**3.01**	**3.01**	**3.01**	1	100%	0.0235	0.0235	0.0235	1	100%	**5.59**	**5.59**	**5.59**	1	100%	0.00696	0.00696	0.00696	1	100%	**0.113**	**0.113**	**0.113**	1	100%
Colluvium	GW-24-MA	0.0219	0.043	0.0325	2	100%	0.047	**0.0681**	**0.0576**	2	100%	0.105	0.327	0.216	2	100%	0.295	0.302	0.299	2	100%	0.0111	0.017	0.0141	2	100%	0.0121	0.019	0.0156	2	100%
Wells	GW-31-MW	na	na	na	4	0%	0.00073	0.0025	0.00148	4	75%	0.0066	0.0066	0.0066	4	25%	0.004	0.0216	0.0101	4	75%	0.001	0.0023	0.00171	4	100%	0.0013	0.0024	0.00185	4	50%
Dinwoody	GW-32-MD	0.00064	0.00064	0.00064	4	25%	0.00088	0.0049	0.00299	4	75%	0.0072	0.0072	0.0072	4	25%	0.0042	0.0134	0.00953	4	75%	0.00068	0.0039	0.00229	4	50%	0.00069	0.0048	0.00275	4	50%
Rex Chert	GW-33-MR	0.0021	0.0021	0.0021	4	25%	0.0016	0.0041	0.0025	4	75%	0.0651	0.097	0.0746	4	100%	0.0749	0.097	0.0858	4	100%	0.000048	0.0000966	0.0000723	4	50%	0.000048	0.000265	0.000181	4	75%
Alluvium/Colluvium	GW-34-MA	na	na	na	1	0%	0.0138	0.0138	0.0138	1	100%	na	na	na	1	0%	0.0413	0.0413	0.0413	1	100%	na	na	na	1	0%	na	na	na	1	0%

Table 4-39
Summary of Detected Metals Results in Groundwater

	Analyte >>	Selenium, Dissolved					Selenium, Total					Cadmium, Dissolved					Cadmium, Total					Chromium, Dissolved					Chromium, Total				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/L					mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison Values >>	Eco: NA, HH: NA					Eco: NA, HH:0.05					Eco: NA, HH: NA					Eco: NA, HH:0.005					Eco: NA, HH: NA					Eco: NA, HH:0.1				
HydroUnit	Station																														
State Land Creek Sub-Basin																															
Alluvium/Colluvium	GW-25-MA	0.019	0.475	0.175	14	100%	0.019	**1.8**	**0.283**	15	100%	0.00003	0.000133	0.0000815	4	50%	0.000279	0.0008	0.000453	4	75%	na	na	na	4	0%	0.001	0.0017	0.00135	4	50%
Dinwoody	GW-26-MD	0.00068	0.0015	0.000997	13	92%	0.00074	0.0019	0.00127	13	92%	0.00026	0.00026	0.00026	3	33%	0.00024	0.00024	0.00024	3	33%	0.002	0.002	0.002	3	33%	0.0017	0.0126	0.00715	3	67%
Alluvium/Colluvium	GW-27-MA	0.00023	0.0026	0.000815	15	40%	0.00021	0.0033	0.000664	15	93%	0.000082	0.00022	0.000163	4	75%	0.000098	0.000609	0.000264	4	100%	na	na	na	4	0%	0.0017	0.0017	0.0017	4	25%
Wells	GW-39-MW	0.0316	0.0475	0.0391	7	100%	0.0345	0.0483	0.0409	7	100%	na	na	na	5	0%	0.000012	0.00031	0.000114	5	60%	0.0015	0.0015	0.0015	5	20%	0.0013	0.0034	0.00235	5	40%
Wells	GW-40-MW	0.0095	0.0164	0.0122	10	100%	0.0098	0.0165	0.0127	10	100%	0.000033	0.00029	0.000162	8	25%	0.000043	0.00023	0.000142	8	75%	0.00087	0.00087	0.00087	8	13%	0.00084	0.0029	0.00165	8	63%
Alluvium/Colluvium	GW-47-MA	0.553	0.714	0.644	3	100%	**0.573**	**0.705**	**0.648**	3	100%	0.00021	0.0016	0.0011	3	100%	0.00062	0.0018	0.00131	3	100%	na	na	na	3	0%	0.0269	0.0269	0.0269	3	33%
Wells	MW-1W	0.014	0.0353	0.0236	16	100%	0.011	0.0318	0.0219	18	100%	0.0016	0.0038	0.00299	16	100%	0.002	**0.0082**	0.00397	17	100%	0.001	0.0026	0.00204	16	100%	0.001	0.0046	0.00253	17	100%
Rex Chert	MW-2R	0.0005	0.057	0.00742	17	76%	0.0005	**0.057**	0.0116	19	74%	0.00008	0.00008	0.00008	17	12%	0.00008	0.00008	0.00008	17	12%	0.00029	0.001	0.000583	17	24%	0.00039	0.0045	0.00192	17	29%
Alluvium	MW-3A	0.00038	0.0014	0.000672	12	42%	0.0004	0.0014	0.00068	13	31%	0.000053	0.00028	0.000136	12	33%	0.0001	0.0031	0.000622	12	50%	0.00031	0.01	0.00263	12	75%	0.0016	0.0619	0.0119	12	92%
Western Woodall Mountain Sub-Basin																															
Salt Lake	A-13-135-MS	0.0107	0.0149	0.0135	3	100%	0.0208	0.0208	0.0208	1	100%	na	na	na	3	0%	na	na	na	1	0%	0.0031	0.0083	0.00507	3	100%	0.0032	0.0032	0.0032	1	100%
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	**0.0073**	**0.197**	**0.102**	2	100%	na	na	na	na	na	0.0083	**0.149**	0.0787	2	100%
na	Boring5	0.0305	0.0456	0.04	10	100%	0.0266	**0.075**	0.0425	20	100%	0.000034	0.000047	0.0000403	10	30%	0.000045	0.0049	0.000958	20	50%	na	na	na	10	0%	0.0032	0.076	0.0218	20	85%
Wells	GW-21-MW	0.00055	0.0024	0.000962	10	90%	0.00043	0.0013	0.000719	10	90%	0.000134	0.000134	0.000134	4	25%	0.0014	0.0014	0.0014	4	25%	0.0019	0.0033	0.0024	4	100%	0.0026	0.0088	0.00445	4	100%
Salt Lake	GW-57-MS	0.031	0.031	0.031	1	100%	0.0264	0.0264	0.0264	1	100%	0.000058	0.000058	0.000058	1	100%	na	na	na	1	0%	0.0086	0.0086	0.0086	1	100%	0.0086	0.0086	0.0086	1	100%
Alluvium	GW-A1-MA	0.0032	0.0032	0.0032	5	20%	na	na	na	11	0%	na	na	na	5	0%	na	na	na	11	0%	0.0042	0.0053	0.00448	5	100%	0.004	0.005	0.00463	11	36%
Salt Lake	GW-NW7-IS	0.0096	0.0246	0.0213	6	100%	0.003	0.021	0.014	12	100%	na	na	na	6	0%	na	na	na	12	0%	0.0027	0.003	0.0028	6	100%	0.002	0.0029	0.00232	12	42%
Salt Lake	GW-NW8-IS	0.0027	0.0044	0.0038	6	50%	0.00097	0.0052	0.00301	10	70%	na	na	na	6	0%	na	na	na	10	0%	0.0019	0.0028	0.00247	6	100%	0.002	0.0023	0.00213	10	40%
Offsite Southwest																															
Basalt/Salt Lake	GW-10-IBS	0.0047	0.0204	0.0091	17	94%	0.00068	0.0107	0.00592	13	100%	0.00012	0.00018	0.00015	11	27%	0.00009	0.00019	0.000151	7	86%	0.0011	0.0026	0.00159	11	64%	0.00082	0.0018	0.00115	7	71%
Thaynes	GW-7-IT	0.003	0.0233	0.0117	13	100%	0.0057	0.021	0.00974	8	100%	0.00051	0.00059	0.00054	8	38%	0.00049	0.000725	0.000575	3	100%	0.0011	0.0024	0.00153	8	38%	0.001	0.0026	0.00187	3	100%
Basalt/Salt Lake	GW-8-IBS	0.0022	0.0259	0.0112	16	100%	0.00036	0.0228	0.00827	12	100%	0.00022	0.00044	0.000347	10	30%	0.00023	0.00064	0.000386	6	83%	0.00037	0.0015	0.00117	10	40%	0.0007	0.0033	0.00193	6	83%
Offsite wells (north)																															
Alluvium	MW-13A	0.0005	0.003	0.00128	18	28%	0.00028	0.001	0.00057	20	20%	0.00008	0.001	0.000315	18	22%	0.000097	0.001	0.000356	18	44%	0.0005	0.0207	0.00485	18	28%	0.00081	0.013	0.00245	18	56%
Wells	MW-14W	0.0005	0.003	0.00128	18	28%	0.00029	0.001	0.000573	20	20%	0.000068	0.001	0.000233	18	33%	0.000065	0.001	0.00021	18	39%	0.00025	0.0189	0.00358	18	33%	0.0005	0.006	0.00195	19	53%
Wells	MW-17W	0.00084	0.003	0.00124	13	85%	0.0008	0.00117	0.000956	14	57%	0.00066	0.00141	0.00116	13	100%	0.0007	0.00152	0.00123	14	100%	0.00081	0.0131	0.00236	13	85%	0.001	0.004	0.00154	14	93%
Dinwoody	MW-18Da	0.00047	0.006	0.00207	12	92%	0.00051	0.006	0.00192	13	69%	0.00008	0.00008	0.00008	12	17%	0.00007	0.00008	0.0000767	12	25%	0.0005	0.00207	0.00102	11	45%	0.00066	0.0039	0.00175	12	67%
Dinwoody	MW-18Db	0.001	0.0056	0.0019	12	92%	0.00095	0.003	0.00163	13	69%	0.00008	0.00044	0.0002	12	25%	0.00008	0.00058	0.00033	12	17%	0.00068	0.00296	0.00151	11	82%	0.00074	0.0528	0.00753	12	83%
Basalt	MW-22B	0.0005	0.001	0.000563	8	100%	0.0005	0.0005	0.0005	8	100%	0.00008	0.001	0.000208	8	100%	0.00008	0.00034	0.000129	8	100%	0.0005	0.0026	0.000854	8	100%	0.0017	0.0167	0.00584	8	100%
Wells	MW-23W	0.0005	0.001	0.000573	8	100%	0.0005	0.00054	0.000505	8	100%	0.00067	0.0011	0.000849	8	100%	0.00066	0.001	0.000814	8	100%	0.00077	0.0015	0.00118	8	100%	0.0013	0.0014	0.00133	8	100%
Wells	MW-24W	0.0005	0.001	0.000563	8	100%	0.0005	0.0018	0.000853	8	100%	0.00008	0.0026	0.000824	8	100%	0.00008	0.0042	0.00211	8	100%	0.0005	0.0042	0.00282	8	100%	0.0013	0.0181	0.00795	8	100%
Wells	MW-8W	0.00063	0.003	0.0014	17	100%	0.001	0.0022	0.00161	19	79%	0.00008	0.00008	0.00008	17	12%	0.000041	0.0019	0.000674	17	18%	0.00044	0.00342	0.0012	17	47%	0.00057	0.0338	0.00669	17	35%
Alluvium	MW-9A	0.00048	0.003	0.00122	17	76%	0.0005	0.002	0.00107	19	58%	0.000045	0.0001	0.000075	17	18%	0.000051	0.0002	0.00011	17	41%	0.00029	0.00182	0.000735	17	35%	0.0005	0.009	0.00258	17	53%
Alluvium	WMP-MW-1-A	0.0014	0.0014	0.0014	4	25%	na	na	na	4	0%	na	na	na	4	0%	na	na	na	4	0%	0.0011	0.0143	0.0077	4	50%	0.0014	0.0032	0.0023	4	50%
Alluvium	WMP-MW-2-A	0.0005	0.0014	0.0008	6	50%	0.0005	0.0005	0.0005	6	33%	0.00008	0.00008	0.00008	6	33%	0.00008	0.00008	0.00008	6	33%	0.0005	0.0195	0.00683	6	50%	0.00067	0.0027	0.00114	7	86%
Alluvium	WMP-MW-3-A	0.0005	0.0014	0.0008	6	50%	0.0005	0.0005	0.0005	6	33%	0.00012	0.00067	0.000254	6	83%	0.00024	0.0018	0.000966	7	100%	0.0005	0.0176	0.00623	6	50%	0.001	0.0012	0.00113	7	43%
Offsite West																															
Salt Lake	A-14-180-MS	0.0039	0.0062	0.00505	2	100%	0.0048	0.0048	0.0048	1	100%	na	na	na	2	0%	na	na	na	1	0%	0.0011	0.0011	0.0011	2	50%	na	na	na	1	0%
Basalt	A-15-105-MB	0.0129	0.0132	0.0131	2	100%	0.0085	0.0085	0.0085	1	100%	na	na	na	2	0%	na	na	na	1	0%	0.001	0.001	0.001	2	50%	na	na	na	1	0%
Salt Lake	A-16-190-MS	na	na	na	3	0%	na	na	na	1	0%	na	na	na	3	0%	na	na	na	1	0%	0.0015	0.0016	0.00155	3	67%	0.0024	0.0024	0.0024	1	100%
Salt Lake	A-17-150-MS	na	na	na	3	0%	na	na	na	1	0%	na	na	na	3	0%	na	na	na	1	0%	0.001	0.001	0.001	3	67%	na	na	na	1	0%
Basalt	A-27-090-MB	0.044	0.0446	0.0443	2	100%	0.0407	0.0458	0.0432	7	100%	na	na	na	2	0%	0.0005	0.0007	0.0006	7	43%	na	na	na	2	0%	na	na	na	7	0%
Basalt	A-27-135-MB	0.0377	0.0434	0.0406	2	100%	0.0398	**0.0546**	0.0461	7	100%	0.0011	0.0011	0.0011	2	50%	0.0007	0.0014	0.00108	7	57%	na	na	na	2	0%	0.0021	0.0024	0.00225	7	29%
Basalt	A-28-110-MB	0.0121	0.0121	0.0121	1	100%	0.003	0.003	0.003	1	100%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%
Basalt	A-28-165-MB	0.0155	0.0155	0.0155	1	100%	0.0123	0.0123	0.0123	1	100%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	0.0022	0.0022	0.0022	1	100%
Basalt	A-29-145-MB	0.0064	0.0064	0.0064	1	100%	0.0043	0.0043	0.0043	1	100%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%
Basalt	A-29-195-MB	0.0036	0.0036	0.0036	1	100%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%
Basalt	A-30-135-MB	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	0.0021	0.0021	0.0021	1	100%
Basalt	A-30-175-MB	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%	na	na	na	1	0%
Basalt	A-35-080-MB	0.0036	0.0036	0.0036	2	50%	0.0024	0.0046	0.00313	7	57%	0.0007	0.0007	0.0007	2	50%	0.0011	0.0016	0.0013	7	71%	na	na	na	2	0%	0.0023	0.0023	0.0023	7	14%
Basalt	A-35-155-MB	0.0021	0.0033	0.0027	2	100%	0.0027	0.003	0.00287	7	43%	na	na	na	2	0%	na	na	na	7	0%	na	na	na	2	0%	na	na	na	7	0%
Basalt/Salt Lake	A-36-105-MBS	0.0074	0.0435	0.0255	2	100%	0.0026	0.0224	0.0104	7	57%	0.0131	0.0208	0.017	2	100%	**0.0081**	**0.0844**	**0.0428**	7	86%	0.0062	0.0162	0.0112	2	100%	0.0037	0.0122	0.00772	7	71%
Salt Lake	A-36-145-MS	0.0045	0.0045	0.0045	2	50%	na	na	na	7	0%	na	na	na	2	0%	na	na	na	7	0%	na	na	na	2	0%	na	na	na	7	0%
Basalt	A-49-095-MB	na	na	na	na	na	0.0126	0.0126	0.0126	1	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	1	0%
Basalt	A-49-135-MB	na	na	na	na	na	0.0079	0.0079	0.0079	1	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	0.0077	0.0077	0.0077	1	100%

Table 4-39
Summary of Detected Metals Results in Groundwater

	Analyte >>	Vanadium, Dissolved					Vanadium, Total					Zinc, Dissolved					Zinc, Total					Uranium, Dissolved					Uranium, Total				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/L					mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison Values >>	Eco: NA, HH: NA					Eco: NA, HH:0.053					Eco: NA, HH: NA					Eco: NA, HH: 5					Eco: NA, HH: NA					Eco: NA, HH:0.03				
HydroUnit	**Station**																														
State Land Creek Sub-Basin																															
Alluvium/Colluvium	GW-25-MA	0.001	0.0025	0.0016	4	100%	0.0013	0.0056	0.00263	4	100%	0.0041	0.0047	0.00433	4	75%	0.0032	0.0109	0.00653	4	100%	0.0005	0.0063	0.00236	4	100%	0.00039	0.0061	0.00253	4	75%
Dinwoody	GW-26-MD	0.0017	0.0017	0.0017	3	33%	0.00052	0.0084	0.0032	3	100%	0.0067	0.0067	0.0067	3	33%	0.005	0.034	0.0195	3	67%	0.00044	0.000982	0.000711	3	67%	0.00114	0.0012	0.00117	3	67%
Alluvium/Colluvium	GW-27-MA	0.0025	0.0061	0.0043	4	50%	0.00084	0.0077	0.00324	4	100%	0.003	0.0059	0.0049	4	75%	0.0039	0.0166	0.0085	4	75%	0.000512	0.0028	0.00133	4	75%	0.000529	0.0028	0.00134	4	75%
Wells	GW-39-MW	0.0023	0.0029	0.00266	5	100%	0.0024	0.003	0.00272	5	100%	na	na	na	5	0%	0.0026	0.0026	0.0026	5	20%	0.0011	0.0012	0.00113	5	80%	0.0011	0.0012	0.00115	5	80%
Wells	GW-40-MW	0.0023	0.0033	0.00289	8	100%	0.0025	0.0057	0.0039	8	100%	0.0038	0.0949	0.0331	8	50%	0.0042	0.153	0.0381	8	75%	0.00085	0.0011	0.00106	8	88%	0.00086	0.0012	0.00111	8	88%
Alluvium/Colluvium	GW-47-MA	0.0012	0.0014	0.0013	3	67%	0.002	0.0311	0.0121	3	100%	0.007	0.0133	0.00953	3	100%	0.0066	0.0977	0.0379	3	100%	0.00003	0.0001	0.0000687	3	100%	0.000078	0.0024	0.000896	3	100%
Wells	MW-1W	0.0096	0.0111	0.0104	8	25%	0.01	0.0115	0.0108	8	25%	0.01	0.0381	0.0286	16	100%	0.027	0.0782	0.041	17	94%	0.000485	0.000485	0.000485	8	13%	0.000477	0.000477	0.000477	8	13%
Rex Chert	MW-2R	na	na	na	9	0%	0.0002	0.0002	0.0002	9	11%	0.005	0.11	0.0313	17	24%	0.005	0.0098	0.0069	17	18%	0.000953	0.000953	0.000953	9	11%	0.000934	0.00107	0.001	9	22%
Alluvium	MW-3A	na	na	na	4	0%	0.0007	0.0007	0.0007	4	25%	0.006	0.0394	0.0151	12	33%	0.0013	0.118	0.0266	12	92%	0.000042	0.000042	0.000042	4	25%	0.000057	0.000057	0.000057	4	25%
Western Woodall Mountain Sub-Basin																															
Salt Lake	A-13-135-MS	0.0032	0.0037	0.00347	3	100%	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
na	Boring5	0.001	0.0014	0.00118	10	50%	0.0031	**0.108**	0.0286	20	85%	na	na	na	10	0%	0.0056	0.17	0.0439	20	95%	0.0032	0.0038	0.00352	10	100%	0.0033	0.0077	0.0049	10	100%
Wells	GW-21-MW	0.0013	0.0025	0.00193	4	100%	0.0019	0.0037	0.00245	4	100%	0.0082	0.0082	0.0082	4	25%	0.0028	0.017	0.0099	4	50%	0.0024	0.01	0.00444	4	100%	0.0024	0.0125	0.0052	4	100%
Salt Lake	GW-57-MS	0.0048	0.0048	0.0048	1	100%	0.0048	0.0048	0.0048	1	100%	0.016	0.016	0.016	1	100%	0.0095	0.0095	0.0095	1	100%	0.0016	0.0016	0.0016	1	100%	0.0016	0.0016	0.0016	1	100%
Alluvium	GW-A1-MA	0.0023	0.0026	0.00242	5	100%	0.002	0.004	0.003	10	30%	0.005	0.0266	0.0121	5	80%	0.006	0.025	0.013	10	30%	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-NW7-IS	0.0032	0.0038	0.00353	7	100%	0.003	0.003	0.003	10	30%	0.0053	0.0145	0.00783	7	57%	0.002	0.008	0.005	10	30%	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-NW8-IS	0.0028	0.0037	0.00319	7	100%	0.003	0.003	0.003	8	25%	0.0053	0.0218	0.0136	7	29%	0.006	0.027	0.0165	8	25%	na	na	na	na	na	na	na	na	na	na
Offsite Southwest																															
Basalt/Salt Lake	GW-10-IBS	0.0037	0.0059	0.00496	12	100%	0.0043	0.0069	0.00546	5	100%	0.0109	0.298	0.0781	12	100%	0.0482	0.261	0.123	5	100%	0.0012	0.0018	0.0015	5	80%	0.0015	0.0017	0.0016	5	60%
Thaynes	GW-7-IT	0.0025	0.0048	0.00387	8	88%	0.003	0.0055	0.0042	3	100%	0.0026	0.0384	0.0178	8	100%	0.0063	0.0456	0.0253	3	100%	0.00122	0.0019	0.00145	3	100%	0.00127	0.002	0.00164	3	67%
Basalt/Salt Lake	GW-8-IBS	0.0024	0.0043	0.00363	11	100%	0.0029	0.0045	0.00338	4	100%	0.0056	0.0222	0.0105	11	36%	0.0033	0.0033	0.0033	4	25%	0.00231	0.0031	0.00256	4	100%	0.0025	0.0032	0.00285	4	50%
Offsite wells (north)																															
Alluvium	MW-13A	na	na	na	9	0%	0.0014	0.0014	0.0014	9	11%	0.004	0.00559	0.00478	18	33%	0.0029	0.06	0.0145	18	44%	0.000133	0.000133	0.000133	9	11%	0.000192	0.000192	0.000192	9	11%
Wells	MW-14W	na	na	na	9	0%	na	na	na	9	0%	0.005	0.02	0.00983	18	44%	0.005	0.02	0.0108	19	63%	0.000104	0.000104	0.000104	9	11%	0.000115	0.000115	0.000115	9	11%
Wells	MW-17W	0.0021	0.0037	0.0029	4	50%	0.0037	0.0047	0.0042	4	50%	0.03	0.111	0.0803	13	100%	0.03	0.102	0.0848	14	100%	0.00115	0.00144	0.00128	4	75%	0.00133	0.00139	0.00136	4	75%
Dinwoody	MW-18Da	0.0018	0.0018	0.0018	3	33%	0.0017	0.0055	0.0036	3	67%	0.005	0.005	0.005	12	17%	0.0035	0.0097	0.0058	12	33%	0.000595	0.000595	0.000595	3	33%	0.000653	0.000653	0.000653	3	33%
Dinwoody	MW-18Db	0.0011	0.0011	0.0011	3	33%	0.0024	0.0024	0.0024	3	33%	0.0027	0.0064	0.00478	12	33%	0.005	0.236	0.0545	12	42%	0.000842	0.000842	0.000842	3	33%	0.000879	0.000879	0.000879	3	33%
Basalt	MW-22B	na	na	na	na	na	na	na	na	na	na	0.005	0.013	0.00729	8	100%	0.005	0.0166	0.00901	8	100%	na	na	na	na	na	0.0011	0.0011	0.0011	1	100%
Wells	MW-23W	na	na	na	na	na	na	na	na	na	na	0.0594	0.112	0.0768	8	100%	0.0617	0.107	0.0795	8	100%	na	na	na	na	na	0.0025	0.0025	0.0025	1	100%
Wells	MW-24W	na	na	na	na	na	na	na	na	na	na	0.005	0.112	0.0363	8	100%	0.0061	0.211	0.103	8	100%	na	na	na	na	na	0.0035	0.0035	0.0035	1	100%
Wells	MW-8W	0.0015	0.0015	0.0015	9	11%	0.002	0.002	0.002	9	11%	0.005	0.0076	0.00587	17	18%	0.005	0.0684	0.0291	17	18%	0.000886	0.000886	0.000886	9	11%	0.000994	0.000994	0.000994	9	11%
Alluvium	MW-9A	0.0022	0.0022	0.0022	9	11%	0.0023	0.0023	0.0023	9	11%	0.005	0.005	0.005	17	12%	0.005	0.02	0.01	17	29%	0.000861	0.000861	0.000861	9	11%	0.000848	0.000848	0.000848	9	11%
Alluvium	WMP-MW-1-A	0.0007	0.0007	0.0007	2	50%	na	na	na	2	0%	0.0341	0.0341	0.0341	4	25%	0.0185	0.0185	0.0185	4	25%	0.000051	0.000051	0.000051	2	50%	0.000057	0.000057	0.000057	2	50%
Alluvium	WMP-MW-2-A	na	na	na	2	0%	0.0011	0.0011	0.0011	2	50%	0.005	0.0359	0.0142	6	67%	0.005	0.0302	0.0134	6	50%	0.000185	0.000185	0.000185	2	50%	0.000209	0.000209	0.000209	2	50%
Alluvium	WMP-MW-3-A	0.0013	0.0013	0.0013	2	50%	0.001	0.001	0.001	2	50%	0.005	0.0179	0.0093	6	50%	0.005	0.0136	0.00787	5	60%	0.000253	0.000253	0.000253	2	50%	0.000249	0.000249	0.000249	2	50%
Offsite West																															
Salt Lake	A-14-180-MS	0.005	0.0061	0.00555	2	100%	na	na	na	na	na	0.1	0.1	0.1	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-15-105-MB	0.0052	0.0079	0.00655	2	100%	na	na	na	na	na	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-16-190-MS	0.0017	0.003	0.0025	3	100%	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-17-150-MS	0.0019	0.0021	0.002	3	100%	na	na	na	na	na	na	na	na	2	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-27-090-MB	0.0093	0.0093	0.0093	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-27-135-MB	0.0179	0.0179	0.0179	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-28-110-MB	0.0047	0.0047	0.0047	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-28-165-MB	0.0063	0.0063	0.0063	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-29-145-MB	0.0103	0.0103	0.0103	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-29-195-MB	0.0089	0.0089	0.0089	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-30-135-MB	0.0014	0.0014	0.0014	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-30-175-MB	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-35-080-MB	0.0102	0.0102	0.0102	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-35-155-MB	0.003	0.003	0.003	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt/Salt Lake	A-36-105-MBS	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-36-145-MS	na	na	na	1	0%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-49-095-MB	na	na	na	na	na	0.0053	0.0053	0.0053	1	100%	na	na	na	na	na	0.0054	0.0054	0.0054	1	100%	na	na	na	na	na	na	na	na	na	na
Basalt	A-49-135-MB	na	na	na	na	na	0.0125	0.0125	0.0125	1	100%	na	na	na	na	na	0.0998	0.0998	0.0998	1	100%	na	na	na	na	na	na	na	na	na	na

Table 4-39
Summary of Detected Metals Results in Groundwater - Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/L = milligrams per liter; pCi/L = picocuries per liter

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names.

More information about human health ("HH") groundwater comparison values is provided on Table 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

NA = comparison value not available.

Table 4-40
Summary of Detected Organic Compound Results in Groundwater

	Analyte >>	1,3-Dichlorobenzene					bis(2-Ethylhexyl)phthalate					Carbazole				
	Information Type >>	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units >>	mg/L	mg/L	mg/L			mg/L					mg/L				
	Comparison Value >>	HH: 0.6					HH: 0.006					NA				
HydroUnit	**Station**															
French Drain Sub-Basin																
Alluvium/Colluvium	GW-16-MA	0.00051	0.0006	0.000555	2	100%	0.00079	0.00079	0.00079	2	50%				2	0%
	GW-17-MA				2	0%	0.0008	0.0008	0.0008	2	50%				2	0%
Salt Lake	GW-9-IS				4	0%	0.00128	0.00128	0.00128	4	25%	0.00108	0.00108	0.00108	4	25%
Offsite wells (west)																
Basalt/Salt Lake	GW-10-IBS				4	0%	0.00051	0.00051	0.00051	4	25%				4	0%

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/L = milligrams per liter

If results are from different sources then they may reflect different analytical methodology.

More information about human health ("HH") groundwater comparison values is provided on Table 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

NA = comparison value not available.

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater

	Analyte > >	Deuterium Excess					Gross Alpha					Gross Beta					Hydrogen-Deuterium Stable Isotope				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	ppt					pCi/L					pCi/L					ppt				
	Comparison Value > >	NA					HH: 15 pCi/L					HH: 50 pCi/L					NA				
HydroUnit	Station																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	0	0	0	2	0%	30	33	31.5	2	100%	na	na	na	na	na
Basalt	A-33-170-MB	na	na	na	na	na	4.5	4.5	4.5	2	50%	4.3	6.8	5.55	2	100%	na	na	na	na	na
Basalt	A-50-070-MB	na	na	na	na	na	5.9	5.9	5.9	2	50%	4.2	4.5	4.35	2	100%	na	na	na	na	na
Basalt	A-50-100-MB	na	na	na	na	na	4.1	6.5	5.3	2	100%	4.6	5.5	5.05	2	100%	na	na	na	na	na
Salt Lake	A-50-125-MS	na	na	na	na	na	6.5	6.7	6.6	2	100%	5	8.3	6.65	2	100%	na	na	na	na	na
Basalt	A-58-075-MB	na	na	na	na	na	**116**	**116**	**116**	1	100%	**60**	**60**	**60**	1	100%	na	na	na	na	na
Basalt	A-58-105-MB	na	na	na	na	na	**28.1**	**28.1**	**28.1**	1	100%	26	26	26	1	100%	na	na	na	na	na
Wells	GW-11-IW	5.8	5.8	5.8	1	100%	2.58	11.5	5.64	11	82%	2.4	6	4	11	45%	-132.2	-132.2	-132	1	100%
Salt Lake	GW-12-IS	6.5	7.3	6.8	3	100%	1.4	**15**	6.8	8	75%	6.1	35.2	13.5	8	100%	-136.2	-135.9	-136	3	100%
Salt Lake	GW-13-IS	na	na	na	na	na	0	0	0	1	0%	2.8	2.8	2.8	1	100%	na	na	na	na	na
Wells	GW-14-MW	5.7	5.7	5.7	1	100%	7.2	11.6	9.42	5	100%	3.6	7.6	4.9	5	100%	-151.3	-151.3	-151	1	100%
Salt Lake	GW-15-MS	5.1	5.1	5.1	1	100%	**23.8**	**23.8**	**23.8**	6	17%	0	0	0	6	0%	-129.6	-129.6	-130	1	100%
Alluvium/Colluvium	GW-16-MA	na	na	na	na	na	**15.7**	**51.7**	**31.9**	5	60%	21.2	22.9	22.1	5	40%	na	na	na	na	na
Alluvium/Colluvium	GW-17-MA	na	na	na	na	na	14	**196**	**104**	5	80%	**156**	**216**	**186**	5	40%	na	na	na	na	na
Alluvium/Colluvium	GW-49-MA	na	na	na	na	na	7.3	11.9	9.6	2	100%	0	0	0	2	0%	na	na	na	na	na
Salt Lake	GW-50-MS	na	na	na	na	na	8.6	10.6	9.6	2	100%	4.4	4.4	4.4	2	50%	na	na	na	na	na
Salt Lake	GW-51-MS	na	na	na	na	na	**38.4**	**38.4**	**38.4**	2	50%	4.5	16.7	10.6	2	100%	na	na	na	na	na
Alluvium/Colluvium	GW-52-MA	na	na	na	na	na	0	0	0	1	0%	0	0	0	1	0%	na	na	na	na	na
Salt Lake	GW-53-MS	na	na	na	na	na	8	8	8	1	100%	8.4	8.4	8.4	1	100%	na	na	na	na	na
Alluvium/Colluvium	GW-54-MA	na	na	na	na	na	5.4	**24.7**	**15.1**	2	100%	5	10.2	7.6	2	100%	na	na	na	na	na
Salt Lake	GW-55-MS	na	na	na	na	na	0	0	0	1	0%	16.2	16.2	16.2	1	100%	na	na	na	na	na
Salt Lake	GW-56-MS	na	na	na	na	na	2.1	10.6	6.35	2	100%	3.5	4.2	3.85	2	100%	na	na	na	na	na
Salt Lake	GW-9-IS	5.2	5.2	5.2	1	100%	3.9	**17.4**	8.76	8	88%	4.7	4.7	4.7	8	13%	-128.8	-128.8	-129	1	100%
Basalt/Salt Lake	GW-MWB-MBS	na	na	na	na	na	0	**35**	6.18	14	71%	1.3	42	10.6	14	100%	na	na	na	na	na
Basalt/Salt Lake	GW-NW9-IBS	na	na	na	na	na	0.14	**122**	**15.2**	14	86%	1.22	**64.4**	12	14	93%	na	na	na	na	na
Basalt	MW-A-110-MB	na	na	na	na	na	0	0	0	6	0%	13.7	21.6	18	6	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																					
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	0	0	0	3	0%	0	0	0	3	0%	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	5.6	5.6	5.6	3	33%	5.5	5.5	5.5	3	33%	na	na	na	na	na
Old Tailings Pond Sub-Basin																					
Salt Lake	GW-19-MS	3.9	3.9	3.9	1	100%	5.7	5.7	5.7	5	20%	5.6	8.9	6.73	5	60%	-132.1	-132.1	-132	1	100%
Dinwoody	GW-37-MD	na	na	na	na	na	0	0	0	1	0%	0	0	0	1	0%	na	na	na	na	na
Tailings	TP2-SB3	na	na	na	na	na	**189**	**189**	**189**	1	100%	**68.7**	**68.7**	**68.7**	1	100%	na	na	na	na	na
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	6.3	6.3	6.3	1	100%	7	11.9	9.45	4	50%	7.3	7.3	7.3	4	25%	-134.3	-134.3	-134	1	100%
Dinwoody	GW-29-MD	7.5	7.5	7.5	1	100%	3.8	6.8	5.3	6	33%	0	0	0	6	0%	-131.1	-131.1	-131	1	100%
Alluvium/Colluvium	GW-30-MA	na	na	na	na	na	2.2	8.9	5.55	5	40%	0	0	0	5	0%	na	na	na	na	na
Alluvium/Colluvium	GW-41-MA	na	na	na	na	na	7.1	**47.5**	**20.9**	4	100%	7.9	7.9	7.9	4	25%	na	na	na	na	na
Dinwoody	GW-42-MD	na	na	na	na	na	2.9	12.2	8.53	4	75%	7.3	7.3	7.3	4	25%	na	na	na	na	na
Dinwoody	GW-44-MD	na	na	na	na	na	4.5	7	5.5	4	100%	0	0	0	4	0%	na	na	na	na	na
Alluvium/Colluvium	GW-45-MA	na	na	na	na	na	6	11.7	8.57	4	75%	9.6	9.6	9.6	4	25%	na	na	na	na	na
Dinwoody	GW-46-MD	na	na	na	na	na	4.5	5.3	4.97	4	75%	0	0	0	4	0%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																					
Meade Peak	GW-22-MM	na	na	na	na	na	**19**	**19.1**	**19.1**	2	100%	10.8	10.8	10.8	2	50%	na	na	na	na	na
Colluvium	GW-24-MA	na	na	na	na	na	**30.1**	**35.2**	**32.7**	2	100%	4.8	19.6	12.2	2	100%	na	na	na	na	na
Wells	GW-31-MW	5.4	5.4	5.4	1	100%	2.8	5.7	4.3	4	75%	4.2	6.8	5.5	4	50%	-150.5	-150.5	-151	1	100%
Dinwoody	GW-32-MD	6.8	6.8	6.8	1	100%	6.5	9.4	7.95	4	50%	7	7	7	4	25%	-131.6	-131.6	-132	1	100%
Rex Chert	GW-33-MR	6.7	6.7	6.7	1	100%	2.2	2.6	2.4	4	50%	3.3	3.3	3.3	4	25%	-122.8	-122.8	-123	1	100%
Alluvium/Colluvium	GW-34-MA	na	na	na	na	na	13	13	13	1	100%	0	0	0	1	0%	na	na	na	na	na
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	na	na	na	na	na	14.6	14.6	14.6	4	25%	5.2	5.2	5.2	4	25%	na	na	na	na	na
Dinwoody	GW-26-MD	na	na	na	na	na	2.8	4.4	3.6	3	67%	0	0	0	3	0%	na	na	na	na	na
Alluvium/Colluvium	GW-27-MA	na	na	na	na	na	4.7	14.9	9.8	4	50%	4	5.9	4.95	4	50%	na	na	na	na	na

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater

	Analyte > >	O18 Stable Isotope					Radium 226					Radium 228					Thorium 230				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	ppt					pCi/L					pCi/L					pCi/L				
	Comparison Value > >	NA					HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L				
HydroUnit	**Station**																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	0.35	0.35	0.35	2	50%	0	0	0	2	0%	na	na	na	na	na
Basalt	A-33-170-MB	na	na	na	na	na	0	0	0	2	0%	0	0	0	2	0%	na	na	na	na	na
Basalt	A-50-070-MB	na	na	na	na	na	0.24	0.24	0.24	2	50%	0	0	0	2	0%	na	na	na	na	na
Basalt	A-50-100-MB	na	na	na	na	na	0	0	0	2	0%	0	0	0	2	0%	na	na	na	na	na
Salt Lake	A-50-125-MS	na	na	na	na	na	0	0	0	2	0%	0	0	0	2	0%	na	na	na	na	na
Basalt	A-58-075-MB	na	na	na	na	na	0.42	0.42	0.42	1	100%	0	0	0	1	0%	na	na	na	na	na
Basalt	A-58-105-MB	na	na	na	na	na	0	0	0	1	0%	0	0	0	1	0%	na	na	na	na	na
Wells	GW-11-IW	-17.2	-17.2	-17.2	1	100%	0.24	0.24	0.24	4	25%	0.57	0.57	0.57	4	25%	0	0	0	2	0%
Salt Lake	GW-12-IS	-17.9	-17.8	-17.8	3	100%	0.25	0.42	0.335	3	67%	1.3	1.3	1.3	3	33%	0.2	0.2	0.2	3	33%
Salt Lake	GW-13-IS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-14-MW	-19.6	-19.6	-19.6	1	100%	0.56	0.56	0.56	2	50%	0	0	0	2	0%	0	0	0	2	0%
Salt Lake	GW-15-MS	-16.8	-16.8	-16.8	1	100%	0	0	0	3	0%	0	0	0	3	0%	0	0	0	3	0%
Alluvium/Colluvium	GW-16-MA	na	na	na	na	na	0.19	0.76	0.393	3	100%	2	2	2	3	33%	1.1	1.1	1.1	3	33%
Alluvium/Colluvium	GW-17-MA	na	na	na	na	na	0.24	2.3	1.25	3	100%	0	0	0	3	0%	0.2	0.4	0.3	3	67%
Alluvium/Colluvium	GW-49-MA	na	na	na	na	na	0.22	0.94	0.58	2	100%	2.3	2.3	2.3	2	50%	0	0	0	2	0%
Salt Lake	GW-50-MS	na	na	na	na	na	0.19	0.27	0.23	2	100%	0	0	0	2	0%	0.2	0.2	0.2	2	50%
Salt Lake	GW-51-MS	na	na	na	na	na	0.17	1.8	0.985	2	100%	1.2	**7.3**	4.25	2	100%	0	0	0	2	0%
Alluvium/Colluvium	GW-52-MA	na	na	na	na	na	0.35	0.35	0.35	1	100%	2.7	2.7	2.7	1	100%	0	0	0	1	0%
Salt Lake	GW-53-MS	na	na	na	na	na	0.31	0.31	0.31	1	100%	1.9	1.9	1.9	1	100%	0	0	0	1	0%
Alluvium/Colluvium	GW-54-MA	na	na	na	na	na	0.71	1.8	1.26	2	100%	3.9	3.9	3.9	2	50%	0.2	0.4	0.3	2	100%
Salt Lake	GW-55-MS	na	na	na	na	na	0.4	0.4	0.4	1	100%	1.1	1.1	1.1	1	100%	0	0	0	1	0%
Salt Lake	GW-56-MS	na	na	na	na	na	0.38	0.43	0.405	2	100%	1.6	1.6	1.6	2	50%	0	0	0	2	0%
Salt Lake	GW-9-IS	-16.7	-16.7	-16.7	1	100%	0.33	0.33	0.33	4	25%	1.3	1.3	1.3	4	25%	0.1	0.1	0.1	4	25%
Basalt/Salt Lake	GW-MWB-MBS	na	na	na	na	na	0	0	0	3	0%	0.89	0.89	0.89	3	33%	na	na	na	na	na
Basalt/Salt Lake	GW-NW9-IBS	na	na	na	na	na	0	0	0	2	0%	0	0	0	2	0%	na	na	na	na	na
Basalt	MW-A-110-MB	na	na	na	na	na	0	0	0	3	0%	0	0	0	3	0%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																					
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Old Tailings Pond Sub-Basin																					
Salt Lake	GW-19-MS	-17	-17	-17	1	100%	0.49	0.49	0.49	2	50%	0	0	0	2	0%	0	0	0	2	0%
Dinwoody	GW-37-MD	na	na	na	na	na	0.26	0.26	0.26	1	100%	0	0	0	1	0%	0	0	0	1	0%
Tailings	TP2-SB3	na	na	na	na	na	**14**	**14**	**14**	1	100%	2.4	2.4	2.4	1	100%	**23.8**	**23.8**	**23.8**	1	100%
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	-17.6	-17.6	-17.6	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-29-MD	-17.3	-17.3	-17.3	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-30-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-41-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-42-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-44-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-45-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-46-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																					
Meade Peak	GW-22-MM	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Colluvium	GW-24-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-31-MW	-19.5	-19.5	-19.5	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-32-MD	-17.3	-17.3	-17.3	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Rex Chert	GW-33-MR	-16.2	-16.2	-16.2	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-34-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-26-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-27-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater

	Analyte > >	Uranium 234					Uranium 235					Uranium 238					Uranium Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	pCi/L					pCi/L					pCi/L					pCi/L				
	Comparison Value > >	HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L				
HydroUnit	**Station**																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-33-170-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-50-070-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-50-100-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-50-125-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-58-075-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-58-105-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-11-IW	2.7	2.7	2.7	2	100%	0	0	0	2	0%	1.3	1.5	1.4	2	100%	4.2	4.4	4.3	2	100%
Salt Lake	GW-12-IS	0.9	1.2	1	3	100%	0	0	0	3	0%	0.2	0.3	0.25	3	67%	1	1.6	1.27	3	100%
Salt Lake	GW-13-IS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-14-MW	**6.1**	**6.7**	**6.4**	2	100%	0	0	0	2	0%	1.7	2	1.85	2	100%	**8**	**8.8**	**8.4**	2	100%
Salt Lake	GW-15-MS	2.4	2.7	2.5	3	100%	0.2	0.2	0.2	3	33%	2	2.1	2.03	3	100%	4.6	4.7	4.67	3	100%
Alluvium/Colluvium	GW-16-MA	2.8	3	2.87	3	100%	0.2	0.2	0.2	3	33%	1.7	2	1.9	3	100%	4.5	**5.1**	4.87	3	100%
Alluvium/Colluvium	GW-17-MA	1.6	2.8	2.33	3	100%	0	0	0	3	0%	1.1	2.4	1.97	3	100%	2.8	**5.4**	4.43	3	100%
Alluvium/Colluvium	GW-49-MA	2.5	2.6	2.55	2	100%	0	0	0	2	0%	1.2	1.7	1.45	2	100%	3.9	4.4	4.15	2	100%
Salt Lake	GW-50-MS	2.2	3.2	2.7	2	100%	0.5	0.5	0.5	2	50%	1.3	1.9	1.6	2	100%	3.6	**5.6**	4.6	2	100%
Salt Lake	GW-51-MS	1.5	2.3	1.9	2	100%	0	0	0	2	0%	0.6	0.9	0.75	2	100%	2.2	3.1	2.65	2	100%
Alluvium/Colluvium	GW-52-MA	1.6	1.6	1.6	1	100%	0	0	0	1	0%	0.8	0.8	0.8	1	100%	2.5	2.5	2.5	1	100%
Salt Lake	GW-53-MS	1.9	1.9	1.9	1	100%	0.2	0.2	0.2	1	100%	0.6	0.6	0.6	1	100%	2.8	2.8	2.8	1	100%
Alluvium/Colluvium	GW-54-MA	1.4	2.2	1.8	2	100%	0	0	0	2	0%	1.1	1.8	1.45	2	100%	2.5	4	3.25	2	100%
Salt Lake	GW-55-MS	0.6	0.6	0.6	1	100%	0	0	0	1	0%	0.4	0.4	0.4	1	100%	1.1	1.1	1.1	1	100%
Salt Lake	GW-56-MS	2.1	2.4	2.25	2	100%	0	0	0	2	0%	0.8	1.1	0.95	2	100%	3	3.6	3.3	2	100%
Salt Lake	GW-9-IS	2.9	4.3	3.65	4	100%	0.2	0.2	0.2	4	25%	2	2.3	2.15	4	100%	**5.1**	**6.7**	**5.95**	4	100%
Basalt/Salt Lake	GW-MWB-MBS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt/Salt Lake	GW-NW9-IBS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	MW-A-110-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																					
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Old Tailings Pond Sub-Basin																					
Salt Lake	GW-19-MS	1.4	1.5	1.45	2	100%	0	0	0	2	0%	1	1.4	1.2	2	100%	2.5	2.9	2.7	2	100%
Dinwoody	GW-37-MD	1.5	1.5	1.5	1	100%	0	0	0	1	0%	0.8	0.8	0.8	1	100%	2.3	2.3	2.3	1	100%
Tailings	TP2-SB3	**83.5**	**83.5**	**83.5**	1	100%	**6.4**	**6.4**	**6.4**	1	100%	**67.2**	**67.2**	**67.2**	1	100%	**157**	**157**	**157**	1	100%
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-29-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-30-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-41-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-42-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-44-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-45-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-46-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																					
Meade Peak	GW-22-MM	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Colluvium	GW-24-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-31-MW	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-32-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Rex Chert	GW-33-MR	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-34-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	GW-26-MD	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-27-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater

	Analyte > >	Deuterium Excess					Gross Alpha					Gross Beta					Hydrogen-Deuterium Stable Isotope				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	ppt					pCi/L					pCi/L					ppt				
	Comparison Value > >	NA					HH: 15 pCi/L					HH: 50 pCi/L					NA				
HydroUnit	Station																				
Wells	GW-39-MW	na	na	na	na	na	3.2	3.2	3.2	2	50%	0	0	0	2	0%	na	na	na	na	na
Wells	GW-40-MW	na	na	na	na	na	3.4	3.4	3.4	5	20%	0	0	0	5	0%	na	na	na	na	na
Alluvium/Colluvium	GW-47-MA	na	na	na	na	na	2.9	2.9	2.9	3	33%	3.8	5.7	4.75	3	67%	na	na	na	na	na
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	na	na	na	na	na	1.75	2.1	1.97	5	60%	4.1	5.9	5.08	5	100%	na	na	na	na	na
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	**33**	**33**	**33**	2	50%	26	26	26	2	50%	na	na	na	na	na
Wells	GW-21-MW	6.8	6.8	6.8	1	100%	11.7	**23.8**	**17.8**	4	50%	6.4	8.1	7.25	4	50%	-138.5	-138.5	-139	1	100%
Salt Lake	GW-57-MS	na	na	na	na	na	11.4	11.4	11.4	1	100%	0	0	0	1	0%	na	na	na	na	na
Alluvium	GW-A1-MA	na	na	na	na	na	0.67	9.6	4.06	15	60%	1.6	3.7	2.78	15	67%	na	na	na	na	na
Salt Lake	GW-NW7-IS	na	na	na	na	na	1.9	5.1	3	14	93%	4.6	8.39	6.08	14	100%	na	na	na	na	na
Salt Lake	GW-NW8-IS	na	na	na	na	na	1.29	2.4	1.7	11	82%	2.9	5.9	4.49	11	100%	na	na	na	na	na
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	-2.1	-2.1	-2.1	1	100%	2.5	**20.9**	12.6	10	40%	6.3	20.7	9.67	10	70%	-121.5	-121.5	-122	1	100%
Thaynes	GW-7-IT	na	na	na	na	na	3.9	**16.1**	10	7	29%	4.4	41.4	13.6	7	86%	na	na	na	na	na
Basalt/Salt Lake	GW-8-IBS	-8.5	-8.5	-8.5	1	100%	2.3	14.9	5.52	9	67%	5.1	9.1	7.43	9	67%	-109.1	-109.1	-109	1	100%
Offsite West																					
Salt Lake	A-14-180-MS	na	na	na	na	na	1.8	5.8	3.03	4	100%	5.8	10.2	7.93	4	100%	na	na	na	na	na
Basalt	A-15-105-MB	na	na	na	na	na	5	5	5	4	25%	6.2	18.1	10.5	4	75%	na	na	na	na	na
Salt Lake	A-16-190-MS	na	na	na	na	na	2.29	3.6	2.76	5	60%	4.5	5.8	5.2	5	100%	na	na	na	na	na
Salt Lake	A-17-150-MS	na	na	na	na	na	0	0	0	5	0%	4.2	9.2	5.88	5	100%	na	na	na	na	na
Basalt	A-27-090-MB	na	na	na	na	na	0	0	0	3	0%	29	41.5	35.8	3	100%	na	na	na	na	na
Basalt	A-27-135-MB	na	na	na	na	na	0	0	0	3	0%	21.4	34	26.1	3	100%	na	na	na	na	na
Basalt	A-28-110-MB	na	na	na	na	na	3.6	4.3	3.95	3	67%	9.9	13.4	11.8	3	100%	na	na	na	na	na
Basalt	A-28-165-MB	na	na	na	na	na	0	0	0	3	0%	10.6	19.8	14.9	3	100%	na	na	na	na	na
Basalt	A-29-145-MB	na	na	na	na	na	0	0	0	3	0%	24	30.7	27.4	3	67%	na	na	na	na	na
Basalt	A-29-195-MB	na	na	na	na	na	10.1	10.1	10.1	3	33%	31.9	36	34	3	67%	na	na	na	na	na
Basalt	A-30-135-MB	na	na	na	na	na	5.1	6	5.55	3	67%	7.2	9.9	8.55	3	67%	na	na	na	na	na
Basalt	A-30-175-MB	na	na	na	na	na	3.8	4	3.9	3	67%	5.9	10.5	8.2	3	67%	na	na	na	na	na
Basalt	A-35-080-MB	na	na	na	na	na	0	0	0	3	0%	27	49	39.7	3	100%	na	na	na	na	na
Basalt	A-35-155-MB	na	na	na	na	na	5.7	5.7	5.7	3	33%	11.8	24	17.9	3	67%	na	na	na	na	na
Basalt/Salt Lake	A-36-105-MBS	na	na	na	na	na	0	0	0	3	0%	38	**59**	45.7	3	100%	na	na	na	na	na
Salt Lake	A-36-145-MS	na	na	na	na	na	0	0	0	3	0%	14.8	14.8	14.8	3	33%	na	na	na	na	na
Basalt	A-49-095-MB	na	na	na	na	na	0	0	0	2	0%	11.9	14.8	13.4	2	100%	na	na	na	na	na
Basalt	A-49-135-MB	na	na	na	na	na	2.9	3.6	3.25	2	100%	7.3	10.8	9.05	2	100%	na	na	na	na	na
Salt Lake	A-49-185-MS	na	na	na	na	na	2.2	2.2	2.2	1	100%	12.9	12.9	12.9	1	100%	na	na	na	na	na
Basalt	A-54-135-MB	na	na	na	na	na	0	0	0	1	0%	0	0	0	1	0%	na	na	na	na	na
Basalt	A-54-225-MB	na	na	na	na	na	0	0	0	1	0%	12	12	12	1	100%	na	na	na	na	na
Salt Lake	A-54-310-MS	na	na	na	na	na	0	0	0	1	0%	5.1	5.1	5.1	1	100%	na	na	na	na	na

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater

	Analyte > >	O18 Stable Isotope					Radium 226					Radium 228					Thorium 230				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	ppt					pCi/L					pCi/L					pCi/L				
	Comparison Value > >	NA					HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L				
HydroUnit	**Station**																				
Wells	GW-39-MW	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-40-MW	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-47-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	na	na	na	na	na	0	0	0	4	0%	0	0	0	4	0%	na	na	na	na	na
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	0.73	0.73	0.73	2	50%	0.89	0.89	0.89	2	50%	na	na	na	na	na
Wells	GW-21-MW	-18.2	-18.2	-18.2	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-57-MS	na	na	na	na	na	0.37	0.37	0.37	1	100%	0	0	0	1	0%	0	0	0	1	0%
Alluvium	GW-A1-MA	na	na	na	na	na	0	0	0	3	0%	0.68	0.68	0.68	3	33%	na	na	na	na	na
Salt Lake	GW-NW7-IS	na	na	na	na	na	0	0	0	2	0%	0.59	0.59	0.59	2	50%	na	na	na	na	na
Salt Lake	GW-NW8-IS	na	na	na	na	na	0	0	0	2	0%	0	0	0	2	0%	na	na	na	na	na
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	-14.9	-14.9	-14.9	1	100%	0.22	0.22	0.22	3	33%	0	0	0	3	0%	0	0	0	1	0%
Thaynes	GW-7-IT	na	na	na	na	na	0	0	0	2	0%	0.89	0.89	0.89	2	50%	na	na	na	na	na
Basalt/Salt Lake	GW-8-IBS	-12.6	-12.6	-12.6	1	100%	0	0	0	3	0%	0	0	0	3	0%	0	0	0	1	0%
Offsite West																					
Salt Lake	A-14-180-MS	na	na	na	na	na	0	0	0	3	0%	1.44	1.44	1.44	3	33%	na	na	na	na	na
Basalt	A-15-105-MB	na	na	na	na	na	0	0	0	3	0%	0	0	0	3	0%	na	na	na	na	na
Salt Lake	A-16-190-MS	na	na	na	na	na	0.28	0.45	0.365	4	50%	0.57	0.58	0.573	4	75%	na	na	na	na	na
Salt Lake	A-17-150-MS	na	na	na	na	na	0	0	0	4	0%	0.42	0.42	0.42	4	25%	na	na	na	na	na
Basalt	A-27-090-MB	na	na	na	na	na	0.45	0.45	0.45	3	33%	1.11	1.11	1.11	3	33%	na	na	na	na	na
Basalt	A-27-135-MB	na	na	na	na	na	0.5	0.5	0.5	3	33%	0.51	0.51	0.51	3	33%	na	na	na	na	na
Basalt	A-28-110-MB	na	na	na	na	na	0.26	0.35	0.307	3	100%	0.58	0.67	0.61	3	100%	na	na	na	na	na
Basalt	A-28-165-MB	na	na	na	na	na	0.35	0.35	0.35	3	33%	0.67	0.67	0.67	3	33%	na	na	na	na	na
Basalt	A-29-145-MB	na	na	na	na	na	0.32	0.36	0.34	3	67%	0.6	0.6	0.6	3	33%	na	na	na	na	na
Basalt	A-29-195-MB	na	na	na	na	na	0.27	0.27	0.27	3	33%	0.49	0.49	0.49	3	33%	na	na	na	na	na
Basalt	A-30-135-MB	na	na	na	na	na	0	0	0	3	0%	0	0	0	3	0%	na	na	na	na	na
Basalt	A-30-175-MB	na	na	na	na	na	0.41	0.41	0.41	3	33%	0.72	1.21	0.965	3	67%	na	na	na	na	na
Basalt	A-35-080-MB	na	na	na	na	na	0.44	0.44	0.44	3	33%	0.51	0.51	0.51	3	33%	na	na	na	na	na
Basalt	A-35-155-MB	na	na	na	na	na	0.27	0.27	0.27	3	33%	0	0	0	3	0%	na	na	na	na	na
Basalt/Salt Lake	A-36-105-MBS	na	na	na	na	na	0.26	0.42	0.343	3	100%	0.51	0.66	0.585	3	67%	na	na	na	na	na
Salt Lake	A-36-145-MS	na	na	na	na	na	0.35	0.35	0.35	3	33%	0.56	0.56	0.56	3	33%	na	na	na	na	na
Basalt	A-49-095-MB	na	na	na	na	na	0.2	0.4	0.3	2	100%	0	0	0	2	0%	na	na	na	na	na
Basalt	A-49-135-MB	na	na	na	na	na	0	0	0	2	0%	0	0	0	2	0%	na	na	na	na	na
Salt Lake	A-49-185-MS	na	na	na	na	na	0.27	0.27	0.27	1	100%	0	0	0	1	0%	na	na	na	na	na
Basalt	A-54-135-MB	na	na	na	na	na	0	0	0	1	0%	0	0	0	1	0%	na	na	na	na	na
Basalt	A-54-225-MB	na	na	na	na	na	0.3	0.3	0.3	1	100%	0.61	0.61	0.61	1	100%	na	na	na	na	na
Salt Lake	A-54-310-MS	na	na	na	na	na	0	0	0	1	0%	0.49	0.49	0.49	1	100%	na	na	na	na	na

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater

	Analyte > >	Uranium 234					Uranium 235					Uranium 238					Uranium Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	pCi/L					pCi/L					pCi/L					pCi/L				
	Comparison Value > >	HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L					HH: 5 pCi/L				
HydroUnit	**Station**																				
Wells	GW-39-MW	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-40-MW	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-47-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-21-MW	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-57-MS	1.2	1.2	1.2	1	100%	0	0	0	1	0%	0.6	0.6	0.6	1	100%	1.8	1.8	1.8	1	100%
Alluvium	GW-A1-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-NW7-IS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-NW8-IS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	1.3	1.3	1.3	1	100%	0	0	0	1	0%	0.9	0.9	0.9	1	100%	2.2	2.2	2.2	1	100%
Thaynes	GW-7-IT	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt/Salt Lake	GW-8-IBS	2.1	2.1	2.1	1	100%	0	0	0	1	0%	1.2	1.2	1.2	1	100%	3.6	3.6	3.6	1	100%
Offsite West																					
Salt Lake	A-14-180-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-15-105-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-16-190-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-17-150-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-27-090-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-27-135-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-28-110-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-28-165-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-29-145-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-29-195-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-30-135-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-30-175-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-35-080-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-35-155-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt/Salt Lake	A-36-105-MBS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-36-145-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-49-095-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-49-135-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-49-185-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-54-135-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	A-54-225-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Salt Lake	A-54-310-MS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-41
Summary of Detected Radiochemistry Results in Groundwater
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

pCi/L = picocuries per liter; ppt = parts per trillion

If results are from different sources then they may reflect different analytical methodology.

More information about human health ("HH") groundwater comparison values is provided on Table 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

NA = comparison value not available.

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Calcium, Dissolved					Calcium, Total					Chloride, Total					Fluoride, Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 250					Eco: NA, HH: 4				
HydroUnit	**Station**																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	441	441	441	1	100%	210	210	210	1	100%	0	0	0	1	0%
Basalt	A-33-170-MB	na	na	na	na	na	191	191	191	1	100%	33.1	33.1	33.1	1	100%	0	0	0	1	0%
Basalt	A-50-070-MB	na	na	na	na	na	210	210	210	1	100%	46.2	46.2	46.2	1	100%	0	0	0	1	0%
Basalt	A-50-100-MB	na	na	na	na	na	202	202	202	1	100%	46.8	46.8	46.8	1	100%	0	0	0	1	0%
Salt Lake	A-50-125-MS	na	na	na	na	na	189	189	189	1	100%	43.3	43.3	43.3	1	100%	0	0	0	1	0%
	Boring1	89.7	181	141	11	100%	103	3170	950	11	100%	14.2	39.2	22.1	11	100%	0.1	0.28	0.179	11	82%
	Boring2	18.7	21.3	20	3	100%	22.8	45.1	37.2	3	100%	9.34	11	9.97	3	100%	2.03	2.27	2.18	3	100%
	Boring3	69.8	150	97.4	3	100%	77.5	3220	1134	3	100%	12.3	29.3	18.7	3	100%	0.1	0.33	0.213	3	100%
Wells	GW-11-IW	85.4	96.2	90.1	14	100%	83.3	96.6	90.8	15	100%	9.52	14.3	11.2	21	100%	0.083	0.347	0.15	21	95%
Salt Lake	GW-12-IS	25.8	31.2	28.1	11	100%	25.8	29.9	27.5	17	100%	5.77	6.75	6.23	18	100%	0.153	0.26	0.217	18	100%
Salt Lake	GW-13-IS	12.6	12.6	12.6	1	100%	11.1	14.7	13	3	100%	0.292	2.46	1.18	3	100%	0.14	0.15	0.145	3	67%
Wells	GW-14-MW	37.2	50.3	45.3	4	100%	47.4	60.5	54	11	100%	22.1	31	28.2	11	100%	1.23	1.54	1.37	11	100%
Salt Lake	GW-15-MS	270	297	284	5	100%	278	322	296	14	100%	7.2	8.53	7.89	14	100%	0.11	0.412	0.287	14	71%
Alluvium/Colluvium	GW-16-MA	195	239	217	4	100%	184	285	230	14	100%	5.69	8.3	7.37	13	100%	0.12	0.36	0.245	13	77%
Alluvium/Colluvium	GW-17-MA	111	119	116	4	100%	106	975	282	14	100%	5.26	11.9	8.5	13	100%	0.09	0.25	0.186	13	85%
Alluvium/Colluvium	GW-49-MA	174	183	179	2	100%	167	185	176	2	100%	33.1	36.9	35	2	100%	0	0	0	2	0%
Salt Lake	GW-50-MS	134	142	138	2	100%	148	185	167	2	100%	14.2	14.8	14.5	2	100%	0	0	0	2	0%
Salt Lake	GW-51-MS	93.5	95.4	94.5	2	100%	93.6	127	110	2	100%	17.5	18.5	18	2	100%	0.11	0.12	0.115	2	100%
Alluvium/Colluvium	GW-52-MA	129	129	129	1	100%	140	140	140	1	100%	7.33	7.33	7.33	1	100%	0.16	0.16	0.16	1	100%
Salt Lake	GW-53-MS	19.7	19.7	19.7	1	100%	20.4	20.4	20.4	1	100%	27.7	27.7	27.7	1	100%	2.31	2.31	2.31	1	100%
Alluvium/Colluvium	GW-54-MA	105	137	121	2	100%	106	219	163	2	100%	27.6	34.1	30.9	2	100%	0.52	1.77	1.15	2	100%
Salt Lake	GW-55-MS	343	343	343	1	100%	344	344	344	1	100%	70.3	70.3	70.3	1	100%	1.79	1.79	1.79	1	100%
Salt Lake	GW-56-MS	74.5	76.7	75.6	2	100%	77.5	84.8	81.2	2	100%	15.6	16.7	16.2	2	100%	0.11	0.14	0.125	2	100%
Salt Lake	GW-9-IS	80	209	180	11	100%	75.2	200	176	17	100%	5.39	19.8	15.2	18	100%	0.08	0.39	0.26	18	94%
Basalt/Salt Lake	GW-MWB-MBS	109	153	135	6	100%	116.7	352	167	14	100%	26.1	125	50.3	20	100%	**16**	**706**	**125**	20	100%
Basalt/Salt Lake	GW-NW9-IBS	144	226	195	6	100%	156	305	214	15	100%	44.9	91.3	71	21	100%	**8.2**	**415**	**49.1**	21	100%
Basalt	MW-A-110-MB	291	351	322	6	100%	318	377	349	6	100%	**300**	**1030**	**481**	12	100%	**5.2**	**18.3**	**12.6**	12	100%
	NTP-PZ-02	266	289	278	2	100%	254	338	296	2	100%	14.6	14.9	14.8	2	100%	0	0	0	2	0%
Margarette Creek/Trail Canyon Sub-Basin																					
Dinwoody	GW-LRSN-1-DD	62.9	67.5	64.7	3	100%	59.4	71.4	63.8	9	100%	9.79	12	11.5	9	100%	0.094	0.245	0.157	9	100%
Dinwoody	GW-LRSN-2-DD	38.4	42.8	41.3	3	100%	37.3	44.7	40.1	9	100%	8.18	10.6	9.39	9	100%	0.102	0.26	0.171	9	100%
Alluvium	MW-10A	57	64.1	60.3	7	100%	50	63	58.5	12	100%	2	9	5.72	18	100%	0.11	0.36	0.175	19	100%
Dinwoody	MW-11Da	50.1	54.3	52.2	5	100%	na	na	na	na	na	7.2	9.11	7.86	5	100%	0.21	0.26	0.234	5	100%
Dinwoody	MW-11Db	49.8	52	51.4	6	100%	47	54	49.2	12	100%	4	14	8.68	18	100%	0.17	0.38	0.232	17	100%
Wells	MW-12W	46	51.2	48.9	6	100%	45	52	49	12	100%	10	17	12.7	18	100%	0.28	0.57	0.332	18	100%
Wells	MW-4W	75	228	195	5	100%	205	243	226	12	100%	2	5	3.59	16	100%	0.73	1.16	0.898	17	100%
Alluvium	MW-5A	143	209	171	5	100%	148	200	172	12	100%	3	9	4.73	16	100%	0.62	0.95	0.751	17	100%
Dinwoody	MW-6D	39.5	44.1	42.1	6	100%	40.4	45	42.4	12	100%	6	11	7.7	18	100%	0.25	0.43	0.331	18	100%
Alluvium	MW-7A	55.3	68200	11425	6	100%	61	94	78.1	12	100%	3.8	7	5.45	18	100%	0.14	0.44	0.235	18	100%
Old Tailings Pond Sub-Basin																					
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	273	622	479	3	100%	5.58	7.2	6.39	2	100%	0.539	0.539	0.539	2	50%
Salt Lake	GW-19-MS	122	136	127	4	100%	121	132	128	11	100%	4.17	9.51	7.1	11	100%	0.035	0.19	0.133	11	45%
Dinwoody	GW-37-MD	233	293	263	2	100%	245	294	268	8	100%	4.95	6.31	5.6	8	100%	0.12	0.54	0.357	8	50%
Tailings	TP2-SB3	488	488	488	1	100%	627	627	627	1	100%	76.6	76.6	76.6	1	100%	0	0	0	1	0%
Tailings	TP2-SB5	na	na	na	na	na	26400	26400	26400	1	100%	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	193	389	314	5	80%	153	534	314	13	100%	3.46	13.8	5.75	11	100%	0.06	0.301	0.19	11	27%
Dinwoody	GW-29-MD	64.2	73.2	68.4	6	100%	64.5	75.2	68.5	16	100%	3.02	5.63	3.6	16	100%	0.068	0.374	0.149	16	100%
Alluvium/Colluvium	GW-30-MA	65.6	91.5	72.5	5	100%	57.4	95.9	77.3	15	100%	3.59	7.97	5.06	15	100%	0.096	0.414	0.177	15	100%
Alluvium/Colluvium	GW-38-MA	137	137	137	1	100%	212	343	259	4	100%	1.88	3.58	2.47	3	100%	0.104	0.4	0.252	3	67%
Alluvium/Colluvium	GW-41-MA	262	600	446	5	100%	263	594	462	5	100%	6.62	13.2	10.9	5	100%	0.85	2.28	1.79	5	100%
Dinwoody	GW-42-MD	115	135	126	5	100%	122	156	133	5	100%	4.03	14	6.14	5	100%	0.15	0.22	0.188	5	80%
Dinwoody	GW-44-MD	98.1	123	110	5	100%	97.2	157	117	5	100%	4.97	13.6	7.13	5	100%	0.13	0.22	0.18	5	80%
Alluvium/Colluvium	GW-45-MA	101	117	108	4	100%	101	115	107	4	100%	4.21	4.4	4.26	4	100%	0.14	0.19	0.163	4	100%
Dinwoody	GW-46-MD	74.7	85.3	81.6	5	100%	80.2	86.1	83.2	5	100%	3.46	7.17	4.49	5	100%	0.11	0.19	0.14	5	100%
Shield and Jouglard Canyons Sub-Basin																					
Meade Peak	GW-22-MM	352	358	355	2	100%	352	499	412	6	100%	0.701	2.33	1.55	6	83%	0.112	2.61	0.797	6	100%
Meade Peak	GW-23-MM	84.4	84.4	84.4	1	100%	173	449	311	2	100%	2.59	2.59	2.59	1	100%	1.57	1.57	1.57	1	100%
Colluvium	GW-24-MA	121	137	129	2	100%	123	259	171	7	100%	0.86	8.19	2.49	7	100%	1.18	2.21	1.43	7	100%
Wells	GW-31-MW	24.5	46.2	31.1	4	100%	26.3	47.6	33.7	10	100%	18.7	39.4	23.5	10	100%	0.551	0.803	0.641	10	100%
Dinwoody	GW-32-MD	51.2	77.6	64.3	4	100%	56.6	75.8	68.3	10	100%	4.62	15.7	6.38	10	100%	0.153	0.313	0.221	10	100%

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: NA				
HydroUnit	Station																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	242	242	242	1	100%	na	na	na	na	na	27.7	27.7	27.7	1	100%
Basalt	A-33-170-MB	na	na	na	na	na	58.2	58.2	58.2	1	100%	na	na	na	na	na	4.96	4.96	4.96	1	100%
Basalt	A-50-070-MB	na	na	na	na	na	49.7	49.7	49.7	1	100%	na	na	na	na	na	4.73	4.73	4.73	1	100%
Basalt	A-50-100-MB	na	na	na	na	na	46.8	46.8	46.8	1	100%	na	na	na	na	na	4.07	4.07	4.07	1	100%
Salt Lake	A-50-125-MS	na	na	na	na	na	44	44	44	1	100%	na	na	na	na	na	3.69	3.69	3.69	1	100%
	Boring1	23.6	57.3	43.9	11	100%	29.3	1380	381	11	100%	1.47	4.09	2.36	11	100%	5.32	199	51	11	100%
	Boring2	8.44	9.75	8.99	3	100%	9.75	14.2	12.4	3	100%	8.48	9.24	8.94	3	100%	8.89	11.5	10.3	3	100%
	Boring3	20.4	43	28.7	3	100%	23.4	586	213	3	100%	2.15	4.92	3.51	3	100%	6.57	110	41.5	3	100%
Wells	GW-11-IW	13.5	15.9	14.8	14	100%	13.9	16.2	15.1	15	100%	1.06	1.26	1.17	14	100%	1.14	1.21	1.17	8	100%
Salt Lake	GW-12-IS	22.5	24.7	24	11	100%	22.7	25.5	23.9	17	100%	8.05	8.85	8.58	11	100%	8.19	9.52	8.56	10	100%
Salt Lake	GW-13-IS	0.871	0.871	0.871	1	100%	0.919	1.16	1.01	3	100%	3.73	3.73	3.73	1	100%	3.71	3.71	3.71	1	100%
Wells	GW-14-MW	18.6	25.1	22.7	4	100%	23	30.4	27	11	100%	4.96	6.71	5.77	4	100%	5.12	7.4	6.45	4	100%
Salt Lake	GW-15-MS	39.2	42.9	40.9	5	100%	39.9	45.1	42.6	14	100%	4.7	5.22	5.01	5	100%	4.89	5.26	5.04	5	100%
Alluvium/Colluvium	GW-16-MA	31.1	38	33.4	4	100%	29.8	65.3	39.1	14	100%	3.68	6.61	4.57	4	100%	3.87	13.9	6.4	5	100%
Alluvium/Colluvium	GW-17-MA	36.8	40.2	37.8	4	100%	34.4	392	108	14	100%	1.31	2.34	1.81	4	100%	2.21	26.3	12.6	5	100%
Alluvium/Colluvium	GW-49-MA	47.8	55.8	51.8	2	100%	44.9	56.4	50.7	2	100%	1.56	1.58	1.57	2	100%	1.8	1.82	1.81	2	100%
Salt Lake	GW-50-MS	48.1	52.6	50.4	2	100%	55	64.2	59.6	2	100%	1.64	1.9	1.77	2	100%	2.37	8.24	5.31	2	100%
Salt Lake	GW-51-MS	24.2	24.7	24.5	2	100%	24.5	40	32.3	2	100%	3.5	3.69	3.6	2	100%	3.64	9.62	6.63	2	100%
Alluvium/Colluvium	GW-52-MA	19.4	19.4	19.4	1	100%	23.6	23.6	23.6	1	100%	2.64	2.64	2.64	1	100%	7.53	7.53	7.53	1	100%
Salt Lake	GW-53-MS	7.35	7.35	7.35	1	100%	7.71	7.71	7.71	1	100%	8.75	8.75	8.75	1	100%	9.23	9.23	9.23	1	100%
Alluvium/Colluvium	GW-54-MA	25.7	25.7	25.7	2	50%	16.9	24.2	20.6	2	100%	3.75	8.39	6.07	2	100%	4.29	15.9	10.1	2	100%
Salt Lake	GW-55-MS	0	0	0	1	0%	1.63	1.63	1.63	1	100%	19.7	19.7	19.7	1	100%	20.1	20.1	20.1	1	100%
Salt Lake	GW-56-MS	22.4	23.1	22.8	2	100%	23.3	26.5	24.9	2	100%	3.38	3.44	3.41	2	100%	3.45	6.2	4.83	2	100%
Salt Lake	GW-9-IS	14.1	37.4	32.7	11	100%	13.3	38.2	32.4	17	100%	0.964	2.33	2.09	11	100%	0.984	2.26	2.04	10	100%
Basalt/Salt Lake	GW-MWB-MBS	49.2	238	95.8	6	100%	48.1	334	140	14	100%	4.15	14	7.66	6	100%	4.05	21.5	10.3	14	100%
Basalt/Salt Lake	GW-NW9-IBS	59.6	94.8	80.8	6	100%	62.9	170	96	15	100%	4.18	7.65	6.46	6	100%	6.27	26.3	9.49	15	100%
Basalt	MW-A-110-MB	199	252	224	6	100%	220	254	238	6	100%	17.8	24.9	21.3	6	100%	22.1	24	23.4	6	100%
	NTP-PZ-02	62.2	66	64.1	2	100%	59.4	73.3	66.4	2	100%	5.71	6.13	5.92	2	100%	6.04	8.29	7.17	2	100%
Margarette Creek/Trail Canyon Sub-Ba																					
Dinwoody	GW-LRSN-1-DD	16.3	17.8	17	3	100%	15.7	18.2	16.7	9	100%	0.763	0.89	0.828	3	100%	0.753	0.872	0.813	3	100%
Dinwoody	GW-LRSN-2-DD	12.3	13.4	12.9	3	100%	11.5	13.1	12.5	9	100%	0.684	0.756	0.711	3	100%	0.694	0.74	0.72	3	100%
Alluvium	MW-10A	12	14.9	13.4	7	100%	9	14	11.9	12	100%	1.12	1.54	1.23	7	100%	1	2	1.2	12	100%
Dinwoody	MW-11Da	12.7	13.3	13	5	100%	na	na	na	na	na	1.27	1.39	1.35	5	100%	na	na	na	na	na
Dinwoody	MW-11Db	13.4	15	14.1	6	100%	13	15	13.8	12	100%	1.37	1.5	1.46	6	100%	1	2	1.63	12	100%
Wells	MW-12W	13.4	14.7	14	6	100%	12	14.4	13.7	12	100%	0.96	1.11	1.04	6	100%	0.9	1.1	0.994	12	100%
Wells	MW-4W	52	54.1	52.9	4	100%	48	58	52.3	12	100%	2.09	2.36	2.22	5	100%	2	3	2.48	12	100%
Alluvium	MW-5A	39	52	43.9	5	100%	38.4	51	43.7	12	100%	1.38	1.7	1.55	4	100%	1.5	2	1.82	12	100%
Dinwoody	MW-6D	23	25.1	24.2	6	100%	21.2	23	22.1	12	100%	1.51	1.86	1.66	6	100%	1.4	2	1.7	12	100%
Alluvium	MW-7A	11.8	14.9	13.6	6	100%	10.6	55	16.3	12	100%	1.18	1.4	1.32	6	100%	1	2	1.2	12	100%
Old Tailings Pond Sub-Basin																					
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	51.2	98.8	79.5	3	100%	na	na	na	na	na	18.9	33	26	2	100%
Salt Lake	GW-19-MS	32.9	36.5	35	4	100%	33.3	35.7	34.6	11	100%	5.83	6.64	6.26	4	100%	6.11	6.39	6.24	4	100%
Dinwoody	GW-37-MD	55.9	61.6	58.8	2	100%	58	70.5	60.6	8	100%	1.63	1.66	1.65	2	100%	1.76	1.87	1.82	2	100%
Tailings	TP2-SB3	165	165	165	1	100%	175	175	175	1	100%	7.49	7.49	7.49	1	100%	16.8	16.8	16.8	1	100%
Tailings	TP2-SB5	na	na	na	na	na	2740	2740	2740	1	100%	na	na	na	na	na	157	157	157	1	100%
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	57.5	142	109	5	100%	52.9	230	114	13	100%	0.998	1.9	1.49	5	100%	1.05	29	6.95	5	100%
Dinwoody	GW-29-MD	7.29	8.5	7.87	6	100%	7.49	9.4	8.09	16	100%	0.592	1.57	0.78	6	100%	0.586	2.42	0.979	6	100%
Alluvium/Colluvium	GW-30-MA	8.97	12.4	10.2	5	100%	8.51	13.6	11.1	15	100%	0.652	1.46	1.03	5	100%	0.955	4.26	2.1	5	80%
Alluvium/Colluvium	GW-38-MA	35.7	35.7	35.7	1	100%	45.2	207	99.9	4	100%	2.03	2.03	2.03	1	100%	8.07	157	82.5	2	100%
Alluvium/Colluvium	GW-41-MA	98.7	290	198	5	100%	99	284	205	5	100%	3.58	5.96	5.03	5	100%	3.57	39	11.9	5	100%
Dinwoody	GW-42-MD	31.4	36.9	34.9	5	100%	34.3	56.7	40.1	5	100%	1.19	2.75	1.63	5	100%	1.36	15.3	4.57	5	100%
Dinwoody	GW-44-MD	34.3	40.4	36.9	5	100%	35.3	62.4	42.7	5	100%	1.31	3.97	1.96	5	100%	1.46	14.1	4.31	5	100%
Alluvium/Colluvium	GW-45-MA	14.6	15.4	14.9	4	100%	14.4	15.1	14.6	4	100%	0.488	2.21	1.02	4	100%	0.579	2.11	1.03	4	100%
Dinwoody	GW-46-MD	11.5	14.2	13.2	5	100%	12.9	19.1	14.6	5	100%	0.442	1.53	0.731	5	100%	0.486	7.25	1.88	5	100%
Shield and Jouglard Canyons Sub-Bas																					
Meade Peak	GW-22-MM	48.1	50.3	49.2	2	100%	33.6	53.2	43.5	6	100%	5.69	6.35	6.02	2	100%	5.88	12.4	9.14	2	100%
Meade Peak	GW-23-MM	18.2	18.2	18.2	1	100%	33.5	60.9	47.2	2	100%	1.41	1.41	1.41	1	100%	16.4	16.4	16.4	1	100%
Colluvium	GW-24-MA	23.2	25.8	24.5	2	100%	21.6	32.9	27	7	100%	0.749	1.54	1.14	2	100%	0.868	1.58	1.22	2	100%
Wells	GW-31-MW	18	40.6	25.6	4	100%	20.2	42	29	10	100%	5.94	7.79	6.72	4	100%	6.57	8.18	7.1	4	100%
Dinwoody	GW-32-MD	15.4	20.8	18.3	4	100%	17.4	21.4	19.5	10	100%	0.856	1.6	1.1	4	100%	0.898	2.42	1.5	4	100%

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Sodium, Dissolved					Sodium, Total					Sulfate, Total					Sulfate, Total (field)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 250					Eco: NA, HH: 250				
HydroUnit	**Station**																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	177	177	177	1	100%	**1620**	**1620**	**1620**	1	100%	na	na	na	na	na
Basalt	A-33-170-MB	na	na	na	na	na	26.4	26.4	26.4	1	100%	**423**	**423**	**423**	1	100%	na	na	na	na	na
Basalt	A-50-070-MB	na	na	na	na	na	84.5	84.5	84.5	1	100%	**459**	**459**	**459**	1	100%	na	na	na	na	na
Basalt	A-50-100-MB	na	na	na	na	na	77.4	77.4	77.4	1	100%	**448**	**448**	**448**	1	100%	na	na	na	na	na
Salt Lake	A-50-125-MS	na	na	na	na	na	79	79	79	1	100%	**427**	**427**	**427**	1	100%	na	na	na	na	na
	Boring1	14	38.1	27.6	11	100%	13.9	55.9	31.5	11	100%	93.6	**381**	246	11	100%	7	**308**	141	11	100%
	Boring2	65.1	70.4	67.1	3	100%	65	69	66.5	3	100%	36.4	37	36.6	3	100%	0	2	1	3	100%
	Boring3	10.6	26.5	16	3	100%	10.9	38.6	20.3	3	100%	29.4	157	75.8	3	100%	0	86	30.3	3	100%
Wells	GW-11-IW	6.41	10.4	7.41	14	100%	6.95	8.85	7.5	8	100%	43.9	59.9	49.2	22	100%	na	na	na	na	na
Salt Lake	GW-12-IS	24.4	27.1	25.7	11	100%	24.2	26.5	25.3	10	100%	12.3	14.7	13.1	19	100%	na	na	na	na	na
Salt Lake	GW-13-IS	1.16	1.16	1.16	1	100%	1.23	1.23	1.23	1	100%	2.8	3.38	3.11	3	100%	na	na	na	na	na
Wells	GW-14-MW	43.9	63.6	55.4	4	100%	44.7	65.2	57.3	4	100%	65.6	221	171	11	100%	na	na	na	na	na
Salt Lake	GW-15-MS	15.5	16.7	16	5	100%	15.6	17	16.5	5	100%	**483**	**634**	**549**	14	100%	na	na	na	na	na
Alluvium/Colluvium	GW-16-MA	15.9	16.3	16.1	4	100%	16	17	16.7	5	100%	**260**	**405**	**365**	13	100%	na	na	na	na	na
Alluvium/Colluvium	GW-17-MA	21.7	26.6	24	4	100%	23.4	33.9	28.7	5	100%	68.4	209	118	13	100%	na	na	na	na	na
Alluvium/Colluvium	GW-49-MA	33.3	34.7	34	2	100%	31.7	35.1	33.4	2	100%	155	187	171	2	100%	na	na	na	na	na
Salt Lake	GW-50-MS	38.8	46.4	42.6	2	100%	41.4	44.4	42.9	2	100%	**285**	**304**	**295**	2	100%	na	na	na	na	na
Salt Lake	GW-51-MS	14.1	15	14.6	2	100%	15.2	15.5	15.4	2	100%	97.3	102	99.7	2	100%	na	na	na	na	na
Alluvium/Colluvium	GW-52-MA	16.5	16.5	16.5	1	100%	16.6	16.6	16.6	1	100%	112	112	112	1	100%	na	na	na	na	na
Salt Lake	GW-53-MS	145	145	145	1	100%	159	159	159	1	100%	174	174	174	1	100%	na	na	na	na	na
Alluvium/Colluvium	GW-54-MA	30.7	56.6	43.7	2	100%	30	57.2	43.6	2	100%	81.5	186	134	2	100%	na	na	na	na	na
Salt Lake	GW-55-MS	166	166	166	1	100%	159	159	159	1	100%	133	133	133	1	100%	na	na	na	na	na
Salt Lake	GW-56-MS	11.5	11.8	11.7	2	100%	12	12.4	12.2	2	100%	40.5	41.5	41	2	100%	na	na	na	na	na
Salt Lake	GW-9-IS	7.64	21.8	19.9	11	100%	7.25	22.4	19.7	10	100%	101	**291**	233	19	100%	na	na	na	na	na
Basalt/Salt Lake	GW-MWB-MBS	30.8	163	64.8	6	100%	29.1	166.4	79.1	14	100%	**252**	**1727**	**706**	20	100%	na	na	na	na	na
Basalt/Salt Lake	GW-NW9-IBS	60.5	71.2	64.6	6	100%	44.3	95.8	69.1	15	100%	**406**	**937**	**609**	21	100%	na	na	na	na	na
Basalt	MW-A-110-MB	117	166	138	6	100%	135	165	149	6	100%	**533**	**1850**	**1044**	12	100%	na	na	na	na	na
	NTP-PZ-02	29.3	31.7	30.5	2	100%	29	32.3	30.7	2	100%	161	164	163	2	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Ba																					
Dinwoody	GW-LRSN-1-DD	10.9	11.8	11.4	3	100%	10.5	11	10.8	3	100%	11.9	18.9	14.9	10	100%	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	9.4	9.73	9.57	3	100%	8.7	9.25	8.98	3	100%	10.9	14	12.2	10	100%	na	na	na	na	na
Alluvium	MW-10A	5.61	6.64	6.19	6	100%	5	7	6.04	13	100%	6.7	16	9.11	19	89%	na	na	na	na	na
Dinwoody	MW-11Da	8.68	10.4	9.12	5	100%	na	na	na	na	na	7.4	8.57	7.88	5	100%	na	na	na	na	na
Dinwoody	MW-11Db	7.86	16.4	11.8	5	100%	9.5	19	12	13	100%	7.68	13	9	18	100%	na	na	na	na	na
Wells	MW-12W	11.3	14.6	13.1	5	100%	8.1	22	10.7	13	100%	7	13	9.58	18	94%	na	na	na	na	na
Wells	MW-4W	0.0786	3.86	2.83	4	100%	3.5	5	3.92	13	100%	25.6	40	33.6	17	100%	na	na	na	na	na
Alluvium	MW-5A	3.76	5.46	4.38	4	100%	3.8	5	4.13	13	100%	26.6	38	32.5	17	100%	na	na	na	na	na
Dinwoody	MW-6D	8.12	9.48	9.06	5	100%	7.6	9	8.28	13	100%	9	17	11.8	18	100%	na	na	na	na	na
Alluvium	MW-7A	6.24	7.95	7.31	5	100%	5.8	10	7.38	13	100%	7.1	21	13.5	18	100%	na	na	na	na	na
Old Tailings Pond Sub-Basin																					
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	30.9	31.4	31.2	2	100%	**507**	**556**	**532**	2	100%	na	na	na	na	na
Salt Lake	GW-19-MS	26.8	32.6	29.9	4	100%	26.6	32.2	30.4	4	100%	30.5	46.2	40.9	12	100%	na	na	na	na	na
Dinwoody	GW-37-MD	24.3	24.3	24.3	2	100%	23.6	25.2	24.4	2	100%	**442**	**648**	**544**	8	100%	na	na	na	na	na
Tailings	TP2-SB3	145	145	145	1	100%	154	154	154	1	100%	**1770**	**1770**	**1770**	1	100%	na	na	na	na	na
Tailings	TP2-SB5	na	na	na	na	na	401	401	401	1	100%	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	12.3	18	15.2	5	100%	12.9	19.6	16.3	5	100%	**548**	**1520**	**1117**	11	100%	na	na	na	na	na
Dinwoody	GW-29-MD	5.38	14.2	7.07	6	100%	5.42	16.2	7.55	6	100%	44.1	59.8	50.6	16	100%	na	na	na	na	na
Alluvium/Colluvium	GW-30-MA	6.21	7.7	6.96	5	100%	6.77	7.45	7.17	5	80%	15.7	176	95.2	15	100%	na	na	na	na	na
Alluvium/Colluvium	GW-38-MA	3.5	3.5	3.5	1	100%	7.15	9.16	8.16	2	100%	**457**	**628**	**553**	3	100%	na	na	na	na	na
Alluvium/Colluvium	GW-41-MA	13.2	27	21.1	5	100%	13.2	26.6	21.3	5	100%	**975**	**2340**	**1749**	5	100%	na	na	na	na	na
Dinwoody	GW-42-MD	8.45	23	11.6	5	100%	8.35	24	11.8	5	100%	239	**275**	**255**	5	100%	na	na	na	na	na
Dinwoody	GW-44-MD	13.7	18.4	15.8	5	100%	13.7	18.4	16.3	5	100%	152	186	174	5	100%	na	na	na	na	na
Alluvium/Colluvium	GW-45-MA	6.3	10.6	8.28	4	100%	5.85	10.1	7.97	4	100%	88.5	108	98.8	4	100%	na	na	na	na	na
Dinwoody	GW-46-MD	4.92	9.46	5.95	5	100%	4.89	9.95	6.09	5	100%	47.5	76.3	56.9	5	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Bas																					
Meade Peak	GW-22-MM	13.2	13.9	13.6	2	100%	14.3	16.9	15.6	2	100%	**1010**	**1430**	**1165**	6	100%	na	na	na	na	na
Meade Peak	GW-23-MM	5.13	5.13	5.13	1	100%	8.38	8.38	8.38	1	100%	**419**	**419**	**419**	1	100%	na	na	na	na	na
Colluvium	GW-24-MA	2.3	5.2	3.75	2	100%	2.15	5.25	3.7	2	100%	218	**376**	**320**	7	100%	na	na	na	na	na
Wells	GW-31-MW	82.7	117	99	4	100%	89.5	125	104	4	100%	125	**263**	166	10	100%	na	na	na	na	na
Dinwoody	GW-32-MD	9.88	73.2	26.6	4	100%	10.4	76.1	27.5	4	100%	35.5	104	67.4	10	100%	na	na	na	na	na

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Calcium, Dissolved					Calcium, Total					Chloride, Total					Fluoride, Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 250					Eco: NA, HH: 4				
HydroUnit	**Station**																				
Rex Chert	GW-33-MR	42.7	78.6	63.1	4	100%	42.6	73.4	64.7	10	100%	4.46	8.05	5.3	10	100%	0.07	1.8	0.362	10	80%
Alluvium/Colluvium	GW-34-MA	55.8	55.8	55.8	1	100%	27.7	160	76.7	6	100%	2.32	4.86	2.99	6	100%	0.13	0.261	0.175	6	100%
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	40.8	110	76.5	4	100%	40.8	214	90.2	15	100%	2.75	10.5	5.67	14	100%	0.34	2.04	0.88	14	100%
Dinwoody	GW-26-MD	54.5	57.8	56.3	3	100%	53.6	89.2	64.2	13	100%	3.86	8.42	6.12	13	100%	0.16	0.274	0.205	13	100%
Alluvium/Colluvium	GW-27-MA	48.8	61.5	53.9	4	100%	41.5	65.6	52.8	15	100%	10.4	16.6	12.9	15	100%	0.201	0.42	0.277	15	100%
Wells	GW-39-MW	58.4	65.2	62.6	5	100%	59.4	64.4	61.9	7	100%	4.91	5.93	5.33	7	100%	0.14	0.23	0.185	7	86%
Wells	GW-40-MW	51.6	69.2	64.2	8	100%	51.7	68	62.6	10	100%	5.16	6.31	5.87	10	100%	0.2	0.32	0.257	10	90%
Alluvium/Colluvium	GW-47-MA	102	117	108	3	100%	95.8	115	107	3	100%	4.93	7.53	5.91	3	100%	0.25	0.29	0.267	3	100%
Wells	MW-1W	61.3	67.3	65.4	6	100%	62	69	65.4	11	100%	4	8	6.51	16	100%	0.12	0.45	0.183	15	100%
Rex Chert	MW-2R	36.1	40	37.6	3	100%	36.7	44	40.1	12	100%	3	8	5.38	15	100%	0.15	0.39	0.209	14	100%
Alluvium	MW-3A	20	25.5	23.1	4	100%	21.2	27	23	8	100%	3.79	7	4.7	12	100%	0.19	0.47	0.271	12	100%
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	101	127	115	3	100%	na	na	na	na	na	14.7	16.2	15.6	4	100%	0.074	0.13	0.101	4	75%
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	207	242	225	2	100%	108	232	170	2	100%	1.4	1.4	1.4	2	50%
	Boring5	110	141	127	10	100%	127	272	167	10	100%	18.4	23.5	21.4	10	100%	0	0	0	10	0%
Wells	GW-21-MW	52.7	65	61.7	4	100%	58.6	69.6	64.3	10	100%	15.1	26.1	17.9	10	100%	0.135	0.389	0.242	10	100%
Salt Lake	GW-57-MS	64.9	64.9	64.9	1	100%	65.5	65.5	65.5	1	100%	18.8	18.8	18.8	1	100%	0.27	0.27	0.27	1	100%
Alluvium	GW-A1-MA	60.9	69.1	64.6	5	100%	60.7	72	66	10	100%	15	22.1	18	16	100%	0.077	0.5	0.217	16	25%
Salt Lake	GW-NW7-IS	113	133	120	6	100%	96	128.3	109	10	100%	14	24.5	19.8	16	100%	0.1	0.12	0.107	16	19%
Salt Lake	GW-NW8-IS	61.1	67.7	64	6	100%	59	69.89	65	8	100%	9	15	11.9	14	100%	0.093	0.171	0.137	14	43%
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	172	240	206	11	100%	184	238	207	11	100%	33.3	62.5	46.7	17	100%	0.1	0.9	0.281	17	65%
Thaynes	GW-7-IT	177	239	209	8	100%	190	228	210	8	100%	44.2	73.7	58.4	13	100%	0.421	1.41	0.831	13	92%
Basalt/Salt Lake	GW-8-IBS	173	290	211	10	100%	193	218	202	10	100%	48.6	73.5	60.1	16	100%	0.683	2.06	1.51	16	94%
Alluvium	MW-13A	231	270	254	3	100%	205	266	235	12	100%	2	6	4.02	15	100%	1.1	1.77	1.34	15	100%
Wells	MW-14W	247	257	252	3	100%	230	283	255	12	100%	2	5	3.77	15	100%	1.17	1.76	1.36	15	100%
Wells	MW-17W	184	196	190	4	100%	178	216	197	6	100%	18	28.6	25.1	10	100%	0.85	1.15	0.962	10	100%
Dinwoody	MW-18Da	39.3	62	49.8	6	100%	49	62.2	54.9	7	100%	6.5	14.5	10	12	100%	0.17	0.26	0.212	12	100%
Dinwoody	MW-18Db	51.2	53.4	52.7	6	100%	43	52.2	50.4	7	100%	7.3	13	11	12	100%	0.16	0.26	0.195	12	100%
Basalt	MW-22B	204	249	225	8	100%	na	na	na	na	na	3.3	6	4.35	8	100%	1	1.5	1.29	8	100%
Wells	MW-23W	198	242	220	8	100%	na	na	na	na	na	8.9	10.8	9.59	8	100%	1.3	1.5	1.43	8	100%
Wells	MW-24W	218	258	242	8	100%	na	na	na	na	na	3.4	8	5.85	8	100%	1.3	1.7	1.39	8	100%
Wells	MW-8W	54.6	70.6	64.2	5	100%	58.1	82	66.2	12	100%	6	14	8.61	17	100%	0.12	0.35	0.18	17	100%

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: NA				
HydroUnit	**Station**																				
Rex Chert	GW-33-MR	15.7	19.8	17.7	4	100%	10.4	18.6	16.6	10	100%	1.08	1.45	1.25	4	100%	1.16	1.47	1.27	4	100%
Alluvium/Colluvium	GW-34-MA	6.11	6.11	6.11	1	100%	4.15	72.8	21.3	6	100%	2.16	2.16	2.16	1	100%	4.49	4.49	4.49	1	100%
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	7.23	24.8	16.2	4	100%	8.27	55.7	21.3	15	100%	0.817	2.15	1.32	4	100%	0.885	2.96	1.53	4	100%
Dinwoody	GW-26-MD	16.3	17	16.7	3	100%	15	18.6	17	13	100%	1.05	1.22	1.12	3	100%	1.04	3.41	1.85	3	100%
Alluvium/Colluvium	GW-27-MA	10.5	12.8	11.4	4	100%	8.92	14.2	11.3	15	100%	0.299	3	1.27	4	75%	0.301	3.11	1.22	4	100%
Wells	GW-39-MW	37.1	40.8	39.2	5	100%	37.4	39.5	38.5	7	100%	0.505	0.697	0.588	5	100%	0.502	0.584	0.56	5	100%
Wells	GW-40-MW	52.8	57.4	55.7	8	100%	51.5	58.7	54.8	10	100%	0.633	1.18	1.01	8	100%	0.662	1.46	1.14	8	100%
Alluvium/Colluvium	GW-47-MA	23	26.6	24.6	3	100%	22.2	27.8	25.9	3	100%	1.84	5.71	3.13	3	100%	1.81	9.86	4.53	3	100%
Wells	MW-1W	22.3	24	23.6	6	100%	21	24	22.5	11	100%	1.01	1.12	1.06	6	100%	0.97	1	0.995	11	91%
Rex Chert	MW-2R	22.6	24	23.2	3	100%	21.2	25	23.4	12	100%	1.18	1.3	1.23	3	100%	1	1.3	1.14	12	100%
Alluvium	MW-3A	5.5	6.95	6.17	4	100%	5.6	7	6.09	8	100%	0.46	0.79	0.656	4	75%	0.4	4	1.27	8	63%
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	26.6	35	31	3	100%	na	na	na	na	na	4.27	4.8	4.52	3	100%	na	na	na	na	na
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	220	254	237	2	100%	na	na	na	na	na	7.87	8.49	8.18	2	100%
	Boring5	33	43.3	38.7	10	100%	38.6	68.1	45.9	10	100%	4.72	5.35	5.06	10	100%	5.43	16.8	8.25	10	100%
Wells	GW-21-MW	14.3	18.5	17.1	4	100%	15.7	20.2	18.1	10	100%	2.26	2.88	2.45	4	100%	2.31	3.02	2.51	4	100%
Salt Lake	GW-57-MS	22.3	22.3	22.3	1	100%	22.1	22.1	22.1	1	100%	8.87	8.87	8.87	1	100%	9.07	9.07	9.07	1	100%
Alluvium	GW-A1-MA	16.9	19.4	17.8	5	100%	17.8	20.6	19	10	100%	1.14	1.42	1.31	5	100%	1.2	1.58	1.38	10	100%
Salt Lake	GW-NW7-IS	32.7	38.5	34.3	6	100%	29.4	35.85	32.9	10	100%	4.74	5.48	4.98	6	100%	4.26	5.324	4.77	10	100%
Salt Lake	GW-NW8-IS	16.9	18.3	17.7	6	100%	17.5	20.1	18.8	8	100%	4.02	4.54	4.35	6	100%	3.9	5.01	4.45	8	100%
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	52.8	97.7	76.6	11	100%	58.5	103	80.1	11	100%	6.33	12.5	9.43	11	100%	8.27	13.1	10.9	5	100%
Thaynes	GW-7-IT	50.6	72.6	61.9	8	100%	55.7	80.3	64	8	100%	6.05	9.73	7.26	8	100%	6.26	7.74	7.12	3	100%
Basalt/Salt Lake	GW-8-IBS	46.6	85.6	58.2	10	100%	52.6	61.1	56	10	100%	5.82	8.5	7.25	10	100%	7.29	7.97	7.62	4	100%
Alluvium	MW-13A	65	69	66.8	3	100%	61	72	65.4	12	100%	4.17	5.5	4.63	3	100%	4.3	8	5.54	12	100%
Wells	MW-14W	61.9	64	62.7	3	100%	56	71	62.1	12	100%	3.51	3.8	3.68	3	100%	3.6	8	4.31	12	100%
Wells	MW-17W	57.2	59	58.5	4	100%	52	60.1	56.4	6	100%	2.83	4.1	3.27	4	100%	2.8	3.4	3.1	6	100%
Dinwoody	MW-18Da	8.91	14	11.5	6	100%	11	14.6	12.8	7	100%	0.98	1.6	1.25	6	100%	1	2	1.4	6	100%
Dinwoody	MW-18Db	11.7	12.4	12.2	6	100%	11.1	49.7	17.2	7	100%	0.98	1.5	1.15	6	100%	1	5.4	1.75	6	100%
Basalt	MW-22B	60.8	111	99.8	8	100%	na	na	na	na	na	4.7	8.75	7.43	8	100%	na	na	na	na	na
Wells	MW-23W	53.2	61.8	57.7	8	100%	na	na	na	na	na	3.5	4.15	3.82	8	100%	na	na	na	na	na
Wells	MW-24W	50.6	112	63.6	8	100%	na	na	na	na	na	4.66	7.86	5.4	8	100%	na	na	na	na	na
Wells	MW-8W	17	18.2	17.4	5	100%	15.8	21	16.8	12	100%	1.26	1.39	1.33	5	100%	1	2	1.22	12	100%

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Sodium, Dissolved					Sodium, Total					Sulfate, Total					Sulfate, Total (field)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 250					Eco: NA, HH: 250				
HydroUnit	**Station**																				
Rex Chert	GW-33-MR	15.8	24.4	19.4	4	100%	10.6	22.8	17.2	4	100%	114	**272**	213	10	100%	na	na	na	na	na
Alluvium/Colluvium	GW-34-MA	6.78	6.78	6.78	1	100%	7.14	7.14	7.14	1	100%	10.4	17.4	12.5	6	100%	na	na	na	na	na
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	12.4	98.7	41.9	4	100%	12.1	103	43.6	4	100%	102	**633**	**251**	14	100%	na	na	na	na	na
Dinwoody	GW-26-MD	6.41	6.64	6.55	3	100%	6.63	6.84	6.75	3	100%	3.94	6.75	6.03	13	100%	na	na	na	na	na
Alluvium/Colluvium	GW-27-MA	10.3	13.1	11.3	4	100%	11	13.8	11.9	4	100%	7.1	26.6	16.2	15	100%	na	na	na	na	na
Wells	GW-39-MW	5.13	5.93	5.41	5	100%	5.21	5.89	5.45	5	100%	23.4	32	27.8	7	100%	na	na	na	na	na
Wells	GW-40-MW	6.62	8.7	7.75	8	100%	6.91	8.64	7.88	8	100%	10.3	17.6	13.7	10	100%	na	na	na	na	na
Alluvium/Colluvium	GW-47-MA	9.52	13.2	11.3	3	100%	9.55	13.9	11.7	3	100%	**338**	**407**	**369**	3	100%	na	na	na	na	na
Wells	MW-1W	6.26	7.88	7	5	100%	4.9	7	6.26	12	100%	10	19	15.5	16	100%	na	na	na	na	na
Rex Chert	MW-2R	6.51	6.9	6.71	2	100%	6.1	10	7.3	13	100%	9	39	15.1	17	100%	na	na	na	na	na
Alluvium	MW-3A	6.09	43.8	17.8	4	100%	5.8	7	6.36	8	100%	6.94	12.8	8.67	12	100%	na	na	na	na	na
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	16.9	17.7	17.3	3	100%	na	na	na	na	na	80.2	184	148	4	100%	na	na	na	na	na
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	104	154	129	2	100%	**1130**	**1140**	**1135**	2	100%	na	na	na	na	na
	Boring5	13	18.7	16.7	10	100%	13.6	19.3	17.4	10	100%	160	238	208	10	100%	26	138	91.3	10	100%
Wells	GW-21-MW	8.36	79.9	27.3	4	100%	8.63	78.2	27	4	100%	10.9	78.8	23.4	10	100%	na	na	na	na	na
Salt Lake	GW-57-MS	29.3	29.3	29.3	1	100%	29.4	29.4	29.4	1	100%	165	165	165	1	100%	na	na	na	na	na
Alluvium	GW-A1-MA	5.86	6.46	6.12	5	100%	5.87	7.11	6.48	10	100%	3.3	22	6.73	16	100%	na	na	na	na	na
Salt Lake	GW-NW7-IS	12.6	14.9	13.6	6	100%	10.97	14.04	12.2	10	100%	109	178	149	17	100%	na	na	na	na	na
Salt Lake	GW-NW8-IS	7.93	8.88	8.45	6	100%	8.3	9.87	8.91	8	100%	18	38	27.3	15	100%	na	na	na	na	na
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	57.4	118	89.7	11	100%	67.6	123	99.3	5	100%	**357**	**946**	**535**	18	100%	na	na	na	na	na
Thaynes	GW-7-IT	64.9	101	79	8	100%	60.5	71	66.5	3	100%	**403**	**564**	**485**	13	100%	na	na	na	na	na
Basalt/Salt Lake	GW-8-IBS	72.3	90.1	80.2	10	100%	75.1	86.8	78.1	4	100%	**432**	**746**	**512**	17	100%	na	na	na	na	na
Alluvium	MW-13A	6.83	7.32	7.08	2	100%	5.4	7.1	6.27	13	100%	25.1	41	32.7	18	100%	na	na	na	na	na
Wells	MW-14W	3.7	4.14	3.92	2	100%	3.7	5	4.07	13	100%	25	34	29.6	19	100%	na	na	na	na	na
Wells	MW-17W	7.09	8.18	7.54	3	100%	7.3	9	7.86	7	100%	24.6	34	29.2	14	100%	na	na	na	na	na
Dinwoody	MW-18Da	7.99	11.6	9.86	5	100%	9.4	12	11.2	7	100%	12.9	32	19.5	12	100%	na	na	na	na	na
Dinwoody	MW-18Db	8.65	12.1	9.93	5	100%	9.4	43.2	16.4	7	100%	7.8	17.6	12.1	12	92%	na	na	na	na	na
Basalt	MW-22B	7.72	45.9	13.4	8	100%	na	na	na	na	na	29.3	43.1	34	8	100%	na	na	na	na	na
Wells	MW-23W	9.87	29	12.9	8	100%	na	na	na	na	na	27.8	33.8	31.2	8	100%	na	na	na	na	na
Wells	MW-24W	7.89	78.3	46.9	8	100%	na	na	na	na	na	29.2	113	63.2	8	100%	na	na	na	na	na
Wells	MW-8W	8.75	9.59	9.15	4	100%	9	11	9.39	13	100%	6	13	9.12	17	100%	na	na	na	na	na

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Calcium, Dissolved					Calcium, Total					Chloride, Total					Fluoride, Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 250					Eco: NA, HH: 4				
HydroUnit	**Station**																				
Alluvium	MW-9A	51.9	73.6	59.8	5	100%	50.3	63	54.8	12	100%	4.67	9.47	7.57	17	100%	0.2	0.39	0.284	17	100%
Alluvium	WMP-MW-1-A	239	241	240	2	100%	241	245	243	2	100%	4.55	5	4.71	4	100%	0.89	1.48	1.17	4	100%
Alluvium	WMP-MW-2-A	244	332	274	4	100%	281	286	284	2	100%	3.4	5.23	4.63	6	100%	1.2	1.93	1.39	7	100%
Alluvium	WMP-MW-3-A	252	303	265	4	100%	261	274	268	2	100%	3.1	5.28	4.58	6	100%	1.3	2.13	1.57	7	100%
Offsite West																					
Salt Lake	A-14-180-MS	160	184	172	2	100%	na	na	na	na	na	23.9	83.8	54	3	100%	0.32	1.5	0.897	3	100%
Basalt	A-15-105-MB	235	253	244	2	100%	na	na	na	na	na	67.6	126	91.9	3	100%	0.94	1.5	1.22	3	67%
Salt Lake	A-16-190-MS	63.1	65.8	64.5	3	100%	na	na	na	na	na	9.3	10.2	9.68	4	100%	0.073	0.2	0.136	4	100%
Salt Lake	A-17-150-MS	60.3	67.7	62.9	3	100%	na	na	na	na	na	12.6	15.5	13.6	4	100%	0.11	0.16	0.143	4	100%
Basalt	A-27-090-MB	360	405	383	2	100%	352	379	363	6	100%	30.1	60.4	45.1	9	100%	1.2	1.3	1.25	9	22%
Basalt	A-27-135-MB	360	407	384	2	100%	357	399	375	6	100%	52	90.3	68.3	9	100%	0.81	**19.6**	**7.2**	9	33%
Basalt	A-28-110-MB	217	217	217	1	100%	na	na	na	na	na	54.7	58.6	56.7	2	100%	0.43	0.43	0.43	2	50%
Basalt	A-28-165-MB	275	275	275	1	100%	na	na	na	na	na	60.6	67.5	64.1	2	100%	0	0	0	2	0%
Basalt	A-29-145-MB	314	314	314	1	100%	310	310	310	1	100%	63	66.5	64.8	2	100%	0.88	0.88	0.88	2	50%
Basalt	A-29-195-MB	284	284	284	1	100%	na	na	na	na	na	65.1	73.9	69.5	2	100%	0.9	0.9	0.9	2	50%
Basalt	A-30-135-MB	220	220	220	1	100%	na	na	na	na	na	28.4	60.2	44.3	2	100%	0.45	0.45	0.45	2	50%
Basalt	A-30-175-MB	243	243	243	1	100%	na	na	na	na	na	26.4	32.3	29.4	2	100%	0.43	0.43	0.43	2	50%
Basalt	A-35-080-MB	457	512	485	2	100%	435	502	463	6	100%	76.1	180	149	9	100%	1.5	3.4	2.16	9	56%
Basalt	A-35-155-MB	370	385	378	2	100%	353	383	370	6	100%	29.4	42.4	35.9	9	100%	0	0	0	9	0%
Basalt/Salt Lake	A-36-105-MBS	425	488	457	2	100%	303	501	420	6	100%	3.3	102	75.5	9	89%	1.8	**44.7**	**13.1**	9	78%
Salt Lake	A-36-145-MS	634	662	648	2	100%	590	735	660	6	100%	64.5	87.7	78.7	9	100%	0	0	0	9	0%
Basalt	A-49-095-MB	na	na	na	na	na	208	208	208	1	100%	71.7	71.7	71.7	1	100%	0	0	0	1	0%
Basalt	A-49-135-MB	na	na	na	na	na	224	224	224	1	100%	46.3	46.3	46.3	1	100%	0.43	0.43	0.43	1	100%

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Magnesium, Dissolved					Magnesium, Total					Potassium, Dissolved					Potassium, Total				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: NA				
HydroUnit	**Station**																				
Alluvium	MW-9A	12	15.8	13.7	5	100%	11	14	12.3	12	100%	1.44	1.84	1.72	5	100%	1	6	2.01	12	100%
Alluvium	WMP-MW-1-A	58.2	58.8	58.5	2	100%	57.7	58.5	58.1	2	100%	3.12	3.2	3.16	2	100%	3.3	3.4	3.35	2	100%
Alluvium	WMP-MW-2-A	64.1	70.7	67.6	5	100%	67.1	70.2	68.7	2	100%	6.02	6.79	6.45	5	100%	7.5	7.5	7.5	2	50%
Alluvium	WMP-MW-3-A	61	64.3	62.4	5	100%	60.6	62.5	61.6	2	100%	3.72	3.83	3.78	5	100%	3.9	3.9	3.9	2	50%
Offsite West																					
Salt Lake	A-14-180-MS	75.8	101	88.4	2	100%	na	na	na	na	na	8.96	10.3	9.63	2	100%	na	na	na	na	na
Basalt	A-15-105-MB	114	137	126	2	100%	na	na	na	na	na	8.58	19	13.8	2	100%	na	na	na	na	na
Salt Lake	A-16-190-MS	17.9	19.7	18.8	3	100%	na	na	na	na	na	4.08	5.06	4.54	3	100%	na	na	na	na	na
Salt Lake	A-17-150-MS	15.2	17.7	16.1	3	100%	na	na	na	na	na	4.64	6.28	5.22	3	100%	na	na	na	na	na
Basalt	A-27-090-MB	190	221	206	2	100%	194	215	201	6	100%	45.2	46.3	45.8	2	100%	42.5	46.8	44.4	6	100%
Basalt	A-27-135-MB	181	216	199	2	100%	180	199	192	6	100%	33.6	34.3	34	2	100%	30.7	35.2	32.5	6	100%
Basalt	A-28-110-MB	76.8	76.8	76.8	1	100%	na	na	na	na	na	13.5	13.5	13.5	1	100%	na	na	na	na	na
Basalt	A-28-165-MB	131	131	131	1	100%	na	na	na	na	na	20.8	20.8	20.8	1	100%	na	na	na	na	na
Basalt	A-29-145-MB	175	175	175	1	100%	175	175	175	1	100%	36.8	36.8	36.8	1	100%	34.2	34.2	34.2	1	100%
Basalt	A-29-195-MB	162	162	162	1	100%	na	na	na	na	na	33.9	33.9	33.9	1	100%	na	na	na	na	na
Basalt	A-30-135-MB	92.8	92.8	92.8	1	100%	na	na	na	na	na	7.73	7.73	7.73	1	100%	na	na	na	na	na
Basalt	A-30-175-MB	109	109	109	1	100%	na	na	na	na	na	11.2	11.2	11.2	1	100%	na	na	na	na	na
Basalt	A-35-080-MB	290	335	313	2	100%	274	327	300	6	100%	49.4	53.4	51.4	2	100%	46	52.8	49.4	6	100%
Basalt	A-35-155-MB	161	167	164	2	100%	152	175	165	6	100%	8.96	9.21	9.09	2	100%	8.48	9.72	9.2	6	100%
Basalt/Salt Lake	A-36-105-MBS	458	538	498	2	100%	375	584	491	6	100%	40.9	53.6	47.3	2	100%	28.6	48.3	41.6	6	100%
Salt Lake	A-36-145-MS	370	415	393	2	100%	376	465	408	6	100%	10.6	12.1	11.4	2	100%	10	11.3	10.7	6	100%
Basalt	A-49-095-MB	na	na	na	na	na	89.4	89.4	89.4	1	100%	na	na	na	na	na	16	16	16	1	100%
Basalt	A-49-135-MB	na	na	na	na	na	76	76	76	1	100%	na	na	na	na	na	10.1	10.1	10.1	1	100%

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater

	Analyte > >	Sodium, Dissolved					Sodium, Total					Sulfate, Total					Sulfate, Total (field)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: NA					Eco: NA, HH: NA					Eco: NA, HH: 250					Eco: NA, HH: 250				
HydroUnit	**Station**																				
Alluvium	MW-9A	7.65	10.9	9.2	4	100%	7.7	14	9.45	13	100%	4	15	8.52	17	94%	na	na	na	na	na
Alluvium	WMP-MW-1-A	5.06	5.48	5.27	2	100%	5.5	5.5	5.5	2	100%	16.8	18.4	17.7	4	100%	na	na	na	na	na
Alluvium	WMP-MW-2-A	13.4	55.3	32	5	100%	10.8	10.9	10.9	2	100%	21.2	28	24.4	7	100%	na	na	na	na	na
Alluvium	WMP-MW-3-A	4.35	6.38	5.24	5	100%	4.6	4.6	4.6	2	100%	24.5	32.8	28.3	7	100%	na	na	na	na	na
Offsite West																					
Salt Lake	A-14-180-MS	44.9	86.3	65.6	2	100%	na	na	na	na	na	161	**965**	**521**	3	100%	na	na	na	na	na
Basalt	A-15-105-MB	72.3	119	95.7	2	100%	na	na	na	na	na	**765**	**991**	**867**	3	100%	na	na	na	na	na
Salt Lake	A-16-190-MS	9.25	11.8	10.2	3	100%	na	na	na	na	na	9.3	16.5	14	4	100%	na	na	na	na	na
Salt Lake	A-17-150-MS	7.19	8.7	7.73	3	100%	na	na	na	na	na	2.5	5.8	4.1	4	75%	na	na	na	na	na
Basalt	A-27-090-MB	290	291	291	2	100%	245	305	274	6	100%	**1500**	**1630**	**1562**	9	100%	na	na	na	na	na
Basalt	A-27-135-MB	386	439	413	2	100%	390	529	434	6	100%	**1460**	**1680**	**1587**	9	100%	na	na	na	na	na
Basalt	A-28-110-MB	78.4	78.4	78.4	1	100%	na	na	na	na	na	**461**	**499**	**480**	2	100%	na	na	na	na	na
Basalt	A-28-165-MB	187	187	187	1	100%	na	na	na	na	na	**733**	**907**	**820**	2	100%	na	na	na	na	na
Basalt	A-29-145-MB	361	361	361	1	100%	353	353	353	1	100%	**1070**	**1160**	**1115**	2	100%	na	na	na	na	na
Basalt	A-29-195-MB	416	416	416	1	100%	na	na	na	na	na	**1080**	**1140**	**1110**	2	100%	na	na	na	na	na
Basalt	A-30-135-MB	55.7	55.7	55.7	1	100%	na	na	na	na	na	**309**	**425**	**367**	2	100%	na	na	na	na	na
Basalt	A-30-175-MB	60.1	60.1	60.1	1	100%	na	na	na	na	na	**268**	**356**	**312**	2	100%	na	na	na	na	na
Basalt	A-35-080-MB	212	239	226	2	100%	216	240	226	6	100%	**1910**	**2200**	**2062**	9	100%	na	na	na	na	na
Basalt	A-35-155-MB	74.5	77.3	75.9	2	100%	72.4	83.7	78.5	6	100%	**1230**	**1380**	**1304**	9	100%	na	na	na	na	na
Basalt/Salt Lake	A-36-105-MBS	207	226	217	2	100%	189	217	204	6	100%	**3650**	**4010**	**3790**	9	100%	na	na	na	na	na
Salt Lake	A-36-145-MS	106	113	110	2	100%	104	126	114	6	100%	**2570**	**2960**	**2708**	9	100%	na	na	na	na	na
Basalt	A-49-095-MB	na	na	na	na	na	88.8	88.8	88.8	1	100%	**592**	**592**	**592**	1	100%	na	na	na	na	na
Basalt	A-49-135-MB	na	na	na	na	na	54.2	54.2	54.2	1	100%	**477**	**477**	**477**	1	100%	na	na	na	na	na

Table 4-42
Summary of Detected General Anion and Cation Results in Groundwater
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

NA = comparison value not available.

mg/L = milligrams per liter

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names.

More information about human health ("HH") groundwater comparison values is provided on Table 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	Alkalinity					Ammonia, as N					Bicarbonate, as CaCO3					Bicarbonate, as HCO3					Carbonate, as CaCO3				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison > >	NA					NA					NA					NA					NA				
HydroUnit	StationID																									
French Drain Sub-Basin																										
Basalt	A-33-070-MB	321	321	321	1	100%	134	134	134	1	100%	321	321	321	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-33-170-MB	314	314	314	1	100%	0	0	0	1	0%	313	313	313	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-50-070-MB	348	348	348	1	100%	0.1	0.1	0.1	1	100%	347	347	347	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-50-100-MB	353	353	353	1	100%	0	0	0	1	0%	352	352	352	1	100%	na	na	na	na	na	0	0	0	1	0%
Salt Lake	A-50-125-MS	376	376	376	1	100%	0	0	0	1	0%	374	374	374	1	100%	na	na	na	na	na	0	0	0	1	0%
	Boring1	225	450	316	11	100%	0.034	0.055	0.0438	11	36%	225	450	316	11	100%	na	na	na	na	na	0	0	0	11	0%
	Boring2	195	216	207	3	100%	0.035	0.55	0.231	3	100%	195	212	204	3	100%	na	na	na	na	na	3.4	4	3.7	3	67%
	Boring3	243	475	380	3	100%	0.112	0.112	0.112	3	33%	243	475	380	3	100%	na	na	na	na	na	0	0	0	3	0%
Wells	GW-11-IW	228	367	249	21	100%	0.034	0.17	0.102	13	15%	225	367	249	21	100%	na	na	na	na	na	0	0	0	21	0%
Salt Lake	GW-12-IS	209	234	220	18	100%	0.041	0.425	0.233	10	20%	209	234	220	18	100%	na	na	na	na	na	0	0	0	18	0%
Salt Lake	GW-13-IS	35.5	50.7	43.3	3	100%	0.297	0.297	0.297	1	100%	35.5	50.7	43.3	3	100%	na	na	na	na	na	0	0	0	3	0%
Wells	GW-14-MW	174	208	195	11	100%	0.042	0.07	0.0553	4	75%	174	208	195	11	100%	na	na	na	na	na	0	0	0	11	0%
Salt Lake	GW-15-MS	399	448	416	14	100%	0.145	0.145	0.145	5	20%	399	448	416	14	100%	na	na	na	na	na	0	0	0	14	0%
Alluvium/Colluvium	GW-16-MA	335	401	370	13	100%	0.041	0.064	0.0507	4	75%	335	401	370	13	100%	na	na	na	na	na	0	0	0	13	0%
Alluvium/Colluvium	GW-17-MA	328	599	433	13	100%	0.033	0.06	0.0487	4	75%	328	599	433	13	100%	na	na	na	na	na	0	0	0	13	0%
Alluvium/Colluvium	GW-49-MA	464	490	477	2	100%	0.051	0.051	0.051	2	50%	464	490	477	2	100%	na	na	na	na	na	0	0	0	2	0%
Salt Lake	GW-50-MS	320	352	336	2	100%	0.144	0.144	0.144	2	50%	320	352	336	2	100%	na	na	na	na	na	0	0	0	2	0%
Salt Lake	GW-51-MS	236	243	240	2	100%	0.057	0.057	0.057	2	50%	236	243	240	2	100%	na	na	na	na	na	0	0	0	2	0%
Alluvium/Colluvium	GW-52-MA	309	309	309	1	100%	0	0	0	1	0%	309	309	309	1	100%	na	na	na	na	na	0	0	0	1	0%
Salt Lake	GW-53-MS	172	172	172	1	100%	0.046	0.046	0.046	1	100%	159	159	159	1	100%	na	na	na	na	na	12.4	12.4	12.4	1	100%
Alluvium/Colluvium	GW-54-MA	200	380	290	2	100%	0.054	0.393	0.224	2	100%	200	200	200	2	50%	na	na	na	na	na	375	375	375	2	50%
Salt Lake	GW-55-MS	909	909	909	1	100%	0.381	0.381	0.381	1	100%	0	0	0	1	0%	na	na	na	na	na	388	388	388	1	100%
Salt Lake	GW-56-MS	244	252	248	2	100%	0.055	0.055	0.055	2	50%	244	252	248	2	100%	na	na	na	na	na	0	0	0	2	0%
Salt Lake	GW-9-IS	151	396	361	18	100%	0.037	0.051	0.042	10	30%	151	396	361	18	100%	na	na	na	na	na	0	0	0	18	0%
Basalt/Salt Lake	GW-MWB-MBS	3.5	248	171	20	70%	0.31	19.1	8.23	13	100%	35	247	183	20	65%	na	na	na	na	na	0	0	0	20	0%
Basalt/Salt Lake	GW-NW9-IBS	14	262	198	21	90%	0.43	15.89	5.41	14	100%	14	262	198	21	90%	na	na	na	na	na	0	0	0	21	0%
Basalt	MW-A-110-MB	9.3	86.7	60	12	100%	38.9	108	78.7	5	100%	9.3	86.7	60.1	12	100%	na	na	na	na	na	0	0	0	12	0%
	NTP-PZ-02	647	823	735	2	100%	0.075	0.075	0.075	2	50%	647	823	735	2	100%	na	na	na	na	na	0	0	0	2	0%
Margarette Creek/Trail Canyon Sub-Basin																										
Dinwoody	GW-LRSN-1-DD	218	237	224	9	100%	0	0	0	3	0%	218	237	224	9	100%	na	na	na	na	na	0	0	0	9	0%
Dinwoody	GW-LRSN-2-DD	130	153	143	9	100%	0.03	0.03	0.03	3	33%	130	153	143	9	100%	na	na	na	na	na	0	0	0	9	0%
North Woodall Mountain Sub-Basin																										
Alluvium	MW-10A	88.9	220	188	19	100%	0.01	0.113	0.0733	19	32%	185	204	195	6	100%	88.9	266	215	13	100%	5	5	5	5	40%
Dinwoody	MW-11Da	166	191	175	5	100%	0.049	0.066	0.0558	5	80%	166	191	175	5	100%	na	na	na	na	na	5	5	5	4	50%
Dinwoody	MW-11Db	92.1	190	175	17	100%	0.047	0.069	0.0545	18	22%	175	186	180	5	100%	92.1	230	200	12	100%	5	5	5	4	50%
Wells	MW-12W	165	188	176	18	100%	0.036	0.074	0.053	18	28%	170	183	176	5	100%	174	221	202	13	100%	5	5	5	4	50%
Wells	MW-4W	673	807	741	17	100%	0.01	0.13	0.0514	16	31%	676	807	760	4	100%	729	936	847	13	100%	5	5	5	3	33%
Alluvium	MW-5A	263	642	543	17	100%	0.01	0.04	0.025	16	13%	525	588	554	4	100%	263	784	628	13	100%	5	5	5	3	33%
Dinwoody	MW-6D	162	223	192	18	100%	0.01	0.086	0.0483	18	22%	184	223	197	5	100%	186	243	219	13	100%	5	5	5	4	50%
Alluvium	MW-7A	96.1	276	227	18	100%	0.009	0.082	0.0388	18	22%	180	235	207	5	100%	96.1	336	268	13	100%	5	5	5	4	50%
Old Tailings Pond Sub-Basin																										
Alluvium/Colluvium	GW-18-MA	436	444	440	2	100%	na	na	na	na	na	436	444	440	2	100%	na	na	na	na	na	0	0	0	2	0%
Salt Lake	GW-19-MS	421	471	440	11	100%	0.053	0.053	0.053	4	25%	421	471	440	11	100%	na	na	na	na	na	0	0	0	11	0%
Dinwoody	GW-37-MD	405	430	418	8	100%	0	0	0	2	0%	405	430	418	8	100%	na	na	na	na	na	0	0	0	8	0%
Tailings	TP2-SB3	365	365	365	1	100%	0.701	0.701	0.701	1	100%	365	365	365	1	100%	na	na	na	na	na	0	0	0	1	0%
Tailings	TP2-SB5	na	na	na	na	na	1.4	1.4	1.4	1	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																										
Alluvium/Colluvium	GW-28-MA	58	152	83.7	11	100%	0.034	0.037	0.0355	4	50%	58	152	83.7	11	100%	na	na	na	na	na	0	0	0	11	0%
Dinwoody	GW-29-MD	160	177	165	16	100%	0.034	0.034	0.034	6	17%	160	177	165	16	100%	na	na	na	na	na	0	0	0	16	0%
Alluvium/Colluvium	GW-30-MA	99.1	274	164	15	100%	0.058	0.119	0.0806	5	100%	99.1	274	164	15	100%	na	na	na	na	na	0	0	0	15	0%
Alluvium/Colluvium	GW-38-MA	46	87.6	68.4	3	100%	na	na	na	na	na	46	87.6	68.4	3	100%	na	na	na	na	na	0	0	0	3	0%
Alluvium/Colluvium	GW-41-MA	115	296	209	5	100%	0.039	0.248	0.103	5	80%	115	296	209	5	100%	na	na	na	na	na	0	0	0	5	0%
Dinwoody	GW-42-MD	210	225	217	5	100%	0.03	0.039	0.0345	5	40%	210	225	217	5	100%	na	na	na	na	na	0	0	0	5	0%
Dinwoody	GW-44-MD	272	311	284	5	100%	0.032	0.061	0.0457	5	60%	272	311	284	5	100%	na	na	na	na	na	0	0	0	5	0%
Alluvium/Colluvium	GW-45-MA	218	277	235	4	100%	0.107	0.107	0.107	4	25%	218	277	235	4	100%	na	na	na	na	na	0	0	0	4	0%
Dinwoody	GW-46-MD	201	222	210	5	100%	0.03	0.227	0.097	5	60%	201	222	210	5	100%	na	na	na	na	na	0	0	0	5	0%
Shield and Jouglard Canyons Sub-Basin																										
Meade Peak	GW-22-MM	0.6	16.4	7.28	6	83%	0.272	0.315	0.294	2	100%	0.6	16.4	7.28	6	83%	na	na	na	na	na	0	0	0	6	0%
Meade Peak	GW-23-MM	138	138	138	1	100%	na	na	na	na	na	138	138	138	1	100%	na	na	na	na	na	0	0	0	1	0%
Colluvium	GW-24-MA	101	173	130	7	100%	0	0	0	2	0%	101	173	130	7	100%	na	na	na	na	na	0	0	0	7	0%
Wells	GW-31-MW	214	284	235	10	100%	0.064	0.237	0.149	4	100%	214	284	235	10	100%	na	na	na	na	na	0	0	0	10	0%
Dinwoody	GW-32-MD	199	249	216	10	100%	0.075	0.075	0.075	4	25%	199	249	216	10	100%	na	na	na	na	na	0	0	0	10	0%
Rex Chert	GW-33-MR	39.2	228	67.8	10	100%	0.036	0.107	0.0617	4	75%	39.2	228	67.8	10	100%	na	na	na	na	na	0	0	0	10	0%
Alluvium/Colluvium	GW-34-MA	89.1	157	142	6	100%	0	0	0	1	0%	89.1	157	142	6	100%	na	na	na	na	na	0	0	0	6	0%
State Land Creek Sub-Basin																										
Alluvium/Colluvium	GW-25-MA	52.6	182	98.9	14	100%	0.032	0.054	0.043	4	50%	52.6	182	98.9	14	100%	na	na	na	na	na	0	0	0	14	0%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	Carbonate, as CO3					Hardness, as CaCO3					Hydroxide, as CaCO3					Nitrate + Nitrite, as N					Nitrate, as N				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison > >	NA					NA					NA					Eco: NA, HH: 10					Eco: NA, HH: 10				
HydroUnit	StationID																									
French Drain Sub-Basin																										
Basalt	A-33-070-MB	na	na	na	na	na	2100	2100	2100	1	100%	na	na	na	na	na	**164**	**164**	**164**	1	100%	**164**	**164**	**164**	1	100%
Basalt	A-33-170-MB	na	na	na	na	na	717	717	717	1	100%	na	na	na	na	na	3.4	3.4	3.4	1	100%	3.4	3.4	3.4	1	100%
Basalt	A-50-070-MB	na	na	na	na	na	729	729	729	1	100%	na	na	na	na	na	1.8	1.8	1.8	1	100%	1.8	1.8	1.8	1	100%
Basalt	A-50-100-MB	na	na	na	na	na	697	697	697	1	100%	na	na	na	na	na	2.9	2.9	2.9	1	100%	2.9	2.9	2.9	1	100%
Salt Lake	A-50-125-MS	na	na	na	na	na	653	653	653	1	100%	na	na	na	na	na	3.1	3.1	3.1	1	100%	3.1	3.1	3.1	1	100%
	Boring1	na	na	na	na	na	383	13600	3936	11	100%	na	na	na	na	na	0.238	5.75	3.88	11	100%	na	na	na	na	na
	Boring2	na	na	na	na	na	97.1	168	144	3	100%	na	na	na	na	na	0.09	0.095	0.0925	3	67%	na	na	na	na	na
	Boring3	na	na	na	na	na	290	10400	3691	3	100%	na	na	na	na	na	1.33	2.6	1.84	3	100%	na	na	na	na	na
Wells	GW-11-IW	na	na	na	na	na	265	307	287	19	100%	0	0	0	1	0%	1.1	1.93	1.47	15	100%	1.1	1.5	1.26	5	100%
Salt Lake	GW-12-IS	na	na	na	na	na	158	176	167	17	100%	0	0	0	1	0%	0.05	0.191	0.0881	12	67%	na	na	na	na	na
Salt Lake	GW-13-IS	na	na	na	na	na	31.4	41.4	36.6	3	100%	na	na	na	na	na	0	0	0	1	0%	na	na	na	na	na
Wells	GW-14-MW	na	na	na	na	na	213	277	246	11	100%	na	na	na	na	na	0.074	0.074	0.074	4	25%	na	na	na	na	na
Salt Lake	GW-15-MS	na	na	na	na	na	862	989	915	14	100%	na	na	na	na	na	0.0536	0.475	0.16	5	100%	na	na	na	na	na
Alluvium/Colluvium	GW-16-MA	na	na	na	na	na	582	981	735	14	100%	0	0	0	1	0%	0.359	0.728	0.502	4	100%	na	na	na	na	na
Alluvium/Colluvium	GW-17-MA	na	na	na	na	na	407	4050	1150	14	100%	na	na	na	na	na	1.59	2.3	1.85	4	100%	na	na	na	na	na
Alluvium/Colluvium	GW-49-MA	na	na	na	na	na	601	694	648	2	100%	na	na	na	na	na	3.03	3.52	3.28	2	100%	na	na	na	na	na
Salt Lake	GW-50-MS	na	na	na	na	na	597	726	662	2	100%	na	na	na	na	na	4.88	5.41	5.15	2	100%	na	na	na	na	na
Salt Lake	GW-51-MS	na	na	na	na	na	334	482	408	2	100%	na	na	na	na	na	2.65	2.98	2.82	2	100%	na	na	na	na	na
Alluvium/Colluvium	GW-52-MA	na	na	na	na	na	447	447	447	1	100%	na	na	na	na	na	1.59	1.59	1.59	1	100%	na	na	na	na	na
Salt Lake	GW-53-MS	na	na	na	na	na	82.7	82.7	82.7	1	100%	na	na	na	na	na	0.075	0.075	0.075	1	100%	na	na	na	na	na
Alluvium/Colluvium	GW-54-MA	na	na	na	na	na	364	616	490	2	100%	na	na	na	na	na	0.517	0.751	0.634	2	100%	na	na	na	na	na
Salt Lake	GW-55-MS	na	na	na	na	na	866	866	866	1	100%	na	na	na	na	na	0.37	0.37	0.37	1	100%	na	na	na	na	na
Salt Lake	GW-56-MS	na	na	na	na	na	290	321	306	2	100%	na	na	na	na	na	2.22	2.23	2.23	2	100%	na	na	na	na	na
Salt Lake	GW-9-IS	na	na	na	na	na	242	656	574	17	100%	0	0	0	1	0%	1.41	5.34	4.42	12	100%	na	na	na	na	na
Basalt/Salt Lake	GW-MWB-MBS	na	na	na	na	na	497	1360	688	5	100%	na	na	na	na	na	3.5	**13.9**	7.04	5	100%	2.51	**15.64**	6.15	20	100%
Basalt/Salt Lake	GW-NW9-IBS	na	na	na	na	na	687	919	844	5	100%	na	na	na	na	na	8	**25.1**	**17.4**	5	100%	7.9	**46**	**19.7**	21	100%
Basalt	MW-A-110-MB	na	na	na	na	na	1610	1830	1728	4	100%	na	na	na	na	na	**196**	**204**	**199**	5	100%	**192**	**238**	**213**	12	100%
	NTP-PZ-02	na	na	na	na	na	879	1150	1015	2	100%	na	na	na	na	na	**13.3**	**13.4**	**13.4**	2	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Bas																										
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	213	253	228	9	100%	na	na	na	na	na	1.91	5.7	3	4	100%	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	140	164	152	9	100%	na	na	na	na	na	2.62	3.99	3.34	4	100%	na	na	na	na	na
North Woodall Mountain Sub-Basin																										
Alluvium	MW-10A	0	0	0	4	0%	162	217	197	17	100%	na	na	na	na	na	0.17	0.82	0.37	19	100%	0.17	0.82	0.377	19	95%
Dinwoody	MW-11Da	na	na	na	na	na	177	189	182	3	100%	na	na	na	na	na	0.26	0.46	0.413	5	100%	0.26	0.469	0.416	5	100%
Dinwoody	MW-11Db	0	0	0	4	0%	171	192	181	16	100%	na	na	na	na	na	0.17	0.48	0.403	18	100%	0.17	0.48	0.396	18	100%
Wells	MW-12W	0	0	0	4	0%	170	185	179	16	100%	na	na	na	na	na	0.01	0.1	0.0356	17	65%	0.01	0.1	0.0362	17	65%
Wells	MW-4W	0	0	0	4	0%	574	820	763	16	100%	na	na	na	na	na	0.01	0.1	0.0524	16	31%	0.01	0.1	0.0475	16	25%
Alluvium	MW-5A	0	0	0	4	0%	518	737	599	16	100%	na	na	na	na	na	0.09	0.42	0.17	17	100%	0.09	0.42	0.168	17	100%
Dinwoody	MW-6D	0	0	0	4	0%	189	213	197	16	100%	na	na	na	na	na	0.066	1.4	0.266	18	100%	0.039	1.4	0.273	17	100%
Alluvium	MW-7A	0	0	0	4	0%	187	288	241	16	100%	na	na	na	na	na	0.05	2.8	0.857	18	100%	0.05	2	0.741	17	100%
Old Tailings Pond Sub-Basin																										
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	892	1960	1524	3	100%	0	0	0	1	0%	na	na	na	na	na	na	na	na	na	na
Salt Lake	GW-19-MS	na	na	na	na	na	439	473	461	11	100%	na	na	na	na	na	**11.9**	**17.9**	**15.7**	5	100%	na	na	na	na	na
Dinwoody	GW-37-MD	na	na	na	na	na	860	1030	920	8	100%	na	na	na	na	na	3.32	3.87	3.6	2	100%	na	na	na	na	na
Tailings	TP2-SB3	na	na	na	na	na	2290	2290	2290	1	100%	na	na	na	na	na	0.132	0.132	0.132	1	100%	na	na	na	na	na
Tailings	TP2-SB5	na	na	na	na	na	77300	77300	77300	1	100%	na	na	na	na	na	0.076	0.076	0.076	1	100%	na	na	na	na	na
Pedro Creek Sub-Basin																										
Alluvium/Colluvium	GW-28-MA	na	na	na	na	na	2.28	1760	1080	13	100%	na	na	na	na	na	0.123	0.123	0.123	4	25%	na	na	na	na	na
Dinwoody	GW-29-MD	na	na	na	na	na	192	224	204	16	94%	na	na	na	na	na	0.0761	0.161	0.127	6	100%	na	na	na	na	na
Alluvium/Colluvium	GW-30-MA	na	na	na	na	na	178	291	239	15	100%	na	na	na	na	na	0.061	0.061	0.061	5	20%	na	na	na	na	na
Alluvium/Colluvium	GW-38-MA	na	na	na	na	na	716	1470	1057	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium/Colluvium	GW-41-MA	na	na	na	na	na	1060	2630	1998	5	100%	na	na	na	na	na	1.25	6.11	3.29	5	100%	na	na	na	na	na
Dinwoody	GW-42-MD	na	na	na	na	na	447	623	496	5	100%	na	na	na	na	na	2.3	2.82	2.54	5	80%	na	na	na	na	na
Dinwoody	GW-44-MD	na	na	na	na	na	388	648	468	5	100%	na	na	na	na	na	0.597	0.597	0.597	5	20%	na	na	na	na	na
Alluvium/Colluvium	GW-45-MA	na	na	na	na	na	311	350	327	4	100%	na	na	na	na	na	0.155	3.25	1.03	4	100%	na	na	na	na	na
Dinwoody	GW-46-MD	na	na	na	na	na	253	294	268	5	100%	na	na	na	na	na	0.262	0.809	0.508	5	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basi																										
Meade Peak	GW-22-MM	na	na	na	na	na	1020	1410	1208	6	100%	na	na	na	na	na	0.115	0.26	0.188	2	100%	na	na	na	na	na
Meade Peak	GW-23-MM	na	na	na	na	na	570	1370	970	2	100%	0	0	0	1	0%	na	na	na	na	na	na	na	na	na	na
Colluvium	GW-24-MA	na	na	na	na	na	402	762	537	7	100%	na	na	na	na	na	0.0649	0.0649	0.0649	2	50%	na	na	na	na	na
Wells	GW-31-MW	na	na	na	na	na	149	292	204	10	100%	na	na	na	na	na	0.243	0.243	0.243	4	25%	na	na	na	na	na
Dinwoody	GW-32-MD	na	na	na	na	na	217	276	251	10	100%	na	na	na	na	na	0.458	1	0.734	4	100%	na	na	na	na	na
Rex Chert	GW-33-MR	na	na	na	na	na	150	260	230	10	100%	na	na	na	na	na	1.35	2.39	1.71	4	100%	na	na	na	na	na
Alluvium/Colluvium	GW-34-MA	na	na	na	na	na	86.3	700	279	6	100%	0	0	0	1	0%	1.24	1.24	1.24	1	100%	na	na	na	na	na
State Land Creek Sub-Basin																										
Alluvium/Colluvium	GW-25-MA	na	na	na	na	na	139	740	312	15	100%	na	na	na	na	na	0.081	0.081	0.081	4	25%	na	na	na	na	na

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	Nitrate, as N (field)					Nitrite, as N					Phosphorus, Total					TDS				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: 10					Eco: NA, HH: 1					NA					Eco: NA, HH: 500				
HydroUnit	StationID																				
French Drain Sub-Basin																					
Basalt	A-33-070-MB	na	na	na	na	na	0	0	0	1	0%	6.4	6.4	6.4	1	100%	**3870**	**3870**	**3870**	1	100%
Basalt	A-33-170-MB	na	na	na	na	na	0	0	0	1	0%	0.42	0.42	0.42	1	100%	**1060**	**1060**	**1060**	1	100%
Basalt	A-50-070-MB	na	na	na	na	na	0	0	0	1	0%	0.24	0.24	0.24	1	100%	**1090**	**1090**	**1090**	1	100%
Basalt	A-50-100-MB	na	na	na	na	na	0	0	0	1	0%	1.8	1.8	1.8	1	100%	**1090**	**1090**	**1090**	1	100%
Salt Lake	A-50-125-MS	na	na	na	na	na	0	0	0	1	0%	0.21	0.21	0.21	1	100%	**1050**	**1050**	**1050**	1	100%
	Boring1	na	**25.9**	-5451	11	100%	na	na	na	na	na	0.641	217	45.8	11	100%	396	**880**	**715**	11	100%
	Boring2	na	4.3	-6665	3	100%	na	na	na	na	na	0.065	0.521	0.351	3	100%	263	282	269	3	100%
	Boring3	na	na	na	3	100%	na	na	na	na	na	0.17	83.3	28.3	3	100%	322	**680**	449	3	100%
Wells	GW-11-IW	na	na	na	na	na	0	0	0	3	0%	0.01	2.7	0.252	14	86%	289	380	338	22	100%
Salt Lake	GW-12-IS	na	na	na	na	na	na	na	na	na	na	0.01	0.3	0.0736	11	64%	206	266	230	19	100%
Salt Lake	GW-13-IS	na	na	na	na	na	na	na	na	na	na	0.17	0.17	0.17	1	100%	42	66	56	3	100%
Wells	GW-14-MW	na	na	na	na	na	na	na	na	na	na	0.03	0.13	0.071	4	100%	380	**573**	487	11	100%
Salt Lake	GW-15-MS	na	na	na	na	na	na	na	na	na	na	0.07	1.23	0.339	5	100%	**1170**	**1430**	**1243**	14	100%
Alluvium/Colluvium	GW-16-MA	na	na	na	na	na	na	na	na	na	na	0.25	3.73	1.24	4	100%	**669**	**1120**	**921**	13	100%
Alluvium/Colluvium	GW-17-MA	na	na	na	na	na	na	na	na	na	na	0.414	25.8	13.9	4	100%	**509**	**730**	**617**	13	100%
Alluvium/Colluvium	GW-49-MA	na	na	na	na	na	na	na	na	na	na	0.153	0.194	0.174	2	100%	**770**	**861**	**816**	2	100%
Salt Lake	GW-50-MS	na	na	na	na	na	na	na	na	na	na	0.421	1.8	1.11	2	100%	**793**	**800**	**797**	2	100%
Salt Lake	GW-51-MS	na	na	na	na	na	na	na	na	na	na	0.063	2.71	1.39	2	100%	430	449	440	2	100%
Alluvium/Colluvium	GW-52-MA	na	na	na	na	na	na	na	na	na	na	3.05	3.05	3.05	1	100%	**517**	**517**	**517**	1	100%
Salt Lake	GW-53-MS	na	na	na	na	na	na	na	na	na	na	0.036	0.036	0.036	1	100%	**626**	**626**	**626**	1	100%
Alluvium/Colluvium	GW-54-MA	na	na	na	na	na	na	na	na	na	na	0.237	1.49	0.864	2	100%	494	**992**	**743**	2	100%
Salt Lake	GW-55-MS	na	na	na	na	na	na	na	na	na	na	0.189	0.189	0.189	1	100%	**5520**	**5520**	**5520**	1	100%
Salt Lake	GW-56-MS	na	na	na	na	na	na	na	na	na	na	0.069	0.517	0.293	2	100%	353	373	363	2	100%
Salt Lake	GW-9-IS	na	na	na	na	na	na	na	na	na	na	0.03	0.207	0.153	11	100%	323	**877**	**768**	19	100%
Basalt/Salt Lake	GW-MWB-MBS	na	na	na	na	na	0	0	0	4	0%	0.11	634	93.9	20	100%	**664**	**8792**	**2163**	20	100%
Basalt/Salt Lake	GW-NW9-IBS	na	na	na	na	na	0	0	0	4	0%	1.3	305	47.8	21	100%	106	**2882**	**1446**	21	100%
Basalt	MW-A-110-MB	na	na	na	na	na	**1.2**	**3.6**	**2.1**	4	75%	6.7	86.1	22.8	12	100%	**2290**	**5200**	**3643**	12	100%
	NTP-PZ-02	na	na	na	na	na	na	na	na	na	na	0.498	0.531	0.515	2	100%	**855**	**1070**	**963**	2	100%
Margarette Creek/Trail Canyon Sub-Bas																					
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	na	na	na	na	na	0.01	0.03	0.019	3	100%	190	336	267	10	100%
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	na	na	na	na	na	0.05	0.25	0.139	3	100%	176	279	206	10	100%
North Woodall Mountain Sub-Basin																					
Alluvium	MW-10A	na	na	na	na	na	0.005	0.1	0.0563	18	22%	0.0035	0.101	0.0565	18	100%	190	257	229	17	100%
Dinwoody	MW-11Da	na	na	na	na	na	0.1	0.1	0.1	4	50%	0.03	0.25	0.11	4	100%	226	246	239	3	100%
Dinwoody	MW-11Db	na	na	na	na	na	0.008	0.1	0.0656	17	29%	0.01	0.16	0.0447	18	100%	191	367	234	16	100%
Wells	MW-12W	na	na	na	na	na	0.02	0.1	0.0733	17	18%	0.05	3.46	0.318	18	100%	165	261	216	17	100%
Wells	MW-4W	na	na	na	na	na	0.01	0.1	0.0533	16	19%	0.017	0.35	0.0601	17	100%	**710**	**858**	**775**	16	100%
Alluvium	MW-5A	na	na	na	na	na	0.008	0.164	0.0705	16	25%	0.014	0.57	0.0933	17	100%	**531**	**694**	**606**	16	100%
Dinwoody	MW-6D	na	na	na	na	na	0.1	0.1	0.1	17	12%	0.0056	0.13	0.0306	17	82%	182	239	217	17	100%
Alluvium	MW-7A	na	na	na	na	na	0.014	0.1	0.061	17	24%	0.04	0.42	0.0869	17	100%	231	314	279	17	100%
Old Tailings Pond Sub-Basin																					
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	**1200**	**1260**	**1230**	2	100%
Salt Lake	GW-19-MS	na	na	na	na	na	na	na	na	na	na	0.12	0.255	0.181	4	100%	**574**	**628**	**603**	11	100%
Dinwoody	GW-37-MD	na	na	na	na	na	na	na	na	na	na	0.032	0.08	0.056	2	100%	**1120**	**1360**	**1246**	8	100%
Tailings	TP2-SB3	na	na	na	na	na	na	na	na	na	na	57.9	57.9	57.9	1	100%	**3040**	**3040**	**3040**	1	100%
Tailings	TP2-SB5	na	na	na	na	na	na	na	na	na	na	18700	18700	18700	1	100%	na	na	na	na	na
Pedro Creek Sub-Basin																					
Alluvium/Colluvium	GW-28-MA	na	na	na	na	na	na	na	na	na	na	0.01	0.119	0.0763	4	100%	**885**	**2110**	**1653**	11	100%
Dinwoody	GW-29-MD	na	na	na	na	na	na	na	na	na	na	0.04	0.13	0.0892	6	100%	224	278	253	16	100%
Alluvium/Colluvium	GW-30-MA	na	na	na	na	na	na	na	na	na	na	0.083	0.59	0.257	5	100%	239	398	318	15	100%
Alluvium/Colluvium	GW-38-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	**600**	**971**	**798**	3	100%
Alluvium/Colluvium	GW-41-MA	na	na	na	na	na	na	na	na	na	na	0.212	18.8	4.05	5	100%	**1510**	**3540**	**2602**	5	100%
Dinwoody	GW-42-MD	na	na	na	na	na	na	na	na	na	na	0.026	1.66	0.391	5	100%	**573**	**642**	**599**	5	100%
Dinwoody	GW-44-MD	na	na	na	na	na	na	na	na	na	na	0.012	0.612	0.16	5	100%	491	**568**	**534**	5	100%
Alluvium/Colluvium	GW-45-MA	na	na	na	na	na	na	na	na	na	na	0.014	0.469	0.133	4	100%	373	425	397	4	100%
Dinwoody	GW-46-MD	na	na	na	na	na	na	na	na	na	na	0.013	0.702	0.156	5	100%	279	324	303	5	100%
Shield and Jouglard Canyons Sub-Basi																					
Meade Peak	GW-22-MM	na	na	na	na	na	na	na	na	na	na	3.16	29.3	16.2	2	100%	**1630**	**2180**	**1877**	6	100%
Meade Peak	GW-23-MM	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	**704**	**704**	**704**	1	100%
Colluvium	GW-24-MA	na	na	na	na	na	na	na	na	na	na	0.551	5.64	3.1	2	100%	448	**714**	**602**	7	100%
Wells	GW-31-MW	na	na	na	na	na	na	na	na	na	na	0.02	0.08	0.05	4	75%	423	**675**	495	10	100%
Dinwoody	GW-32-MD	na	na	na	na	na	na	na	na	na	na	0.02	0.12	0.0715	4	100%	270	430	327	10	100%
Rex Chert	GW-33-MR	na	na	na	na	na	na	na	na	na	na	0.07	0.32	0.181	4	100%	290	420	381	10	100%
Alluvium/Colluvium	GW-34-MA	na	na	na	na	na	na	na	na	na	na	0.7	0.7	0.7	1	100%	174	364	258	6	100%
State Land Creek Sub-Basin																					
Alluvium/Colluvium	GW-25-MA	na	na	na	na	na	na	na	na	na	na	0.02	0.22	0.102	4	100%	251	**1010**	482	14	100%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	TDS, Dissolved					TOC					TSS				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: 500					NA					NA				
HydroUnit	StationID															
French Drain Sub-Basin																
Basalt	A-33-070-MB	na	na	na	na	na	na	na	na	na	na	15	15	15	1	100%
Basalt	A-33-170-MB	na	na	na	na	na	na	na	na	na	na	9	9	9	1	100%
Basalt	A-50-070-MB	na	na	na	na	na	na	na	na	na	na	0	0	0	1	0%
Basalt	A-50-100-MB	na	na	na	na	na	na	na	na	na	na	0	0	0	1	0%
Salt Lake	A-50-125-MS	na	na	na	na	na	na	na	na	na	na	0	0	0	1	0%
	Boring1	na	na	na	na	na	1.3	6.35	3.28	11	100%	240	63000	15306	11	100%
	Boring2	na	na	na	na	na	1.88	7.89	4.89	3	67%	66	544	301	3	100%
	Boring3	na	na	na	na	na	2.31	26	10.5	3	100%	173	31400	11044	3	100%
Wells	GW-11-IW	na	na	na	na	na	1.16	1.51	1.38	8	38%	3	7	5	20	25%
Salt Lake	GW-12-IS	na	na	na	na	na	1.1	1.1	1.1	10	10%	7	255	57	17	76%
Salt Lake	GW-13-IS	na	na	na	na	na	1.53	1.53	1.53	1	100%	7	14	10.5	3	67%
Wells	GW-14-MW	na	na	na	na	na	2.14	5.55	3.83	4	100%	5	130	22.7	11	82%
Salt Lake	GW-15-MS	na	na	na	na	na	1.73	2.56	2.06	5	100%	2	5	3.33	14	21%
Alluvium/Colluvium	GW-16-MA	na	na	na	na	na	1.61	2.84	2.21	4	100%	5	8020	1000	13	100%
Alluvium/Colluvium	GW-17-MA	na	na	na	na	na	1.39	1.76	1.52	3	100%	25	20800	3469	13	100%
Alluvium/Colluvium	GW-49-MA	na	na	na	na	na	2.26	4.82	3.54	2	100%	12	25	18.5	2	100%
Salt Lake	GW-50-MS	na	na	na	na	na	1.32	4.83	3.08	2	100%	51	780	416	2	100%
Salt Lake	GW-51-MS	na	na	na	na	na	1.17	4.77	2.97	2	100%	6	832	419	2	100%
Alluvium/Colluvium	GW-52-MA	na	na	na	na	na	2.4	2.4	2.4	1	100%	463	463	463	1	100%
Salt Lake	GW-53-MS	na	na	na	na	na	106	106	106	1	100%	10	10	10	1	100%
Alluvium/Colluvium	GW-54-MA	na	na	na	na	na	3.34	22.4	12.9	2	100%	63	830	447	2	100%
Salt Lake	GW-55-MS	na	na	na	na	na	144	144	144	1	100%	89	89	89	1	100%
Salt Lake	GW-56-MS	na	na	na	na	na	1.38	3.85	2.62	2	100%	154	154	154	2	50%
Salt Lake	GW-9-IS	na	na	na	na	na	1.23	3.03	1.59	10	80%	5	8	6.17	17	35%
Basalt/Salt Lake	GW-MWB-MBS	na	na	na	na	na	na	na	na	na	na	14	153	60.4	13	77%
Basalt/Salt Lake	GW-NW9-IBS	na	na	na	na	na	na	na	na	na	na	13	1430	175	14	100%
Basalt	MW-A-110-MB	na	na	na	na	na	na	na	na	na	na	7	13	9.67	5	60%
	NTP-PZ-02	na	na	na	na	na	4.66	11.6	8.13	2	100%	159	788	474	2	100%
Margarette Creek/Trail Canyon Sub-Bas																
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	1.2	1.5	1.35	3	67%	9	9	9	9	11%
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	2.26	2.26	2.26	3	33%	3	62	24.3	9	100%
North Woodall Mountain Sub-Basin																
Alluvium	MW-10A	227	231	229	2	100%	na	na	na	na	na	3.2	10	7.36	18	50%
Dinwoody	MW-11Da	217	228	223	2	100%	na	na	na	na	na	14	60.3	33.3	5	100%
Dinwoody	MW-11Db	222	231	227	2	100%	na	na	na	na	na	1	2250	924	18	33%
Wells	MW-12W	201	201	201	1	100%	na	na	na	na	na	65.2	258	107	18	28%
Wells	MW-4W	**783**	**783**	**783**	1	100%	na	na	na	na	na	0.99	307	111	17	41%
Alluvium	MW-5A	**539**	**539**	**539**	1	100%	na	na	na	na	na	2.2	519	79.1	17	71%
Dinwoody	MW-6D	244	244	244	1	100%	na	na	na	na	na	12	168	92.4	18	22%
Alluvium	MW-7A	265	265	265	1	100%	na	na	na	na	na	2.5	51	15.1	17	53%
Old Tailings Pond Sub-Basin																
Alluvium/Colluvium	GW-18-MA	na	na	na	na	na	na	na	na	na	na	313	8730	4522	2	100%
Salt Lake	GW-19-MS	na	na	na	na	na	1.6	3.54	2.46	4	100%	6	35	12	11	73%
Dinwoody	GW-37-MD	na	na	na	na	na	1.78	13.5	7.64	2	100%	6	75	26.6	8	100%
Tailings	TP2-SB3	na	na	na	na	na	12	12	12	1	100%	1230	1230	1230	1	100%
Tailings	TP2-SB5	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																
Alluvium/Colluvium	GW-28-MA	na	na	na	na	na	1.77	4.03	2.8	4	100%	5	6030	869	11	64%
Dinwoody	GW-29-MD	na	na	na	na	na	1.73	2.31	2.02	6	33%	2	36	13	16	81%
Alluvium/Colluvium	GW-30-MA	na	na	na	na	na	1.88	5.36	3.63	5	100%	6	330	53.4	15	80%
Alluvium/Colluvium	GW-38-MA	na	na	na	na	na	na	na	na	na	na	629	12600	7030	3	100%
Alluvium/Colluvium	GW-41-MA	na	na	na	na	na	2.7	5.5	4	5	100%	25	4970	2498	5	40%
Dinwoody	GW-42-MD	na	na	na	na	na	1.48	4.14	2.81	5	40%	6	1670	438	5	80%
Dinwoody	GW-44-MD	na	na	na	na	na	2.24	6.43	3.62	5	100%	19	790	180	5	100%
Alluvium/Colluvium	GW-45-MA	na	na	na	na	na	1.03	1.74	1.47	4	100%	8	100	54	4	50%
Dinwoody	GW-46-MD	na	na	na	na	na	1	2.49	1.46	5	80%	559	559	559	5	20%
Shield and Jouglard Canyons Sub-Basi																
Meade Peak	GW-22-MM	na	na	na	na	na	5.37	5.97	5.67	2	100%	5	272	98.2	6	83%
Meade Peak	GW-23-MM	na	na	na	na	na	na	na	na	na	na	355	355	355	1	100%
Colluvium	GW-24-MA	na	na	na	na	na	3.27	3.34	3.31	2	100%	7	351	105	7	100%
Wells	GW-31-MW	na	na	na	na	na	2.15	12.8	6.16	4	100%	8	21	14.1	10	70%
Dinwoody	GW-32-MD	na	na	na	na	na	2.39	2.39	2.39	4	25%	7	150	52.6	10	70%
Rex Chert	GW-33-MR	na	na	na	na	na	1.25	5.82	3.09	4	100%	5	15	8.5	10	40%
Alluvium/Colluvium	GW-34-MA	na	na	na	na	na	3.39	3.39	3.39	1	100%	36	7510	1673	6	100%
State Land Creek Sub-Basin																
Alluvium/Colluvium	GW-25-MA	na	na	na	na	na	2.52	7.66	4.39	4	100%	2	716	88.2	14	64%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	Alkalinity					Ammonia, as N					Bicarbonate, as CaCO3					Bicarbonate, as HCO3					Carbonate, as CaCO3				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >		mg/L					mg/L					mg/L					mg/L					mg/L			
	Comparison > >		NA					NA					NA					NA					NA			
HydroUnit	StationID																									
Dinwoody	GW-26-MD	210	275	224	13	100%	0.032	0.032	0.032	3	33%	206	275	224	13	100%	na	na	na	na	na	4.9	4.9	4.9	13	8%
Alluvium/Colluvium	GW-27-MA	126	226	173	15	100%	0.064	0.105	0.0845	4	50%	126	226	173	15	100%	na	na	na	na	na	0	0	0	15	0%
Wells	GW-39-MW	286	309	295	7	100%	0.041	0.045	0.043	5	40%	286	309	295	7	100%	na	na	na	na	na	0	0	0	7	0%
Wells	GW-40-MW	363	405	382	10	100%	0.033	0.033	0.033	8	13%	363	405	381	10	100%	na	na	na	na	na	16.1	16.1	16.1	10	10%
Alluvium/Colluvium	GW-47-MA	17.2	24.5	21.9	3	100%	0.032	0.152	0.092	3	67%	17.2	24.5	21.9	3	100%	na	na	na	na	na	0	0	0	3	0%
Wells	MW-1W	226	345	246	16	100%	0.047	0.357	0.127	17	24%	226	254	237	5	100%	232	345	284	11	100%	5	5	5	4	50%
Rex Chert	MW-2R	96.6	201	181	14	100%	0.02	0.02	0.02	15	7%	191	191	191	2	100%	96.6	237	206	12	100%	0	0	0	2	0%
Alluvium	MW-3A	69	88.6	80.9	12	100%	0.017	0.14	0.0625	12	33%	77.5	88.6	84.5	4	100%	74.6	104	87.8	8	100%	5	5	5	4	50%
Western Woodall Mountain Sub-Basin																										
Salt Lake	A-13-135-MS	251	259	255	2	100%	0.057	0.057	0.057	3	33%	251	258	255	2	100%	na	na	na	na	na	0	0	0	2	0%
Alluvium/Colluvium	A-46-028-MA	91.4	107	99.2	2	100%	8.2	8.2	8.2	1	100%	107	107	107	1	100%	na	na	na	na	na	0	0	0	1	0%
	Boring5	274	488	313	10	100%	0.146	0.146	0.146	10	10%	274	488	313	10	100%	na	na	na	na	na	0	0	0	10	0%
Wells	GW-21-MW	230	260	238	10	100%	0.049	0.049	0.049	4	25%	230	260	238	10	100%	na	na	na	na	na	0	0	0	10	0%
Salt Lake	GW-57-MS	124	124	124	1	100%	0.071	0.071	0.071	1	100%	124	124	124	1	100%	na	na	na	na	na	0	0	0	1	0%
Alluvium	GW-A1-MA	182	338	222	15	100%	0.057	0.062	0.0595	16	13%	182	338	224	15	93%	na	na	na	na	na	0	0	0	15	0%
Salt Lake	GW-NW7-IS	205	288	254	16	100%	0.08	0.08	0.08	15	7%	205	287	256	16	94%	na	na	na	na	na	0	0	0	16	0%
Salt Lake	GW-NW8-IS	175	288	211	14	100%	0	0	0	13	0%	175	287	211	14	93%	na	na	na	na	na	0	0	0	14	0%
Offsite Southwest																										
Basalt/Salt Lake	GW-10-IBS	242	602	437	17	100%	1.5	10.4	5.6	10	100%	242	602	437	17	100%	na	na	na	na	na	0	0	0	17	0%
Thaynes	GW-7-IT	279	470	352	13	100%	0.742	4.5	1.6	8	100%	279	470	352	13	100%	na	na	na	na	na	0	0	0	13	0%
Basalt/Salt Lake	GW-8-IBS	281	351	310	16	100%	0.1	1.55	0.783	9	100%	281	350	310	16	100%	na	na	na	na	na	0	0	0	16	0%
Alluvium	MW-13A	420	944	802	15	100%	0.043	0.113	0.064	15	60%	916	929	923	2	100%	420	1080	904	13	100%	0	0	0	2	0%
Wells	MW-14W	439	902	833	15	100%	0.04	0.08	0.0633	15	60%	872	902	887	2	100%	439	1090	957	13	100%	0	0	0	2	0%
Wells	MW-17W	632	705	677	10	100%	0.017	0.034	0.0255	10	20%	690	702	694	3	100%	634	847	732	7	100%	0	0	0	3	0%
Dinwoody	MW-18Da	88.4	209	162	12	100%	0.017	0.043	0.0376	12	42%	130	178	148	5	100%	88.4	236	189	7	100%	5	5	5	4	50%
Dinwoody	MW-18Db	70.1	180	162	12	100%	0.014	0.18	0.073	12	33%	159	179	167	5	100%	70.1	218	175	7	100%	5	5	5	4	50%
Basalt	MW-22B	833	981	931	8	100%	0.055	0.24	0.172	8	100%	833	981	931	8	100%	na	na	na	na	na	5	5	5	8	100%
Wells	MW-23W	639	751	723	8	100%	0.04	0.21	0.071	8	100%	639	751	723	8	100%	na	na	na	na	na	5	5	5	8	100%
Wells	MW-24W	758	928	855	8	100%	0.04	0.39	0.146	8	100%	758	928	855	8	100%	na	na	na	na	na	5	5	5	8	100%
Wells	MW-8W	214	281	231	17	100%	0.09	0.43	0.26	17	12%	226	281	248	4	100%	223	288	260	13	100%	5	5	5	4	50%
Alluvium	MW-9A	169	225	191	17	100%	0.025	2.38	0.441	17	35%	173	225	205	4	100%	172	243	215	13	100%	5	5	5	4	50%
Alluvium	WMP-MW-1-A	834	882	866	4	100%	0.47	0.56	0.517	3	100%	871	882	877	2	100%	834	876	855	2	100%	0	0	0	2	0%
Alluvium	WMP-MW-2-A	95.6	1050	847	7	100%	0.75	0.98	0.844	7	100%	916	1050	970	5	100%	95.6	986	541	2	100%	5	5	5	4	50%
Alluvium	WMP-MW-3-A	819	920	865	7	100%	0.053	0.095	0.0787	7	86%	819	920	862	5	100%	855	892	874	2	100%	5	5	5	4	50%
Offsite West																										
Salt Lake	A-14-180-MS	239	239	239	1	100%	0.64	0.64	0.64	2	50%	239	239	239	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-15-105-MB	300	300	300	1	100%	1.3	1.6	1.45	2	100%	300	300	300	1	100%	na	na	na	na	na	0	0	0	1	0%
Salt Lake	A-16-190-MS	241	252	247	2	100%	0.067	0.067	0.067	3	33%	240	252	246	2	100%	na	na	na	na	na	0	0	0	2	0%
Salt Lake	A-17-150-MS	179	204	192	2	100%	0	0	0	3	0%	178	202	190	2	100%	na	na	na	na	na	0	0	0	2	0%
Basalt	A-27-090-MB	653	790	697	8	100%	83.6	96	89.8	2	100%	652	790	697	8	100%	na	na	na	na	na	0	0	0	8	0%
Basalt	A-27-135-MB	892	1110	1006	8	100%	33.5	42.9	38.2	2	100%	892	1110	1005	8	100%	na	na	na	na	na	0	0	0	8	0%
Basalt	A-28-110-MB	371	371	371	1	100%	5.9	10.9	8.4	2	100%	371	371	371	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-28-165-MB	563	563	563	1	100%	15.4	19.5	17.5	2	100%	562	562	562	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-29-145-MB	1110	1150	1130	2	100%	14.3	28.7	21.5	2	100%	1150	1150	1150	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-29-195-MB	1220	1220	1220	1	100%	17.1	32.9	25	2	100%	1220	1220	1220	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-30-135-MB	705	705	705	1	100%	0.42	0.42	0.42	2	50%	704	704	704	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-30-175-MB	800	800	800	1	100%	0.057	0.34	0.199	2	100%	799	799	799	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-35-080-MB	623	788	679	8	100%	110	154	132	2	100%	623	788	679	8	100%	na	na	na	na	na	0	0	0	8	0%
Basalt	A-35-155-MB	344	417	373	8	100%	0.099	0.14	0.12	2	100%	344	416	373	8	100%	na	na	na	na	na	0	0	0	8	0%
Basalt/Salt Lake	A-36-105-MBS	61	202	157	8	100%	15.4	82.2	48.8	2	100%	61	202	157	8	100%	na	na	na	na	na	0	0	0	8	0%
Salt Lake	A-36-145-MS	520	638	568	8	100%	0.093	1.2	0.647	2	100%	519	637	568	8	100%	na	na	na	na	na	0	0	0	8	0%
Basalt	A-49-095-MB	309	309	309	1	100%	16.6	16.6	16.6	1	100%	309	309	309	1	100%	na	na	na	na	na	0	0	0	1	0%
Basalt	A-49-135-MB	374	374	374	1	100%	4.2	4.2	4.2	1	100%	374	374	374	1	100%	na	na	na	na	na	0	0	0	1	0%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	Carbonate, as CO3					Hardness, as CaCO3					Hydroxide, as CaCO3					Nitrate + Nitrite, as N					Nitrate, as N				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L					mg/L				
	Comparison > >	NA					NA					NA					Eco: NA, HH: 10					Eco: NA, HH: 10				
HydroUnit	**StationID**																									
Dinwoody	GW-26-MD	na	na	na	na	na	203	297	230	13	100%	na	na	na	na	na	0.13	0.162	0.148	3	100%	na	na	na	na	na
Alluvium/Colluvium	GW-27-MA	na	na	na	na	na	140	222	178	15	100%	na	na	na	na	na	0	0	0	4	0%	na	na	na	na	na
Wells	GW-39-MW	na	na	na	na	na	304	323	313	7	100%	na	na	na	na	na	1.52	1.71	1.6	5	100%	na	na	na	na	na
Wells	GW-40-MW	na	na	na	na	na	348	411	382	10	100%	na	na	na	na	na	0.349	0.534	0.411	8	100%	na	na	na	na	na
Alluvium/Colluvium	GW-47-MA	na	na	na	na	na	331	387	359	3	67%	na	na	na	na	na	0.077	0.635	0.366	3	100%	na	na	na	na	na
Wells	MW-1W	0	0	0	4	0%	244	266	255	15	100%	na	na	na	na	na	0.3	0.86	0.684	17	100%	0.3	1.08	0.707	17	100%
Rex Chert	MW-2R	0	0	0	4	0%	183	229	196	15	100%	na	na	na	na	na	0.01	0.05	0.0185	15	73%	0.01	0.05	0.0194	14	71%
Alluvium	MW-3A	0	0	0	4	0%	72.7	90	80.3	10	90%	na	na	na	na	na	0.11	1.48	0.438	12	100%	0.11	1.48	0.407	11	100%
Western Woodall Mountain Sub-Basin																										
Salt Lake	A-13-135-MS	na	na	na	na	na	421	461	441	2	100%	na	na	na	na	na	**11.7**	**14.9**	**13.3**	2	100%	7.2	**14.9**	**11.5**	4	100%
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0	0	0	2	0%
	Boring5	na	na	na	na	na	477	961	606	10	100%	na	na	na	na	na	3.99	4.8	4.46	10	100%	na	na	na	na	na
Wells	GW-21-MW	na	na	na	na	na	211	257	235	10	100%	na	na	na	na	na	0.694	1.12	0.847	4	100%	na	na	na	na	na
Salt Lake	GW-57-MS	na	na	na	na	na	255	255	255	1	100%	na	na	na	na	na	3.41	3.41	3.41	1	100%	na	na	na	na	na
Alluvium	GW-A1-MA	na	na	na	na	na	231	252	238	4	100%	na	na	na	na	na	0.35	0.47	0.416	5	100%	0.35	1.2	0.53	16	44%
Salt Lake	GW-NW7-IS	na	na	na	na	na	432	491	449	4	100%	0	0	0	1	0%	3.7	4.67	4.26	7	100%	3.24	4.6	3.78	15	100%
Salt Lake	GW-NW8-IS	na	na	na	na	na	223	244	234	4	100%	0	0	0	1	0%	3.35	5	4.15	7	100%	2.6	5	3.57	13	100%
Offsite Southwest																										
Basalt/Salt Lake	GW-10-IBS	na	na	na	na	na	705	1020	832	15	100%	0	0	0	1	0%	**13.72**	**25.2**	**16.5**	12	100%	**14**	**18.3**	**16.2**	5	100%
Thaynes	GW-7-IT	na	na	na	na	na	691	863	788	12	100%	na	na	na	na	na	**13.8**	**21.8**	**16.6**	8	100%	**14.3**	**18.9**	**16.5**	5	100%
Basalt/Salt Lake	GW-8-IBS	na	na	na	na	na	667	796	734	14	100%	0	0	0	1	0%	**10.1**	**25.96**	**15**	11	100%	**10.1**	**15.9**	**13.1**	5	100%
Alluvium	MW-13A	0	0	0	4	0%	753	959	856	15	100%	na	na	na	na	na	0.01	0.12	0.0317	15	60%	0.01	0.12	0.03	15	53%
Wells	MW-14W	0	0	0	4	0%	824	925	882	15	100%	na	na	na	na	na	0.01	0.27	0.0486	15	53%	0.01	0.27	0.0486	15	47%
Wells	MW-17W	0	0	0	4	0%	678	766	721	10	100%	na	na	na	na	na	0.22	0.369	0.264	10	100%	0.217	0.379	0.271	10	100%
Dinwoody	MW-18Da	0	0	0	4	0%	135	216	183	11	100%	na	na	na	na	na	0.1	1.2	0.346	12	100%	0.1	1.2	0.345	12	100%
Dinwoody	MW-18Db	0	0	0	4	0%	175	312	191	11	100%	na	na	na	na	na	0.19	1.34	1.04	12	100%	0.19	1.33	1.04	12	100%
Basalt	MW-22B	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.1	0.1	0.1	8	100%	0.1	0.1	0.1	7	100%
Wells	MW-23W	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.1	0.17	0.128	8	100%	0.1	0.16	0.119	7	100%
Wells	MW-24W	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.1	0.3	0.125	8	100%	0.1	0.26	0.123	7	100%
Wells	MW-8W	0	0	0	4	0%	210	245	231	15	100%	na	na	na	na	na	0.1	0.66	0.473	16	100%	0.1	0.66	0.465	17	100%
Alluvium	MW-9A	0	0	0	4	0%	174	201	185	15	100%	na	na	na	na	na	0.064	1.6	0.303	17	100%	0.057	1.6	0.306	17	100%
Alluvium	WMP-MW-1-A	0	0	0	2	0%	839	850	843	4	100%	na	na	na	na	na	0.033	0.033	0.033	4	25%	0	0	0	4	0%
Alluvium	WMP-MW-2-A	0	0	0	2	0%	874	1030	971	5	100%	na	na	na	na	na	0.046	0.166	0.103	6	67%	0.016	0.1	0.072	6	50%
Alluvium	WMP-MW-3-A	0	0	0	2	0%	879	945	910	5	100%	na	na	na	na	na	0.034	0.1	0.078	6	50%	0.1	0.155	0.118	6	50%
Offsite West																										
Salt Lake	A-14-180-MS	na	na	na	na	na	712	712	712	1	100%	na	na	na	na	na	**19.7**	**19.7**	**19.7**	1	100%	7.1	**48.7**	**25.2**	3	100%
Basalt	A-15-105-MB	na	na	na	na	na	1200	1200	1200	1	100%	na	na	na	na	na	**49.9**	**49.9**	**49.9**	1	100%	**44.4**	**52**	**48.8**	3	100%
Salt Lake	A-16-190-MS	na	na	na	na	na	238	245	242	2	100%	na	na	na	na	na	1.4	1.8	1.6	2	100%	0.9	2.6	1.68	4	100%
Salt Lake	A-17-150-MS	na	na	na	na	na	216	242	229	2	100%	na	na	na	na	na	**10.2**	**10.7**	**10.5**	2	100%	**10.2**	**16.4**	**12.4**	4	100%
Basalt	A-27-090-MB	na	na	na	na	na	1920	1920	1920	1	100%	na	na	na	na	na	**75.5**	**75.5**	**75.5**	1	100%	**66**	**81.1**	**72.4**	9	100%
Basalt	A-27-135-MB	na	na	na	na	na	1910	1910	1910	1	100%	na	na	na	na	na	**20.4**	**20.4**	**20.4**	1	100%	**18.5**	**44.9**	**31.1**	9	100%
Basalt	A-28-110-MB	na	na	na	na	na	858	858	858	1	100%	na	na	na	na	na	**24.3**	**24.3**	**24.3**	1	100%	**11.4**	**24**	**17.7**	2	100%
Basalt	A-28-165-MB	na	na	na	na	na	1230	1230	1230	1	100%	na	na	na	na	na	**20.4**	**20.4**	**20.4**	1	100%	**20.4**	**21.4**	**20.9**	2	100%
Basalt	A-29-145-MB	na	na	na	na	na	1500	1500	1500	1	100%	na	na	na	na	na	**16.4**	**16.4**	**16.4**	1	100%	**14.1**	**16.4**	**15.3**	2	100%
Basalt	A-29-195-MB	na	na	na	na	na	1380	1380	1380	1	100%	na	na	na	na	na	6.8	6.8	6.8	1	100%	6.8	8.4	7.6	2	100%
Basalt	A-30-135-MB	na	na	na	na	na	931	931	931	1	100%	na	na	na	na	na	**12.7**	**12.7**	**12.7**	1	100%	**12.7**	**17.3**	**15**	2	100%
Basalt	A-30-175-MB	na	na	na	na	na	1060	1060	1060	1	100%	na	na	na	na	na	10	10	10	1	100%	7.9	10	8.95	2	100%
Basalt	A-35-080-MB	na	na	na	na	na	2660	2660	2660	1	100%	na	na	na	na	na	**57.3**	**57.3**	**57.3**	1	100%	**53.4**	**72.4**	**62.3**	9	89%
Basalt	A-35-155-MB	na	na	na	na	na	1650	1650	1650	1	100%	na	na	na	na	na	1.4	1.4	1.4	1	100%	0.99	2.4	1.69	9	100%
Basalt/Salt Lake	A-36-105-MBS	na	na	na	na	na	3430	3430	3430	1	100%	na	na	na	na	na	0	0	0	1	0%	2.1	**18.9**	**11.2**	9	33%
Salt Lake	A-36-145-MS	na	na	na	na	na	3290	3290	3290	1	100%	na	na	na	na	na	0	0	0	1	0%	0.67	1.6	1.06	9	33%
Basalt	A-49-095-MB	na	na	na	na	na	888	888	888	1	100%	na	na	na	na	na	**26.8**	**26.8**	**26.8**	1	100%	**26.8**	**26.8**	**26.8**	1	100%
Basalt	A-49-135-MB	na	na	na	na	na	872	872	872	1	100%	na	na	na	na	na	**14.4**	**14.4**	**14.4**	1	100%	**14.4**	**14.4**	**14.4**	1	100%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	Nitrate, as N (field)					Nitrite, as N					Phosphorus, Total					TDS				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: 10					Eco: NA, HH: 1					NA					Eco: NA, HH: 500				
HydroUnit	**StationID**																				
Dinwoody	GW-26-MD	na	na	na	na	na	na	na	na	na	na	0.01	0.908	0.459	3	67%	110	262	227	13	100%
Alluvium/Colluvium	GW-27-MA	na	na	na	na	na	na	na	na	na	na	0.1	0.17	0.135	4	100%	190	263	225	15	100%
Wells	GW-39-MW	na	na	na	na	na	na	na	na	na	na	0.03	0.036	0.0326	5	100%	288	353	323	7	100%
Wells	GW-40-MW	na	na	na	na	na	na	na	na	na	na	0.03	0.142	0.087	8	100%	324	407	358	10	100%
Alluvium/Colluvium	GW-47-MA	na	na	na	na	na	na	na	na	na	na	0.118	1.61	0.621	3	100%	**532**	**568**	**555**	3	100%
Wells	MW-1W	na	na	na	na	na	0.02	0.1	0.0753	16	25%	0.019	0.28	0.0596	17	100%	217	319	275	16	100%
Rex Chert	MW-2R	na	na	na	na	na	0.01	0.02	0.015	15	13%	0.0059	0.021	0.0106	15	60%	152	242	202	16	100%
Alluvium	MW-3A	na	na	na	na	na	0.0071	0.1	0.0568	12	33%	0.12	3.2	0.615	12	100%	99	284	147	11	100%
Western Woodall Mountain Sub-Basin																					
Salt Lake	A-13-135-MS	na	na	na	na	na	0	0	0	2	0%	0.042	2.7	0.724	4	100%	499	**610**	**577**	4	100%
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	na	na	na	na	na	399	730	565	2	100%	**2460**	**2630**	**2545**	2	100%
	Boring5	0	0	0	10	0%	na	na	na	na	na	0.094	4.36	1.01	10	100%	**552**	**704**	**641**	10	100%
Wells	GW-21-MW	na	na	na	na	na	na	na	na	na	na	0.02	0.06	0.0355	4	100%	269	460	318	10	100%
Salt Lake	GW-57-MS	na	na	na	na	na	na	na	na	na	na	0.013	0.013	0.013	1	100%	472	472	472	1	100%
Alluvium	GW-A1-MA	na	na	na	na	na	0	0	0	4	0%	0.029	1.24	0.28	16	81%	242	298	270	16	100%
Salt Lake	GW-NW7-IS	na	na	na	na	na	0	0	0	4	0%	0.041	3.4	0.31	16	100%	472	**654**	**558**	17	100%
Salt Lake	GW-NW8-IS	na	na	na	na	na	0	0	0	4	0%	0.029	0.45	0.101	14	93%	232	378	309	15	100%
Offsite Southwest																					
Basalt/Salt Lake	GW-10-IBS	na	na	na	na	na	0	0	0	3	0%	2.26	24	10.6	11	100%	**1060**	**1540**	**1317**	18	100%
Thaynes	GW-7-IT	na	na	na	na	na	0	0	0	3	0%	1.14	15	5.91	8	100%	**1130**	**1390**	**1266**	13	100%
Basalt/Salt Lake	GW-8-IBS	na	na	na	na	na	0	0	0	3	0%	0.05	13	2.07	10	100%	**1030**	**1580**	**1240**	17	100%
Alluvium	MW-13A	na	na	na	na	na	0.037	0.037	0.037	15	7%	0.038	1.1	0.183	15	93%	**771**	**956**	**868**	16	100%
Wells	MW-14W	na	na	na	na	na	0.037	0.037	0.037	15	7%	0.028	3.9	0.393	15	100%	**860**	**1020**	**895**	17	100%
Wells	MW-17W	na	na	na	na	na	0	0	0	10	0%	0.0092	0.11	0.035	10	100%	**645**	**749**	**719**	11	100%
Dinwoody	MW-18Da	na	na	na	na	na	0.009	0.1	0.0697	11	27%	0.035	0.166	0.0982	12	100%	197	291	246	10	100%
Dinwoody	MW-18Db	na	na	na	na	na	0.007	0.1	0.069	11	27%	0.03	0.54	0.119	12	100%	211	251	236	9	100%
Basalt	MW-22B	na	na	na	na	na	0.04	0.1	0.0914	7	100%	0.1	0.79	0.376	8	100%	**943**	**1030**	**1002**	8	100%
Wells	MW-23W	na	na	na	na	na	0.04	0.15	0.0986	7	100%	0.05	0.1	0.0938	8	100%	**780**	**829**	**807**	8	100%
Wells	MW-24W	na	na	na	na	na	0.04	0.1	0.0914	7	100%	0.1	2	0.781	8	100%	**894**	**1150**	**1004**	8	100%
Wells	MW-8W	na	na	na	na	na	0.015	0.1	0.0717	17	18%	0.07	11.2	0.771	17	100%	224	367	265	15	100%
Alluvium	MW-9A	na	na	na	na	na	0.014	0.1	0.0713	17	18%	0.06	0.68	0.168	17	100%	197	274	237	15	100%
Alluvium	WMP-MW-1-A	na	na	na	na	na	0.039	0.039	0.039	4	25%	0.022	0.138	0.0765	4	100%	**871**	**885**	**878**	3	100%
Alluvium	WMP-MW-2-A	na	na	na	na	na	0.036	0.1	0.0787	6	50%	0.35	1.12	0.645	7	86%	**965**	**1070**	**1018**	6	100%
Alluvium	WMP-MW-3-A	na	na	na	na	na	0.1	0.1	0.1	6	33%	0.031	0.14	0.0804	7	100%	**883**	**941**	**912**	6	100%
Offsite West																					
Salt Lake	A-14-180-MS	na	na	na	na	na	0	0	0	1	0%	1.7	46.8	22.5	3	100%	**594**	**1650**	**1111**	3	100%
Basalt	A-15-105-MB	na	na	na	na	na	0	0	0	1	0%	15.2	47.8	26.7	3	100%	**1410**	**1940**	**1753**	3	100%
Salt Lake	A-16-190-MS	na	na	na	na	na	0	0	0	2	0%	0.036	0.43	0.156	4	100%	263	329	299	4	100%
Salt Lake	A-17-150-MS	na	na	na	na	na	0	0	0	2	0%	0.044	0.17	0.0853	4	100%	327	361	338	4	100%
Basalt	A-27-090-MB	na	na	na	na	na	0	0	0	1	0%	82.5	191	129	9	100%	**2920**	**4150**	**3296**	9	100%
Basalt	A-27-135-MB	na	na	na	na	na	0	0	0	1	0%	52.9	220	112	9	100%	**2740**	**4020**	**3292**	9	100%
Basalt	A-28-110-MB	na	na	na	na	na	0.25	0.25	0.25	1	100%	12.2	22.1	17.2	2	100%	**1290**	**1800**	**1545**	2	100%
Basalt	A-28-165-MB	na	na	na	na	na	0	0	0	1	0%	26.3	63.1	44.7	2	100%	**1440**	**2030**	**1735**	2	100%
Basalt	A-29-145-MB	na	na	na	na	na	0	0	0	1	0%	30.3	150	90.2	2	100%	**2780**	**3040**	**2910**	2	100%
Basalt	A-29-195-MB	na	na	na	na	na	0	0	0	1	0%	10.8	269	140	2	100%	**2640**	**3900**	**3270**	2	100%
Basalt	A-30-135-MB	na	na	na	na	na	0	0	0	1	0%	0.27	0.27	0.27	2	50%	**1230**	**1330**	**1280**	2	100%
Basalt	A-30-175-MB	na	na	na	na	na	0	0	0	1	0%	0.079	0.17	0.125	2	100%	**1110**	**1420**	**1265**	2	100%
Basalt	A-35-080-MB	na	na	na	na	na	0.85	0.85	0.85	1	100%	27.1	145	68.5	9	100%	**3340**	**4670**	**3810**	9	100%
Basalt	A-35-155-MB	na	na	na	na	na	0	0	0	1	0%	0.42	3.1	1.8	9	100%	**2130**	**2460**	**2317**	9	100%
Basalt/Salt Lake	A-36-105-MBS	na	na	na	na	na	0	0	0	1	0%	0.049	0.85	0.41	9	100%	**4660**	**6180**	**5264**	9	100%
Salt Lake	A-36-145-MS	na	na	na	na	na	0	0	0	1	0%	0.058	0.22	0.125	9	78%	**4010**	**4990**	**4471**	9	100%
Basalt	A-49-095-MB	na	na	na	na	na	0	0	0	1	0%	46.1	46.1	46.1	1	100%	**1450**	**1450**	**1450**	1	100%
Basalt	A-49-135-MB	na	na	na	na	na	0	0	0	1	0%	996	996	996	1	100%	**1170**	**1170**	**1170**	1	100%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater

	Analyte > >	TDS, Dissolved					TOC					TSS				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					mg/L				
	Comparison > >	Eco: NA, HH: 500					NA					NA				
HydroUnit	**StationID**															
Dinwoody	GW-26-MD	na	na	na	na	na	1.11	1.11	1.11	3	33%	2	887	166	13	77%
Alluvium/Colluvium	GW-27-MA	na	na	na	na	na	2.05	6.56	4.04	4	100%	2	87	22.6	15	33%
Wells	GW-39-MW	na	na	na	na	na	1.73	4.15	2.87	5	60%	5	5	5	7	14%
Wells	GW-40-MW	na	na	na	na	na	1.09	5	2.75	8	100%	5	35	21.5	10	60%
Alluvium/Colluvium	GW-47-MA	na	na	na	na	na	5.95	7.22	6.59	3	67%	6	511	176	3	100%
Wells	MW-1W	252	252	252	1	100%	na	na	na	na	na	1.4	10	6.23	16	38%
Rex Chert	MW-2R	174	174	174	1	100%	na	na	na	na	na	1	5	3	15	13%
Alluvium	MW-3A	133	133	133	1	100%	na	na	na	na	na	3	454	75.6	12	100%
Western Woodall Mountain Sub-Basin																
Salt Lake	A-13-135-MS	na	na	na	na	na	na	na	na	na	na	4	4	4	3	33%
Alluvium/Colluvium	A-46-028-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Boring5	na	na	na	na	na	1.58	10.2	4.72	10	100%	68	4700	1036	10	100%
Wells	GW-21-MW	na	na	na	na	na	1.02	7.53	3.21	4	75%	6	36	21.6	10	50%
Salt Lake	GW-57-MS	na	na	na	na	na	1.24	1.24	1.24	1	100%	0	0	0	1	0%
Alluvium	GW-A1-MA	na	na	na	na	na	na	na	na	na	na	3	107	21.7	15	67%
Salt Lake	GW-NW7-IS	na	na	na	na	na	na	na	na	na	na	2	2	2	15	13%
Salt Lake	GW-NW8-IS	na	na	na	na	na	na	na	na	na	na	6	8	6.67	13	23%
Offsite Southwest																
Basalt/Salt Lake	GW-10-IBS	na	na	na	na	na	1.13	3.91	1.86	5	100%	1	12	6.56	16	56%
Thaynes	GW-7-IT	na	na	na	na	na	1.84	1.97	1.89	3	100%	5	146	35.2	13	69%
Basalt/Salt Lake	GW-8-IBS	na	na	na	na	na	1.44	2.88	1.82	4	100%	4	21	11.4	15	33%
Alluvium	MW-13A	**935**	**972**	**954**	2	100%	na	na	na	na	na	9	486	59.2	15	100%
Wells	MW-14W	**890**	**908**	**899**	2	100%	na	na	na	na	na	6	1420	178	16	69%
Wells	MW-17W	**720**	**732**	**725**	3	100%	na	na	na	na	na	2.4	6	4.8	10	30%
Dinwoody	MW-18Da	198	246	222	2	100%	na	na	na	na	na	2	52	17.5	11	55%
Dinwoody	MW-18Db	222	239	231	2	100%	na	na	na	na	na	9.7	104	35.7	12	58%
Basalt	MW-22B	na	na	na	na	na	na	na	na	na	na	14.7	86.7	44	8	100%
Wells	MW-23W	na	na	na	na	na	na	na	na	na	na	10	48.9	14.9	8	100%
Wells	MW-24W	na	na	na	na	na	na	na	na	na	na	12.1	485	147	8	100%
Wells	MW-8W	254	275	265	2	100%	na	na	na	na	na	3	321	109	17	24%
Alluvium	MW-9A	217	222	220	2	100%	na	na	na	na	na	5	257	55.3	17	71%
Alluvium	WMP-MW-1-A	**883**	**883**	**883**	1	100%	na	na	na	na	na	2.7	8	5.53	4	100%
Alluvium	WMP-MW-2-A	**1070**	**1070**	**1070**	1	100%	na	na	na	na	na	28.4	85.8	50.5	7	86%
Alluvium	WMP-MW-3-A	**930**	**930**	**930**	1	100%	na	na	na	na	na	1.6	17.7	8.64	6	83%
Offsite West																
Salt Lake	A-14-180-MS	na	na	na	na	na	na	na	na	na	na	9	24	16.5	2	100%
Basalt	A-15-105-MB	na	na	na	na	na	na	na	na	na	na	4	6	5	2	100%
Salt Lake	A-16-190-MS	na	na	na	na	na	na	na	na	na	na	0	0	0	3	0%
Salt Lake	A-17-150-MS	na	na	na	na	na	na	na	na	na	na	12	27	19.5	3	67%
Basalt	A-27-090-MB	na	na	na	na	na	na	na	na	na	na	17	17	17	1	100%
Basalt	A-27-135-MB	na	na	na	na	na	na	na	na	na	na	17	17	17	1	100%
Basalt	A-28-110-MB	na	na	na	na	na	na	na	na	na	na	13	13	13	1	100%
Basalt	A-28-165-MB	na	na	na	na	na	na	na	na	na	na	18	18	18	1	100%
Basalt	A-29-145-MB	na	na	na	na	na	na	na	na	na	na	29	29	29	1	100%
Basalt	A-29-195-MB	na	na	na	na	na	na	na	na	na	na	20	20	20	1	100%
Basalt	A-30-135-MB	na	na	na	na	na	na	na	na	na	na	0	0	0	1	0%
Basalt	A-30-175-MB	na	na	na	na	na	na	na	na	na	na	9	9	9	1	100%
Basalt	A-35-080-MB	na	na	na	na	na	na	na	na	na	na	77	77	77	1	100%
Basalt	A-35-155-MB	na	na	na	na	na	na	na	na	na	na	15	15	15	1	100%
Basalt/Salt Lake	A-36-105-MBS	na	na	na	na	na	na	na	na	na	na	18	18	18	1	100%
Salt Lake	A-36-145-MS	na	na	na	na	na	na	na	na	na	na	27	27	27	1	100%
Basalt	A-49-095-MB	na	na	na	na	na	na	na	na	na	na	6	6	6	1	100%
Basalt	A-49-135-MB	na	na	na	na	na	na	na	na	na	na	12	12	12	1	100%

Table 4-43
Summary of Detected General Chemistry Results for Groundwater
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

N = Nitrogen; CaCO3 = calcium carbonate; HCO3 = bicarbonate ; CO3 = carbonate

TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids

na = not analyzed.

NA = comparison value not available.

mg/L = milligrams per liter

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names.

More information about human health ("HH") groundwater comparison values is provided on Table 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

Table 4-44
Summary of Groundwater Field Parameters

	Analyte > >	Conductivity (field)					Conductivity (lab)					Iron, Ferrous, Total					ORP					Oxygen, Dissolved (%) - field				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	umhos/cm					umhos/cm					mg/L					mV					%				
	Comparison > >	NA					NA					NA					NA					NA				
HydroUnit	Station																									
French Drain Sub-Basin																										
Basalt	A-33-070-MB	4560	4560	4560	1	100%	4710	4710	4710	1	100%	na	na	na	na	na	151	151	151	1	100%	na	na	na	na	na
Basalt	A-33-170-MB	1360	1360	1360	1	100%	1360	1360	1360	1	100%	na	na	na	na	na	190	190	190	1	100%	na	na	na	na	na
Basalt	A-50-070-MB	1490	1490	1490	1	100%	1470	1470	1470	1	100%	na	na	na	na	na	157	157	157	1	100%	na	na	na	na	na
Basalt	A-50-100-MB	1540	1540	1540	1	100%	1490	1490	1490	1	100%	na	na	na	na	na	146	146	146	1	100%	na	na	na	na	na
Salt Lake	A-50-125-MS	1630	1630	1630	1	100%	1500	1500	1500	1	100%	na	na	na	na	na	153	153	153	1	100%	na	na	na	na	na
	Boring1	640	1244	993	11	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Boring2	467	498	483	2	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	Boring3	422	550	479	5	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-11-IW	398	759	548	13	100%	374	585	508	5	100%	0.02	0.02	0.02	1	100%	49.5	683.6	293	13	100%	na	na	na	na	na
Salt Lake	GW-12-IS	4	589	379	16	100%	na	na	na	na	na	0	0	0	1	100%	-17.8	258.7	97.8	16	100%	na	na	na	na	na
Salt Lake	GW-13-IS	80	117	92.7	3	100%	na	na	na	na	na	na	na	na	na	na	-297	99.4	-109	3	100%	na	na	na	na	na
Wells	GW-14-MW	70	912	702	10	100%	na	na	na	na	na	na	na	na	na	na	-229.7	36.1	-82.5	10	100%	na	na	na	na	na
Salt Lake	GW-15-MS	9	2071	1427	14	100%	na	na	na	na	na	na	na	na	na	na	-91	322.4	130	14	100%	na	na	na	na	na
vium/Colluvi	GW-16-MA	899	4620	1467	11	100%	na	na	na	na	na	na	na	na	na	na	-55.6	348.7	146	11	100%	na	na	na	na	na
vium/Colluvi	GW-17-MA	793	1032	901	10	100%	na	na	na	na	na	na	na	na	na	na	49.7	259.8	159	10	100%	na	na	na	na	na
vium/Colluvi	GW-49-MA	1223	1613	1418	2	100%	na	na	na	na	na	na	na	na	na	na	121.1	121.1	121	1	100%	na	na	na	na	na
Salt Lake	GW-50-MS	933	1544	1239	2	100%	na	na	na	na	na	na	na	na	na	na	201	201	201	1	100%	na	na	na	na	na
Salt Lake	GW-51-MS	562	933	748	2	100%	na	na	na	na	na	na	na	na	na	na	215.4	215.4	215	1	100%	na	na	na	na	na
vium/Colluvi	GW-52-MA	1066	1066	1066	1	100%	na	na	na	na	na	na	na	na	na	na	120.4	120.4	120	1	100%	na	na	na	na	na
Salt Lake	GW-53-MS	635	635	635	1	100%	na	na	na	na	na	na	na	na	na	na	214.8	214.8	215	1	100%	na	na	na	na	na
vium/Colluvi	GW-54-MA	1105	2699	1902	2	100%	na	na	na	na	na	na	na	na	na	na	165.9	165.9	166	1	100%	na	na	na	na	na
Salt Lake	GW-55-MS	654.6	7885	4270	2	100%	na	na	na	na	na	na	na	na	na	na	146	146	146	1	100%	na	na	na	na	na
Salt Lake	GW-56-MS	479	755	617	2	100%	na	na	na	na	na	na	na	na	na	na	172.9	172.9	173	1	100%	na	na	na	na	na
Salt Lake	GW-9-IS	791	1182	1028	16	100%	na	na	na	na	na	0	0	0	1	100%	68.4	375.4	176	16	100%	na	na	na	na	na
asalt/Salt Lal	GW-MWB-MBS	na	na	na	na	na	400	3790	1596	20	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
asalt/Salt Lal	GW-NW9-IBS	3050	3050	3050	2	100%	1020	2840	1671	21	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Basalt	MW-A-110-MB	na	na	na	na	na	3000	4550	3984	12	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	NTP-PZ-02	1681	1681	1681	1	100%	na	na	na	na	na	na	na	na	na	na	189.4	189.4	189	1	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Sub-Basin																										
Dinwoody	GW-LRSN-1-DD	243	844	478	10	100%	na	na	na	na	na	na	na	na	na	na	4.5	339.5	163	10	100%	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	288	593	361	10	100%	na	na	na	na	na	na	na	na	na	na	30.6	319	135	10	100%	na	na	na	na	na
North Woodall Mountain Sub-Basin																										
Alluvium	MW-10A	264	444	393	16	100%	340	444	395	19	100%	na	na	na	na	na	na	na	na	na	na	33.9	59.7	46	9	100%
Dinwoody	MW-11Da	263	400	352	3	100%	380	409	389	5	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dinwoody	MW-11Db	300	445	390	16	100%	366	408	386	17	100%	na	na	na	na	na	na	na	na	na	na	4.1	41	30.3	9	100%
Wells	MW-12W	295	726	405	16	100%	355	417	384	18	100%	na	na	na	na	na	na	na	na	na	na	0.9	37.4	6.33	9	100%
Wells	MW-4W	1176	2603	1374	16	100%	1240	1390	1299	17	100%	na	na	na	na	na	na	na	na	na	na	1.1	3.6	2.41	9	100%
Alluvium	MW-5A	880	1840	1084	16	100%	885	1150	1012	17	100%	na	na	na	na	na	na	na	na	na	na	1.6	19.6	6.34	9	100%
Dinwoody	MW-6D	318	436	398	16	100%	362	434	398	18	100%	na	na	na	na	na	na	na	na	na	na	26.3	61.4	41.8	9	100%
Alluvium	MW-7A	278	590	472	16	100%	380	551	474	18	100%	na	na	na	na	na	na	na	na	na	na	4.1	73	38.5	9	100%
Old Tailings Pond Sub-Basin																										
Salt Lake	GW-19-MS	98	1016	852	11	100%	na	na	na	na	na	na	na	na	na	na	-46.4	234.5	114	11	100%	na	na	na	na	na
Dinwoody	GW-37-MD	1.68	1714	1354	8	100%	na	na	na	na	na	na	na	na	na	na	91.9	288.9	169	8	100%	na	na	na	na	na
Tailings	TP2-SB3	3146	3146	3146	1	100%	na	na	na	na	na	na	na	na	na	na	32.7	32.7	32.7	1	100%	na	na	na	na	na
Pedro Creek Sub-Basin																										
vium/Colluvi	GW-28-MA	217	2394	1557	11	100%	na	na	na	na	na	na	na	na	na	na	-124.8	213	96.8	11	100%	na	na	na	na	na
Dinwoody	GW-29-MD	254	450	396	15	100%	na	na	na	na	na	na	na	na	na	na	-148.5	376.9	132	15	100%	na	na	na	na	na
vium/Colluvi	GW-30-MA	339	708	493	15	100%	na	na	na	na	na	na	na	na	na	na	-193.4	192	17.7	14	100%	na	na	na	na	na
vium/Colluvi	GW-38-MA	910	1365	1160	3	100%	na	na	na	na	na	na	na	na	na	na	-104.2	93.3	16	3	100%	na	na	na	na	na
vium/Colluvi	GW-41-MA	1770	3461	2783	5	100%	na	na	na	na	na	na	na	na	na	na	98.6	429.9	220	5	100%	na	na	na	na	na
Dinwoody	GW-42-MD	838	881	859	5	100%	na	na	na	na	na	na	na	na	na	na	62.5	392	219	5	100%	na	na	na	na	na
Dinwoody	GW-44-MD	737	871	817	5	100%	na	na	na	na	na	na	na	na	na	na	54.4	219.4	131	5	100%	na	na	na	na	na
vium/Colluvi	GW-45-MA	605	694.7	630	4	100%	na	na	na	na	na	na	na	na	na	na	99.2	368.5	193	4	100%	na	na	na	na	na
Dinwoody	GW-46-MD	480	534.9	501	5	100%	na	na	na	na	na	na	na	na	na	na	99.4	373.3	187	5	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub-Basin																										
Meade Peak	GW-22-MM	1108	2240	1660	6	100%	na	na	na	na	na	na	na	na	na	na	144.3	308	216	6	100%	na	na	na	na	na
Meade Peak	GW-23-MM	924	924	924	1	100%	na	na	na	na	na	na	na	na	na	na	-119	-119	-119	1	100%	na	na	na	na	na
Colluvium	GW-24-MA	539	950	779	7	100%	na	na	na	na	na	na	na	na	na	na	-102.6	291.6	123	7	100%	na	na	na	na	na
Wells	GW-31-MW	0.74	1148	736	9	100%	na	na	na	na	na	na	na	na	na	na	-234	-105.1	-140	9	100%	na	na	na	na	na
Dinwoody	GW-32-MD	389	700	519	10	100%	na	na	na	na	na	na	na	na	na	na	-44.3	331.8	166	10	100%	na	na	na	na	na
Rex Chert	GW-33-MR	228.2	580.5	501	9	100%	na	na	na	na	na	na	na	na	na	na	-34.6	260	152	9	100%	na	na	na	na	na
vium/Colluvi	GW-34-MA	196	196	196	1	100%	na	na	na	na	na	na	na	na	na	na	-29.8	-29.8	-29.8	1	100%	na	na	na	na	na

Table 4-44
Summary of Groundwater Field Parameters

	Analyte > >	Oxygen, Dissolved (mg/L) - field					Oxygen, Dissolved (mg/L) - lab					pH (field)					pH (lab)					Temperature (field)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					SU					SU					C				
	Comparison > >	NA					NA					HH: 6.5 - 8.5					HH: 6.5 - 8.5					NA				
HydroUnit	Station																									
French Drain Sub-Basin																										
Basalt	A-33-070-MB	2.23	2.23	2.23	1	100%	na	na	na	na	na	**5.86**	**5.86**	**5.86**	1	100%	**6.46**	**6.46**	**6.46**	1	100%	9.97	9.97	9.97	1	100%
Basalt	A-33-170-MB	1.97	1.97	1.97	1	100%	na	na	na	na	na	7.08	7.08	7.08	1	100%	7.69	7.69	7.69	1	100%	11.71	11.71	11.7	1	100%
Basalt	A-50-070-MB	2.14	2.14	2.14	1	100%	na	na	na	na	na	7.1	7.1	7.1	1	100%	7.32	7.32	7.32	1	100%	12.72	12.72	12.7	1	100%
Basalt	A-50-100-MB	1.97	1.97	1.97	1	100%	na	na	na	na	na	7.49	7.49	7.49	1	100%	7.83	7.83	7.83	1	100%	11.75	11.75	11.8	1	100%
Salt Lake	A-50-125-MS	3.88	3.88	3.88	1	100%	na	na	na	na	na	7.49	7.49	7.49	1	100%	7.89	7.89	7.89	1	100%	10.6	10.6	10.6	1	100%
	Boring1	na	na	na	na	na	na	na	na	na	na	**6.14**	8.39	7.62	11	100%	na	na	na	na	na	7.67	14.97	11	11	100%
	Boring2	6.04	6.04	6.04	1	100%	na	na	na	na	na	7.97	8.01	7.99	2	100%	na	na	na	na	na	12.46	15.59	14	2	100%
	Boring3	na	na	na	na	na	na	na	na	na	na	7.75	**8.56**	8.16	5	100%	na	na	na	na	na	14.16	18.94	17.2	5	100%
Wells	GW-11-IW	4.09	51.3	9.07	13	100%	na	na	na	na	na	6.99	7.42	7.23	13	100%	7.06	7.63	7.43	5	100%	7.6	12.25	9.38	13	100%
Salt Lake	GW-12-IS	1.24	15.4	4.04	16	100%	na	na	na	na	na	6.86	8.24	7.74	16	100%	na	na	na	na	na	6.7	11.03	9.03	16	100%
Salt Lake	GW-13-IS	0.43	7.15	2.91	3	100%	na	na	na	na	na	**6.3**	7.99	7.26	3	100%	na	na	na	na	na	8.5	11.07	9.76	3	100%
Wells	GW-14-MW	0.24	1.34	0.447	10	100%	na	na	na	na	na	7.48	7.92	7.7	10	100%	na	na	na	na	na	8.3	15.4	11.1	10	100%
Salt Lake	GW-15-MS	0.25	9.09	2.9	14	100%	na	na	na	na	na	6.61	7.55	6.93	14	100%	na	na	na	na	na	5.66	10	7.52	14	100%
vium/Colluvi	GW-16-MA	6.51	868	86.6	11	100%	na	na	na	na	na	**6.16**	7.34	7.08	11	100%	na	na	na	na	na	2.95	12.96	8.4	11	100%
vium/Colluvi	GW-17-MA	5.75	10.48	7.75	10	100%	na	na	na	na	na	6.83	7.72	7.36	10	100%	na	na	na	na	na	7.67	15.56	9.69	10	100%
vium/Colluvi	GW-49-MA	2.59	2.59	2.59	1	100%	na	na	na	na	na	7.11	7.12	7.12	2	100%	na	na	na	na	na	9.25	9.26	9.26	2	100%
Salt Lake	GW-50-MS	5.33	5.33	5.33	1	100%	na	na	na	na	na	7.22	7.32	7.27	2	100%	na	na	na	na	na	8.56	12.27	10.4	2	100%
Salt Lake	GW-51-MS	10.09	10.09	10.1	1	100%	na	na	na	na	na	7.23	7.4	7.32	2	100%	na	na	na	na	na	8.7	9.66	9.18	2	100%
vium/Colluvi	GW-52-MA	8.38	8.38	8.38	1	100%	na	na	na	na	na	7.3	7.3	7.3	1	100%	na	na	na	na	na	7.73	7.73	7.73	1	100%
Salt Lake	GW-53-MS	6.82	6.82	6.82	1	100%	na	na	na	na	na	**8.7**	**8.7**	**8.7**	1	100%	na	na	na	na	na	7.95	7.95	7.95	1	100%
vium/Colluvi	GW-54-MA	10.03	10.03	10	1	100%	na	na	na	na	na	7.95	**12.53**	**10.2**	2	100%	na	na	na	na	na	6.59	9.78	8.19	2	100%
Salt Lake	GW-55-MS	8.5	8.5	8.5	1	100%	na	na	na	na	na	**12.79**	**12.95**	**12.9**	2	100%	na	na	na	na	na	7.15	8.51	7.83	2	100%
Salt Lake	GW-56-MS	11.3	11.3	11.3	1	100%	na	na	na	na	na	7.25	**8.66**	7.96	2	100%	na	na	na	na	na	5.73	10.55	8.14	2	100%
Salt Lake	GW-9-IS	3.81	7.98	5.39	16	100%	na	na	na	na	na	**6.45**	7.52	6.94	16	100%	na	na	na	na	na	7.39	10.06	8.22	16	100%
asalt/Salt Lal	GW-MWB-MBS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	**3.5**	7.08	**5.72**	20	100%	na	na	na	na	na
asalt/Salt Lal	GW-NW9-IBS	na	na	na	na	na	3.75	3.75	3.75	1	100%	na	na	na	na	na	**2.98**	6.97	**6.17**	21	100%	na	na	na	na	na
Basalt	MW-A-110-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	**5.3**	**6.03**	**5.61**	12	100%	na	na	na	na	na
	NTP-PZ-02	5.94	5.94	5.94	1	100%	na	na	na	na	na	7.1	7.1	7.1	1	100%	na	na	na	na	na	14.91	14.91	14.9	1	100%
Margarette Creek/Trail Canyon Su																										
Dinwoody	GW-LRSN-1-DD	5.05	10.62	8.22	10	100%	na	na	na	na	na	6.96	7.73	7.36	10	100%	na	na	na	na	na	7.8	10.56	8.55	10	100%
Dinwoody	GW-LRSN-2-DD	2.58	8.2	5.97	10	100%	na	na	na	na	na	6.92	7.81	7.5	10	100%	na	na	na	na	na	6.6	11.3	7.99	10	100%
North Woodall Mountain Sub-Bas																										
Alluvium	MW-10A	3.93	7.41	5.38	16	100%	na	na	na	na	na	7.15	7.75	7.32	16	100%	7.3	8	7.56	19	100%	6	10.06	8.04	16	100%
Dinwoody	MW-11Da	3.7	4.37	4.08	3	100%	na	na	na	na	na	7.39	7.74	7.55	3	100%	7.6	8.08	7.79	5	100%	6.19	11.39	9.46	3	100%
Dinwoody	MW-11Db	2.7	5.2	3.97	16	100%	na	na	na	na	na	7.41	8.33	7.61	16	100%	7.5	7.92	7.71	18	100%	6.06	12.43	7.96	16	100%
Wells	MW-12W	0.1	4.12	0.761	16	100%	na	na	na	na	na	7.38	7.82	7.61	16	100%	7.5	8.21	7.74	18	100%	8.14	12.2	10.6	16	100%
Wells	MW-4W	0.11	2.33	0.456	16	100%	na	na	na	na	na	**6.09**	6.59	**6.35**	16	100%	6.6	7.46	6.73	17	100%	11.53	17.26	15	16	100%
Alluvium	MW-5A	0.16	1.99	0.676	16	100%	na	na	na	na	na	**6.37**	6.72	6.54	16	100%	6.6	7.61	6.91	17	100%	12.07	15.8	14.1	16	100%
Dinwoody	MW-6D	0.35	7.64	3.84	16	100%	na	na	na	na	na	7.36	7.73	7.61	16	100%	7.6	7.98	7.73	18	100%	6.8	10.24	7.91	16	100%
Alluvium	MW-7A	0.46	8.69	5.05	16	100%	na	na	na	na	na	6.59	7.49	7.1	16	100%	6.9	7.98	7.39	18	100%	6.3	8.6	7.57	16	100%
Old Tailings Pond Sub-Basin																										
Salt Lake	GW-19-MS	4.44	8.9	6.64	11	100%	na	na	na	na	na	7.07	7.64	7.4	11	100%	na	na	na	na	na	7.1	15.34	11.8	11	100%
Dinwoody	GW-37-MD	3.21	5.32	4.08	8	100%	na	na	na	na	na	6.69	7	6.83	8	100%	na	na	na	na	na	7.7	9.05	8.38	8	100%
Tailings	TP2-SB3	3.32	3.32	3.32	1	100%	na	na	na	na	na	6.59	6.59	6.59	1	100%	na	na	na	na	na	11.58	11.58	11.6	1	100%
Pedro Creek Sub-Basin																										
vium/Colluvi	GW-28-MA	6.07	8.7	7.37	11	100%	na	na	na	na	na	**5.63**	7.24	6.68	11	100%	na	na	na	na	na	4.79	12.4	7.42	11	100%
Dinwoody	GW-29-MD	6.42	8.89	7.4	15	100%	na	na	na	na	na	**5.92**	7.66	7.32	15	100%	na	na	na	na	na	6.6	10.81	8.86	15	100%
vium/Colluvi	GW-30-MA	0.22	7.77	2.38	15	100%	na	na	na	na	na	**6.03**	7.74	7.1	15	100%	na	na	na	na	na	4.4	11	7.34	15	100%
vium/Colluvi	GW-38-MA	2.07	7	5.33	3	100%	na	na	na	na	na	6.84	7.09	6.93	3	100%	na	na	na	na	na	5.5	11.23	7.61	3	100%
vium/Colluvi	GW-41-MA	0.42	7.55	2.34	5	100%	na	na	na	na	na	**6.13**	6.8	6.57	5	100%	na	na	na	na	na	6.5	13.8	10.1	5	100%
Dinwoody	GW-42-MD	2.72	3.75	2.98	5	100%	na	na	na	na	na	**4.89**	7.34	6.67	5	100%	na	na	na	na	na	6.25	12.9	9.21	5	100%
Dinwoody	GW-44-MD	0.24	7.46	3.13	5	100%	na	na	na	na	na	6.62	7.31	7.02	5	100%	na	na	na	na	na	6.4	12.1	8	5	100%
vium/Colluvi	GW-45-MA	3.6	8.06	6.17	4	100%	na	na	na	na	na	**6.4**	7.19	6.91	4	100%	na	na	na	na	na	4.6	10	7.2	4	100%
Dinwoody	GW-46-MD	4.85	6.86	5.94	5	100%	na	na	na	na	na	**5.7**	7.44	6.78	5	100%	na	na	na	na	na	4.21	8.4	6.29	5	100%
Shield and Jouglard Canyons Sub																										
Meade Peak	GW-22-MM	1.48	9.03	3.51	6	100%	na	na	na	na	na	**4.22**	**6.08**	**5.53**	6	100%	na	na	na	na	na	5.41	14.5	8.8	6	100%
Meade Peak	GW-23-MM	3.9	3.9	3.9	1	100%	na	na	na	na	na	6.92	6.92	6.92	1	100%	na	na	na	na	na	9.1	9.1	9.1	1	100%
Colluvium	GW-24-MA	0.45	9.29	5.69	7	100%	na	na	na	na	na	**6.38**	7.22	6.89	7	100%	na	na	na	na	na	5.72	11.6	7.54	7	100%
Wells	GW-31-MW	0.29	2.9	1.02	9	100%	na	na	na	na	na	7.43	8.09	7.83	9	100%	na	na	na	na	na	7.2	11.13	9	9	100%
Dinwoody	GW-32-MD	5.74	14.39	8.23	10	100%	na	na	na	na	na	7.01	7.59	7.39	10	100%	na	na	na	na	na	7.1	10.96	8.41	10	100%
Rex Chert	GW-33-MR	0.55	2.1	1.01	9	100%	na	na	na	na	na	**5.64**	7.05	**6.04**	9	100%	na	na	na	na	na	3.7	19.56	11.8	9	100%
vium/Colluvi	GW-34-MA	9.23	9.23	9.23	1	100%	na	na	na	na	na	6.87	6.87	6.87	1	100%	na	na	na	na	na	5.84	5.84	5.84	1	100%

Table 4-44
Summary of Groundwater Field Parameters

	Analyte > >	Temperature (lab)					Turbidity (field)					Turbidity (lab)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >		C					NTU					NTU			
	Comparison > >		NA					NA					NA			
HydroUnit	Station															
French Drain Sub-Basin																
Basalt	A-33-070-MB	na	na	na	na	na	9.7	9.7	9.7	1	100%	na	na	na	na	na
Basalt	A-33-170-MB	na	na	na	na	na	6.5	6.5	6.5	1	100%	na	na	na	na	na
Basalt	A-50-070-MB	na	na	na	na	na	0.3	0.3	0.3	1	100%	na	na	na	na	na
Basalt	A-50-100-MB	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Salt Lake	A-50-125-MS	na	na	na	na	na	3.1	3.1	3.1	1	100%	na	na	na	na	na
	Boring1	na	na	na	na	na	na	1000	0.0909	11	100%	na	na	na	na	na
	Boring2	na	na	na	na	na	44	44	44	1	100%	na	na	na	na	na
	Boring3	na	na	na	na	na	1000	1000	1000	1	100%	na	na	na	na	na
Wells	GW-11-IW	na	na	na	na	na	0	5.66	1.54	13	100%	na	na	na	na	na
Salt Lake	GW-12-IS	na	na	na	na	na	0	136.2	33.5	15	100%	na	na	na	na	na
Salt Lake	GW-13-IS	na	na	na	na	na	5.01	18	11.5	2	100%	na	na	na	na	na
Wells	GW-14-MW	na	na	na	na	na	1.57	10.8	4.69	9	100%	na	na	na	na	na
Salt Lake	GW-15-MS	na	na	na	na	na	0	4.45	0.962	13	100%	na	na	na	na	na
vium/Colluv	GW-16-MA	na	na	na	na	na	3.7	319	66.4	7	100%	na	na	na	na	na
vium/Colluv	GW-17-MA	na	na	na	na	na	3	1025	675	7	100%	na	na	na	na	na
vium/Colluv	GW-49-MA	na	na	na	na	na	11.5	27.8	19.7	2	100%	na	na	na	na	na
Salt Lake	GW-50-MS	na	na	na	na	na	54.3	54.3	54.3	1	100%	na	na	na	na	na
Salt Lake	GW-51-MS	na	na	na	na	na	4.49	971	488	2	100%	na	na	na	na	na
vium/Colluv	GW-52-MA	na	na	na	na	na	186	186	186	1	100%	na	na	na	na	na
Salt Lake	GW-53-MS	na	na	na	na	na	17.3	17.3	17.3	1	100%	na	na	na	na	na
vium/Colluv	GW-54-MA	na	na	na	na	na	41.3	1000	521	2	100%	na	na	na	na	na
Salt Lake	GW-55-MS	na	na	na	na	na	79.4	1000	540	2	100%	na	na	na	na	na
Salt Lake	GW-56-MS	na	na	na	na	na	5.96	5.96	5.96	1	100%	na	na	na	na	na
Salt Lake	GW-9-IS	na	na	na	na	na	0	12.6	3.25	16	100%	na	na	na	na	na
asalt/Salt Lai	GW-MWB-MBS	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
asalt/Salt Lai	GW-NW9-IBS	10.1	10.1	10.1	1	100%	na	na	na	na	na	1.19	1.19	1.19	1	100%
Basalt	MW-A-110-MB	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	NTP-PZ-02	na	na	na	na	na	32	32	32	1	100%	na	na	na	na	na
Margarette Creek/Trail Canyon Su																
Dinwoody	GW-LRSN-1-DD	na	na	na	na	na	0	94.2	10.4	10	100%	na	na	na	na	na
Dinwoody	GW-LRSN-2-DD	na	na	na	na	na	1.68	156.7	54	10	100%	na	na	na	na	na
North Woodall Mountain Sub-Bas																
Alluvium	MW-10A	na	na	na	na	na	na	na	na	na	na	0.179	7.6	2.21	16	94%
Dinwoody	MW-11Da	na	na	na	na	na	na	na	na	na	na	7.04	7.71	7.38	2	100%
Dinwoody	MW-11Db	na	na	na	na	na	na	na	na	na	na	0.11	5.71	1.25	15	53%
Wells	MW-12W	na	na	na	na	na	na	na	na	na	na	0.23	103	28	15	33%
Wells	MW-4W	na	na	na	na	na	na	na	na	na	na	0.5	69.5	7.88	15	100%
Alluvium	MW-5A	na	na	na	na	na	na	na	na	na	na	0.62	158	19.8	16	94%
Dinwoody	MW-6D	na	na	na	na	na	na	na	na	na	na	0.29	10.1	3.22	15	40%
Alluvium	MW-7A	na	na	na	na	na	na	na	na	na	na	0.22	14	3.17	15	100%
Old Tailings Pond Sub-Basin																
Salt Lake	GW-19-MS	na	na	na	na	na	0.01	6.45	2.87	10	100%	na	na	na	na	na
Dinwoody	GW-37-MD	na	na	na	na	na	2.45	94.91	25.7	8	100%	na	na	na	na	na
Tailings	TP2-SB3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pedro Creek Sub-Basin																
vium/Colluv	GW-28-MA	na	na	na	na	na	0.91	8.77	3.08	9	100%	na	na	na	na	na
Dinwoody	GW-29-MD	na	na	na	na	na	1.32	54.76	14.6	14	100%	na	na	na	na	na
vium/Colluv	GW-30-MA	na	na	na	na	na	2.52	18.43	7.73	12	100%	na	na	na	na	na
vium/Colluv	GW-38-MA	na	na	na	na	na	1100	1100	1100	1	100%	na	na	na	na	na
vium/Colluv	GW-41-MA	na	na	na	na	na	0.25	1000	274	5	100%	na	na	na	na	na
Dinwoody	GW-42-MD	na	na	na	na	na	15.7	1000	250	5	100%	na	na	na	na	na
Dinwoody	GW-44-MD	na	na	na	na	na	7.61	1000	256	5	100%	na	na	na	na	na
vium/Colluv	GW-45-MA	na	na	na	na	na	2.81	10.05	6.73	4	100%	na	na	na	na	na
Dinwoody	GW-46-MD	na	na	na	na	na	0.94	1000	201	5	100%	na	na	na	na	na
Shield and Jouglard Canyons Sub																
Meade Peak	GW-22-MM	na	na	na	na	na	0.1	500	109	5	100%	na	na	na	na	na
Meade Peak	GW-23-MM	na	na	na	na	na	90	90	90	1	100%	na	na	na	na	na
Colluvium	GW-24-MA	na	na	na	na	na	6.41	518	177	6	100%	na	na	na	na	na
Wells	GW-31-MW	na	na	na	na	na	0.62	72.01	14.7	7	100%	na	na	na	na	na
Dinwoody	GW-32-MD	na	na	na	na	na	1.18	120	27.2	10	100%	na	na	na	na	na
Rex Chert	GW-33-MR	na	na	na	na	na	1.69	19.9	8.83	8	100%	na	na	na	na	na
vium/Colluv	GW-34-MA	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 4-44
Summary of Groundwater Field Parameters

	Analyte > >	Conductivity (field)					Conductivity (lab)					Iron, Ferrous, Total					ORP					Oxygen, Dissolved (%) - field				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	umhos/cm					umhos/cm					mg/L					mV					%				
	Comparison > >	NA					NA					NA					NA					NA				
HydroUnit	Station																									
State Land Creek Sub-Basin																										
vium/Colluv	GW-25-MA	318.8	1340	654	14	100%	na	na	na	na	na	na	na	na	na	na	-142.5	243.8	94.3	14	100%	na	na	na	na	na
Dinwoody	GW-26-MD	92	504	385	12	100%	na	na	na	na	na	na	na	na	na	na	-150.7	224	124	12	100%	na	na	na	na	na
vium/Colluv	GW-27-MA	265.5	488	375	15	100%	na	na	na	na	na	na	na	na	na	na	-133.5	99.3	-10.6	14	100%	na	na	na	na	na
Wells	GW-39-MW	0.592	604	482	7	100%	na	na	na	na	na	na	na	na	na	na	107.6	300	186	7	100%	na	na	na	na	na
Wells	GW-40-MW	0.671	709	591	10	100%	na	na	na	na	na	na	na	na	na	na	77	310	148	10	100%	na	na	na	na	na
vium/Colluv	GW-47-MA	715	790	745	3	100%	na	na	na	na	na	na	na	na	na	na	156.9	342.7	246	3	100%	na	na	na	na	na
Wells	MW-1W	368	914	518	16	100%	424	524	488	16	100%	na	na	na	na	na	na	na	na	na	na	34.5	76.3	43.1	9	100%
Rex Chert	MW-2R	358	485	395	15	100%	309	442	382	14	100%	na	na	na	na	na	na	na	na	na	na	1.1	42.2	14.1	9	100%
Alluvium	MW-3A	185	323	209	10	100%	162	275	200	12	100%	na	na	na	na	na	na	na	na	na	na	33.9	55.4	47.1	4	100%
Western Woodall Mountain Sub-Basin																										
Salt Lake	A-13-135-MS	860	860	860	1	100%	830	842	836	2	100%	na	na	na	na	na	167	167	167	1	100%	na	na	na	na	na
vium/Colluv	A-46-028-MA	2730	2730	2730	1	100%	2240	2240	2240	1	100%	na	na	na	na	na	75	75	75	1	100%	na	na	na	na	na
	Boring5	1104	1352	1253	10	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	GW-21-MW	459	882	548	9	100%	na	na	na	na	na	na	na	na	na	na	-20.3	213.7	94.2	9	100%	na	na	na	na	na
Salt Lake	GW-57-MS	517	517	517	1	100%	na	na	na	na	na	na	na	na	na	na	163.2	163.2	163	1	100%	na	na	na	na	na
Alluvium	GW-A1-MA	466	471	468	4	100%	283	515	446	15	100%	na	na	na	na	na	181	181	181	1	100%	na	na	na	na	na
Salt Lake	GW-NW7-IS	532	806	692	5	100%	382	878	778	15	100%	0	0	0	1	100%	-45.5	150	52.3	2	100%	na	na	na	na	na
Salt Lake	GW-NW8-IS	321	522	428	5	100%	371	534	484	13	100%	0.07	0.07	0.07	1	100%	-24.4	154	64.8	2	100%	na	na	na	na	na
Offsite Southwest																										
asalt/Salt Lal	GW-10-IBS	1000	2180	1652	12	100%	1220	1670	1480	5	100%	0.01	0.01	0.01	1	100%	10	319.8	138	11	100%	na	na	na	na	na
Thaynes	GW-7-IT	789	1875	1496	8	100%	1280	1640	1492	5	100%	na	na	na	na	na	38.8	1212.6	290	7	100%	na	na	na	na	na
asalt/Salt Lal	GW-8-IBS	1274	1718	1540	12	100%	1140	1610	1446	5	100%	0	0	0	1	100%	63.3	286.7	164	12	100%	na	na	na	na	na
Alluvium	MW-13A	1288	1618	1468	15	100%	1140	1590	1418	15	100%	na	na	na	na	na	na	na	na	na	na	1.2	29.6	6.82	9	100%
Wells	MW-14W	1093	2826	1527	16	100%	1110	1540	1437	16	100%	na	na	na	na	na	na	na	na	na	na	3.1	47.9	14.4	9	100%
Wells	MW-17W	971	4469	1626	11	100%	1150	1290	1226	10	100%	na	na	na	na	na	na	na	na	na	na	18.9	41.7	27.7	3	100%
Dinwoody	MW-18Da	221	555	411	11	100%	287	469	399	13	100%	na	na	na	na	na	na	na	na	na	na	21.3	40.2	29.2	3	100%
Dinwoody	MW-18Db	289	765	419	11	100%	328	446	389	13	100%	na	na	na	na	na	na	na	na	na	na	61.2	65.6	63.1	3	100%
Basalt	MW-22B	na	na	na	na	na	1560	1710	1626	8	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	MW-23W	na	na	na	na	na	1340	1450	1381	8	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	MW-24W	na	na	na	na	na	1420	1660	1584	8	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	MW-8W	348	504	462	16	100%	418	569	464	17	100%	na	na	na	na	na	na	na	na	na	na	15.6	36.2	24.1	9	100%
Alluvium	MW-9A	310	434	388	16	100%	366	466	398	17	100%	na	na	na	na	na	na	na	na	na	na	9.2	57.1	29.5	9	100%
Alluvium	WMP-MW-1-A	1376	2804	1780	4	100%	1360	1530	1458	4	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium	WMP-MW-2-A	1346	1815	1654	5	100%	1600	1780	1686	7	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alluvium	WMP-MW-3-A	1128	1587	1415	5	100%	1450	1570	1507	7	100%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Offsite West																										
Salt Lake	A-14-180-MS	810	810	810	1	100%	1330	1330	1330	1	100%	na	na	na	na	na	130	130	130	1	100%	na	na	na	na	na
Basalt	A-15-105-MB	2250	2250	2250	1	100%	2110	2110	2110	1	100%	na	na	na	na	na	128	128	128	1	100%	na	na	na	na	na
Salt Lake	A-16-190-MS	460	460	460	1	100%	474	476	475	2	100%	na	na	na	na	na	133	133	133	1	100%	na	na	na	na	na
Salt Lake	A-17-150-MS	540	540	540	1	100%	455	480	468	2	100%	na	na	na	na	na	146	146	146	1	100%	na	na	na	na	na
Basalt	A-27-090-MB	3830	3830	3830	1	100%	3370	4450	4000	8	100%	na	na	na	na	na	74	74	74	1	100%	na	na	na	na	na
Basalt	A-27-135-MB	4430	4430	4430	1	100%	3480	4630	4191	8	100%	na	na	na	na	na	198	198	198	1	100%	na	na	na	na	na
Basalt	A-28-110-MB	1800	1800	1800	1	100%	1680	1680	1680	1	100%	na	na	na	na	na	142	142	142	1	100%	na	na	na	na	na
Basalt	A-28-165-MB	2270	2270	2270	1	100%	2440	2440	2440	1	100%	na	na	na	na	na	150	150	150	1	100%	na	na	na	na	na
Basalt	A-29-145-MB	3890	3890	3890	1	100%	3740	3740	3740	1	100%	na	na	na	na	na	166	166	166	1	100%	na	na	na	na	na
Basalt	A-29-195-MB	3860	3860	3860	1	100%	3740	3740	3740	1	100%	na	na	na	na	na	169	169	169	1	100%	na	na	na	na	na
Basalt	A-30-135-MB	2270	2270	2270	1	100%	1680	1680	1680	1	100%	na	na	na	na	na	206	206	206	1	100%	na	na	na	na	na
Basalt	A-30-175-MB	1550	1550	1550	1	100%	1840	1840	1840	1	100%	na	na	na	na	na	195	195	195	1	100%	na	na	na	na	na
Basalt	A-35-080-MB	4900	4900	4900	1	100%	4120	5500	4775	8	100%	na	na	na	na	na	189	189	189	1	100%	na	na	na	na	na
Basalt	A-35-155-MB	2530	2530	2530	1	100%	2070	2680	2385	8	100%	na	na	na	na	na	123	123	123	1	100%	na	na	na	na	na
asalt/Salt Lal	A-36-105-MBS	5820	5820	5820	1	100%	4070	5700	4859	8	100%	na	na	na	na	na	190	190	190	1	100%	na	na	na	na	na
Salt Lake	A-36-145-MS	4730	4730	4730	1	100%	3490	4510	4031	8	100%	na	na	na	na	na	150	150	150	1	100%	na	na	na	na	na
Basalt	A-49-095-MB	2150	2150	2150	1	100%	2000	2000	2000	1	100%	na	na	na	na	na	153	153	153	1	100%	na	na	na	na	na
Basalt	A-49-135-MB	1510	1510	1510	1	100%	1680	1680	1680	1	100%	na	na	na	na	na	134	134	134	1	100%	na	na	na	na	na

Table 4-44
Summary of Groundwater Field Parameters

	Analyte > >	Oxygen, Dissolved (mg/L) - field					Oxygen, Dissolved (mg/L) - lab					pH (field)					pH (lab)					Temperature (field)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	mg/L					mg/L					SU					SU					C				
	Comparison > >	NA					NA					HH: 6.5 - 8.5					HH: 6.5 - 8.5					NA				
HydroUnit	Station																									
State Land Creek Sub-Basin																										
vium/Colluv	GW-25-MA	0.52	7.38	3.6	14	100%	na	na	na	na	na	6.35	7.59	6.91	14	100%	na	na	na	na	na	6.2	13.88	10	14	100%
Dinwoody	GW-26-MD	0.05	71.4	10.3	12	100%	na	na	na	na	na	7.19	8.44	7.67	12	100%	na	na	na	na	na	7.3	22.8	14.2	12	100%
vium/Colluv	GW-27-MA	0.08	3.29	0.854	15	100%	na	na	na	na	na	6.32	7.51	6.87	15	100%	na	na	na	na	na	4.6	12.3	8.72	15	100%
Wells	GW-39-MW	6.9	12.9	10	7	100%	na	na	na	na	na	6.75	7.54	7.33	7	100%	na	na	na	na	na	5.89	6.5	6.14	7	100%
Wells	GW-40-MW	1.11	5.86	4.37	10	100%	na	na	na	na	na	6.86	8.04	7.67	10	100%	na	na	na	na	na	5.8	6.48	6.11	10	100%
vium/Colluv	GW-47-MA	4.41	8.98	6.6	3	100%	na	na	na	na	na	5.86	6.77	6.26	3	100%	na	na	na	na	na	8.1	10.5	9.27	3	100%
Wells	MW-1W	2.32	9.17	4.48	16	100%	na	na	na	na	na	7.24	7.55	7.37	16	100%	7.2	7.84	7.59	16	100%	7.1	10.38	8.26	16	100%
Rex Chert	MW-2R	0.11	5.04	1.32	15	100%	na	na	na	na	na	7.37	8	7.68	15	100%	7.5	8.13	7.82	17	100%	6.11	8.6	7.88	15	100%
Alluvium	MW-3A	2.27	8.83	5.29	9	100%	na	na	na	na	na	6.22	6.95	6.57	10	100%	6.5	7.6	6.89	12	100%	6.2	11.42	8.08	10	100%
Western Woodall Mountain Sub-B																										
Salt Lake	A-13-135-MS	7.65	7.65	7.65	1	100%	na	na	na	na	na	7.27	7.27	7.27	1	100%	7.43	7.54	7.5	3	100%	12.65	12.65	12.7	1	100%
vium/Colluv	A-46-028-MA	1.36	1.36	1.36	1	100%	na	na	na	na	na	4.45	4.45	4.45	1	100%	5.45	5.67	5.56	2	100%	12.08	12.08	12.1	1	100%
	Boring5	na	na	na	na	na	na	na	na	na	na	7.74	8.18	8.01	10	100%	na	na	na	na	na	8.52	12.08	9.9	10	100%
Wells	GW-21-MW	5.91	10.07	7.56	9	100%	na	na	na	na	na	6.73	7.62	7.37	9	100%	na	na	na	na	na	7.7	13.6	10.6	9	100%
Salt Lake	GW-57-MS	6.44	6.44	6.44	1	100%	na	na	na	na	na	8.9	8.9	8.9	1	100%	na	na	na	na	na	8.77	8.77	8.77	1	100%
Alluvium	GW-A1-MA	7.9	7.9	7.9	1	100%	5.81	6.31	6.06	2	100%	6.3	6.3	6.3	1	100%	6.4	8.1	7.49	16	100%	11.25	11.25	11.3	1	100%
Salt Lake	GW-NW7-IS	6.65	8.18	7.42	2	100%	6.4	7.54	6.97	2	100%	7.6	7.89	7.75	2	100%	6.69	7.9	7.54	14	100%	7.7	9.58	8.64	2	100%
Salt Lake	GW-NW8-IS	7.97	7.97	7.97	1	100%	7.14	7.64	7.39	2	100%	7.95	8.23	8.09	2	100%	6	8.1	7.6	12	100%	9.1	11.8	10.5	2	100%
Offsite Southwest																										
asalt/Salt Lal	GW-10-IBS	0.25	8.91	2.04	12	100%	na	na	na	na	na	6.14	6.97	6.45	12	100%	6.28	6.78	6.52	6	100%	8.9	13.99	10.9	12	100%
Thaynes	GW-7-IT	0.38	6.68	3.92	8	100%	na	na	na	na	na	6.1	7.42	6.5	8	100%	6.43	6.75	6.6	6	100%	8.55	13.46	10.4	8	100%
asalt/Salt Lal	GW-8-IBS	0.09	4.41	0.773	12	100%	na	na	na	na	na	6.2	6.82	6.45	12	100%	6.53	6.8	6.7	5	100%	8.53	10.3	9.18	12	100%
Alluvium	MW-13A	0.16	4.36	1.14	14	100%	na	na	na	na	na	6.23	6.72	6.49	15	100%	6.5	7.3	6.82	18	100%	7.2	10.15	8.66	15	100%
Wells	MW-14W	0.01	5.39	1.9	16	100%	na	na	na	na	na	6.09	6.77	6.39	16	100%	6.4	7.2	6.72	19	100%	8.4	12.8	11.9	16	100%
Wells	MW-17W	1.92	5.9	3.24	11	100%	na	na	na	na	na	6.45	7.41	6.62	11	100%	6.6	7.92	6.94	14	100%	10.68	14.9	12.7	11	100%
Dinwoody	MW-18Da	0.17	4.9	2.07	11	100%	na	na	na	na	na	5.62	7.54	6.85	11	100%	7.1	7.71	7.4	13	100%	5.4	12.18	7.98	11	100%
Dinwoody	MW-18Db	4.5	8.15	6.34	11	100%	na	na	na	na	na	7.47	7.79	7.6	11	100%	7.3	8.1	7.75	13	100%	7.49	12.6	10.7	11	100%
Basalt	MW-22B	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.6	7.3	6.91	8	100%	na	na	na	na	na
Wells	MW-23W	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.4	7.4	6.86	8	100%	na	na	na	na	na
Wells	MW-24W	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	6.4	7.1	6.75	8	100%	na	na	na	na	na
Wells	MW-8W	1.14	4.12	2.34	16	100%	na	na	na	na	na	6.74	7.4	7.18	16	100%	7.1	7.96	7.46	17	100%	7.19	11.7	9.32	16	100%
Alluvium	MW-9A	0.17	6.24	2.81	16	100%	na	na	na	na	na	6.59	7.05	6.86	16	100%	6.8	7.76	7.19	17	100%	4.7	14.7	9.39	16	100%
Alluvium	WMP-MW-1-A	0.26	0.44	0.355	4	100%	na	na	na	na	na	6.3	6.62	6.42	4	100%	6.5	7.4	6.92	4	100%	14.03	16.47	15.4	4	100%
Alluvium	WMP-MW-2-A	0.14	1.57	0.834	5	100%	na	na	na	na	na	6.23	6.42	6.33	5	100%	6.5	7.37	6.82	7	100%	16.25	18.35	17.5	5	100%
Alluvium	WMP-MW-3-A	0.13	2.23	0.646	5	100%	na	na	na	na	na	6.18	6.6	6.31	5	100%	6.5	7.17	6.75	7	100%	12.79	16.34	14.6	5	100%
Offsite West																										
Salt Lake	A-14-180-MS	2.69	2.69	2.69	1	100%	na	na	na	na	na	7.1	7.1	7.1	1	100%	6.64	7.14	6.89	2	100%	9.71	9.71	9.71	1	100%
Basalt	A-15-105-MB	1.6	1.6	1.6	1	100%	na	na	na	na	na	6.68	6.68	6.68	1	100%	6.42	6.62	6.52	2	100%	11.64	11.64	11.6	1	100%
Salt Lake	A-16-190-MS	7.72	7.72	7.72	1	100%	na	na	na	na	na	6.39	6.39	6.39	1	100%	7.38	7.48	7.42	3	100%	14.4	14.4	14.4	1	100%
Salt Lake	A-17-150-MS	9.29	9.29	9.29	1	100%	na	na	na	na	na	6.86	6.86	6.86	1	100%	5.3	8.17	7.02	3	100%	11.47	11.47	11.5	1	100%
Basalt	A-27-090-MB	0	0	0	1	100%	na	na	na	na	na	6.25	6.25	6.25	1	100%	6.16	6.48	6.31	9	100%	11.38	11.38	11.4	1	100%
Basalt	A-27-135-MB	0.7	0.7	0.7	1	100%	na	na	na	na	na	6.52	6.52	6.52	1	100%	6.27	6.65	6.4	9	100%	9.76	9.76	9.76	1	100%
Basalt	A-28-110-MB	0.38	0.38	0.38	1	100%	na	na	na	na	na	5.91	5.91	5.91	1	100%	6.67	6.77	6.72	2	100%	11.34	11.34	11.3	1	100%
Basalt	A-28-165-MB	0.37	0.37	0.37	1	100%	na	na	na	na	na	5.52	5.52	5.52	1	100%	6.55	6.72	6.64	2	100%	11.11	11.11	11.1	1	100%
Basalt	A-29-145-MB	0.45	0.45	0.45	1	100%	na	na	na	na	na	6.16	6.16	6.16	1	100%	6.32	6.46	6.39	2	100%	10.72	10.72	10.7	1	100%
Basalt	A-29-195-MB	0.51	0.51	0.51	1	100%	na	na	na	na	na	6.26	6.26	6.26	1	100%	6.52	6.55	6.54	2	100%	12.05	12.05	12.1	1	100%
Basalt	A-30-135-MB	1.48	1.48	1.48	1	100%	na	na	na	na	na	6.5	6.5	6.5	1	100%	6.53	6.61	6.57	2	100%	14.17	14.17	14.2	1	100%
Basalt	A-30-175-MB	0	0	0	1	100%	na	na	na	na	na	6.83	6.83	6.83	1	100%	6.63	6.86	6.75	2	100%	12.87	12.87	12.9	1	100%
Basalt	A-35-080-MB	0.96	0.96	0.96	1	100%	na	na	na	na	na	6.49	6.49	6.49	1	100%	6.08	7.19	6.58	9	100%	14.82	14.82	14.8	1	100%
Basalt	A-35-155-MB	1.65	1.65	1.65	1	100%	na	na	na	na	na	7.25	7.25	7.25	1	100%	6.95	7.32	7.08	9	100%	14.04	14.04	14	1	100%
asalt/Salt Lal	A-36-105-MBS	0	0	0	1	100%	na	na	na	na	na	5.34	5.34	5.34	1	100%	5.18	6.24	5.93	9	100%	13.4	13.4	13.4	1	100%
Salt Lake	A-36-145-MS	3.49	3.49	3.49	1	100%	na	na	na	na	na	6.74	6.74	6.74	1	100%	6.79	7.14	6.93	9	100%	13.06	13.06	13.1	1	100%
Basalt	A-49-095-MB	2.2	2.2	2.2	1	100%	na	na	na	na	na	6.35	6.35	6.35	1	100%	6.52	6.52	6.52	1	100%	9.28	9.28	9.28	1	100%
Basalt	A-49-135-MB	0	0	0	1	100%	na	na	na	na	na	7.04	7.04	7.04	1	100%	7.03	7.03	7.03	1	100%	15.88	15.88	15.9	1	100%

Table 4-44
Summary of Groundwater Field Parameters

	Analyte > >	Temperature (lab)					Turbidity (field)					Turbidity (lab)				
	Information Type > >	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq	Min	Max	Avg	Count	Freq
	Units > >	C					NTU					NTU				
	Comparison > >	NA					NA					NA				
HydroUnit	Station															
State Land Creek Sub-Basin																
vium/Colluv	GW-25-MA	na	na	na	na	na	0.28	97	9.86	13	100%	na	na	na	na	na
Dinwoody	GW-26-MD	na	na	na	na	na	0.79	313.3	60.7	9	100%	na	na	na	na	na
vium/Colluv	GW-27-MA	na	na	na	na	na	0.43	41.57	7.62	15	100%	na	na	na	na	na
Wells	GW-39-MW	na	na	na	na	na	0.63	6.54	2.51	6	100%	na	na	na	na	na
Wells	GW-40-MW	na	na	na	na	na	1.47	56.6	19.2	10	100%	na	na	na	na	na
vium/Colluv	GW-47-MA	na	na	na	na	na	3.83	1000	338	3	100%	na	na	na	na	na
Wells	MW-1W	na	na	na	na	na	na	na	na	na	na	0.3	4.4	1.91	14	29%
Rex Chert	MW-2R	na	na	na	na	na	na	na	na	na	na	0.07	1.98	0.716	15	40%
Alluvium	MW-3A	na	na	na	na	na	na	na	na	na	na	4.34	210	62.4	10	100%
Western Woodall Mountain Sub-B																
Salt Lake	A-13-135-MS	na	na	na	na	na	3.4	3.4	3.4	1	100%	na	na	na	na	na
vium/Colluv	A-46-028-MA	na	na	na	na	na	800	800	800	1	100%	na	na	na	na	na
	Boring5	na	na	na	na	na	25.7	499	254	9	100%	na	na	na	na	na
Wells	GW-21-MW	na	na	na	na	na	1.09	33.17	10.2	8	100%	na	na	na	na	na
Salt Lake	GW-57-MS	na	na	na	na	na	4.42	4.42	4.42	1	100%	na	na	na	na	na
Alluvium	GW-A1-MA	11.5	14.9	13.2	2	100%	7.2	7.2	7.2	1	100%	1.12	2.14	1.63	2	100%
Salt Lake	GW-NW7-IS	8.8	9.2	9	2	100%	1.05	2.13	1.59	2	100%	0.28	0.58	0.43	2	100%
Salt Lake	GW-NW8-IS	10.5	11.1	10.8	2	100%	1.95	5.72	3.84	2	100%	0.72	1.62	1.17	2	100%
Offsite Southwest																
asalt/Salt La	GW-10-IBS	na	na	na	na	na	0	14.2	2.89	12	100%	na	na	na	na	na
Thaynes	GW-7-IT	na	na	na	na	na	0.67	120.8	24.4	8	100%	na	na	na	na	na
asalt/Salt La	GW-8-IBS	na	na	na	na	na	0	32	3.34	12	100%	na	na	na	na	na
Alluvium	MW-13A	na	na	na	na	na	na	na	na	na	na	7	320	39.4	15	100%
Wells	MW-14W	na	na	na	na	na	na	na	na	na	na	2.5	88.2	23.2	15	100%
Wells	MW-17W	na	na	na	na	na	na	na	na	na	na	0.2	9.28	2.43	10	90%
Dinwoody	MW-18Da	na	na	na	na	na	na	na	na	na	na	0.35	44.4	13.9	9	89%
Dinwoody	MW-18Db	na	na	na	na	na	na	na	na	na	na	0.3	22.2	7.99	9	100%
Basalt	MW-22B	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	MW-23W	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	MW-24W	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Wells	MW-8W	na	na	na	na	na	na	na	na	na	na	0.4	23.2	4	15	53%
Alluvium	MW-9A	na	na	na	na	na	na	na	na	na	na	0.209	140	28.5	15	100%
Alluvium	WMP-MW-1-A	na	na	na	na	na	na	na	na	na	na	17.1	32.2	25.6	4	100%
Alluvium	WMP-MW-2-A	na	na	na	na	na	na	na	na	na	na	106	238	158	4	100%
Alluvium	WMP-MW-3-A	na	na	na	na	na	na	na	na	na	na	0.538	16	4.96	4	100%
Offsite West																
Salt Lake	A-14-180-MS	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Basalt	A-15-105-MB	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Salt Lake	A-16-190-MS	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Salt Lake	A-17-150-MS	na	na	na	na	na	4.3	4.3	4.3	1	100%	na	na	na	na	na
Basalt	A-27-090-MB	na	na	na	na	na	0.9	0.9	0.9	1	100%	na	na	na	na	na
Basalt	A-27-135-MB	na	na	na	na	na	5	5	5	1	100%	na	na	na	na	na
Basalt	A-28-110-MB	na	na	na	na	na	9.9	9.9	9.9	1	100%	na	na	na	na	na
Basalt	A-28-165-MB	na	na	na	na	na	2.2	2.2	2.2	1	100%	na	na	na	na	na
Basalt	A-29-145-MB	na	na	na	na	na	27	27	27	1	100%	na	na	na	na	na
Basalt	A-29-195-MB	na	na	na	na	na	8.4	8.4	8.4	1	100%	na	na	na	na	na
Basalt	A-30-135-MB	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Basalt	A-30-175-MB	na	na	na	na	na	3.9	3.9	3.9	1	100%	na	na	na	na	na
Basalt	A-35-080-MB	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Basalt	A-35-155-MB	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
asalt/Salt La	A-36-105-MBS	na	na	na	na	na	3	3	3	1	100%	na	na	na	na	na
Salt Lake	A-36-145-MS	na	na	na	na	na	0	0	0	1	100%	na	na	na	na	na
Basalt	A-49-095-MB	na	na	na	na	na	16.5	16.5	16.5	1	100%	na	na	na	na	na
Basalt	A-49-135-MB	na	na	na	na	na	59.7	59.7	59.7	1	100%	na	na	na	na	na

Table 4-44
Summary of Groundwater Field Parameters
Footnotes

Notes:

Includes data from 2001 onward of "A" data use level only.

Count = Count of total samples analyzed for specific analyte at the given location.

Freq = Detection frequency of analyte based on total count of samples. If count is 2 and detection frequency is 50% then only one sample had a result over the detection limit.

Min = Minimum detected result at the given location.

Max = Maximum detected result at the given location.

Avg = Average of detected results at the given location.

na = not analyzed.

mg/L = milligrams per liter; umhos/cm = micromhos per centimeter; mV = millivolts; % = percent; SU = standard units; C = degrees Celsius; NTU = nephelometric turbidity units; ORP = oxidation-reduction potential

More information about human health ("HH") groundwater comparison values is provided on Table 4-6. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

NA = comparison value not available.

Table focuses on results reported as field measurements; other results from environmental samples (lab) also provided for some analytes.

If results are from different sources then they may reflect different analytical methodology.

Refer to Appendix I for details about analyte names.

Table 5-1
Alluvial/Colluvial Material Encountered During Drilling of Wells and Borings

Summary of Alluvial/Colluvial Material Encountered [1]				
Well/Boring	**Alluvial/Colluvial Interval (Thickness)**	**Screened Interval in Alluvium/Colluvium (ft btoc)**	**Underlying Consolidated Deposit**	**Water Producing Interval In Consolidated Deposit[4]**
Lower Slopes				
East Side				
GW-25-MA	0-13 (13')	11.4-16.4	Dinwoody (TRd)	Not Advanced to Water
GW-26-MD	0-13 (13')	Not Screened	Dinwoody (TRd)	147.4-167.4 (TRd)
GW-28-MA	0-10 (10')	Dry (5.4-15.4)	Dinwoody (TRd)	Not Advanced to Water
GW-29-MD	0-10 (10')	Not Screened	Dinwoody (TRd)	108.6-128.6 (TRd)
GW-38-MA	0-7 (7')	Dry (2-7)	Dinwoody (TRd)	Not Advanced to Water
GW-39-MW	None (Fill to 32')	Not Screened	Wells (PPw)	413.4-423.4 (PPw)
GW-40-MW	None (Fill to 32')	Not Screened	Wells (PPw)	213.4-283.4 (PPw)
GW-41-MA	0-11' Fill 11-35' (24')	20-30	Dinwoody (TRd)	Not Advanced to Water
GW-42-MD	0-11' Fill 11-35' (24')	Not Screened	Dinwoody (TRd)	105-125 (TRd)
GW-43-MA	0-9 (9')	Not Screened	Dinwoody (TRd)	4.6-14.6 (Qal-TRd interface)
GW-44-MD	None	Not Screened	Dinwoody (TRd)	105-125 (TRd)
GW-45-MA	0-18 (18')	8-18	Dinwoody (TRd)	Nested with GW-46
GW-46-MD	0-18 (18')	See GW-45	Dinwoody (TRd)	28-48 (TRd)
GW-47-MA	0-8 (8')	Not Screened	Dinwoody (TRd)	15-25 (TRd)
GW-48-MA	0-7.5 (7.5')	Not Screened	Dinwoody (TRd)	6-16 (Qal-TRd interface)
MW-7A	0-27 (27')	Not Screened	Dinwoody (TRd)	30-40 (TRd)
MW-8W	0 (20' of Fill)	Not Screened	Wells (PPw)	71-81
MW-9A	0-36 (36')	15-25	Unknown	Unknown
MW-10A	0-13 (13')	8-18	Dinwoody (TRd)	Not Advanced to Water
MW-11D	0-18 (18')	Not Screened	Dinwoody (TRd)	50-300
MW-12W	None	Not Screened	Rex Chert Member (Cpb & Pprc)	260-280
MW-1W	0-20 (20')	Not Screened	Meade Peak Member (Cpa & Ppmp)	221-231
MW-2R	0-20 (20')	Not Screened	Dinwoody (TRd)	105-361 (TRd, Cpb bottom 30')
MW-3A	0-20 (20')	15-25	Dinwoody (TRd)	Not Advanced to Water
MW-6D	0-27 (27')	Not Screened	Dinwoody (TRd)	35-130
MW-18D	0-20 (20')	Not Screened	Dinwoody (TRd)	45-120? (not well noted)
West Side				
GW-18-MA	0-45 (45')	(21.6-31.6)	Dinwoody (TRd)	Not Advanced to Water
GW-20-MA	0-38 (38')	Dry (36.3-41.3)	Wells (PPw)	Not Advanced to Water
GW-21-MW	0-38 (38')	Not Screened	Wells (PPw)	178.1-188.1 (PPw)
GW-22-MM	0-20 (20')	Dry (7.3-12.3)	Meade Peak Member (Cpa & Ppmp)	Not Advanced to Water
GW-23-MM	0-11.5 (11.5')	Dry (7.6-12.6)	Meade Peak Member (Cpa & Ppmp)	Not Advanced to Water
GW-24-MA	0-24 (24')	Dry (11.9-21.9)	Meade Peak Member (Cpa & Ppmp)	Not Advanced to Water
GW-31-MW	0-10 (10')	Not Screened	Rex Chert Member (Cpb & Pprc)	345.1-365.1 (PPw)
GW-32-MD	2-16 (14')[2]	Not Screened	Dinwoody (TRd)	41.7-51.7 (TRd)
GW-33-MR	None	None	Rex Chert Member (Cpb & Pprc)	199.1-209.1 (Pprc)
GW-34-MA	0-30 (30')	Dry (23.2-33.2)	Unknown	Unknown
GW-35-MA	0-32 (32')	Dry (22.1-32.1)	Wells (PPw)	Not Advanced to Water
GW-36-MA	0-21 (21')	Dry (12.9-22.9)	Wells (PPw)	Not Advanced to Water
GW-37-MD	None	None	Dinwoody (TRd)	62-72 (TRd)
GW-LRSN-1-DD	0-10 (10')	Unknown	Unknown	Unknown
GW-LRSN-2-DD	Unknown	Unknown	Unknown	Unknown
MW-4W	0	None	Wells (PPw)	80-90
MW-5A	20-45 (25')[2]	31.5-41.5	Unknown	Unknown
BH-13a	35-40 (5')[2]	Not Screened	Rex Chert Member (Cpb & Pprc)	No Water Encountered
Valley Floor				
East Side				
GW-27-MA	0-12 (12')	Dry (5-15)	Thaynes Limestone (TRt)	Not Advanced to Water
GW-30-MA	0-15 (15')	Dry (5.5-15.5)	Thaynes Limestone (TRt)	Not Advanced to Water
MW-13A	0-15 (15')	7-17	Unknown	Unknown
MW-14	No log 0-100'	Unknown	Wells (PPw)	Not Advanced to Water
MW-17W	0-5 (5')	Not Screened	Meade Peak Member (Cpa & Ppmp)	155-225 (PPw)
West Side				
A-13-135-MS	0-18 (18')	Not Screened	Salt Lake (Tsl)	115-135 (Tsl)
A-14-180-MS	0-50 (50')	Not Screened	Basalt (Qb)	160-180 (Tsl)
A-15-105-MB	0-54 (54')	Not Screened	Basalt (Qb)	85-105 (Qb)
A-16-190-MS	0-35 (35')	Not Screened	Salt Lake (Tsl)	170-190 (PPw)
A-17-150-MS	0-50 (50')	Not Screened	Salt Lake (Tsl)	130-150 (Tsl)
A-27-090-MB	0-12 (12')	Not Screened	Basalt (Qb)	70-90 (Qb)
A-27-135-MB	0-12 (12')	Not Screened	Basalt (Qb)	125-135 (Qb)
A-28-110-MB	0-13 (13')	Not Screened	Basalt (Qb)	90-110 (Qb)
A-28-165-MB	0-13 (13')	Not Screened	Basalt (Qb)	145-165 (Qb)
A-29-145-MB	0-13 (13')	Not Screened	Basalt (Qb)	135-145 (Qb)
A-29-195-MB	0-13 (13')	Not Screened	Basalt (Qb)	180-195 (Qb)
A-30-135-MB	0-14 (14')	Not Screened	Basalt (Qb)	125-135 (Qb)
A-30-175-MB	0-9 (9')	Not Screened	Basalt (Qb)	165-175 (Qb)
A-33-070-MB	0-18 (18')	Not Screened	Basalt (Qb)	60-70 (Qb)
A-33-170-MB	0-18 (18')	Not Screened	Basalt (Qb)	160-170 (Qb)
A-35-080-MB	0-22 (22')	Not Screened	Basalt (Qb)	60-80 (Qb)
A-35-155-MB	0-22 (22')	Not Screened	Basalt (Qb)	135-155 (Qb)
A-36-105-MBS	0-12 (12')	Not Screened	Basalt (Qb)	95-105 (Qb and Tsl)
A-36-145-MS	0-12 (12')	Not Screened	Basalt (Qb)	125-145 (Tsl)

Table 5-1
Alluvial/Colluvial Material Encountered During Drilling of Wells and Borings

Summary of Alluvial/Colluvial Material Encountered [1]				
Well/Boring	**Alluvial/Colluvial Interval (Thickness)**	**Screened Interval in Alluvium/Colluvium (ft btoc)**	**Underlying Consolidated Deposit**	**Water Producing Interval In Consolidated Deposit[4]**
A-46-028-MA	Unknown	Unknown	Unknown	Unknown
A-49-095-MB	0-9 (9')	Not Screened	Basalt (Qb)	85-95 (Qb)
A-49-135-MB	0-12 (12')	Not Screened	Basalt (Qb)	125-135 (Qb)
A-49-185-MS	0-10 (10')	Not Screened	Basalt (Qb)	175-185 (Tsl)
A-50-070-MB	0-25 (25')	Not Screened	Basalt (Qb)	60-70 (Qb)
A-50-100-MB	0-29 (29')	Not Screened	Basalt (Qb)	90-100 (Qb)
A-50-125-MS	0-25 (25')	Not Screened	Basalt (Qb)	115-125 (Tsl)
A-54-135-MB	Unknown	Unknown	Unknown	Unknown
A-54-225-MB	Unknown	Unknown	Unknown	Unknown
A-54-310-MS	Unknown	Unknown	Unknown	Unknown
A-58-075-MB	0-24 (24')	Not Screened	Basalt (Qb)	65-75 (Qb)
A-58-105-MB	0-24 (24')	Not Screened	Basalt (Qb)	90-125 (Qb)
GW-7-IT	0-22 (22')	Not Screened	Basalt (Qb)	50-102 (Qb) 102-224 (Tsl) 236-295 (Tsl)
GW-8-IBS	Unknown	Unknown	Unknown	Unknown
GW-9-IS	Unknown	Unknown	Unknown	Unknown
GW-10-IBS	0-10 (10')	Not Screened	Basalt (Qb)	60-210 (Qb)
GW-11-IW	0-20 (20')	Not Screened	Dinwoody (TRd)	90-120, 130-140 (TRd)
GW-12-IS	0-23 (23')	Not Screened	Salt Lake (Tsl)	90-124, 150-253 (Tsl)
GW-13-IS	Unknown	Unknown	Unknown	Unknown
GW-14-MW	3-27 (25')[2]	Not Screened	Salt Lake (Tsl)	179.7-189.7 (PPw)
GW-15-MS	0-9 (9')	Not Screened	Salt Lake (Tsl)	22.8-32.8 (Tsl)
GW-16-MA	0-35 (35')	24.9-34.9'	Salt Lake (Tsl)	Not Advanced to Water
GW-17-MA	0-38 (38')	31.1-41.1'	Salt Lake (Tsl)	Not Advanced to Water
GW-19-MS	0-53 (53')	Not Screened	Salt Lake (Tsl)	107.2-127.2 (Tsl)
GW-12-IS	0-23 (23')	Not Screened	Salt Lake (Tsl)	40-124, 150-259, 365-390 (artesian)
GW-49-MA	0-105 (105')	65-85	Salt Lake (Tsl)	Nested with GW-50, -51
GW-50-MS	0-105 (105')	See GW-49	Salt Lake (Tsl)	185-205 (Tsl)
GW-51-MS	0-105 (105')	See GW-49	Salt Lake (Tsl)	263-284 (Tsl)
GW-52-MA	0-57 (57')	40-60	Salt Lake (Tsl)	Nested with GW-53
GW-53-MS	0-57 (57')	See GW-52	Salt Lake (Tsl)	210-231 (Tsl)
GW-54-MA	0-53 (53')	35-55	Salt Lake (Tsl)	Nested with GW-55, -56
GW-55-MS	0-53 (53')	See GW-54	Salt Lake (Tsl)	110-130 (Tsl)
GW-56-MS	0-53 (53')	See GW-54	Salt Lake (Tsl)	284-305 (Tsl)
GW-57-MS	0-62 (62')	Not Screened	Salt Lake (Tsl)	220-240 (Tsl)
GW-A1-MA	0-20 (20')	Not Screened	Unknown	55-65'
GW-MWB-MBS	0-14 (14')	Not Screened	Basalt (Qb)	60-120 (Qb)
GW-NW1-IBS	Unknown	Unknown	Unknown	Unknown
GW-NW7-IS	0-4 (4')	Not Screened	Wells (PPw)	104-465 (PPw)
GW-NW8-IS	0-6 (6')	Not Screened	Wells (PPw)	367-527 (PPw)
GW-NW9-IBS	0-27 (27')	Not Screened	Basalt (Qb)	40-100 (Qb) 120-140, 180-220, 235-255 (Tsl)
BH-13b	24-37 (13')[2]	Not Screened	Rex Chert Member (Cpb & Pprc)	Not Advanced to Water
BH-13c	34-53 (19')[2]	Not Screened	Salt Lake (Tsl)	Not Advanced to Water

Notes:

[1] Based on material encountered during drilling

[2] Fill above alluvium/colluvium interval

[3] Based on site geology (Figure 2-4)

[4] Screened interval if available

Table 5-2
Groundwater Elevation Information (2005-2014)

Well ID	Hydrostratigraphic Unit	TOC Elevation (ft amsl)	Well Screen Interval (ft btoc)	Well Screen Interval (ft amsl)	Well Completion Date	Depth to Water during drilling (ft bgs)	Number of Events 2005-2014	DTW Notes	Summary of Measured DTWs (btoc) and GW Elevations (ft amsl): 2005-2014												
									Spring (March through July)							Summer/Fall/Winter (August through February)						
									Min DTW	Min GW Elev	Max DTW	Max GW Elev	Avg DTW	Avg GW Elev	Count	Min DTW	Min GW Elev	Max DTW	Max GW Elev	Avg DTW	Avg GW Elev	Count
A-13-135-MS	Salt Lake	6205.3	115.0 - 135.0	6070.3 - 6090.3	8/22/11	NA	6	--	82.5	6122.8	82.5	6122.8	82.5	6122.8	1	81.7	6123.6	85.6	6119.7	83.8	6121.5	5
A-14-180-MS	Salt Lake	6192.5	160.0 - 180.0	6012.5 - 6032.5	8/9/11	NA	6	--	55.4	6137.1	55.4	6137.1	55.4	6137.1	1	54.9	6137.6	59.4	6133.1	56.8	6135.7	5
A-15-105-MB	Basalt	6192.4	85.0 - 105.0	6087.4 - 6107.4	10/18/11	NA	6	--	54.2	6138.2	54.2	6138.2	54.2	6138.2	1	44.6	6147.8	57.7	6134.7	53.5	6139.0	5
A-16-190-MS	Salt Lake	6244.9	170.0 - 190.0	6054.9 - 6074.9	8/17/11	NA	6	--	99.9	6144.9	99.9	6144.9	99.9	6144.9	1	100.0	6144.9	102.2	6142.6	100.8	6144.1	5
A-17-150-MS	Salt Lake	6198.9	130.0 - 150.0	6048.9 - 6068.9	8/31/11	NA	6	--	39.2	6159.7	39.2	6159.7	39.2	6159.7	1	38.1	6160.7	39.9	6158.9	39.1	6159.7	5
A-27-090-MB	Basalt	6153.4	70.0 - 90.0	6063.4 - 6083.4	10/8/12	NA	10	--	29.3	6124.1	34.4	6119.0	32.0	6121.4	6	34.3	6119.1	35.1	6118.2	34.7	6118.7	4
A-27-135-MB	Basalt	6152.8	125.0 - 135.0	6017.8 - 6027.8	10/10/12	NA	10	--	33.0	6119.9	35.7	6117.1	34.7	6118.1	6	35.2	6117.6	39.4	6113.4	37.2	6115.6	4
A-28-110-MB	Basalt	6142.7	90.0 - 110.0	6032.7 - 6052.7	10/13/12	NA	2	--	--	--	--	--	--	--	--	84.7	6058.0	88.6	6054.2	86.7	6056.1	2
A-28-165-MB	Basalt	6142.8	145.0 - 165.0	5977.8 - 5997.8	10/16/12	NA	2	--	--	--	--	--	--	--	--	85.0	6057.7	94.1	6048.6	89.6	6053.2	2
A-29-145-MB	Basalt	6147.8	135.0 - 145.0	6002.8 - 6012.8	10/17/12	NA	2	--	--	--	--	--	--	--	--	95.9	6051.8	106.9	6040.8	101.4	6046.3	2
A-29-195-MB	Basalt	6147.6	180.0 - 195.0	5952.6 - 5967.6	10/20/12	NA	2	--	--	--	--	--	--	--	--	95.0	6052.6	106.4	6041.2	100.7	6046.9	2
A-30-135-MB	Basalt	6116.4	125.0 - 135.0	5981.4 - 5991.4	11/13/12	NA	2	--	--	--	--	--	--	--	--	76.5	6039.9	82.4	6034.0	79.4	6037.0	2
A-30-175-MB	Basalt	6116.8	165.0 - 175.0	5941.8 - 5951.8	11/10/12	NA	2	--	--	--	--	--	--	--	--	78.3	6038.5	84.8	6032.1	81.5	6035.3	2
A-33-070-MB	Basalt	6160.4	60.0 - 70.0	6090.4 - 6100.4	7/24/13	60	1	--	--	--	--	--	--	--	--	43.9	6116.5	43.9	6116.5	43.9	6116.5	1
A-33-170-MB	Basalt	6160.6	160.0 - 170.0	5990.6 - 6000.6	7/23/13	NA	1	--	--	--	--	--	--	--	--	45.3	6115.3	45.3	6115.3	45.3	6115.3	1
A-35-080-MB	Basalt	6159.0	60.0 - 80.0	6079.0 - 6099.0	12/1/12	60	10	--	37.5	6121.6	40.9	6118.1	39.3	6119.7	6	40.7	6118.3	42.3	6116.7	41.5	6117.5	4
A-35-155-MB	Basalt	6158.9	135.0 - 155.0	6003.9 - 6023.9	12/1/12	NA	10	--	37.2	6121.7	39.4	6119.5	38.5	6120.4	6	38.5	6120.4	43.4	6115.5	40.9	6118.0	4
A-36-105-MBS	Basalt/Salt Lake	6160.5	95.0 - 105.0	6055.5 - 6065.5	12/6/12	NA	10	--	36.2	6124.3	38.7	6121.8	37.3	6123.2	6	36.9	6123.6	42.5	6118.0	39.7	6120.8	4
A-36-145-MS	Salt Lake	6160.5	125.0 - 145.0	6015.5 - 6035.5	12/5/12	104	10	--	36.2	6124.4	38.7	6121.9	37.2	6123.3	6	36.7	6123.8	42.8	6117.8	39.7	6120.8	4
A-46-028-MA	Alluvium/Colluvium	6163.6	18.0 - 28.0	6135.6 - 6145.6	2/1/13	NA	9	--	19.7	6143.8	21.9	6141.6	21.2	6142.3	7	23.2	6140.3	23.4	6140.2	23.3	6140.2	2
A-49-095-MB	Basalt	6147.8	85.0 - 95.0	6052.8 - 6062.8	7/18/13	NA	1	--	--	--	--	--	--	--	--	53.0	6094.9	53.0	6094.9	53.0	6094.9	1
A-49-135-MB	Basalt	6148.2	125.0 - 135.0	6013.2 - 6023.2	7/17/13	77	1	--	--	--	--	--	--	--	--	68.0	6080.3	68.0	6080.3	68.0	6080.3	1
A-49-185-MS	Salt Lake	6148.1	175.0 - 185.0	5963.1 - 5973.1	7/15/13	NA	1	--	--	--	--	--	--	--	--	175.1	5973.0	175.1	5973.0	175.1	5973.0	1
A-50-070-MB	Basalt	6182.9	60.0 - 70.0	6112.9 - 6122.9	6/30/13	59	1	--	--	--	--	--	--	--	--	56.4	6126.5	56.4	6126.5	56.4	6126.5	1
A-50-100-MB	Basalt	6183.3	90.0 - 100.0	6083.3 - 6093.3	7/1/13	62	1	--	--	--	--	--	--	--	--	61.3	6121.9	61.3	6121.9	61.3	6121.9	1
A-50-125-MS	Salt Lake	6183.0	115.0 - 125.0	6058.0 - 6068.0	7/1/13	62	1	--	--	--	--	--	--	--	--	59.4	6123.6	59.4	6123.6	59.4	6123.6	1
A-54-135-MB	Basalt	6142.3	115.0 - 135.0	6007.3 - 6027.3	8/1/13	NA	1	--	--	--	--	--	--	--	--	107.8	6034.6	107.8	6034.6	107.8	6034.6	1
A-54-225-MB	Basalt	6142.4	210.0 - 225.0	5917.4 - 5932.4	8/1/13	NA	1	--	--	--	--	--	--	--	--	108.3	6034.1	108.3	6034.1	108.3	6034.1	1
A-54-310-MS	Salt Lake	6142.5	290.0 - 310.0	5832.5 - 5852.5	7/1/13	300	1	--	--	--	--	--	--	--	--	105.5	6037.1	105.5	6037.1	105.5	6037.1	1
A-58-075-MB	Basalt	6178.2	65.0 - 75.0	6103.2 - 6113.2	10/20/13	53	1	No info (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
A-58-105-MB	Basalt	6177.8	90.0 - 105.0	6072.8 - 6087.8	10/20/13	53	1	No info (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-7-IT	Thaynes	6146.0	50.0 - 295.0	5851.0 - 6096.0	5/14/65	19	10	Pumping (7), No access (2)	--	--	--	--	--	--	--	64.6	6081.4	64.6	6081.4	64.6	6081.4	1
GW-8-IBS	Basalt/Salt Lake	6150.0	97.0 - 144	6006.0 - 6053.0	NA	26	11	--	38.0	6112.0	51.7	6098.3	46.3	6103.7	4	40.5	6109.5	61.5	6088.5	51.7	6098.3	7
GW-9-IS	Salt Lake	6193.8	90.0 - 145	6048.8 - 6103.8	7/7/65	0	16	--	10.1	6183.7	27.5	6166.4	20.0	6173.8	6	16.5	6177.3	33.2	6160.6	27.3	6166.5	10
GW-10-IBS	Basalt/Salt Lake	6143.0	60.0 - 210.0	5933.0 - 6083.0	11/2/65	57.0	10	Pumping (10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-11-IW	Wells	6255.0	45.0 - 140.0	6115.0 - 6210.0	8/24/65	30.0	13	Pumping (12)	--	--	--	--	--	--	--	13.1	6242.0	13.1	6242.0	13.1	6242.0	1
GW-12-IS	Salt Lake	6226.0	90.0 - 253.0	5973.0 - 6136.0	9/28/78	85.0	14	Artesian (14)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-13-IS	Salt Lake	6194.4	NA NA	NA NA	NA	NA	9	Dry (6)	4.2	6190.3	4.2	6190.3	4.2	6190.3	1	12.9	6181.5	13.6	6180.9	13.2	6181.2	2
GW-14-MW	Wells	6230.1	179.7 - 189.7	6040.4 - 6050.4	10/21/08	171.0	11	--	5.0	6225.1	11.3	6218.7	8.1	6222.0	5	3.5	6226.6	172.7	6057.4	34.7	6195.3	6
GW-15-MS	Salt Lake	6241.1	22.8 - 32.8	6208.3 - 6218.3	9/22/08	21.0	14	Artesian (14)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-16-MA	Alluvium/Colluvium	6196.0	24.9 - 34.9	6161.1 - 6171.1	9/22/08	23.0	15	--	7.4	6188.6	23.7	6172.3	18.4	6177.6	7	15.3	6180.7	28.3	6167.7	24.4	6171.6	8
GW-17-MA	Alluvium/Colluvium	6185.0	31.1 - 41.1	6143.9 - 6153.9	9/24/08	33.0	14	--	25.7	6159.3	35.7	6149.3	31.9	6153.1	7	25.2	6159.8	36.3	6148.7	31.9	6153.1	7
GW-18-MA	Alluvium/Colluvium	6364.0	21.6 - 31.6	6332.4 - 6342.4	9/24/08	Dry	13	Dry (8)	26.2	6337.8	29.6	6334.5	27.6	6336.4	4	30.2	6333.9	30.2	6333.9	30.2	6333.9	1
GW-19-MS	Salt Lake	6291.8	107.2 - 127.2	6164.6 - 6184.6	10/10/08	105.0	13	--	82.5	6209.3	90.7	6201.0	87.4	6204.4	5	84.7	6207.1	90.6	6201.2	87.0	6204.7	8
GW-20-MA	Alluvium/Colluvium	6323.2	36.3 - 41.3	6281.9 - 6286.9	10/29/08	dry	10	Dry (10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-21-MW	Wells	6323.1	178.1 - 188.1	6135.0 - 6145.0	10/29/08	165.0	10	--	121.1	6202.0	123.4	6199.7	121.9	6201.2	3	117.9	6205.2	174.5	6148.6	128.1	6195.0	7
GW-22-MM	Meade Peak	6423.9	7.3 - 12.3	6411.6 - 6416.6	9/23/08	dry	13	Dry (5), No access (1)	2.8	6421.1	6.8	6417.1	5.1	6418.9	5	3.0	6420.9	4.3	6419.6	3.7	6420.3	2
GW-23-MM	Meade Peak	6431.4	7.6 - 12.6	6418.8 - 6423.8	9/23/08	dry	13	Dry (11)	7.2	6424.3	10.9	6420.5	9.0	6422.4	2	--	--	--	--	--	--	--
GW-24-MA	Colluvium	6439.0	11.9 - 21.9	6417.1 - 6427.1	9/23/08	dry	14	Dry (6)	10.2	6428.9	18.1	6420.9	13.2	6425.8	7	12.0	6427.1	12.0	6427.1	12.0	6427.1	1
GW-25-MA	Alluvium/Colluvium	6564.8	11.4 - 16.4	6548.4 - 6553.4	10/3/08	11.6	16	--	4.4	6560.5	8.3	6556.5	6.2	6558.7	8	8.9	6555.9	15.2	6549.6	12.3	6552.5	8
GW-26-MD	Dinwoody	6564.8	147.4 - 167.4	6397.4 - 6417.4	10/3/08	146.0	15	--	140.7	6424.1	145.9	6419.0	143.8	6421.1	7	143.8	6421.1	148.7	6416.2	146.9	6417.9	8
GW-27-MA	Alluvium/Colluvium	6365.2	5.0 - 15.0	6350.2 - 6360.2	9/25/08	5.5	16	--	3.6	6361.6	5.6	6359.6	4.4	6360.8	8	5.6	6359.7	8.6	6356.6	7.0	6358.2	8
GW-28-MA	Alluvium/Colluvium	6590.7	5.4 - 15.4	6575.3 - 6585.3	10/1/08	dry	17	Dry (1)	5.0	6585.7	6.5	6584.2	5.6	6585.2	8	6.5	6584.2	14.8	6576.0	12.1	6578.6	8
GW-29-MD	Dinwoody	6590.9	108.6 - 128.6	6462.3 - 6482.3	10/1/08	117.0	15	--	66.5	6524.4	93.2	6497.7	82.6	6508.3	7	62.8	6528.1	95.2	6495.7	84.9	6506.1	8
GW-30-MA	Alluvium/Colluvium	6371.8	5.5 - 15.5	6356.3 - 6366.3	9/25/08	7.2	16	--	3.8	6368.0	7.6	6364.2	5.8	6366.0	8	7.7	6364.0	13.9	6357.9	10.6	6361.2	8
GW-31-MW	Wells	6469.3	345.1 - 365.1	6104.2 - 6124.2	10/13/08	340.0	11	--	33.0	6436.3	47.8	6421.4	37.6	6431.7	4	18.6	6450.7	193.0	6276.3	54.4	6414.9	7
GW-32-MD	Dinwoody	6465.0	41.7 - 51.7	6413.3 - 6423.3	10/23/08	45.0	11	--	1.8	6463.2	14.5	6450.5	8.7	6456.3	4	14.6	6450.4	20.9	6444.1	18.8	6446.2	7
GW-33-MR	Rex Chert	6509.4	199.1 - 209.1	6300.3 - 6310.3	10/27/08	200.0	11	--	163.6	6345.9	169.9	6339.5	167.4	6342.0	4	158.0	6351.4	189.5	6319.9	168.4	6341.1	7
GW-34-MA	Alluvium/Colluvium	6484.9	23.2 - 33.2	6451.7 - 6461.7	9/24/08	dry	13	Dry (5)	17.3	6467.6	31.2	6453.7	26.2	6458.6	6	28.6	6456.3	30.4	6454.5	29.5	6455.4	2
GW-35-MA	Alluvium/Colluvium	6898.3	22.1 - 32.1	6866.2 - 6876.2	9/25/08	dry	11	Dry (11)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-36-MA	Alluvium/Colluvium	6914.4	12.9 - 22.9	6891.5 - 6901.5	9/27/08	dry	11	Dry (11)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-37-MD	Dinwoody	6371.0	62.0 - 72.0	6299.0 - 6309.0	10/1/09	40.0	9	--	38.4	6332.6	42.6	6328.5	41.0	6330.1	3	42.8	6328.2	45.8	6325.2	43.8	6327.3	6

Table 5-2
Groundwater Elevation Information (2005-2014)

Well ID	Hydrostratigraphic Unit	TOC Elevation (ft amsl)	Well Screen Interval (ft btoc)	Well Screen Interval (ft amsl)	Well Completion Date	Depth to Water during drilling (ft bgs)	Number of Events 2005-2014	DTW Notes	Summary of Measured DTWs (btoc) and GW Elevations (ft amsl): 2005-2014												
									Spring (March through July)							Summer/Fall/Winter (August through February)						
									Min DTW	Min GW Elev	Max DTW	Max GW Elev	Avg DTW	Avg GW Elev	Count	Min DTW	Min GW Elev	Max DTW	Max GW Elev	Avg DTW	Avg GW Elev	Count
GW-38-MA	Alluvium/Colluvium	6836.1	0.0 - 5.0	6831.1 - 6836.1	5/28/10	0.5	7	Dry (4)	3.2	6832.9	8.1	6828.0	5.5	6830.6	3	--	--	--	--	--	--	--
GW-39-MW	Wells	6896.5	413.4 - 423.4	6473.1 - 6483.1	10/29/11	230	3	--	398.4	6498.1	398.4	6498.1	398.4	6498.1	1	399.2	6497.4	403.5	6493.0	401.3	6495.2	2
GW-40-MW	Wells	6896.5	213.4 - 283.4	6613.1 - 6683.1	10/31/11	230	8	--	252.6	6643.9	259.7	6636.8	255.3	6641.2	5	248.5	6648.0	258.0	6638.5	254.4	6642.2	3
GW-41-MA	Alluvium/Colluvium	6769.5	19.7 - 29.7	6739.8 - 6749.8	11/4/13	19	5	--	10.8	6758.8	19.2	6750.3	15.0	6754.5	2	18.8	6750.8	23.4	6746.1	20.6	6748.9	3
GW-42-MD	Dinwoody	6769.5	104.7 - 124.7	6644.8 - 6664.8	11/4/13	105	5	--	72.5	6697.0	73.8	6695.7	73.2	6696.3	2	83.9	6685.6	92.4	6677.1	87.0	6682.5	3
GW-43-MA	Alluvium/Colluvium	6742.6	7.6 - 17.6	6725.0 - 6735.0	6/23/14	NA	3	Dry (3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-44-MD	Dinwoody	NA	104.5 - 124.5	NA NA	11/6/13	105	5	--	64.3	NA	69.0	NA	66.7	NA	2	80.4	NA	97.0	NA	87.6	NA	3
GW-45-MA	Alluvium/Colluvium	6743.8	11.0 - 21.0	6722.8 - 6732.8	11/7/13	17	4	--	5.3	6738.5	10.6	6733.2	7.9	6735.8	2	14.3	6729.5	16.0	6727.7	15.2	6728.6	2
GW-46-MD	Dinwoody	6744.0	28.0 - 48.0	6696.0 - 6716.0	11/7/13	17	5	--	5.7	6738.3	10.6	6733.4	8.1	6735.8	2	14.3	6729.7	17.7	6726.3	16.0	6728.0	3
GW-47-MA	Alluvium/Colluvium	6454.9	18.0 - 28.0	6426.9 - 6436.9	6/24/14	NA	3	--	20.3	6434.6	20.3	6434.6	20.3	6434.6	1	13.1	6441.8	15.0	6439.9	14.0	6440.8	2
GW-48-MA	Alluvium/Colluvium	6452.9	9.0 - 19.0	6433.9 - 6443.9	6/24/14	NA	3	Dry (3)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-49-MA	Alluvium/Colluvium	6204.27	66.9 - 86.9	6117.4 - 6137.4	10/24/2014	58	2	--	--	--	--	--	--	--	--	55.2	6149.1	55.7	6148.6	55.5	6148.8	2
GW-50-MS	Salt Lake	6204.35	187 - 207	5997.4 - 6017.4	10/24/2014	58	2	--	--	--	--	--	--	--	--	58.8	6145.5	59.2	6145.2	59.0	6145.3	2
GW-51-MS	Salt Lake	6204.35	265 - 285	5919.4 - 5939.4	10/24/2014	58	2	--	--	--	--	--	--	--	--	64.0	6140.4	64.5	6139.8	64.2	6140.1	2
GW-52-MA	Alluvium/Colluvium	6189.09	41.6 - 61.6	6127.5 - 6147.5	10/28/2014	220	1	--	--	--	--	--	--	--	--	33.6	6155.5	33.6	6155.5	33.6	6155.5	1
GW-53-MS	Salt Lake	6188.94	211.5 - 231.5	5957.4 - 5977.4	10/28/2014	220	1	--	--	--	--	--	--	--	--	70.8	6118.2	70.8	6118.2	70.8	6118.2	1
GW-54-MA	Alluvium/Colluvium	6188.56	36.7 - 56.7	6131.9 - 6151.9	10/22/2014	112	2	--	--	--	--	--	--	--	--	38.9	6149.7	39.1	6149.5	39.0	6149.6	2
GW-55-MS	Salt Lake	6188.53	111.7 - 131.7	6056.8 - 6076.8	10/22/2014	112	2	--	--	--	--	--	--	--	--	48.1	6140.5	58.9	6129.7	53.5	6135.1	2
GW-56-MS	Salt Lake	6188.37	285.5 - 305.5	5882.9 - 5902.9	10/22/2014	112	2	--	--	--	--	--	--	--	--	46.2	6142.2	46.4	6141.9	46.3	6142.1	2
GW-57-MS	Salt Lake	6241.14	222.2 - 242.2	5998.9 - 6018.9	11/21/2014	203	1	--	--	--	--	--	--	--	--	172.8	6068.4	172.8	6068.4	172.8	6068.4	1
GW-A1-MA	Alluvium	6225.0	55.0 - 65.0	6160.0 - 6170.0	11/4/99	NA	8	--	32.4	6192.6	33.6	6191.5	33.1	6191.9	3	33.6	6191.5	35.1	6190.0	34.2	6190.9	5
GW-LRSN-1-DD	Dinwoody	6430.0	NA - NA	NA - NA	10/3/64	0	10	Pumping (9), No access (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-LRSN-2-DD	Dinwoody	6428.0	NA - NA	NA - NA	NA	0	10	Pumping (9), No access (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-MWB-MBS	Basalt/Salt Lake	6167.8	60.0 - 120.0	6047.8 - 6107.8	11/25/04	114	15	--	39.9	6127.9	50.3	6117.4	46.4	6121.3	8	38.9	6128.8	53.3	6114.5	48.6	6119.1	7
GW-NW7-IS	Salt Lake	NA	104.0 - 465.0	NA NA	9/30/88	100-121	1	No access (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GW-NW8-IS	Salt Lake	NA	367.0 - 527.0	NA NA	9/23/92	350-354	1	No access (1)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1W	Wells	6690.8	222.9 - 232.9	6457.9 - 6467.9	11/2/05	175-180	16	--	95.3	6595.5	111.6	6579.2	105.7	6585.1	9	100.3	6590.5	108.3	6582.5	104.5	6586.3	7
MW-2R	Rex Chert	6517.5	342.9 - 352.9	6164.6 - 6174.6	10/18/05	235-240	15	--	99.9	6417.6	104.7	6412.8	102.8	6414.7	8	103.8	6413.6	105.7	6411.7	104.9	6412.6	7
MW-3A	Alluvium	6517.9	17.1 - 27.1	6490.8 - 6500.8	10/11/05	Dry	15	Dry (5)	15.9	6502.0	21.3	6496.6	17.8	6500.0	7	17.5	6500.4	24.2	6493.7	19.8	6498.1	3
MW-4W	Wells	6245.1	81.8 - 91.8	6153.3 - 6163.3	10/16/05	95	16	--	26.7	6218.3	28.7	6216.3	28.1	6216.9	9	27.8	6217.2	28.5	6216.5	28.2	6216.9	7
MW-5A	Alluvium	6245.2	33.2 - 43.2	6202.0 - 6212.0	11/9/05	28.59	16	--	26.9	6218.3	28.9	6216.3	28.2	6217.0	9	28.0	6217.2	28.7	6216.5	28.3	6216.9	7
MW-6D	Dinwoody	6371.3	110.3 - 120.3	6251.0 - 6261.0	9/30/05	35-40	16	--	13.4	6357.8	23.5	6347.8	17.6	6353.6	9	25.0	6346.3	27.1	6344.1	26.0	6345.2	7
MW-7A	Alluvium	6371.9	21.5 - 31.5	6340.4 - 6350.4	10/1/05	27	16	--	11.1	6360.9	23.4	6348.6	17.9	6354.0	9	25.2	6346.7	26.5	6345.4	25.7	6346.2	7
MW-8W	Wells	6207.3	72.6 - 82.6	6124.7 - 6134.7	10/14/05	20 - 25	16	--	18.5	6188.8	20.0	6187.2	19.4	6187.9	9	20.2	6187.1	21.5	6185.8	20.8	6186.5	7
MW-9A	Alluvium	6207.7	16.8 - 26.8	6180.9 - 6190.9	10/15/05	20	16	--	8.7	6199.1	13.1	6194.6	10.5	6197.3	9	13.1	6194.6	21.2	6186.5	15.7	6192.0	7
MW-10A	Alluvium	6284.5	10.0 - 20.0	6264.5 - 6274.5	9/28/05	6.19	16	--	1.7	6282.8	5.6	6278.8	3.5	6281.0	9	5.7	6278.8	16.5	6268.0	8.3	6276.1	7
MW-11DA	Dinwoody	6289.4	30.4 - 40.4	6249.0 - 6259.0	9/27/05	40	5	--	4.9	6284.5	10.1	6279.3	7.3	6282.1	4	12.7	6276.7	12.7	6276.7	12.7	6276.7	1
MW-11Db	Dinwoody	6289.0	149.6 - 159.6	6129.4 - 6139.4	9/27/05	40	16	--	4.2	6284.8	9.9	6279.1	7.0	6282.0	9	7.9	6281.1	12.2	6276.8	10.6	6278.4	7
MW-12W	Wells	6407.3	260.9 - 270.9	6136.4 - 6146.4	11/7/05	18	16	--	225.5	6181.9	227.6	6179.8	226.7	6180.7	9	227.9	6179.5	229.2	6178.2	228.5	6178.8	7
MW-13A	Alluvium	6157.2	8.8 - 18.8	6138.5 - 6148.5	11/11/05	10-15	15	--	1.6	6155.7	8.2	6149.1	4.2	6153.0	8	6.4	6150.9	8.7	6148.5	7.2	6150.1	7
MW-14W	Wells	6159.1	85.0 - 90.0	6069.1 - 6074.1	11/14/05	-29.99	10	Artesian (10)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-17W	Wells	6364.2	196.8 - 216.8	6147.4 - 6167.4	10/10/07	155	11	--	204.9	6159.3	205.7	6158.5	205.4	6158.8	6	204.4	6159.8	206.6	6157.6	205.8	6158.4	5
MW-18Da	Dinwoody	6293.0	20.5 - 25.5	6267.5 - 6272.5	10/8/07	10-15	11	--	1.1	6291.9	3.0	6290.0	1.9	6291.1	6	2.5	6290.5	5.4	6287.6	3.8	6289.1	5
MW-18Db	Dinwoody	6293.9	109.9 - 119.9	6174.0 - 6184.0	10/8/07	10-15	11	--	0.0	6293.9	1.7	6292.2	0.6	6293.2	6	0.1	6293.8	2.5	6291.4	1.4	6292.5	5
MW-A-110-MB	Basalt	6159.2	61.4 - 111.4	6047.9 - 6097.9	NA	88	15	--	31.4	6127.8	41.8	6117.4	39.1	6120.1	8	31.4	6127.8	44.8	6114.4	41.7	6117.6	7
WMP-MW-1-A	Alluvium	NA	50.0 - 60.0	NA NA	6/1/67	NA	5	--	9.7	NA	11.2	NA	10.3	NA	4	11.7	NA	11.7	NA	11.7	NA	1
WMP-MW-2-A	Alluvium	NA	NA NA	NA NA	NA	NA	5	--	5.5	NA	7.2	NA	6.3	NA	4	7.2	NA	7.2	NA	7.2	NA	1
WMP-MW-3-A	Alluvium	6144.7	185.0 - 225.0	5919.7 - 5959.7	12/11/70	185	4	--	4.6	6140.1	4.8	6140.0	4.7	6140.0	3	4.9	6139.8	4.9	6139.8	4.9	6139.8	1

Notes:
NA - Not available.
NM - Not measured
No information is available for the following wells and so they are not listed on this table: GW-NW1, GW-NW9, MW-22B, MW-23W, MW-24W, KM-1, KM-10, Lish Well, MF Well, Nelson Well, Torgeson Well, White Well.
Acronyms:
ft amsl = feet above mean sea level; ft bgs = feet below ground surface; ft btoc = feet below top of casing; DTW = depth to water (ft btoc); GW Elev = groundwater elevation (ft amsl)
min = minimum; max = maximum; avg = average

Table 5-3
Summary of Hydraulic Conductivity Data for Formations in the Southeast Idaho Phosphate Region

Formation	Unit	Symbol	Study Area	Test Procedure	Transmissivity T		Conductivity K		Storage S
					ft^2/day	m^2/day	ft/day	m/day	
Alluvium	Alluvium	Qal	Diamond Creek	Field-Pump Test	3,200	300	55	17	-
			Blackfoot Bridge	Field-Pump Test	18	1.7	3	0.91	-
				Field-Pump Test	24	2.2	2	0.61	-
				Field-Pump Test	380	35	28	8.5	-
				Field-Pump Test	340	32	28	8.5	-
	Alluvium/Fill			Field-Pump Test	630	59	43	13	-
Dinwoody	Middle of Formation	Trd	Little Long Valley	Field-Slug Test	83	7.7	-	-	-
			Blackfoot Bridge	Field-Pump Test	2.3	0.21	0.02	0.0061	-
				Field-Pump Test	370	34	2.5	0.76	-
Phosphoria	Rex Chert Member (fractured)	Ppr	Lower Dry Valley	Field-Pump Test	12,000	1,100	75	23	0.0003
					2,300	210	28	8.5	0.001
	Rex Chert Member	Ppr	Lower Dry Valley	Field-Pump Test	450	42	2.2	0.67	-
			Diamond Creek	Field-Pump Test	750	70	2.5	0.76	0.007
			Blackfoot Bridge	Field-Pump Test	57	5.3	0.23	0.07	-
	Meade Peak Phosphatic Shale Member (fractured)	Ppm	Lower Dry Valley	Field-Pump Test	2,000	190	25	7.6	0.0005
	Meade Peak Phosphatic Shale Member (unfractured)	Ppm	Lower Dry Valley	Field-Slug Test	8	0.74	0.3	0.09	-
			Lower Dry Valley	Field-Slug Test	64	5.9	1.6	0.49	-
			Lower Dry Valley	Field-Slug Test	23	2.1	0.4	0.1	-
			Lower Dry Valley	Field-Slug Test	16	1.5	0.14	0.0043	-
			Lower Dry Valley	Field-Slug Test	63	5.9	0.44	0.13	-
			Lower Dry Valley	Field-Slug Test	6	0.56	0.07	0.02	-
	Meade Peak Phosphatic Shale Member (middle waste)	Ppm	Lower Dry Valley	Field-Pump Test	300	28	4	1.2	0.0013
	Meade Peak Phosphatic Shale Member (ore)	Ppm	Little Long Valley	Field-Slug Test	11	1	2.2	0.67	-
	Meade Peak Phosphatic Shale Member (middle waste with bedding)	Ppm	Little Long Valley	Lab	-	-	5.2	1.6	-
	Meade Peak Phosphatic Shale Member (middle waste across bedding)	Ppm	Little Long Valley	Lab	-	-	0.4	0.12	-
Wells	Wells Formation		Blackfoot Bridge	Field-Pump Test	760	70.6	12	1.1	-
				Field-Pump Test	260	24.2	4.2	0.39	-
	Grandeur		Blackfoot Bridge	Field-Pump Test	5,500	511	44	4.09	-

Notes:

1. Adapted from Table 1 in Ralston, D.R., O.M.J. Mohammad, M.J. Robinette and J.K. Edwards. 1977. Solutions to Water Resource Problems Associated with Open-Pit Mining in the Phosphate Area of Southeastern Idaho, Completion Report for Groundwater Study Contract No. 50-897, College of Mines, University of Idaho, Moscow, ID.

2. Supplemented with Wells Formation data from Table 3.3-9 in Bureau of Land Management (BLM). 2011. Environmental Impact Statement, Blackfoot Bridge Mine, Caribou County, ID. BLM, Pocatello Field Office, Pocatello, ID. March 2011.

Table 5-4
Potential Terrestrial and Riparian/Aquatic Species Occuring at Site (Not All Inclusive)

Mammals	
Common Name	***Scientific Name***
Grazers	
Elk	***Cervus elaphus***
Browsers	
Moose	***Alces alces***
Mule deer	***Odocoileus hemionus***
Omnivores	
Raccoon	*Procyon lotor*
Red fox	***Vulpes vulpes***
Striped skunk	***Mephitis mephitis***
Black bear	***Ursus americanus***
Carnivores	
Mink	*Mustela vison*
Coyote	***Canis latrans***
Grey Wolf	*Canis lupus*
Wolverine	*Gulu gulu*
Bobcat	*Lynx rufus*
Badger	*Taxidea taxus*
Mountain lion	***Felis concolor***
American marten	*Martes americana*
Long-tailed weasel	*Mustela frenata*
Ermine	***Mustela erminea***
Small Herbivores & Rodents	
Deer mouse	***Peromyscus maniculatus***
Western harvest mouse	***Reithrodontomys megaloti***
Bushy-tailed woodrat	***Neotoma cinerea***
Long-tailed vole	*Microtus longicaudus*
Meadow vole	***Microtus pennsylvanicus***
Montane vole	*Microtus montanus*
Southern red-backed vole	***Clethrionomys gapperi***
Sagebrush vole	***Lemmiscus curtatus***
Shrew	***Sorex* spp.**
Beaver	***Castor canadensis***
Muskrat	*Ondatra zibethicus*
Porcupine	***Erithizon dorsatum***
Least chipmunk	***Tamias minimus***
Yellow pine chipmunk	*Tamias amoenus*
Yellow-bellied marmot	***Marmota flaviventris***
Pine squirrel	***Tamiasciurus hudsonicus***
Northern flying squirrel	*Glaucomys abrinus*
Uinta ground squirrel	***Spermophilus armatus***
Nuttall's cottontail	***Sylvilagus nuttalli***
Black-tailed jackrabbit	*Lepus californicus*
Snowshoe hare	*Lepus americanus*
Bats	
Big brown bat	*Eptesicus fuscus*
Little brown bat	*Myotis lucifugus*
Long-legged myotis	*Myotis volans*
Silver-haired bat	*Lasionycteris noctivagans*
Western long-eared myotis	*Myotis evotis*

Reptiles	
Common Name	***Scientific Name***
Rubber boa	*Charina bottae*
Western terrestrial garter snake	***Thamnophis elegans***

Amphibians	
Common Name	***Scientific Name***
Tiger salamander	***Ambystoma tigrinum***
Boreal chorus frog	*Pseudacris maculata*
Northern leopard frog	*Rana pipiens*

Fish	
Common Name	***Scientific Name***
Yellowstone cutthroat trout	*Oncorhynchus clarki bouvieri*
Rainbow trout	*Oncorhynchus mykiss*
Brown trout	*Salmo trutta*
Brook trout	*Salvelinus fontinalis*
Mountain whitefish	*Prosopium williamsoni*
Utah chub	*Gila atraria*

Birds	
Common Name	***Scientific Name***
Herbivores	
Chipping sparrow*	*Spizella passerina**
Song sparrow*	***Melospiza melodia****
Cassin's finch*	*Carpodacus cassinii**
Dark-eyed junco*	*Junco hyemalis**
Vesper sparrow*	*Pooecetes gramineus**
Pine siskin*	*Carduelis pinus**
Red crossbill*	*Loxia curvirostra**
White-crowned sparrow*	*Zonotrichia leucophrys**
Omnivores	
American robin*	***Turdus migratorius****
Yellow-headed blackbird*	*Xanthocephalus xanthocephalus**
Red-winged blackbird*	***Agelaius phoeniceus****
Brewer's blackbird*	*Euphagus cyanocephalus**
Brown-headed cowbird*	*Molothrus ater**
Black-billed magpie*	***Pica hudsonia****
Three-toed woodpecker	*Picoides tridactylus*
Common raven*	***Corvus corax****
Gray jay*	***Perisoreus canadensis****
Green-tailed towhee*	*Pipilo chlorurus**
Hairy woodpecker*	*Picoides villosus**
Red-naped sapsucker*	*Sphyrapicus nuchalis**
Williamson's sapsucker*	*Sphyrapicus thyroideus**
Sandhill crane*	***Grus canadensis****
Swainson's thrush*	*Catharus ustulatus**
Townsend's solitaire*	*Myadestes townsendi**
Western meadowlark*	*Sturnella neglecta**
Western tanager*	***Piranga ludoviciana****
Western wood-pewee*	*Contopus sordidulus**
Belted kingfisher*	***Megaceryle alcyon****
Insectivores	
Bank swallow*	***Riparia riparia****
Tree swallow*	*Tachycineta bicolor**
Black-capped chickadee*	*Poecile atricapillus**
Mountain chickadee*	*Poecile gambeli**
Common nighthawk*	*Chordeiles minor**
MacGillivray's warbler*	*Oporornis tolmiei**
Mountain bluebird*	***Sialia currucoides****
Northern flicker*	***Colaptes auratus****
Red-breasted nuthatch*	*Sitta carolinensis**
White-breasted nuthatch*	*Sitta carolinensis**
Yellow warbler*	*Dendroica petechia**
Yellow-rumped warbler*	*Dendroica coronata**
House wren*	*Troglodytes aedon**
Raptors	
Northern harrier*	***Circus cyaneus****
Bald eagle*	***Haliaeetus leucocephalus****
Northern goshawk*	***Accipiter gentilis****
Golden eagle*	***Aquila chrysaetos****
Red-tailed hawk*	***Buteo jamaicensis****
Swainson's hawk *	*Buteo swainsoni**
Cooper's hawk*	*Accipiter cooperii**
American kestrel*	***Falco sparverius****
Game Birds	
Ruffed grouse	***Bonasa umbellus***
Blue grouse	*Dendragapus obscurus*
Mourning dove*	***Zenaida macroura****
Hungarian partridge	*Perdix perdix*
Chukar partridge	*Alectoris chukar*
Greater sage grouse	*Centrocercus urophasianus*
Sharp-tailed grouse	*Tympanuchus phasianellus*
Aquatic	
Great blue heron*	***Ardea heroidas****
Mallard*	***Anas platyrhynchos****
American widgeon*	*Anas americana**
Canada goose*	***Branta canadensis****

Table 5-4
Potential Terrestrial and Riparian/Aquatic Species Occuring at Site (Not All Inclusive)

Fish	
Common Name	***Scientific Name***
Longnose dace	*Rhinichthys cataractae*
Speckled dace	***Rhinichthys osculus***
Redside shiner	***Richardsonius balteatus***
Utah sucker	***Catostomus ardens***
Mountain sucker	***Catostomus platyrhynchus***
Bluehead sucker	*Catostomus discobolus*
Mottled sculpin	*Cottus bairdi*
Paiute sculpin	***Cottus beldingi***
Black bullhead	*Ictalurus melas*
Fathead minnow	*Pimephales promelas*
Carp	*Cyprinus carpio*
Northern leatherside chub	*Lepidomeda copei*

Notes:
This list includes species known, suspected, or possible to occur in the region (e.g., Blackfoot River subbasin) including the project area, based on regional documents. These species, or their habitats, may not definitively occur at Conda, nor is this list all inclusive.

Species or evidence of species (e.g., scat, tracks, recent beaver dams) definitively seen during sampling activities at Conda are noted in boldface.

(*) Indicates species protected by the Migratory Bird Treaty Act (MBTA) (USFWS 2012).

U.S. Fish and Wildlife Service (USFWS). 2012. Birds Protected by the Migratory Bird Treaty Act: List of Migratory Birds. U.S Fish and Wildlife Service, Migratory Bird Program. Available at http://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/mbtandx.html. Accessed April 2012.

Birds	
Common Name	***Scientific Name***
American coot*	*Fulica americana**
Franklin's gull*	*Larus pipixcan**
Gadwall*	*Anas strepera**
Lesser scaup*	*Aythya affinis**
Eared grebe*	*Podiceps nigricolli**
Western grebe*	*Aechmophorus occidentalis**
Pied-billed grebe*	*Podilymbus podiceps**
Redhead*	*Aythya americana**
Green-winged teal*	*Anas crecca**
Cinnamon teal*	*Anas cyanoptera**
Common goldeneye*	*Bucephala clangula**
American white pelican*	***Pelecanus erythrorhynchos****
Owls	
Boreal owl*	*Aegolius funereus**
Flammulated owl*	*Otus flammeolus**
Great gray owl*	*Strix nebulosa**
Great-horned owl*	*Bubo virginianus**
Shore Birds	
Common snipe*	*Gallinago gallinago**
American avocet*	*Recurvirostra americana**
Long-billed curlew*	*Numenius americanus**
Spotted sandpiper*	*Actitis macularius**
Killdeer*	***Charadrius vociferus****
Scavengers	
Turkey vulture*	***Cathartes aura****

Table 5-5
Summary of Special Status Species Information

Common Name[1]	Scientific Name[1]	USFWS - correspondence July 2009 [2]	USFWS (Caribou County) August 2011 [3]	IDAPA 2009 [4]	IDAPA 2011 [5]	IDFG-IFWIS May 2010 [6, 7]	USFS - correspondence 2009/2010 [8, 9]	USFS (Caribou NF) July 2011 [10]	BLM correspondence (Pocatello Field Office) 2009 [11]	BLM FEIS (Pocatello Field Office) 2010 [12]
Birds										
American white pelican	*Pelecanus erythrorhynchos*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Bald eagle	*Haliaeetus leucocephalus*			Threatened [a]	Protected Non Game	G5; S3B,S4N	No suitable habitat/no known occurrence	Sensitive	Threatened	
Boreal owl	*Aegolius funereus*						No suitable habitat/no known occurrence	Sensitive		
Black tern	*Chlidonias niger*								Regional/State Imperiled Species	Regional/State Imperiled Species
Brewer's sparrow	*Spizella breweri*								Regional/State Imperiled Species	Regional/State Imperiled Species
Calliope hummingbird	*Stellula calliope*								Regional/State Imperiled Species	Regional/State Imperiled Species
Columbian sharp-tailed grouse	*Tympanchus phasianellus columbianus*						Sensitive and Manangement Indicator Species	Sensitive	Regional/State Imperiled Species	Regional/State Imperiled Species
Flammulated owl	*Otus flammeolus*						Sensitive and Manangement Indicator Species	Sensitive	Regional/State Imperiled Species	Regional/State Imperiled Species
Ferruginous hawk	*Buteo regalis*								Regional/State Imperiled Species	Regional/State Imperiled Species
Greater sage-grouse	*Centrocercus urophasianus*		Candidate			G3G4; S2	Sensitive and Manangement Indicator Species	Sensitive	Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Great gray owl	*Strix nebulosa*						Sensitive and Manangement Indicator Species	Sensitive		
Hammond's flycatcher	*Empidonax hammondii*								Regional/State Imperiled Species	Regional/State Imperiled Species
Harlequin duck	*Histrionicus histrionicus*						No suitable habitat/no known occurrence	Sensitive		
Lewis' woodpecker	*Melanerpes lewis*								Regional/State Imperiled Species	Regional/State Imperiled Species
Loggerhead shrike	*Lanius ludovicianus*								Regional/State Imperiled Species	Regional/State Imperiled Species
Northern goshawk	*Accipiter gentilis*						Sensitive and Manangement Indicator Species	Sensitive	Regional/State Imperiled Species	Regional/State Imperiled Species
Olive-sided flycatcher	*Contopus borealis*								Regional/State Imperiled Species	Regional/State Imperiled Species
Peregrine falcon	*Falco peregrinus anatum*			Threatened	Protected Non Game		No suitable habitat/no known occurrence	Sensitive	Regional/State Imperiled Species	Regional/State Imperiled Species
Prairie falcon	*F. mexicanus*								Regional/State Imperiled Species	Regional/State Imperiled Species
Sage sparrow	*Amphispiza belli*								Regional/State Imperiled Species	Regional/State Imperiled Species
Three-toed woodpecker	*Picoides tridactylus*						Sensitive and Manangement Indicator Species	Sensitive		
Trumpeter swan	*Cygnus buccinator*					G4; S1B, S2N	No suitable habitat/no known occurrence	Sensitive	Regional/State Imperiled Species	Regional/State Imperiled Species
White-faced ibis	*Plegadis chihi*								Peripheral Species	Peripheral Species
Williamson's sapsucker	*Sphyrapicus throideus*								Regional/State Imperiled Species	Regional/State Imperiled Species
Willow flycatcher	*Empidonax trailii*								Regional/State Imperiled Species	Regional/State Imperiled Species
Yellow-billed cuckoo	*Coccyzus americanus*								Candidate	
Long-billed curlew	*Numenius americanus*					G5; S2B			Candidate	
Virginia's warbler	*Vermivora virginae*								Peripheral Species	Peripheral Species
Merlin	*Falco columbarius*					G5; S2B, S2N			Candidate	
Mammals										
Gray wolf (Rocky mountain DPS)	*Canis lupus*						Threatened, Endangered, Proposed, and Candidate species - not currently listed [c]	Sensitive	Experimental Population	
Rock squirrel	*Spermophilus variegatus*			Protected Non Game	Protected Non Game					
North american wolverine	*Gulo gulo luscus*		Candidate	Protected Non Game	Protected Non Game		Sensitive and Manangement Indicator Species	Sensitive		
Pygmy rabbit	*Brachylagus idahoensis*						No suitable habitat/no known occurrence	Sensitive	Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Woodland caribou (Selkirk mountain caribou)	*Rangifer tarandus caribou.*			Endangered	Endangered					

Table 5-5
Summary of Special Status Species Information

Common Name[1]	Scientific Name[1]	USFWS - correspondence July 2009 [2]	USFWS (Caribou County) August 2011 [3]	IDAPA 2009 [4]	IDAPA 2011 [5]	IDFG-IFWIS May 2010 [6, 7]	USFS - correspondence 2009/2010 [8, 9]	USFS (Caribou NF) July 2011 [10]	BLM correspondence (Pocatello Field Office) 2009 [11]	BLM FEIS (Pocatello Field Office) 2010 [12]
Canadian lynx	*Lynx canadensis*	Threatened	Threatened (no designated Critical Habitat in Caribou County)	Threatened	Threatened	G5; S1	Threatened, Endangered, Proposed, and Candidate species	Threatened		
Grizzly bear	*Ursus arctos horribilis*			Threatened	Threatened			Threatened		
Northern Idaho ground squirrel	*Spermophilus brunneus brunneus*			Threatened	Threatened					
American pika	*Ochotona princeps*			Protected Non Game	Protected Non Game					
Bats	all species			Protected Non Game	Protected Non Game		No suitable habitat/no known occurrence (spotted bat: *Euderma maculatum*, Townsend's western big-eared bat: *Corynorhinus townsendii townsendii*)	Sensitive (spotted bat: *Euderma maculatum,* townsend's Western Big-Eared Bat: *Corynorhinus townsendii townsendii)*	Regional/State Imperiled Species (Townsend's big-eared bat *Corynorhinus townsendii*)	Regional/State Imperiled Species (Townsend's big-eared bat *Corynorhinus townsendii*)
Chipmunks	*Neotamias spp*			Protected Non Game	Protected Non Game				Peripheral Species (Cliff chipmunk, Tamias dorsalis, Uinta chipmunk, Tamias umbrinus)	Peripheral Species (Cliff chipmunk, *Tamias dorsalis*, Uinta chipmunk, *Tamias umbrinus*)
Columbia Plateau (Merriam's) ground squirrel	*Spermophilus canus vigilis*			Protected Non Game	Protected Non Game					
Golden-mantled ground squirrel	*Spermophilus lateralis*			Protected Non Game	Protected Non Game					
Great Basin (piute) ground squirrel	*Spermophilus canus vigilis*			Protected Non Game	Protected Non Game					
Kit fox	*Vulpes macrotis*			Protected Non Game	Protected Non Game				Peripheral Species	Peripheral Species
Northern Flying Squirrel	*Glaucomys sabrinus*			Protected Non Game	Protected Non Game					
Red squirrel	*Tamiasciurus hudsonicus.*			Protected Non Game	Protected Non Game					
Southern Idaho ground squirrel	*Spermophilus brunneus endemicus.*			Protected Non Game	Protected Non Game					
Wyoming ground squirrel	*Spermophilus elegans nevadensis*			Protected Non Game	Protected Non Game					
Fish										
Bear lake cutthroat trout	*Oncorhynchus clarki pop 3*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Bear lake sculpin	*Cottus extensus*			Protected Non Game	Protected Non Game				Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Bear lake whitefish	*Prosopium abyssicola*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Bonneville cisco	*Prosopium gemmifer*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Bonneville whitefish	*Prosopium spilonotus*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Bonneville cutthroat trout	*Oncorhynchus clarki utah*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Burbot, ling	*Lota lota.*			Endangered	Endangered					
Bull trout	*Salvelinus confluentus*			Threatened	Threatened					
Chinook salmon (spring, summer, and fall)	*Oncorhynchus tshawytscha*			Threatened	Threatened					
Leatherside chub	*Gila copei*			Protected Non Game	Protected Non Game				Regional/State Imperiled Species	Regional/State Imperiled Species
Northern leatherside chub	*Lepidomeda copei*						Sensitive and Manangement Indicator Species [b]	Sensitive		
Pacific lamprey	*Lampetra tridentata*			Endangered	Endangered					
Sand roller	*Percopsis transmontana*			Protected Non Game	Protected Non Game					
Shoshone sculpin	*Cottus greenei*			Protected Non Game	Protected Non Game					
Sockeye salmon	*Oncorhynchus nerka*			Endangered	Endangered					
Yellowstone cutthroat trout	*Oncorhynchus clarki bouvieri*						Sensitive and Manangement Indicator Species [b]	Sensitive [d]	Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Steelhead trout (Snake River summer)	*Oncorhynchus mykiss gairdneri*			Threatened	Threatened					

Table 5-5
Summary of Special Status Species Information

Common Name[1]	Scientific Name[1]	USFWS - correspondence July 2009 [2]	USFWS (Caribou County) August 2011 [3]	IDAPA 2009 [4]	IDAPA 2011 [5]	IDFG-IFWIS May 2010 [6, 7]	USFS - correspondence 2009/2010 [8, 9]	USFS (Caribou NF) July 2011 [10]	BLM correspondence (Pocatello Field Office) 2009 [11]	BLM FEIS (Pocatello Field Office) 2010 [12]
White sturgeon (Kootenai River population)	*Acipenser transmontanus*			Endangered	Endangered					
Wood River sculpin	*Cottus leiopomus*			Protected Non Game	Protected Non Game					
Amphibians										
Boreal toad	*Bufo boreas boreas*							Sensitive	Rangewide/Globally Imperiled Species (Southeast Idaho population only)	Rangewide/Globally Imperiled Species
Columbia spotted frog (Great Basin population)	*Rana luteiventris*						No suitable habitat/no known occurrence	Sensitive		
Common garter snake	*Thamnophis sirtalis*								Regional/State Imperiled Species	Regional/State Imperiled Species
Western toad	*Bufo boreas*								Regional/State Imperiled Species (Northern Rocky Mountain Group only)	
Northern leopard frog	*Rana pipiens*								Rangewide/Globally Imperiled Species	Rangewide/Globally Imperiled Species
Invertebrates										
Utah valvata snail	*Valvata utahensis*								Endangered	
Bliss Rapids snail	*Taylorconcha serpenticola*								Threatened	
Bear Lake springsnail	*Pyrgulopsis pilsbryana*					G2; S1				
Plants										
Whitebark pine	*Pinus albicaulis*		Candidate							
Alderleaf mountain mahogany	*Cercocarpus montanus*									Rangewide/Globally Imperiled Species-Moderate Endangerment
Cooper's hymenoxys	*Hymenoxys cooperi* var.*canescens*									Species of Concern
Iodinebush	*Alenrolfea occidentalis*									Rangewide/Globally Imperiled Species-Moderate Endangerment
Red glasswort	*Salicornia rubra*									Species of Concern
Silky cryptantha	*Cryptantha sericea*									Rangewide/Globally Imperiled Species-Moderate Endangerment
Idaho sedge	*Carex idahoa*									Rangewide/Globally Imperiled Species-High Endangerment
Ute ladies' tresses orchid	*Spiranthes diluvialis*							Threatened - ? (suspected/potential habitat)		
Meadow milkvetch	*Astragalus diversifolius A. Gray*									Regional/Imperiled Species
Starveling milkvetch	*Astragalus jejunus* var. *jejunus*						No suitable habitat/no known occurrence	Sensitive		Rangewide/Globally Imperiled Species-High Endangerment
Payson bladderpod	*Lesquerella paysonii*						No suitable habitat/no known occurrence	Sensitive		
Cache beardtongue	*Penstemon compactus*						No suitable habitat/no known occurrence	Sensitive		
Hoary willow	*Salix candida*					G5; S2				Species of Concern

Notes:
1 - Not all species in the table definitely occur at the Site.

U.S. Fish and Wildlife Service (USFWS)
2 - A letter was sent to USFWS on June 16, 2009 seeking feedback on which federally-listed T/E species they expect could occur at the Site and should be specifically included in the SSERA. Table reflects response letter, dated July 21, 2009.
3 - U.S. Fish and Wildlife Service (USFWS). 2011. U.S Fish and Wildlife Service – Idaho Fish and Wildlife Office, Endangered, Threatened, Proposed, and Candidate Species (With Associated Proposed and Critical Habitats), updated 8/17/2011. USFWS, Idaho Fish and Wildlife Office, Boise, ID. Includes species identified for Caribou County only.

Idaho Administrative Procedures Act (IDAPA)
4 - Idaho Administrative Procedures Act (IDAPA). 2009. 13.01.06 – Rules Governing Classification and Protection of Wildlife. Idaho Department of Fish and Game.
5 - Idaho Administrative Procedures Act (IDAPA). 2011. 13.01.06 – Rules Governing Classification and Protection of Wildlife. Idaho Department of Fish and Game. Available at http://adminrules.idaho.gov/rules/2011/13/0106.pdf
a - Although the bald eagle is listed as threatened in IDAPA (2009), it was recommended by IDFG biologists for delisting from T/E species to non-game wildlife species; recommendations were reportedly to be made to their commission on July 23, 2009 (pers. comm., R. Sallabanks at IDFG, July 21, 2009). IDAPA 2011 reflects the updated status.
Definitions from IDAPA (2011) for Threatened/Endangered species:
Endangered: Any native species in danger of extinction throughout all or a significant portion of its Idaho range.
Threatened Species: Any native species likely to be classified as Endangered within the foreseeable future throughout all or a significant portion of its Idaho range.

Idaho Department of Fish and Game (IDFG)-Idaho Fish and Wildlife Information System (IFWIS)
6 - Idaho Department of Fish and Game (IDFG). 2010a. Request for List of Special-Status Species Occurrences in the Vicinity of the J.R. Simplot Company's Conda/Woodall Mountain Mine to Support Baseline Ecological Risk Assessment was sent to Jim Mende of the Department of Fish and Game; October 21, 2009. Verbal response in May 2010 indicated that the Idaho Fish and Wildlife Information System (IFWIS) staff should be contacted.
7 - Idaho Department of Fish and Game (IDFG). 2010b. E-mail communication containing Geographic Information System (GIS) shapefiles of at-risk species locations within 2 miles of the project area, received from George Stephens, Idaho Fish and Wildlife Information System (IFWIS), IDFG, Boise, ID. May 5, 2010. Refer to Figure 2-9 for more information.
Definitions from IDFG & IFWIS (Nature Serve Explorer 2010)

G2: Nature Serve Global Conservation Status Rank, Imperiled	S1: Nature Serve Subnational Conservation Status Rank, Critically Imperiled
G3: Nature Serve Global Conservation Status Rank,Vulnerable	S2: Nature Serve Subnational Conservation Status Rank, Imperiled
G4: Nature Serve Global Conservation Status Rank, Apparently Secure	S3: Nature Serve Subnational Conservation Status Rank, Vulnerable
G5: Nature Serve Global Conservation Status Rank, Secure	S4: Nature Serve Subnational Conservation Status Rank, Apparently Secure

B: Breeding- Conservation status refers to the breeding population of the species in the nation or state/province
N: Nonbreeding- Conservation status refers to the non-breeding population of the species in the nation or state/province

U.S. Forest Service (USFS)
8 - A letter was sent to USFS on October 21, 2009 seeking feedback on which federally-listed T/E species they expect could occur on USFS lands at the Site (southeastern corner of Non-Mine Area) and should be specifically included in the SSERA. Table reflects response letter, dated October 30, 2009.

Information was provided in USFS (2009) as to whether "Suitable habitat for species or prey occurs in the project or analysis area" and "Occurrence is known, expected, probable, or possible in the project or analysis area determined by the amount, distribution, and quality of suitable habitat in and around the project area; reviewing file information of suitable habitat, sightings; survey data; site visits; and/or personal knowledge of species and habitat." Only species with either suitable habitat or possible occurrence in USFS lands at the Conda site are listed on this table. (exception: if the species is on the list as a result of cross-listing with another source, then information regarding lack of suitable habitat/lack of occurrence is provided.)
9 - U.S. Forest Service (USFS). 2010. Telephone communication from James Capurso (USFS fisheries biologist) to Formation Environmental; regarding species of concern listed on USFS's 10/30/2009 list from A. Keysor. May 5, 2010.
b - Caribou NF Fish Biologist Jim Capurso (USFS 2010) indicated that Snake River fine-spotted and Bonneville cutthroat trout can be lumped and referred to as Yellowstone cutthroat trout. He also verified that the northern leatherside chub is a sensitive species.
c - USFS (2009) indicated that the wolf may be relisted and should be considered as a listed species.

Definitions and information from USFS (2009):
Threatened, Endangered, Proposed, and Candidate species identified by U.S. Fish and Wildlife Services on the 180-Day Species List Number (or update) and date of transmittal letter: Species List # 14420 2009-SL-0358 – 6-01-09
Sensitive species identified by the Regional Forester are known or suspected to occur on the Caribou NF (USDA 2009). Population viability is a concern for these species as evidenced by current or expected downward trends in population numbers and/or habitat.
Management Indicator Species – Caribou National Forest FEIS (USDA 2003a D-40) and Revised Forest Plan (USDA 2003b 3-25)

10 - U.S. Forest Service (USFS). 2011. Intermountain Region (R4) Threatened, Endangered, Proposed, and Sensitive Species, July 27, 2011 update, Known/Suspected Distribution by Forest. Table presents information for Caribou National Forest (NF) only. Available at http://www.fs.fed.us/r4/resources/tes/r4_tes_lst.pdf. July 27, 2011.

d - Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*) and Bonneville cutthroat trout (*Oncorhynchus clarki utah*) are lumped together (per footnote 9/b).

Bureau of Land Management (BLM)
11 - Bureau of Land Management (BLM). 2009b. E-mail from Jason Sturm (BLM) to Robbert-Paul Smit (Formation Environmental) on November 3, 2009 with an attachment titled "Idaho BLM Special Status Animal Species For Districts and Field Offices" (no date). Table reflects wildlife listings for Type 1, Type 2, Type 3, and Type 4 species for the Pocatello Field Office only. The email did not indicate which species were expected to occur specifically on BLM lands within the Conda Study Area.

12 - Bureau of Land Management (BLM). 2010. Proposed Resource Management Plan and Final Environmental Impact Statement (FEIS). Volume I - Executive Summary, Chapters 1, 2, and 3. U.S. Department of Interior, Bureau of Land Management, Pocatello Field Office/Idaho Falls District. April 2010.

Definitions in BLM (2009b):
Rangewide / Globally Imperiled Species: Includes species that are experiencing significant declines throughout their range with a high liklihood of being listed under the Endangered Species Act in the forseeable future due to their rarity and/or significant endangerment factors.
Regional / State Imperiled Species: Includes species that are experiencing declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future.
Peripheral Species in Idaho: Includes species that are generally rare in Idaho with the majority of their breeding range outside the state.
Watch List Species: Includes species that are not considered Idaho BLM sensitive species but current population or habitat information suggests that species may warrant sensitive species status in the future. (Not included on this table).

Table 6-1
Summary Statistics of
COPC Comparison Value Exceedances

Media and Analyte	Units	Number of Results	Number of Detected Results	Detection Frequency	Number of Detected Exceedances	Percent Exceedances	Average Exceedance	Maximum Exceedance	Comparison Value	Background Value - For Reference		Average Exceedance Magnitude	Maximum Exceedance Magnitude
Soil										**Surface**	**Subsurface**		
Selenium	mg/kg	631	628	100%	456	72%	33.9	2800	0.52	4.7	2.5	65	5385
Cadmium	mg/kg	506	628	98%	427	84%	24.0	124	0.36	16	11	67	344
Vanadium	mg/kg	506	628	100%	437	86%	261	2610	7.8	64	73	33	335
Lead	mg/kg	361	628	100%	226	63%	30.3	1000	11	24	22	3	91
Antimony	mg/kg	361	628	80%	226	63%	2.59	19	0.27	1	1.1	10	70
Chromium	mg/kg	506	628	100%	356	70%	315	1680	26	87	50	12	65
Zinc	mg/kg	506	628	100%	433	86%	536	2930	46	374	203	12	64
Manganese	mg/kg	361	628	100%	244	68%	926	9930	220	3410	2977	4	45
Arsenic	mg/kg	361	628	100%	361	100%	13.9	62	1.6	9.2	8.9	9	39
Nickel	mg/kg	506	628	100%	275	54%	164	528	38	52	57	4	14
Copper	mg/kg	506	628	100%	261	52%	81.7	204	28	32	30	3	7
Barium	mg/kg	361	628	100%	13	4%	495	1340	330	431	311	1	4
Silver	mg/kg	358	628	70%	49	14%	5.91	13	4.2	0.76	0.59	1	3
Cobalt	mg/kg	352	628	100%	12	3%	16.3	22.5	13	15	13	1	2
Sediment													
Selenium	mg/kg	136	128	94.1%	71	52.2%	73.4	739	2	3.3		37	370
Cadmium	mg/kg	138	135	97.8%	112	81.2%	12.9	114	1	4.5		13	114
Barium	mg/kg	122	122	100.0%	122	100.0%	139.8	1050	20	226		7	53
Nickel	mg/kg	138	138	100.0%	76	55.1%	96.9	365	23	34		4	16
Chromium	mg/kg	138	137	99.3%	51	37.0%	217.2	609	43	29		5	14
Zinc	mg/kg	138	134	97.1%	70	50.7%	450.9	1330	120	188		4	11
Silver	mg/kg	120	70	58.3%	25	20.8%	3.8	9.2	1	0.24		4	9
Manganese	mg/kg	122	122	100.0%	58	47.5%	1052.5	3400	460	2260		2	7
Mercury	mg/kg	122	120	98.4%	46	37.7%	0.4	0.9	0.18	0.34		2	5
Copper	mg/kg	124	120	96.8%	39	31.5%	75.1	157	32	27		2	5
Arsenic	mg/kg	122	117	95.9%	28	23.0%	18.6	36.4	9.8	5.8		2	4
Iron	mg/kg	121	121	100.0%	15	12.4%	25086.7	49500	20000	23000		1	2
Antimony	mg/kg	120	90	75.0%	12	10.0%	3.9	6	3	1.3		1	2
Uranium	mg/kg	120	120	100.0%	1	0.8%	119.0	119	100	3.9		1	1
Aluminum	mg/kg	121	121	100.0%	2	1.7%	27250.0	27300	25500	17200		1	1
Lead	mg/kg	122	119	97.5%	1	0.8%	38.3	38.3	36	18		1	1

Table 6-1
Summary Statistics of
COPC Comparison Value Exceedances

Media and Analyte	Units	Number of Results	Number of Detected Results	Detection Frequency	Number of Detected Exceedances	Percent Exceedances	Average Exceedance	Maximum Exceedance	Comparison Value	Background Value - For Reference		Average Exceedance Magnitude	Maximum Exceedance Magnitude
Surface Water										**Base Flow**	**High Flow**		
Selenium, Total	mg/L	567	527	92.9%	254	48.2%	132.84	6.89	0.005	0.0014	0.0023	26569	1378
Cadmium, Dissolved	mg/L	594	132	22.2%	70	53.0%	13.06	0.0243	0.000293	0.0001	0.00027	44574	83
Aluminum, Dissolved	mg/L	503	120	23.9%	43	35.8%	6.61	4.35	0.087	0.026	1.2	76	50
Vanadium, Total [a]	mg/L	183	163	89.1%	14	8.6%		1.22	0.027	0.00654	0.0178	0	45
Manganese, Total	mg/L	183	162	88.5%	50	30.9%	4.89	2.1	0.05	0.42	0.31	98	42
Zinc, Dissolved	mg/L	595	203	34.1%	67	33.0%	5.58	1.07	0.0399	0.052	0.038	140	27
Arsenic, Total	mg/L	183	67	36.6%	25	37.3%	5.88	0.252	0.01	0.0012	0.0012	588	25
Copper, Dissolved	mg/L	568	159	28.0%	59	37.1%	1.82	0.0674	0.00382	0.067	0.0029	476	18
Nickel, Dissolved	mg/L	595	256	43.0%	45	17.6%	5.57	0.31	0.0177	0.0058	0.0037	315	17
Lead, Dissolved	mg/L	431	41	9.5%	20	48.8%	3.55	0.0072	0.000498	0.0039	0.0039	7123	14
Mercury, Dissolved	mg/L	403	31	7.7%	1	3.2%	12.99	0.01	0.00077	0.000026	0.0002	16866	13
Chromium, Total	mg/L	183	88	48.1%	1	1.1%	10.90	1.09	0.1	0.007	0.0043	109	11
Cadmium, Total	mg/L	183	80	43.7%	15	18.8%	2.53	0.0489	0.005	0.000093	0.0019	506	10
Silver, Dissolved	mg/L	429	12	2.8%	9	75.0%	3.05	0.0032	0.000386	0.0008	0.0011	7900	8
Iron, Dissolved	mg/L	501	201	40.1%	6	3.0%	1.46	2.32	1	0.088	0.68	1	2
Lead, Total	mg/L	183	36	19.7%	1	2.8%	2.06	0.0309	0.015	0.0017	0.0058	137	2
Thallium, Total	mg/L	183	15	8.2%	2	13.3%	1.54	0.00048	0.00024	0.00014	0.0049	6424	2
Arsenic, Dissolved	mg/L	499	232	46.5%	3	1.3%	1.61	0.296	0.15	0.002	0.00097	11	2
Groundwater													
Cadmium, Total	mg/L	363	144	39.7%	25	6.9%	102.18	5.81	0.005	NA		20436	1162
Selenium, Total	mg/L	517	364	70.4%	85	16.4%	15.74	12	0.05	NA		315	240
Lead, Total	mg/L	239	57	23.8%	11	4.6%	5.76	0.417	0.015	NA		384	28
Chromium, Total	mg/L	363	192	52.9%	9	2.5%	9.95	2.66	0.1	NA		100	27
Beryllium, Total	mg/L	144	15	10.4%	8	5.6%	2.62	0.0363	0.004	NA		655	9
Arsenic, Total	mg/L	347	153	44.1%	9	2.6%	3.39	0.428	0.05	NA		68	9
Thallium, Total	mg/L	239	31	13.0%	7	2.9%	2.08	0.0119	0.002	NA		1039	6
Antimony, Total	mg/L	239	31	13.0%	7	2.9%	2.05	0.025	0.006	NA		341	4
Barium, Total	mg/L	347	229	66.0%	1	0.3%	3.95	7.89	2	NA		2	4
Uranium, Total	mg/L	194	67	34.5%	4	2.1%	2.55	0.113	0.03	NA		85	4

Notes:
Refer to Appendix Q tables for sample results.
Refer to tables in Section 4 for comparison values and calculated Site-specific background values.
a - Comparison value for vanadium based on Michigan Department of Environmental Quality (MDEQ) water quality value (MDEQ 2013).
Refer to Appendix Q for more information.

Table 6-2
Comparison of Main COPC Concentrations in RMM Soils

Material Type	Selenium			Cadmium			Chromium			Vanadium			Zinc		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Overburden	0.15	2800	62.7	0.86	119	26.9	18.5	1300	457.1	25.8	1600	285.1	50.1	1900	797.1
NTCRA Pile	0.27	0.53	0.4	1.2	1.4	1.3	58.4	69.3	63.7	30	35	31.8	99	115	104.3
FSPS Pile	0.42	81.9	13.6	3.5	39.7	14.6	27.6	514	168.0	7.5	238	104.1	83.2	1260	329.6
Tailings (OTP)	0.28	112	34.8	1.2	174	80.9	18.3	2100	887.7	26.7	2820	1214.1	62.6	4610	1514.9
Tailings (NTP)	0.41	17	7.2	1.7	76.6	29.2	20	274	145.0	29.6	428	227.2	53.2	602	305.5
Waste Rock	3.4	52.5	17.5	10.9	92.6	51.6	35.1	666	418.8	34.6	1620	778.6	254	1170	788.3
Former Mill/Townsite	0.27	29.5	10.0	1.1	103	37.4	22.4	855	237.4	28.3	1260	370.9	64.3	1640	530.9
Haul Roads	0.084	46.5	6.7	0.097	54.1	13.8	4.5	634	108.0	5.9	602	102.9	5.5	1080	261.5
Outside of Areas with RMM	0.1	68.3	4.5	0.35	85.7	8.2	11.9	477	72.3	16.1	582	80.0	34.9	1310	238.5

Notes:
Only detected values are used in the statistics.
Includes data from 2001 onward of "A" data use level only.
All soil depths are included in the statistics
Min = Minimum
Max = Maximum
Avg = Average
mg/kg = milligrams per kilogram. All results are on a dry weight basis.
OTP = Old Tailings Pond
NTP = New Tailings Pond

Table 6-3
Comparison of Main COPC Concentrations in Vegetation Growing on RMM Soils

Material Type	Selenium			Cadmium			Chromium			Vanadium			Zinc		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
Overburden	0.07	7180	50.6	0.126	12.3	1.7	0.15	53.5	1.4	0.08	6.67	0.9	5.4	312	70.5
NTCRA Pile	1.44	195	27.5	0.197	2.82	0.9	0.27	1.2	0.5	0.08	1	0.2	13.2	106	34.9
FSPS Pile	0.2	426	28.9	0.085	39.3	2.1	0.2	11.6	1.3	0.009	7.18	0.7	6.9	223	43.8
Tailings (OTP)	3.62	632	73.0	0.327	65.6	12.1	0.2	1.2	0.6	0.26	2.1	0.8	18.3	519	132.5
Tailings (NTP)	0.34	6.3	2.4	0.49	5	1.8	0.49	5.5	2.0	0.53	9.7	3.5	10.3	147	52.3
Waste Rock	0.07	35.7	8.2	1.4	30.9	6.6	0.2	6.9	1.5	0.15	19.3	3.3	60	351	139.8
Former Mill/Townsite	0.19	2.18	1.0	0.057	0.917	0.4	0.2	0.78	0.4	0.13	0.88	0.5	11.9	51.9	26.2
Outside of areas with RMM	0.03	177	6.0	0.05	8.63	1.1	0.2	11.1	0.7	0.11	26.9	0.9	8	158	43.9

Notes:
Only detected values are used in the statistics.
Includes data from 2001 onward of "A" data use level only.
All vegetation types (washed samples) are included in the statistics.
Min = Minimum
Max = Maximum
Avg = Average
mg/kg = milligrams per kilogram. All results are on a dry weight basis.
OTP = Old Tailings Pond
NTP = New Tailings Pond

Table 6-4
Comparison of Main COPC Concentrations in Surface Water Associated with RMM

Material Type	Selenium, Total			Cadmium, Dissolved			Chromium, Dissolved			Vanadium, Total			Zinc, Dissolved		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
	mgL			mgL			mgL			mgL			mgL		
Overburden	0.00092	9.83	1.5404	0.00002	0.0243	0.0040	0.0002	0.0254	0.0048	0.00051	1.22	0.0399	0.0014	1.78	0.2326
Tailings (OTP)	0.0318	0.634	0.2189	0.00055	0.0048	0.0016	0.00034	0.0021	0.0012	0.0143	0.048	0.0345	0.0021	0.03	0.0125
Tailings (NTP)	0.00073	0.01	0.0035	0.000044	0.0002	0.0001	0.0003	0.00047	0.0004	0.015	0.0363	0.0245	0.002	0.03	0.0081
Outside of areas with RMM	0.00021	4.08	0.1759	2.00E-05	0.0035	0.0006	0.0001	0.0274	0.0020	0.00047	0.129	0.0047	0.00041	0.26	0.0334

Notes:
Only detected values are used in the statistics.
Includes data from 2001 onward of "A" data use level only.
Min = Minimum
Max = Maximum
Avg = Average
mg/L = milligrams per liter
OTP = Old Tailings Pond
NTP = New Tailings Pond

Table 6-5
Comparison of Main COPCs Concentrations in RMM Groundwater

Material Type	Selenium, Total			Cadmium, Total			Chromium, Total			Vanadium, Total			Zinc, Total		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
	mgL			mgL			mgL			mgL			mgL		
Overburden	0.0048	12	2.500	0.00009	5.81	0.291	0.001	2.66	0.123	0.00051	21	1.058	0.0046	10.9	1.019
Tailings (OTP)	3.6	12.4	8.0	0.158	28.9	14.5	1.65	3.22	2.4	2.99	27.7	15.3	3.88	307	155.4
Outside of areas with RMM	0.00024	0.057	0.004	0.00002	0.0147	0.002	0.00028	0.0665	0.005	0.0002	0.0703	0.005	0.0013	0.339	0.028

Notes:
Only detected values are used in the statistics.
Includes data from 2001 onward of "A" data use level only.
Min = Minimum
Max = Maximum
Avg = Average
mg/L = milligrams per liter
Includes groundwater (and surface water) data from wells, ponds, seeps/springs, French Drain, and soil borings.

Table 6-6
Summary of Historical and Recent Water Quality Information for the Old Tailings Pond

Analyte		Location				
		Old Tailings Pond Historic Surface Water	GW-8	GW-10	TP2-SB3	TP2-SB5
TDS (total dissolved solids)	Max	1586	420	560	3040	--
	Min	1586	704	742	3040	--
	Average	1586	579	653	3040	--
	Count	1	6	6	1	--
Alkalinity	Min	--	172	97	365	--
	Max	--	320	348	365	--
	Avg	--	256	271	365	--
	Count	--	6	7	1	--
Hardness	Min	--	320	400	2290	77300
	Max	--	420	500	2290	77300
	Avg	--	387	450	2290	77300
	Count	--	6	6	1	1
Calcium	Min	--	80	92	627	26400
	Max	--	112	120	627	26400
	Avg	--	96	105	627	26400
	Count	--	6	6	1	1
Magnesium	Min	--	29	34	175	2740
	Max	--	41	54	175	2740
	Avg	--	35	45	175	2740
	Count	--	6	6	1	1
Iron (Fe)	Min	0.059	0.04	0.02	31.4	10.3
	Max	0.059	0.1	0.12	31.4	10.3
	Avg	0.059	0.06	0.05	31.4	10.3
	Count	1	6	6	1	1
Fluoride (F)	Min	1	0.17	0.04	0.5	--
	Max	1.3	2.3	1.06	0.5	--
	Avg	1	1	0.5	0.5	--
	Count	6	26	27	1	--
Chlorine (Cl)	Min	66	4	8	76.6	--
	Max	66	20	16	76.6	--
	Avg	66	14	10	76.6	--
	Count	1	6	6	1	--
Sulfate (SO4)	Min	500	62	82	1770	--
	Max	1015	1000	760	1770	--
	Avg	628	198	184	1770	--
	Count	5	8	8	1	--
Nitrate (NO3)	Min	25	5.2	8	0.132	0.076
	Max	31.2	110.7	97	0.132	0.076
	Avg	28	63	53	0.132	0.076
	Count	6	26	26	0	1
Phosphate (PO4)	Min	--	0.68	1.2	--	--
	Max	--	8	7.6	--	--
	Avg	--	3	4	--	--
	Count	--	6	6	--	--
pH	Min	--	6.8	6.9	6.59	--
	Max	--	7.2	7.2	6.59	--
	Avg	--	42	7	6.59	--
	Count	--	7	6	1	--

Table 6-6
Summary of Historical and Recent Water Quality Information for the Old Tailings Pond

Analyte		Location				
		Old Tailings Pond Historic Surface Water	GW-8	GW-10	TP2-SB3	TP2-SB5
Phosphate as P205	Min	11	88	40	--	
	Max	12	424	95	--	
	Avg	11.5	256	67.5	--	
	Count	2	2	2	--	
Ammonia (NH3)	Min	--	20	--	0.701	1.4
	Max	--	20	--	0.701	1.4
	Avg	--	20	--	0.701	1.4
	Count	--	1	--	1	1
Cadmium (Cd)	Min	0.014		<0.02	0.158	28.9
	Max	<0.02	<0.02	<0.02	0.158	28.9
	Avg	0.028	<0.02	<0.02	0.158	28.9
	Count	6		1	1	1
Manganese (Mn)	Min	0.025	--	--	2.89	39.2
	Max	0.025	--	--	2.89	39.2
	Avg	0.025	--	--	2.89	39.2
	Count	1	--	--	1	1

Notes:

Data from the Conda Operation Detail Reports 1964-1975.

All concentrations are in part per million (ppm) except pH which is in standard units.

Table 6-7
Comparison of Main COPC Concentrations in Terrestrial Invertebrates and Mammals Associated with RMM

Material Type	Biota Type	Selenium		
		Min	Max	Avg
		mg/kg		
Overburden	ITT	0.25	120	34.3
	MT	0.63	125	32.9
Tailings (OTP)	ITT	39.2	39.2	39.2
	MT	11.3	11.3	11.3
Former Mill/Townsite	ITT	4.98	4.98	5.0
	MT	4.54	4.54	4.5
Outside of areas with RMM	ITT	0.52	30.3	6.0
	MT	0.17	6.5	1.6

Notes:
Only detected values are used in the statistics.
Includes data from 2001 onward of "A" data use level only.
MT data from 2015 included.
Min = Minimum
Max = Maximum
Avg = Average
mg/kg = milligrams per kilogram. All results are on a dry weight basis.
ITT = Terrestrial Invertebrates
MT = Mammal Tissue
OTP = Old Tailings Pond

Table 6-8
Comparison of Main COPC Concentrations in Aquatic Invertebrates and Vegetation Associated with RMM

Material Type	Biota Type	Selenium		
		Min	Max	Avg
		mg/kg		
Overburden	ITA	102	428	265.00
	AVM	147	362	209.75
Tailings	AVM	0.78	5.36	3.07
	ITA	4.44	4.44	4.44
Outside of areas with RMM	AVM	0.11	26.4	6.82
	ITA	1.42	65.2	16.43

Notes:
Only detected values are used in the statistics.
Includes data from 2001 onward of "A" data use level only.
All vegetation types (washed samples) are included in the statistics.
Min = Minimum
Max = Maximum
Avg = Average
mg/kg = milligrams per kilogram. All results are on a dry weight basis.
ITA - Aquatic Invertebrates
AVM - Aquatic Vegetation

Table 6-9
North Woodall Mountain Sub-Basin Surface Water Flows

Location Type	Station	2005		2006		2007		2008		2009		2011	
		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Main Stem	NWC-2							0.0586	Dry	0.034 - 0.17	0.001		
	NWC-1							Dry	Dry	0.12	Dry		
Springs	SW05-SP	0.68	0.022 - 0.13	0.040 - 0.55	0.007	0.1	0.01	0.13	0.0020	0.5			
	SW06-W	0.68	0.007 - 0.015	0.060 - 0.66	0.009	0.36	0.0020 - 0.010	0.15	0.010	1.17			
	SW07-SP(S)							1.5	2.5				
	WS-1								Ponded	Ponded	Ponded	Ponded	Ponded
	WS-2							Ponded	Ponded	Ponded	Ponded	Ponded	Ponded
	WS-3							Dry	Dry	Dry		Ponded	Ponded

Note:
All values are reported in cfs (cubic feet per second).
Blank Cell - No data available

Table 6-10
North Woodall Mountain Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Main Stem	NWC-2	5/17/2008	0.0005	ND	ND	0.0035	ND
		5/16/2009	0.00021	ND	ND	0.0025	ND
		7/11/2009	ND	ND	ND	0.002	ND
		8/7/2009	ND	ND	0.0011	0.0026	ND
	NWC-1	5/16/2009	0.00021	ND	ND	0.0015	ND
Springs	SW05-SP	4/30/2005	ND	ND	ND		0.09
		5/2/2006	ND	ND	ND		ND
		7/26/2006	ND	ND	ND		ND
		4/16/2007	ND	ND	ND		ND
		5/10/2008	ND	ND	0.003		ND
		4/30/2009	ND	ND	0.0022		0.0083
		5/6/2010	ND	ND	ND		ND
		5/9/2011	ND	ND	0.00299		ND
		5/18/2012	0.00062	ND	0.00098		ND
		8/2/2005	ND	ND	0.003		0.09
		10/17/2005	0.001	ND	ND		0.05
		10/23/2006	ND	ND	ND		ND
		8/7/2007	0.001	ND	ND		ND
		10/11/2007	ND	ND	ND		ND
		10/14/2008	ND	ND	ND		ND
		10/11/2009	0.0004	ND	ND		ND
		10/14/2010	ND	ND	ND		ND
		9/23/2011	ND	ND	ND		ND
		9/29/2012	0.0031	ND	ND		ND
	SW06-W	4/29/2005	ND	ND	0.003		0.08
		5/3/2006	ND	ND	ND		ND
		7/26/2006	ND	ND	ND		ND
		4/16/2007	ND	ND	ND		ND
		5/10/2008	ND	ND	ND		ND
		4/30/2009	0.00028	ND	0.00047		0.0028
		5/6/2010	ND	ND	ND		ND
		6/1/2011	ND	ND	0.00169		ND
		5/18/2012	0.00068	ND	ND		ND
		8/2/2005	ND	ND	0.002		0.11
		10/17/2005	ND	ND	ND		0.02
		10/23/2006	ND	ND	ND		ND
		8/7/2007	0.001	ND	ND		ND
		10/11/2007	ND	ND	ND		ND
		10/14/2008	ND	ND	ND		ND
		10/12/2009	0.00025	ND	0.00025		ND
		10/14/2010	ND	ND	ND		ND
		9/22/2011	ND	ND	ND		ND

Table 6-10
North Woodall Mountain Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Springs	SW07-SP	4/29/2005	0.001	ND	0.023		*0.19*
		5/4/2006	0.002	ND	ND		ND
		7/26/2006	0.002	ND	ND		ND
		4/17/2007	0.003	ND	ND		ND
		5/13/2008	0.002	ND	ND		ND
		5/2/2009	0.0017	ND	0.00026		ND
		5/7/2010	0.0027	ND	ND		ND
		5/13/2011	0.00301	ND	0.0126		ND
		5/13/2012	0.0048	ND	0.00076		ND
		8/1/2005	0.002	ND	0.01		*0.24*
		10/18/2005	0.003	ND	ND		0.11
		10/22/2006	0.002	ND	ND		ND
		8/5/2007	0.004	ND	ND		ND
		10/12/2007	0.003	ND	ND		ND
		10/12/2008	0.002	ND	ND		ND
		10/11/2009	0.0013	ND	0.00027		ND
		10/16/2010	0.0034	ND	ND		ND
		9/22/2011	0.00439	ND	ND		0.0024
		9/30/2012	0.0046	ND	0.0006		ND
	WS-1	5/9/2003	ND	ND	0.0007		0.02
		5/14/2004	0.0025	ND	ND		0.0014
		5/16/2009	0.0021	ND	ND	0.0006	ND
		6/3/2011	0.002				
		10/21/2003	0.0018	ND	ND		ND
		10/19/2008	0.004	0.000043	0.0012	0.00066	ND
		8/7/2009	0.0015	ND	0.0012	0.00071	ND
		10/2/2011	0.0018				
	WS-2	5/19/2008	0.0016	ND	ND	0.0008	ND
		5/16/2009	0.0016	ND	ND	0.00085	ND
		6/3/2011	0.002				
		10/19/2008	0.0028	0.000061	0.0014	0.0016	ND
		8/7/2009	0.0011	ND	0.0014	0.00064	ND
		10/2/2011	0.0016				
	WS-3	6/3/2011	ND				
		10/2/2011	ND				

Table 6-10
North Woodall Mountain Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Pond	SW03-L	4/27/2005	ND	ND	0.004		0.1
		5/3/2006	0.001	ND	ND		ND
		7/25/2006	ND	ND	ND		ND
		4/16/2007	ND	ND	ND		ND
		5/10/2008	ND	ND	ND		ND
		4/30/2009	0.00082	ND	ND		0.0029
		5/6/2010	ND	ND	ND		ND
		5/31/2011	ND	ND	0.00171		ND
		5/4/2012	ND	ND	ND		ND
		8/2/2005	ND	ND	0.003		0.11
		10/17/2005	ND	ND	ND		0.03
		10/23/2006	ND	ND	ND		ND
		8/6/2007	0.002	ND	ND		ND
		10/11/2007	ND	ND	ND		ND
		10/12/2008	ND	ND	ND		ND
		10/12/2009	0.00031	ND	ND		ND
		10/14/2010	ND	ND	ND		ND
		9/23/2011	ND	ND	ND		ND
		9/30/2012	ND	ND	ND		ND

Notes:

Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable; ND - Non-detected value
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-11
North Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
Main Stem	NWC-2	5/17/2008	164	ND			159		51.9	48.3	6.24	280	0.144	10.3	9.32
		5/16/2009	153	0.047			153		47.1	45.7	4.88	311	0.186	9.14	9.21
		7/11/2009	204	ND			204		58.5	58.2	5.51	398	0.105	11.5	11.5
		8/7/2009	220	ND			220		59.5	60.7	5.35	323	0.25	12.7	12.9
	NWC-1	5/16/2009	148	ND			148		47.6	46.8	4.82	315	0.135	8.17	8.12
Springs	SW05-SP	4/30/2005	33	0.08				40	11		2	77	0.18	2	
		5/2/2006	114	ND				140	39		4	188	0.14	8	
		7/26/2006	219	ND				267	65		6	450	0.23	15	
		4/16/2007	122	ND				148	39		4	265	0.16	8	
		5/10/2008	61	ND				75		19	3	165	0.15		3.8
		4/30/2009	16.5	ND				16.5		8.5	2.6	149.8	0.11		2.1
		5/6/2010	89.4	ND				89.4		26.9	4.6	219	0.13		6.3
		5/9/2011	208	ND				208		60.5	5.42	513	0.22		12.1
		5/18/2012	181	0.065				181		62.8	ND	265	0.25		12.9
		8/2/2005	224	0.07				274	64		4	243	0.16	14	
		10/17/2005	185	ND				226	56		5	312	0.24	13	
		10/23/2006	218	ND				266	62		6	432	0.22	14	
		8/7/2007	210	ND				256	64		6	443	0.21	14	
		10/11/2007	201	ND				245	58		5	378	0.2	14	
		10/14/2008	206	0.05				251		65	6	696	0.2		13
		10/11/2009	208	ND				208		55.4	6.2	385	0.18		12.9
		10/14/2010	199	ND				199		63.6	7.1	381	0.2		13.7
		9/23/2011	206	0.015				206		58.1	5.65	416	0.19		11.9
		9/29/2012	203	0.058				203		65.2	5.5	368	0.17		13.5
	SW06-W	4/29/2005	117	0.19				142	38		5	191	0.24	7	
		5/3/2006	138	ND				168	41		4	292	0.19	8	
		7/26/2006	214	ND				261	65		5	440	0.22	14	
		4/16/2007	180	ND				219	57		4	365	0.2	11	
		5/10/2008	169	ND				206		54	5	362	0.19		9.9
		4/30/2009	57.8	ND				57.8		36.4	4.6	254	0.17		7.8
		5/6/2010	175	ND				175		52.7	5.3	373	0.16		11.2
		6/1/2011	78.4	ND				78.4		23.5	3.01	254	0.17		4.78
		5/18/2012	175	0.077				175		58.8	ND	247	0.24		11.3
		8/2/2005	198	0.09				242	51		9	232	0.18	12	
		10/17/2005	192	ND				234	62		7	230	0.25	13	
		10/23/2006	207	ND				253	60		5	421	0.22	12	
		8/7/2007	200	ND				244	65		5	414	0.19	12	
		10/11/2007	194	ND				225	62		4	202	0.2	13	
		10/14/2008	198	ND				242		58	9	426	0.21		13
		10/12/2009	221	0.01				217		62.5	6.6	392	0.18		13.2
		10/14/2010	206	ND				206		71.3	6.4	368	0.17		13.4
		9/22/2011	152	0.079				152		58	5.6	34	0.16		11.9
	SW07-SP	4/29/2005	622	0.12				759	196		4	850	0.48	47	
		5/4/2006	627	ND				766	176		4	975	0.62	44	
		7/26/2006	625	ND				762	192		5	1272	0.58	47	
		4/17/2007	554	ND				676	171		4	1003	0.48	43	
		5/13/2008	609	ND				743		189	2	198	0.49		46
		5/2/2009	287	ND				287		191	4.4	1070	0.58		48.3
		5/7/2010	588	ND				588		194	4.8	982	0.51		45.8
		5/13/2011	655	0.066				655		204	5.25	1130	0.68		48.2
		5/13/2012	474	0.065				474		154	ND		0.4		42.6

Table 6-11
North Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
Main Stem	NWC-2	5/17/2008		ND	0.01		8.52	0.1	2.42	2.27	6.14	5.71	9.19	210	3.51
		5/16/2009		ND			8.46	0.03	1.78	1.85	5.49	5.65	7.97	218	2.67
		7/11/2009		ND			8.17	0.11	1.86	1.85	5.81	5.87	6.24	242	17.4
		8/7/2009		ND			8.64	0.17	1.78	1.82	6.9	6.33	5.87	267	3.4
	NWC-1	5/16/2009		ND			8.17	0.03	1.67	1.65	5.38	5.38	9	210	2.45
Springs	SW05-SP	4/30/2005		ND	ND	0.02	7.52	0.17	ND		6		12	124	
		5/2/2006		ND	ND	ND	7.27	0.1	1		5		10	157	
		7/26/2006		ND	ND	0.02	7.5	0.07	1		8		7	268	
		4/16/2007		0.01	0.01	ND	6.98	0.08	1.6		5.6		6	174	
		5/10/2008		ND	ND	ND	7.53	0.25		2.7		3.8	11	141	
		4/30/2009		0.01	ND	0.014	7.31	0.23		2.4		2.4	1.8	74	
		5/6/2010		0.02	0.02	ND	7.2	0.094		1.7		4.7	8.2	135	
		5/9/2011		0.173	0.177	0.052	7.65	0.07		0.9		5.97	7.03	238	
		5/18/2012		ND	ND	ND	7.35	0.1		0.872		8.58	5.1	223	
		8/2/2005		ND	ND	0.01	7.49	0.08	1		7		8	233	
		10/17/2005		0.05	0.05	ND	7.65	0.16	1		7		12	234	
		10/23/2006		0.04	0.04	ND	7.67	0.08	2		7		7	240	
		8/7/2007		0.01	0.01	ND	7.22	0.07	2		7.4		7	215	
		10/11/2007		0.02		ND	7.66	0.08	1.8		7.4		5	258	
		10/14/2008		0.26	0.26	ND	7.52	0.24		2		7	ND	248	
		10/11/2009		0.11	0.11	ND	7.18	0.053		1.5		6.9	6.4	251	
		10/14/2010		0.02	0.02	ND	7.39	0.073		1.8		7.2	6.6	259	
		9/23/2011		0.107	0.116	ND	7.44	0.04		0.92		6.22	6.63	247	
		9/29/2012		ND	ND	ND	7.45	0.71		1.4		7.16	5.6	246	
	SW06-W	4/29/2005		ND	ND	ND	7.69	0.14	ND		9		11	173	
		5/3/2006		ND	ND	ND	8.14	0.1	2		5		9	135	
		7/26/2006		ND	ND	0.02	7.65	0.16	2		7		7	276	
		4/16/2007		0.02	0.02	ND	7.83	0.07	1.7		5.9		8	221	
		5/10/2008		0.24	0.24	ND	7.86	0.16		2.9		6.3	13	218	
		4/30/2009		0.09	0.09	0.005	7.65	0.13		2.2		4.6	8.4	141	
		5/6/2010		ND	ND	ND	7.29	0.1		1.7		5.9	8.2	207	
		6/1/2011		0.066	0.083	ND	7.81	0.273		1.78		3.13	5.84	145	
		5/18/2012		ND	ND	ND	7.93	0.26		1.43		5.99	5.8	215	
		8/2/2005		ND	ND	0.01	8.01	0.25	3		8		8	227	
		10/17/2005		0.02	0.02	ND	8.38	0.09	1		8		12	239	
		10/23/2006		ND	ND	ND	8.03	0.07	2		6		9	236	
		8/7/2007		ND	ND	ND	7.67	0.09	1.5		6.6		7	169	
		10/11/2007		0.02		ND	8.62	0.12	2.3		6.6		9	259	
		10/14/2008		0.04	0.04	ND	7.93	0.04		3		8	9	281	
		10/12/2009		0.02	0.02	ND	8.35	0.13		2		7.1	8.7	226	
		10/14/2010		0.01	0.01	ND	7.44	0.082		1.6		6.6	8.4	263	
		9/22/2011		ND	ND	ND	8.02	0.173		2.15		6.26	4.65	200	
	SW07-SP	4/29/2005		0.06	0.06	ND	6.4	0.02	ND		8		37	632	
		5/4/2006		0.05	0.05	ND	6.56	0.02	2		4		37	573	
		7/26/2006		0.1	0.1	ND	6.25	0.02	2		5		34	666	
		4/17/2007		0.08	0.08	ND	6.44	0.02	1.5		4.1		35	576	
		5/13/2008		0.05	0.05	ND	6.49	0.07		1.8		3.9	33	593	
		5/2/2009		0.07	0.07	ND	6.29	0.027		1.8		3.9	29.8	618	
		5/7/2010		0.07	0.07	ND	6.47	0.02		1.6		4.1	29.8	659	
		5/13/2011		0.103	0.123	ND	6.38	0.019		1.64		3.6	33.7	684	
		5/13/2012		0.17	0.17	ND		ND		1.4		4.39	29.1	537	

Table 6-11
North Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
Springs	SW07-SP	8/1/2005	673	0.07				822	177		3	704	0.44	46	
		10/18/2005	526	ND				642	161		4	905	0.31	47	
		10/22/2006	689	ND				841	214		3	1045	0.61	50	
		8/5/2007	577	ND				704	185		3	1041	0.53	46	
		10/12/2007	552	ND				673	181		3	1011	0.45	46	
		10/12/2008	620	ND				757		200	4	1091	0.62		44
		10/11/2009	710	0.02				710		211	4.1	1022	0.54		45.5
		10/16/2010	579	ND				579		175	4.5	881	0.4		44.9
		9/22/2011	563	0.047				563		157	6.06	1249	0.57		41.7
		9/30/2012	528	0.046				528		16.7	4	1064	0.41		41.9
	WS-1	5/9/2003	477	ND			477		152		3	758	0.4	38.1	
		5/14/2004							131			5.75		37.3	
		5/16/2009	510	ND			510		153	148	4.14	951	0.496	40.7	39.9
		6/3/2011	551				551			163	4.82	897	0.37		44.1
	WS-2	10/21/2003	502	ND			502		145		3.32	600	0.304	37.9	
		10/19/2008	540	ND			540		148	149	3.61	696	0.303	39.7	39.1
		8/7/2009	543	ND			543		154	152	3.88	876	0.417	39.6	39.6
		10/2/2011	572				572			152	3.63	1060	0.42		38.5
		5/19/2008	559	ND			559		167	166	4.23	864	0.447	43.7	43.2
		5/16/2009	521	ND			521		165	166	4.62	1038	0.714	45.6	45.6
		6/3/2011	645				645			188	5.22	1032	0.51		50.7
		10/19/2008	648	ND			648		179	214	3.82	816	0.654	45.9	46.1
		8/7/2009	667	ND			667		188	192	4.18	1015	0.441	46.7	47.7
		10/2/2011	765				765			223	ND	1400	0.73		54
	WS-3	6/3/2011	899				899			269	5.86	1364	0.83		63.3
		10/2/2011	994				994			275	3.71	1720	0.88		59.6
Pond	SW03-L	4/27/2005	158	0.12				193	47		8	254	0.44	11	
		5/3/2006	135	ND				165	43		5	304	0.34	8	
		7/25/2006	170	0.07				208	49		5	379	0.53	14	
		4/16/2007	202	ND				247	57		8	426	0.43	14	
		5/10/2008	154	ND				189		42	10	340	0.43		13
		4/30/2009	66.5	ND				66.5		38.3	8.2	295	0.41		10.5
		5/6/2010	186	ND				186		50.3	10	407	0.4		14.3
		5/31/2011	167	0.053				167		45.7	7.15	659	0.43		10.5
		5/4/2012	186	ND				186		56.8	7		0.43		13
		8/2/2005	180	0.09				219	43		8	209	0.49	14	
		10/17/2005	165	ND				199	42		7	232	0.37	15	
		10/23/2006	182	ND				221	51		9	408	0.46	15	
		8/6/2007	121	ND				136	24		8	275	0.47	16	
		10/11/2007	132	ND				122	25		8	280	0.51	18	
		10/12/2008	141	ND				160		28	7	332	0.62		18
		10/12/2009	174	0.07				174		40.8	7.5	322	0.43		15
		10/14/2010	167	0.08				167		39.8	11.2	334	0.45		17.4
		9/23/2011	152	0.07				152		34.1	5.66	304	0.48		11.7
		9/30/2012	166	0.68				166		43.5	9.2	335	0.5		16.8

Table 6-11
North Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
Springs	SW07-SP	8/1/2005		ND	ND	0.01	6.25	0.03	ND		8		36	630	
		10/18/2005		0.07	0.07	ND	6.47	0.02	ND		7		34	570	
		10/22/2006		0.04	0.04	ND	6.43	0.03	2		4		37	729	
		8/5/2007		0.06	0.06	ND	6.42	0.02	1.7		4.2		34	657	
		10/12/2007		0.07	0.07	ND	6.27	0.03	1.6		3.8		35	617	
		10/12/2008		0.07	0.07	ND	6.52	0.02		2		4.3	30	645	
		10/11/2009		0.07	0.07	ND	6.36	0.02		1.7		3.8	28.1	730	
		10/16/2010		0.07	0.07	ND	6.7	0.013		1.4		3.8	29.6	635	
		9/22/2011		0.099	0.06	ND	6.53	0.013		1.42		4.22	31.2	595	
		9/30/2012		ND	ND	ND	6.9	ND		1.36		4.13	25.7	559	
	WS-1	5/9/2003		0.02			7.19	0.03	1.5		3.6		30	520	3
		5/14/2004					7.55						31.1	492	
		5/16/2009		ND			7.64	0.01	1.24	1.19	3.73	3.87	33.4	549	1.23
		6/3/2011					6.97						30.7	564	
		10/21/2003		ND			7.18	ND	1.31		3.71		29.7	504	4.6
		10/19/2008		ND			7.08	ND	1.34	1.21	3.64	3.67	30.9	540	4.08
		8/7/2009		ND			7.36	0.02	1.25	1.19	3.78	3.45	33.9	588	ND
		10/2/2011					9.2						33.3	572	
	WS-2	5/19/2008		ND	0.03		7.15	0.02	1.49	1.66	3.76	3.84	32.5	580	1.67
		5/16/2009		ND			7.93	0.08	2.16	2.51	3.98	4.23	33.3	587	5.42
		6/3/2011					7.28						31.1	640	
		10/19/2008		ND			7.25	0.11	1.78	1.82	3.87	3.9	32.1	630	3.97
		8/7/2009		ND			7.29	0.03	1.72	1.75	4.16	3.9	32.6	673	1.03
		10/2/2011					7.02						33	778	
	WS-3	6/3/2011					7.02						33.1	913	
		10/2/2011					6.5						33.3	1000	
Pond	SW03-L	4/27/2005		ND	ND	0.01	8.01	0.2	2		11		13	214	
		5/3/2006		ND	ND	ND	7.93	0.11	2		6		12	141	
		7/25/2006		ND	ND	ND	7.26	0.13	1		8		6	223	
		4/16/2007		0.01	0.01	ND	7.69	0.07	3.1		8.7		6	249	
		5/10/2008		ND	ND	ND	7.68	0.15		3.2		9.4	12	229	
		4/30/2009		0.01	0.01	0.0089	8.14	0.13		3.1		6.8	9.9	186	
		5/6/2010		0.14	0.14	ND	8.13	0.054		3		8.9	5.9	229	
		5/31/2011		ND	ND	ND	8.53	0.072		2.56		6.42	8.14	215	
		5/4/2012		ND	ND	ND		ND		2.31		6.98	6.4	207	
		8/2/2005		ND	ND	ND	8.1	0.24	1		9		6	199	
		10/17/2005		0.01	0.01	ND	8.32	0.03	ND		12		6	186	
		10/23/2006		ND	ND	ND	7.85	0.04	2		9		13	203	
		8/6/2007		ND	ND	ND	8.96	0.06	1.6		10		8	114	
		10/11/2007		0.01	0.01	ND	9.11	0.08	2		11		ND	159	
		10/12/2008		0.02	0.02	ND	7.41	0.04		2.9		12.1	ND	207	
		10/12/2009		0.02	0.02	ND	7.79	0.03		1.4		9	2.1	172	
		10/14/2010		0.07	0.07	ND	7.61	0.061		2.1		10.8	ND	207	
		9/23/2011		0.023	0.04	ND	7.99	0.068		0.75		7.08	4.49	182	
		9/30/2012		ND	ND	ND	8.25	0.45		3.75		10.9	3.6	202	

Table 6-11
North Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/L - milligrams per liter

Blank Cell - No data available

na - Not applicable

ND - Non-detected value

SU - Standard Unit

umhos/cm - micromhos/ centimeter

Refer to Appendix I for details about analyte names.

Table 6-12
North Woodall Mountain Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Main Stem	NWC-2	5/17/2008	ND	0.00091
		5/16/2009	0.000776	0.00074
		7/11/2009	ND	ND
		8/7/2009	ND	0.00107
	NWC-1	5/16/2009	0.000476	0.000472
Springs	SW05-SP	4/30/2005		ND
		5/2/2006		ND
		7/26/2006		ND
		4/16/2007		ND
		5/9/2011		ND
		8/2/2005		ND
		10/17/2005		ND
		10/23/2006		ND
		8/7/2007		ND
		10/11/2007		ND
		9/23/2011		0.00089
	SW06-W	4/29/2005		ND
		5/3/2006		ND
		7/26/2006		ND
		4/16/2007		ND
		6/1/2011		ND
		8/2/2005		ND
		10/17/2005		ND
		10/23/2006		ND
		8/7/2007		ND
		10/11/2007		ND
		9/22/2011		0.000927
	SW07-SP	4/29/2005		ND
		5/4/2006		ND
		7/26/2006		ND
		4/17/2007		ND
		5/13/2011		ND
		8/1/2005		ND
		10/18/2005		ND
		10/22/2006		ND
		8/5/2007		ND
		10/12/2007		ND
		9/22/2011		0.000929
	WS-1	5/16/2009	0.00109	0.00105
		10/19/2008	0.0011	0.0012
		8/7/2009	ND	ND
	WS-2	5/19/2008	ND	0.00078
		5/16/2009	ND	0.000624
		10/19/2008	0.0009	ND
		8/7/2009	ND	ND
Pond	SW03-L	4/27/2005		ND
		5/3/2006		ND
		7/25/2006		ND
		4/16/2007		ND
		5/31/2011		0.00114
		8/2/2005		ND
		10/17/2005		ND
		10/23/2006		ND
		8/6/2007		ND
		10/11/2007		ND
		9/23/2011		0.000505

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/L - milligrams per liter

Blank Cell - No data available

na - Not applicable; ND - Non-detected value

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value.

More information about surface water comparison values is provided on Tables 4-3 through 4-4.

Comparison values are provided for preliminary comparison purposes only and do not constitute a risk e

Comprehensive evaluation will be provided in the risk assessments.

Table 6-13
North Woodall Mountain Sub-Basin Sediment COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Main Stem	NWC-2	7/11/2009	0.6	1.3	21.9	25.8	98.5
		9/20/2008	0.32	0.091	23.3	29.8	109
	NWC-1	9/20/2008	0.26	ND	22	27.4	98.4
Springs	WS-1	9/21/2008	2.4	0.2	5.3	2.4	26
	WS-2	9/21/2008	1.8	0.082	11.4	9.9	35.7
	WS-3	9/21/2008	0.21	0.66	4.8	6.1	10.1

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not applicable

ND - Non-detected value

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-14
North Woodall Mountain Sub-Basin Aquatic Biota Selenium Concentrations

Location Type	Station	Date	Aquatic Vegetation		Aquatic Invertebrates
			Selenium (mg/kg)	Species	Selenium (mg/kg)
Main Stem	NWC-2	7/11/2009	0.20 0.21	Spikerush Macoun's buttercup	1.65

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram

All concentrations are presented on a dry weight basis.

Aquatic vegetation samples were not washed prior to analysis.

Table 6-15
North Woodall Mountain Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg) Ecological: 0.52 mg/kg Human Health: 5,800 mg/kg		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Surface	Subsurface					
Main Stem	NWC-2	8/9/2009	0.3	0.17	ND ND 0.37 0.04	Browse (single-species) Forage (mixed-species) Browse (single-species) Browse (mixed-species)	3.2		
		8/15/2009						1.9	Deer Mouse, Redback Vole

Notes:

Includes data from 2001 onward of "A" data use level only.

Data only shown for sampling locations in riparian areas (defined as within 200 feet of a creek) identified within the sub-basin.

Blank Cell - No data available

mg/kg - milligrams per kilogram

All concentrations are presented on a dry weight basis.

All vegetation samples were washed with deionized water prior to analysis.

Browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Accumulator forbs are those species that are considered to be "selenium-accumulating species;" refer to Section 6 for further discussion and a list of the species. Forb samples composed of a single selenium-accumulating species are identified in the table as "accumulator." Mixed-species forb or forage samples that include selenium-accumulating species are marked with an asterisk (*).

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

More information about soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Table 6-16
State Land Creek Sub-Basin Surface Water Flows

Location Type	Station	2001	2003		2004	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014	
		Spring	Spring	Fall	Spring	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Reach 1	SLC-7				Dry																				
	SLC-4				Dry																				
	SLC-3		0.013	Dry	Dry											0.069	Dry	0.57	Dry						
	SLC-3A				0.007								Dry	0.24	Dry										
	SLC-3B				0.001																				
	SW13-ST						Dry	0.03 - 0.690	0.010	0.048	Dry	0.81	Dry	0.72											
	SLC-3C				0.01																				
Headwaters Tributaries	SLC-6				Ponded											Dry/Diffuse Flow	Dry	3.2	Dry						
	SLC-5				0.002											Dry - 0.030	Dry	0.17	Dry						
	SLC-5A				0.001																				
	SLC-5B				Dry																				
	SLC-5C				Dry																				
	SLCT1-1		0.0016	Dry	Dry																				
	SLCT1-0				Ponded																				
Reach 2	SLC-3D				0.003			1.5					Dry	0.11	0.0030	0.32	Dry	0.78	0.12						
Tributary #2	SLCT2-4				Dry													0.049							
	SW14-ST						Dry	Dry - 0.11	Dry	Dry	Dry	0.020	Dry		Dry										
	SW15-ST										Dry	Dry	Dry		Dry										
	SLCT2-2				0.004																				
	SLCT2-2B														0.0010										
	SLCT2-1		0.088	0.067	0.15																				
	SLCT2-0				0.16 - 0.19			0.69		0.34			0.19		0.14	0.20 - 0.64	0.087 - 0.11	0.84	0.11						
	SLCT2-2A				Dry																				
	SLCT2-3				Dry																				
Reach 3	SW08-ST					2.2	0.040 - 0.070	0.17 - 3.2	0.080	0.80	0.010 - 0.050	2.2	0.050	2.5	0.12										
	SLC-3E				0.16								0.27	0.80	0.15										
	AWI012-22		0.39 - 1.3		0.067 - 0.072			1.9		0.30															
Tributary #3	SLCT3-1		0.010	0.007	0.007																				
	SLCT3-0				Dry					0.11			Dry	0.066	Dry	0.079	Dry	0.39	Dry						
Reach 4	SLC-2		0.44	0.025	0.11 - 0.17			2.9		0.54			0.26	0.43 - 1.6	0.12										
	SLC-1		0.65	0.025	0.11									0.86											
	SW09-ST					14	0.19 - 0.33	0.31 - 9.5	0.47	1.8	0.060 - 0.14	3.6	0.36	25	0.62										
	SLC	0.070																							
	SLC-0				0.87			4.6						0.68 - 2.1	0.23		0.028		0.27	1.7	Dry	1.69	Dry	0.011	1.79
ODA Seeps	NES-1			Dry	Ponded								Dry	Ponded	Diffuse Flow	Ponded	Dry	Diffuse Flow	Dry						
	NES-1a		0.011	Dry	Ponded								Dry	Diffuse Flow	Dry	Dry	Dry		Dry						
	NES-1b		0.0096	Dry	0.005								Dry	0.021	Dry	Dry - 0.007	Dry		Dry						
	NES-2		0.0060	0.0020	0.007			0.021		0.0079			0.003	0.017	0.0050	0.005 - 0.009	0.004	0.029	0.007						
	NES-2a																	0.13							
	NES-3		Dry	Dry	Dry								Dry	Dry		Dry	Dry	Diffuse Flow	Dry						
	NES-4		0.000067	0.0010	0.0004								0.00022	Dry		Dry/Diffuse Flow	Dry	0.00050	Dry						
Springs	SLCT3-4												Diffuse Flow	Diffuse Flow	Dry										
	SLCT3-5												Dry	Diffuse Flow	Dry										
	SW02-SP					0.28	0.040 - 0.13	0.090 - 0.51	0.080	0.10	0.020	2.0	No Access												
Pooling Areas	NEP-5		Dry	Dry																					
	NEP-6		Dry	Dry	Ponded											Dry	Dry	Ponded	Dry						
Ponds	SLP-1				Ponded								Dry	Ponded	Dry										
	SLP-2				Ponded								Dry	Ponded	Dry										
	SLP-3				Ponded								Dry	Ponded	Dry										

Note:
Only years/seasons where data are available are presented. All values are reported in cfs (cubic feet per second).
Blank Cell - No data available

Table 6-17
State Land Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Reach 1	SLC-3	5/8/2003	**0.32**	0.0007	0.0003		0.01
		6/9/2010	**0.33**				
		6/2/2011	**0.39**				
	SLC-3A	5/13/2004	*0.122*				
		5/18/2009	**0.194**	0.00061	ND	0.0014	ND
	SW13-ST	5/2/2006	ND	ND	ND		ND
		7/25/2006	ND	ND	ND		ND
		4/16/2007	ND	ND	ND		ND
		5/10/2008	*0.101*	0.0003	ND		ND
		5/1/2009	0.00031	0.000076	0.00036		0.0032
		5/6/2010	ND	ND	ND		ND
		5/9/2011	ND	ND	ND		ND
		5/19/2012	0.00082	ND	0.00072		ND
		8/2/2005	ND	0.0001	0.003		0.11
		10/23/2006	ND	ND	ND		ND
		10/11/2009	ND	ND	ND		ND
		9/2/2011	ND	ND	ND		ND
		9/29/2012	ND	ND	ND		ND
	SLC-3C	5/13/2004	0.0006				
Headwater Tributaries	SLC-6	5/13/2004	*0.146*				
		6/9/2010	**0.701**				
		6/2/2011	**1.11**				
	SLC-5	5/13/2004	**0.263**				
		6/9/2010	**0.263**				
		6/2/2011	**0.782**				
	SLCT1-1	5/8/2003	ND	0.0001	0.0006		0.01
	SLCT1-0	5/13/2004	0.00036				
Reach 2	SLC-3D	5/13/2004	0.00093				
		5/10/2006	*0.0641*	0.00012	ND		ND
		5/19/2009	0.00093	0.00011	ND	0.0025	ND
		6/9/2010	*0.0233*				
		6/2/2011	*0.1*				
		8/6/2009	0.00023	ND	ND	0.0037	ND
		10/1/2011	0.00052				
Tributary #2	SLCT2-4	6/3/2011	**0.58**				
	SW14-ST	5/10/2008	**0.983**	0.0015	ND		ND
		5/1/2009	**0.68**	0.001	ND		0.0056
		5/9/2011	**0.193**	0.0007	ND		ND
	SW15-ST	5/2/2006	ND	0.0002	0.005		ND
		5/9/2011	ND	ND	0.00159		ND
		5/19/2012	0.00061	ND	0.00094		ND
	SLCT2-2	5/14/2004	0.0113				
	SLCT2-2B	8/6/2009	0.0023	ND	ND	0.0045	ND
	SLCT2-1	5/8/2003	*0.071*	0.0004	0.0003		0.01
		5/14/2004	0.004	ND	ND		0.00092
		10/23/2003	0.0011	ND	ND		ND
	SLCT2-0	5/13/2004	0.0041				
		5/14/2004	0.0036				
		5/10/2006	*0.0495*	ND	ND		ND
		5/2/2007	0.0182	0.00005	ND		ND
		5/19/2009	*0.0689*	0.00005	ND	0.0039	ND
		6/9/2010	*0.0346*				
		7/12/2010	0.0044				
		6/2/2011	*0.0911*				
		10/17/2008	0.0039	ND	ND	0.0016	ND
		8/6/2009	0.0027	ND	0.0013	0.0042	ND
		8/18/2010	0.0038				
		9/20/2010	0.0044				
		10/1/2011	0.0044				
Reach 3	SW08-ST	4/30/2005	*0.04*	0.0001	ND		0.08
		5/2/2006	*0.083*	0.0001	ND		ND
		7/25/2006	0.003	ND	ND		ND
		4/16/2007	*0.04*	ND	ND		ND
		5/10/2008	*0.046*	0.0001	0.002		ND
		5/1/2009	*0.054*	0.00013	0.00067		0.0051
		5/6/2010	*0.039*	ND	ND		ND
		5/9/2011	*0.0505*	ND	ND		ND
		5/19/2012	0.0079	ND	0.0012		ND
		8/2/2005	0.003	ND	0.002		0.12
		10/17/2005	0.003	ND	ND		0.03
		10/23/2006	0.003	ND	ND		ND
		8/7/2007	0.004	ND	ND		ND
		10/11/2007	0.003	ND	ND		ND
		10/13/2008	0.003	ND	ND		ND
		10/11/2009	0.003	ND	0.0004		ND
		10/14/2010	0.0038	ND	ND		ND
		9/2/2011	0.00221	ND	ND		ND
	SLC-3E	5/13/2004	0.0045				
		5/19/2009	*0.0545*	0.0001	ND	0.0029	ND
		10/17/2008	0.0034	ND	ND	ND	ND
		8/6/2009	0.0033	0.00006	0.0015	0.0079	ND
	AWI012-22	5/7/2003	0.013	ND	0.0004		0.01
		5/8/2003	0.015				
		5/9/2003	0.016				
		5/18/2004	0.003	ND	0.0003		ND
		5/15/2006	*0.032*	ND	0.0004		0.01
		5/10/2007	0.011	ND	0.0006		0.01

Table 6-17
State Land Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L)	Cadmium, Dissolved (mg/L)	Chromium, Dissolved (mg/L)	Vanadium, Total (mg/L)	Zinc, Dissolved (mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Tributary #3	SLCT3-1	5/8/2003	ND	ND	0.0005		ND
		5/14/2004	0.0013	ND	ND		ND
		10/23/2003	0.00073	ND	ND		ND
	SLCT3-0	5/2/2007	0.00064	0.00006	ND		ND
		5/19/2009	0.00061	0.00005	ND	0.0031	ND
		6/9/2010	0.0011				
		6/2/2011	0.0011				
Reach 4	SLC-2	5/17/2001	0.0025				
		5/17/2001		ND	ND	0.0036	ND
		6/15/2001	0.0013				
		6/15/2001		ND	ND	0.0011	ND
		5/8/2003	0.013	ND	0.0005		ND
		5/13/2004	0.0059	ND	ND		0.0028
		5/14/2004	0.0024				
		5/10/2006	*0.0414*	ND	ND		ND
		5/2/2007	0.0135	0.00004	ND		ND
		5/19/2009	0.0049	0.00006	ND	0.003	ND
		7/7/2009	0.0031	ND	0.0017	0.0054	ND
		9/20/2001	0.0022			0.0032	
		9/20/2001		ND	ND		0.014
		10/23/2003	0.0035	ND	ND		ND
		10/17/2008	0.0038	0.000037	ND	0.003	ND
		8/6/2009	0.0031	ND	ND	0.0049	ND
	SLC-1	5/8/2003	0.003	ND	0.0003		0.01
		5/14/2004	ND	ND	ND		0.0013
		7/7/2009	0.0014	ND	0.0016	ND	ND
		10/23/2003	0.0014	ND	ND		0.0021
	SW09-ST	4/28/2005	0.018	ND	0.002		0.1
		5/3/2006	*0.038*	ND	ND		ND
		7/25/2006	0.001	ND	ND		ND
		4/17/2007	0.012	ND	ND		ND
		5/13/2008	0.016	ND	ND		ND
		5/2/2009	*0.026*	ND	0.0004		0.0036
		5/7/2010	0.012	ND	ND		ND
		5/4/2011	0.0178	ND	ND		ND
		5/17/2012	0.0021	ND	0.00081		ND
		8/3/2005	ND	ND	0.003		0.08
		10/18/2005	ND	ND	ND		0.06
		10/22/2006	ND	ND	ND		ND
Reach 4	SW09-ST	8/6/2007	0.001	ND	ND		ND
		10/12/2007	0.001	ND	ND		ND
		10/13/2008	ND	ND	ND		ND
		10/12/2009	0.00059	ND	ND		ND
		10/15/2010	ND	ND	0.0016		ND
		9/3/2011	ND	ND	ND		ND
		10/1/2012	ND	ND	ND		ND
	SLC	5/1/2001		ND	ND		0.01
	SLC-0	5/14/2004	0.00086				
		5/10/2006	*0.0271*	ND	ND		ND
		5/20/2009	0.0114	ND	ND	0.0026	ND
		7/8/2009	0.0012	ND	ND	0.0023	ND
		6/9/2010	0.0054				
		6/3/2011	*0.0401*				
		4/24/2012	0.0072				
		5/8/2013	0.0038				
		6/11/2014	0.0031				
		10/19/2008	0.001	0.000046	ND	0.0013	ND
		8/8/2009	0.00057	ND	0.0013	0.0023	ND
		9/21/2010	0.00077				
		10/1/2011	0.00098				
		10/7/2014	0.00081	0.000045	ND	0.002	0.0061

Table 6-17
State Land Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L)	Cadmium, Dissolved (mg/L)	Chromium, Dissolved (mg/L)	Vanadium, Total (mg/L)	Zinc, Dissolved (mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
ODA Seeps	NES-1	5/22/2001		0.00019	0.0017		0.017
		5/22/2001	*0.023*				
		5/8/2003	**0.187**	ND	ND		0.02
		5/13/2004	**0.243**	ND	ND		0.0038
		5/18/2009	**0.224**	ND	ND	ND	ND
		7/12/2010	*0.0443*				
		6/3/2011	**1.34**				
	NES-1a	5/8/2003	**0.77**	0.0014	0.0004		0.03
		5/13/2004	**0.834**	0.00086	ND		0.0416
		5/18/2009	**1.5**	0.0013	ND	0.0042	0.0257
	NES-1b	5/8/2003	**2.23**	0.0001	0.0002		ND
		5/13/2004	**2.19**	ND	ND		ND
		5/18/2009	**2.29**	0.00007	ND	0.00051	ND
		6/9/2010	**1.88**				
	NES-2	5/23/2001	*0.067*	0.0033	0.012		0.14
		5/8/2003	**1.71**	0.0082	0.0026		0.46
		5/13/2004	**1.6**	0.0059	0.0025		0.377
		5/10/2006	**2.45**	0.012	0.0037		0.593
		5/2/2007	**1.83**	0.0086	0.0053		0.41
		5/18/2009	*0.104*	0.0091	0.0018	0.007	0.458
		6/9/2010	**1.41**				
		7/12/2010	**0.819**				
		6/3/2011	**2.28**				
		10/24/2003	*0.0567*	0.0046	0.0011		0.226
		10/17/2008	**0.284**	0.0055	0.0014	0.0053	0.239
		8/6/2009	**0.691**	0.0066	0.0022	0.0058	0.33
		8/18/2010	**0.531**				
		9/20/2010	**0.396**				
		10/1/2011	**0.657**				
	NES-2A	6/3/2011	**2.02**				
	NES-3	5/23/2001		0.0046	0.0068		0.56
		5/23/2001	**2.2**				
		6/3/2011	**3.94**				
	NES-4	5/22/2001		0.0061	0.017		0.35
		5/22/2001	**0.42**				
		5/8/2003	0.017	ND	0.0004		ND
		5/13/2004	0.0156	ND	ND		ND
		6/3/2011	0.0106				
		10/24/2003	*0.0708*	ND	ND		ND
		10/18/2008	0.0048	0.000076	ND	0.0065	0.0033
Springs	SLCT3-4	5/19/2009	0.0029	ND	ND	0.0019	ND
		10/18/2008	0.0036	0.000048	ND	0.001	ND
	SLCT3-5	5/19/2009	0.0016	0.00006	ND	0.0032	ND
	SW02-SP	4/30/2005	ND	ND	ND		0.07
		5/2/2006	0.002	ND	0.001		ND
		7/26/2006	0.001	ND	ND		ND
		4/16/2007	0.002	ND	ND		ND
		5/10/2008	0.002	ND	0.002		ND
		5/2/2009	0.0015	ND	0.00089		0.0039
		5/6/2010	ND	ND	ND		ND
		5/9/2011	ND	ND	0.00171		ND
		5/16/2012	0.00066	ND	ND		ND
		8/2/2005	ND	ND	0.002		0.05
		10/17/2005	0.001	ND	ND		0.04
		10/23/2006	0.001	ND	ND		ND
		8/7/2007	0.002	ND	ND		ND
		10/11/2007	0.002	ND	ND		ND
		10/14/2008	ND	ND	ND		ND
		10/11/2009	0.001	ND	0.00064		ND
		10/14/2010	ND	ND	ND		0.034
		9/23/2011	ND	ND	ND		ND
		9/29/2012	ND	ND	ND		ND

Table 6-17
State Land Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
ODA Pools	NEP-6	5/15/2004	0.0138	0.00035	0.017		0.0107
		6/3/2011	**0.228**				
Ponds	SLP-1	5/13/2004	*0.0285*	ND	ND		0.0062
		5/21/2009	0.0123	0.00009	ND	0.0021	0.0087
	SLP-2	5/14/2004	0.0007	0.00016	0.00047		0.0058
		5/18/2009	**0.202**	0.00009	ND	0.0038	ND
	SLP-3	5/14/2004	0.0012	ND	0.00034		ND
		5/19/2009	0.0011	0.00005	ND	0.0113	ND
Offiste-US	BFR-2	5/17/2008	0.0044	ND	ND	0.0014	ND
		5/16/2009	0.0076	ND	ND	0.00079	ND
		6/9/2010	0.0032				
		4/24/2012	0.0045				
		5/9/2013	0.0089				
		6/11/2014	0.0024				
		10/16/2008	0.0026	ND	ND	0.0017	ND
		8/5/2009	0.0016	ND	ND	0.0011	ND
		9/23/2010	0.0021				
		10/2/2011	0.0022				
		10/19/2012	0.0026				
		10/11/2013	0.0021				
		10/7/2014	0.0015	ND	ND	0.001	0.006
	BFR-US	6/2/2011	0.0048				
	ST230	5/1/2002	ND				ND
		5/1/2004	0.0027	ND			ND
Offsite-DS	BFR-1	5/17/2008	0.0035	0.000043	0.0014	0.0026	ND
		5/16/2009	0.0083	ND	ND	0.0018	ND
		6/9/2010	0.0024				
		4/24/2012	0.0042				
		5/9/2013	0.0085				
		6/11/2014	0.0023				
		10/16/2008	0.0015	ND	ND	0.0011	ND
		8/5/2009	0.0016	ND	ND	0.0014	ND
		9/23/2010	0.0017				
		10/2/2011	0.002				
		10/19/2012	0.0026				
		10/11/2013	0.002				
		10/7/2014	0.0016	ND	ND	0.0013	ND
	BFR-DS	6/2/2011	0.0049				
	MST020	5/1/2002	ND	ND	ND		ND
		5/1/2004	0.002	ND			ND
		5/1/2006	0.005	ND	ND		0.005
		5/1/2008	0.005	ND	ND		0.005
		9/1/2002	ND	ND			ND
		9/15/2008	0.0015	ND	ND		0.0062
	ST019	5/1/2002	ND	ND			ND
		7/1/2002	0.002	ND			ND
		3/1/2003	ND	ND			ND
		4/1/2003	0.002	ND			ND
		5/1/2003	0.003	ND			ND
		6/1/2003	ND	ND			ND
		7/1/2003	ND	ND			ND
		5/1/2004	0.003	ND			ND
		5/1/2006	0.006	ND			ND
		5/15/2008	0.004	ND	ND		0.007
		9/1/2002	ND	ND			ND
		11/1/2002	ND	ND			ND
		1/1/2003	ND	ND			ND
		9/15/2008	0.0017	ND	0.00053		0.0054

Notes:

Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - not applicable; ND - Non-detected value; US - upstream; DS - downstream
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
Reach 1	SLC-3	5/8/2003	24	ND			24		61.9		2	387	ND	13.9	
		6/9/2010	13.8				13.8			81.1	3.84	537	0.162		18.2
		6/2/2011	14.6				14.6			58.1	3.67	446	0.24		15.1
	SLC-3A	5/13/2004										332			
		5/18/2009	15	ND			15		51.1	47.2	3.21	370	ND	12	11.1
	SW13-ST	5/2/2006	337	ND				411	31		4	200	0.22	5	
		7/25/2006	163	ND				199	48		9	373	0.23	13	
		4/16/2007	124	ND				152	39		6	273	0.18	8.4	
		5/10/2008	26	ND				32		51	3	418	0.12		12
		5/1/2009	25.1	ND				25.1		16.6	4.7	168.2	0.15		3.6
		5/6/2010	98.4	ND				98.4		29.2	6.3	248	0.14		7.2
		5/9/2011	46.4	0.044				46.4		13.4	2.52	141	0.15		2.63
		5/19/2012	131	0.081				131		42.8	ND	206	0.22		8.52
		8/2/2005	201	0.1				245	55		10	270	0.24	14	
		10/23/2006	168	ND				205	47		9	393	0.19	13	
		10/11/2009	160	0.01				160		41.6	8.8	326	0.17		11.9
		9/2/2011	119	0.023				119		49.6	6.77	351	0.16		9.17
		9/29/2012	157	0.092				157		50.6	7.9	393	0.19		12.4
	SLC-3C	5/13/2004										221			
Headwater Tributaries	SLC-6	5/13/2004										1016			
		6/9/2010	157				157			294	3.54	1587	0.036		67.2
		6/2/2011	145				145			286	2.82	1529	ND		65.7
	SLC-5	5/13/2004										939			
		6/9/2010	129				129			247	3.01	1349	0.174		54.3
		6/2/2011	128				128			228	2.75	1279	0.07		53
	SLCT1-1	5/8/2003	84	ND			84		30.9		4	206	0.2	5.4	
	SLCT1-0	5/13/2004										178			
Reach 2	SLC-3D	5/13/2004										205			
		5/10/2006							45		3.42	463		9.65	
		5/19/2009	106	ND			106		32.4	31.5	4.42	410	0.34	6.14	6.14
		6/9/2010	61.7				61.7			51.5	3.82	382	0.119		11.3
		6/2/2011	55.5				55.5			50	3.27	368	0.15		11.1
		8/6/2009	168	0.166			168		45.6	45	8.45	672	0.206	11.8	11.7
		10/1/2011	171				171			48.6	7.72	332.9	0.22		10.4
Tributary #2	SLCT2-4	6/3/2011	74.1				74.1			68.9	3.38	403	0.3		17.9
	SW14-ST	5/10/2008	45	ND				54		91	4	670	0.16		21
		5/1/2009	24.2	ND				24.2		68.2	2.6	517	0.16		16.1
		5/9/2011	56.3	ND				56.3		33	2.23	320	0.26		7.95
	SW15-ST	5/2/2006	16	ND				20	11		4	98	0.18	2	
		5/9/2011	23.3	0.032				23.3		8.75	2.57	93	0.17		1.81
		5/19/2012	76.2	0.077				65.1		23.5	ND	172	0.19		5.9
	SLCT2-2	5/14/2004										155			
	SLCT2-2B	8/6/2009	116	0.081			116		46	46.2	4.39	729	0.163	12.4	12.4
	SLCT2-1	5/8/2003	66	ND			66		36.9		2	246	0.2	9	
		5/14/2004							43.9			216		10.6	
		10/23/2003	171	ND			171		48		4.79	230	0.132	11	
	SLCT2-0	5/13/2004										205			
		5/14/2004										209			
		5/10/2006							29.9		3.38	299		6.57	
		5/2/2007	136				136			38.7853	4.013	305			8.999
		5/19/2009	102	ND			102		41.1	40.1	3.9	511	0.152	9.17	8.82
		6/9/2010	106				106			39.3	4.19	248	0.156		8.62
		7/12/2010	168				168			49.5	5.53	317	0.132		11.3
		6/2/2011	79.7				79.7			33.6	3.1	246	0.17		7.66
		10/17/2008	174	ND			174		47.7	48.2	4.53	245	0.201	10.6	10.6
		8/6/2009	170	0.105			170		47.3	48	5.95	591	0.135	10.5	10.9
		8/18/2010	167				167			54.9	4.78	354	0.171		11.7
		9/20/2010	166				166			48.7	4.8	332	0.151		10.7
		10/1/2011	174				174			51	4.72	327.2	0.18		11.1
Reach 3	SW08-ST	4/30/2005	64	0.09				66	33		3	195	0.18	8	
		5/2/2006	54	ND				66	39		4	301	0.19	9	
		7/25/2006	163	ND				199	50		5	355	0.2	11	
		4/16/2007	94	ND				114	36		4	285	0.16	8.4	
		5/10/2008	59	ND				72		32	4	253	0.14		7.2

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Reach 1	SLC-3	5/8/2003		ND			7.29	0.15	1.2		6.9		180	300	3
		6/9/2010					7.5						252	388	
		6/2/2011					7.35						187	310	
	SLC-3A	5/13/2004					7.01						227		
		5/18/2009		ND			7.71	0.12	1.49	1.38	6.27	5.79	161	256	4.57
	SW13-ST	5/2/2006		ND	ND	ND	7.9	0.1	1		5		13	123	
		7/25/2006		ND	ND	ND	7.59	0.15	1		8		6	223	
		4/16/2007		ND	0.03	ND	7.3	0.11	1.2		7.8		7	146	
		5/10/2008		0.02	0.02	ND	6.73	0.18		1.7		6.4	152	276	
		5/1/2009		0.33	0.33	0.008	7.14	0.11		2.7		4.6	ND	90	
		5/6/2010		0.01	0.01	ND	7.74	0.11		1.6		7.2	8.2	137	
		5/9/2011		0.059	0.07	ND	7.51	0.284		2.37		2.94	4.32	97	
		5/19/2012		ND	ND	ND	8.26	0.45		0.479		6.81	ND	168	
		8/2/2005		ND	ND	0.01	7.4	1	6		9		10	248	
		10/23/2006		ND	ND	ND	7.71	0.1	1		9		15	197	
		10/11/2009		0.02	0.02	ND	8.13	0.064		1.1		8.3	7.3	202	
		9/2/2011		0.055	0.036	ND	7.95	0.174		1.16		6.39	5.4	155	
		9/29/2012		ND	ND	ND	6.97	0.87		2.95		9.64	6	214	
	SLC-3C	5/13/2004					8.27						98.7		
Headwater Tributaries	SLC-6	5/13/2004					8.2						808		
		6/9/2010					7.41						831	1340	
		6/2/2011					7.67						770	1310	
	SLC-5	5/13/2004					7.66						738		
		6/9/2010					7.98						607	1070	
		6/2/2011					7.98						610	1060	
	SLCT1-1	5/8/2003		ND			7.58	0.18	1.6		8.2		20	180	19
	SLCT1-0	5/13/2004					7.43						28.1		
Reach 2	SLC-3D	5/13/2004					7.93						70.4		
		5/10/2006		ND			7.85		0.911		5.47		122	225	
		5/19/2009		ND			8.04	0.14	1.55	1.61	6.32	6.41	5.48	155	9.8
		6/9/2010					7.66						107	243	
		6/2/2011					7.77						113	253	
		8/6/2009		ND			7.45	0.57	1.69	1.81	9.07	9.04	5.22	202	4.16
		10/1/2011					7.96						8.05	210	
Tributary #2	SLCT2-4	6/3/2011					7.96						164	320	
	SW14-ST	5/10/2008		ND	ND	ND	7.11	0.21		1.6		6.7	259	456	
		5/1/2009		ND	ND	0.009	6.65	0.21		1.3		5.1	181	299	
		5/9/2011		ND	0.071	ND	7.53	0.333		1.19		3.27	65.5	179	
	SW15-ST	5/2/2006		ND	ND	ND	6.97	0.35	2		4		26	79	
		5/9/2011		ND	ND	ND	7.47	0.693		1.44		2.52	8.24	122	
		5/19/2012		ND	ND	ND	8.51	0.37		1.26		5.51	ND	101	
	SLCT2-2	5/14/2004					7.96						32.9		
	SLCT2-2B	8/6/2009		ND			7.16	0.4	1.63	1.66	6.48	6.53	59.8	234	5.34
	SLCT2-1	5/8/2003		ND			7.39	0.19	1.1		5.2		60	190	5
		5/14/2004					7.84						18.9	170	
		10/23/2003		0.18			7.88	0.032	0.881		6.92		7.5	186	ND
	SLCT2-0	5/13/2004					8.26						18.1		
		5/14/2004					8.34						17.4		
		5/10/2006		ND			7.85		0.861		4.48		30	147	
		5/2/2007		0.055			8.03		0.866		5.91		21.353	193	
		5/19/2009		ND			7.92	0.13	1.27	1.31	5.84	5.15	38.8	193	4.51
		6/9/2010					7.94						26.3	158	
		7/12/2010					7.84						12.2	202	
		6/2/2011					7.79						39.7	176	
		10/17/2008		0.0826			8.45	0.05	0.966	0.935	6.49	6.53	8.14	200	1.27
		8/6/2009		0.152			8	0.23	1.68	2.02	6.71	6.51	8.7	211	2.7
		8/18/2010					7.58						8.48	212	
		9/20/2010					8.34						8.63	216	
		10/1/2011					8.3						8.9	206	
Reach 3	SW08-ST	4/30/2005		ND	ND	0.02	7.5	0.22	ND		9		66	164	
		5/2/2006		ND	ND	ND	7.66	0.17	1		5		79	168	
		7/25/2006		0.12	0.11	0.01	8.06	0.21	1		6		7	221	
		4/16/2007		0.03	0.03	ND	7.14	0.12	1.2		6.2		39	191	
		5/10/2008		0.02	0.02	ND	7.3	0.32		1.8		5.4	50	182	

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
Reach 3	SW08-ST	5/1/2009	24.7	ND				24.7		30.1	4.1	259	0.13		7.6
		5/6/2010	91.6	ND				91.6		34.2	6.1	302	0.13		8.8
		5/9/2011	42.9	ND				42.9		23.2	2.85	214	0.16		5.32
		5/19/2012	92.3	0.08				92.3		47.5	ND	360	0.23		10.7
		8/2/2005	187	0.14				229	52		6	235	0.17	12	
		10/17/2005	161	ND				196	49		5	413	0.28	11	
		10/23/2006	166	ND				202	47		6	357	0.17	10	
		8/7/2007	159	ND				195	51		4	338	0.16	11	
		10/11/2007	162	ND				192	51		4	361	0.15	11	
		10/13/2008	166	ND				203		49	5	374	0.16		10
		10/11/2009	171	0.01				171		46.9	4.8	330	0.14		10.5
		10/14/2010	159	ND				159		53.6	4.8	316	0.14		11.4
		9/2/2011	119	0.057				119		48.3	5.19	225	0.12		10.3
	SLC-3E	5/13/2004										205			
		5/19/2009	83.2	ND			83.2		45.6	43.9	4.49	576	0.154	10.1	9.57
		10/17/2008	174	ND			174		50.9	50.3	4.49	243	0.2	11.1	11
		8/6/2009	170	0.109			170		46.3	48.9	6.22	590	0.139	10.3	11.2
	AWI012-22	5/7/2003	109				109		42.7			292		8.7	
		5/8/2003										304.5			
		5/9/2003										298			
		5/18/2004	147				147		48.2			328.6666667		10.7	
		5/15/2006	99				99		45.5			310		10.3	
		5/10/2007	138				138		46.5			330		10.7	
Tributary #3	SLCT3-1	5/8/2003	106	0.1			106		32.3		3	203	0.1	8.4	
		5/14/2004							32.1			160		8.78	
		10/23/2003	132	ND			132		36.2		4.44	176	0.113	10.5	
	SLCT3-0	5/2/2007	118				107			28.5314	4.29	244			8.0198
		5/19/2009	114	ND			113		33.3	32.4	5.2	451	0.192	9.25	8.79
		6/9/2010	87.1				87.1			25.8	4.21	174	0.117		6.44
		6/2/2011	85.1				85.1			23	3.58	179	0.2		6.19
Reach 4	SLC-2	5/17/2001	160				150		48	42	4.7	0.000326	0.16	11	10
		5/17/2001										0.000326			
		5/17/2001										0.000326			
		6/15/2001	170				170		58	53	5.2	0.000316	0.15	11	12
		6/15/2001										0.000329			
		6/15/2001										0.000331			
		5/8/2003	123	0.2			123		46.4		4	282	0.2	10.1	
		5/13/2004							43.5			210		9.81	
		5/14/2004										217			
		5/10/2006							39.5		4.12	400		8.79	
		5/2/2007	136				136			41.0202	4.765	311			9.5462
		5/19/2009	92.2	ND			92.2		46	45.1	5	579	0.169	10.4	9.93
		7/7/2009	150	0.044			150		46.2	45.9	5.2	661	0.179	10.1	10.9
		9/20/2001	180				180		50	51	4.8	0.00024	0.16	11	11
		9/20/2001										0.00027			
		9/20/2001										0.000336			
		10/23/2003	170	ND			170		49.1		5.09	222	0.132	11	
		10/17/2008	170	ND			166		47.1	48.4	4.59	241	0.21	10.4	10.4
		8/6/2009	167	0.045			167		47.8	48.5	5.29	572	0.311	11	11.1
	SLC-1	5/8/2003	141	0.1			141		51.5		7	306	0.2	11	
		5/14/2004							53.8			264		12.5	
		7/7/2009	185	ND			185		54.4	53.2	8.67	751	0.155	11.9	12.7
		10/23/2003	218	0.02			218		74.6		19.7	354	0.147	18.2	
	SW09-ST	4/28/2005	70	0.1				86	32		4	174	0.18	7	
		5/3/2006	101	ND				123	46		6	343	0.18	10	
		7/25/2006	187	ND				228	60		12	419	0.22	14	
		4/17/2007	144	ND				176	50		4	351	0.17	11	
		5/13/2008	90	ND				109		42	4	311	0.16		9.1
		5/2/2009	39.5	ND				39.5		35.5	5.6	276	0.14		8
		5/7/2010	138	ND				138		45.9	9.4	354	0.15		11

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Reach 3	SW08-ST	5/1/2009		0.05	0.05	0.005	7.19	0.2		1.8		4.9	58.6	154	
		5/6/2010		0.03	0.03	ND	7.35	0.18		1.3		6.1	41.3	178	
		5/9/2011		ND	ND	ND	7.55	0.275		1.73		3.45	43.3	150	
		5/19/2012		ND	ND	ND	7.97	0.21		0.72		7.71	68.6	222	
		8/2/2005		0.12	0.1	0.02	7.8	0.35	1		9		10	214	
		10/17/2005		0.15	0.15	ND	7.93	0.1	ND		7		10	203	
		10/23/2006		0.12	0.12	ND	8.21	0.08	ND		6		18	192	
		8/7/2007		0.17	0.15	0.02	8.27	0.17	2		7.2		8	158	
		10/11/2007		0.05	0.05	ND	8.31	0.1	1		6.5		6	189	
		10/13/2008		0.09	0.09	ND	8.97	0.11		1		7	ND	209	
		10/11/2009		0.15	0.15	ND	8.22	0.084		0.87		6.5	8.9	196	
		10/14/2010		0.06	0.06	ND	8.18	0.097		0.93		6.8	9.1	201	
		9/2/2011		0.115	0.152	ND	8.24	0.21		0.87		6.55	7.78	158	
	SLC-3E	5/13/2004					8.26						18		
		5/19/2009		ND			7.86	0.13	1.23	1.21	6.6	5.79	69.5	223	8.66
		10/17/2008		ND			8.62	0.03	1	1.14	6.55	6.89	8.16	220	1.5
		8/6/2009		0.141			8.11	0.48	1.6	2.4	6.79	6.75	8.88	209	4.81
	AWI012-22	5/7/2003		ND			7.9	0.1							5
		5/8/2003					7.75								
		5/9/2003					8								
		5/18/2004	ND				8.286666667	0.1							3
		5/15/2006	ND				7.89	0.15							6
		5/10/2007	0.02				7.84	0.21							4
Tributary #3	SLCT3-1	5/8/2003		ND			8.78	0.12	0.5		4		ND	140	4
		5/14/2004					8.46						6.79	120	
		10/23/2003		ND			8.32	0.078	0.982		4.63		6.36	135	2
	SLCT3-0	5/2/2007		ND			8.62		1.03		5.78		3.829	158	
		5/19/2009		ND			8.26	0.13	2.08	2.01	6.48	5.65	5.19	164	10.2
		6/9/2010					8.35						3.38	114	
		6/2/2011					8.37						4	122	
Reach 4	SLC-2	5/17/2001		ND			8.36	0.12	0.77	0.77	6.2	5.8	16	210	2
		5/17/2001					8.44								
		5/17/2001					8.44								
		6/15/2001		0.64			8.33	0.12	0.76	0.71	7.4	7.7	11	210	3
		6/15/2001					8.34								
		6/15/2001					8.35								
		5/8/2003		ND			7.73	0.13	1		6.9		30	200	5
		5/13/2004					8.14						17.3	181	
		5/14/2004					8.24						16.9		
		5/10/2006		ND			7.89		0.993		5.91		67.4	188	
		5/2/2007		0.021			7.87		0.926		6.47		24.4	198	
		5/19/2009		ND			7.81	0.11	1.26	1.26	6.76	5.91	67.7	258	6.4
		7/7/2009		ND			7.32	0.3	1.34	1.65	7.49	6.81	26.6	232	12
		9/20/2001		ND			8.09	0.25					6.1	260	4
		9/20/2001					8.11								
		9/20/2001					8.14								
		10/23/2003		ND			8.21	0.068	1		7.03		7.05	168	5.3
		10/17/2008		ND			8.81	0.04	1.07	1.08	6.55	6.63	8.25	220	2.11
		8/6/2009		0.148			8.15	0.21	1.03	1.22	6.78	6.72	8.95	184	2.26
	SLC-1	5/8/2003		ND			7.58	0.1	1.7		7.3		30	220	6
		5/14/2004					7.78						9.3	212	
		7/7/2009		ND			7.18	0.31	1.27	1.39	7.78	7.4	18.7	252	20.1
		10/23/2003		ND			7.42	0.099	2.36		13.3		44.4	296	10.7
	SW09-ST	4/28/2005		ND	ND	0.02	8.14	0.23	2		4		39	174	
		5/3/2006		ND	ND	ND	7.8	0.15	1		6		54	203	
		7/25/2006		ND	ND	ND	8.01	0.28	1		8		10	254	
		4/17/2007		0.02	0.02	ND	7.52	0.1	1.1		7.1		28	198	
		5/13/2008		ND	ND	ND	7.78	0.17		1.8		6.5	48	193	
		5/2/2009		0.04	0.04	ND	7.36	0.29		1.9		5.3	41.1	159	
		5/7/2010		0.01	0.01	ND	7.76	0.098		1.5		7.1	29.4	226	

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
Reach 4	SW09-ST	5/4/2011	78.9	0.049				78.9		28.5	4.79	424	0.16		6.24
		5/17/2012	164	0.06				164		55.8	7		0.24		12.1
		8/3/2005	238	0.19				290	66		10	260	0.15	16	
		10/18/2005	186	ND				227	59		3	292	0.21	15	
		10/22/2006	199	ND				243	63		12	464	0.18	13	
		8/6/2007	187	ND				222	62		9	417	0.16	14	
		10/12/2007	201	ND				228	68		9	462	0.17	15	
		10/13/2008	213	ND				260		64	13	485	0.18		14
		10/12/2009	206	0.01				206		59.5	12.5	422	0.16		14.6
		10/15/2010	222	ND				222		69.6	12.9	496	0.15		15.1
		9/3/2011	193	0.044				193		54.2	12.2	412	0.22		12.4
		10/1/2012	233	0.09				233		75.6	12.6	474	0.17		18.5
	SLC	5/1/2001	193		0.02	ND				60	12	600		13.4	14
	SLC-0	5/14/2004										263			
		5/10/2006							46.8		6.49	442		10.1	
		5/20/2009	147	0.055			147		53	53.2	7.19	368	0.173	11.7	11.9
		7/8/2009	193	0.045			193		56.2	55.3	8.63	1448	0.177	12.5	12.4
		6/9/2010	146				146			51.1	6.57	352	0.11		10.9
		6/3/2011	118				118			47.5	5.96	338	0.23		11
		4/24/2012	143				143			47.5	7.46	280	0.24		10.7
		5/8/2013	159				159			54.7	8.4	361.1	0.2		12
		6/11/2014	225				225			71.6	10.3	459	0.2		14.8
		10/19/2008	220	ND			220		64.3	66.3	11.7	329	0.201	14.3	15
		8/8/2009	215	0.055			215		62.1	61.1	10.6	393	0.241	13.6	13.8
		9/21/2010	242				242			70.7	11.8	483	0.167		15.7
		10/1/2011	213				213			60.4	13	407.8	0.23		13.8
		10/7/2014	227	0.047			227		68.9	68.8	14.4	478.8	0.23	15.1	15.4
ODA Seeps	NES-1	5/22/2001	34				34		200		2.7		0.43	48	
		5/8/2003	30	ND			30		103		2	612	0.2	25.1	
		5/13/2004							130			611		32.8	
		5/18/2009	42.1	0.033			42.1		76.4	78.3	4.02	560	0.609	19.1	20
		7/12/2010	71.5				67.2			242	4.18	1296	0.37		59.3
		6/3/2011	151				151			128	2.88	800	0.06		27.9
	NES-1a	5/8/2003	117	ND			117		204		3	908	0.1	40	
		5/13/2004							191			793		40.9	
		5/18/2009	142	0.033			142		201	188	2.76	1123	0.37	40.8	38.4
	NES-1b	5/8/2003	174	ND			174		382		3	1504	0.1	85.7	
		5/13/2004							400			1432		90.3	
		5/18/2009	157	ND			157		337	319	2.25	1749	ND	77.2	73
		6/9/2010	212				212			395	2.62	1952	ND		92.6
	NES-2	5/23/2001	320				320		550		3.1			140	
		5/8/2003	327	ND			327		498		4	1811	0.6	118	
		5/13/2004							477			1666		115	
		5/10/2006							457		3.69	3013		115	
		5/2/2007	311				311			439.3266	4.019	2345			10.8695
		5/18/2009	303	ND			303		453	442	3.91	2214	1.26	119	115
		6/9/2010	338				338			451	4.36	2252	0.152		102
		7/12/2010	353				353			421	4.99	2010	0.619		102
		6/3/2011	283				283			436	5.26	2363	1.09		121
		10/24/2003	425	0.03			425		404		6.39	1296	0.989	99.1	
		10/17/2008	393	ND			393		389	400	5.41	1770	0.374	94.3	103
		8/6/2009	346	ND			346		404	406	4.94	3803	0.694	103	104
		8/18/2010	363				363			420	5.34	2318	0.712		101
		9/20/2010	363				363			393	5.83	2156	0.485		96.1
		10/1/2011	343				343			390	5.8	1052	1.17		96.4
	NES-2A	6/3/2011	292				292			391	4.95	2284	1.12		134
	NES-3	5/23/2001	290				290		560		4.3		1.4	120	
		6/3/2011	286				286			498	5.8	2627	1.32		121
	NES-4	5/22/2001	390				390		460		5		1	100	
		5/8/2003	299	ND			299		437		7	1526	0.5	99.3	

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Reach 4	SW09-ST	5/4/2011		ND	0.068	ND	8.2	0.208		1.7		4.59	26.6	168	
		5/17/2012		ND	ND	ND		0.24		0.931		9.36	13.9	240	
		8/3/2005		ND	ND	ND	7.5	0.2	1		9		9	253	
		10/18/2005		0.01	0.01	ND	8.08	0.08	1		14		14	236	
		10/22/2006		0.02	0.02	ND	7.93	0.09	1		8		22	299	
		8/6/2007		ND	ND	ND	8.15	0.07	1		8.4		17	200	
		10/12/2007		ND	ND	ND	7.91	0.06	1.3		8.3		18	273	
		10/13/2008		ND	ND	ND	7.52	0.11		2		9	13	293	
		10/12/2009		0.03	0.03	ND	7.4	0.085		1.4		8.8	11.9	231	
		10/15/2010		ND	ND	ND	7.58	0.12		1.2		9.4	6.4	259	
		9/3/2011		ND	ND	ND	8.05	0.198		1.07		8.08	7.95	250	
		10/1/2012		ND	ND	ND	7.26	0.14		1.8		10.3	26.8	318	
	SLC	5/1/2001					8						11		
	SLC-0	5/14/2004					7.9						12.7		
		5/10/2006		ND			7.9		0.993		6.35		47.4	202	
		5/20/2009		ND			7.18	0.23	1.42	1.52	7.43	7.81	40.6	236	6.13
		7/8/2009		ND			7.31	0.31	1.28	1.29	7.87	7.72	17.1	266	5.77
		6/9/2010					8						24.8	199	
		6/3/2011					7.81						47.8	197	
		4/24/2012					7.95						27	208	
		5/8/2013					8.09						20.2	211	
		6/11/2014					7.6						7.36	253	
		10/19/2008		0.177			8.16	0.05	1.24	1.28	9.17	9.59	13.5	260	3.37
		8/8/2009		ND			7.43	0.25	0.993	1.16	8.66	8.31	8.52	258	4.18
		9/21/2010					8.15						5.14	288	
		10/1/2011					7.95						8.6	274	
		10/7/2014		ND			7.66	0.096	1.69	1.63	10.1	9.63	16.4	279	5.53
ODA Seeps	NES-1	5/22/2001		0.23				0.051	2.1		14		600	960	
		5/8/2003		ND			7.68	0.04	0.9		9.3		320	540	8
		5/13/2004					7.24						480	696	
		5/18/2009		ND			7.63	0.91	1.34	1.42	7.08	7.45	263	428	9.92
		7/12/2010					7.78						725	1190	
		6/3/2011					7.09						290	582	
	NES-1a	5/8/2003		ND			8.43	0.13	2.3		9.5		480	910	7
		5/13/2004					7.47						574	921	
		5/18/2009		ND			7.7	0.08	3.03	3	8.28	7.66	505	858	10
	NES-1b	5/8/2003		ND			7.07	0.11	2.1		9.8		1050	1760	6
		5/13/2004					7.31						1265	1907	
		5/18/2009		ND			7.32	0.04	2.81	2.73	8.04	7.51	944	1480	14.9
		6/9/2010					7.25						1110	1830	
	NES-2	5/23/2001		0.45				0.92	2.1		12		1500	2400	
		5/8/2003		0.11			6.82	0.06	3.5		12.8		1380	2350	4
		5/13/2004					7.18						1410	2330	
		5/10/2006		0.35			7.04		3.12		11.5		1383	2222	
		5/2/2007		0.172			7.49		3.55		12.5		1285.34	2180	
		5/18/2009		0.349			6.99	0.02	3.21	3.15	12.1	11	1350	2010	3.25
		6/9/2010					7.08						1150	2010	
		7/12/2010					7.03						1030	1900	
		6/3/2011					6.93						1270	2010	
		10/24/2003		ND			7.58	0.62	4.13		16.4		993	1770	17
		10/17/2008		ND			7.07	0.04	3.68	3.86	15.1	15.8	1070	1900	2.76
		8/6/2009		ND			7.25	0.23	3.68	3.67	15.1	15	1170	2010	3.09
		8/18/2010					7.46						990	1910	
		9/20/2010					7.35						1010	1890	
		10/1/2011					7.01						1130	2040	
	NES-2A	6/3/2011					6.85						1160	1950	
	NES-3	5/23/2001		ND				1.4	2.4		16		1400	2200	
		6/3/2011					7.12						1420	2370	
	NES-4	5/22/2001		ND				0.15	4.1		15		990	1900	
		5/8/2003		ND			7.87	1	5.7		17.1		980	2040	7

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
ODA Seeps	NES-4	5/13/2004							418			1500		92.9	
		6/3/2011	324				324			464	4.55	2320	0.63		105
		10/24/2003	453	0.01			453		427		8.28	1323	1.02	101	
		10/18/2008	477	0.038			477		484	494	6.88	4840	0.294	112	121
Springs	SLCT3-4	5/19/2009	128	ND			128		38.6	38.4	4.38	496	ND	10.4	10
		10/18/2008	143	ND			143		37.7	39.4	3.77	544	0.146	10.1	11
	SLCT3-5	5/19/2009	88.8	ND			88.8		28.6	28.7	3.4	411	ND	7.3	7.19
	SW02-SP	4/30/2005	67	0.1				81	22		3	129	0.18	5	
		5/2/2006	62	ND				75	19		3	137	0.16	5	
		7/26/2006	131	ND				160	37		4	283	0.14	10	
		4/16/2007	99	ND				120	29		3	223	0.12	7.5	
		5/10/2008	79	ND				97		23	3	199	0.13		6
Springs	SW02-SP	5/2/2009	38.6	ND				38.6		23.7	3.1	188	0.099		6.7
		5/6/2010	97.5	ND				97.5		26.5	3.8	230	ND		8.2
		5/9/2011	62.2	ND				62.2		18.3	2.68	187	0.14		4.81
		5/16/2012	110	0.12				110		35.9	ND		0.17		9.15
		8/2/2005	141	0.07				172	39		4	192	ND	11	
		10/17/2005	120	ND				147	33		5	233	0.19	10	
		10/23/2006	132	ND				161	36		5	292	0.17	10	
		8/7/2007	132	ND				161	40		4	286	0.13	11	
		10/11/2007	121	ND				147	37		3	260	0.12	10	
		10/14/2008	136	ND				166		40	5	370	0.17		11
		10/11/2009	131	ND				131		34.3	5.2	257	0.096		9.6
		10/14/2010	142	ND				142		43.2	5.2	282	0.11		11.2
		9/23/2011	110	0.027				110		21.8	5.48	286	0.18		5.8
		9/29/2012	136	ND				136		42.5	4.6	257	ND		10.5
ODA Pools	NEP-6	5/15/2004							16.9			72		1.29	
		6/3/2011	157				157			60.4	2.53	415	0.31		11.8
Ponds	SLP-1	5/13/2004							63.3			342		15.2	
		5/21/2009	21.6	0.043			21.6		35.6	35.4	2.84	339	0.405	8.11	8.21
	SLP-2	5/14/2004							6.14			42		1.35	
		5/18/2009	36.7	0.07			36.7		9.76	9.79	2.9	98	0.119	2.5	2.44
	SLP-3	5/14/2004							30.1			188		8.31	
		5/18/2009										177			
		5/19/2009	73.8	0.056			73.8		20.6	20.8	6.21		0.241	5.61	5.58
Offsite-US	BFR-2	5/17/2008	149	ND			149		47.3	46.3	2.61	246	ND	8.51	8.22
		5/16/2009	166	ND			166		52.3	51.9	2.89	344	0.106	9.72	9.61
		6/9/2010	182				182			60.3	2.67	360	0.11		10.6
		4/24/2012	166				166			52.5	2.76	250	0.16		10.6
		5/8/2013										346.6			
		5/9/2013	174				174			53.3	2.87		0.16		10.3
		6/11/2014	186				173			60.1	1.85	353	0.11		13
		10/16/2008	192	0.031			186		54.2	56.1	2.59	264	0.138	12.7	13.5
		8/5/2009	178	0.063			167		49.2	50.1	2.38	329	0.274	12.1	12.8
		9/23/2010	168				168			44.7	2.76	327	0.122		13.4
		10/2/2011	189				186			48.4	2.96	345.7	0.16		12.5
		10/19/2012	197				197			50.5	3.4	365.1	0.15		13.8
		10/11/2013	183				183			51.9	2.67	357	0.12		13.6
		10/7/2014	200	ND			200		59.1	57.6	3.09	378.7	0.13	13.8	13.1
	BFR-US	6/2/2011	168				168			50.8	2.7	305	0.16		9.88
	ST230	5/1/2002							72		2.6			11	
		5/1/2004							58		2			12	

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ODA Seeps	NES-4	5/13/2004					7.67						1088	1888	
		6/3/2011					7.03						1200	2020	
		10/24/2003		ND			7.37	1.66	5.55		19		1010	1842	23.9
		10/18/2008		ND			7.05	0.43	5.18	5.41	18.2	19.2	1240	2300	4.6
Springs	SLCT3-4	5/19/2009		0.167			7.96	0.04	0.784	0.817	4.07	3.58	7.74	159	2.16
		10/18/2008		0.307			7.27	0.02	0.582	0.59	3.6	3.89	6.44	170	ND
	SLCT3-5	5/19/2009		0.213			7.8	0.17	0.942	1.04	3.98	3.58	9.26	154	4.49
	SW02-SP	4/30/2005		ND	ND	0.02	7.78	0.23	ND		6		11	153	
		5/2/2006		ND	ND	ND	7.24	0.19	1		3		11	84	
		7/26/2006		ND	ND	0.02	7.21	0.12	1		5		6	158	
		4/16/2007		0.03	0.03	ND	7.68	0.1	0.6		4		9	127	
		5/10/2008		0.08	0.08	ND	7.12	0.15		1.1		3.7	11	118	
Springs	SW02-SP	5/2/2009		0.18	0.18	0.005	7.3	0.19		0.85		3.5	6.9	94	
		5/6/2010		0.01	ND	ND	7.16	0.1		1.3		3.8	7.9	135	
		5/9/2011		0.202	0.245	ND	7.37	0.227		0.93		2.64	5.76	130	
		5/16/2012		ND	ND	ND		0.2		0.954		5.67	ND	170	
		8/2/2005		ND	ND	0.01	7.66	0.13	ND		4		8	161	
		10/17/2005		0.02	0.02	ND	8.01	0.08	ND		6		11	160	
		10/23/2006		0.02	0.02	ND	8.04	0.09	1		4		9	161	
		8/7/2007		ND	ND	ND	7.46	0.17	1.6		4.5		11	136	
		10/11/2007		ND	ND	ND	7.56	0.2	1.6		4.3		6	167	
		10/14/2008		0.01	0.01	ND	7.63	0.11		2		5	ND	175	
		10/11/2009		0.03	0.03	ND	7.17	0.25		1.7		4.2	5.6	164	
		10/14/2010		ND	ND	ND	7.11	0.18		2.3		4.7	ND	159	
		9/23/2011		0.025	0.038	ND	7.44	0.221		1.22		2.66	4.31	145	
		9/29/2012		ND	ND	ND	7.78	0.16		1.51		4.63	4.5	163	
ODA Pools	NEP-6	5/15/2004					9.22						1.62	53	
		6/3/2011					8.22						43.2	232	
Ponds	SLP-1	5/13/2004					7.87						229	360	
		5/21/2009		ND			7.79	0.08	1.29	1.31	6.45	6.56	121	190	7.98
	SLP-2	5/14/2004					9.01						1.07	82	
		5/18/2009		ND			7.74	0.7	3.9	3.84	4.03	3.61	1.15	82	24.9
	SLP-3	5/14/2004					8.44						26	342	
		5/18/2009					7.8								
		5/19/2009		ND				0.41	3.99	4.21	8.61	7.69	6.31	163	14.8
Offsite-US	BFR-2	5/17/2008		0.0501	0		8.14	0.13	1.31	1.5	3.78	3.62	12.2	190	4.87
		5/16/2009		ND			8.8	0.02	0.98	1.01	4.03	3.98	13.6	205	4.02
		6/9/2010					8.32						8.38	194	
		4/24/2012					8.11						10	192	
		5/8/2013					8.42								
		5/9/2013											12.1	276	
		6/11/2014					8.44						9.55	196	
		10/16/2008		ND			8.49	0.01	0.922	1.04	4.14	4.35	12.5	220	1.67
		8/5/2009		ND			8.69	0.03	0.541	0.631	3.72	4.23	12	184	1.58
		9/23/2010					8.15						12.6	183	
		10/2/2011					8.5						13.2	208	
		10/19/2012					8.44						14.4	207	
		10/11/2013					8.59						13.4	194	
		10/7/2014		ND			8.63	0.024	1.08	1.06	4.83	4.64	12.1	221	3.17
	BFR-US	6/2/2011					7.9						10.6	195	
	ST230	5/1/2002							0.8		4.6		11		
		5/1/2004							0.63		4.3		9.5		

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
Offsite-DS	BFR-1	5/17/2008	147	0.039			147		53.9	46.3	2.69	248	ND	9.81	8.07
		5/16/2009	165	ND			158		54.3	52.8	2.92	345	0.124	9.77	9.95
		6/9/2010	186				186			59.4	2.52	361	0.142		10.4
		4/24/2012	166				166			51.2	2.62	237.3	0.1		10.1
		5/8/2013										347			
		5/9/2013	175				174			55.7	2.83		0.15		10.9
		6/11/2014	187				174			56.5	2.05	353	0.11		12.3
		10/16/2008	192	ND			188		50.8	55.8	2.6	263	0.139	11.9	13.3
		8/5/2009	177	0.159			167		49.3	51.1	2.38	329	ND	12.2	13
		9/23/2010	167				167			45.8	2.68	328	0.103		13.7
		10/2/2011	186				184			50.8	2.98	345.3	0.14		13.1
		10/19/2012	198				198			50.5	3.27	365.3	0.14		13.8
		10/11/2013	184				184			51.7	2.69	357	0.12		13.6
		10/7/2014	200	0.045			197		58.4	57.8	3.1	378.8	0.14	13.6	13.2
	BFR-DS	6/2/2011	168				168			51.2	2.67	305	0.15		9.93
	MST020	5/1/2002							57		2.5			11	
		5/1/2004							67		2.1			11	
		5/1/2006							54		2.5			10.1	
		5/15/2007										315			
		5/15/2007										375			
		5/15/2008	130						48		3.2	213		8.6	
		5/15/2008										309			
		9/1/2002							46		4.1			ND	
		9/15/2007										239			
		9/15/2007										296			
		9/15/2008	150						42		2.4	257		13	
		9/15/2008										317			
	ST019	5/1/2002							79		3.5			12	
		7/1/2002							26					14	
		3/1/2003							59					13	
		4/1/2003							43					7.5	
		5/1/2003							56					10	
		6/1/2003							46					12	
		7/1/2003							28					14	
		5/1/2004							62		2.1			12	
		5/1/2006							54		2.5			10.1	
		5/15/2007										293			
		5/15/2007										294			
		5/15/2007										380			
		5/15/2008	120						44		2.9	181		7.7	
		5/15/2008										271			
		9/1/2002							35		2.1			ND	
		11/1/2002							59					13	
		1/1/2003							62					13	
		9/15/2007										242			
		9/15/2007										287			
		9/15/2008	160						42		2.4	310		13	
		9/15/2008										378			

Table 6-18
State Land Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Offsite-DS	BFR-1	5/17/2008		0.0318	0		7.06	0.09	1.49	1.39	4.33	3.64	12.3	180	4.59
		5/16/2009		0.243			8.91	0.03	1	1.08	4.05	4.22	13.8	222	3.93
		6/9/2010					8.31						8.75	190	
		4/24/2012					8.2						10.1	195	
		5/8/2013					8.42								
		5/9/2013											12.3	201	
		6/11/2014					8.59						9.53	196	
		10/16/2008		0.177			8.7	ND	0.855	0.929	3.88	4.29	12.7	220	1.86
		8/5/2009		ND			8.63	0.03	0.542	0.65	3.74	4.23	11.4	192	1.6
		9/23/2010					8.23						12.5	183	
		10/2/2011					8.48						13.1	191	
		10/19/2012					8.46						14.1	202	
		10/11/2013					8.57						13.4	194	
		10/7/2014		ND			8.63	0.037	1.07	1.13	4.71	4.67	12.2	218	2.25
	BFR-DS	6/2/2011					8.04						10.5	186	
	MST020	5/1/2002							0.7		4.4		11		
		5/1/2004							0.5		4.2		9.5		
		5/1/2006							0.8		4		12		
		5/15/2007					8.4							244	
		5/15/2007													
		5/15/2008					6.99		1.4		4.1		14	5161	
		5/15/2008													
		9/1/2002							ND		ND		13		
		9/15/2007					8.52							192	
		9/15/2007													
		9/15/2008					8.6		0.66		3.9		12	206	
		9/15/2008													
	ST019	5/1/2002							1.3		5.3		14		
		7/1/2002													
		3/1/2003													
		4/1/2003													
		5/1/2003													
		6/1/2003													
		7/1/2003													
		5/1/2004							0.7		4.7		9.4		
		5/1/2006							0.9		4.1		12.7		
		5/15/2007					8.16							247	
		5/15/2007					8.19								
		5/15/2007					8.21								
		5/15/2008					7.62		1.5		3.9		13	176	
		5/15/2008													
		9/1/2002							ND		ND		11		
		11/1/2002													
		1/1/2003													
		9/15/2007					8.7							186	
		9/15/2007													
		9/15/2008					8.43		0.61		3.9		12	245	
		9/15/2008													

Table 6-19
State Land Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH: 15 pCi/L	HH: 50 mg/L	Comparison Value: na	
Reach 1	SLC-3A	5/18/2009		ND	ND		
	SLC-3D	5/19/2009		5.1	ND		
		8/6/2009		11.6	9.8		
Tributary #2	SLCT2-2B	8/6/2009		ND	ND		
	SLCT2-0	5/19/2009		ND	ND		
		8/6/2009		3	ND		
Reach 3	SLC-3E	8/6/2009		4.8	4		
Reach 4	SLC-2	5/19/2009		ND	ND		
ODA Seeps	NES-1	5/18/2009		4.6	ND		
	NES-1a	5/18/2009		ND	ND		
	NES-1b	5/18/2009		**18.5**	ND		
	NES-2	5/18/2009		12.4	ND		
		10/17/2008	6.3	**18.7**	ND	-130.4	-17.1
		8/6/2009		**15.1**	10.6		
	NES-4	10/18/2008	4.7	**16.4**	ND	-128.6	-16.7
Springs	SLCT3-4	5/19/2009		2.6	ND		
		10/18/2008	6.7	3.2	ND	-134.1	-17.6
	SLCT3-5	5/19/2009		ND	ND		

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Reach 1	SLC-3A	5/18/2009	0.0000485	0.0000245
	SW13-ST	5/2/2006		ND
		7/25/2006		ND
		4/16/2007		ND
		5/9/2011		ND
		8/2/2005		ND
		10/23/2006		ND
		9/2/2011		ND
Reach 2	SLC-3D	5/19/2009	0.000338	0.000246
		8/6/2009	ND	ND

Table 6-19
State Land Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Tributary #2	SW14-ST	5/9/2011		ND
	SW15-ST	5/2/2006		ND
		5/9/2011		ND
	SLCT2-2B	8/6/2009	ND	ND
	SLCT2-0	5/2/2007		0.00052
		5/19/2009	0.000431	0.000351
		10/17/2008	0.00092	ND
		8/6/2009	ND	ND
Reach 3	SW08-ST	4/30/2005		ND
		5/2/2006		ND
		7/25/2006		ND
		4/16/2007		ND
		5/9/2011		ND
		8/2/2005		ND
		10/17/2005		ND
		10/23/2006		ND
		8/7/2007		ND
		10/11/2007		ND
		9/2/2011		0.000873
	SLC-3E	5/19/2009	0.000285	0.00026
		10/17/2008	ND	ND
		8/6/2009	ND	ND
Tributary #3	SLCT3-0	5/2/2007		0.00079
		5/19/2009	0.000609	0.0006
Reach 4	SLC-2	5/17/2001	0.00085	
		5/17/2001		0.00073
		6/15/2001	0.00083	
		6/15/2001		0.00078
		5/2/2007		0.00062
		5/19/2009	0.000331	0.000303
		7/7/2009	0.00105	0.000738
		9/20/2001	0.0011	
		9/20/2001		0.0012
		10/17/2008	0.001	ND
		8/6/2009	ND	ND
	SLC-1	7/7/2009	0.00065	0.00052

Table 6-19
State Land Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Reach 4	SW09-ST	4/28/2005		ND
		5/3/2006		ND
		7/25/2006		ND
		4/17/2007		ND
		5/4/2011		ND
		8/3/2005		ND
		10/18/2005		ND
		10/22/2006		ND
		8/6/2007		ND
		10/12/2007		ND
		9/3/2011		0.000586
	SLC-0	5/20/2009	0.000581	0.000518
		7/8/2009	ND	0.000613
		10/19/2008	ND	0.00094
		8/8/2009	ND	ND
		10/7/2014	0.0013	0.0013
ODA Seeps	NES-1	5/22/2001		0.00032
		5/18/2009	ND	ND
	NES-1a	5/18/2009	0.00102	0.00105
	NES-1b	5/18/2009	0.00502	0.0047
	NES-2	5/23/2001		0.01
		5/2/2007		0.0141
		5/18/2009	0.0132	0.0131
		10/17/2008	0.0132	0.0124
		8/6/2009	0.0126	0.0126
	NES-3	5/23/2001		0.035
	NES-4	5/22/2001		0.015
		10/18/2008	0.0119	0.0111
Springs	SLCT3-4	5/19/2009	0.000867	0.000801
		10/18/2008	ND	0.00093
	SLCT3-5	5/19/2009	0.000495	0.000363
	SW02-SP	4/30/2005		ND
		5/2/2006		ND
		7/26/2006		ND
		4/16/2007		ND
		5/9/2011		ND
		8/2/2005		ND
		10/17/2005		ND
		10/23/2006		ND
		8/7/2007		ND
		10/11/2007		ND
		9/23/2011		0.000922

Table 6-19
State Land Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Ponds	SLP-1	5/21/2009	ND	ND
	SLP-2	5/18/2009	0.000152	0.0000962
	SLP-3	5/19/2009	0.000558	0.000506
Offiste-US	BFR-2	5/17/2008	ND	0.00043
		5/16/2009	ND	ND
		10/16/2008	ND	ND
		8/5/2009	ND	ND
		10/7/2014	0.00049	0.00049
Offsite-DS	BFR-1	5/17/2008	ND	0.00045
		5/16/2009	ND	0.000501
		10/16/2008	ND	ND
		8/5/2009	ND	ND
		10/7/2014	0.0005	0.00049
	MST020	5/1/2006		0.0004
		5/1/2008		0.0004
	ST019	5/1/2006		0.0004
		5/15/2008		0.0004

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
ND - Non-detected value; na - Not applicable
pCi/L - picocuries per liter
ppt - parts per trillion
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-20
State Land Creek Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Reach 1	SLC-3	9/20/2008	20.8	6.4	44.8	58.3	123
	SLC-3A	9/20/2008	7.2	2.7	34.9	38.8	107
Headwater Tributaries	SLC-8	5/21/2009	0.73	7.3	24.8	33.1	132
Reach 2	SLC-3D	5/19/2009	0.52	7.2	46.2	43.3	143
	SLC-3F	5/19/2009	4.1	5.3	30.5	29	134
Tributary #2	SLCT2-5	5/19/2009	25.4	20.8	286	151	599
	SLCT2-2	9/20/2008	31	20.3	139	113	379
	SLCT2-2B	5/19/2009	5.1	11.6	57.1	48	240
	SLCT2-0	5/19/2009	2.6	6.7	45.7	44.3	117
Reach 3	SLC-3E	5/19/2009	7.8	6.9	58.7	41.1	229
Tributary #3	SLCT3-1	9/20/2008	0.76	1.9	24.4	22.4	125
	SLCT3-0	5/19/2009	1.1	3.3	36.9	46.3	95.4
Reach 4	SLC-2	6/15/2001	3.8	2.8	99	61	170
		5/19/2009	1.3	2.2	28.6	22.9	109
		7/7/2009	7	5	43.5	26.6	177
	SLC-1	5/19/2009	5.7	3.7	29.8	29.6	139
		7/7/2009	2.4	2.9	31.3	36.3	117
	SLC	5/1/2001	2.1	2.7	28	28	132
	SLC-0	7/8/2009	3	2.6	32.4	37	121
		9/22/2008	1.1	1.7	30.5	41.5	105
ODA Seeps	NES-1	5/18/2009	114	3.5	36.7	41.2	112
	NES-1a	5/18/2009	373	21	450	249	1070
	NES-1b	5/18/2009	192	3.1	35.2	42	132
	NES-2	5/18/2009	50.7	30.4	417	184	658
	NES-3	5/18/2009	67.3	24.1	604	213	1040
	NES-4	5/18/2009	327	15.9	260	157	613
Springs	SLCT3-4	5/19/2009	13.7	6.6	102	24.3	283
	SLCT3-5	5/19/2009	6.2	3.8	46.2	22.8	155
Ponds	SLP-1	9/20/2008	1.5	0.84	36.4	30.7	106
	SLP-2	9/20/2008	0.24	0.58	17.2	23.1	62.9
	SLP-3	9/20/2008	0.32	0.49	17.2	23.6	69.5
Offsite-US	ST230	5/1/2002	ND	1	13	13	39
		5/1/2004	0.83	2.9	37	27	36
	BFR-2	9/22/2008	0.89	0.2	14.5	15.3	49.5
Offsite-DS	BFR-1	9/22/2008	0.55	0.53	11.5	11.6	35.3
	MST020	5/1/2002	ND	1.5	17	20	45
		9/1/2002	0.7	1.1	17	16	ND
		5/1/2004	ND	1.48	30.7	30.1	45
	ST019	5/1/2002	ND	0.99	19	15	38
		9/1/2002	0.5	1.4	22	14	ND
		5/1/2004	0.7	1.24	20	17.1	31

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not available; ND - Non-detected value; Blank Cell - No data available

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Table 6-21
State Land Creek Sub-Basin Aquatic Biota Selenium Concentrations

Location Type	Station	Date	Aquatic Vegetation		Periphyton	Aquatic Invertebrates	Fish Tissue	
			Selenium (mg/kg)	Species	Selenium (mg/kg)	Selenium (mg/kg)	Selenium (mg/kg) Draft Criterion: 7.9 mg/kg	Species
Reach 4	SLC-2	7/7/2009	12.1	White-water Buttercup	5.3	14	23	Speckled Dace
							14	Utah Sucker
							34	Speckled Dace
	SLC-1	7/7/2009	8.7	White-water Buttercup		8	17	Speckled Dace
			7.9	Speedwell			12	Redside Shiner
							15	Speckled Dace
							19	Speckled Dace
							19	Speckled Dace
							19	Speckled Dace
							13	Redside Shiner
							18	Redside Shiner
							15	Speckled Dace
							17	Speckled Dace
	SLC	5/1/2001	4.3	White-water Buttercup		9.7	15	Speckled Dace
	SLC-0	7/8/2009	5.6	White-water Buttercup		11	17	Redside Shiner
			8.2	Speedwell			19	Redside Shiner
							20	Speckled Dace

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram

All concentrations are presented on a dry weight basis. Aquatic vegetation samples were not washed prior to analysis.

Blank Cell - No data available

Refer to Section 4 tables for additional details about biotic sample composition.

Exceedances of the comparison value are indicated in the following manner:

Value exceeds fish comparison value.

Table 6-22
State Land Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg) Ecological: 0.52 mg/kg Human Health: 5,800 mg/kg		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Surface	Subsurface					
Reach 1	SLC-3	8/6/2009	0.41	0.38	0.53	Forage (Mixed-species)*	3.9		
					1.2	Browse (Single-species)			
		8/14/2009			1.2	Forage[a] (Mixed-species)*		6.5	Deer Mouse
	SR-01	6/2/2004	0.56	0.52	3.6	Forb (single-species)			
					0.39	Forb (single-species)			
					0.79	Grass (mixed-species)			
					0.96	Grass (mixed-species)			
		7/12/2004			2.7	Browse (mixed-species)			
					2.9	Browse (mixed-species)			
					6.9	Grass (mixed-species)			
					1.6	Forb (single-species)			
					0.41	Forb (single-species)			
					3.0	Grass (mixed-species)			
	SR-02	6/2/2004	0.95	0.36	0.08	Grass (mixed-species)			
		7/12/2004			0.10	Grass (mixed-species)			
Reach 2	SR-03	6/2/2004	0.74	0.55	0.27	Grass (mixed-species)			
					0.28	Grass (mixed-species)			
					0.35	Browse (mixed-species)			
					0.15	Forb (single-species)			
		7/12/2004			0.31	Forb (single-species)			
					0.16	Forb (single-species)			
					0.18	Forb (single-species)			
					0.21	Grass (mixed-species)			
					0.39	Browse (mixed-species)			
					0.21	Grass (mixed-species)			
Reach 3	SR-04	6/2/2004	1.9	0.82	0.55	Grass (mixed-species)			
		7/12/2004			0.95	Grass (mixed-species)			
Reach 4	SR-05	6/2/2004	1.1	0.43	0.43	Forb (single-species)			
					0.44	Grass (mixed-species)			
					0.5	Grass (mixed-species)			
		7/12/2004			0.67	Forb (single-species)			
					0.76	Browse (single-species)			
					1.1	Grass (mixed-species)			
					0.7	Grass (mixed-species)			
					0.49	Forb (single-species)			
					0.96	Browse (single-species)			

Table 6-22
State Land Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg)		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Ecological: 0.52 mg/kg						
			Human Health: 5,800 mg/kg						
			Surface	Subsurface					
Reach 4	SLC-2	8/10/2009	1.1	0.68	0.070	Forage (Mixed-species)	2.1		
					0.11	Browse (Single-species)			
					0.17	Forb (Single-species)*			
					0.58	Browse (Single-species)			
					0.40	Browse (Mixed-species)*			
		8/14/2009						2.5	Deer Mouse, Meadow Vole

Notes:

Includes data from 2001 onward of "A" data use level only.

Data only shown for sampling locations in riparian areas (defined as within 200 feet of a creek) identified within the sub-basin.

mg/kg - milligrams per kilogram

Blank Cell - No data available

All concentrations are presented on a dry weight basis. All vegetation samples were washed with deionized water prior to analysis.

a - Sample was not washed prior to analysis.

Browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Accumulator forbs are those species that are considered to be "selenium-accumulating species;" refer to Section 6 for further discussion and a list of the species. Forb samples composed of a single selenium-accumulating species are identified in the table as "accumulator." Mixed-species forb or forage samples that include selenium-accumulating species are marked with an asterisk (*).

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

More information about soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Table 6-23
Pedro Creek Sub-Basin Surface Water Flows

Location Type	Station	2003		2004	2006	2007	2008	2009		2010		2011		2012		2013		2014	
		Spring	Fall	Spring	Spring	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Tributary #6	PCT6-1													Dry	Dry	Dry	Dry	Dry	Dry
	PCT6-2																	Dry	Dry
	PCT6-3																	Dry	Dry
	PCT6-4																	Dry	Dry
	PCT6-5																	0.011 - 1.36	Dry
Tributary #0	PCT-0											Diffuse Flow							
Reach 1	PC-9																	Dry - Low Water	Dry
	PC-6			Dry														Dry	Dry - Low Water
	PC-5			0.01		0.084	Dry	0.14	0.001	0.022 - 0.073	Dry	0.28	Dry	0.13	Diffuse Flow	0.065	0.022	0.015	Dry - 0.014769
Tributary #5	PCT5-1	0.0058	Dry	Dry															
	PCT5-2													0.011					
Reach 2	PC-4	0.053	Dry	0.021	0.27	0.076	Dry	0.15	Dry	0.096/Dry	Dry	0.35	Dry	0.15	Dry	0.08	Dry	Low Water	Dry - 0.003653
	PC-4A			0.013															
	PC-3	0.0408	Dry	Dry						0.22	Dry	2.08	Dry	Dry	Dry	0.119	Dry	Dry	Dry
	PC-3A			Ponded	1.04		Dry	0.35	Dry										
	PC-3B			Dry															
Tributaries #1-4	PCT1-0			Dry															
	PCT1-1	0.0056	Ponded	0.002															
	PCT2-1	Dry	Dry																
	PCT2-2		Ponded	0.002															
	PCT3-1	0.0071	0.009	0.011															
	PCT4-0			0.053															
	PCT4-1	0.025	0.035	0.021															
Reach 3	PC-2	0.012	0.013	0.013	1.3	0.105	0.385	0.23 - 0.58	0.091	0.05 - 0.19	0.036 - 0.085	1.3	0.23	0.13	0.046	0.16	0.056	0.018	0.0873
	PC-2D			Dry															
	PC-2A			Dry															
	PC-2B			Ponded															
	PC-1Up																Low Water		
	PC-1	0.0075	Dry	Dry		0.022	Dry	0.28 - 1.9	0.082	0.45	0.045	4.07	0.19	0.56	0.041	0.357	Dry	Dry	Dry
ODA Seeps	NES-5	0.0089	0.002	0.011		0.014	0.004	0.031/Ponded	0.007	0.002 - 0.021	0.012 - 0.014	0.065	0.013	0.059	0.007		Not Visible	Diffuse flow - ponded	Ponded - 0.008258
	NESeep5Pond																Ponded	Ponded	Ponded
	NES-6	Dry	Dry				Dry	Dry											
	NES-7																Dry	Dry	Dry
	NESeep7Pond																Dry	Dry - Ponded	Dry
	NES-8																	0.0002	Dry
	FSPSSeep															0.007	Dry	Dry - 0.006	Dry - Low Water
	FSPSSeepPond																Dry	Dry - Ponded	Dry - Ponded

Table 6-23
Pedro Creek Sub-Basin Surface Water Flows

Location Type	Station	2003		2004	2006	2007	2008	2009		2010		2011		2012		2013		2014	
		Spring	Fall	Spring	Spring	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
ODA Runoff/ Ponds	NRC-1											Diffuse Flow		Dry					
	NED-1											Ponded							
	NEP-1	Dry		Dry															
	NEP-2	Dry	Dry	Dry															
	NEP-3	Dry	Dry	Dry															
	NEP-4a		Dry	Ponded				Ponded		Ponded	Dry								
	NEP-4b		Dry	Ponded															
	NEP-4c		Dry	Ponded															
NTCRA Runoff	NESedBasinN																Ponded	Ponded	Dry - Ponded
	NESedBasinC																Ponded	Ponded	Dry - Ponded
	NESedBasinS																Ponded	Ponded	Dry
	ESedBasinN																Ponded	Dry - Ponded	Dry
	ESedBasinC																Ponded	Dry - Ponded	Dry
	ESedBasinS																Ponded	Dry - Ponded	Dry
	ESedBasinToe																	Diffuse flow - 0.007	
	SEInfiltBasin																Ponded	Dry - Ponded	Dry - Ponded
	SWInfiltBasin																Dry	Dry - Ponded	Dry - Ponded
	WInfiltBasin																Dry	Dry	Dry
FSPS Runoff	FSPSBasin															Ponded	Ponded	Ponded	Ponded
Ponds	PCP-1	Dry																	
	PCP-2			Ponded			Ponded	Ponded	Ponded					Ponded	Ponded	Ponded	Ponded		

Notes:

Only years/seasons where data are available are presented. All values are reported in cfs (cubic feet per second).

Blank Cell - No Data Available

Table 6-24
Pedro Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Reach 1	PC-9	4/22/2014	**1.88**	*0.0021*	ND	0.0064	0.0747
	PC-6	5/23/2011	**2.13**				
		10/6/2014	**3.33**	*0.0035*	ND	0.0042	0.033
	PC-5	5/12/2004	**2.1**				
		5/1/2007	**4.08**	0.0011	ND		0.0117
		5/21/2009	**2.58**	*0.0021*	ND	0.0023	0.0238
		6/9/2010	**2.91**				
		7/13/2010	**1.28**				
		6/2/2011	**2.23**				
		4/25/2012	**3.19**				
		5/7/2013	**2.92**				
		6/10/2014	**1.81**	*0.002*	ND	0.004	0.0335
		8/5/2009	**1.13**	*0.0015*	ND	0.001	0.0203
		10/17/2012	**2.86**				
		10/12/2013	**1.9**				
		10/6/2014	**1.86**	0.00098	ND	0.0028	0.022
Tributary #5	PCT6-5	4/22/2014	**0.568**	*0.0015*	0.0017	0.0184	0.0667
		5/6/2014	**0.419**	0.00085	ND	0.0176	0.0204
	PCT5-2	4/25/2012	*0.0636*				
	PCT5-1	5/7/2003	**0.172**	0.0001	0.0002		0.01
Tributary #0	PCT-0	6/2/2011	0.00053				
Reach 2	PC-4	5/7/2003	**1.8**	*0.0028*	0.0004		0.04
		5/12/2004	**2.53**	*0.0024*	ND		0.0285
		5/9/2006	**2.09**	*0.0035*	ND		0.0378
		5/1/2007	**3.5**	*0.0024*	0.0014		0.0147
		5/21/2009	**2.31**	*0.0026*	ND	0.0028	0.0242
		6/9/2010	**2.4**				
		6/2/2011	**2.12**				
		4/25/2012	**2.9**				
		5/7/2013	**2.65**				
		6/10/2014	**0.71**	0.0011	ND	0.0051	0.018
		10/6/2014	**1.57**	0.00095	ND	0.0042	0.014
	PC-3	5/7/2003	**0.94**	*0.0018*	0.0004		0.03
		6/9/2010	**0.55**				
		6/2/2011	**0.59**				
		5/7/2013	**0.951**				
	PC-3A	5/12/2004	0.0076				
		5/9/2006	**0.56**	0.00054	ND		ND
		5/21/2009	**0.409**	0.00066	ND	0.0035	0.011
Tributaries #1-4	PCT1-1	5/6/2003	ND	ND	0.0004		ND
		5/15/2004	0.00079	ND	ND		ND
		10/23/2003	0.00041	ND	ND		ND
	PCT2-2	5/15/2004	0.0053	ND	ND		0.0083
		10/23/2003	0.0012	ND	ND		ND
	PCT3-1	5/6/2003	ND	ND	0.0003		0.01
		5/14/2004	0.00082	ND	ND		0.0024
		10/23/2003	0.00025	ND	ND		ND
	PCT4-0	5/12/2004	0.0012				
	PCT4-1	5/6/2003	0.004	ND	0.0006		ND
		5/12/2004	0.0025	ND	ND		ND
		10/23/2003	0.001	ND	ND		ND
Reach 3	PC-2	5/7/2003	ND	ND	0.0002		0.01
		5/12/2004	0.0017	ND	ND		0.0186
		5/9/2006	**0.365**	0.00033	ND		ND
		5/1/2007	0.0125	0.00004	ND		ND
		5/21/2009	*0.0616*	0.00009	ND	0.0023	0.0021
		7/11/2009	0.0035	ND	ND	0.0012	ND
		6/9/2010	0.0125				
		7/13/2010	0.0066				
		6/2/2011	*0.103*				
		5/22/2012	0.0042				
		5/9/2013	*0.0464*				
		6/10/2014	0.0053	ND	ND	ND	ND
		10/23/2003	0.0018	ND	ND		ND

Table 6-24
Pedro Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Reach 3	PC-2	10/18/2008	0.004	ND	ND	0.0014	ND
		8/5/2009	0.0042	ND	ND	0.0039	ND
		8/18/2010	0.0057				
		9/20/2010	0.0054				
		10/31/2011	0.0043				
		10/17/2012	0.0045				
		10/12/2013	0.0047				
		10/6/2014	0.0044	0.000037	ND	0.0013	0.0053
	PC-2B	5/12/2004	0.0015				
	PC-2C	5/12/2004	0.0011				
	PC-1UP	10/11/2013	0.0022				
	PC-1	5/7/2003	0.017	ND	0.0002		ND
		5/2/2007	0.0097	ND	ND		ND
		5/19/2009	*0.0653*	0.00004	ND	0.0026	ND
		7/10/2009	0.0102	ND	ND	0.0034	ND
		5/13/2010	*0.0323*				
		6/9/2010	0.0152				
		6/1/2011	*0.138*				
		4/24/2012	*0.0202*				
		5/8/2013	*0.0346*				
		8/7/2009	0.0053	ND	0.00096	0.0051	ND
		9/21/2010	0.0046				
		10/2/2011	0.004				
		10/19/2012	0.0037				
ODA Seeps	NES-5	5/22/2001		*0.0068*	0.012		*0.4*
		5/22/2001	**1.7**				
		5/22/2001		*0.0073*	0.012		*0.4*
		5/22/2001	**1.8**				
		5/22/2001		*0.0068*	0.015		*0.31*
		5/22/2001	**1.9**				
		5/7/2003	**3**	*0.0067*	0.0068		*0.26*
		5/12/2004	**5.77**	*0.0073*	0.0074		*0.316*
		5/1/2007	**3.84**	*0.0075*	0.0092		*0.322*
		5/20/2009	**6.89**	*0.0093*	0.0135	0.0172	*0.492*
		7/10/2009	**3.34**	*0.0095*	0.006	0.0195	*0.448*
		6/9/2010	**3.68**				
		7/13/2010	**4.07**				
		5/23/2011	**5.48**				
		6/1/2011	**5.32**				
		4/25/2012	**4.47**				
		6/18/2013	**4.44**				
		4/22/2014	**8.15**	*0.02*	0.0029	0.0267	*1.78*
		5/6/2014	**8.95**	*0.021*	0.0028	0.0308	*1.73*
		6/9/2014	**7.44**	*0.0033*	0.0041	0.0248	*1.04*
		10/23/2003	**0.535**	*0.0055*	0.0026		*0.453*
		10/18/2008	**2.3**	*0.0089*	0.0036	0.0186	*0.407*
		8/8/2009	**3.22**	*0.0126*	0.0023	0.0179	*0.677*
		8/18/2010	**3.17**				
		9/21/2010	**3.29**				
		10/1/2011	**3.3**				
		10/19/2012	**2.63**				
		8/20/2013	**3.99**				
		9/17/2013	**3.34**				
		11/8/2013	**2.63**				
		8/5/2014	**5.06**	0.001	0.0021	0.0192	*0.596*
		10/6/2014	**3.75**	*0.022*	0.0027	0.022	*1.78*
	NESeep5Pond	7/9/2013	**3.01**				
		4/22/2014	**8.25**	*0.018*	0.002	0.0196	*1.4*
		4/30/2014	**7.922**				
		4/30/2014	**8.574**				
		5/6/2014	**8.55**	*0.018*	0.0027	0.0291	*1.65*
		5/23/2014	**6.985**				
		6/9/2014	**7.55**	*0.0033*	0.004	0.0239	*1.05*
		9/17/2013	**2.72**				
		10/13/2013	**2.9**				
		8/5/2014	**5.03**	*0.0014*	0.0025	0.0179	*0.635*

Table 6-24
Pedro Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
ODA Seeps	NES-7	6/18/2013	**3.35**				
		7/16/2013	**2.03**				
	NESeep7Pond	4/22/2014	**7.43**	*0.0062*	0.0039	0.0114	*0.589*
		5/6/2014	**6.57**	*0.0031*	ND	0.0066	*0.19*
	NES-8	6/9/2014	**9.83**			ND	
	FSPSSeep	5/9/2013	**1.49**				
		6/18/2013	**1.52**				
		7/9/2013	**1.45**				
		4/22/2014	**1.3**	*0.0018*	ND	0.0081	0.0423
		5/6/2014	**0.854**	*0.0017*	ND	0.0043	0.0393
		8/20/2013	**1.15**				
		9/17/2013	**1.16**				
ODA Runoff/Pools	NRC-1	5/23/2011	*0.0274*				
		6/1/2011	*0.0484*				
	NED-1	6/1/2011	**3.36**				
	NEP-1	5/22/2001		ND	ND		ND
		5/22/2001	0.0078				
		5/22/2001		ND	0.0022		ND
		5/22/2001	0.0077				
		5/22/2001		ND	ND		ND
		5/22/2001	0.0082				
ODA Runoff/Pools	NEP-4a	5/8/2003	*0.165*	0.0011	0.0091		0.02
		5/15/2004	*0.0203*	0.00072	0.0056		0.0066
		5/16/2009	**0.359**	*0.0017*	0.0047	0.0222	0.011
		5/13/2010	*0.0392*				
NTCRA Runoff	NESedBasinN	7/9/2013	**0.411**				
		4/22/2014	**1.87**	0.00096	ND	0.006	0.0394
		4/30/2014	**3.19**				
		5/6/2014	**2.07**	0.0002	ND	0.0089	0.0074
		5/23/2014	**4.417**				
		6/9/2014	**4.44**	0.0011	ND	0.0069	0.0074
		10/13/2013	**0.524**				
		8/5/2014	**0.341**	*0.0017*	0.0024	0.0342	0.018
		9/2/2014	*0.0456*				
	NESedBasinC	7/9/2013	**0.966**				
		4/22/2014	**1.82**	0.00082	ND	0.0058	0.034
		5/6/2014	**2.29**	ND	ND	0.0097	ND
		6/9/2014	**5.87**	0.00035	ND	0.0039	0.0168
		9/17/2013	**0.508**				
		10/13/2013	**1.74**				
		11/8/2013	**1.46**				
		8/5/2014	*0.0455*	0.00023	0.0021	0.0433	0.0041
	NESedBasinS	7/9/2013	**0.553**				
		4/22/2014	**1.78**	0.00095	ND	0.0105	0.014
		5/6/2014	**0.507**	0.000072	ND	0.0086	0.0023
		6/9/2014	**4.04**	0.0012	ND	0.0071	0.0041
		9/17/2013	*0.123*				
		10/13/2013	**0.312**				
		11/8/2013	**0.209**				
	ESedBasinN	4/22/2014	**2.84**	0.00018	0.003	0.0657	0.0094
	ESedBasinC	7/9/2013	*0.158*				
		4/22/2014	**1.06**	0.00075	0.002	0.0122	0.0096
		4/30/2014	**1.635**				
		5/6/2014	**1.8**	ND	ND	0.0068	0.0036
		5/23/2014	**3.079**				
		9/17/2013	*0.114*				
		10/13/2013	**0.172**				
	ESedBasinS	4/22/2014	**0.929**	0.00085	0.0018	0.0085	0.0109
	ESedBasinToe	4/22/2014	**2.29**	0.0011	ND	0.0274	0.0303
		5/6/2014	**1.13**	0.00052	ND	0.0024	0.014
	SWInfiltBasin	4/21/2014	*0.0268*	0.00058	0.0055	*0.123*	0.0116
		10/8/2014	0.0104	0.00037	0.0025	0.062	0.0088
	SEInfiltBasin	4/22/2014	0.0023	0.00022	0.0041	0.0397	0.0103
		5/6/2014	0.00092	0.000098	0.0017	0.0151	0.0043
		9/17/2013	0.0171				
		10/12/2013	0.0078				
		10/8/2014	0.0031	0.00035	0.0076	0.032	0.022

Table 6-24
Pedro Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
FSPS Runoff	FSPSSeepPond	4/22/2014	**1.31**	*0.0019*	ND	0.0137	0.0347
		5/6/2014	**0.924**	*0.0015*	ND	0.0095	0.0201
		10/8/2014	**1.31**	0.00041	0.0025	0.019	ND
	FSPSBasin	5/9/2013	**0.63**				
		5/22/2013	**0.613**				
		5/22/2013	**0.673**				
		6/18/2013	**0.653**				
		7/9/2013	**0.3**				
		4/22/2014	**0.535**	*0.0014*	ND	0.0179	0.0595
		4/30/2014	**0.593**				
		5/6/2014	**0.406**	0.001	ND	0.0124	0.0294
		5/23/2014	**0.445**				
		6/9/2014	**0.437**	ND	ND	0.0085	ND
		8/20/2013	*0.0654*				
		9/17/2013	*0.0417*				
		10/12/2013	*0.0293*				
		11/8/2013	*0.029*				
		8/5/2014	*0.0654*	0.00019	0.002	0.0361	0.0042
		10/8/2014	*0.0658*	0.00034	0.0096	0.023	0.018
Ponds	PCP-2	5/6/2003	*0.036*	ND	0.0003		ND
		5/12/2004	0.0088	ND	ND		0.0073
		5/21/2009	*0.13*	ND	ND	0.0011	0.0043
		4/25/2012	*0.0373*				
		5/7/2013	**0.212**				
		6/18/2013	*0.109*				
		7/9/2013	*0.0558*				
		4/22/2014	**0.284**				
		5/6/2014	**0.215**				
		6/9/2014	**0.264**	ND	ND	ND	ND
		10/23/2003	0.0066	ND	ND		ND
		10/19/2008	0.0115	0.000048	ND	0.0037	ND
		8/5/2009	*0.0424*	ND	ND	0.0069	ND
		10/17/2012	0.0121				
		8/20/2013	*0.0304*				
		9/17/2013	0.0129				
		10/12/2013	0.0173				
		11/8/2013	0.0134				
		8/5/2014	*0.108*	ND	ND	0.0035	0.00041
		10/8/2014	*0.023*	ND	ND	0.0025	0.0053
Offsite-US	TC-3	5/20/2008	0.00045	ND	ND	ND	ND
		5/19/2009	0.00066	ND	ND	ND	ND
		5/13/2010	0.00028				
		6/9/2010	0.00091				
		6/1/2011	0.0011				
		4/24/2012	0.001				
		5/8/2013	0.00084				
		6/11/2014	0.00078				
		10/16/2008	0.00043	ND	ND	ND	ND
		8/7/2009	0.00024	ND	0.0012	ND	ND
		9/21/2010	0.00035				
		10/2/2011	0.00081				
		10/19/2012	0.00067				
		10/11/2013	0.00086				
		10/7/2014	ND	ND	ND	ND	0.0064

Table 6-24
Pedro Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Offsite-DS	TC-4	5/20/2008	0.00053	ND	ND	ND	ND
		5/19/2009	0.0068	ND	ND	ND	ND
		5/13/2010	0.00042				
		6/9/2010	0.0014				
		6/1/2011	*0.0262*				
		4/24/2012	0.0029				
		5/8/2013	0.0011				
		6/11/2014	0.00069				
		10/16/2008	0.00036	ND	ND	ND	ND
		8/7/2009	0.0003	ND	0.0012	ND	ND
		9/21/2010	0.00029				
		10/2/2011	0.00099				
		10/19/2012	0.00065				
		10/11/2013	0.00098				
		10/7/2014	ND	ND	ND	ND	0.0052

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
na - Not available
ND - Non-detected value
Blank Cell - No Data Available
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
Reach 1	PC-9	4/22/2014	97.8	0.288			97.8		190	191	6.06	1229	1.13	64.5	64.6
	PC-6	5/23/2011	90.4				90.4			215	3.28		0.44		85
		10/6/2014	154	ND			154		402	396	7.96	2341	ND	169	169
	PC-5	5/12/2004										1723			
		5/1/2007	112				112			374.6	4.8	2446			159.6
		5/21/2009	95.3	ND			95.3		244	242	3.66	1638	0.7	98	99.4
		6/9/2010	115				115			348	4.83	1973	0.057		139
		7/13/2010	147				147			443	4.42	2275	ND		180
		6/2/2011	92				92			214	3.59	1451	0.1		85.4
		4/25/2012	95.3				95.3			313	3.95	1580	0.56		124
		5/7/2013	103				103			333	4.3	2072	0.82		142
		6/10/2014	201	0.031			201			365	9.08	2036	ND		149
		8/5/2009	174	0.1			174		455	473	5.89	2534	ND	189	203
		10/17/2012	179				179			531	16.7	3254	ND		235
		10/12/2013	168				168			470	12	3100	ND		200
		10/6/2014	146				146		424	420	7.27	2568	0.65	183	180
Tributary #5	PCT6-5	4/22/2014	66.1	0.039			66.1		93.8	91.5	7.91	599.1	0.47	20.7	19.9
		5/6/2014	82.9	ND			74		76.8	78.6	5.29	539.9	0.34	14.9	15.8
	PCT5-2	4/25/2012	134				134			47.4	3.27	268.8	0.19		11
	PCT5-1	5/7/2003	61	ND			61		57.6		3	360	0.2	12.6	
Tributary #0	PCT-0	6/2/2011	31.1				31.1			10.9	3.14		0.14		2.7
Reach 2	PC-4	5/7/2003	112	ND			112		345		4	1557	0.2	141	
		5/12/2004							378			1665		157	
		5/9/2006							241		3.73	1925		94.1	
		5/1/2007	111				111			35.6	4.6	2352			152.6
		5/21/2009	94.8	ND			94.8		241	233	3.61	1608	0.593	96.6	95.4
		6/9/2010	107				107			315	4.71	1997	0.022		128
		6/2/2011	90.4				90.4			206	3.48	1411	0.1		83.5
		4/25/2012	92.2				92.2			305	3.93	1558	0.56		121
		5/7/2013	98.9				98.9			309	4.1	2037	0.94		130
		6/10/2014	108				108			287	6.03	2570	0.54		111
		10/6/2014	200	ND			200		423	428	9.13	1854	ND	179	185
	PC-3	5/7/2003	80	ND			80		219		3	1105	0.1	79.9	
		6/9/2010	61.1				61.1			125	3.3	895	0.099		42.2
		6/2/2011	59.1				59.1			79.9	2.97	610	0.24		26.9
		5/7/2013	58.8				58.8			137	3.06	1011	0.3		49.9
	PC-3A	5/12/2004										807			
		5/9/2006							82.1		3.62	806		27.7	
		5/21/2009	61.1	ND			61.1		95.2	92.6	3.33	703	0.425	32.8	32.6
Tributaries #1-4	PCT1-1	5/6/2003	182	ND			182		64.4		2	325	0.2	8.1	
		5/15/2004							60.6			135		8.07	
		10/23/2003	210	ND			210		63.5		1.88	288	0.1	15.5	
	PCT2-2	5/15/2004							65.5			283		8.55	
		10/23/2003	236	0.22			236		78.6		3.88	314	0.114	10.4	
	PCT3-1	5/6/2003	39	ND			39		11.3		ND	96	0.2	2	
		5/14/2004							57.8			245		8.58	
		10/23/2003	184	ND			184		61.3		3.73	254	0.103	8.81	
	PCT4-0	5/12/2004										246			
	PCT4-1	5/6/2003	188	ND			188		64.4		4	339	0.1	8.2	
		5/12/2004							60.7			266		8.01	
		10/23/2003	194	ND			194		64.7		4.52	255	ND	8.62	

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
Reach 1	PC-9	4/22/2014		4.1			7.75	0.624	4.23	4.18	9.59	9.8	643	991	3.56
	PC-6	5/23/2011											707	1230	
		10/6/2014		ND			7.33	1.41	5.19	5.22	16.9	16.6	1510	2200	5.68
	PC-5	5/12/2004					7.73						1605		
		5/1/2007		ND			7.71		3.2		15.9		1470	2240	
		5/21/2009		ND			7.69	0.05	2.75	2.77	10.8	11.1	1030	1430	3.27
		6/9/2010					7.32						1330	1930	
		7/13/2010					7.57						1630	2490	
		6/2/2011					7.76						730	1210	
		4/25/2012					7.69						1200	1660	
		5/7/2013					7.69						1260	1890	
		6/10/2014		ND			7.22	2.16					1620	2420	3.72
		8/5/2009		ND			7.13	0.22	3.56	3.96	16.3	18.9	1940	2880	3.34
		10/17/2012					6.81						2060	3180	
		10/12/2013					7.33						2180	3020	
		10/6/2014					7.58		4.73	4.83	20	19.9	1400	2030	
Tributary #5	PCT6-5	4/22/2014		3.11			7.65	0.639	3.2	3.7	8.26	8.58	222	401	4.14
		5/6/2014		0.945			9.06	0.603	2.65	3.18	6.4	6.55	192	379	3.76
	PCT5-2	4/25/2012					7.52						38	201	
	PCT5-1	5/7/2003		ND			8.12	0.17	0.9		5.5		110	280	4
Tributary #0	PCT-0	6/2/2011											10.5	76	
Reach 2	PC-4	5/7/2003		ND			8.19	0.15	3		15.5		1230	1970	4
		5/12/2004					8.1						1558	1972	
		5/9/2006		0.17			8.22		2.68		10.6		887	1380	
		5/1/2007		ND			8.02		3.14		15.1		1432	2140	
		5/21/2009		ND			8.06	0.04	2.69	2.74	10.6	10.6	980	1390	3.71
		6/9/2010					7.91						1090	1730	
		6/2/2011					8.09						723	1180	
		4/25/2012					7.95						1160	1760	
		5/7/2013					8						1210	1830	
		6/10/2014					8.19						1090	1620	
		10/6/2014		ND			7.71	3.04	5.88	6.02	19.9	20.1	1630	2420	4.3
	PC-3	5/7/2003		0.02			8.27	0.16	2.3		10.9		650	970	4
		6/9/2010					7.6						412	648	
		6/2/2011					7.99						242	442	
		5/7/2013					8.04						499	784	
	PC-3A	5/12/2004					7.64						618		
		5/9/2006		ND			8.15		1.35		5.3		285	448	
		5/21/2009		ND			7.8	0.02	1.67	1.67	5.97	5.98	361	507	4.5
Tributaries #1-4	PCT1-1	5/6/2003		ND			8.14	0.02	0.4		3.8		20	220	3
		5/15/2004					7.96						23.2	204	
		10/23/2003		ND			7.72	0.028	0.86		5.24		19.1	217	ND
	PCT2-2	5/15/2004					8.3						22.1	232	
		10/23/2003		0.05			7.73	0.698	1.26		5.91		11.6	236	3.3
	PCT3-1	5/6/2003		ND			7.91	0.06	ND		4.8		ND	90	9
		5/14/2004					7.55						10.5	212	
		10/23/2003		0.03			7.61	0.156	0.738		5.82		10.7	195	1
	PCT4-0	5/12/2004					8.17						8.15		
	PCT4-1	5/6/2003		0.24			7.7	0.03	0.5		5		ND	220	2
		5/12/2004					7.35						7.64	228	
		10/23/2003		0.29			7.55	0.028	0.625		5.57		8.32	203	ND

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
Reach 3	PC-2	5/7/2003	163	ND			163		58.5		4	298	0.1	7.7	
		5/12/2004							55			236		7.25	
		5/9/2006							76.3		4.27	597		24.8	
		5/1/2007	178				178			54.7	4.0	359			7.2
		5/21/2009	135	0.032			135		59.8	58.8	4.08	396	0.515	11.8	12.2
		7/11/2009	184	ND			184		59.8	59.5	4.28	368	ND	7.77	7.8
		6/9/2010	142				142			69.7	3.69	439	0.137		12.4
		7/13/2010	182				175			63.4	4.19	317	0.078		8.43
		6/1/2011										426			
		6/2/2011	124				124			57.9	3.31		0.18		12
		5/22/2012	176				176			58.6	3.65	357	0.11		7.73
		5/9/2013	137				137			62	4.02	427	0.18		11.4
		6/10/2014	190				190			62	4.03	376	0.11		8.26
		10/23/2003	187	ND			187		62.2		4.72	252	0.104	8.51	
		10/18/2008	199	ND			199		63.2	65	4.37	285	0.154	8.23	8.78
		8/5/2009	187	0.123			187		59.9	62.2	4.61	352	ND	7.69	8.25
		8/18/2010	188				185			71.3	4.91	409	0.129		8.88
		9/20/2010	180				174			61.2	4.5	360	0.099		7.99
		10/31/2011	183				183			59.5	4.41	234	0.1		7.54
Reach 3	PC-2	10/17/2012	194				194			59.7	4.46	257.3	ND		8.04
		10/12/2013	190				190			63.4	4.06	379	ND		8.22
		10/6/2014	194	ND			194		64.8	64.1	4.38	371.3	0.1	8.63	8.75
	PC-2B	5/12/2004										313			
	PC-2C	5/12/2004										249			
	PC-1UP	10/11/2013	176				176			48.4	8.74	374	0.15		11.9
	PC-1	5/7/2003	164	ND			164		67.6		8	387	0.2	12.9	
		5/2/2007	181				159			51.75	8.75	375.00			12.4492
		5/19/2009	149	ND			149		64.6	62.6	6.06	404	0.197	14.5	14.1
		7/10/2009	176	ND			176		58.2	58.6	8.59	336	0.102	11.9	12.2
		5/13/2010	166				163			49.3	8.39	297	0.172		11.3
		6/9/2010	169				169			62.3	7.06	406	0.199		12.8
		6/1/2011	121				121			56.3	4.98	352	0.19		13.5
		4/24/2012	163				163			54.5	6.71	276.1	0.21		11.7
		5/8/2013	155				155			57.8	9.39	406.7	0.2		12.8
		8/7/2009	163	0.048			138		48	49.3	9.78	316	0.278	11.6	12.1
		9/21/2010	167				149			49	10.5	359	0.18		12.6
		10/2/2011	184				184			57.3	7.71	362.2	0.19		10.8
		10/19/2012	209				209			59.2	6.43	242	0.18		11

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
Reach 3	PC-2	5/7/2003		ND			8.69	0.26	0.6		5.9		ND	200	4
		5/12/2004					8.36						8.28	177	
		5/9/2006		ND			8.27		1.22		5.6		254	416	
		5/1/2007		ND			8.12		0.683		5.55		8.822	211	
		5/21/2009		ND			8.07	0.05	1.22	1.2	5.71	5.89	81.7	244	6.15
		7/11/2009		0.273			7.27	0.04	0.325	0.414	5.19	5.25	11.1	227	19.1
		6/9/2010					8.08						77.9	259	
		7/13/2010					8.2						10.8	207	
		6/1/2011					8								
		6/2/2011											75.2	254	
		5/22/2012					8.18						10.2	213	
		5/9/2013					8.05						80.8	259	
		6/10/2014					8.12						11.5	216	
		10/23/2003		ND			8.21	0.089	0.948		5.72		9.04	249	ND
		10/18/2008		0.0736			7.78	0.01	0.877	0.973	5.24	5.51	10.8	220	1.65
		8/5/2009		ND			7.86	0.04	0.46	0.917	5.02	5.9	12.2	214	4.62
		8/18/2010					7.59						11.7	231	
		9/20/2010					8.7						11.5	230	
		10/31/2011					7.99						10.7	204	
Reach 3	PC-2	10/17/2012					7.78						11	207	
		10/12/2013					8.17						11.4	215	
		10/6/2014		ND			8.27	0.038	0.845	0.935	5.96	5.89	11.9	220	1.52
	PC-2B	5/12/2004					7.83						64		
	PC-2C	5/12/2004					8.34						13.5		
	PC-1UP	10/11/2013					8.4						16.7	212	
	PC-1	5/7/2003		0.06			8.15	0.15	1.5		7.5		50	280	5
		5/2/2007		ND			8.6		0.6		7.75		21.83	234	
		5/19/2009		0.142			8.18	0.08	1.26	1.24	7.22	6.59	66.6	283	9.79
		7/10/2009		0.0863			8.45	0.12	0.84	1.06	7.14	7.26	32.9	251	26.1
		5/13/2010					8.55						35.2	174	
		6/9/2010					8.14						33.5	220	
		6/1/2011					8.13						87.1	237	
		4/24/2012					8.31						33.7	240	
		5/8/2013					8.5						49.2	240	
		8/7/2009		0.0664			9.5	0.1	1.11	1.36	8.34	7.64	24.6	211	4.83
		9/21/2010					9.04						15	227	
		10/2/2011					8.3						14.3	229	
		10/19/2012					8.21						13.5	229	

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
ODA Seeps	NES-5	5/22/2001	210				210		590		6.9		3.1	220	
		5/22/2001	200				200		610		6.9		3.1	230	
		5/22/2001	210				210		590		7		3.1	220	
		5/7/2003	160	ND			160		551		6	1899	1.7	200	
		5/12/2004							504			2016		185	
		5/1/2007	192				192			483.1	6.3	2902			179.4
		5/20/2009	170	ND			170		487	498	4.75	2598	2.7	170	178
		7/10/2009	227	ND			227		518	513	6.81		2.95	188	189
		6/9/2010	181				181			496	6.36	2919	1.36		171
		7/7/2010										2329			
		7/13/2010	222				222			543	7.03	2599	1.65		197
		5/23/2011	132				132			429	5.08		1.96		166
		6/1/2011	151				151			442	6.17	2710	2.26		162
		4/25/2012	164				164			445	5.82	2123	2.22		161
		4/22/2014								549					293
		5/6/2014								543					280
		6/9/2014													321
		10/23/2003	314	0.01			314		557		9.71	1707	1.42	261	
		10/18/2008	231	ND			231		509	524	8.19	6100	1.3	221	236
		8/8/2009	233	ND			233		516	500	7.85	253	3.82	194	196
		8/18/2010	266				266			594	8.17	3394	1.58		224
		9/21/2010	248				248			515	9.01	3169	2		208
		10/1/2011	281				281			502	8.6	2370	2.36		205
		10/19/2012	239				239			498	9.59	3215	3.09		227
		8/5/2014								590					316
		10/6/2014								578					301
	NESeep5Pond	4/22/2014	227	0.036			227		522	516	11.1	3591	2.55	257	249
		5/6/2014	264	ND			264		576	545	11.4	3159	2.49	290	285
		6/9/2014	207	0.042			207		539	538	11.6	3550	2.81	314	313
		10/13/2013										3270			
		8/5/2014	248	0.093			248		568	565	14.5	3554	3.79	322	313
	NESeep7Pond	4/22/2014	248	0.043			248		520	553	12	2710	1.63	163	168
		5/6/2014	224	ND			224		491	492	10.1	2668	1.31	151	153
	NES-8	6/10/2014	233				233			567	20.6		1.09		158
	FSPSSeep	5/9/2013	71				71			215	24.1	1510	0.12		44.2
		4/22/2014	63.3	ND			63.3		176	177	19	1083	0.4	35.2	35.1
		5/6/2014	73.4	ND			73.4		204	206	14.1	1295	0.43	41.2	41.4
ODA Runoff/Pools	NRC-1	5/23/2011	26.7				26.7			31.5	0.29		0.26		3.07
		6/1/2011	21.6				21.6			29.9	ND	148	0.14		2.64
	NED-1	6/1/2011	85.1				85.1			290	4.14	1973	1.38		121
	NEP-1	5/22/2001	100				83		31		5		0.22	8.6	
	NEP-4a	5/8/2003	51	ND			32		33.2		2	246	0.3	11.1	
		5/15/2004							22			157		10.2	
		5/16/2009	108	ND			97.8		47.9	48.8	1.84	294	0.681	12.4	12.6
		5/13/2010	111				111			36.2	2.06	262	0.276		7.22

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
ODA Seeps		5/22/2001		1.4				0.23	5.2		22		1900	3100	
	NES-5	5/22/2001		1.4				0.2	5.1		28		2000	3100	
		5/22/2001		1.4				0.31	5.2		22		2000	3000	
		5/7/2003		0.95			8.51	0.31	4.1		21.6		1910	2910	4
		5/12/2004					8.17						1975	2560	
		5/1/2007		2.17			8.16		4.35		21.2		1765.45	2730	
		5/20/2009		2.55			7.96	0.16	3.5	3.62	17.2	17.4	1690	2660	2.16
		7/10/2009		1.68				0.19	4.22	4.17	20.9	21	1850	3000	29
		6/9/2010					7.82						1720	2680	
		7/7/2010					7.87								
		7/13/2010					8.1						1880	2920	
		5/23/2011											1530	2560	
		6/1/2011					7.67						1680	2410	
		4/25/2012					8.11						1670	2540	
		4/22/2014							5.09		26.1	25.7			4.82
		5/6/2014							4.8		22.5	22.6			3.97
		6/9/2014					7.15					27.5		3430	
		10/23/2003		0.55			8.03	1.605	6.82		30.4		2024	3060	2
		10/18/2008		1.1			8.07	0.16	4.88	5.26	24.2	25.3	1940	3100	2.82
		8/8/2009		1.48			7.97	0.25	4.48	4.31	24.3	21.8	1930	3090	2.35
		8/18/2010					7.7						1850	3400	
		9/21/2010					8.01						1950	3240	
		10/1/2011					7.91						2140	3140	
		10/19/2012					8.11						2140	3100	
		8/5/2014							5.75		29.9	29			7.98
		10/6/2014							5.81		30.1	30.5			3.29
	NESeep5Pond	4/22/2014		4.96			7.61	0.118	4.53	4.43	24.9	24	2300	3140	5.35
		5/6/2014		3.53			7.45	0.177	4.92	4.86	23.8	23.6	2390	3360	5.47
		6/9/2014		0.487			8.07	0.096	5.46	5.58	26.4	26.8	2460	3420	7.83
		10/13/2013					8.88								
		8/5/2014		ND			7.9	0.122	5.8	5.84	30	28.8	2500	3500	8.18
	NESeep7Pond	4/22/2014		11.6			7.17	0.201	4.75	5	16.9	17.7	1760	2640	4.7
		5/6/2014		9.95			8.17	0.155	4.41	4.64	15.7	15.7	1690	2560	5.1
	NES-8	6/10/2014								1.95		40.6	1870	2930	
	FSPSSeep	5/9/2013					7.07						682	1180	
		4/22/2014		6.22			6.85	0.208	2.23	2.12	21.4	22.4	536	835	2.61
		5/6/2014		4.96			6.61	0.185	2.28	2.4	21.6	21.7	619	1020	2.55
ODA Runoff/Pools	NRC-1	5/23/2011											47.5	160	
		6/1/2011					7.91						7.98	41	
	NED-1	6/1/2011					7.41						1160	1760	
	NEP-1	5/22/2001		ND				0.18	1.8		5.3		11	84	
	NEP-4a	5/8/2003		ND			9.86	0.12	3.8		2.4		80	180	9
		5/15/2004					10.21						55.8	134	
		5/16/2009		ND			8.9	0.13	2.06	2.09	1.46	1.51	69.8	208	6.9
		5/13/2010					8.14						26.3	251	

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
NTCRA Runoff	NESedBasinN	4/22/2014	95.7	0.43			95.7		170	171	5.92	1108	1.25	62.3	62.7
		5/6/2014	94.8	ND			84.7		169	171	4.86	1215	1.11	66.7	68
		6/9/2014	137	0.052			137		589	589	13.7	3766	1.99	325	332
		10/13/2013										1117			
		8/5/2014	84.3	0.121			84.3		306	311	9.15	2732	1.81	135	138
	NESedBasinC	4/22/2014	91.9	0.276			91.9		190	192	5.88	766	1	60.6	61
		5/6/2014	92.2	0.055			72.9		171	169	4.84	1217	0.9	67.3	66.7
		6/9/2014	168	0.051			168		585	589	12.7	3529	1.96	328	329
		8/5/2014	49	ND			49		45.1	50.6	1.54	1614	0.67	11.3	16
	NESedBasinS	10/13/2013										920			
		4/22/2014	79.2	0.22			79.2		196	195	5.47	1189	0.77	62.4	61.7
		5/6/2014	50.2	ND			50.2		54.2	54.4	2.2	522.1	0.7	26.9	28.7
		6/9/2014	170	0.043			170		712	723	16.4	4072	1.77	392	404
	ESedBasinN	4/22/2014	128	0.971			128		252	266	10.5	1194	0.8	66.3	80.4
	ESedBasinC	4/22/2014	74.3	0.872			74.3		135	137	6.77	848	0.79	29.2	31.6
		5/6/2014	77.2	0.045			59.1		123	124	10.5	869	0.81	28.7	30.5
	ESedBasinS	4/22/2014	73.6	0.86			73.6		130	131	6.57	40.1	0.75	27.5	28.8
	ESedBasinToe	4/22/2014	305	0.096			305		278	283	6.53	1488	0.38	58.7	62.5
		5/6/2014	288	ND			288		198	194	5.18	1142	0.29	43.1	42.3
	SWInfiltBasin	4/21/2014	49.6	0.928			49.6		13.7	21.9	1.07	123.9	0.35	4.3	8.14
		10/8/2014	96.1	0.066			96.1		31.5	37.3	3.43		0.35	5.63	8.72
	SEInfiltBasin	4/22/2014	33.2	0.547			33.2		11.5	14.8	1.95	110.8	0.39	3.48	7.01
		5/6/2014	29.8	0.032			29.8		8.01	9.32	0.75	115.5	0.59	2.16	3.03
		10/12/2013										176			
		10/8/2014	60.3	0.045			54.7		19.9	22.2	1.74	151.4	0.52	4.82	6.6
FSPS Runoff	FSPSSeepPond	4/22/2014	76.8	0.043			76.8		167	164	17.7	1018	0.38	35.1	34.2
		5/6/2014	82.3	ND			82.3		196	199	14.5	1265	0.47	40.7	41.5
		10/8/2014	120	ND			108		156	154	12.7	1038	0.56	34.7	34.3
	FSPSBasin	5/9/2013	73.9				73.9			77.2	9.17	608	0.37		15.9
		4/22/2014	66.2	0.069			66.2		90.1	90.1	7.77	599.2	0.46	20.1	19.3
		5/6/2014	82.9	ND			76.3		77.8	77.6	5.32	672.5	0.37	16	15.6
		6/9/2014	77.8	0.042			75.2		101	98.6	7.49	707	0.43	24.1	23.6
		10/12/2013										388			
		8/5/2014	137	0.112			110		150	155	11.2	916	0.93	31.9	33.6
		10/8/2014	55.1	0.047			52.5		36.7	37.2	2.37	262.2	0.51	6.54	6.69

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
NTCRA Runoff	NESedBasinN	4/22/2014		3.84			7.96	0.687	3.71	3.96	8.84	8.86	648	944	3.75
		5/6/2014		1.52			9.73	0.765	4.18	4.81	7.76	7.95	618	966	5.52
		6/9/2014		ND			8.27	0.266	7.61	8.14	29.2	29.7	2810	3760	14
		10/13/2013					8.97								
		8/5/2014		4.42			7.12	1.24	6.3	9.62	18.9	18.3	1240	1890	8.48
	NESedBasinC	4/22/2014		4.04			7.83	0.613	3.91	3.96	9.25	9.7	640	974	3.94
		5/6/2014		1.6			9.9	0.622	4.29	4.76	7.79	7.8	614	959	5.4
		6/9/2014		ND			7.71	0.194	7.66	8.01	28.8	28.7	2730	3680	10.3
		8/5/2014		2.51			7.89	1.9	2.93	7.81	6.53	6.4	121	472	6.24
	NESedBasinS	10/13/2013					8.19								
		4/22/2014		2.37			7.22	0.261	2.51	2.55	9.81	10.3	673	985	4.32
		5/6/2014		1.25			9.32	0.313	0.826	1.12	5.26	5.34	210	356	2.61
		6/9/2014		ND			7.43	0.238	7.78	8.43	34.9	36	3350	4520	12.9
	ESedBasinN	4/22/2014					7.88	1.96	2.77	10.4	12.3	13.4	758	1180	5.63
	ESedBasinC	4/22/2014		3.33			7.99	0.599	2.42	2.83	7.96	8.59	380	624	3.44
		5/6/2014		4.13			9.41	0.443	1.52	1.85	14.1	14.1	369	656	4.13
	ESedBasinS	4/22/2014		2.98			7.98	0.587	2.11	2.33	7.75	7.84	343	598	3.38
	ESedBasinToe	4/22/2014		7.65			7.27	1.2	2.03	3.4	9.33	9.74	617	1220	5.31
		5/6/2014		6.72			8.15	0.204	1.48	1.47	7.91	7.68	378	895	1.86
	SWInfiltBasin	4/21/2014		0.681			7.19	2.95	1.34	4.68	1.33	1.59	7.5	179	2.07
		10/8/2014		ND				0.105	3.57	6.37	1.84	1.86	11.3	170	7.42
	SEInfiltBasin	4/22/2014		1.14			8.05	1.13	0.914	4.36	2.22	2.44	7.31	223	2.38
		5/6/2014		1.09			7.15	0.778	0.617	1.43	2.62	2.64	2.18	79	2.79
		10/12/2013					10.04								
		10/8/2014		0.245			9.53	1.22	3.01	4.93	2.08	2.08	13.2	166	9.39
FSPS Runoff	FSPSSeepPond	4/22/2014		5.37			7.48	0.302	2.76	2.8	20.4	20.6	439	772	2.99
		5/6/2014		4.65			8.11	0.291	2.58	2.75	20.9	21	608	999	2.82
		10/8/2014		ND			9.06	0.362	2.5	2.88	22.4	22.5	462	786	3.51
	FSPSBasin	5/9/2013					8.61						203	415	
		4/22/2014		2.95			7.7	0.676	3.28	3.63	7.89	8.22	224	412	4.87
		5/6/2014		0.985			7.49	0.451	2.72	2.89	6.57	6.49	191	388	4.34
		6/9/2014		ND			8.76	0.386	3.16	3.32	10.4	10.1	279	474	6.18
		10/12/2013					10.63								
		8/5/2014		ND			8.98	2.29	4.79	6.15	14.7	14.3	402	714	16.6
		10/8/2014		ND			9.39	1	3.29	4.01	2.93	2.86	67.9	193	8.38

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
Ponds	PCP-2	5/6/2003	104	0.1			104		41.5		4	235	0.2	7.5	
		5/12/2004							33.2			162		6.12	
		5/21/2009	178	ND			178		64.6	64.6	3.31	394	0.215	10.1	10.3
		4/25/2012	171				171			61	4.94	318.8	0.16		11.1
		5/7/2013	153				153			67.2	3.54	428.7	0.14		10.8
		4/22/2014	80.2				80.2			65.3	4.03	451	0.22		12.5
		5/6/2014	180				180			81.7	3.56	510.3	0.12		13.1
		6/9/2014	187				187			81.5	3.6	525	0.11		14.8
		10/23/2003	146	0.05			146		52.6		13.7	267	0.281	12.6	
		10/19/2008	124	0.036			124		37.1	39.5	6.74	1277	0.281	10.3	10.6
		8/5/2009	60.4	0.073			25.3		21	23.5	1.38	208	0.105	9.73	11
		10/17/2012	172				172			41.8	7.87	358.4	0.28		14.5
		10/12/2013	64.2				41.1			19.8	4.94	237	0.17		8.45
		8/5/2014	55.6				42.5		30.6	30.3	3.97	302.2	0.16	12.9	12.9
		10/8/2014	76.5	ND			65.1		28.6	28.9	4.33	245.5	0.18	10.6	10.9
Offsite-US	TC-3	5/20/2008	204	ND			204		63.8	61.6	8.01	270	0.192	11.7	11.4
		5/19/2009	208	ND			208		69.2	66.7	7.94	399	0.186	12.3	11.8
		5/13/2010	210				210			57.5	8.21	412	0.128		11.3
		6/9/2010	217				217			69.4	6.87	433	0.125		12.5
		6/1/2011	188				188			61.6	7.03	326	0.14		10.9
		4/24/2012	195				195			61.2	7.07	281.6	0.17		11.9
		5/8/2013	190				190			60	7.45	394.8	0.17		11.2
		6/11/2014	185				185			59.4	6.45	372	0.12		12.1
		10/16/2008	197	ND			197		58	58	6.87	283	0.147	11.3	11.3
		8/7/2009	193	0.032			193		54.3	56	5.95	345	0.182	10.8	11
		9/21/2010	165				165			49.3	5.54	337	0.099		10.9
		10/2/2011	189				189			55	6.04	353.1	0.13		10.8
		10/19/2012	197				197			58	8.18	383.5	0.15		12
		10/11/2013	190				190			59.4	6.49	390	0.11		12.2
		10/7/2014	216	0.071			216		65.6	65.3	8.65	430.7	0.14	12.5	12.8
Offsite-DS	TC-4	5/20/2008	206	ND			206		65.2	62.9	7.95	273	0.197	11.9	11.7
		5/19/2009	198	ND			198		65.3	61.9	8.32	396	0.353	11.9	11.7
		5/13/2010	209				209			58.4	8.38	410	0.124		11.4
		6/9/2010	217				217			69.7	6.89	433	0.145		12.5
		6/1/2011	173				173			61	6.53	333	0.15		11.6
		4/24/2012	191				191			60.4	7.04	289.1	0.18		11.6
		5/8/2013	188				188			59.8	7.67	397.1	0.17		11.3
		6/11/2014	188				188			61.2	5.87	378	0.12		12.3
		10/16/2008	198	0.037			198		59	61.1	6.86	283	0.146	11.4	11.9
		8/7/2009	197	0.031			197		55.3	57	5.97	348	0.154	10.9	11
		9/21/2010	166				166			48.9	5.61	342	0.095		10.7
		10/2/2011	188				188			53.8	6.13	345.7	0.13		10.6
		10/19/2012	195				195			57.2	8.16	396.3	0.14		11.9
		10/11/2013	189				189			54.1	6.88	391	0.1		10.8
		10/7/2014	215	0.074			215		66.2	67.3	8.75	437.4	0.15	12.5	12.9

Table 6-25
Pedro Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na												
Ponds	PCP-2	5/6/2003		ND			9.24	0.36	1.7		3.9		10	180	19
		5/12/2004					8.8						16.7	176	
		5/21/2009		ND			7.88	0.01	1.04	1.1	4.12	4.16	44.6	220	2.77
		4/25/2012					7.76						29.2	216	
		5/7/2013					7.84						65.6	253	
		4/22/2014					7.46						122	286	
		5/6/2014					7.77						82.7	319	
		6/9/2014					7.96						82.5	302	
		10/23/2003		ND			7.81	1.183	5.9		9.91		43.4	318	18.9
		10/19/2008		ND			8.6	0.21	3.88	4.01	7.23	7.41	32.7	210	10.3
		8/5/2009		ND			9.74	0.12	0.106	1.04	3.83	4.55	43.3	114	4.51
		10/17/2012					7.29						14.1	202	
		10/12/2013					10.32						31.3	118	
		8/5/2014		0.19			9.23	0.114	1.98		4.32		76.9	166	
		10/8/2014		ND			9.79	0.061	1.74	2.04	4.99	5.02	44.1	145	6.47
Offsite-US	TC-3	5/20/2008		ND	0		7.88	0.07	1.11	1.12	6.55	6.67	10.8	240	5.53
		5/19/2009		ND			7.89	0.04	1.04	1.06	6.91	6.26	9.88	257	4.39
		5/13/2010					7.99						9.05	240	
		6/9/2010					7.88						7.01	229	
		6/1/2011					7.8						10	209	
		4/24/2012					7.85						10.7	215	
		5/8/2013					8.14						13.7	218	
		6/11/2014					7.35						9.74	205	
		10/16/2008		ND			8.31	ND	1.49	1.44	5.66	5.68	10.5	230	3.33
		8/7/2009		ND			8.76	0.06	0.642	0.659	5.75	5.23	6.54	214	3.34
		9/21/2010					8.56						8.6	204	
		10/2/2011					7.74						8.59	192	
		10/19/2012					7.65						19.9	221	
		10/11/2013					7.85						13.4	215	
		10/7/2014	ND				7.52	0.038	1.54	1.55	6.89	6.54	12.7	248	4.63
Offsite-DS	TC-4	5/20/2008		ND	0.01		7.71	0.07	1.12	1.2	6.67	6.72	11.4	250	4.78
		5/19/2009		0.263			7.99	0.06	1.03	1.07	6.6	6.54	16.7	240	3.9
		5/13/2010					7.92						9.44	234	
		6/9/2010					7.86						8.2	237	
		6/1/2011					7.37						27.3	222	
		4/24/2012					7.92						14	212	
		5/8/2013					8.09						14.8	223	
		6/11/2014					7.32						8.96	207	
		10/16/2008		ND			8.38	0.01	1.44	1.5	5.73	5.97	10.6	240	3.6
		8/7/2009		ND			7.9	0.07	0.694	0.701	5.86	5.3	6.81	225	3.83
		9/21/2010					8.43						8.67	201	
		10/2/2011					7.67						9.06	201	
		10/19/2012					7.91						20.1	226	
		10/11/2013					7.84						14	226	
		10/7/2014	ND				7.58	0.042	1.61	1.56	6.87	6.63	12.8	247	4.6

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not available
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte names.

Table 6-26
Pedro Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH: 15 pCi/L	HH: 50 pCi/L	Comparison Value: na	
Reach 1	PC-5	5/21/2009		**17.2**	ND		
		8/5/2009		ND	ND		
Reach 2	PC-3A	5/21/2009		8.9	4.2		
Reach 3	PC-2	5/21/2009		7.2	3.8		
		8/5/2009		5.2	ND		
ODA Seeps	NES-5	5/20/2009		ND	ND		
		10/18/2008	3.6	**24.1**	ND	-130.1	-16.7
		8/8/2009		ND	ND		
ODA Runoff/Pools	NEP-4a	5/16/2009		4.2	ND		
Ponds	PCP-2	10/19/2008	-35.2	2.1	ND	-74.6	-4.9

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Reach 1	PC-9	4/22/2014	0.0047	0.0045
	PC-6	10/6/2014	0.0078	0.0078
	PC-5	5/1/2007		0.0047
		5/21/2009	0.00236	0.00225
		8/5/2009	0.00984	0.0108
		10/6/2014	0.015	0.015
Tributary #5	PCT6-5	4/22/2014	0.0023	0.0019
		5/6/2014	0.0019	0.0015
Reach 2	PC-4	5/1/2007		0.0043
		5/21/2009	0.00227	0.00226
		10/6/2014	0.016	0.017
	PC-3A	5/21/2009	ND	ND
Reach 3	PC-2	5/1/2007		0.00048
		5/21/2009	0.000439	ND
		7/11/2009	ND	ND
		10/18/2008	ND	0.00065
		8/5/2009	ND	ND
		10/6/2014	0.00053	0.00052
	PC-1	5/2/2007		0.00083
		5/19/2009	0.00058	0.000536
		7/10/2009	ND	ND
		8/7/2009	ND	0.00104

Table 6-26
Pedro Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
ODA Seeps	NES-5	5/22/2001		0.017
		5/22/2001		0.016
		5/22/2001		0.015
		5/1/2007		0.013
		5/20/2009	0.0154	0.0149
		7/10/2009	0.0183	0.0153
		4/22/2014	0.017	0.018
		5/6/2014	0.02	0.02
		6/9/2014	0.02	0.018
		10/18/2008	0.0156	0.0149
		8/8/2009	0.019	0.0196
		8/5/2014	0.0201	0.019
		10/6/2014	0.02	0.021
	NESeep5Pond	4/22/2014	0.018	0.018
		5/6/2014	0.019	0.02
		6/9/2014	0.02	0.019
		8/5/2014	0.0195	0.02
ODA Seeps	NESeep7Pond	4/22/2014	0.015	0.015
		5/6/2014	0.019	0.019
	NES-8	6/9/2014	0.025	
	FSPSSeep	4/22/2014	0.00043	0.00041
		5/6/2014	0.00056	0.00056
ODA Runoff/Pools	NEP-1	5/22/2001		0.00079
		5/22/2001		0.00078
		5/22/2001		0.00081
ODA Runoff/Pools	NEP-4a	5/16/2009	0.00305	0.0032
NTCRA Runoff	NESedBasinN	4/22/2014	0.0051	0.0052
		5/6/2014	0.0058	0.0059
		6/9/2014	0.029	0.027
		8/5/2014	0.0087	0.0074
	NESedBasinC	4/22/2014	0.0045	0.0048
		5/6/2014	0.0056	0.0054
		6/9/2014	0.022	0.021
		8/5/2014	0.0024	0.00089
	NESedBasinS	4/22/2014	0.0059	0.0059
		5/6/2014	0.0014	0.0013
		6/9/2014	0.032	0.031
	ESedBasinN	4/22/2014	0.0075	0.0066
	ESedBasinC	4/22/2014	0.0034	0.0032
		5/6/2014	0.0029	0.0029
	ESedBasinS	4/22/2014	0.0032	0.003
	ESedBasinToe	4/22/2014	0.0027	0.002
		5/6/2014	0.0015	0.0015
	SWInfiltBasin	4/21/2014	0.0026	0.00048
		10/8/2014	0.0028	0.0014
	SEInfiltBasin	4/22/2014	0.00094	0.00013
		5/6/2014	0.00046	0.00017
		10/8/2014	0.002	0.0013
FSPS Runoff	FSPSSeepPond	4/22/2014	0.0011	0.001
		5/6/2014	0.0016	0.0016
		10/8/2014	0.0039	0.0039
	FSPSBasin	4/22/2014	0.0023	0.0019
		5/6/2014	0.0016	0.0015
		6/9/2014	0.0026	0.0024
		8/5/2014	0.0077	0.0065
		10/8/2014	0.0022	0.0017
Ponds	PCP-2	5/21/2009	ND	ND
		10/19/2008	0.0012	0.0012
		8/5/2009	ND	ND
		10/8/2014	0.00054	0.00049

Table 6-26
Pedro Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Offsite-US	TC-3	5/20/2008	ND	0.00045
		5/19/2009	0.000526	0.000451
		10/16/2008	0.00045	ND
		8/7/2009	ND	ND
		10/7/2014	0.00051	0.00052
Offsite-DS	TC-4	5/20/2008	ND	0.00047
		5/19/2009	0.000547	0.000466
		10/16/2008	ND	ND
		8/7/2009	ND	ND
		10/7/2014	0.0005	0.00056

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/L - milligrams per liter

Blank Cell - No data available

ND - Non-detected value; na - Not applicable

pCi/L - picocuries per liter

ppt - parts per trillion

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value.

More information about surface water comparison values is provided on Tables 4-3 through 4-4.

Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.

Comprehensive evaluation will be provided in the risk assessments.

Table 6-27
Pedro Creek Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Reach 1	PC-9	6/9/2014	26.8	19	245	158	569
	PC-8	6/9/2014	19	11	105	91.6	354
	PC-7	5/21/2009	155	20.5	298	218	887
	PC-6	6/9/2014	82	18	335	166	487
		5/21/2009	65	15.2	259	167	532
	PC-5	6/10/2014	1430	29	356	179	573
		9/21/2008	227	19.6	301	179	619
Reach 2	PC-4	6/10/2014	140	15	300	163	509
		9/21/2008	88	15.4	261	176	605
	PC-4A	5/21/2009	207	17.7	238	176	824
	PC-3	9/20/2008	93	15	189	153	654
	PC-3A	5/21/2009	97	11.5	115	101	493
Tributary #5	PCT6-5	6/9/2014	2.8	2.7	36	44.1	142
	PCT6-4	6/9/2014	5.1	5	38.6	50.4	191
	PCT6-3	6/9/2014	32.6	28	521	230	582
	PCT6-2	6/9/2014	16.5	9.4	135	88.9	337
	PCT6-1	6/9/2014	53	14	416	173	733
Tributaries #1-4	PCT1-2	5/21/2009	0.84	1.2	19.3	15.8	108
Reach 3	PC-2	7/11/2009	13	3.2	33.5	27.5	135
		9/20/2008	30	4.4	66.2	48.8	240
	PC-2E	5/21/2009	11	2.5	29.2	21	125
	PC-1	7/10/2009	6.4	2.6	25.4	32.7	90.9
		9/22/2008	1.2	0.82	28.6	33	101
ODA Seeps	NES-5	5/20/2009	124	30.2	364	182	504
		7/10/2009	225	27.4	609	325	1290
	NES-6	5/20/2009	739	27.4	473	205	1330

Table 6-27
Pedro Creek Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
NTCRA Runoff	NESedBasinN	6/10/2014	19.5	8.2	132	120	403
	NESedBasinC	6/10/2014	34.5	34.5	90.4	85.2	339
	NESedBasinS	6/10/2014	33.5	8.7	137	121	344
	ESedBasinN	6/9/2014	3.9	1.3	35.2	41.1	112
	ESedBasinC	6/9/2014	6.9	3.8	61.8	65.8	186
	ESedBasinS	6/9/2014	27.7	11	137	122	418
	SWInfiltBasin	6/8/2014	37.8	102	846	992	1560
	SEInfiltBasin	6/9/2014	10.4	11	161	97.2	269
FSPS Runoff	FSPSBasin	6/9/2014	40.6	11	154	126	376
Ponds	PCP-2	6/9/2014	2.4	0.86	26	32.2	79.9
		9/24/2008	4.9	0.65	19.8	23.4	81
Offsite-US	TC-3	9/22/2008	0.78	2.5	22.4	27.7	69.5
Offsite-DS	TC-4	9/22/2008	3.6	0.72	18.4	16.9	72.7

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not applicable

ND - Non-detected value

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-28
Pedro Creek Sub-Basin Aquatic Biota Selenium Concentrations

Location Type	Station	Date	Aquatic Vegetation		Periphyton	Aquatic Invertebrates	Fish	
			Selenium (mg/kg)	Species	Selenium (mg/kg)	Selenium (mg/kg)	Selenium (mg/kg) Draft Criterion: 8 mg/kg	Species
Reach 1	PC-5	8/10/2009	25.1 26.4	Speedwell Beaked sedge				
Reach 3	PC-2	7/11/2009	4.2 1.1	Speedwell Sedge	6.1	11.4		
	PC-1	7/10/2009	9.6 15	Sedge Spikerush	6.7	36.1	23.6 33.4 29.3 20.3 22.3 36.4	Speckled Dace (composite) Speckled Dace Speckled Dace (composite) Speckled Dace Speckled Dace Speckled Dace
ODA Seep	NES-5	7/10/2009	362	Speedwell				

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram

Blank cells - No data available

All concentrations are presented on a dry weight basis.

Aquatic vegetation samples were not washed prior to analysis.

Refer to Section 4 tables for additional details about biotic sample composition.

Exceedances of the comparison value are indicated in the following manner:

Value exceeds fish comparison value.

Table 6-29
Pedro Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg) Ecological: 0.52 mg/kg Human Health: 5,800 mg/kg		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Surface	Subsurface					
Upgradient of Reach 1 in Former Sedimentation Basin Area	NT5-05	9/25/2003	231	252	155	Grass (mixed-species)	91	13	Chipmunk, Deer Mouse
		5/26/2004			65	Grass (mixed-species)			
		7/12/2004			20	Grass (mixed-species)			
		9/24/2008	80	59					
			95	65	30	Browse (mixed-species)			
		8/5/2009			22	Browse[a] (mixed-species)			
					26	Forage (mixed-species)*			
					22	Forage[a] (mixed-species)*			
		8/13/2009							
	TP-16	8/8/2012		0.52					
	TP-15	8/8/2012		0.55					
	NT9-02	9/22/2010	39	25	35	Forage (mixed-species)*			
					33	Browse (mixed-species)			
					23	Forb (single-species, accumulator)			
	NT5-06	9/25/2003	92	80	38	Forage[a] (mixed-species)*			
					110	Forb (single-species, accumulator)			
					71	Grass (mixed-species)			
					46	Forage (mixed-species)*			
					43	Forb (single-species, accumulator)			
					ND	Forb (single-species, accumulator)			
		5/26/2004			56	Grass (mixed-species)			
					92	Forb (single-species, accumulator)			
					58	Forage (mixed-species)*			
		7/12/2004			71	Grass (mixed-species)			
					98	Forb (single-species, accumulator)			
					77	Forage (mixed-species)*			
					59	Forb (single-species, accumulator)			
					36	Forb (single-species, accumulator)			
		9/24/2008	3.2	1.3					
			96	68	110	Forage (mixed-species)*			
		8/10/2009			8.0	Browse[a] (mixed-species)			
					6.6	Browse (mixed-species)			
	NT9-01	9/22/2010	0.84	0.53	0.57	Browse (mixed-species)			
					0.57	Forage (mixed-species)*			
					0.040	Forb (single-species, accumulator)			
Upgradient of Reach 1	NT5-07	9/24/2008	2.4	0.56					
			0.72	0.44	ND	Browse (mixed-species)			
		8/10/2009			ND	Browse[a] (mixed-species)			
					0.10	Forage (mixed-species)			
Reach 1	PC-5	8/10/2009	0.51	0.25	1.0	Forage (mixed-species)	30	3.7	Deer Mouse
					1.8	Browse (mixed-species)			
					ND	Grass (mixed-species)			
		8/15/2009							
	PR-01	6/2/2004	28	11	33	Forb (single-species)			
					30	Grass (mixed-species)			
					12	Forb (single-species)			
					16	Grass (mixed-species)			
					8.7	Browse (mixed-species)			
					12	Browse (mixed-species)			
		7/12/2004			12	Forb (single-species)			
					29	Grass (mixed-species)			
					29	Grass (mixed-species)			
					35	Forb (single-species)			
Reach 1	NQ-03	9/25/2003	9.6	7.4	7.7	Grass (mixed-species)			
					4.1	Browse (mixed-species)			
					1.7	Grass (mixed-species)			
					2.0	Forb (single-species)			
					16	Forb (single-species, accumulator)			
		6/2/2004			8.4	Forb (single-species)			
					16	Grass (mixed-species)			
					8	Grass (mixed-species)			
					13	Forb (single-species)			
					4	Browse (mixed-species)			
					4.0	Forb (single-species)			
					4.9	Forb (single-species)			
		7/12/2004			16	Grass (mixed-species)			
					3.8	Browse (mixed-species)			
					42	Forb (single-species, accumulator)			
					45	Grass (mixed-species)			
Tributary #6	NQ-33	6/9/2014	23.5						
	NQ-34	6/9/2014	16.1						
	NT10-1	6/9/2014	14.7						
	NT10-2	6/9/2014	17.7						
	NT10-3	6/9/2014	17						
	NT10-4	6/9/2014	12.2						
	NT10-5	6/9/2014	29.4						
	NT11-1	6/9/2014	24.6						
	NT11-2	6/9/2014	16						
	NT11-3	6/9/2014	16.6						

Table 6-29
Pedro Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg) Ecological: 0.52 mg/kg Human Health: 5,800 mg/kg		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Surface	Subsurface					
Tributary #5	NT5-11	8/6/2009	11	2.9					
	NT5-08	9/24/2008	2.0	0.87					
			4.4	2.5	ND	Browse (mixed-species)			
		8/6/2009			16	Forage (mixed-species)*			
					5.0	Browse[a] (mixed-species)			
					0.18	Browse[a] (mixed-species)			
Tributary #5 Ponds	PCP-2	6/26/2001			8.0	Browse[b] (single-species)			
					2.9	Forb[b] (single-species)			
					5.3	Grass[b] (single-species)			
					27	Grass[b] (single-species)			
					9.4	Browse[b] (single-species)			
	PCP-1	6/26/2001			2.9	Grass[b] (single-species)			
					5.0	Browse[b] (single-species)			
					36	Grass[b] (single-species)			
					26	Grass[b] (single-species)			
					6.1	Grass[b] (single-species)			
Reach 2	PR-02	6/2/2004	6.4	1.2	36	Grass (mixed-species)			
		7/12/2004			4.5	Grass (mixed-species)			
	PC-3	8/6/2009	0.36	0.22	0.56	Browse[a] (mixed-species)	10		
					0.40	Forage[a] (mixed-species)*			
					0.070	Forage (mixed-species)*			
					0.46	Browse (mixed-species)			
					0.13	Browse (single-species)			
		8/14/2009						1.2	Deer Mouse, Ermine
	PR-03	6/2/2004	22	42	9.8	Browse (single-species)			
					10	Forb (single-species)			
					9.4	Forb (single-species)			
					19	Grass (mixed-species)			
					41	Grass (mixed-species)			
					33	Grass (mixed-species)			
		7/12/2004			3.1	Forb (single-species)			
					33	Grass (mixed-species)			
					1.7	Browse (single-species)			
					1.1	Forb (single-species)			
	PR-04	6/2/2004	8.1	1.7	1.7	Grass (mixed-species)			
		7/12/2004			20	Grass (mixed-species)			
Reach 3	PR-05	6/2/2004	39	5.2	13	Browse (mixed-species)			
					54	Grass (mixed-species)			
					58	Forb (single-species)			
					51	Grass (mixed-species)			
		7/12/2004			14	Browse (mixed-species)			
					64	Grass (mixed-species)			
					82	Grass (mixed-species)			
					22	Forb (single-species)			
	PC-2	7/11/2009			4.3	Forb[a] (single-species)			
Overbank	PCO-05	9/24/2008	0.69						
	PCO-06	9/21/2008	68						
	PCO-07	9/21/2008	1.2						
	PCO-10	9/24/2008	0.48						
	PCO-13	8/5/2009	0.92						
	PCO-14	8/5/2009	2.8						
	PCO-15	8/5/2009	1.3						
	PCO-16	8/5/2009	0.54						
Overbank	PCO-17	8/8/2009	120						
	PCO-18	8/8/2009	53						
	PCO-19	8/8/2009	29						
	PCO-20	8/8/2009	119						
	PCO-21	8/8/2009	717						
	PCO-22	8/8/2009	2.5						
	PCO-23	8/8/2009	6.6						
	PCO-24	8/8/2009	48						
	PCO-25	8/8/2009	47						
	PCO-26	8/8/2009	1.2						
	PCO-27	8/8/2009	0.75						
	PCO-28	8/8/2009	0.68						

Notes:

Includes data from 2001 onward of "A" data use level only.

Data only shown for sampling locations in riparian areas (defined as within 200 feet of a creek) identified within the sub-basin.

mg/kg - milligrams per kilogram

All concentrations are presented on a dry weight basis.

Blank cells - No data available

ND - Non-detected value

All vegetation samples were washed with deionized water prior to analysis.

a - Sample was not washed prior to analysis.

b - Unknown if sample was washed or not prior to analysis.

Browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Accumulator forbs are those species that are considered to be "selenium-accumulating species;" refer to Section 6 for further discussion and a list of the species. Forb samples composed of a single selenium-accumulating species are identified in the table as "accumulator." Mixed-species forb or forage samples that include selenium-accumulating species are marked with an asterisk (*).

Refer to Section 4 tables for additional details about biotic sample composition.

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

More information about soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Table 6-30
Camp G Creek Sub-Basin Surface Water Flows

Location Type	Station	2003		2004	2006	2007	2008	2009	
		Spring	Fall	Spring	Spring	Spring	Fall	Spring	Fall
Reach 1	CGC-5	0.035	0.003	0.022				0.52	0.079
Reach 2	CGC-4	0.0075	Dry	Dry					
	CGC-4A			0.053	0.63	0.16	0.02	0.19 - 0.59	0.13
Reach 3	CGC-3	0.022	Dry	Dry					
	CGC-3A			Ponded			Ponded	0.81	0.18
	CGC-2	0.2 - 0.26	0.053 - 0.13	0.083					
	CGC-2A				2.07				
Tributary #1	CGCT1-1	0.36	0.005	0.053					
Reach 4	CGC-1	0.57	0.14	0.28	3.7	0.98	0.72	1.2 - 2.6	0.55
	CGC-0							2.5	
	CGC-UPTC								
Spring	CS1_CND			0.002			0.18	0.27	0.024
	JRLD								
	JS-1		0.053	0.041			0.31	0.106	1.07

Location Type	Station	2010		2011		2012		2013		2014	
		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Reach 1	CGC-5										
Reach 2	CGC-4										
	CGC-4A	0.11 - 0.23	0.015 - 0.025	0.98	0.12						
Reach 3	CGC-3	0.37	Diffuse Flow		0.11						
	CGC-3A	0.32	0.037		0.27						
	CGC-2										
	CGC-2A										
Tributary #1	CGCT1-1										
Reach 4	CGC-1										
	CGC-0					2.6	0.64	3.137	0.672	0.82	0.7271
	CGC-UPTC			10.4							
Spring	CS1_CND										
	JRLD								Pipe	Pipe	Pipe
	JS-1					0.33	0.054	1.135	0.086	0.12	0.017007

Note:

Only years/seasons where data are available are presented. All values are reported in cfs (cubic feet per second).

Blank Cell - No data available

Table 6-31
Camp G Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Reach 1	CGC-5	5/6/2003	ND	ND	0.0006		ND
		5/12/2004	0.00048	ND	ND		ND
		5/22/2009	0.00035	ND	ND	0.00049	ND
		10/22/2003	0.00034	ND	ND		ND
		8/6/2009	0.00028	ND	ND	0.0023	ND
Reach 2	CGC-4	5/6/2003	0.003	ND	0.0006		ND
	CGC-4A	5/12/2004	*0.0305*	ND	ND		ND
		5/9/2006	0.0151	ND	ND		ND
		5/1/2007	*0.0438*	ND	ND		ND
		5/22/2009	0.0144	ND	ND	0.00053	ND
		7/11/2009	0.002	ND	ND	0.00062	ND
		6/9/2010	*0.0249*				
		7/13/2010	0.0142				
		6/2/2011	*0.022*				
		10/22/2003	0.0096	ND	ND		ND
		10/18/2008	*0.0387*	ND	ND	0.0143	ND
		8/6/2009	0.0149	ND	0.0011	0.00086	ND
		8/18/2010	0.0194				
		9/23/2010	*0.0266*				
		11/1/2011	*0.0212*				
Reach 3	CGC-3	5/6/2003	*0.026*	0.0001	0.0005		0.01
		6/9/2010	0.0187				
		6/2/2011	0.018				
		9/23/2010	0.0101				
		11/1/2011	0.01				
	CGC-3A	5/12/2004	0.0016	ND	ND		0.0055
		5/22/2009	0.0132	ND	ND	0.00075	ND
		6/9/2010	0.018				
		6/2/2011	0.0176				
		10/22/2003	0.00032	ND	ND		ND
		10/18/2008	0.0037	0.000035	ND	0.00091	ND
		8/6/2009	0.0066	ND	0.0011	0.0018	ND
		9/23/2010	0.0101				
		10/31/2011	0.0086				
	CGC-2	5/6/2003	ND	ND	0.0001		0.01
		5/7/2003	ND	ND	0.0002		0.01
		5/8/2003	ND	ND	0.0002		ND
		5/12/2004	ND	ND	ND		ND
		10/22/2003	ND	ND	ND		ND
		10/23/2003	0.00049	ND	ND		ND
	CGC-2A	5/10/2006	0.0072	ND	ND		ND
Tributary #1	CGCT1-1	5/6/2003	0.002	ND	0.0003		ND
		5/12/2004	ND	ND	ND		0.0027
		10/22/2003	ND	ND	ND		ND
Reach 4	CGC-1	5/6/2003	ND	ND	0.0003		ND
		5/12/2004	ND	ND	ND		0.0019
		5/10/2006	0.00089	ND	ND		ND
		5/1/2007	0.0012	ND	ND		ND
		5/22/2009	0.0016	ND	ND	0.0015	ND
		7/10/2009	0.00098	ND	ND	0.00047	ND
		10/22/2003	0.00032	ND	ND		ND
		10/20/2008	0.0003	ND	ND	ND	ND
		8/6/2009	0.00075	ND	ND	0.0044	ND
	CGC-0	7/9/2009	0.00066	ND	ND	0.00055	ND
		4/24/2012	0.0025				
		5/8/2013	0.0017				
		6/11/2014	0.0042				
		10/19/2012	0.0032				
		10/11/2013	0.0031				
		10/7/2014	0.0023	ND	ND	0.0011	ND
	CGC-UPTC	6/1/2011	0.0028				
Springs	CS-1_CND	5/12/2004	0.00043				
		5/22/2009	0.00046	ND	ND	0.00082	ND
		10/20/2008	0.0005	ND	ND	ND	ND
		8/6/2009	0.00039	ND	0.0014	0.00096	ND
	JRLD	5/22/2012	0.00045				
		6/10/2014	0.00062				
		10/1/2009	0.00053	ND	ND	ND	0.0942
		10/17/2012	0.00068				
		10/12/2013	0.00057				
		10/6/2014	0.00049	ND	ND	ND	0.052
	JS-1	5/12/2004	0.00046	ND	ND		ND
		5/22/2009	0.00033	ND	ND	0.0046	ND
		4/25/2012	0.00068				
		5/7/2013	0.00029				
		6/10/2014	0.00042				
		10/22/2003	ND	ND	ND		ND
		10/18/2008	0.00085	0.000046	ND	0.00075	ND
		8/6/2009	0.00024	ND	0.0014	ND	ND
		10/17/2012	0.00034				
		10/12/2013	0.00039				
		10/6/2014	0.0005	ND	ND	ND	ND

Table 6-31
Camp G Creek Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Offsite-US	TC-1	5/16/2008	0.00034	ND	ND	0.00088	ND
		5/19/2009	ND	ND	ND	0.00065	ND
		7/9/2009	0.00039	ND	ND	0.00054	ND
		5/13/2010	ND				
		6/9/2010	0.00033				
		6/1/2011	0.00024				
		4/24/2012	0.00025				
		5/8/2013	0.00026				
		6/11/2014	0.00023				
		10/16/2008	ND	ND	ND	0.0005	ND
		8/7/2009	0.00024	ND	ND	0.00054	ND
		9/21/2010	ND				
		10/2/2011	0.00026				
		10/19/2012	0.00029				
		10/11/2013	0.0003				
		10/7/2014	0.00023	ND	ND	ND	ND
Offsite-DS	TC-2	5/16/2008	0.00052	ND	ND	0.0011	ND
		5/19/2009	0.0008	ND	ND	ND	ND
		5/13/2010	ND				
		6/9/2010	0.0008				
		6/1/2011	0.0013				
		4/24/2012	0.00068				
		5/8/2013	0.00098				
		6/11/2014	0.0024				
		10/16/2008	0.00037	ND	ND	0.0016	ND
		8/7/2009	0.00023	0.00008	0.00094	0.0015	0.0035
		9/21/2010	0.0004				
		10/2/2011	0.00055				
		10/19/2012	0.0026				
		10/11/2013	0.0019				
		10/7/2014	0.00054	ND	ND	ND	ND

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
ND - Non-detected value
na - Not applicable
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-32
Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm
			Comparison Value: na									
Reach 1	CGC-5	5/6/2003	206	ND			206		65.1		2	371
		5/12/2004							60.5			292
		5/22/2009	208	ND			208		58.7	58	2.4	391
		10/22/2003	233	ND			233		66.8		1.92	303
		8/6/2009	236	ND			236		65.9	65.8	2.29	757
Reach 2	CGC-4	5/6/2003	212	ND			212		66.8		2	371
	CGC-4A	5/12/2004							63.5			310
		5/9/2006							55.4		2.54	478
		5/1/2007	214				214			60.655	2.504	465
		5/22/2009	197	ND			197		57.9	56.7	2.34	385
		7/11/2009	232	ND			232		66.2	65.5	2.65	455
		6/9/2010	211				211			66.9	2.58	431
		7/13/2010	222				222			67	2.63	385
		6/2/2011	177				177			52.6	2.61	359
		10/22/2003	206	0.03			206		60.2		3.58	310
		10/18/2008	242	ND			242		72.2	75.9	2.75	357
		8/6/2009	237	0.033			237		66.4	67.5	2.4	801
		8/18/2010	239				239			74.7	2.64	509
		9/23/2010	240				240			71.5	2.85	468
		11/1/2011	227				227			64.6	3.2	277
Reach 3	CGC-3	5/6/2003	181	ND			181		61.6		3	358
		6/9/2010	204				204			64.8	3.55	419
		6/2/2011	163				163			49.3	2.92	327
		9/23/2010	207				207			61.5	4.52	408
		11/1/2011	205				205			59.2	4.37	236
	CGC-3A	5/12/2004							53.8			247
		5/22/2009	184	0.043			184		54.2	53.9	3.86	363
		6/9/2010	204				204			67.5	3.43	410
		6/2/2011	164				164			49.6	2.97	336
		10/22/2003	182	ND			182		56.9		5.71	249
		10/18/2008	191	ND			191		57.3	57.9	5.57	282
		8/6/2009	199	0.03			196		56.3	57.7	4.05	679
		9/23/2010	208				208			61.4	4.54	404
		10/31/2011	201				201			58.6	4.33	243
	CGC-2	5/6/2003	187	ND			187		64.1		5	329
		5/7/2003	190	ND			190		63.4		5	337
		5/8/2003	192	ND			192		65.3		5	354
		5/12/2004							63.1			277
		10/22/2003	205	ND			205		65.8		5.84	265
		10/23/2003	202	ND			202		65.1		6.5	290
	CGC-2A	5/10/2006							54.3		4.15	456
Tributary #1	CGCT1-1	5/6/2003	171	ND			171		60.7		3	325
		5/12/2004							54.2			241
		10/22/2003	208	ND			208		70.1		3.41	277
Reach 4	CGC-1	5/6/2003	195	ND			195		67.6		5	356
		5/12/2004							62.9			279
		5/10/2006							59.8		4.74	477
		5/1/2007	212				212			64.4351	5.124	429
		5/22/2009	191	0.03			191		59.3	57.9	5.24	369
		7/10/2009	205	ND			205		62.8	62.2	6.59	381
		10/22/2003	200	ND			200		66.4		9.03	269
		10/20/2008	234	ND			234		74.7	74.4	7.76	334
		8/6/2009	204	0.032			204		64.8	63.8	7.99	685
	CGC-0	7/9/2009	189	ND			189		66.6	65.4	7.78	776
		4/24/2012	201				201			60.5	7.38	290.4
		5/8/2013	196				189			66.9	8.21	404.4
		6/11/2014	211				208		70.5	69.6	7.41	416
		10/19/2012	202				202			60.6	9.18	415
		10/11/2013	210				202			65.8	9	416
		10/7/2014	232	0.048			232			66.4	9.3	456.4
	CGC-UPTC	6/1/2011	184				184			56.9	6.59	317

Table 6-32
Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
			Comparison Value: na									
Reach 1	CGC-5	5/6/2003	0.1	14.9			0.18			8.21	0.04	0.8
		5/12/2004		15.1						7.67		
		5/22/2009	0.177	14.5	14.9		ND			8.03	0.04	0.737
		10/22/2003	0.129	16.7			0.08			7.52	0.05	0.827
		8/6/2009	0.1	16.8	16.7		ND			8.04	0.07	0.692
Reach 2	CGC-4	5/6/2003	0.1	15.4			0.63			8.46	0.02	0.7
	CGC-4A	5/12/2004		16.2						7.55		
		5/9/2006		13.4			0.07			8.22		0.632
		5/1/2007			16.0229		0.085			7.56		0.69
		5/22/2009	0.209	14.2	14.5		ND			7.72	0.02	0.756
		7/11/2009	ND	16.3	16.1		ND			6.71	0.03	0.633
		6/9/2010	0.117		16.2					7.83		
		7/13/2010	0.101		16.9					7.39		
		6/2/2011	0.15		13.2					8		
		10/22/2003	0.124	19.7			ND			7.58	0.12	1.38
		10/18/2008	0.147	18.3	21.2		ND			8.04	0.31	1.16
		8/6/2009	0.127	16.7	16.9		ND			7.8	0.08	0.779
		8/18/2010	0.12		19.1					7.71		
		9/23/2010	0.073		18.3					7.72		
		11/1/2011	0.12		16.4					7.58		
Reach 3	CGC-3	5/6/2003	0.1	14.5			ND			8.31	0.07	0.9
		6/9/2010	0.179		15.4					8.16		
		6/2/2011	0.15		12.2					7.94		
		9/23/2010	0.073		14.3					7.95		
		11/1/2011	0.1		14					7.86		
	CGC-3A	5/12/2004		10.4						7.46		
		5/22/2009	0.392	12.9	13.3		ND			7.44	0.03	0.79
		6/9/2010	0.102		16					8.42		
		6/2/2011	0.16		12.1					8.11		
		10/22/2003	ND	10.1			0.17			7.66	0.03	0.644
		10/18/2008	0.137	10.6	11.3		0.145			7.86	ND	0.616
		8/6/2009	0.18	13.3	13.6		ND			8.43	0.08	0.668
		9/23/2010	0.072		14.3					8.17		
		10/31/2011	ND		13.7					7.68		
	CGC-2	5/6/2003	0.2	9.1			ND			8.3	0.05	0.8
		5/7/2003	0.2	9.5			0.02			7.71	0.06	0.7
		5/8/2003	0.1	9.8			ND			7.81	0.07	0.6
		5/12/2004		9.71						7.86		
		10/22/2003	ND	10.3			ND			8.04	0.04	0.793
		10/23/2003	ND	10.5			0.02			7.54	0.03	0.817
	CGC-2A	5/10/2006		10.7			ND			7.97		0.566
Tributary #1	CGCT1-1	5/6/2003	0.1	8.7			0.03			7.73	0.01	0.4
		5/12/2004		7.93						7.77		
		10/22/2003	0.108	9.62			ND			7.92	0.01	0.575
Reach 4	CGC-1	5/6/2003	0.1	10			ND			8.04	0.04	0.5
		5/12/2004		10						8.02		
		5/10/2006		9.59			0.05			7.57		0.614
		5/1/2007			10.1908		0.048			8.1		0.595
		5/22/2009	0.387	9.75	10.1		0.0742			7.94	0.1	0.748
		7/10/2009	ND	10.6	10.5		0.0738			7.33	0.05	0.376
		10/22/2003	ND	10.7			0.16			8.28	0.021	0.817
		10/20/2008	0.143	12.3	12.3		0.098			8.14	0.02	0.967
		8/6/2009	0.258	11.6	11.7		0.0901			8.09	0.17	0.52
	CGC-0	7/9/2009	ND	12.7	12.5		ND			7.94	0.15	0.683
		4/24/2012	0.19		11.6					8.26		
		5/8/2013	0.18		12.6					8.65		
		6/11/2014	0.16	13.9	13.6					8.13		1.22
		10/19/2012	0.17		12.5					8.4		
		10/11/2013	0.16		12.8					8.83		
		10/7/2014	0.17		13.1		ND			8.37	0.055	
	CGC-UPTC	6/1/2011	0.17		10.8					8.05		

Table 6-32
Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na					
Reach 1	CGC-5	5/6/2003		4.7		20	220	2
		5/12/2004				14.6	219	
		5/22/2009	0.736	4.1	4.12	13.7	197	1.06
		10/22/2003		4.67		14.2	250	1.5
		8/6/2009	1.02	4.56	4.46	13.5	286	ND
Reach 2	CGC-4	5/6/2003		5		10	230	2
	CGC-4A	5/12/2004				29	220	
		5/9/2006		3.8		20.7	201	
		5/1/2007		4.51		25.316	254	
		5/22/2009	0.714	4.24	4.24	20.5	179	1.1
		7/11/2009	0.671	4.38	4.43	16.2	255	20.1
		6/9/2010				23.6	235	
		7/13/2010				19.5	251	
		6/2/2011				18.6	221	
		10/22/2003		5.83		36.8	235	2.5
		10/18/2008	2.19	5.05	5.4	31.8	300	2.82
		8/6/2009	0.844	4.81	4.58	20.6	283	ND
		8/18/2010				23.6	272	
		9/23/2010				29.7	267	
		11/1/2011				23	241	
Reach 3	CGC-3	5/6/2003		5.5		30	230	3
		6/9/2010				21.6	224	
		6/2/2011				16.9	200	
		9/23/2010				17.4	245	
		11/1/2011				15.6	217	
	CGC-3A	5/12/2004				7.55	208	
		5/22/2009	0.759	4.54	4.66	19.3	177	1.39
		6/9/2010				20.6	231	
		6/2/2011				16.5	206	
		10/22/2003		5.07		7.42	214	ND
		10/18/2008	0.626	4.98	5.21	9.11	210	ND
		8/6/2009	0.83	5.18	4.94	15.8	232	1.19
		9/23/2010				17.2	230	
		10/31/2011				15.4	225	
	CGC-2	5/6/2003		5.6		ND	220	3
		5/7/2003		5		ND	220	3
		5/8/2003		5.2		ND	230	3
		5/12/2004				3.94	210	
		10/22/2003		5.37		5.3	205	4.9
		10/23/2003		5.59		5.38	207	5
	CGC-2A	5/10/2006		4.44		14.2	191	
Tributary #1	CGCT1-1	5/6/2003		5		20	210	3
		5/12/2004				13.9	192	
		10/22/2003		6.12		13.1	234	9.3
Reach 4	CGC-1	5/6/2003		5.7		20	240	4
		5/12/2004				15.3	216	
		5/10/2006		4.83		10.3	200	
		5/1/2007		5.49		9.297	240	
		5/22/2009	0.916	5.17	5.24	10.5	175	2.98
		7/10/2009	0.424	5.33	5.36	10.5	238	25.3
		10/22/2003		6.36		11.5	200	5.8
		10/20/2008	1.04	6.13	6.35	11.3	260	2.41
		8/6/2009	1.14	6.04	5.87	9.49	245	1.9
	CGC-0	7/9/2009	0.701	6.38	6.36	6.42	229	25.5
		4/24/2012				10.8	221	
		5/8/2013				15.9	234	
		6/11/2014	1.31	7.45	7.33	12.3	240	
		10/19/2012				27.8	232	
		10/11/2013				15.5	236	
		10/7/2014				12.7	276	3.9
	CGC-UPTC	6/1/2011				9.77	202	

Table 6-32
Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm
			Comparison Value: na									
Springs	CS-1_CND	5/12/2004										264
		5/22/2009	183	ND			183		54.1	53.5	6.83	368
		10/20/2008	194	ND			194		59.6	58.1	6.51	284
		8/6/2009	191	0.03			191		53.1	56.3	6.85	660
	JRLD	5/22/2012	261				261			89.8	3.71	850
		6/10/2014	256				256		93.4	90.3	3.77	528
		10/1/2009	254	ND			254		84.3	89.6	4.16	407
		10/17/2012	269				269			92.3	4.55	715
		10/12/2013	256				256			85.3	3.87	542
		10/6/2014	259	ND			259			97.9	3.75	512
	JS-1	5/12/2004							66.6			271
		5/22/2009	194	ND			194		64.7	68.1	4.77	366
		4/25/2012	196				196			66.3	4.36	308.9
		5/7/2013	200				200			69.8	4.37	391.3
		6/10/2014	256				256			71.6	3.77	
		10/22/2003	195	ND			195		67.9		4.68	263
		10/18/2008	202	ND			202		67.3	69.1	4.44	284
		8/6/2009	198	0.032			198		64.1	66.8	4.53	630
		10/17/2012	208				208			66.2	4.55	395.3
		10/12/2013	198				198			64.2	4.59	391
		10/6/2014	259	ND			259		68.9	68.8	3.75	
Offsite-US	TC-1	5/16/2008	190	0.032			189		61.6	60.1	7.82	351
		5/19/2009	200	ND			200		67.5	65.7	8.01	386
		7/9/2009	158	ND			158		58	57.7	6.18	675
		5/13/2010	208				208			55.3	7.92	402
		6/9/2010	205				205			65.8	6.62	410
		6/1/2011	188				188			62.6	7.32	322
		4/24/2012	191				190			60	6.84	175.3
		5/8/2013	188				188			62.2	7.69	392
		6/11/2014	186				175			60.5	5.07	366
		10/16/2008	194	ND			194		57.4	60.2	5.76	272
		8/7/2009	193	ND			188		54.5	57	5.37	328
		9/21/2010	164				164			48.5	4.67	331
		10/2/2011	184				183			51	5.05	336.4
		10/19/2012	190				190			54.6	5.75	356.6
		10/11/2013	181				181			56.6	5.21	360
		10/7/2014	204	ND			204		62.5	62.4	6.3	397.1
Offsite-DS	TC-2	5/16/2008	203	ND			203		62.3	58.7	7.83	352
		5/19/2009	205	ND			205		68.2	67.3	8.3	386
		5/13/2010	208				208			56	8.17	359
		6/9/2010	214				214			68	6.64	420
		6/1/2011	186				186			62.3	7.1	322
		4/24/2012	195				193			60.4	7.03	285.5
		5/8/2013	193				190			67.2	7.92	399.7
		6/11/2014	196				184			63.8	6.2	362
		10/16/2008	196	ND			196		58.9	60.7	6.72	283
		8/7/2009	197	0.039			196		55.3	57.8	6.46	333
		9/21/2010	167				165			49.7	5.44	332
		10/2/2011	190				186			53.6	6	346.6
		10/19/2012	200				200			59.3	8.78	405
		10/11/2013	186				186			53.7	6.23	387
		10/7/2014	209	0.048			209		64	63.9	6.93	410.8

Table 6-32
Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L
			Comparison Value: na									
Springs	CS-1_CND	5/12/2004								7.72		
		5/22/2009	0.428	11.7	11.9		0.521			7.67	0.01	0.643
		10/20/2008	0.162	13	12.7		0.412			7.71	0.01	0.747
		8/6/2009	0.164	12.1	12.6		0.408			7.71	0.03	0.561
	JRLD	5/22/2012	0.15		10					7.09		
		6/10/2014	0.1	10.5	9.88					6.46		0.53
		10/1/2009	ND	9.57	10.1		0.0864			7.26	ND	0.521
		10/17/2012	ND		10.5					7.28		
		10/12/2013	ND		9.52					7.73		
		10/6/2014	ND		11		ND			7.09	ND	
	JS-1	5/12/2004		6.55						7.44		
		5/22/2009	0.229	6.44	7.03		0.172			7.44	0.02	0.529
		4/25/2012	ND		6.69					7.63		
		5/7/2013	ND		7.31					7.68		
		6/10/2014	0.1		7.24							
		10/22/2003	ND	6.47			0.18			7.8	0.02	0.511
		10/18/2008	0.109	6.66	7.07		0.215			7.68	ND	0.487
		8/6/2009	0.108	6.37	6.65		0.206			7.73	0.02	0.457
		10/17/2012	ND		6.75					7.25		
		10/12/2013	ND		6.48					7.73		
		10/6/2014	ND	7.13	7.38		ND				ND	0.471
Offsite-US	TC-1	5/16/2008	0.187	11.2	11		ND	0.01		8.18	0.04	1.05
		5/19/2009	0.144	11.7	11.5		0.094			8.12	0.03	0.943
		7/9/2009	ND	10.9	10.8		ND			8.28	0.06	0.603
		5/13/2010	0.096		10.5					8.28		
		6/9/2010	0.128		11.8					8.12		
		6/1/2011	0.13		10.8					6.83		
		4/24/2012	0.16		11.5					8.37		
		5/8/2013	0.15		11.8					8.37		
		6/11/2014	ND		11.4					8.41		
		10/16/2008	0.131	11	11.8		ND			8.23	ND	1.18
		8/7/2009	0.146	10.5	11		ND			8.62	0.05	0.683
		9/21/2010	0.057		10.6					8.33		
		10/2/2011	0.12		9.99					8.56		
		10/19/2012	0.13		11.2					8.44		
		10/11/2013	0.1		11					8.54		
		10/7/2014	0.13	11.2	11.4		ND			8.41	0.022	0.795
Offsite-DS	TC-2	5/16/2008	0.2	11.4	10.8		ND	0.01		8.19	0.05	1.11
		5/19/2009	ND	12.1	11.5		ND			8.05	0.05	1.02
		5/13/2010	0.14		11.1					8.23		
		6/9/2010	0.09		12.3					8.04		
		6/1/2011	0.14		11					8.09		
		4/24/2012	0.12		11					8.38		
		5/8/2013	0.16		12.6					8.47		
		6/11/2014	0.13		12.3					8.38		
		10/16/2008	0.143	11.4	12		ND			8.39	0.04	1.36
		8/7/2009	0.179	11	11.3		ND			8.46	0.1	0.938
		9/21/2010	0.075		10.9					8.59		
		10/2/2011	0.13		10.4					8.52		
		10/19/2012	0.17		12.4					8.48		
		10/11/2013	0.1		10.5					8.7		
		10/7/2014	0.14	11.8	12		ND			8.44	9.48	0.915

Table 6-32
Camp G Creek Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na					
Springs	CS-1_CND	5/12/2004				11.8		
		5/22/2009	0.63	6.44	6.56	12.4	195	ND
		10/20/2008	0.791	6.31	6.87	11.7	230	1.38
		8/6/2009	0.621	7.13	6.61	12	230	ND
	JRLD	5/22/2012				26.7	291	
		6/10/2014	0.57	5.2	5.02	29.9	306	
		10/1/2009	0.535	4.66	4.68	29	300	ND
		10/17/2012				30.6	314	
		10/12/2013				30.3	308	
		10/6/2014				30.2	309	ND
	JS-1	5/12/2004				7.08	171	
		5/22/2009	0.964	4.48	4.64	7.93	188	ND
		4/25/2012				7.85	213	
		5/7/2013				7.67	210	
		6/10/2014				29.9	306	
		10/22/2003		4.6		6.84	232	ND
		10/18/2008	0.504	4.5	4.7	7.36	220	ND
		8/6/2009	0.451	4.49	4.43	7.8	216	ND
		10/17/2012				7.69	226	
		10/12/2013				7.9	233	
		10/6/2014	0.502	5.03	5.1	30.2	309	ND
Offsite-US	TC-1	5/16/2008	1.09	6.34	6.5	12.8	240	3.81
		5/19/2009	0.964	6.56	6.01	9.28	251	3.66
		7/9/2009	0.64	5.17	5.2	6.92	179	19.5
		5/13/2010				8.02	233	
		6/9/2010				6.66	215	
		6/1/2011				9.67	189	
		4/24/2012				9.42	216	
		5/8/2013				14.4	228	
		6/11/2014				9.48	206	
		10/16/2008	1.26	5.22	5.56	9.14	230	2.62
		8/7/2009	0.719	5.32	4.96	6.54	214	2.42
		9/21/2010				7.53	197	
		10/2/2011				7.82	179	
		10/19/2012				12	199	
		10/11/2013				11.9	197	
		10/7/2014	0.772	5.7	5.48	9.74	225	2.24
Offsite-DS	TC-2	5/16/2008	1.1	6.52	6.5	13	240	4.16
		5/19/2009	1	6.82	6.47	9.5		3.88
		5/13/2010				8.32	234	
		6/9/2010				6.54	223	
		6/1/2011				9.66	204	
		4/24/2012				9.92	223	
		5/8/2013				15.1	233	
		6/11/2014				10.9	220	
		10/16/2008	1.52	5.67	5.92	10.1	240	2.8
		8/7/2009	1.14	6.22	5.58	6.79	221	4.27
		9/21/2010				8.5	198	
		10/2/2011				8.74	191	
		10/19/2012				27.1	233	
		10/11/2013				13	212	
		10/7/2014	0.923	6.1	5.84	10.1	232	2.54

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte names.

Table 6-33
Camp G Creek Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH: 15 pCi/L	HH: 50 pCi/L	Comparison Value: na	
Springs	CS-1_CND	5/22/2009		6	ND		
		10/20/2008	7.1	ND	ND	-129.9	-17.1
		8/6/2009		ND	ND		
	JS-1	5/22/2009		4.4	14.3		
		10/18/2008	7.6	ND	ND	-130.6	-17.3
		8/6/2009		ND	ND		

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Reach 1	CGC-5	5/22/2009	0.000362	ND
		8/6/2009	ND	ND
Reach 2	CGC-4A	5/1/2007		0.00043
		5/22/2009	0.00035	ND
		7/11/2009	ND	ND
		10/18/2008	ND	ND
		8/6/2009	ND	ND
Reach 3	CGC-3A	5/22/2009	0.00041	ND
		10/18/2008	ND	ND
		8/6/2009	ND	ND
Reach 4	CGC-1	5/1/2007		0.0006
		5/22/2009	ND	ND
		7/10/2009	ND	ND
		10/20/2008	ND	ND
		8/6/2009	ND	ND
	CGC-0	7/9/2009	ND	ND
		10/7/2014	0.0006	0.00059
Springs	CS-1_CND	5/22/2009	ND	ND
		10/20/2008	ND	ND
		8/6/2009	ND	ND
	JRLD	10/1/2009	ND	ND
		10/6/2014	0.00079	0.0008
	JS-1	5/22/2009	0.000612	ND
		10/18/2008	ND	0.0005
		8/6/2009	ND	ND
		10/6/2014	0.00046	0.00046
Offsite-US	TC-1	5/16/2008	ND	0.00051
		5/19/2009	0.000464	0.000452
		7/9/2009	ND	ND
		10/16/2008	ND	ND
		8/7/2009	ND	ND
		10/7/2014	0.00045	0.00046
Offsite-DS	TC-2	5/16/2008	ND	0.0005
		5/19/2009	0.000528	0.000451
		10/16/2008	ND	ND
		8/7/2009	ND	ND
		10/7/2014	0.00048	0.00048

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
ND - Non-detected value; na - Not applicable
pCi/L - picocuries per liter
ppt - parts per trillion
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-34
Camp G Creek Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Reach 1	CGC-5	9/24/2008	0.45	0.93	23.1	23.9	110
Reach 2	CGC-4	9/24/2008	1.1	2.8	22.3	23.6	113
	CGC-4A	5/22/2009	6.3	1.6	22	23.2	117
		7/11/2009	7.9	2.2	22.6	25.2	114
Camp H Drainage	CGC-6	9/24/2008	4.1	10.6	49.5	113	378
Reach 3	CGC-3A	5/22/2009	5.2	3.3	21.6	26.5	140
	CGC-3B	5/22/2009	6.4	2.6	21.6	27.8	111
Reach 4	CGC-1	7/10/2009	1.5	1.8	17.4	17.5	67.6
		9/25/2008	0.76	1.3	16.8	16.5	62.5
	CGC-1A	5/22/2009	1.1	1.8	14.2	14.4	62.5
	CGC-0	7/9/2009	0.96	1.7	19.6	19.2	73.3
	SedDisposal	6/8/2014	9.4	6	97.3	84.3	299
Springs	CS-1_CND	5/22/2009	1.3	1	15.9	17.7	99.4
	JS-1	5/22/2009	0.33	1.1	18.5	27.9	104
Offsite	TC-1	7/9/2009	0.48	0.65	18.5	17.5	54.7
		9/22/2008	0.15	ND	18.1	20.8	56.5
	TC-2	9/22/2008	0.41	ND	17.1	16.8	59

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

Blank Cell - No data available

na - Not applicable

ND - Non-detected value

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-35
Camp G Creek Sub-Basin Aquatic Biota Selenium Concentrations

Location Type	Station	Date	Aquatic Vegetation		Aquatic Invertebrates	Fish	
			Selenium (mg/kg)	Species	Selenium (mg/kg)	Selenium (mg/kg) Draft Criterion: 7.9 mg/kg	Species
Reach 2	CGC-4A	7/11/2009	5.0	Beaked sedge	65		
			4.8	Speedwell			
Reach 4	CGC-1	7/10/2009	0.64	Speedwell	1.4		
			0.11	Sedge			
	CGC-0	7/9/2009	4.2	Speedwell	5.4	2.0	Mountain Sucker
			2.4	White-water Buttercup		5.6	Paiute Sculpin
						6.2	Redside Shiner
						6.0	Redside Shiner
						10	Speckled Dace
						9.8	Speckled Dace (Composite)
						8.4	Speckled Dace (Composite)
						7.3	Speckled Dace (Composite)
						4.4	Speckled Dace (Composite)
						4.4	Speckled Dace (Composite)

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram

Blank Cell - No data available

All concentrations are presented on a dry weight basis.

Aquatic vegetation samples were not washed prior to analysis.

Refer to Section 4 tables for additional details about biotic sample composition.

Exceedances of the comparison value are indicated in the following manner:

Value exceeds fish comparison value.

Table 6-36
Camp G Creek Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg)		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Ecological: 0.52 mg/kg						
			Human Health: 5,800 mg/kg						
			Surface	Subsurface					
Reach 2	CR-01	6/3/2004	2.4	2.4	5.3	Grass (mixed-species)			
		6/3/2004			5.4	Grass (mixed-species)			
		6/3/2004			10.6	Browse (single-species)			
		6/3/2004			4.3	Forb (single-species)			
		6/3/2004			3.6	Forb (single-species)			
		7/12/2004			0.48	Grass (mixed-species)			
		7/12/2004			4.9	Grass (mixed-species)			
		7/12/2004			5.4	Browse (single-species)			
		7/12/2004			11.2	Forb (single-species)			
		7/12/2004			5.7	Forb (single-species)			
Camp H Drainage	CR-02	6/3/2004	2	0.88	0.56	Grass (mixed-species)			
		7/12/2004			1.9	Grass (mixed-species)			
Reach 3	CR-04	6/3/2004	0.26	0.36	0.14	Grass (mixed-species)			
		7/12/2004			0.49	Grass (mixed-species)			
	CR-03	6/3/2004	0.52	0.17	0.22	Grass (mixed-species)			
		6/3/2004			0.15	Grass (mixed-species)			
		6/3/2004			0.33	Browse (mixed-species)			
		6/3/2004			0.31	Forb (single-species)			
		6/3/2004			0.14	Forb (single-species)			
		7/12/2004			0.08	Grass (mixed-species)			
		7/12/2004			0.24	Grass (mixed-species)			
		7/12/2004			0.37	Browse (mixed-species)			
		7/12/2004			0.19	Forb (single-species)			
		7/12/2004			0.21	Forb (single-species)			
Reach 4	CGC-1	8/11/2009	0.38	0.63	ND	Forage (mixed-species)*	1.33		
		8/11/2009			ND	Browse (mixed-species)			
		8/11/2009			ND	Browse (single-species)			
		8/11/2009			ND	Browse (single-species)			
		8/11/2009			ND	Forb (single-species, accumulator)			
		8/16/2009						0.17	Meadow vole, Shrew

Notes:

Includes data from 2001 onward of "A" data use level only.

Data only shown for sampling locations in riparian areas (defined as within 200 feet of a creek) identified within the sub-basin.

mg/kg - milligrams per kilogram; Blank Cell - No data available; ND - Non-detected value

All concentrations are presented on a dry weight basis. All vegetation samples were washed with deionized water prior to analysis.

Browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Accumulator forbs are those species that are considered to be "selenium-accumulating species;" refer to Section 6 for further discussion and a list of the species. Forb samples composed of a single selenium-accumulating species are identified in the table as "accumulator." Mixed-species forb or forage samples that include selenium-accumulating species are marked with an asterisk (*).

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

More information about soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Table 6-37
Western Woodall Mountain Sub-Basin Surface Water Flows

Location Type	Station	2003		2004	2005		2006		2007	
		Spring	Fall	Spring	Spring	Fall	Spring	Fall	Spring	Fall
Dry Draws	WMC1-1	Dry	Dry	Dry						
	WMC1-2									
	WMC2-1	Dry	Dry	Dry						
	WMC2-2									
	WMC3-1	Dry	Dry	Dry						
	WMC3-2									
	WMC4-1	Dry	Dry	Dry						
	WMC4-2									
	WMC5-1	Dry	Dry	Dry						
	WMC5-2									
Pooling Areas	NEP-8			Dry						
	WM-OP1									
Springs	SW04-SP									
	SW04-SP(N)				1.5 - 6.6	9.2	8.6 -14.5	16.1	16.8	9.7- 9.9
	SW04-SP(S)				1.8 - 1.9	1.9	1.04 - 2.0	4.3	1.07	2.7/Diffuse Flow
	SW07-SP(S)				0.67 - 2.2	2.2	2.2 - 3.5	3.5	2.3	2.6 - 2.2
	WS-1		2.8	4.6						
	WS-2									
	WS-3									
	WS-4									
	WS-5									

Location Type	Station	2008		2009		2011	
		Spring	Fall	Spring	Fall	Spring	Fall
Dry Draws	WMC1-1	Dry	Dry				
	WMC1-2	Dry	Dry				
	WMC2-1	Dry	Dry				
	WMC2-2	Dry	Dry				
	WMC3-1	Dry	Dry				
	WMC3-2	Dry	Dry				
	WMC4-1	Dry	Dry				
	WMC4-2	Dry	Dry				
	WMC5-1	Dry	Dry				
	WMC5-2	Dry	Dry				
Pooling Areas	NEP-8						
	WM-OP1			Ponded			
Springs	SW04-SP	Ponded	Ponded				
	SW04-SP(N)	7.1	12.1				
	SW04-SP(S)	0.5	1.4				
	WS-4	Ponded	Ponded	Ponded	Ponded	Ponded	Ponded
	WS-5	Ponded	Ponded	Ponded	Ponded	Ponded	Ponded

Note:
Only years/seasons where data are available are presented.
All values are reported in cfs (cubic feet per second).
Blank Cell - No data available

Table 6-38
Western Woodall Mountain Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Pooling Areas	WM-OP1	5/20/2009	*0.0758*	0.0004	0.0077	0.0311	ND
Springs	SW04-SP	4/29/2005	0.002	ND	0.014		*0.18*
		5/4/2006	0.003	ND	ND		ND
		7/26/2006	0.003	ND	ND		ND
		4/17/2007	0.003	ND	ND		ND
		5/13/2008	0.003	ND	ND		ND
		5/2/2009	0.0029	ND	0.00052		0.004
		5/7/2010	0.0021	ND	ND		ND
		5/13/2011	ND	ND	0.00728		ND
		5/13/2012	0.001	ND	0.00064		ND
		8/1/2005	0.003	ND	0.008		*0.26*
		10/18/2005	0.003	ND	ND		*0.23*
		10/22/2006	0.003	ND	ND		ND
		8/5/2007	0.004	ND	ND		ND
		10/14/2007	0.003	ND	ND		ND
		10/12/2008	0.002	ND	ND		ND
		10/11/2009	0.0023	ND	0.00042		0.0026
		10/16/2010	0.0022	ND	0.0019		ND
		9/23/2011	ND	ND	ND		ND
		9/30/2012	0.0012	ND	0.00052		ND
	WS-4	5/19/2008	0.0021	ND	ND	0.001	ND
		5/16/2009	0.0033	ND	ND	0.0029	ND
		6/3/2011	0.0013				
		10/19/2008	0.003	ND	ND	ND	0.0029
		8/7/2009	0.0019	ND	0.0013	0.00077	ND
		10/2/2011	0.0012				
	WS-5	5/19/2008	0.00034	ND	ND	0.0012	ND
		5/16/2009	ND	ND	ND	0.0015	ND
		6/3/2011	ND				
		10/19/2008	0.00057	0.000075	ND	ND	ND
		8/7/2009	0.00034	ND	0.0011	0.00059	ND
		10/2/2011	0.00027				

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-39
Western Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na							Comparison Value: na					
Pooling Areas	WM-OP1	5/20/2009	109	0.036			98.1		34.6	36.1	1.11	221	0.447	7.35	7.51
Springs	SW04-SP	4/29/2005	460	0.07				562	137		3	695	0.26	37	
		5/4/2006	435	ND				531	127		4	858	0.33	36	
		7/26/2006	445	ND				543	132		4	884	0.33	37	
		4/17/2007	456	ND				557	137		4	859	0.28	39	
		5/13/2008	437	ND				533		132	2	877	0.28		36
		5/2/2009	204	ND				204		125	4.1	841	0.28		34.8
		5/7/2010	464	ND				464		144	3.8	862	0.27		37.8
		5/13/2011	480	0.062				480		138	4.23	905	0.31		37.2
		5/13/2012	434	0.06				434		139	ND		0.3		37.6
		8/1/2005	499	0.06				609	133		4	587	0.23	36	
		10/18/2005	431	ND				526	126		3	815	0.25	35	
		10/22/2006	471	ND				575	141		4	889	0.31	38	
		8/5/2007	420	ND				513	136		3	860	0.26	37	
		10/14/2007	438	ND				534	137		4	851	0.25	38	
		10/12/2008	471	ND				575		143	3	924	0.37		36
		10/11/2009	472	0.01				472		140	4	870	0.26		36.2
		10/16/2010	469	ND				469		135	3.8	888	0.24		36.8
		9/23/2011	491	0.012				491		135	5.72	937	0.43		35.7
		9/30/2012	455	ND				455		150	3.3	812	0.26		35.8
	WS-4	5/19/2008	464	ND			464		133	127	4.16	724	0.336	38.2	36.9
		5/16/2009	464	0.181			464		136	139	4.36	863	0.466	38	37.4
		6/3/2011	482				482			140	4.28	804	0.33		39
		10/19/2008	487	ND			487		135	134	3.72	631	0.27	36.2	37.7
		8/7/2009	467	ND			467		128	127	4.05	746	0.253	36	35.9
		10/2/2011	499				499			133	4.18	940	0.42		35.9
	WS-5	5/19/2008	373	ND			373		109	103	4.91	645	0.396	41.3	39.8
		5/16/2009	420	ND			420		120	128	5.1	805	0.521	39.4	39.3
		6/3/2011	369				369			94.6	4.35	635	0.33		38.2
		10/19/2008	472	0.037			472		128	129	4.82	654	0.35	44.3	44
		8/7/2009	416	0.04			416		101	107	4.53	677	0.458	40.3	40.9
	WS-5	10/2/2011	407				407			100	4.38	770	0.39		40.1

Table 6-39
Western Woodall Mountain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na							Comparison Value: na					
Pooling Areas	WM-OP1	5/20/2009		ND			9.02	0.35	1.65	1.71	1.46	1.51	9.23	140	7.56
Springs	SW04-SP	4/29/2005		0.1	0.1	0.01	6.83	0.01	ND		8		35	503	
		5/4/2006		0.12	0.12	ND	6.74	ND	1		4		31	426	
		7/26/2006		0.12	0.12	ND	6.71	0.01	1		4		34	491	
		4/17/2007		0.11	0.11	ND	6.48	0.003	1.1		4		35	485	
		5/13/2008		0.05	0.05	ND	6.91	0.02		1.2		3.9	32	464	
		5/2/2009		0.13	0.13	ND	6.63	0.0071		1.1		3.7	28.6	467	
		5/7/2010		0.1	0.1	ND	6.73	0.012		1.2		3.7	28.4	457	
		5/13/2011		0.11	ND	ND	6.79	0.058		1.03		3.45	31.7	487	
		5/13/2012		ND	ND	ND		ND		1.18		3.76	29.1	486	
		8/1/2005		0.1	0.1	0.01	6.5	ND	ND		7		33	507	
		10/18/2005		0.11	0.11	ND	6.39	0.01	ND		8		32	470	
		10/22/2006		0.11	0.11	ND	6.63	0.01	1		4		37	503	
		8/5/2007		0.11	0.11	ND	6.78	ND	1.1		4		32	520	
		10/14/2007		0.09	0.09	ND	6.56	0.03	1.2		3.7		35	498	
		10/12/2008		0.1	0.1	ND	6.8	0.02		1.3		4.2	34	515	
		10/11/2009		0.14	0.14	ND	6.45	0.0063		1.1		3.8	25.8	494	
		10/16/2010		0.1	0.1	ND	6.77	ND		1.1		3.6	30.1	503	
		9/23/2011		0.107	0.122	ND	6.94	0.007		1.12		3.76	32.1	525	
		9/30/2012		ND	ND	ND	7.2	ND		1.14		3.7	26.8	500	
	WS-4	5/19/2008		ND	0.05		7.11	0.01	1.17	1.19	3.8	3.81	31	490	1.29
		5/16/2009		0.152			7.76	0.31	1.2	1.37	3.88	4.12	32.5	507	6.84
		6/3/2011					6.97						28.9	506	
		10/19/2008		0.705			6.95	0.02	1.07	1.19	3.65	3.93	30.2	500	ND
		8/7/2009		0.0846			7.2	ND	1.14	1.1	3.96	3.67	30.4	491	ND
		10/2/2011					6.91						30.5	514	
	WS-5	5/19/2008		0.0651	0.01		7.87	0.02	1.3	1.3	4.69	4.65	68.6	460	6.89
		5/16/2009		ND			8.62	0.06	1.48	1.45	4.57	4.71	38.9	489	5.88
		6/3/2011					7.84						23.3	403	
		10/19/2008		ND			7.14	0.02	1.55	1.46	5.04	5.13	58.4	530	7.09
		8/7/2009		ND			7.46	0.01	0.868	0.869	4.45	4.06	26	445	6.2
	WS-5	10/2/2011					7.79						25.8	433	

Notes:

Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte names.

Table 6-40
Western Woodall Mountain Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH: 15 pCi/L	HH: 50 pCi/L	Comparison Value: na	
Pooling Areas	WM-OP1	5/20/2009		8.4	ND		
Springs	WS-1	5/16/2009		ND	ND		
		10/19/2008	8.2	7.6	ND	-135.2	-17.9
		8/7/2009		ND	ND		
	WS-2	5/16/2009		**22.2**	ND		
		10/19/2008	7.2	5.1	ND	-134.2	-17.7
		8/7/2009		ND	ND		
	WS-4	10/19/2008	7.8	ND	ND	-135.3	-17.9
	WS-5	10/19/2008	4.9	ND	ND	-128.3	-16.6

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Pooling Areas	WM-OP1	5/20/2009	0.0015	0.00146
Springs	SW04-SP	4/29/2005		ND
		5/4/2006		ND
		7/26/2006		ND
		4/17/2007		ND
		5/13/2011		0.00125
		8/1/2005		ND
		10/18/2005		ND
		10/22/2006		ND
		8/5/2007		ND
		10/14/2007		ND
		9/23/2011		0.00123
	WS-4	5/19/2008	ND	0.0014
		5/16/2009	0.00188	0.0014
		10/19/2008	ND	0.0014
		8/7/2009	ND	0.00116
	WS-5	5/19/2008	ND	0.00029
		5/16/2009	0.000423	0.000359
		10/19/2008	0.00045	ND
		8/7/2009	ND	ND

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
ND - Non-detected value; na - Not applicable
pCi/L - picocuries per liter
ppt - parts per trillion
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-41
Western Woodall Mountain Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Dry Draws	WMC1-2	9/22/2008	8.2	8.9	97.2	82.3	307
	WMC1-1	9/21/2008	5.7	10	80	78.9	308
	WMC2-2	9/22/2008	9.6	9.3	96.9	81.3	360
	WMC2-1A	5/16/2009	12.3	16.1	143	107	472
	WMC2-1	9/21/2008	1.6	6.2	44.9	54	182
	WMC3-2	9/22/2008	1.8	12.5	31.9	46.7	163
	WMC3-1	9/21/2008	0.59	3	25.8	25.8	104
	WMC4-2	9/22/2008	26.3	21.3	251	209	523
	WMC4-1	9/22/2008	17.9	12.9	238	129	524
	WMC4-1A	5/21/2009	5.2	5.5	62.4	44.9	240
	WMC5-2	9/22/2008	19.1	22.3	331	188	684
	WMC5-1	9/22/2008	16.2	21.1	269	182	631
	WMC5-1A	5/21/2009	4.9	11.7	72.4	76.9	273
Springs	WS-4	9/21/2008	5.1	0.41	15.7	10.7	95.2
	WS-5	9/21/2008	0.63	1	4.8	7.9	13.6

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not applicable

ND - Non-detected value

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-42
Old Tailings Pond Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Pooling Areas	NEP-7	6/3/2011	*0.0509*				
	TP-2	5/9/2003	**0.23**	0.0008	0.0007		0.03
		5/16/2009	**0.329**	0.0012	0.0011	0.048	0.0055
	TP-2A	5/15/2004	**0.26**	*0.0048*	0.0021		0.0174
		5/9/2006	*0.109*	0.00089	0.00034		ND
		5/2/2007	*0.115*	0.00055	0.0019		0.0052
	TP-2B	5/16/2009	*0.0426*	ND	ND	0.038	0.0134
	TP-2C	5/16/2009	*0.0318*	*0.0015*	ND	0.0378	0.0021
	TP-2D	5/16/2009	**0.634**	ND	ND	0.0143	0.0137
N Borrow Sed Basin	NBorrowSedBasin	4/21/2014	0.0028	0.0012	0.0274	*0.129*	0.0398
		10/12/2013	0.0023				
		10/8/2014	0.0018	0.00024	ND	0.052	0.0062

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
na - Not applicable
ND - Non-detected value
Blank cell - no data available
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-43
Old Tailings Pond Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na														
Pooling Areas	NEP-7	6/3/2011	52				52			23.9	0.49	414	0.35		4.2		
	TP-2	5/9/2003	152	ND			152		224		17	957	0.6	65.1			0.03
		5/16/2009	167	0.087			167		77.7	80.4	5.55	514	0.803	21.1	21.9		ND
	TP-2A	5/15/2004							164			976		65.4			
		5/9/2006							93.5		5.48	879		26.3			ND
		5/2/2007	192				192			128.3118	10.474	1033			45.5783		ND
	NBorrowSedBasin	4/21/2014	29.1	0.274			29.1		10.4	15	0.6	135.2	0.25	1.64	3.76		0.492
		10/8/2014	63.6	ND			63.6		20.5	24	0.98	226.9	0.27	2.8	5.94		ND
	TP-2B	5/16/2009	115	0.058			115		67.7	68	2.71	371	1.44	8.2	8.35		ND
	TP-2C	5/16/2009	130	0.099			130		41	38.9	1.54	215	0.554	7.89	7.61		ND
	TP-2D	5/16/2009	285	0.055			285		184	187	7.44	1019	0.461	43.5	44.1		0.219

Table 6-43
Old Tailings Pond Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: NA										
Pooling Areas	NEP-7	6/3/2011			8.75						23.4	113	
	TP-2	5/9/2003			9.13	0.08	7.9		45.4		710	1220	16
		5/16/2009			7.71	0.43	6.54	6.81	13.5	13.9	155	411	16.1
	TP-2A	5/15/2004			9.08						676	1190	
		5/9/2006			7.95		6.46		16.4		185	498	
		5/2/2007			7.18		8.42		32		378.627	826	
	NBorrowSedBasin	4/21/2014			7.89	1.75	1.74	3.72	0.854	1.01	1.37	174	1.95
		10/8/2014			5.94	1.09	2.07	4.91	1.23	1.29	2.46	222	14.2
	TP-2B	5/16/2009			8.14	0.16	6.5	6.54	3.92	4.06	105	281	9.17
	TP-2C	5/16/2009			8.4	0.08	6.78	6.65	2.44	2.42	7.59	234	17.3
	TP-2D	5/16/2009			8.02	0.08	3.79	3.83	21.8	22.3	399	867	6.8

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte names.

Table 6-44
Old Tailings Pond Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH: 15 pCi/L	HH: 50 pCi/L	Comparison Value: na	
Pooling Areas	TP-2B	5/16/2009		**16.1**	8.9		
	TP-2C	5/16/2009		4.3	4		
	TP-2D	5/16/2009		**23.6**	6		

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Pooling Areas	TP-2	5/16/2009	0.00582	0.00583
	TP-2A	5/2/2007		0.0135
	TP-2B	5/16/2009	0.0114	0.0113
	TP-2C	5/16/2009	0.00138	0.00134
	TP-2D	5/16/2009	0.00927	0.00946
N Borrow Sed Basin	NBorrowSedBasin	4/21/2014	0.0012	0.0004
		10/8/2014	0.0011	0.00031

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/L - milligrams per liter

Blank Cell - No data available

ND - Non-detected value; na - Not applicable

pCi/L - picocuries per liter

ppt - parts per trillion

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value.

More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-45
Old Tailings Pond Sub-Basin Sediment and Tailings Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Dry Draw	WMC-6-1	9/19/2008	1.1	4.1	31.1	40.6	155
	WMC-6-2	9/19/2008	17.9	43.8	296	421	496
	WMC-6-2A	5/21/2009	15.4	44.2	308	427	563
N Borrow Sed Basin	IB-1	6/8/2014	3.2	7.7	77.6	117	1260
	NBorrowSedBasin	6/8/2014	5.1	12	108	190	290
Tailings	TP-2	5/16/2009	11	114	434	670	893
	TP2-SB1 (depths from 0 to 384 inches)	8/4/2014	44.3				
		8/4/2014	28.1				
		8/4/2014	0.54				
		8/4/2014	0.91				
	TP2-SB2 (depths from 0 to 492 inches)	8/4/2014	49.6				
		8/4/2014	43.7				
		8/4/2014	39.6				
		8/4/2014	4.3				
		8/4/2014	0.28				
	TP2-SB3 (depths from 0 to 684 inches)	8/7/2014	80.9				
		8/7/2014	55.4				
		8/7/2014	50.2				
		8/8/2014	52.5				
		8/8/2014	21				
		8/8/2014	39.7				
		8/8/2014	0.74				
	TP2-SB4 (depths from 0 to 684 inches)	8/5/2014	104				
		8/5/2014	35.1				
		8/5/2014	21.6				
		8/5/2014	41.4				
		8/5/2014	40.5				
		8/5/2014	0.28				
		8/5/2014	ND				
	TP2-SB5 (depths from 0 to 1128 inches)	8/5/2014	38.8				
		8/5/2014	41.2				
		8/5/2014	33.9				
		8/6/2014	19.4				
		8/6/2014	37.1				
		8/6/2014	28.9				
		8/6/2014	21.1				
		8/6/2014	24.3				
		8/6/2014	29.7				
		8/7/2014	9.6				

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not applicable

ND - Non-detected value

Blank cell - no data available

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-46
French Drain Sub-Basin Surface Water Flows

Location Type	Station	2001	2003		2004	2006	2007	2008	2009		2010		2011		2014	
		Spring	Spring	Fall	Spring	Spring	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Pooling Areas	SWP-4			Dry	Ponded			Dry	Ponded		Ponded	Ponded	Ponded	Ponded		
	SWP-4A				Ponded											
	SWP-5	Dry	Dry	Dry	Dry											
	SWP-6	Dry	Dry	Dry	Dry											
ODA Seeps	SWS-1		Dry												Dry	
	SWS-3				0.011				0.047		0.011	0.017	0.0507	0.01		
French Drain	FD-1		0.025	0.007	0.007	0.2	0.044	0.015	0.18		0.04	Overgrown	0.38	0.035	No Access	No Access
Tailings Pond	TP-1				Ponded		Ponded	Ponded	Ponded	Ponded					Ponded	Ponded

Note:

Only years/season where data are available are presented. All values are reported in cfs (cubic feet per second).

Blank cell = No data available

Table 6-47
French Drain Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Pooling Areas	SWP-4	5/5/2003	**0.29**	0.0003	0.002		0.02
		5/11/2004	**0.229**	ND	ND		0.0067
		5/16/2009	**0.568**	ND	ND	0.0066	0.0126
		7/10/2009	*0.0394*	0.00006	ND	0.0028	0.0014
		5/12/2010	**0.474**				
		6/2/2011	**0.191**				
		8/4/2009	*0.0496*	ND	ND	0.0063	0.0058
		9/21/2010	*0.026*				
		9/30/2011	*0.0253*				
	SWP-4A	5/11/2004	**0.174**	ND	ND		0.0213
		10/24/2003	*0.0594*	ND	ND		0.0058
ODA Seep	SWS-3	5/11/2004	**0.304**	*0.0041*	0.00095		*0.283*
		5/16/2009	**0.868**	*0.0046*	0.0019	0.0119	*0.296*
		5/12/2010	**0.508**				
		6/2/2011	**0.664**				
		10/20/2008	**0.32**	*0.003*	ND	0.0104	*0.328*
		8/4/2009	**0.632**	*0.0034*	0.0009	0.016	*0.31*
		9/21/2010	**0.398**				
		9/30/2011	**0.51**				
French Drain	FD-1	5/23/2001		0.00019	0.0079		0.05
		5/23/2001	*0.088*				
		5/5/2003	*0.117*	ND	0.0006		0.03
		5/11/2004	*0.043*	ND	ND		0.0116
		5/9/2006	**0.346**	0.00003	ND		0.0385
		5/1/2007	*0.128*	0.00002	ND		0.0086
		5/16/2009	**0.504**	ND	ND	0.0038	0.0405
		5/19/2009	**0.378**	ND	ND	0.0039	0.0525
		5/12/2010	**0.209**				
		6/2/2011	**0.361**				
		6/10/2014	*0.0729*	ND	ND	0.0019	0.0076
		10/24/2003	0.009	ND	ND		0.033
		10/20/2008	*0.0765*	ND	ND	ND	0.0089
		8/4/2009	**0.188**	ND	ND	0.0026	0.0136
		9/20/2010	*0.0986*				
		9/30/2011	**0.174**				
		8/7/2014	*0.0235*	ND	ND	0.0016	ND
New Tailings Pond	TP-1	5/5/2003	0.01	0.0002	0.0003		0.03
		5/11/2004	0.0019	ND	ND		0.0031
		5/2/2007	0.0037	0.00006	ND		ND
		5/16/2009	0.002	ND	ND	0.0271	ND
		7/10/2009	0.0041	0.00006	ND	0.024	0.002
		6/12/2014	0.0035	ND	ND	0.0236	ND
		10/22/2003	0.00073	0.00011	0.00047		ND
		10/20/2008	0.0037	0.000054	ND	0.0363	0.0024
		8/4/2009	0.0032	ND	ND	0.0208	0.0029
		10/8/2014	0.0025	0.000044	ND	0.015	ND

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank cell - No data available
na - Not applicable
ND - Non-detected value
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-48
French Drain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	SU
			Comparison Value: na													Comparison Value: na				
Pooling Areas	SWP-4	5/5/2003	290	ND			290		155		3	945	0.9	65.1			ND			8.75
		5/11/2004							175			881		74.9						8.39
		5/16/2009	285	0.045			285		139	145	3.64	928	0.945	60.4	63.6		ND			7.67
		7/10/2009	394	ND			394		161	166	3.85		0.758	69.3	71.7		ND			
		5/12/2010	262				262			114	4.95	920	0.674		49.6					8.02
		6/2/2011	392				392			154	6.2	1044	0.66		65.9					7.49
		8/4/2009	446	0.122			446		168	181	4.6	1267	1.16	76.4	79.1		ND			8
		9/21/2010	391				391			141	3.72	1180	0.838		86					8.17
		9/30/2011	535				535			141	9.06	913	0.74		73.4					7.85
	SWP-4A	5/11/2004							173			788		48						7.93
		10/24/2003	413	0.04			413		205		9.44	792	0.422	47			0.23			7.79
ODA Seep	SWS-3	5/11/2004							209			918		54.2						7.45
		5/16/2009	343	ND			343		237	246	6.07	1090	0.686	67.7	71.8		4.58			6.99
		5/12/2010	360				360			193	6.57	1309	0.593		49.3					7.23
		6/2/2011	348				348			226	6.73	1287	0.56		63.2					7.21
		10/20/2008	393	ND			393		221	214	6.74	959	0.264	56.8	54.2		3.23			7.25
		8/4/2009	365	ND			365		212	226	6.95	1386	0.368	54.6	55.4		4.76			7.7
		9/21/2010	366				366			220	7.12	1356	0.417		56.4					7.4
		9/30/2011	370				370			211	7.35	1127	0.6		51.5					7.13
French Drain	FD-1	5/23/2001	340				340		190		6.7		0.39	50			ND			
		5/5/2003	357	ND			357		236		7	1108	0.3	52.5			0.02			8.36
		5/11/2004							222			891		47.6						8.01
		5/9/2006							248		5.86	1734		56.7			1.73			8.14
		5/1/2007	374				374			223	6.768	1388			51.6096		0.184			7.56
		5/16/2009	350	ND			350		249	256	6.18	1268	0.496	60.5	62.4		1.2			7.93
		5/19/2009	361	ND			361		254	254	6.57		0.615	59	59.3		0.961			
		5/12/2010	366				366			208	7.15	1324	0.425		44.7					7.45
		6/2/2011	397				397			247	7.04	1270	0.13		52.7					6.94
		6/10/2014	377	0.036			377		251	248	6.79	1414	0.47	53	52.2		ND			7.71
		10/24/2003	413	0.01			413		263		9.1	938	ND	50.1			ND			7.37
		10/20/2008	425	ND			425		238	230	7.96	975	0.225	51.2	50		0.325			7.92
		8/4/2009	410	ND			410		227	230	7.46	1257	0.629	51.6	51.8		0.912			7.95
		9/20/2010	418				418			252	7.67	1399	0.25		51.1					7.88
		9/30/2011	443				443			235	7.53	1155	0.41		45.2					7.9
		8/7/2014	399	0.031			399		250	253	8.11	1305	0.36	50.5	51.1		ND			7.61
New Tailings Pond	TP-1	5/5/2003	251	0.2			226		153		44	192	0.3	92.9			2.07			9.25
		5/11/2004							134			1110		90.1						8.76
		5/2/2007	343				303			141	37.392	1521			85.8017		3.06			8.75
		5/16/2009	292	0.058			252		124	126	39.6	1287	ND	87.3	89.8		1.4			8.81
		7/10/2009	330	0.083			330		128	130	38.8		ND	86.2	86.7		1.77			
		6/12/2014	252	0.06			219		141	146	52.5		0.55	79.9	85.1		0.087			
		10/22/2003	253	0.19			211		153		54.1		ND	111			0.55			
		10/24/2003										1051								8.96
		10/20/2008	371	0.269			351		155	151	43.1	1341	ND	113	109		0.966			8.73
		8/4/2009	245	0.084			194		126	128	45.2	1578	ND	87.3	87.9		0.815			8.53
		10/8/2014	246	0.088			218		116	119	54.8		0.13	79.1	83		0.169			

Table 6-48
French Drain Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Phosphorus, Dissolved	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na							
Pooling Areas	SWP-4	5/5/2003		2.3		10.6		400	860	10
		5/11/2004						483	1016	
		5/16/2009		3.48	3.56	10.9	11	347	803	
		7/10/2009		4.89	5.06	12.6	13.1	335	896	61.4
		5/12/2010						293	685	
		6/2/2011						255	782	
		8/4/2009		5.28	5.45	14.2	16.7	395	967	19
		9/21/2010						323	894	
		9/30/2011						135	741	
	SWP-4A	5/11/2004						368	873	
		10/24/2003		3.5		16.5		301	856	12
ODA Seep	SWS-3	5/11/2004						408	1010	
		5/16/2009		2.09	2.04	14.8	15.3	544	1210	2.64
		5/12/2010						414	999	
		6/2/2011						457	1090	
		10/20/2008		2.08	2.04	16.8	17.7	369	980	2.51
		8/4/2009		1.99	2.08	16.5	19.1	476	989	2.43
		9/21/2010						412	997	
		9/30/2011						394	1000	
French Drain	FD-1	5/23/2001		1		16		290	760	
		5/5/2003		3.2		15.9		450	1020	5
		5/11/2004						432	1019	
		5/9/2006		3.04		14.5		507	1097	
		5/1/2007		3.31		16		431	1020	
		5/16/2009		3.21	3.29	14.8	15.4	570	1180	10.6
		5/19/2009		3.08	3.33	15.2	15.8	543	1140	3.35
		5/12/2010						428	989	
		6/2/2011						415	1060	
		6/10/2014	0.221	2.87	2.86	17.5	17.2	464	1070	4.82
		10/24/2003		4.51		17.3		451	1087	18.1
		10/20/2008		3.99	4.23	16.1	16.6	373	1000	3.49
		8/4/2009		2.09	2.07	15.5	17.9	454	1050	2.97
		9/20/2010						423	1080	
		9/30/2011						370	1030	
		8/7/2014	0.763	3.22	3.35	17	17.3	433	1020	4.79
New Tailings Pond	TP-1	5/5/2003		11.2		99.9		590	1230	11
		5/11/2004						637	1127	
		5/2/2007		10.7		97.2		503.612	1150	
		5/16/2009		12.2	12.7	102	107	556	1110	8.41
		7/10/2009		8.29	8.31	104	104	534	1160	55.4
		6/12/2014	0.973	10.5	11	111	120	555	1090	6.67
		10/22/2003		12.9		128		722	1297	4.5
		10/24/2003								
		10/20/2008		13.4	13.9	128	135	651	1400	8.19
		8/4/2009		8.53	8.64	105	120	624	1100	7.01
		10/8/2014	1.62	10.3	10.4	108	107	525	1100	5.67

Table 6-49
French Drain Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Radium 226	Radium 228	Thorium 230	Uranium 234	Uranium 235	Uranium 238	Uranium, Total	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH: 15 pCi/L	HH: 50 pCi/L	HH: 5 pCi/L							Comparison Value: na	
ODA Seep	SWS-3	5/16/2009		10.8	ND									
		10/20/2008	6.7	5.6	ND								-129.1	-17
		8/4/2009		9.6	ND									
French Drain	FD-1	5/16/2009		13.7	ND									
		5/19/2009		**25.6**	ND									
		10/20/2008	8.9	ND	ND								-127.1	-17
		8/4/2009		ND	ND									
		8/7/2014		ND	ND	ND	ND	ND	1.3	ND	1.1	2.3		
New Tailings Pond	TP-1	6/12/2014		10.4	7.6	0.25	ND	0.6	1.3	0.3	0.7	2.3		
		8/4/2009		ND	ND									
		10/8/2014		ND	7.9	0.52	ND	ND	1.3	ND	ND	1.5		

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Pooling Areas	SWP-4	5/16/2009	0.0127	0.0111
		7/10/2009	0.0079	0.00677
		8/4/2009	0.00625	0.00608
ODA Seep	SWS-3	5/16/2009	0.00871	0.00887
		10/20/2008	0.0062435	0.0053
		8/4/2009	0.00917	0.00748
French Drain	FD-1	5/23/2001		0.0044
		5/1/2007		0.0063
		5/16/2009	0.00793	0.00803
		5/19/2009	0.00909	0.00712
		6/10/2014	0.0043	0.0042
		10/20/2008	0.00408075	0.0038
		8/4/2009	0.00648	0.00598
		8/7/2014	0.003	0.0029
New Tailings Pond	TP-1	5/2/2007		0.0018
		5/16/2009	ND	0.00147
		7/10/2009	ND	0.00102
		6/12/2014	0.0014	0.0014
		10/20/2008	ND	0.0015
		8/4/2009	ND	0.00102
		10/8/2014	0.0012	0.0011

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/L - milligrams per liter

Blank Cell - No data available

ND - Non-detected value; na - Not applicable

pCi/L - picocuries per liter

ppt - parts per trillion

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value.

More information about surface water comparison values is provided on Tables 4-3 through 4-4.

Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.

Comprehensive evaluation will be provided in the risk assessments.

Table 6-50
French Drain Sub-Basin Sediment and Tailings Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Pooling Areas	SWP-4	7/10/2009	22.4	11.7	114	76.6	383
		9/24/2008	360	63.6	123	96	1030
ODA Seep	SWS-3	5/16/2009	624	65.1	150	137	1220
French Drain	FD-1	9/25/2008	31.5	2.2	20.9	28.1	219
Tailings	TP-1	5/16/2009	1.4	8.1	21.7	42.5	93.6
		7/10/2009	0.41	1.7	20	31.5	62.4
	NTP-1	9/25/2008	16.7	68.8	210	384	460
	NTP-2	9/25/2008	17	76.6	223	428	602
	NTP-3	9/25/2008	0.59	3	20.5	29.6	53.2
Former Conda Townsite sewage lagoons	ST9-03 (0-2")	9/25/2008	23.5	75.5	548	769	901
	ST9-03 (2-12")		26	76.2	590	903	973
	ST9-04 (0-2")	9/25/2008	29.5	89.6	526	824	968
	ST9-04 (2-12")		25.1	103	596	909	1070
	ST9-05 (0-2")	9/25/2008	14.1	24	177	268	532
	ST9-05 (2-12")		1.2	2.6	27.3	42	84.7

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not applicable

ND - Non-detect value

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-51
French Drain Sub-Basin Aquatic and Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Aquatic Vegetation		Aquatic Invertebrates	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg)	Species	Selenium (mg/kg)	Selenium (mg/kg) Ecological: 0.52 mg/kg Human Health: 5,800 mg/kg Surface	Subsurface	Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
New Tailings Pond	SQ-02	9/28/2003				8.4	6.2	1.9 6.3 1.9 5.5 0.8	Forage (mixed-species)*[a] Forb (single-species) Forb (single-species)* Grass (mixed-species) Forage (mixed-species)*			
		5/26/2004						2.7 0.99 4.2	Forb (single-species)* Forage (mixed-species)* Grass (mixed-species)			
		7/12/2004						0.34 0.45 2.2	Grass (mixed-species) Forage (mixed-species)* Forb (single-species)			
								0.68	Forb (single-species)*			
	TP-1	7/10/2009	0.78	Soft-stem bulrush[a]	4.44							
Pond	SWP-4	7/10/2009	153	Spikerush[a]	428							
		8/4/2009				23	22	6.6 8.7 2.5	Forage (mixed-species) Forage[a] (mixed-species) Browse (mixed-species)	5.3		
		8/12/2009									26	Chipmunk, Deer Mouse

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram

All concentrations are presented on a dry weight basis.

a - Sample was not washed prior to analysis.

Blank cell - no data available

Browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Accumulator forbs are those species that are considered to be "selenium-accumulating species;" refer to Section 6 for further discussion and a list of the species. Forb samples composed of a single selenium-accumulating species are identified in the table as "accumulator." Mixed-species forb or forage samples that include selenium-accumulating species are marked with an asterisk (*).

Refer to Section 4 tables for additional details about biotic sample composition.

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

More information about soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Table 6-52
Shield and Jouglard Canyons Sub-Basin Surface Water Flows

Location Type	Station	2003		2004	2008	2009		2010		2011	
		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Pit Lake	NL4P-1										
Runoff Water	HH-OP1									Diffuse Flow	
	NBorrowSedBasin										
	NL4P-OP1					0.0011					
	NL4P-OP2					0.0026					
Springs	FM-1	0.76	1.6	2.3	1.7	2.8	1.8			1.2	1.6
	HH-1	0.025	0.0040	0.0070	0.018	Ponded	0.059				
	JCS-1			0.011	Ponded	0.050	0.0010				
ODA Seep	SWS-2		Ponded	0.0020	Ponded	Ponded	Diffuse Flow	Ponded	Ponded	Ponded	Ponded
Ponds	HHP-1										
S Borrow Area	BorrowOp										

Location Type	Station	2013		2014	
		Spring	Fall	Spring	Fall
Pit Lake	NL4P-1	Ponded	Ponded	Ponded	Ponded
Runoff Water	HH-OP1			Dry	
	HHT1-1				Dry
	HHT1-2			Dry	Dry
	NBorrowSedBasin		Ponded		
	NL4P-OP1				
	NL4P-OP2				
Springs	FM-1	0.76	1.6		
	HH-1	0.025	0.0040		
	JCS-1				
ODA Seep	SWS-2		Ponded		
Ponds	HHP-1	Ponded	Ponded	Ponded	Ponded
S Borrow Area	BorrowOp		Ponded		

Note:
Only years/seasons where data are available are presented. All values are reported in cfs (cubic feet per second).
Blank cells - No data available

Table 6-53
Shield and Jouglard Canyons Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total (mg/L) Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Cadmium, Dissolved (mg/L) Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Chromium, Dissolved (mg/L) Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Vanadium, Total (mg/L) Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Zinc, Dissolved (mg/L) Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Pit Lake	NL4P-1	5/23/2001		*0.0026*	0.0041		0.012
		5/23/2001	*0.096*				
		5/5/2003	**0.28**	0.0012	0.0021		0.02
		5/11/2004	**0.306**	ND	0.002		0.0185
		5/15/2009	**0.398**	*0.0062*	0.0019	0.0736	0.0363
		7/8/2009	**0.327**	*0.0023*	0.0017	*0.11*	0.0091
		5/12/2010	*0.154*				
		6/1/2011	**0.406**				
		4/24/2012	*0.0691*				
		5/7/2013	*0.157*				
		6/11/2014	*0.0807*				
		10/24/2003	*0.161*	ND	0.0016		ND
		8/19/2008	**0.21**			0.0626	
		10/20/2008	*0.124*	0.000206	0.0012	0.0418	0.0029
		8/3/2009	**0.384**	ND	0.00099	0.0629	ND
		9/21/2010	*0.078*				
		9/30/2011	**0.243**				
		10/16/2012	*0.0386*				
		10/13/2013	*0.0574*				
		10/8/2014	*0.0429*	0.00018	ND	0.057	0.0052
Runoff Water	HH-OP1	6/1/2011	0.00069				
	NL4P-OP1	5/16/2009	**0.182**	*0.0243*	0.0013	0.0584	*1.07*
	NL4P-OP2	5/16/2009	*0.115*	*0.0042*	0.0034	*1.22*	0.0386
	NL4P-OP3	5/16/2009	0.0036	*0.0015*	0.0154	*0.158*	0.015
Springs	FM-1	5/6/2003	0.002	0.0001	0.0013		0.02
		5/15/2004	0.0019	ND	ND		0.0084
		5/15/2009	0.0017	ND	ND	0.00072	0.0065
		6/2/2011	0.0018				
		10/22/2003	0.0015	ND	0.0004		0.0077
		10/19/2008	0.0023	0.000077	0.0014	ND	0.0074
		8/4/2009	0.0019	ND	ND	ND	0.0033
		9/30/2011	0.0017				
	HH-1	5/9/2003	0.004	ND	0.0003		0.01
		5/15/2004	ND	ND	ND		ND
		5/15/2009	0.00041	ND	ND	0.0027	0.011
		10/24/2003	0.00047	ND	ND		ND
		10/20/2008	0.00048	0.000058	ND	0.001	ND
		8/4/2009	0.00035	ND	ND	0.0014	ND
	JCS-1	5/15/2004	0.00087	ND	ND		ND
		5/15/2009	0.00084	ND	ND	0.0085	ND
		10/20/2008	0.0012	ND	ND	ND	ND
		8/4/2009	0.00076	ND	ND	0.0013	ND
ODA Seep	SWS-2	5/23/2001		ND	0.0048		ND
		5/23/2001	0.0041				
		5/11/2004	ND	ND	ND		0.0033
		5/15/2009	0.0057	ND	ND	0.0025	ND
		5/12/2010	0.0061				
		6/2/2011	0.0107				
		10/24/2003	0.0009	ND	ND		ND
		10/20/2008	0.001	ND	ND	0.0058	ND
		8/4/2009	0.00024	ND	ND	0.00056	0.009
		9/21/2010	0.00054				
		9/30/2011	0.0179				
Ponds	HHP-1	5/23/2001		0.00027	0.0031		ND
		5/23/2001	0.0014				
		5/9/2003	ND	ND	0.0004		ND
		5/15/2004	0.00042	ND	ND		0.0045
		5/15/2009	0.00068	ND	ND	0.0045	ND
		7/8/2009	0.00041	ND	ND	0.0011	ND
		4/24/2012	0.0004				
		5/9/2013	0.00077				
		6/10/2014	0.00068				
		10/24/2003	0.0005	ND	0.00041		0.002
		10/20/2008	0.00069	ND	ND	0.0019	ND
		8/4/2009	0.00033	ND	ND	0.0014	ND
		10/16/2012	0.00055				
		10/12/2013	0.00047				
		8/6/2014	0.00087	ND	ND	0.0095	0.00099
		10/8/2014	0.00072	0.0005	ND	0.0046	0.015
	SWP-1	5/5/2003	0.003	*0.0027*	0.0254		0.06
Ponds	SWP-2	5/5/2003	0.002	0.0002	0.0003		ND
		5/15/2009	0.0015	ND	ND	0.0027	ND
		6/1/2011	0.0096				
		8/4/2009	0.00053	ND	ND	ND	0.0032
	SWP-3	5/5/2003	*0.062*	0.0001	0.0004		0.01
		5/11/2004	0.0186	ND	ND		0.0093
		5/9/2006	0.0014	0.00003	ND		ND
		5/1/2007	0.0091	0.00002	ND		ND
		5/15/2009	*0.021*	ND	ND	0.0056	ND
		10/20/2008	*0.0803*	0.000338	ND	0.0034	0.0747
		8/4/2009	0.0089	ND	ND	0.0029	0.0034
S Borrow Area	BorrowOp	9/17/2013	0.0024				
		10/12/2013	0.0067				

Notes:

Includes data from 2001 onward of "A" data use level only. Table presents total and total recoverable selenium results for surface water.

mg/L - milligrams per liter na - Not available ND - Non-detected value

Blank Cell - No Data Available

Exceedances of comparison values are indicated in the following manner:

Value exceeds surface water chronic ecological comparison value.

Value exceeds surface water acute ecological comparison value.

Value exceeds surface water human health comparison value

More information about surface water comparison values is provided on Tables 4-3 through 4-4.

Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.

Comprehensive evaluation will be provided in the risk assessments.

Table 6-54
Shield and Jouglard Canyons Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, as N, Dissolved
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na													
Pit Lake	NL4P-1	5/23/2001	65				65		100		1.1		0.73	12		
		5/5/2003	50	ND			50		82.4		1	426	0.7	10.4		
		5/11/2004							74.5			324		9.56		
		5/15/2009	71.5	ND			71.5		66.3	64.7	1.57	327	0.702	9.17	9.23	
		7/8/2009	82.6	ND			64.6		70.2	77.3	1.15	1550	0.646	9.71	10.2	
		5/12/2010	76.2				76.2			52.3	2.11	372	0.656		7.72	
		6/1/2011	66.6				66.6			59.2	1.59		0.67		8.13	
		6/3/2011										396				
		4/24/2012	68.6				68.6			53.2	1.52	288.1	0.67		8.06	
		5/7/2013	84.2				84.2			53	1.56	363	0.6		8.44	
		6/11/2014	70	ND			57.4			46.5	0.69	285	0.72		7.25	
		10/24/2003	68.5	0.01			27.8		134		0.957	469	1.32	16.2		
		8/19/2008	80	ND			31.9			71	0.613		0.939		10.1	
		10/20/2008	83.9	0.202			43.3		78.8	71.1	1.64	320	0.911	12.6	11.2	
		8/3/2009	82.7	ND			16.5		71	71.8	0.905	414	0.819	9.99	10.3	
		9/21/2010	80.3				22.9			59.3	1.64	365	0.773		9.88	
		9/30/2011	72.5				22.4			69	1.03	438	0.72		10.1	
		10/16/2012	101				78.3			64.7	2	419.3	0.97		11.1	
		10/13/2013	86.3				52.5			57.2	1.11	350	0.75		10.2	
		10/8/2014	83.3				70.4		38.6	38.7	1.28	243.5	0.58	6.12	6.16	
Runoff Water	HH-OP1	6/1/2011	240				240			70.2	4.5	476	0.24		16.3	
	NL4P-OP1	5/16/2009	7.5	0.053			7.5		61.3	63.9	0.594	285	0.954	2.78	2.97	
	NL4P-OP2	5/16/2009	7.2	0.066			7.2		16.5	83	1.4	125	0.211	2.94	7.45	
	NL4P-OP3	5/16/2009	34	0.051			34		10.1	12.4	2.46	43	0.891	1.72	2.06	
Springs	FM-1	5/6/2003	517	ND			517		161		4	777	0.3	40.5		
		5/15/2004							145			655		38.9		
		5/15/2009	492	ND			492		150	147	4.01	721	0.388	41	40.9	
		6/2/2011	518				518			149	4.29	858	0.31		40.2	
		10/22/2003	524	ND			524		154		3.47	580	0.396	40.4		
		10/19/2008	533	ND			533		144	145	3.57	685	0.257	40.1	39.9	
		8/4/2009	513	ND			513		144	142	3.72	889	0.293	40.2	39.6	
		9/30/2011	527				527			146	4.03	790	0.36		39.6	
	HH-1	5/9/2003	227	ND			227		85.3		6	414	0.2	9.8		
		5/15/2004							82.5			352		11.1		
		5/15/2009	252	ND			248		88.8	85.1	5.92	408	0.18	10.3	10.3	
		10/24/2003	263	ND			263		87.9		7.83	347	0.109	12.2		
		10/20/2008	264	ND			264		82.6	85.4	6.83	982	0.148	10.8	11	
		8/4/2009	260	ND			256		83.1	87.5	7.14	468	ND	10.7	11	
	JCS-1	5/15/2004							85.3			415		16.6		
		5/15/2009	228	ND			228		79	85.9	12.8	460	0.277	12.3	13.6	
		10/20/2008	275	ND			275		93.6	93.6	17.7	464	0.234	22.4	22.9	
		8/4/2009	265	ND			265		90.5	94.3	19.4	597	0.201	18.9	19.5	
ODA Seep	SWS-2	5/23/2001	210				210		120		9		0.12	25		
		5/11/2004							76.6			355		17.6		
		5/15/2009	272	ND			272		85.1	86.1	4.81	504	0.296	20.4	20.5	
		5/12/2010	331				331			116	8.67	914	0.307		26.9	
		6/2/2011	181				181			84.6	4.49	526	0.27		19.3	
		10/24/2003	279	0.05			279		81.2		4.48	369	0.129	19.8		
		10/20/2008	274	ND			274		82.3	90.8	4.28	396	0.175	19.8	20.8	
		8/4/2009	276	ND			276		75.1	78.9	5.14	480	0.115	18.7	19	
		9/21/2010	237				237			71.2	4.23	543	0.095		17.1	
		9/30/2011	371				371			195	7.67	1024	0.3		49.1	

Table 6-54
Shield and Jouglard Canyons Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na											
Pit Lake	NL4P-1	5/23/2001	ND				0.19	2		3.2		210	370	
		5/5/2003	ND			9.85	0.43	1.3		3.3		190	330	4
		5/11/2004				8.38						175	340	
		5/15/2009	ND			8.12	0.79	1.43	1.59	2.99	3.13	130	292	3.68
		7/8/2009	ND			9.21	0.43	0.621	0.884	2.65	2.78	144	304	12.5
		5/12/2010				6.51						98.7	221	
		6/1/2011										118	209	
		6/3/2011				8.07								
		4/24/2012				8.43						106	226	
		5/7/2013				7.6						88.9	218	
		6/11/2014	ND			9.38	0.328					51.8	148	4.72
		10/24/2003	ND			10.35	0.28	0.111		4.22		310	561	10.1
		8/19/2008	ND				0.13		0.149		2.43	148	280	6.46
		10/20/2008	ND			9.76	0.08	0.646	0.493	3.85	4.04	141	320	7.55
		8/3/2009	ND			10.28	0.1	ND	ND	2.13	2.31	150	301	3.08
		9/21/2010				10.1						109	241	
		9/30/2011				10.75						150	289	
		10/16/2012				9.22						117	272	
		10/13/2013				9.73						96.3	220	
		10/8/2014				10.1		0.441	0.489	2.15	2.13	59.1	162	
Runoff Water	HH-OP1	6/1/2011				8.17						21.1	258	
	NL4P-OP1	5/16/2009	0.102			8.01	0.42	0.767	0.952	0.709	0.737	160	249	2.05
	NL4P-OP2	5/16/2009	0.459			7.6	15.1	0.925	7.12	2.33	2.76	49	696	118
	NL4P-OP3	5/16/2009	ND			7.8	0.24	2.69	3.2	1.29	1.35	0.8	100	8.19
Springs	FM-1	5/6/2003	0.07			7.49	0.01	1.4		4.2		30	550	5
		5/15/2004				7.53						30.5	531	
		5/15/2009	0.377			7.38	0.01	1.46	1.43	3.96	4.19	33.7	548	ND
		6/2/2011				7.41						30.9	530	
		10/22/2003	0.05			7.32	0.01	1.58		4.08		30.3	531	ND
		10/19/2008	ND			7.47	ND	1.51	1.37	3.79	3.95	31.8	540	ND
		8/4/2009	0.0709			7.69	ND	1.36	1.34	3.89	3.77	31.5	530	9.75
		9/30/2011				7.39						31.8	557	
	HH-1	5/9/2003	0.27			8.21	0.15	0.9		5.8		ND	270	3
		5/15/2004				7.78						11.4	258	
		5/15/2009	0.42			8.29	0.09	0.827	0.892	7.1	7.29	13	318	2.17
		10/24/2003	0.38			7.99	0.04	1.22		6.85		11.4	290	5.7
		10/20/2008	0.731			7.57	0.03	0.962	0.964	6.77	7.1	11.2	320	1.54
		8/4/2009	0.788			8.33	0.08	0.605	0.726	7.05	7.93	13.1	293	1.36
	JCS-1	5/15/2004				7.66						32.5	320	
		5/15/2009	ND			7.76	0.15	2.79	3.8	9.4	9.69	30.7	348	7.58
		10/20/2008	ND			7.06	0.04	2.59	2.82	13.9	14.4	56.6	380	3.41
		8/4/2009	ND			7.23	0.1	2.35	2.4	12.4	14.5	67.3	421	2.81
ODA Seep	SWS-2	5/23/2001	0.15				0.044	ND		11		160	440	
		5/11/2004				7.77						15.4	315	
		5/15/2009	ND			7.26	0.23	1.5	1.59	7.18	7.24	45	377	24.7
		5/12/2010				7.58						152	567	
		6/2/2011				7.71						116	375	
		10/24/2003	ND			7.49	0.84	0.805		7.1		15.2	334	6.5
		10/20/2008	ND			7.66	0.11	1.06	3.14	7.35	7.78	15.6	320	15.4
		8/4/2009	ND			7.55	0.06	0.662	0.688	7.02	7.99	18.9	291	1.85
		9/21/2010				7.89						15	259	
		9/30/2011				7.47						334	901	

Table 6-54
Shield and Jouglard Canyons Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, as N, Dissolved
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na													
Ponds	HHP-1	5/23/2001	180				180		49		4.9		0.12	19		
		5/9/2003	242	ND			242		84.7		5	448	0.2	18.5		
		5/15/2004							58.8			304		18.5		
		5/15/2009	246	ND			246		72.2	75.4	5.21	390	0.18	17.5	17.4	
		7/8/2009	263	ND			263		73.7	72.4	5.25	1871	0.137	17.7	17.6	
		4/24/2012	239				239			69.5	5.59	364.4	0.18		17	
		5/8/2013										447.1				
		5/9/2013	250				250			72.9	5.21		0.18		17.8	
		6/10/2014	239				231			74.4	5.35	468	0.13		19.6	
		10/24/2003	195	ND			186		42.6		8.36	257	0.153	22.7		
		10/20/2008	189	1.48			189		45.2	46.6	5.58	741	0.144	18.4	18.7	
		8/4/2009	230	ND			230		61.3	62.9	5.94	491	0.104	17.9	18.2	
		10/16/2012	194				194			46.3	5.21	437.2	0.18		18.9	
		10/12/2013	232				232			64.7	5.26	447	0.17		19.1	
		8/6/2014	106	0.095			95.5		20.5	25.3	4.28	251.6	0.2	15	15.9	
		10/8/2014	265	0.562			265		75.2	74.6	6.01	521	0.16	20	19.3	
Ponds	SWP-1	5/5/2003	25	ND			25		8.7		1	64	0.4	1.5		
	SWP-2	5/5/2003	102	ND			102		37.8		ND	193	0.2	3.3		
		5/15/2009	146	0.045			146		47.7	47.1	5.52	255	0.191	9.05	9.12	
		6/1/2011	168				168			54	5.25	371	0.22		10.7	
		8/4/2009	176	ND			176		53.7	55.2	3.8	598	0.123	10.3	10.6	
	SWP-3	5/5/2003	195	ND			195		136		9	761	0.3	34.6		
		5/11/2004							166			747		43.2		
		5/9/2006							72.7		3.78	653		16.5		
		5/1/2007	306				306			14.2683	7.086	998			37.0295	
		5/15/2009	215	0.032			215		103	97.8	6.68	522	0.325	24.6	23.2	
		10/20/2008	217	ND			217		349	347	15.4	1494	0.904	78.2	77.9	
		8/4/2009	374	0.082			374		188	192	7.39	1191	0.533	52.3	53.2	

Table 6-54
Shield and Jouglard Canyons Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS	TOC
			mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na											
Ponds	HHP-1	5/23/2001	1.2				0.031	ND		7.1		19	200	
		5/9/2003	0.02			8.19	0.07	0.8		6		20	300	4
		5/15/2004				8.49						20.8	232	
		5/15/2009	ND			8.32	0.12	1.09	1.25	6.86	6.83	18.6	280	3.47
		7/8/2009	ND			7.09	0.03	0.838	0.844	6.86	6.8	17.3	285	2.04
		4/24/2012				8.05						16.6	270	
		5/8/2013				8.32								
		5/9/2013										17.7	204	
		6/10/2014				8.17						21.9	257	
		10/24/2003	ND			8.92	0.09	2.6		9.39		15.3	228	18.9
		10/20/2008	ND			8.2	0.2	0.297	0.406	7.16	7.27	18.1	220	8.03
		8/4/2009	ND			7.72	0.03	0.986	0.98	7.03	7.84	20.2	256	3.02
		10/16/2012				7.54						15.5	212	
		10/12/2013				7.73						18.5	259	
		8/6/2014	ND			8.65	0.208	1.13	1.71	6.85	7.03	15.2	136	5.84
		10/8/2014	ND			7.56	0.088	1.45	1.54	8.29	8.18	22	297	3.98
Ponds	SWP-1	5/5/2003	ND			9.16	2.3	1.9		1.1		ND	60	4
	SWP-2	5/5/2003	ND			8.89	0.14	3.2		1.5		ND	130	7
		5/15/2009	ND			8.09	0.04	1.12	1.22	6.17	6.21	16.1	220	11.5
		6/1/2011				7.78						21.7	205	
		8/4/2009	ND			7.23	0.08	0.649	0.718	7.04	7.91	19.4	206	2.84
	SWP-3	5/5/2003	ND			8.41	0.03	0.5		13.2		290	630	6
		5/11/2004				8.13						367	834	
		5/9/2006	ND			7.33		0.815		6.16		19.8	267	
		5/1/2007	ND			7.06		0.619		12.6		233.986	664	
		5/15/2009	0.225			8.29	0.46	2.19	2.31	9.62	10.3	136	438	11.9
		10/20/2008	ND			7.2	0.05	7.54	7.7	25.9	27.1	984	1700	13.2
		8/4/2009	ND			7.76	0.4	0.667	0.767	15.8	18.2	390	919	9.28

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte names.

Table 6-55
Shield and Jouglard Canyons Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Radium 226	Radium 228	Thorium 230	Uranium 234	Uranium 235	Uranium 238	Uranium, Total	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	HH:15 pCi/L	HH:50 pCi/L	HH:5 pCi/L							Comparison Value: na	
Pit Lake	NL4P-1	5/15/2009		12.2	37.2									
		10/20/2008	-33.3	6.1	ND								-78.2	-5.6
		8/3/2009		2.3	ND									
Runoff Water	NL4P-OP3	5/16/2009		**112**	**292**									
Springs	FM-1	5/15/2009		6.8	ND									
		10/19/2008	7.8	6.1	ND								-134.5	-17.8
		8/4/2009		6.4	ND									
	HH-1	5/15/2009		ND	ND									
		10/20/2008	6.9	ND	ND								-128.9	-17
		8/4/2009		ND	ND									
	JCS-1	5/15/2009		4.8	4.3									
		10/20/2008	5.7	2.7	3.9								-128.1	-16.7
		8/4/2009		ND	5.6									
ODA Seep	SWS-2	5/15/2009		7	3.8									
		10/20/2008	7.6	ND	ND								-128.1	-17
		8/4/2009		ND	4.6									
Ponds	HHP-1	10/20/2008	4.8	ND	ND								-125.9	-16.3
		8/6/2014		ND	ND	0.85	ND	ND	0.5	ND	0.2	0.7		
	SWP-3	10/20/2008	6.1	7.7	ND								-116.2	-15.3

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Pit Lake	NL4P-1	5/23/2001		0.006
		5/15/2009	0.00387	0.0032
		7/8/2009	0.00665	0.00324
		8/19/2008	0.0041	
		10/20/2008	0.0045345	0.0038
		8/3/2009	0.00369	0.00363
		10/8/2014	0.0055	0.0055
Runoff Water	NL4P-OP1	5/16/2009	0.000473	0.0000431
	NL4P-OP2	5/16/2009	0.0224	0.0000439
	NL4P-OP3	5/16/2009	0.00261	0.0011
Springs	FM-1	5/15/2009	ND	0.00181
		10/19/2008	0.0019	0.002
		8/4/2009	ND	0.00189
	HH-1	5/15/2009	ND	0.000733
		10/20/2008	0.00068	ND
		8/4/2009	ND	ND
	JCS-1	5/15/2009	ND	ND
		10/20/2008	ND	0.0012
		8/4/2009	ND	0.0011
ODA Seep	SWS-2	5/23/2001		0.0012
		5/15/2009	ND	0.0017
		10/20/2008	ND	ND
		8/4/2009	ND	ND
Ponds	HHP-1	5/23/2001		0.00087
		5/15/2009	ND	ND
		7/8/2009	ND	0.000604
		10/20/2008	0.00074	ND
		8/4/2009	ND	ND
		8/6/2014	0.00067	0.00054
		10/8/2014	0.00085	0.00083
Ponds	SWP-2	5/15/2009	ND	0.000519
		8/4/2009	ND	ND
	SWP-3	5/15/2009	ND	0.00166
		10/20/2008	0.00899	0.0079
		8/4/2009	ND	0.00149

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
ND - Non-detected value; na - Not applicable
pCi/L - picocuries per liter
ppt - parts per trillion
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-56
Shield and Jouglard Canyons Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Screening Level: 2 mg/kg	Cadmium (mg/kg) Screening Level: 1 mg/kg	Chromium (mg/kg) Screening Level: 43 mg/kg	Vanadium (mg/kg) Screening Level: na	Zinc Zinc (mg/kg) Screening Level: 120 mg/kg
Pit Lake	NL4P-1	7/8/2009	253	108	581	942	973
		9/23/2008	147	81.3	329	557	790
Springs	FM-1	5/15/2009	5.9	5.6	12.5	7.8	252
	HH-1	5/15/2009	0.81	2.8	28.3	25.5	112
	JCS-1	9/25/2008	0.93	0.59	12.4	15.9	50.7
ODA Seep	SWS-2	9/23/2008	7.2	7.3	46	54.1	249
Ponds	HHP-1	7/8/2009	2.4	3.7	29.2	35.4	135
		9/25/2008	1.7	3.5	29.2	35.4	124
	SWP-2	9/23/2008	0.32	3	29.3	32.9	115
	SWP-3	9/23/2008	47.1	14.9	278	177	890
Dinwoody Borrow Area	HHT1-1	8/8/2014	0.55	3.2	18.5	21.4	154
	HHT1-2	6/8/2014	1.2	1.6	25.3	29.3	145
	HHT-OP	6/8/2014	2.4	1.3	27.1	29.5	104
S Borrow Area	SBorrowSedBasin	6/8/2014	1.2	1.3	23.7	28.7	91.1

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

na - Not Applicable

Blank cells - No data available

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-57
Shield and Jouglard Canyons Sub-Basin Aquatic Biota Selenium Concentrations

Location Type	Station	Date	Aquatic Vegetation		Aquatic Invertebrates	Fish Tissue	
			Selenium (mg/kg)	Species	Selenium (mg/kg)	Selenium (mg/kg)	Species
Pond	HHP-1	7/8/2009	ND	Speedwell	17		
			ND	Spikerush			
			2.9	Duckweed			
			1.8	White-water Buttercup			
		7/9/2009				6.2	Salamander
	NL4P-1	7/8/2009	147	Western dock	102		
			177	Spikerush			

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram

Blank cells - No data available

ND - Non-detected value

All concentrations are presented on a dry weight basis.

Aquatic vegetation samples were not washed prior to analysis.

Refer to Section 4 tables for additional details about biotic sample composition.

Table 6-58
Shield and Jouglard Canyons Sub-Basin Riparian Soil and Biota Selenium Concentrations

Location Type	Station	Date	Riparian Soil		Riparian Vegetation		Terrestrial Invertebrate	Small Mammal	
			Selenium (mg/kg) Ecological: 0.52 mg/kg Human Health: 5,800 mg/kg		Selenium (mg/kg)	Sample Composition	Selenium (mg/kg)	Selenium (mg/kg)	Species
			Surface	Subsurface					
Pond	HHP-1	8/4/2009	0.59	0.43	ND	Forage (mixed-species)	2.1	0.75	Deer Mouse, Prairie Vole
		8/11/2009			0.11	Browse (mixed-species)			
	SQ-03	6/2/2004	2.7	2.5					
		6/3/2004			1.1	Forb (single-species)			
					0.32	Grass (mixed-species)			
					0.4	Grass (mixed-species)			
					0.37	Forb (single-species)			
					0.39	Browse (mixed-species)			
					0.57	Forb (single-species)			
					0.28	Forb (single-species)			
		7/12/2004			0.77	Browse (mixed-species)			
					0.63	Grass (mixed-species)			
					1	Grass (mixed-species)			
Test Pit	TP-10	10/28/2010		0.75					
				0.46					
				0.69					

Notes:

Includes data from 2001 onward of "A" data use level only.

Data only shown for sampling locations in riparian areas (defined as within 200 feet of a creek) identified within the sub-basin.

mg/kg - milligrams per kilogram

Blank cells - No data available

ND - Non-detected value

All concentrations are presented on a dry weight basis.

All vegetation samples were washed with deionized water prior to analysis.

Browse samples include shrubs and other woody vegetation; forb samples include herbaceous broadleaf vegetation; grass samples include grasses and/or other graminoids (e.g., sedges, rushes); and forage samples include a mix of forb and grass vegetation.

Accumulator forbs are those species that are considered to be "selenium-accumulating species;" refer to Section 6 for further discussion and a list of the species. Forb samples composed of a single selenium-accumulating species are identified in the table as "accumulator." Mixed-species forb or forage samples that include selenium-accumulating species are marked with an asterisk (*).

The "Surface" depth class includes any sample collected between 0 and 6 inches below ground surface. The "Subsurface" depth class includes any sample collected from an interval exceeding 6 inches below ground surface.

More information about soil comparison values is provided on Table 4-2. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds soil ecological comparison value.

Value exceeds soil human health comparison value.

Table 6-59
Margarette Creek/Trail Canyon Sub-Basin Surface Water Primary COPC Concentrations

Location Type	Station	Date	Selenium, Total	Cadmium, Dissolved	Chromium, Dissolved	Vanadium, Total	Zinc, Dissolved
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Acute Eco:0.02, Chronic Eco: 0.005, HH: 0.17	Acute Eco:0.0013, Chronic Eco: 0.0006, HH: na	Acute Eco:0.57, Chronic Eco: 0.074, HH: na	Acute Eco:0.079, Chronic Eco: 0.027, HH: na	Acute Eco:0.12, Chronic Eco: 0.12, HH: na
Trail Canyon Pond	TCC-2	5/6/2003	ND	ND	0.0004		ND
		5/15/2004	0.00044	ND	ND		0.0025
		5/15/2009	0.00029	ND	ND	0.0012	ND
		10/22/2003	0.00023	ND	ND		ND
		10/20/2008	0.00072	ND	ND	0.0041	ND
		8/4/2009	0.00043	ND	ND	0.0126	ND

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
na - not applicable
ND - Non-detected value
Table presents total and total recoverable selenium results for surface water.
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-60
Margarette Creek/Trail Canyon Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Alkalinity	Ammonia, as N	Ammonia, Total	Ammonia, Un-Ionized	Bicarbonate, as CaCO3	Bicarbonate, as HCO3	Calcium, Dissolved	Calcium, Total	Chloride, Total	Conductivity (field)	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	umhos/cm	mg/L	mg/L	mg/L
			Comparison Value: na												
Trail Canyon Pond	TCC-2	5/6/2003	110	ND			110		34.8		7	237	0.3	9.7	
		5/15/2004							20			135		9.6	
		5/15/2009	122	ND			122		38.4	37.1	4.86	215	0.214	6.96	6.66
		10/22/2003	115	0.06			75.1		30.2		15.9	174	0.798	10.2	
		10/20/2008	114	ND			114		28.2	28.9	7.97	174	0.639	9.37	9.81
		8/4/2009	149	0.058			149		41.9	43.3	4.13	292	0.337	9.89	11.3

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte names.

Table 6-60
Margarette Creek/Trail Canyon Sub-Basin Surface Water General Chemistry Concentrations

Location Type	Station	Date	Nitrate + Nitrite, as N, Dissolved	Nitrate + Nitrite	Nitrate, as N	Nitrite	pH (field)	Phosphorus, Total	Potassium, Dissolved	Potassium, Total	Sodium, Dissolved	Sodium, Total	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na											
Trail Canyon Pond	TCC-2	5/6/2003		ND			9.07	ND	0.8		5.4		ND	140
		5/15/2004					9.34						10.1	108
		5/15/2009		0.082			7.85	0.09	1.13	1.07	4.34	4.26	7.74	188
		10/22/2003		ND			9.9	0.26	4.35		10.6		2.48	203
		10/20/2008		ND			8.59	0.16	1.57	2.16	6.6	7	3.64	170
		8/4/2009		ND			8.44	0.47	1.1	3.16	5.21	5.22	6.24	164

Notes:
Includes data from 2001 onward of "A" data
mg/L - milligrams per liter
Blank Cell - No data available
na - Not applicable
ND - Non-detected value
SU - Standard Unit
umhos/cm - micromhos/ centimeter
Refer to Appendix I for details about analyte

Table 6-61
Margarette Creek/Trail Canyon Sub-Basin Surface Water Radiochemistry and Isotope Concentrations

Location Type	Station	Date	Uranium, Total	Uranium, Dissolved
			mg/L	mg/L
			Acute Eco:na, Chronic Eco: na, HH: 0.03	Acute Eco:2.4, Chronic Eco: 1.5, HH: na
Trail Canyon Pond	TCC-2	5/15/2009	ND	ND
		10/20/2008	ND	ND
		8/4/2009	ND	ND

Notes:
Includes data from 2001 onward of "A" data use level only.
mg/L - milligrams per liter
Blank Cell - No data available
ND - Non-detected value; na - Not applicable
pCi/L - picocuries per liter
ppt - parts per trillion
Exceedances of comparison values are indicated in the following manner:
Value exceeds surface water chronic ecological comparison value.
Value exceeds surface water acute ecological comparison value.
Value exceeds surface water human health comparison value.
More information about surface water comparison values is provided on Tables 4-3 through 4-4.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-62
Margarette Creek/Trail Canyon Sub-Basin
Sediment COPC Concentrations

Location Type	Station	Date	Selenium (mg/kg) Comparison Value: 2 mg/kg	Cadmium (mg/kg) Comparison Value: 1 mg/kg	Chromium (mg/kg) Comparison Value: 43 mg/kg	Vanadium (mg/kg) Comparison Value: na	Zinc (mg/kg) Comparison Value: 120 mg/kg
Trail Canyon Creek	TCC-1	9/25/2008	0.38	2.4	24.8	28.7	80.2
	TCC-1A	5/15/2009	0.37	3.3	26.4	30	140
	TCC-1B	5/15/2009	0.76	7.8	36.5	46	187
Trail Canyon Pond	TCC-2	9/25/2008	0.24	0.85	24.2	23.6	62.8
Margarette Creek	MC-1	9/25/2008	109	25.7	375	334	1320

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

Blank cell - no data available

na - not applicable

ND - Non-detected value

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-63
Southwest Conda Sub-Basin Sediment Primary COPC Concentrations

Location Type	Station	Date	Selenium	Cadmium	Chromium	Vanadium	Zinc
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Comparison Value: 2 mg/kg	Comparison Value: 1 mg/kg	Comparison Value: 43 mg/kg	Comparison Value: na	Comparison Value: 120 mg/kg
Dry Draw	SCC-2	9/23/2008	0.6	3.3	22.8	29.3	142
	SCC-1	9/23/2008	0.66	1.9	24.9	30.6	123

Notes:

Includes data from 2001 onward of "A" data use level only.

mg/kg - milligrams per kilogram. All results are on a dry weight basis.

ND - Non-detected value

na - not applicable

More information about sediment comparison values is provided on Table 4-5. Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation. Comprehensive evaluation will be provided in the risk assessments.

Exceedances of comparison values are indicated in the following manner:

Value exceeds sediment ecological comparison value.

Table 6-64
Offsite Surface Water Selenium Concentration Summary Statistics

Location Type	Stations	Date Range	Count	Overall Minimum (mg/L)	Overall Maximum (mg/L)	Average (mg/L)	Median (mg/L)	25th percentile	75th percentile	Count of Detects	Count of Non-Detects	Number of Exceedances*
Trail Creek U/S of Camp G Creek	TC-5, TC-1	2008-2014	17	0.0002	0.00039	0.0003	0.0002	0.0002	0.0003	12	5	0
Camp G Creek Mouth	CGC-0, CGC-UPTC	2009-2014	8	0.00066	0.0042	0.0026	0.0027	0.0019	0.0032	8	0	0
Trail Creek D/S of Camp G Creek	TC-2, TRATT003, AWI012-31	2001-2014	20	0.0002	0.0026	0.0010	0.0009	0.0005	0.0010	14	6	0
Trail Creek U/S of Pedro Creek	TC-3	2008-2014	15	0.00024	0.0011	0.0007	0.0007	0.0004	0.0009	14	1	0
Pedro Creek Mouth	PC-1	2003-2013	13	0.0037	0.138	0.0277	0.0152	0.0050	0.0335	13	0	10
Trail Creek D/S of Pedro Creek	TC-4	2008-2014	15	0.00029	0.0262	0.0029	0.0007	0.0004	0.0014	14	1	2
Blackfoot River U/S of Trail Creek	BFR-4, ST022, AWI012-06	2002-2014	25	-0.00011	0.0084	0.0037	0.0030	0.0020	0.0051	23	2	8
Blackfoot River D/S of Trail Creek	ST021, BFR-3, ST230	2002-2014	21	-0.00066	0.008	0.0032	0.0027	0.0016	0.0047	18	3	4
Blackfoot River U/S of State Land Creek	BFR-2, BFR-US	2008-2014	14	0.0015	0.0089	0.0036	0.0026	0.0021	0.0046	14	0	2
State Land Creek Mouth	SLC-0	2004-2014	14	0.00057	0.0401	0.0074	0.0022	0.0008	0.0083	14	0	5
Blackfoot River D/S of State Land Creek	BFR-1, BFR-DS, MST020	2002-2014	20	0.00014	0.0085	0.0033	0.0024	0.0016	0.0050	18	2	5

Notes:

mg/L = milligrams per liter

U/S = Upstream; D/S = Downstream

Table presents total and total recoverable results for surface water.

* Number of detected or non-detected results greater than or equal to the chronic aquatic life water quality criterion (0.005 mg/L) for selenium.

Statistics include both detected and non-detected results.

For Blackfoot River U/S of Trail Creek and Blackfoot River D/S of Trail Creek, negative values in the Monsanto/BLM 2002 dataset are due to adjustments applied as a result of blank contamination.

Table 6-65
Offsite Sediment Selenium Concentration Summary Statistics

Location Type	Stations	Date Range	Count	Overall Minimum (mg/kg)	Overall Maximum (mg/kg)	Average (mg/kg)	Median (mg/kg)	25th percentile	75th percentile	Detect	Non-Detect	Number of Exceedances*
Trail Creek U/S of Camp G Creek	TC-1	2008-2009	2	0.15	0.48	0.32	0.32	0.23	0.4	2	0	0
Camp G Creek Mouth	CGC-0	2009	1	0.96	0.96	0.96	0.96	0.96	0.96	1	0	0
Trail Creek D/S of Camp G Creek	TC-2	2008	1	0.41	0.41	0.41	0.41	0.41	0.41	1	0	0
Trail Creek U/S of Pedro Creek	TC-3	2008	1	0.78	0.78	0.78	0.78	0.78	0.78	1	0	0
Pedro Creek Mouth	PC-1	2008-2009	2	1.2	6.4	3.8	3.8	2.5	5.1	2	0	1
Trail Creek D/S of Pedro Creek	TC-4	2008	1	3.6	3.6	3.6	3.6	3.6	3.6	1	0	1
Blackfoot River U/S of Trail Creek	BFR-4, ST022	2002-2008	3	0.5	1.4	0.85	0.66	0.58	1	2	1	0
Blackfoot River D/S of Trail Creek	ST021, BFR-3, ST230	2002-2008	5	0.5	1.4	0.96	0.83	0.66	1.4	2	3	0
Blackfoot River U/S of State Land Creek	BFR-2	2008	1	0.89	0.89	0.89	0.89	0.89	0.89	1	0	0
State Land Creek Mouth	SLC, SLC-0	2001-2009	3	1.1	3	2.1	2.1	1.6	2.6	3	0	2
Blackfoot River D/S of State Land Creek	BFR-1, BFR-DS, MST020	2002-2008	4	0.5	1.4	0.79	0.63	0.54	0.88	2	2	0

Notes:

mg/kg = milligrams per kilogram

U/S = Upstream; D/S = Downstream

* Number of results exceeding the sediment screening level (2 mg/kg) for selenium.

Table 6-66
Offsite Fish Tissue Selenium Concentration Summary Statistics

Location Type	Stations	Date Range	Count	Overall Minimum (mg/kg)	Overall Maximum (mg/kg)	Maximum Detected Concentration (mg/kg)	Average (mg/kg)	Median (mg/kg)	25th percentile	75th percentile	Detect	Non-Detect	Number of Exceedances*
NON-SALMONIDS													
Trail Creek U/S of Camp G Creek	TC-5, TC-1	2009-2011	17	1.5	12.5	12.5	5.3	5.34	3.7	6	17	0	1
Camp G Creek Mouth	CGC-0	2009	10	2	10.4	10.4	6.4	6.1	4.7	8.1	10	0	3
Trail Creek D/S of Camp G Creek	TC	2000	8	2.2	10.5	10.5	5.7	6	4.3	6.2	8	0	1
Pedro Creek Mouth	PC-1	2009	6	20.3	36.4	36.4	27.6	26.5	22.6	32.4	6	0	6
Blackfoot River U/S of Trail Creek	ST022	2004	1	12	12	12	12	12	12	12	1	0	1
Blackfoot River D/S of Trail Creek	ST021,ST230	1999-2004	8	8.1	13	13	9.8	9.5	8.8	10.3	8	0	8
State Land Creek Mouth	SLC, SLC-0	2001-2009	4	15.2	19.8	19.8	17.7	18	16.3	19.4	4	0	4
Blackfoot River D/S of State Land Creek	MST020	2004	1	11	11	11	11	11	11	11	1	0	1
SALMONIDS													
Trail Creek U/S of Camp G Creek	TC-5, TC-1	2011	3	2.8	6.4	6.4	4.2	3.4	3.08	4.9	3	0	0
Blackfoot River D/S of Trail Creek	ST021, BFR-3, ST230	1999-2000	8	2.2	7.1	7.1	4.5	4.4	3.58	5.2	8	0	0

Notes:

mg/kg = milligrams per kilogram

U/S = Upstream; D/S = Downstream

Includes data collected prior to 2001.

* Number of results exceeding the not yet promulgated EPA Draft Criterion (8 mg/kg) for selenium in fish tissues (EPA 2015).

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
North Woodall Mountain Sub-Basin							
Surface Water							
Spring	SW05-SP	4/30/2005	ND				
		8/2/2005	ND				
		10/17/2005	0.001				
		5/2/2006	ND				
		7/26/2006	ND				
		10/23/2006	ND				
		4/16/2007	ND				
		8/7/2007	0.001				
		10/11/2007	ND				
		5/10/2008	ND				
		10/14/2008	ND				
		4/30/2009	ND				
		10/11/2009	0.0004				
		5/6/2010	ND				
		10/14/2010	ND				
		5/9/2011	ND				
		9/23/2011	ND				
		5/18/2012	0.00062				
		9/29/2012	0.0031				
	SW06-W	4/29/2005	ND				
		8/2/2005	ND				
		10/17/2005	ND				
		5/3/2006	ND				
		7/26/2006	ND				
		10/23/2006	ND				
		4/16/2007	ND				
		8/7/2007	0.001				
		10/11/2007	ND				
		5/10/2008	ND				
		10/14/2008	ND				
		4/30/2009	0.00028				
		10/12/2009	0.00025				
		5/6/2010	ND				
		10/14/2010	ND				
		6/1/2011	ND				
		9/22/2011	ND				
		5/18/2012	0.00068				
	SW07-SP	4/29/2005	0.001				
		8/1/2005	0.002				
		10/18/2005	0.003				
		5/4/2006	0.002				
		7/26/2006	0.002				
		10/22/2006	0.002				
		4/17/2007	0.003				
		8/5/2007	0.004				
		10/12/2007	0.003				
		5/13/2008	0.002				
		10/12/2008	0.002				
		5/2/2009	0.0017				
		10/11/2009	0.0013				
		5/7/2010	0.0027				
		10/16/2010	0.0034				
		5/13/2011	0.00301				
		9/22/2011	0.00439				
		5/13/2012	0.0048				
		9/30/2012	0.0046				
	WS-1	5/9/2003	ND				
		10/21/2003	0.0018				
		5/14/2004	0.0025				
		10/19/2008	0.004	ND	ND	0.00066	0.0078
		5/16/2009	0.0021	ND	ND	0.0006	ND
		8/7/2009	0.0015	ND	ND	0.00071	ND
		6/3/2011	0.002				
		10/2/2011	0.0018				
	WS-2	10/19/2008	0.0028	0.00029	ND	0.0016	0.01
		5/19/2008	0.0016	ND	0.0015	0.0008	ND
		5/16/2009	0.0016	0.00007	0.001	0.00085	ND
		8/7/2009	0.0011	ND	ND	0.00064	ND
		6/3/2011	0.002				
		10/2/2011	0.0016				
	WS-3	6/3/2011	ND				
		10/2/2011	ND				
Baseflow River	NWC-2	8/7/2009	ND	ND	ND	0.0026	ND

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Groundwater							
Shallow Hydrostratigraphic Unit	MW-5A	11/17/2005	ND	ND	ND	ND	ND
		11/17/2005	0.001				
		5/7/2006	ND	ND	ND	ND	ND
		7/28/2006	0.002	ND	0.002	ND	0.02
		10/26/2006	0.002	ND	ND	ND	ND
		4/19/2007	0.003	ND	0.001	ND	ND
		8/5/2007	0.003	ND	ND	ND	ND
		10/14/2007	0.003	ND	0.008	ND	ND
		5/11/2008	0.001	ND	0.006		0.02
		10/17/2008	0.003	ND	ND		ND
		5/3/2009	0.0026	ND	0.00065		0.0025
		10/15/2009	0.0032	ND	0.00048		0.0026
		5/9/2010	0.0033	ND	ND		ND
		10/17/2010	0.0039	ND	0.0015		ND
		5/8/2011	0.00423	0.00033	0.0113	0.0175	0.0454
		7/24/2011	0.00395	ND	ND	0.002	0.0203
		5/13/2012	0.0018		0.0007		0.0075
		9/30/2012	0.003	0.0002	0.001		0.0053
	MW-10A	11/17/2005	ND	ND	ND	ND	ND
		11/17/2005	ND				
		5/5/2006	ND	ND	ND	ND	ND
		7/30/2006	ND	ND	ND	ND	ND
		10/27/2006	ND	ND	ND	ND	ND
		4/18/2007	ND	ND	ND	ND	ND
		8/9/2007	ND	ND	ND	ND	ND
		10/15/2007	ND	ND	ND	ND	ND
		5/12/2008	ND	ND	ND		ND
		10/15/2008	ND	ND	ND		ND
		5/4/2009	0.00043	ND	0.00037		ND
		10/14/2009	ND	0.000086	0.00038		ND
		5/10/2010	ND	ND	ND		ND
		10/17/2010	ND	ND	ND		ND
		5/11/2011	ND	ND	ND	ND	ND
		7/22/2011	ND	ND	ND	0.001	0.0037
		7/25/2011	ND	ND	ND	0.001	0.0037
		5/16/2012	0.0005	0.00008	0.0005		0.005
		10/4/2012	0.0005	0.00008	0.00063		0.005
	MW-7A	11/15/2005	ND	0.0005	0.002	ND	ND
		11/15/2005	ND				
		5/7/2006	ND	ND	ND	ND	ND
		7/27/2006	ND	ND	ND	ND	ND
		10/24/2006	ND	ND	ND	ND	ND
		4/19/2007	ND	ND	0.003	ND	ND
		8/9/2007	ND	ND	0.001	ND	ND
		10/15/2007	ND	ND	ND	ND	ND
		5/11/2008	ND	ND	ND		ND
		10/15/2008	ND	ND	ND		ND
		5/5/2009	ND	ND	0.0005		ND
		10/13/2009	ND	0.000052	0.00066		ND
		5/11/2010	ND	ND	ND		ND
		10/20/2010	ND	ND	ND		ND
		5/13/2011	ND	ND	ND	ND	ND
		7/26/2011	0.0014	0.000065	0.00058	0.0022	ND
		5/16/2012	0.0005	0.00008	0.00074		0.005
		6/14/2012			ND		
		10/4/2012	0.0005	0.000094	0.0049		0.0172
Intermediate Hydrostratigraphic Unit	MW-11Da	5/11/2011	ND	ND	ND	ND	ND
		7/25/2011	ND	ND	0.00058	0.0012	0.0158
		5/16/2012	0.0005	0.00008	0.00054		0.0054
		6/14/2012			0.00054		0.0054
		10/4/2012	0.0005	0.00008	0.0016		0.0089
Intermediate Hydrostratigraphic Unit	MW-11Db	11/16/2005	ND	ND	ND	ND	ND
		11/16/2005	ND				
		5/5/2006	ND	ND	ND	ND	ND
		7/30/2006	ND	ND	ND	ND	ND
		10/26/2006	ND	ND	ND	ND	ND
		4/18/2007	ND	ND	ND	ND	ND
		8/9/2007	ND	ND	ND	ND	ND
		10/15/2007	ND	ND	ND	ND	ND
		5/12/2008	ND	ND	ND		ND
		10/16/2008	ND	ND	0.001		ND
		5/4/2009	0.0004	ND	ND		ND
		10/14/2009	0.00027	ND	0.00028		0.0027
		5/10/2010	ND	ND	ND		ND
		10/17/2010	ND	ND	ND		ND
		5/11/2011	ND	ND	ND	ND	ND
		7/26/2011	ND	ND	ND	0.0017	0.0023
		5/16/2012	0.0005	0.00008	0.0023		0.0155
		6/14/2012			ND		0.0155
		10/4/2012	0.0058	0.0018	0.0285		0.339

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Intermediate Hydrostratigraphic Unit	MW-6D	11/15/2005	ND	ND	ND	ND	ND
		11/15/2005	0.001				
		5/7/2006	ND	ND	ND	ND	ND
		7/27/2006	ND	ND	ND	ND	ND
		10/24/2006	ND	ND	ND	ND	ND
		4/19/2007	ND	ND	0.001	ND	ND
		8/9/2007	0.001	ND	ND	ND	ND
		10/15/2007	ND	ND	0.001	ND	ND
Intermediate Hydrostratigraphic Unit	MW-6D	5/11/2008	ND	ND	0.001		ND
		10/15/2008	ND	ND	ND		ND
		5/5/2009	0.00046	ND	0.00064		ND
		10/13/2009	0.0006	ND	0.00047		ND
		5/11/2010	ND	ND	ND		ND
		10/19/2010	ND	ND	0.001		ND
		5/13/2011	ND	ND	ND	0.005	0.01
		7/26/2011	ND	ND	ND	0.0009	0.0042
		5/16/2012	0.0005	0.00008	0.00062		0.0057
		6/14/2012			ND		0.0057
		10/4/2012	0.0005	0.00036	0.0048		0.0316
Deep Hydrostratigraphic Unit	MW-4W	11/17/2005	ND	ND	ND	ND	ND
		11/17/2005	ND				
		5/7/2006	ND	ND	ND	ND	ND
		7/28/2006	ND	ND	ND	ND	0.01
		10/26/2006	ND	ND	ND	ND	ND
		4/19/2007	ND	ND	ND	ND	ND
		8/5/2007	0.007	ND	ND	ND	ND
		10/14/2007	ND	ND	ND	ND	ND
		5/11/2008	ND	ND	ND		ND
		10/17/2008	ND	ND	ND		ND
		5/3/2009	ND	ND	0.00033		ND
		10/15/2009	ND	ND	0.00088		0.0038
		5/9/2010	ND	ND	ND		ND
		10/17/2010	ND	ND	ND		ND
		5/8/2011	ND	0.00055	0.0052	ND	0.0426
		7/24/2011	ND	0.00007	0.00069	0.0005	0.0289
		5/13/2012		0.0004	0.0016		0.0212
		9/30/2012	0.0005	0.00018	0.00079		0.0112
	MW-12W	11/18/2005	ND	0.0019	0.002	ND	ND
		11/18/2005	0.001				
		5/8/2006	ND	0.0015	ND	ND	0.02
		7/30/2006	ND	0.0013	0.001	ND	0.02
		10/27/2006	ND	0.001	ND	ND	0.01
		4/20/2007	ND	0.0011	ND	ND	0.01
		8/9/2007	ND	0.0011	ND	ND	0.01
		10/18/2007	ND	0.0011	ND	ND	0.02
		5/14/2008	0.002	0.0012	ND		0.02
		10/15/2008	ND	0.0013	ND		0.01
		5/6/2009	ND	0.0009	0.00032		0.014
		10/15/2009	ND	0.0011	ND		0.012
		5/12/2010	ND	0.001	ND		0.015
		10/19/2010	ND	0.0011	ND		0.013
		5/17/2011	ND	**0.00553**	0.0289	0.0295	0.138
		7/27/2011	0.00321	**0.0147**	0.0665	**0.0703**	0.328
		5/17/2012	0.0005	0.004	0.0049		0.0505
		6/15/2012		0.004	0.0049		0.0505
		10/4/2012	0.0005	0.003	0.0042		0.0356
State Land Creek Sub-Basin							
Surface Water							
Spring	SLCT3-4	10/18/2008	0.0036	0.000105	ND	0.001	0.003
		5/19/2009	0.0029	ND	0.0016	0.0019	ND
	SLCT3-5	5/19/2009	0.0016	0.00015	0.0032	0.0032	0.008
	SW02-SP	4/30/2005	ND				
		8/2/2005	ND				
		10/17/2005	0.001				
		5/2/2006	0.002				
		7/26/2006	0.001				
		10/23/2006	0.001				
		4/16/2007	0.002				
		8/7/2007	0.002				
		10/11/2007	0.002				
		5/10/2008	0.002				
		10/14/2008	ND				
		5/2/2009	0.0015				
		10/11/2009	0.001				
		5/6/2010	ND				
		10/14/2010	ND				
		5/9/2011	ND				
		9/23/2011	ND				
		5/16/2012	0.00066				
		9/29/2012	ND				

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
ODA Seep	NES-1	5/22/2001	0.023	ND	0.0014	ND	0.0046
		5/8/2003	**0.187**				
		5/13/2004	**0.243**				
		5/18/2009	**0.224**				
		7/12/2010	0.0443				
		6/3/2011	**1.34**				
	NES-1a	5/8/2003	**0.77**		ND	0.0042	0.0241
		5/13/2004	**0.834**				
		5/18/2009	**1.5**				
	NES-1b	5/8/2003	**2.23**	0.00009	ND	0.00051	ND
		5/13/2004	**2.19**				
		5/18/2009	**2.29**				
		6/9/2010	**1.88**				
	NES-2	5/23/2001	**0.067**				
		5/8/2003	**1.71**				
		10/24/2003	**0.0567**				
		5/13/2004	**1.6**				
		5/10/2006	**2.45**				
		5/2/2007	**1.83**				
		10/17/2008	**0.284**	**0.0054**	ND	0.0053	0.259
		5/18/2009	**0.104**	**0.009**	0.0043	0.007	0.495
		8/6/2009	**0.691**	**0.0068**	0.0031	0.0058	0.329
		6/9/2010	**1.41**				
		7/12/2010	**0.819**				
		8/18/2010	**0.531**				
		9/20/2010	**0.396**				
		6/3/2011	**2.28**				
		10/1/2011	**0.657**				
	NES-2A	6/3/2011	**2.02**				
	NES-3	5/23/2001	**2.2**				
		6/3/2011	**3.94**				
	NES-4	5/22/2001	**0.42**	0.000268	ND	0.0065	0.0098
		5/8/2003	0.017				
		10/24/2003	**0.0708**				
		5/13/2004	0.0156				
		10/18/2008	0.0048				
		6/3/2011	0.0106				
Baseflow River	SLC-3D	8/6/2009	0.00023	ND	0.0021	0.0037	ND
		10/1/2011	0.00052				
Groundwater							
Shallow Hydrostratigraphic Unit	GW-25-MA	10/18/2008	**0.214**	0.000279	0.0017	0.0056	0.0109
		5/19/2009	**0.191**	ND	ND	0.0013	0.0032
		8/5/2009	0.019	0.00028	0.001	0.0017	0.0043
		6/9/2010	**0.259**				
		7/12/2010	**0.178**				
		8/18/2010	**0.0643**				
		9/22/2010	**0.0508**				
		6/3/2011	**0.223**				
		10/1/2011	**0.0778**				
		5/9/2012	**0.203**				
		10/17/2012	**0.0932**				
		5/8/2013	**0.329**				
		10/16/2013	**1.8**				
		6/10/2014	**0.121**				
		10/6/2014	**0.424**	0.0008	ND	0.0019	0.0077
Shallow Hydrostratigraphic Unit	GW-27-MA	10/17/2008	0.0033	0.000609	ND	0.0077	0.0166
		5/20/2009	0.00075	0.00021	ND	0.0019	0.0039
		8/5/2009	0.00042	0.00014	0.0017	0.00084	0.005
		6/9/2010	0.0003				
		7/12/2010	0.00023				
		8/18/2010	0.00028				
		9/20/2010	0.00038				
		6/2/2011	0.00068				
		10/1/2011	0.00028				
		4/24/2012	ND				
		10/17/2012	0.00087				
		5/8/2013	0.00028				
		10/15/2013	0.00031				
		6/10/2014	0.00021				
		10/6/2014	0.001	0.000098	ND	0.0025	ND
	MW-3A	5/8/2006	ND	0.0001	0.02	ND	0.04
		4/19/2007	ND	ND	0.002	ND	0.01
		5/11/2008	ND	0.0002	0.02		0.04
		10/14/2008	ND	0.0001	0.009		0.01
		5/5/2009	0.0004	ND	0.0029		0.011
		10/13/2009	0.00042	0.00011	0.0016		0.011
		5/12/2010	ND	ND	0.0045		0.015
		10/20/2010	ND	ND	0.0018		ND
		5/17/2011	ND	ND	0.0021	ND	0.0101
		7/26/2011	ND	ND	ND	0.0007	0.0013
		5/16/2012	0.0014	0.0031	0.0619		0.118
		10/3/2012	0.0005	0.00012	0.0056		0.0257

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Shallow Hydrostratigraphic Unit	GW-47-MA	6/25/2014	**0.665**	0.00062	0.0269	0.0311	0.0977
		8/7/2014	**0.705**	0.0018	ND	0.0033	0.0094
		10/6/2014	**0.573**	0.0015	ND	0.002	0.0066
Intermediate Hydrostratigraphic Unit	GW-26-MD	5/20/2009	0.0012	ND	ND	0.00068	0.005
		8/5/2009	0.0011	ND	0.0017	0.00052	ND
		6/9/2010	0.0015				
		7/12/2010	0.0013				
		9/23/2010	0.00074				
		6/3/2011	0.0011				
		10/1/2011	0.0019				
		5/9/2012	0.0013				
		10/17/2012	0.0014				
		5/8/2013	0.0012				
		10/16/2013	0.0009				
		6/10/2014	0.0016				
		10/6/2014	ND	0.00024	0.0126	0.0084	0.034
	MW-2R	11/16/2005	**0.056**	ND	ND	ND	ND
		11/16/2005	**0.057**				
		5/8/2006	0.008	ND	ND	ND	ND
		7/30/2006	0.008	ND	0.001	ND	ND
		10/24/2006	0.009	ND	ND	ND	ND
		4/18/2007	0.004	ND	ND	ND	ND
		8/7/2007	0.003	ND	ND	ND	ND
		10/15/2007	0.003	ND	ND	ND	ND
		5/11/2008	0.001	ND	ND		ND
		10/14/2008	ND	ND	ND		ND
		5/5/2009	0.00087	ND	0.00039		ND
		10/13/2009	0.00098	ND	0.0017		ND
		5/12/2010	ND	ND	ND		ND
		10/19/2010	ND	ND	ND		ND
		5/16/2011	ND	ND	ND	ND	ND
		7/27/2011	ND	ND	ND	0.0002	0.0059
		5/16/2012	0.0011	0.00008	0.0045		0.0098
		10/3/2012	0.0005	0.00008	0.002		0.005
Deep Hydrostratigraphic Unit	GW-39-MW	3/8/2012	0.0357	0.000012	ND	0.0028	ND
		4/25/2012	0.0345	0.000019	ND	0.003	ND
		10/16/2012	0.0379	ND	ND	0.0024	0.0026
		5/8/2013	0.0406	0.00031	0.0013	0.0029	ND
		10/15/2013	0.0432				
		6/10/2014	0.0464				
		10/6/2014	0.0483	ND	0.0034	0.0025	ND
	GW-40-MW	3/9/2012	0.0098	0.00023	0.0011	0.0057	0.016
		3/9/2012	0.0108	0.00018	0.0029	0.0046	0.153
		3/9/2012	0.0122	0.00015	0.0024	0.0046	0.0326
		3/9/2012	0.012	0.00012	0.001	0.0038	0.0156
		4/25/2012	0.0108	0.00013	ND	0.004	0.0072
		10/16/2012	0.0165	ND	ND	0.0029	0.0042
		5/8/2013	0.0118	0.000043	0.00084	0.0031	ND
		10/15/2013	0.0131				
		6/10/2014	0.0153				
		10/6/2014	0.0142	ND	ND	0.0025	ND
Deep Hydrostratigraphic Unit	MW-1W	11/16/2005	0.016	0.002	0.002	ND	ND
		11/16/2005	0.015				
		5/8/2006	0.011	0.0026	0.001	ND	0.03
		7/30/2006	0.017	0.0029	0.003	ND	0.03
		10/24/2006	0.024	0.0032	0.002	ND	0.04
		8/8/2007	0.021	0.0034	0.002	ND	0.03
		10/15/2007	0.021	0.0034	0.002	ND	0.03
		5/14/2008	0.02	0.0033	0.003		0.03
		10/15/2008	0.022	0.0038	0.002		0.04
		5/6/2009	0.02	0.0032	0.0019		0.036
		10/13/2009	0.03	0.0036	0.0023		0.044
		5/11/2010	0.021	0.003	0.0019		0.027
		10/19/2010	0.024	0.0034	0.0026		0.032
		5/17/2011		0.00407	0.0025	0.0115	0.0408
		7/27/2011	0.029	0.00394	0.00223	0.01	0.0385
		5/17/2012	0.0286	**0.0067**	0.004		0.0649
		6/13/2012	0.0286	**0.0067**	0.004		0.0649
		10/3/2012	0.0318	**0.0082**	0.0046		0.0782
Pedro Creek Sub-Basin							
Surface Water							
ODA Seep	FSPSSeep	5/9/2013	**1.49**				
		6/18/2013	**1.52**				
		7/9/2013	**1.45**				
		8/20/2013	**1.15**				
		9/17/2013	**1.16**				
		4/22/2014	**1.3**	0.0019	ND	0.0081	0.0417
		5/6/2014	**0.854**	0.0017	ND	0.0043	0.0395

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
ODA Seep	NES-5	5/22/2001	**1.7**				
		5/22/2001	**1.8**				
		5/22/2001	**1.9**				
		5/7/2003	**3**				
		10/23/2003	**0.535**				
		5/12/2004	**5.77**				
		5/1/2007	**3.84**				
		10/18/2008	**2.3**	**0.0096**	ND	0.0186	0.423
		5/20/2009	**6.89**	**0.0089**	0.0136	0.0172	0.485
		7/10/2009	**3.34**	**0.0098**	0.0058	0.0195	0.443
		8/8/2009	**3.22**	**0.013**	0.0046	0.0179	0.689
ODA Seep	NES-5	6/9/2010	**3.68**				
		7/13/2010	**4.07**				
		8/18/2010	**3.17**				
		9/21/2010	**3.29**				
		5/23/2011	**5.48**				
		6/1/2011	**5.32**				
		10/1/2011	**3.3**				
		4/25/2012	**4.47**				
		10/19/2012	**2.63**				
		6/18/2013	**4.44**				
		8/20/2013	**3.99**				
		9/17/2013	**3.34**				
		11/8/2013	**2.63**				
		4/22/2014	**8.15**	**0.021**	0.0028	0.0267	1.76
		5/6/2014	**8.95**	**0.021**	0.0035	0.0308	1.75
		6/9/2014	**7.44**	**0.006**	0.0053	0.0248	1.15
		8/5/2014	**5.06**	**0.0091**	0.0053	0.0192	0.793
		10/6/2014	**3.75**	**0.021**	0.0033	0.022	1.55
	NES-7	6/18/2013	**3.35**				
		7/16/2013	**2.03**				
	NES-8	6/9/2014	**9.83**	0.00022	0.003	ND	ND
ODA Seep Pond	NESeep5Pond	7/9/2013	**3.01**				
		9/17/2013	**2.72**			0.0186	
		10/13/2013	**2.9**				
		4/22/2014	**8.25**	**0.018**	0.0021	0.0196	1.37
		4/30/2014	**7.922**				
		4/30/2014	**8.574**				
		5/6/2014	**8.55**	**0.019**	0.0038	0.0291	1.63
		5/23/2014	**6.985**				
		6/9/2014	**7.55**	**0.0061**	0.0044	0.0239	1.13
		8/5/2014	**5.03**	0.0038	0.0023	0.0179	0.583
Baseflow River	PC-5	8/5/2009	**1.13**	0.0019	ND	0.001	0.016
		10/17/2012	**2.86**				
		10/12/2013	**1.9**				
		10/6/2014	**1.86**	0.00077	ND	0.0028	0.0221
River	PCT-0	6/2/2011	0.00053				
Groundwater							
Shallow Hydrostratigraphic Unit	GW-28-MA	5/21/2009	**0.935**	0.00026	ND	ND	ND
		8/5/2009	**1.19**	0.00025	ND	ND	ND
		6/9/2010	**1.47**				
		7/13/2010	**1.85**				
		6/3/2011	**0.745**				
		10/31/2011	**1.26**				
		5/22/2012	**2.26**				
		10/17/2012	**0.133**				
		5/9/2013	**1.72**				
		10/16/2013	**9.43**				
		6/10/2014	**1.28**	0.00077	ND	ND	ND
		8/7/2014	**15.4**	**0.048**	**0.321**	**0.398**	1.99
		10/8/2014	**1.44**	0.0017	ND	0.0012	0.0092
	GW-30-MA	10/19/2008	0.0022	0.000159	0.0026	0.0025	0.0147
		5/21/2009	0.0048	0.00034	0.0248	0.0287	0.0512
		8/5/2009	0.0048	0.00019	0.0073	0.0042	0.0104
		6/9/2010	0.0221				
		7/13/2010	0.007				
		8/18/2010	0.0052				
		9/20/2010	0.025				
		6/2/2011	**0.0579**				
		10/31/2011	0.0014				
		5/22/2012	**0.0605**				
		10/17/2012	**0.0622**				
		5/9/2013	**0.0635**				
		10/16/2013	0.0249				
		6/10/2014	0.008	0.000081	ND	ND	ND
		10/6/2014	0.0035	0.00072	0.002	0.0025	0.013
	GW-38-MA	5/24/2010	**0.166**	0.0039	**1.22**	**1.45**	3.25
		7/8/2010	0.0436	0.0028	0.0482	**0.0535**	0.13
		6/1/2011	**0.446**				
		4/25/2012	**0.388**				

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Shallow Hydrostratigraphic Unit	GW-41-MA	11/8/2013	**1.42**	**0.023**	**0.666**	**0.606**	1.69
		5/5/2014	**2.92**	0.0024	ND	0.0039	0.027
		6/9/2014	**5.15**	0.0045	ND	0.0041	0.0191
		8/6/2014	**2.25**	**0.0058**	ND	0.0061	0.028
		10/9/2014	**1.64**	0.0043	0.0324	0.023	0.068
	GW-45-MA	5/6/2014	**0.34**	0.000035	0.0037	0.0046	0.0128
		6/9/2014	**0.307**	ND	ND	ND	ND
		8/5/2014	**0.376**	ND	ND	ND	0.0013
		10/8/2014	**0.247**	0.0002	ND	ND	ND
Intermediate Hydrostratigraphic Unit	GW-29-MD	10/19/2008	0.0311	ND	0.0033	0.0051	0.0083
		5/22/2009	0.03	0.00006	0.001	0.0019	ND
		8/5/2009	0.032	ND	0.0014	0.00092	ND
		6/9/2010	0.0349				
		7/13/2010	0.0294				
		8/18/2010	0.0332				
		9/20/2010	0.0275				
		6/3/2011	0.0325				
		10/31/2011	0.0338				
		4/25/2012	0.0319				
		10/17/2012	0.0309				
		5/9/2013	0.0343				
		10/16/2013	0.0286				
		6/10/2014	0.0356	ND	ND	ND	ND
		8/7/2014	0.0347	ND	ND	0.0022	ND
		10/8/2014	0.0347	ND	ND	0.0018	0.0057
	GW-42-MD	11/8/2013	**0.442**	0.00064	0.0958	**0.0874**	0.217
		5/5/2014	**0.42**	ND	0.0017	0.0025	0.0085
		6/9/2014	**0.462**	ND	ND	ND	ND
		8/6/2014	**0.467**	0.000076	0.0089	0.0082	0.019
		10/9/2014	**0.485**	ND	0.0028	0.00095	ND
	GW-44-MD	11/9/2013	**0.603**	0.00027	0.0509	**0.0635**	0.13
		5/5/2014	**0.126**	ND	ND	0.0016	0.0045
		6/9/2014	0.0473	ND	0.0032	0.0028	0.0057
		8/6/2014	**0.114**	ND	ND	ND	ND
		10/6/2014	**0.11**	0.000051	0.0041	0.0036	0.011
	GW-46-MD	11/9/2013	**0.129**	0.00033	0.0349	0.0345	0.0778
		5/6/2014	**0.259**	ND	ND	0.0012	0.0031
		6/9/2014	**0.173**	ND	ND	ND	ND
		8/5/2014	**0.199**	ND	ND	ND	0.031
		10/8/2014	**0.115**	ND	ND	ND	ND
Camp G Creek Sub-Basin							
Surface Water							
Spring	CS-1_CND	5/12/2004	0.00043				
		10/20/2008	0.0005	ND	ND	ND	ND
		5/22/2009	0.00046	0.00009	ND	0.00082	ND
	CS-1_CND	8/6/2009	0.00039	ND	ND	0.00096	ND
Spring	JRLD	10/1/2009	0.00053	0.00002	ND	ND	0.0995
		5/22/2012	0.00045				
		10/17/2012	0.00068				
		10/12/2013	0.00057				
		6/10/2014	0.00062				
		10/6/2014	0.00049	ND	ND	ND	0.05
	JS-1	10/22/2003	ND				
		5/12/2004	0.00046				
		10/18/2008	0.00085	0.000135	ND	0.00075	ND
		5/22/2009	0.00033	0.00015	0.0021	0.0046	0.0143
		8/6/2009	0.00024	ND	ND	ND	ND
		4/25/2012	0.00068				
		10/17/2012	0.00034				
		5/7/2013	0.00029				
		10/12/2013	0.00039				
		6/10/2014	0.00042				
		10/6/2014	0.0005	ND	ND	ND	ND
Baseflow River	CGC-5	10/22/2003	0.00034				
		8/6/2009	0.00028	ND	0.0025	0.0023	0.0051
	CGC-4A	10/22/2003	0.0096				
		10/18/2008	0.0387	0.0019	0.0082	0.0143	0.0383
		8/6/2009	0.0149	ND	ND	0.00086	ND
		8/18/2010	0.0194				
		9/23/2010	0.0266				
		11/1/2011	0.0212				
Offsite wells (north)							
Groundwater							
Shallow Hydrostratigraphic Unit	MW-13A	11/15/2005	ND	ND	0.001	ND	ND
		11/15/2005	ND				
		5/5/2006	ND	ND	ND	ND	ND
		7/28/2006	ND	ND	ND	ND	0.01
		10/26/2006	ND	ND	ND	ND	ND
		4/19/2007	ND	ND	ND	ND	ND
		8/11/2007	ND	0.0006	0.013	ND	0.06
		10/14/2007	ND	ND	ND	ND	ND

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Shallow Hydrostratigraphic Unit	MW-13A	5/15/2008	ND	ND	ND		ND
		10/16/2008	ND	0.00014	0.001		ND
		5/4/2009	0.00028	0.000097	0.00081		0.0029
		10/14/2009	ND	0.0003	0.0011		0.0075
		5/11/2010	ND	ND	ND		ND
		10/18/2010	ND	ND	0.0015		ND
		5/11/2011	ND	ND	ND	ND	ND
		7/25/2011	ND	0.00016	0.00099	0.0014	0.0074
		5/9/2012	0.0005	0.00033	0.0024		0.0142
		7/18/2012	0.001	0.001	0.001		0.00659
		10/2/2012	0.0005	0.00022	0.0017		0.0078
	MW-9A	11/17/2005	ND	0.0002	0.009	ND	ND
		11/17/2005	0.001				
		5/5/2006	ND	ND	ND	ND	ND
		7/28/2006	0.001	ND	ND	ND	0.01
		10/27/2006	ND	0.0002	ND	ND	ND
		4/19/2007	0.001	ND	0.001	ND	ND
		8/11/2007	0.002	ND	0.005	ND	0.02
		10/18/2007	0.002	0.0001	0.002	ND	0.01
		5/12/2008	ND	ND	ND		ND
		10/17/2008	0.001	ND	ND		ND
		5/3/2009	0.0011	0.000059	0.003		ND
		10/14/2009	0.00062	0.000051	0.00065		ND
		5/9/2010	ND	ND	ND		ND
		10/19/2010	ND	ND	0.0016		ND
		5/11/2011	ND	ND	ND	ND	ND
		7/24/2011	ND	ND	ND	0.0023	ND
		5/20/2012	0.0005	0.00008	0.0005		0.005
		9/30/2012	0.0005	0.00008	0.0005		0.005
	WMP-MW-1-A	5/9/2010	ND	ND	0.0032		ND
		11/5/2010	ND	ND	0.0014		ND
		5/5/2011	ND	ND	ND	ND	ND
		7/25/2011	ND	ND	ND	ND	0.0185
	WMP-MW-2-A	5/9/2010	ND	ND	0.0027		ND
		11/5/2010	ND	ND	0.0011		ND
		5/13/2011	ND	ND	ND	ND	ND
		7/25/2011	ND	ND	0.001	0.0011	0.0302
		5/19/2012	0.0005	0.00008	0.00068		0.005
		6/15/2012			0.00068		
		10/5/2012	0.0005	0.00008	0.00067		0.005
	WMP-MW-3-A	5/9/2010	ND	0.00027	ND		
		11/5/2010	ND	0.00024	ND		ND
		5/13/2011	ND	0.00041	ND	ND	ND
		7/25/2011	ND	0.00104	ND	0.001	0.0136
		5/19/2012	0.0005	0.0015	0.0012		0.005
		6/15/2012		0.0015	0.0012		
		10/5/2012	0.0005	0.0018	0.001		0.005
Intermediate Hydrostratigraphic Unit	MW-18Da	10/17/2007	0.004	ND	0.001	ND	ND
		5/13/2008	0.001	ND	ND		ND
		10/17/2008	0.006	ND	ND		ND
		5/4/2009	0.0013	ND	0.0018		ND
		10/15/2009	0.00077	0.00007	0.0024		0.0097
		5/12/2010	ND	ND	ND		ND
		10/17/2010	0.001	ND	0.0039		ND
		5/12/2011	ND	ND	0.00287	0.0055	ND
		7/24/2011	ND	ND	ND	0.0017	ND
		8/28/2011	ND	ND			0.0035
		5/17/2012	0.00051	0.00008	0.00066		0.005
		6/15/2012	0.00051		0.00066		
		10/4/2012	0.0022	0.00008	0.0007		0.005
	MW-18Db	10/17/2007	0.002	ND	0.004	ND	ND
		5/14/2008	0.002	ND	ND		ND
		10/17/2008	ND	ND	ND		ND
		5/4/2009	0.00095	ND	0.00074		ND
		10/15/2009	0.0012	ND	0.0033		ND
		5/12/2010	ND	ND	0.0053		ND
		10/17/2010	0.0013	ND	0.0025		ND
		5/12/2011	ND	ND	0.0019	ND	0.0103
		7/24/2011	0.00152	ND	0.00155	0.0024	0.0128
		8/28/2011	0.00144	ND			0.0086
		5/17/2012	0.0013	0.00008	0.0016		0.005
		6/15/2012	ND		0.0016		
		10/4/2012	0.003	0.00058	0.0528		0.236
	MW-22B	5/18/2012	0.0005	0.00021	0.0048		0.0141
		6/20/2012	0.0005	0.00008	0.0167		0.0116
		7/18/2012	0.0005	0.00008	0.0063		0.0074
		8/22/2012	0.0005	0.00008	0.0078		0.005
		10/2/2012	0.0005	0.00008	0.0026		0.0064
		11/15/2012	0.0005	0.00008	0.0028		0.006
		12/19/2012	0.0005	0.00008	0.0017		0.005
		1/16/2013	0.0005	0.00034	0.004		0.0166

Table 6-67
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Deep Hydrostratigraphic Unit	MW-14W	11/15/2005	ND	0.0001	0.006	ND	0.02
		11/15/2005	ND				
		5/7/2006	ND	ND	ND	ND	ND
		7/28/2006	ND	ND	ND	ND	0.01
		10/26/2006	ND	ND	ND	ND	0.01
		4/19/2007	ND	ND	0.003	ND	0.02
		8/10/2007	ND	ND	0.001	ND	ND
		10/14/2007	ND	ND	ND	ND	ND
		5/15/2008	ND	ND	ND		ND
		10/16/2008	ND	ND	ND		ND
		5/4/2009	0.00029	0.000065	0.0013		0.0063
		10/14/2009	ND	0.000073	0.0027		0.014
		5/11/2010	ND	ND	0.001		ND
		10/18/2010	ND	ND	0.0024		0.01
		5/15/2011	ND	ND	ND	ND	ND
		7/25/2011	ND	0.00007	ND	ND	0.0066
		5/17/2012	0.0005	0.00008	0.0006		0.0065
		6/15/2012			ND		0.0069
		7/18/2012	0.001	0.001	0.001		0.005
		10/2/2012	0.0005	0.00008	0.0005		0.014
	MW-17W	10/14/2007	0.001	0.0007	0.001	ND	0.03
		5/15/2008	0.001	0.001	0.004		0.07
		10/16/2008	ND	0.0013	0.001		0.08
		5/6/2009	0.0008	0.0011	0.001		0.078
		10/15/2009	0.00084	0.0012	0.0013		0.075
		5/10/2010	ND	0.0011	0.0011		0.081
		10/20/2010	ND	0.0012	0.0013		0.087
		5/15/2011	ND	0.00136	ND	ND	0.097
		7/28/2011	0.00117	0.00119	0.00123	0.0037	0.0999
		8/28/2011	ND	0.00152	0.00139	0.0047	0.0947
		5/20/2012	0.00092	0.0014	0.0012		0.102
		6/15/2012	ND	0.0014	0.0012		0.102
		7/18/2012	0.001	0.00142	0.00212		0.0892
		10/3/2012	0.00092	0.0013	0.0022		0.102
Deep Hydrostratigraphic Unit	MW-23W	5/20/2012	0.0005	0.00089	0.0013		0.0753
		6/20/2012	0.00054	0.00071	0.0013		0.0682
		7/18/2012	0.0005	0.00093	0.0014		0.0832
		8/22/2012	0.0005	0.00066	0.0013		0.0617
		10/3/2012	0.0005	0.00073	0.0014		0.0759
		11/15/2012	0.0005	0.00078	0.0013		0.0813
		12/19/2012	0.0005	0.001	0.0013		0.107
		1/16/2013	0.0005	0.00081	0.0013		0.0835
Deep Hydrostratigraphic Unit	MW-24W	5/18/2012	0.00071	0.0029	0.0042		0.139
		6/20/2012	0.0005	0.0023	0.006		0.108
		7/18/2012	0.0006	0.0011	0.0056		0.0589
		8/22/2012	0.0012	0.003	0.0126		0.143
		10/2/2012	0.00051	0.00099	0.0062		0.0459
		11/15/2012	0.001	0.0023	0.0096		0.11
		12/19/2012	0.0018	0.0042	0.0181		0.211
		1/16/2013	0.0005	0.00008	0.0013		0.0061
	MW-8W	11/17/2005	ND	ND	0.001	ND	ND
		11/17/2005	0.001				
		5/5/2006	0.002	ND	ND	ND	ND
		7/28/2006	0.002	ND	ND	ND	ND
		10/27/2006	0.002	ND	ND	ND	ND
		4/19/2007	0.002	ND	ND	ND	ND
		8/11/2007	0.002	ND	0.002	ND	ND
		10/18/2007	0.002	ND	ND	ND	ND
		5/12/2008	0.001	ND	ND		ND
		10/17/2008	ND	ND	ND		ND
	MW-8W	5/3/2009	0.0014	ND	0.00057		ND
		10/14/2009	0.0011	0.000041	0.00064		ND
		5/9/2010	0.0012	ND	ND		ND
		10/19/2010	0.0012	ND	ND		ND
		5/11/2011	ND	ND	ND	ND	ND
		7/24/2011	ND	ND	ND	0.002	0.0139
		5/20/2012	0.0011	0.00008	0.0021		0.005
		9/30/2012	0.0022	0.0019	0.0338		0.0684

Notes:
Includes data from 2001 onward of "A" data use level only.
GW = groundwater, SW = surface water, HH = human health
mg/L = milligrams per liter
Creek surface water results presented include only data collected during the base flow season to be more representative of groundwater impacts.
Blank cells - No data available
na = Not Applicable.
Value exceeds groundwater human health comparison value.
More information about groundwater comparison values is provided on Table 4-6.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.

Information about SW criteria is on Table 4-4. Additional SW criteria (mg/L) include:
Total Selenium - Acute Eco: 0.02, Chronic Eco: 0.005, HH: 0.17
Diss. Cadmium - Acute Eco: 0.0013, Chronic Eco: 0.0006; Tot. Cadmium - HH: 0.005
Diss. Chromium - Acute Eco: 0.57, Chronic Eco: 0.074; Tot. Chromium - HH: 0.1
Total Vanadium - Acute Eco: 0.079, Chronic Eco: 0.027
Dissolved Zinc - Acute Eco: 0.12, Chronic Eco: 0.12; Total Zinc: HH - 7.4
Exceedances of comparison values are indicated in the following manner:

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
North Woodall Mountain Sub-Basin												
Surface Water												
Spring	SW05-SP	4/30/2005	11		2	0.18	2		ND	ND	12	124
		8/2/2005	64		4	0.16	14		ND	ND	8	233
		10/17/2005	56		5	0.24	13		0.05	0.05	12	234
		5/2/2006	39		4	0.14	8		ND	ND	10	157
		7/26/2006	65		6	0.23	15		ND	ND	7	268
		10/23/2006	62		6	0.22	14		0.04	0.04	7	240
		4/16/2007	39		4	0.16	8		0.01	0.01	6	174
		8/7/2007	64		6	0.21	14		0.01	0.01	7	215
		10/11/2007	58		5	0.2	14		0.02		5	258
		5/10/2008		19	3	0.15		3.8	ND	ND	11	141
		10/14/2008		65	6	0.2		13	0.26	0.26	ND	248
		4/30/2009		8.5	2.6	0.11		2.1	0.01	ND	1.8	74
		10/11/2009		55.4	6.2	0.18		12.9	0.11	0.11	6.4	251
		5/6/2010		26.9	4.6	0.13		6.3	0.02	0.02	8.2	135
		10/14/2010		63.6	7.1	0.2		13.7	0.02	0.02	6.6	259
		5/9/2011		60.5	5.42	0.22		12.1	0.173	0.177	7.03	238
		9/23/2011		58.1	5.65	0.19		11.9	0.107	0.116	6.63	247
		5/18/2012		62.8	ND	0.25		12.9	ND	ND	5.1	223
		9/29/2012		65.2	5.5	0.17		13.5	ND	ND	5.6	246
	SW06-W	4/29/2005	38		5	0.24	7		ND	ND	11	173
		8/2/2005	51		9	0.18	12		ND	ND	8	227
		10/17/2005	62		7	0.25	13		0.02	0.02	12	239
		5/3/2006	41		4	0.19	8		ND	ND	9	135
		7/26/2006	65		5	0.22	14		ND	ND	7	276
		10/23/2006	60		5	0.22	12		ND	ND	9	236
		4/16/2007	57		4	0.2	11		0.02	0.02	8	221
		8/7/2007	65		5	0.19	12		ND	ND	7	169
		10/11/2007	62		4	0.2	13		0.02		9	259
		5/10/2008		54	5	0.19		9.9	0.24	0.24	13	218
		10/14/2008		58	9	0.21		13	0.04	0.04	9	281
		4/30/2009		36.4	4.6	0.17		7.8	0.09	0.09	8.4	141
		10/12/2009		62.5	6.6	0.18		13.2	0.02	0.02	8.7	226
		5/6/2010		52.7	5.3	0.16		11.2	ND	ND	8.2	207
		10/14/2010		71.3	6.4	0.17		13.4	0.01	0.01	8.4	263
		6/1/2011		23.5	3.01	0.17		4.78	0.066	0.083	5.84	145
		9/22/2011		58	5.6	0.16		11.9	ND	ND	4.65	200
		5/18/2012		58.8	ND	0.24		11.3	ND	ND	5.8	215
	SW07-SP	4/29/2005	196		4	0.48	47		0.06	0.06	37	**632**
		8/1/2005	177		3	0.44	46		ND	ND	36	**630**
		10/18/2005	161		4	0.31	47		0.07	0.07	34	**570**
		5/4/2006	176		4	0.62	44		0.05	0.05	37	**573**
		7/26/2006	192		5	0.58	47		0.1	0.1	34	**666**
		10/22/2006	214		3	0.61	50		0.04	0.04	37	**729**
		4/17/2007	171		4	0.48	43		0.08	0.08	35	**576**
		8/5/2007	185		3	0.53	46		0.06	0.06	34	**657**
		10/12/2007	181		3	0.45	46		0.07	0.07	35	**617**
		5/13/2008		189	2	0.49		46	0.05	0.05	33	**593**
		10/12/2008		200	4	0.62		44	0.07	0.07	30	**645**
		5/2/2009		191	4.4	0.58		48.3	0.07	0.07	29.8	**618**
		10/11/2009		211	4.1	0.54		45.5	0.07	0.07	28.1	**730**
		5/7/2010		194	4.8	0.51		45.8	0.07	0.07	29.8	**659**
		10/16/2010		175	4.5	0.4		44.9	0.07	0.07	29.6	**635**
		5/13/2011		204	5.25	0.68		48.2	0.103	0.123	33.7	**684**
		9/22/2011		157	6.06	0.57		41.7	0.099	0.06	31.2	**595**
		5/13/2012		154	ND	0.4		42.6	0.17	0.17	29.1	**537**
		9/30/2012		16.7	4	0.41		41.9	ND	ND	25.7	**559**
	WS-1	5/9/2003	152		3	0.4	38.1		0.02		30	**520**
		10/21/2003	145		3.32	0.304	37.9		ND		29.7	**504**
		5/14/2004	131				37.3				31.1	492
		10/19/2008	148	149	3.61	0.303	39.7	39.1	ND		30.9	**540**
		5/16/2009	153	148	4.14	0.496	40.7	39.9	ND		33.4	**549**
		8/7/2009	154	152	3.88	0.417	39.6	39.6	ND		33.9	**588**
		6/3/2011		163	4.82	0.37		44.1			30.7	**564**
		10/2/2011		152	3.63	0.42		38.5			33.3	**572**
	WS-2	5/19/2008	167	166	4.23	0.447	43.7	43.2	ND		32.5	**580**
		5/19/2008								0.03		
		10/19/2008	179	214	3.82	0.654	45.9	46.1	ND		32.1	**630**
		5/16/2009	165	166	4.62	0.714	45.6	45.6	ND		33.3	**587**
		8/7/2009	188	192	4.18	0.441	46.7	47.7	ND		32.6	**673**
		6/3/2011		188	5.22	0.51		50.7			31.1	**640**
		10/2/2011		223	ND	0.73		54			33	**778**
	WS-3	6/3/2011		269	5.86	0.83		63.3			33.1	**913**
		10/2/2011		275	3.71	0.88		59.6			33.3	**1000**
Baseflow River	NWC-2	8/7/2009	59.5	60.7	5.35	0.25	12.7	12.9	ND		5.87	267

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Groundwater												
Shallow Hydrostratigraphic Unit	MW-5A	11/17/2005		200	8	0.76		50	0.31	0.3	34	**694**
		5/7/2006		200	4	0.92		51	0.42	0.42	33	**660**
		7/28/2006		184	3	0.95		48	0.22	0.22	35	**628**
		10/26/2006		182	9	0.67		45	0.12	0.12	31	**667**
		4/19/2007		189	3	0.82		46	0.14	0.14	37	**644**
		8/5/2007		172	3	0.74		43	0.14	0.14	33	**608**
		10/14/2007	165		3	0.68	43		0.09	0.09	38	**592**
		5/11/2008		165	3	0.77		41	0.09	0.09	35	**587**
		10/17/2008		173	5	0.79		40	0.09	0.09	33	**587**
		5/3/2009		150	4.7	0.76		40.9	0.12	0.12	29.1	**532**
		10/15/2009		148	5	0.68		39.9	0.2	0.2	30.6	**531**
		5/9/2010		151	5.3	0.7		38.4	0.13	0.13	30	**541**
		10/17/2010		149	5.7	0.64		40.7	0.14	0.14	31	**543**
		5/8/2011	143		5.32	0.88	39		0.212	0.219	33.5	**569**
		7/24/2011	148		4.71	0.76	40.5		0.268	0.232	31	
		5/13/2012	209			0.62	52		0.1	0.1	31.5	**687**
		9/30/2012	190		4	0.62	45.1		0.1	0.1	26.6	**619**
	MW-7A	11/15/2005		70	7	0.44		14	0.29	0.29	9	291
		5/7/2006		66	7	0.32		55	0.39	0.39	9	283
		7/27/2006		69	6	0.33		14	0.25	0.22	12	267
		10/24/2006		79	6	0.24		13	0.05	0.05	17	297
		4/19/2007		82	4	0.17		12	0.46	0.46	21	283
		8/9/2007		87	4	0.18		13	0.34	0.34	16	284
		10/15/2007	85		7	0.22	14		0.28	0.27	12	280
		5/11/2008		81	5	0.18		13	1.52	1.52	19	267
		10/15/2008		94	5	0.17		13	0.95	0.95	16	314
		5/5/2009		61	4.5	0.17		10.6	2.8		18.6	231
		10/13/2009		79.7	5	0.16		14.2	1.2	1.2	14.5	295
		5/11/2010		78.4	4.8	0.14		11.4	1.9	1.9	14.5	309
		10/20/2010		90.5	5.2	0.16		12.9	2	2	15.8	292
		5/13/2011	55.3		6.34	0.25	12		0.917	0.966	11.6	233
		7/26/2011	63		6.52	0.26	14		0.491	0.45	8.4	
		5/16/2012	68.2		5.5	0.31	14.9		0.41	0.41	7.1	263
		6/14/2012	68.2		5.5	0.31	14.9		0.41	0.41	7.1	263
		10/4/2012	75.9		3.8	0.22	11.8		0.77	0.77	14.9	292
	MW-10A	11/17/2005		63	8	0.36		13	0.28	0.28	10	248
		5/5/2006		60	8	0.15		14	0.36	0.36	12	231
		7/30/2006		62	5	0.17		12	0.21	0.19	8	240
		10/27/2006		63	8	0.14		12	0.22	0.22	ND	257
		4/18/2007		60	6	0.14		12	0.5	0.5	7	237
		8/9/2007		60	4	0.13		12	0.2	ND	12	245
		10/15/2007	61		9	0.17	12		0.17	0.17	9	209
		5/12/2008		50	2	0.13		9	0.63	0.63	16	213
		10/15/2008		61	5	0.29		12	0.24	0.24	ND	201
		5/4/2009		50.7	4.9	0.15		11	0.82	0.82	9.8	190
		10/14/2009		57.6	5.4	0.13		12.2	0.24	0.24	7.7	237
		5/10/2010		56	4.9	0.11		10.9	0.82	0.82	9.1	206
		10/17/2010		59.2	5.4	0.12		12.2	0.21	0.21	8.8	252
		5/11/2011	57		5.98	0.15	13.2		0.391	0.402	8.38	
		7/22/2011	57.1		5.68	0.18	13.2		0.383	0.363	8.01	
		7/25/2011	57.1		5.68	0.18	13.2		0.383	0.363	8.01	231
		5/16/2012	64.1		5	0.22	13.8		0.38	0.38	6.7	236
		6/14/2012	64.1			0.22	13.8		0.38	0.38	6.7	236
		10/4/2012	61.7		5	0.19	14.9		0.22	0.21	7.7	232
Intermediate Hydrostratigraphic Unit	MW-11Da	5/11/2011	50.4		9.11	0.21	13.2		0.438	0.469	8.57	
		7/25/2011	50.1		8.41	0.22	12.7		0.445	0.431	7.83	
		5/16/2012	54.3		7.2	0.26	12.9		0.46	0.46	7.4	246
		6/14/2012	54.3		7.2	0.26	12.9		0.46	0.46	7.4	246
		10/4/2012	52.1		7.4	0.22	13.3		0.26	0.26	8.2	226
	MW-11Db	11/16/2005		47	11	0.38		13	0.41	0.31	13	234
		5/5/2006		54	14	0.28		15	0.42	0.42	9	257
		7/30/2006		49	9	0.24		14	0.45	0.43	9	367
		10/26/2006		49	10	0.21		14	0.45	0.45	8	241
		4/18/2007		47	4	0.22		13	0.48	0.48	8	224
		8/9/2007		49	8	0.2		13	0.45	0.45	8	200
		10/15/2007	52		9		15		0.4	0.4	9	191
		5/12/2008		49	6	0.19		14	0.44	0.44	11	239
		10/16/2008		50	9	0.21		14	0.45	0.45	8	242
		5/4/2009		49.8	8.9	0.22		13.9	0.44	0.44	8.6	192
		10/14/2009		47	9.4	0.2		13.7	0.42	0.42	8.8	223
		5/10/2010		51.4	8.8	0.17		13.9	0.42	0.42	8.6	210
		10/17/2010		48.3	9.2	0.17		14	0.39	0.39	8.4	238
		5/11/2011	51.3		9.35	0.23	14.7		0.368	0.391	8.9	
		7/26/2011	49.8		8.52	0.22	13.5		0.39	0.358	7.68	
		5/16/2012	52		7.2	0.28	13.4		0.35	0.35	8.6	232
		6/14/2012	52		7.2	0.28	13.4		0.35	0.35	8.6	232
		10/4/2012	51.3		7.7	0.24	14.6		0.17	0.17	10.8	228

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Intermediate Hydrostratigraphic Unit	MW-6D	11/15/2005		43	8	0.43		22	0.15	0.15	10	228
		5/7/2006		45	9	0.31		23	0.13	0.13	11	220
		7/27/2006		43	7	0.39		22	0.14	0.14	13	210
		10/24/2006		42	8	0.3		22	0.12	0.12	17	229
		4/19/2007		42	7	0.32		22	0.13	0.13	11	215
		8/9/2007		41	6	0.26		22	0.13	0.13	15	203
		10/15/2007	42		11	0.32	23		0.11	0.11	11	182
		5/11/2008		41	8	0.31		22	0.1	0.1	12	222
		10/15/2008		42	8	0.35		22	0.13	0.13	9	213
		5/5/2009		40.4	7.4	0.32		22	0.14		10.1	209
		10/13/2009		43.8	7.7	0.28		22.8	0.18	0.18	10.6	205
		5/11/2010		42.7	7.4	0.25		21.2	0.15	0.15	9.4	214
		10/19/2010		42.3	8.1	0.28		21.8	0.15	0.15	10	199
		5/13/2011	40.8		8.36	0.41	23.9		0.066	0.082	13.2	229
		7/26/2011	39.5		7.7	0.32	23.7		0.066	0.039	13.2	
		5/16/2012	44.1		6.5	0.37	25.1		1.4	1.4	11.7	239
		6/14/2012	44.1		6.5	0.37	25.1		1.4	1.4	11.7	239
		10/4/2012	42.3		7	0.37	24.6		0.1	0.1	12.7	226
Deep Hydrostratigraphic Unit	MW-4W	11/17/2005		235	5	0.92		53	ND	ND	33	**774**
		5/7/2006		243	3	0.94		58	ND	ND	34	**797**
		7/28/2006		236	3	1.03		56	ND	ND	35	**804**
		10/26/2006		221	3	0.83		51	ND	ND	37	**781**
		4/19/2007		220	2	0.91		52	0.01	0.01	40	**769**
		8/5/2007		228	3	0.94		52	ND	0.05	35	**807**
		10/14/2007	223		2	0.9	52		ND	ND	38	**792**
		5/11/2008		214	4	0.9		51	ND	ND	36	**769**
		10/17/2008		240	3	0.87		48	ND	ND	38	**777**
		5/3/2009		219	4	0.9		52.6	ND	ND	29.7	**724**
		10/15/2009		224	4	0.8		52.6	0.03	0.03	30.2	**710**
		5/9/2010		205	4.4	0.87		48.5	ND	ND	30.8	**716**
		10/17/2010		224	4.8	0.77		53.4	ND	ND	30.6	**746**
		5/8/2011	225		4.41	1.16	52.9		0.087	ND	34.1	**787**
		7/24/2011	225		4.59	1.03	52.6		0.035	ND	31.6	
		5/13/2012	228			0.77					32.8	**858**
		9/30/2012	75		3.3	0.73	54.1		0.1	0.1	25.6	**786**
	MW-12W	11/18/2005		45	15	0.57		12	0.02	0.02	10	261
		5/8/2006		52	17	0.31		14	ND	ND	13	233
		7/30/2006		50	10	0.36		13	ND	ND	11	221
		10/27/2006		50	11	0.29		14	0.02	0.02	7	207
		4/20/2007		50	12	0.33		14	0.03	0.03	11	215
		8/9/2007		47	10	0.28		13	0.02	0.02	13	206
		10/18/2007	48		12	0.31	14		0.01	0.01	13	238
		5/14/2008		49	12	0.29		14	0.01	0.01	8	211
		10/15/2008		51	13	0.36		14	ND	ND	ND	221
		5/6/2009		49.3	12.6	0.33		14.1	0.01	0.01	8.7	165
		10/15/2009		47.7	13.3	0.33		14.4	0.04	0.04	9.3	218
		5/12/2010		48.5	12.9	0.29		13.4	ND	ND	8.7	217
		10/19/2010		48.4	13.4	0.3		14.2	ND	ND	8.7	203
		5/17/2011	46		14.3	0.37	13.4		ND	ND	9.45	209
		7/27/2011	48.3		13.4	0.32	13.9		0.032	0.038	9.38	
		5/17/2012	50		12	0.3	14.1		0.1	0.1	7.1	204
		6/15/2012	50		12	0.3	14.1				7.1	204
		10/4/2012	51.2		13.3	0.34	14.7		0.1	0.1	8.5	239
State Land Creek Sub-Basin												
Surface Water												
Spring	SLCT3-4	10/18/2008	37.7	39.4	3.77	0.146	10.1	11	0.307		6.44	170
		5/19/2009	38.6	38.4	4.38	ND	10.4	10	0.167		7.74	159
Spring	SLCT3-5	5/19/2009	28.6	28.7	3.4	ND	7.3	7.19	0.213		9.26	154
	SW02-SP	4/30/2005	22		3	0.18	5		ND	ND	11	153
		8/2/2005	39		4	ND	11		ND	ND	8	161
		10/17/2005	33		5	0.19	10		0.02	0.02	11	160
		5/2/2006	19		3	0.16	5		ND	ND	11	84
		7/26/2006	37		4	0.14	10		ND	ND	6	158
		10/23/2006	36		5	0.17	10		0.02	0.02	9	161
		4/16/2007	29		3	0.12	7.5		0.03	0.03	9	127
		8/7/2007	40		4	0.13	11		ND	ND	11	136
		10/11/2007	37		3	0.12	10		ND	ND	6	167
		5/10/2008		23	3	0.13		6	0.08	0.08	11	118
		10/14/2008		40	5	0.17		11	0.01	0.01	ND	175
		5/2/2009		23.7	3.1	0.099		6.7	0.18	0.18	6.9	94
		10/11/2009		34.3	5.2	0.096		9.6	0.03	0.03	5.6	164
		5/6/2010		26.5	3.8	ND		8.2	0.01	ND	7.9	135
		10/14/2010		43.2	5.2	0.11		11.2	ND	ND	ND	159
		5/9/2011		18.3	2.68	0.14		4.81	0.202	0.245	5.76	130
		9/23/2011		21.8	5.48	0.18		5.8	0.025	0.038	4.31	145
		5/16/2012		35.9	ND	0.17		9.15	ND	ND	ND	170
		9/29/2012		42.5	4.6	ND		10.5	ND	ND	4.5	163

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
ODA Seep	NES-1	5/22/2001	200				48					
		5/22/2001			2.7	0.43			0.23		**600**	**960**
		5/8/2003										
		5/8/2003	103		2	0.2	25.1		ND		**320**	**540**
		5/13/2004	130				32.8				**480**	**696**
		5/13/2004										
		5/18/2009	76.4	78.3	4.02	0.609	19.1	20	ND		**263**	428
		5/18/2009										
		7/12/2010		242	4.18	0.37		59.3			**725**	**1190**
		7/12/2010										
		6/3/2011		128	2.88	0.06		27.9			**290**	**582**
		6/3/2011										
	NES-1a	5/8/2003	204		3	0.1	40		ND		**480**	**910**
		5/13/2004	191				40.9				**574**	**921**
		5/18/2009	201	188	2.76	0.37	40.8	38.4	ND		**505**	**858**
	NES-1b	5/8/2003	382		3	0.1	85.7		ND		**1050**	**1760**
		5/13/2004	400				90.3				**1265**	**1907**
		5/18/2009	337	319	2.25	ND	77.2	73	ND		**944**	**1480**
		6/9/2010		395	2.62	ND		92.6			**1110**	**1830**
	NES-2	5/23/2001	550				140					
		5/23/2001			3.1				0.45		**1500**	**2400**
		5/8/2003	498		4	0.6	118		0.11		**1380**	**2350**
		10/24/2003	404		6.39	0.989	99.1		ND		**993**	**1770**
		5/13/2004	477				115				**1410**	**2330**
		5/10/2006	457		3.69		115		0.35		**1383**	**2222**
		5/2/2007		439.3266	4.019			10.8695	0.172		**1285.34**	**2180**
		10/17/2008	389	400	5.41	0.374	94.3	103	ND		**1070**	**1900**
		5/18/2009	453	442	3.91	1.26	119	115	0.349		**1350**	**2010**
		8/6/2009	404	406	4.94	0.694	103	104	ND		**1170**	**2010**
		6/9/2010		451	4.36	0.152		102			**1150**	**2010**
		7/12/2010		421	4.99	0.619		102			**1030**	**1900**
		8/18/2010		420	5.34	0.712		101			**990**	**1910**
		9/20/2010		393	5.83	0.485		96.1			**1010**	**1890**
		6/3/2011		436	5.26	1.09		121			**1270**	**2010**
		10/1/2011		390	5.8	1.17		96.4			**1130**	**2040**
	NES-2A	6/3/2011		391	4.95	1.12		134			**1160**	**1950**
	NES-3	5/23/2001	560				120					
		5/23/2001			4.3	1.4			ND		**1400**	**2200**
		6/3/2011		498	5.8	1.32		121			**1420**	**2370**
	NES-4	5/22/2001	460				100					
		5/22/2001			5	1			ND		**990**	**1900**
		5/8/2003	437		7	0.5	99.3		ND		**980**	**2040**
		10/24/2003	427		8.28	1.02	101		ND		**1010**	**1842**
		5/13/2004	418				92.9				**1088**	**1888**
		10/18/2008	484	494	6.88	0.294	112	121	ND		**1240**	**2300**
		6/3/2011		464	4.55	0.63		105			**1200**	**2020**
Baseflow River	SLC-3D	8/6/2009	45.6	45	8.45	0.206	11.8	11.7	ND		5.22	202
		10/1/2011		48.6	7.72	0.22		10.4			8.05	210
Groundwater												
Shallow Hydrostratigraphic Unit	GW-25-MA	10/18/2008	40.8	42.2	10.5	0.558	7.23	8.27	0.081		156	490
		5/19/2009	80	68.2	4.54	1.44	17.4	15.1	ND		186	380
		8/5/2009	75.3	72.6	4.85	2.04	15.4	15.3	ND		168	437
		6/9/2010		83.4	4.9	0.817		19.1			**270**	446
		7/12/2010		75.2	5.08	1.16		16.2			169	340
		8/18/2010		68.6	5.42	1.64		14.1			141	367
		9/22/2010		56.8	6.06	1.12		12.5			136	326
		6/3/2011		45.9	7.64	0.49		10.4			107	251
		10/1/2011		48.7	7.58	0.95		10.7			102	260
		5/9/2012		53.6	6.22	0.41		11.9			123	267
		10/17/2012		40.8				9.59				
		5/8/2013		211	3.15	0.36		48.5			**633**	**1010**
		10/16/2013		173	5.07	0.34		55.7			**416**	**676**
		6/10/2014		214	2.75	0.35		50			**600**	**975**
		10/6/2014	110	98.5	5.61	0.65	24.8	22.1	ND		**313**	**521**
Shallow Hydrostratigraphic Unit	GW-27-MA	10/17/2008	61.5	65.1	11.8	0.395	12.8	13.7	ND		14.2	250
		5/20/2009	48.8	51.7	13.4	0.201	10.5	11.4	ND		26.6	212
		8/5/2009	49.1	50	13	0.332	10.6	11	ND		19.5	245
		6/9/2010		45.1	15	0.257		10.1			20.2	200
		7/12/2010		53.3	15.6	0.265		11.4			15.9	196
		8/18/2010		54.4	12.1	0.304		11.4			12.3	219
		9/20/2010		51.1	12.1	0.214		10.4			10.5	221
		6/2/2011		41.5	13.4	0.26		8.92			18.4	190
		10/1/2011		65.6	16.6	0.27		14.2			25.8	263
		10/17/2012		52.6	12.4	0.24		11.3			7.1	233
		10/15/2013		59.1	10.4	0.32		11.3			7.48	252
		10/6/2014	56.2	53.7	11.5	0.42	11.8	11.2	ND		11.8	242
		4/24/2012		51.9	11.9	0.21		11.9			19.4	235
		5/8/2013		44	11.5	0.24		9.57			18.1	201
		6/10/2014		53.6	12.3	0.22		11.6			16.2	223

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Shallow Hydrostratigraphic Unit	MW-3A	5/8/2006		27	5	0.29		7	0.29	0.29	11	154
		4/19/2007		22	4	0.31		6	1.48	1.48	7	131
		5/11/2008		24	7	0.22		6.4	1	1	12	171
		10/14/2008		23	4	0.19		6	0.3	0.3	7	138
		5/5/2009		21.2	4.3	0.28		5.9	0.69		8.9	109
		10/13/2009		21.6	4.1	0.25		5.6	0.22	0.22	7.2	110
		5/12/2010		21.8	4.6	0.21		5.8	0.4	0.38	8.4	121
		10/20/2010		23.1	6	0.21		6	0.11	0.11	7.1	99
		5/17/2011	20		4.25	0.29	5.5		0.266	0.22	7.34	114
		7/26/2011	22.2		3.79	0.24	5.83		0.166	0.152	6.94	
		10/3/2012	24.6		4.4	0.47	6.95		0.14	0.13	12.8	186
	GW-47-MA	6/25/2014	104	110	7.53	0.29	24.1	27.6	0.635		**338**	**568**
		8/7/2014	117	115	4.93	0.26	26.6	27.8	0.077		**407**	**566**
		10/6/2014	102	95.8	5.26	0.25	23	22.2	0.387		**362**	**532**
Intermediate Hydrostratigraphic Unit	GW-26-MD	5/20/2009	56.5	56.1	6	0.187	17	16.9	0.13		6.45	237
		8/5/2009	54.5	54.2	5.82	0.274	16.3	16.4	0.152		5.88	243
		6/9/2010		53.6	5.25	0.178		16.7			5.19	227
		7/12/2010		56.4	6.89	0.181		16.6			6.57	208
		9/23/2010		71.2	8.42	0.204		18.4			6.58	234
		6/3/2011		55.8	6.37	0.19		16.1			6.12	233
		10/1/2011		68.5	6.56	0.22		18.6			6.75	262
		5/9/2012		58.4	5.91	0.16		17.2			5.7	221
		10/17/2012		87.2	3.86	0.22		15			3.94	110
		5/8/2013		63.4	6.04	0.22		17.3			6.19	245
		10/16/2013		60.7	6.1	0.25		16.3			6.29	249
		6/10/2014		60.2	6.04	0.18		17.8			6.38	233
		10/6/2014	57.8	89.2	6.29	0.2	16.8	18.1	0.162		6.41	244
	MW-2R	11/16/2005		44	8	0.39		23	0.05	0.05	39	242
		5/8/2006		39	6	0.24		24	ND	ND	22	230
		7/30/2006		40	5	0.2		23	ND	ND	21	220
		10/24/2006		41	6	0.21		24	0.01	0.01	25	208
		4/18/2007		42	8	0.18		25	0.01	0.01	14	203
		8/7/2007		40	3	0.19		23	ND	0.01	14	152
		10/15/2007	40		7		24		0.01	0.01	12	169
		5/11/2008		39	5	0.19		23	0.01	0.01	14	195
		10/14/2008		41	5	0.18		24	0.01	ND	9	229
		5/5/2009		36.7	4.2	0.19		23.3	0.01		10.8	193
		10/13/2009		41.1	4.5	0.17		24.2	0.02	0.02	11.9	191
		5/12/2010		39.4	4.4	0.15		21.2	0.04	0.04	10.8	238
		10/19/2010		38.5	4.8	0.16		23.6	0.01	0.01	10.9	177
		5/16/2011	36.1		4.84	0.26	22.6		ND	ND	10	179
		7/27/2011	36.7		4.91	0.21	22.9		0.023	0.024	11	
		5/16/2012									9.3	209
		10/3/2012									12.1	191
Deep Hydrostratigraphic Unit	GW-39-MW	3/8/2012	63.5	61.4	5.27	0.17	40	38.7	1.52		24.4	288
		4/25/2012	63.6	61.6	4.91	0.17	40.8	39.5	1.56		23.4	343
		10/16/2012	58.4	59.4	5.3	0.18	37.1	37.8	1.64		24.8	299
		5/8/2013	62.4	62.5	5.03	0.22	38.4	38.6	1.58		27.7	353
		10/15/2013		62.2	5.93	0.23		38.2			30.8	330
		6/10/2014		64.4	5.42	0.14		39.4			31.2	313
		10/6/2014	65.2	61.5	5.42	ND	39.6	37.4	1.71		32	337
	GW-40-MW	3/9/2012	69.2	67.5	6.18	0.29	55.7	53.9	0.38		17.6	340
		3/9/2012	68.1	68	6.31	0.27	55.1	54.5	0.391		14.3	346
		3/9/2012	68.6	67.3	6.12	0.26	56.6	55	0.388		13.5	352
		3/9/2012	68.9	65.9	6.27	0.26	56.5	53.9	0.349		15.4	345
		4/25/2012	66.5	67.9	5.81	0.32	57.4	58.7	0.35		11.9	407
		10/16/2012	61.4	62.2	5.85	0.22	52.8	53	0.482		14.6	372
		5/8/2013	59.6	60.5	5.16	0.25	56.5	57.6	0.415		10.3	324
		10/15/2013		55.3	5.5	0.24		51.5			11.7	375
		10/6/2014	51.6	51.7	5.44	ND	55.2	53.2	0.534		13.4	367
		6/10/2014		59.8	6.01	0.2		56.5			14.4	354
	MW-1W	11/16/2005		62	7	0.45		22	0.3	0.3	14	275
		5/8/2006		69	7	0.27		24	0.56	0.56	19	295
		7/30/2006		64	6	0.17		22	0.7	0.68	16	288
		10/24/2006		66	8	0.18		22	0.66	0.66	10	282
		8/8/2007		65	6	0.15		22	0.73	0.73	16	278
		10/15/2007	67		8		24		0.62	0.62	15	217
		5/14/2008		63	4	0.14		21	0.67	0.67	16	270
		10/15/2008		66	6	0.16		23	0.86	0.86	12	290
		5/6/2009		65.8	6.5	0.15		22.4	0.71	0.71	14.2	236
		10/13/2009		65.1	6.6	0.14		23.4	0.8	0.8	17.5	269
		5/11/2010		67.2	7.4	0.12		21.8	0.76	0.76	15.9	319
		10/19/2010		66.1	6.9	0.14		23.7	0.8	0.8	16.4	260
		5/17/2011	61.3		6.73	0.16	22.3		0.7	1.08	14	251
		7/27/2011	63.9		6.87	0.17	23.5		0.775	0.794	18.6	
		5/17/2012	67.3		5.2	0.15	23.9		0.74	0.74	15.7	286
		6/13/2012	67.3				23.9		0.74	0.74		286
		10/3/2012	65.8		5.9	0.19	24		0.51	0.51	17.9	290

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Pedro Creek Sub-Basin												
Surface Water												
ODA Seep	FSPSSeep	5/9/2013		215	24.1	0.12		44.2			**682**	**1180**
		4/22/2014	176	177	19	0.4	35.2	35.1	6.22		**536**	**835**
		5/6/2014	204	206	14.1	0.43	41.2	41.4	4.96		**619**	**1020**
	NES-5	5/22/2001	590				220					
		5/22/2001			6.9	3.1			1.4		**1900**	**3100**
		5/22/2001	610				230					
		5/22/2001			6.9	3.1			1.4		**2000**	**3100**
		5/22/2001	590				220					
		5/22/2001			7	3.1			1.4		**2000**	**3000**
		5/7/2003	551		6	1.7	200		0.95		**1910**	**2910**
		10/23/2003	557		9.71	1.42	261		0.55		**2024**	**3060**
		5/12/2004	504				185				**1975**	**2560**
		5/1/2007		483.1429	6.284			179.4036	2.17		**1765.45**	**2730**
		10/18/2008	509	524	8.19	1.3	221	236	1.1		**1940**	**3100**
		5/20/2009	487	498	4.75	2.7	170	178	2.55		**1690**	**2660**
		7/10/2009	518	513	6.81	2.95	188	189	1.68		**1850**	**3000**
		8/8/2009	516	500	7.85	3.82	194	196	1.48		**1930**	**3090**
		6/9/2010		496	6.36	1.36		171			**1720**	**2680**
		7/13/2010		543	7.03	1.65		197			**1880**	**2920**
		8/18/2010		594	8.17	1.58		224			**1850**	**3400**
		9/21/2010		515	9.01	2		208			**1950**	**3240**
		5/23/2011		429	5.08	1.96		166			**1530**	**2560**
		6/1/2011		442	6.17	2.26		162			**1680**	**2410**
		10/1/2011		502	8.6	2.36		205			**2140**	**3140**
		4/25/2012		445	5.82	2.22		161			**1670**	**2540**
		10/19/2012		498	9.59	3.09		227			**2140**	**3100**
		4/22/2014	565	549	11.3	2.54	293	293	5.62		**2480**	**3390**
		5/6/2014	537	543	12.2	3.21	280	280	4.99		**2370**	**3420**
		6/9/2014	532	545	11.9	2.42	313	321	0.481		**2500**	**3430**
ODA Seep	NES-5	8/5/2014	564	590	16.5	3.81	318	316	0.084		**2540**	**3480**
		10/6/2014	569	578	11.7	2.3	290	301	3.48		**2270**	**3600**
	NES-8	6/9/2014		567				158				
		6/10/2014			20.6	1.09					**1870**	**2930**
ODA Seep Pond	NESeep5 Pond	4/22/2014	522	516	11.1	2.55	257	249	4.96		**2300**	**3140**
		5/6/2014	576	545	11.4	2.49	290	285	3.53		**2390**	**3360**
		6/9/2014	539	538	11.6	2.81	314	313	0.487		**2460**	**3420**
		8/5/2014	568	565	14.5	3.79	322	313	ND		**2500**	**3500**
Baseflow River	PC-5	8/5/2009	455	473	5.89	ND	189	203	ND		**1940**	**2880**
		10/17/2012		531	16.7	ND		235			**2060**	**3180**
		10/12/2013		470	12	ND		200			**2180**	**3020**
		10/6/2014	424	420	9.08	ND	183	180	ND		**1620**	**2420**
Groundwater												
Shallow Hydrostratigraphic Unit	GW-28-MA	5/21/2009	193	188	4.6	0.301	57.5	57.2	ND		**682**	**1010**
		8/5/2009	301	301	4.35	0.208	85.2	87.7	ND		**996**	**1620**
		6/9/2010		294	6.13	ND		106			**1210**	**1680**
		7/13/2010		350	6.27	ND		118			**1250**	**1890**
		6/3/2011		153	3.46	0.06		52.9			**548**	**885**
		10/31/2011		229	4.44	ND		82.4			**907**	**1380**
		5/22/2012		333	4.53	ND		122			**1350**	**1970**
		10/17/2012		241				78				
		5/9/2013		323	5.01	ND		119			**1220**	**1820**
		10/16/2013		423	5.09	ND		171			**1490**	**2080**
		6/10/2014	ND	325	5.6	ND	122	121	ND		**1110**	**1740**
		8/7/2014	372	534			136	230				
		10/8/2014	389	393	13.8	ND	142	141	0.123		**1520**	**2110**
	GW-30-MA	10/19/2008	65.6	69.7	7.97	0.234	8.97	9.5	ND		15.7	260
		5/21/2009	69.4	71.9	6.95	0.414	9.32	12.8	ND		23.5	249
		8/5/2009	91.5	79.6	4.86	0.143	12.4	11.7	ND		104	363
		6/9/2010		80.5	6.9	0.125		11.2			67.4	360
		7/13/2010		82.4	5.65	0.145		10.8			98.4	328
		8/18/2010		95.9	4.7	0.231		12.4			125	373
		9/20/2010		91.4	4.33	0.096		12.3			168	398
		6/2/2011		81.9	4.35	0.13		13.6			82.7	334
		10/31/2011		78.5	3.85	0.12		10.7			140	346
		5/22/2012		85.4	3.59	0.13		11.7			171	340
		10/17/2012		79.8	3.84	0.12		11.6			176	360
		5/9/2013		71.7	4.65	0.15		10.4			116	305
		10/16/2013		57.4	4.95	0.16		8.51			61.8	256
		6/10/2014	66.5	66.6	4.15	0.21	10	10	0.061		47	239
		10/6/2014	69.3	66.8	5.09	0.25	10.3	9.83	ND		32	253
	GW-38-MA	5/24/2010	137	249	3.58	0.104	35.7	207			**457**	**600**
		7/8/2010		343				71.5				
		6/1/2011		231	1.88	ND		76			**628**	**824**
		4/25/2012		212	1.95	0.4		45.2			**574**	**971**

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Shallow Hydrostratigraphic Unit	GW-41-MA	11/8/2013	488	594	12.6	0.85	199	242	6.11		**2030**	**3000**
		5/5/2014	262	263	6.62	1.82	98.7	99	3.96		**975**	**1510**
		6/9/2014	600	583	11.2	1.98	290	284	2.48		**2230**	**3250**
		8/6/2014	586	577	13.2	2.28	272	269	1.25		**2340**	**3540**
		10/9/2014	294	291	11	2.03	131	132	2.67		**1170**	**1710**
	GW-45-MA	5/6/2014	101	101	4.21	0.17	14.7	14.4	0.306		104	398
		6/9/2014	107	105	4.21	0.19	15	14.5	0.155		94.8	373
		8/5/2014	107	107	4.4	0.15	14.6	14.4	0.406		108	392
		10/8/2014	117	115	4.21	0.14	15.4	15.1	3.25		88.5	425
Intermediate Hydrostratigraphic Unit	GW-29-MD	10/19/2008	65.6	69.9	5.63	0.233	7.87	9.4	0.0761		59.8	240
		5/22/2009	65.9	65.9	4.05	0.374	7.46	7.97	0.103		46.1	224
		8/5/2009	64.2	65.5	3.38	0.204	7.29	7.75	0.157		44.1	268
		6/9/2010		65.1	3.53	0.126		7.66			50.5	227
		7/13/2010		68	3.83	0.093		7.85			51.6	234
		8/18/2010		75.2	3.68	0.068		8.87			45.1	277
		9/20/2010		66.9	3.51	0.083		7.75			50.1	261
		6/3/2011		69.8	3.49	0.12		8.01			50.4	255
		10/31/2011		64.5	3.35	0.11		7.49			49	255
		4/25/2012		68.3	3.41	0.15		8.18			49.8	265
		10/17/2012		67.6	3.58	0.1		7.82			50.2	254
		5/9/2013		70.5	3.47	0.15		8.16			52.1	250
		10/16/2013		65.2	3.2	0.16		7.5			52.3	268
		6/10/2014	73.2	73.4	3.04	0.13	8.5	8.52	0.135		51.7	247
		8/7/2014	70.8	71.1	3.02	0.14	8.05	8.54	0.13		53.4	278
		10/8/2014	70.4	69.7	3.38	0.14	8.07	8.02	0.161		53.3	250
	GW-42-MD	11/8/2013	115	156	14	0.18	31.4	56.7	2.82		**263**	**591**
		5/5/2014	124	122	4.18	0.2	34.8	34.3	ND		239	**593**
		6/9/2014	135	132	4.03	0.22	36.9	38.2	2.41		239	**573**
		8/6/2014	129	129	4.11	0.15	35.7	36.9	2.3		**259**	**642**
		10/9/2014	128	124	4.36	ND	35.6	34.5	2.61		**275**	**597**
	GW-44-MD	11/9/2013	123	157	13.6	0.15	34.3	62.4	0.597		183	**568**
		5/5/2014	108	107	5.46	0.22	37.7	37.2	ND		186	**540**
		6/9/2014	115	119	6.29	0.22	40.4	42.2	ND		179	**542**
		8/6/2014	105	106	5.31	0.13	36.4	36.2	ND		169	**527**
		10/6/2014	98.1	97.2	4.97	ND	35.8	35.3	ND		152	491
	GW-46-MD	11/9/2013	74.7	86.1	7.17	0.19	11.5	19.1	0.369		48.5	303
		5/6/2014	85.3	85.6	3.92	0.12	14.2	14	0.625		76.3	324
		6/9/2014	82.1	80.9	3.46	0.11	13.6	13.5	0.262		50.9	279
		8/5/2014	82	83	3.89	0.11	13.5	13.5	0.477		61.1	308
		10/8/2014	83.8	80.2	3.99	0.17	13.4	12.9	0.809		47.5	300
Camp G Creek Sub-Basin												
Surface Water												
Spring	CS-1_CND	5/12/2004									11.8	
		10/20/2008	59.6	58.1	6.51	0.162	13	12.7	0.412		11.7	230
		5/22/2009	54.1	53.5	6.83	0.428	11.7	11.9	0.521		12.4	195
		8/6/2009	53.1	56.3	6.85	0.164	12.1	12.6	0.408		12	230
	JRLD	10/1/2009	84.3	89.6	4.16	ND	9.57	10.1	0.0864		29	300
		5/22/2012		89.8	3.71	0.15		10			26.7	291
		10/17/2012		92.3	4.55	ND		10.5			30.6	314
		10/12/2013		85.3	3.87	ND		9.52			30.3	308
		6/10/2014		97.9	3.77	0.1		11			29.9	306
		10/6/2014	93.4	90.3	3.75	ND	10.5	9.88	ND		30.2	309
	JS-1	10/22/2003	67.9		4.68	ND	6.47		0.18		6.84	232
		5/12/2004	66.6				6.55				7.08	171
		10/18/2008	67.3	69.1	4.44	0.109	6.66	7.07	0.215		7.36	220
		5/22/2009	64.7	68.1	4.77	0.229	6.44	7.03	0.172		7.93	188
		8/6/2009	64.1	66.8	4.53	0.108	6.37	6.65	0.206		7.8	216
		4/25/2012		66.3	4.36	ND		6.69			7.85	213
		10/17/2012		66.2	4.55	ND		6.75			7.69	226
		5/7/2013		69.8	4.37	ND		7.31			7.67	210
		10/12/2013		64.2	4.59	ND		6.48			7.9	233
		6/10/2014		71.6	4.67	ND		7.24			7.97	203
		10/6/2014	68.9	68.8	4.58	ND	7.13	7.38	0.209		7.66	227
Baseflow River	CGC-4A	10/22/2003	60.2		3.58	0.124	19.7		ND		36.8	235
		10/18/2008	72.2	75.9	2.75	0.147	18.3	21.2	ND		31.8	300
		8/6/2009	66.4	67.5	2.4	0.127	16.7	16.9	ND		20.6	283
		8/18/2010		74.7	2.64	0.12		19.1			23.6	272
		9/23/2010		71.5	2.85	0.073		18.3			29.7	267
		11/1/2011		64.6	3.2	0.12		16.4			23	241
	CGC-5	10/22/2003	66.8		1.92	0.129	16.7		0.08		14.2	250
		8/6/2009	65.9	65.8	2.29	0.1	16.8	16.7	ND		13.5	286

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Offsite wells (north)												
Groundwater												
Shallow Hydrostratigraphic Unit	MW-9A	11/17/2005		56	9	0.35		13	0.1	0.1	15	244
		5/5/2006		63	8	0.25		14	0.08	0.08	15	234
		7/28/2006		59	5	0.37		13	0.1	0.1	10	243
		10/27/2006		54	6	0.2		12	0.08	0.08	11	229
		4/19/2007		55	8	0.24		12	0.3	0.3	5	226
		8/11/2007		56	7	0.23		12	0.14	0.14	7	231
		10/18/2007	53		6	0.21	12		0.14	0.14	7	254
		5/12/2008		52	8	0.25		11	0.17	0.17	13	228
		10/17/2008		54	8	0.23		12	0.25	0.25	ND	252
		5/3/2009		50.3	9.3	0.31		11.8	1.6	1.6	9.9	197
		10/14/2009		52.4	6.6	0.32		12.3	0.15	0.15	6	238
Shallow Hydrostratigraphic Unit		5/9/2010		52.3	8.8	0.29		12.7	0.24	0.24	7.9	247
		10/19/2010		53.1	8.4	0.27		11.9	0.14	0.14	5	215
		5/11/2011	51.9		9.47	0.36	12.5		1.34	1.4	9.12	
		7/24/2011	57.6		4.67	0.36	13.3		0.064	0.057	6.33	
		5/20/2012	63		7.6	0.39	14.9		0.1	0.1	5	248
		9/30/2012	73.6		8.8	0.2	15.8		0.15	0.15	4	274
	MW-13A	11/15/2005		208	4	1.39		66	0.05	0.05	38	**815**
		5/5/2006		236	6	1.27		72	ND	ND	41	**771**
		7/28/2006		223	3	1.5		69	0.12	0.12	37	**860**
		10/26/2006		219	4	1.22		62	ND	ND	38	**850**
		4/19/2007		205	5	1.6		63	0.01	0.01	38	**781**
		8/11/2007		233	4	1.19		64	0.01	0.01	32	**875**
		10/14/2007	231		2	1.32	65		0.02	0.02	37	**898**
		5/15/2008		244	2	1.38		71	0.01	0.01	33	**859**
		10/16/2008		264	4	1.37		61	0.01	0.01	34	**930**
		5/4/2009		223	4.4	1.3		65.6	0.01	0.01	32.1	**857**
		10/14/2009		263	3.9	1.2		61.4	ND	ND	25.1	**906**
		5/11/2010		231	4.8	1.1		62.8	ND	ND	28.1	**793**
		10/18/2010		266	4.4	1.3		66.6	ND	ND	28.2	**956**
		5/11/2011	270		4.45	1.18	69		ND	ND	30.1	
		7/25/2011	260		4.42	1.77	66.4		0.045	ND	29.2	
		5/9/2012									28.3	**956**
		7/18/2012									30.4	**868**
		10/2/2012									29.8	**915**
	WMP-MW-1-A	5/9/2010		241	5	0.89		58.5	ND	ND	16.8	**871**
		11/5/2010		245	4.7	0.96		57.7	ND	ND	18.1	**878**
		5/5/2011	241		4.59	1.33	58.2		ND	ND	18.4	**885**
		7/25/2011	239		4.55	1.48	58.8		0.033	ND	17.5	
	WMP-MW-2-A	5/9/2010		286	5.2	1.2		70.2	ND	ND	22.8	**1020**
		11/5/2010		281	4.5	1.2		67.1	ND	ND	27.2	**1070**
		5/13/2011			5.23	1.5	70.4		0.166	ND	21.9	**1070**
		7/25/2011	277		4.47	1.93	68.5		0.046	0.016	21.7	
		5/19/2012	244		5	1.3	64.1		0.1	0.1	28	**965**
		6/15/2012	244			1.3	64.1				28	**965**
		10/5/2012	332		3.4	1.3	70.7		0.1	0.1	21.2	**1020**
	WMP-MW-3-A	5/9/2010		274	5.1	1.3		60.6	ND	ND	27.7	**883**
		11/5/2010		261	4.4	1.4		62.5	ND	ND	28	**920**
		5/13/2011			5.28	1.84	63.9		ND	0.155	32.8	**941**
		7/25/2011	252		4.61	2.13	61.9		0.034	ND	29.8	
		5/19/2012	252		5	1.4	61		0.1	0.1	27.5	**912**
		6/15/2012	252			1.4	61				27.5	**912**
		10/5/2012	303		3.1	1.5	64.3		0.1	0.1	24.5	**906**
Intermediate Hydrostratigraphic Unit	MW-18Da	10/17/2007	62		13	0.22	14		0.68	0.68	24	291
		5/13/2008		49	10	0.21		11	0.1	0.1	32	197
		10/17/2008		58	12	0.25		14	0.72	0.72	24	280
		5/4/2009		50.6	12.4	0.19		11.9	1.2	1.2	12.9	201
		10/15/2009		58.6	11.2	0.22		14.2	0.16	0.16	21.1	283
		5/12/2010		54.8	10.1	0.17		11.9	0.14	0.14	20.8	262
		10/17/2010		62.2	14.5	0.17		14.6	0.3	0.3	19.7	264
		5/12/2011	39.3		7.15	0.26	8.91		0.166	0.164	14.2	
		7/24/2011	51.8		7.95	0.23	11.9		0.117	0.103	16	
		8/28/2011						11.9				
		5/17/2012	46.1		6.5	0.21	10.7		0.12	0.12	15.6	220
		6/15/2012	46.1		6.5	0.21	10.7		0.12	0.12	15.6	220
		10/4/2012	53.4		8.9	0.2	12.9		0.33	0.33	18.4	238
	MW-18Db	10/17/2007	53		10	0.21	12		1.14	1.14	14	250
		10/17/2008		52	13	0.22		12	1.26	1.26	10	242
		10/15/2009		52	12.7	0.19		11.9	1.2	1.2	ND	236
		10/17/2010		51	12.2	0.16		11.6	1.2	1.2	12.8	251
		8/28/2011						12.1				
		10/4/2012	52.9		11.5	0.17	12.4		0.61	0.61	8.8	229
		5/14/2008		51	9	0.18		12	1.21	1.21	17	241
		5/4/2009		43	7.3	0.23		49.7	0.19	0.19	17.6	211
		5/12/2010		52.2	12.7	0.16		11.1	1.2	1.2	13.5	234
		5/12/2011	52.1		12.1	0.26	11.7		1.26	1.33	12.5	
		7/24/2011	51.2		10.7	0.2	12.1		1.34	1.23	11.4	
		5/17/2012	53.4		10.2	0.18	12.4		0.93	0.93	7.8	229
		6/15/2012	53.4		10.2	0.18	12.4		0.93	0.93	7.8	

Table 6-68
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the East Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite, Total	Nitrate, Total	Sulfate, Total	TDS, Total
			(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Intermediate Hydrostratigraphic Unit	MW-22B	5/18/2012	222		5	1	107		0.1	0.1	33.2	**1030**
		6/20/2012	237		6	1.3	109		0.1	0.1	33.6	**1030**
		7/18/2012	222		3.3	1.2	95.4		0.1	0.1	30.1	**984**
		8/22/2012	226		4.4	1.3	99		0.1	0.1	32.4	**1020**
		10/2/2012	237		4.5	1.4	111		0.1		32.4	**1000**
		11/15/2012	205		4.1	1.3	110		0.1	0.1	37.5	**1010**
		12/19/2012	204		3.5	1.3	106		0.1	0.1	29.3	**995**
		1/16/2013	249		4	1.5	60.8		0.1	0.1	43.1	**943**
Deep Hydrostratigraphic Unit	MW-8W	11/17/2005		66	14	0.35		17	0.66	0.66	10	265
		5/5/2006		82	10	0.2		21	0.48	0.48	13	268
		7/28/2006		68	9	0.2		17	0.1	0.1	11	267
		10/27/2006		66	6	0.14		16	0.49	0.49	9	278
		4/19/2007		65	8	0.16		16	0.42	0.42	10	261
		8/11/2007		65	7	0.18		17	0.66	0.66	11	244
		10/18/2007	64		9	0.17	17		0.64	0.64	6	238
		5/12/2008		64	7	0.16		16	0.46	0.46	11	266
		10/17/2008		70	9	0.23		17	0.66	0.66	9	367
		5/3/2009		60.5	8.8	0.17		16.4	0.52	0.51	9	236
		10/14/2009		58.1	9.2	0.16		15.8	0.54	0.54	9.1	269
		5/9/2010		64.9	8.6	0.14		16.1	0.46	0.46	9	288
		10/19/2010		65.2	9.6	0.15		16.3	0.5	0.5	8.3	248
		5/11/2011	67.2		9.22	0.17	18.2		0.418	0.424	8.96	
		7/24/2011	64.4		8.21	0.19	17.2		0.416	0.379	7.66	
		5/20/2012	54.6		6.8	0.17	17.4			0.37	6	224
		9/30/2012	70.6		7	0.12	17.3		0.15	0.15	7.1	250
	MW-14W	11/15/2005		257	5	1.41		63	0.01	0.01	33	**923**
		5/7/2006		283	4	1.33		71	ND	ND	30	**891**
		7/28/2006		259	3	1.51		67	0.27	0.27	31	**896**
		10/26/2006		244	4	1.22		58	0.01	0.01	33	**885**
		4/19/2007		265	3	1.51		64	0.01	0.01	25	**901**
		8/10/2007		242	3	1.17		59	ND	ND	28	**878**
		10/14/2007	253		2	1.28	64		ND	ND	34	**860**
		5/15/2008		260	2	1.36		63	ND	ND	31	**889**
		10/16/2008		272	4	1.29		56	ND	ND	34	**916**
		10/14/2009		256	4.4	1.2		58.9	0.02	0.02	26.3	**874**
		5/11/2010		230	4.8	1.2		60.2	0.01	0.01	29.6	**1020**
		10/18/2010		251	4.3	1.3		61.2	ND	ND	29.8	**900**
		5/4/2009		240	3.8	1.3		63.3	0.01	0.01	28.1	**860**
		5/15/2011	257		4.93	1.49	61.9		ND	ND	30.7	
		7/25/2011	247		4.25	1.76	62.3		0.049	ND	29.3	
		5/17/2012									26.7	**860**
		6/15/2012									26.7	**860**
		7/18/2012									25.2	**930**
		10/2/2012									30.6	**867**
	MW-17W	10/14/2007	186		18	0.85	59		0.25	0.25	33	**734**
		5/15/2008		204	22	0.99		52	0.22	0.22	30	**731**
		10/16/2008		216	22	0.88		55	0.26	0.26	34	**749**
		5/6/2009		191	25.5	0.96		58.4	0.25	0.25	29.5	**645**
		10/15/2009		178	27.1	0.96		56.4	0.29	0.29	28	**720**
		5/10/2010		201	26.2	0.86		56.4	0.26	0.26	28.9	**735**
		10/20/2010		194	27.6	0.9		60.1	0.24	0.24	29.2	**702**
		5/15/2011	196		28.6	1.02	58.7		0.253	0.345	30.7	
		7/28/2011	192		26.9	1.05	59		0.369	0.379	32	
		8/28/2011	184		26.8	1.15	57.2		0.252	0.217	28.6	
		5/20/2012									25	**744**
		6/15/2012									25	**744**
		7/18/2012									24.6	**689**
		10/3/2012									30.6	**717**
	MW-23W	5/20/2012	213		8.9	1.4	56.9		0.1	0.1	31.2	**780**
		6/20/2012	224		10.8	1.4	57.1		0.1	0.1	30.6	**822**
		7/18/2012	218		9.8	1.5	53.2		0.1	0.1	33.8	**803**
		8/22/2012	218		10	1.5	54.4		0.16	0.16	31.6	**809**
		10/3/2012	242		9.4	1.4	61.8		0.11		32.5	**799**
		11/15/2012	207		9.8	1.5	58.6		0.12	0.12	32.7	**819**
		12/19/2012	198		8.9	1.3	58.4		0.16	0.15	27.8	**795**
		1/16/2013	239		9.1	1.4	61.4		0.17	0.1	29.4	**829**
	MW-24W	5/18/2012	241		5.7	1.3	57.4		0.1	0.1	59	**894**
		6/20/2012	258		7.2	1.7	60.7		0.1	0.1	50.2	**1150**
		7/18/2012	233		8	1.4	50.6		0.1	0.1	113	**1100**
		8/22/2012	239		6.6	1.3	53		0.1	0.1	86.7	**956**
		10/2/2012	254		5.7	1.3	58.9		0.1		67.2	**1000**
		11/15/2012	247		5.6	1.5	58.2		0.1	0.1	57.3	**983**
		12/19/2012	218		4.6	1.3	58.3		0.3	0.26	42.6	**950**
		1/16/2013	242		3.4	1.3	112		0.1	0.1	29.2	**996**

Notes:
Includes data from 2001 onward of "A" data use level only.
GW = groundwater, SW = surface water, HH = human health
mg/L = milligrams per liter
Creek surface water results presented include only data collected during the base flow season to be more representative of groundwater impacts.
Blank cells - No data available
na = Not Applicable.
Exceedances of comparison values are indicated in the following manner:
Value exceeds groundwater human health comparison value.
More information about groundwater comparison values is provided on Table 4-6.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	GW HH: 15 pCi/L	GW HH: 50 pCi/L	Comparison Value: na	
North Woodall Mountain Sub-Basin							
Surface Water							
Spring	WS-1	10/19/2008	8.2	7.6	ND	-135.2	-17.9
		5/16/2009		ND	ND		
		8/7/2009		ND	ND		
	WS-2	10/19/2008	7.2	5.1	ND	-134.2	-17.7
		5/16/2009		**22.2**	ND		
		8/7/2009		ND	ND		
State Land Creek Sub-Basin							
Surface Water							
ODA Seep	NES-1	5/18/2009		4.6	ND		
	NES-1a	5/18/2009		ND	ND		
	NES-1b	5/18/2009		**18.5**	ND		
	NES-2	10/17/2008	6.3	**18.7**	ND	-130.4	-17.1
		5/18/2009		12.4	ND		
		8/6/2009		**15.1**	10.6		
	NES-4	10/18/2008	4.7	**16.4**	ND	-128.6	-16.7
Spring	SLCT3-4	10/18/2008	6.7	3.2	ND	-134.1	-17.6
		5/19/2009		2.6	ND		
	SLCT3-5	5/19/2009		ND	ND		
Baseflow River	SLC-3D	8/6/2009		11.6	9.8		
Groundwater							
Shallow Hydrostratigraphic Unit	GW-25-MA	10/18/2008		14.6	5.2		
		5/19/2009		ND	ND		
		8/5/2009		ND	ND		
		10/6/2014		ND	ND		
	GW-27-MA	10/17/2008		4.7	4		
		5/20/2009		ND	ND		
		8/5/2009		ND	ND		
		10/6/2014		14.9	5.9		
Intermediate Hydrostratigraphic Unit	GW-26-MD	5/20/2009		2.8	ND		
		8/5/2009		ND	ND		
		10/6/2014		4.4	ND		
	GW-47-MA	6/25/2014		ND	5.7		
		8/7/2014		2.9	3.8		
		10/6/2014		ND	ND		
Deep Hydrostratigraphic Unit	GW-39-MW	3/8/2012		ND	ND		
		10/6/2014		3.2	ND		
	GW-40-MW	3/9/2012		ND	ND		
		3/9/2012		ND	ND		
		3/9/2012		ND	ND		
		3/9/2012		ND	ND		
		10/6/2014		3.4	ND		
Pedro Creek Sub-Basin							
Surface Water							
ODA Seep	NES-5	10/18/2008	3.6	**24.1**	ND	-130.1	-16.7
		5/20/2009		ND	ND		
		8/8/2009		ND	ND		
Baseflow River	PC-5	8/5/2009		ND	ND		
Groundwater							
Shallow Hydrostratigraphic Unit	GW-28-MA	10/19/2008	6.3			-134.3	-17.6
		5/21/2009		7	7.3		
		8/5/2009		ND	ND		
		6/10/2014		ND	ND		
		10/8/2014		11.9	ND		
	GW-30-MA	10/19/2008		2.2	ND		
		5/21/2009		8.9	ND		
		8/5/2009		ND	ND		
		6/10/2014		ND	ND		
		10/6/2014		ND	ND		
	GW-41-MA	5/5/2014		7.1	ND		
		6/9/2014		**20.8**	ND		
		8/6/2014		**47.5**	ND		
		10/9/2014		8.1	7.9		
	GW-45-MA	5/6/2014		11.7	9.6		
		6/9/2014		ND	ND		
		8/5/2014		8	ND		

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope
			ppt	pCi/L	pCi/L	ppt	ppt
			Comparison Value: na	GW HH: 15 pCi/L	GW HH: 50 pCi/L	Comparison Value: na	
		10/8/2014		6	ND		
Intermediate Hydrostratigraphic Unit	GW-29-MD	10/19/2008	7.5	ND	ND	-131.1	-17.3
		5/22/2009		6.8	ND		
		8/5/2009		ND	ND		
		6/10/2014		ND	ND		
		8/7/2014		ND	ND		
		10/8/2014		3.8	ND		
	GW-42-MD	5/5/2014		2.9	ND		
		6/9/2014		ND	ND		
		8/6/2014		10.5	ND		
		10/9/2014		12.2	7.3		
	GW-44-MD	5/5/2014		5.5	ND		
		6/9/2014		5	ND		
		8/6/2014		7	ND		
		10/6/2014		4.5	ND		
	GW-46-MD	5/6/2014		5.1	ND		
		6/9/2014		ND	ND		
		8/5/2014		5.3	ND		
		10/8/2014		4.5	ND		
Camp G Creek Sub-Basin							
Surface Water							
Spring	CS-1_CND	10/20/2008	7.1	ND	ND	-129.9	-17.1
		5/22/2009		6	ND		
		8/6/2009		ND	ND		
	JS-1	10/18/2008	7.6	ND	ND	-130.6	-17.3
		5/22/2009		4.4	14.3		
		8/6/2009		ND	ND		

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
North Woodall Mountain Sub-Basin			
Surface Water			
Spring	WS-1	10/19/2008	0.0011
		5/16/2009	0.00109
		8/7/2009	ND
	WS-2	5/19/2008	ND
		10/19/2008	0.0009
		5/16/2009	ND
		8/7/2009	ND
Baseflow River	NWC-2	8/7/2009	ND
Groundwater			
Shallow Hydrostratigraphic Unit	MW-10A	11/17/2005	ND
		5/5/2006	ND
		7/30/2006	ND
		10/27/2006	ND
		4/18/2007	ND
		8/9/2007	ND
		10/15/2007	ND
		5/11/2011	ND
		7/22/2011	0.000769
		7/25/2011	0.000769
	MW-5A	11/17/2005	ND
		5/7/2006	ND
		7/28/2006	ND
		10/26/2006	ND
		4/19/2007	ND
		8/5/2007	ND
		10/14/2007	ND
		5/8/2011	0.00126
		7/24/2011	0.000807
	MW-7A	11/15/2005	ND
		5/7/2006	ND
		7/27/2006	ND
		10/24/2006	ND
		4/19/2007	ND
		8/9/2007	ND
		10/15/2007	ND
		5/13/2011	0.00137
		7/26/2011	0.00179
Intermediate Hydrostratigraphic Unit	MW-11Da	5/11/2011	0.00141
		7/25/2011	0.00113
		11/16/2005	ND
		5/5/2006	ND
		7/30/2006	ND
		10/26/2006	ND
		4/18/2007	ND
		8/9/2007	ND
		10/15/2007	ND
		5/11/2011	0.00119
		7/26/2011	0.00101
	MW-6D	11/15/2005	ND
		5/7/2006	ND
		7/27/2006	ND
		10/24/2006	ND
		4/19/2007	ND
		8/9/2007	ND
		10/15/2007	ND
		5/13/2011	0.00221
		7/26/2011	0.00209
Deep Hydrostratigraphic Unit	MW-12W	11/18/2005	ND
		5/8/2006	ND
		7/30/2006	ND
		10/27/2006	ND
		4/20/2007	ND
		8/9/2007	ND
		10/18/2007	ND
		5/17/2011	0.00221
		7/27/2011	0.00343

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Deep Hydrostratigraphic Unit	MW-4W	11/17/2005	ND
		5/7/2006	ND
		7/28/2006	ND
		10/26/2006	ND
		4/19/2007	ND
		8/5/2007	ND
		10/14/2007	ND
		5/8/2011	ND
		7/24/2011	0.000272
State Land Creek Sub-Basin			
Surface Water			
ODA Seep	NES-1	5/18/2009	ND
	NES-1a	5/18/2009	0.00102
	NES-1b	5/18/2009	0.00502
	NES-2	10/17/2008	0.0132
		5/18/2009	0.0132
		8/6/2009	0.0126
	NES-4	10/18/2008	0.0119
Spring	SLCT3-4	10/18/2008	ND
		5/19/2009	0.000867
	SLCT3-5	5/19/2009	0.000495
Baseflow River	SLC-3D	8/6/2009	ND
Groundwater			
Shallow Hydrostratigraphic Unit	GW-25-MA	10/18/2008	0.0061
		5/19/2009	0.00109
		8/5/2009	ND
		10/6/2014	0.00039
	GW-27-MA	10/17/2008	0.0028
		5/20/2009	0.000529
		8/5/2009	ND
		10/6/2014	0.00069
	MW-3A	5/8/2006	ND
		4/19/2007	ND
		5/17/2011	ND
		7/26/2011	0.000057
Intermediate Hydrostratigraphic Unit	GW-26-MD	5/20/2009	0.00114
		8/5/2009	ND
		10/6/2014	0.0012
	MW-2R	11/16/2005	ND
		5/8/2006	ND
		7/30/2006	ND
		10/24/2006	ND
		4/18/2007	ND
		8/7/2007	ND
		10/15/2007	ND
		5/16/2011	0.00107
		7/27/2011	0.000934
	GW-47-MA	6/25/2014	0.0024
		8/7/2014	0.00021
		10/6/2014	0.000078
Deep Hydrostratigraphic Unit	GW-39-MW	3/8/2012	0.0011
		4/25/2012	0.0011
		10/16/2012	ND
		5/8/2013	0.0012
		10/6/2014	0.0012
	GW-40-MW	4/25/2012	0.0012
		10/16/2012	ND
		5/8/2013	0.001
		3/9/2012	0.0012
		3/9/2012	0.0011
		3/9/2012	0.0012
		3/9/2012	0.0012
		10/6/2014	0.00086
	MW-1W	11/16/2005	ND
		5/8/2006	ND
		7/30/2006	ND
		10/24/2006	ND
		8/8/2007	ND

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Deep Hydrostratigraphic Unit		10/15/2007	ND
		5/17/2011	ND
		7/27/2011	0.000477
Pedro Creek Sub-Basin			
Surface Water			
ODA Seep	FSPSSeep	4/22/2014	0.00043
		5/6/2014	0.00056
	NES-5	10/18/2008	0.0156
		5/20/2009	0.0154
		7/10/2009	0.0183
		8/8/2009	0.019
		4/22/2014	0.017
		5/6/2014	0.02
		6/9/2014	0.02
		8/5/2014	0.0201
		10/6/2014	0.02
	NES-8	6/9/2014	0.025
ODA Seep Pond	NESeep5Pond	4/22/2014	0.018
		5/6/2014	0.019
		6/9/2014	0.02
		8/5/2014	0.0195
Baseflow River	PC-5	8/5/2009	0.00984
		10/6/2014	0.015
Groundwater			
Shallow Hydrostratigraphic Unit	GW-28-MA	5/21/2009	0.000141
		8/5/2009	ND
		6/10/2014	0.00079
		8/7/2014	**0.05**
		10/8/2014	0.00058
	GW-30-MA	10/19/2008	0.00081
		5/21/2009	0.00116
		8/5/2009	ND
		6/10/2014	0.0003
		10/6/2014	0.0004
	GW-38-MA	5/24/2010	0.00368
		7/8/2010	0.006
	GW-41-MA	11/8/2013	**0.046**
		5/5/2014	0.0047
		6/9/2014	**0.035**
		8/6/2014	**0.038**
		10/9/2014	0.011
	GW-45-MA	5/6/2014	0.0018
		6/9/2014	0.0016
		8/5/2014	0.00093
		10/8/2014	0.0011
Intermediate Hydrostratigraphic Unit	GW-29-MD	10/19/2008	ND
		5/22/2009	0.000528
		8/5/2009	ND
		6/10/2014	0.00044
		8/7/2014	0.0005
		10/8/2014	0.00048
	GW-42-MD	11/8/2013	0.0062
		5/5/2014	0.0013
		6/9/2014	0.0013
		8/6/2014	0.0017
		10/9/2014	0.0014
	GW-44-MD	11/9/2013	ND
		5/5/2014	0.0026
		6/9/2014	0.0027
		8/6/2014	0.003
		10/6/2014	0.0023
	GW-46-MD	11/9/2013	0.0017
		5/6/2014	0.00052
		6/9/2014	0.00046
		8/5/2014	0.00055
		10/8/2014	0.00048

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Camp G Creek Sub-Basin			
Surface Water			
Spring	CS-1_CND	10/20/2008	ND
		5/22/2009	ND
		8/6/2009	ND
	JRLD	10/1/2009	ND
		10/6/2014	0.00079
	JS-1	10/18/2008	ND
		5/22/2009	0.000612
		8/6/2009	ND
		10/6/2014	0.00046
Baseflow River	CGC-4A	10/18/2008	ND
		8/6/2009	ND
	CGC-5	8/6/2009	ND
Offsite wells (north)			
Groundwater			
Shallow Hydrostratigraphic Unit	MW-9A	11/17/2005	ND
		5/5/2006	ND
		7/28/2006	ND
		10/27/2006	ND
		4/19/2007	ND
		8/11/2007	ND
		10/18/2007	ND
		5/11/2011	ND
		7/24/2011	0.000848
	MW-13A	11/15/2005	ND
		5/5/2006	ND
		7/28/2006	ND
		10/26/2006	ND
		4/19/2007	ND
		8/11/2007	ND
		10/14/2007	ND
		5/11/2011	ND
		7/25/2011	0.000192
	WMP-MW-1-A	5/5/2011	ND
		7/25/2011	0.000057
	WMP-MW-2-A	5/13/2011	ND
		7/25/2011	0.000209
	WMP-MW-3-A	5/13/2011	ND
		7/25/2011	0.000249
Intermediate Hydrostratigraphic Unit	MW-18Da	10/17/2007	ND
		5/12/2011	ND
		7/24/2011	0.000653
	MW-18Db	10/17/2007	ND
		5/12/2011	ND
		7/24/2011	0.000879
	MW-22B	5/18/2012	0.0011
Deep Hydrostratigraphic Unit	MW-14W	11/15/2005	ND
		5/7/2006	ND
		7/28/2006	ND
		10/26/2006	ND
		4/19/2007	ND
		8/10/2007	ND
		10/14/2007	ND
		5/15/2011	ND
		7/25/2011	0.000115
	MW-17W	10/14/2007	ND
		5/15/2011	0.00139
		7/28/2011	0.00133
		8/28/2011	0.00135

Table 6-69
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the East Side of Woodall Mountain

Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Deep Hydrostratigraphic Unit	MW-23W	5/20/2012	0.0025
	MW-24W	5/18/2012	0.0035
	MW-8W	11/17/2005	ND
	MW-8W	5/5/2006	ND
		7/28/2006	ND
		10/27/2006	ND
		4/19/2007	ND
		8/11/2007	ND
		10/18/2007	ND
		5/11/2011	ND
		7/24/2011	0.000994

Notes:
Includes data from 2001 onward of "A" data use level only.
GW = groundwater, SW = surface water, HH = human health
mg/L = milligrams per liter; pCi/L = picocuries per liter; ppt = parts per trillion
Creek surface water results presented include only data collected during the base flow season to be more representative of groundwater impacts.
Blank cells - No data available
na = Not Applicable.
Exceedances of comparison values are indicated in the following manner:
Value exceeds groundwater human health comparison value.
More information about groundwater comparison values is provided on Table 4-6.
Information about SW criteria is on Table 4-4. Additional SW criteria include: dissolved uranium [1.5 mg/L (chronic eco) and 2.4 mg/L (acute eco)].
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Western Woodall Mountain Sub-Basin							
Surface Water							
Spring	SW04-SP	4/29/2005	0.002				
		8/1/2005	0.003				
		10/18/2005	0.003				
		5/4/2006	0.003				
		7/26/2006	0.003				
		10/22/2006	0.003				
		4/17/2007	0.003				
		8/5/2007	0.004				
		10/14/2007	0.003				
		5/13/2008	0.003				
		10/12/2008	0.002				
		5/2/2009	0.0029				
		10/11/2009	0.0023				
		5/7/2010	0.0021				
		10/16/2010	0.0022				
		5/13/2011	ND				
		9/23/2011	ND				
		5/13/2012	0.001				
		9/30/2012	0.0012				
	WS-4	10/19/2008	0.003	ND	ND	ND	0.005
		5/19/2008	0.0021	ND	0.002	0.001	ND
		5/16/2009	0.0033	0.00031	0.0028	0.0029	0.019
		8/7/2009	0.0019	ND	ND	0.00077	ND
		6/3/2011	0.0013				
		10/2/2011	0.0012				
	WS-5	10/19/2008	0.00057	ND	ND	ND	0.0046
		5/19/2008	0.00034	ND	0.0022	0.0012	ND
		5/16/2009	ND	0.00008	ND	0.0015	0.0062
		8/7/2009	0.00034	ND	ND	0.00059	ND
		6/3/2011	ND				
		10/2/2011	0.00027				
Groundwater							
Shallow Hydrostratigraphic Unit	A-46-028-MA	2/27/2013	ND	**0.0073**	0.0083		
		9/9/2013	ND	**0.197**	**0.149**		
	GW-A1-MA	5/1/2004	ND	ND	ND	ND	ND
		10/26/2004	ND	ND	ND	ND	ND
		6/30/2005	ND	ND	ND	ND	ND
		10/31/2005	ND	ND	ND	ND	ND
		6/4/2006	ND	ND	ND	ND	ND
		5/17/2007	ND	ND	ND	ND	ND
		10/17/2007	ND	ND	ND	ND	ND
		6/12/2008	ND	ND	0.005	0.002	0.025
		10/18/2008	ND	ND	0.005	0.004	0.008
		5/14/2009	ND	ND	0.004	0.003	0.006
		9/12/2013	ND	ND	0.0045		
Intermediate Hydrostratigraphic Unit	A-13-135-MS	9/11/2013	0.0208	ND	0.0032		
	GW-NW7-IS	10/24/2003	0.0124	ND	0.0029		
		5/1/2004	0.011	ND	ND	ND	ND
		5/14/2004	0.003	ND	0.0027		
		10/29/2004	0.012	ND	ND	ND	ND
		6/14/2005	0.0088	ND	ND	ND	ND
		10/26/2005	0.01	ND	ND	ND	ND
		6/1/2006	0.0159	ND	ND	ND	ND
		5/22/2007	0.01911	ND	ND	ND	ND
		10/17/2007	0.019	ND	ND	ND	ND
		6/12/2008	0.018	ND	0.002	0.003	0.005
		10/18/2008	0.021	ND	0.002	0.003	0.008
		5/12/2009	0.018	ND	0.002	0.003	0.002
	GW-NW8-IS	10/24/2003	0.0026	ND	0.0023		
		5/1/2004	0.003	ND	ND	ND	ND
		5/14/2004	0.00097	ND	0.0022		
		10/29/2004	ND	ND	ND	ND	ND
		6/14/2005	0.0033	ND	ND	ND	ND
		10/26/2005	ND	ND	ND	ND	ND
		6/1/2006	0.0052	ND	ND	ND	ND
		5/22/2007	ND	ND	ND	ND	ND
		6/12/2008	0.003	ND	0.002	0.003	0.027
		10/18/2008	0.003	ND	0.002	0.003	0.006
	GW-57-MS	11/21/2014	0.0264	ND	0.0086	0.0048	0.0095

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Deep Hydrostratigraphic Unit	GW-21-MW	10/31/2008	0.00075	0.0014	0.0032	0.0037	0.0028
		5/21/2009	0.00062	ND	0.0026	0.0019	ND
		8/7/2009	0.00043	ND	0.0032	0.0022	0.017
		7/14/2010	0.0013				
		9/23/2010	ND				
		6/3/2011	0.00062				
		10/2/2011	0.00087				
		10/19/2012	0.00063				
		10/15/2013	0.00076				
		10/13/2014	0.00049	ND	0.0088	0.002	ND
Old Tailings Pond Sub-Basin							
Surface Water							
Old Tailings Pond	TP-2	5/9/2003	**0.23**				
		5/16/2009	**0.329**	0.0046	0.0036	0.048	0.038
Groundwater							
Shallow Hydrostratigraphic Unit	GW-18-MA	5/16/2009	**1.15**	**0.0727**	**1.9**	**1.04**	4.22
		8/5/2009	**0.847**	**0.0555**	**1.28**	**0.907**	**5**
		6/1/2011	**0.93**				
	TP2-SB5	8/6/2014	**12.4**	**28.9**	**3.22**	**27.7**	**307**
	TP2-SB3	8/8/2014	**3.6**	**0.158**	**1.65**	**2.99**	3.88
Intermediate Hydrostratigraphic Unit	GW-19-MS	10/30/2008	0.0022	ND	0.0013	0.0044	0.0042
		5/17/2009	0.0043	ND	0.0024	0.0049	0.0039
		8/4/2009	0.0016	0.00013	0.0016	0.0055	ND
		5/13/2010	0.0019				
		9/22/2010	ND				
		6/1/2011	0.0019				
		9/30/2011	0.0017				
		10/16/2012	0.0018				
		10/14/2013	0.0021				
		6/11/2014	0.0037				
		9/15/2014	0.0025	0.0014	0.008	0.0145	0.027
		10/7/2014	0.0028	0.00043	0.0126	0.006	0.0073
	Boring 6 (Profile samples from 120 to 245 feet) *	3/10/2015	0.00087	0.00110	0.01030	0.01030	0.02180
		3/11/2015	0.00084	0.00050	0.00340	0.00450	0.00800
		3/11/2015	0.00074	0.00090	0.00420	0.00530	0.01340
		3/11/2015	0.00062	0.00024	ND	0.00190	0.00430
		3/11/2015	0.00058	ND	ND	ND	ND
		3/11/2015	0.00067	0.00200	0.00760	0.00720	0.02780
		3/12/2015	0.00061	0.00017	0.00650	0.00590	0.01800
	GW-37-MD	10/2/2009	**0.919**	0.00004	0.0011	ND	ND
		5/11/2010	**1**				
		9/22/2010	**0.927**				
		6/2/2011	**0.935**				
		9/30/2011	**0.839**				
		10/17/2012	**1.01**				
		10/14/2013	**0.999**				
		10/9/2014	**1.11**	ND	ND	0.00085	ND
French Drain Sub-Basin							
Surface Water							
ODA Seep	SWS-3	10/20/2008	**0.32**	0.0036575	ND	0.0104	0.287
		5/11/2004	**0.304**				
		5/16/2009	**0.868**	**0.0118**	0.0033	0.0119	0.302
		8/4/2009	**0.632**	**0.0084**	0.0107	0.016	0.389
		5/12/2010	**0.508**				
		9/21/2010	**0.398**				
		6/2/2011	**0.664**				
		9/30/2011	**0.51**				
New Tailings Pond	TP-1	5/5/2003	0.01				
		10/22/2003	0.00073				
		5/11/2004	0.0019				
		5/2/2007	0.0037				
		10/20/2008	0.0037	0.00063625	ND	0.0363	0.0066
		5/16/2009	0.002	ND	0.0014	0.0271	0.0038
		7/10/2009	0.0041	0.00011	ND	0.024	ND
		8/4/2009	0.0032	ND	0.0023	0.0208	0.0045
		6/12/2014	0.0035	0.0002	0.002	0.0236	0.0067
		10/8/2014	0.0025	0.00011	ND	0.015	ND

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
French Drain	FD-1	5/23/2001	**0.088**				
		5/5/2003	**0.117**				
		10/24/2003	0.009				
		5/11/2004	0.043				
		5/9/2006	**0.346**				
		5/1/2007	**0.128**				
		10/20/2008	**0.0765**	ND	0.0012	ND	0.0234
		5/16/2009	**0.504**	ND	0.001	0.0038	0.0571
		5/19/2009	**0.378**	0.00029	ND	0.0039	0.0414
		8/4/2009	**0.188**	ND	0.0021	0.0026	0.0205
		5/12/2010	**0.209**				
		9/20/2010	**0.0986**				
		6/2/2011	**0.361**				
		9/30/2011	**0.174**				
		6/10/2014	**0.0729**	ND	ND	0.0019	0.0077
		8/7/2014	0.0235	ND	ND	0.0016	0.006
Groundwater							
Shallow Hydrostratigraphic Unit	GW-16-MA	10/30/2008	**0.0623**	0.002	0.0037	0.0078	0.0184
		5/15/2009	0.04	0.00077	0.0051	0.0091	0.0128
		8/4/2009	**0.0691**	0.00057	0.0031	0.0061	0.0123
		5/12/2010	**0.0688**				
		9/21/2010	**0.0655**				
		5/31/2011	**0.0891**				
		10/1/2011	**0.0992**				
		4/24/2012	**0.136**				
		10/16/2012	**0.126**				
		5/6/2013	**0.123**				
		10/14/2013	**0.114**				
		6/12/2014	**0.114**				
		10/9/2014	**0.103**	0.0019	0.077	0.051	0.193
		11/19/2014	**0.109**	0.00023	0.0066	0.013	0.019
	GW-17-MA	10/30/2008	0.021	0.0041	0.048	0.0345	0.139
		5/16/2009	**0.0526**	**0.0185**	**0.243**	**0.198**	0.636
		8/4/2009	0.0416	**0.0189**	**0.221**	**0.179**	0.557
		5/12/2010	0.0444				
		9/22/2010	0.0247				
		5/31/2011	0.0334				
		10/1/2011	0.0192				
		4/25/2012	0.008				
		10/16/2012	0.012				
		5/6/2013	0.0145				
		10/14/2013	**0.0604**				
		6/10/2014	0.0153				
		10/7/2014	0.0183	**0.019**	**0.295**	**0.119**	0.391
		11/19/2014	0.0148	0.00039	0.0096	0.011	0.016
	GW-49-MA	11/4/2014	0.0452	0.00049	0.0045	0.0031	0.0054
		11/18/2014	0.0229	0.00034	0.0033	0.0058	0.0081
	GW-52-MA	11/18/2014	0.0216	0.0011	0.0393	0.028	0.077
	GW-54-MA	11/7/2014	0.0056	0.0027	**0.121**	0.0478	0.154
		11/18/2014	0.0051	0.00017	0.0113	0.02	0.011
Intermediate Hydrostratigraphic Unit	A-33-070-MB	9/9/2013	0.0038	0.0041	0.0032	0.0098	0.0313
	A-33-170-MB	9/9/2013	0.0187	ND	ND	0.0042	0.0141
	A-50-070-MB	9/11/2013	0.0137	0.0008	ND	0.0125	0.0898
	A-50-100-MB	9/10/2013	0.0156	ND	0.0062	0.0068	ND
	A-50-125-MS	9/10/2013	0.0192	ND	ND	0.0033	0.0148
	GW-12-IS	10/25/2003	ND	ND	ND		
		5/16/2004	ND	ND	ND		
		10/15/2008	ND	ND	ND	0.0019	0.0162
		10/15/2008	ND	ND	ND	0.003	0.0199
		10/15/2008	ND	ND	ND	0.0032	0.0196
		5/15/2009	0.00023	ND	0.0021	0.0066	0.0226
		8/4/2009	0.00021	0.00057	0.0012	0.0048	0.013
		9/24/2009	0.00029	0.00007	ND	0.0119	0.124
		9/24/2009	0.00028	0.00006	0.0062	0.0078	0.0737
		9/24/2009	0.0011	0.00018	0.0096	0.02	0.302
		5/11/2010	ND				
		9/22/2010	ND				
		6/2/2011	0.0005				
		9/30/2011	ND				
		10/17/2012	0.00036				
		10/13/2013	0.00023				
		6/12/2014	0.00032				
		10/4/2014	ND	0.000078	ND	0.0025	0.011
		11/17/2014	0.00043	0.000044	ND	0.0017	ND
	GW-13-IS	8/4/2009	0.00088	0.00038	0.0011	0.00095	0.0064
		6/2/2011	0.00073				
		9/30/2011	0.00046				

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Intermediate Hydrostratigraphic Unit	GW-15-MS	10/29/2008	**0.0891**	ND	ND	0.0034	ND
		5/17/2009	**0.0811**	ND	ND	0.0029	0.0029
		8/3/2009	**0.0979**	ND	ND	0.002	ND
		5/12/2010	**0.0962**				
		9/20/2010	**0.0895**				
		5/31/2011	**0.1**				
		9/30/2011	**0.192**				
		4/24/2012	**0.11**				
		10/16/2012	**0.102**				
		5/6/2013	**0.0786**				
		10/13/2013	**0.0875**				
		6/10/2014	**0.0874**				
		10/4/2014	**0.0893**	0.00023	ND	0.0033	ND
		11/17/2014	**0.08**	0.000057	ND	0.0032	0.0058
	GW-9-IS	10/25/2003	**0.276**	0.00035	0.0015		
		5/16/2004	**0.0574**	0.00039	0.0013		
		10/16/2008	**0.237**	ND	0.0017	0.0054	0.0028
		5/15/2009	**0.254**	0.00035	0.0014	0.0055	ND
		5/15/2009	**0.276**	0.00036	0.0021	0.0057	ND
		8/4/2009	**0.213**	0.00035	0.0013	0.0053	ND
		9/25/2009	**0.0791**	0.00013	ND	0.0028	0.055
		9/25/2009	**0.224**	0.00029	ND	0.0059	0.0296
		9/25/2009	**0.229**	0.0003	0.0085	0.0053	0.0179
		5/11/2010	**0.234**				
		9/22/2010	**0.242**				
		6/2/2011	**0.242**				
		9/30/2011	**0.246**				
		10/16/2012	**0.24**				
		10/14/2013	**0.147**				
		6/12/2014	**0.274**				
		8/7/2014	**0.268**	0.00036	ND	0.0062	0.002
		10/7/2014	**0.289**	0.00036	0.0026	0.0062	0.0055
		11/19/2014	**0.202**	0.00031	ND	0.0066	ND
	GW-MWB-MBS	6/29/2005	0.01	**0.104**	ND	0.05	1.59
		10/29/2005	0.011	**0.324**	0.05	**0.51**	**5.3**
		6/2/2006	0.004	**0.094**	ND	ND	1.13
		5/19/2007	0.012	**0.117**	ND	ND	1.11
		10/16/2007	0.008	**0.586**	ND	**0.54**	**7.9**
		6/11/2008	0.004	**0.171**	0.001	**0.054**	2.149
		10/18/2008	0.006	**0.218**	0.005	0.048	3.71
		5/13/2009	0.004	**0.044**	ND	0.03	0.509
		3/12/2013	0.0222	0.0023	ND		
		4/4/2013	0.027	0.0026	ND		
		5/23/2013	0.0239	0.002	ND		
		6/14/2013	0.0232	0.002	ND		
		7/19/2013	0.0261	0.0029	ND		
		8/29/2013	0.0226	0.0039	ND		
	GW-NW9-IBS	10/29/2004	0.007	**0.238**	**0.29**	**0.93**	3.05
		6/29/2005	0.005	**0.16**	**0.23**	**0.55**	1.75
		10/26/2005	ND	**0.055**	0.08	**0.19**	0.42
		6/1/2006	0.0155	**0.093**	ND	ND	1.09
		5/19/2007	0.013	**0.039**	ND	ND	0.13
		10/16/2007	0.008	**0.042**	ND	ND	0.2
		6/11/2008	0.01	**0.033**	ND	0.004	0.172
		10/18/2008	0.009	**0.012**	ND	0.017	0.049
		5/12/2009	0.01	**0.015**	ND	0.016	0.09
		3/12/2013	0.0107	0.0041	ND		
		4/3/2013	0.0122	**0.0052**	ND		
		5/22/2013	0.0105	**0.0086**	ND		
		6/13/2013	0.0082	**0.0161**	0.0022		
		7/18/2013	0.0143	**0.0094**	ND		
		8/29/2013	0.0102	**0.0086**	ND		
	MW-A-110-MB	3/11/2013	0.004	**0.0197**	ND		
		4/3/2013	0.0064	**0.0148**	ND		
		5/23/2013	0.004	**0.0199**	ND		
		6/14/2013	0.0068	**0.0222**	ND		
		7/19/2013	0.0109	**0.025**	ND		
		8/29/2013	0.0025	**0.0215**	ND		
	GW-50-MS	11/6/2014	**0.51**	**0.0092**	**0.129**	**0.0773**	0.261
		11/20/2014	**0.594**	0.00097	0.0146	0.012	0.029
	GW-51-MS	11/5/2014	0.0277	0.0025	**0.265**	0.034	0.19
		11/20/2014	0.028	0.00017	0.0038	0.0026	0.0077
	GW-53-MS	11/20/2014	ND	ND	0.003	0.0041	ND
	GW-55-MS	11/18/2014	0.001	0.00022	0.0545	0.012	0.02
	GW-56-MS	11/7/2014	0.0034	0.00037	0.0333	0.0084	0.0256
		11/19/2014	0.0042	ND	0.0021	0.0019	ND

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Deep Hydrostratigraphic Unit	GW-11-IW	10/25/2003	0.0297	ND	0.00044		
		5/16/2004	0.0048	0.00029	0.0008		
		10/29/2008	0.0362	ND	ND	ND	0.32
		5/14/2009	0.0444	ND	0.0011	ND	0.0801
		8/3/2009	0.0412	0.0001	0.0016	ND	0.0809
		9/16/2009	0.0265	ND	ND	ND	0.0186
		9/16/2009	0.0333	ND	0.0009	ND	0.0895
		9/16/2009	0.034	ND	ND	ND	0.0474
		9/16/2009	0.0306	ND	ND	ND	0.0694
		5/12/2010	0.0355				
		9/21/2010	0.0326				
		6/2/2011	0.0409				
		9/30/2011	0.0301				
		10/16/2012	0.0276				
		10/13/2013	0.0317				
		6/12/2014	0.0304				
		10/8/2014	0.03	0.000083	ND	ND	0.0479
	GW-14-MW	11/1/2008	0.0012	0.000633	0.0115	0.012	0.0687
		5/17/2009	0.00038	ND	0.0026	0.0011	0.0274
		8/4/2009	0.0005	0.00026	ND	0.00055	0.0225
		5/13/2010	ND				
		9/22/2010	ND				
		6/1/2011	0.00037				
		9/30/2011	0.00037				
		10/16/2012	0.00024				
		10/15/2013	ND				
		6/11/2014	0.00031				
		10/8/2014	ND	0.000039	ND	ND	ND
Shield and Jouglard Canyons Sub-Basin							
Surface Water							
Spring	FM-1	5/6/2003	0.002				
		10/22/2003	0.0015				
		5/15/2004	0.0019				
		10/19/2008	0.0023	0.000106	ND	ND	0.0118
		5/15/2009	0.0017	0.0001	ND	0.00072	0.0069
		8/4/2009	0.0019	ND	0.0026	ND	0.0066
		6/2/2011	0.0018				
		9/30/2011	0.0017				
	HH-1	5/9/2003	0.004				
		10/24/2003	0.00047				
		5/15/2004	ND				
		10/20/2008	0.00048	0.000068	ND	0.001	0.0046
		5/15/2009	0.00041	0.00015	0.0017	0.0027	0.0034
		8/4/2009	0.00035	ND	0.0026	0.0014	0.0038
	JCS-1	5/15/2004	0.00087				
		10/20/2008	0.0012	ND	ND	ND	0.0032
		5/15/2009	0.00084	0.0002	0.0054	0.0085	0.019
		8/4/2009	0.00076	ND	0.0023	0.0013	ND
ODA Seep	SWS-2	5/23/2001	0.0041				
		10/24/2003	0.0009				
		5/11/2004	ND				
		10/20/2008	0.001	ND	0.0044	0.0058	0.0275
		5/15/2009	0.0057	ND	0.0014	0.0025	0.0052
		8/4/2009	0.00024	ND	0.0034	0.00056	0.0107
		5/12/2010	0.0061				
		9/21/2010	0.00054				
		6/2/2011	0.0107				
		9/30/2011	0.0179				
Groundwater							
Shallow Hydrostratigraphic Unit	GW-24-MA	5/15/2009	**0.593**	**0.0269**	0.0428	**0.0681**	0.302
		5/12/2010	**0.741**				
		6/1/2011	**0.605**				
		4/24/2012	**1.72**				
		5/7/2013	**1.23**				
		5/16/2009	0.002	0.00039	0.0515	0.0138	0.0413
		9/21/2010	0.00091				
		6/1/2011	0.0011				
		10/1/2011	0.0021				
		4/25/2012	0.0013				
		5/7/2013	0.0026				
		6/11/2014	**1.56**				
		10/8/2014	**0.594**	**0.03**	0.0069	0.047	0.295
	GW-34-MA	9/21/2010	0.00091				
		10/1/2011	0.0021				
		5/16/2009	0.002	0.00039	0.0515	0.0138	0.0413
		6/1/2011	0.0011				
		4/25/2012	0.0013				
		5/7/2013	0.0026				

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Intermediate Hydrostratigraphic Unit	GW-22-MM	5/14/2009	**12**	**4.24**	0.0819	**16.8**	**7.16**
		8/3/2009	**6.06**	**5.81**	**0.913**	**21**	**10.9**
		5/12/2010	**9.48**				
		9/30/2011	**4.34**				
		4/24/2012	**1.35**				
		5/7/2013	**9.16**				
	GW-23-MM	5/16/2009	**0.947**	**0.185**	**2.66**	**3.01**	**5.59**
		6/1/2011	**0.746**				
	GW-32-MD	10/29/2008	0.0118	ND	0.0027	0.0049	0.011
		5/17/2009	0.0109	ND	0.0021	0.00088	0.0134
		8/3/2009	0.0073	0.00007	0.0041	0.0032	0.0042
		5/12/2010	0.0308				
		9/21/2010	0.0222				
		6/1/2011	0.0088				
		9/30/2011	0.0066				
		10/16/2012	0.0281				
		10/14/2013	0.0201				
		10/9/2014	0.0309	ND	ND	ND	ND
	GW-33-MR	10/30/2008	**0.215**	0.0011	0.0018	0.0016	0.0763
		5/16/2009	**0.29**	0.0013	0.0057	0.0041	0.095
		8/3/2009	**0.277**	0.00094	0.0042	0.0018	0.0749
		5/12/2010	**0.273**				
		9/21/2010	**0.288**				
		6/1/2011	**0.342**				
		9/30/2011	**0.31**				
		10/16/2012	**0.369**				
		10/16/2013	**0.28**				
		10/9/2014	**0.488**	0.0014	ND	ND	0.097
Deep Hydrostratigraphic Unit	GW-31-MW	10/30/2008	0.00083	ND	ND	0.0012	0.004
		5/17/2009	0.00033	ND	0.0033	0.0025	0.0216
		8/3/2009	0.00027	ND	0.0017	0.00073	0.0048
		5/13/2010	ND				
		9/22/2010	ND				
		6/1/2011	ND				
		9/30/2011	ND				
		10/16/2012	ND				
		10/15/2013	ND				
		10/9/2014	0.00039	ND	ND	ND	ND
Margarette Creek/Trail Canyon Sub-Basin							
Surface Water							
Baseflow River	TCC-2	10/22/2003	0.00023				
		10/20/2008	0.00072	ND	0.0023	0.0041	0.0083
		8/4/2009	0.00043	ND	0.014	0.0126	0.0462
Groundwater							
Intermediate Hydrostratigraphic Unit	GW-LRSN-1-DD	5/15/2004	ND	0.00059	0.0048		
		5/19/2009	0.00059	ND	ND	0.00093	0.0412
		8/7/2009	0.00052	ND	0.0012	0.00057	0.037
		5/11/2010	0.00025				
		9/22/2010	0.0006				
		6/3/2011	0.00085				
		10/2/2011	0.00067				
		10/16/2012	0.00043				
		10/15/2013	0.00048				
		10/8/2014	0.00072	0.000047	ND	0.00081	0.054
	GW-LRSN-2-DD	5/15/2004	0.00036	0.0001	0.00053		
		5/19/2009	0.00041	0.0018	0.0047	0.0063	3.05
		8/7/2009	0.00037	ND	0.0039	0.0055	0.699
		5/11/2010	0.00048				
		9/22/2010	0.00041				
		6/3/2011	0.00054				
		10/2/2011	0.00044				
		10/16/2012	0.00048				
		10/15/2013	0.00036				
		10/8/2014	0.0005	0.00073	0.002	0.0032	0.959

Table 6-70
Summary of Groundwater, Spring, and Seep Primary COPC Concentrations on the West Side of Woodall Mountain

Hydo Unit/ Location Type	Station	Date	Selenium, Total	Cadmium, Total	Chromium, Total	Vanadium, Total	Zinc, Total
			mg/L	mg/L	mg/L	mg/L	mg/L
			GW HH: 0.05	GW HH: 0.005	GW HH: 0.1	GW HH: 0.053	GW HH: 5
Off-Site Southwest							
Groundwater							
Intermediate Hydrostratigraphic Unit	GW-8-IBS	10/25/2003	0.0029	0.00048	0.00077		
		5/16/2004	0.00036	0.00064	0.0007		
		10/16/2008	0.0093	ND	ND	0.0029	0.0033
		5/17/2009	0.0088	0.00032	0.0033	0.003	ND
		8/5/2009	0.0044	0.00026	0.003	0.0031	ND
		5/11/2010	0.0092				
		9/22/2010	0.0093				
		6/2/2011	0.0093				
		9/30/2011	0.0228				
		10/17/2012	0.013				
		10/14/2013	0.0036				
		10/7/2014	0.0063	0.00023	0.0019	0.0045	ND
	GW-10-IBS	10/25/2003	0.0026	0.00009	0.0011		
		5/16/2004	0.00068	0.00016	0.00082		
		10/29/2008	0.0084	ND	ND	0.0069	0.085
		1/7/2009	0.0045	0.000146	0.0018	0.0058	0.0482
		5/17/2009	0.0069	0.00019	0.0012	0.0043	0.261
		8/4/2009	0.003	0.00017	0.00085	0.0047	0.124
		5/11/2010	0.0062				
		9/21/2010	0.0064				
		6/2/2011	0.0062				
		9/30/2011	0.0107				
		10/16/2012	0.0078				
		10/13/2013	0.0072				
		10/9/2014	0.0064	0.00015	ND	0.0056	0.0967
	GW-7-IT	1/7/2009	0.0076	0.000725	0.002	0.0041	0.0063
		5/20/2009	0.0086	0.00049	0.0026	0.0055	0.0239
		8/4/2009	0.0057	0.00051	0.001	0.003	0.0456
		5/12/2010	0.0088				
		9/22/2010	0.0069				
		6/2/2011	0.0073				
		9/30/2011	0.021				
		10/16/2012	0.012				
Offsite West							
Groundwater							
Intermediate Hydrostratigraphic Unit	A-14-180-MS	9/10/2013	0.0048	ND	ND		
	A-15-105-MB	9/10/2013	0.0085	ND	ND		
	A-16-190-MS	9/11/2013	ND	ND	0.0024		
	A-17-150-MS	9/12/2013	ND	ND	ND		
	A-36-105-MBS	3/15/2013	0.0075	**0.0455**	0.0122		
		4/2/2013	ND	**0.0201**	0.0037		
		5/22/2013	0.0092	**0.0081**	0.0119		
		6/12/2013	ND	ND	ND		
		7/17/2013	0.0224	**0.0421**	ND		
		8/28/2013	0.0026	**0.0844**	0.0046		
		9/11/2013	ND	**0.0567**	0.0062		
Intermediate Hydrostratigraphic Unit	A-36-145-MS	3/15/2013	ND	ND	ND		
		4/3/2013	ND	ND	ND		
		5/21/2013	ND	ND	ND		
		6/12/2013	ND	ND	ND		
		7/17/2013	ND	ND	ND		
		8/28/2013	ND	ND	ND		
		9/11/2013	ND	ND	ND		

Notes:

Includes data from 2001 onward of "A" data use level only.

GW = groundwater, SW = surface water, HH = human health

mg/L = milligrams per liter

Creek surface water results presented include only data collected during the base flow season to be more representative of groundwater impacts.

Blank cells - No data available

na = Not Applicable.

Exceedances of comparison values are indicated in the following manner:

Value exceeds groundwater human health comparison value.

More information about groundwater comparison values is provided on Table 4-6.

Comparison values are provided for preliminary comparison purposes only and do not cons

Comprehensive evaluation will be provided in the risk assessments.

*Boring 6 results are for dissolved fraction only.

Information about SW criteria is on Table 4-4. Additional SW criteria (mg/L) include:

Total Selenium - Acute Eco: 0.02, Chronic Eco: 0.005, HH: 0.17

Dissolved Cadmium - Acute Eco: 0.0013, Chronic Eco: 0.0006; Total Cadmium - HH: 0.005

Dissolved Chromium - Acute Eco: 0.57, Chronic Eco: 0.074; Total Chromium - HH: 0.1

Total Vanadium - Acute Eco: 0.079, Chronic Eco: 0.027

Dissolved Zinc - Acute Eco: 0.12, Chronic Eco: 0.12; Total Zinc: HH - 7.4

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Western Woodall Mountain Sub-Basin												
Surface Water												
Spring	SW04-SP	4/29/2005	137		3	0.26	37		0.1	0.1	35	**503**
		8/1/2005	133		4	0.23	36		0.1	0.1	33	**507**
		10/18/2005	126		3	0.25	35		0.11	0.11	32	470
		5/4/2006	127		4	0.33	36		0.12	0.12	31	426
		7/26/2006	132		4	0.33	37		0.12	0.12	34	491
		10/22/2006	141		4	0.31	38		0.11	0.11	37	**503**
		4/17/2007	137		4	0.28	39		0.11	0.11	35	485
		8/5/2007	136		3	0.26	37		0.11	0.11	32	**520**
		10/14/2007	137		4	0.25	38		0.09	0.09	35	498
		5/13/2008		132	2	0.28		36	0.05	0.05	32	464
		10/12/2008		143	3	0.37		36	0.1	0.1	34	**515**
		5/2/2009		125	4.1	0.28		34.8	0.13	0.13	28.6	467
		10/11/2009		140	4	0.26		36.2	0.14	0.14	25.8	494
		5/7/2010		144	3.8	0.27		37.8	0.1	0.1	28.4	457
		10/16/2010		135	3.8	0.24		36.8	0.1	0.1	30.1	**503**
		5/13/2011		138	4.23	0.31		37.2	0.11	ND	31.7	487
		9/23/2011		135	5.72	0.43		35.7	0.107	0.122	32.1	**525**
		5/13/2012		139	ND	0.3		37.6	ND	ND	29.1	486
		9/30/2012		150	3.3	0.26		35.8	ND	ND	26.8	**500**
	WS-4	5/19/2008	133	127	4.16	0.336	38.2	36.9	ND		31	490
		5/19/2008								0.05		
		10/19/2008	135	134	3.72	0.27	36.2	37.7	0.705		30.2	**500**
		5/16/2009	136	139	4.36	0.466	38	37.4	0.152		32.5	**507**
		8/7/2009	128	127	4.05	0.253	36	35.9	0.0846		30.4	491
		6/3/2011		140	4.28	0.33		39			28.9	**506**
		10/2/2011		133	4.18	0.42		35.9			30.5	**514**
	WS-5	5/19/2008	109	103	4.91	0.396	41.3	39.8	0.0651		68.6	460
		5/19/2008								0.01		
		10/19/2008	128	129	4.82	0.35	44.3	44	ND		58.4	**530**
		5/16/2009	120	128	5.1	0.521	39.4	39.3	ND		38.9	489
		8/7/2009	101	107	4.53	0.458	40.3	40.9	ND		26	445
		6/3/2011		94.6	4.35	0.33		38.2			23.3	403
		10/2/2011		100	4.38	0.39		40.1			25.8	433
Groundwater												
Shallow Hydrostratigraphic Unit	A-46-028-MA	2/27/2013		207	108	ND		220		ND	**1130**	**2460**
		9/9/2013		242	232	1.4		254		ND	**1140**	**2630**
	GW-A1-MA	5/1/2004		63	18	ND		18.4		1.2	11	256
		10/26/2004		71	16	ND		20.6		ND	6	266
		6/30/2005		60.7	15	ND		17.8		ND	6	298
		10/31/2005		72	16	0.5		20.4		ND	7	278
		6/4/2006		63	17	ND		17.9		ND	8	264
		5/17/2007		71.456	17	ND		20.16		ND	8	246
		10/17/2007		68	17	ND		18.9		ND	22	286
		6/12/2008		60.75	17	ND		18.52		ND	4	284
		10/18/2008		69.22	16	ND		19.58		ND	4	278
		5/14/2009		61.12	17	ND		18.13		ND	5	268
		10/5/2010	64.6		19.2	ND	17.5		0.45	0.45	4	250
		5/18/2011	60.9		19.3	0.16	16.9		0.4	0.4	5.3	272
		10/12/2011	63.6		21.7	0.13	17.6		0.35	0.35	5.1	275
		5/31/2012	64.9		22.1	ND	17.5		0.47	0.47	3.3	280
		10/19/2012	69.1		19.7	0.077	19.4		0.41	0.41	4.7	242
		9/12/2013			19.5	ND				0.43	4.3	282
Intermediate Hydrostratigraphic Unit	A-13-135-MS	12/14/2011	101		16.2	0.13	26.6			7.2	80.2	499
		5/30/2012	117		15.9	0.074	31.3		**14.9**	**14.9**	184	**591**
		10/24/2012	127		14.7	0.1	35		**11.7**	**11.7**	159	**609**
		9/11/2013			15.4	ND				**12.3**	170	**610**
	GW-57-MS	11/21/2014	64.9	65.5	18.8	0.27	22.3	22.1	3.41		165	472
	GW-NW7-IS	10/24/2003	113		20.2	ND	33.1		4.66		142	**539**
		10/29/2004		96	18	ND		31		3.6	137	**554**
		10/26/2005		117	18	ND		33.8		3.6	111	**514**
		10/17/2007		120	19	ND		35		3.7	149	**604**
		10/18/2008		113.6	18	ND		35.54		3.37	160	**592**
		10/4/2010	119		21.9	0.1	32.7		3.9	3.9	171	**544**
		10/17/2011	118		24.5	0.12	33.9		4.2	4.2	160	474
		10/18/2012	133		23.4	ND	38.5		4.6	4.6	178	**591**
		5/1/2004		101	20	ND		31.8		4.2	142	**554**
		5/14/2004							4.67		147	**500**
		6/14/2005		96	14	ND		30.5		3.4	109	472
		6/1/2006		115	19	ND		33.5		3.8	148	**556**
		5/22/2007		128.3	19	ND		35.85		3.24	134	**538**
		6/12/2008		107.2	19	ND		32.99		3.61	170	**654**
		5/12/2009		98.4	17	ND		29.4		3.69	146	**624**
		5/20/2011	118		22	0.1	33.7		3.7	3.7	162	**544**
		6/5/2012	120		23.6	ND	33.7		4.1	4.1	171	**637**
	GW-NW8-IS	10/24/2003	62		12.2	0.171	17.7		3.35		26.7	330
		10/29/2004		61	11	ND		18.5		2.8	25	320
		10/26/2005		66	11	ND		18.5		2.8	18	312
		10/18/2008		69.89	9	ND		19.33		2.87	23	320
		10/4/2010	63.7		11.8	0.15	16.9		3.9	3.9	31.7	305
		10/17/2011	61.1		14	0.15	17		4.8	4.8	29.1	232
		10/18/2012	65.8		12.1	0.11	18.3		5	5	22.8	335
		5/1/2004		67	15	ND		20.1		3.6	38	328
		5/14/2004							3.53		27.6	286
		6/14/2005		59	11	ND		17.5		3.1	27	304
		6/1/2006		67	13	ND		19		3.2	29	310
		5/22/2007		69.3	11	ND		19.32		2.6	20	284
		6/12/2008		61.07	11	ND		18.5		3.25	31	378
		5/20/2011	63.6		11.7	0.15	17.9		3.6	3.6	29.4	249
		6/5/2012	67.7		13.2	0.093	18.2		4.9	4.9	31.7	344

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Deep Hydrostratigraphic Unit	GW-21-MW	10/31/2008	52.7	58.6	26.1	0.289	14.3	15.7	1.12		78.8	460
		5/21/2009	65	64.1	17.6	0.389	18	18.2	0.78		13.5	269
		8/7/2009	64.9	63.6	17.6	0.245	18.5	18.1	0.694		11.8	303
		7/14/2010		68.6	19.3	0.224		19.5			25.6	307
		9/23/2010		69.6	17.8	0.135		20.2			25.7	324
		6/3/2011		65.5	17.2	0.18		18.1			14.4	300
		10/2/2011		63.6	16.3	0.21		17.4			14.2	297
		10/19/2012		61.7	16.5	0.22		18.3			23.2	311
		10/15/2013		62.5	15.2	0.25		17.7			15.4	310
		10/13/2014	64	64.9	15.1	0.28	17.6	18	0.793		10.9	298
Old Tailings Pond Sub-Basin												
Surface Water												
Old Tailings Pond	TP-2	5/9/2003	224		17	0.6	65.1		0.03		**710**	**1220**
		5/16/2009	77.7	80.4	5.55	0.803	21.1	21.9	ND		155	411
Groundwater												
Shallow Hydrostratigraphic Unit	TP2-SB3	8/8/2014	488	627	76.6	ND	165	175	0.132		**1770**	**3040**
	TP2-SB5	8/6/2014		26400				2740	0.076			
	GW-18-MA	5/16/2009		622	7.2	0.539		98.8			**556**	**1260**
		8/5/2009		541				88.6				
		6/1/2011		273	5.58	ND		51.2			**507**	**1200**
Intermediate Hydrostratigraphic Unit	GW-19-MS	10/30/2008	122	128	9.51	0.169	34.9	35.1	**17.5**		46.2	**600**
		5/17/2009	128	129	8.44	0.19	35.5	35.7	**17.9**		42.9	**617**
		8/4/2009	122	129	7.54	ND	32.9	34.9	**15.5**		36.6	**602**
		5/13/2010		125	7.35	0.131		33.7			42	**580**
		9/22/2010		132	6.75	0.035		34.7			39.5	**619**
		6/1/2011		127	8.83	ND		34.5			36.8	**588**
		9/30/2011		130	6.55	ND		34.5			41.7	**628**
		10/16/2012		121	7.03	ND		33.3			41.8	**574**
		10/14/2013		124	6.69	ND		33.8			46	**599**
		6/11/2014		131	4.17	0.14		35.2			44	**604**
		9/15/2014							**11.9**		30.5	
		10/7/2014	136	129	5.2	ND	36.5	35.1	**15.9**		42.6	**620**
	Boring 6 (Profile samples from 120 to 245 feet)	3/10/2015	77.7	101	8.84	0.291	28	37.5	**17.8**		31.6	439
		3/11/2015	76.4	168	14.3	0.137	25.6	48.5	**11.1**		18.3	396
		3/11/2015	79.6	99.4	14.8	0.192	28.3	38.7	**10.8**		17.7	386
		3/11/2015	73.6	78.1	15.7	0.248	24.9	28.3	**10.5**		16.9	382
		3/11/2015	75.5	115	15	0.215	25.6	43.3	**10.7**		17.7	374
		3/11/2015	87.1	338	15	0.601	29.6	114	**10.5**		17.5	364
		3/12/2015	85.9	81.3	14.5	0.9	25.7	25.9	8.11		15.2	320
	GW-37-MD	10/2/2009	233	245	5.7	0.343	55.9	60.4	3.87		**442**	**1170**
		9/22/2010		261	5.84	0.426		59.1			**558**	**1250**
		9/30/2011		258	4.95	0.12		58.4			**474**	**1120**
		10/17/2012		279	6.31	ND		60.4			**573**	**1310**
		10/14/2013		278	5.29	0.54		58.8			**628**	**1360**
		10/9/2014	293	278	5.81	ND	61.6	58.8	3.32		**648**	**1290**
		5/11/2010		294	5.78	ND		70.5			**582**	**1340**
		6/2/2011		254	5.12	ND		58			**445**	**1130**
French Drain Sub-Basin												
Surface Water												
ODA Seep	SWS-3	5/11/2004	209				54.2				**408**	**1010**
		10/20/2008	221	214	6.74	0.264	56.8	54.2	3.23		**369**	**980**
		5/16/2009	237	246	6.07	0.686	67.7	71.8	4.58		**544**	**1210**
		8/4/2009	212	226	6.95	0.368	54.6	55.4	4.76		**476**	**989**
		5/12/2010		193	6.57	0.593		49.3			**414**	**999**
		9/21/2010		220	7.12	0.417		56.4			**412**	**997**
		6/2/2011		226	6.73	0.56		63.2			**457**	**1090**
		9/30/2011		211	7.35	0.6		51.5			**394**	**1000**
New Tailings Pond	TP-1	5/5/2003	153		44	0.3	92.9		2.07		**590**	**1230**
		10/22/2003	153		54.1	ND	111		0.55		**722**	**1297**
		5/11/2004	134				90.1				**637**	**1127**
		5/2/2007		140.5204	37.392			85.8017	3.06		**504**	**1150**
		10/20/2008	155	151	43.1	ND	113	109	0.966		**651**	**1400**
		5/16/2009	124	126	39.6	ND	87.3	89.8	1.4		**556**	**1110**
		7/10/2009	128	130	38.8	ND	86.2	86.7	1.77		**534**	**1160**
		8/4/2009	126	128	45.2	ND	87.3	87.9	0.815		**624**	**1100**
		6/12/2014	141	146	52.5	0.55	79.9	85.1	0.087		**555**	**1090**
		10/8/2014	116	119	54.8	0.13	79.1	83	0.169		**525**	**1100**
French Drain	FD-1	5/23/2001	190				50					
		5/23/2001			6.7	0.39			ND		**290**	**760**
		5/5/2003	236		7	0.3	52.5		0.02		**450**	**1020**
		10/24/2003	263		9.1	ND	50.1		ND		**451**	**1087**
		5/11/2004	222				47.6				**432**	**1019**
		5/9/2006	248		5.86		56.7		1.73		**507**	**1097**
		5/1/2007		222.6366	6.768			51.6096	0.184		**431**	**1020**
		10/20/2008	238	230	7.96	0.225	51.2	50	0.325		**373**	**1000**
		5/16/2009	249	256	6.18	0.496	60.5	62.4	1.2		**570**	**1180**
		5/19/2009	254	254	6.57	0.615	59	59.3	0.961		**543**	**1140**
		8/4/2009	227	230	7.46	0.629	51.6	51.8	0.912		**454**	**1050**
		5/12/2010		208	7.15	0.425		44.7			**428**	**989**
		9/20/2010		252	7.67	0.25		51.1			**423**	**1080**
		6/2/2011		247	7.04	0.13		52.7			**415**	**1060**
		9/30/2011		235	7.53	0.41		45.2			**370**	**1030**
		6/10/2014	251	248	6.79	0.47	53	52.2	ND		**464**	**1070**
		8/7/2014	250	253	8.11	0.36	50.5	51.1	ND		**433**	**1020**
Groundwater												
Shallow Hydrostratigraphic Unit	GW-16-MA	10/30/2008		226				35.4				
		5/15/2009	202	185	5.69	0.342	31.3	30.2	0.728		**260**	**786**
		8/4/2009	195	184	6.26	0.212	31.1	29.8	0.359		**281**	**847**
		5/12/2010		236	7.81	0.261		39.4			**360**	**911**
		9/21/2010		210	7.52	0.243		33.8			**347**	**879**
		5/31/2011		215	8.3	ND		34.3			**398**	**926**

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Shallow Hydrostratigraphic Unit	GW-16-MA	10/1/2011		285	7.79	0.27		65.3			**394**	**1000**
		4/24/2012		230	6.79	0.36		34.6			**405**	**1040**
		10/16/2012		254	7.53	ND		51.9			**376**	**1120**
		5/6/2013		243	7.21	0.12		35.2			**375**	**948**
		10/14/2013		227	7.56	0.12		38			**377**	**972**
		6/12/2014		231	7.43	0.28		35.2			**395**	**924**
		10/9/2014	239	250	7.9	ND	38	48.7	0.495		**378**	**956**
		11/19/2014	232	240	8	0.24	33	35.8	0.426		**404**	**669**
	GW-17-MA	10/30/2008		176				61.6				
		5/16/2009	119	336	8.59	0.213	40.2	137	2.3		168	**634**
		8/4/2009	111	373	8.93	0.174	37.3	148	1.87		209	**682**
		5/12/2010		367	5.26	0.215		136			118	**624**
		9/22/2010		151	5.45	0.189		51.6			99.8	**594**
		5/31/2011		106	5.55	0.09		34.4			117	**509**
		10/1/2011		185	5.27	0.21		63.7			137	**670**
		4/25/2012		169	7.21	ND		53.4			140	**713**
		10/16/2012		244	9.73	ND		94.9			93.7	**615**
		5/6/2013		321	11.9	0.25		120			69.6	**570**
		10/14/2013		975	11	0.23		392			68.4	**730**
		6/10/2014		180	10.3	0.19		70.8			96.1	**553**
		10/7/2014	115	244	10.4	0.11	36.8	112	1.59		104	**540**
		11/19/2014	117	116	10.9	0.18	36.9	37.7	1.63		117	**582**
	GW-49-MA	11/4/2014	183	185	36.9	ND	55.8	56.4	3.52		187	**861**
		11/18/2014	174	167	33.1	ND	47.8	44.9	3.03		155	**770**
	GW-52-MA	11/18/2014	129	140	7.33	0.16	19.4	23.6	1.59		112	**517**
	GW-54-MA	11/7/2014	137	219	34.1	1.77	ND	16.9	0.751		81.5	**992**
		11/18/2014	105	106	27.6	0.52	25.7	24.2	0.517		186	494
Intermediate Hydrostratigraphic Unit	A-33-070-MB	9/9/2013		441	210	ND		242	**164**	**164**	**1620**	**3870**
	A-33-170-MB	9/9/2013		191	33.1	ND		58.2	3.4	3.4	**423**	**1060**
	A-50-070-MB	9/11/2013		210	46.2	ND		49.7	1.8	1.8	**459**	**1090**
	A-50-100-MB	9/10/2013		202	46.8	ND		46.8	2.9	2.9	**448**	**1090**
	A-50-125-MS	9/10/2013		189	43.3	ND		44	3.1	3.1	**427**	**1050**
	GW-12-IS	10/25/2003	27.8		6.38	0.165	23.6		0.05		12.5	238
		10/15/2008	27.3	25.8	6.08	0.241	23.7	22.7	ND		13.4	240
		10/15/2008	27.9	26.7	6.23	0.24	24.4	23.7	ND		13.4	240
		10/15/2008	27.9	26	6.06	0.236	24.4	22.9	ND		13.2	230
	GW-12-IS	5/16/2004							0.08		12.3	228
		5/15/2009	27.1	27.8	6.32	0.19	24	23.8	0.0676		13.7	250
		8/4/2009	25.8	27.3	6.16	0.193	22.5	23.8	0.191		12.4	230
		9/24/2009	31.2	29.9	6.75	0.183	24	24.4	ND		14.7	232
		9/24/2009	29.2	27	5.77	0.153	24.3	23.5	0.0565		14.1	241
		9/24/2009	28.4	27.7	6.53	0.21	24	24.1	0.0708		14.1	234
		5/11/2010		28.1	6.24	0.176		25.5			12.6	223
		9/22/2010		27.4	6.3	0.186		24			12.4	206
		6/2/2011		27.7	6.29	0.26		23.8			12.4	266
		9/30/2011		28.8	6.35	0.25		25.2			13	216
		10/17/2012		27.5	6.04	0.24		24.2			12.4	226
		10/13/2013		26.3	5.97	0.26		23.1			12.8	224
		6/12/2014		28.2	6.17	0.22		25.2			13.2	206
		10/4/2014	28.4	27	6.17	0.24	24.7	23.2	0.137		13.3	229
		11/17/2014	28.2	27.9	6.41	0.26	24	23.5	0.052		13.1	213
	GW-13-IS	8/4/2009	12.6	13.3	0.292	ND	0.871	0.943	ND		2.8	42
		6/2/2011		11.1	2.46	0.14		0.919			3.38	66
		9/30/2011		14.7	0.79	0.15		1.16			3.16	60
	GW-15-MS	10/29/2008	280	303	7.38	0.149	40.6	44.1	0.0536		**544**	**1200**
		5/17/2009	277	287	8.39	0.37	40.9	42.6	0.122		**511**	**1170**
		8/3/2009	270	278	7.51	0.234	39.2	41.1	0.0946		**483**	**1180**
		5/12/2010		301	7.85	0.412		44.3			**513**	**1220**
		9/20/2010		287	7.91	0.282		41.1			**517**	**1240**
		5/31/2011		288	8.38	ND		41.6			**516**	**1220**
		9/30/2011		306	7.86	0.11		43.7			**581**	**1280**
		4/24/2012		322	7.91	0.39		44.8			**580**	**1430**
		10/16/2012		291	8.29	ND		42.6			**634**	**1310**
		5/6/2013		310	7.2	0.13		44.9			**573**	**1220**
		10/13/2013		280	7.73	0.4		40.8			**571**	**1270**
		6/10/2014		317	7.43	0.39		45.1			**545**	**1220**
		10/4/2014	295	280	8.53	ND	42.9	40.3	0.475		**567**	**1230**
		11/17/2014	297	294	8.11	ND	41	39.9	0.057		**547**	**1210**
	GW-9-IS	10/25/2003	209		15.5	0.354	37.4		4.01		**290**	**877**
		5/16/2004							3.6		**291**	**812**
		10/16/2008	191	185	16.3	0.39	35.4	33.8	5.13		**265**	**830**
		5/15/2009	194	192	15	0.343	35.6	35.9	5.09		242	**831**
		5/15/2009	194	189	15.1	0.35	35.6	35.5	5.27		**255**	**840**
		8/4/2009	174	179	11.8	0.185	32.2	33.1	5.12		178	**794**
		9/25/2009	184	179	17.4	0.294	34.3	33	5.28		224	**796**
		9/25/2009	185	174	17.3	0.251	34.5	32.2	5.34		225	**754**
		9/25/2009	80	75.2	5.39	0.134	14.1	13.3	1.41		101	323
		5/11/2010		200	18.7	0.281		38.2			244	**797**
		9/22/2010		181	16.2	0.248		33.2			238	**769**
		6/2/2011		186	14.4	0.08		34			231	**820**
		9/30/2011		188	19.8	0.26		34.7			221	**748**
		10/16/2012		174	18.2	ND		32.1			215	**768**
		10/14/2013		158	16	0.31		27.8			204	**696**
		6/12/2014		193	14.1	0.33		35.6			**253**	**786**
		8/7/2014	200	195	13.1	0.22	35.3	34.9	4.92		**257**	**825**
		10/7/2014	193	183	14.3	0.1	35.2	33.2	4.71		**272**	**816**
		11/19/2014	171	167	14.4	0.29	30.1	29.6	3.13		227	**712**

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Intermediate Hydrostratigraphic Unit	GW-MWB-MBS	6/29/2005		127	115	**706**		178		8.28	**1185**	**3198**
		10/29/2005		199	116	**590**		265		**12.2**	**1027**	**3872**
		6/2/2006		163	36	**63.9**		161		4.9	**784**	**1826**
		5/19/2007		155	33	**44**		142.3		4.5	**579**	**8792**
		10/16/2007		352	57	**246**		334		**10.6**	**1608**	**5304**
		6/11/2008		175.2	47	**120.7**		239.4		2.51	**1558**	**2992**
		10/18/2008		230.9	71	**182.6**		239.7		5.39	**1727**	**2812**
		5/13/2009		116.7	41	**67**		94.72		**15.64**	**752**	**1692**
		10/7/2010	153		125	**146**	238		**10.5**	**10.5**	**1350**	**2400**
		5/16/2011	142		80.3	**135**	129		**13.9**	**13.7**	**799**	**1660**
		10/18/2011	109		35.8	**22.9**	54.5		3.7	3.7	**298**	**815**
		5/31/2012	131		30.8	**17.9**	52.1		3.5	3.5	**294**	**774**
		10/16/2012	130		26.7	**19.2**	49.2		3.6	3.6	**276**	**779**
		2/15/2013	142		26.4	**16.3**	51.8			3.2	**270**	**821**
		3/12/2013		127	26.1	**16**		48.1		3.3	**271**	**1400**
		4/4/2013		145	28.6	**23**		54.2		4	**282**	**822**
		5/23/2013		140	27	**19.7**		53.3		3.1	**252**	**920**
		6/14/2013		132	28.9	**20.5**		48.5		3.8	**272**	**664**
		7/19/2013		134	26.6	**20.9**		49.5		3.2	**268**	**1010**
		8/29/2013		139	28.7	**19.5**		53.4		3.4	**275**	**715**
	GW-NW9-IBS	10/29/2004		305	67	**415**		170		**13.3**	**937**	**2882**
		10/29/2004										
		6/29/2005		248	66	**177.4**		110		**17.2**	**824**	**1970**
		6/29/2005										
		10/26/2005		257	55	**60**		103		**12.1**	**518**	**1526**
		6/1/2006		167	56	**88.5**		99		**18.7**	**647**	**1538**
		5/19/2007		198	52	**19.2**		86.2		**11.2**	**538**	**1316**
		10/16/2007		215	52	**23.6**		91.2		**14.8**	**567**	**1500**
		6/11/2008		156	85	**22.6**		85.22		**20.43**	**598**	**1640**
		10/18/2008		198.9	74	**22.5**		91.17		**16.44**	**677**	**1368**
		5/12/2009		173	91	**21**		84.57		**46**	**674**	**1578**
		10/7/2010	207		77.3	**23.1**	94.8		**25.1**	**25.1**	**711**	106
		5/16/2011	144		44.9	**8.2**	59.6		8	7.9	**454**	**1080**
		10/17/2011	163		59.2	**8.5**	68.1		**11.2**	**11.2**	**469**	**1120**
		6/5/2012	208		81.3	**14.4**	85.5		**21.7**	**21.7**	**677**	**1360**
		10/22/2012	221		75.5	**15.4**	89.1		**21**	**21**	**611**	**1350**
		2/15/2013	226		73	**12.1**	87.9			**22.2**	**565**	**1410**
		3/12/2013		202	73.6	**12.5**		80		**22.2**	**566**	**1390**
		4/3/2013		228	79.4	**18.9**		91.5		**24.7**	**581**	**1350**
		5/22/2013		229	85.3	**16.7**		94.8		**25.2**	**570**	**1420**
		6/13/2013		169	63.3	**21.9**		62.9		**11.9**	**406**	**1140**
		7/18/2013		231	91.3	**16.3**		96.5		**25.2**	**597**	**1850**
		8/29/2013		228	89.3	**14.3**		94.3		**26.2**	**595**	**1470**
	MW-A-110-MB	10/7/2010	303		**450**	**15.8**	224		**203**	**202**	**1010**	**2290**
		5/16/2011	291		**304**	**13.8**	199		**204**	**204**	**533**	**2960**
		10/18/2011	315		**1030**	**10.9**	200		**196**	**192**	**1850**	**4150**
		5/31/2012	332		**359**	**17**	233		**196**	**194**	**884**	**3200**
		10/16/2012	342		**349**	**10**	237		**198**	**198**	**1090**	**3440**
		2/15/2013	351		**300**	**13.6**	252			**238**	**1200**	**4180**
		3/11/2013		377	**343**	**7.6**		254		**211**	**1060**	**3490**
		4/3/2013		366	**468**	**5.2**		241		**234**	**1020**	**3190**
		5/23/2013		346	**935**	**18.3**		241		**213**	**808**	**4630**
		6/14/2013		318	**431**	**17.7**		220		**222**	**1020**	**4150**
		7/19/2013		340	**400**	**9**		238		**230**	**1020**	**5200**
		8/29/2013		345	**403**	**11.8**		236		**223**	**1030**	**2840**
	GW-50-MS	11/6/2014	134	185	14.2	ND	48.1	64.2	5.41		**285**	**800**
		11/20/2014	142	148	14.8	ND	52.6	55	4.88		**304**	**793**
	GW-51-MS	11/5/2014	95.4	127	17.5	0.12	24.7	40	2.98		97.3	449
		11/20/2014	93.5	93.6	18.5	0.11	24.2	24.5	2.65		102	430
	GW-53-MS	11/20/2014	19.7	20.4	27.7	2.31	7.35	7.71	0.075		174	**626**
	GW-55-MS	11/18/2014	343	344	70.3	1.79	ND	1.63	0.37		133	**5520**
	GW-56-MS	11/7/2014	74.5	84.8	16.7	0.14	22.4	26.5	2.23		41.5	353
		11/19/2014	76.7	77.5	15.6	0.11	23.1	23.3	2.22		40.5	373
Deep Hydrostratigraphic Unit	GW-11-IW	10/25/2003	96.2		11.6	0.111	15.5		1.65		52.5	380
		5/16/2004							1.6		57.9	359
		10/29/2008	89.7	96.6	11.2	0.192	15.1	16.1	1.56		52.1	340
		5/14/2009	93.3	93.4	12	0.347	15.7	16.2	1.93		59.9	368
		8/3/2009	89.4	90.9	10.4	0.165	14.7	15.8	1.39		50.4	345
		9/16/2009	88.3	89.4	9.52	ND	14.9	14.7	1.51		48.8	351
		9/16/2009	89.8	90.5	9.78	0.113	15.1	14.9	1.54		49.2	344
		9/16/2009	89.9	88.4	9.53	0.108	15.1	14.5	1.55		48.9	341
		9/16/2009	89.6	91	9.84	0.12	15.3	15.1	1.46		50	351
		5/12/2010		90.7	11.8	0.135		15			48	316
		9/21/2010		89.2	12	0.135		15.1			48.3	323
		10/15/2010	88.4		14.3	0.11	14.2		1.3	1.3	48.7	289
		5/19/2011	90.3		10.1	0.11	13.6		1.1	1.1	49	328
		6/2/2011		94.6	11.6	0.16		15.6			49.8	335
		9/30/2011		95.9	11.3	0.16		15.8			48.8	340
		10/11/2011	86.2		11.8	0.13	13.7		1.5	1.5	45.4	304
		6/4/2012	85.4		10.7	0.083	13.5		1.2	1.2	43.9	338
		10/16/2012		85.4	10.5	0.16		14.1			45	335
		10/18/2012	95.4		10.1	0.13	15.9		1.2	1.2	44.2	363
		10/13/2013		83.3	11	0.2		13.9			47.2	332
		6/12/2014		91.3	13.8	0.15		15.1			48.2	327
		10/8/2014	90	90.9	13.3	0.18	14.8	15	1.56		46.6	332

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Deep Hydrostratigraphic Unit	GW-14-MW	11/1/2008	37.2	47.7	22.1	1.33	18.6	24	ND		65.6	380
		5/17/2009	50.3	54.5	29.4	1.53	25.1	27.1	ND		145	454
		8/4/2009	45.2	47.4	27	1.49	22.4	23	ND		130	432
		5/13/2010		48.6	31	1.54		25.1			174	456
		9/22/2010		59	29.7	1.28		30.1			219	**573**
		6/1/2011		60.5	30.9	1.44		30.4			221	**551**
		9/30/2011		56.5	28.5	1.29		28.4			203	**534**
		10/16/2012		57.6	29.1	1.32		28.6			210	**549**
		10/15/2013		56.7	28.7	1.33		27.7			213	**537**
		6/11/2014		54.7	26	1.23		27.3			155	467
		10/8/2014	48.6	50.4	27.8	1.25	24.5	25	0.074		147	428
Shield and Jouglard Canyons Sub-Basin												
Surface Water												
Spring	FM-1	5/6/2003	161		4	0.3	40.5		0.07		30	**550**
		10/22/2003	154		3.47	0.396	40.4		0.05		30.3	**531**
		5/15/2004	145				38.9				30.5	**531**
		10/19/2008	144	145	3.57	0.257	40.1	39.9	ND		31.8	**540**
		5/15/2009	150	147	4.01	0.388	41	40.9	0.377		33.7	**548**
		8/4/2009	144	142	3.72	0.293	40.2	39.6	0.0709		31.5	**530**
		6/2/2011		149	4.29	0.31		40.2			30.9	**530**
		9/30/2011		146	4.03	0.36		39.6			31.8	**557**
	HH-1	5/9/2003	85.3		6	0.2	9.8		0.27		ND	270
		10/24/2003	87.9		7.83	0.109	12.2		0.38		11.4	290
		5/15/2004	82.5				11.1				11.4	258
		10/20/2008	82.6	85.4	6.83	0.148	10.8	11	0.731		11.2	320
		5/15/2009	88.8	85.1	5.92	0.18	10.3	10.3	0.42		13	318
		8/4/2009	83.1	87.5	7.14	ND	10.7	11	0.788		13.1	293
	JCS-1	5/15/2004	85.3				16.6				32.5	320
		10/20/2008	93.6	93.6	17.7	0.234	22.4	22.9	ND		56.6	380
		5/15/2009	79	85.9	12.8	0.277	12.3	13.6	ND		30.7	348
		8/4/2009	90.5	94.3	19.4	0.201	18.9	19.5	ND		67.3	421
ODA Seep	SWS-2	5/23/2001	120				25					
		5/23/2001			9	0.12			0.15		160	440
		10/24/2003	81.2		4.48	0.129	19.8		ND		15.2	334
		5/11/2004	76.6				17.6				15.4	315
		10/20/2008	82.3	90.8	4.28	0.175	19.8	20.8	ND		15.6	320
		5/15/2009	85.1	86.1	4.81	0.296	20.4	20.5	ND		45	377
		8/4/2009	75.1	78.9	5.14	0.115	18.7	19	ND		18.9	291
		5/12/2010		116	8.67	0.307		26.9			152	**567**
		9/21/2010		71.2	4.23	0.095		17.1			15	259
		6/2/2011		84.6	4.49	0.27		19.3			116	375
		9/30/2011		195	7.67	0.3		49.1			**334**	**901**
Groundwater												
Shallow Hydrostratigraphic Unit	GW-24-MA	5/15/2009	121	123	1.82	1.62	23.2	22.8	0.0649		**285**	**517**
		5/12/2010		153	8.19	2.21		21.6			218	448
		6/1/2011		161	1.78	1.27		28.1			**376**	**679**
		4/24/2012		259	0.86	1.32		28.1			**307**	**611**
		5/7/2013		154	1.17	1.18		28.9			**365**	**655**
		6/11/2014		204	0.99	1.18		32.9			**375**	**714**
		10/8/2014	137	140	2.64	1.22	25.8	26.3	ND		**311**	**591**
	GW-34-MA	5/16/2009	55.8	65.8	4.86	0.261	6.11	7.77	1.24		17.4	253
		9/21/2010		77.2	2.71	0.13		19.1			10.4	174
		6/1/2011		27.7	2.32	0.14		4.15			10.4	364
		10/1/2011		160	2.54	0.18		72.8			11.8	340
		4/25/2012		72.9	2.52	0.17		17.8			11.9	215
		5/7/2013		56.4	2.98	0.17		6.41			12.8	200
Intermediate Hydrostratigraphic Unit	GW-22-MM	5/14/2009	358	376	2.33	0.112	48.1	51.8	0.115		**1370**	**2060**
		8/3/2009	352	437	1.85	0.365	50.3	53.2	0.26		**1010**	**1880**
		5/12/2010		425	0.701	0.634		48			**1070**	**1800**
		9/30/2011		383	1.47	0.62		35			**1080**	**1630**
		4/24/2012		352	1.38	0.44		33.6			**1030**	**1710**
		5/7/2013		499	ND	2.61		39.4			**1430**	**2180**
	GW-23-MM	5/16/2009	84.4	449			18.2	60.9				
		6/1/2011		173	2.59	1.57		33.5			**419**	**704**
	GW-32-MD	10/29/2008	51.2	56.6	15.7	0.313	15.4	18.3	0.776		91.4	430
		10/29/2008										
		5/17/2009	66.9	65.3	6.52	0.23	19.8	19.1	0.7		50	325
		5/17/2009										
	GW-32-MD	10/29/2008	51.2	56.6	15.7	0.313	15.4	18.3	0.776		91.4	430
		5/17/2009	66.9	65.3	6.52	0.23	19.8	19.1	0.7		50	325
		8/3/2009	61.4	63.3	5.45	0.244	17.3	19.2	0.458		35.5	312
		5/12/2010		75.2	5.83	0.175		21.4			87.2	332
		9/21/2010		72.1	5.27	0.153		20			72	302
		6/1/2011		66.7	5.95	0.22		18.8			41	270
		9/30/2011		62.7	4.79	0.22		17.4			35.8	286
		10/16/2012		74	4.87	0.2		20.6			86.2	336
		10/14/2013		71.7	4.83	0.26		19.4			70.8	336
		10/9/2014	77.6	75.8	4.62	0.19	20.8	20.3	1		104	343
	GW-33-MR	10/30/2008	42.7	42.6	8.05	1.8	17.8	10.4	1.44		114	290
		5/16/2009	69.6	66.1	5.64	0.14	17.6	17	1.67		212	400
		8/3/2009	61.3	63.2	5.04	0.138	15.7	16.9	1.35		208	420
		5/12/2010		69.2	5.13	0.116		17.5			219	374
		9/21/2010		69.1	4.83	0.124		17.8			217	382
		6/1/2011		68.2	5.03	0.07		17.3			228	379
		9/30/2011		63.7	4.5	0.21		16.1			215	360
		10/16/2012		71.1	4.67	ND		18.4			228	416
		10/16/2013		60.6	5.69	0.3		15.6			215	389
		10/9/2014	78.6	73.4	4.46	ND	19.8	18.6	2.39		**272**	404

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Deep Hydrostratigraphic Unit	GW-31-MW	10/30/2008	24.5	27.8	21.1	0.589	18	20.2	ND		125	440
		5/17/2009	25.2	26.3	21.9	0.639	20	20.2	ND		137	428
		8/3/2009	28.6	30.3	18.7	0.551	23.9	26.3	ND		131	449
		5/13/2010		31.2	21.7	0.803		26.6			147	423
		9/22/2010		30	19.8	0.591		26.4			136	441
		6/1/2011		34	21.8	0.7		30			153	454
		9/30/2011		32.3	20.6	0.59		28.9			152	458
		10/16/2012		38	24.1	0.62		34.2			191	**568**
		10/15/2013		39.1	26.1	0.67		35.2			224	**616**
		10/9/2014	46.2	47.6	39.4	0.66	40.6	42	0.243		**263**	**675**
Margarette Creek/Trail Canyon Sub-Basin												
Surface Water												
Baseflow River	TCC-2	10/22/2003	30.2		15.9	0.798	10.2		ND		2.48	203
		10/20/2008	28.2	28.9	7.97	0.639	9.37	9.81	ND		3.64	170
		8/4/2009	41.9	43.3	4.13	0.337	9.89	11.3	ND		6.24	164
Intermediate Hydrostratigraphic Unit	GW-LRSN-1-DD	5/15/2004							5.7		11.9	190
		5/15/2004										
		5/19/2009	67.5	66.5	9.79	0.127	17.8	17	2.07		16.1	336
		5/19/2009										
		8/7/2009	63.8	61.7	11.9	0.245	17	16.5	1.91		15	275
		8/7/2009										
		5/11/2010		63.6	12	0.129		17.3			13.8	256
		5/11/2010										
		9/22/2010		62.1	11.8	0.094		16.7			14.3	263
		9/22/2010										
	GW-LRSN-1-DD	5/15/2004							5.7		11.9	190
		5/19/2009	67.5	66.5	9.79	0.127	17.8	17	2.07		16.1	336
		8/7/2009	63.8	61.7	11.9	0.245	17	16.5	1.91		15	275
		5/11/2010		63.6	12	0.129		17.3			13.8	256
		9/22/2010		62.1	11.8	0.094		16.7			14.3	263
		6/3/2011		65.6	11.7	0.14		16.9			14.2	264
		10/2/2011		71.4	11.7	0.15		18.2			18.9	282
		10/16/2012		62.9	11.1	0.15		16.5			15	270
		10/15/2013		59.4	11.7	0.24		15.7			15.4	270
		10/8/2014	62.9	60.9	11.6	0.14	16.3	15.9	2.33		14.5	261
	GW-LRSN-2-DD	5/15/2004							2.62		12.8	279
		5/19/2009	42.6	44.7	8.54	0.102	13.1	12.8	3.65		14	234
		8/7/2009	38.4	37.9	8.72	0.133	12.3	11.9	3.99		12.2	201
		5/11/2010		40.4	9.39	0.143		12.9			11.9	188
		9/22/2010		39.8	10.1	0.123		12.6			11.8	190
		6/3/2011		39.1	8.87	0.19		12.1			10.9	176
		10/2/2011		37.3	8.18	0.2		11.5			11.8	182
		10/16/2012		40.7	9.55	0.22		12.9			11.7	198
		10/15/2013		41	10.6	0.26		13.1			12.4	208
		10/8/2014	42.8	40.3	10.6	0.17	13.4	12.6	3.1		12.2	200
Off-Site Southwest												
Groundwater												
Intermediate Hydrostratigraphic Unit	GW-10-IBS	10/25/2003	240		40.4	ND	97.7		**13.72**		**602**	**1488**
		10/29/2008	221	238	39.4	0.212	94	103	**14.3**		**621**	**1500**
		1/7/2009	224	222	39.6	ND	97.4	95.5	**13.8**		**620**	**1540**
		8/4/2009	206	209	38.2	0.284	78.1	84.5	**20.7**		**490**	**1420**
		9/21/2010		216	46.2	ND		85.5			**527**	**1450**
		10/15/2010	209		43.5	0.31	81.4		**15.6**	**15.6**	**554**	**1350**
		9/30/2011		191	45.9	ND		68.3			**444**	**1230**
		10/11/2011	195		57.1	0.37	68		**18.3**	**18.3**	**946**	**1180**
		10/16/2012		206	53.4	0.1		79.1			**596**	**1450**
		10/18/2012	211		62.5	0.35	65.1		**16.6**	**16.6**	**508**	**1350**
		10/13/2013		184	53.7	0.9		66			**491**	**1270**
		10/9/2014	191	197	46	0.12	73.5	73.5	**14.2**		**434**	**1170**
		5/16/2004							**14.51**		**608**	**1274**
		5/17/2009	204	206	33.3	0.157	73.7	74	**25.2**		**381**	**1220**
		5/11/2010		222	47	0.113		93			**641**	**1440**
		5/19/2011	172		43.1	ND	52.8		**14**	**14**	**373**	**1080**
		6/2/2011		186	43.7	ND		58.5			**357**	**1060**
		6/4/2012	198		60.1	0.18	60.7		**16.5**	**16.5**	**429**	**1240**
	GW-8-IBS	10/25/2003	290		54	ND	85.6		**25.96**		**746**	**1580**
		10/16/2008	220	201	48.6	0.683	60.6	56.5	**13.7**		**547**	**1300**
		8/5/2009	195	193	51.1	1.16	56.5	55.8	**12.5**		**459**	**1170**
		9/22/2010		204	57.4	1.49		54.4			**461**	**1200**
		10/8/2010	197		55.6	1.6	53.4		**11.7**	**11.7**	**563**	**1300**
		9/30/2011		197	58.1	1.88		54.4			**464**	**1140**
		10/11/2011	186		66.2	1.7	49.2		**12.5**	**12.5**	**481**	**1200**
		10/17/2012		202	61.5	1.82		56.6			**488**	**1230**
		10/18/2012	216		68.9	1.5	59.3		**15.2**	**15.2**	**492**	**1240**
		10/14/2013		199	66.4	1.86		52.6			**510**	**1260**
		10/7/2014	206	199	73.5	2.06	55	53.5	**11.1**		**504**	**1190**
		5/16/2004							**19.02**		**696**	**1411**
		5/17/2009	213	209	55.3	1.02	58.8	59	**17.5**		**474**	**1220**
		5/11/2010		218	60.2	1.79		61.1			**489**	**1220**
		5/19/2011	173		60.3	0.85	46.6		**10.1**	**10.1**	**442**	**1030**
		6/2/2011		202	56.3	1.58		55.7			**432**	**1120**
		6/4/2012	209		67.7	1.6	56.9		**15.9**	**15.9**	**463**	**1270**

Table 6-71
Summary of Groundwater, Spring, and Seep General Chemistry Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Calcium, Dissolved	Calcium, Total	Chloride, Total	Fluoride, Total	Magnesium, Dissolved	Magnesium, Total	Nitrate + Nitrite	Nitrate	Sulfate, Total	TDS
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			Comparison Value: na		HH: 250 mg/L	HH: 4 mg/L	Comparison Value: na		HH: 10 mg/L		HH: 250 mg/L	HH: 500 mg/L
Intermediate Hydrostratigraphic Unit	GW-7-IT	1/7/2009	239	222	46.6	0.626	68	64.6	**14.2**		**494**	**1290**
		8/4/2009	186	190	44.2	0.421	55.9	55.7	**13.8**		**403**	**1180**
		9/22/2010		213	46.9	0.665		80.3			**521**	**1390**
		10/8/2010	210		47.6	ND	72.6		**14.3**	**14.3**	**564**	**1360**
		9/30/2011		196	60.5	1.41		56.7			**451**	**1170**
		10/11/2011	189		69.8	0.99	53.3		**18**	**18**	**497**	**1220**
		10/16/2012		205	63.2	1.3		60.1			**500**	**1280**
		10/18/2012	229		66.4	0.76	66.3		**16.5**	**16.5**	**509**	**1330**
		5/20/2009	222	222	55.4	0.58	66	69	**21.8**		**477**	**1310**
		5/12/2010		228	61.7	0.705		67.7			**520**	**1290**
		5/19/2011	177		64	0.72	50.6		**14.9**	**14.9**	**455**	**1190**
		6/2/2011		200	59.4	1.07		58			**419**	**1130**
		6/4/2012	219		73.7	0.73	62.3		**18.9**	**18.9**	**500**	**1320**
Off-Site West												
Groundwater												
Intermediate Hydrostratigraphic Unit	A-14-180-MS	12/14/2011	184		83.8	1.5	101			**48.7**	**965**	**1650**
		6/1/2012	160		54.2	0.87	75.8		**19.7**	**19.7**	**437**	**1090**
		9/10/2013			23.9	0.32				7.1	161	**594**
	A-15-105-MB	12/14/2011	126	1.5	114			44.4	**991**	**1410**	**991**	**1410**
		6/1/2012	82.1	0.94	137		49.9	49.9	**845**	**1940**	**765**	**1910**
		9/10/2013	67.6	ND				52	**765**	**1910**	**845**	**1940**
	A-16-190-MS	12/14/2011	63.1		9.7	0.14	17.9			2.6	15.8	289
		6/1/2012	64.5		10.2	0.13	18.7		1.8	1.8	16.5	316
		10/24/2012	65.8		9.3	0.2	19.7		1.4	1.4	14.2	329
		9/11/2013			9.5	0.073				0.9	9.3	263
	A-17-150-MS	12/14/2011	60.3		12.6	0.14	15.2			**12.1**	ND	332
		6/1/2012	60.8		13.4	0.11	15.5		**10.2**	**10.2**	2.5	331
		10/24/2012	67.7		13	0.16	17.7		**10.7**	**10.7**	4	327
		9/12/2013			15.5	0.16				**16.4**	5.8	361
	A-36-105-MBS	12/19/2012	488		84.2	2.1	538		ND	ND	**3650**	**4840**
		2/14/2013	425		70.9	3.3	458			2.1	**3700**	**4970**
		3/15/2013		428	ND	ND		500		ND	**3710**	**5240**
		4/2/2013		396	76.1	2.1		438		ND	**3710**	**5280**
		5/22/2013		501	88.6	2		584		ND	**3760**	**5180**
		6/12/2013		450	86.1	1.8		532		ND	**3890**	**5880**
		7/17/2013		441	3.3	ND		516		ND	**3770**	**4660**
		8/28/2013		303	102	**44.7**		375		**12.5**	**3910**	**6180**
		9/11/2013			92.9	**35.6**				**18.9**	**4010**	**5150**
	A-36-145-MS	12/19/2012	634		75.4	ND	415		ND	0.92	**2670**	**4170**
		2/14/2013	662		64.5	ND	370			ND	**2640**	**4630**
		3/15/2013		693	77.4	ND		413		ND	**2610**	**4180**
		4/3/2013		663	77.9	ND		389		ND	**2680**	**4690**
		5/21/2013		735	80.1	ND		465		0.67	**2890**	**4990**
		6/12/2013		660	84.3	ND		428		ND	**2960**	**4010**
		7/17/2013		590	77.4	ND		376		ND	**2740**	**4540**
		8/28/2013		621	87.7	ND		377		ND	**2610**	**4360**
		9/11/2013			83.4	ND				1.6	**2570**	**4670**

Notes:

Includes data from 2001 onward of "A" data use level only.
GW = groundwater, SW = surface water, HH = human health
mg/L = milligrams per liter
Creek surface water results presented include only data collected during the base flow season to be more representative of groundwater impacts.
Blank cells - No data available
na = Not Applicable.
Exceedances of comparison values are indicated in the following manner:
Value exceeds groundwater human health comparison value.
More information about groundwater comparison values is provided on Table 4-6.
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope	Radium 226	Radium 228	Thorium 230	Uranium 234	Uranium 235	Uranium 238	Uranium, Total
			ppt	pCi/L	pCi/L	ppt	ppt	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
			Comparison Value: na	GW HH: 15 pCi/L	GW HH: 50 pCi/L	Comparison Value: na		GW HH: 5 pCi/L						
Western Woodall Mountain Sub-Basin														
Surface Water														
Spring	WS-5	10/19/2008	4.9	ND	ND	-128.3	-16.6							
Groundwater														
Shallow Hydrostratigraphic Unit	A-46-028-MA	9/9/2013		**33**	26			0.73	0.89					
		11/8/2013		ND	ND			ND	ND					
	GW-A1-MA	10/26/2004		1.6	3.7									
		6/30/2005		2.3	1.6									
		10/31/2005		9.6	3.2									
		6/4/2006		8.39	3.46									
		5/17/2007		8.6	2.6									
		10/17/2007		ND	3.4									
		6/12/2008		0.67	2.1									
		10/18/2008		2.5	1.8									
		5/14/2009		1.3	3.6									
		10/5/2010		ND	ND									
		5/18/2011		ND	ND									
		10/12/2011		ND	ND									
		5/31/2012		1.57	2.3			ND	ND					
		10/18/2012		ND	ND			ND	0.68					
		9/12/2013		ND	ND			ND	ND					
Intermediate Hydrostratigraphic Unit	A-13-135-MS	12/14/2011		ND	5									
		5/30/2012		2.1	5.6			ND	ND					
		10/24/2012		ND	5.9			ND	ND					
		9/11/2013		2.07	4.8			ND	ND					
		11/6/2013		1.75	4.1			ND	ND					
	GW-57-MS	11/21/2014		11.4	ND			0.37	ND	ND	1.2	ND	0.6	1.8
	GW-NW7-IS	10/29/2004		2.4	6.5									
		6/14/2005		1.9	7.5									
		10/26/2005		2.9	5.5									
		6/1/2006		3	8.39									
		5/22/2007		2	5.1									
		10/17/2007		5.1	7									
		6/12/2008		3.4	6.8									
		10/18/2008		2.8	5.9									
		5/12/2009		5	5.4									
		10/4/2010		2.3	4.6									
		5/20/2011		ND	5.1									
		10/17/2011		2.9	5									
		6/5/2012		3.1	7			ND	ND					
		10/18/2012		2.2	5.3			ND	0.59					
	GW-NW8-IS	10/29/2004		1.8	4.9									
		6/14/2005		1.6	4.2									
		6/1/2006		1.29	4.09									
		5/22/2007		1.4	2.9									
		6/12/2008		1.7	5.5									
		10/18/2008		2.4	5.9									
		10/4/2010		ND	3.3									
		5/20/2011		1.47	4.9									
		10/17/2011		ND	4.1									
		6/5/2012		1.85	4.9			ND	ND					
		10/18/2012		1.82	4.7			ND	ND					
Deep Hydrostratigraphic Unit	GW-21-MW	10/31/2008	6.8	**23.8**	8.1	-138.5	-18.2							
		5/21/2009		11.7	6.4									
		8/7/2009		ND	ND									
		10/13/2014		ND	ND									
Old Tailings Pond Sub-Basin														
Groundwater														
Shallow Hydrostratigraphic Unit	TP2-SB3	8/8/2014		**189**	**68.7**			**14**	2.4	**23.8**	**83.5**	**6.4**	**67.2**	**157**
Intermediate Hydrostratigraphic Unit	GW-19-MS	10/30/2008	3.9	5.7	8.9	-132.1	-17							
		5/17/2009		ND	ND									
		8/4/2009		ND	5.7									
		6/11/2014		ND	ND			ND	ND	ND	1.5	ND	1	2.5
		10/7/2014		ND	5.6			0.49	ND	ND	1.4	ND	1.4	2.9
	GW-37-MD	10/9/2014		ND	ND			0.26	ND	ND	1.5	ND	0.8	2.3
French Drain Sub-Basin														
Surface Water														
ODA Seep	SWS-3	10/20/2008	6.7	5.6	ND	-129.1	-17							
		5/16/2009		10.8	ND									
		8/4/2009		9.6	ND									
New Tailings Pond	TP-1	8/4/2009		ND	ND									
		6/12/2014		10.4	7.6			0.25	ND	0.6	1.3	0.3	0.7	2.3
		10/8/2014		ND	7.9			0.52	ND	ND	1.3	ND	ND	1.5

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope	Radium 226	Radium 228	Thorium 230	Uranium 234	Uranium 235	Uranium 238	Uranium, Total
			ppt	pCi/L	pCi/L	ppt	ppt	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
			Comparison Value: na	GW HH: 15 pCi/L	GW HH: 50 pCi/L	Comparison Value: na		GW HH: 5 pCi/L						
French Drain	FD-1	10/20/2008	8.9	ND	ND	-127.1	-17							
		5/16/2009		13.7	ND									
		5/19/2009		**25.6**	ND									
		8/4/2009		ND	ND									
		8/7/2014		ND	ND			ND	ND	ND	1.3	ND	1.1	2.3
Groundwater														
Shallow Hydrostratigraphic Unit	GW-16-MA	5/15/2009		**51.7**	22.9									
		8/4/2009		ND	ND									
		6/12/2014		**15.7**	ND			0.19	ND	ND	2.8	0.2	2	**5**
		10/9/2014		**28.2**	21.2			0.76	2	1.1	3	ND	2	**5.1**
		11/19/2014		ND	ND			0.23	ND	ND	2.8	ND	1.7	4.5
	GW-17-MA	5/16/2009		**196**	**156**									
		8/4/2009		**186**	**216**									
		6/10/2014		14	ND			1.2	ND	0.4	2.6	ND	2.4	**5.1**
		10/7/2014		**19**	ND			2.3	ND	0.2	2.8	ND	2.4	**5.4**
		11/19/2014		ND	ND			0.24	ND	ND	1.6	ND	1.1	2.8
	GW-49-MA	11/4/2014		7.3	ND			0.94	ND	ND	2.5	ND	1.7	4.4
		11/18/2014		11.9	ND			0.22	2.3	ND	2.6	ND	1.2	3.9
	GW-52-MA	11/18/2014		ND	ND			0.35	2.7	ND	1.6	ND	0.8	2.5
	GW-54-MA	11/7/2014		**24.7**	10.2			1.8	3.9	0.2	1.4	ND	1.1	2.5
		11/18/2014		5.4	5			0.71	ND	0.4	2.2	ND	1.8	4
Intermediate Hydrostratigraphic Unit	A-33-070-MB	9/9/2013		ND	30			0.35	ND					
		11/5/2013		ND	33			ND	ND					
		9/9/2013		ND	6.8			ND	ND					
		11/5/2013		4.5	4.3			ND	ND					
	A-50-070-MB	9/11/2013		ND	4.2			0.24	ND					
		11/7/2013		5.9	4.5			ND	ND					
	A-50-100-MB	9/10/2013		4.1	5.5			ND	ND					
		11/4/2013		6.5	4.6			ND	ND					
	A-50-125-MS	9/10/2013		6.5	5			ND	ND					
		11/4/2013		6.7	8.3			ND	ND					
	GW-12-IS	10/15/2008	7.3	5.3	6.1	-136.2	-17.9							
		10/15/2008	6.6	**15**	35.2	-135.9	-17.8							
		10/15/2008	6.5	10.6	27.7	-136.2	-17.8							
		5/15/2009		5.2	10									
		8/4/2009		ND	8.2									
		6/12/2014		3.3	7.5			ND	1.3	0.2	1.2	ND	0.3	1.6
		10/4/2014		ND	6.8			0.42	ND	ND	0.9	ND	0.2	1.2
		11/17/2014		1.4	6.2			0.25	ND	ND	0.9	ND	ND	1
	GW-13-IS	8/4/2009		ND	2.8									
	GW-15-MS	10/29/2008	5.1	ND	ND	-129.6	-16.8							
		5/17/2009		**23.8**	ND									
		8/3/2009		ND	ND									
		6/10/2014		ND	ND			ND	ND	ND	2.7	ND	2	4.7
		10/4/2014		ND	ND			ND	ND	ND	2.4	ND	2	4.6
		11/17/2014		ND	ND			ND	ND	ND	2.4	0.2	2.1	4.7
	GW-50-MS	11/6/2014		8.6	4.4			0.19	ND	0.2	3.2	0.5	1.9	**5.6**
		11/20/2014		10.6	ND			0.27	ND	ND	2.2	ND	1.3	3.6
	GW-51-MS	11/5/2014		**38.4**	16.7			1.8	**7.3**	ND	2.3	ND	0.9	3.1
		11/20/2014		ND	4.5			0.17	1.2	ND	1.5	ND	0.6	2.2
	GW-53-MS	11/20/2014		8	8.4			0.31	1.9	ND	1.9	0.2	0.6	2.8
	GW-55-MS	11/18/2014		ND	16.2			0.4	1.1	ND	0.6	ND	0.4	1.1
	GW-56-MS	11/7/2014		10.6	3.5			0.38	ND	ND	2.4	ND	1.1	3.6
		11/19/2014		2.1	4.2			0.43	1.6	ND	2.1	ND	0.8	3
	GW-9-IS	10/16/2008	5.2	3.9	ND	-128.8	-16.7							
		5/15/2009		6.6	ND									
		5/15/2009		11.8	ND									
		8/4/2009		7.2	ND									
		6/12/2014		**17.4**	ND			ND	ND	ND	3.5	ND	2.3	**5.8**
		8/7/2014		5.8	ND			ND	ND	ND	4.3	0.2	2.2	**6.7**
		10/7/2014		ND	ND			ND	ND	0.1	3.9	ND	2.1	**6.2**
		11/19/2014		8.6	4.7			0.33	1.3	ND	2.9	ND	2	**5.1**
	GW-MWB-MBS	6/29/2005		4.6	1.3									
		10/29/2005		3	4.3									
		6/2/2006		4.37	4.07									
		5/19/2007		3.1	9									
		10/16/2007		**35**	42									
		6/11/2008		4.2	15.3									
		10/18/2008		2.2	17.4									
		5/13/2009		0	11.6									
		10/7/2010		ND	8.4									
		5/16/2011		ND	11.7									
		10/17/2011		3.2	7.5			ND	ND					
		10/18/2011		ND	6.8									
		5/31/2012		ND	5			ND	0.89					
		10/16/2012		2.1	4.7			ND	ND					

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope	Radium 226	Radium 228	Thorium 230	Uranium 234	Uranium 235	Uranium 238	Uranium, Total
			ppt	pCi/L	pCi/L	ppt	ppt	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
			Comparison Value: na	GW HH: 15 pCi/L	GW HH: 50 pCi/L	Comparison Value: na		GW HH: 5 pCi/L						
	GW-NW9-IBS	10/29/2004		**122**	**64.4**									
		6/29/2005		6.8	5.2									
		10/26/2005		2	2.2									
		6/1/2006		7.07	1.22									
		5/19/2007		2	17.9									
		10/16/2007		**26**	19									
		6/11/2008		0.14	6.5									
		10/18/2008		2.2	9.8									
		5/12/2009		1.7	9.2									
		10/7/2010		ND	5.2									
		5/16/2011		5.6	5.9									
		10/17/2011		3.6	4.3									
		6/5/2012		ND	ND			ND	ND					
		10/22/2012		3.3	4.7			ND	ND					
	MW-A-110-MB	10/7/2010		ND	15.9									
		5/16/2011		ND	14.6									
		10/17/2011		ND	20.6			ND	ND					
		10/18/2011		ND	13.7									
		5/31/2012		ND	21.6			ND	ND					
		10/16/2012		ND	21.6			ND	ND					
Deep Hydrostratigraphic Unit	GW-11-IW	10/29/2008	5.8	4.1	ND	-132.2	-17.2							
		5/14/2009		11.5	6									
		8/3/2009		5.1	ND									
		10/11/2010		3.3	5.4									
		10/15/2010		3.6	3.5									
		5/19/2011		2.9	ND									
		10/11/2011		ND	2.7									
		6/4/2012		ND	ND			ND	ND					
		10/18/2012		2.58	2.4			ND	0.57					
		6/12/2014		8.6	ND			ND	ND	ND	2.7	ND	1.3	4.2
		10/8/2014		9.1	ND			0.24	ND	ND	2.7	ND	1.5	4.4
	GW-14-MW	11/1/2008	5.7	9.7	5.3	-151.3	-19.6							
		5/17/2009		9.1	3.6									
		8/4/2009		11.6	7.6									
		6/11/2014		9.5	4.4			ND	ND	ND	**6.7**	ND	2	**8.8**
		10/8/2014		7.2	3.6			0.56	ND	ND	**6.1**	ND	1.7	**8**
Shield and Jouglard Canyons Sub-Basin														
Surface Water														
Spring	FM-1	10/19/2008	7.8	6.1	ND	-134.5	-17.8							
		5/15/2009		6.8	ND									
		8/4/2009		6.4	ND									
	HH-1	10/20/2008	6.9	ND	ND	-128.9	-17							
		5/15/2009		ND	ND									
		8/4/2009		ND	ND									
	JCS-1	10/20/2008	5.7	2.7	3.9	-128.1	-16.7							
		5/15/2009		4.8	4.3									
		8/4/2009		ND	5.6									
ODA Seep	SWS-2	10/20/2008	7.6	ND	ND	-128.1	-17							
		5/15/2009		7	3.8									
		8/4/2009		ND	4.6									
Groundwater														
Shallow Hydrostratigraphic Unit	GW-24-MA	5/15/2009		**35.2**	19.6									
		10/8/2014		**30.1**	4.8									
	GW-34-MA	5/16/2009		13	ND									
Intermediate Hydrostratigraphic Unit	GW-22-MM	5/14/2009		**19**	ND									
		8/3/2009		**19.1**	10.8									
	GW-32-MD	10/29/2008	6.8	9.4	7	-131.6	-17.3							
		5/17/2009		6.5	ND									
		8/3/2009		ND	ND									
		10/9/2014		ND	ND									
	GW-33-MR	10/30/2008	6.7	ND	ND	-122.8	-16.2							
		5/16/2009		2.2	ND									
		8/3/2009		2.6	3.3									
		10/9/2014		ND	ND									
Deep Hydrostratigraphic Unit	GW-31-MW	10/30/2008	5.4	4.4	4.2	-150.5	-19.5							
		5/17/2009		2.8	ND									
		8/3/2009		5.7	6.8									
		10/9/2014		ND	ND									
Margarette Creek/Trail Canyon Sub-Basin														
Groundwater														
Intermediate Hydrostratigraphic Unit	GW-LRSN-1-DD	5/19/2009		ND	ND									
		8/7/2009		ND	ND									
		10/8/2014		ND	ND									
	GW-LRSN-2-DD	5/19/2009		5.6	5.5									
		8/7/2009		ND	ND									
		10/8/2014		ND	ND									
Off-Site Southwest														
Groundwater														
		10/29/2008	-2.1	**17.7**	20.7	-121.5	-14.9							
		5/17/2009		**20.9**	ND									

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Deuterium Excess	Gross Alpha	Gross Beta	Hydrogen-Deuterium Stable Isotope	018 Stable Isotope	Radium 226	Radium 228	Thorium 230	Uranium 234	Uranium 235	Uranium 238	Uranium, Total
			ppt	pCi/L	pCi/L	ppt	ppt	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
			Comparison Value: na	GW HH: 15 pCi/L	GW HH: 50 pCi/L	Comparison Value: na		GW HH: 5 pCi/L						
Intermediate Hydrostratigraphic Unit	GW-10-IBS	8/4/2009		ND	ND									
		10/11/2010		2.5	7.9									
		10/15/2010		ND	6.3									
		5/19/2011		ND	7.7									
		10/11/2011		ND	7.7									
		6/4/2012		ND	6.5			ND	ND					
		10/18/2012		ND	10.9			ND	ND					
		10/9/2014		9.3	ND			0.22	ND	ND	1.3	ND	0.9	2.2
	GW-7-IT	5/20/2009		**16.1**	41.4									
		8/4/2009		ND	ND									
		10/8/2010		ND	9.9									
		5/19/2011		ND	4.4									
		10/11/2011		ND	4.7									
		6/4/2012		3.9	11.1			ND	ND					
		10/18/2012		ND	10			ND	0.89					
	GW-8-IBS	10/16/2008	-8.5	ND	ND	-109.1	-12.6							
		5/17/2009		14.9	9.1									
		8/5/2009		ND	ND									
		10/8/2010		6.6	8.8									
		5/19/2011		2.3	8									
		10/11/2011		3.2	5.1									
		6/4/2012		3.1	6			ND	ND					
		10/18/2012		3	7.6			ND	ND					
		10/7/2014		ND	ND			ND	ND	ND	2.1	ND	1.2	3.6
Offsite West														
Groundwater														
Intermediate Hydrostratigraphic Unit	A-14-180-MS	12/14/2011		5.8	10.2									
		6/1/2012		1.8	9.4			ND	ND					
		9/10/2013		2.2	5.8			ND	1.44					
		11/4/2013		2.3	6.3			ND	ND					
	A-15-105-MB	12/14/2011		5	18.1									
		6/1/2012		ND	6.2			ND	ND					
		9/10/2013		ND	7.1			ND	ND					
		11/4/2013		ND	ND			ND	ND					
	A-16-190-MS	12/14/2011		3.6	5.7									
		6/1/2012		2.4	5.1			0.28	0.57					
		10/24/2012		ND	4.5			ND	0.58					
		9/11/2013		2.29	4.9			ND	ND					
		11/7/2013		ND	5.8			0.45	0.57					
	A-17-150-MS	12/14/2011		ND	4.2									
		6/1/2012		ND	4.5			ND	ND					
		10/24/2012		ND	6.5			ND	0.42					
		9/12/2013		ND	9.2			ND	ND					
		11/12/2013		ND	5			ND	ND					
	A-36-105-MBS	12/19/2012		ND	**59**			0.35	ND					
		9/11/2013		ND	38			0.42	0.66					
		11/4/2013		ND	40			0.26	0.51					
	A-36-145-MS	12/19/2012		ND	14.8			0.35	ND					
		9/11/2013		ND	ND			ND	0.56					
		11/4/2013		ND	ND			ND	ND					

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Western Woodall Mountain Sub-Basin			
Surface Water			
Spring	WS-4	5/19/2008	ND
		10/19/2008	ND
		5/16/2009	0.00188
		8/7/2009	ND
	WS-5	5/19/2008	ND
		10/19/2008	0.00045
		5/16/2009	0.000423
		8/7/2009	ND
Groundwater			
Intermediate Hydrostratigraphic Unit	GW-57-MS	11/21/2014	0.0016
Deep Hydrostratigraphic Unit	GW-21-MW	10/31/2008	0.0125
		5/21/2009	0.003
		8/7/2009	0.0029
		10/13/2014	0.0024
Old Tailings Pond Sub-Basin			
Surface Water			
Old Tailings Pond	TP-2	5/16/2009	0.00582
Groundwater			
Shallow Hydrostratigraphic Unit	GW-18-MA	5/16/2009	**0.0631**
		8/5/2009	**0.0491**
	TP2-SB3	8/8/2014	**0.079**
	TP2-SB5	8/6/2014	**2.7**
Intermediate Hydrostratigraphic Unit	GW-19-MS	10/30/2008	0.0037
		5/17/2009	0.00351
		8/4/2009	0.00365
		10/7/2014	0.0029
	GW-37-MD	10/2/2009	0.00182
		10/9/2014	0.0017
French Drain Sub-Basin			
Surface Water			
ODA Seep	SWS-3	10/20/2008	0.0062435
		5/16/2009	0.00871
		8/4/2009	0.00917
New Tailings Pond	TP-1	10/20/2008	ND
		5/16/2009	ND
		7/10/2009	ND
		8/4/2009	ND
		6/12/2014	0.0014
		10/8/2014	0.0012
French Drain	FD-1	10/20/2008	0.00408075
		5/16/2009	0.00793
		5/19/2009	0.00909
		8/4/2009	0.00648
		6/10/2014	0.0043
		8/7/2014	0.003
Groundwater			
Shallow Hydrostratigraphic Unit	GW-16-MA	10/30/2008	0.0049
		5/15/2009	0.0036
		8/4/2009	0.00388
		10/9/2014	0.0061
		11/19/2014	0.0052
	GW-17-MA	10/30/2008	0.0069
		5/16/2009	0.0162
		8/4/2009	0.016
		10/7/2014	0.012
		11/19/2014	0.0032
	GW-49-MA	11/4/2014	0.0037
		11/18/2014	0.0038
	GW-52-MA	11/18/2014	0.0041
	GW-54-MA	11/7/2014	0.0019
		11/18/2014	0.003

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Intermediate Hydrostratigraphic Unit	GW-12-IS	10/15/2008	ND
		10/15/2008	ND
		10/15/2008	ND
		5/15/2009	ND
		8/4/2009	ND
		9/24/2009	ND
		9/24/2009	ND
		9/24/2009	ND
		10/4/2014	0.00052
		11/17/2014	0.00052
	GW-13-IS	8/4/2009	ND
	GW-15-MS	10/29/2008	0.0062
		5/17/2009	0.00582
		8/3/2009	0.00656
		10/4/2014	0.0059
		11/17/2014	0.0061
	GW-50-MS	11/6/2014	0.0059
		11/20/2014	0.0036
	GW-51-MS	11/5/2014	0.0031
		11/20/2014	0.002
	GW-53-MS	11/20/2014	0.0018
	GW-55-MS	11/18/2014	0.00019
	GW-56-MS	11/7/2014	0.0026
		11/19/2014	0.002
	GW-9-IS	10/16/2008	0.0069
		5/15/2009	0.007
		5/15/2009	0.00695
		8/4/2009	0.00816
		9/25/2009	0.00201
		9/25/2009	0.00603
		9/25/2009	0.00627
		8/7/2014	0.0062
		10/7/2014	0.0063
		11/19/2014	0.0053
Deep Hydrostratigraphic Unit	GW-11-IW	10/29/2008	0.0041
		5/14/2009	0.00386
		8/3/2009	0.00366
		9/16/2009	0.00339
		9/16/2009	0.00315
		9/16/2009	0.00376
		9/16/2009	0.00307
		10/8/2014	0.0037
	GW-14-MW	11/1/2008	0.0066
		5/17/2009	0.00461
		8/4/2009	0.00845
		10/8/2014	0.0049
Shield and Jouglard Canyons Sub-Basin			
Surface Water			
Spring	FM-1	10/19/2008	0.0019
		5/15/2009	ND
		8/4/2009	ND
	HH-1	10/20/2008	0.00068
		5/15/2009	ND
		8/4/2009	ND
	JCS-1	10/20/2008	ND
		5/15/2009	ND
		8/4/2009	ND
ODA Seep	SWS-2	10/20/2008	ND
		5/15/2009	ND
		8/4/2009	ND
Shallow Hydrostratigraphic Unit	GW-24-MA	5/15/2009	0.0121
		10/8/2014	0.019
	GW-34-MA	5/16/2009	ND

Table 6-72
Summary of Groundwater, Spring, and Seep Radiochemistry and Isotope Concentrations on the West Side of Woodall Mountain

Hydrostratigraphic/ Location Type	Station	Date	Uranium, Total mg/L GW HH: 0.03
Groundwater			
Intermediate Hydrostratigraphic Unit	GW-22-MM	5/14/2009	ND
		8/3/2009	**0.0805**
	GW-23-MM	5/16/2009	**0.113**
	GW-32-MD	10/29/2008	0.0048
		5/17/2009	ND
		8/3/2009	ND
		10/9/2014	0.00069
	GW-33-MR	10/30/2008	0.00023
		5/16/2009	0.000265
		8/3/2009	ND
		10/9/2014	0.000048
Deep Hydrostratigraphic Unit	GW-31-MW	10/30/2008	0.0024
		5/17/2009	ND
		8/3/2009	ND
		10/9/2014	0.0013
Margarette Creek/Trail Canyon Sub-Basin			
Surface Water			
Baseflow River	TCC-2	10/20/2008	ND
		8/4/2009	ND
Groundwater			
Intermediate Hydrostratigraphic Unit	GW-LRSN-1-DD	5/19/2009	0.00106
		8/7/2009	ND
		10/8/2014	0.00099
	GW-LRSN-2-DD	5/19/2009	0.000563
		8/7/2009	ND
		10/8/2014	0.00053
Off-Site Southwest			
Groundwater			
Intermediate Hydrostratigraphic Unit	GW-10-IBS	10/29/2008	0.0016
		1/7/2009	0.0017
		5/17/2009	ND
		8/4/2009	ND
		10/9/2014	0.0015
	GW-7-IT	1/7/2009	0.002
		5/20/2009	0.00127
		8/4/2009	ND
	GW-8-IBS	10/16/2008	0.0025
		5/17/2009	ND
		8/5/2009	ND
		10/7/2014	0.0032

Notes:
Includes data from 2001 onward of "A" data use level only.
GW = groundwater, SW = surface water, HH = human health
mg/L = milligrams per liter; pCi/L = picocuries per liter; ppt = parts per trillion
Creek surface water results presented include only data collected during the base flow season to be more representative of groundwater impacts.
Blank cells - No data available
na = Not Applicable.
Exceedances of comparison values are indicated in the following manner:
Value exceeds groundwater human health comparison value.
More information about groundwater comparison values is provided on Table 4-6.
Information about SW criteria is on Table 4-4. Additional SW criteria include: dissolved uranium [1.5 mg/L (chronic eco) and 2.4 mg/L (acute eco)].
Comparison values are provided for preliminary comparison purposes only and do not constitute a risk evaluation.
Comprehensive evaluation will be provided in the risk assessments.

Table 7-1
Site Transport Pathways (by Source Area)

Source Area	Pathway for Transport of Selenium (and other COPCs)					
	Groundwater Transport*			Surface Water Transport	Erosion and Sediment Transport	Uptake by Vegetation
	Shallow Hydrostratigraphic System	Intermediate Hydrostratigraphic System	Regional Hydrostratigraphic System			
Overburden Piles Subjects of NTCRA and FSPS	Reduced (0.03)	Reduced (82)	Reduced (39)	Reduced	Reduced	Reduced
Overburden Disposal Areas (Reclaimend and Unreclaimed)	Yes (66)	Yes (615)	Yes (435)	Yes	Yes	Yes
Waste Rock	--	Yes (4)	Low (0.05)	Yes	Yes	Yes
Tailings	Low (187)	Low (11)	--	--	Yes	Yes
Open Mine Panels (Pits)	--	Yes (375)	Yes (89)	Pit Lake Only**	Yes	Yes
Underground Workings	--	--	--	--	--	--

Notes:

-- indicates that a transport pathway is not present.

* Numbers in parentheses represent approximate source-area acreages atop hydrostratigraphic unit outcrops.

** No overland flow to surface waters leaves the pits.

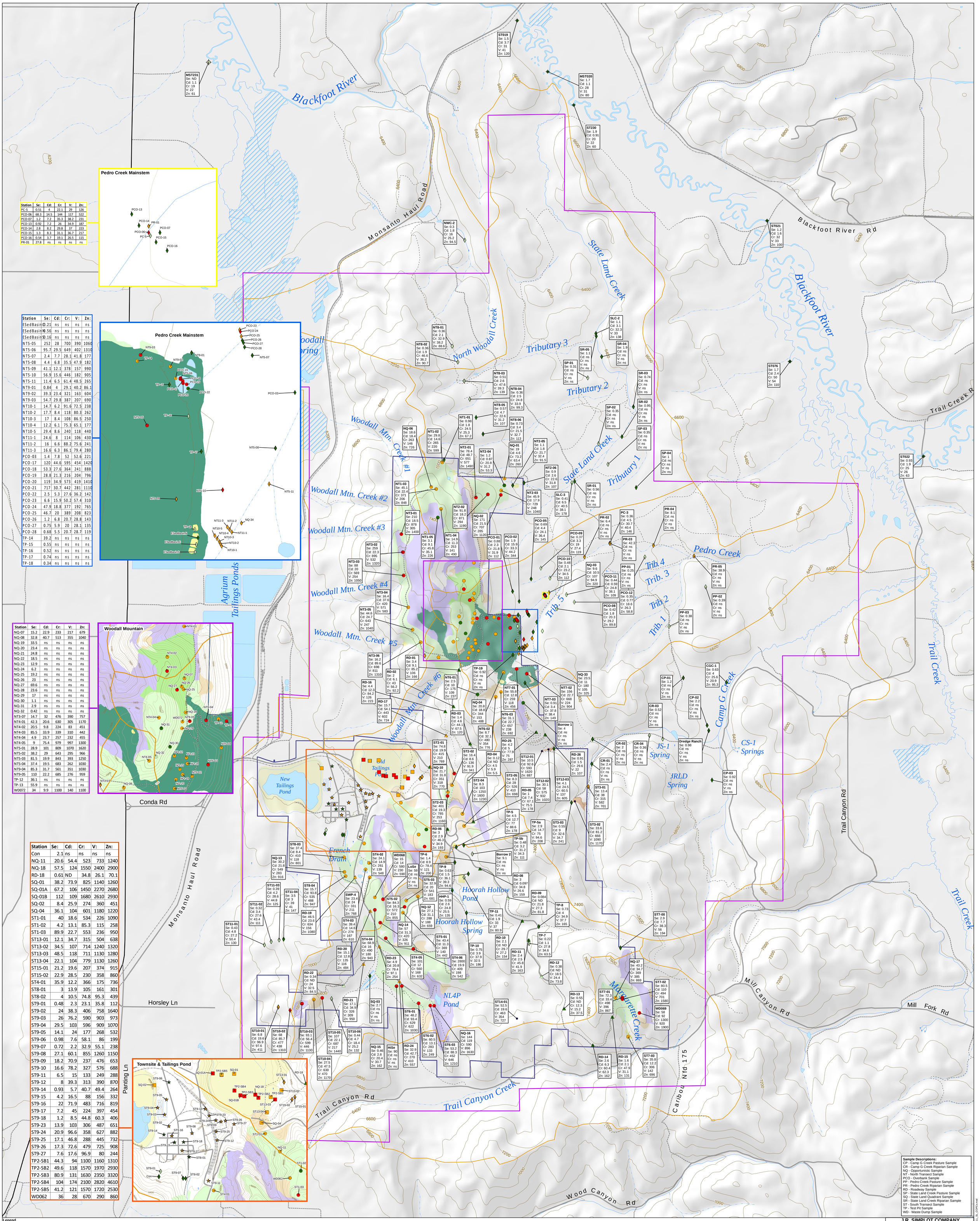
Table 8-1
Summary of Conditions

Sub-Basin (acres)		Distribution of RMM and Undisturbed Areas (acres)		Approximate Selenium Concentrations; Average (min-max)										
		Undisturbed Strata Outcrop	RMM Covered Strata Outcrop	RMM Surface Soil	RMM Subsurface Soil	RMM Terrestrial Vegetation	RMM Terrestrial Animal Tissue	Soils Outside of RMM	Vegetation Outside of RMM	Terrestrial Animal Tissue Outside of RMM	Surface Water	Sediment	Aquatic Animal Tissue	Groundwater
Pedro Creek	1864	1662	202	39 mg/kg (0.6-146)	73 mg/kg (0.4-1260)	38 mg/kg (0.2-555)	44 mg/kg (13-91)	83 mg/kg (0.2-990)	13 mg/kg (0.04-82.4)	11 mg/kg (1-30)	1.6 mg/L (0.0003-9.8)	111 mg/kg (0.8-1430)	22.6 mg/kg (6-36)	0.85 mg/L (0.0012-15.4)
State Land Creek	2830	2577	253	35 mg/kg (0.6-92)	46 mg/kg (0.9-171)	16 mg/kg (0.07-172)	10 mg/kg (1.5-20.5)	0.59 mg/kg (0.2-1.9)	0.94 mg/kg (0.07-24)	2.7 mg/kg (0.6-6.5)	0.26 mg/L (0.0002-3.9)	41 mg/kg (0.2-373)	16 mg/kg (5.3-33.5)	0.083 mg/L (0.0002-1.8)
French Drain	708	404	303	28 mg/kg (4.2-57)	32 mg/kg (3-90)	16 mg/kg (0.2-129)	21 mg/kg (5-42)	1.4 mg/kg (0.3-4)	0.74 mg/kg (0.04-7.3)	--	0.2 mg/L (0.0007-0.87)	119 mg/kg (0.4-624)	216 mg/kg (4-428)	0.07 mg/L (0.0002-0.61)
Shield and Jouglard Canyons	2091	1868	223	57 mg/kg (0.5-165)	131 mg/kg (0.2-2800)	24 mg/kg (0.07-367)	37 mg/kg (0.3-120)	1.0 mg/kg (0.1-4.5)	0.42 mg/kg (0.05-1.1)	1.4 mg/kg (0.8-2.1)	0.055 mg/L (0.0002-0.41)	33.7 mg/kg (0.3-253)	42 mg/kg (6-102)	1.5 mg/L (0.0003-20.2)
Old Tailings Pond	712	494	218	53 mg/kg (6-401)	46 mg/kg (8-187)	195 mg/kg (0.2-7180)	36 mg/kg (7.8-107)	13 mg/kg (4-23)	5.9 mg/kg (0.6-25.3)	--	0.15 mg/L (0.0018-0.63)	9 mg/kg (1-18)	--	0.50 mg/L (0.0016-1.2)
Margarette Creek/Trail Canyon	1822	1747	75	54 mg/kg (34-81)	55 mg/kg (32-73)	36.9 mg/kg (1-189)	18.3 mg/kg (14-22)	--	--	--	0.0004 mg/L (0.0002-0.0007)	22 mg/kg (0.2-109)	--	0.0005 mg/L (0.0003-0.0009)
Camp G Creek	2978	2966	12	13 mg/kg (2-32)	17 mg/kg (3-34)	8.8 mg/kg (0.07-35.7)	--	1.8 mg/kg (0.2-13.4)	1.9 mg/kg (0.08-22.7)	0.75 mg/kg (0.2-1.3)	0.007 mg/L (0.0002-0.04)	3 mg/kg (0.3-9.4)	10 mg/kg (1.4-65.2)	--
Western Woodall Mountain	1744	1568	176	82 mg/kg (16-193)	95 mg/kg (13-259)	32 mg/kg (0.5-169)	--	14 mg/kg (13.3-14.7)	35 mg/kg (4-177)	--	0.0048 mg/L (0.0003-0.076)	9 mg/kg (0.6-26.3)	--	0.012 mg/L (0.0004-0.046)
North Woodall Mountain	1004	1004	0	--	--	--	--	0.24 mg/kg (0.1-0.4)	0.24 mg/kg (0.04-0.64)	2.5 mg/kg (1.9-3.2)	0.0019 mg/L (0.0002-0.0048)	0.9 mg/kg (0.2-2.4)	1.65 mg/kg (1.65-1.65)	0.0018 mg/L (0.0003-0.007)
Southwest Conda	695	695	0	--	--	--	--	7.3 mg/kg (0.1-68)	2.6 mg/kg (0.03-14.7)	0.42 mg/kg (0.3-0.5)	--	0.63 mg/kg (0.6-0.66)	--	--

Notes:

mg/L = milligrams per liter; mg/kg = milligrams per kilogram

RMM = Residual Mining Materials; NTCRA = Non-Time-Critical Removal Action; FSPS = Field Scale Pilot Study

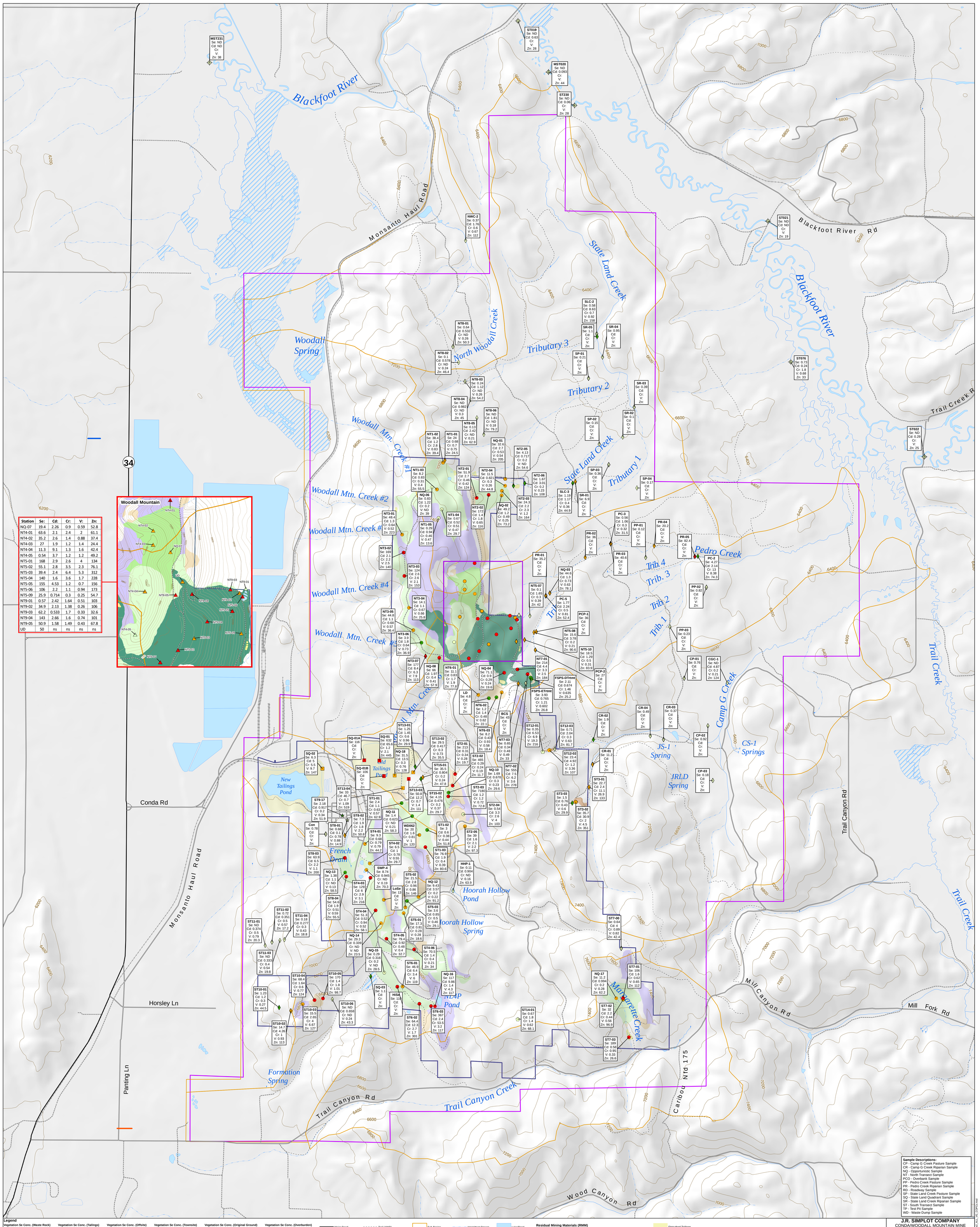


Station	Se:	Cd:	Cr:	V:	Zn:
PC-5	0.51	4	22.1	29	126
PCO-06	68.3	14.5	144	117	522
PCO-07	1.2	7.2	35.3	38.2	231
PCO-13	0.92	7.2	26	34.9	187
PCO-14	2.8	8.2	29.8	37	223
PCO-15	1.3	8.3	31.1	36.7	217
PCO-16	0.54	3.7	19.1	26.5	115
PR-01	27.8	ns	ns	ns	ns

Station	Se:	Cd:	Cr:	V:	Zn:
ESedBasinD	0.21	ns	ns	ns	ns
ESedBasinN	0.56	ns	ns	ns	ns
ESedBasinS	0.16	ns	ns	ns	ns
NT5-05	252	28	700	390	1060
NT5-06	95.7	29.5	649	402	1310
NT5-07	2.4	7.7	28.1	41.8	177
NT5-08	4.4	6.8	35.5	47.9	182
NT5-09	41.1	12.1	378	157	990
NT5-10	56.9	15.6	446	182	905
NT5-11	11.4	6.5	61.4	48.5	265
NT9-01	0.84	4	29.1	40.2	86.1
NT9-02	39.3	23.4	321	163	604
NT9-03	54.7	29.8	387	207	690
NT10-1	14.7	6.2	91.6	72.5	238
NT10-2	17.7	8.4	118	80.3	262
NT10-3	17	8.4	108	86.5	250
NT10-4	12.2	6.1	75.3	65.1	177
NT10-5	29.4	8.6	240	118	440
NT11-1	24.6	8	114	106	430
NT11-2	16	6.6	88.2	75.6	241
NT11-3	16.6	6.3	86.1	79.4	280
PCO-03	1.4	7.8	52	52.6	221
PCO-17	120	44.6	595	454	1420
PCO-18	53.3	27.6	364	241	888
PCO-19	28.8	21.3	216	204	796
PCO-20	119	34.9	573	419	1410
PCO-21	717	30.7	442	281	1110
PCO-22	2.5	5.3	27.6	36.2	142
PCO-23	6.6	15.9	50.2	57.4	310
PCO-24	47.9	18.8	377	192	765
PCO-25	46.7	20	389	208	823
PCO-26	1.2	6.8	20.7	28.8	143
PCO-27	0.75	5.9	20	28.1	135
PCO-28	0.68	5.5	20.7	28.7	119
TP-14	39.2	ns	ns	ns	ns
TP-15	0.55	ns	ns	ns	ns
TP-16	0.52	ns	ns	ns	ns
TP-17	0.74	ns	ns	ns	ns
TP-18	0.34	ns	ns	ns	ns

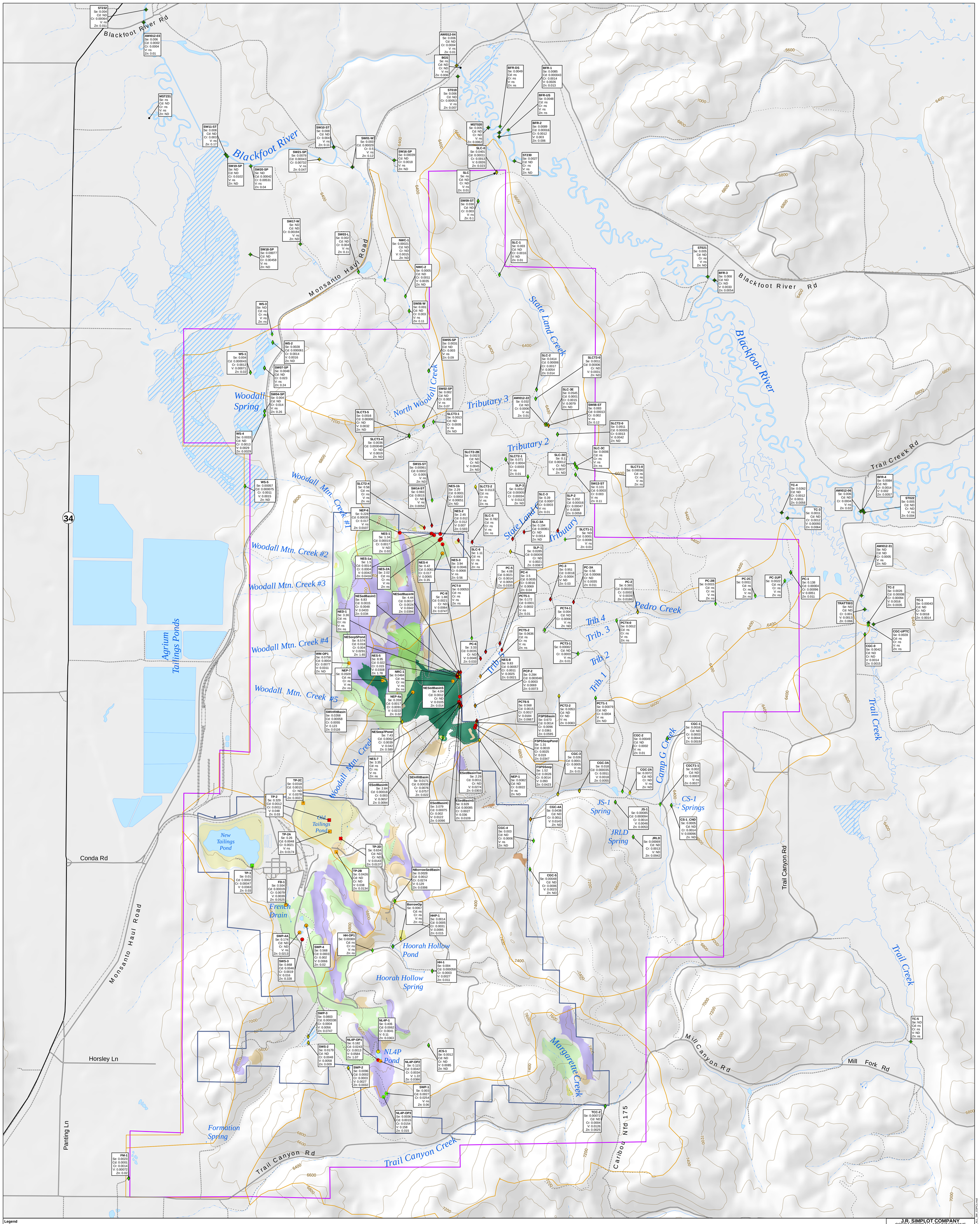
Station	Se:	Cd:	Cr:	V:	Zn:
NQ-07	15.2	22.9	233	217	679
NQ-08	32.8	40.7	513	355	1040
NQ-19	33.5	ns	ns	ns	ns
NQ-20	23.4	ns	ns	ns	ns
NQ-21	24.8	ns	ns	ns	ns
NQ-22	18.5	ns	ns	ns	ns
NQ-23	12.9	ns	ns	ns	ns
NQ-24	6.2	ns	ns	ns	ns
NQ-25	19.2	ns	ns	ns	ns
NQ-26	23	ns	ns	ns	ns
NQ-27	69.6	ns	ns	ns	ns
NQ-28	23.6	ns	ns	ns	ns
NQ-29	17	ns	ns	ns	ns
NQ-30	1.1	ns	ns	ns	ns
NQ-31	2.9	ns	ns	ns	ns
NQ-32	0.42	ns	ns	ns	ns
NT3-07	14.7	32	476	390	757
NT4-01	42.3	20.6	630	305	1170
NT4-02	20.5	9.8	224	83	451
NT4-03	85.5	33.9	339	310	442
NT4-04	4.9	23.7	257	232	455
NT4-05	9	75.4	979	997	1300
NT5-01	28.9	101	809	1070	1620
NT5-02	38.2	29	643	295	966
NT5-03	81.5	19.9	843	393	1250
NT5-04	37.4	19.5	683	262	1030
NT9-04	85.3	31.7	561	351	1030
NT9-05	110	22.2	685	276	959
TP-12	36.1	ns	ns	ns	ns
TP-13	55.9	ns	ns	ns	ns
WD072	34	9.9	1100	140	1100

Station	Se:	Cd:	Cr:	V:	Zn:
Con	2.1	ns	ns	ns	ns
NQ-11	20.6	54.4	523	733	1240
NQ-18	57.5	124	1550	2400	2900
RD-18	0.61	ND	34.8	26.1	70.1
SQ-01	38.2	73.9	825	1140	1260
SQ-01A	67.2	106	1450	2270	2680
SQ-01B	112	109	1680	2610	2930
SQ-02	8.4	25.9	274	360	451
SQ-04	36.1	104	601	1180	1220
ST1-01	40	18.6	534	226	1090
ST1-02	4.2	13.1	85.3	115	258
ST1-03	89.9	22.7	553	236	950
ST13-01	12.1	34.7	315	504	638
ST13-02	34.5	107	714	1240	1320
ST13-03	48.5	118	711	1130	1280
ST13-04	22.1	104	779	1130	1260
ST15-01	21.2	19.6	207	374	915
ST15-02	22.9	28.5	230	358	860
ST4-01	35.9	12.2	366	175	736
ST8-01	3	13.9	105	161	301
ST8-02	4	10.5	74.8	95.3	439
ST9-01	0.48	2.3	23.1	35.8	112
ST9-02	24	38.3	406	758	1640
ST9-03	26	76.2	590	903	973
ST9-04	29.5	103	596	909	1070
ST9-05	14.1	24	177	268	532
ST9-06	0.98	7.6	58.1	86	199
ST9-07	0.72	2.2	32.9	55.1	238
ST9-08	27.1	60.1	855	1260	1150
ST9-09	18.2	70.9	237	476	653
ST9-10	16.6	78.2	327	576	688
ST9-11	6.5	15	133	249	288
ST9-12	8	39.3	313	390	870
ST9-14	0.93	5.7	40.7	49.4	264
ST9-15	4.2	16.5	88	156	332
ST9-16	22	71.9	483	716	819
ST9-17	7.2	45	224	397	454
ST9-18	1.2	8.5	44.8	60.3	406
ST9-23	13.9	103	306	487	651
ST9-24	20.9	96.6	358	627	882
ST9-25	17.1	46.8	288	445	732
ST9-26	17.3	72.6	479	725	908
ST9-27	7.6	17.6	96.9	80	244
TP2-SB1	44.3	94	1100	1160	1310
TP2-SB2	49.6	118	1570	1970	2930
TP2-SB3	80.9	131	1630	2350	3320
TP2-SB4	104	174	2100	2820	4610
TP2-SB5	41.2	121	1570	1720	2530
WD062	36	28	670	290	860



Station	Se:	Cd:	Cr:	V:	Zn:
NQ-07	19.4	2.26	0.9	0.59	52.8
NT4-01	63.6	2.1	2.4	2	61.1
NT4-02	35.2	2.6	1.4	0.88	37.4
NT4-03	27	1.9	1.2	1.4	24.4
NT4-04	11.3	9.1	1.3	1.6	42.4
NT4-05	0.54	3.7	1.2	1.2	49.2
NT5-01	168	2.9	2.6	4	134
NT5-02	55.1	2.8	3.5	2.3	76.1
NT5-03	39.4	2.4	6.4	5.3	312
NT5-04	140	1.6	3.6	1.7	228
NT5-05	155	4.53	1.2	0.7	156
NT5-06	106	2.2	1.1	0.94	173
NT5-09	25.9	0.714	0.3	0.25	54.7
NT9-01	0.57	2.42	1.64	0.51	103
NT9-02	34.9	2.13	1.38	0.26	106
NT9-03	62.2	0.533	1.7	0.33	32.6
NT9-04	143	2.66	1.6	0.74	101
NT9-05	50.9	1.58	1.49	0.43	67.8
UD	50	ns	ns	ns	ns

Notes:
The concentrations presented are the maximum detected value.
ND - Non-detected value
ns - Not sampled



Legend

Surface Water Se Conc. (Original Ground)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water Se Conc. (Overburden)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water Se Conc. (Offsite)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water Se Conc. (Tailings)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water location not sampled for Se

Major Road
Minor Road
Unimproved Road
Trail (4WD)
Trail (Other than 4WD)
Railroad
Sub-Basins
Mine Area
Non-Mine Area
Intemittent Stream
Perennial Stream
Lake/Pond
Reservoir
Swamp/Marsh

Residual Mining Materials (RMM)
- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

N

0 2,500 5,000
Feet

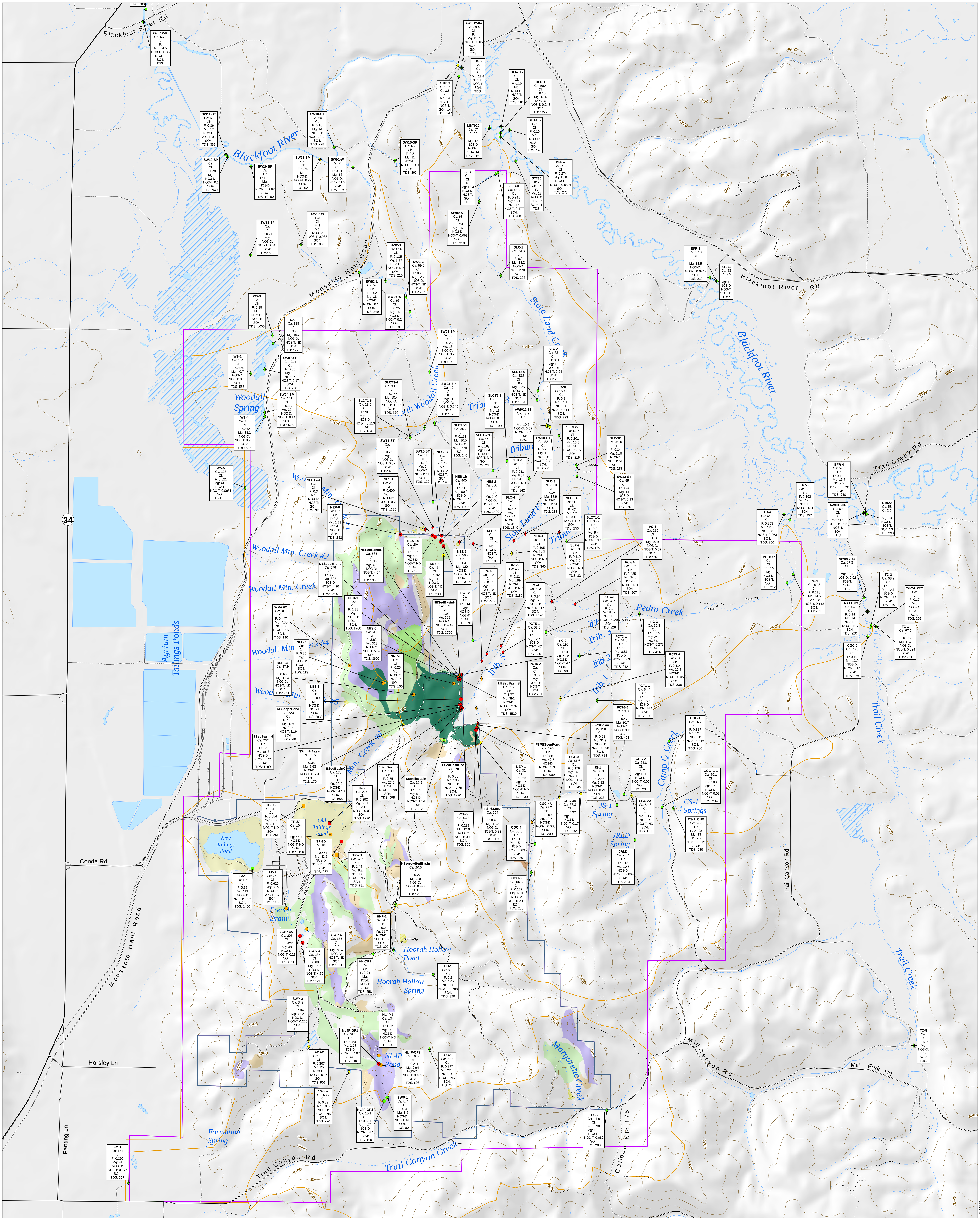
Notes:
The concentrations presented are the maximum detected value.
See Section 4 tables for comparison values.
ND - Non-detected value; ns - Not sampled

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
PLATE 3

MAXIMUM COPC CONCENTRATIONS IN SURFACE WATER

DATE: DEC 14, 2016
BY: KAM FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\Projects\0103\Plate\Pl3_2016\Plate3_ALL_SW_COPCs.mxd



Legend

Surface Water Se Conc. (Original Ground)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water Se Conc. (Overburden)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water Se Conc. (Offsite)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Surface Water Se Conc. (Tailings)
- < 0.005 mg/L (chronic aquatic life criterion)
- 0.005 - 0.02 mg/L (acute aquatic life criterion)
- 0.02 - 0.17 mg/L (human health criterion)
- > 0.17 mg/L

Major Road
Minor Road
Unimproved Road
Trail (4WD)
Trail (Other than 4WD)
Railroad
Sub-Basins
Mine Area
Non-Mine Area
Intermittent Stream
Perennial Stream
Lake/Pond
Reservoir
Swamp/Marsh

Residual Mining Materials (RMM)
- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Notes:
The concentrations presented are the maximum detected value.
See Section 4 tables for comparison values.
ND - Non-detected value; ns - Not sampled

N
0 2,500 5,000
Feet

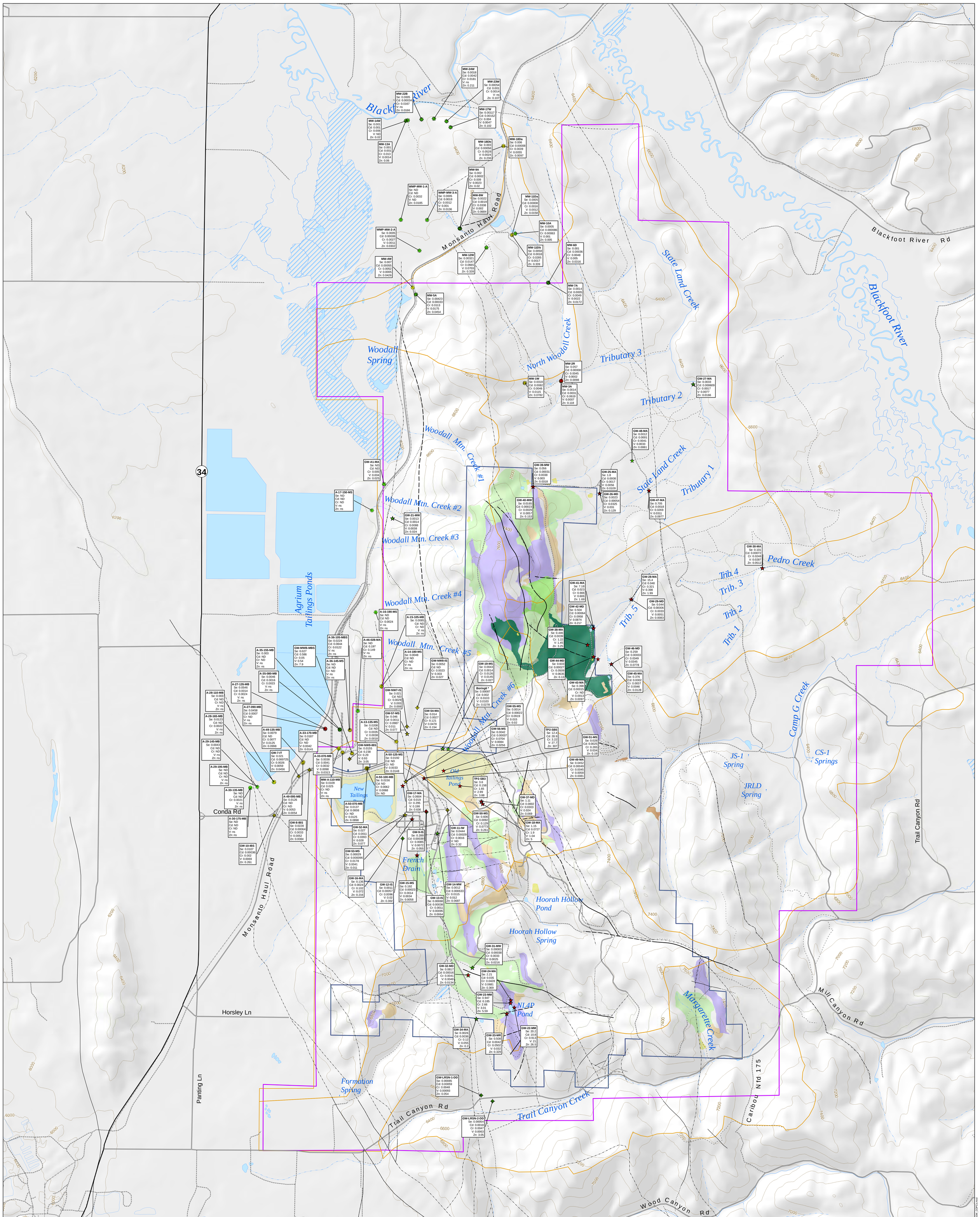
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
PLATE 4

MAXIMUM GENERAL CHEMISTRY CONCENTRATIONS IN SURFACE WATER

DATE: DEC 14, 2016
BY: KAM | FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcgis\Simplot\2010139\plot\RI_2016\Plate4_ALL_SW_GenChem.mxd



Legend

Groundwater Se Conc. (Industrial/Domestic Well)
- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L

Groundwater Se Conc. (Conda RI Monitoring Well)
- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L

Groundwater Se Conc. (Neighboring Industries Monitoring Well)
- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L

- Fault, Buried
- Fault, Confirmed
- Fault, Inferred
- Primary Highway
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

LAYER
- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Notes:
The concentrations presented are the total maximum detected value; * except for Well Boring 6 which are the dissolved fraction.
See Section 4 tables for comparison values.
ND - Non-detected value; ns - Not sampled

N

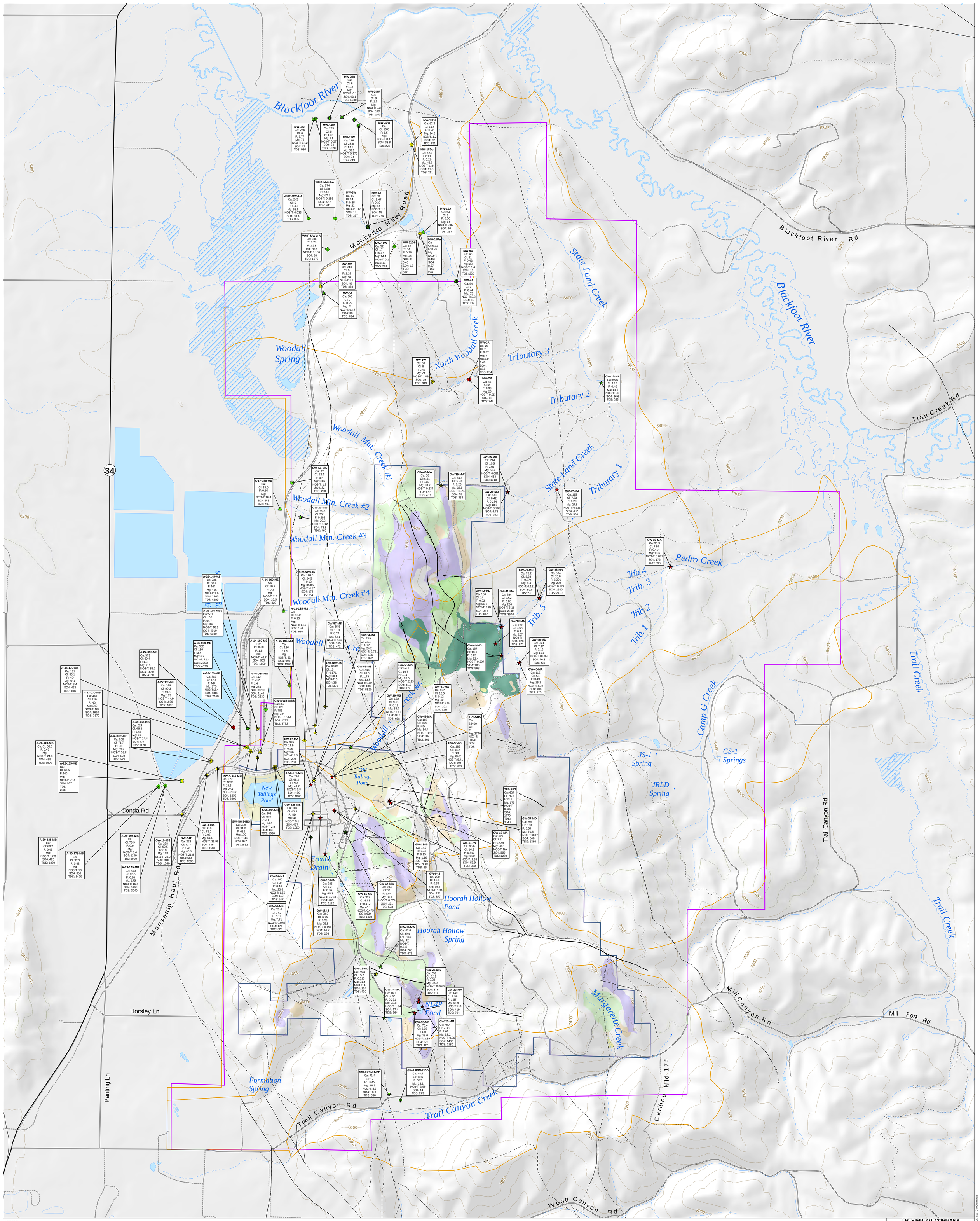
0 1,000 2,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
PLATE 5

MAXIMUM COPC CONCENTRATIONS IN GROUNDWATER

DATE: DEC 14, 2016
BY: KAM
FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\projects\2016\39\APR_2016\Plates_ALL_GW_COPCs.mxd



Legend

Groundwater Se Conc. (Industrial/Domestic Well)
- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L

Groundwater Se Conc. (Conda RI Monitoring Well)
- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L

Groundwater Se Conc. (Neighboring Industries Monitoring Well)
- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L

- Fault, Buried
- Fault, Confirmed
- Fault, Inferred
- Primary Highway
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)
- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Notes:
The concentrations presented are the maximum detected value.
Detected maximum of Nitrate includes results from Nitrate+Nitrite, as N or Nitrate, as N analyses
See Section 4 tables for comparison values.
ND - Non-detected value; ns - Not sampled

N

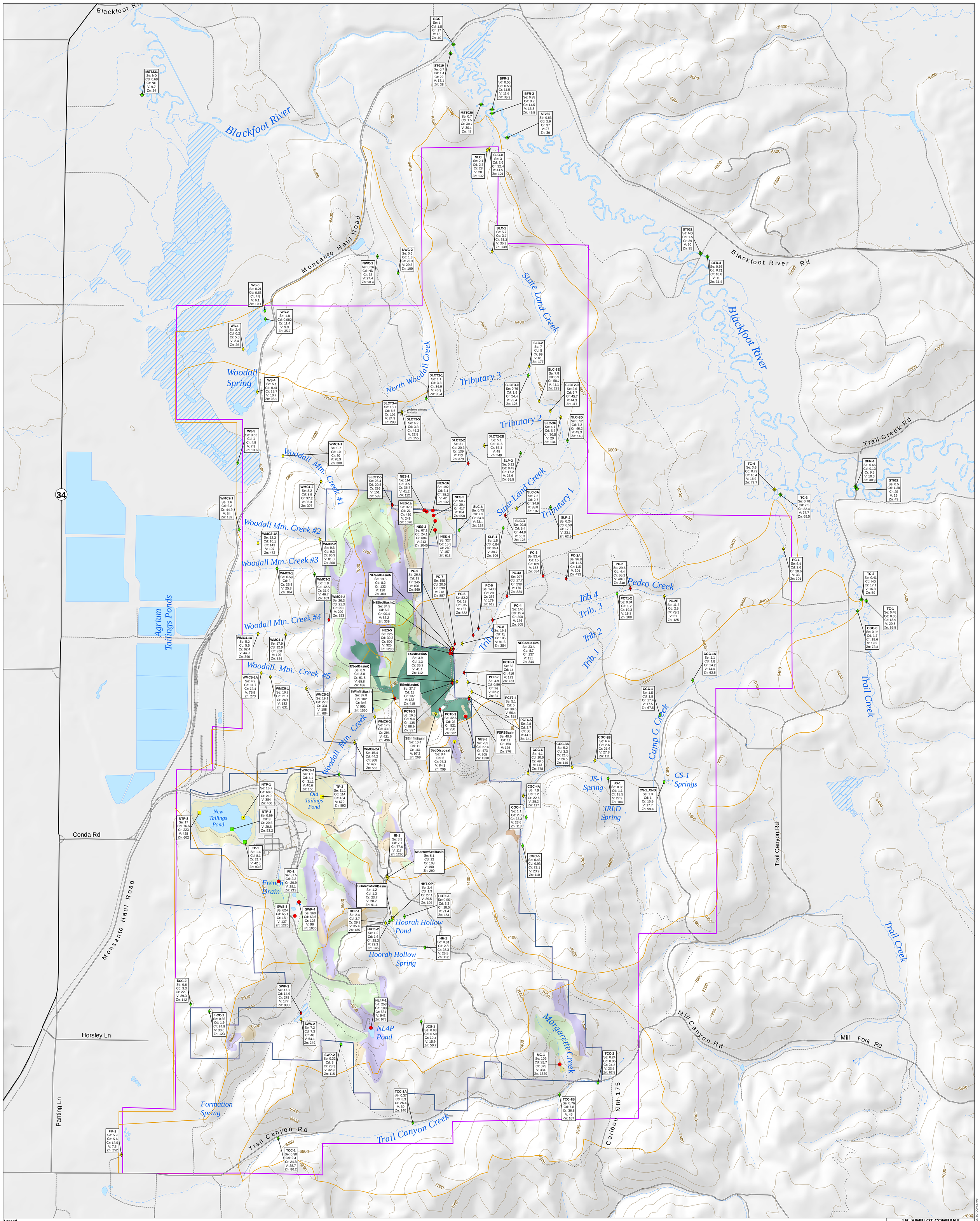
0 1,000 2,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
PLATE 6

MAXIMUM GENERAL CHEMISTRY CONCENTRATIONS IN GROUNDWATER

DATE: DEC 14, 2016
BY: KAM FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\projects\2016\39\arfr_2016\Plates_ALL_GW_GeoChem.mxd



Legend

Sediment Se Conc. (Offsite)
- < 2 mg/kg (screening level)
- 2 - 20 mg/kg
- > 20 mg/kg

Sediment Se Conc. (Original Ground)
- < 2 mg/kg (screening level)
- 2 - 20 mg/kg
- > 20 mg/kg

Sediment Se Conc. (Overburden)
- < 2 mg/kg (screening level)
- 2 - 20 mg/kg
- > 20 mg/kg

Sediment Se Conc. (Tailings)
- < 2 mg/kg (screening level)
- 2 - 20 mg/kg
- > 20 mg/kg

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)
- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Notes:
The concentrations presented are the maximum detected value.
See Section 4 tables for comparison values.
ND - Non-detected value; ns - Not sampled

N

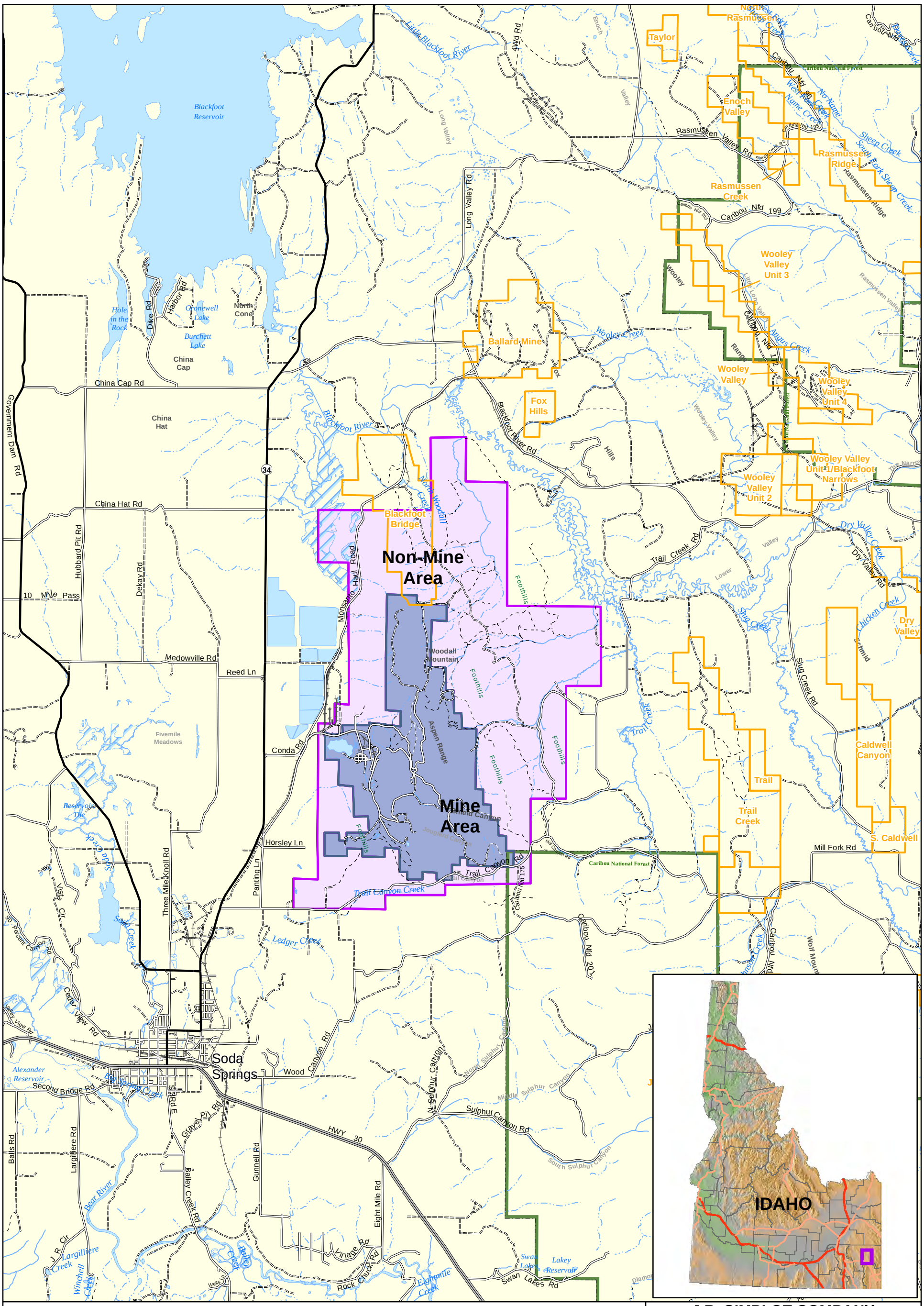
0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
PLATE 7

MAXIMUM COPC CONCENTRATIONS IN SEDIMENT

DATE: DEC 14, 2016
BY: KAM FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\work\p20101\8\gis\fr_2016\fr\map7_ALL_SD_COPCs.mxd



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

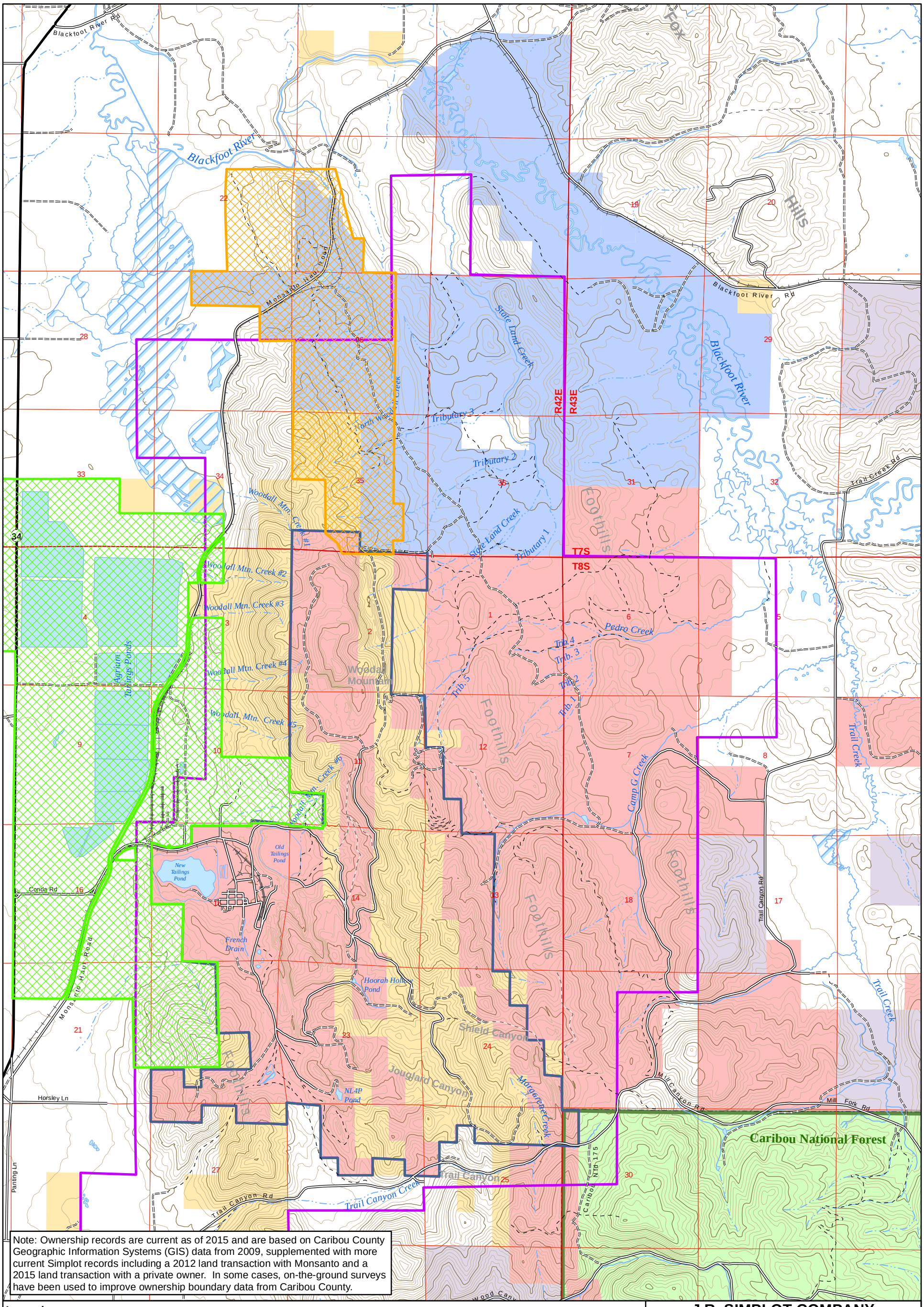
FIGURE 1-1

CONDA/WOODALL MOUNTAIN PHOSPHATE MINE LOCATION

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_1-01_VicinityMap.mxd



Note: Ownership records are current as of 2015 and are based on Caribou County Geographic Information Systems (GIS) data from 2009, supplemented with more current Simplot records including a 2012 land transaction with Monsanto and a 2015 land transaction with a private owner. In some cases, on-the-ground surveys have been used to improve ownership boundary data from Caribou County.

Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Land Ownership

- BLM
- J.R. Simplot Co.
- State of Idaho
- USDA Forest Service
- Monsanto

Current and Potential Future Natural Resource Use

- Agrium Boundary
- Blackfoot Bridge Project Boundary

- Mine Area
- Non-Mine Area

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

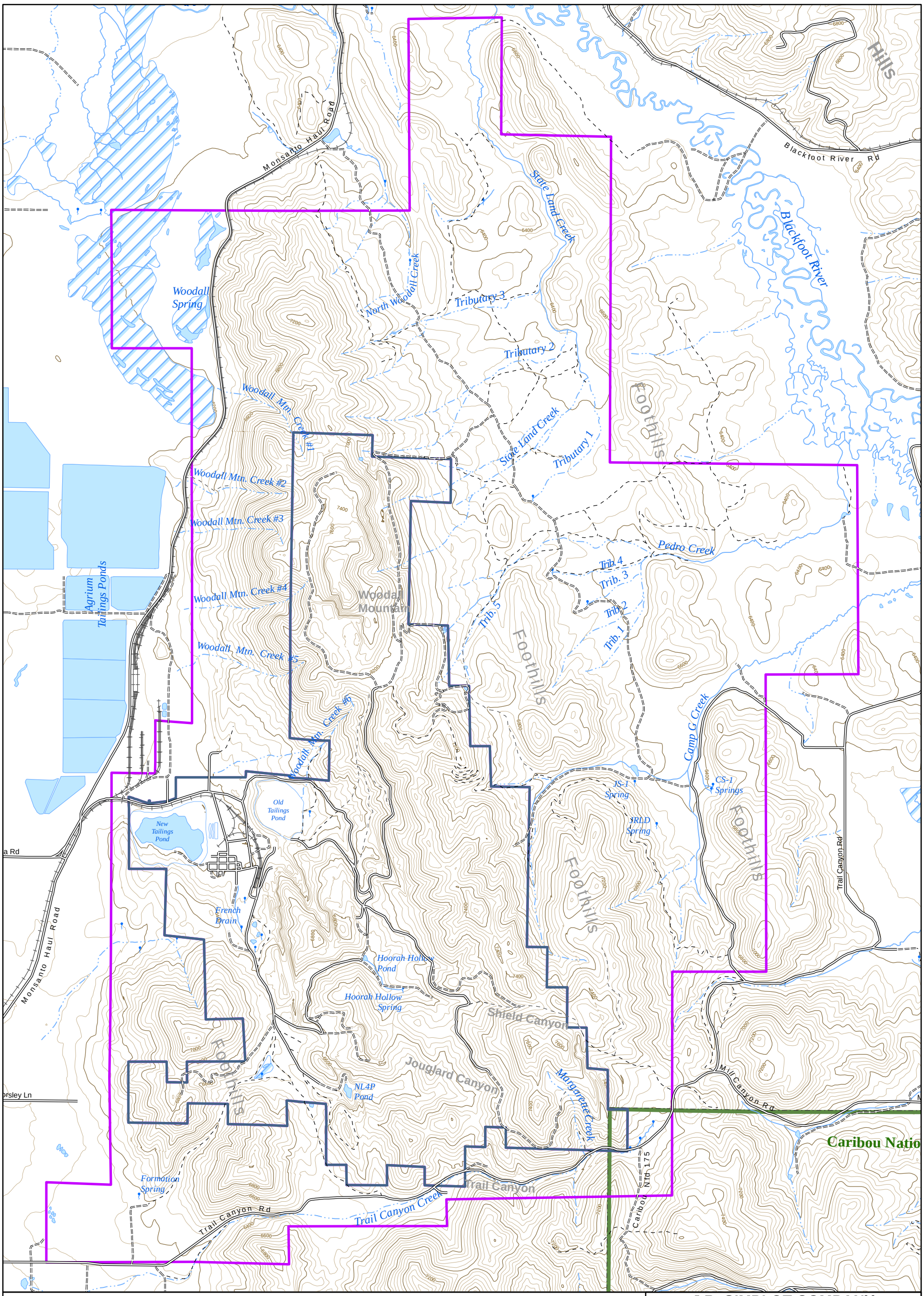
FIGURE 2-1

LAND OWNERSHIP AND LAND USE

DATE: DEC 14, 2016
BY: CRL
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_2-01_LandOwnership.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- 200 ft Contour (2010)
- 40 ft Contour (2010)

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

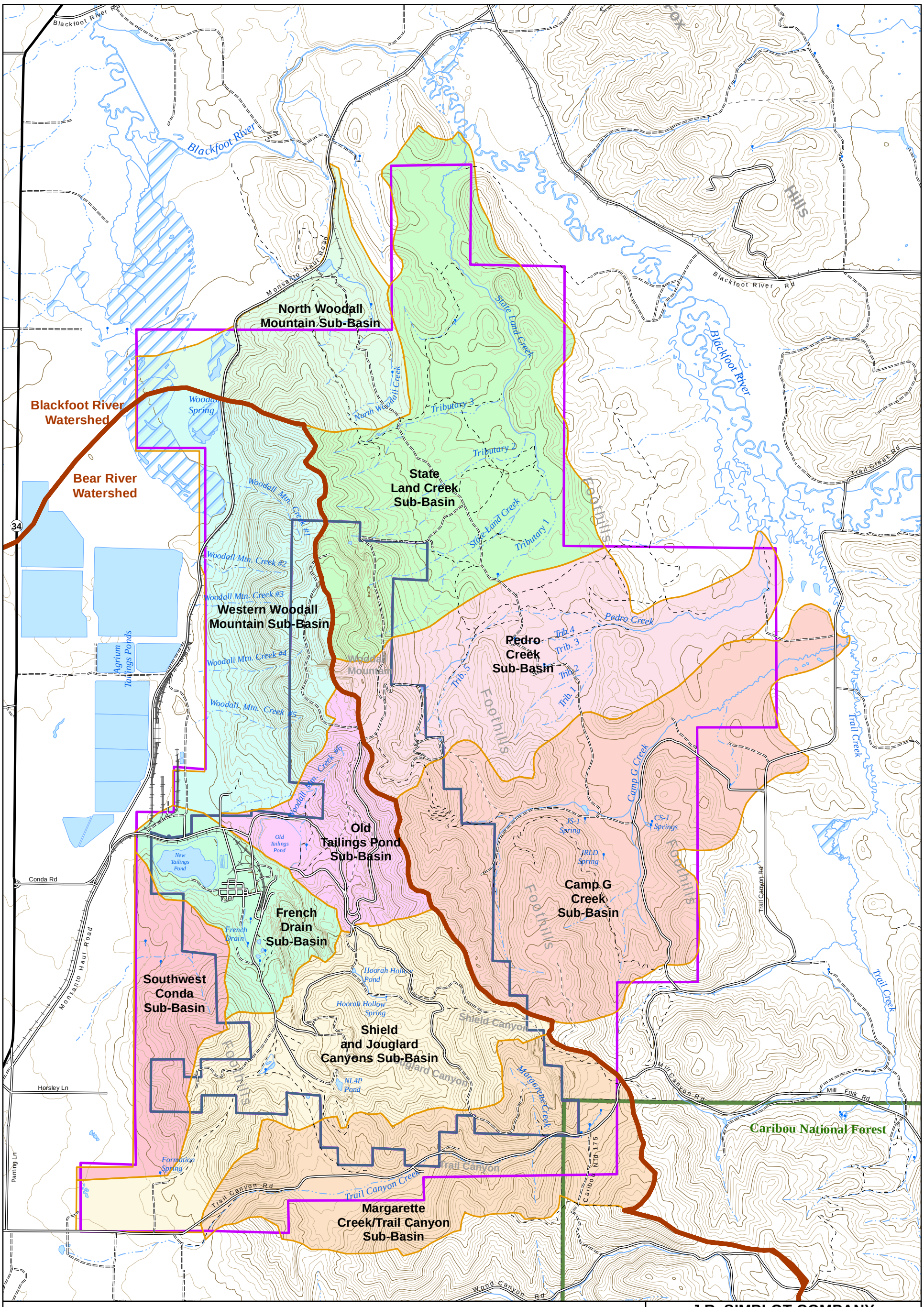
FIGURE 2-2

SITE TOPOGRAPHY

DATE: DEC 14, 2016
BY: CRL
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_2-02_SiteTopography.mxd



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Sub-Basins
- Major Watershed Boundary

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

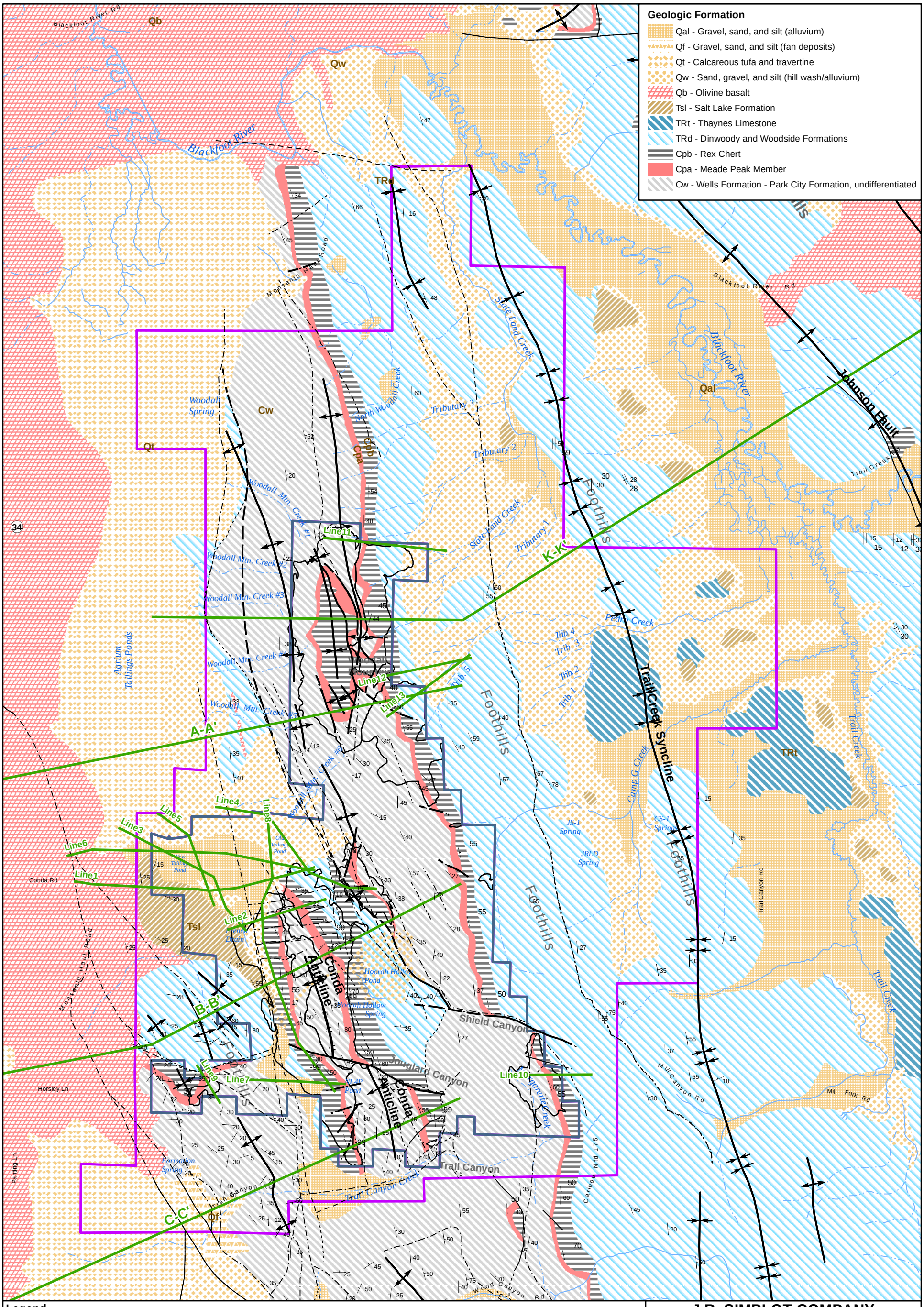
FIGURE 2-3

SURFACE WATER DRAINAGES AND SUB-BASIN BOUNDARIES

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_2-03_SW_Drainages.mxd



Legend

- Cross section lines
- Intermittent Stream
- Perennial Stream
- Mine Area
- Non-Mine Area
- Mine Panels
- Strike/Dip
- Strike/Dip Overturned
- Fault, Buried
- Fault, Confirmed
- Fault, Inferred
- Anticline
- Overturned
- Syncline

N

0 2,500 5,000
Feet

Note: Geology compiled from USGS 1927 geologic maps of the Henry, James, and Slug Creek quadrangle and the 1969 Soda Springs quadrangle, and updated using Conda-specific information obtained from mining exploration and RI-related borings.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

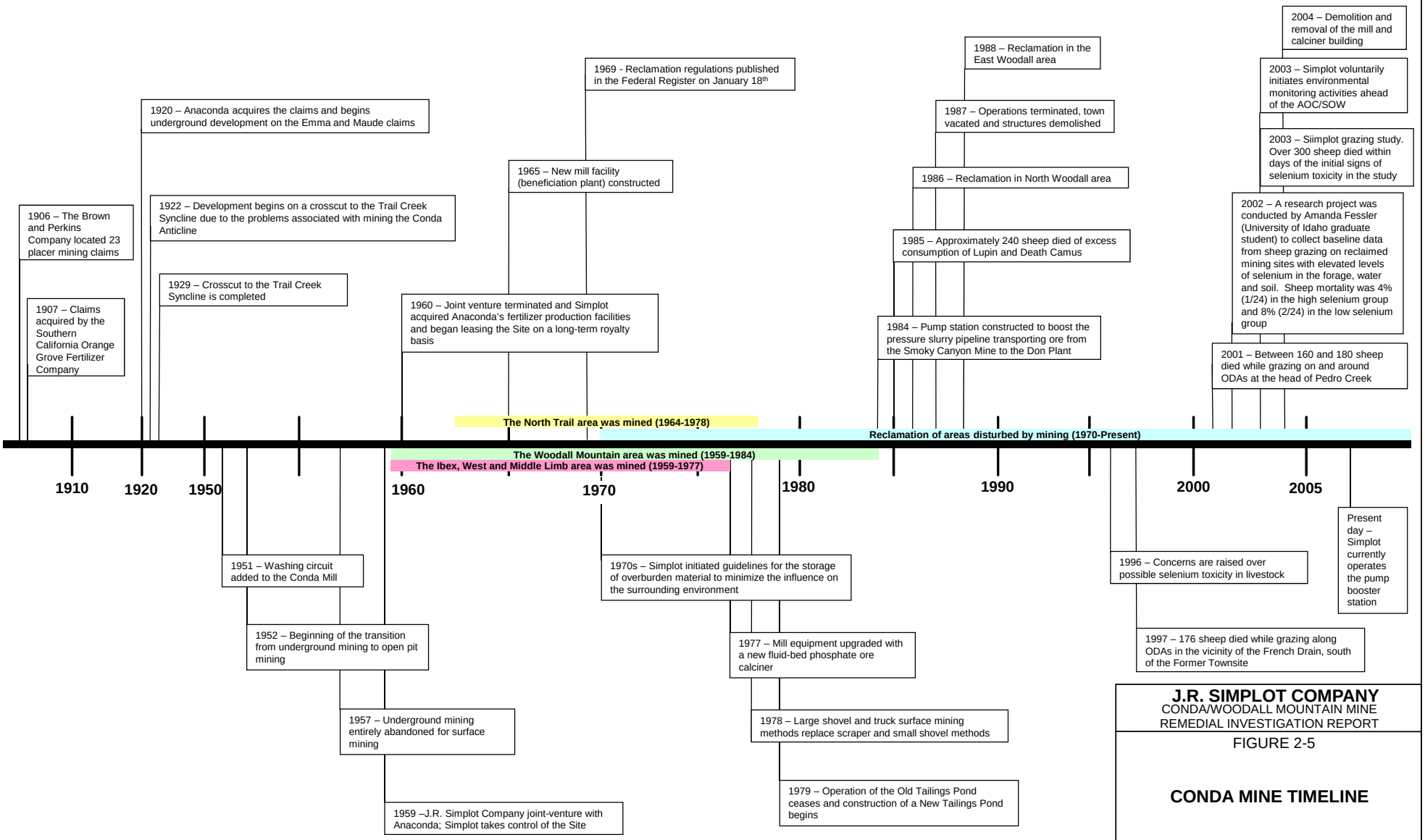
FIGURE 2-4

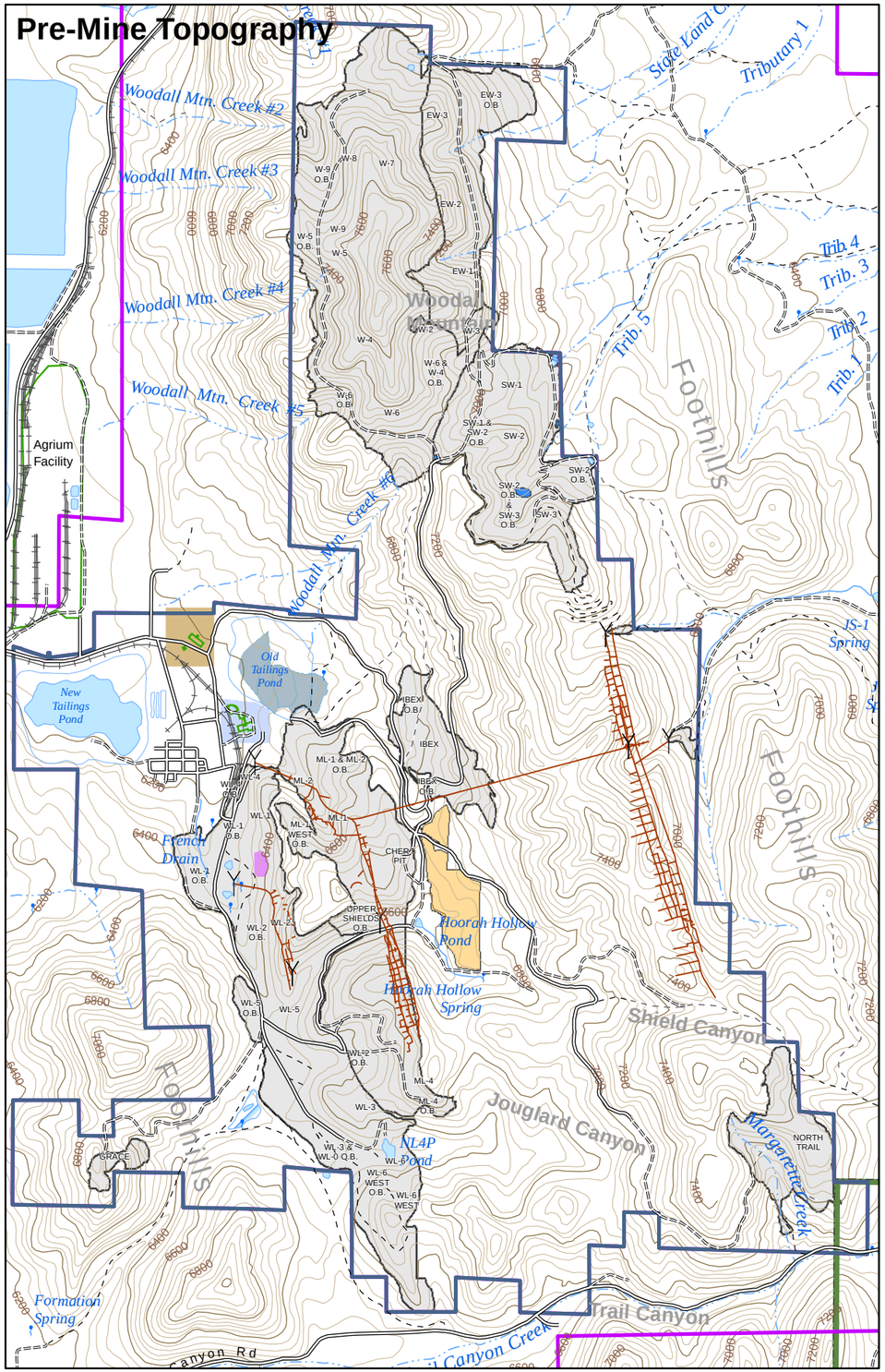
SURFACE GEOLOGY MAP

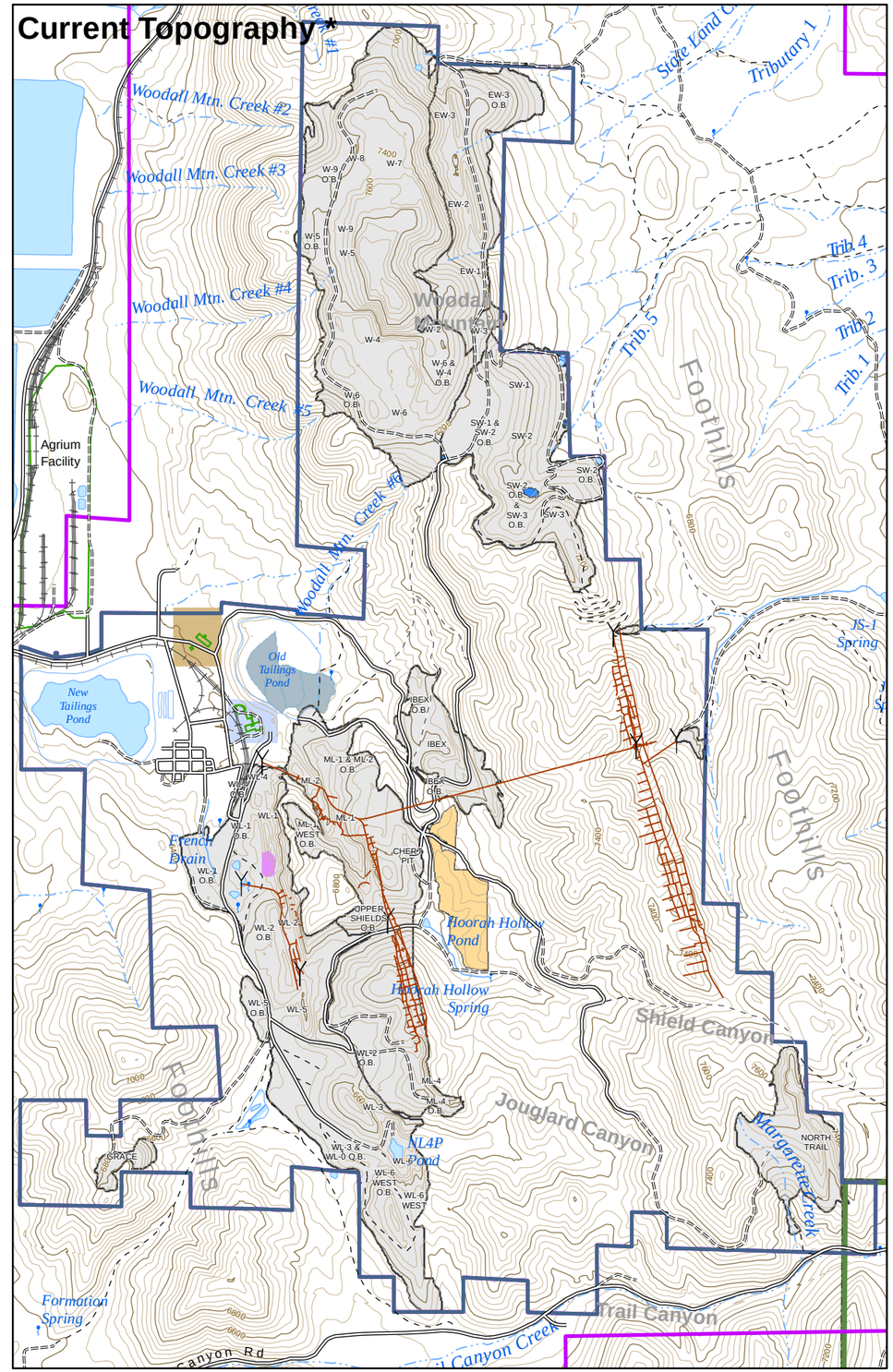
DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpro\2\010139\plt\RI_2016\Fig_2-04_SurfaceGeology.mxd


1906 – The Brown and Perkins Company located 23 placer mining claims
1907 – Claims acquired by the Southern California Orange Grove Fertilizer Company
1920 – Anaconda acquires the claims and begins underground development on the Emma and Maude claims
1922 – Development begins on a crosscut to the Trail Creek Syncline due to the problems associated with mining the Conda Anticline
1929 – Crosscut to the Trail Creek Syncline is completed
1951 – Washing circuit added to the Conda Mill
1952 – Beginning of the transition from underground mining to open pit mining
1957 – Underground mining entirely abandoned for surface mining
1959 –J.R. Simplot Company joint-venture with Anaconda; Simplot takes control of the Site
1960 – Joint venture terminated and Simplot acquired Anaconda's fertilizer production facilities and began leasing the Site on a long-term royalty basis
1965 – New mill facility (beneficiation plant) constructed
1969 - Reclamation regulations published in the Federal Register on January 18th
The North Trail area was mined (1964-1978)
The Woodall Mountain area was mined (1959-1984)
The Ibex, West and Middle Limb area was mined (1959-1977)
Reclamation of areas disturbed by mining (1970-Present)
1910
1920
1950
1960
1970
1980
1990
2000
2005
1970s – Simplot initiated guidelines for the storage of overburden material to minimize the influence on the surrounding environment
1977 – Mill equipment upgraded with a new fluid-bed phosphate ore calciner
1978 – Large shovel and truck surface mining methods replace scraper and small shovel methods
1979 – Operation of the Old Tailings Pond ceases and construction of a New Tailings Pond begins
1984 – Pump station constructed to boost the pressure slurry pipeline transporting ore from the Smoky Canyon Mine to the Don Plant
1985 – Approximately 240 sheep died of excess consumption of Lupin and Death Camus
1986 – Reclamation in North Woodall area
1987 – Operations terminated, town vacated and structures demolished
1988 – Reclamation in the East Woodall area
1996 – Concerns are raised over possible selenium toxicity in livestock
1997 – 176 sheep died while grazing along ODAs in the vicinity of the French Drain, south of the Former Townsite
2001 – Between 160 and 180 sheep died while grazing on and around ODAs at the head of Pedro Creek
2002 – A research project was conducted by Amanda Fessler (University of Idaho graduate student) to collect baseline data from sheep grazing on reclaimed mining sites with elevated levels of selenium in the forage, water and soil. Sheep mortality was 4% (1/24) in the high selenium group and 8% (2/24) in the low selenium group
2003 – Simplot voluntarily initiates environmental monitoring activities ahead of the AOC/SOW
2003 – Siimplot grazing study. Over 300 sheep died within days of the initial signs of selenium toxicity in the study
2004 – Demolition and removal of the mill and calciner building
Present day – Simplot currently operates the pump booster station
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
FIGURE 2-5
CONDA MINE TIMELINE
DATE: DEC 13, 2016
BY: KAM
FOR: RPS
FORMATION ENVIRONMENTAL
S:\Jobs\0442-001-900-Simplot-Conda\RIFS_R1report\RevisedDraftFnlRIReport\Figures\Fig_2-5_PhosMineTimeline.ppt





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Underground Workings
- Adit Portal

Mine Area Features

- Pit Dump
- Former Mill
- Pump Station
- Old Tailings Pond Sequences
- Mine Area
- Non-Mine Area
- Mine Panels
- Dinwoody Formation Borrow Area
- NTCRA sedimentation basins

O.B. = Overburden
EW = East Woodall
SW = South Woodall
W = Woodall
ML = Middle Limb
WL = West Limb

* Current Topography based on 2010 aerial survey and 2013-2015 surface surveys

0 2,500 5,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

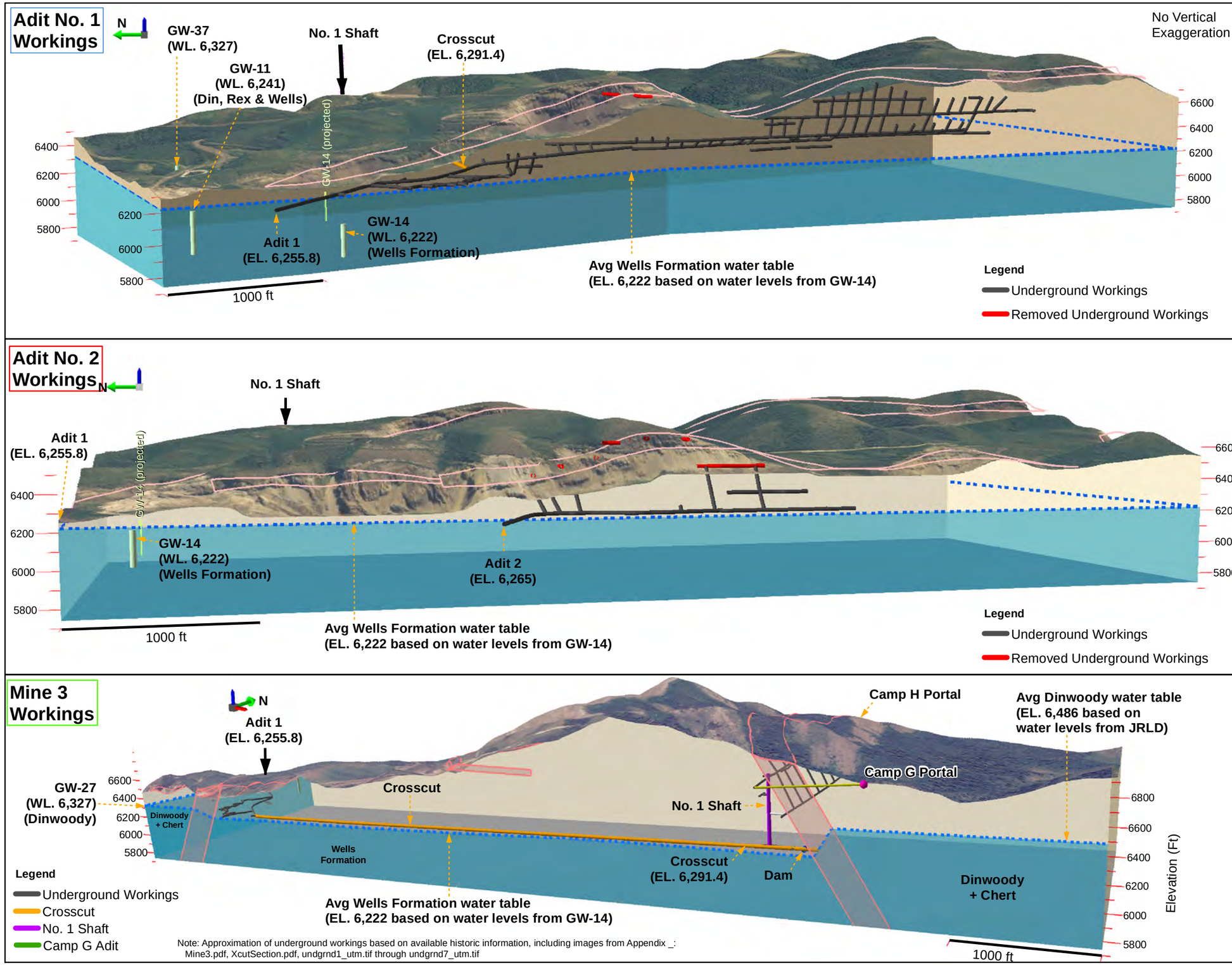
FIGURE 2-6

CONDA MINE FEATURES

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

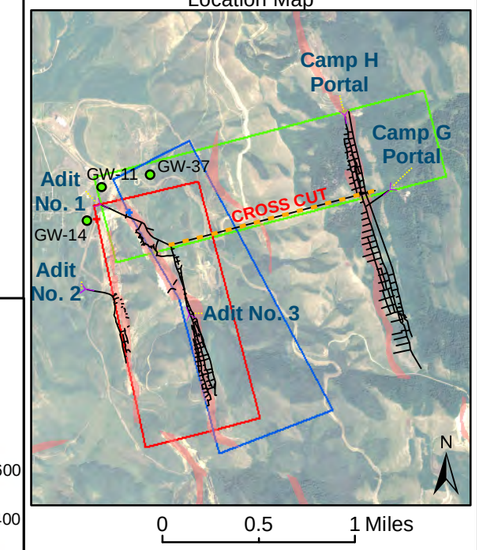
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\prj\RI_2016\Fig_2-06_CondaMineFeatures.mxd



Note: Approximation of underground workings based on available historic information, including images from Appendix _: Mine3.pdf, XcutSection.pdf, undgrnd1_utm.tif through undgrnd7_utm.tif

Location Map



Legend

- Wells
- Adit/Portal
- Cross Cut
- Underground Workings
- GW-14 Projected to Block 2
- GW-14 Projected to Block 1
- Cpa - Meade Peak Member
- Adit No. 1 Extent of 3D View
- Adit No. 2 Extent of 3D View
- Mine No. 3 Extent of 3D View

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

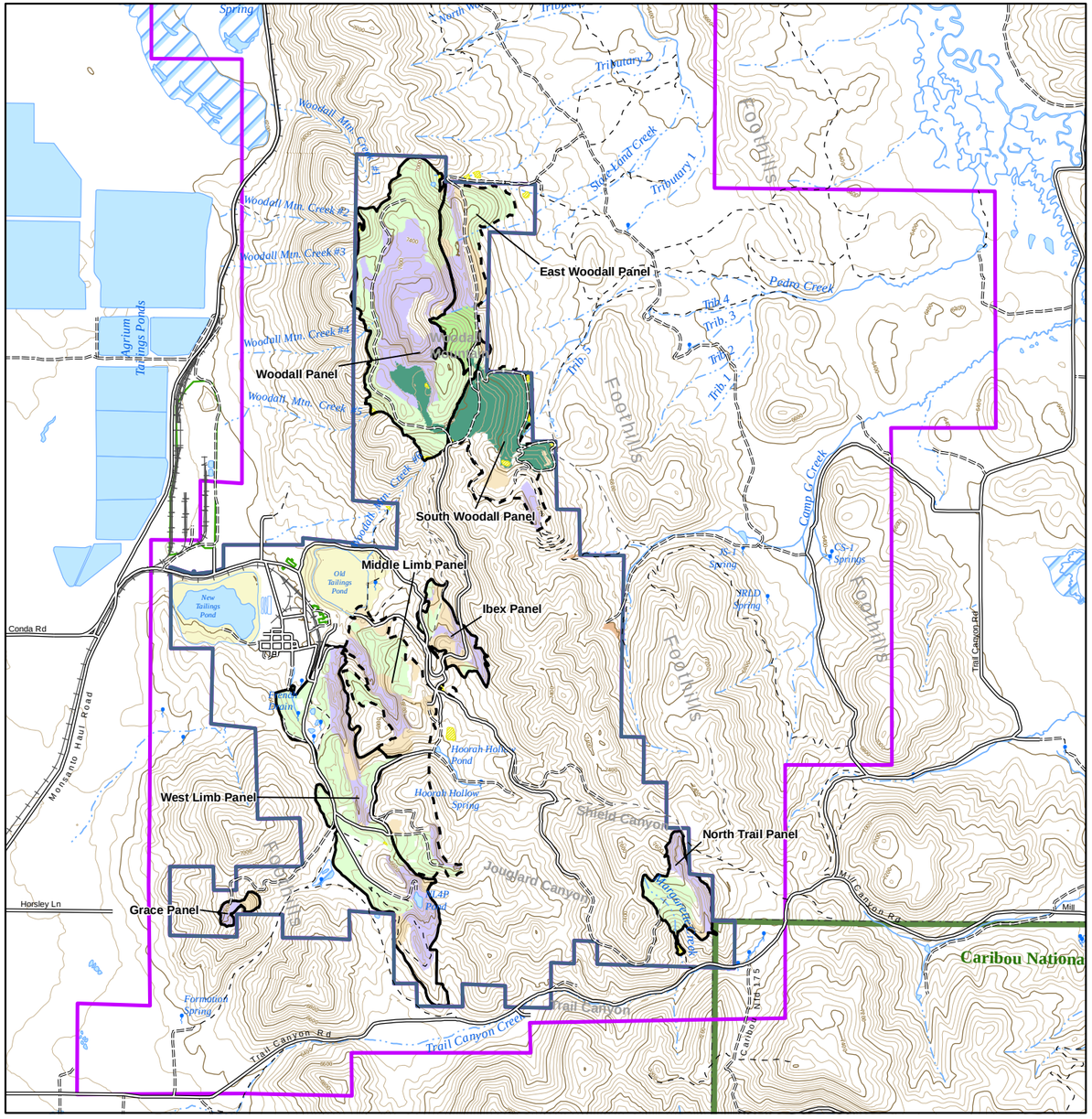
FIGURE 2-7

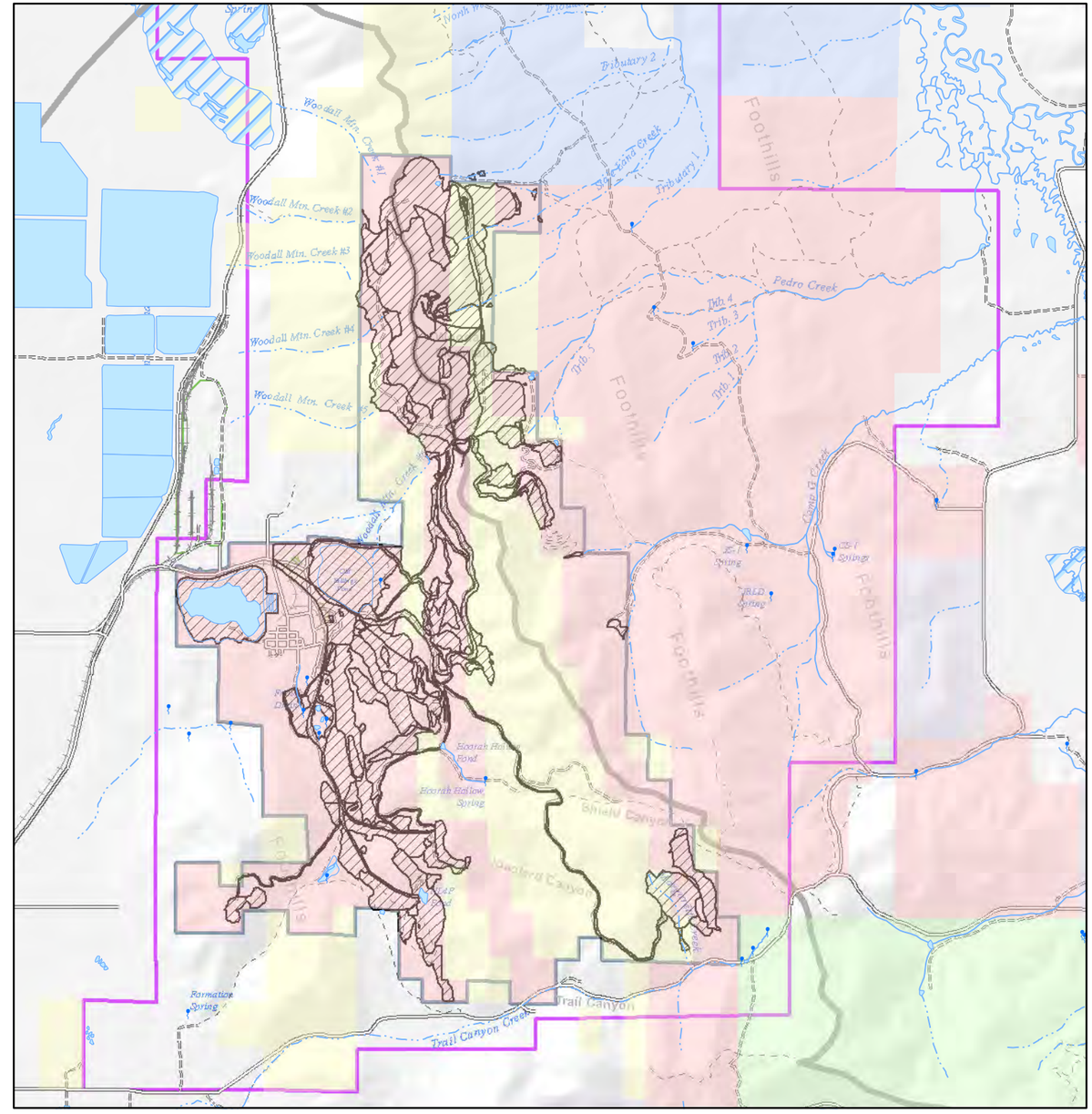
UNDERGROUND WORKINGS

DATE: DEC 14, 2016
BY: MCP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_2-07_UndergroundWorkings3D.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Underground Workings

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Mine Panels

Legend

Land Ownership

- BLM
- J.R. Simplot Co.
- State of Idaho
- USDA Forest Service
- Monsanto

- Residual Mining Materials (RMM)
- Mine Area
- Non-Mine Area
- Conda Facilities

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY

CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

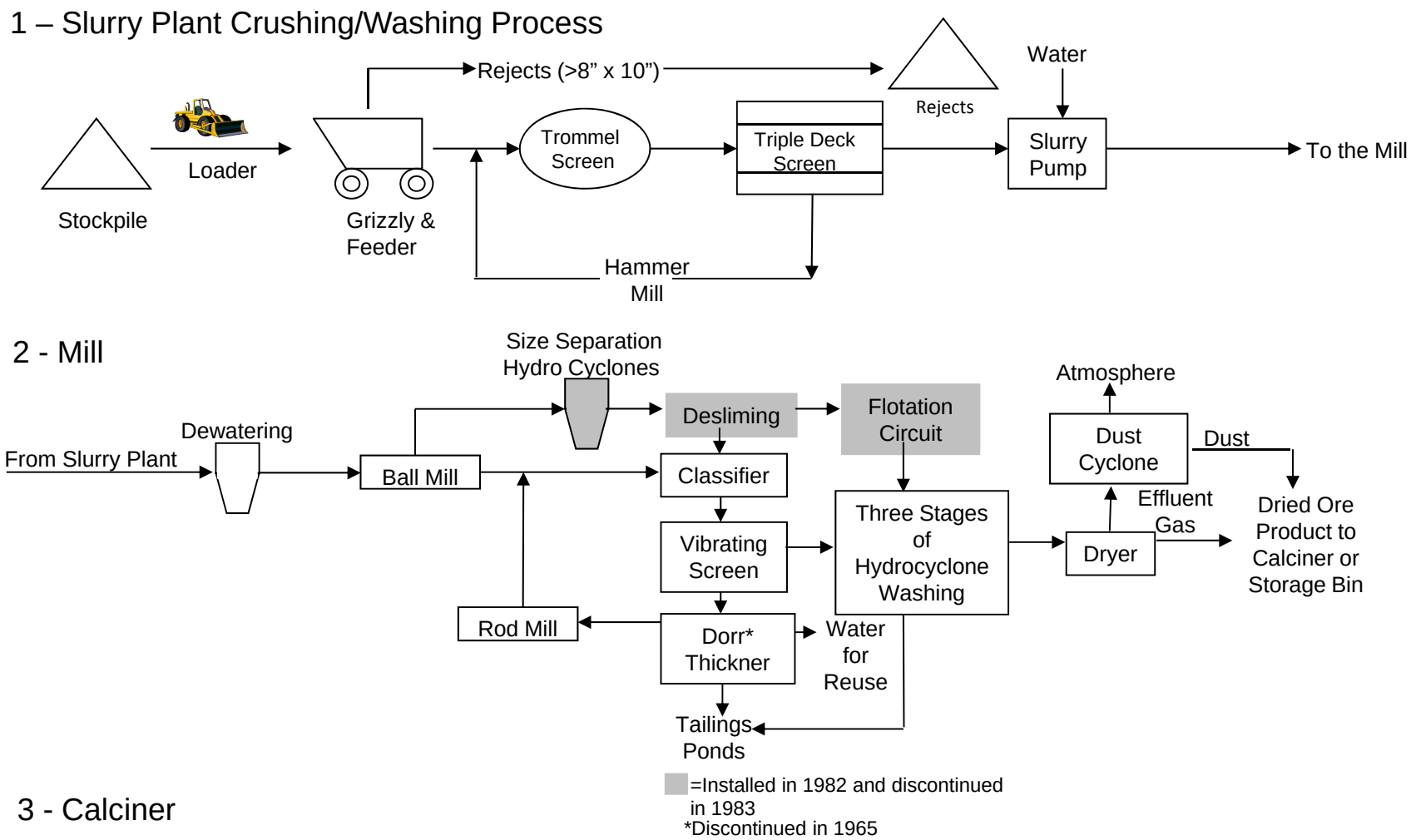
FIGURE 2-8

AREAS WITH RESIDUAL MINING MATERIALS

DATE: DEC 13, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpj2\010139\plt\RI_2016\Fig_2-08_ResidualMiningMaterials.mxd



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 2-9

SIMPLIFIED PROCESS FLOW DIAGRAM

DATE: DEC 13, 2016
BY: KAM | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RevisedDraft RI Report\04-Sect2_Background/Fig_2-9_SimpProcessFlowDiagram

Legend

Extent of NTCRA and FSPS Actions

2013 As-Built Final Survey

Index Contour (10 ft)

Existing 2010 Contours

Index Contour (10 ft)

Index Contour (40 ft)

Notes:
-USGS 40 ft contours are shown where 2010 10 ft contours end.
-Current Topography imagery is from August 2013 NAIP and imagery is from before completion of NTCRA activities.
-Past Topography imagery is from Simplot 2010.

0 250 500
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

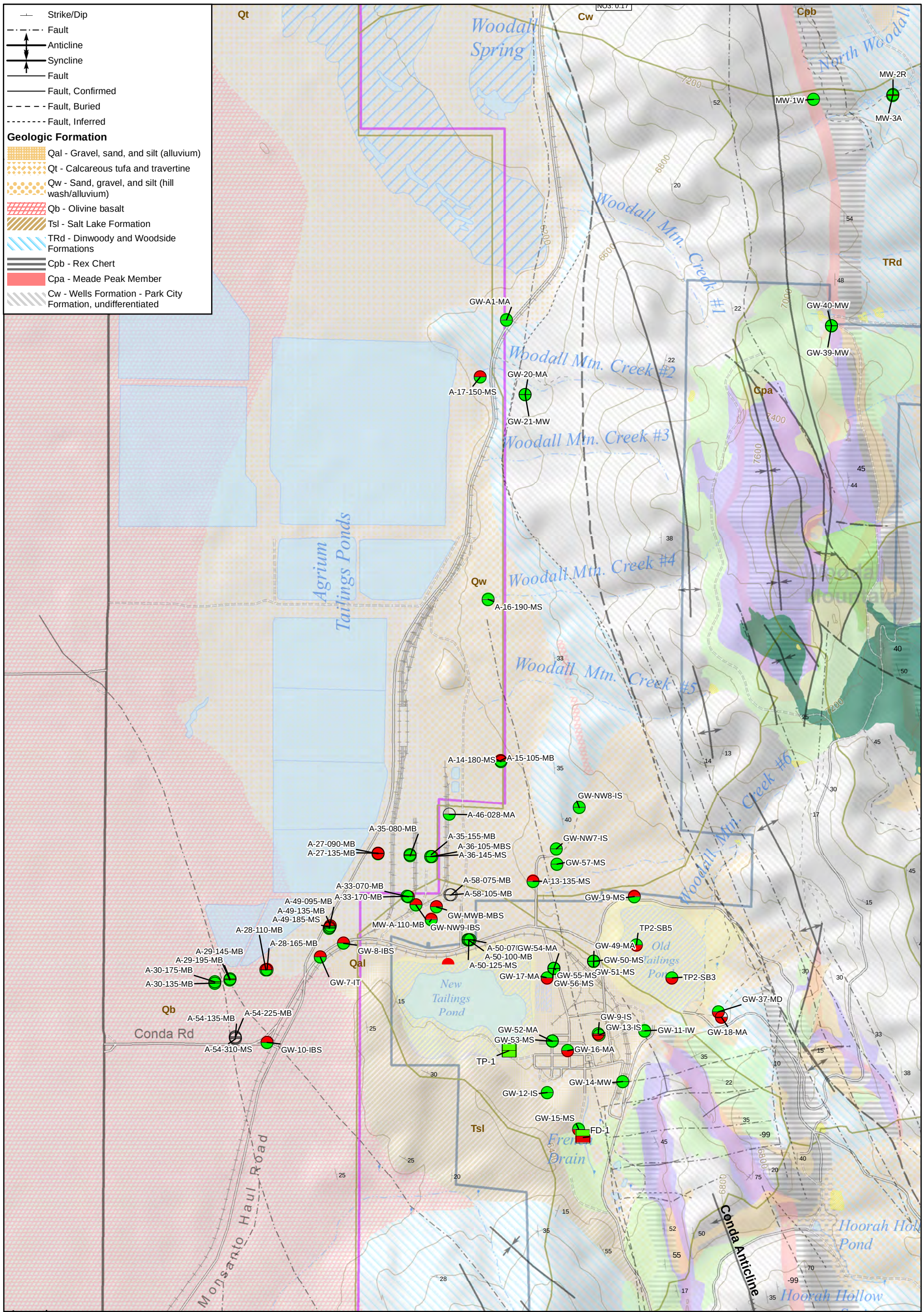
FIGURE 2-10

CURRENT AND PAST TOPOGRAPHY AT NTCRA AND FSPS OVERBURDEN PILES

DATE: JAN. 2014
BY: KAM FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\ARCPRJ2\010139\PLTIRI_2016\FIG_2-10_TOPONTCRA_FSPS.MXD



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 2-11

MAXIMUM SELENIUM AND NITRATE CONCENTRATIONS ALONG BOUNDARY WITH ADJACENT OPERATION

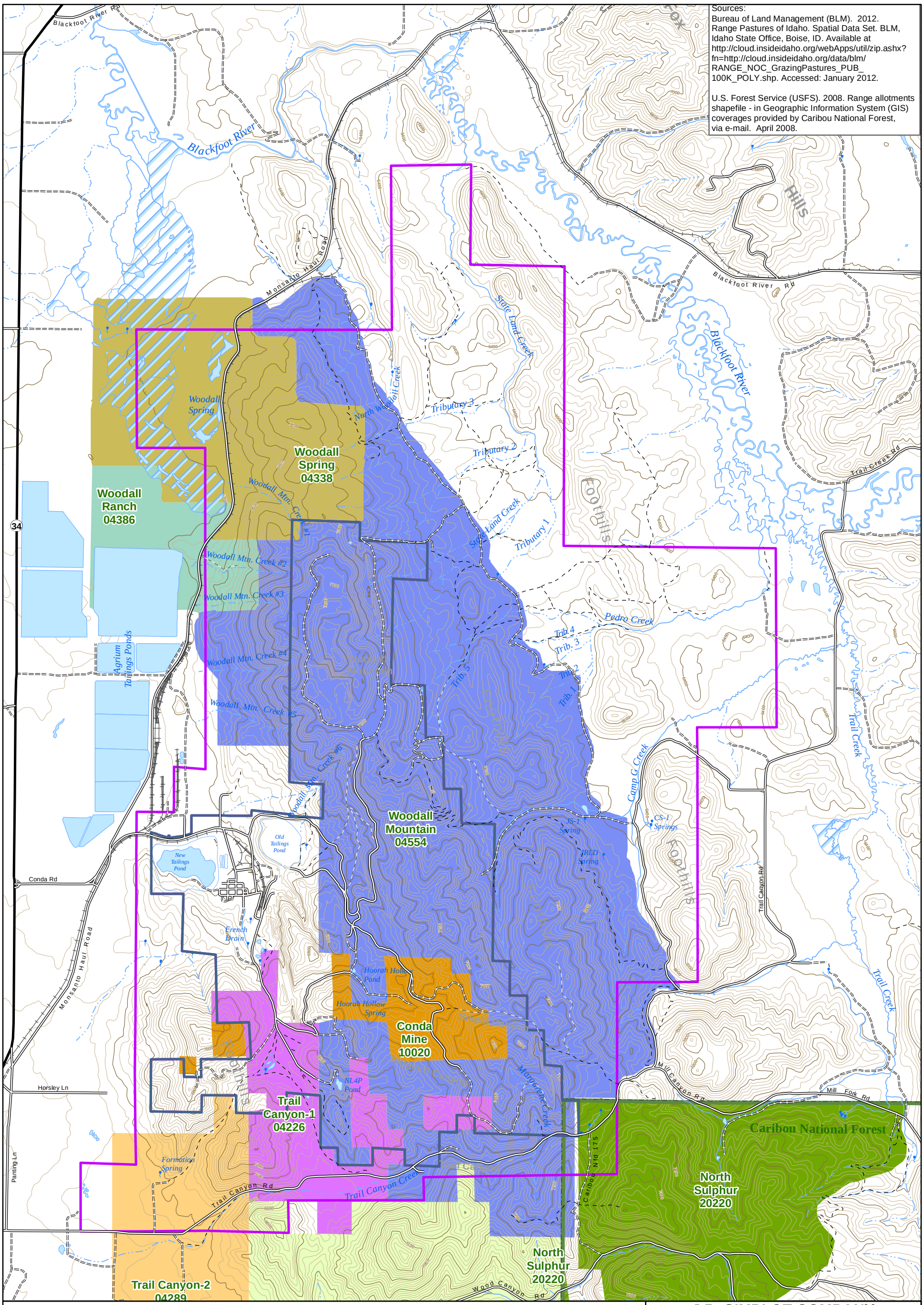
DATE: SEP 08, 2016
BY: KAM/DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj\2010139\plt\RI_2016\Fig_2-11_OffsiteSourceConc_Blkft.mxd

Sources:
Bureau of Land Management (BLM). 2012. Range Pastures of Idaho. Spatial Data Set. BLM, Idaho State Office, Boise, ID. Available at http://cloud.insideidaho.org/webApps/util/zip.ashx?fn=http://cloud.insideidaho.org/data/blm/RANGE_NOC_GrazingPastures_PUB_100K_POLY.shp. Accessed: January 2012.

U.S. Forest Service (USFS). 2008. Range allotments shapefile - in Geographic Information System (GIS) coverages provided by Caribou National Forest, via e-mail. April 2008.



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area

USFS Grazing Allotments

- North Sulphur

BLM Grazing Allotments

- Conda Mine
- North Sulphur And
- Trail Canyon-1
- Trail Canyon-2
- Woodall Mountain
- Woodall Ranch
- Woodall Spring

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

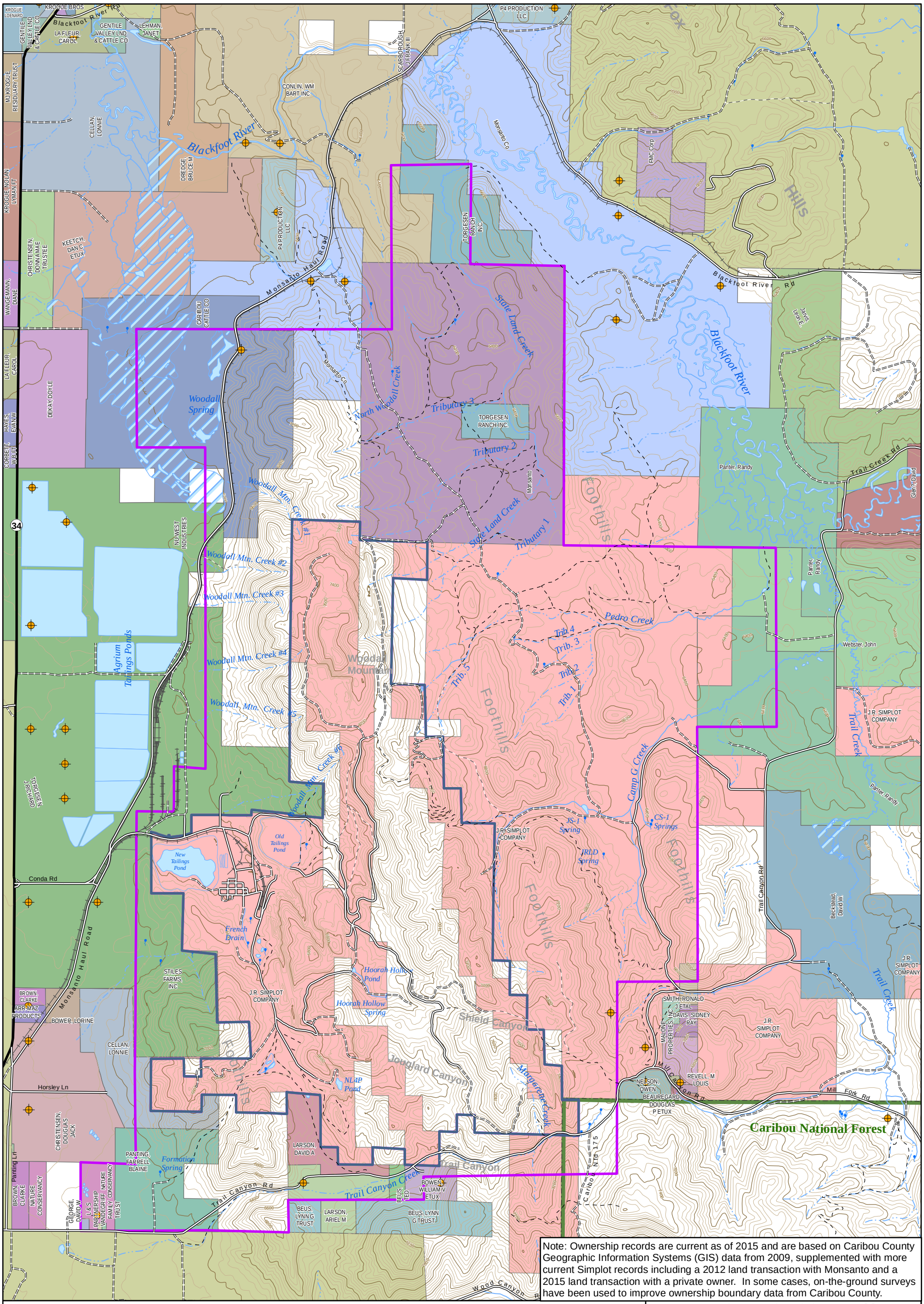
FIGURE 2-12

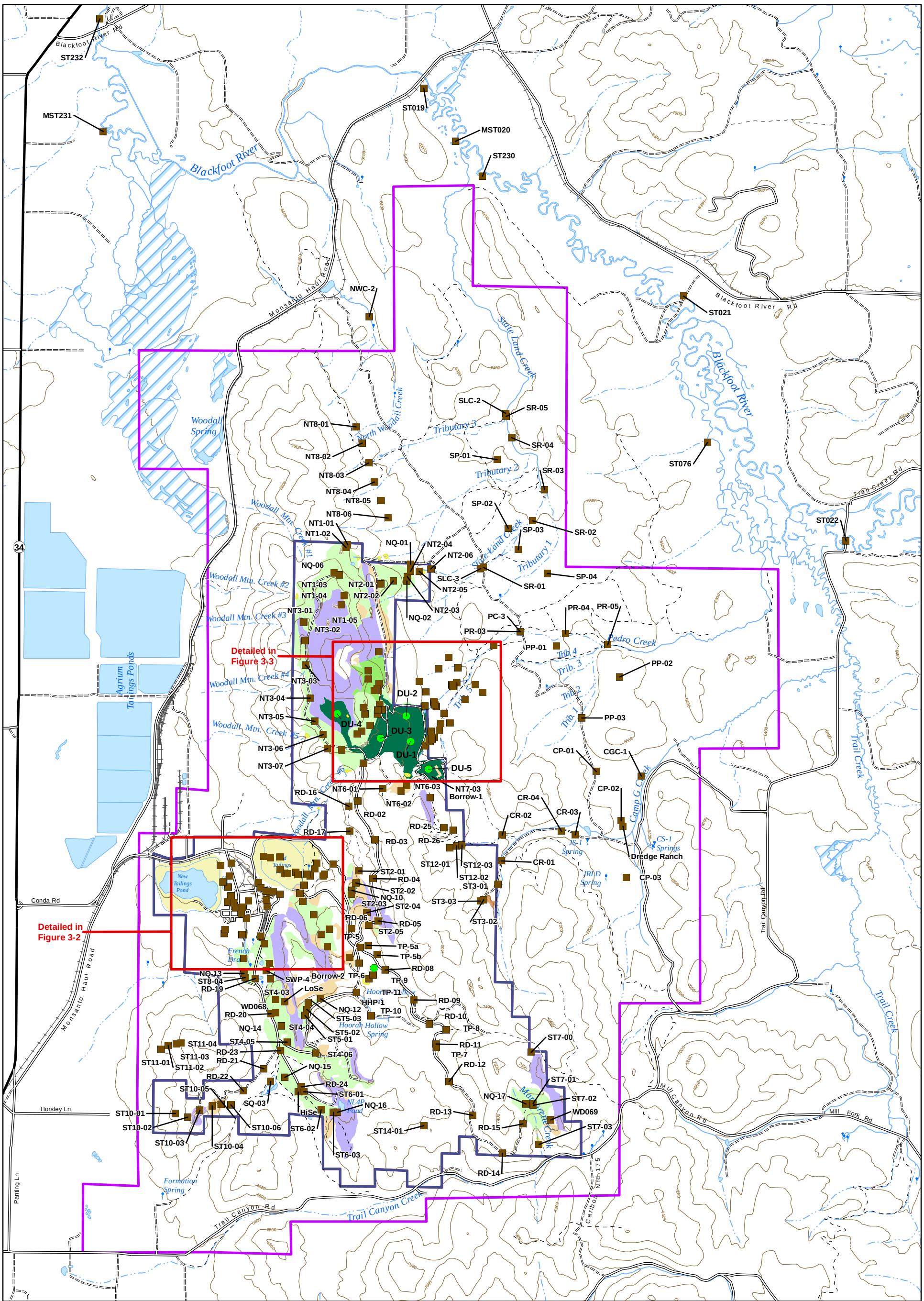
GRAZING ALLOTMENTS

DATE: DEC 13, 2016
BY: CRL
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_2-12_GrazingAllotments.mxd


Blackfoot River
Blackfoot River Rd
Monsanto Haul Road
Woodall Spring
Woodall Mtn. Creek #1
Woodall Mtn. Creek #2
Woodall Mtn. Creek #3
Woodall Mtn. Creek #4
Woodall Mtn. Creek #5
Woodall Mtn. Creek #6
North Woodall Creek
State Land Creek
Tributary 3
Tributary 2
Tributary 1
Pedro Creek
Trib. 1
Trib. 2
Trib. 3
Trib. 4
Trib. 5
Camp G Creek
Trail Creek
Trail Canyon Creek
Trail Canyon
Shield Canyon
Jouglard Canyon
Margaret Creek
Agrium Tailings Ponds
New Tailings Pond
Old Tailings Pond
French Drain
Hoorah Hollow Pond
Hoorah Hollow Spring
NL4P Pond
Formation Spring
JS-1 Spring
JRLD Spring
CS-1 Springs
Woodall Mountain
Foothills
Caribou National Forest
Conda Rd
Horsley Ln
Trail Canyon Rd
Mill Fork Rd
Trail Canyon Rd
Wood Canyon Rd
Note: Ownership records are current as of 2015 and are based on Caribou County Geographic Information Systems (GIS) data from 2009, supplemented with more current Simplot records including a 2012 land transaction with Monsanto and a 2015 land transaction with a private owner. In some cases, on-the-ground surveys have been used to improve ownership boundary data from Caribou County.
Legend
Major Road
Minor Road
Unimproved Road
Trail (4WD)
Trail (Other than 4WD)
Railroad
Intermittent Stream
Perennial Stream
Lake/Pond
Reservoir
Swamp/Marsh
Mine Area
Non-Mine Area
Domestic Well Location
N
0
2,500
5,000
Feet
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT
FIGURE 2-13
PRIVATE LAND AND DOMESTIC WELLS SURROUNDING CONDA MINE
DATE: DEC 13, 2016
BY: CRL
FOR: KSR
FORMATION ENVIRONMENTAL
S:\GIS\arcprj2\010139\plt\RI_2016\Fig_2-13_PrivOwnDomWells.mxd



Legend

- NTCRA DU ISM Sample
- Soil Monitoring Location
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine Area

N

0 2,500 5,000
Feet

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

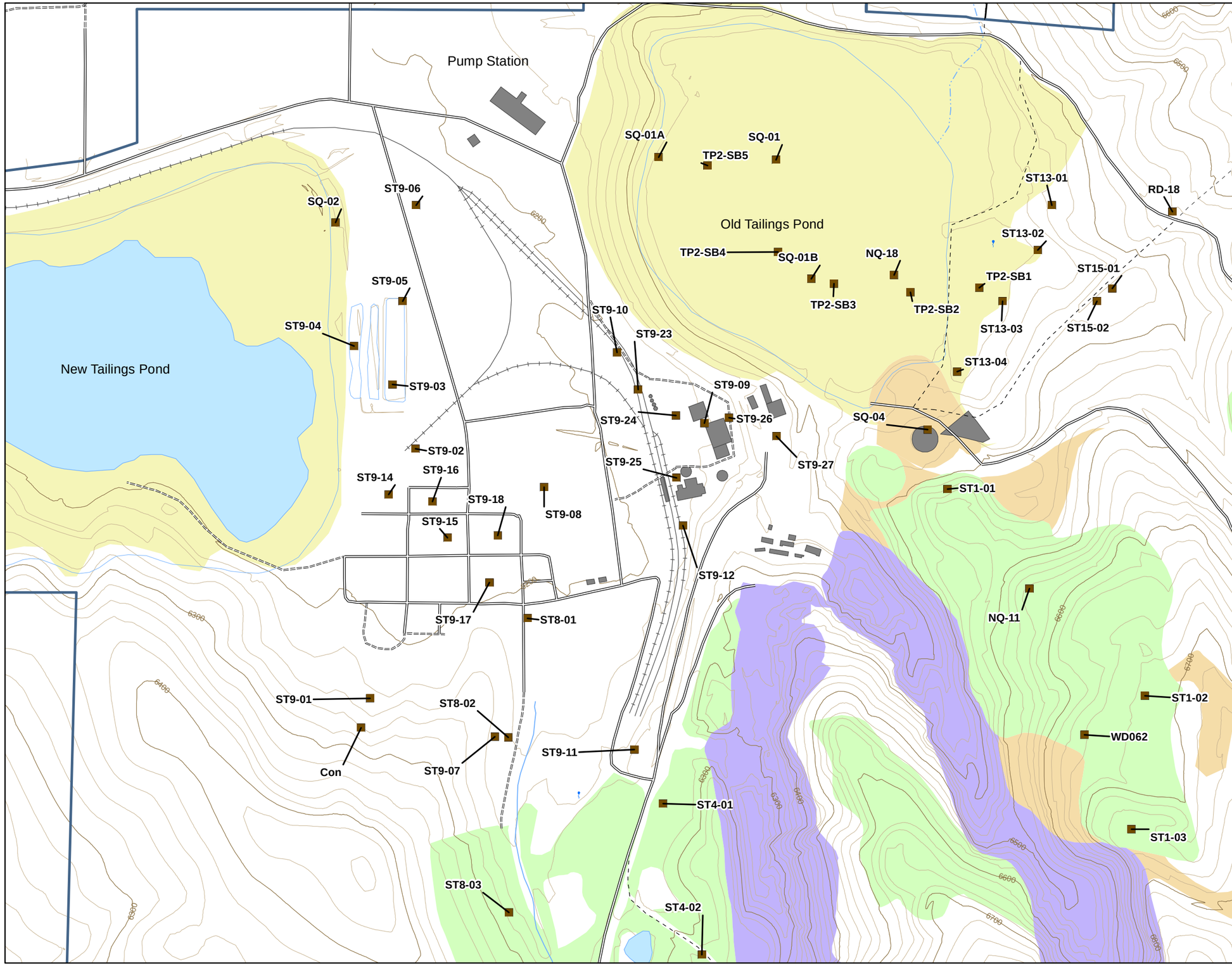
FIGURE 3-1

SOIL MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_3-01_Soil_Locs.mxd



Legend

- Soil Monitoring Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Mine Area
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Mining Support Facilities

Topography

- 100 ft Contour (2010)
- 20 ft Contour (2010)

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Figure 3-1 for location and extent of detailed area.
- Most of the historic mining support-facility structures have been demolished.

0 500 1,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

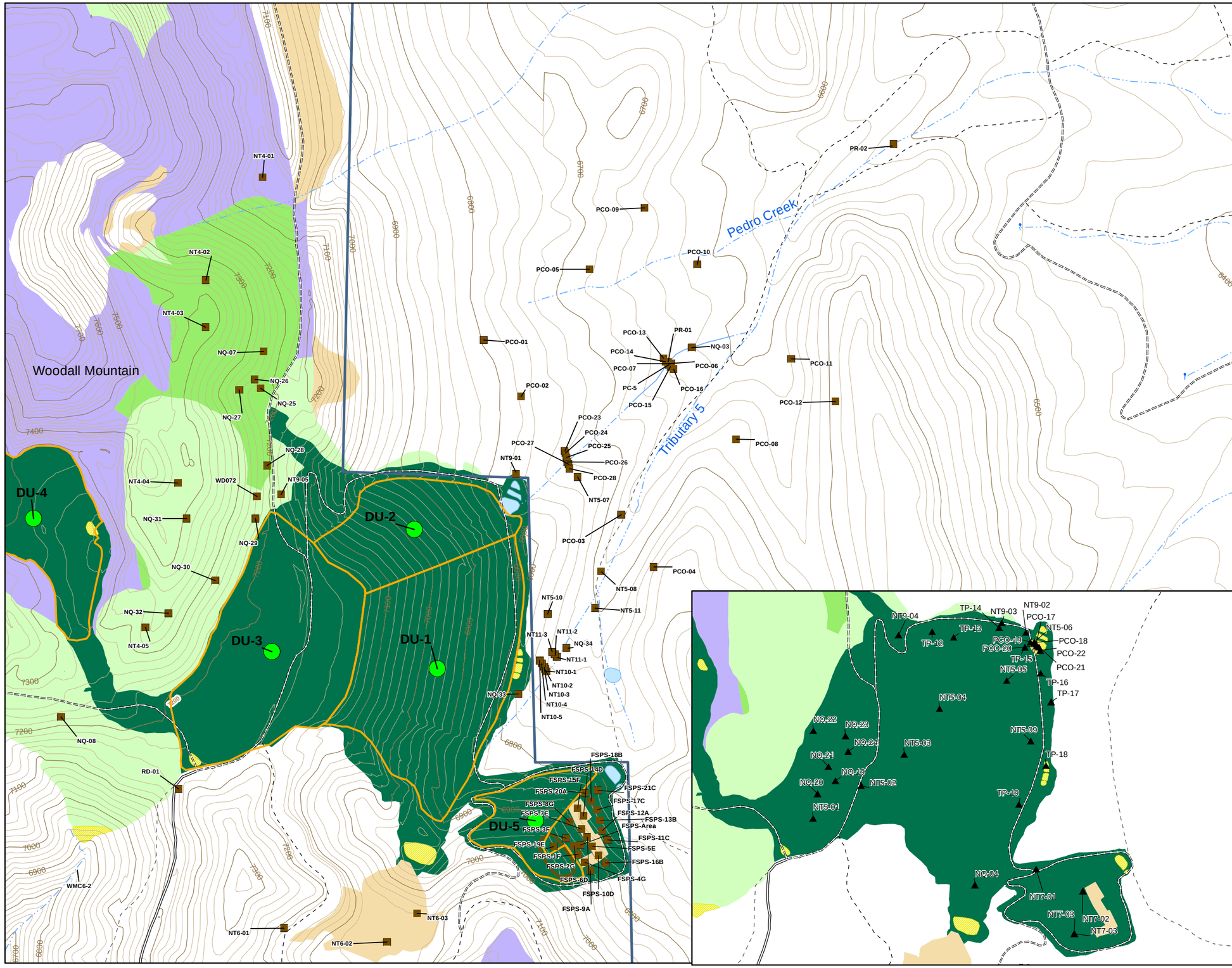
FIGURE 3-2

FORMER MILL SITE AND TOWNSITE AREA SOIL MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\0101139\plt\RI_2016\Fig_3-02_FmrMillTownsite_SL_Locs.mxd



Legend

NTCRA DU ISM Sample

Soil Monitoring Location

Soil Monitoring Location

Soil Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement

NTCRA Decision Units (DUs)

FSPS Upgradient Soil Locations

Minor Road

Unimproved Road

Trail (4WD)

Trail (Other than 4WD)

Railroad

Mine Area

Intermittent Stream

Perennial Stream

Lake/Pond

Topography

100 ft Contour (2010)

20 ft Contour (2010)

Residual Mining Materials (RMM)

Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS

Reclaimed Overburden Disposal Area

Reclaimed Pit

Disturbed Pit

Disturbed Overburden Disposal Area

Sedimentation Basins

Note: Data are from 2001 onward and "A" data use level only. See Figure 3-1 for location and extent of detailed area.

0 500 1,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

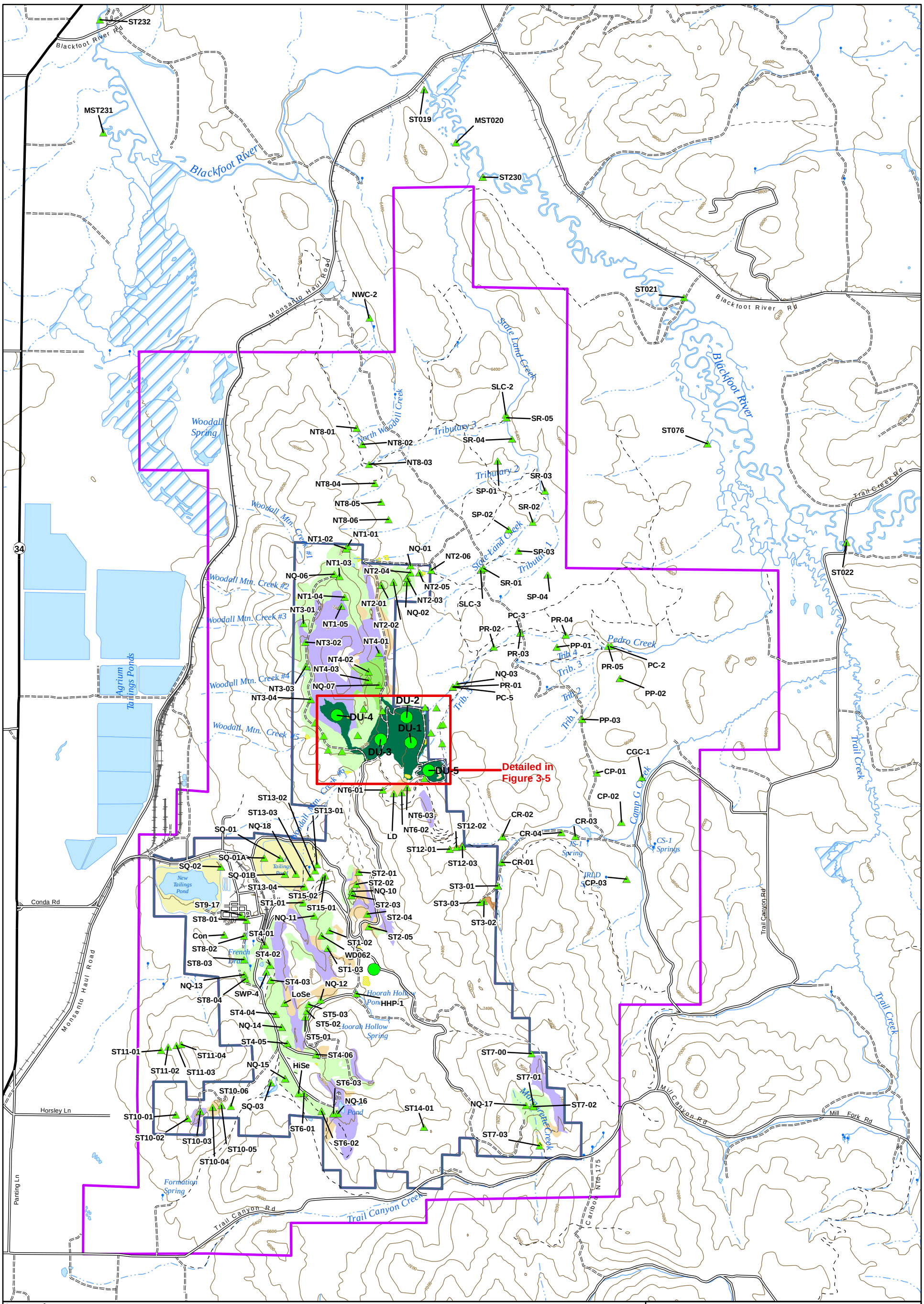
FIGURE 3-3

UPPER PEDRO CREEK AND EAST FLANK WOODALL MOUNTAIN SOIL MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2010139\pl\RI_2016\Fig_3-03_PedroCrkOverbank_SL_Locs.mxd



Legend

- NTCRA DU ISM Sample
- Terrestrial Vegetation Monitoring Location
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine

N

0 2,500 5,000
Feet

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

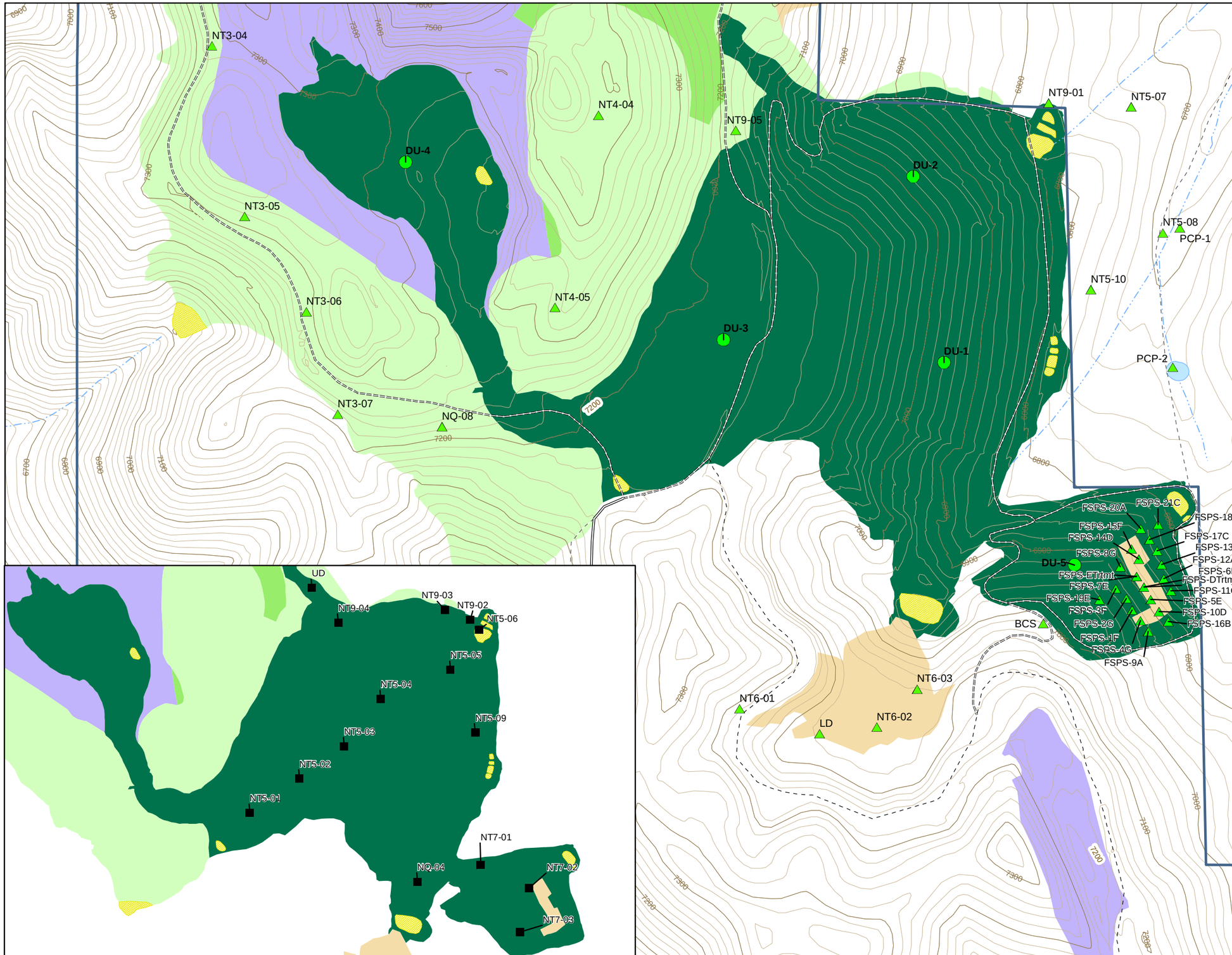
FIGURE 3-4

TERRESTRIAL VEGETATION MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_3-04_TerrVeg_Locs.mxd



Legend

NTCRA DU ISM Sample

Terrestrial Vegetation Monitoring Location

Terrestrial Vegetation Monitoring Location

Terrestrial Vegetation Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement

Minor Road

Unimproved Road

Trail (4WD)

Trail (Other than 4WD)

Railroad

Mine Area

Intermittent Stream

Perennial Stream

Lake/Pond

Topography

100 ft Contour (2010)

20 ft Contour (2010)

Residual Mining Materials (RMM)

Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS

Reclaimed Overburden Disposal Area

Reclaimed Pit

Disturbed Pit

Disturbed Overburden Disposal Area

Sedimentation Basins

Note: Data are from 2001 onward and "A" data use level only.
See Figure 3-1 for location and extent of detailed area.

0 500 1,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

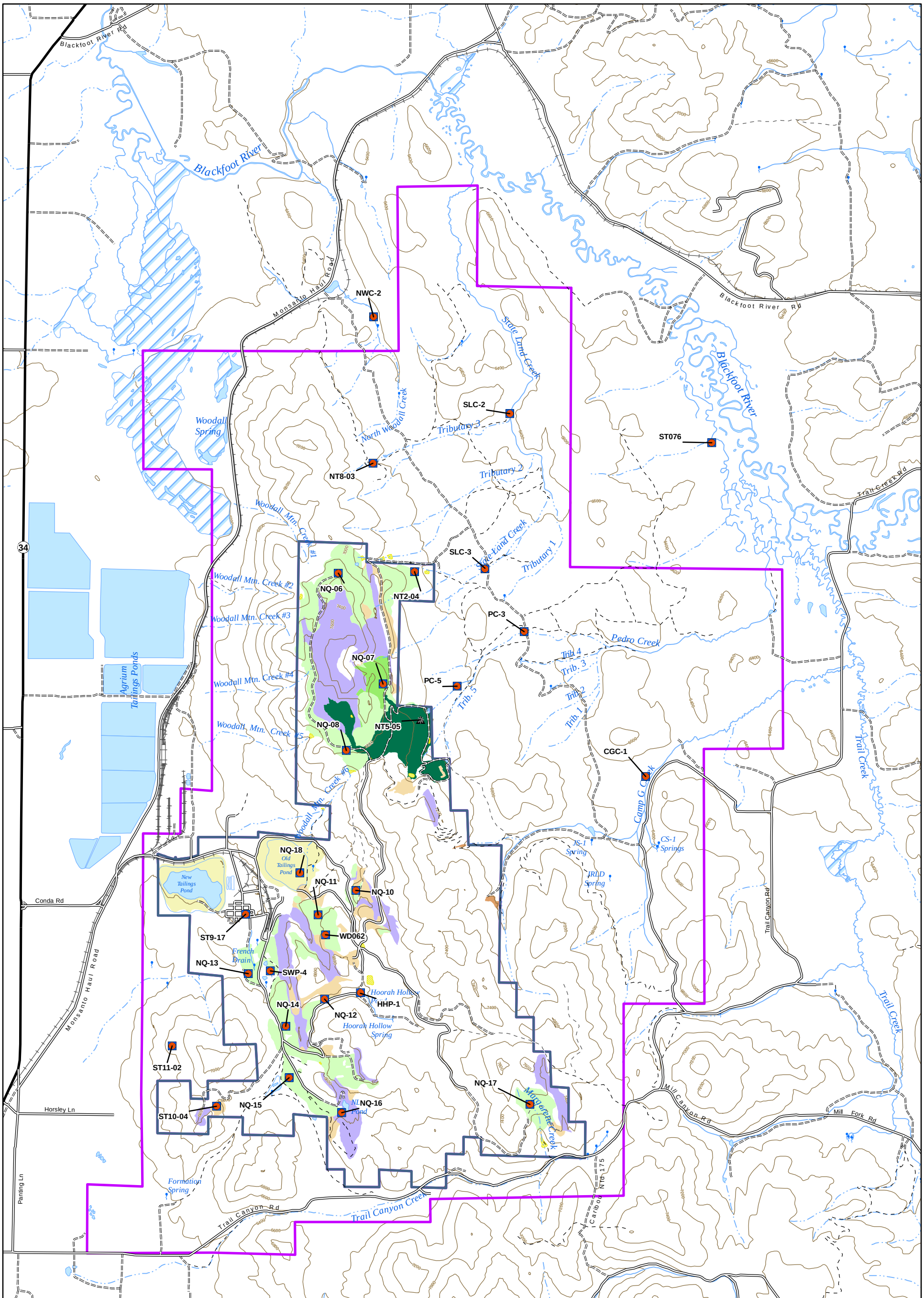
FIGURE 3-5

UPPER PEDRO CREEK AND EAST FLANK WOODALL MOUNTAIN VEGETATION MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_3-05_FSPS_VG_Locs.mxd



Legend

- Small Mammal Monitoring Location
- Small Mammal Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement
- Terrestrial Invertebrate Monitoring Location
- Terrestrial Invertebrate Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine Area

N

0 2,500 5,000
Feet

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

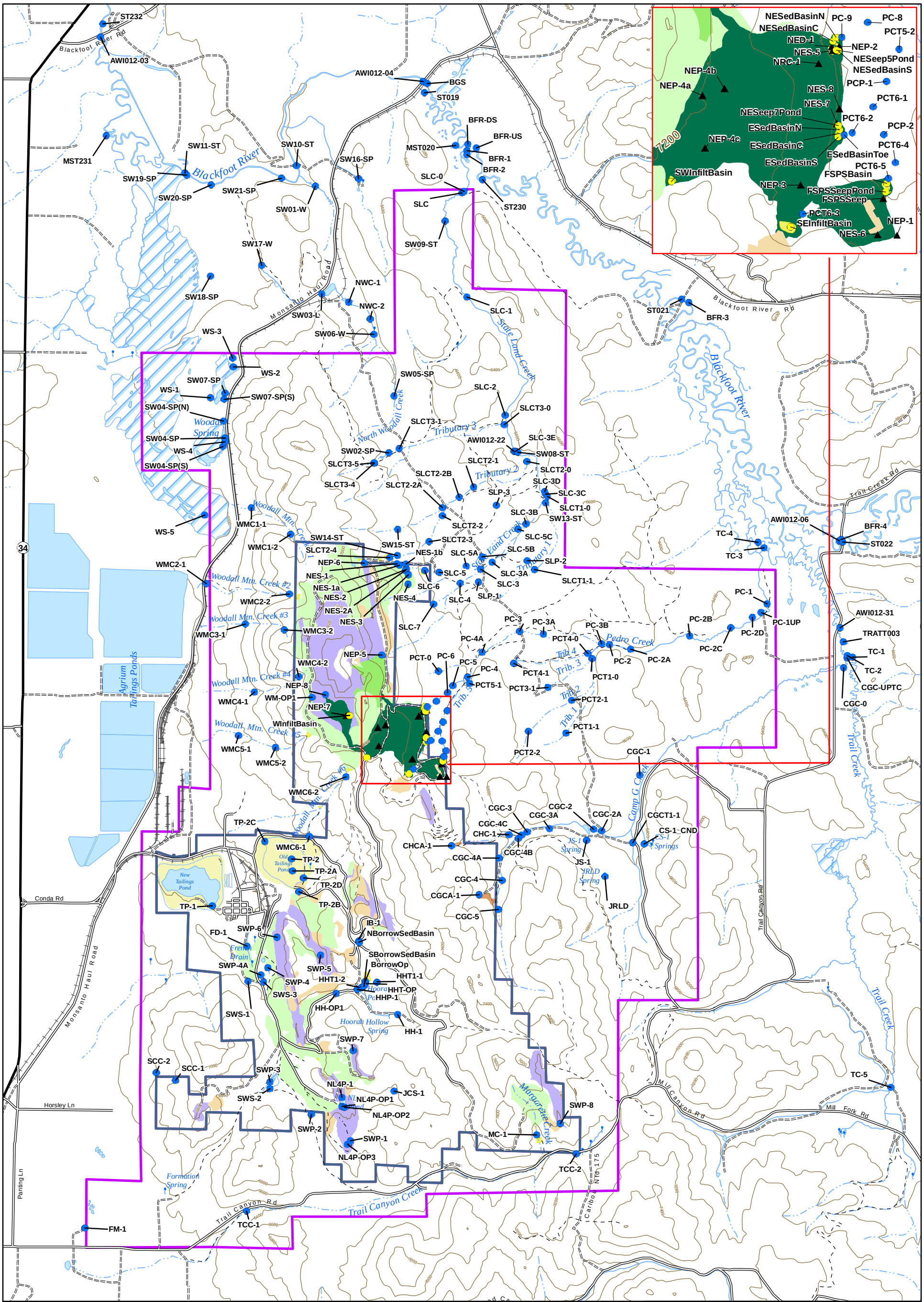
FIGURE 3-6

TERRESTRIAL INVERTEBRATE AND SMALL MAMMAL MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pht\RI_2016\Fig_3-06_TerrInvertMammal_Locs.mxd



Legend

- ▲ Surface Water Monitoring Location

Surface Water Monitoring Location

- Surface Water Monitoring Location
- NTCRA & FSPS Sediment/Infiltration Basin Location
- ▲ Surface Water Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement
- Mine
- Non-Mine

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

N

0 2,500 5,000 Feet

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

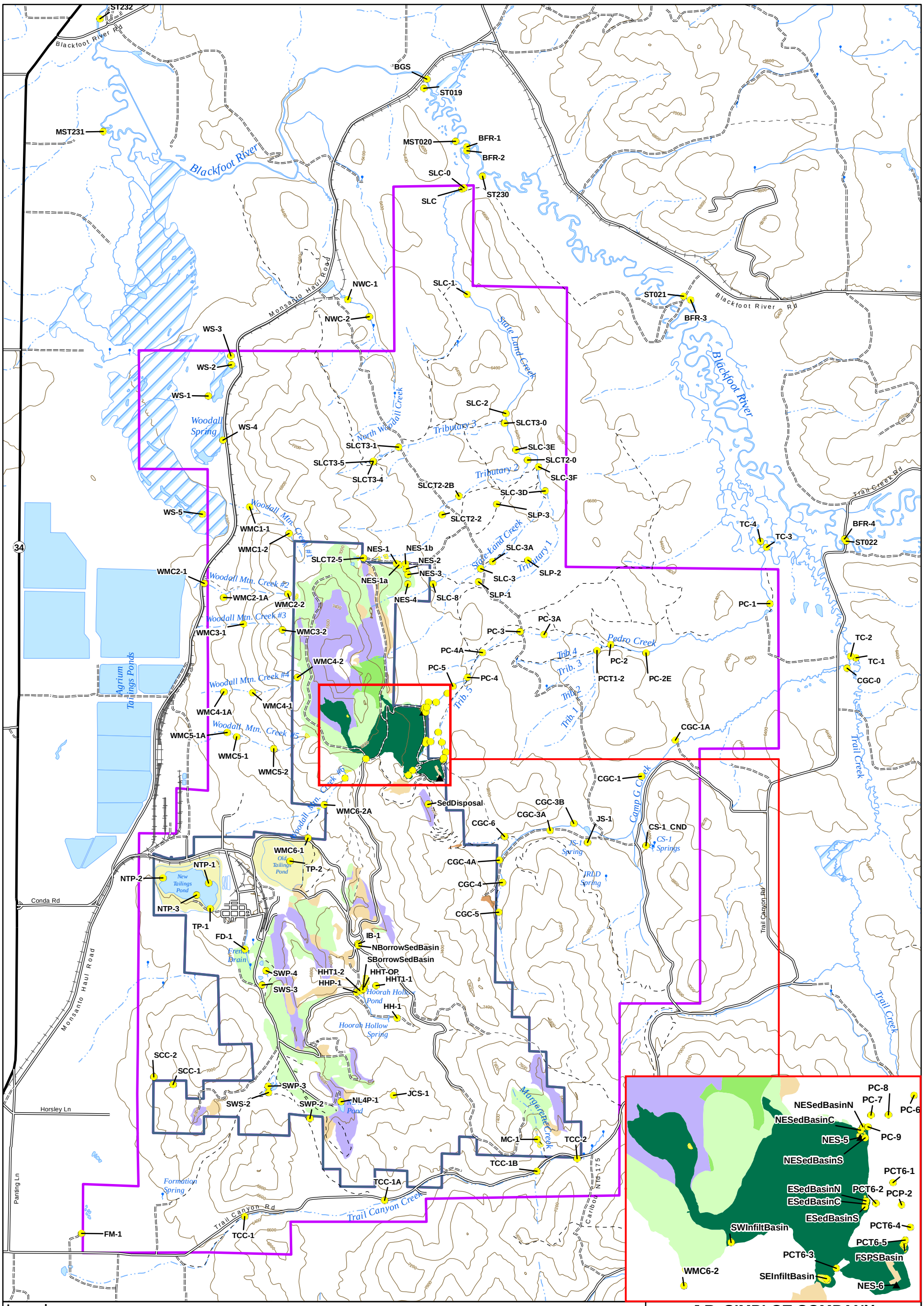
FIGURE 3-7

SURFACE WATER MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpr\2010139\plt\RI_2016\Fig_3-07_SW_Locs.mxd



Legend

- Sediment Monitoring Location
- Sediment Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine

N

0 2,500 5,000

Feet

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY

CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 3-8

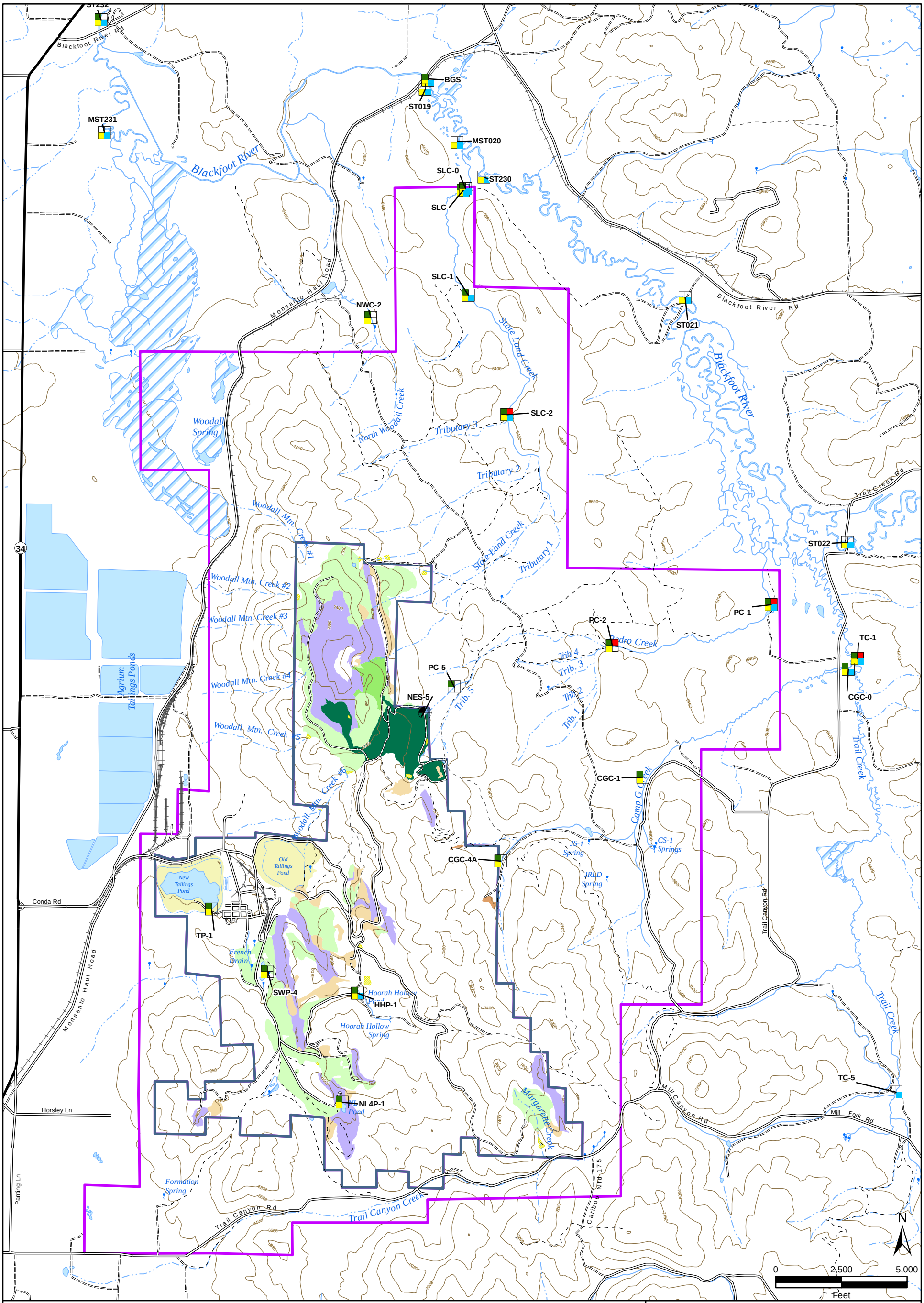
SEDIMENT MONITORING LOCATIONS

DATE: DEC 14, 2016

BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpro\2010139\plt\RI_2016\Fig_3-08_Sed_Locs.mxd



Legend

- Fish Monitoring Location
- Benthic Macroinvertebrate Monitoring Location
- Periphyton Monitoring Location
- Macrophyte Monitoring Location
- Macrophyte Monitoring Location Prior to Regrading and Dinwoody Soil Cover Placement
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Note: Includes data from 2001 onward of "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

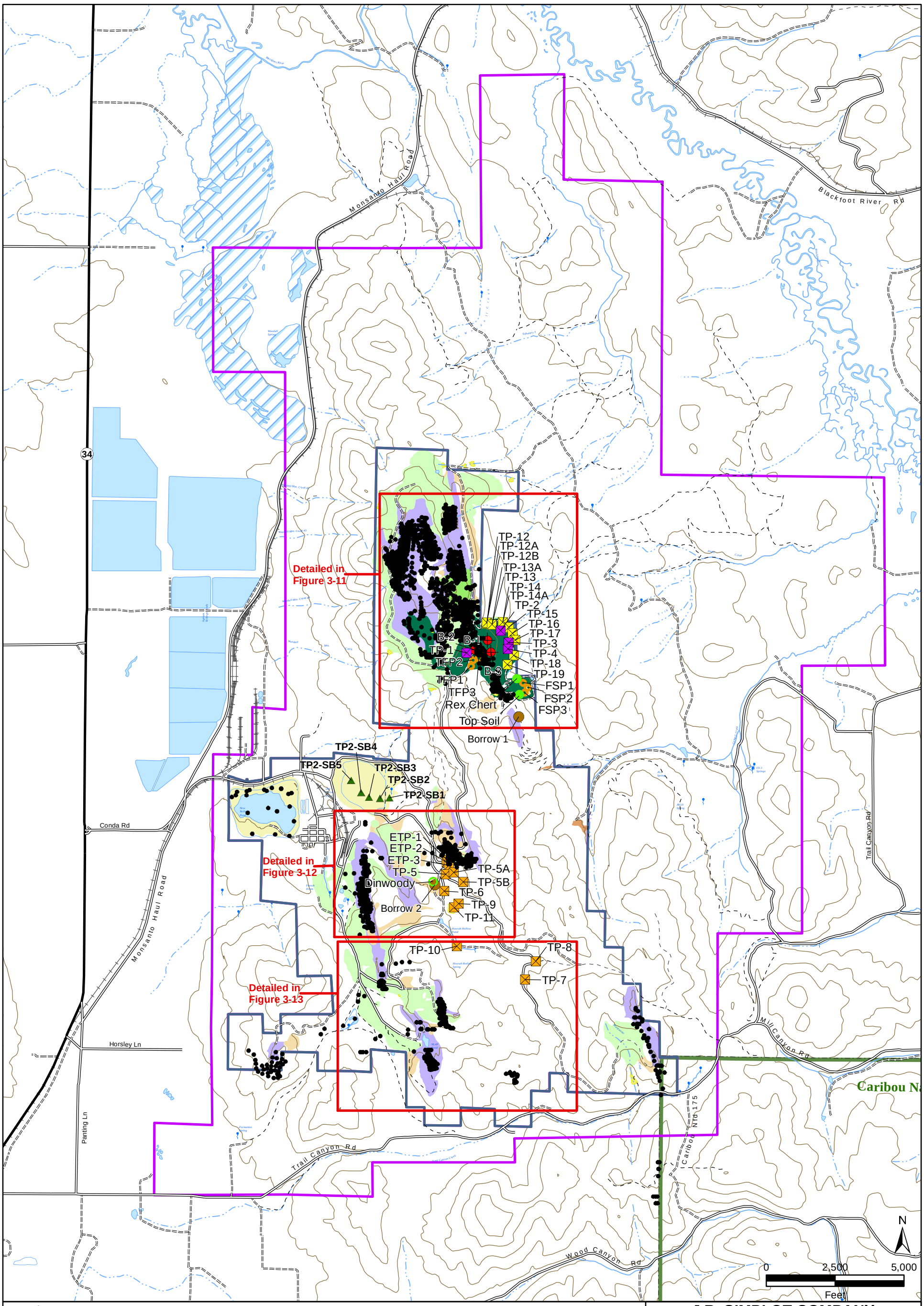
FIGURE 3-9

AQUATIC BIOTA MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_3-09_Aquatic_Locs.mxd



Legend

- Historical Exploration Boring (Appendix G)
- 2010 Borrow Areas
- 2010 Borings
- 2010 Geotechnical Test Pits in Overburden
- 2012 Geotechnical Test Pits in Overburden
- 2010 Geotechnical Test Pits in Dinwoody Formation
- 2014 West Side GW Supplemental Investigation
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Approximate 2012 Field-Scale Pilot Study Construction Sample Locations
- Approximate Geotechnical Sampling Area
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

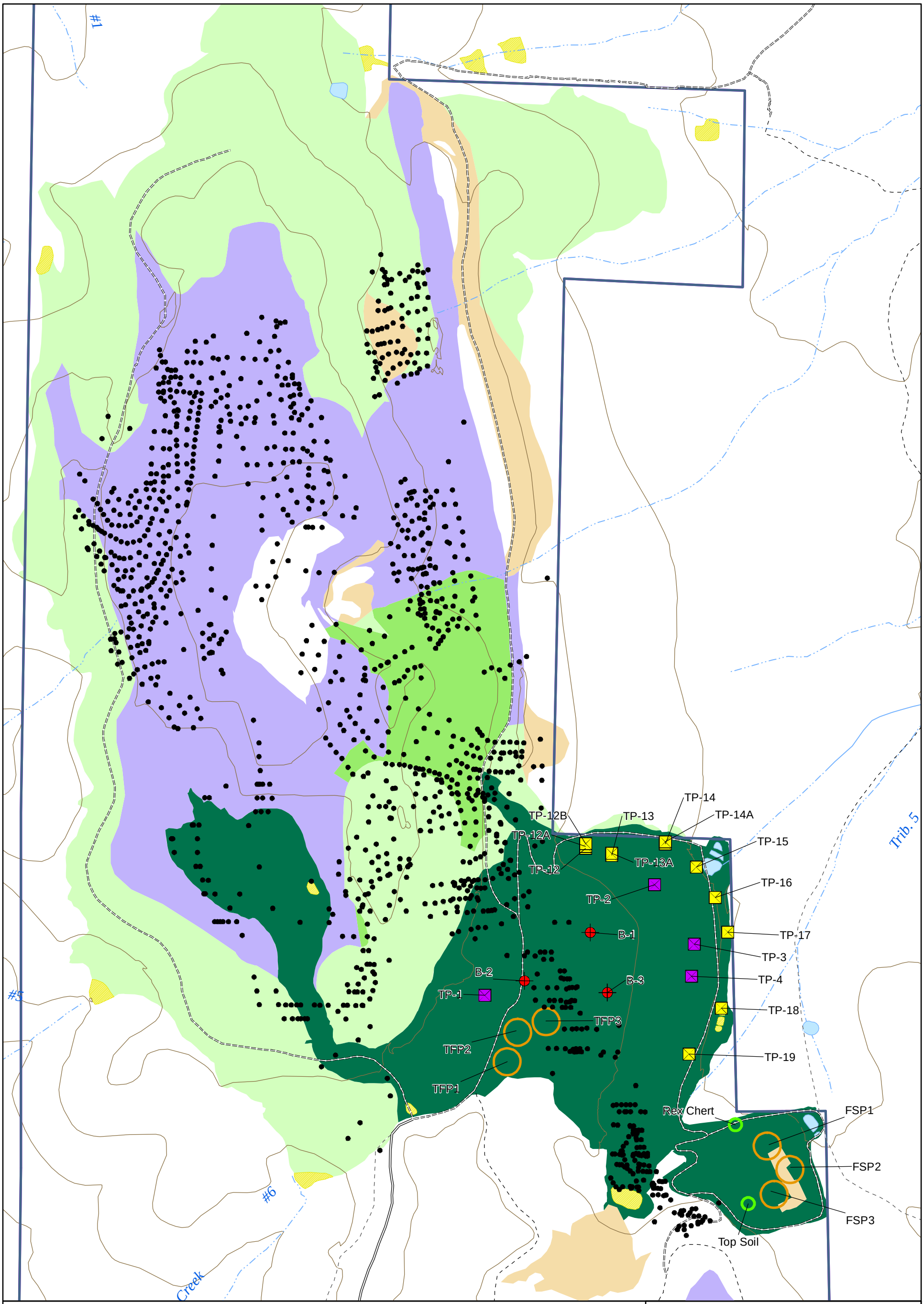
FIGURE 3-10

GEOTECHNICAL SAMPLING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcpro\0101139\plt\RI_2016\Fig_3-10_GeoTech_Locs.mxd



Legend

- Historical Exploration Borehole (Appendix G)
- 2010 Borings
- 2010 Geotechnical Test Pits in Overburden
- 2012 Geotechnical Test Pits in Overburden
- Approximate 2012 Field-Scale Pilot Study Construction Sample Locations
- Approximate Geotechnical Sampling Area
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area

N

0 500 1,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

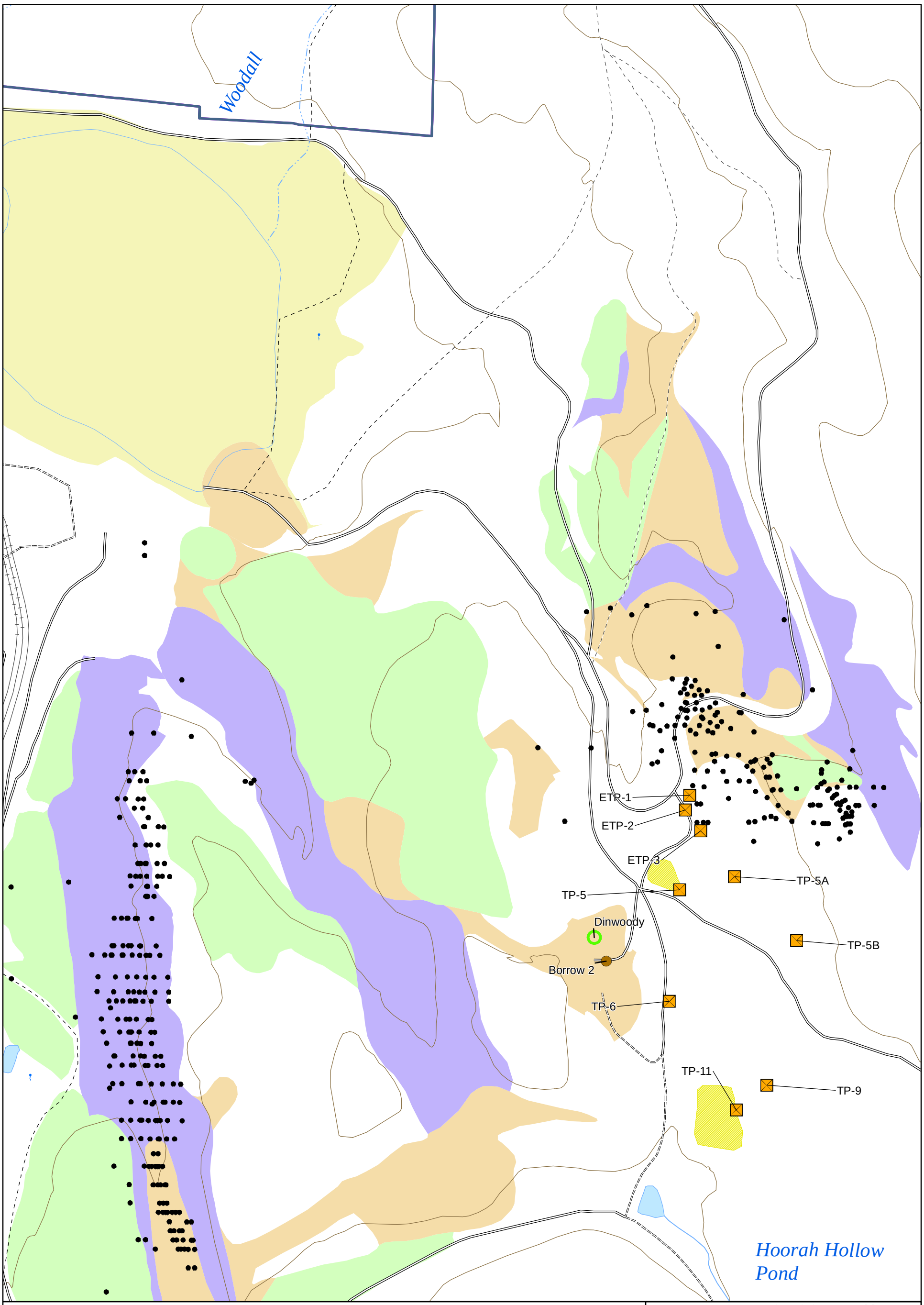
FIGURE 3-11

WOODALL MOUNTAIN GEOTECHNICAL SAMPLING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pltRI_2016\Fig_3-11_GeoTech_Locs_Woodall.mxd



Legend

- Historical Exploration Borehole (Appendix G)
- 2010 Borrow Areas
- 2010 Geotechnical Test Pits in Dinwoody Formation
- Approximate 2012 Field-Scale Pilot Study Construction Sample Locations
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area

N

0 500 1,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

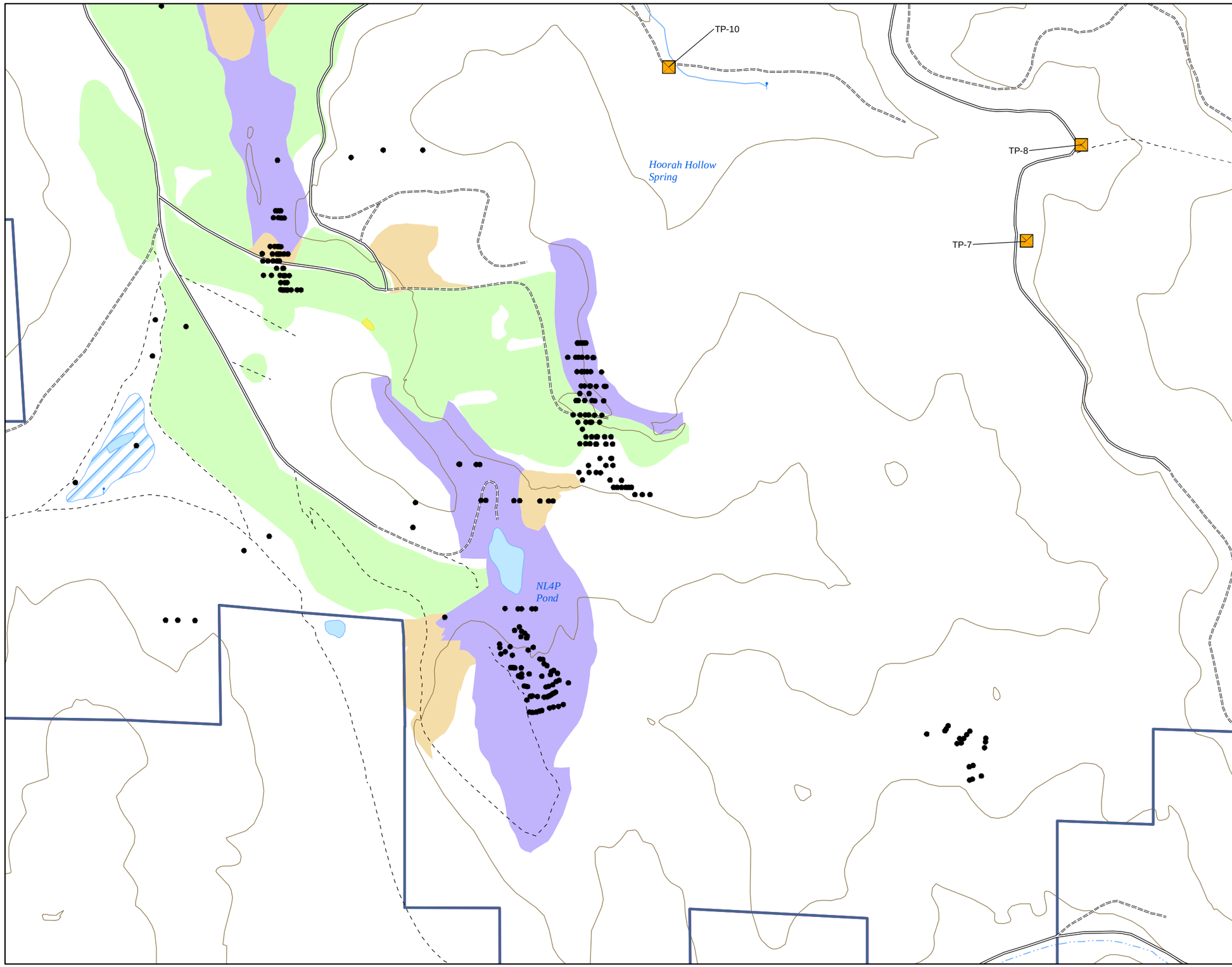
FIGURE 3-12

WEST LIMB, MIDDLE LIMB, AND IBEX PANEL GEOTECHNICAL SAMPLING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pltRI_2016\Fig_3-12_GeoTech_Locs_WestMiddleIbex.mxd



Legend

- Historical Exploration Borehole (Appendix G)
- 2010 Geotechnical Test Pits in Dinwoody Formation
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Mine Area
- Non-Mine Area
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

0 500 1,000
Feet

N

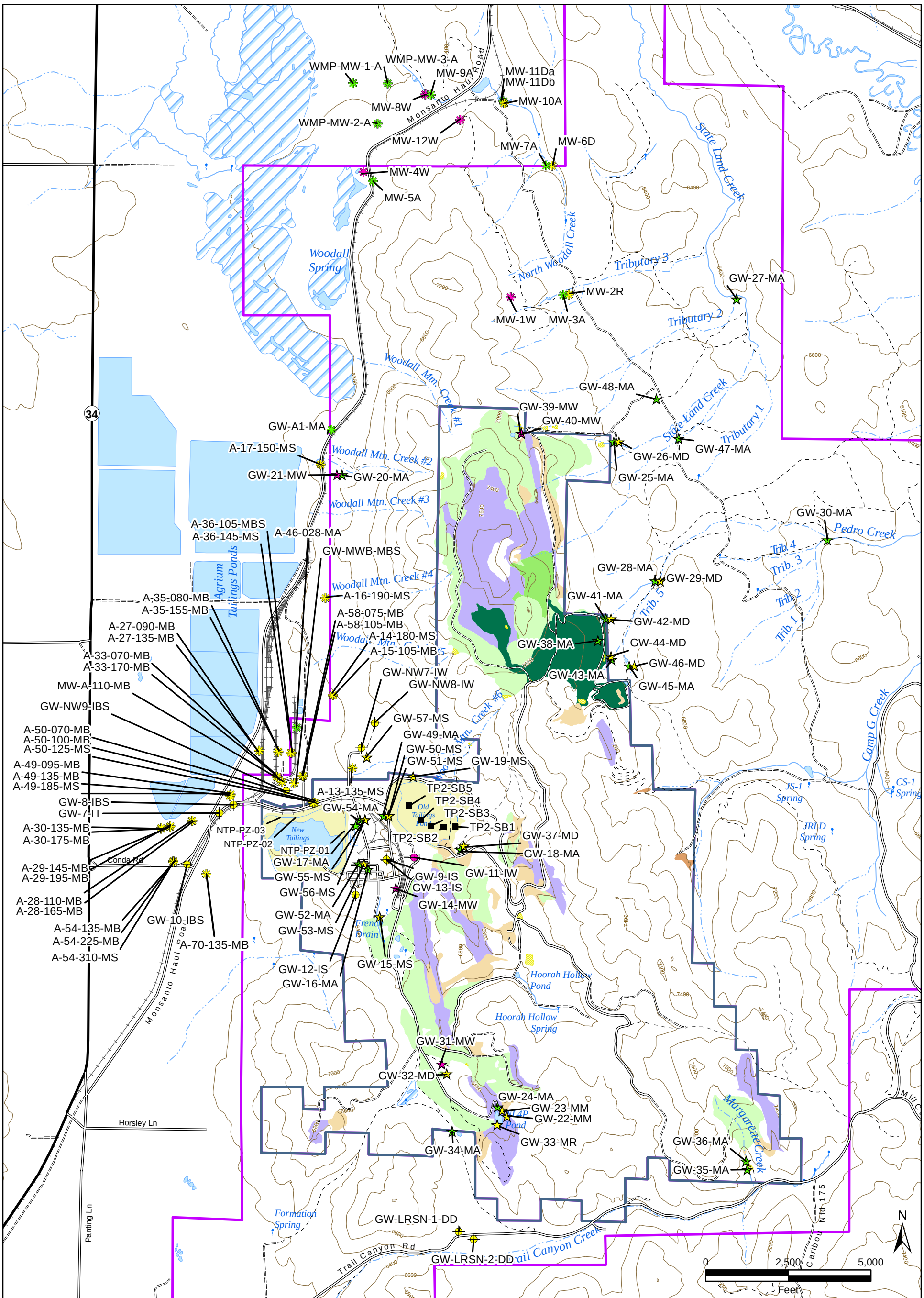
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 3-13

PIT LAKE GEOTECHNICAL SAMPLING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: RPS
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\0101139\plt\RI_2016\Fig_3-13_GeoTech_Locs_PitLake.mxd



Legend

Groundwater Monitoring Location

- Industrial/Domestic Wells
- Conda RI Monitoring Wells
- Neighboring Industries Monitoring Wells
- Completed in Shallow Hydrostratigraphic Unit
- Completed in Intermediate Hydrostratigraphic Unit
- Completed in Deep Hydrostratigraphic Unit
- RI Boreholes (not converted into wells)

- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

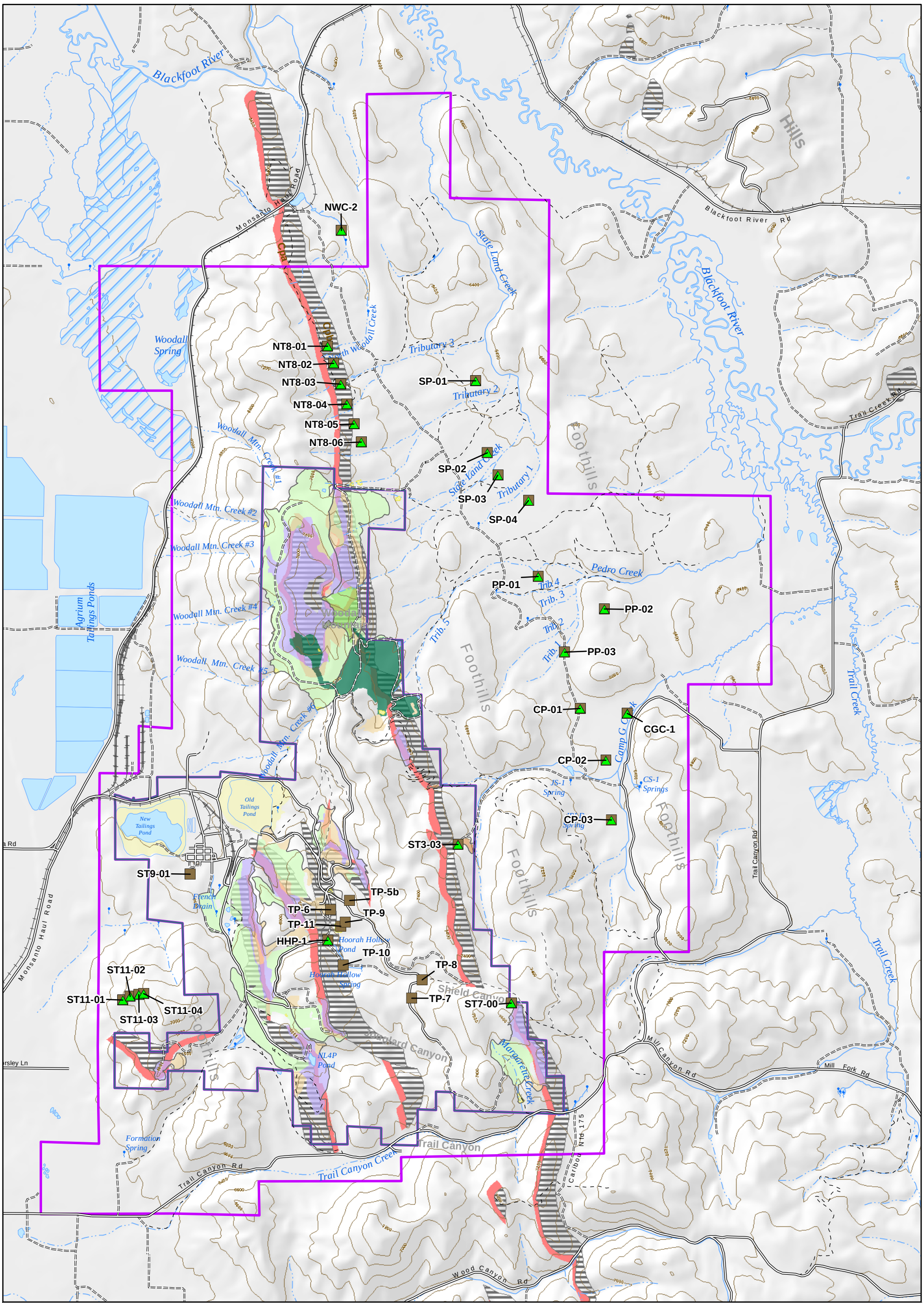
FIGURE 3-14

GROUNDWATER MONITORING WELL LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_3-14_GW_Locs.mxd



Legend

- Vegetation Background Monitoring Location
- Soil Background Monitoring Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Mine
- Non-Mine
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Geologic Formation - Phosphoria

- Cpb - Rex Chert
- Cpa - Meade Peak Member

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

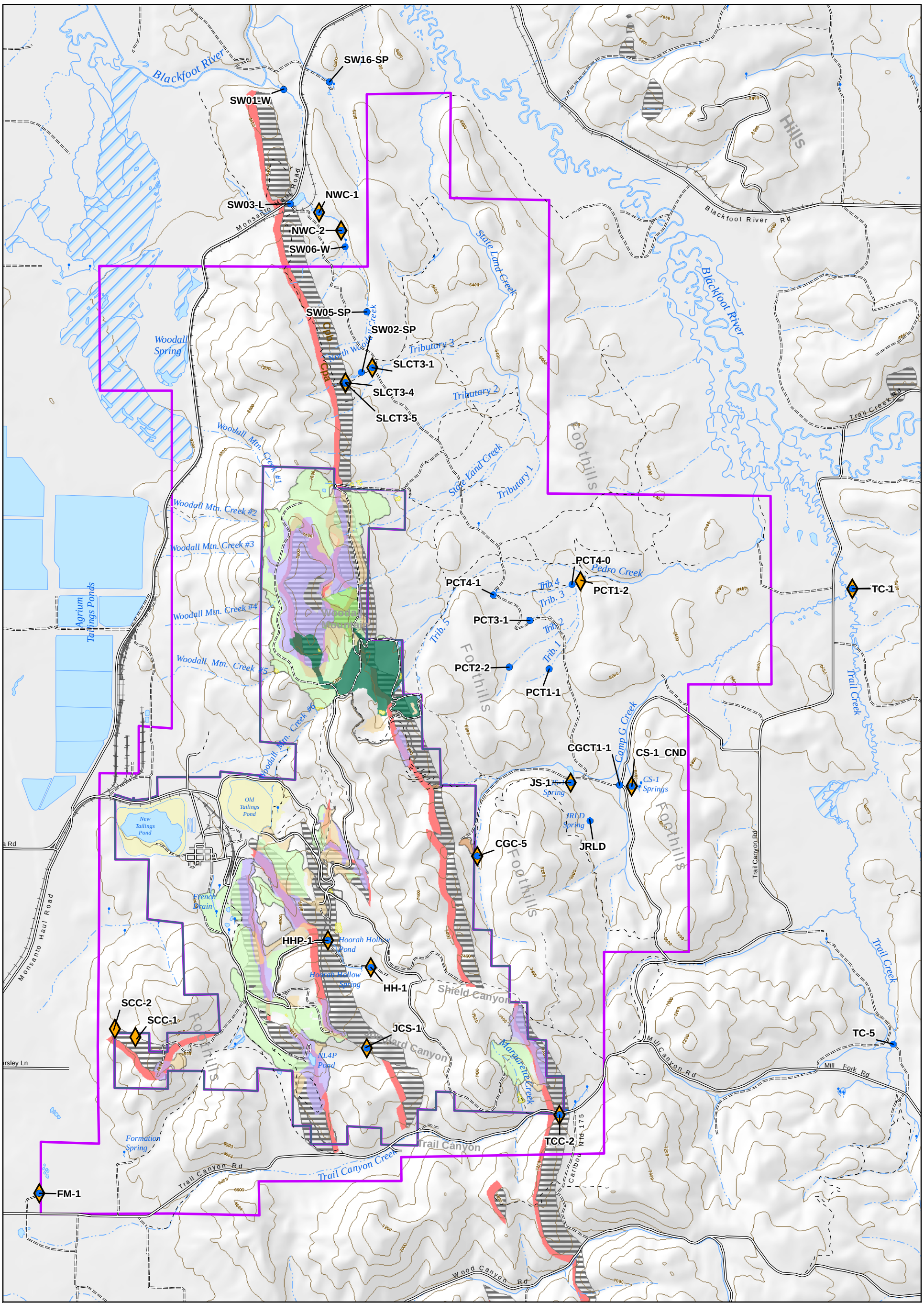
FIGURE 4-1

BACKGROUND ANALYSIS SOIL AND VEGETATION LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_4-01_BkgLocs_SL_VG.mxd



Legend

- Surface Water Background Monitoring Location
- Background Sediment Monitoring Location
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Mine Area
- Non-Mine Area
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Geologic Formation - Phosphoria

- Cpb - Rex Chert
- Cpa - Meade Peak Member

N

0 2,000 4,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

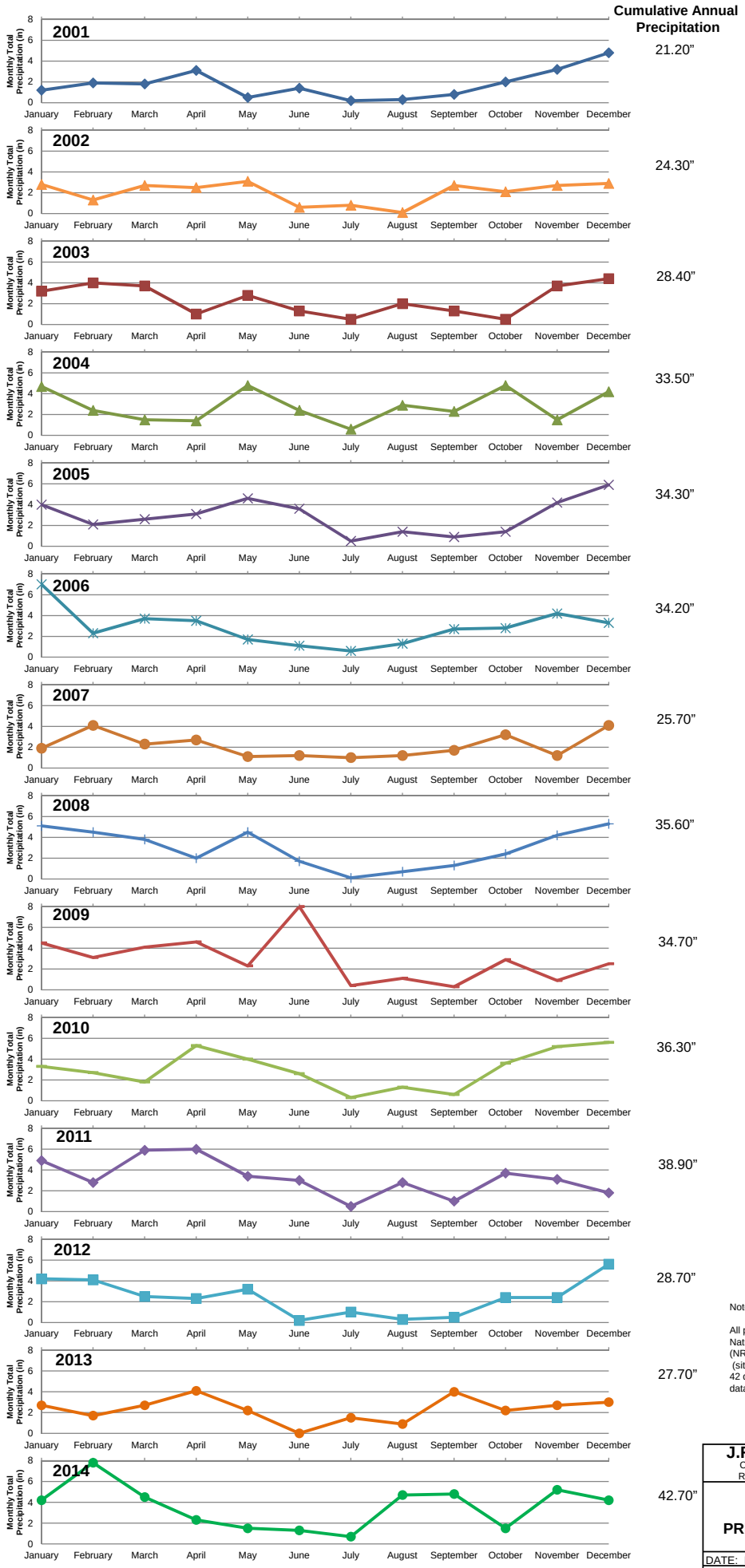
FIGURE 4-2

BACKGROUND ANALYSIS SURFACE WATER AND SEDIMENT LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_4-02_BkgLocs_SW_SD.mxd



Note:

All precipitation data was obtained from the Natural Resource Conservation Service (NRCS) Slug Creek Divide SNOTEL station (site number 761). The station is located at 42 deg., 34 min N; 111 deg., 18 min W, and data show general regional weather trends.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 4-3

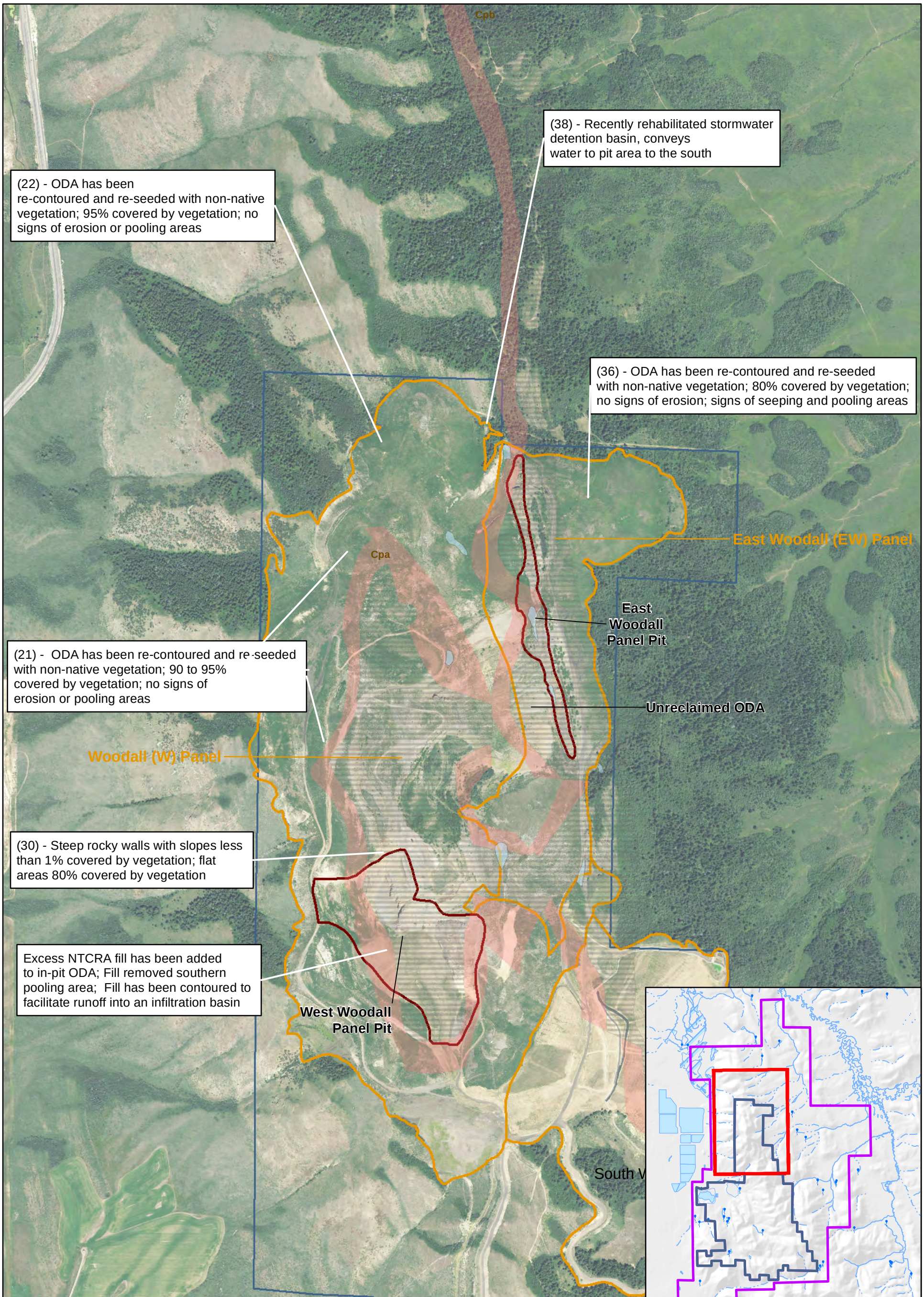
ANNUAL REGIONAL PRECIPITATION SUMMARY

DATE: DEC 13, 2016
BY: AJ FOR: KAM

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\PrecipAnalysis\Fig_4-1_AnnualPrecipSummary_2001_2014.xlsm

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RevisedDraftFnlRIReport\Figures_revised\Fig_4-3_AnnualPrecipitationSummary_rev.pptx



Legend

- Mine
- Mine Panels
- Approximate boundaries of known or potential pooling area
- Pit Boundary (approximate)
- Cpb - Rex Chert
- Cpa - Meade Peak Member

N

0 500 1,000
Feet

Notes:
- Aerial imagery provided by USDA NAIP (2015)
- Numbers within captions refer to ODA Condition Investigation Areas described in more detail in Appendix M
- Caption leader lines point to general areas rather than exact locations

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

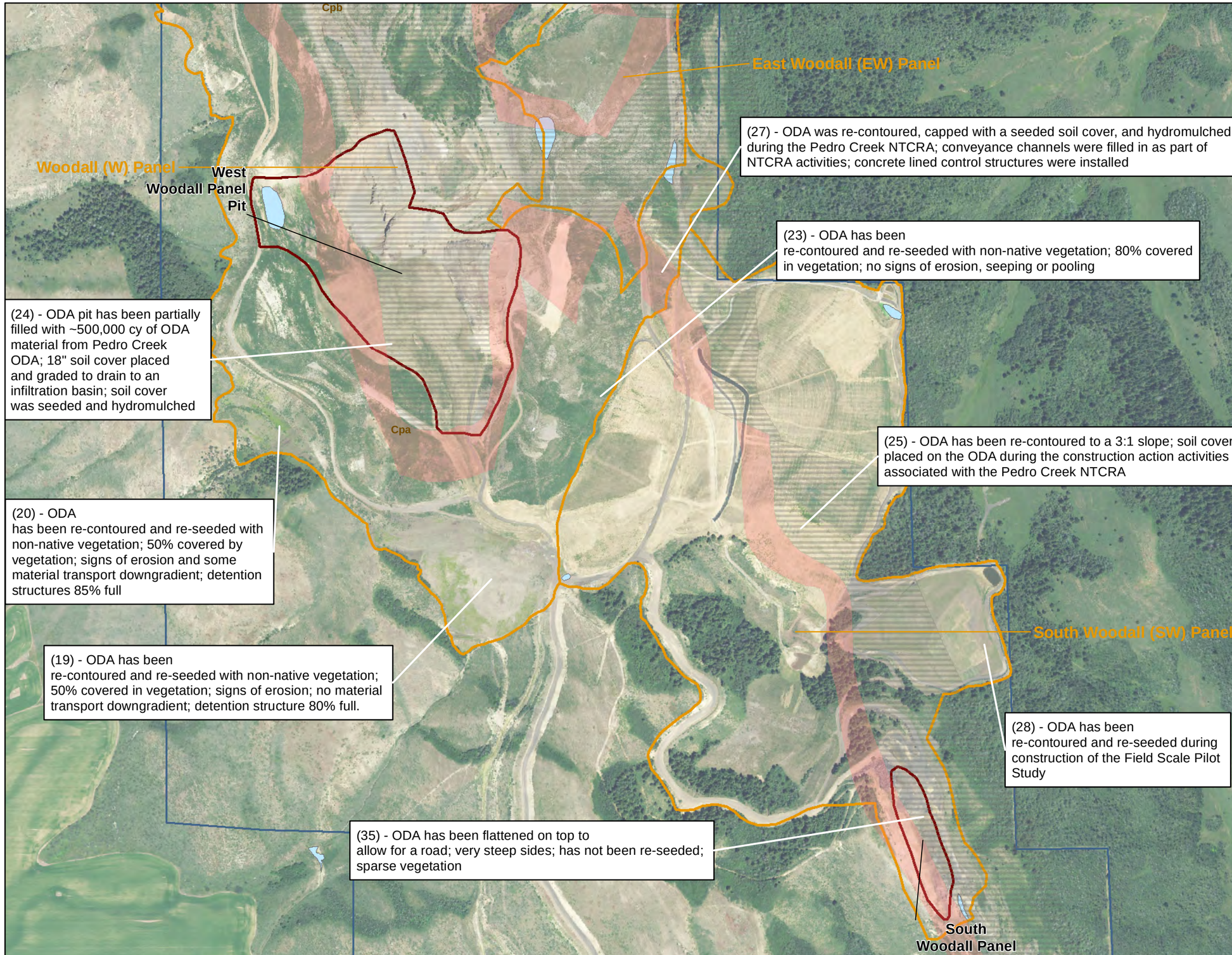
FIGURE 5-1

MINING-RELATED FEATURES DETAIL: NORTH WOODALL MOUNTAIN

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-01_NorthWoodall.mxd



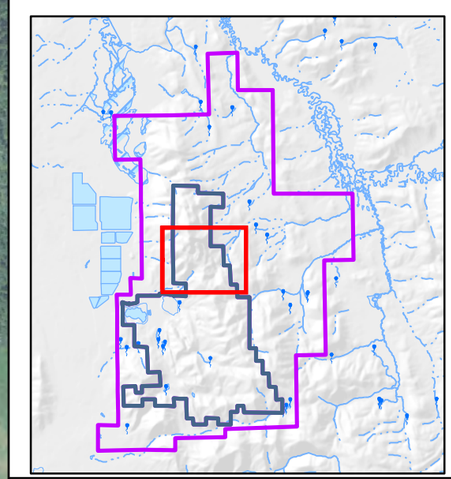
Legend

- Cpb - Rex Chert
- Cpa - Meade Peak Member
- Pit Boundary (approximate)
- Mine Panels
- Approximate boundaries of known or potential pooling area
- Mine Area

Notes:
- Aerial imagery provided by USDA NAIP (2015)
- Numbers within captions refer to ODA Condition Investigation Areas described in more detail in Appendix M
- Caption leader lines point to general areas rather than exact locations

0 500 1,000
Feet

N



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

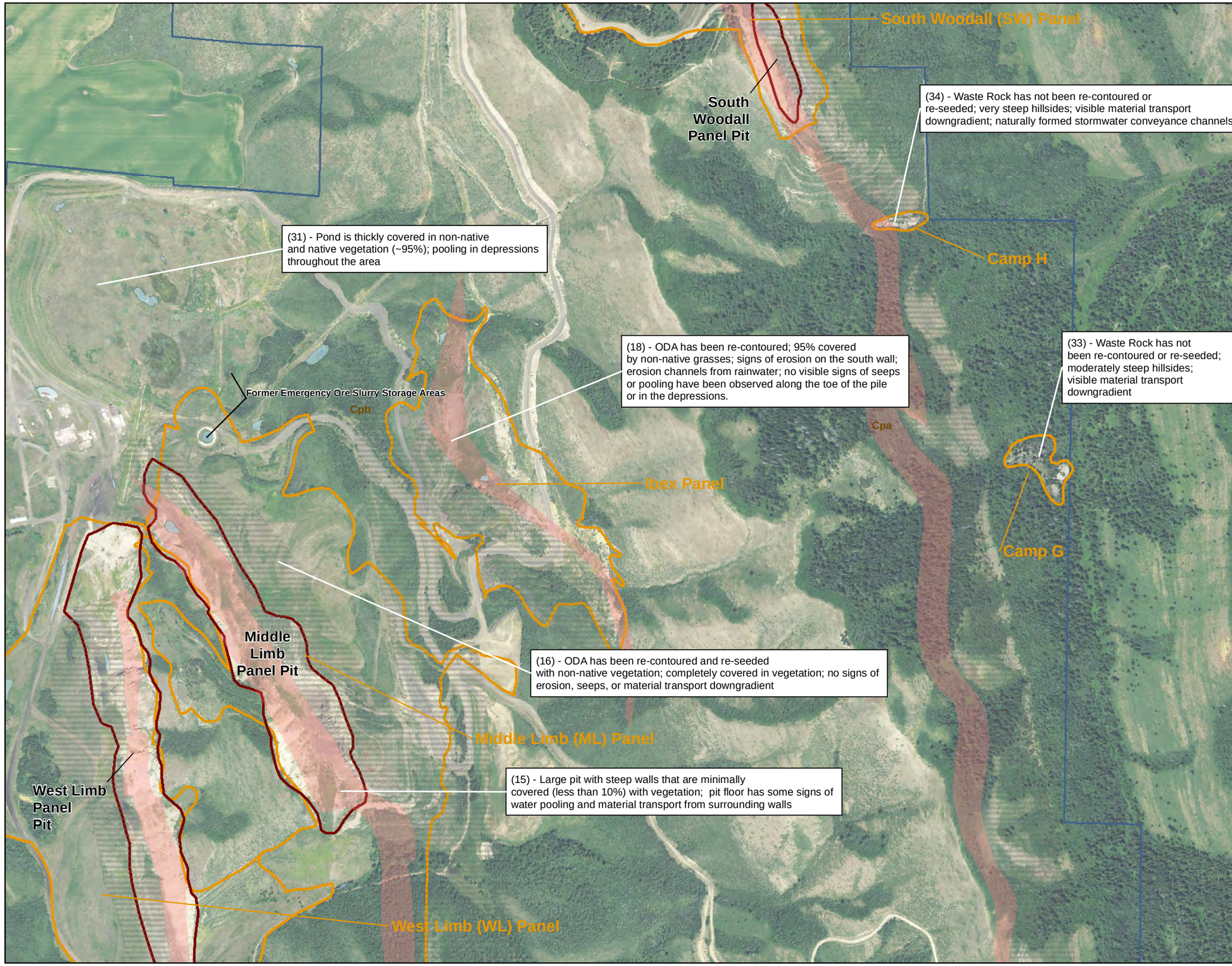
FIGURE 5-2

MINING-RELATED FEATURES DETAIL: SOUTH WOODALL MOUNTAIN

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pltRI_2016\Fig_5-02_SouthWoodall.mxd



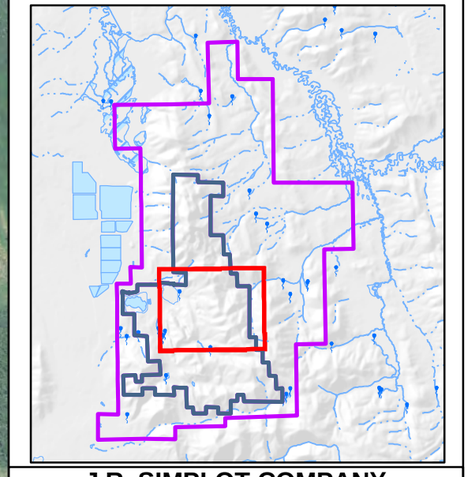
Legend

- Mine Area
- Cpb - Rex Chert
- Cpa - Meade Peak Member
- Mine Panels
- Pit Boundary (approximate)
- Approximate boundaries of known or potential pooling area

Notes:
- Aerial imagery provided by USDA NAIP (2015)
- Numbers within captions refer to ODA Condition Investigation Areas described in more detail in Appendix M
- Caption leader lines point to general areas rather than exact locations

0 500 1,000
Feet

N



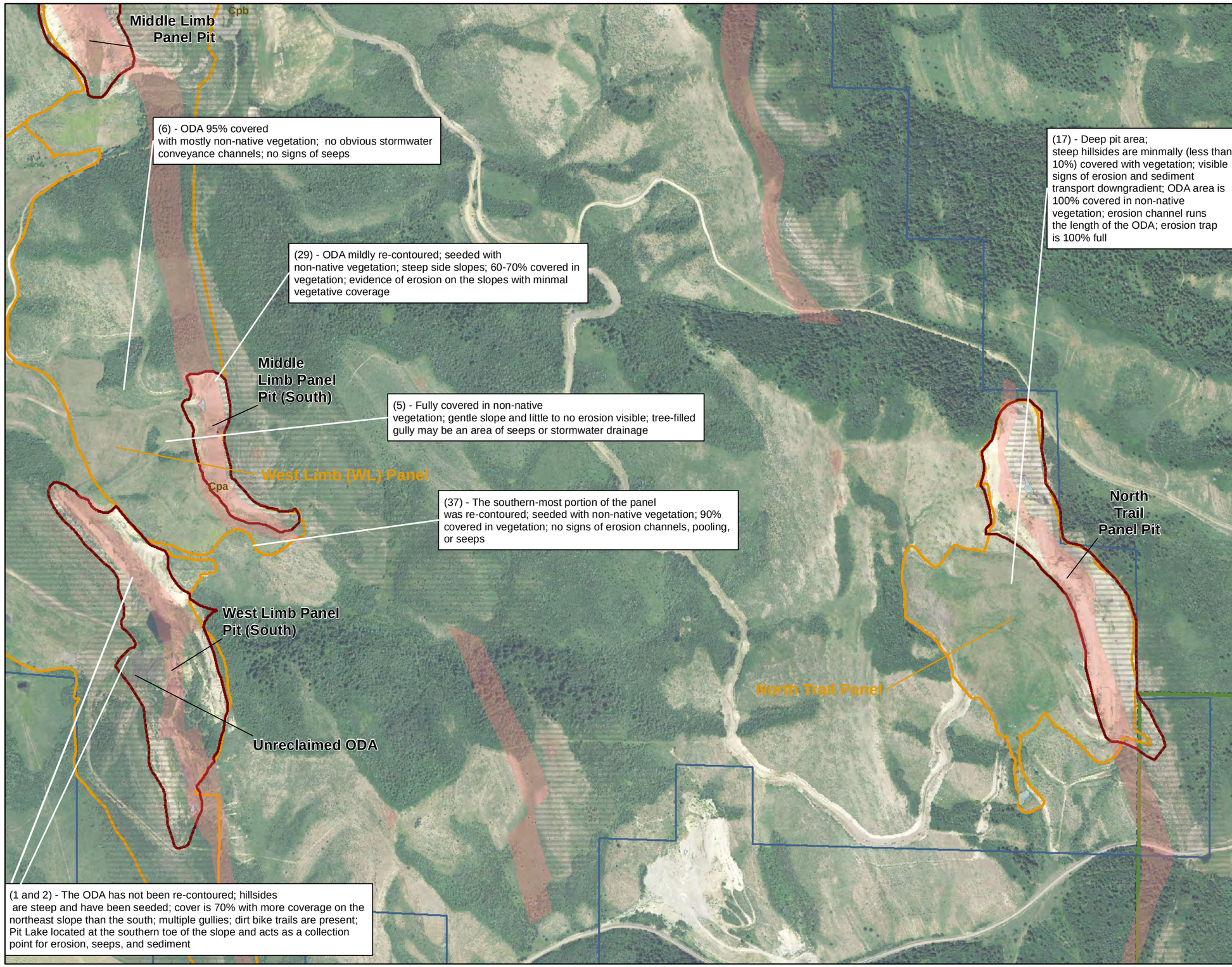
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 5-3

MINING-RELATED FEATURES DETAIL: OLD TAILINGS POND, CAMP G AND H, AND IBEX AND MIDDLE LIMB PANELS

DATE: DEC 14, 2016		FORMATION ENVIRONMENTAL
BY: KAM	FOR: RPS	

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-03_IbexMdLimbCamp.mxd



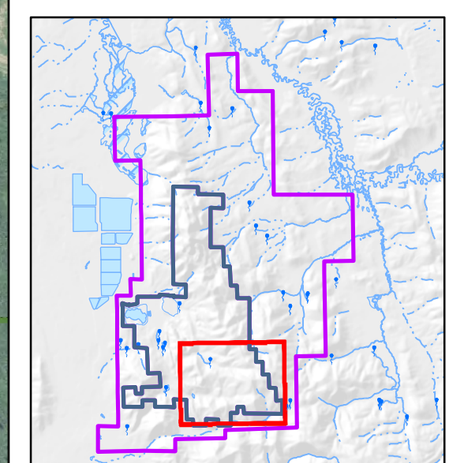
Legend

- Mine Area
- Cpb - Rex Chert
- Cpa - Meade Peak Member
- Mine Panels
- Pit Boundary (approximate)
- Approximate boundaries of known or potential pooling area

Notes:
- Aerial imagery provided by USDA NAIP (2015)
- Numbers within captions refer to ODA Condition Investigation Areas described in more detail in Appendix M
- Caption leader lines point to general areas rather than exact locations

0 500 1,000
Feet

N



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

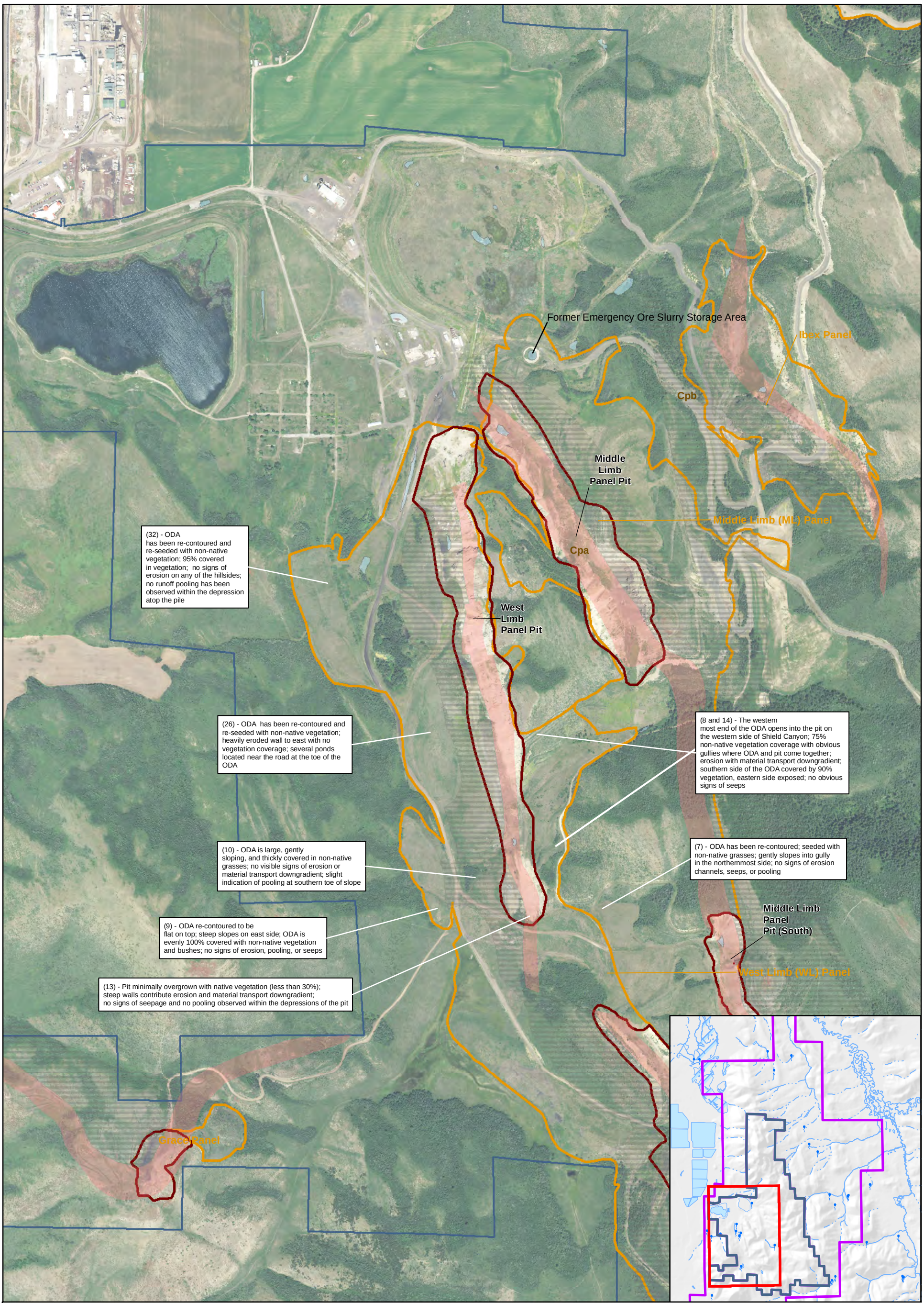
FIGURE 5-4

MINING-RELATED FEATURES DETAIL: WEST LIMB AND NORTH TRAIL PANELS

DATE: DEC 14, 2016
BY: KAM | FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\0101139\plt\RI_2016\Fig_5-04_WestLimbNorthTrail.mxd



Legend

- Mine Area
- Cpb - Rex Chert
- Cpa - Meade Peak Member
- Mine Panels
- Approximate boundaries of known or potential pooling area
- Pit Boundary (approximate)

N

Notes:
- Aerial imagery provided by USDA NAIP (2015)
- Numbers within captions refer to ODA Condition Investigation Areas described in more detail in Appendix M
- Caption leader lines point to general areas rather than exact locations

0 500 1,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

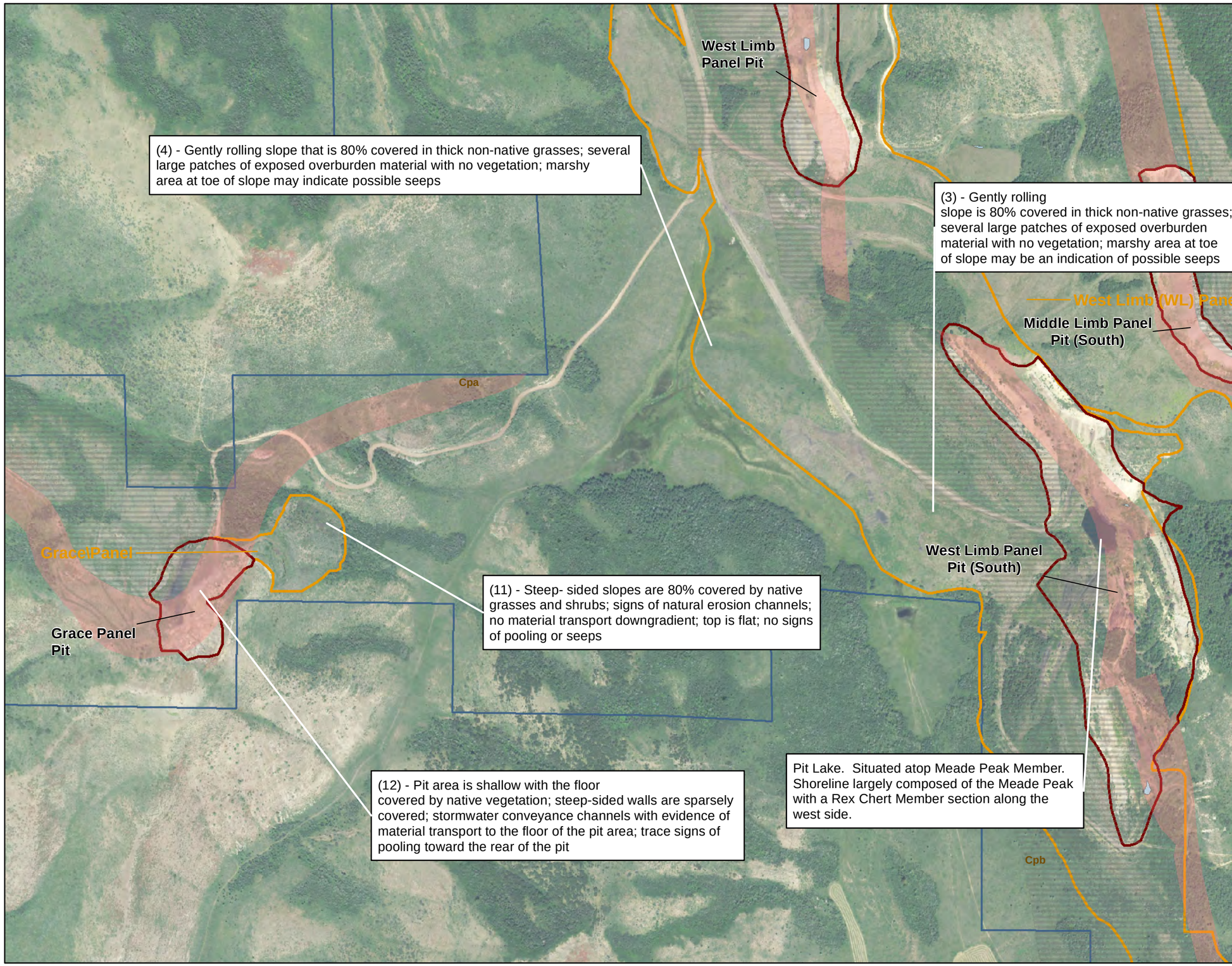
FIGURE 5-5

MINING-RELATED FEATURES DETAIL: FRENCH DRAIN AND WEST LIMB PANEL

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-05_FrenchDrainWestLimb.mxd



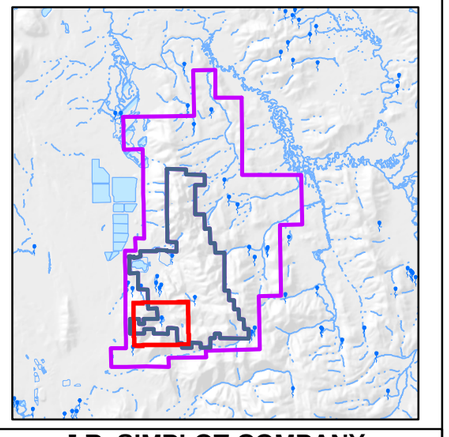
Legend

- Approximate boundaries of known or potential pooling area
- Cpb - Rex Chert
- Cpa - Meade Peak Member
- Pit Boundary (approximate)
- Mine Panels
- Mine Area

Notes:
- Aerial imagery provided by USDA NAIP (2015)
- Numbers within captions refer to ODA Condition Investigation Areas described in more detail in Appendix M
- Caption leader lines point to general areas rather than exact locations

0 500 1,000
Feet

N

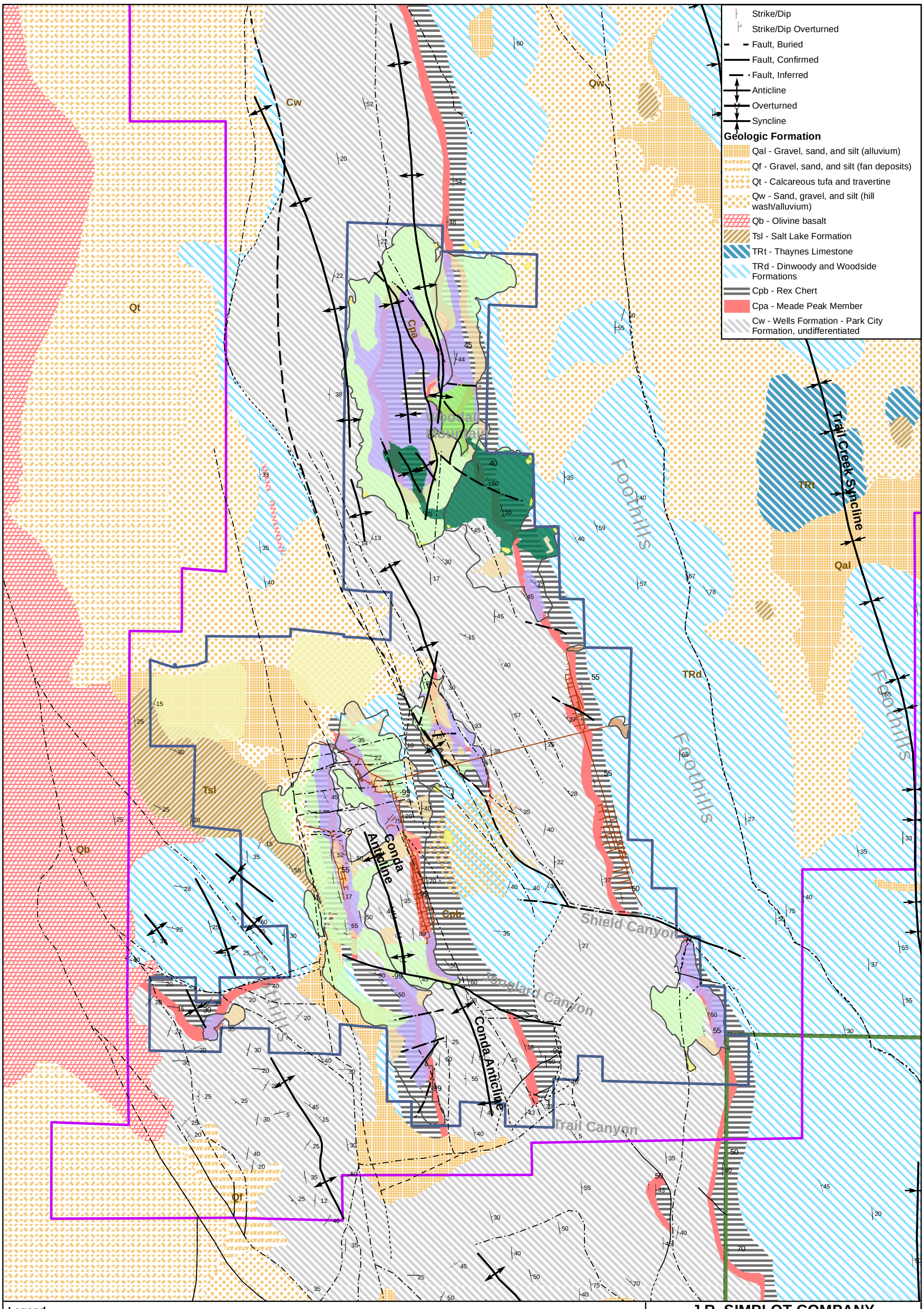


J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 5-6
MINING-RELATED FEATURES DETAIL: GRACE AND WEST LIMB PANELS

DATE: DEC 14, 2016
BY: KAM FOR: RPS
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-06_GracePanelWestLimb.mxd



Legend

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Mine Panels
- Underground Workings

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

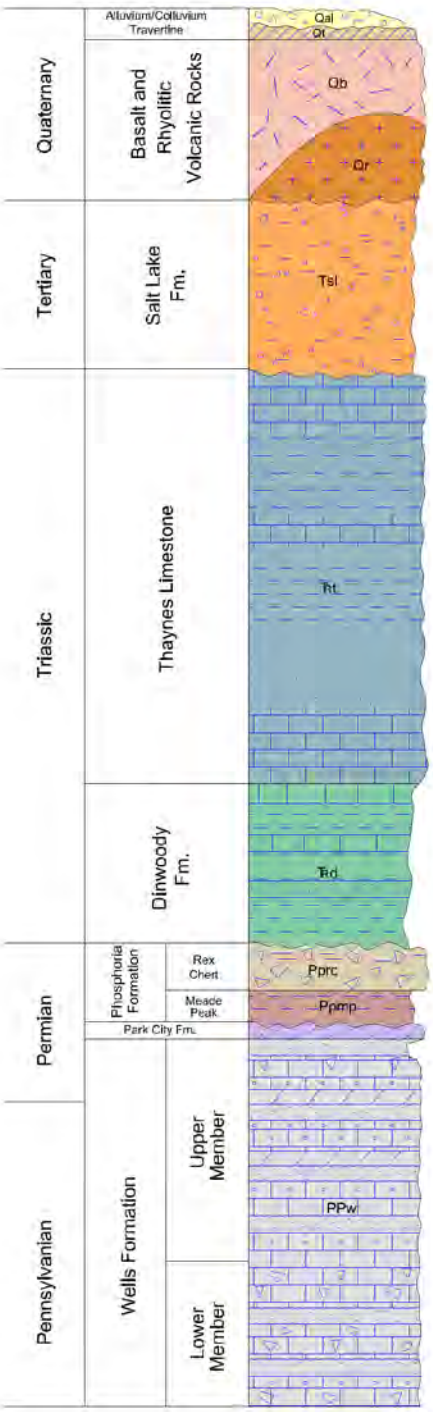
FIGURE 5-7

RESIDUAL MINING MATERIALS RELATIVE TO SURFACE GEOLOGY

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-07_RMM_SurfGeo.mxd



Alluvial and Collluvial Deposits - 0' to 100' thick, unconsolidated sand, silt, and gravel in drainages and along hillsides.

Travertine Deposits - 0' to 50' (?) thick, white, gray, buff, or reddish travertine associatec with carbonate springs.

Basalt - 1' to <1,000' thick; black to dark gray olivine basalt flows, scoria, and cinders.

Rhyolite Volcanic Rocks - tan-weathering, partially devitrified rhyolite and rhyolite tuff with spherical quartz grains.

Salt Lake Formation - 0' to greater than 1,000' thick, fluviatile and lacustrine calcareous siltstone, sandstone, and conglomerate with white, gray, and green tuff that grades into red-weathering diamictite near exposures of older rocks. Conglomeratic sections are typically light gray to buff in color with locally derived angular to subangular clasts. The formation may also contain beds of white marl and calcareous clay.

Thaynes Limestone - 2,200' to 2,300' thick, clayey gray limestone, brown-weathering calcareous siltstone, and dark gray olive green shale. Shale beds near the middle of the formation are typically platey and break into prominant slabs. Limestone beds form subdued ledges and rough slopes.

Dinwoody Formation - approx. 900' thick, the upper part of the formation is composed of interbedded gray limestone that grades downward into calcareous shale and siltstone with thin limestone interbeds. Surficial weathering of the Dinwoody Formation forms dense, clayey soils. It is indistinct in outcrop and forms rounded slopes.

Rex Chert Member of the Phosporia Formation - 250' to 300' thick, the upper stratigraphic horizon of the Rex Chert is composed of thinly bedded dark brown to black, cherty mudstone, siliceous shale, and argillaceous chert. The lower portion of the Rex Chert consists of thick-bedded black to blue to reddish brown chert with interbedded mudstone and lenticular limestone.

Meade Peak Member of the Phosphoria Formation - 150' to 200' thick, brown to black shale and siltstone with gray-brown to brown phosphatic mudstone, argillaceous phosphorite, oolitic phosphorite, and cherty mudstone.

Grandeur Member of the Park City Formation - 65' to 100' thick, massively to thick-bedded gray dolomite that is ocassionally sandy or argillaceous and may be recrystallized.

Wells Formation - 2,000' to 2,400' thick, the upper member of the Wells Formation (1,000 to 1,400' thick) consists of buff colored sandy limestone, gray to reddish brown sandstone, and interbedded gray limestone and dolomite. The top of the formation is composed of approximately 75 ft of tan to white, very fine-grained sandstone that grades into siliceous limestone. The lower member of the Wells Formation is 500' to 900' thick and consists of medium-bedded, gray, cherty limestone with some interbedded sandstone.

Source: Blackfoot Bridge proposed mine site in the northern Aspen Range

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

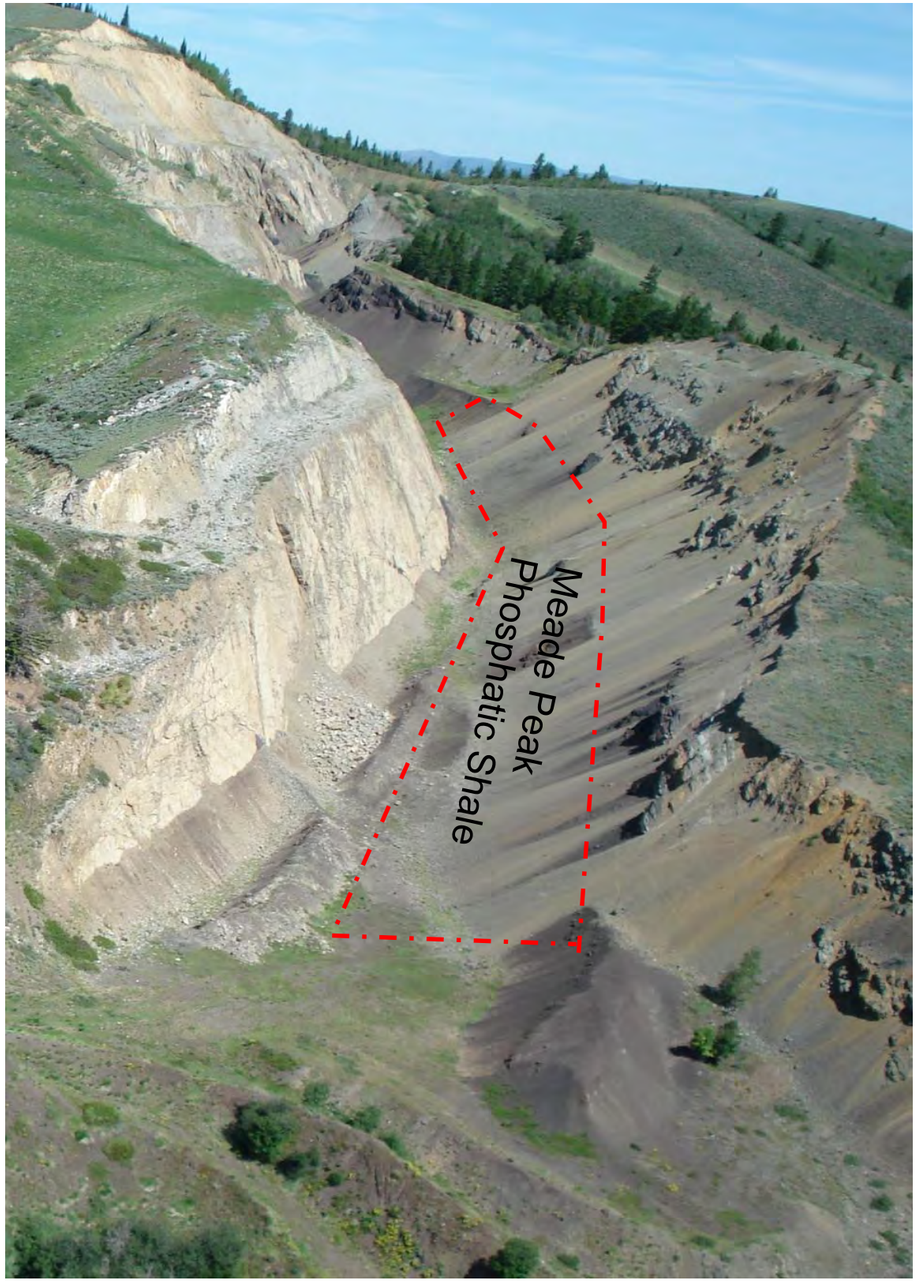
FIGURE 5-8

GENERALIZED STRATIGRAPHIC COLUMN FOR SOUTHEASTERN IDAHO

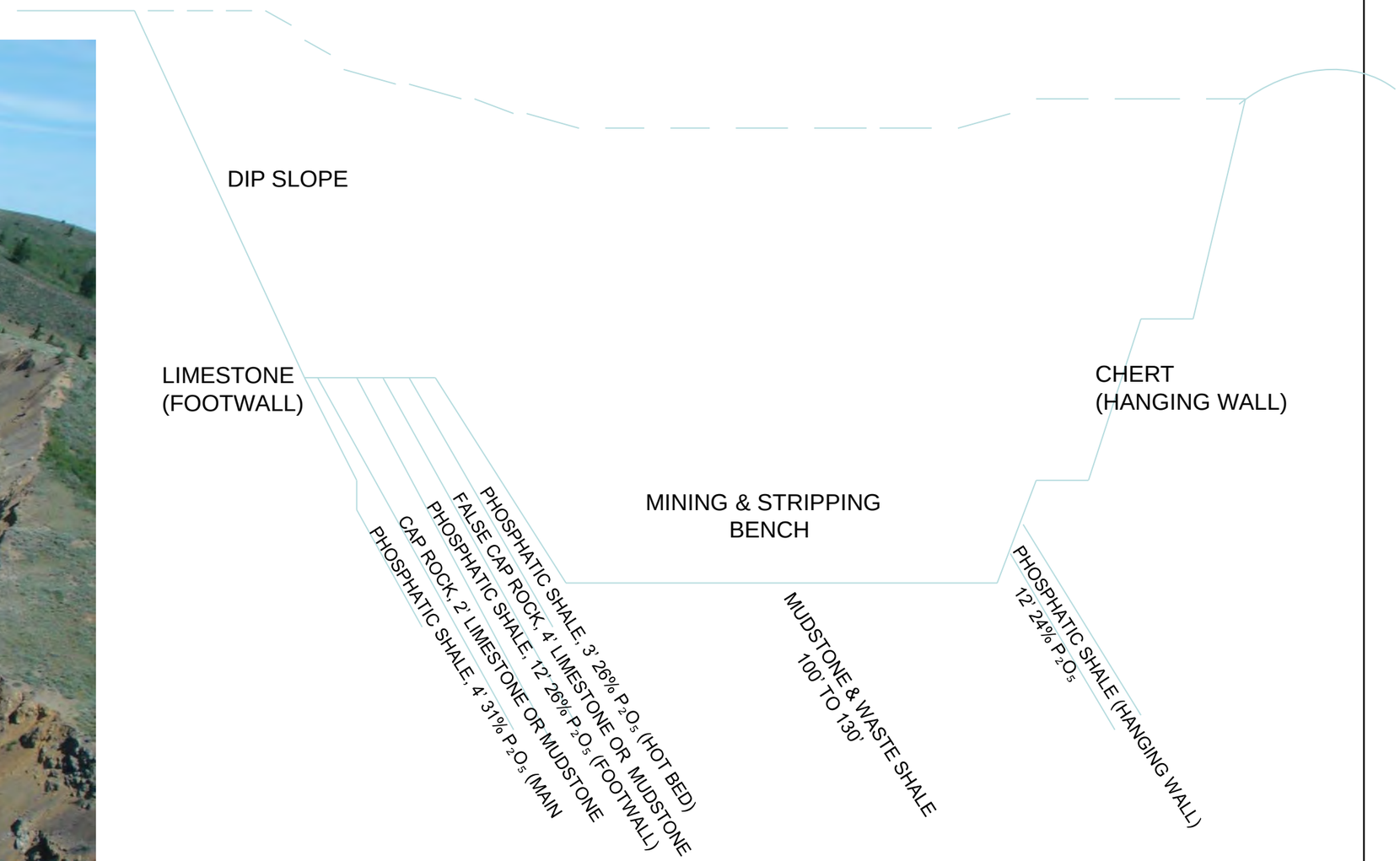
DATE: FEB 06, 2013
BY: KAM | FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pltRI_2012\Fig_5-8_StratCol_rev.mxd



North Trail Panel Pit



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

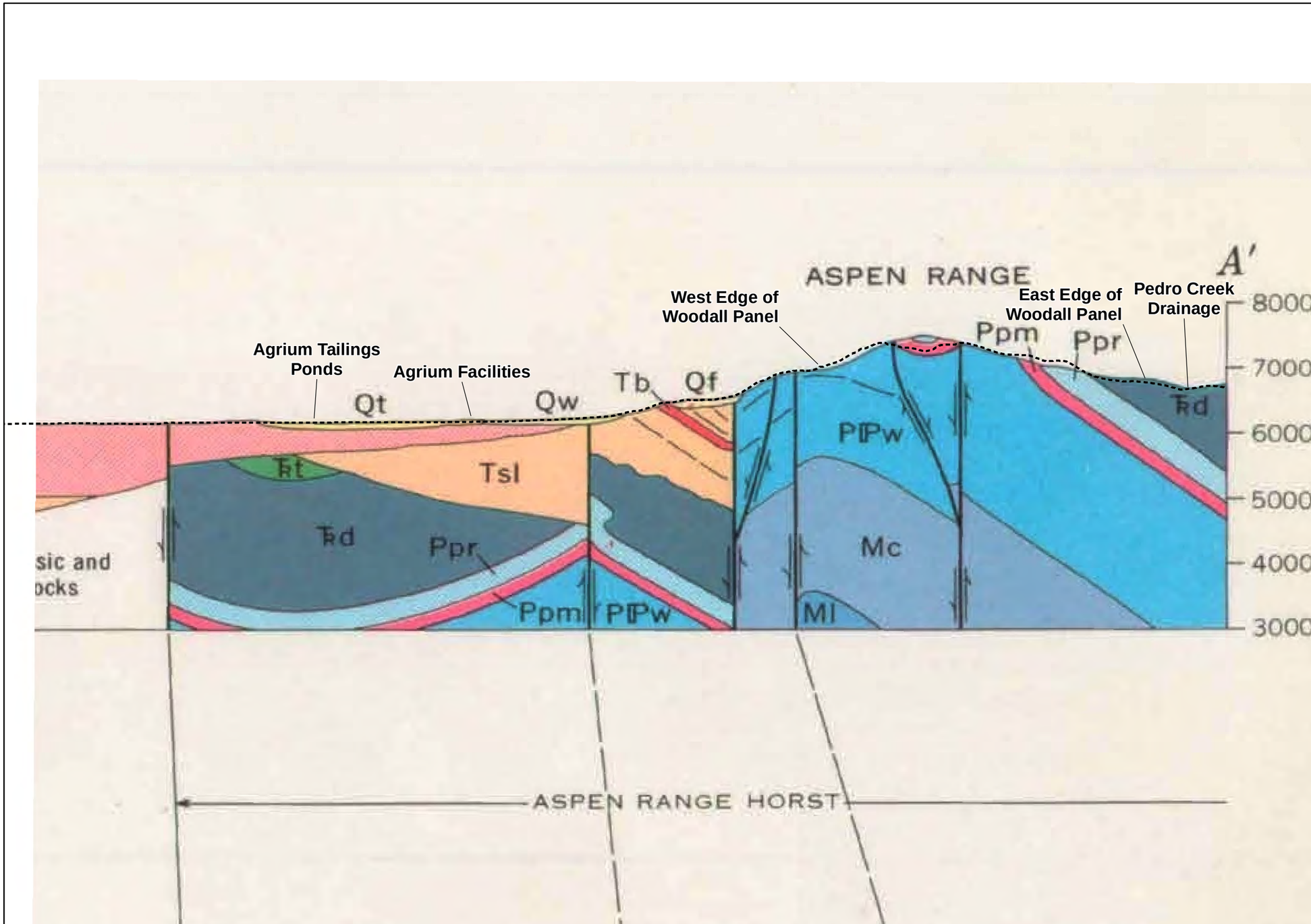
FIGURE 5-9

STRATIGRAPHY IN AN OPEN PIT

DATE: May 25, 2016

BY: KAM | FOR: RPS

FORMATION ENVIRONMENTAL



Legend

Qf	Gravel, sand, and silt
Qt	Calcareous tufa and travertine
Qb	Olivine basalt
Qw	Sand, gravel, and silt
Tsl	Salt Lake Formation
Tb	Olivine basalt
T_Rt	Thaynes Limestone
T_Rd	Dinwoody Formation
Ppr	Phosphoria Formation - Rex Chert Member
Ppm	Phosphoria Formation - Meade Peak Member
Ppw	Wells Formation and associated rocks
Mc	Chesterfield Range Group
Ml	Lodgepole Limestone

-------- Current Surface (Simplot 2010, for mine site USGS NED for areas outside mine)

Fault, arrows indicate relative movement

Source: Geologic Map of Soda Springs Quadrangle, Southeastern Idaho (1969).

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

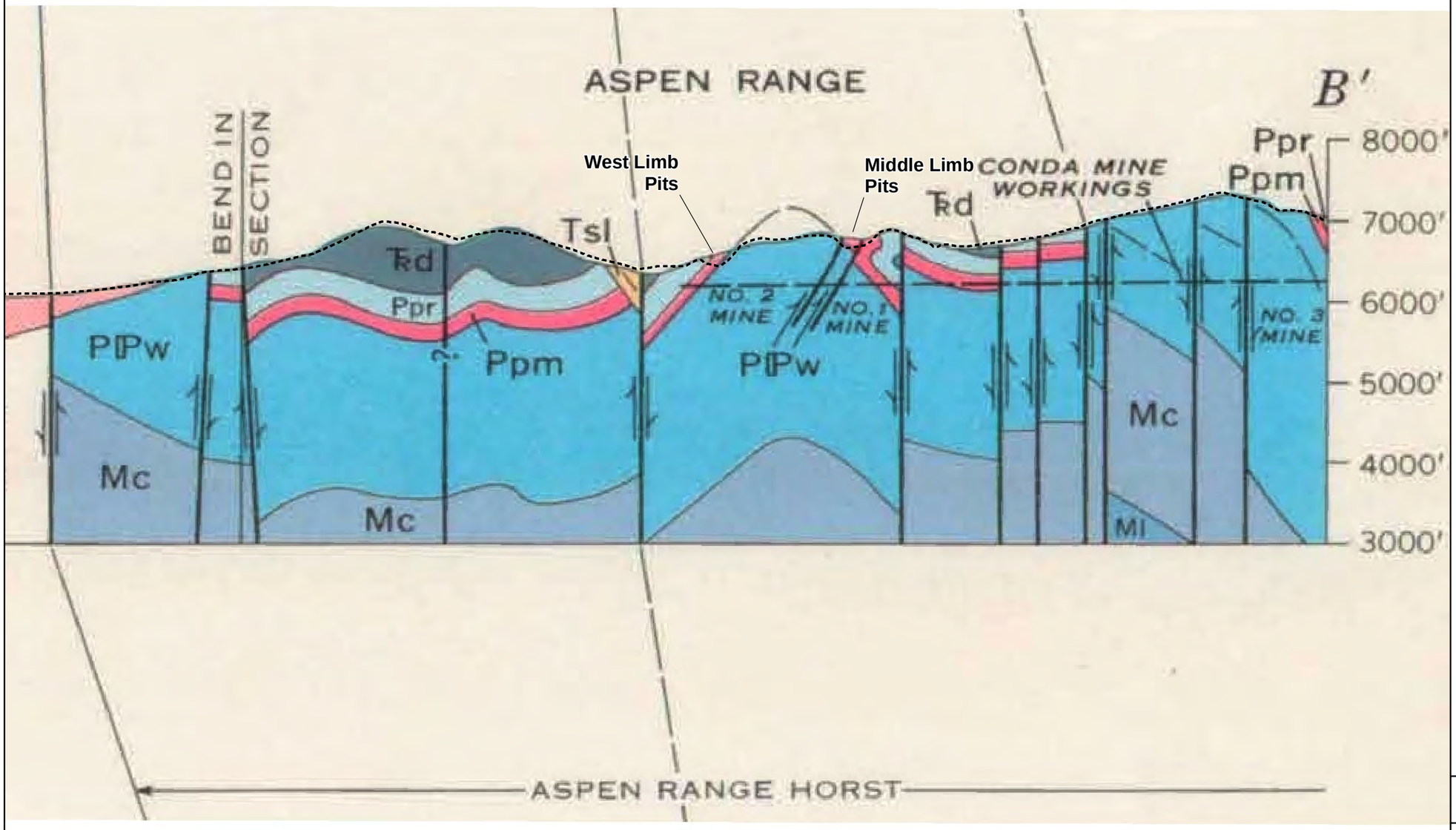
FIGURE 5-10

GEOLOGIC CROSS-SECTION A - A'

DATE: FEB 13, 2013
BY: CRL FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2012\Fig_5-10_xsectA.mxd



Legend

Qb	Olivine basalt
Tsl	Salt Lake Formation
TRd	Dinwoody Formation
Ppr	Phosphoria Formation - Rex Chert Member
Ppm	Phosphoria Formation - Meade Peak Member
Ppw	Wells Formation and associated rocks
Mc	Chesterfield Range Group
Ml	Lodgepole Limestone
------	Current Surface (Simplot 2010, for mine site USGS NED for areas outside mine)
⇓	Fault, arrows indicate relative movement

Source: Geologic Map of Soda Springs Quadrangle, Southeastern Idaho (1969).

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

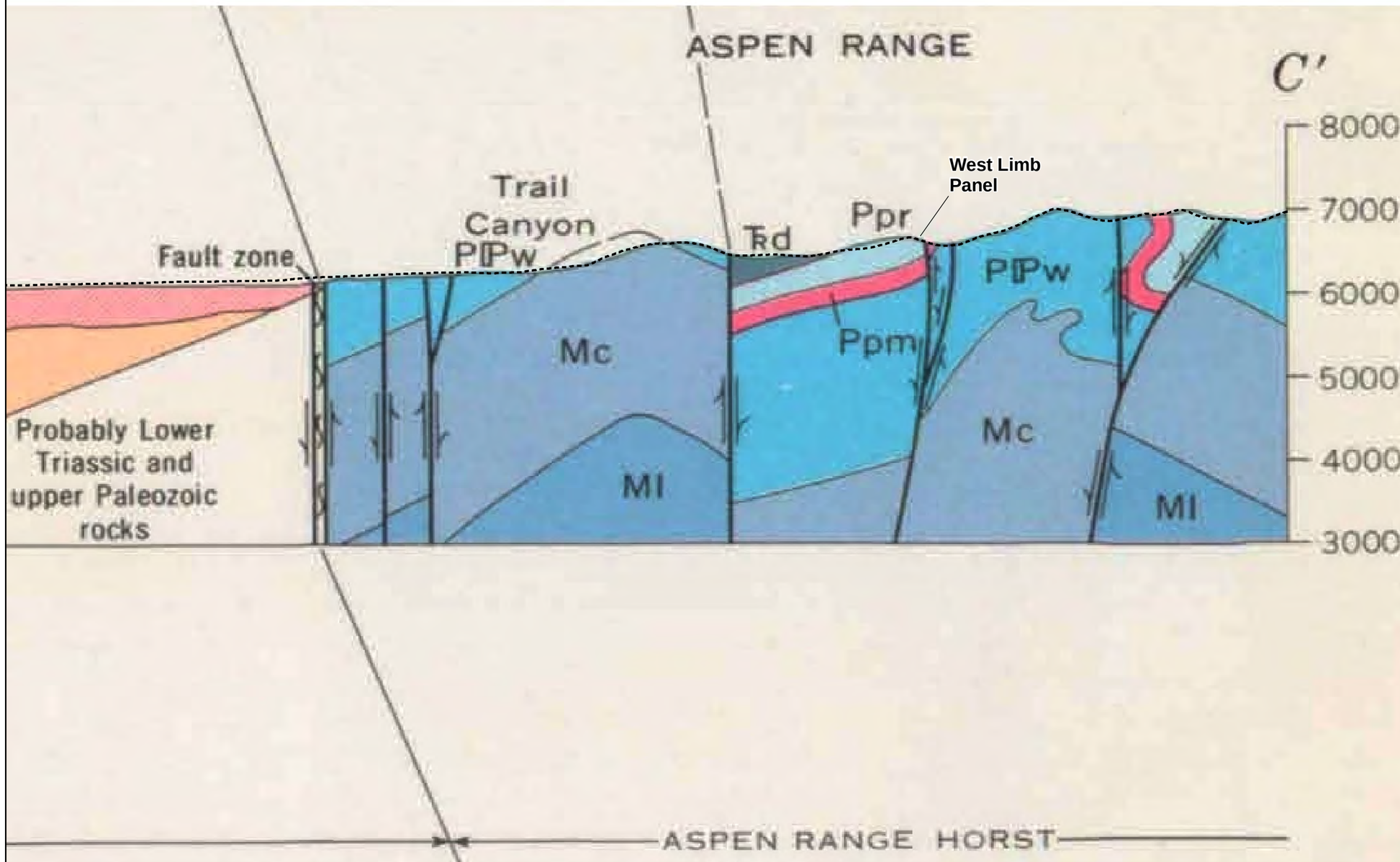
FIGURE 5-11

GEOLOGIC CROSS-SECTION B - B'

DATE: FEB 06, 2013
BY: CRL
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2012\Fig_5-11_xsectB.mxd



Legend

- **Qb** Olivine basalt
- **Tsl** Salt Lake Formation
- **TRd** Dinwoody Formation
- **Ppr** Phosphoria Formation - Rex Chert Member
- **Ppm** Phosphoria Formation - Meade Peak Member
- **Ppw** Wells Formation and associated rocks
- **Mc** Chesterfield Range Group
- **Ml** Lodgepole Limestone
- -------- Current Surface (Simplot 2010, for mine site USGS NED for areas outside mine)
- Fault, arrows indicate relative movement

Source: Geologic Map of Soda Springs Quadrangle, Southeastern Idaho (1969).

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

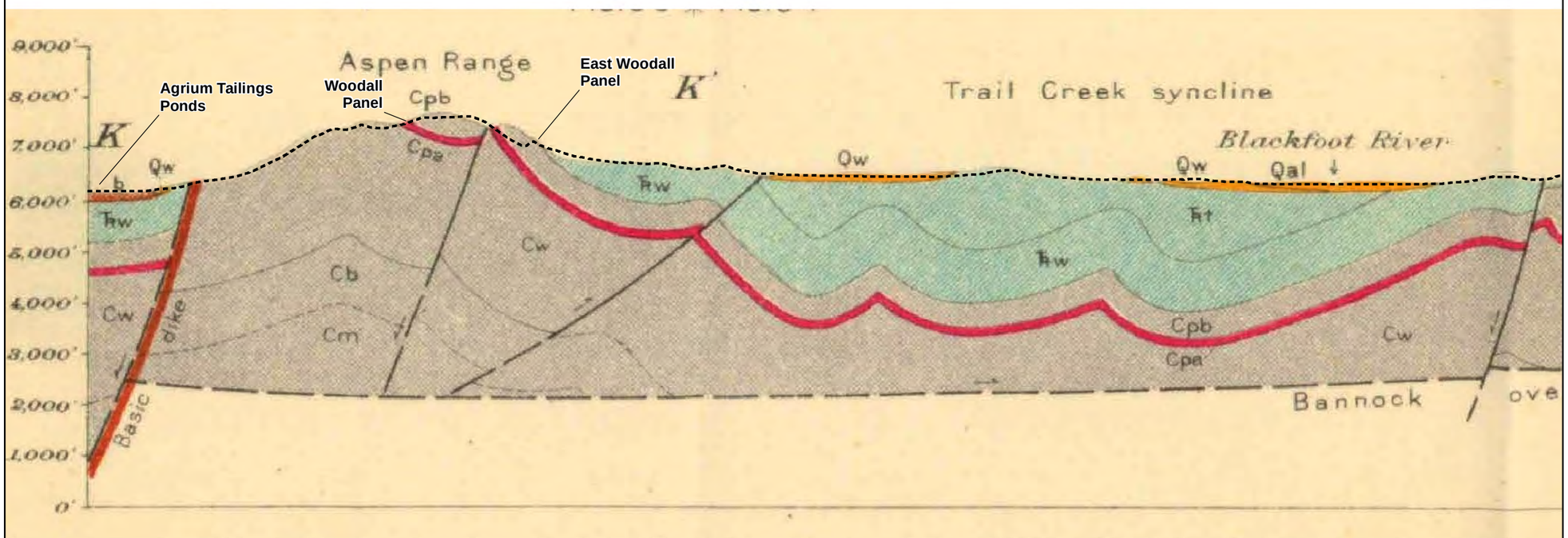
FIGURE 5-12

GEOLOGIC CROSS-SECTION C - C'

DATE: FEB 06, 2013
BY: CRL FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pt\RI_2012\Fig_5-12_xsectC.mxd



Legend

- **Qal** Alluvium
- **Qw** Hill wash and older alluvium
- **T_Rt** Thaynes Group
- **T_Rw** Woodside Shale
- **Cpa** Phosphoria Formation
- **Cpb** Phosphoria Formation
- **Cw** Wells Formation
- **Cb** Brazer Limestone
- **Cm** Madison Limestone
- **b** Basalt

Current Surface (Simplot 2010, for mine site USGS NED for areas outside mine)

Fault, arrows indicate relative movement

Source: Geologic Map of Soda Springs Quadrangle, Southeastern Idaho (1969).

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 5-13

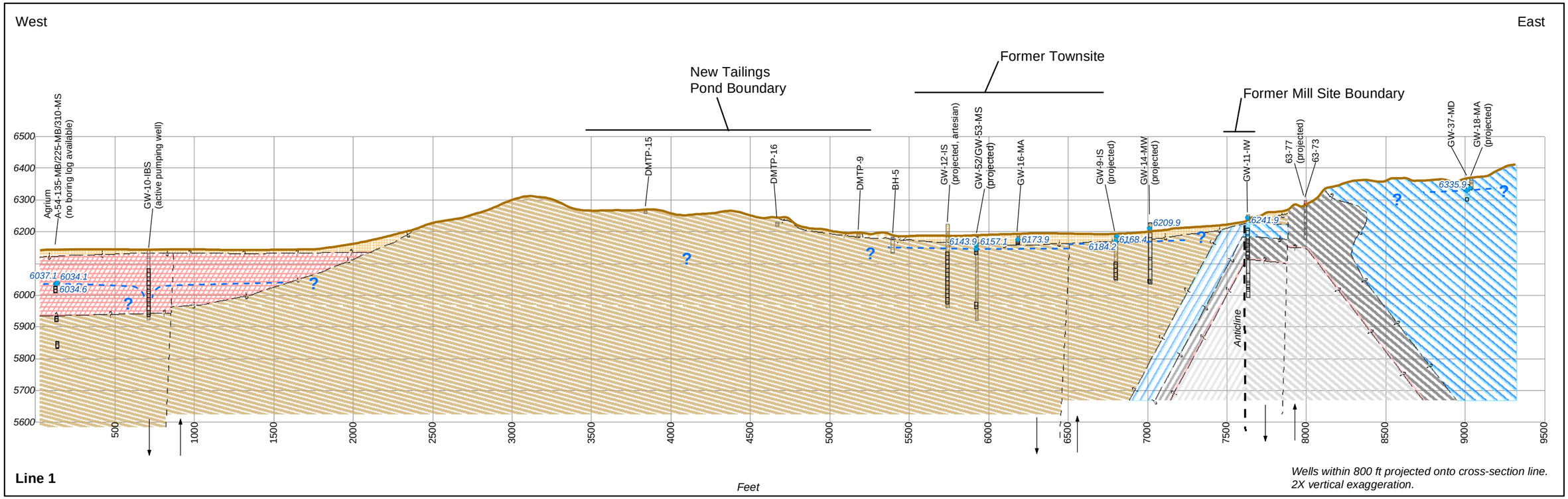
GEOLOGIC CROSS-SECTION K - K'

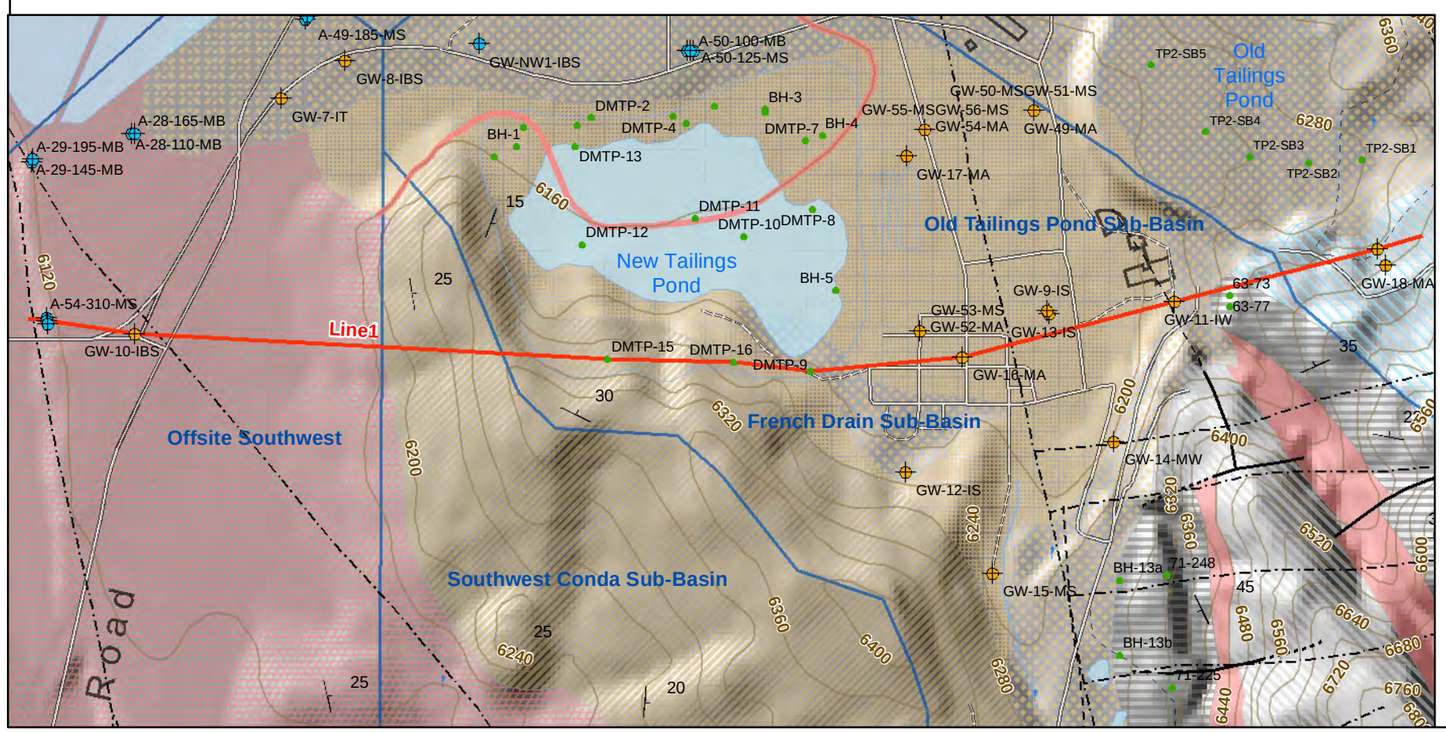
DATE: DEC 14, 2016

BY: CRL | FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2010139\plt\RI_2016\Fig_5-13_xsectK.mxd





Cross Section Legend

- Avg GW elevation
- Well Screens
- Post Mine Ground Surface
- Inferred potentiometric surface

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpb
- Cw

Plan View Legend

- Conda Site wells
- Agrium Wells
- Boreholes/Test Pits w/ Lithology
- Cross Section Lines
- Strike/Dip
- Fault

Structure

- Anticline
- Syncline
- Pre-Mining Contours (40-ft)
- Approx. extent of basalt
- Conda Facilities
- Sub-Basins

N

0 250 500 1,000 1,500 2,000
Feet

Groundwater elevations shown are 10-year averages

For full lithologic descriptions, see Figure 2-4.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

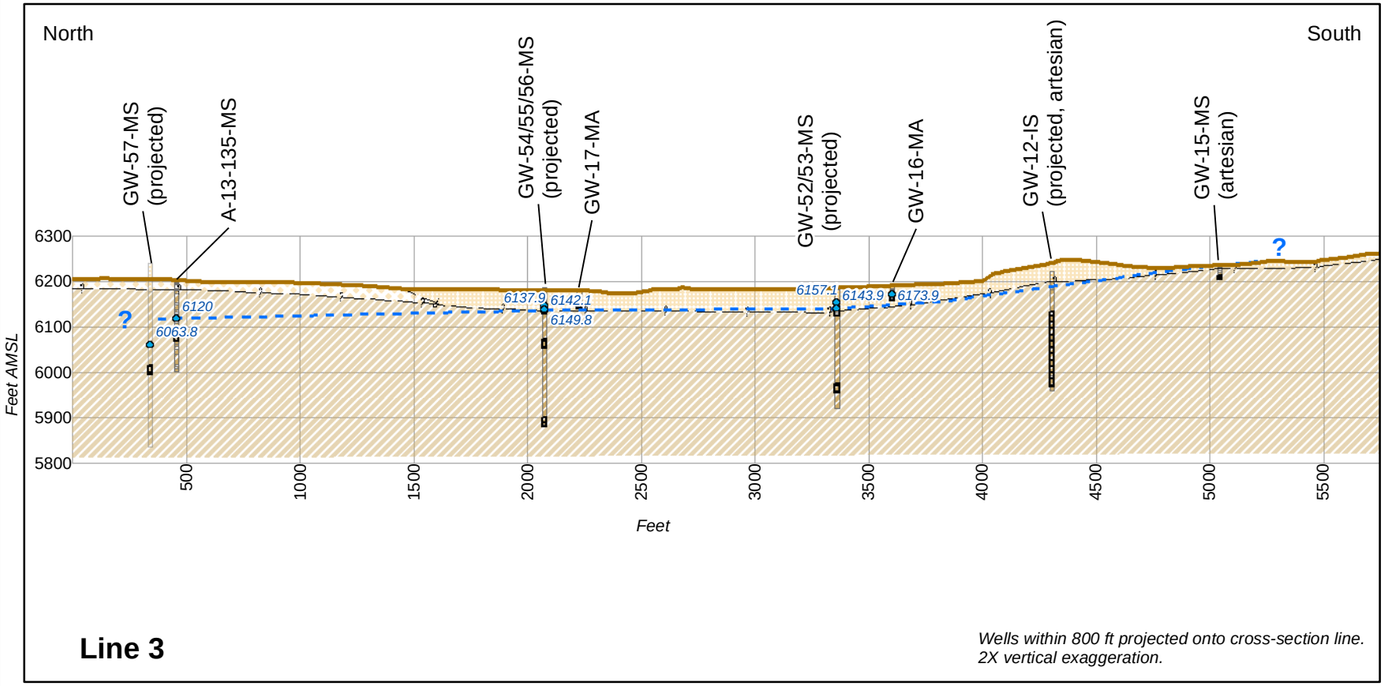
FIGURE 5-14

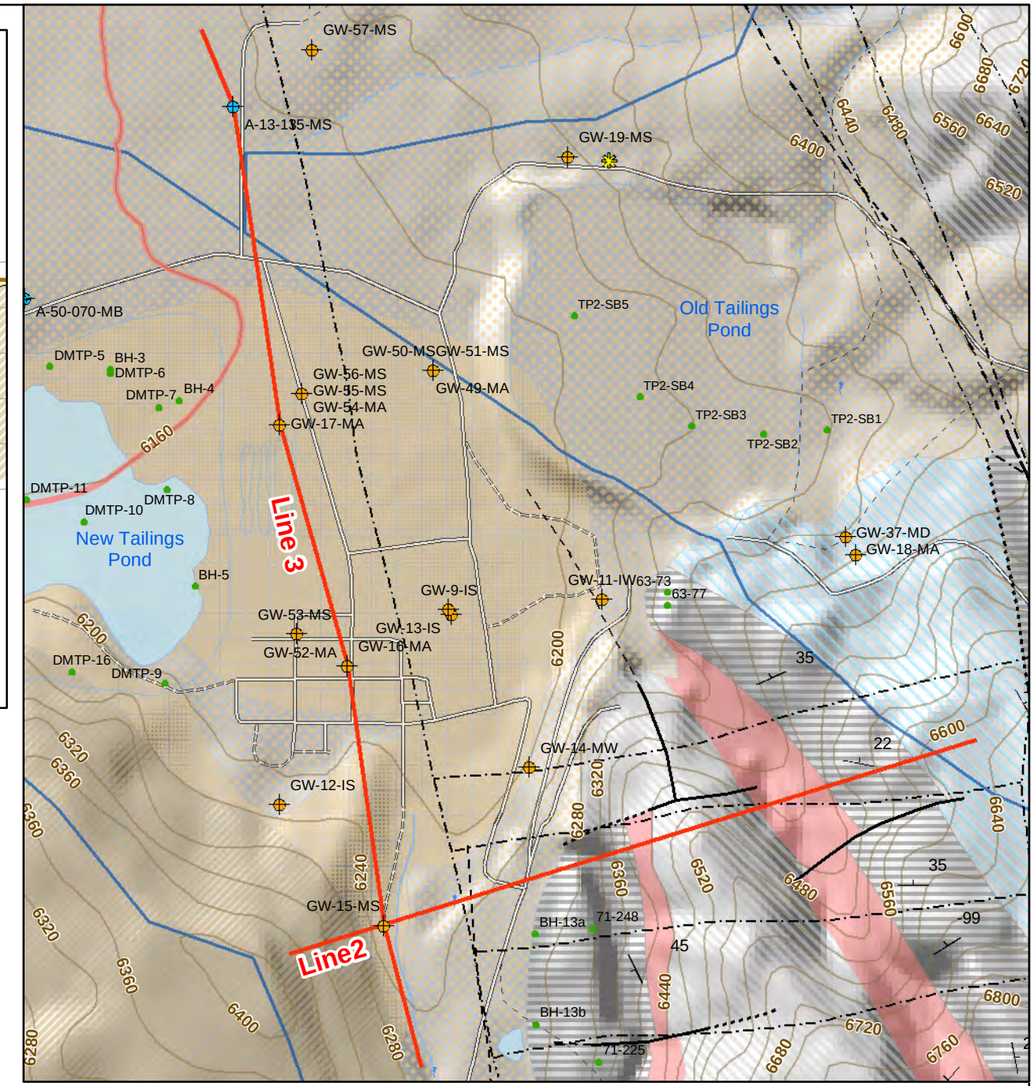
GENERALIZED CROSS-SECTION LINE 1

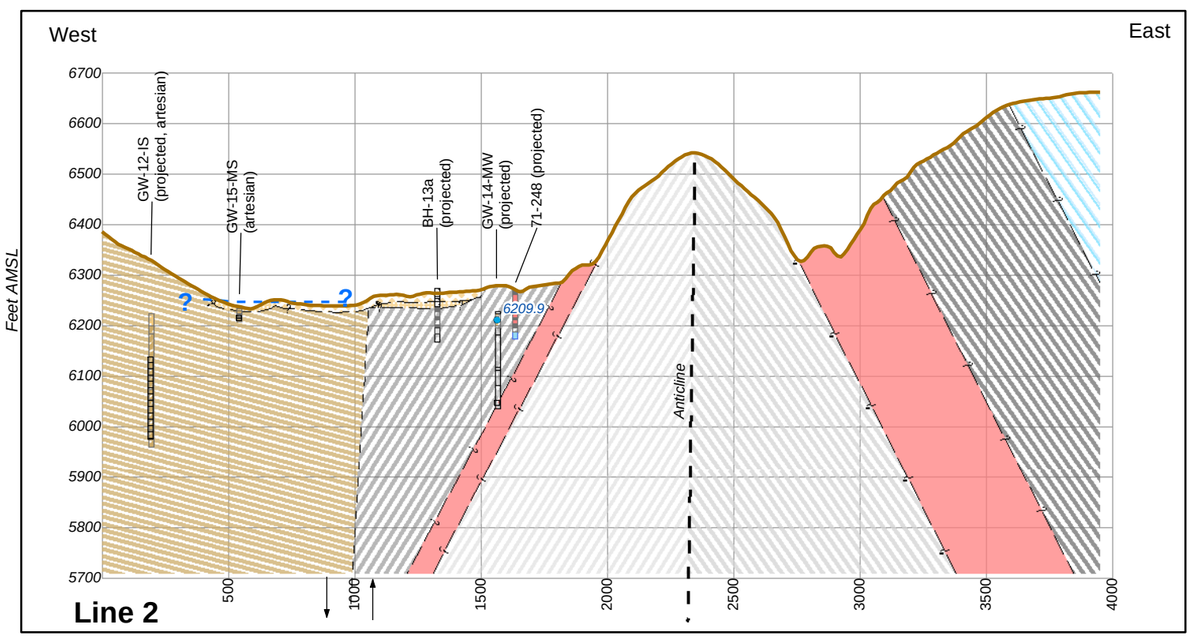
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcpj2\010139\pt\RI_2012\Fig_5-14_X_Sections_Line5.mxd







Cross Section Legend

- Avg GW elevation
- Well Screens
- Postmine Ground Surface
- Inferred potentiometric surface

Interpretive Contacts

- Anticline
- Fault trace
- Geologic
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

Plan View Legend

- Conda Site wells
- Agrium Wells
- Location 6 (no well installed)
- Boreholes/Test Pits w/Lithology
- Cross Section Lines
- Pre-Mining Contours (40-ft)
- Approx. extent of basalt
- Sub-Basins

Structure

- Anticline
- Syncline
- Strike/Dip
- Fault

N

0 200 400 800
Feet

Groundwater elevations shown are 10-year averages

For full lithologic descriptions, see Figure 2-4.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

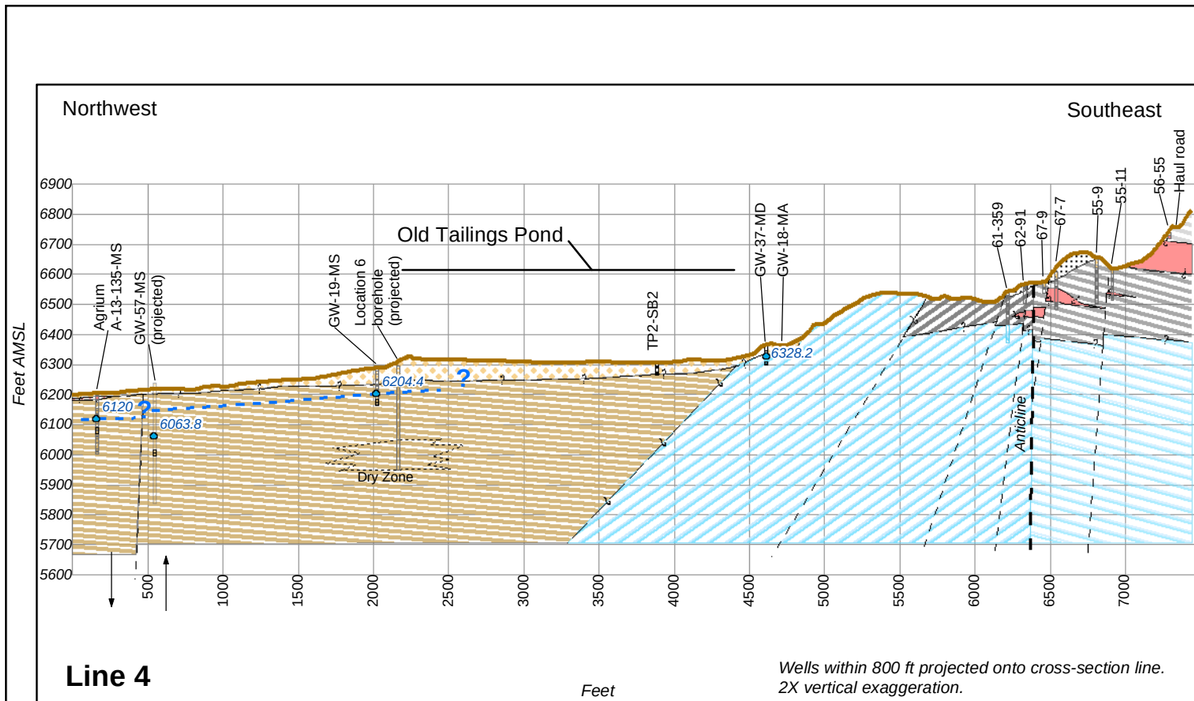
FIGURE 5-15

GENERALIZED CROSS-SECTION LINES 2 AND 3

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

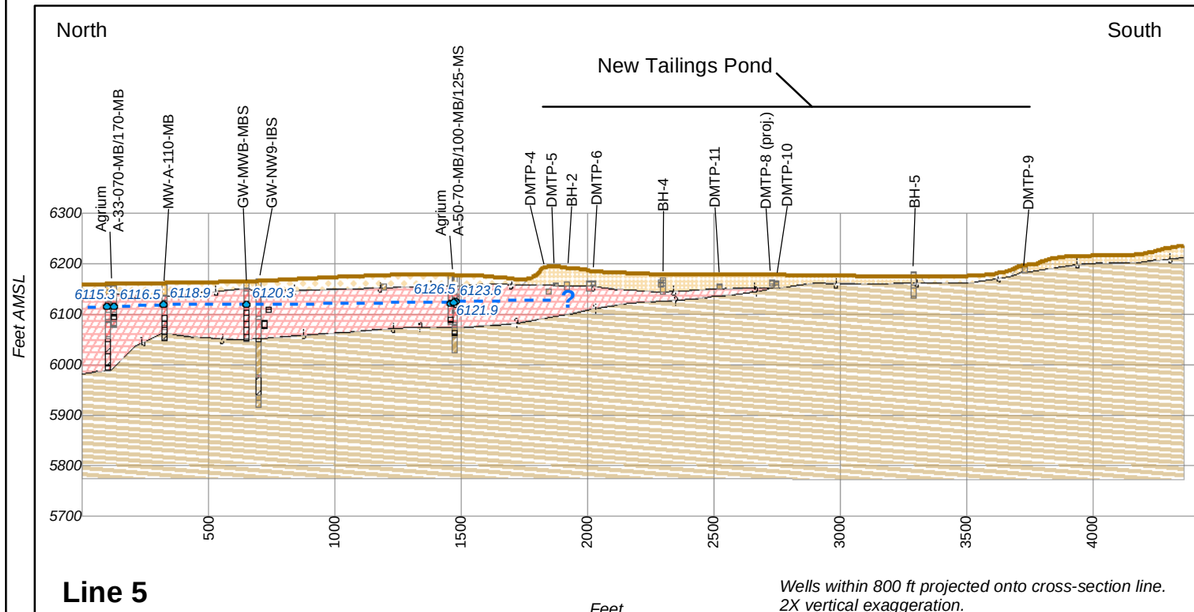
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2012\Fig_5-13_X_Sections_Lines12.mxd



Line 4

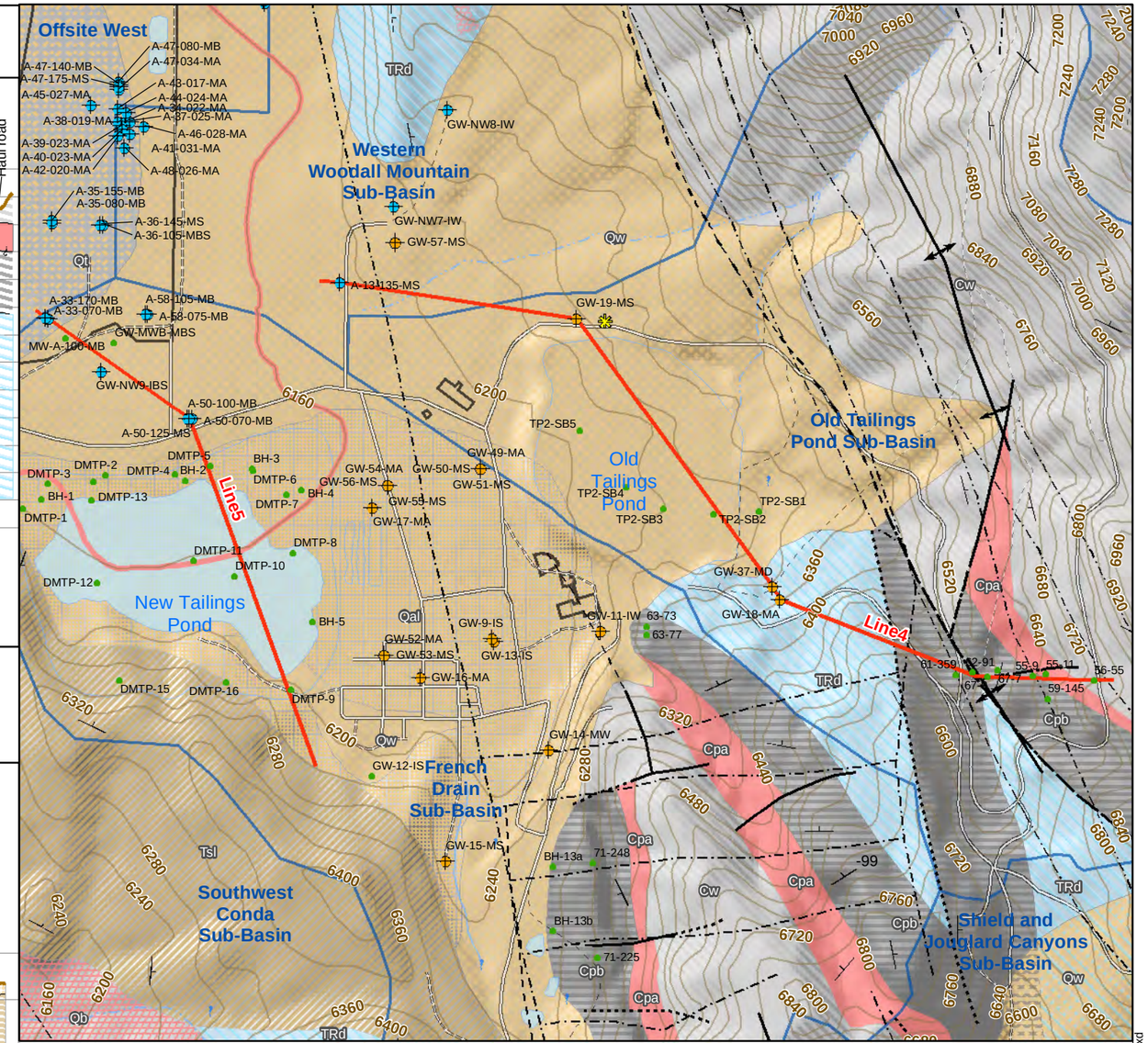
Wells within 800 ft projected onto cross-section line.
2X vertical exaggeration.



Line 5

Wells within 800 ft projected onto cross-section line.
2X vertical exaggeration.

For full lithologic descriptions, see Figure 2-4.



Cross Section Legend

- Avg GW elevation
- Well Screens
- Post Mine Ground Surface
- Inferred potentiometric surface

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Dry Zone
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- CL
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

Plan View Legend

- Conda Site wells
- Agrium Wells
- Location 6 (no well installed)
- Boreholes/Test Pits w/ Lithology
- Cross Section Lines
- Strike/Dip
- Fault

Structure

- Anticline
- Syncline
- Pre-Mining Contours (40-ft)
- Approx. extent of basalt
- Conda Facilities
- Sub-Basins

Groundwater elevations shown are 10-year averages

N

0 200 400 800 1,200 1,600
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

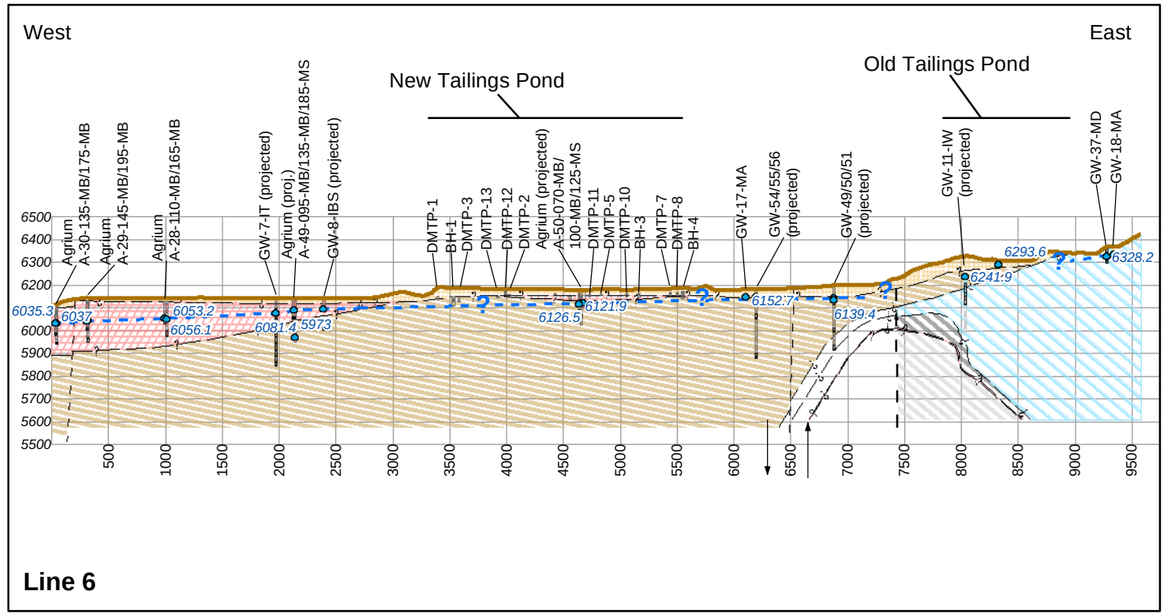
FIGURE 5-16

GENERALIZED CROSS-SECTION LINES 4 AND 5

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

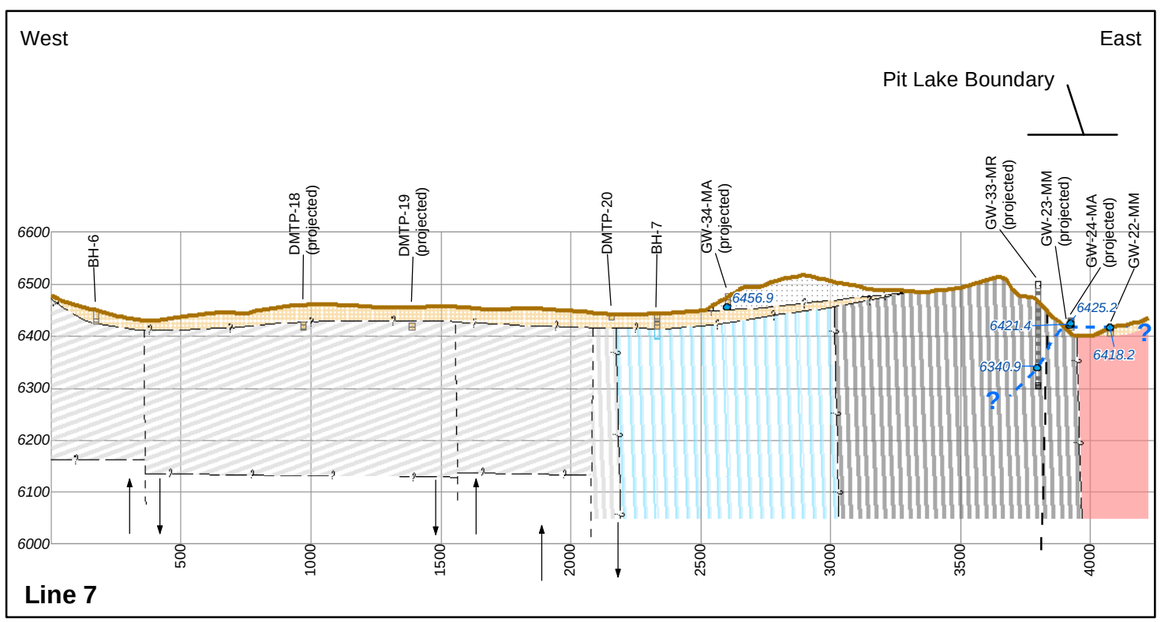
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\01\0139\pt\R1_2012\Fig_5-13_X_Sections_Lines12.mxd



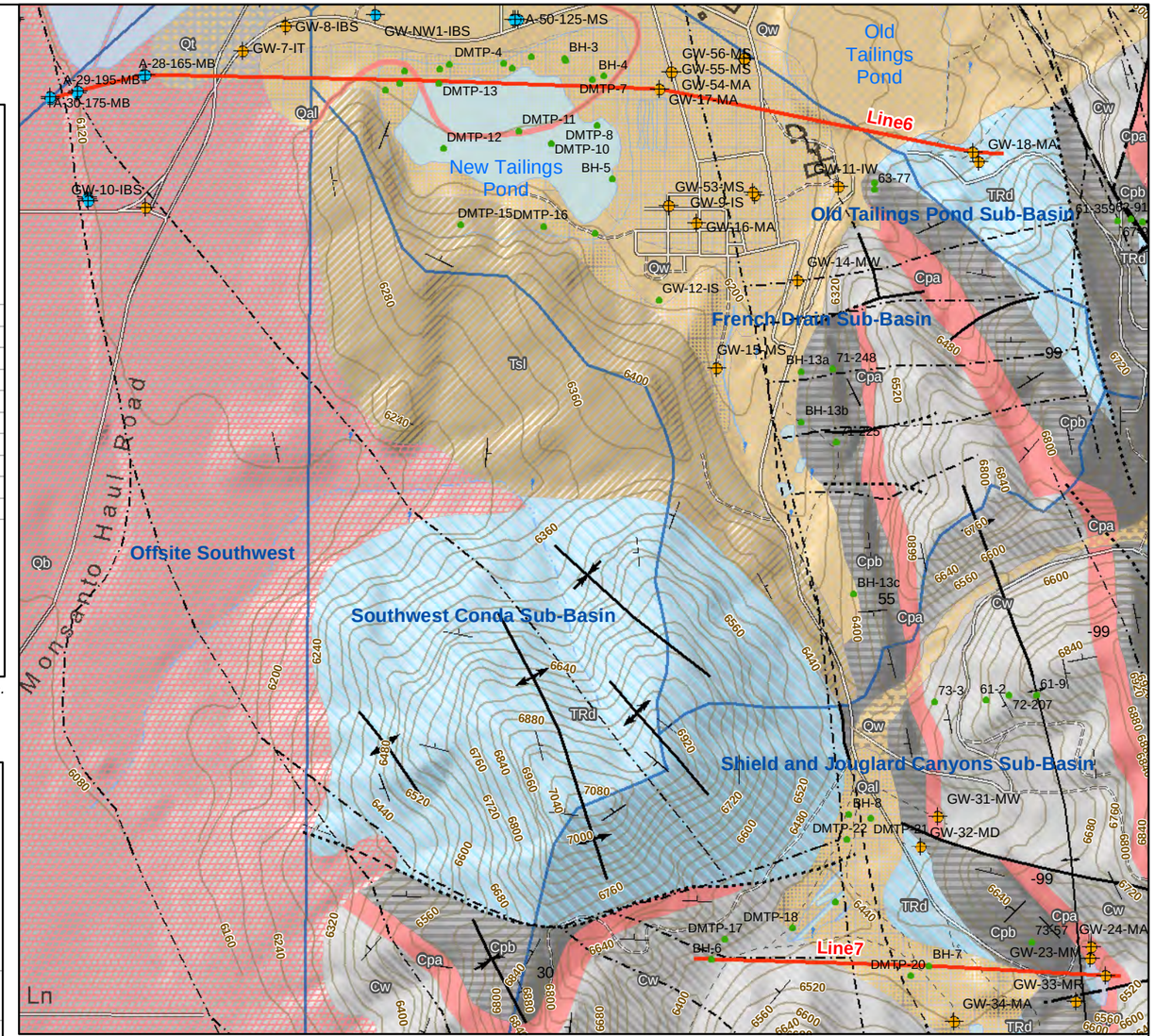
Feet

Wells within 800 ft projected onto cross-section line.
2X vertical exaggeration.



Feet

Wells within 800 ft projected onto cross-section line.
2X vertical exaggeration.



Cross Section Legend

- Avg GW elevation
- Well Screens
- Post Mine Ground Surface
- Inferred potentiometric surface

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw

Plan View Legend

- Conda Site wells
- Agrium Wells
- Boreholes/Test Pits w/ Lithology
- Cross Section Lines
- Strike/Dip
- Fault

Structure

- Anticline
- Syncline
- Pre-Mining Contours (40-ft)
- Approx. extent of basalt
- Conda Facilities
- Sub-Basins

N

0 500 1,000 2,000
Feet

Groundwater elevations shown are 10-year averages

For full lithologic descriptions, see Figure 2-4.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

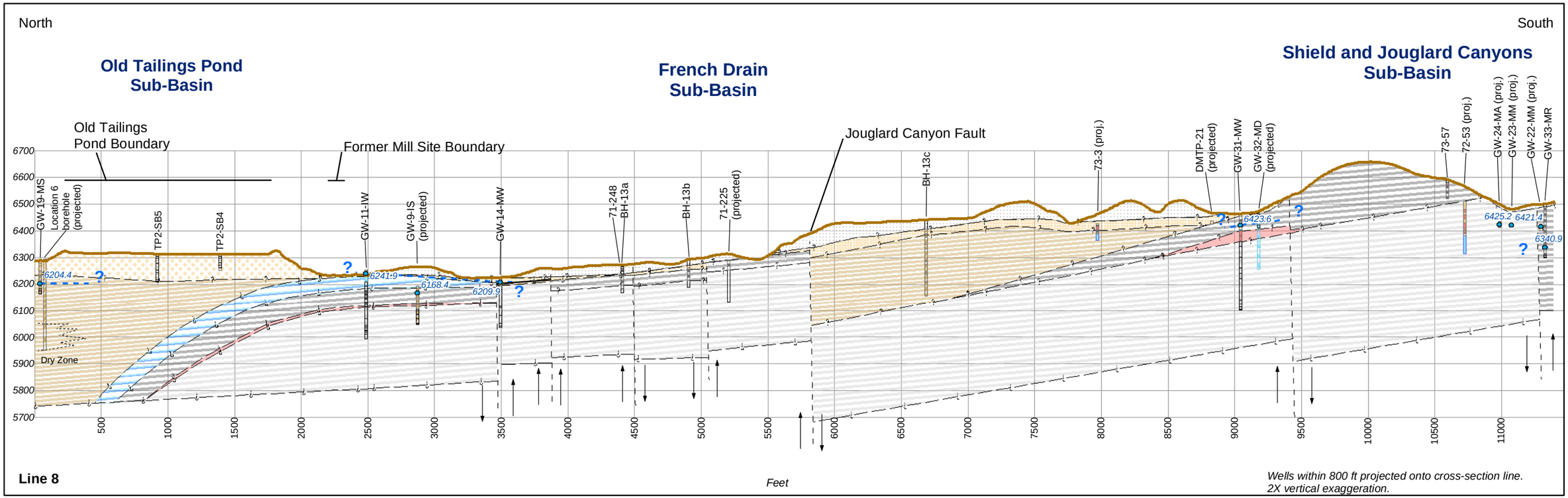
FIGURE 5-17

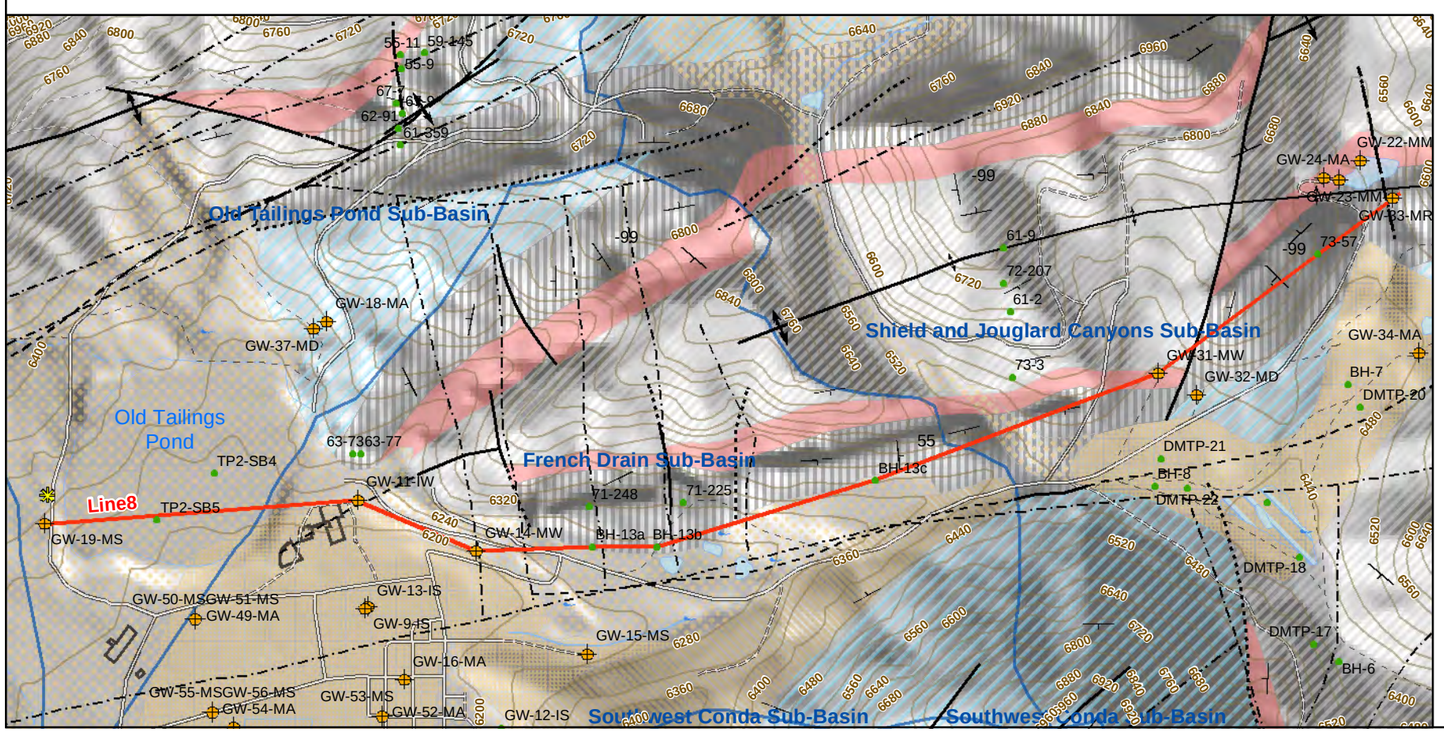
GENERALIZED CROSS-SECTION LINES 6 AND 7

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\R1_2012\Fig_5-13_X_Sections_Lines34.mxd





Cross Section Legend

- Avg GW elevation
- Well Screens
- Post Mine Ground Surface
- Inferred potentiometric surface

Structure/Interpretive Contacts

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Dry Zone
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw

Plan View Legend

- Conda Site wells
- Location 6 (no well installed)
- Agrium Wells
- Boreholes/Test Pits w/ Lithology
- Cross Section Lines
- Strike/Dip
- Fault

Structure

- Anticline
- Syncline
- Pre-Mining Contours (40-ft)
- Approx. extent of basalt
- Conda Facilities
- Sub-Basins

0 500 1,000 2,000
Feet

N

Groundwater elevations shown are 10-year averages

For full lithologic descriptions, see Figure 2-4.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

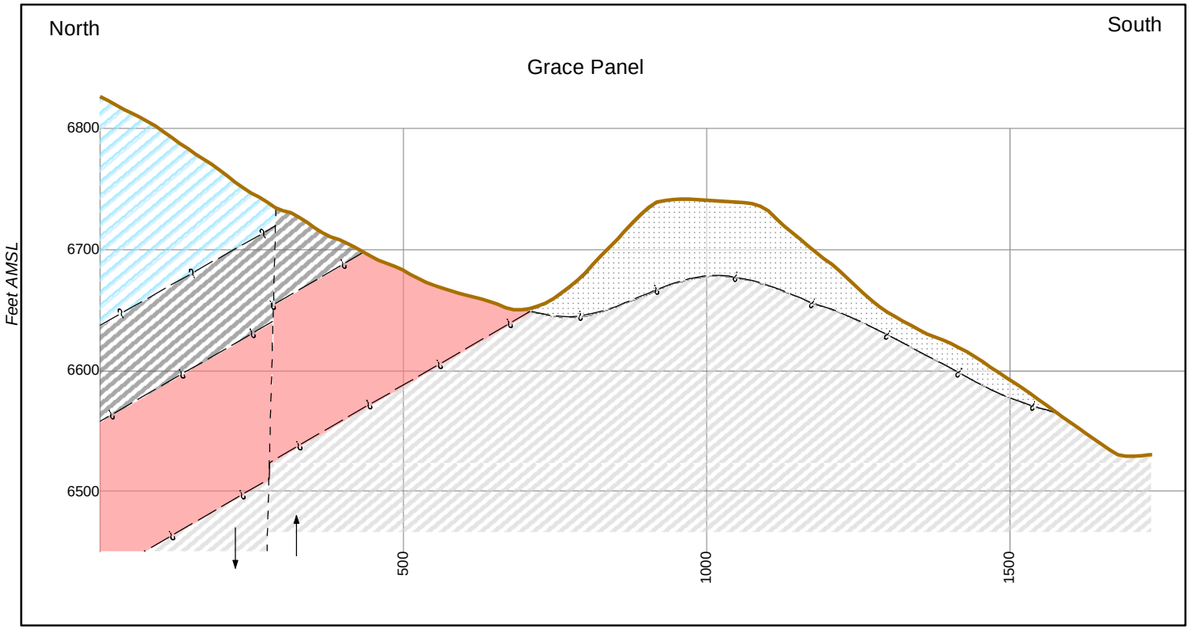
FIGURE 5-18

GENERALIZED CROSS-SECTION LINE 8

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

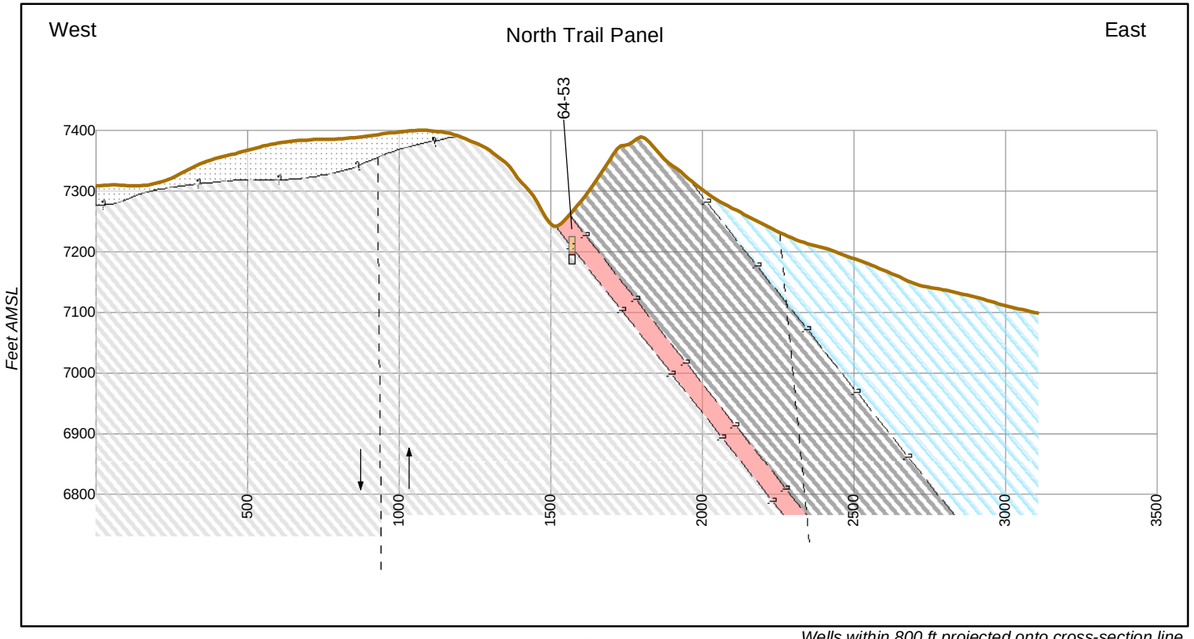
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2012\Fig_5-14_X_Sections_Line5.mxd



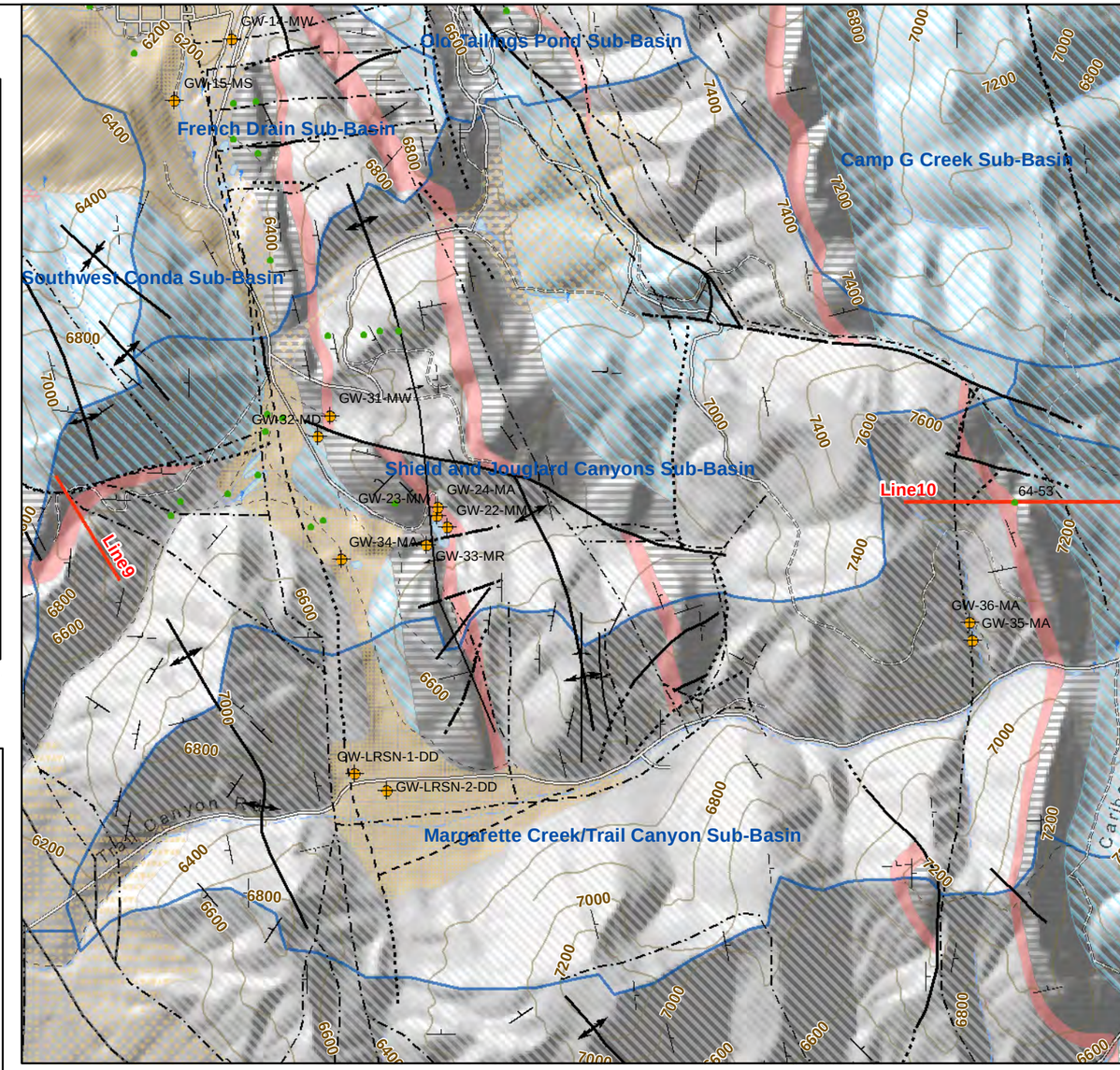
Line 9

Wells within 800 ft projected onto cross-section line.
2X vertical exaggeration.



Line 10

Wells within 800 ft projected onto cross-section line.
2X vertical exaggeration.



Cross Section Legend

- Postmine Ground Surface
- **Interpretive Contacts**
  - Geologic
  - Fault
  - Fault, arrows indicate relative movement
- **Geologic Formation**
  - Fill
  - Breccia
  - Qls
  - Qf
  - Qal
  - Qw
  - Qt
  - Qbc
  - Qb
  - Ql
  - Tsl
  - TRt
  - TRd
  - Cpa
  - Cpb
  - Cw

For full lithologic descriptions, see Figure 2-4.

Plan View Legend

- Conda Site wells
- Agrium Wells
- Boreholes/Test Pits w/Lithology
- Cross Section Lines
- Strike/Dip
- Fault
- **Structure**
  - Anticline
  - Syncline
- Pre-Mining Contours (40-ft)
- Sub-Basins

N

0 500 1,000 2,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

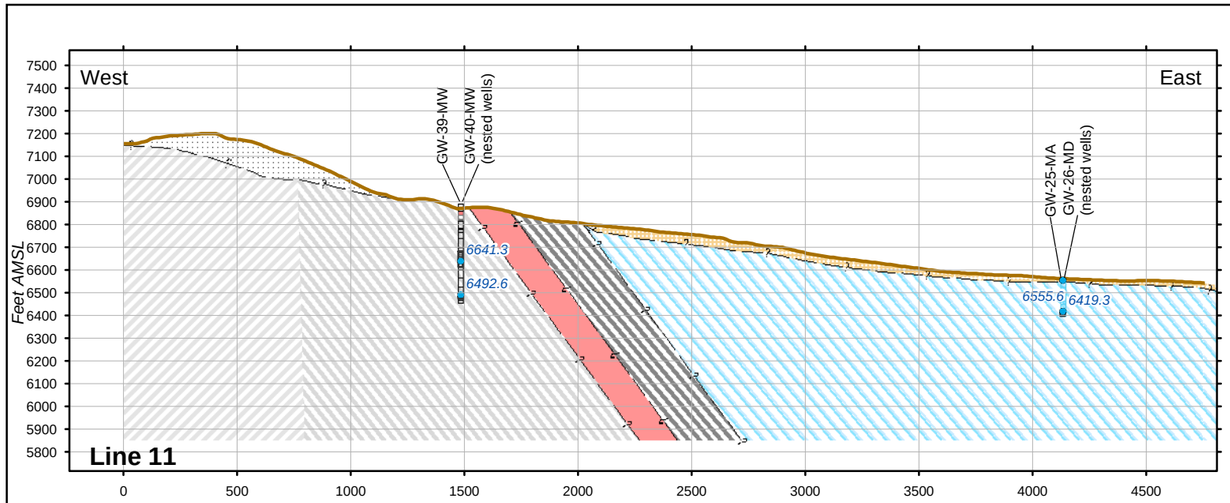
FIGURE 5-19

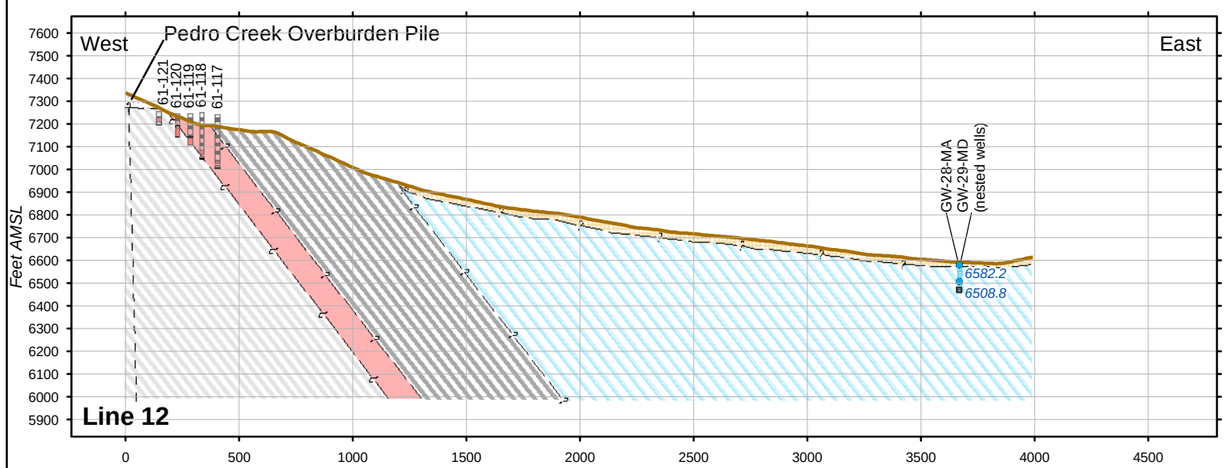
GENERALIZED CROSS-SECTION LINES 9 AND 10

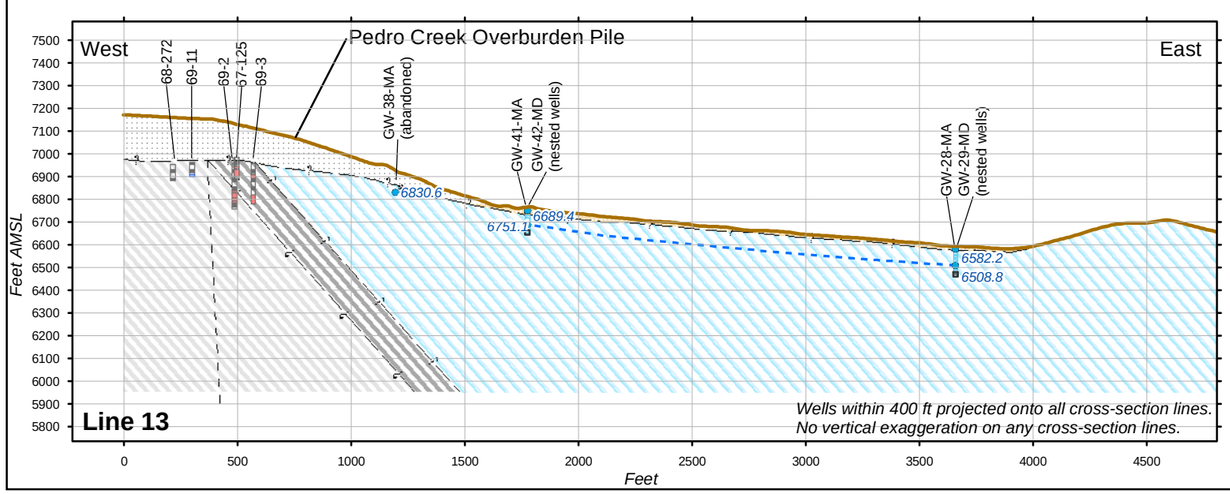
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

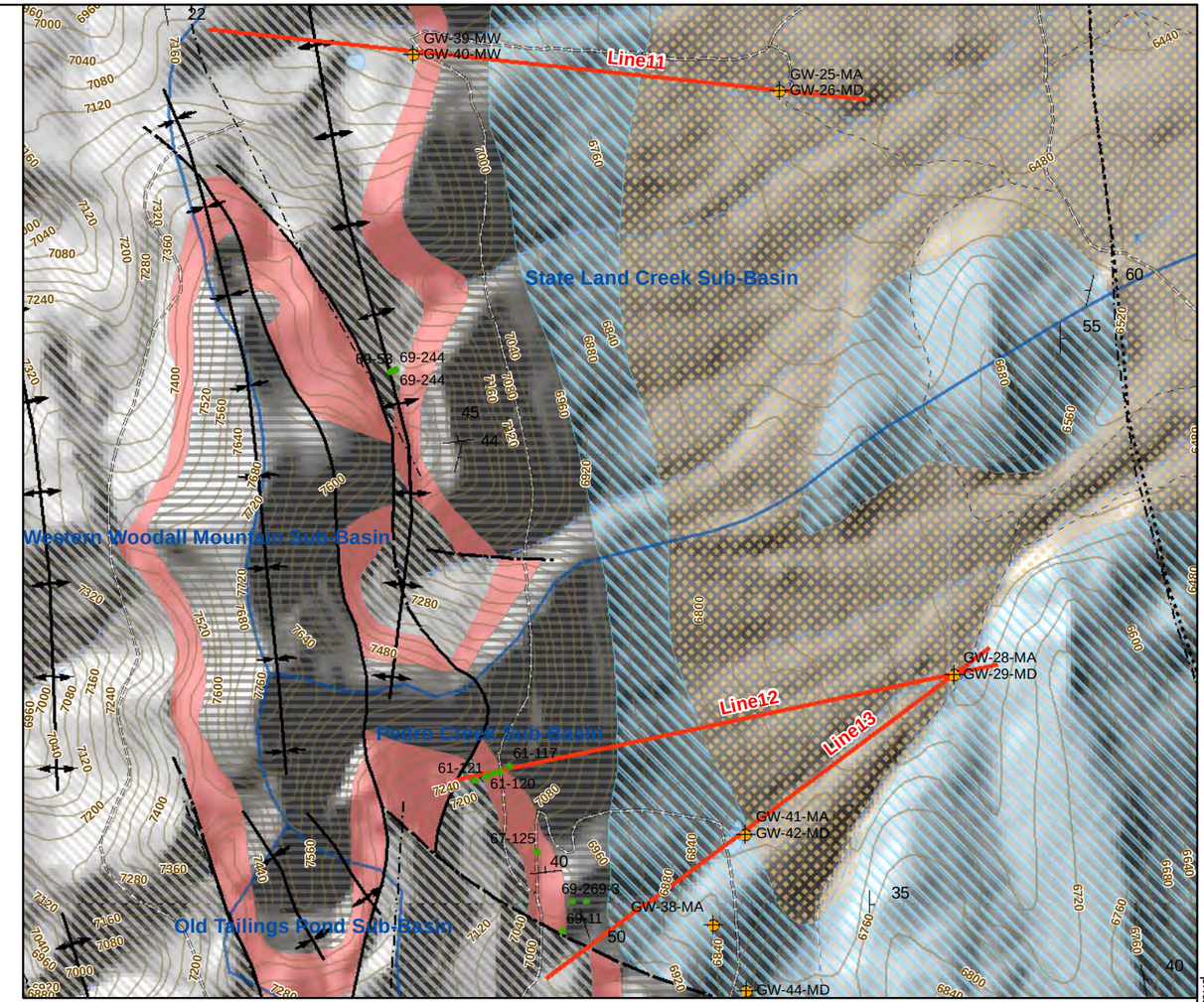
FORMATION ENVIRONMENTAL

S:\GIS\arcpj\2010139\pltRI_2012\Fig_5-13_X_Sections_Lines12.mxd









Cross Section Legend

- Avg GW elevation
- Well Screens
- Post Mine Ground Surface

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact

Geologic Formation

- Fill
- Breccia
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRd
- Cpa
- Cpb
- Cw
- Cb

Plan View Legend

- Conda Site wells
- Agrium Wells
- Boreholes/Test Pits w/ Lithology
- Historic Exploration Boreholes
- Cross Section Lines
- Pre-Mining Contours (40-ft)

Structure

- Anticline
- Syncline
- Strike/Dip
- Fault
- Sub-Basins

Groundwater elevations shown are 10-year averages

For full lithologic descriptions, see Figure 2-4.

N

0 500 1,000 2,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

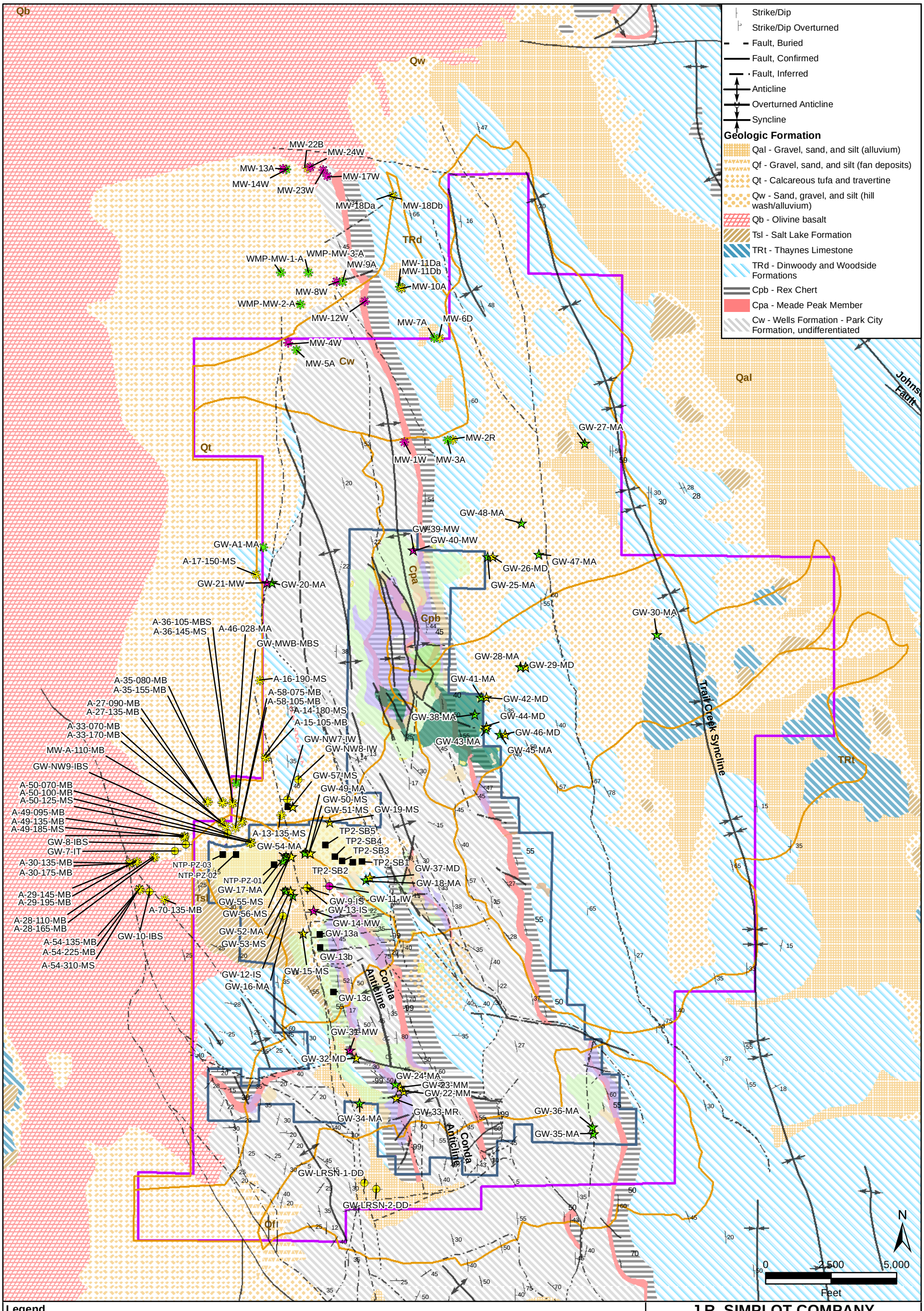
FIGURE 5-20

GENERALIZED CROSS-SECTION LINES 11, 12, and 13

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcpr\2\010139\plt\RI_2012\Fig_5-16_X_Sections_Lines678.mxd



Legend

Groundwater Monitoring Location

- Industrial/Domestic Wells
- Conda RI Monitoring Wells
- Neighboring Industries Monitoring Wells
- Completed in Shallow Hydrostratigraphic Unit
- Completed in Intermediate Hydrostratigraphic Unit
- Completed in Deep Hydrostratigraphic Unit
- RI Boreholes (not converted into wells)
- Mine Area
- Non-Mine Area

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Note: Data are from 2001 onward and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

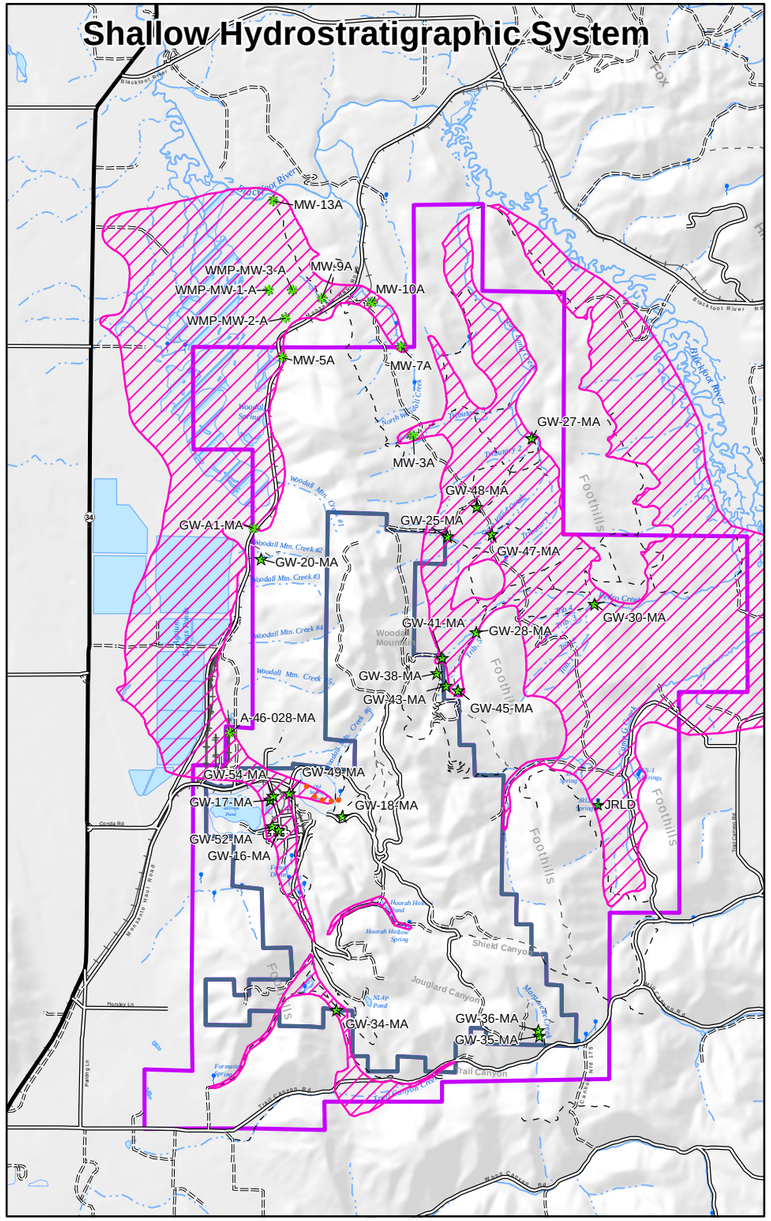
FIGURE 5-21

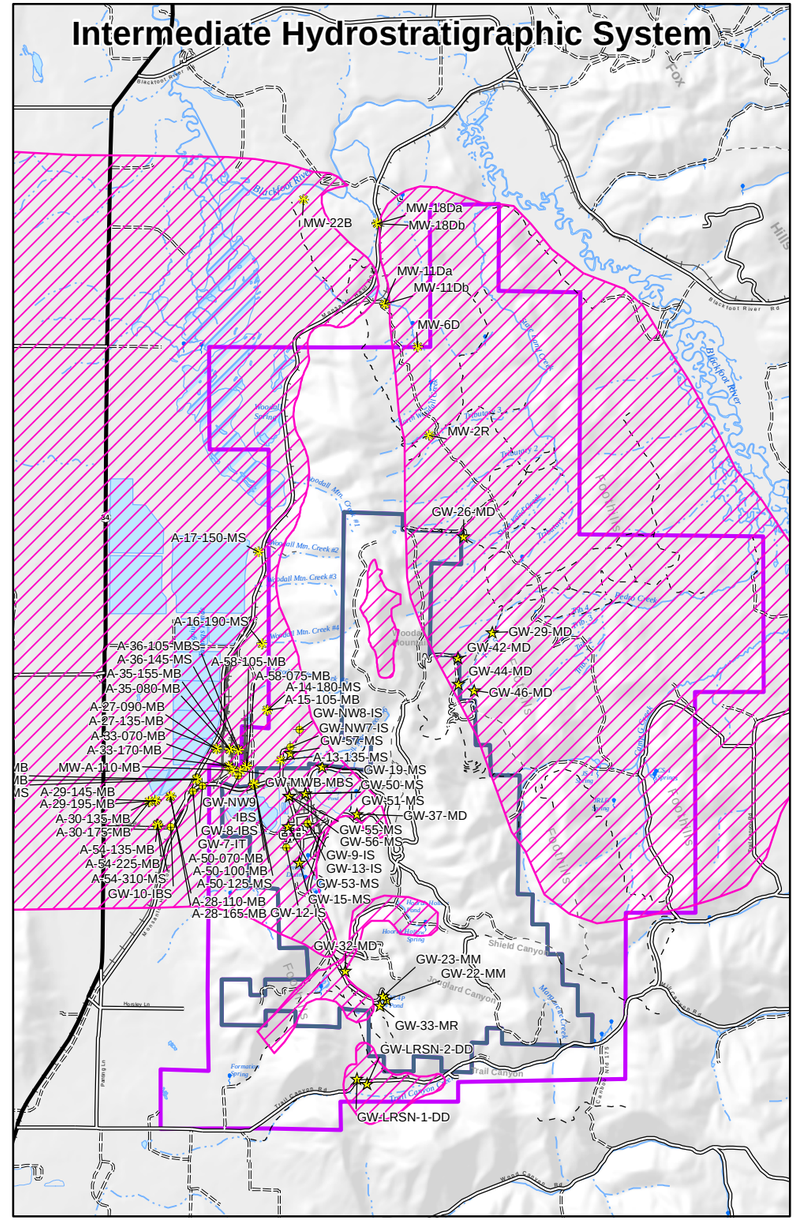
GROUNDWATER MONITORING WELL LOCATIONS RELATIVE TO SURFACE GEOLOGY

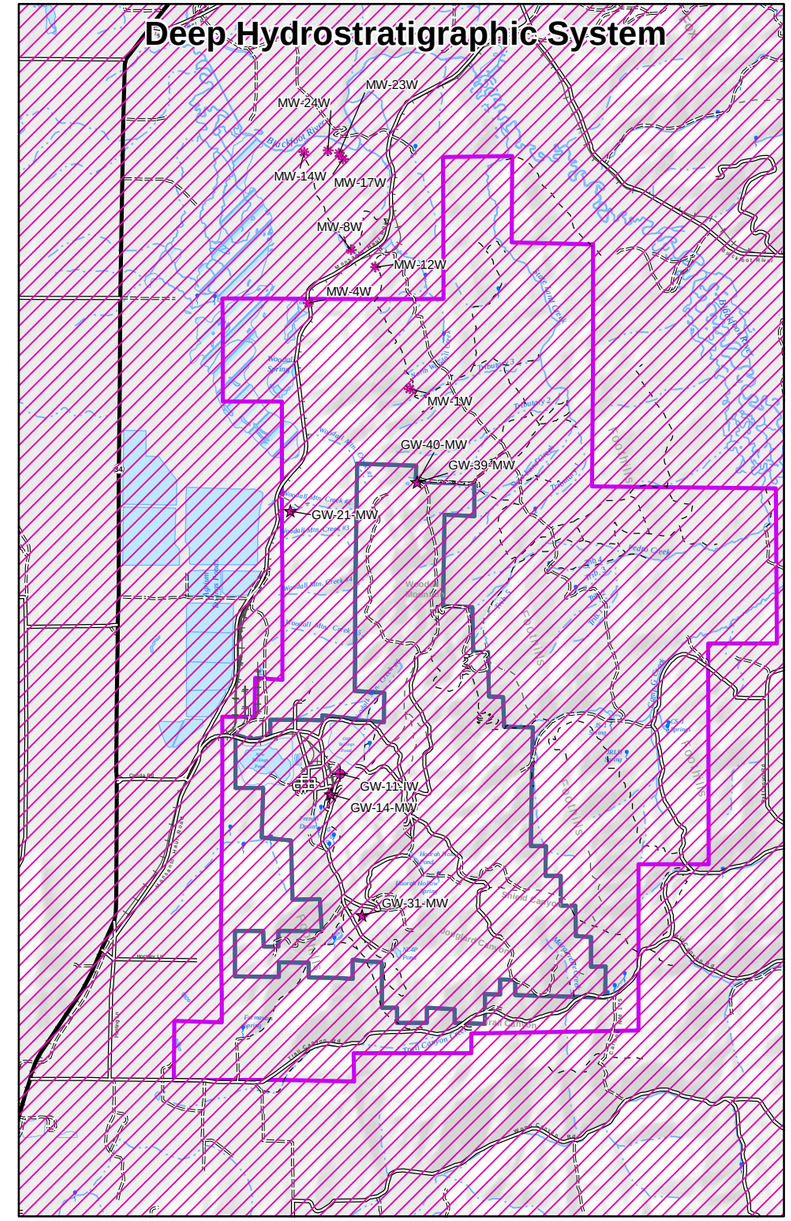
DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-21_GWLocsGeo.mxd







Legend

Groundwater Monitoring Location

- Industrial/Domestic Wells
- Conda RI Monitoring Wells
- Neighboring Industries Monitoring Wells
- Completed in Shallow Hydrostratigraphic Unit
- Completed in Intermediate Hydrostratigraphic Unit
- Completed in Deep Hydrostratigraphic Unit
- Hydrostratigraphic System Extent

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Mine Area
- Non-Mine Area

- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

0 3,500 7,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

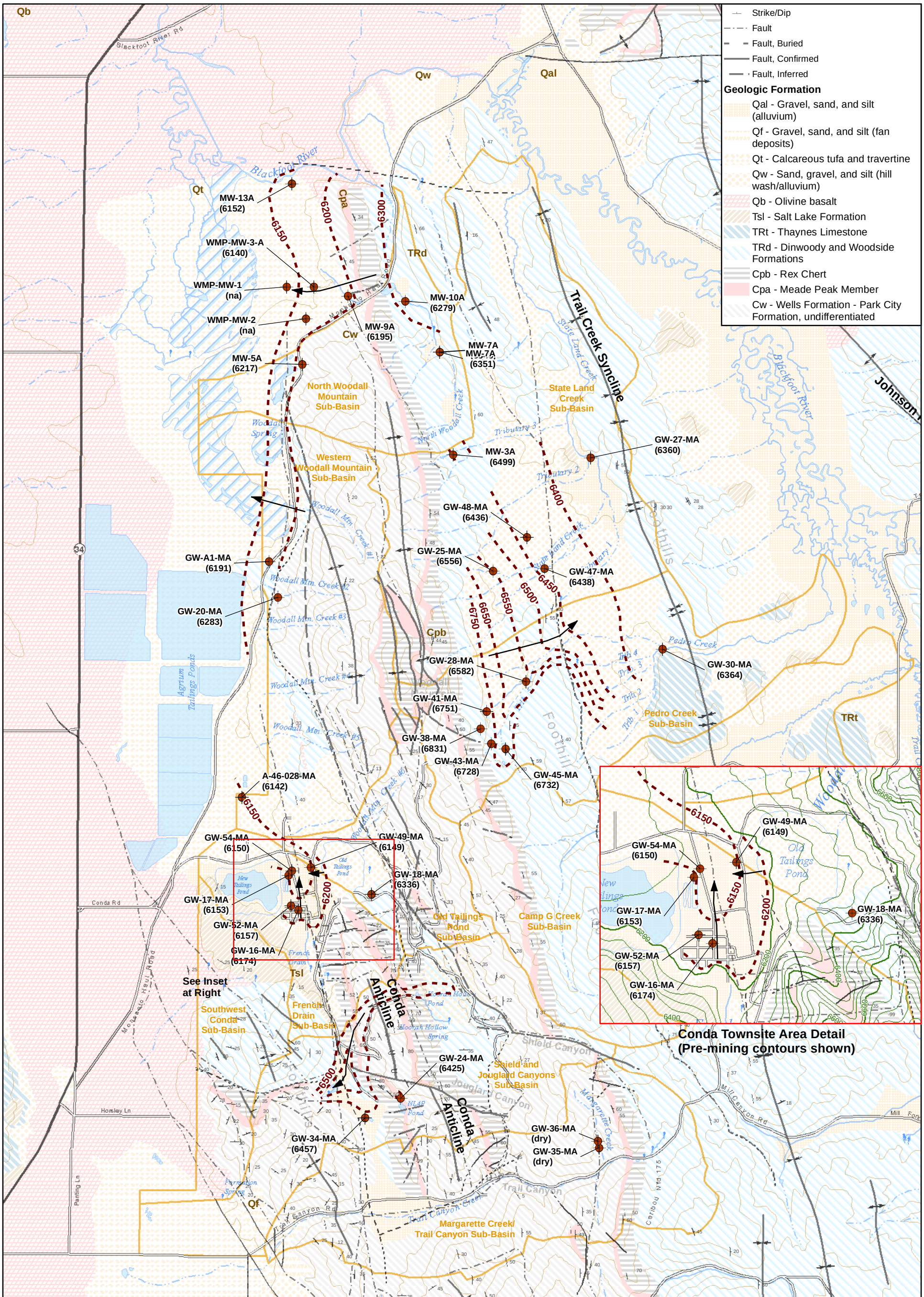
FIGURE 5-22

GENERAL AREAS OF THE HYDROSTRATIGRAPHIC SYSTEMS

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\ptRI_2016\Fig_5-22_HydroStratSys.mxd



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

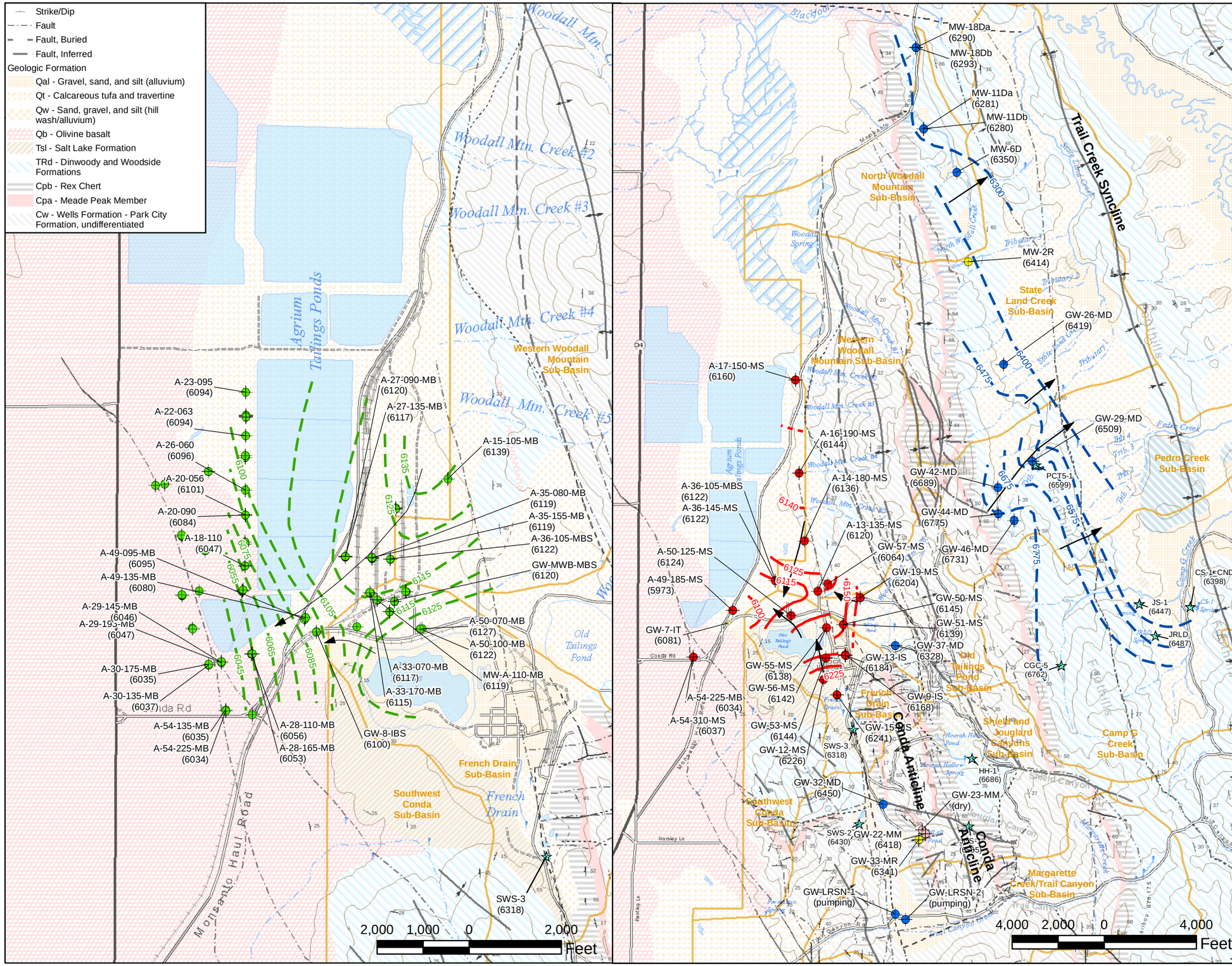
FIGURE 5-23

GENERAL GROUNDWATER POTENTIOMETRIC ELEVATIONS IN THE SHALLOW HYDROSTRATIGRAPHIC SYSTEM

DATE: DEC 14, 2016
BY: KAM/DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-23_GW_Shallow.mxd



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

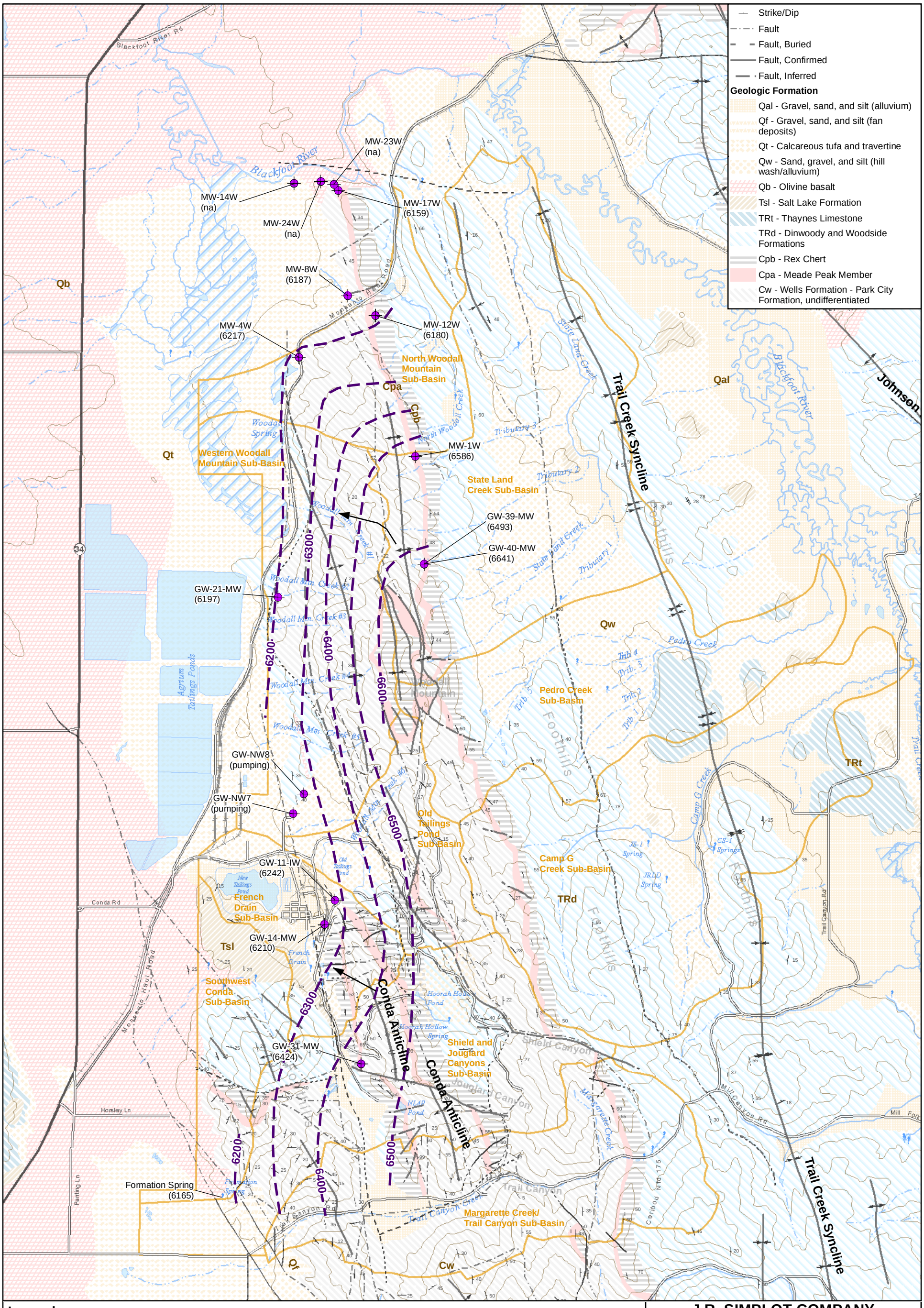
FIGURE 5-24

GENERAL GROUNDWATER POTENTIOMETRIC ELEVATIONS IN THE INTERMEDIATE HYDROSTRATIGRAPHIC SYSTEM

DATE: DEC 14, 2016
BY: KAM/DDZ FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcpj2\0101139\plt\RI_2016\Fig_5-24_GW_Intermediate.mxd



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

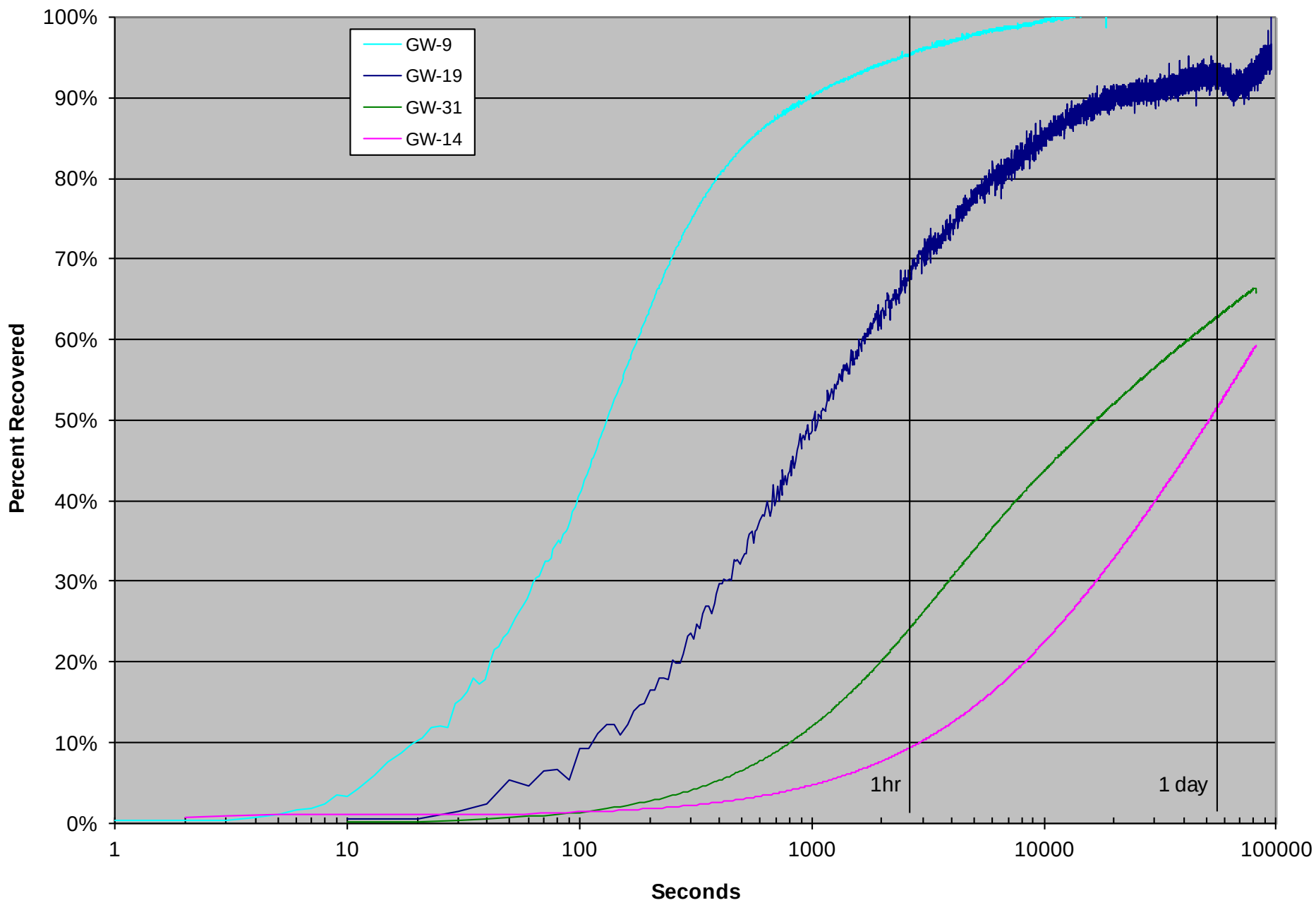
FIGURE 5-25

GENERAL GROUNDWATER POTENTIOMETRIC ELEVATIONS IN THE DEEP HYDROSTRATIGRAPHIC SYSTEM

DATE: DEC 14, 2016
BY: KAM/DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcpro\2\010139\plt\RI_2016\Fig_5-25_GW_Deep.mxd



		Depth (ft below top of casing)	Percent Recovery	Recovery Time (sec)	Recovery Time (hours)	Recovery Rate	Estimated Full Recovery Time (days)
GW-9	Static Water level	18.3	N/A	N/A	N/A	N/A	N/A
	Start	21.0	N/A	N/A	N/A	N/A	N/A
	Finish	18.3	100%	13,916	3.9	0.7 ft/hr or 16.7 ft/day	0.2
GW-19	Static Water level	89.8	N/A	N/A	N/A	N/A	N/A
	Start	90.7	N/A	N/A	N/A	N/A	N/A
	Finish	89.8	100%	98,568	27.38	0.03 ft/hr or 0.8 ft/day	1.1
GW-31	Static Water level	42.3	N/A	N/A	N/A	N/A	N/A
	Start	99.67	N/A	N/A	N/A	N/A	N/A
	Finish	61.85	66%	82,440	22.9	1.7 ft/hr or 39.6 ft/day	1.4
GW-14	Static Water level	15.5	N/A	N/A	N/A	N/A	N/A
	Start	95.39	N/A	N/A	N/A	N/A	N/A
	Finish	48.09	59%	82,080	22.8	2.1 ft/hr or 49.8 ft/day	1.6

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

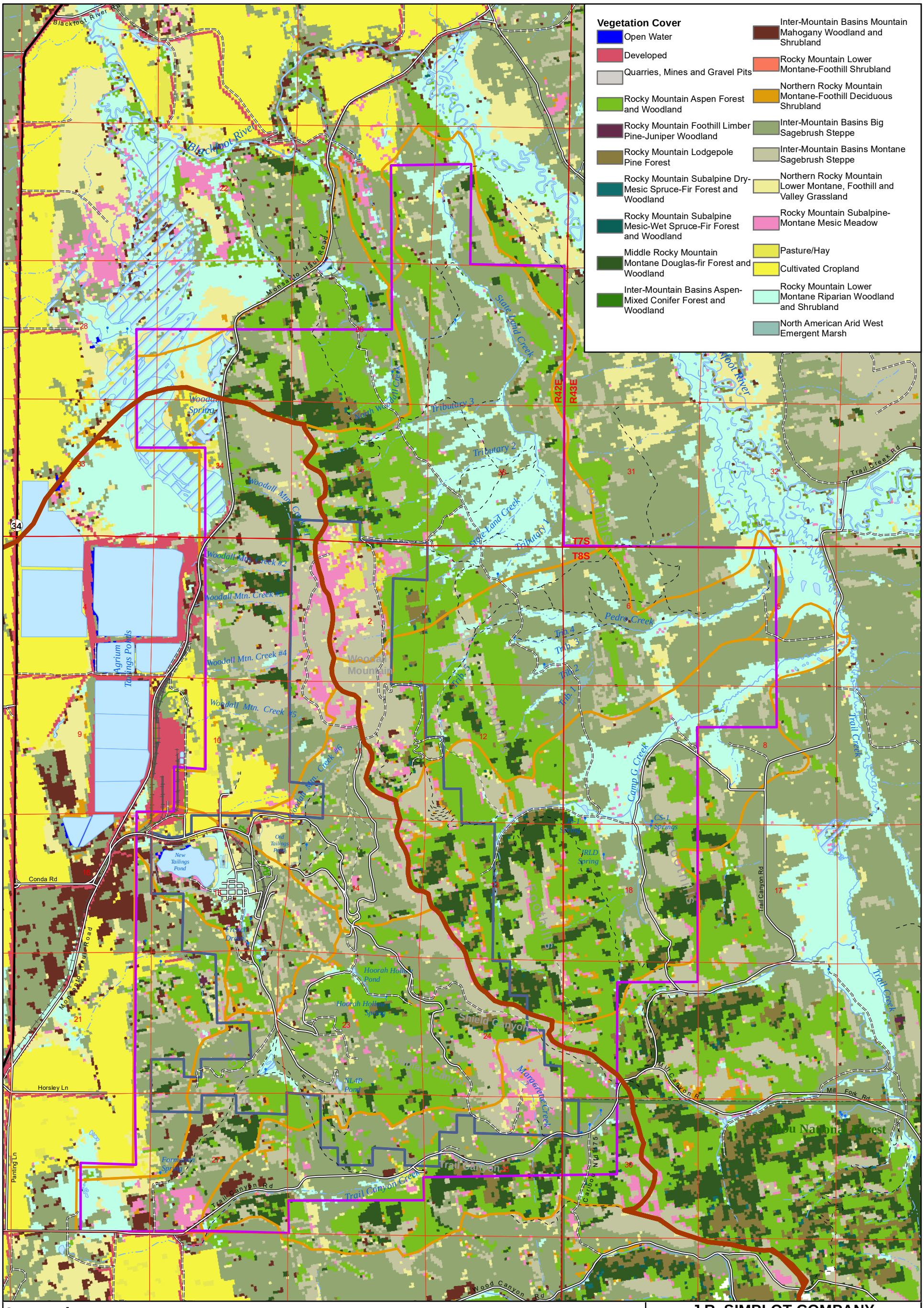
FIGURE 5-26

SINGLE WELL DRAWDOWN RECOVERY CURVES

DATE: APR 07, 2014
BY: AJ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RevisedDraftFnlRIReport\Figures\Fig_5-26_PumpTestResults.pptx



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine
- Non-Mine
- Sub-Basins
- Major Watershed Boundary

N

0 2,500 5,000
Feet

Source: U.S. Geological Survey (USGS) Northwest Regional Gap Analysis Project (NWGAP). 2009. Regional Data by State – Idaho. Available at http://gap.uidaho.edu/index.php/gap-home/Northwest-GAP/landcover/download-data-by-state. Updates August 2009; Accessed January 2010.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

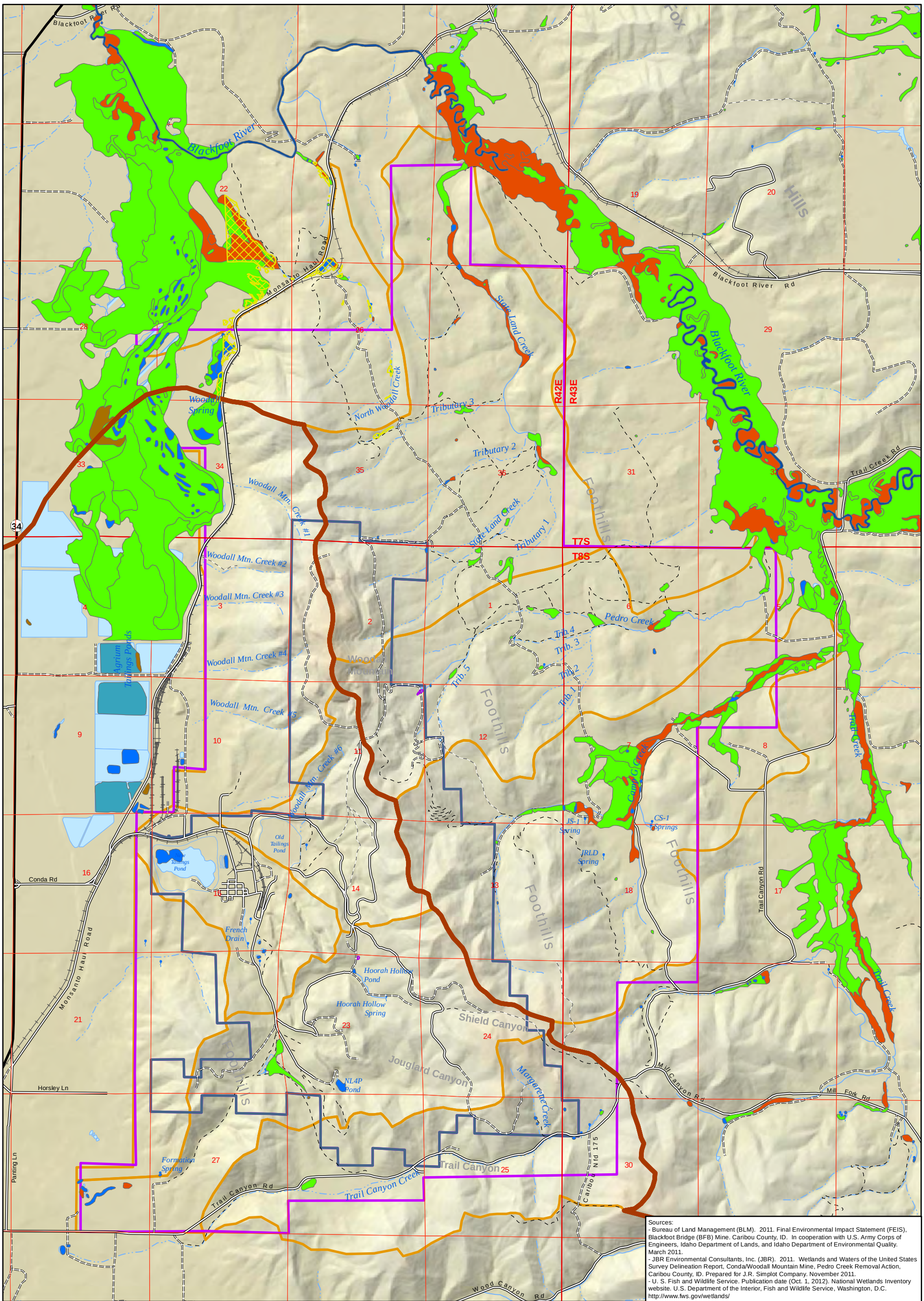
FIGURE 5-27

VEGETATION COVER TYPES

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-27_VegCoverTypes.mxd



Sources:
- Bureau of Land Management (BLM). 2011. Final Environmental Impact Statement (FEIS), Blackfoot Bridge (BFB) Mine. Caribou County, ID. In cooperation with U.S. Army Corps of Engineers, Idaho Department of Lands, and Idaho Department of Environmental Quality. March 2011.
- JBR Environmental Consultants, Inc. (JBR). 2011. Wetlands and Waters of the United States Survey Delineation Report, Conda/Woodall Mountain Mine, Pedro Creek Removal Action, Caribou County, ID. Prepared for J.R. Simplot Company. November 2011.
- U. S. Fish and Wildlife Service. Publication date (Oct. 1, 2012). National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Sub-Basins
- Major Watershed Boundary

Wetland Type (National Wetland Inventory)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Other
- Wetlands delineated from BFB EIS (BLM 2011)
- Wetlands delineated in the Pedro Creek Removal Action project area (JBR 2011)

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

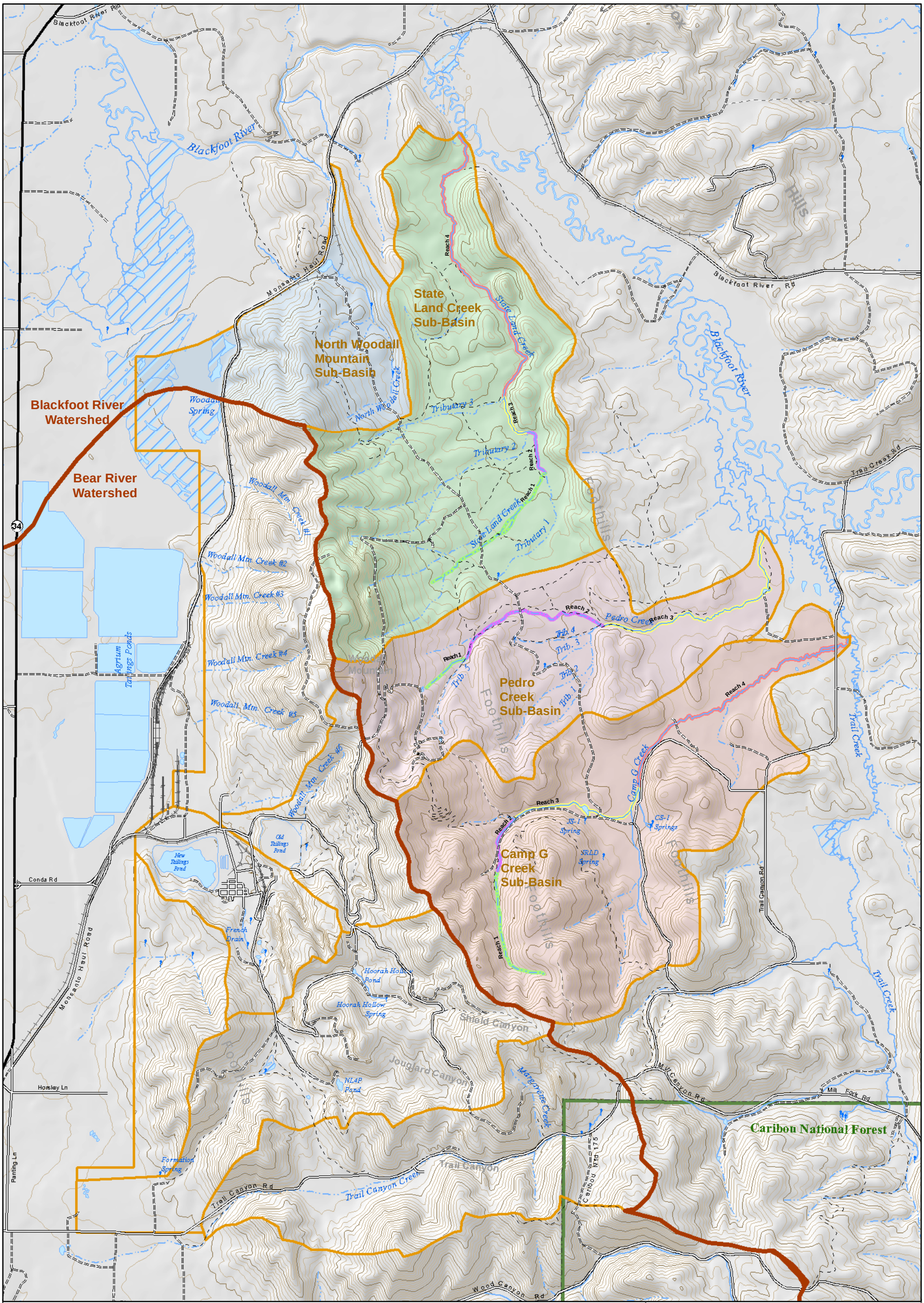
FIGURE 5-28

WETLAND INFORMATION

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-28_Wetlands.mxd



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Sub-Basins
- Major Watershed Boundary

Sub-Basins

- Camp G Creek Sub-Basin
- North Woodall Mountain Sub-Basin
- Pedro Creek Sub-Basin
- State Land Creek Sub-Basin

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

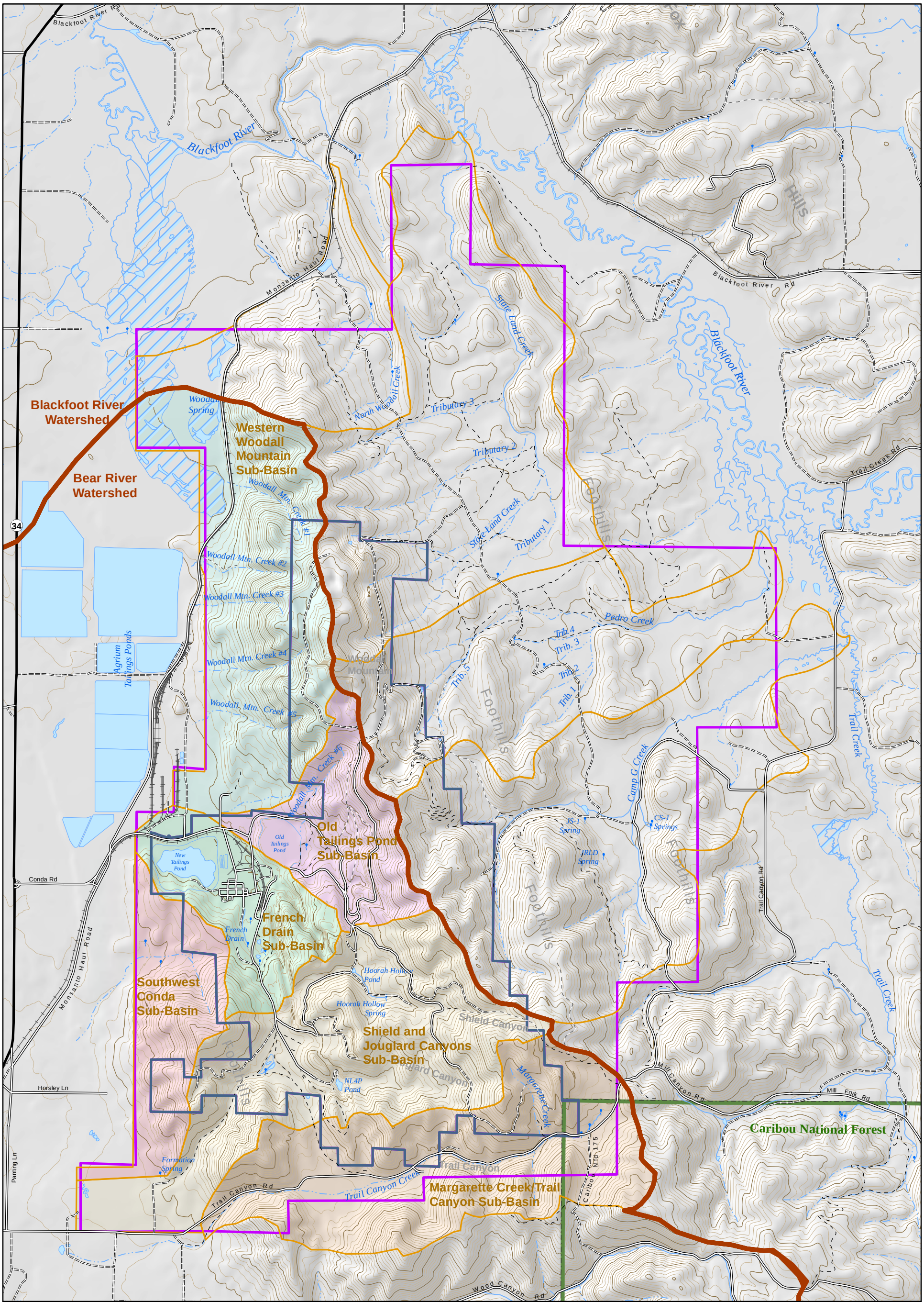
FIGURE 5-29

EAST SIDE SUB-BASIN DRAINAGES

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpri2\010139\plt\RI_2016\Fig_5-29_Drainages_East.mxd



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Sub-Basins

- French Drain Sub-Basin
- Margarette Creek/Trail Canyon Sub-Basin
- Old Tailings Pond Sub-Basin
- Shield and Jouglard Canyons Sub-Basin
- Southwest Conda Sub-Basin
- Western Woodall Mountain Sub-Basin

- Mine Area
- Non-Mine Area
- Sub-Basins
- Major Watershed Boundary

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 5-30

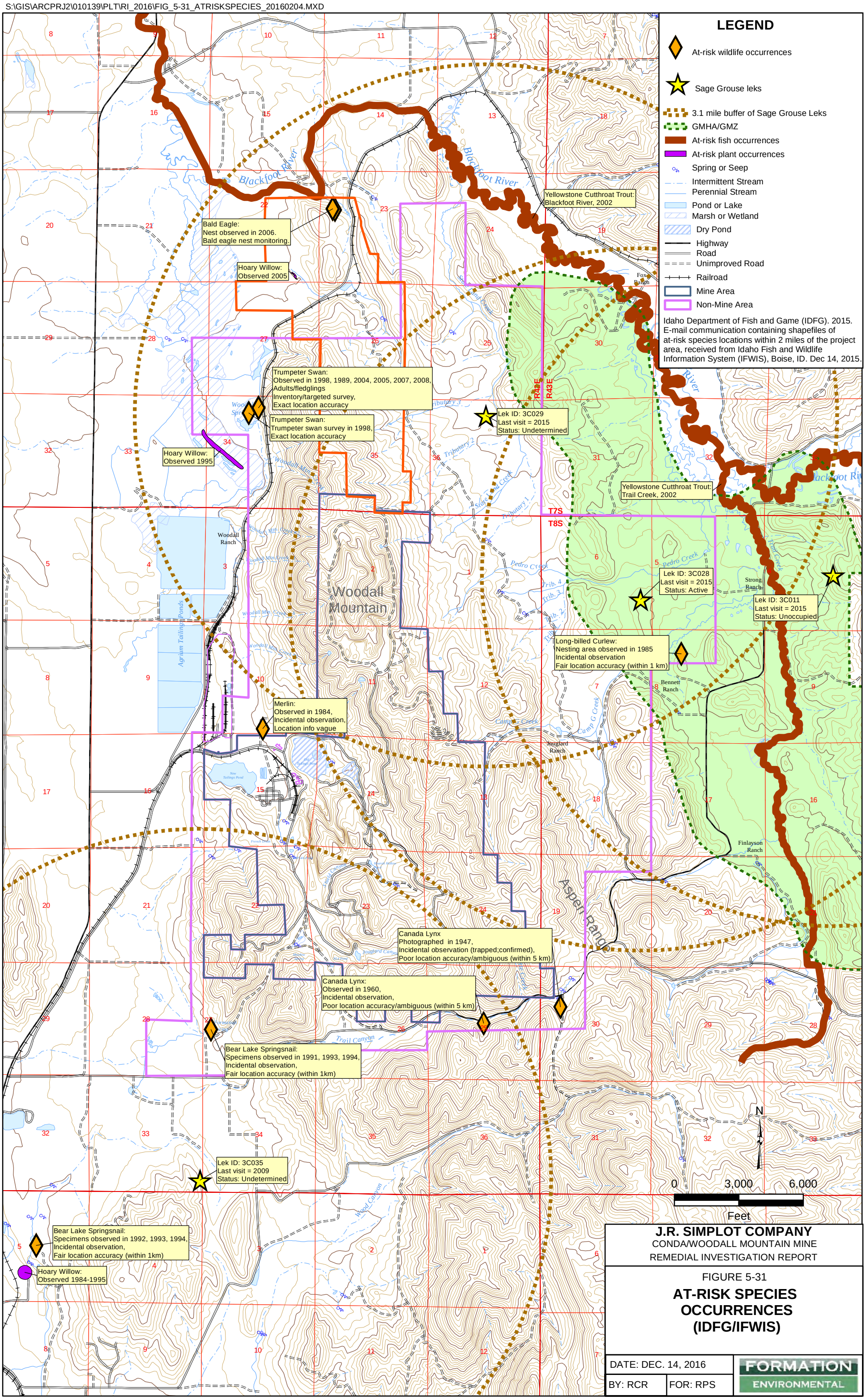
WEST SIDE SUB-BASIN DRAINAGES

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_5-30_Drainages_West.mxd

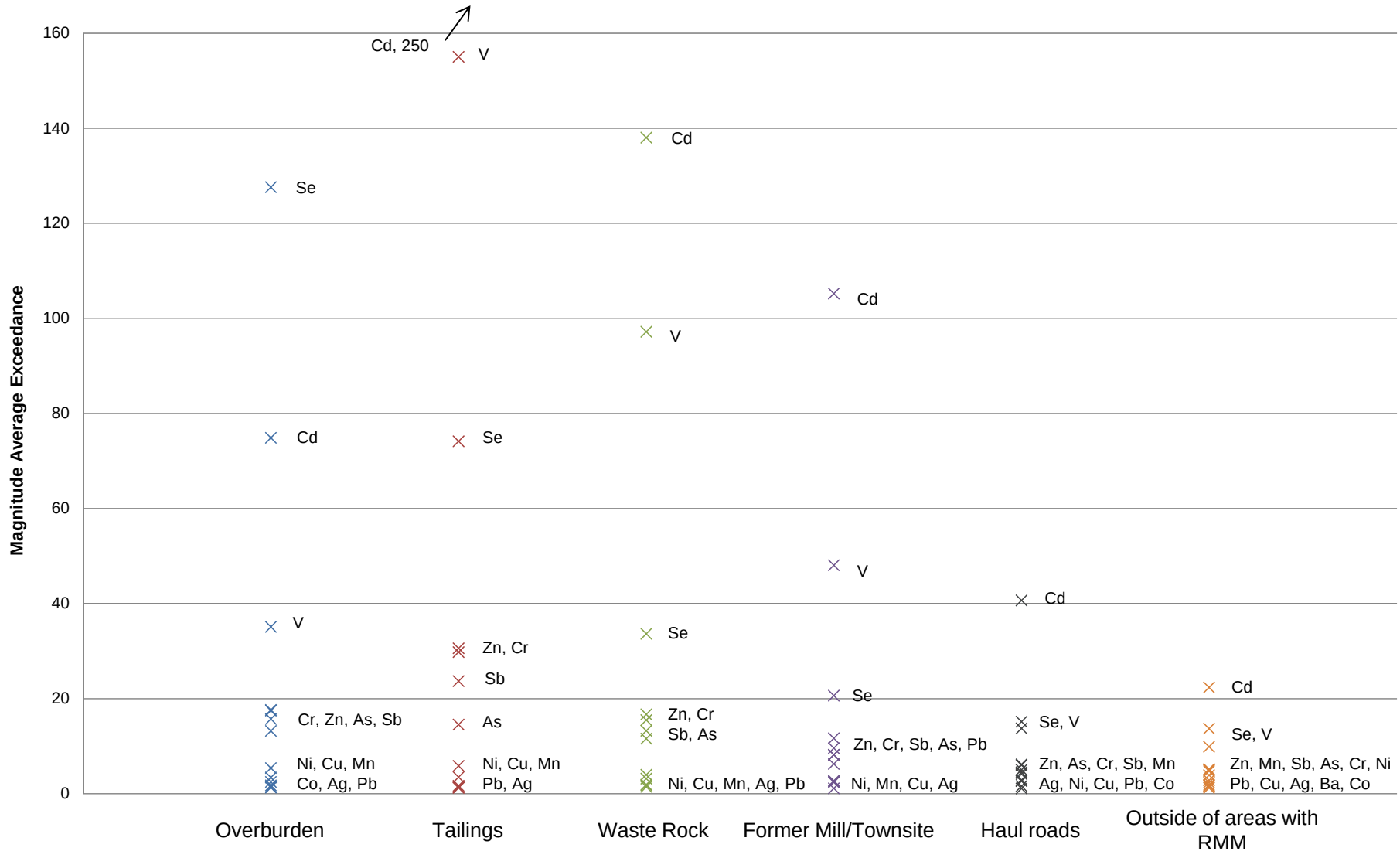
S:\GIS\ARCPRJ2\010139\PLT\RI_2016\FIG_5-31_ATRISKSPECIES_20160204.MXD



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 5-31
AT-RISK SPECIES OCCURRENCES (IDFG/IFWIS)

DATE: DEC. 14, 2016	FORMATION ENVIRONMENTAL
BY: RCR	FOR: RPS



Notes:
- Only detected values were used in the analysis.
- All soil depths are included in the statistics.
- The magnitude of exceedance was calculated: Magnitude = (Average exceedance concentration)/(Comparison value)
- Only COPCs with exceedances are presented.
- Where multiple analytes are listed, they are in order of highest to lowest magnitude exceedance for that grouping of symbols.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-1

COMPARISON OF AVERAGE MAGNITUDE EXCEEDANCE FOR COPC, IN RMM SOILs

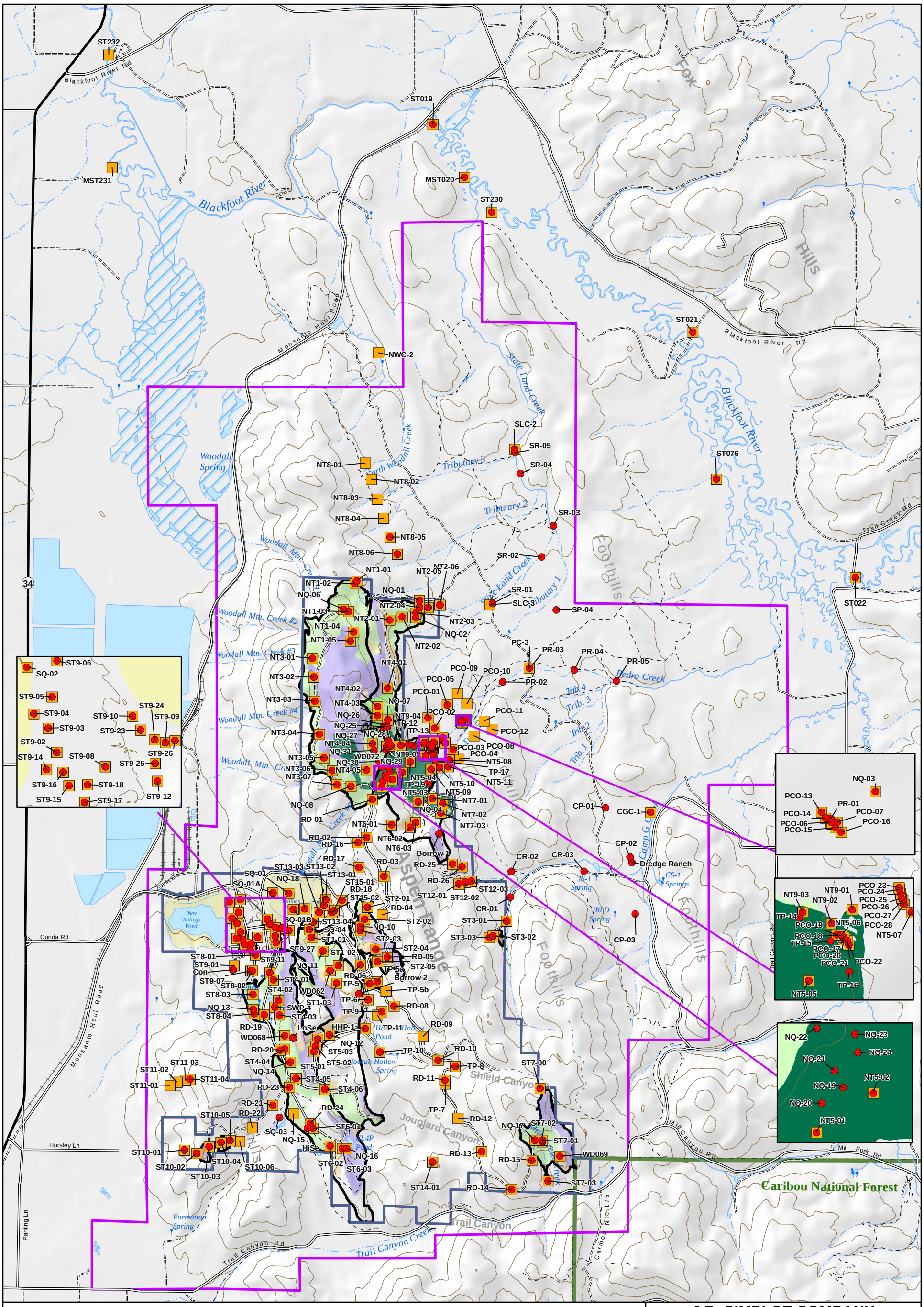
DATE: DEC 13, 2016

BY: KAM

FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\DRAFTFNLRIREPORT\FIGURES_REVISED\FIG_6-1_ROM_IC.PPTX



Legend

- Selenium Exceedance
- Other COPC Exceedances
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Mine Panels

Residual Mining Materials

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad

N

0 2,500 5,000
Feet

Note: Exceedances of most conservative comparison values do not necessarily signify that the COPCs present risks to human health and the environment. Exceedances based on comparison values described in Appendix Q.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

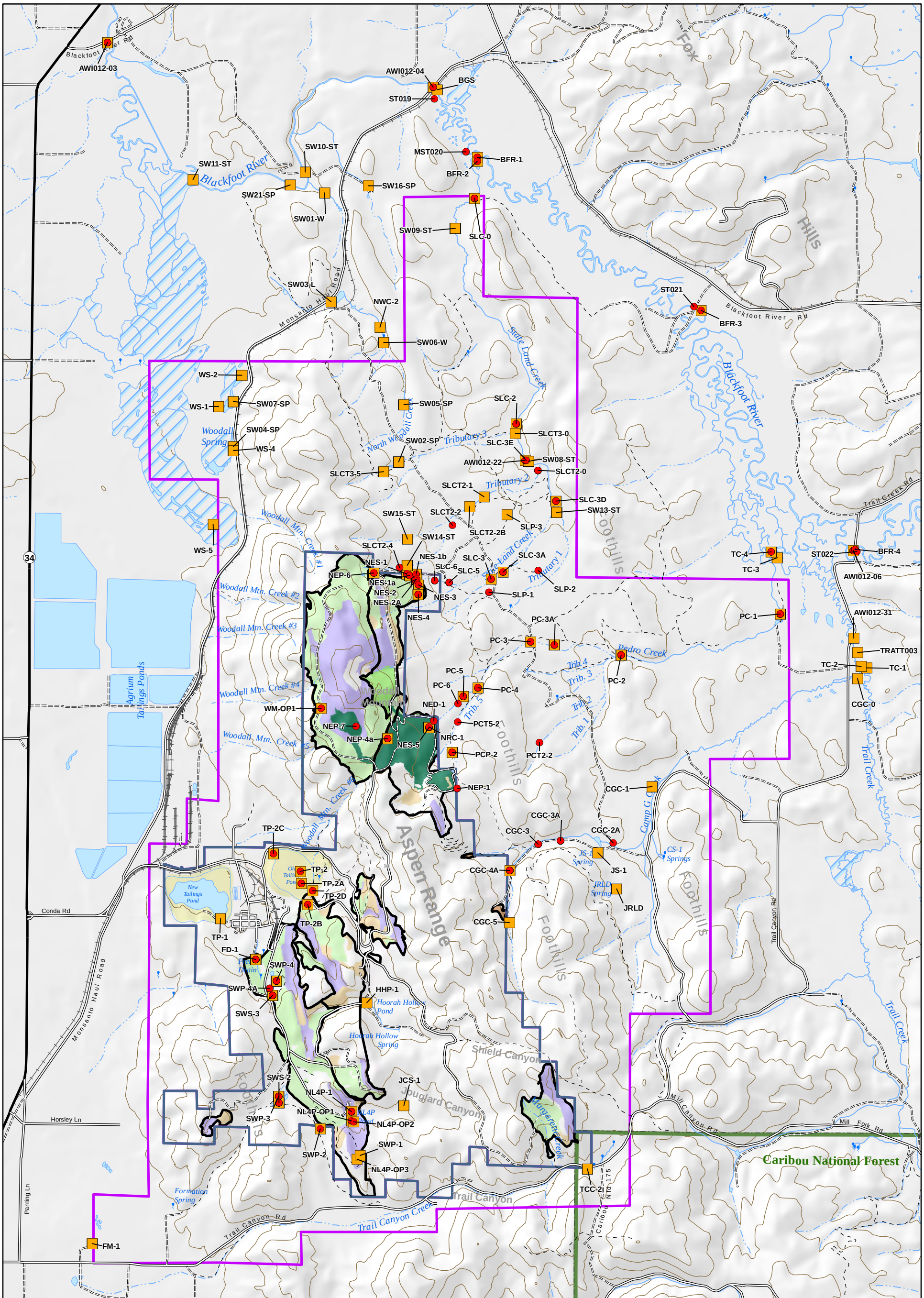
FIGURE 6-2

SPATIAL DISTRIBUTION OF EXCEEDANCES OF COPC COMPARISON VALUES IN SOIL

DATE: DEC 14, 2016
BY: KAM
FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-002_SL_Exceed_Se_Other.mxd



Legend

- Selenium Exceedance
- Other COPC Exceedances
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Mine Panels

Residual Mining Materials

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad

N

0 2,500 5,000
Feet

Note: Exceedances of most conservative comparison values do not necessarily signify that the COPCs present risks to human health and the environment. Exceedances based on comparison values described in Appendix Q.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

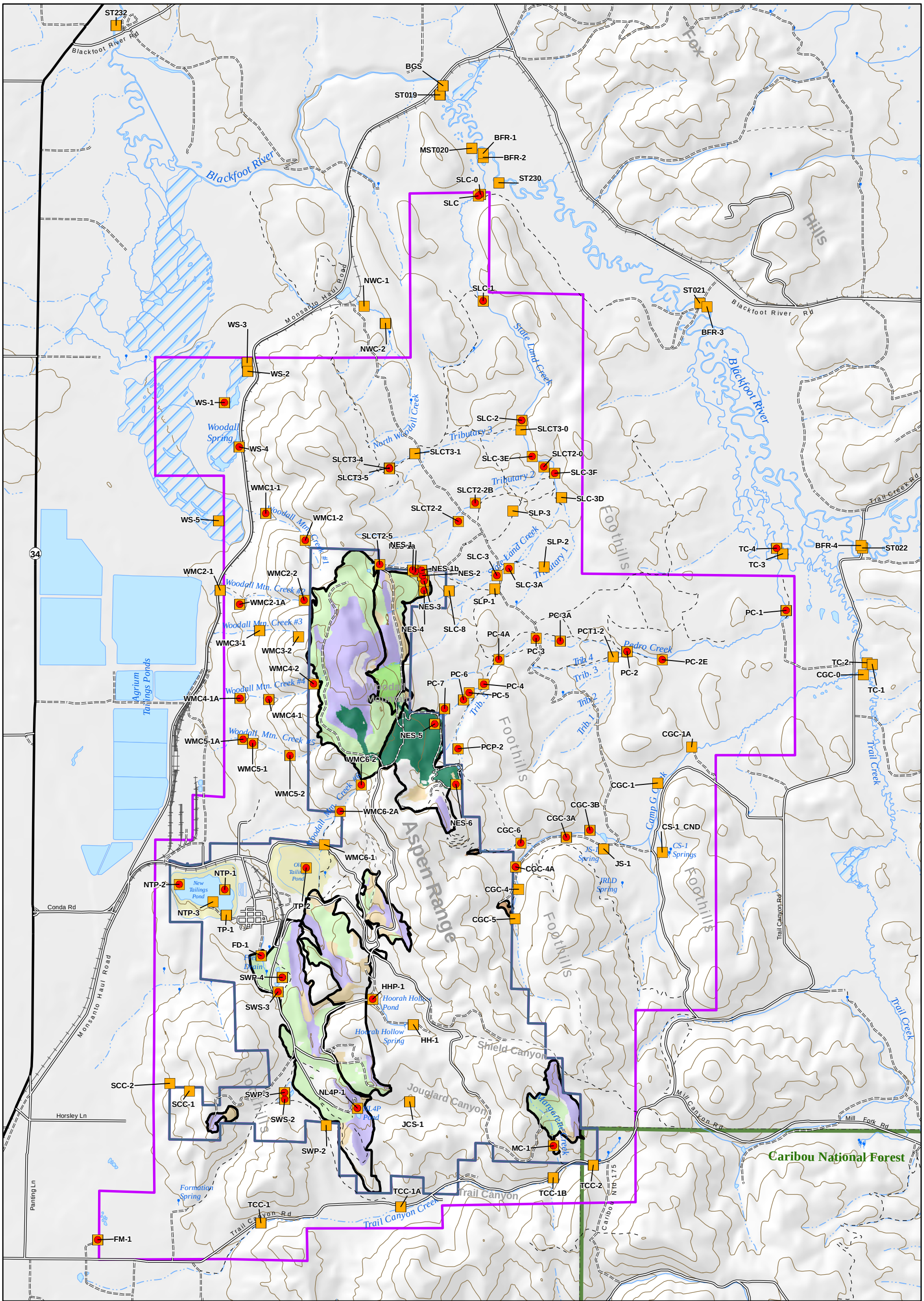
FIGURE 6-3

SPATIAL DISTRIBUTION OF COPC EXCEEDANCES OF COMPARISON VALUES IN SURFACE WATER

DATE: DEC 14, 2016
BY: KAM
FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-003_SW_Exceed_Se_Other.mxd



Legend

- Selenium Exceedance
- Other COPC Exceedances
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Mine Panels

Residual Mining Materials

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad

N

0 2,500 5,000
Feet

Note: Exceedances of most conservative comparison values do not necessarily signify that the COPCs present risks to human health and the environment. Exceedances based on comparison values described in Appendix Q.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

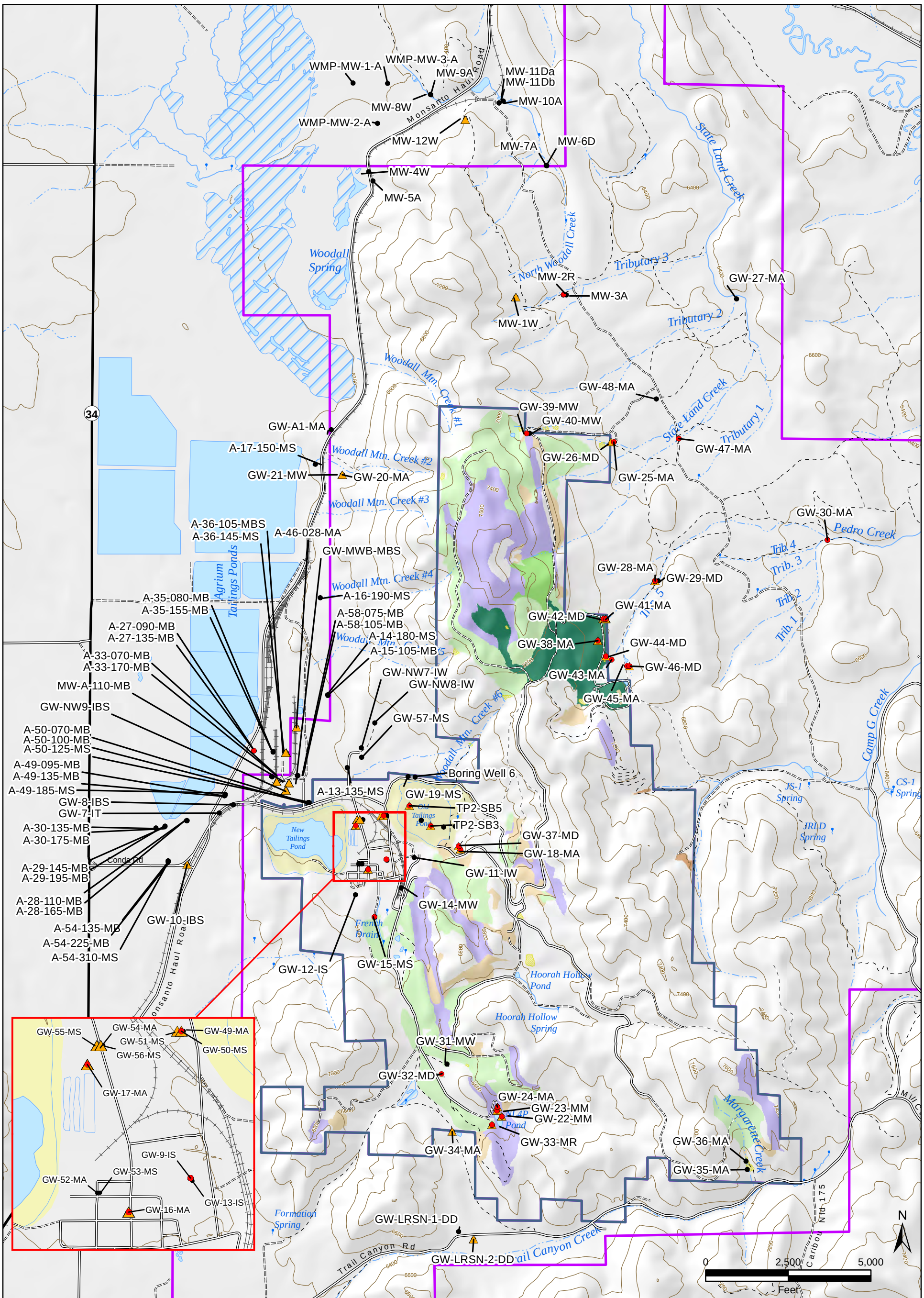
FIGURE 6-4

SPATIAL DISTRIBUTION OF COPC EXCEEDANCES OF COMPARISON VALUES IN SEDIMENT

DATE: DEC 14, 2016
BY: KAM
FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-004_SD_Exceed_Se_Other.mxd



Legend

- Selenium Exceedance
- Other COPC Exceedances
- Groundwater Locations without Exceedances
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad

Note: Exceedances of most conservative comparison values do not necessarily signify that the COPCs present risks to human health and the environment. Exceedances based on comparison values described in Table 4-6. Analysis based on dataset through 2015. Boring 6 results based on dissolved fraction.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

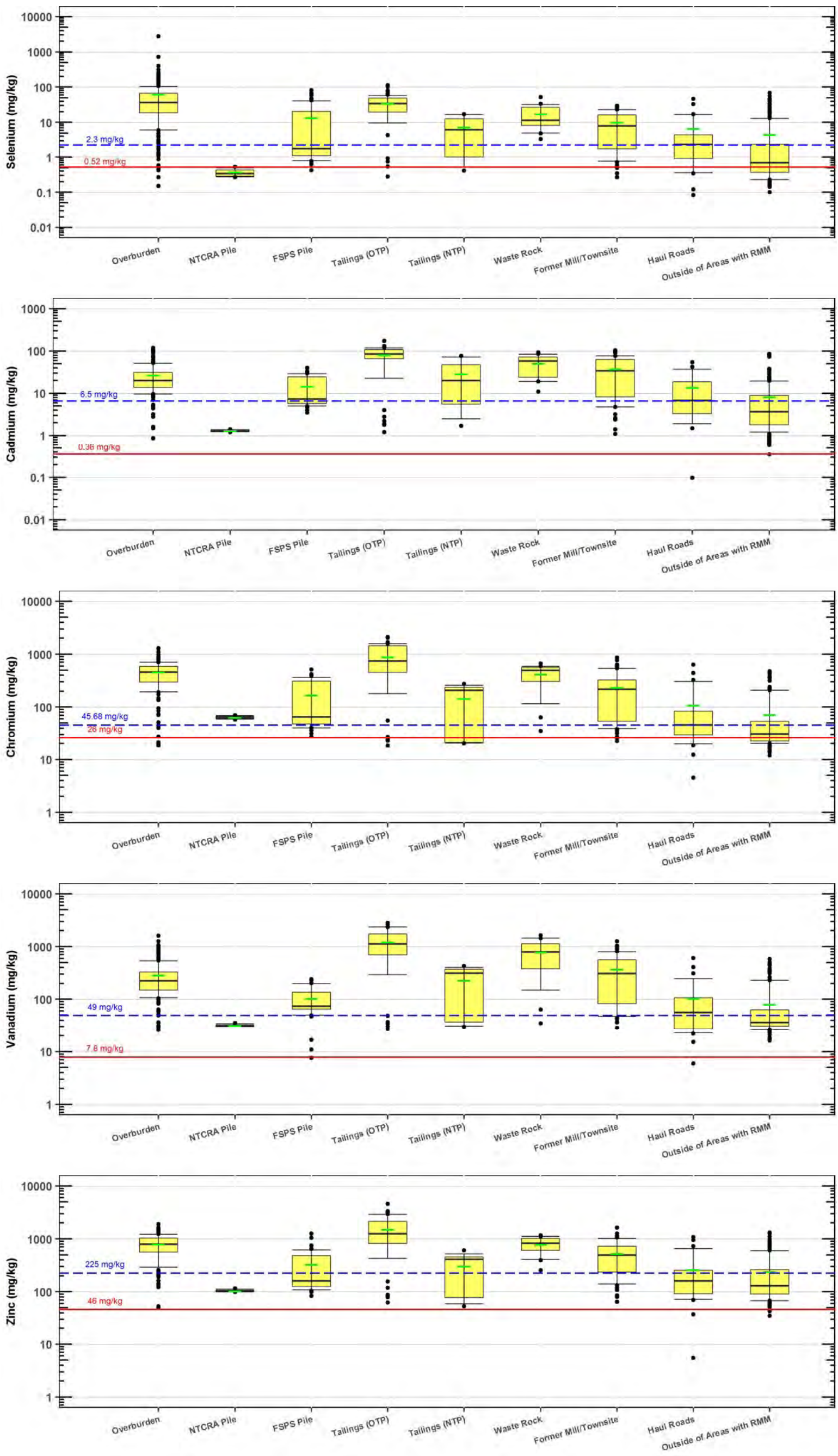
FIGURE 6-5

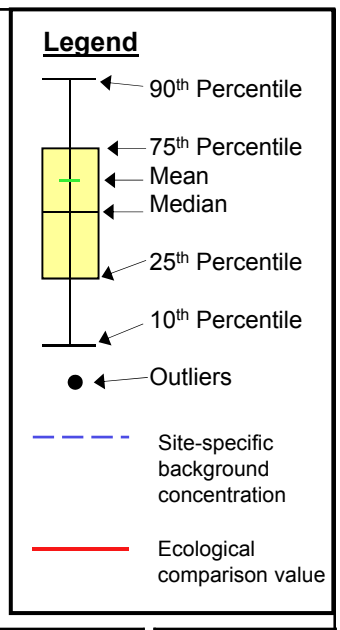
SPATIAL DISTRIBUTION OF COPC EXCEEDANCES OF COMPARISON VALUES IN GROUNDWATER

DATE: DEC 14, 2016
BY: RCR/KAM FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-005_GW_Exceed_Se_Other.mxd





Overburden
Borrow 1, Borrow 2
21 FSPS Test Plots (pre-construction)
FSPS-Area (pre-construction)
HiSe, LoSe
NQ-01, NQ-02, NQ-04
NQ-06 to NQ-08
NQ-10 to NQ-17
NQ-19 to NQ-32
NT1-02 to NT1-05
NT2-01 to NT2-04
NT3-01 to NT3-06
NT4-01 to NT4-05
NT5-01 to NT5-06
NT6-01 to NT6-03
NT7-01, NT7-02
NT9-02 to NT9-05
PCO-17 to PCO-22
ST10-03 to ST10-05
ST1-01 to ST1-03
ST2-01 to ST2-05
ST4-01 to ST4-06
ST5-01 to ST5-03
ST6-01 to ST6-03
ST7-01 to ST7-03
ST8-03, ST8-04
SWP-4
TP-12 to TP-14
WD062, WD068, WD069, WD072
NTCRA Pile
PRSC-DU1 to PRSC-DU4
FSPS Pile
21 FSPS Test Plots (post-construction)
PRSC-DU5
Tailings (OTP)
NQ-18
SQ-01, SQ-01A, SQ-01B
ST13-02 to ST13-04
TP-2
TP2-SB1 to TP2-SB5
SQ-04
Tailings (NTP)
NTP-1 to NTP-3
SQ-02
TP-1
Waste Rock
ST12-01, ST12-02
ST14-01
ST3-02
Former Mill/Townsite
ST8-01
ST9-02 to ST9-06
ST9-08 to ST9-12
ST9-14 to ST9-18
ST9-23 to ST9-27
Haul Roads
RD-01 to RD-06
RD-08 to RD-26

Outside of areas with RMM
CGC-1
Con
CP-01 to CP-03
CR-01 to CR-04
Dredge Ranch
HHP-1
NQ-03
NT1-01
NT2-05, NT2-06
NT3-07
NT5-07 to NT5-11
NT7-03
NT8-01 to NT8-06
NT9-01
NWC-2
PC-3, PC-5
PCO-01 to PCO-16
PCO-23 to PCO-28
PP-01 to PP-03
PR-01 to PR-05
SLC-2, SLC-3
SP-01 to SP-04
SQ-03
SR-01 to SR-05
ST10-01, ST10-02, ST10-06
ST11-01 to ST11-04
ST12-03
ST13-01
ST15-01, ST15-02
ST3-01
ST3-03
ST7-00
ST8-02
ST9-01, ST9-07
TP-10, TP-11
TP-15 to TP-19
TP-5, TP-5a, TP-5b
TP-6 to TP-9

NOTES:
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- All soil depths are included in boxplot statistics. For FSPS, only 0-12" primary composite samples included.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Plate 1 for sampling locations and location of Residual Mining Materials (RMM).
- Refer to Section 4 text for ecological comparison values and for site-specific background concentrations.
- Non-Time Critical Removal Action (NTCRA) and Field-Scale Pilot Study (FSPS) boxplots include 2015 sampling results. For selenium, samples were analyzed using 3114C method.
- OTP = Old Tailings Pond; NTP = New Tailings Pond

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

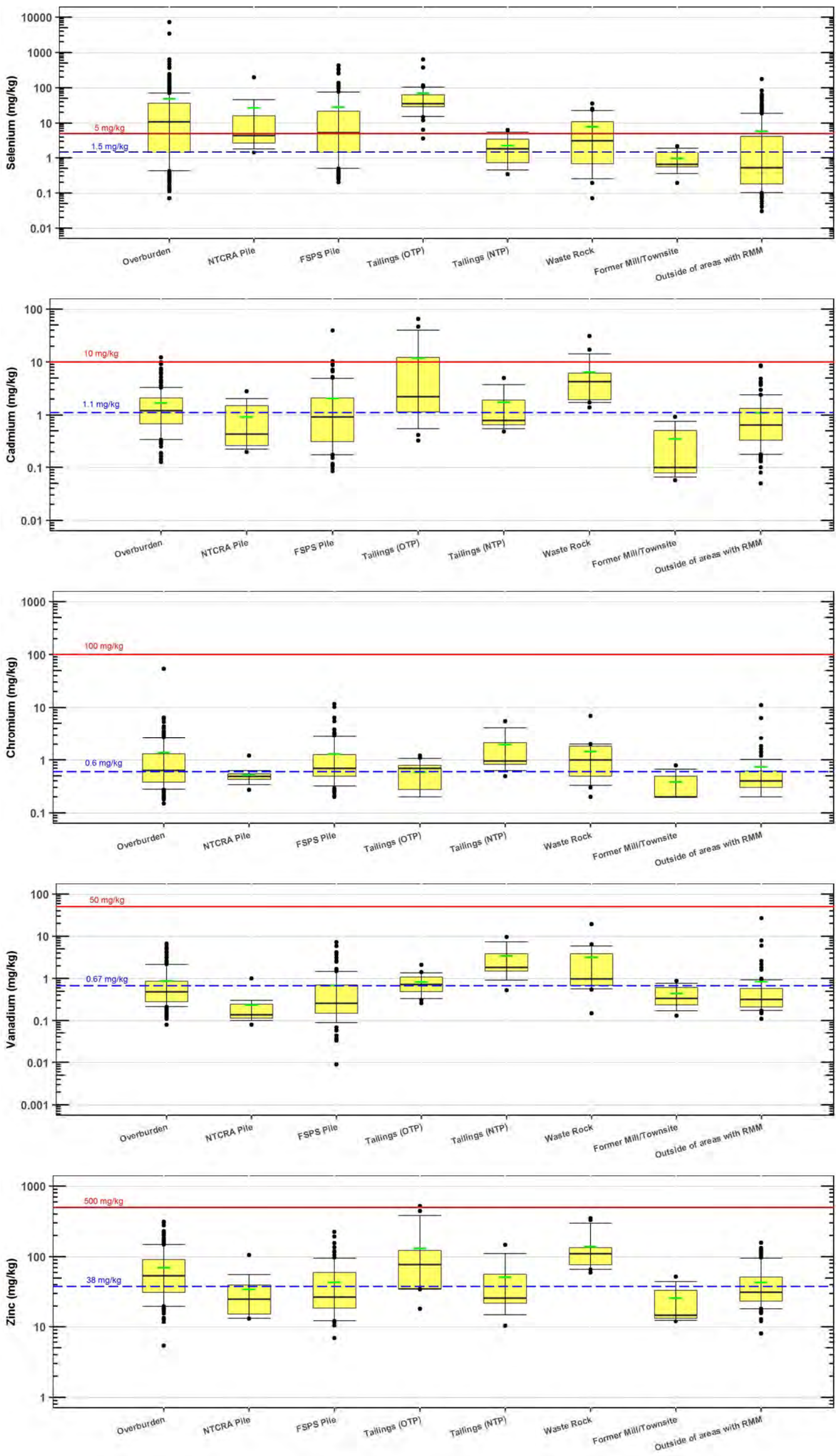
FIGURE 6-6

COMPARISON OF SOIL COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_Boxplot\Upd1_RMM\RMM_Boxplot_GW_SL_SW_VG.ppt



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Maximum tolerable dietary level for livestock
- Site-specific forage background concentration

Overburden
HiSe, LoSe
LD
NQ-01, NQ-02, NQ-04
NQ-06 to NQ-08
NQ-10 to NQ-17
NT1-02 to NT1-05
NT2-01 to NT2-04
NT3-01 to NT3-06
NT4-01 to NT4-05
NT5-01 to NT5-06
NT6-01 to NT6-03
NT7-01, NT7-02
NT9-02 to NT9-05
ST10-03 to ST10-05
ST1-01 to ST1-03
ST2-01 to ST2-05
ST4-01 to ST4-06
ST5-01 to ST5-03
ST6-01 to ST6-03
ST7-01 to ST7-03
ST8-03, ST8-04
SWP-4
UD
WD062
NTCRA Pile
PRSC-DU1 to PRSC-DU4
FSPS Pile
21 FSPS Test Plots (post-construction)
PRSC-DU5
Tailings (OTP)
NQ-18
SQ-01, SQ-01A, SQ-01B, SQ-02
ST13-02 to ST13-04
Waste Rock
ST12-01, ST12-02
ST14-01
ST3-02
Former Mill/Townsite
ST8-01
ST9-17
Outside of areas with RMM
BCS
CGC-1
Con
CP-01 to CP-03
CR-01 to CR-04
HHP-1
NQ-03
NT1-01
NT2-05, NT2-06
NT3-07
NT5-07 to NT5-10
NT7-03
NT8-01 to NT8-06
NT9-01
NWC-2
PC-3, PC-5
PCP-1, PCP-2
PP-01 to PP-03
PR-01 to PR-05
SLC-2, SLC-3
SP-01 to SP-04
SQ-03
SR-01 to SR-05
ST10-01, ST10-02, ST10-06
ST11-01 to ST11-04
ST12-03
ST13-01
ST15-01, ST15-02
ST3-01, ST3-03
ST7-00
ST8-02

NOTES:
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- All vegetation types (washed samples) are included boxplot statistics.
- Non-Time Critical Removal Action (NTCRA) and Field-Scale Pilot Study (FSPS) boxplots include 2015 sampling results.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Plate 2 for sampling locations and location of Residual Mining Materials (RMM).
- Refer to Section 6 text for maximum tolerable dietary levels for livestock and Section 4 text for site-specific forage background concentrations.
- OTP = Old Tailings Pond; NTP = New Tailings Pond

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

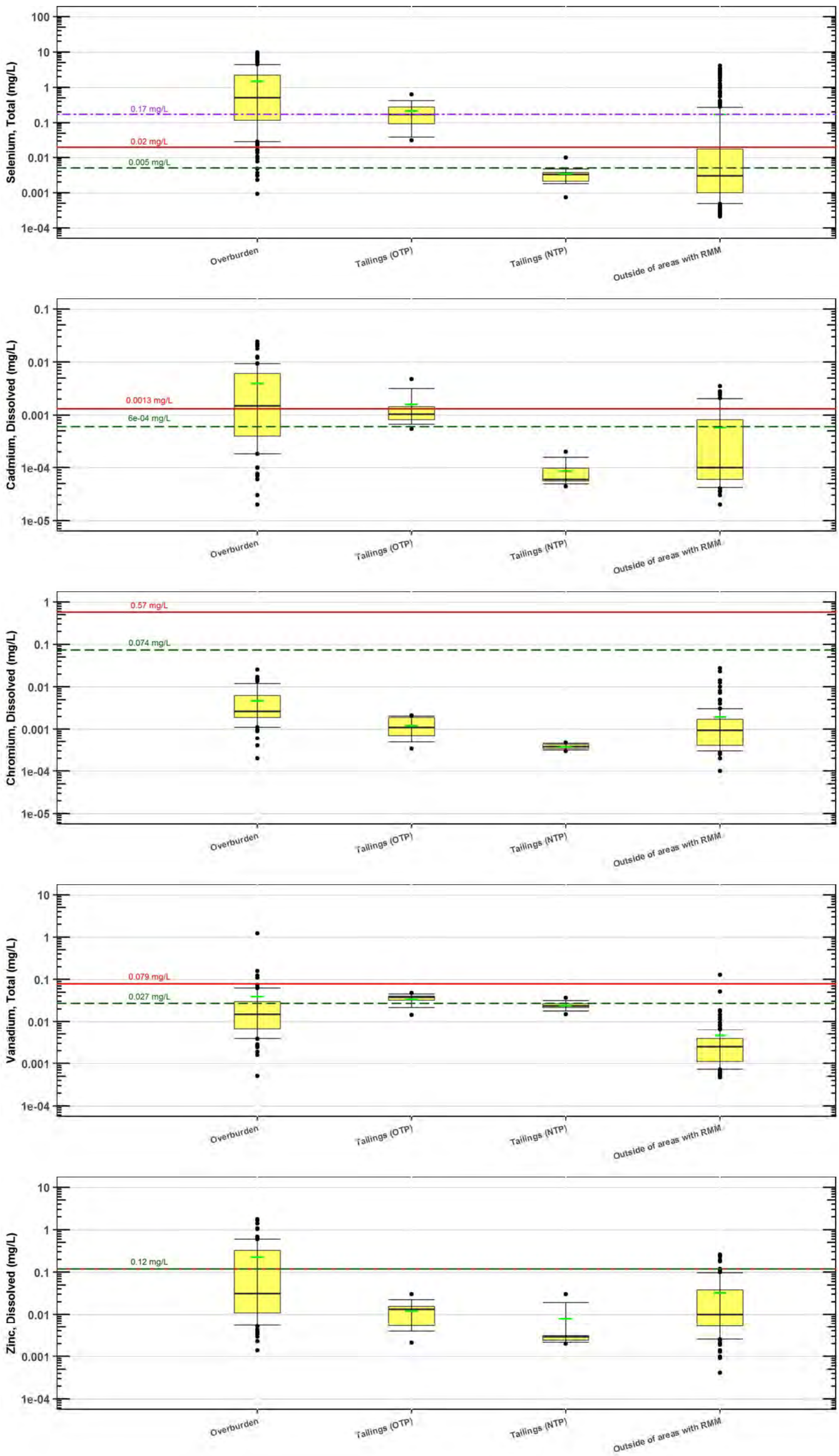
FIGURE 6-7

COMPARISON OF TERRESTRIAL VEGETATION COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\1_RMM\RMM_Boxplot_GW_SL_SW_VG.ppt



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion

Overburden
ESedBasinC
ESedBasinN
ESedBasinS
ESedBasinToe
FD-1
FSPSBasin
FSPSSeep
FSPSSeepPond
NED-1
NEP-4a
NEP-6
NEP-7
NES-1
NES-1a
NES-1b
NES-2
NES-2A
NES-3
NES-4
NES-5
NES-7
NES-8
NESedBasinC
NESedBasinN
NESedBasinS
NESeep5Pond
NESeep7Pond
NL4P-1
NL4P-OP1
NL4P-OP2
NL4P-OP3
NRC-1
SEInfiltBasin
SWInfiltBasin
SWP-1
SWP-4
SWP-4A
SWS-3
WM-OP1
Tailings (OTP)
TP-2
TP-2A
TP-2B
TP-2C
TP-2D
Tailings (NTP)
TP-1

Outside of areas with RM
AWI012-22
BorrowOp
CGC-0, CGC-1
CGC-2, CGC-2A
CGC-3, CGC-3A
CGC-4, CGC-4A
CGC-5
CGCT1-1
CGC-UPTC
CS-1_CND
FM-1
HH-1, HH-OP1, HHP-1
JCS-1
JRLD
JS-1
NBorrowSedBasin
NEP-1
NWC-1, NWC-2
PC-1, PC-1UP
PC-2, PC-2B, PC-2C
PC-3, PC-3A
PC-4 to PC-9
PCP-2
PCT-0
PCT1-1
PCT2-2
PCT3-1
PCT4-0, PCT4-1
PCT5-1, PCT5-2
PCT6-5
SLC
SLC-0 to SLC-2
SLC-3, SLC-3A
SLC-3C to SLC-3E
SLC-5, SLC-6
SLCT1-0, SLCT1-1
SLCT2-0 to SLCT2-2
SLCT2-2B
SLCT2-4
SLCT3-0, SLCT3-1
SLCT3-4, SLCT3-5
SLP-1 to SLP-3
SW02-SP
SW03-L
SW04-SP
SW05-SP
SW06-W
SW07-SP
SW08-ST, SW09-ST
SW13-ST to SW15-ST
SWP-2, SWP-3
SWS-2
TCC-2
WS-1 to WS-5

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total/total recoverable selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Plate 3 for sampling locations and location of Residual Mining Materials (RMM).
- Refer to Section 4 text for surface water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

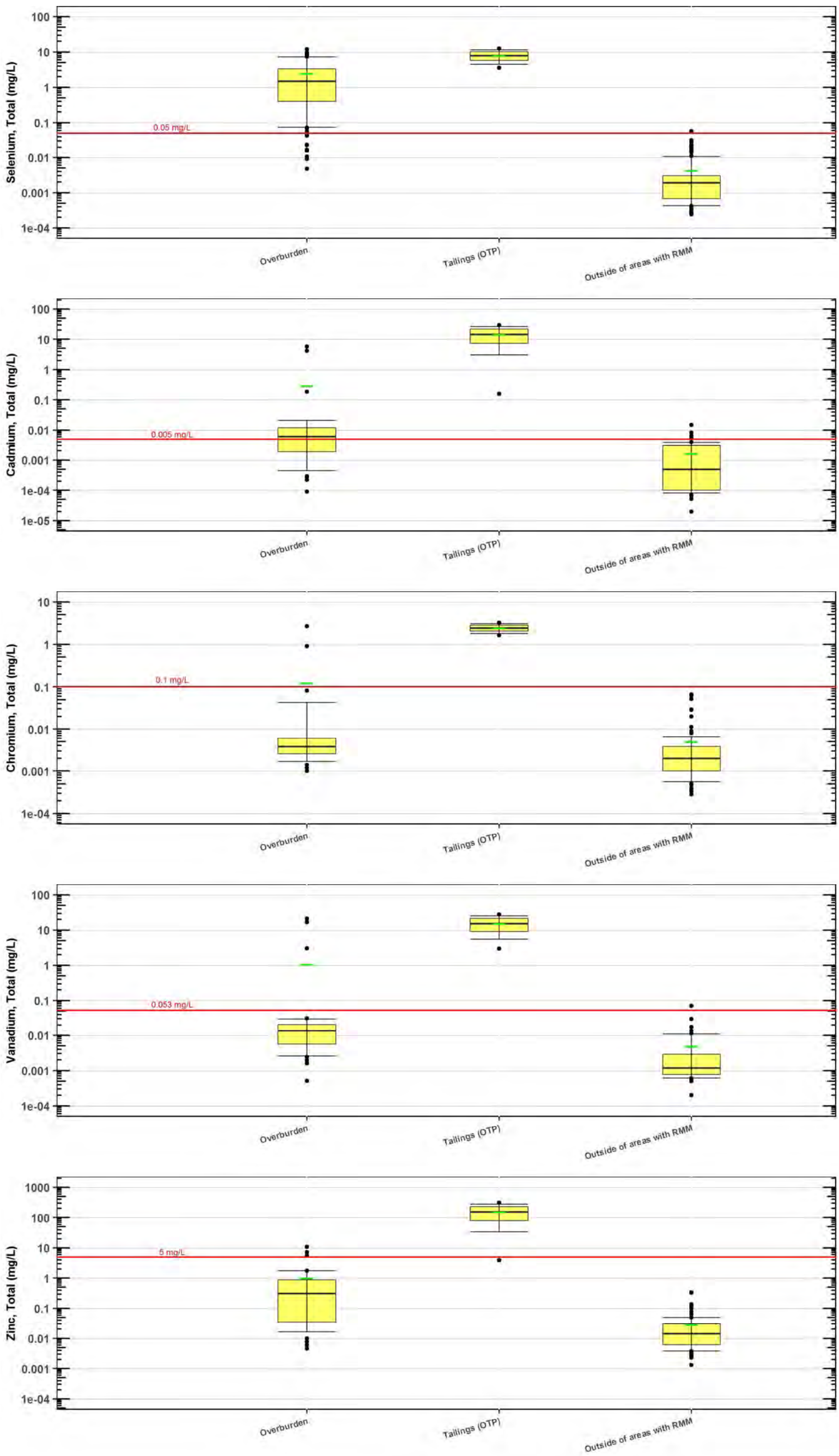
FIGURE 6-8

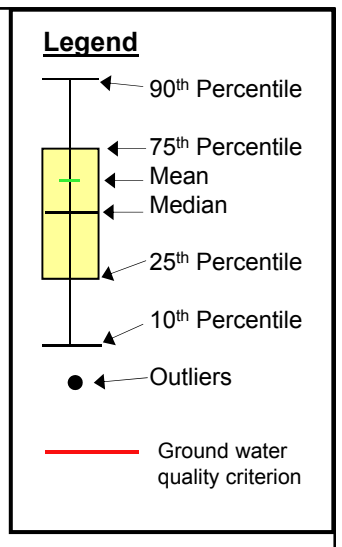
COMPARISON OF SURFACE WATER COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\1_RMM\RMM_Boxplot_GW_SL_SW_VG.ppt





Overburden
ESedBasinToe
FD-1
FSPSSeep
FSPSSeepPond
GW-22-MM
GW-23-MM
NES-1
NES-1a
NES-1b
NES-2
NES-2A
NES-3
NES-4
NES-5
NES-7
NES-8
NESeep5Pond
NESeep7Pond
SWS-3
Tailings
TP2-SB3
TP2-SB5
Outside of areas with RMM
CS-1_CND
FM-1
GW-34-MA
HH-1
JCS-1
JRLD
JS-1
MW-10A
MW-11Db
MW-12W
MW-1W
MW-2R
MW-3A
MW-4W
MW-5A
MW-6D
MW-7A
SLCT3-4
SLCT3-5
SW02-SP
SW04-SP
SW05-SP
SW06-W
SW07-SP
SWS-2
WS-1
WS-2
WS-3
WS-4
WS-5

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph includes total/total recoverable selenium, cadmium, chromium, vanadium, and zinc.
- Refer to Plate 5 for sampling locations and location of Residual Mining Materials (RMM).
- Refer to Section 4 text for ground water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

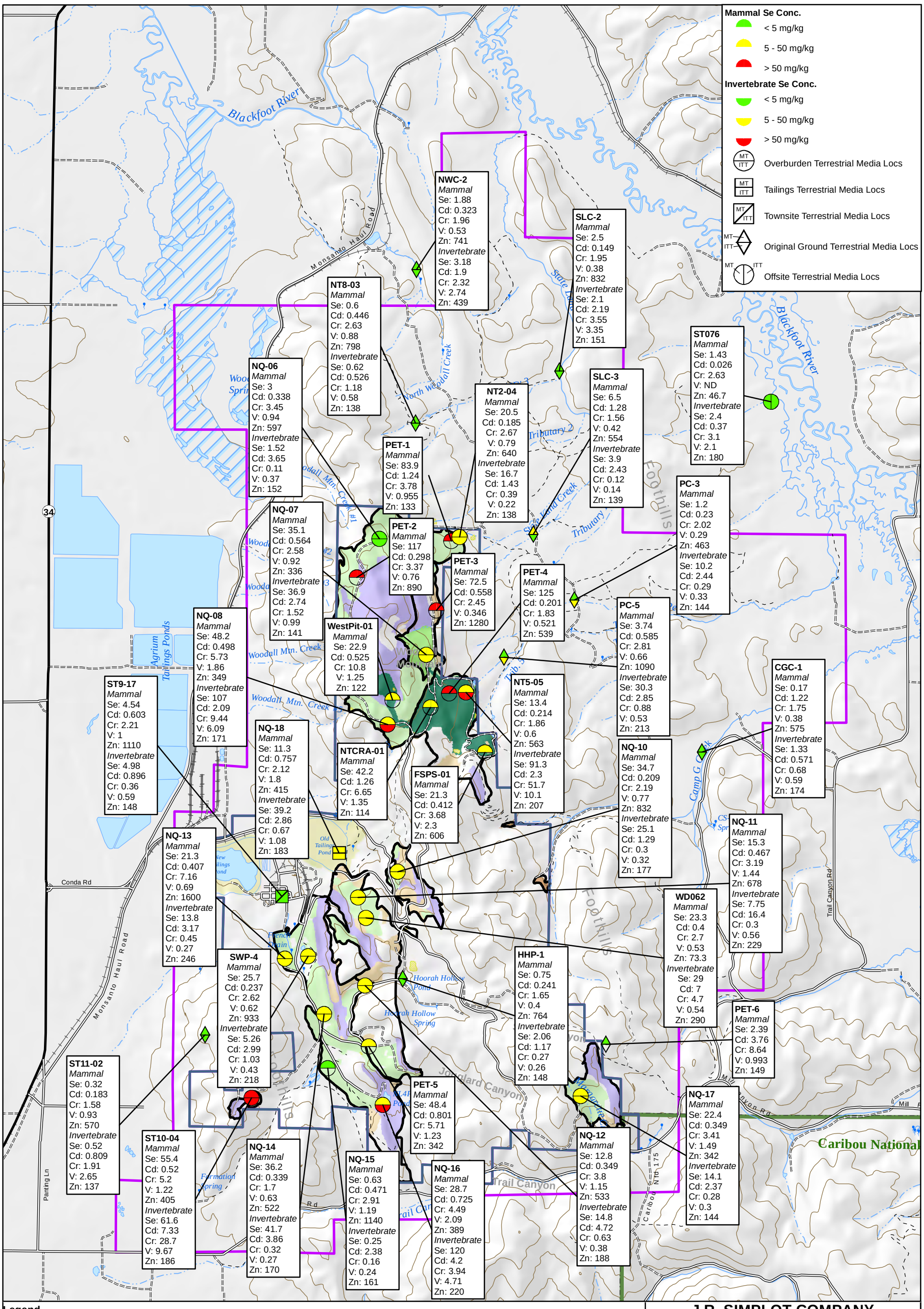
FIGURE 6-9

COMPARISON OF GROUND WATER COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_Boxplot\Upd\1_RMM\RMM_Boxplot_GW_SL_SW_VG.ppt



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine
- Non-Mine
- Mine Panels

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

N

0 1,500 3,000

Feet

Notes:
- Overburden areas include in-pit ODAs and external to pit ODAs.
- Only Site locations relevant to the RMM analysis are shown on this figure.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-10

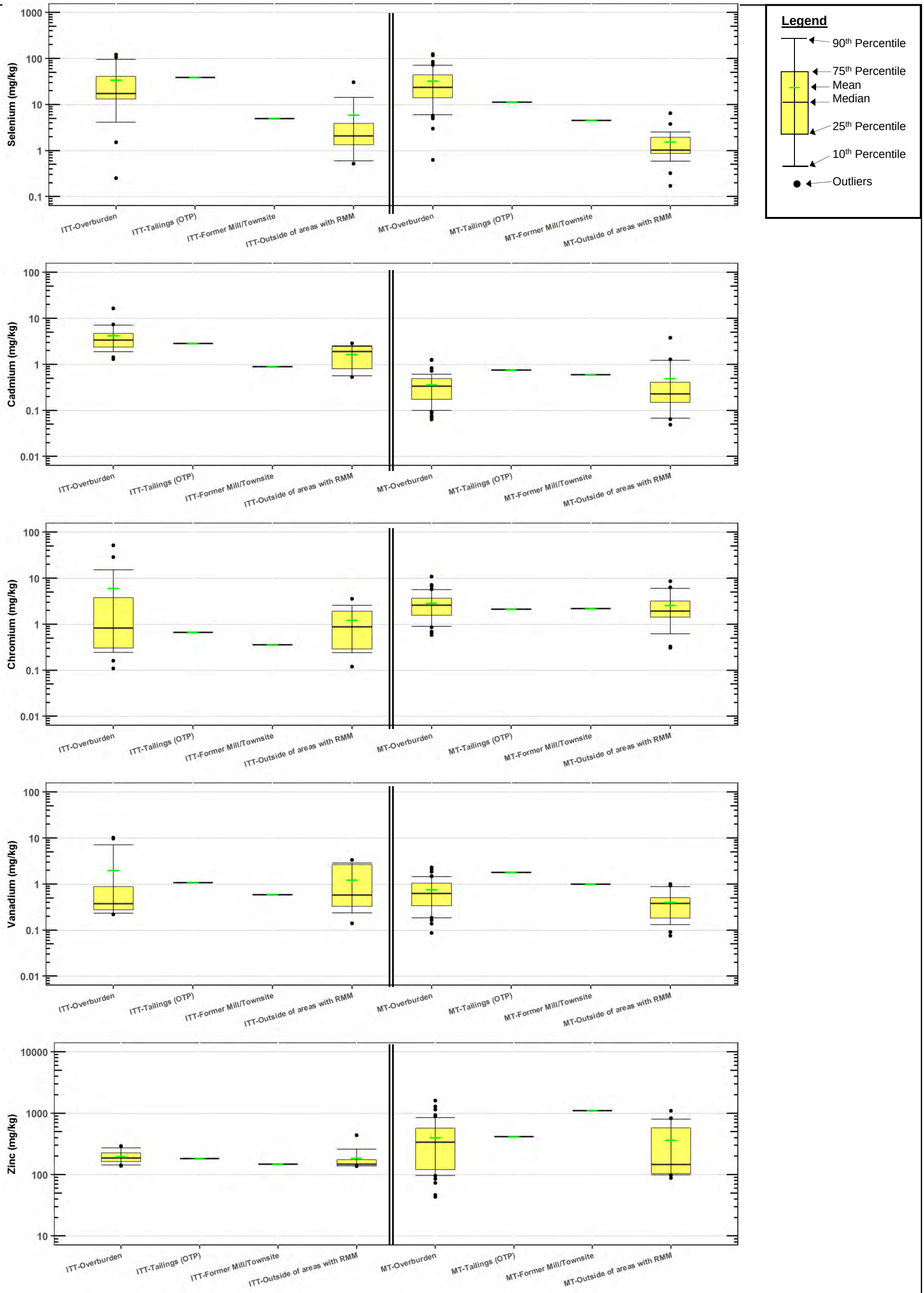
TERRESTRIAL INVERTEBRATE AND SMALL MAMMAL COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: DEC 14, 2016

BY: KAM FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-010_MTITT_Se_RMM.mxd



NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Figure 6-10 for sampling locations and locations of Residual Mining Materials (RMM).
- Mammal boxplots include 2015 sampling results.
- ITT = terrestrial invertebrate samples; MT = small mammal samples

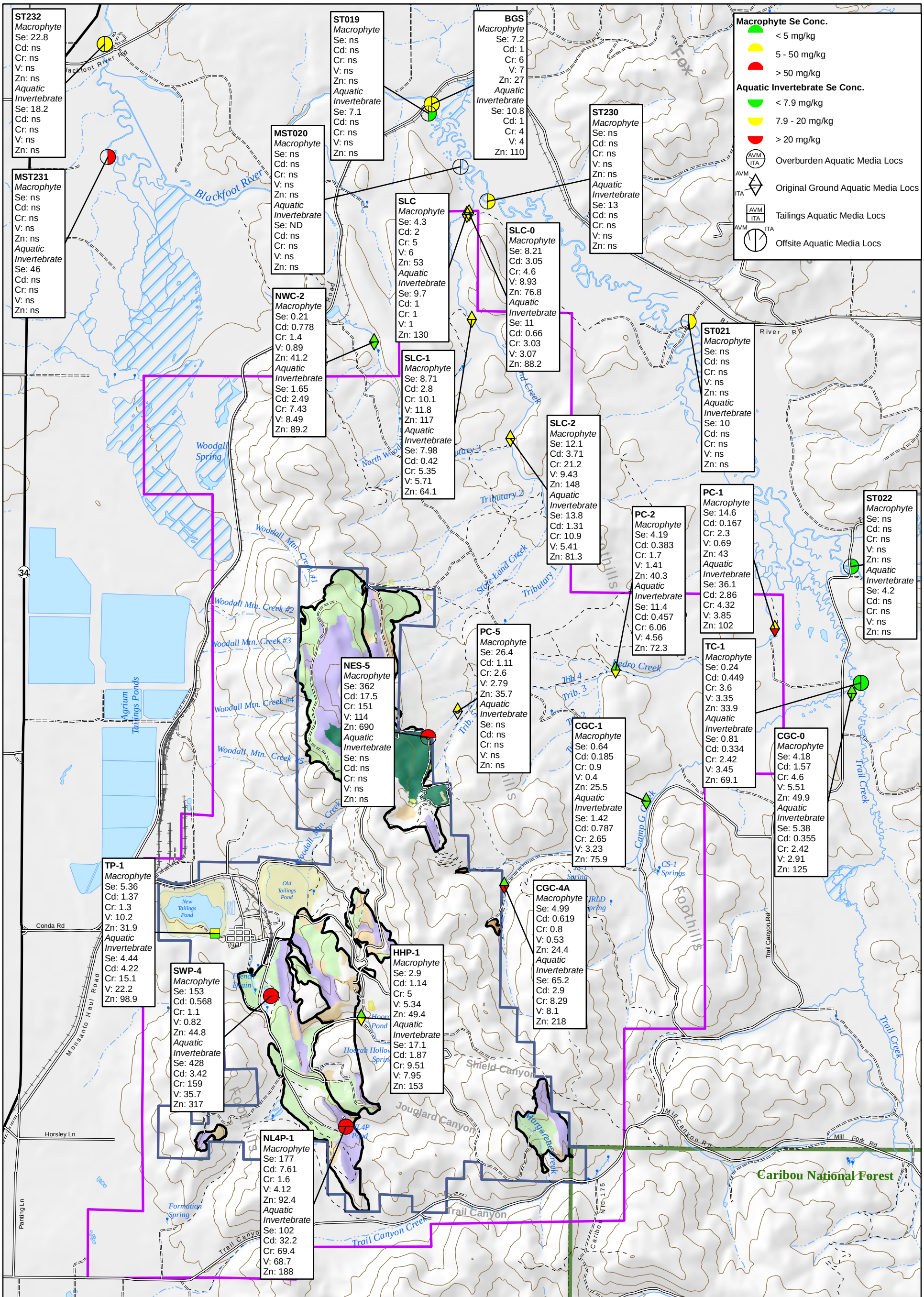
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-11
COMPARISON OF TERRESTRIAL INVERTEBRATE AND SMALL MAMMAL COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\1_RMM\RMM_Boxplot_AVMITA_MTITT.pptx



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Mine Panels

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

N

0 1,500 3,000

Feet

Notes:
- Overburden areas include in-pit ODAs and external to pit ODAs.
- Only Site locations relevant to the RMM analysis are shown on this figure.
- Figure includes all aquatic vegetation samples at each location.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

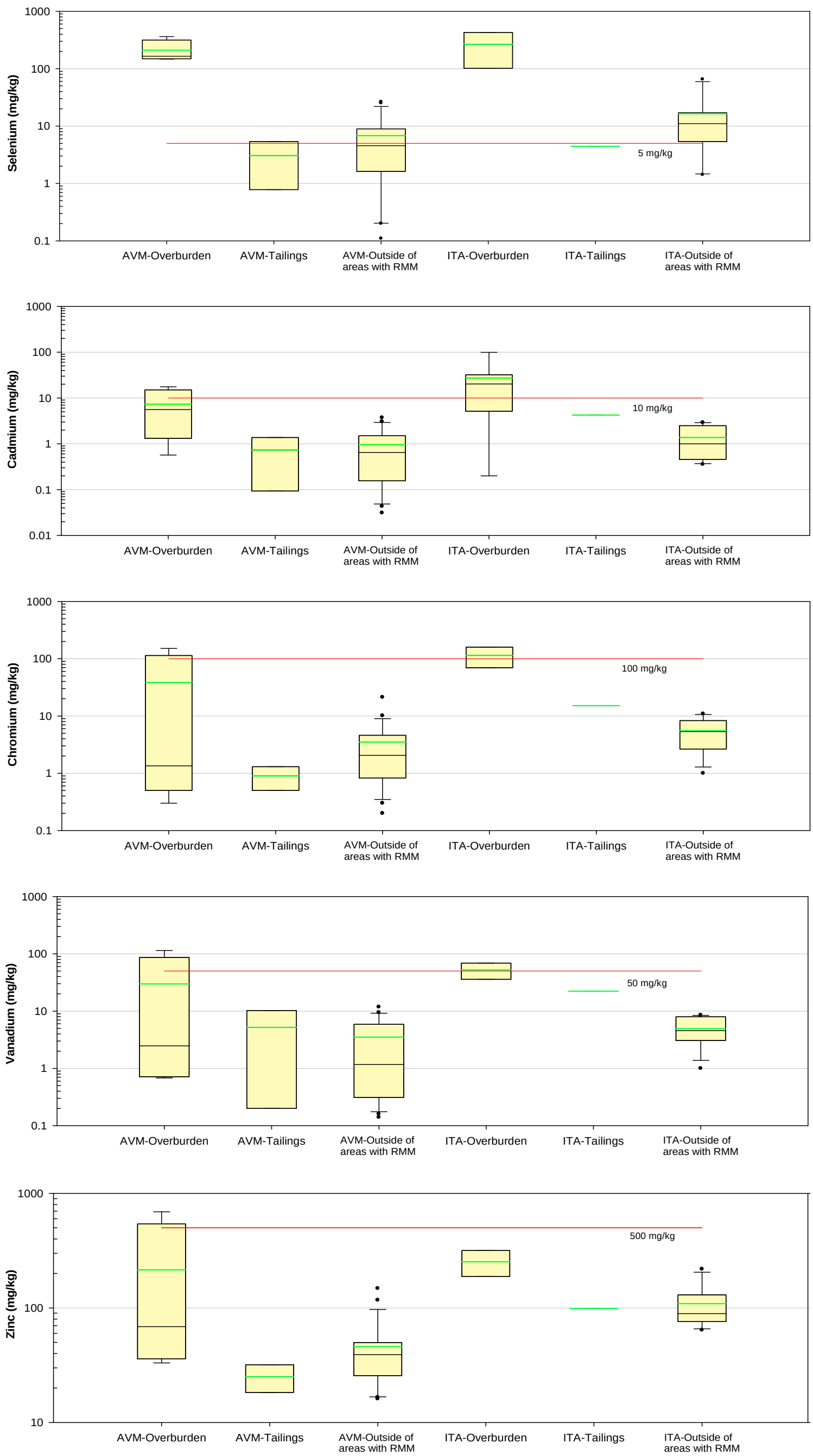
FIGURE 6-12

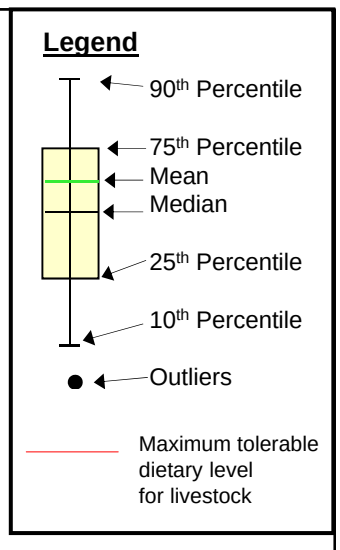
AQUATIC VEGETATION AND INVERTEBRATE COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: DEC 14, 2016
BY: KAM
FOR: RCR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-012_AVMITA_Se_RMM.mxd





NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using SigmaPlot.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Statistics include all aquatic vegetation samples at each location.
- Refer to Figure 6-12 for sampling locations and locations of Residual Mining Materials (RMM).
- Refer to Section 6 for maximum tolerable dietary levels for livestock.
- AVM = aquatic vegetation; ITA = aquatic invertebrates

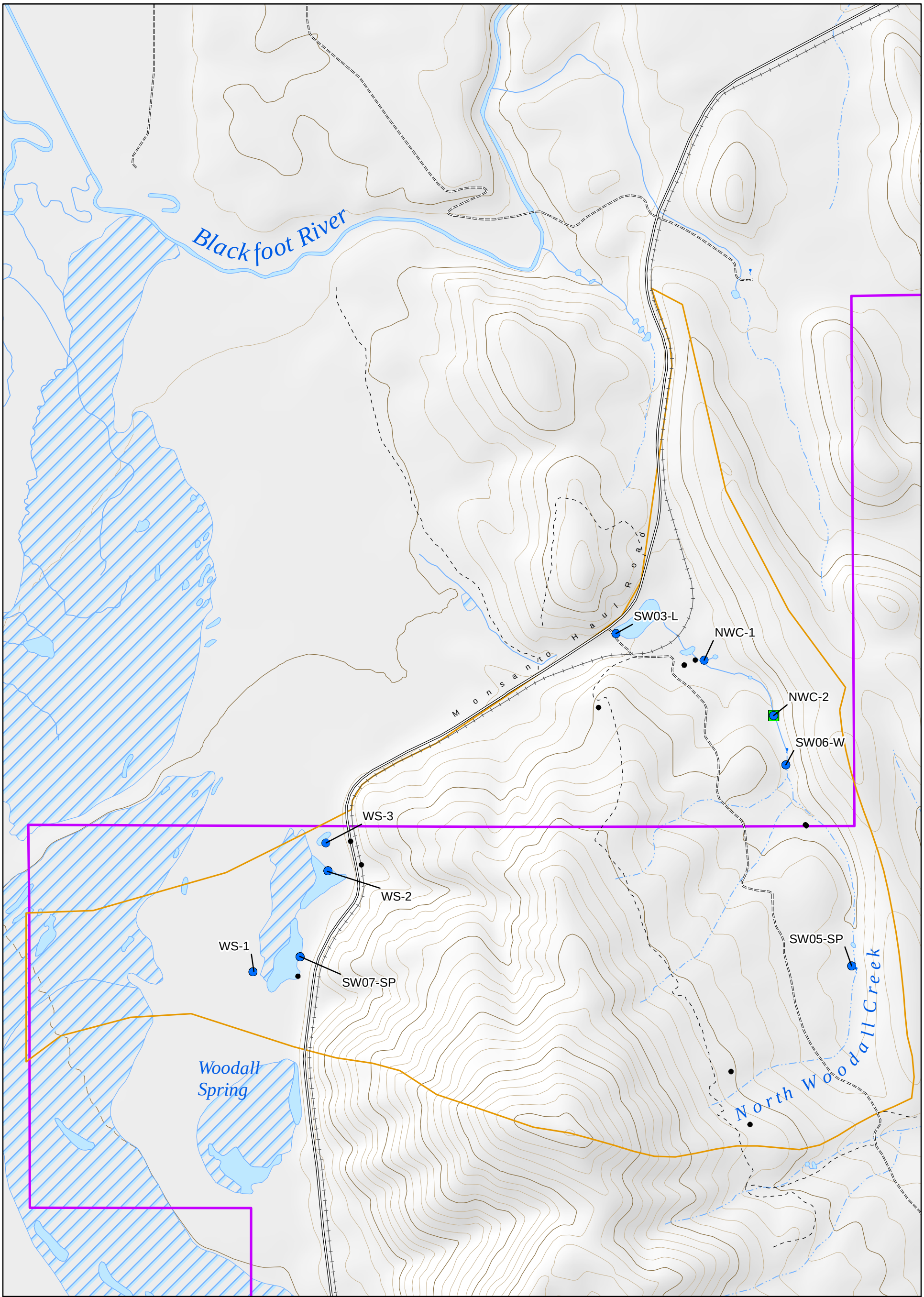
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-13
COMPARISON OF AQUATIC VEGETATION AND INVERTEBRATE COPC CONCENTRATIONS IN RESIDUAL MINING MATERIALS

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\1_RMM\RMM_Boxplot_AVMITA_MTITT.pptx



Legend

- Aquatic Monitoring Locations
- Riparian Monitoring Locations
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh
- Mine
- Non-Mine
- Sub-Basins

N

0 500 1,000
Feet

Note:
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

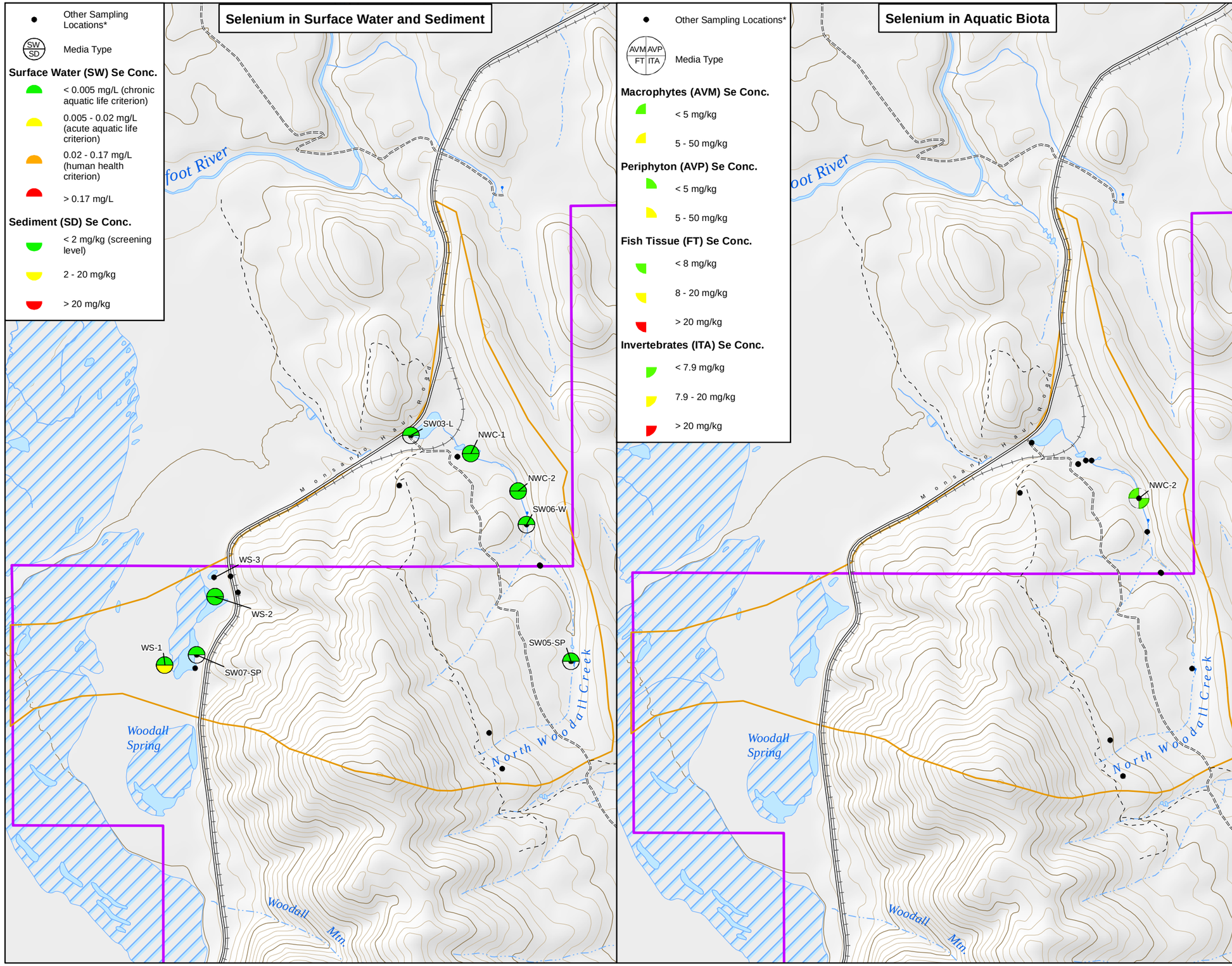
FIGURE 6-14

NORTH WOODALL MOUNTAIN SUB-BASIN AQUATIC AND RIPARIAN MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-014_NorthWoodallLocs.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,250 2,500
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

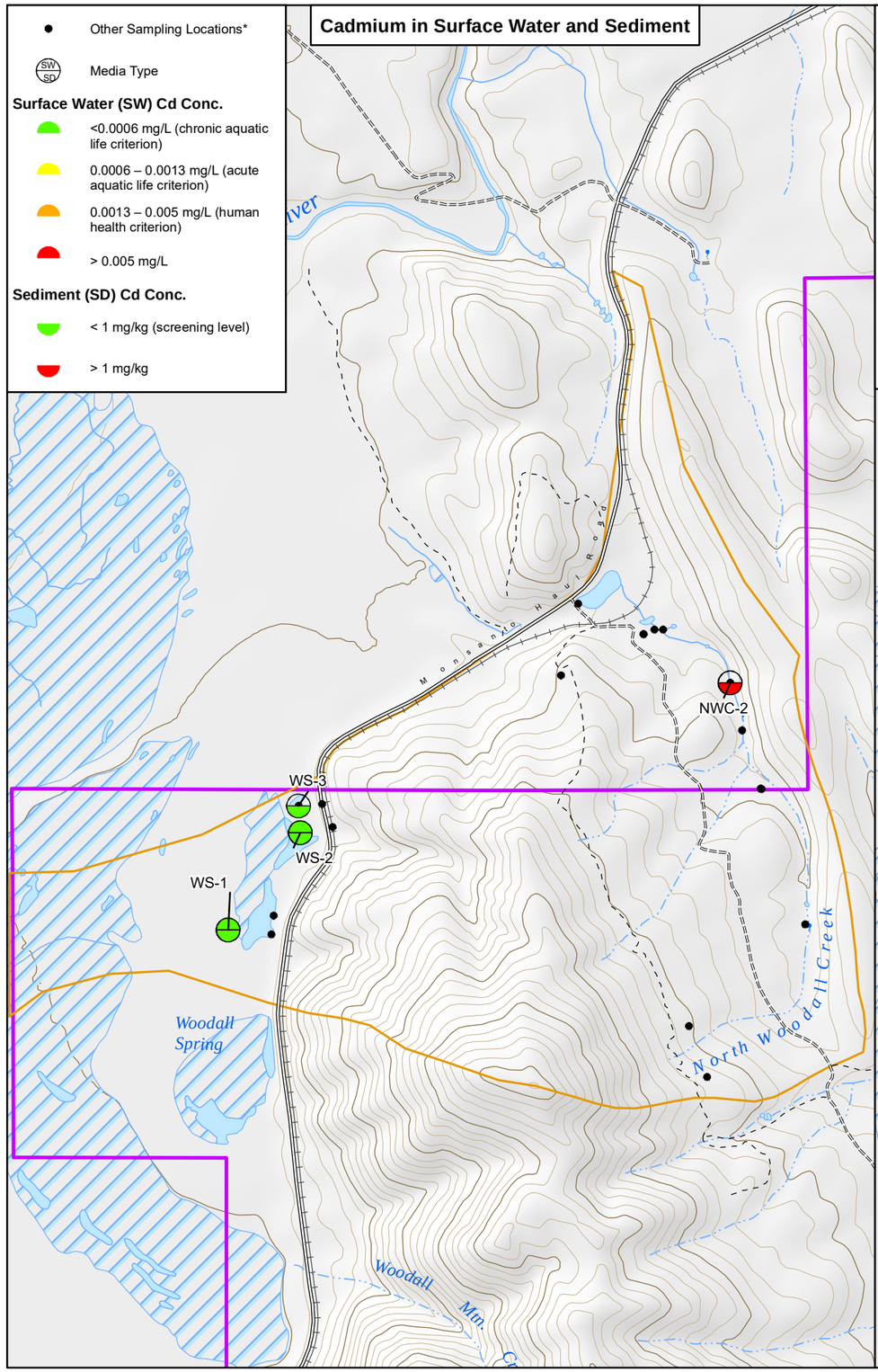
FIGURE 6-15

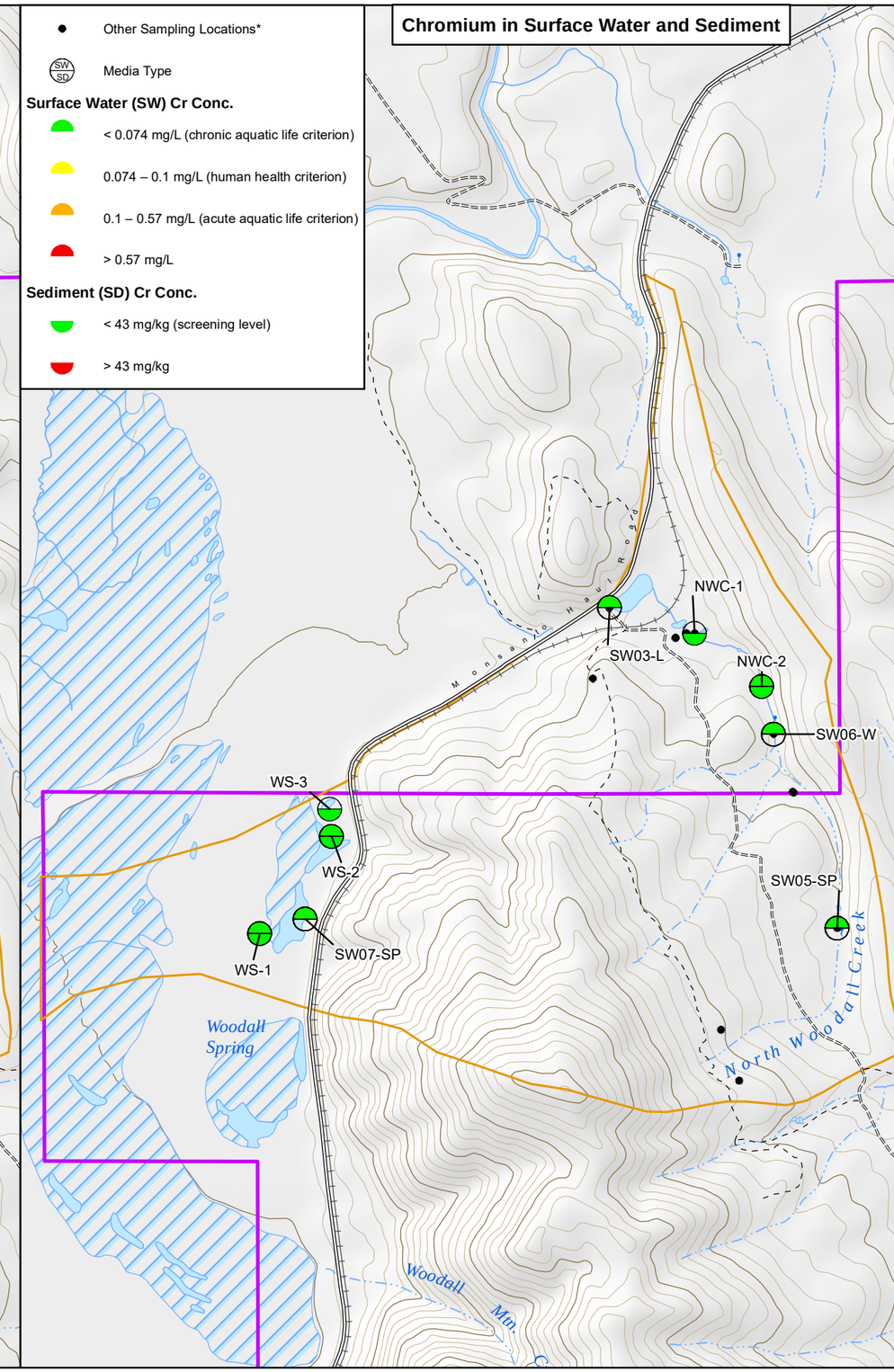
NORTH WOODALL MOUNTAIN SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-015_NorthWoodallSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,250 2,500
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

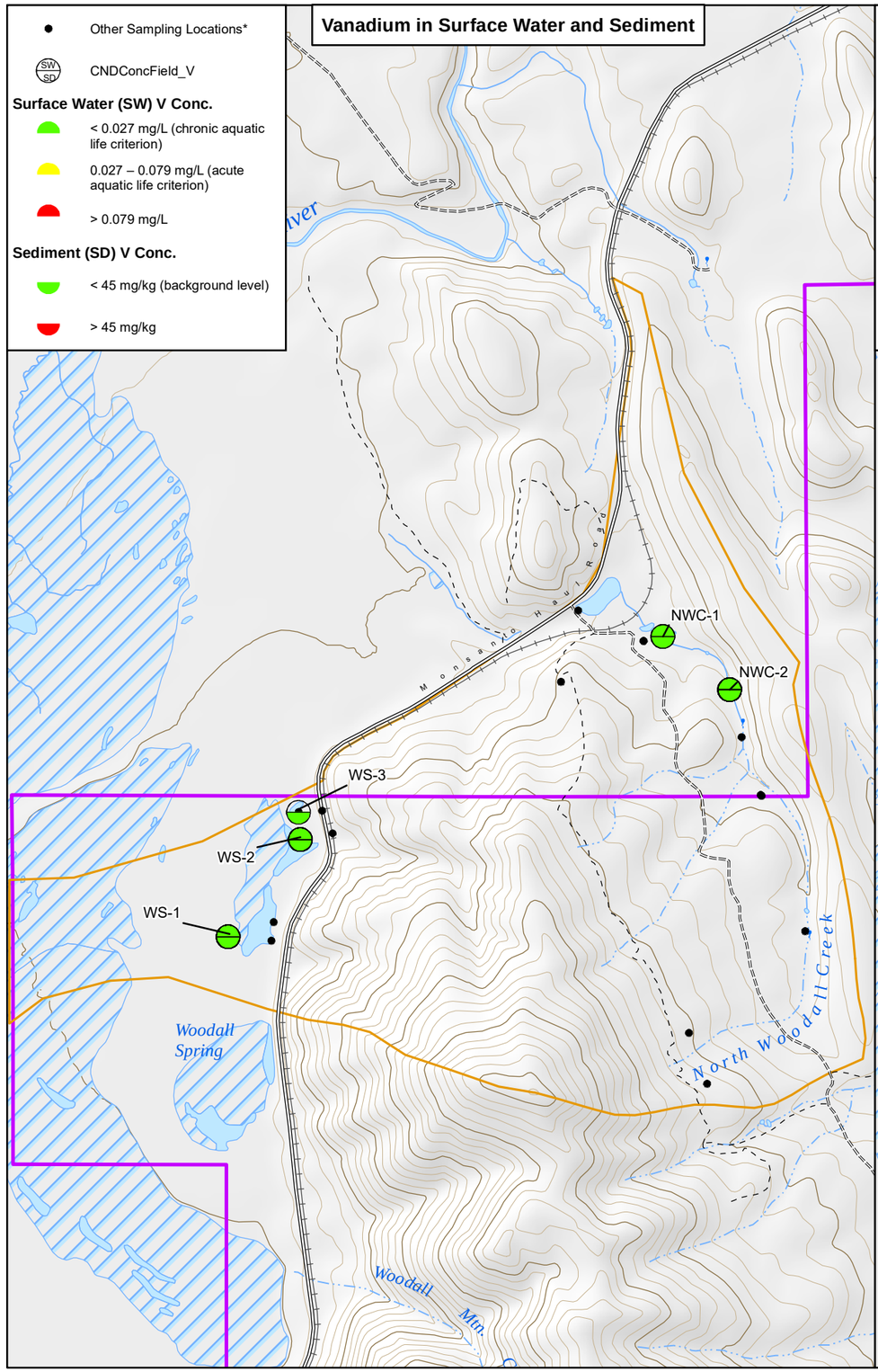
FIGURE 6-16

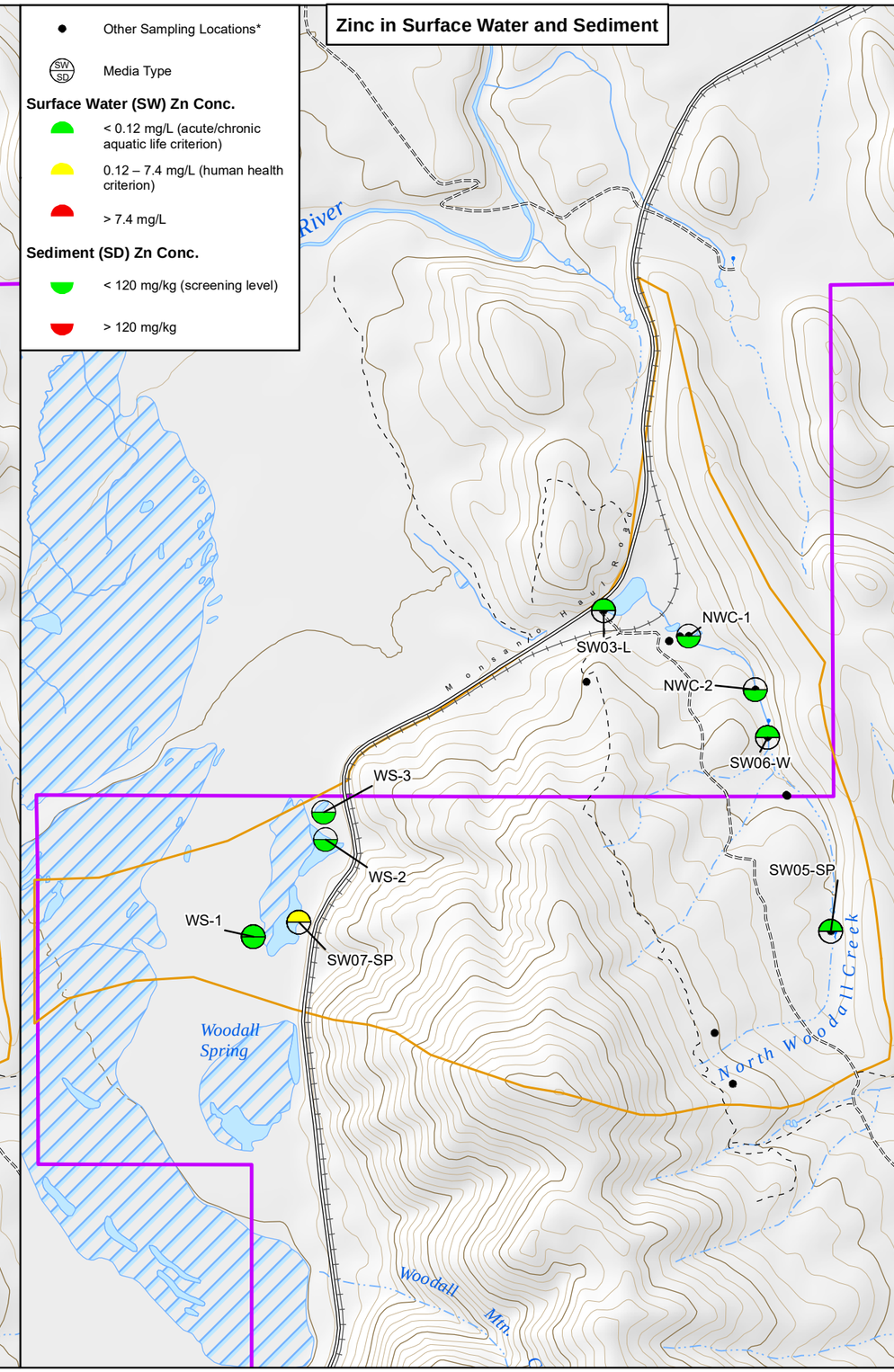
NORTH WOODALL MOUNTAIN SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-016_NorthWoodall_CdCr_ConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,250 2,500
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

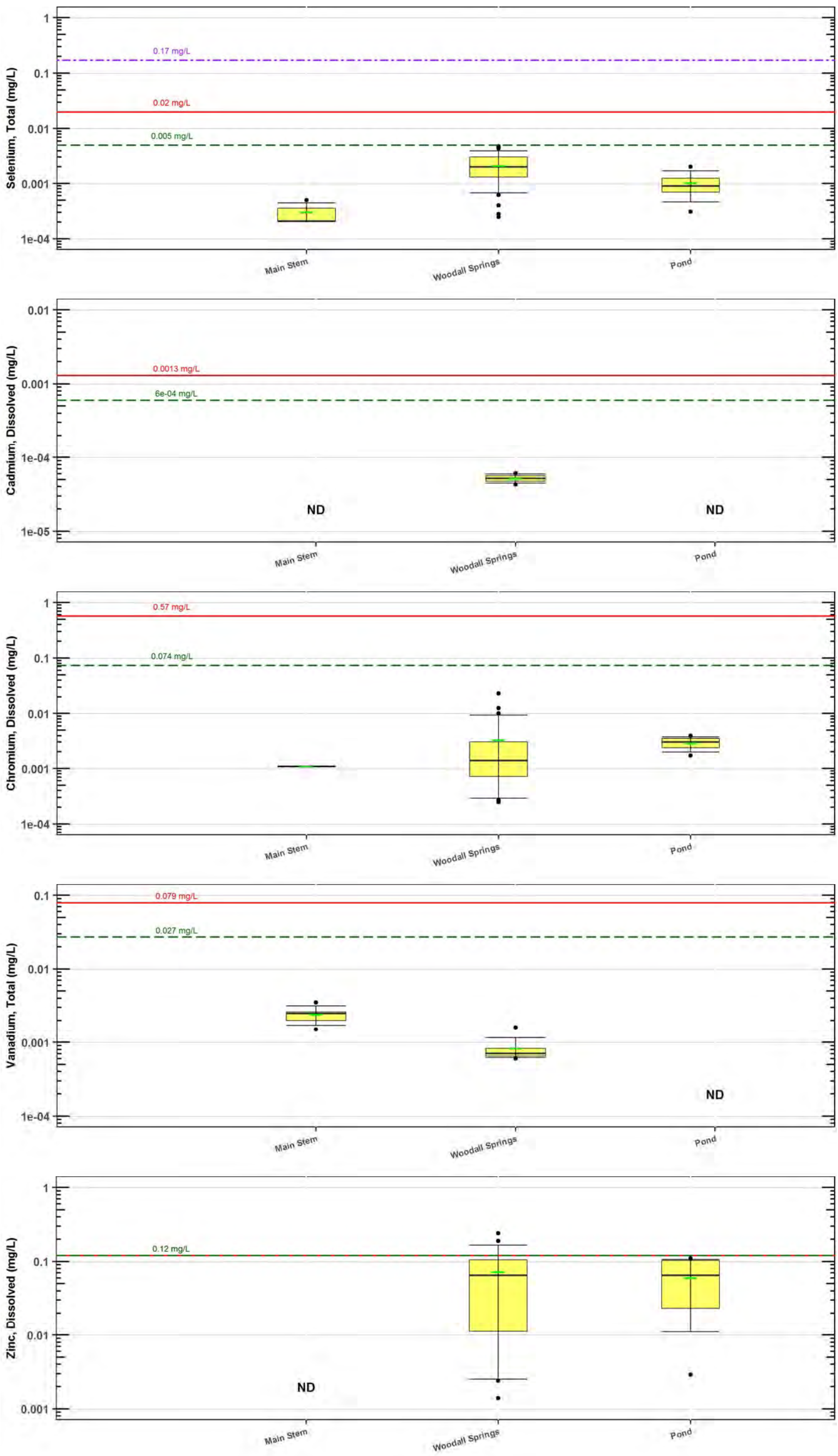
FIGURE 6-17

NORTH WOODALL MOUNTAIN SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pl\RI_2016\Fig_6-017_NorthWoodall_VZn_ConcAq.mxd



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- ND Non-detects

Location	Station
Main Stem	NWC-1
	NWC-2
Woodall Springs	SW05-SP
	SW06-W
	SW07-SP
	WS-1
	WS-2
	WS-3
Pond	SW03-L

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-18

NORTH WOODALL MOUNTAIN SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\NorthWoodall\NorthWoodall_Boxplot.ppt

Other Sampling Locations*

SSL SBSL VG Media Type

Surface Soil (SSL) Se Conc.

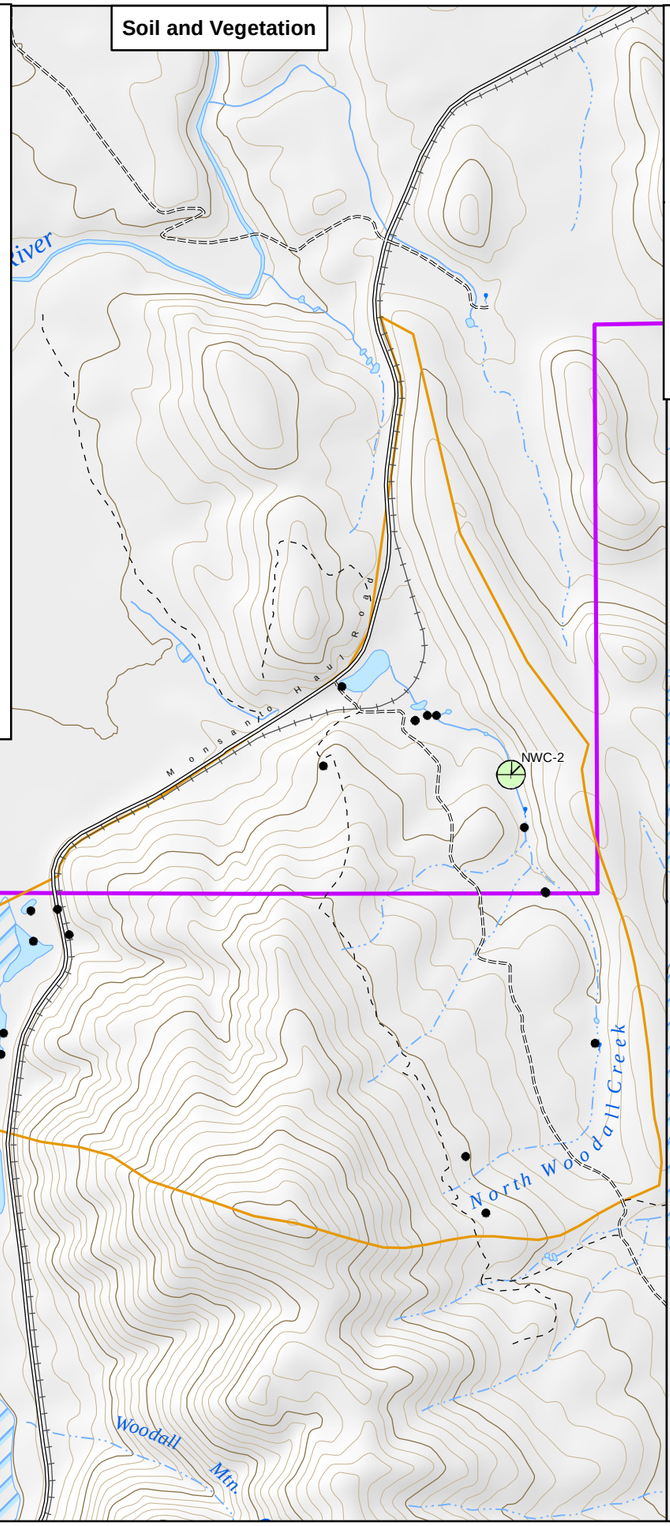
- < 0.52 mg/kg (ecological screening level)
- 0.52 - 4.7 mg/kg
- 4.7 - 47 mg/kg
- > 47 mg/kg

SubSurface Soil (SBSL) Se Conc.

- < 0.52 mg/kg (ecological screening level)
- 0.52 - 4.7 mg/kg
- 4.7 - 47 mg/kg
- > 47 mg/kg

Vegetation (VG) Se Conc.

- < 1 mg/kg
- 1 - 5 mg/kg
- 5 - 50 mg/kg
- > 50 mg/kg



Other Sampling Locations*

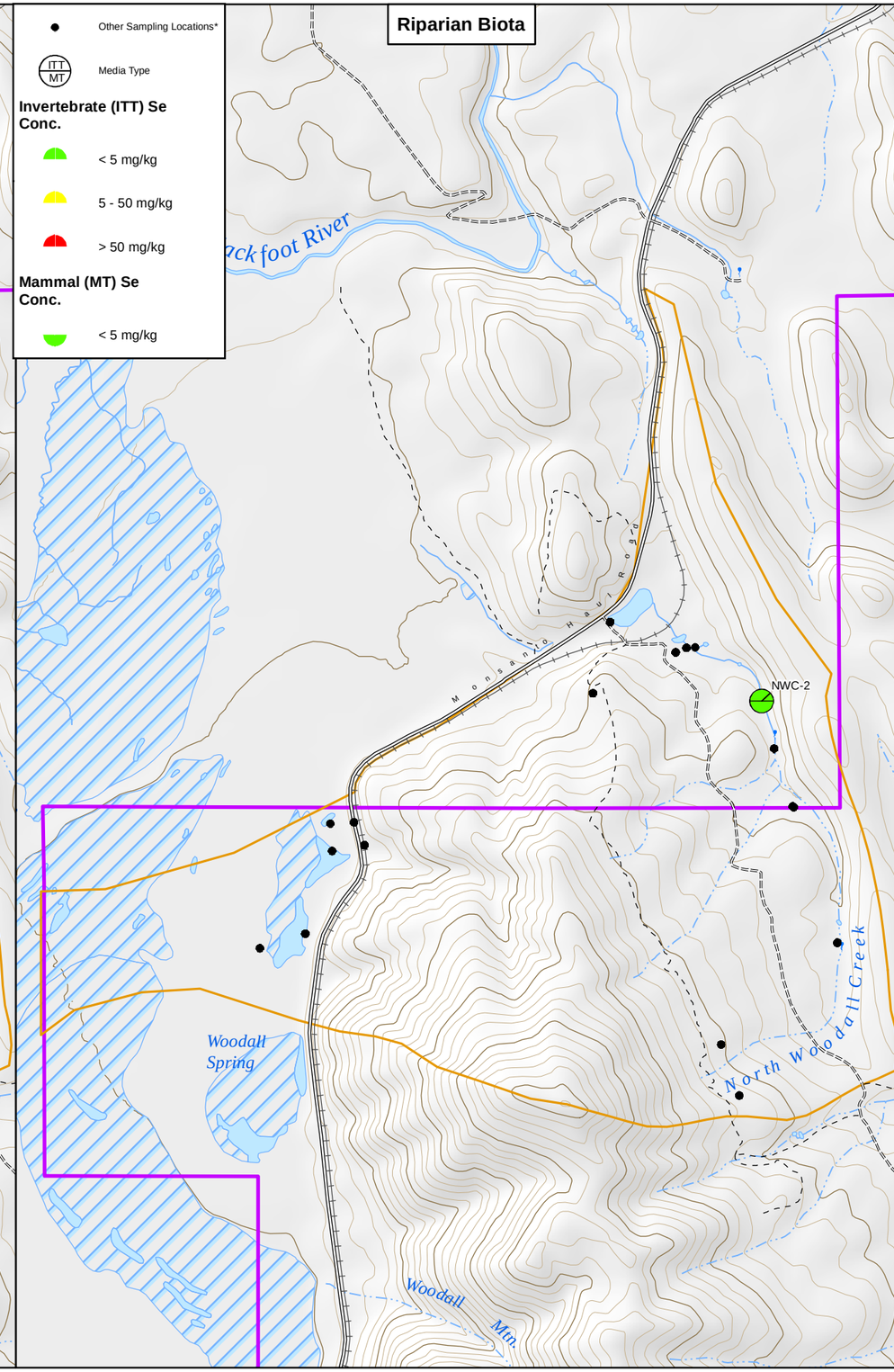
ITT MT Media Type

Invertebrate (ITT) Se Conc.

- < 5 mg/kg
- 5 - 50 mg/kg
- > 50 mg/kg

Mammal (MT) Se Conc.

- < 5 mg/kg



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine
- Non-Mine
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

N

0 1,500 3,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

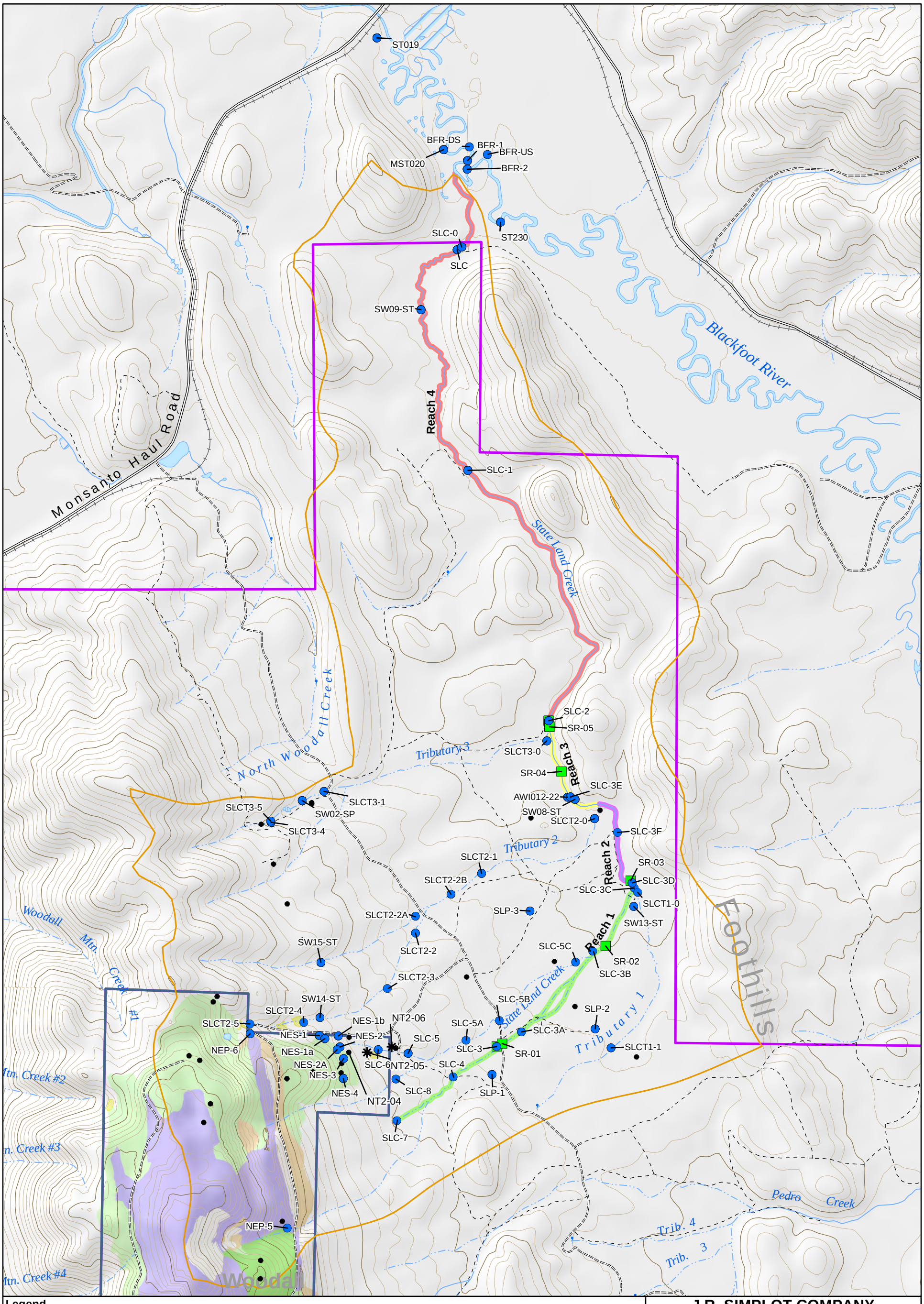
FIGURE 6-19

NORTH WOODALL MOUNTAIN SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN RIPARIAN MEDIA

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-019_NorthWoodallSeConcRip.mxd



J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

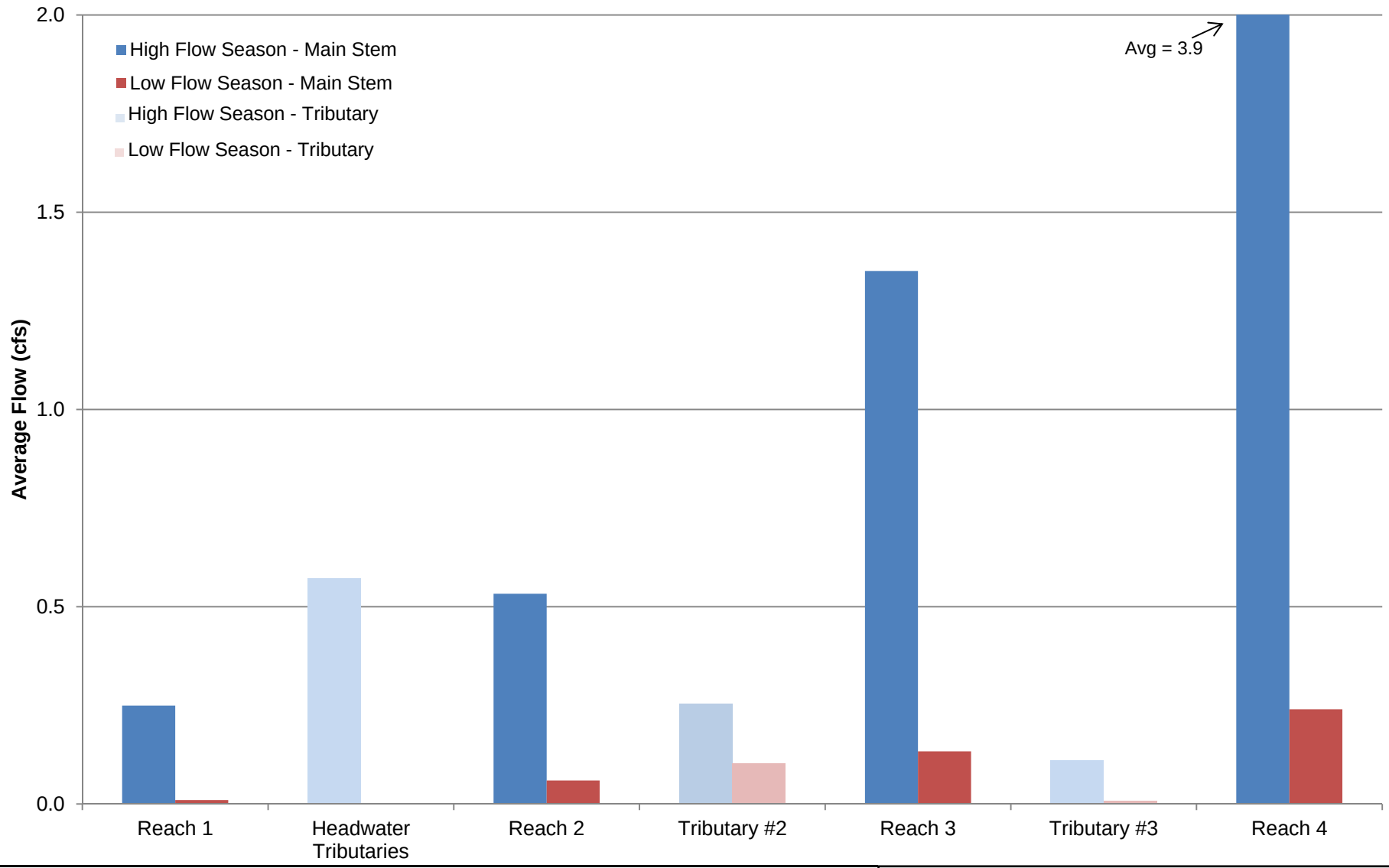
FIGURE 6-20

STATE LAND CREEK SUB-BASIN AQUATIC AND RIPARIAN MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-020_StateLandCreekLocs.mxd



Notes:

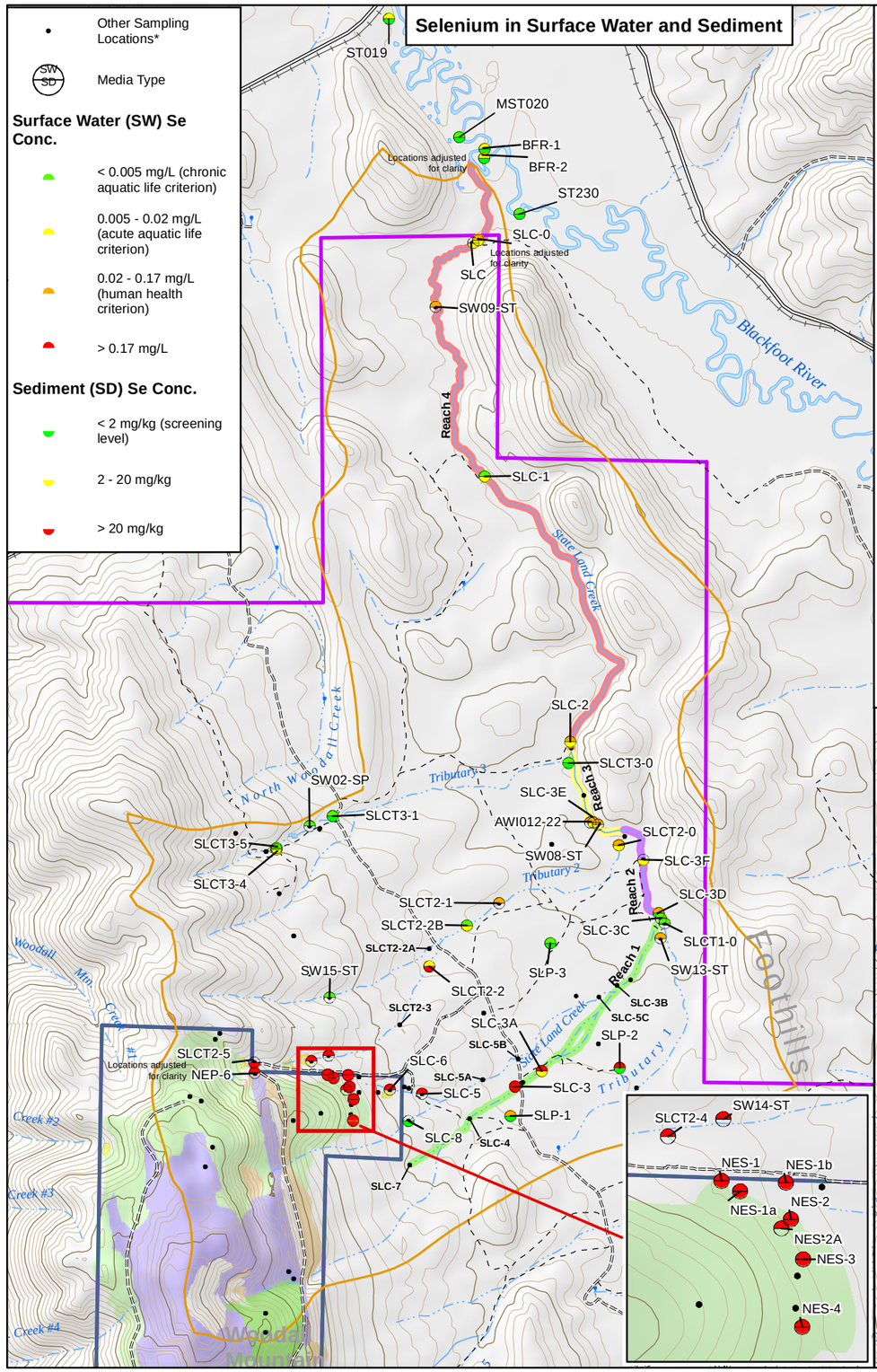
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

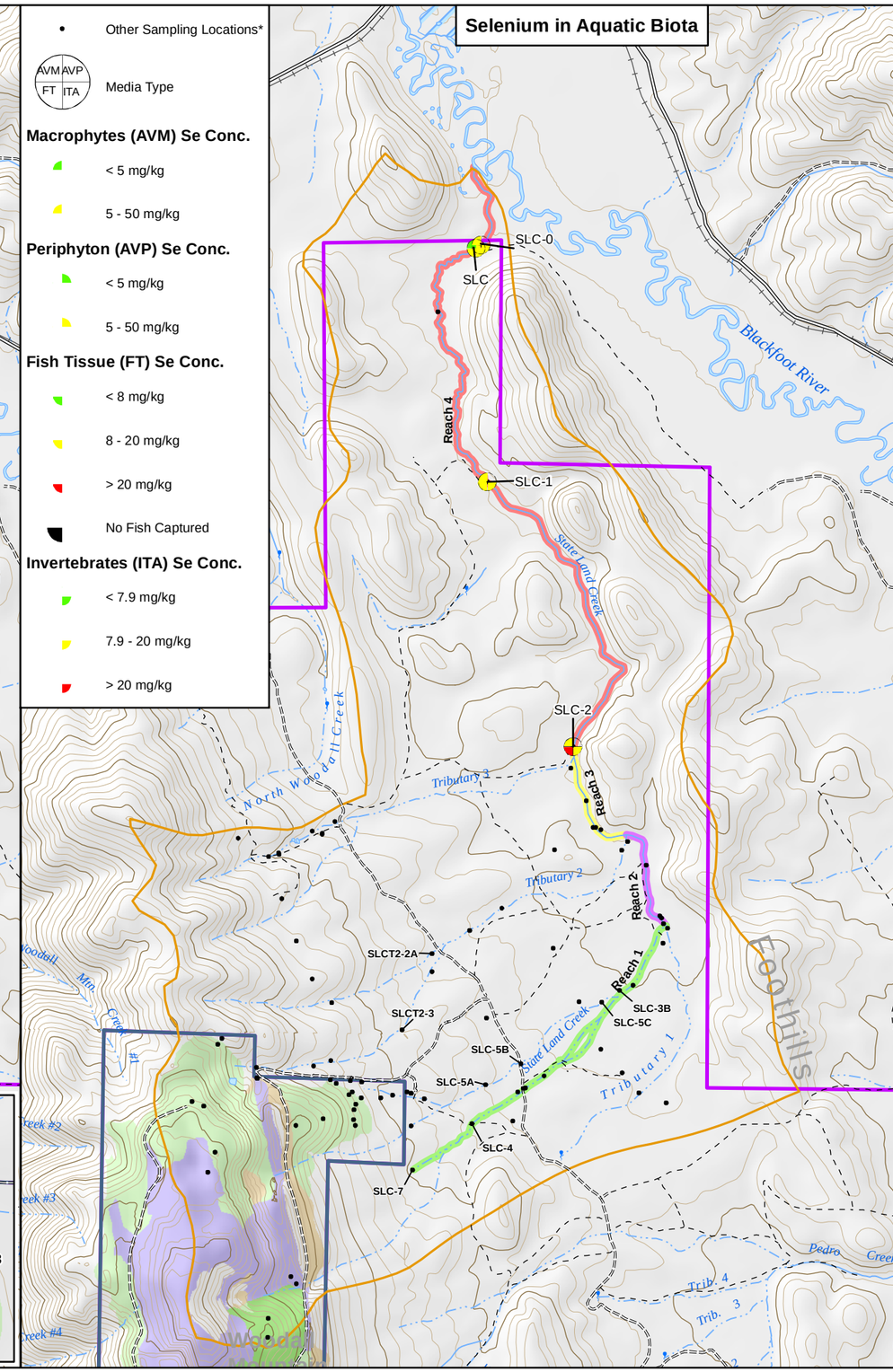
FIGURE 6-21
STATE LAND CREEK AVERAGE FLOWS BY REACH SEGMENT AND FLOW SEASON

DATE: DEC 13, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V2\TRANSPORTANALYSES\STATELAND\FIG6-X_SLCCHARTFLOW.PPTX





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Locations BFR-1 and BFR-2 include data collected in June 2011 from temporary high-flow sampling locations BFR-DS and BFR-US, respectively.

0 1,500 3,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

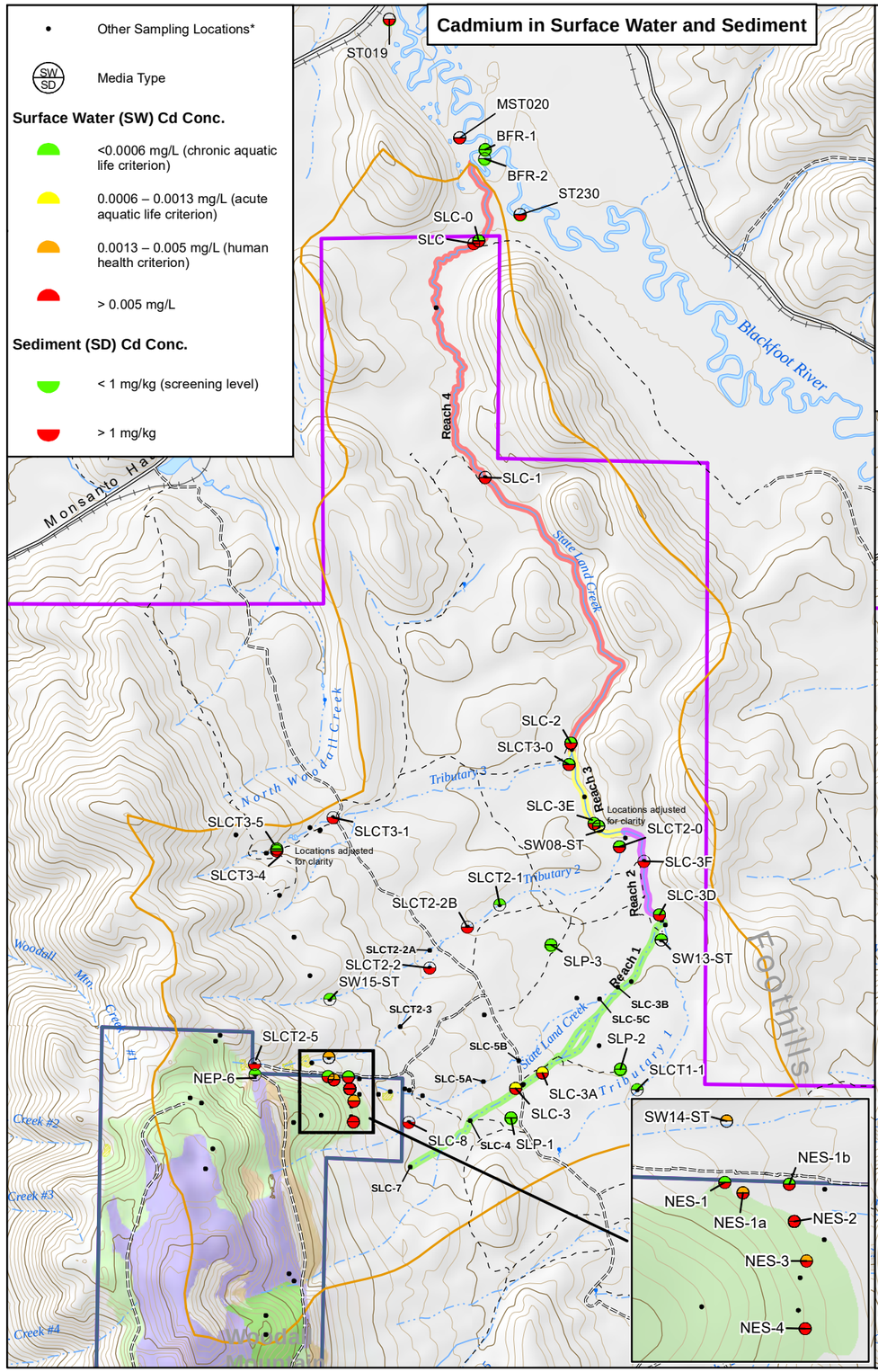
FIGURE 6-22

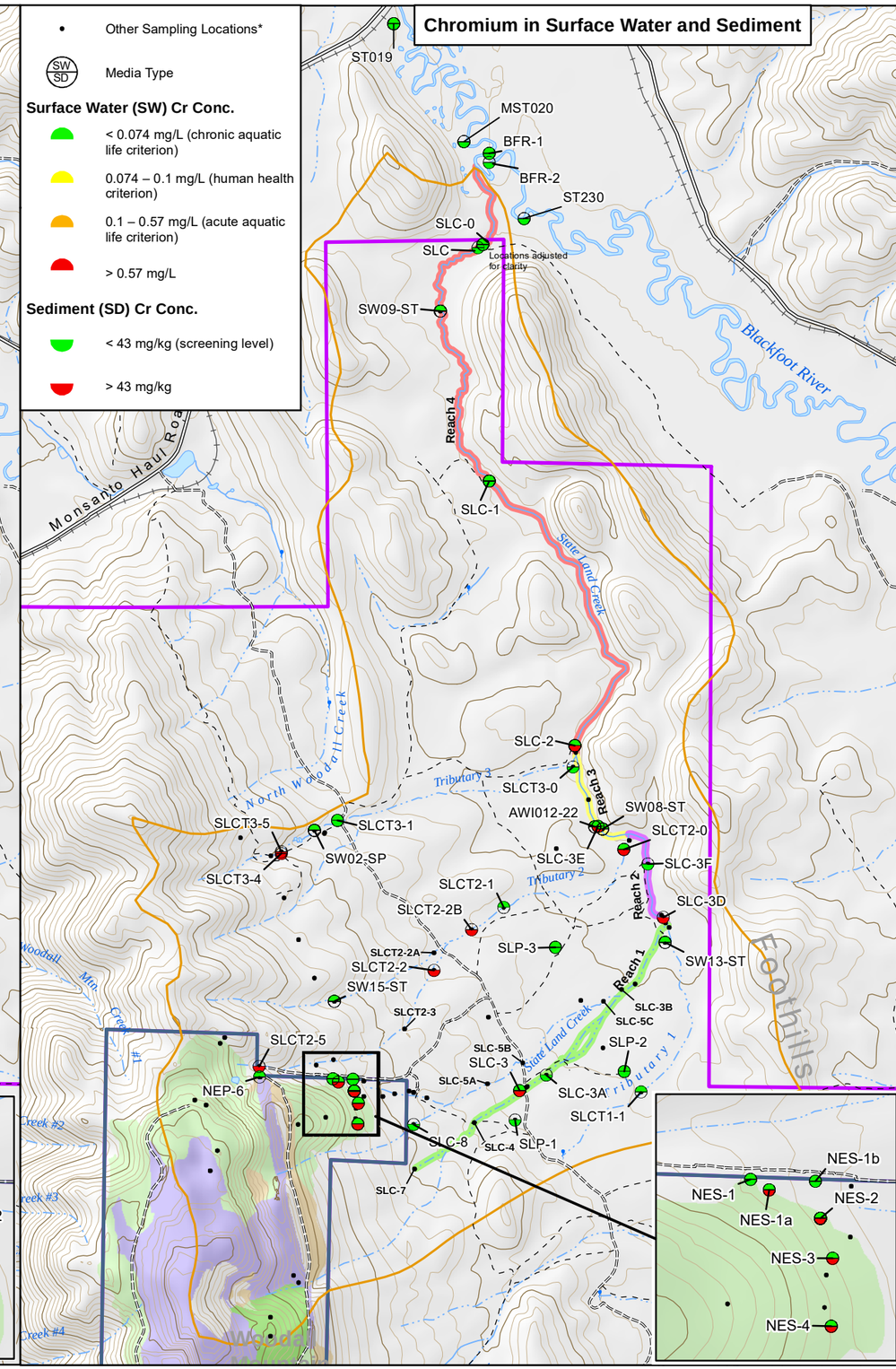
STATE LAND CREEK SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpro\2\010139\pl\RI_2016\Fig_6-022_StateLandCreekSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins
- Reach 1
- Reach 2
- Reach 3
- Reach 4

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Locations BFR-1 and BFR-2 include data collected in June 2011 from temporary high-flow sampling locations BFR-DS and BFR-US, respectively.

0 2,200 4,400
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

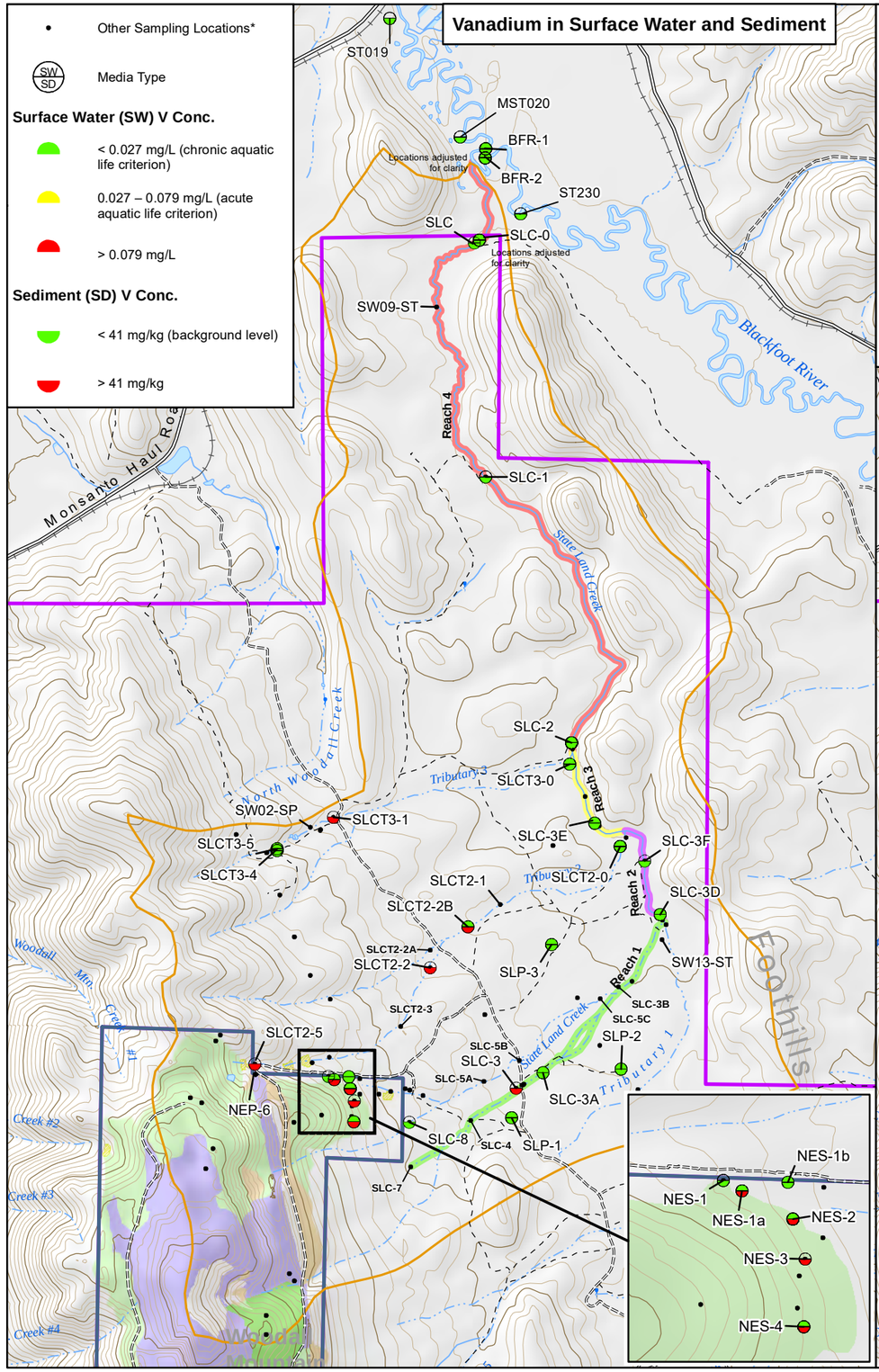
FIGURE 6-23

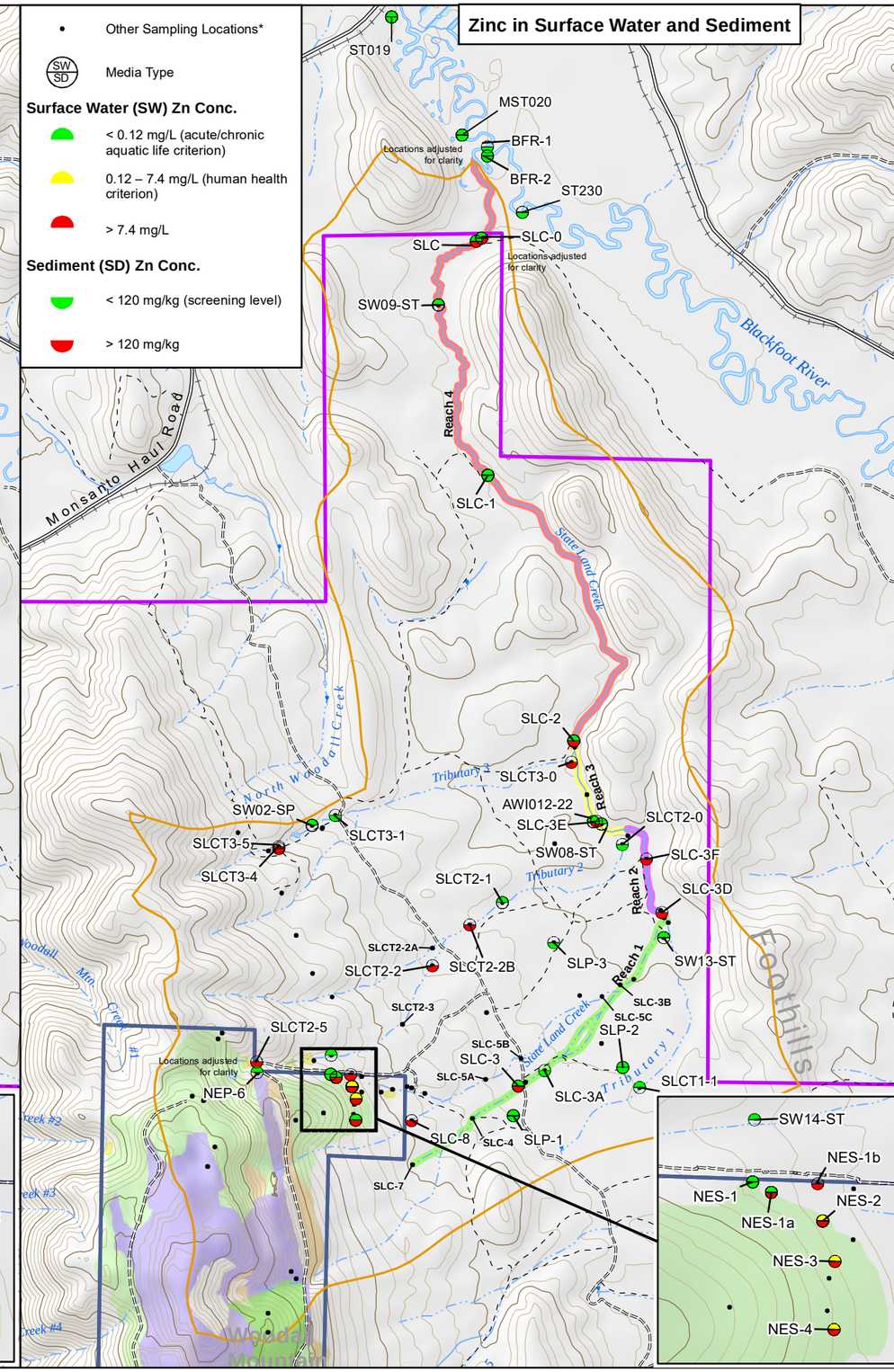
STATE LAND CREEK SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-023_StateLandCreek_CdCr_ConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins
- Reach 1
- Reach 2
- Reach 3
- Reach 4

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Locations BFR-1 and BFR-2 include data collected in June 2011 from temporary high-flow sampling locations BFR-DS and BFR-US, respectively.

0 2,200 4,400
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

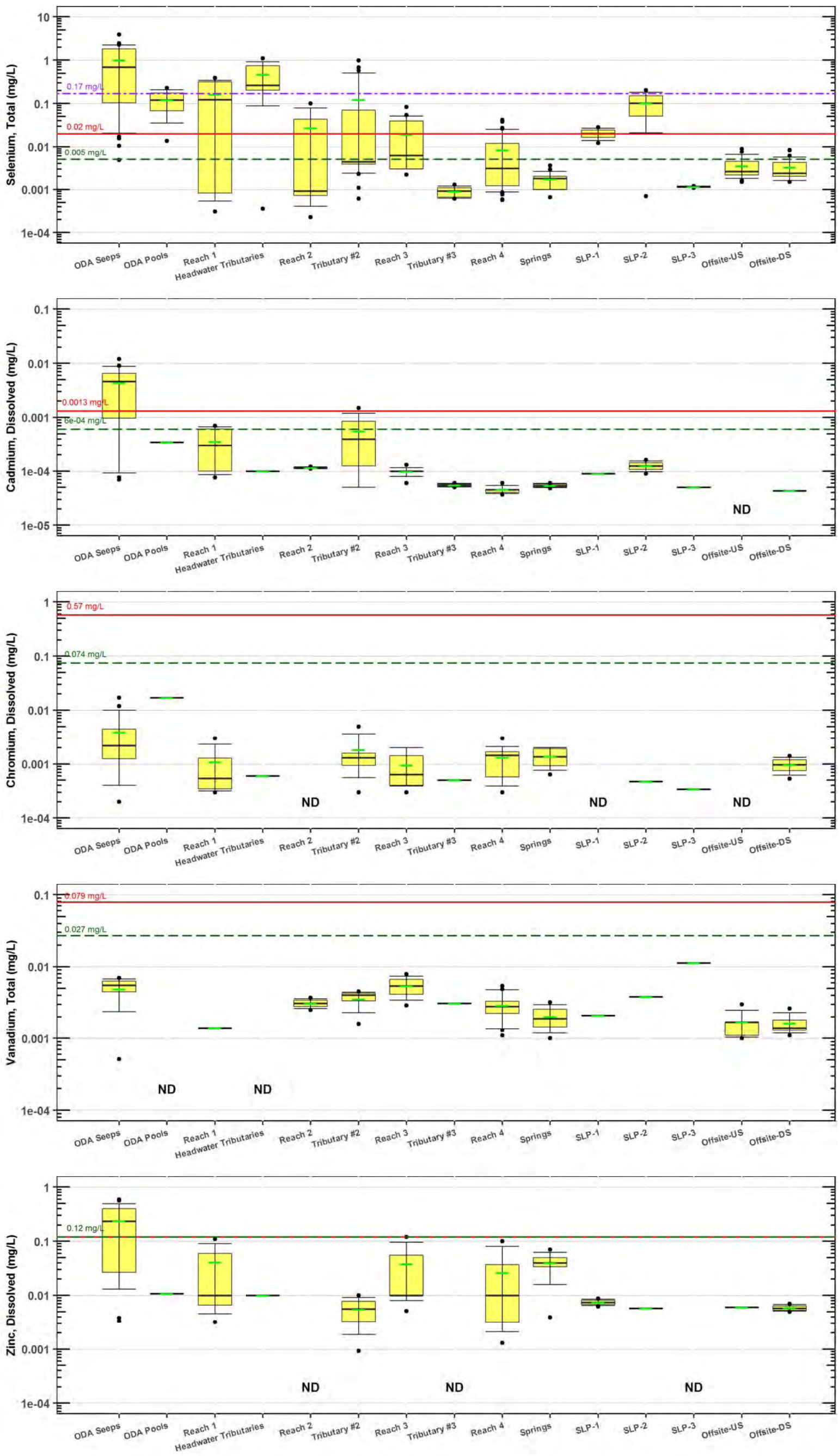
FIGURE 6-24

STATE LAND CREEK SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-024_StateLandCreek_VZn_ConcAq.mxd



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- **ND** Non-detects

Location	Station
ODA Seeps	NES-1
	NES-1a
	NES-1b
	NES-2
	NES-2A
	NES-3
	NES-4
ODA Pools	NEP-6
Reach 1	SLC-3
	SLC-3A
	SLC-3C
	SW13-ST
Headwater Tributaries	SLC-5
	SLC-6
	SLCT1-0
	SLCT1-1
Reach 2	SLC-3D
Tributary #2	SLCT2-0
	SLCT2-1
	SLCT2-2
	SLCT2-2B
	SLCT2-4
	SW14-ST
	SW15-ST
Reach 3	AWI012-22
	SLC-3E
	SW08-ST
Tributary #3	SLCT3-0
	SLCT3-1
Reach 4	SLC
	SLC-0
	SLC-1
	SLC-2
	SW09-ST
Springs	SLCT3-4
	SLCT3-5
	SW02-SP
SLP-1	SLP-1
SLP-2	SLP-2
SLP-3	SLP-3
Offsite-US	BFR-2
	BFR-US
	ST230
Offsite-DS	BFR-1
	BFR-DS
	MST020
	ST019

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for water quality criteria and standards.
- Locations BFR-1 and BFR-2 include data collected in June 2011 from temporary high-flow sampling locations BFR-DS and BFR-US, respectively.
- Offsite-US = Blackfoot River upstream of State Land Creek confluence.
- Offsite-DS = Blackfoot River downstream of State Land Creek confluence.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

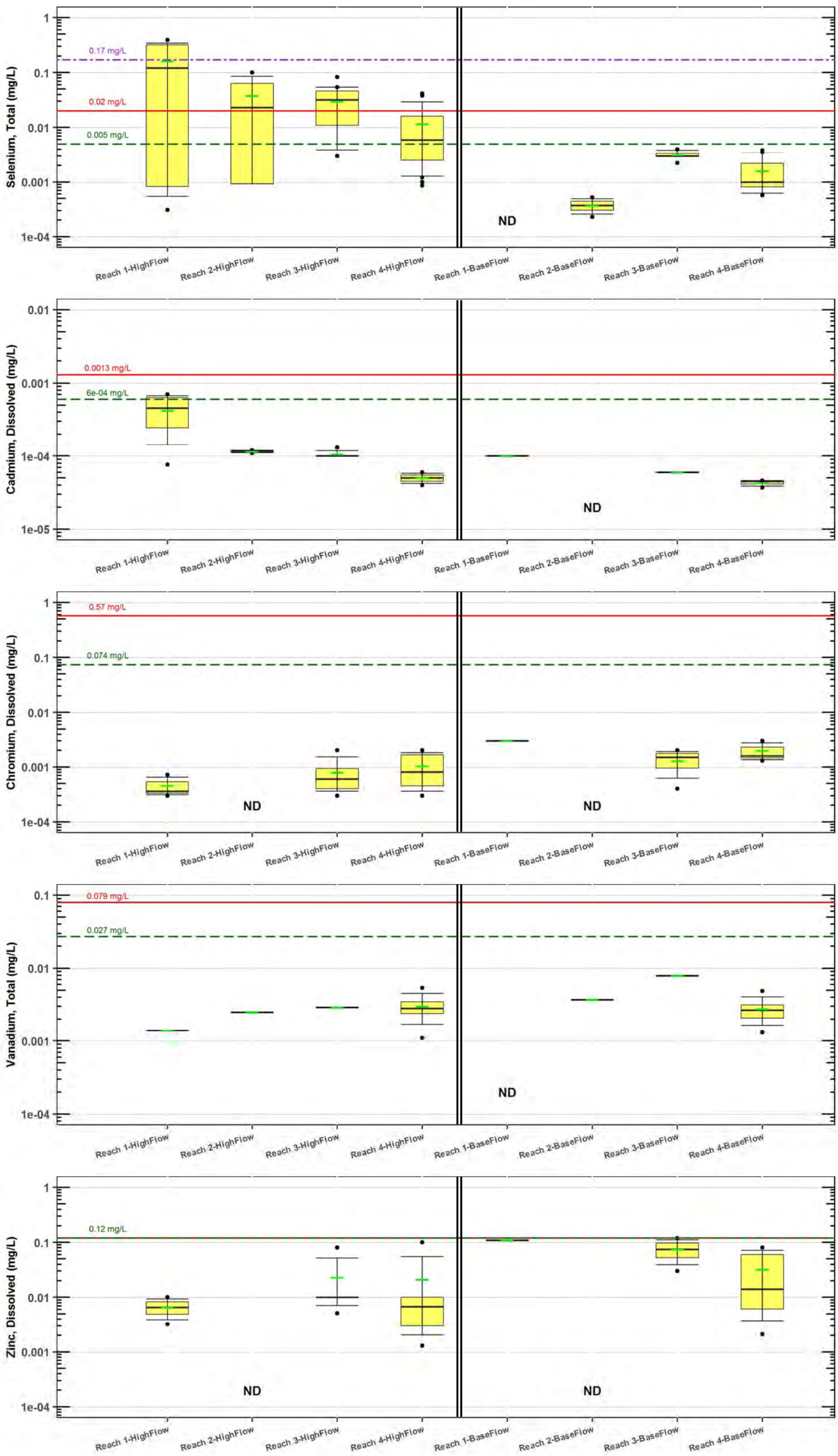
FIGURE 6-25

STATE LAND CREEK SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\StateLand\StateLand_Boxplot.ppt



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- **ND** Non-detects

Location	Station
Reach 1	SLC-3
	SLC-3A
	SLC-3C
	SW13-ST
Reach 2	SLC-3D
Reach 3	AWI012-22
	SLC-3E
	SW08-ST
Reach 4	SLC
	SLC-0
	SLC-1
	SLC-2
	SW09-ST

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for water quality criteria and standards.

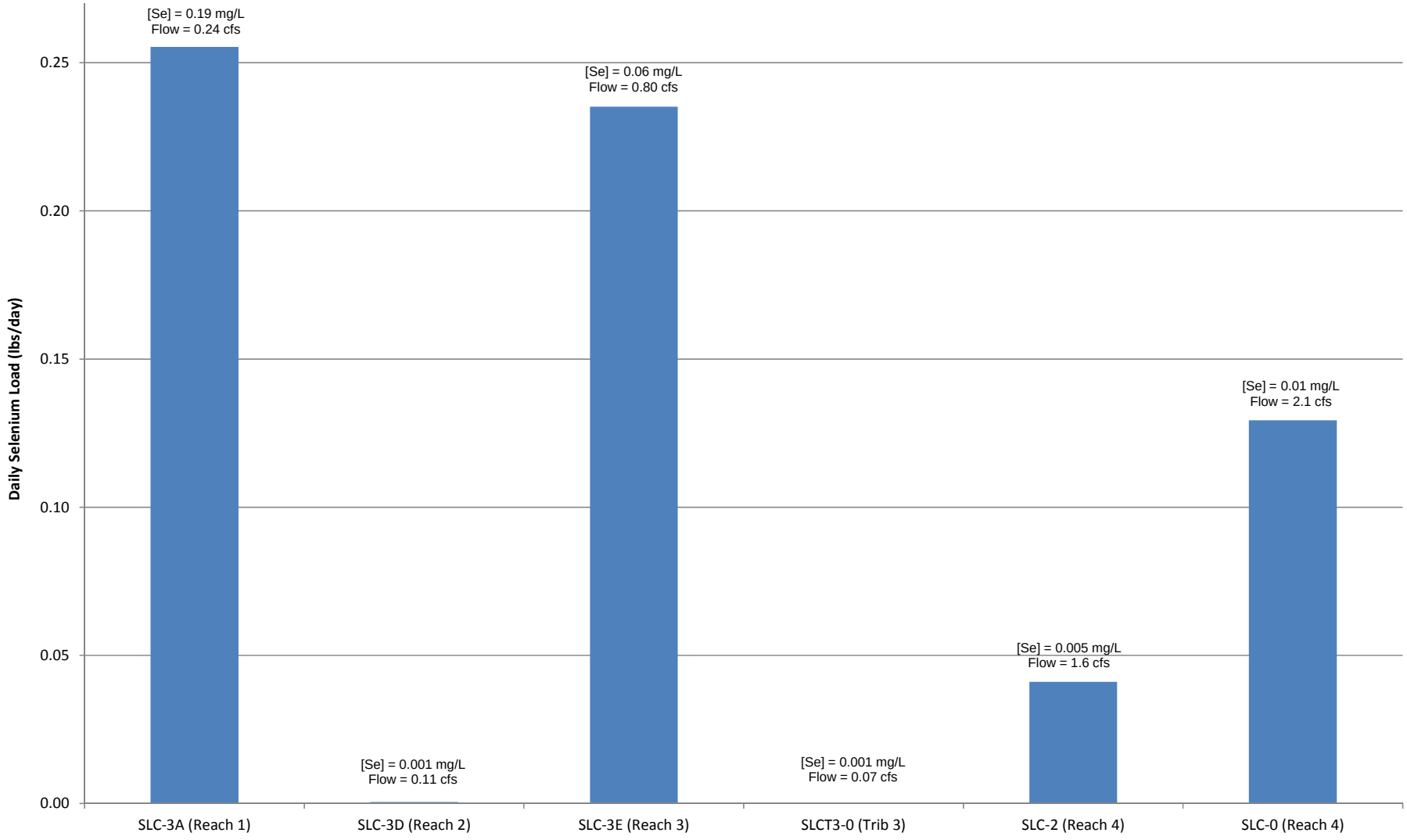
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-26
STATE LAND CREEK
SURFACE WATER COPC CONCENTRATIONS
BY REACH SEGMENT AND FLOW SEASON

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_Boxplot\Upd\StateLand\StateLand_Boxplot.ppt



Notes:

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-27

STATE LAND CREEK SPRING-FLOW SELENIUM LOADS IN 2009

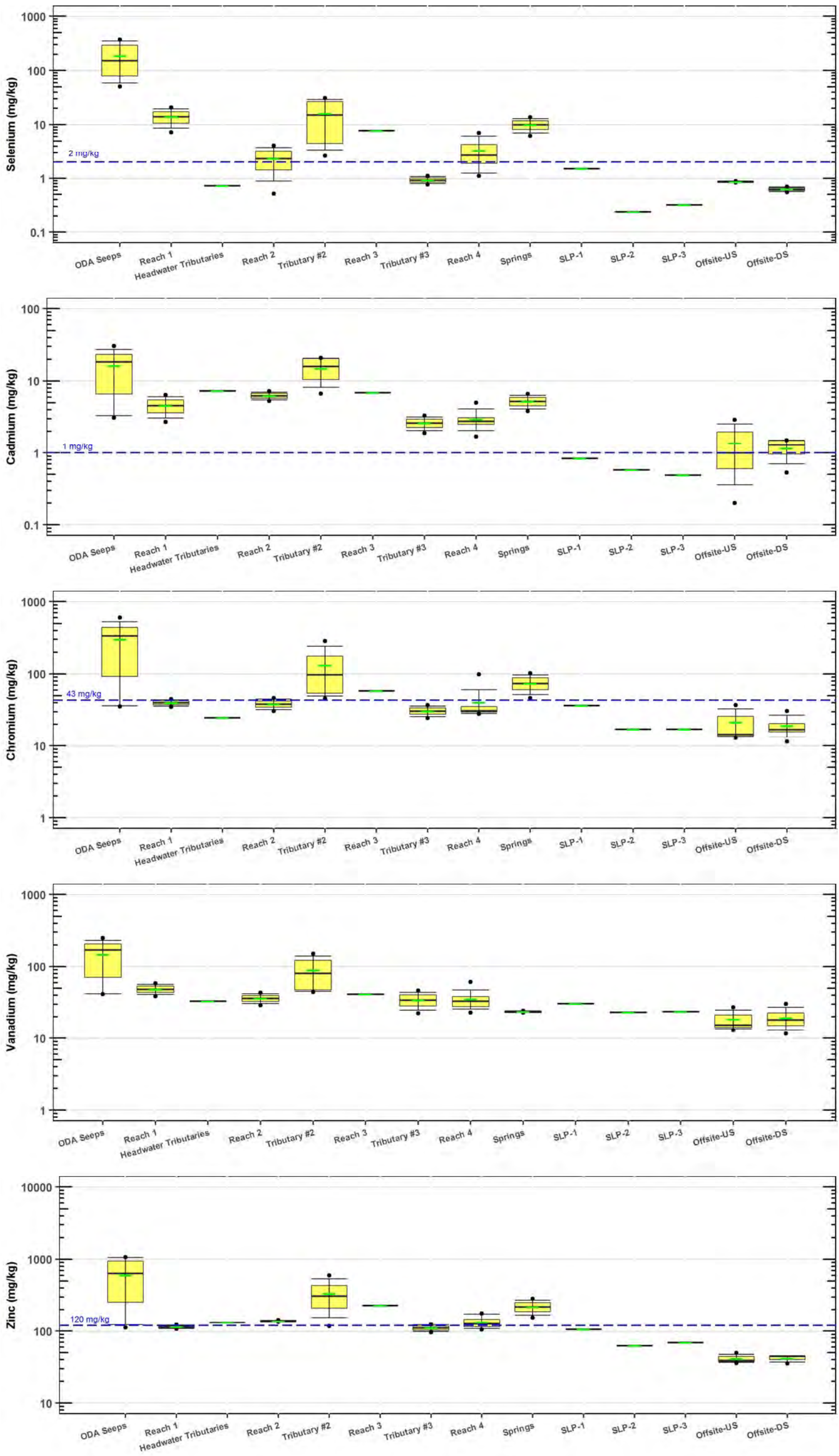
DATE: DEC 2016

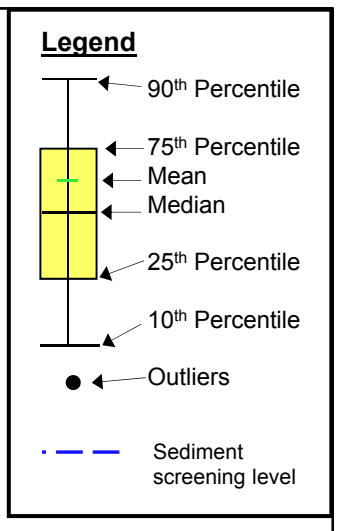
BY: KAM

FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V2\TRANSPORTANALYSES\STATELAND\FIG6-X_SLCCHART.PPTX





Location	Station
ODA Seeps	NES-1
	NES-1a
	NES-1b
	NES-2
	NES-3
	NES-4
Reach 1	SLC-3
	SLC-3A
Headwater Tributaries	SLC-8
Reach 2	SLC-3D
	SLC-3F
Tributary #2	SLCT2-0
	SLCT2-2
	SLCT2-2B
	SLCT2-5
Reach 3	SLC-3E
Tributary #3	SLCT3-0
	SLCT3-1
Reach 4	SLC
	SLC-0
	SLC-1
	SLC-2
Springs	SLCT3-4
	SLCT3-5
SLP-1	SLP-1
SLP-2	SLP-2
SLP-3	SLP-3
Offsite-US	BFR-2
	ST230
Offsite-DS	BFR-1
	MST020

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.
- Offsite-US = Blackfoot River upstream of State Land Creek confluence.
- Offsite-DS = Blackfoot River downstream of State Land Creek confluence.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

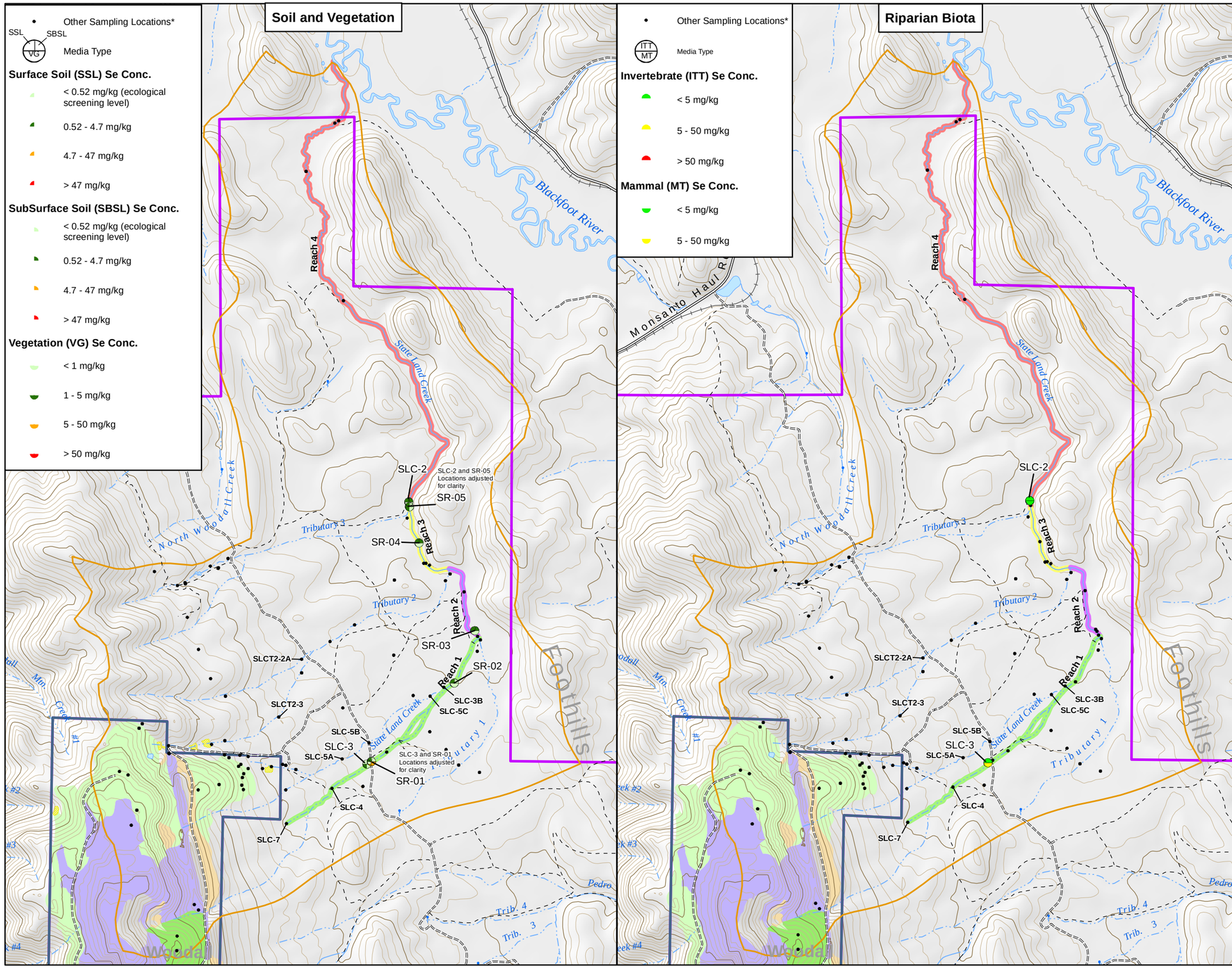
FIGURE 6-28

STATE LAND CREEK SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\StateLand\StateLand_Boxplot.ppt



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

Note:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,500 3,000
Feet
N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

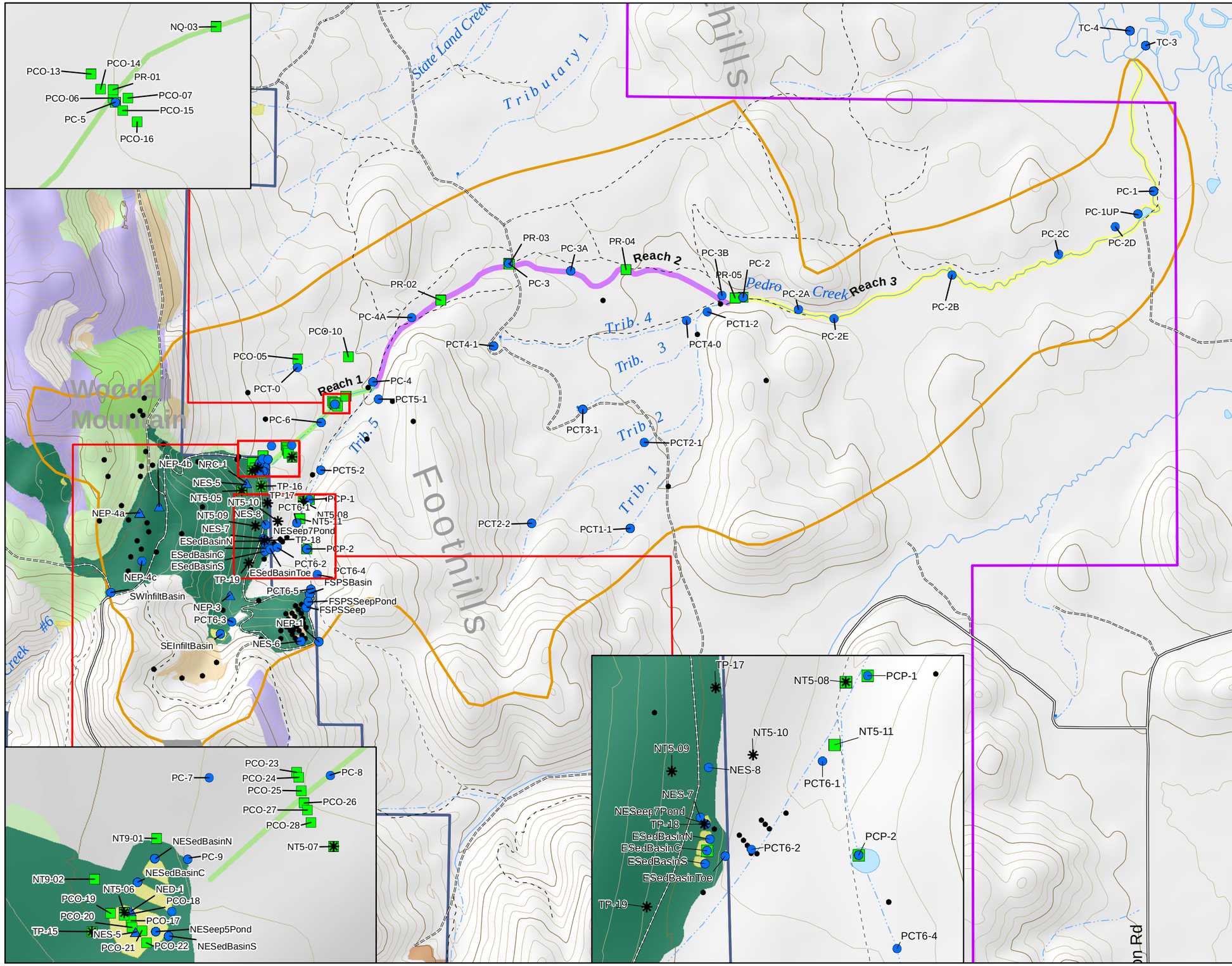
FIGURE 6-29

STATE LAND CREEK SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN RIPARIAN MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj\20101139\plt\RI_2016\Fig_6-029_StateLandCreekSeConcRip.mxd



Legend

- Aquatic Monitoring Locations
- Aquatic Monitoring Locations (Before Regrade)
- Riparian Monitoring Locations
- Upland Adjacent to RMM
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Mine Area
- Non-Mine Area
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Notes:
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Runoff chute NRC-1 is a chute collecting direct runoff from a graded ODA pile.

0 1,000 2,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

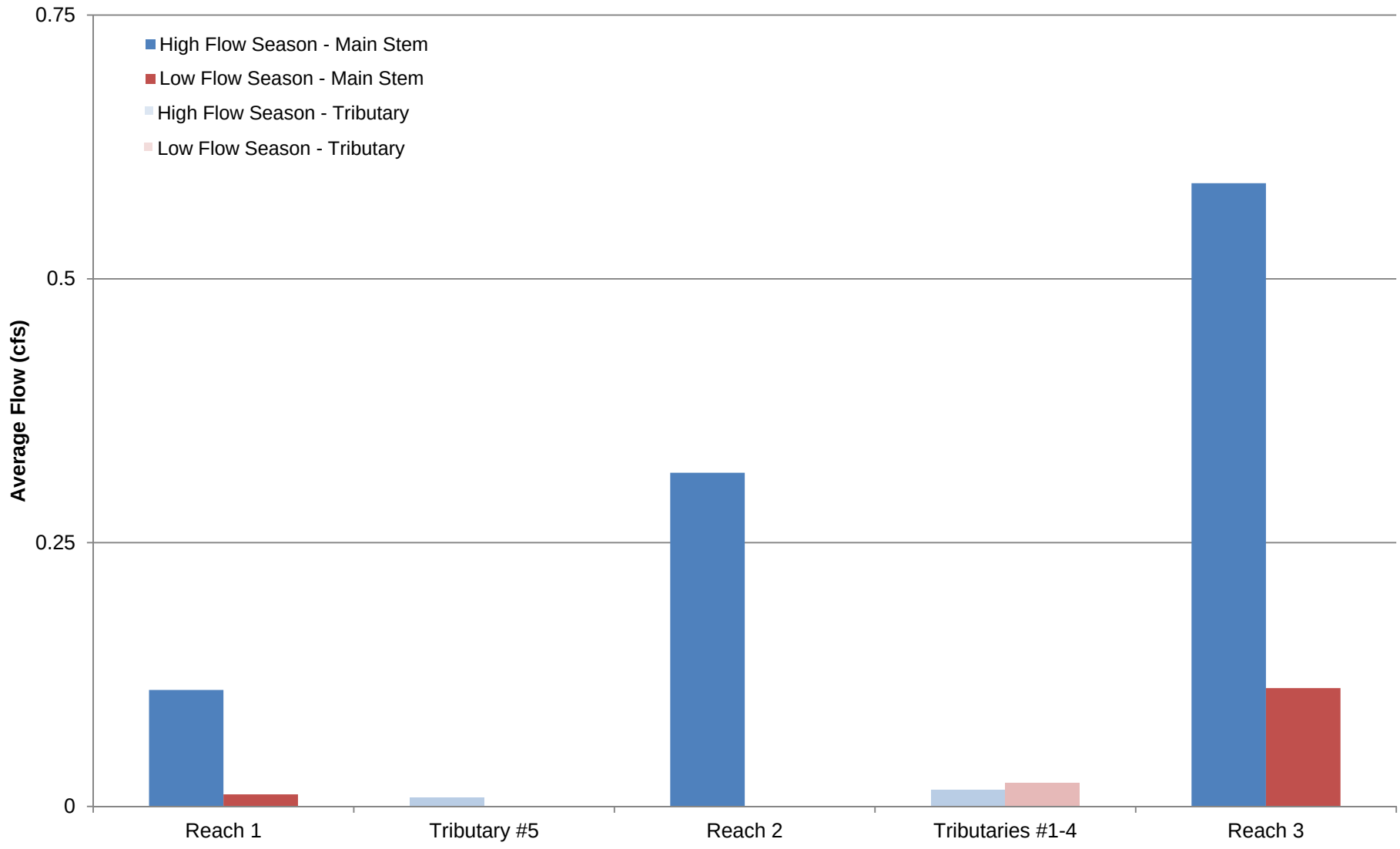
FIGURE 6-30

PEDRO CREEK SUB-BASIN AQUATIC AND RIPARIAN MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139pltRI_2016\Fig_6-030_PedroCrkLocs.mxd



Notes:

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-31
PEDRO CREEK AVERAGE FLOWS BY REACH SEGMENT AND FLOW SEASON

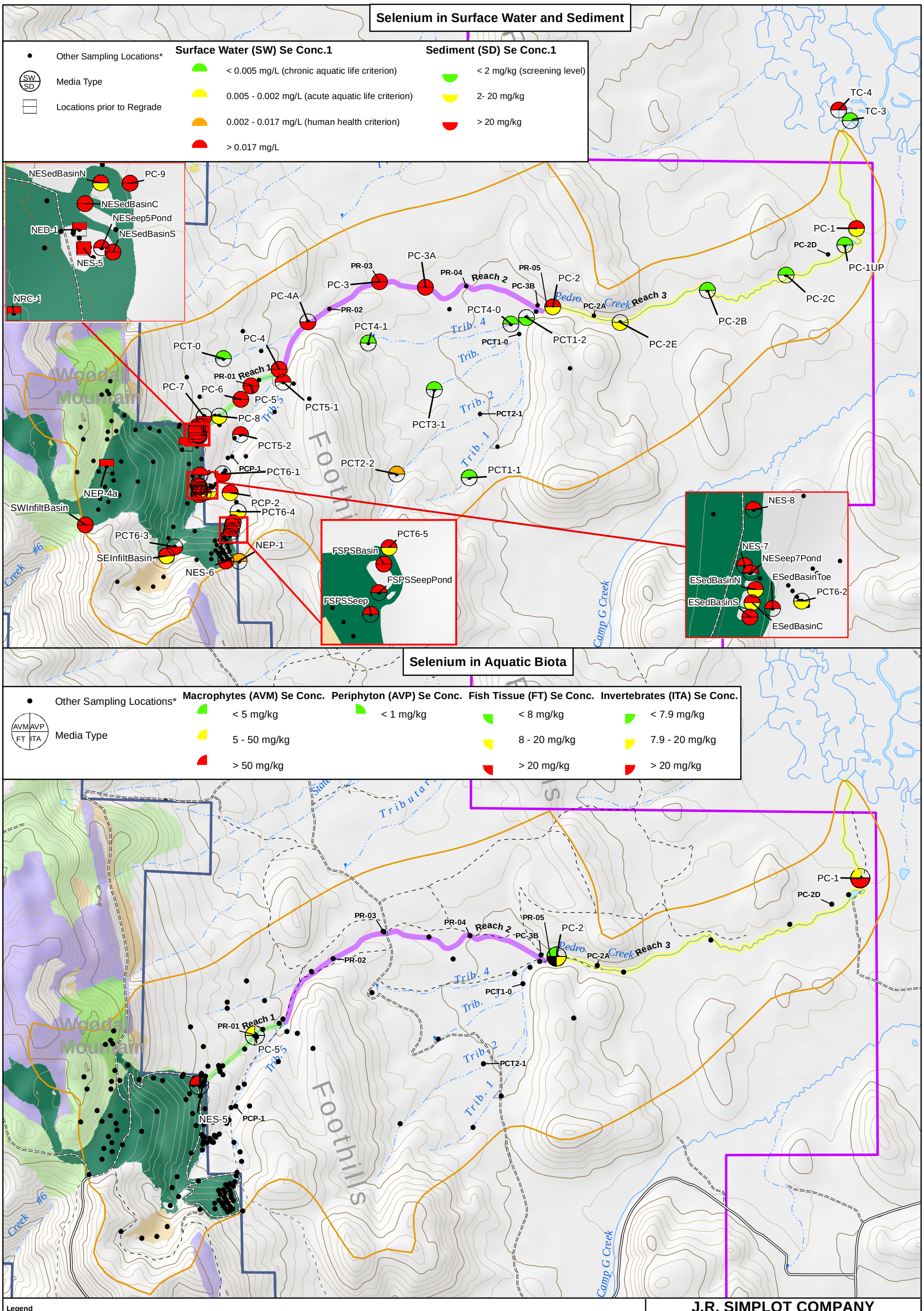
DATE: DEC 2016

BY: KAM

FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V2\TRANSPORTANALYSES\PEDROCREEK\FIG 6-X_PEDROCREEKCHARTFLOW.PPTX



Legend

- Intermittent Stream
- Perennial Stream
- Lake/Pond

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3

N

0 2,000 4,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Runoff chute NRC-1 is a chute collecting direct runoff from a graded ODA pile.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

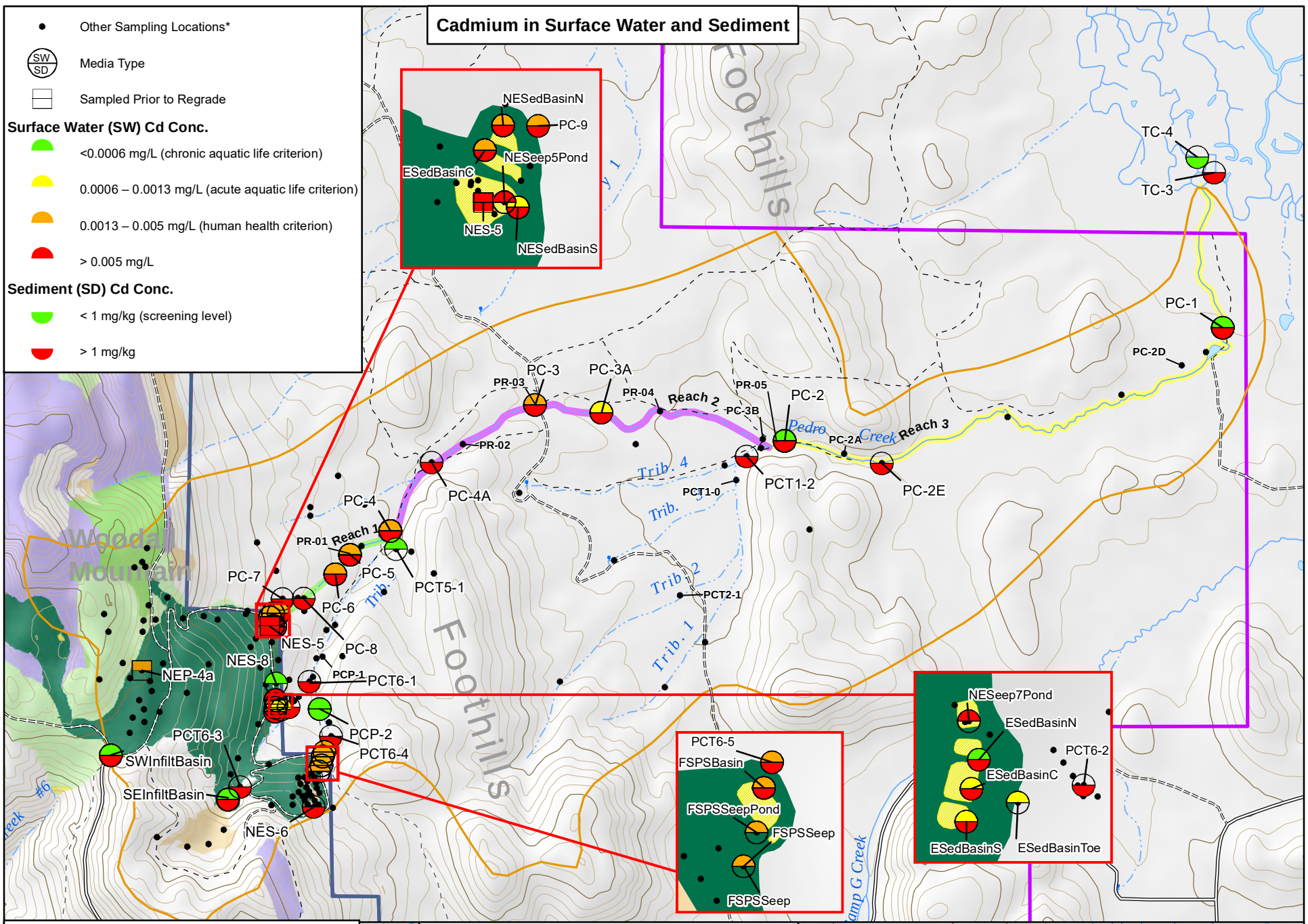
FIGURE 6-32

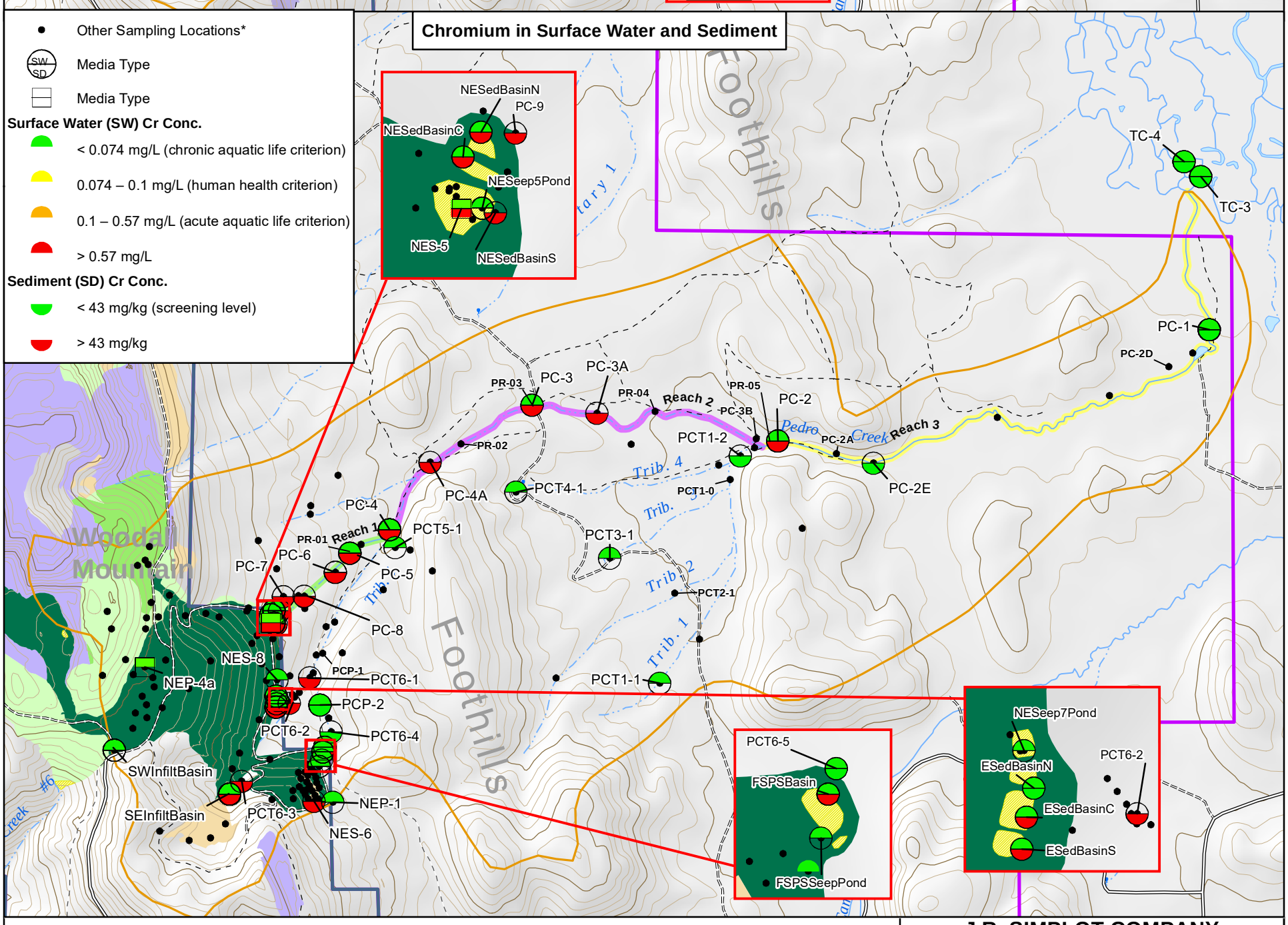
PEDRO CREEK SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcpr\2\010139\plt\RI_2016\Fig_6-032_PedroCrkSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intemittent Stream
- Perennial Stream
- 200ft Index Contour
- 40 ft Contour
- Lake/Pond
- Sub-Basins
- Mine Area
- Non-Mine Area

Stream Reach
- Reach 1
- Reach 2
- Reach 3
- Reach 4

Residual Mining Materials (RMM)
- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS

- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

0 1,500 3,000
Feet

N

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Runoff chute NRC-1 is a chute collecting direct runoff from a graded ODA pile.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

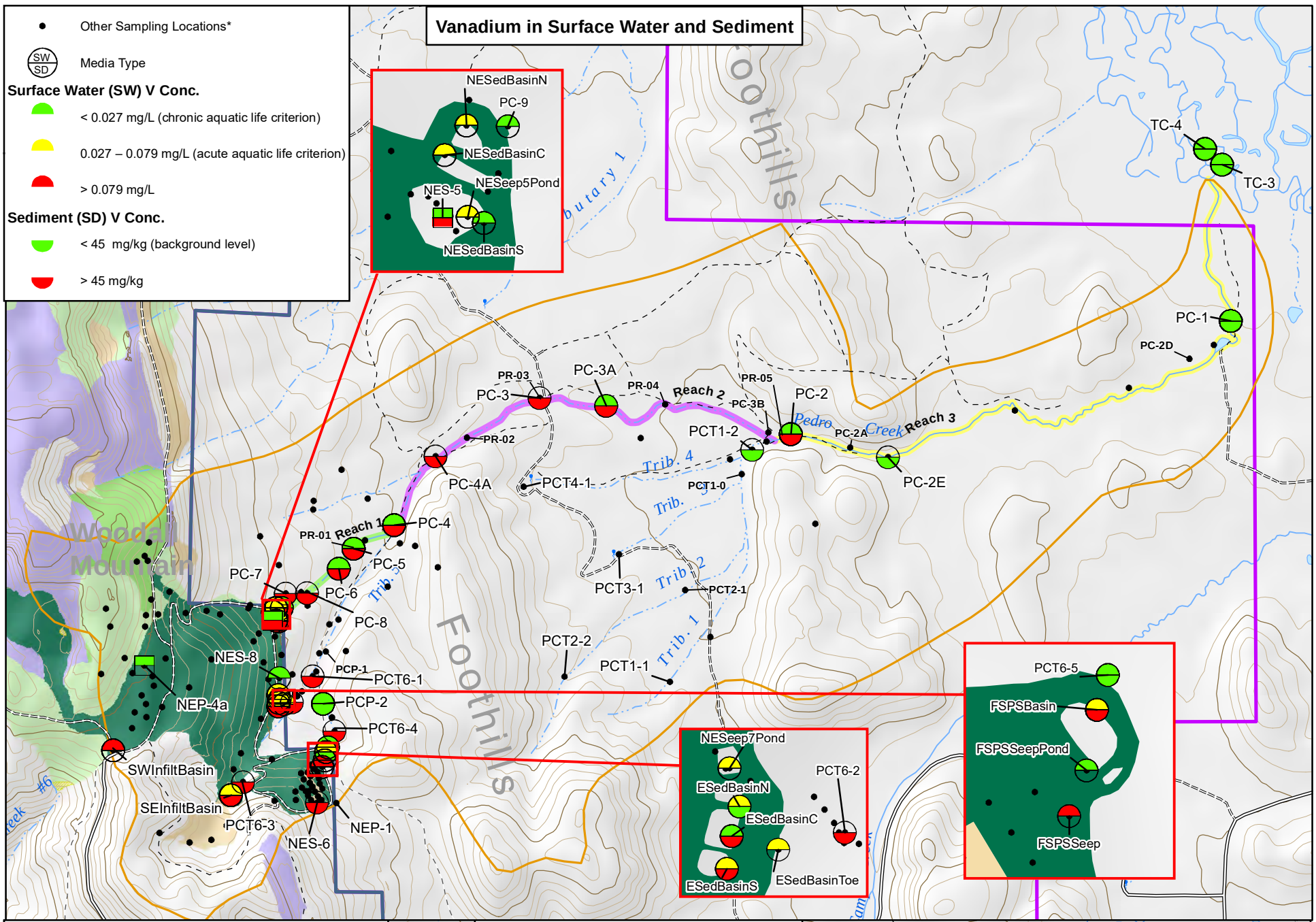
FIGURE 6-33

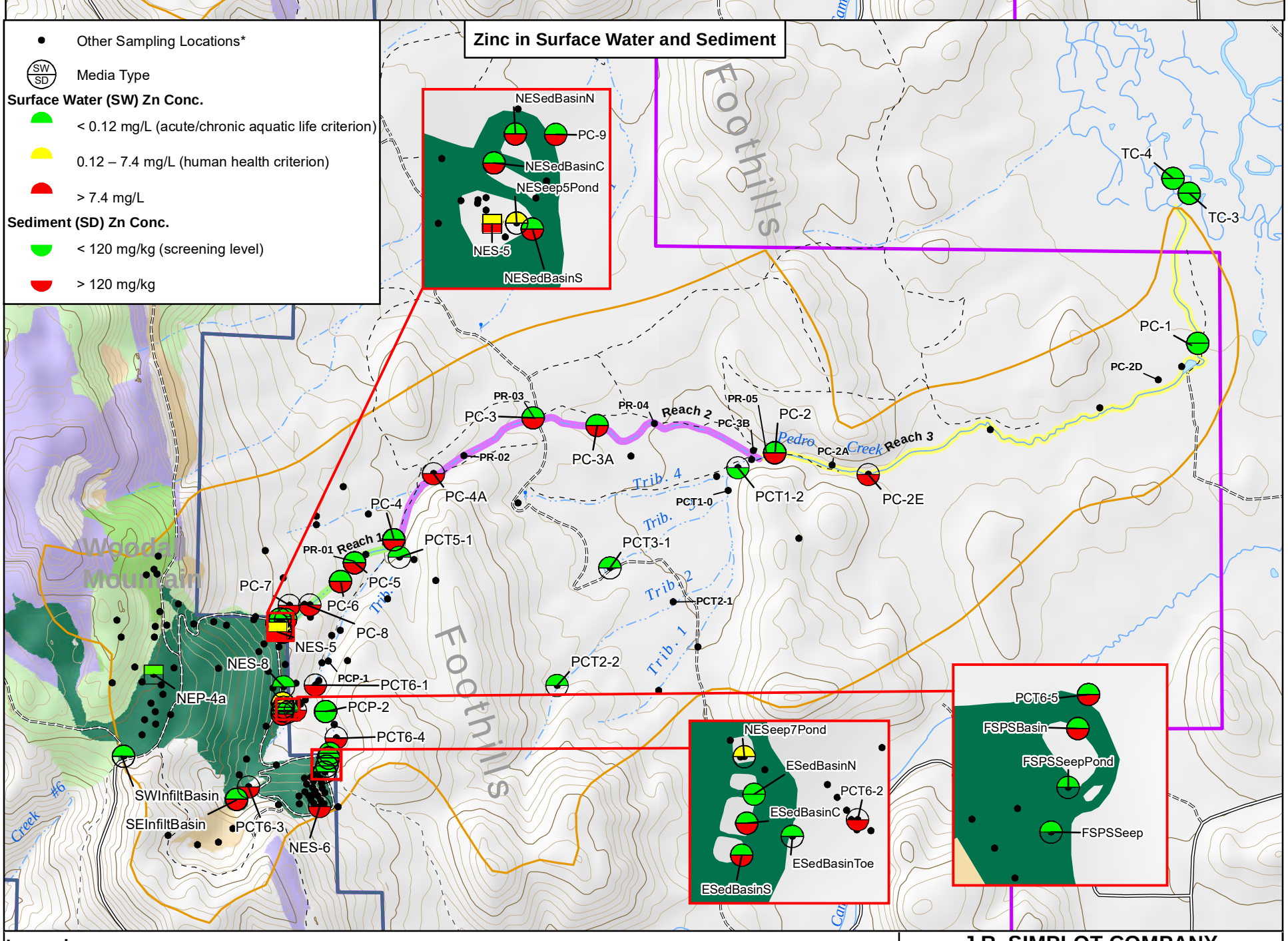
PEDRO CREEK SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-033_PedroCrk_CdCr_ConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intemittent Stream
- Perennial Stream
- 200ft Index Contour
- 40 ft Contour
- Lake/Pond
- Sub-Basins
- Mine Area
- Non-Mine Area

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- Runoff chute NRC-1 is a chute collecting direct runoff from a graded ODA pile.

0 1,500 3,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

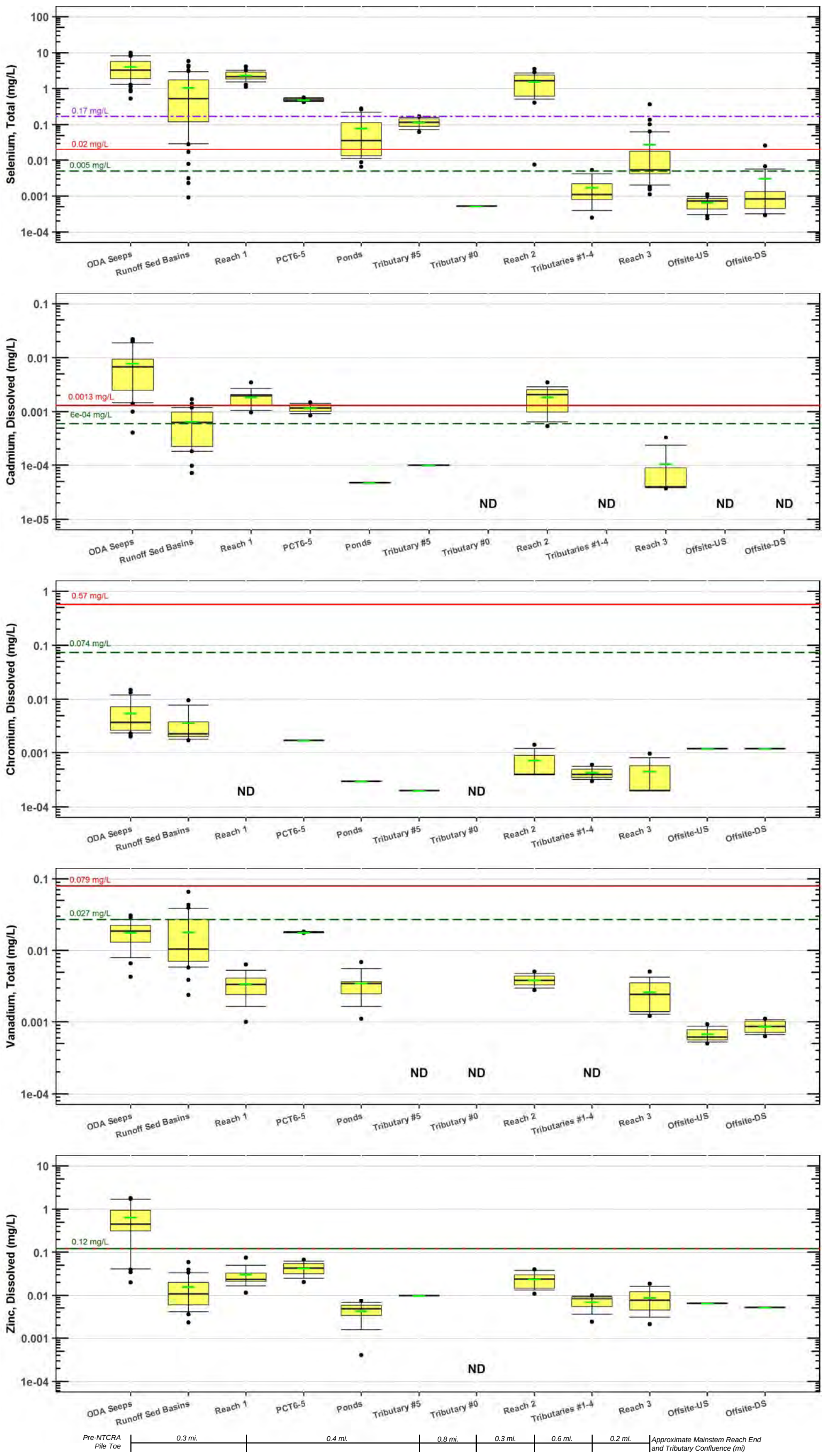
FIGURE 6-34

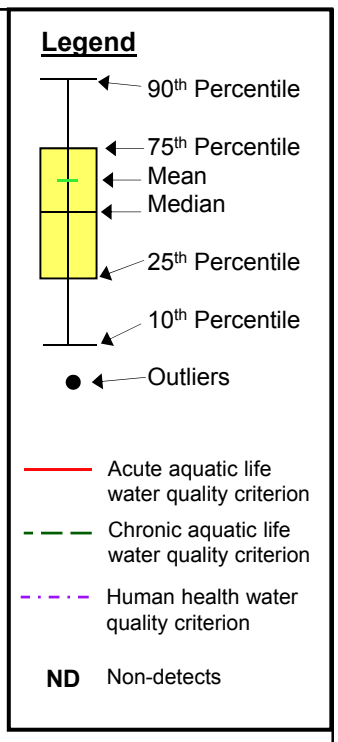
PEDRO CREEK SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-034_PedroCrk_VZn_ConcAq.mxd





Location	Station
ODA Seeps	NES-5
	FSPSSeep
	FSPSSeepPond
	NES-7
	NES-8
	NESeep5Pond
	NESeep7Pond
Runoff Sed Basins	ESedBasinC
	ESedBasinN
	ESedBasinS
	ESedBasinToe
	FSPSBasin
	NESedBasinC
	NESedBasinN
	NESedBasinS
	SEInfiltBasin
Reach 1	PC-5
	PC-6
	PC-9
PCT6-5	PCT6-5
Ponds	PCP-2
Tributary #5	PCT5-1
	PCT5-2
Tributary #0	PCT-0
Reach 2	PC-3
	PC-3A
	PC-4
Tributaries #1-4	PCT1-1
	PCT2-2
	PCT3-1
	PCT4-0
	PCT4-1
Reach 3	PC-1
	PC-1UP
	PC-2
	PC-2B
	PC-2C
Offsite-US	TC-3
Offsite-DS	TC-4

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- NRC-1 is a chute collecting direct runoff from a graded ODA pile.
- Refer to Section 4 for surface water quality criteria and standards.
- Offsite-US = Trail Creek upstream of Pedro Creek confluence.
- Offsite-DS = Trail Creek downstream of Pedro Creek confluence.

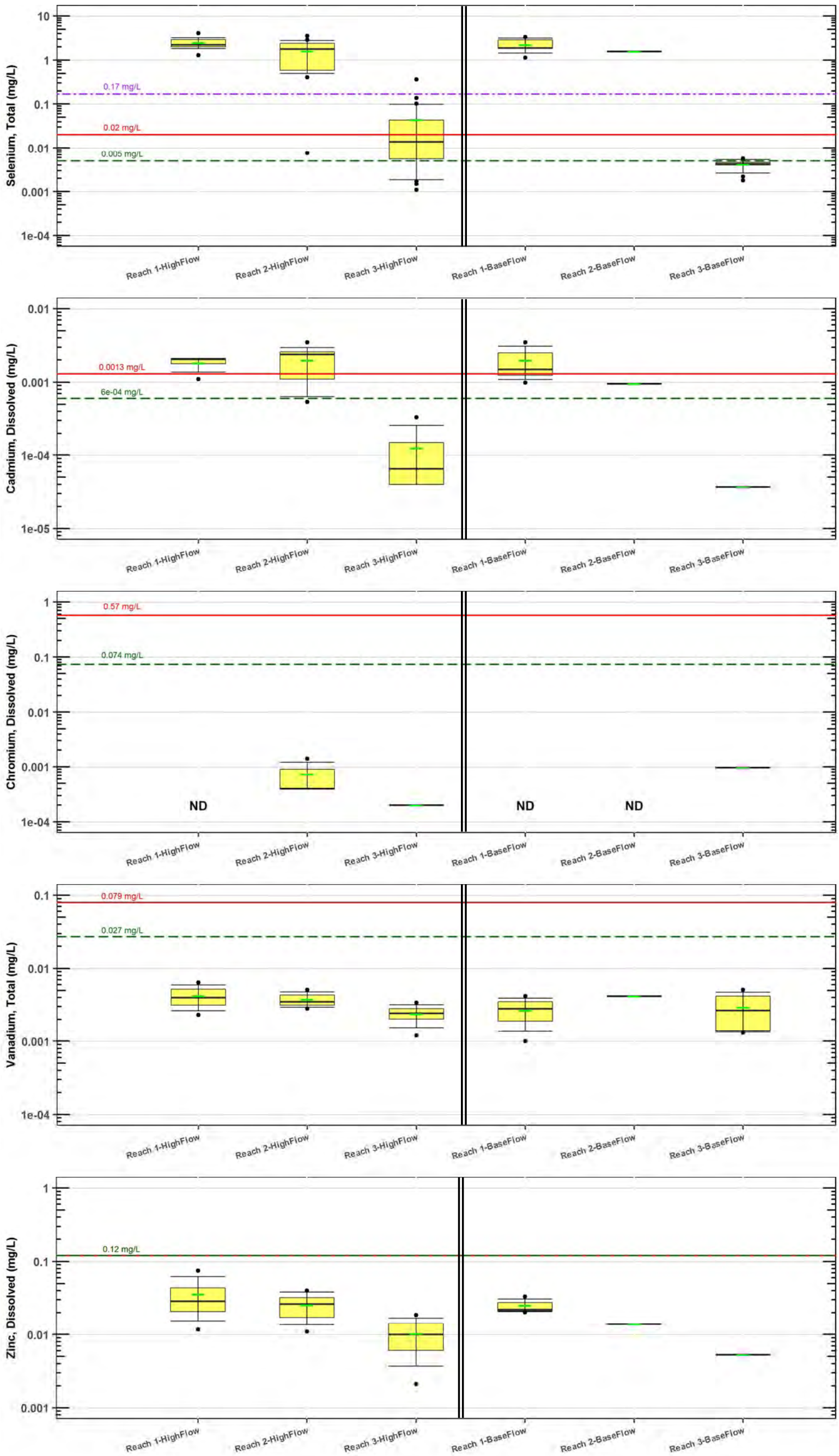
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-35
PEDRO CREEK SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\PedroCreek\PedroCreek_Boxplot.ppt



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- **ND** Non-detects

Location	Station
Reach 1	PC-5
	PC-6
	PC-9
Reach 2	PC-3
	PC-3A
	PC-4
Reach 3	PC-1
	PC-1UP
	PC-2
	PC-2B
	PC-2C

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for surface water quality criteria and standards.
- Offsite-US = Trail Creek upstream of Pedro Creek confluence.
- Offsite-DS = Trail Creek downstream of Pedro Creek confluence.

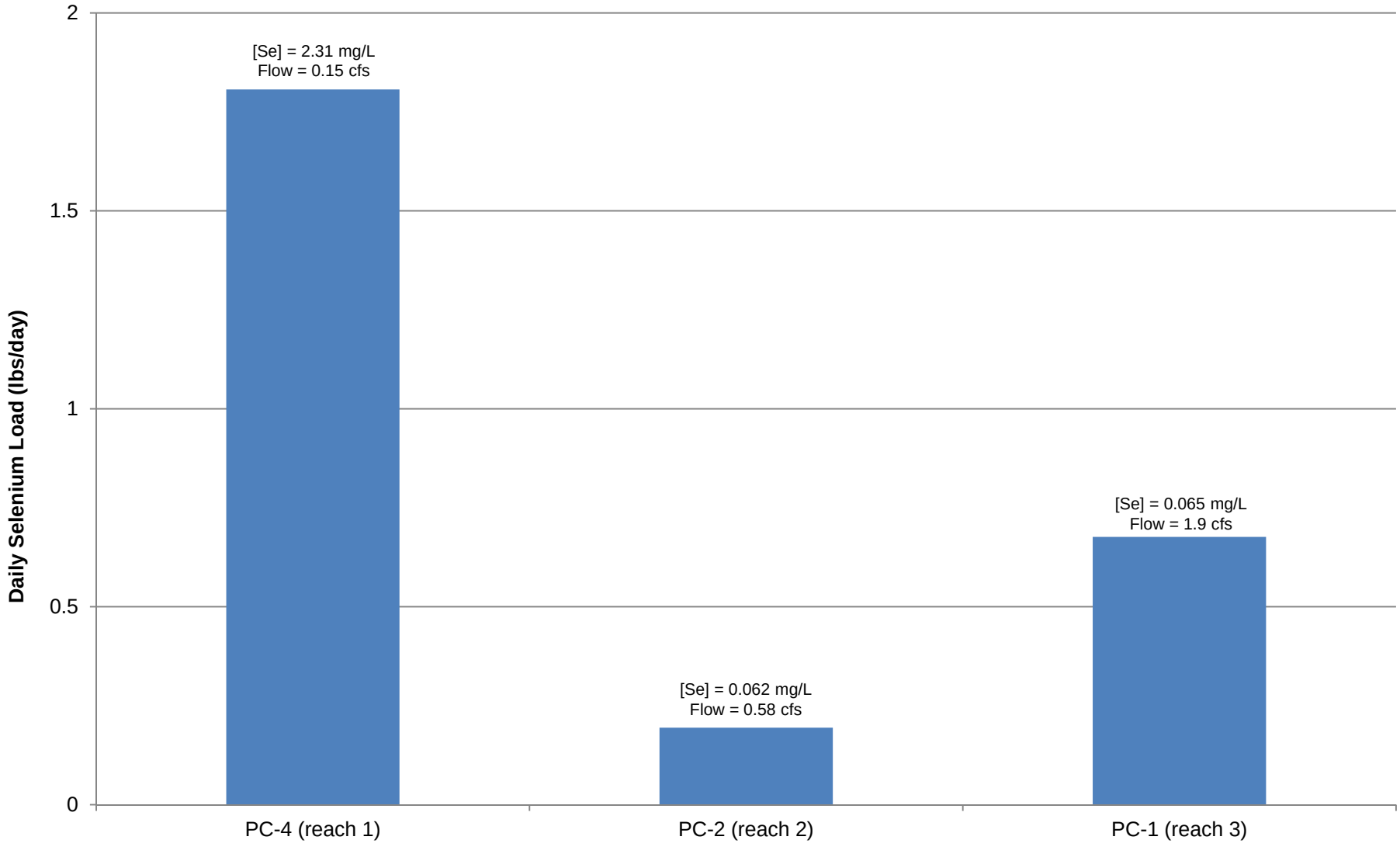
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-36
PEDRO CREEK
SURFACE WATER COPC CONCENTRATIONS BY REACH SEGMENT AND FLOW SEASON

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\PedroCreek\PedroCreek_Boxplot.ppt



Notes:

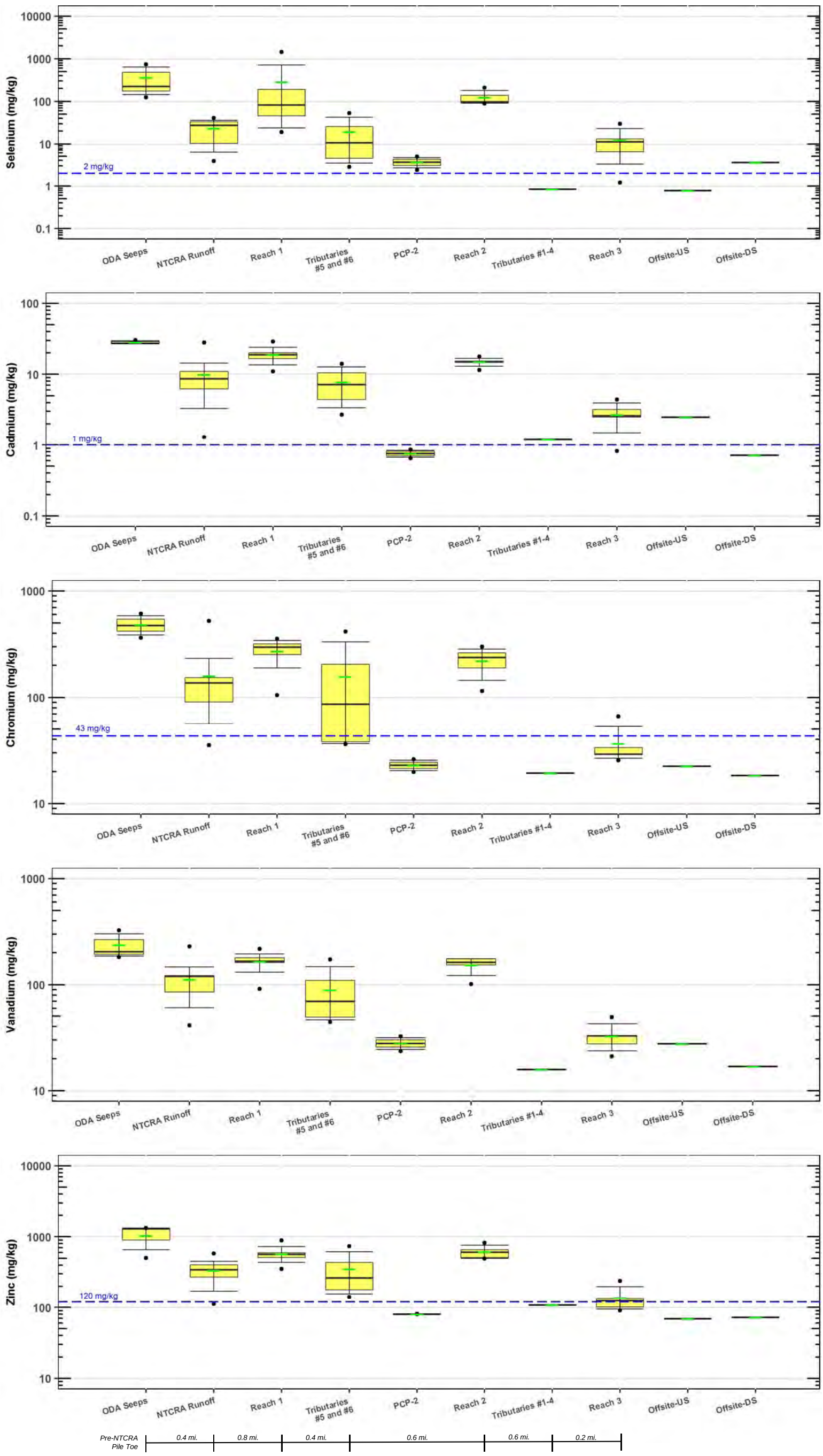
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

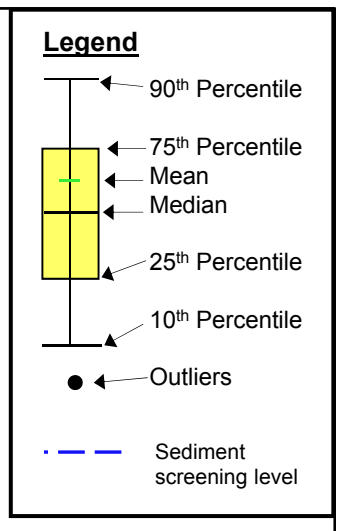
FIGURE 6-37
PEDRO CREEK SPRING-FLOW SELENIUM LOADS IN 2009

DATE: DEC 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V2\TRANSPORTANALYSES\PEDROCREEK\FIG6-37_PEDROCREEKCHART.PPTX





Location	StationName
ODA Seeps	NES-5
	NES-6
NTCRA Runoff	ESedBasinC
	ESedBasinN
	ESedBasinS
	FSPSBasin
	NESedBasinC
	NESedBasinN
	NESedBasinS
	PCT6-3
	SEInfiltBasin
Reach 1	PC-5
	PC-6
	PC-7
	PC-8
	PC-9
Tributaries #5 and #6	PCT6-1
	PCT6-2
	PCT6-4
	PCT6-5
PCP-2	PCP-2
Reach 2	PC-3
	PC-3A
	PC-4
	PC-4A
Tributaries #1-4	PCT1-2
Reach 3	PC-1
	PC-2
	PC-2E
Offsite-US	TC-3
Offsite-DS	TC-4

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.
- Offsite-US = Trail Creek upstream of Pedro Creek confluence.
- Offsite-DS = Trail Creek downstream of Pedro Creek confluence.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

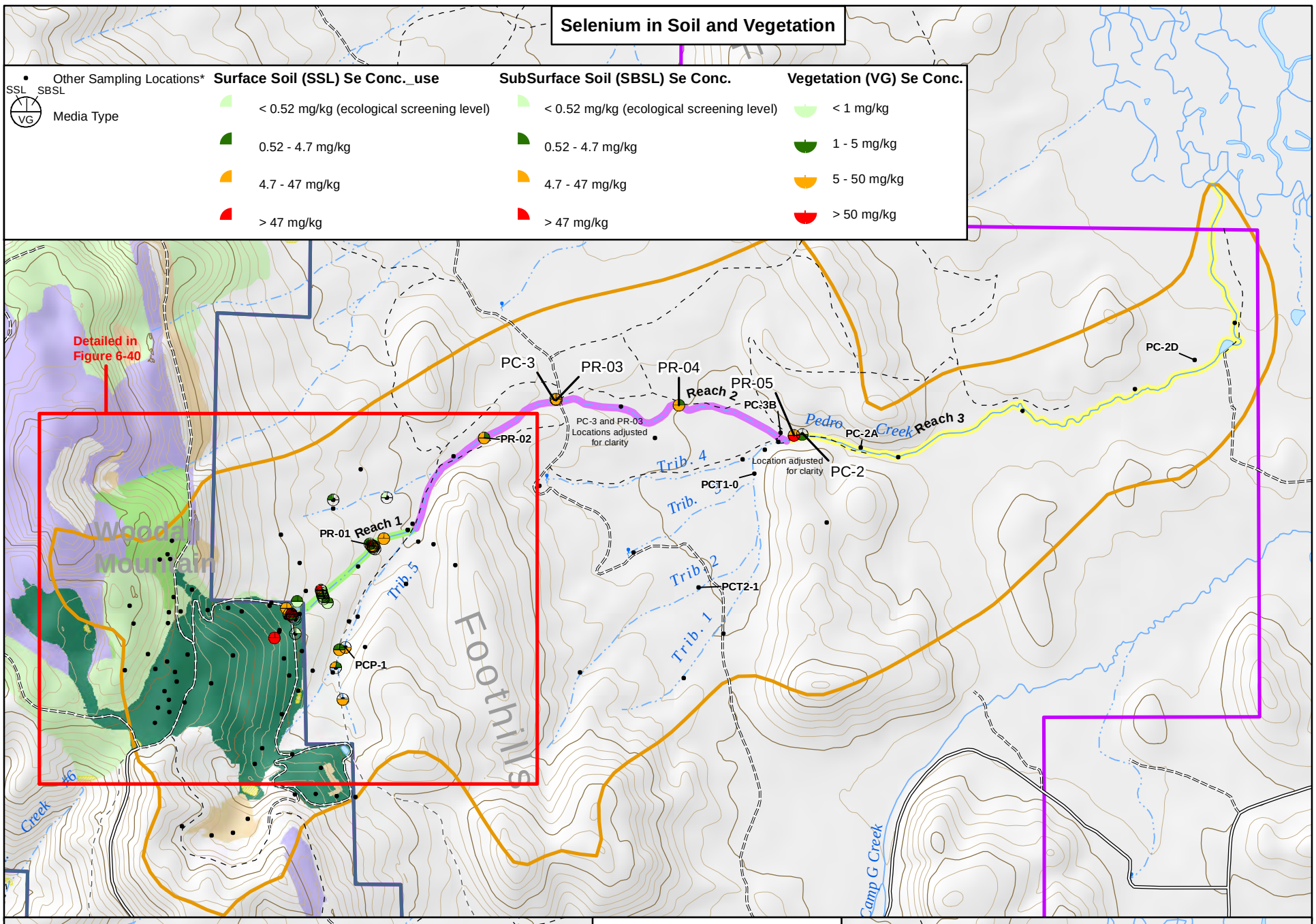
FIGURE 6-38

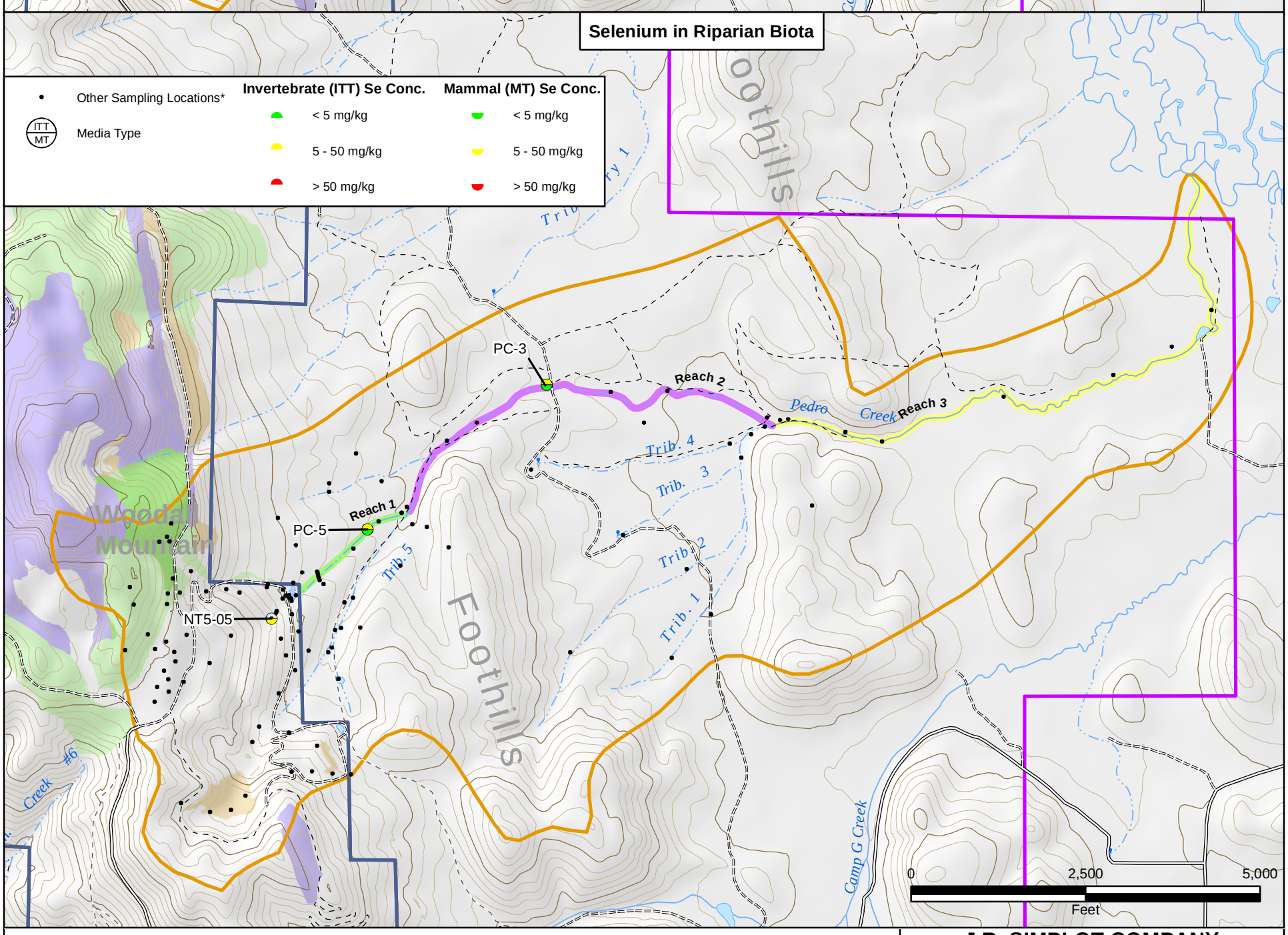
PEDRO CREEK SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\PedroCreek\PedroCreek_Boxplot.ppt





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Mine Area
- Non-Mine
- Sub-Basins

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

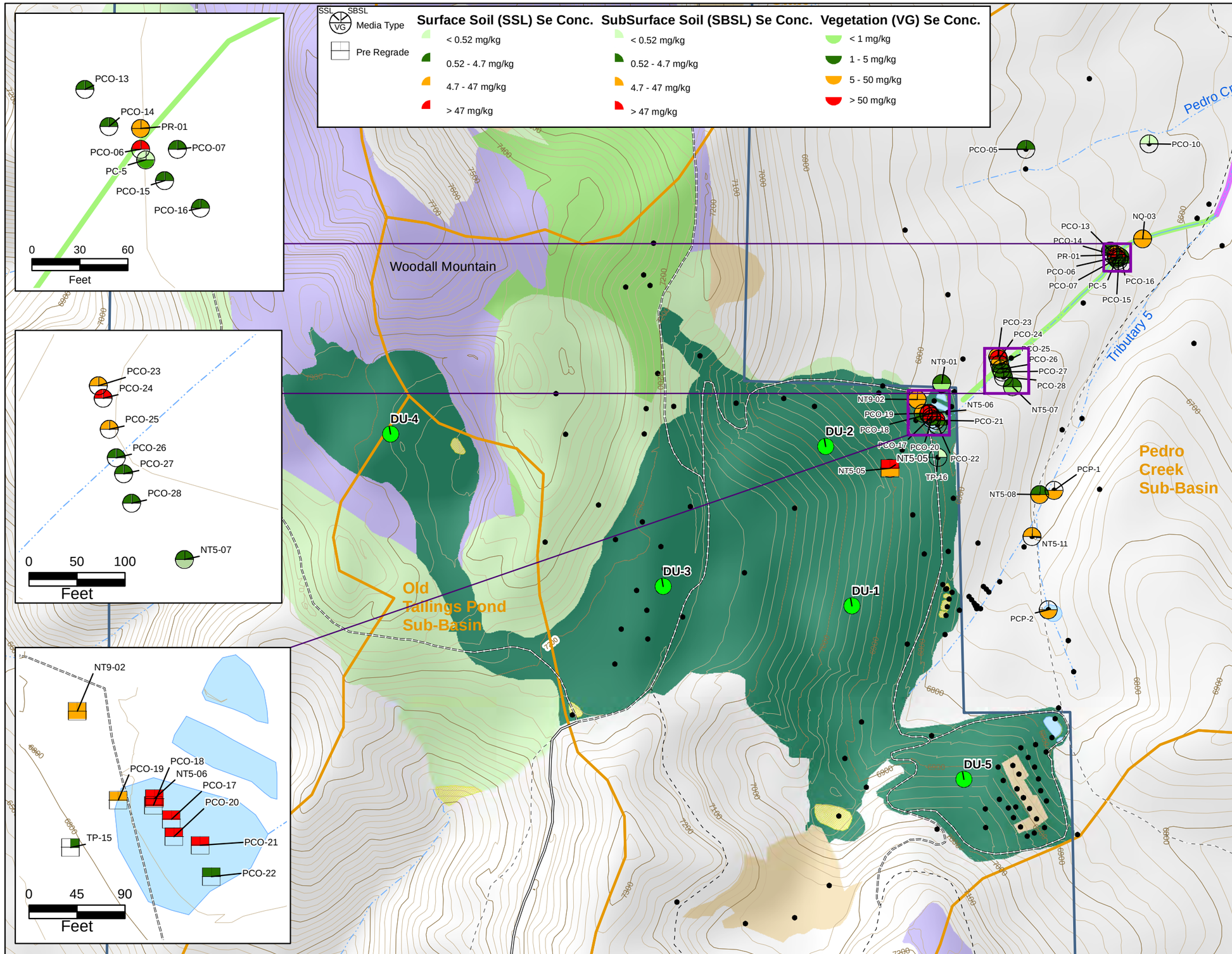
FIGURE 6-39

PEDRO CREEK SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN RIPARIAN MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-039_PedroCreekSeConcRip.mxd



Legend

- NTCRA DU ISM Sample
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Mine Area
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

Note:
- Data are from 2001 onward and "A" data use level only.
- See Figure 3-1 for location and extent of detailed area.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 500 1,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

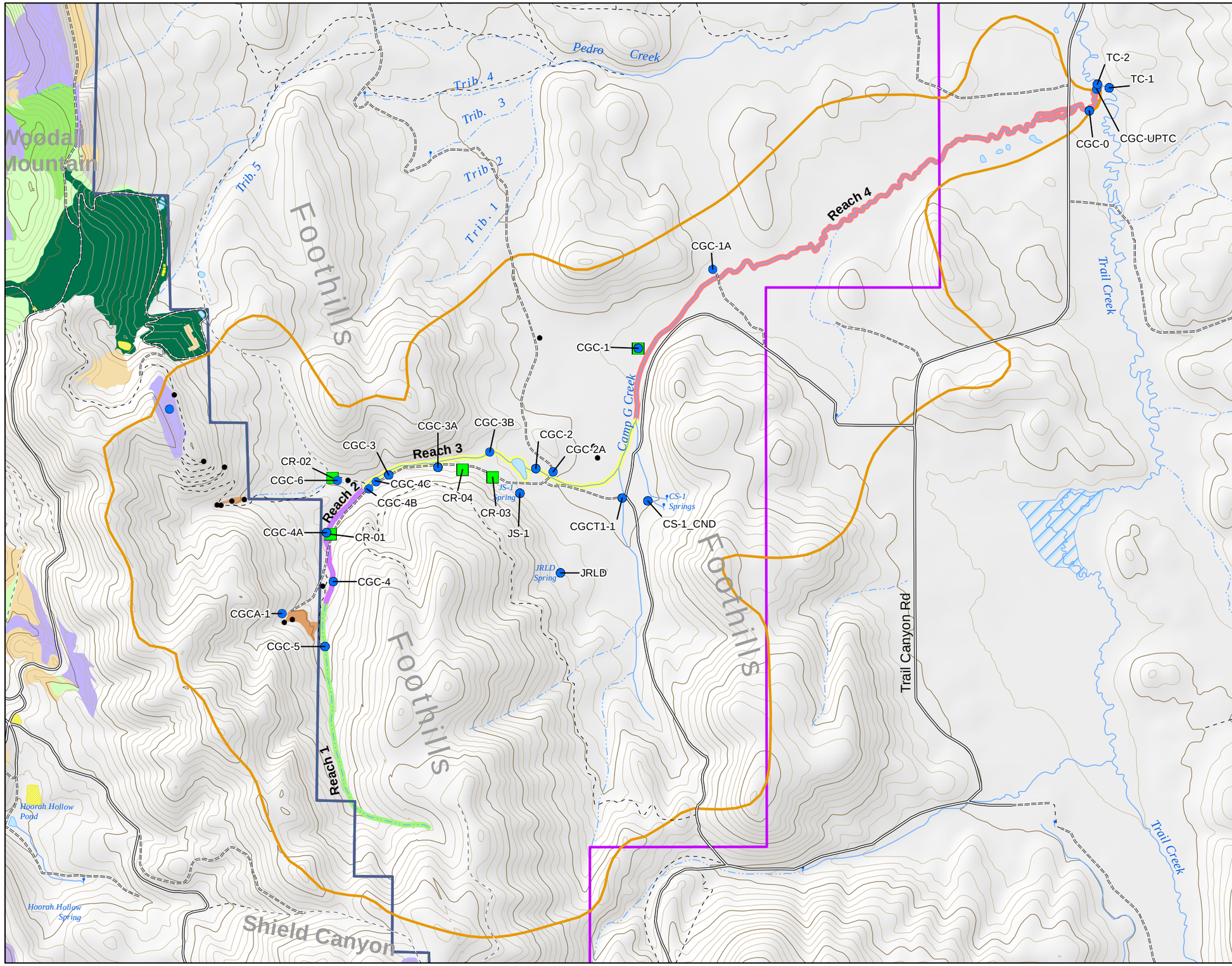
FIGURE 6-40

PEDRO CREEK SUB-BASIN HEADWATERS AREA MAXIMUM SELENIUM CONCENTRATIONS IN SOIL AND VEGETATION

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pltRI_2016\Fig_6-040_PedroCrkOverbank_SeConc.mxd



Legend

- Aquatic Monitoring Locations
- Riparaian Monitoring Locations
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Note:
*Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,000 2,000
Feet

N

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

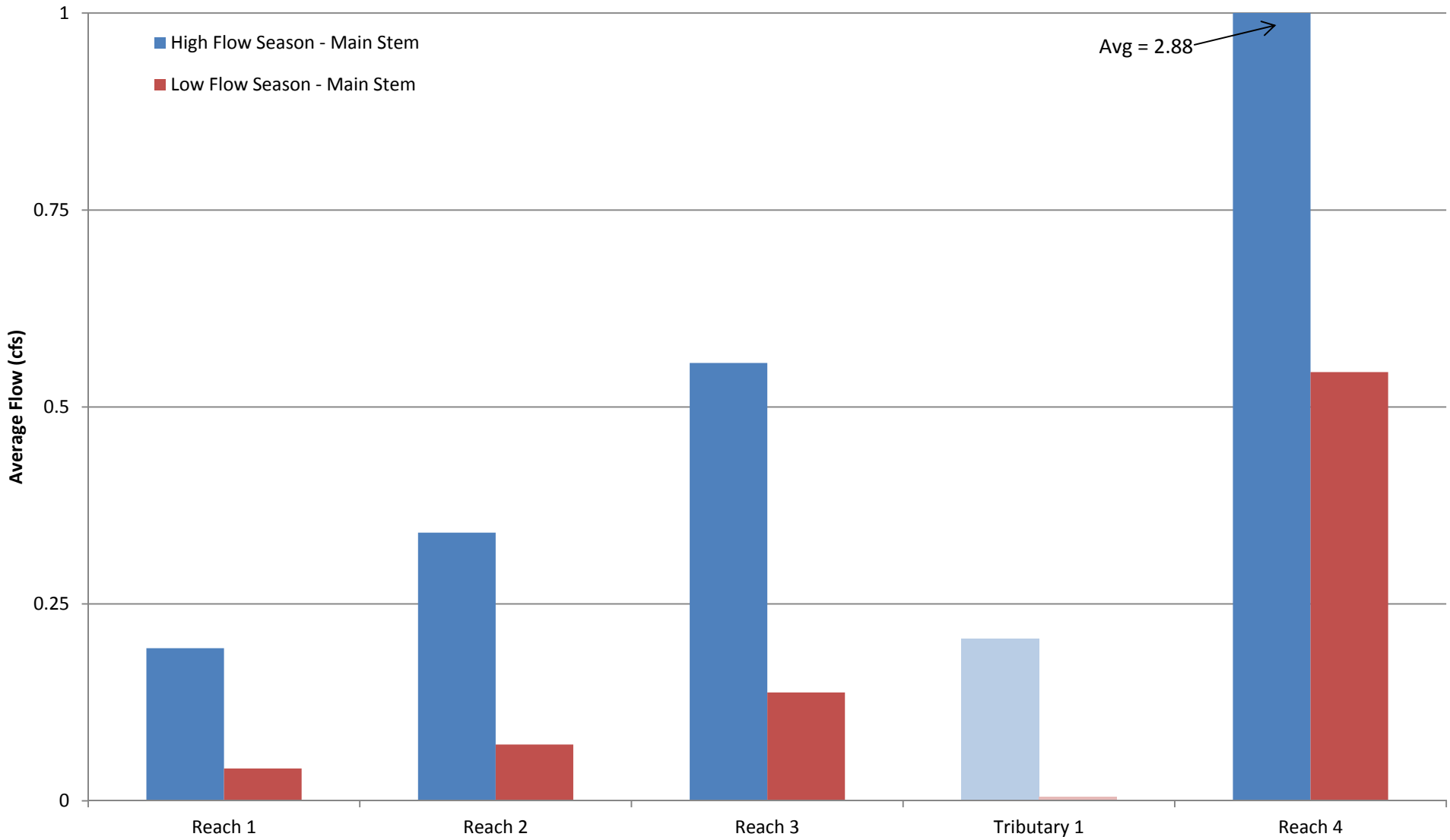
FIGURE 6-41

CAMP G CREEK SUB-BASIN AQUATIC AND RIPARIAN MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pl\RI_2016\Fig_6-041_CampGCreekLocs.mxd



Notes:

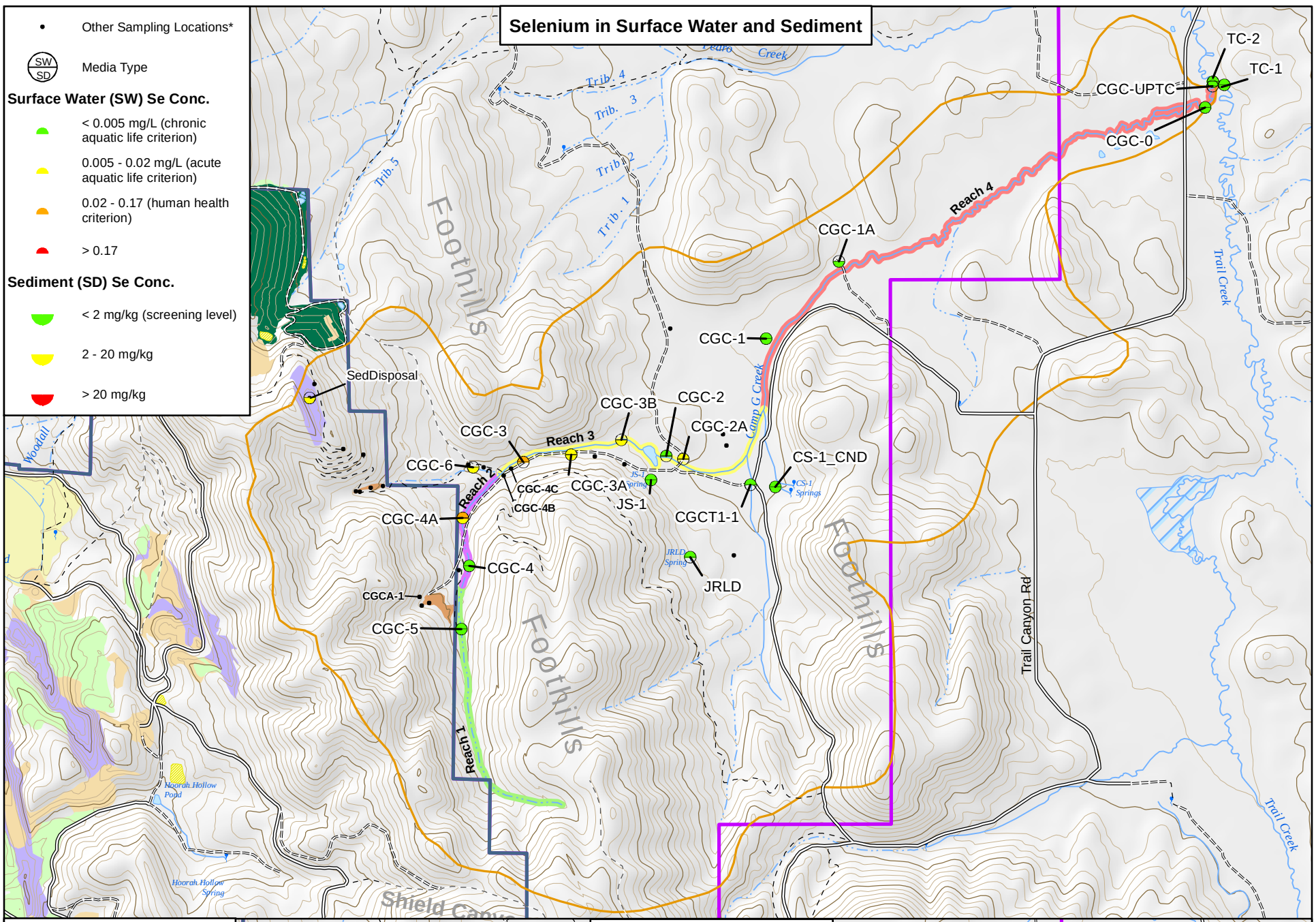
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

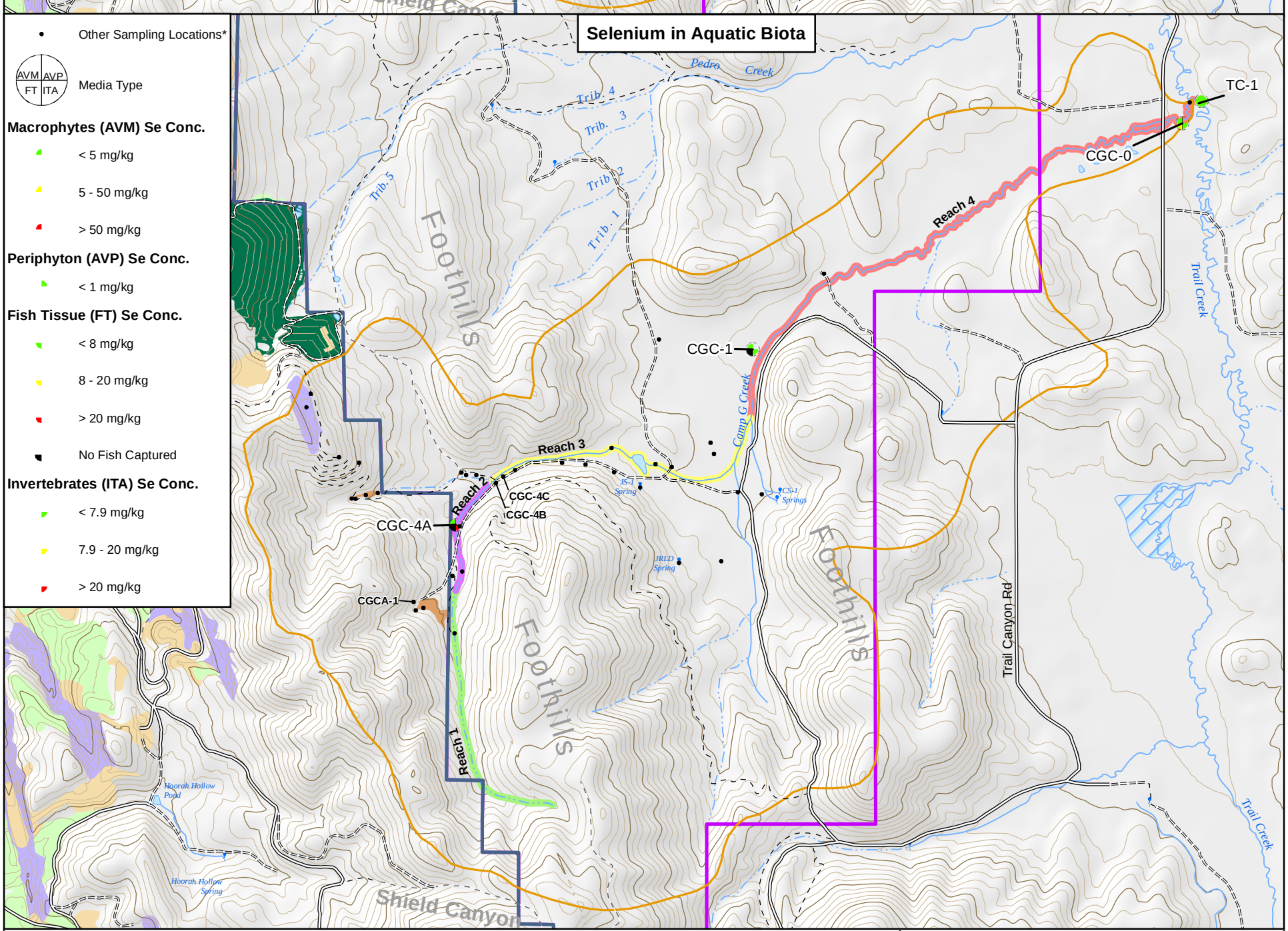
FIGURE 6-42
CAMP G CREEK AVERAGE FLOWS BY REACH SEGMENT AND FLOW SEASON

DATE: DEC 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V2\TRANSPORTANALYSES\CAMP_G_CREEK\FIG6-X_CAMPGCHARTFLOW.PPTX





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine
- Non-Mine
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

N

0 2,500 5,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

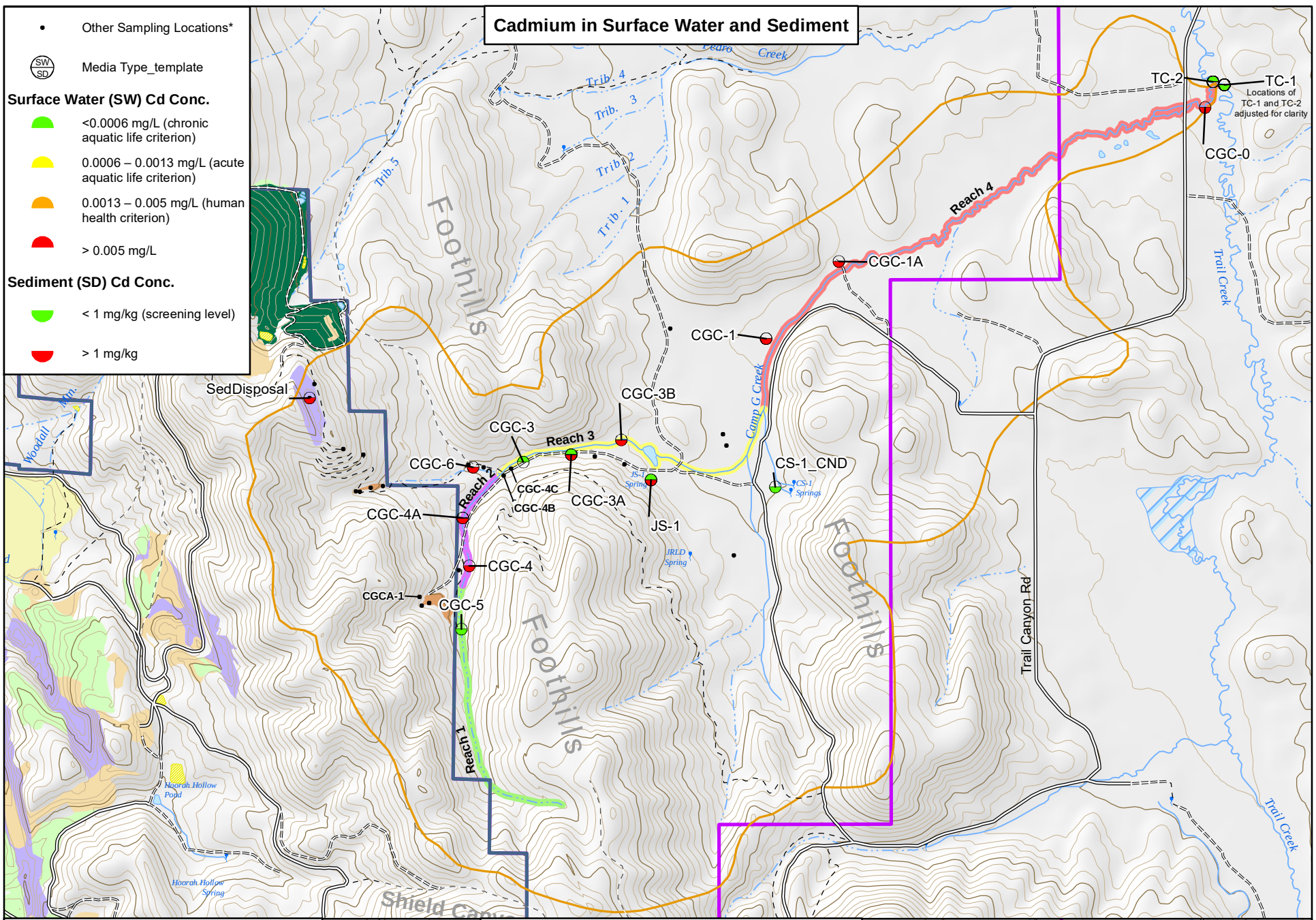
FIGURE 6-43

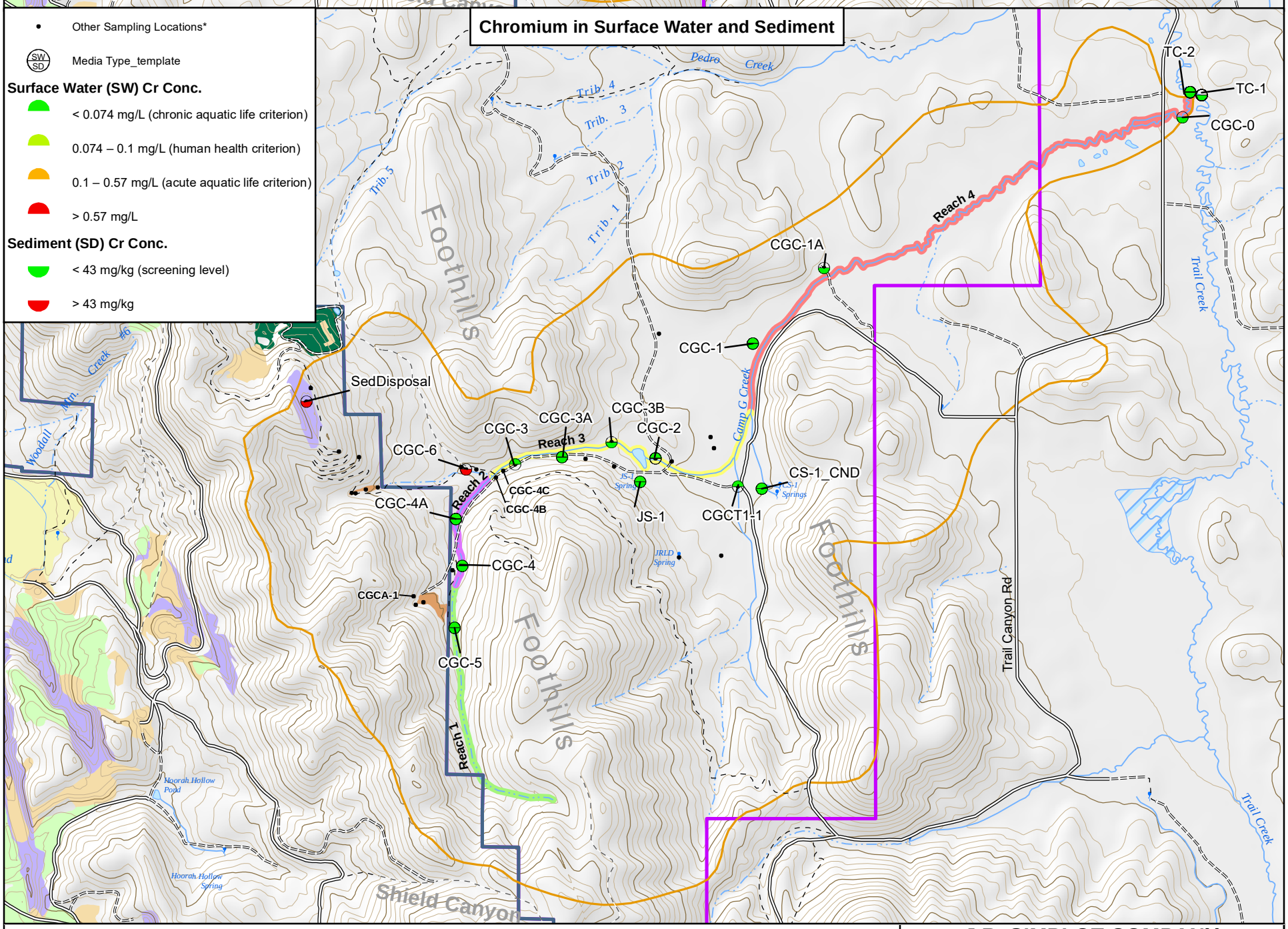
CAMP G CREEK SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pht\RI_2016\Fig_6-043_CampGCreekSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

N

0 2,500 5,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

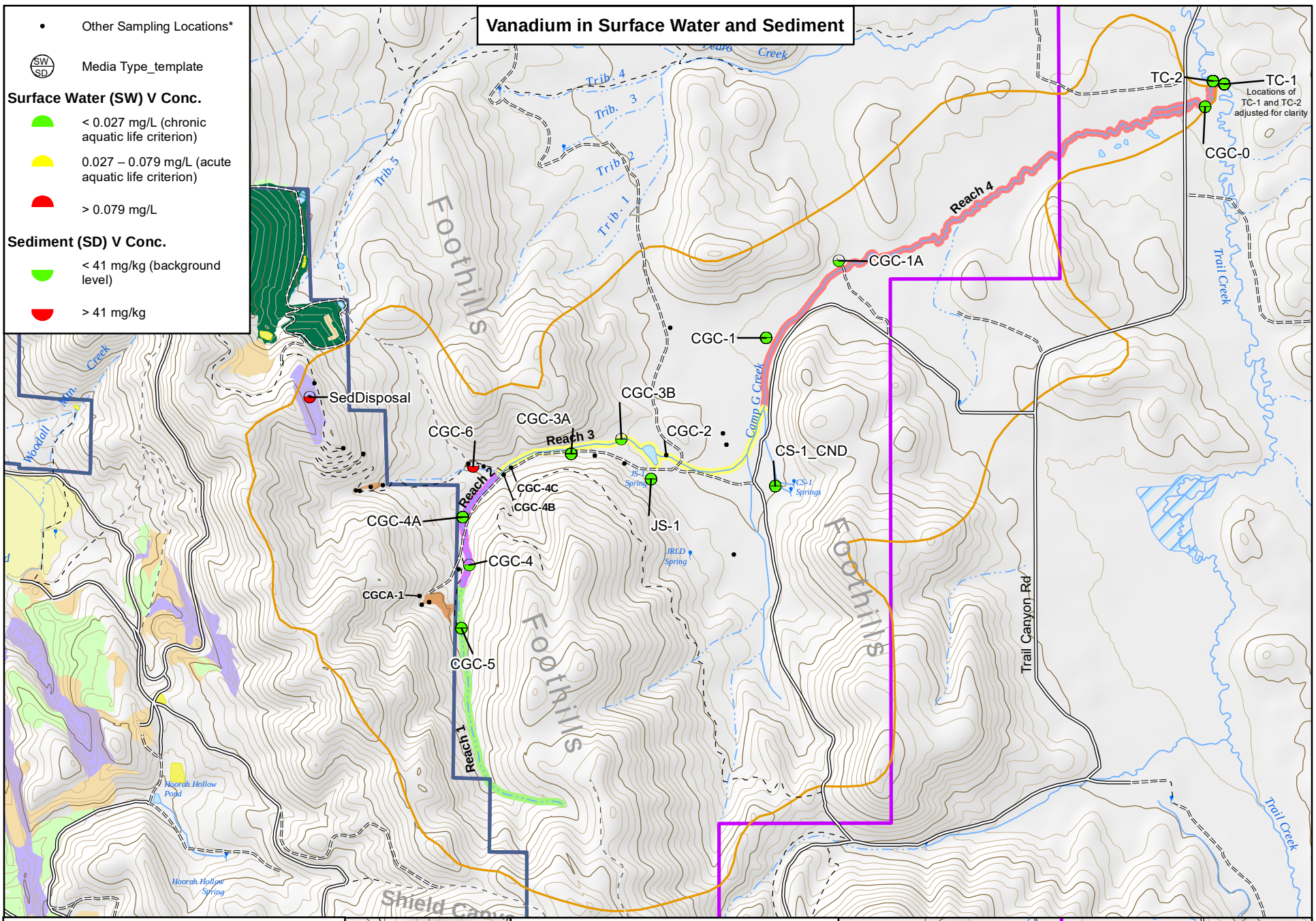
FIGURE 6-44

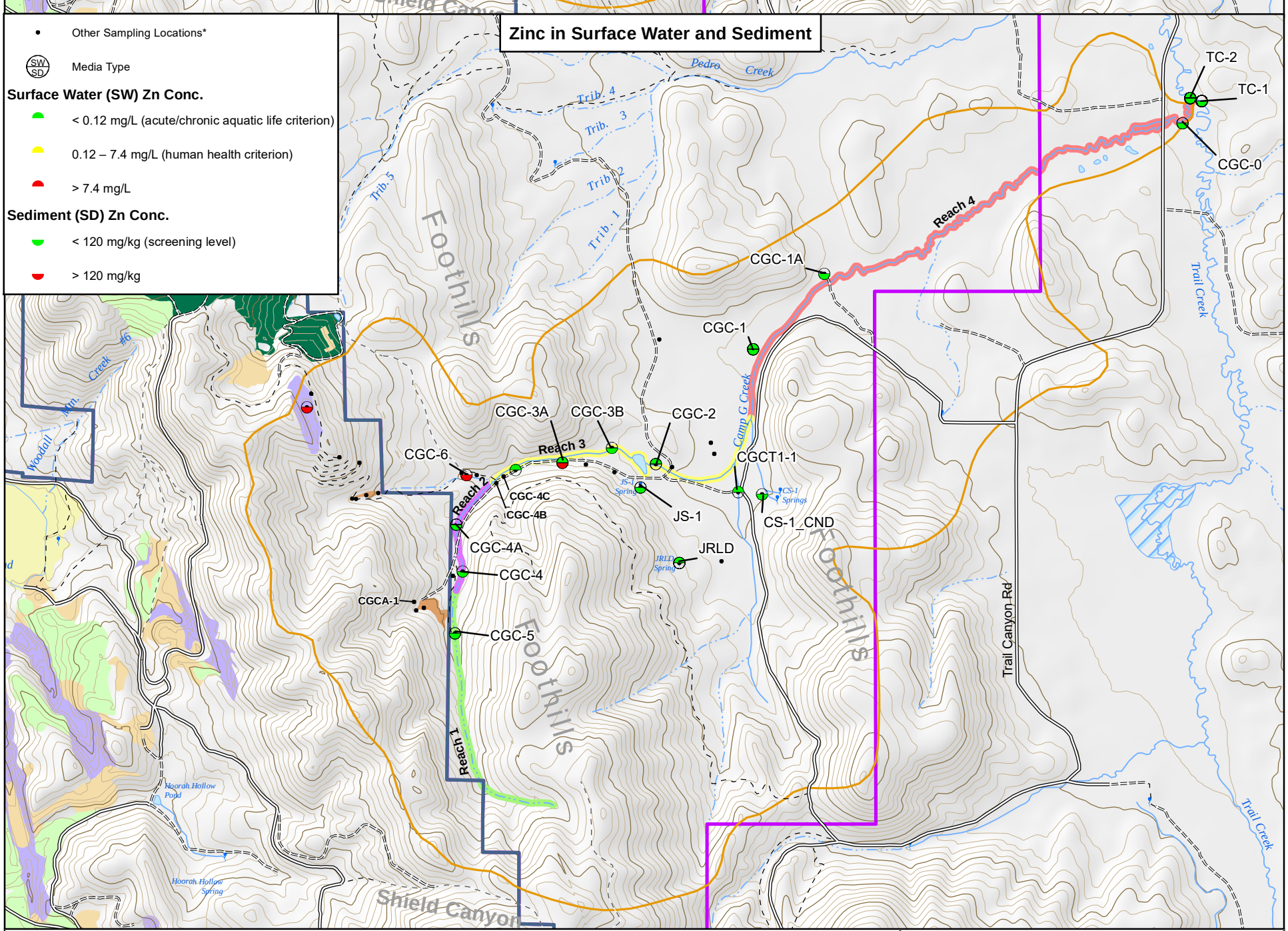
CAMP G CREEK SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: DKG
FOR: CRL

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-044_CampGCreekCdCrConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

N

0 2,500 5,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- See Section 3 figures for exact locations.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

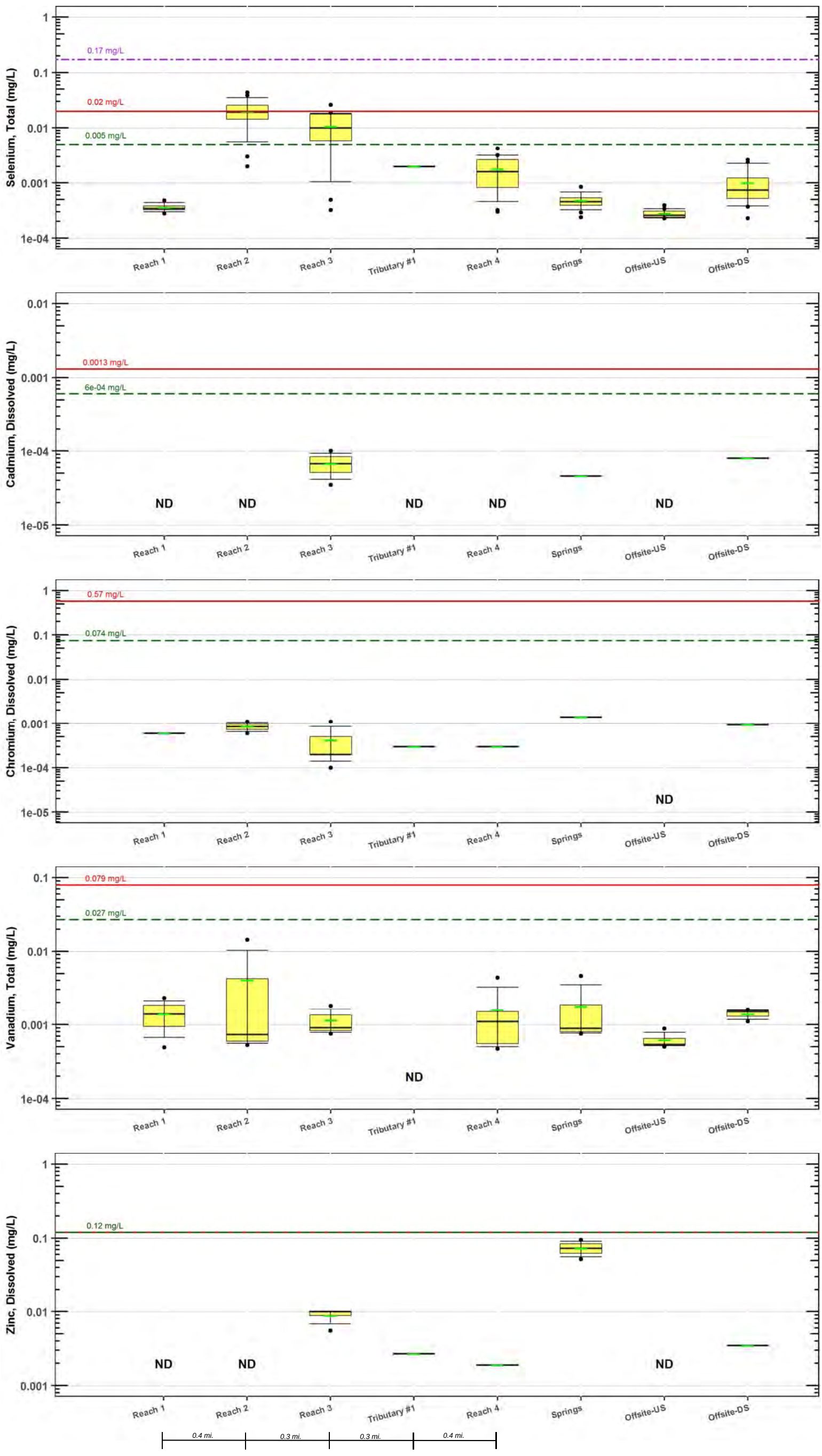
FIGURE 6-45

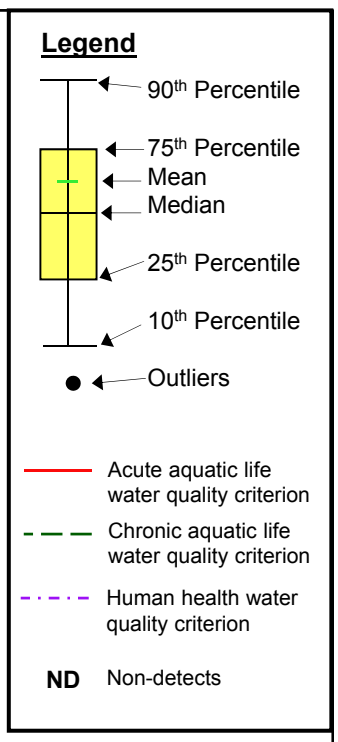
CAMP G CREEK SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: DKG
FOR: CRL

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\101139\plt\RI_2016\Fig_6-045_CampGCreekVZnConcAq.mxd





Location	Station
Reach 1	CGC-5
Reach 2	CGC-4
	CGC-4A
Reach 3	CGC-2
	CGC-2A
	CGC-3
	CGC-3A
Tributary #1	CGCT1-1
Reach 4	CGC-0
	CGC-1
	CGC-UPTC
Springs	CS-1_CND
	JRLD
	JS-1
Offsite-US	TC-1
Offsite-DS	TC-2

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for surface water quality criteria and standards.
- Offsite-US = Trail Creek upstream of Camp G confluence.
- Offsite-DS = Trail Creek downstream of Camp G confluence.

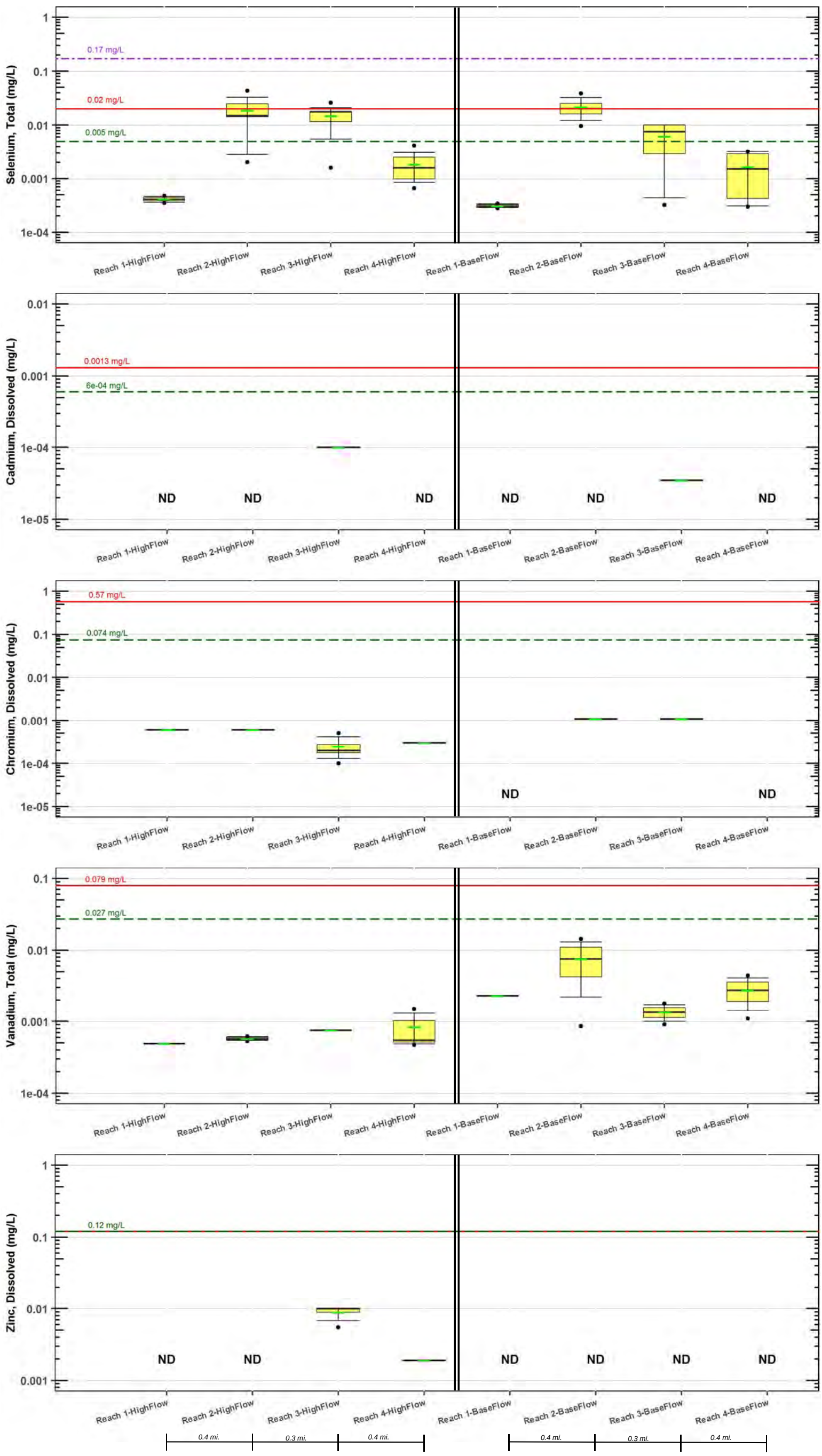
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-46
CAMP G CREEK SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\Camp_G_Creek\CampG_Boxplot.ppt



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- ND Non-detects

Location	Station
Reach 1	CGC-5
Reach 2	CGC-4
	CGC-4A
Reach 3	CGC-2
	CGC-2A
	CGC-3
	CGC-3A
Reach 4	CGC-0
	CGC-1
	CGC-UPTC

NOTES:

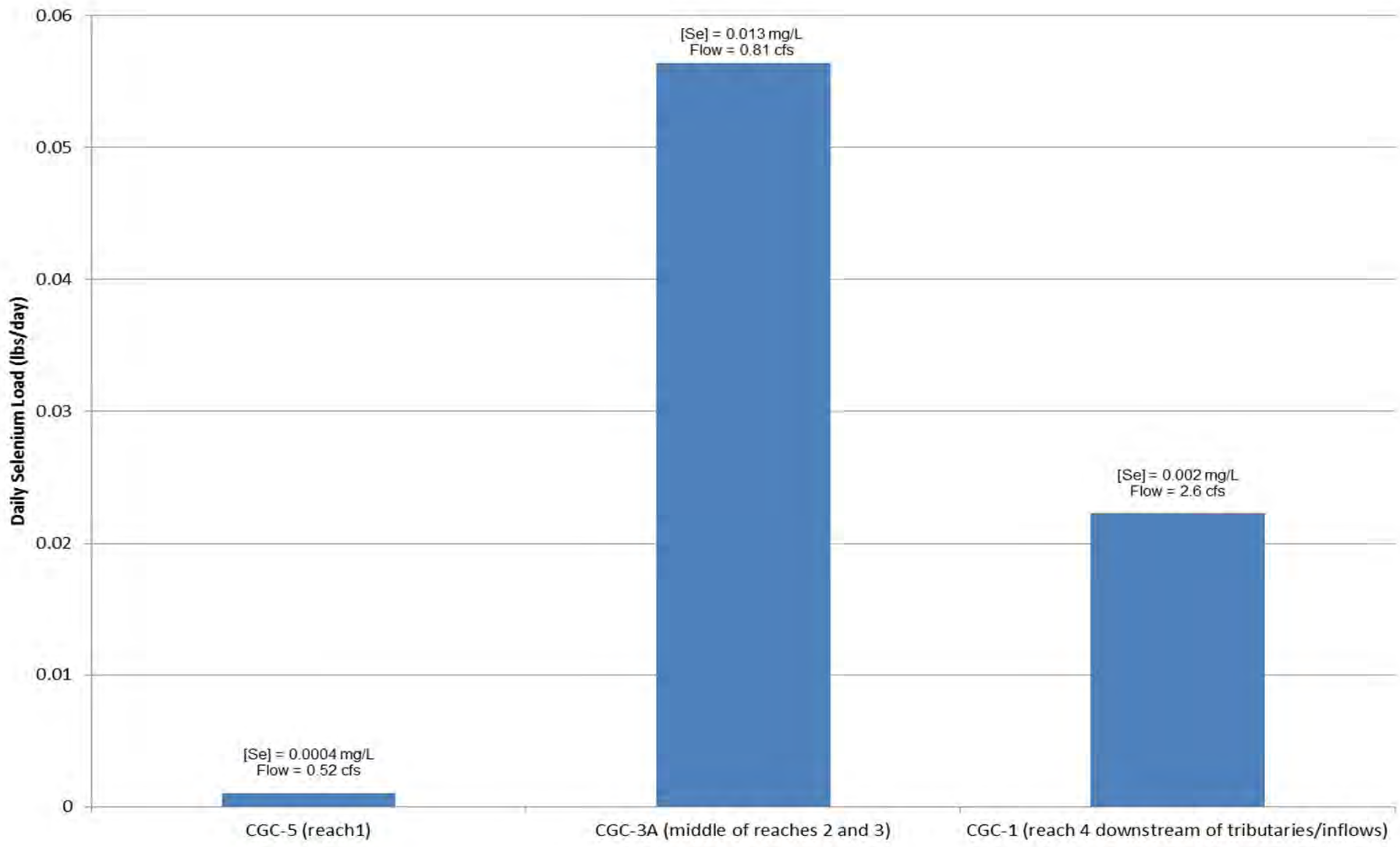
- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for surface water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-47
CAMP G CREEK
SURFACE WATER COPC CONCENTRATIONS BY REACH SEGMENT AND FLOW SEASON

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\Camp_G_Creek\CampG_Boxplot.ppt



Notes:

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-48

DAILY SELENIUM LOADING RATES AT THREE LOCATIONS ON CAMP G CREEK, SPRING 2009

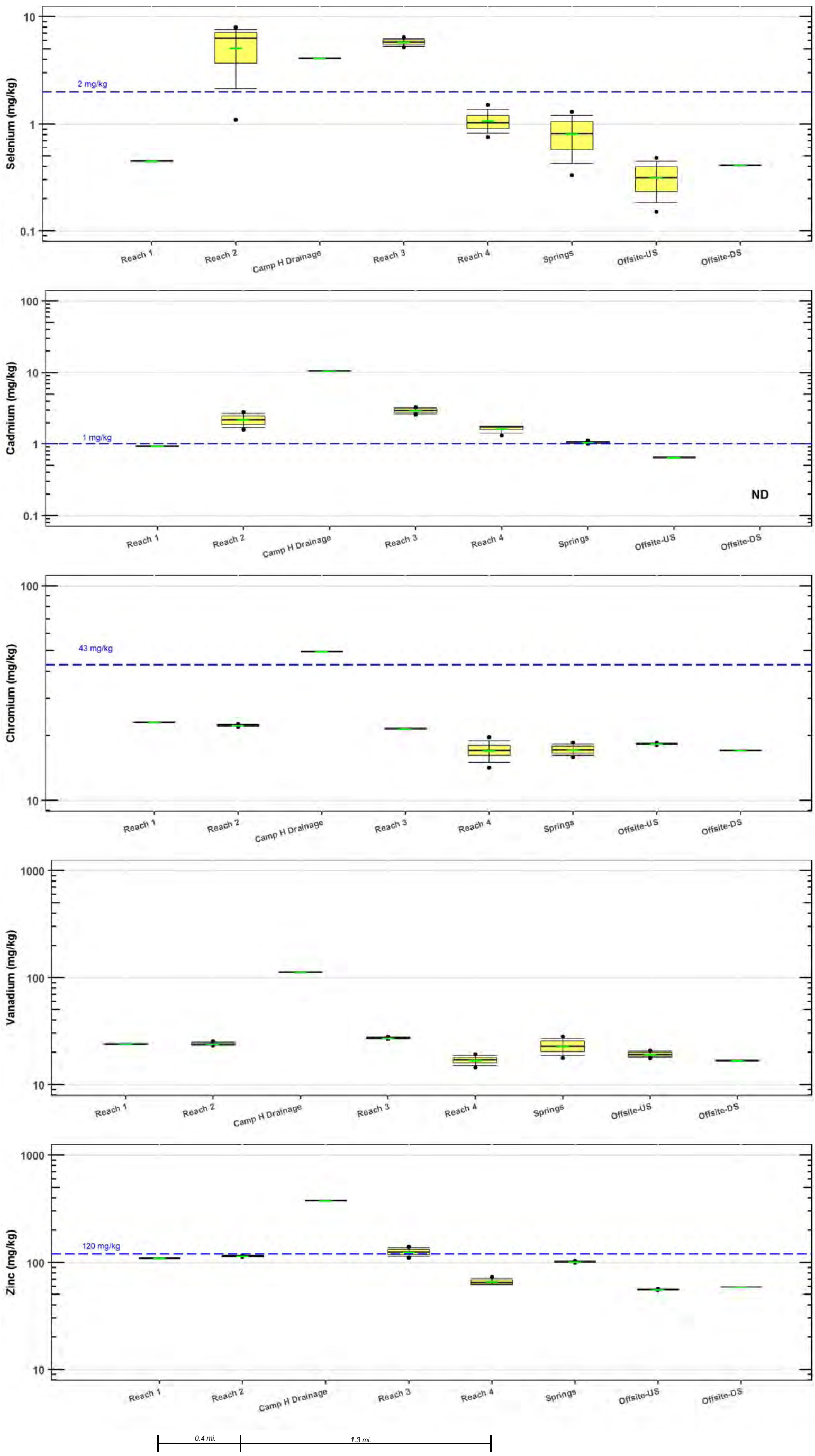
DATE: DEC 2016

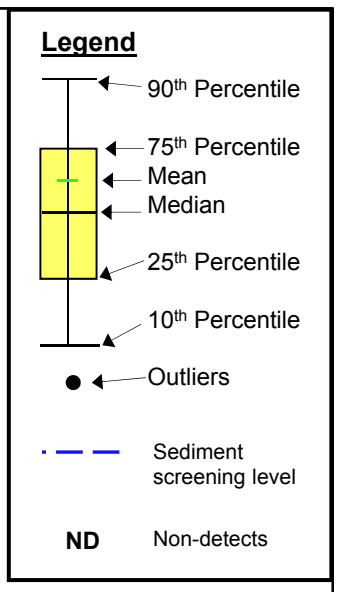
BY: KAM

FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V2\TRANSPORTANALYSES\CAMP_G_CREEK\FIG6-X_CAMPGCHART.PPTX





Location	Station
Reach 1	CGC-5
Reach 2	CGC-4
	CGC-4A
Camp H Drainage	CGC-6
Reach 3	CGC-3A
	CGC-3B
Reach 4	CGC-0
	CGC-1
	CGC-1A
Springs	CS-1_CND
	JS-1
Offsite-US	TC-1
Offsite-DS	TC-2

NOTES:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.
- Offsite-US = Trail Creek upstream of Camp G confluence.
- Offsite-DS = Trail Creek downstream of Camp G confluence.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-49

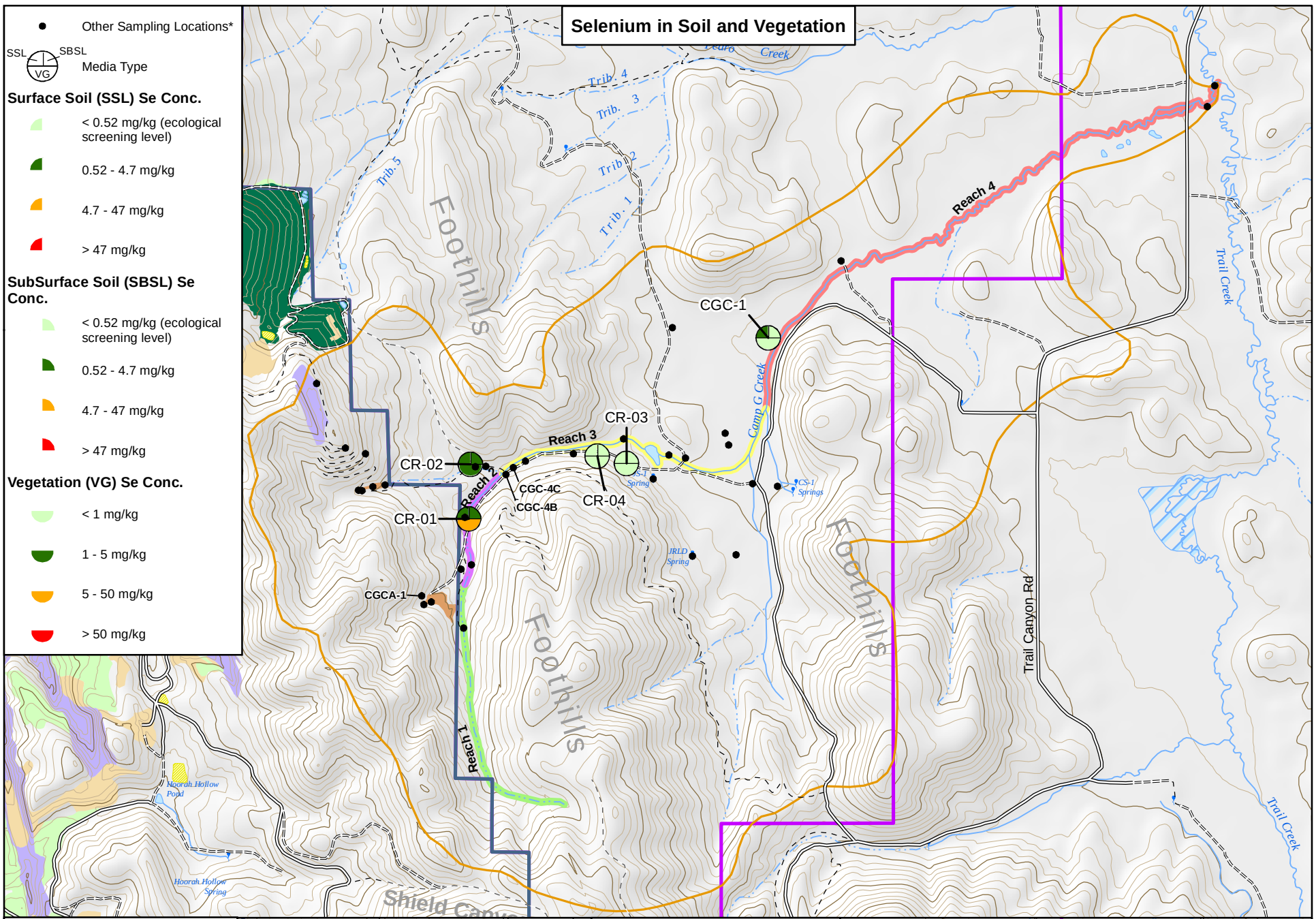
CAMP G CREEK SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

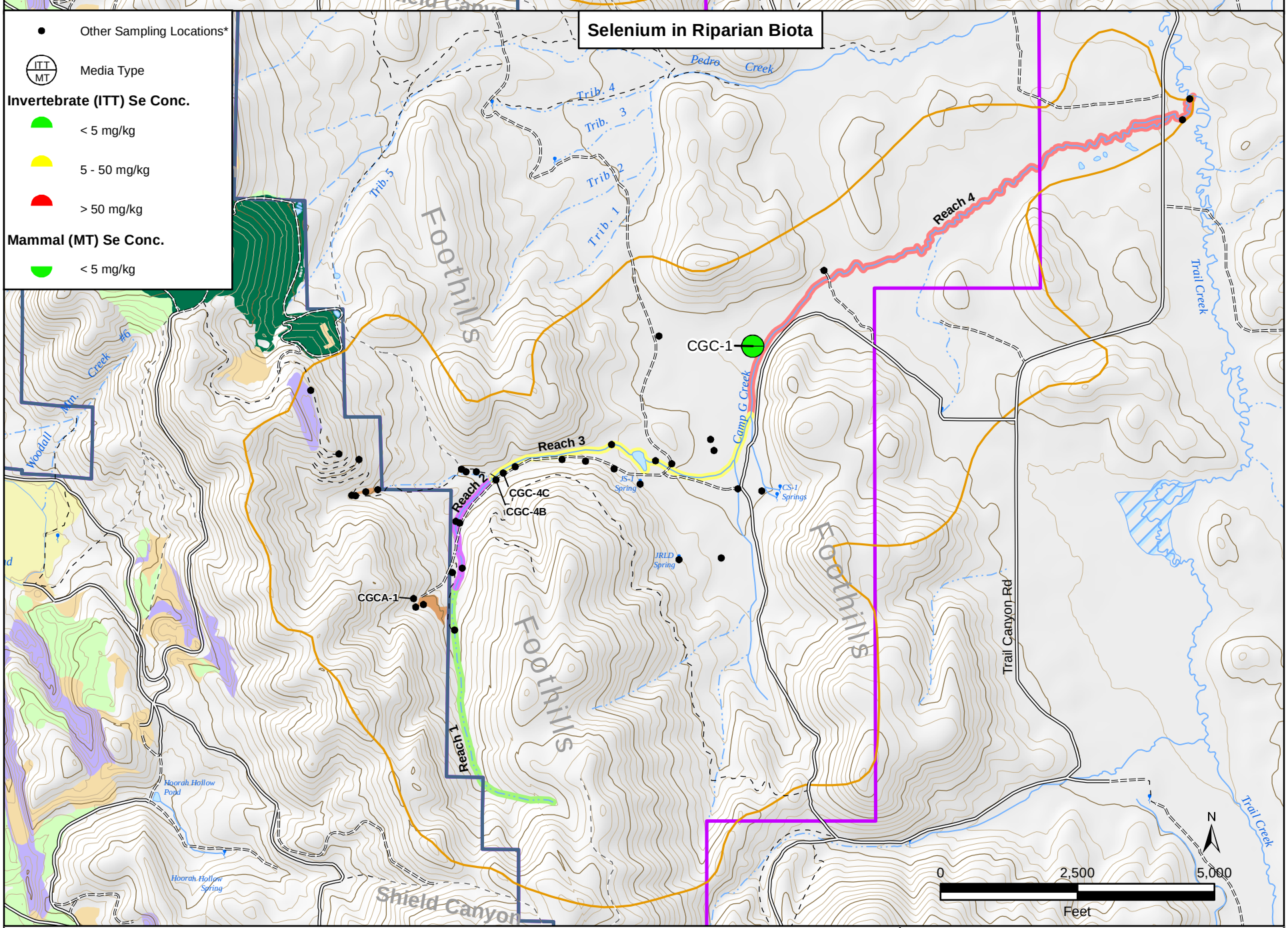
DATE: MAY 2016

BY: AJ/RCR/BAP | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\Camp_G_Creek\CampG_Boxplot.ppt





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine
- Non-Mine
- Sub-Basins

Stream Reach

- Reach 1
- Reach 2
- Reach 3
- Reach 4

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

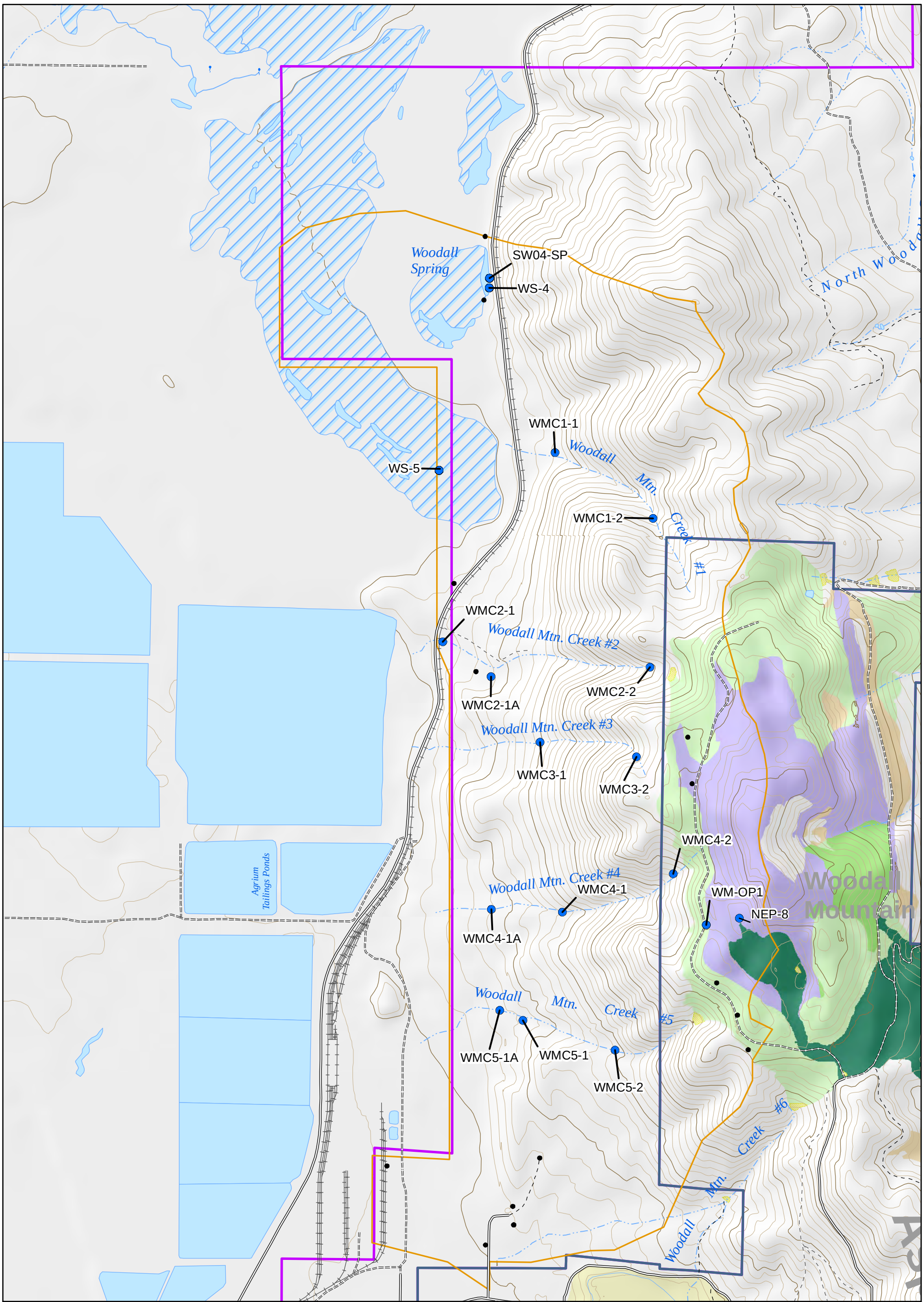
FIGURE 6-50

CAMP G CREEK SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN RIPARIAN MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\pht\RI_2016\Fig_6-050_CampGCreekSeConcRip.mxd



Legend

- Aquatic Monitoring Locations
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 1,000 2,000
Feet

Note:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

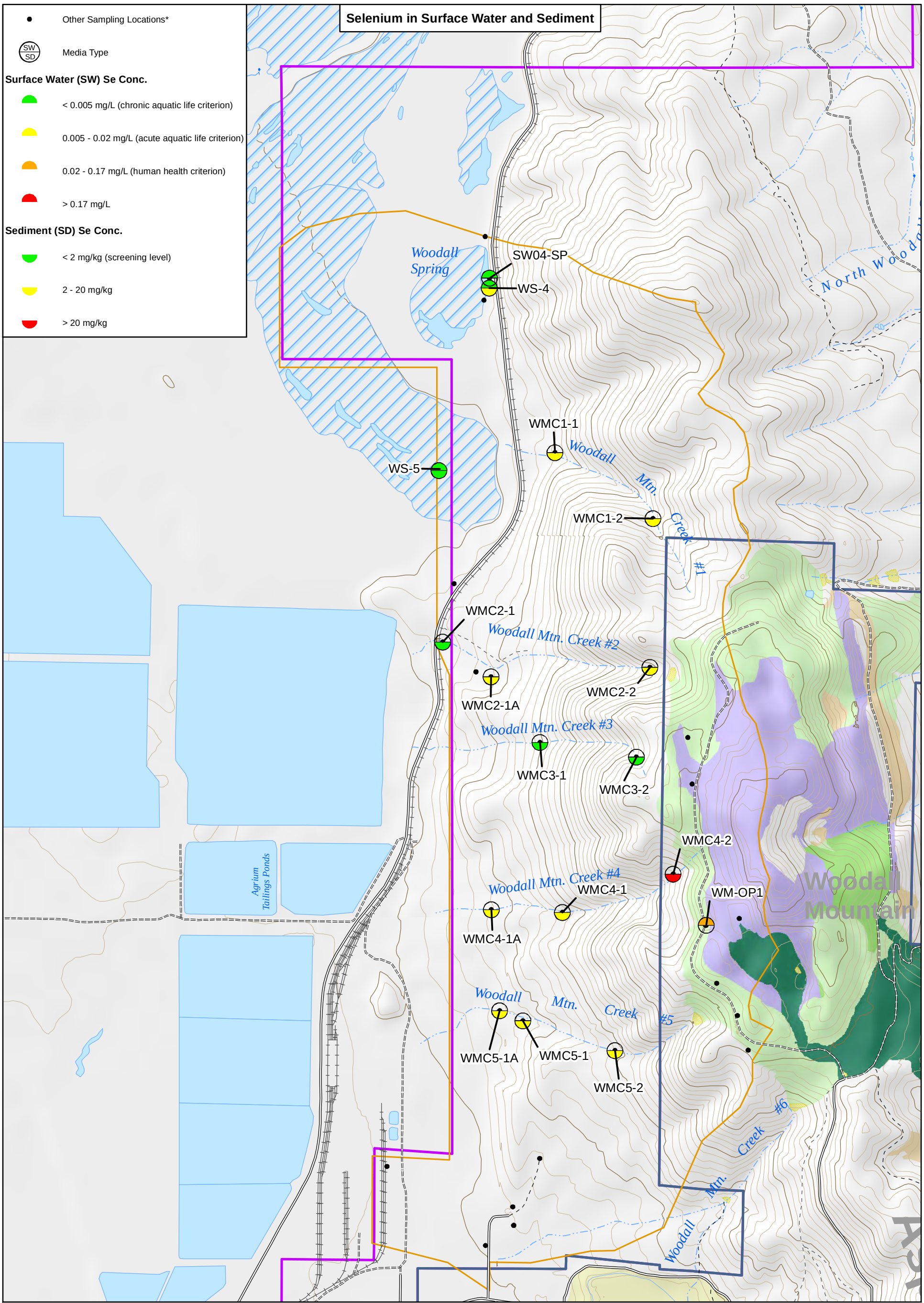
FIGURE 6-51

WESTERN WOODALL MOUNTAIN SUB-BASIN AQUATIC MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-051_WestWoodallLocs.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 1,000 2,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

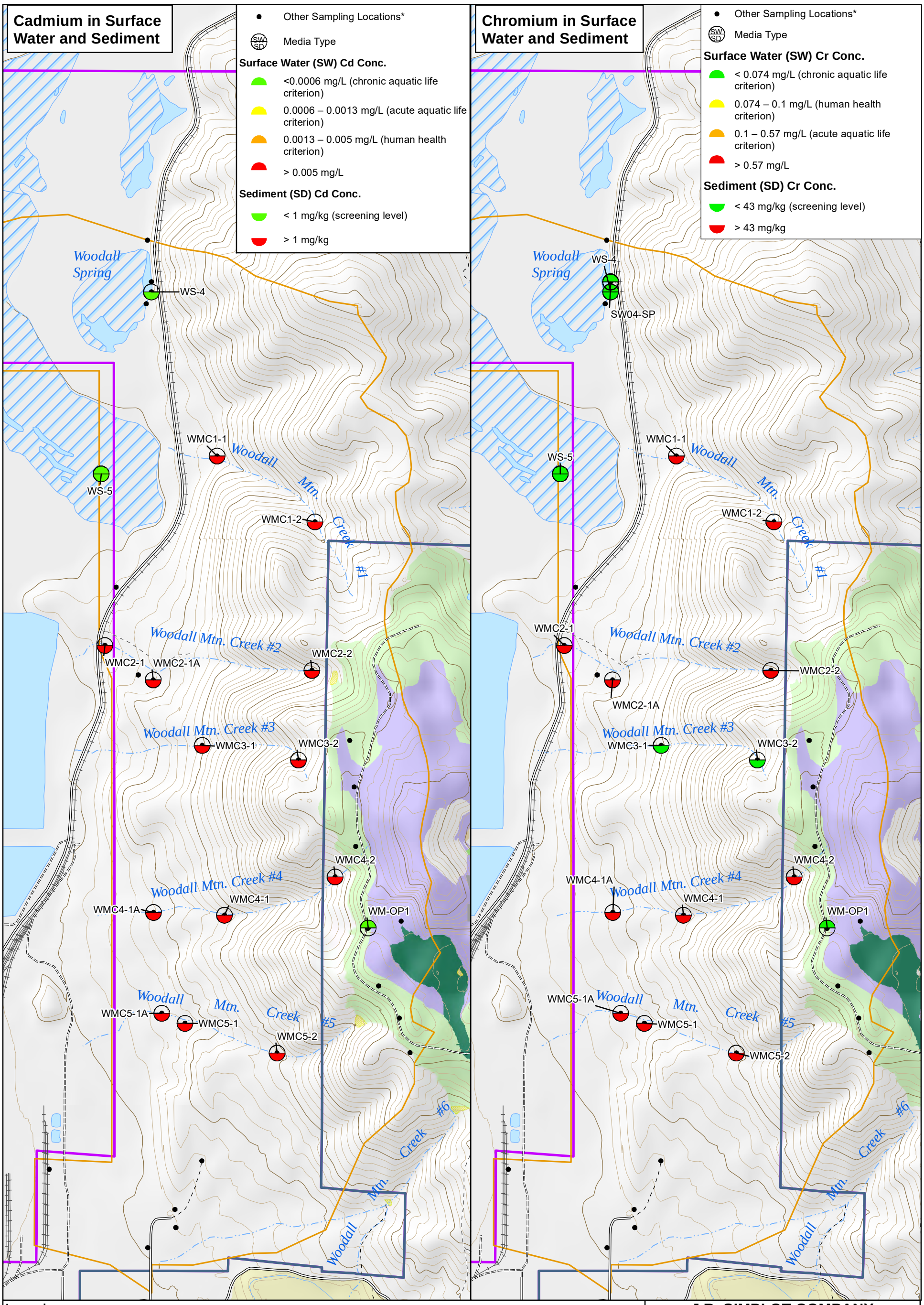
FIGURE 6-52

WESTERN WOODALL MOUNTAIN SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-052_WestWoodallSeConcAq.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 1,000 2,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

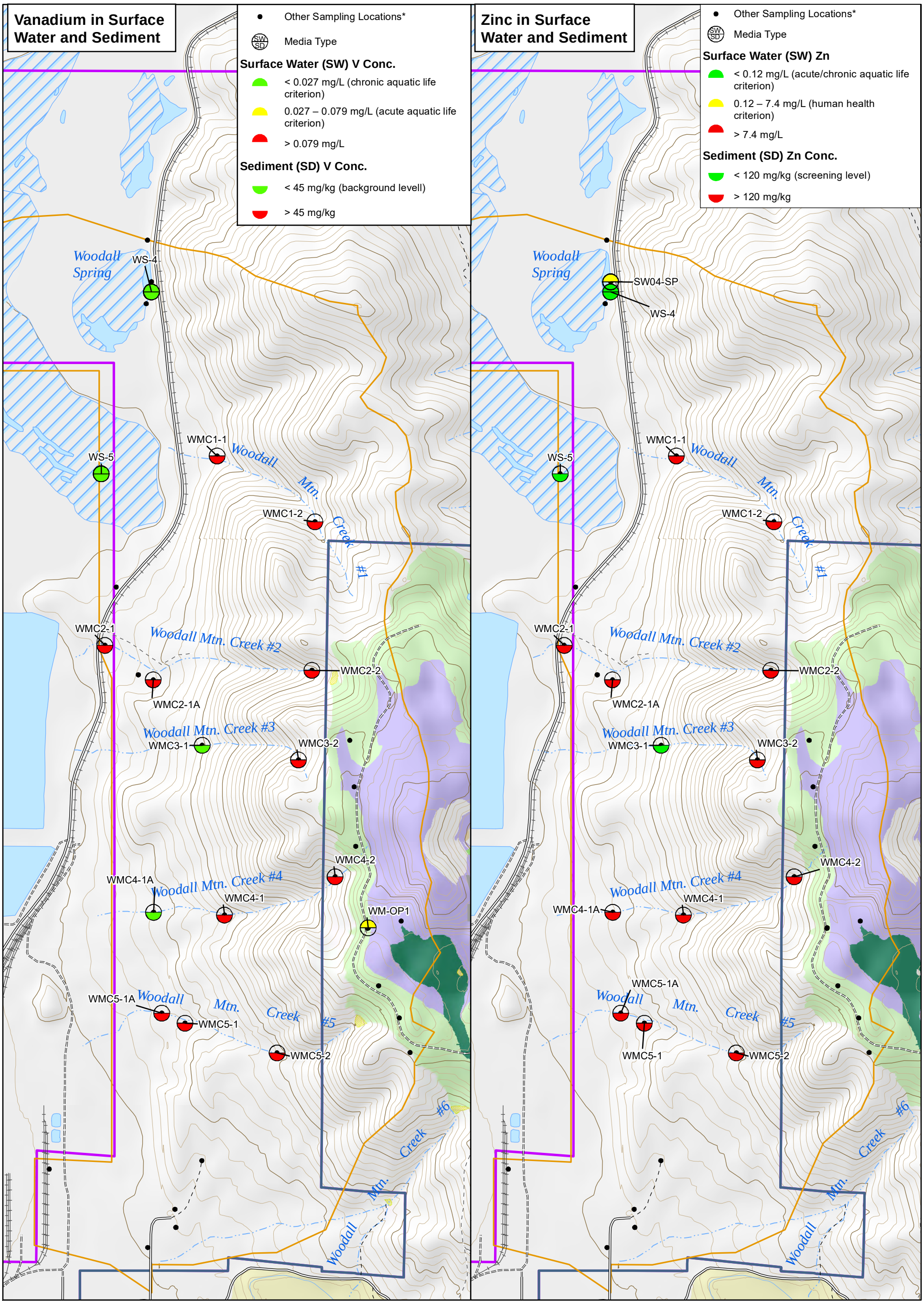
FIGURE 6-53

WESTERN WOODALL MOUNTAIN SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: DKG
FOR: CRL

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-053_WestWoodallCdCrConcAq.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 1,000 2,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

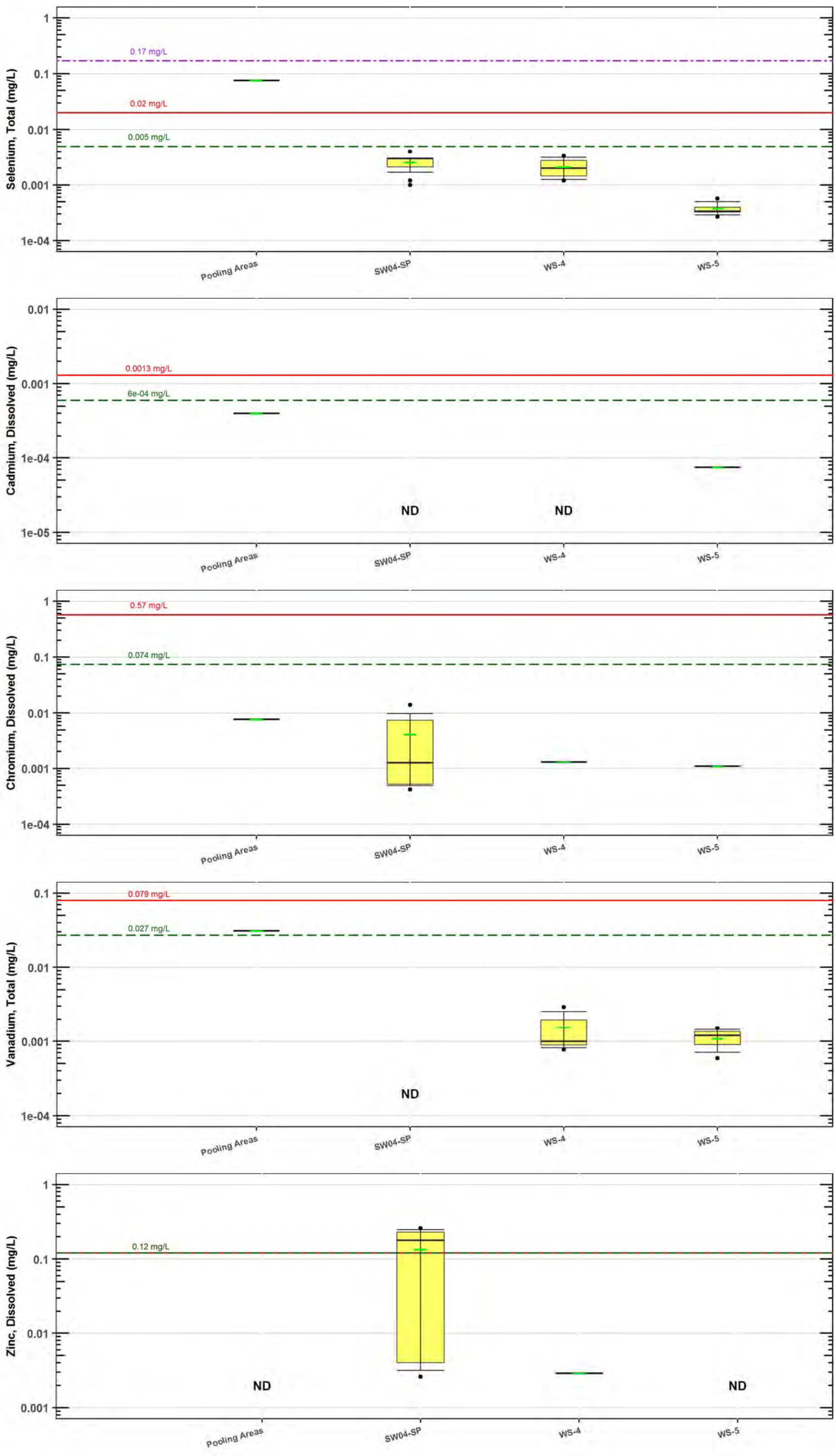
FIGURE 6-54

WESTERN WOODALL MOUNTAIN SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: DKG
FOR: CRL

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-054_WestWoodallVZnConcAq.mxd



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- ND Non-detects

Location	Station
Pooling Areas	WM-OP1
SW04-SP	SW04-SP
WS-4	WS-4
WS-5	WS-5

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for water quality criteria and standards.

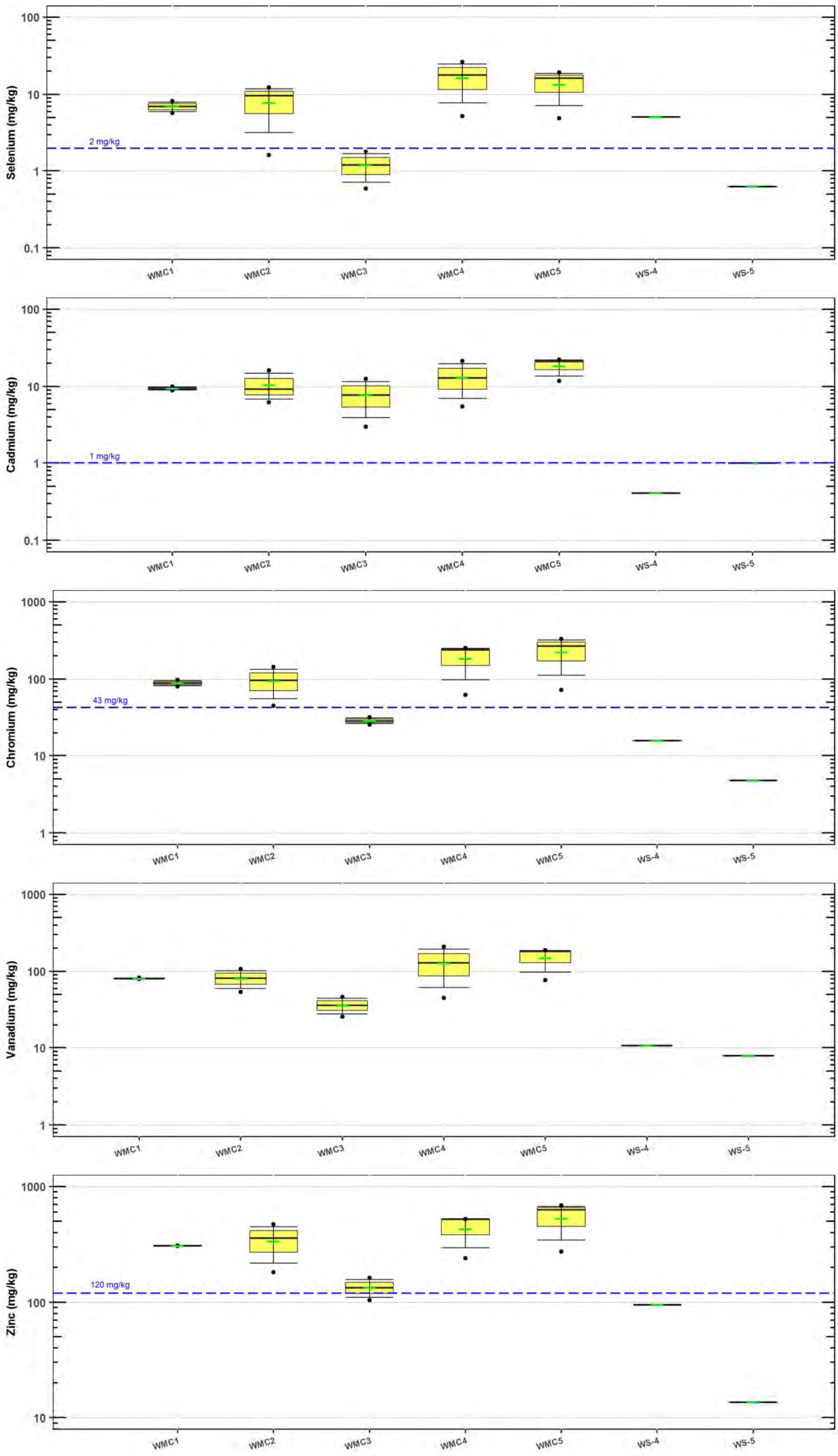
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

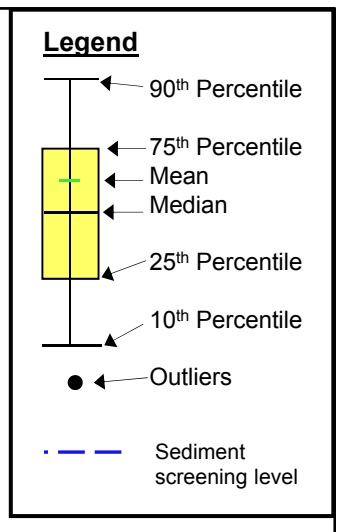
FIGURE 6-55
WESTERN WOODALL MOUNTAIN SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\WesternWoodall\WesternWoodall_Boxplot.ppt





Location	Station
WMC1	WMC1-1
	WMC1-2
WMC2	WMC2-1
	WMC2-1A
	WMC2-2
WMC3	WMC3-1
	WMC3-2
WMC4	WMC4-1
	WMC4-1A
	WMC4-2
WMC5	WMC5-1
	WMC5-1A
	WMC5-2
WS-4	WS-4
WS-5	WS-5

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

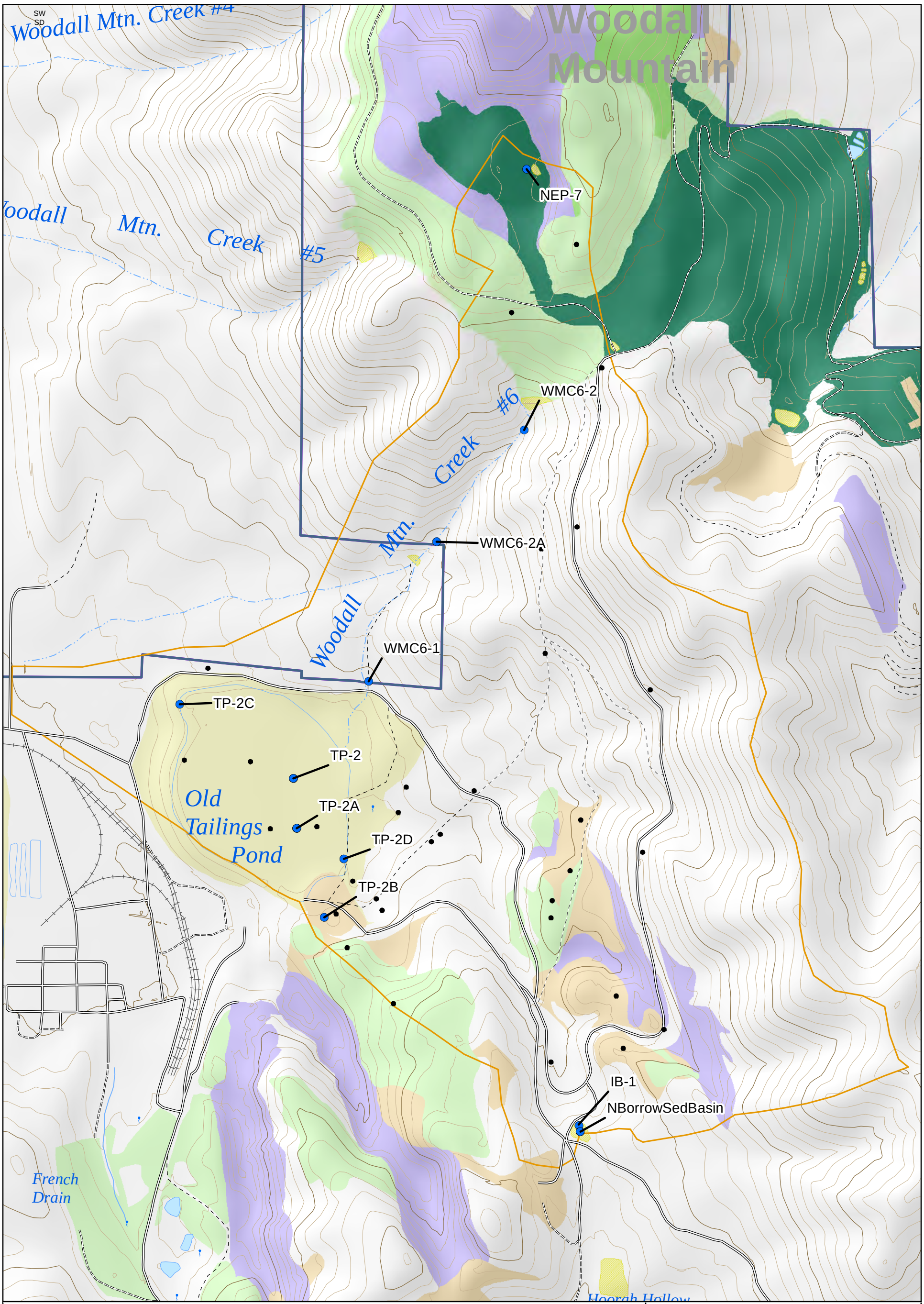
FIGURE 6-56

WESTERN WOODALL MOUNTAIN SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\WesternWoodall\WesternWoodall_Boxplot.ppt



Legend

- Aquatic Monitoring Locations
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 500 1,000
Feet

Notes:
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

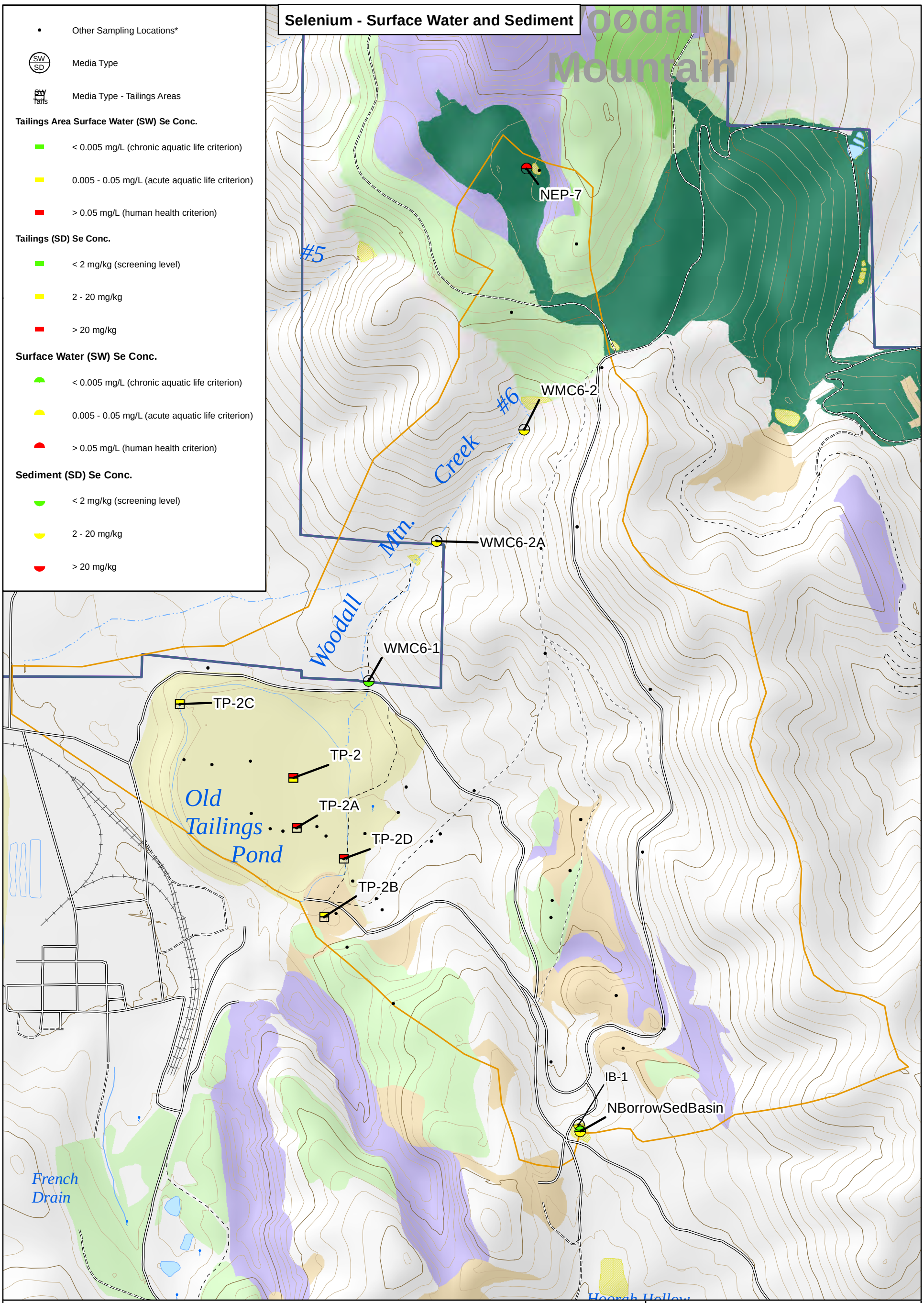
FIGURE 6-57

OLD TAILINGS POND SUB-BASIN AQUATIC MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\0101139\plt\RI_2016\Fig_6-057_OldTailingsLocs.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine
- Sub-Basins

N

0 500 1,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

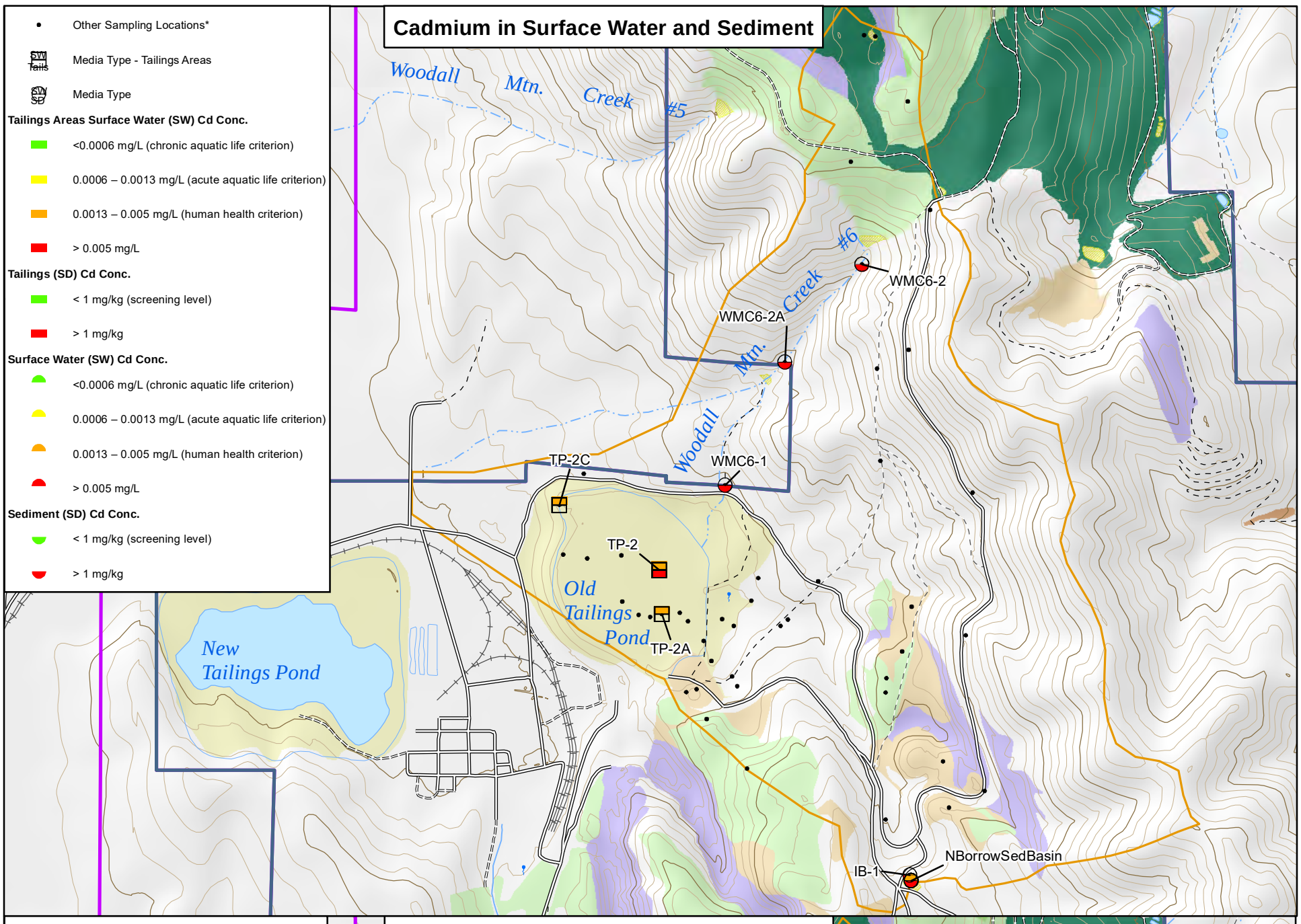
FIGURE 6-58

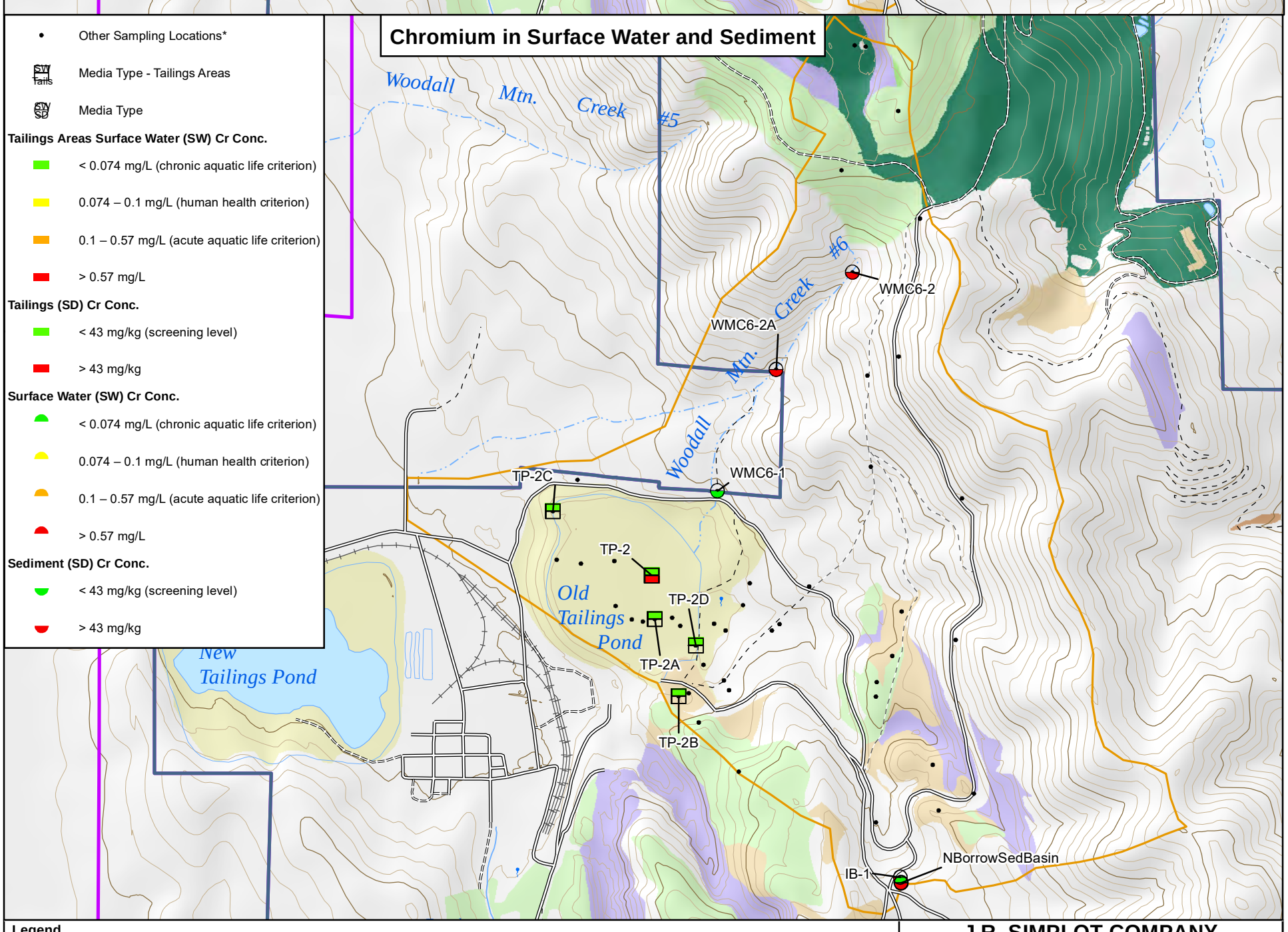
OLD TAILINGS POND SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-058_OldTailingsSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine Area
- Non-Mine
- Sub-Basins

N

0 500 1,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

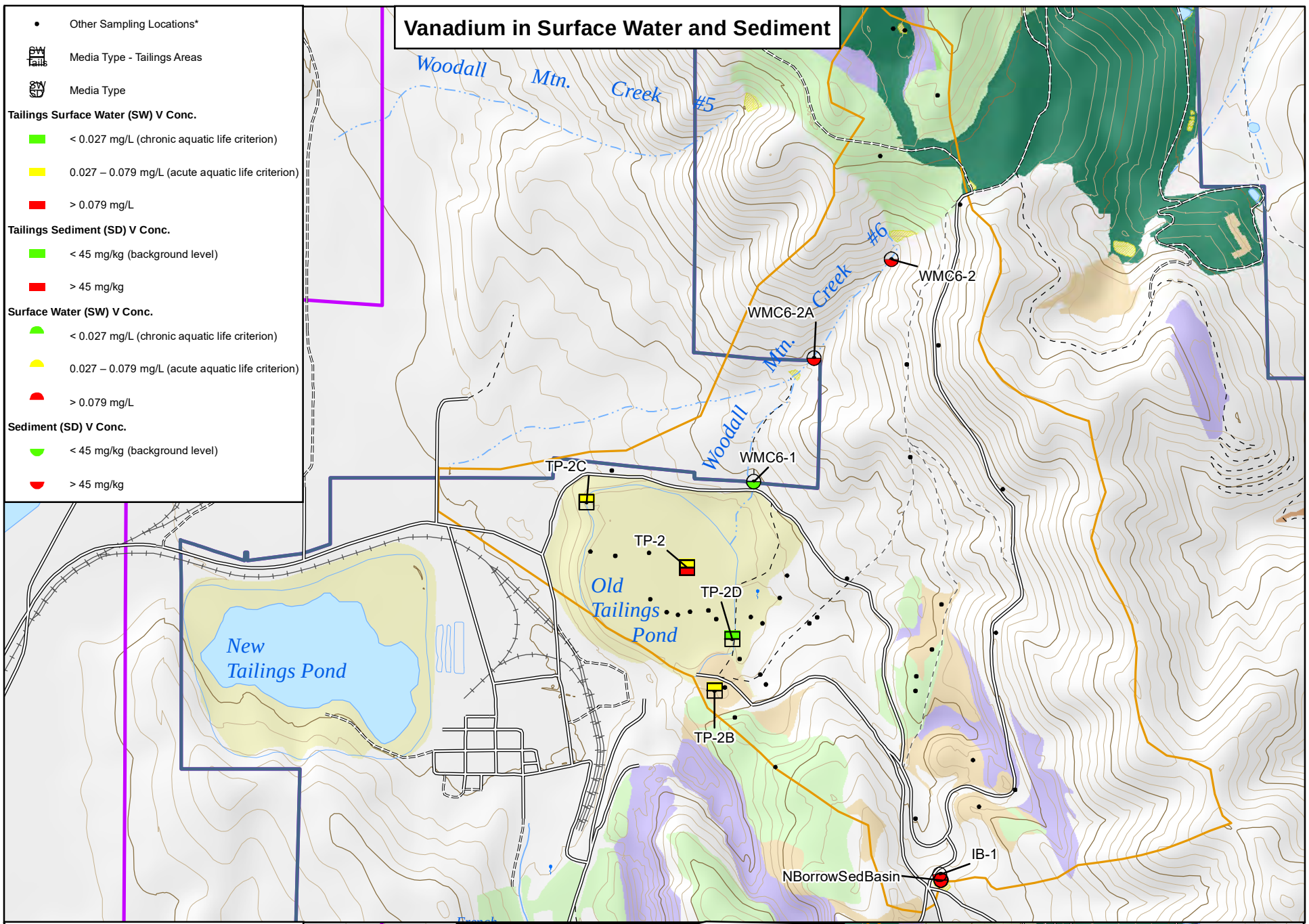
FIGURE 6-59

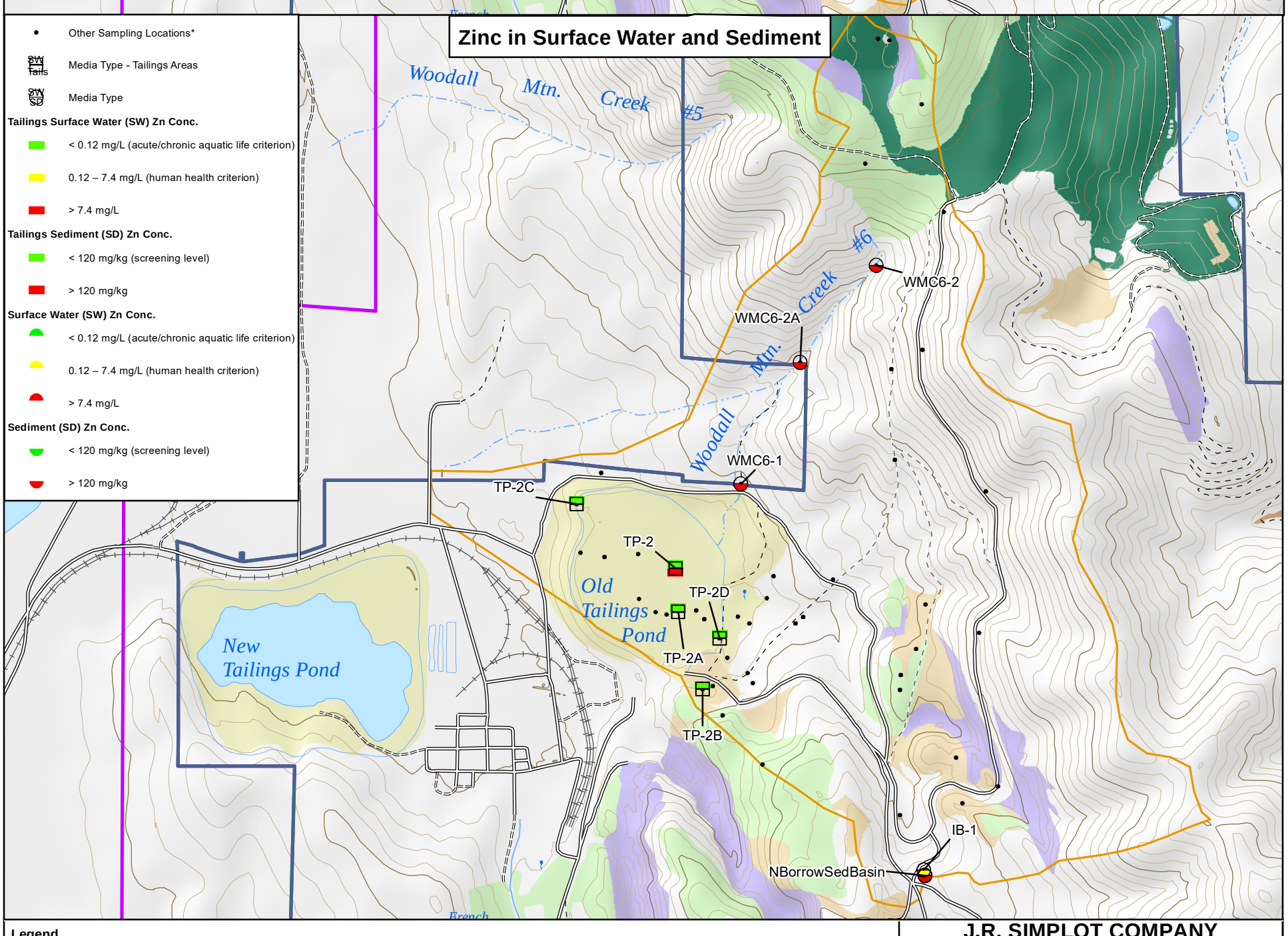
OLD TAILINGS POND SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: DKG
FOR: CRL

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-059_OldTailingsCdCrConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

- Mine
- Non-Mine
- Sub-Basins

N

0 500 1,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

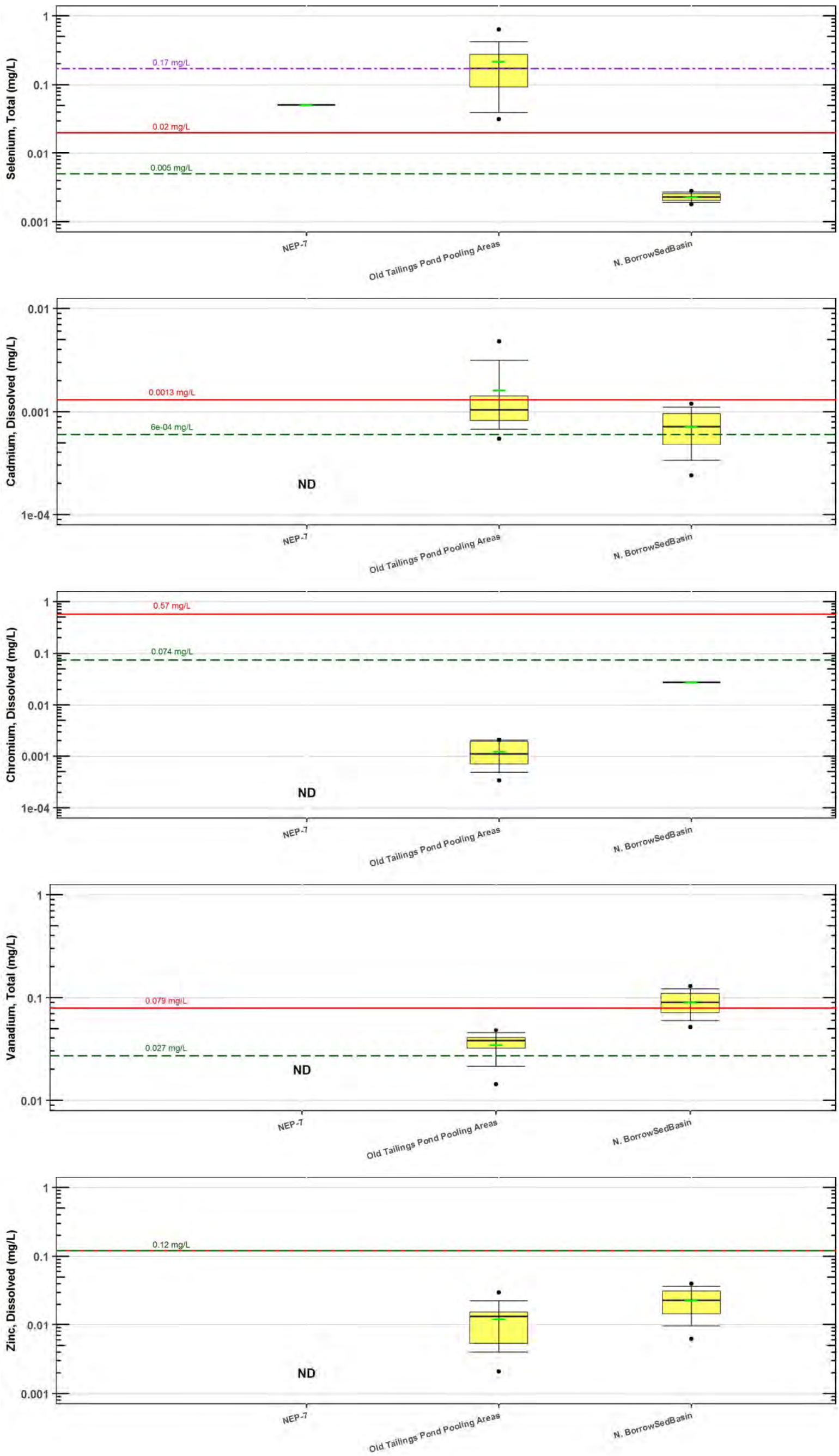
FIGURE 6-60

OLD TAILINGS POND SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: DKG
FOR: CRL

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-060_OldTailingsVZnConcAq.mxd



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- ND Non-detects

Location	Station
NEP-7	NEP-7
Old Tailings Pond Pooling Areas	TP-2
	TP-2A
	TP-2B
	TP-2C
	TP-2D
N. Borrow Sed Basin	NBorrowSedBasin

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-61

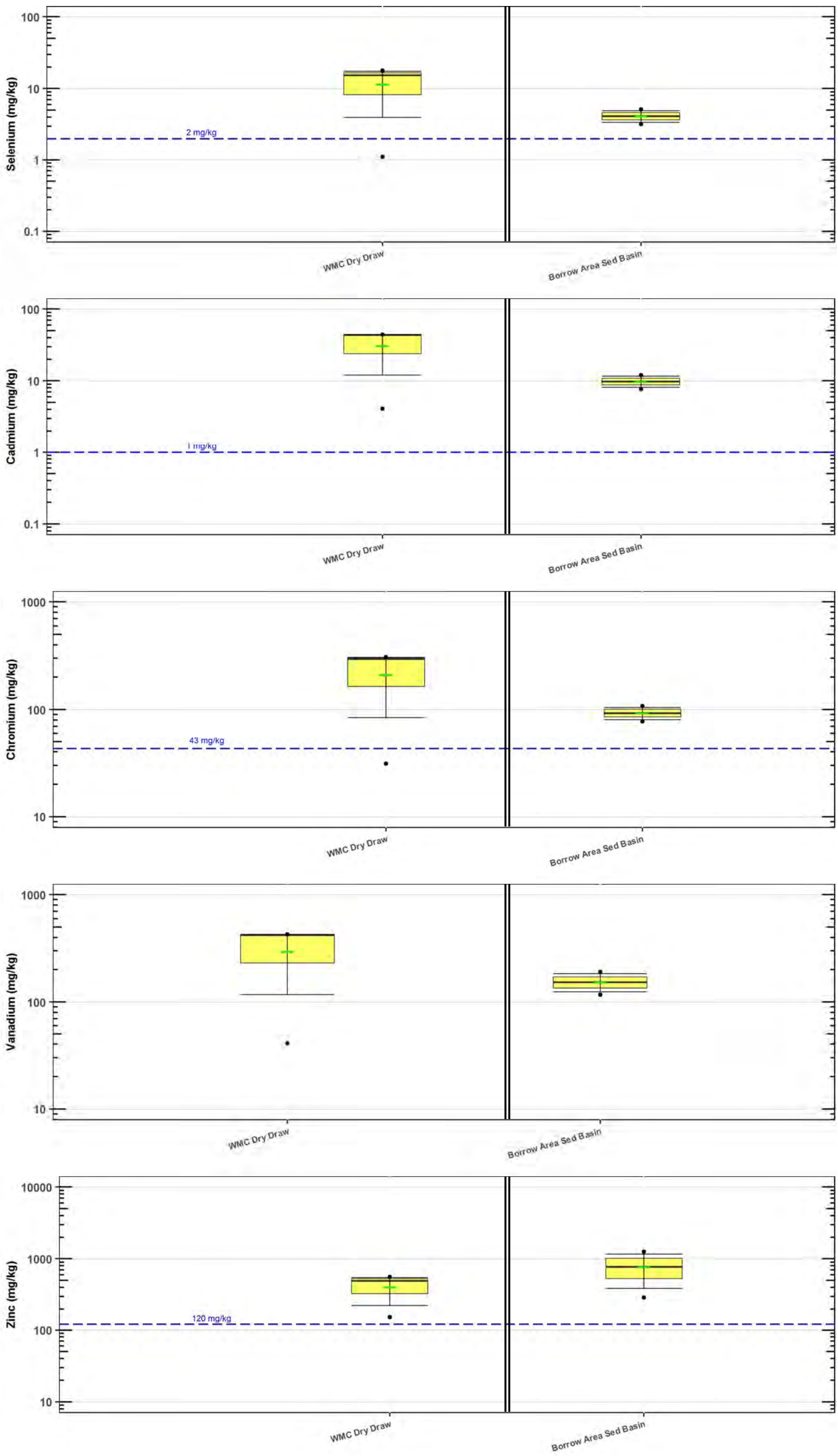
OLD TAILINGS POND SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

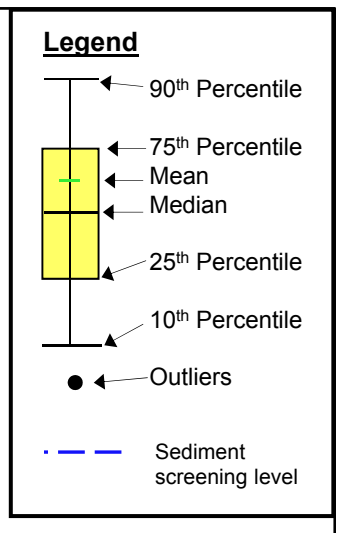
DATE: MAY 2016

BY: AJ/RCR/BAP | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\OldTailings\OldTailings_Boxplot.ppt





Location	Station
WMC (Dry Draw)	WMC6-1
	WMC6-2
	WMC6-2A
Borrow Area Sed Basin	IB-1
	NBorrowSedBasin

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

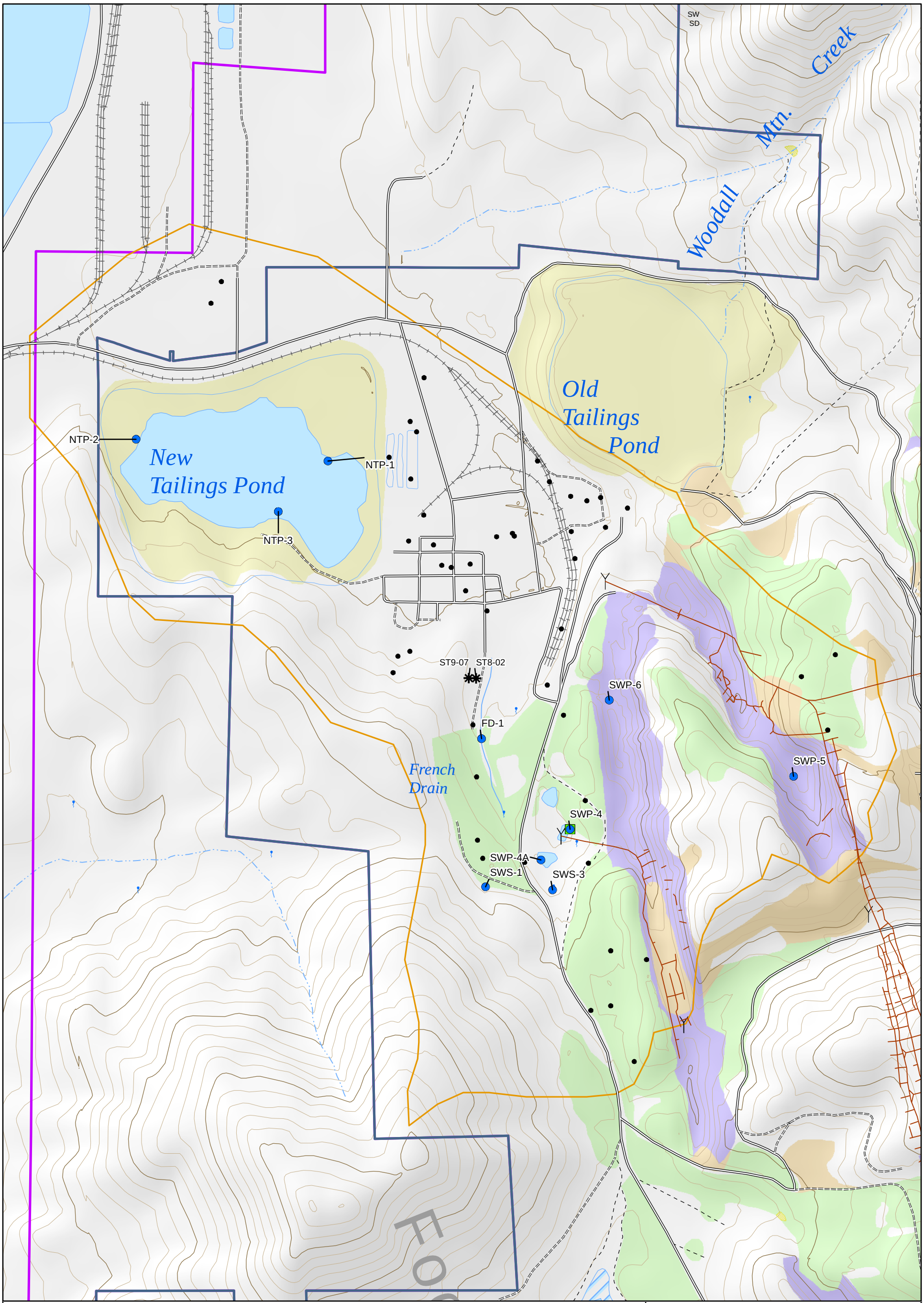
FIGURE 6-62

OLD TAILINGS POND SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\OldTailings\OldTailings_Boxplot.ppt



Legend

- Aquatic Monitoring Locations
- Riparian Monitoring Locations
- Upland Adjacent to RMM
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Mine Area
- Non-Mine Area
- Sub-Basins
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Underground Workings
- Adit Portal

N

0 500 1,000
Feet

Notes:
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- As active facilities, areas associated with the pump station and the New Tailings Pond (where water for the pump station is stored) are not being addressed under CERCLA.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

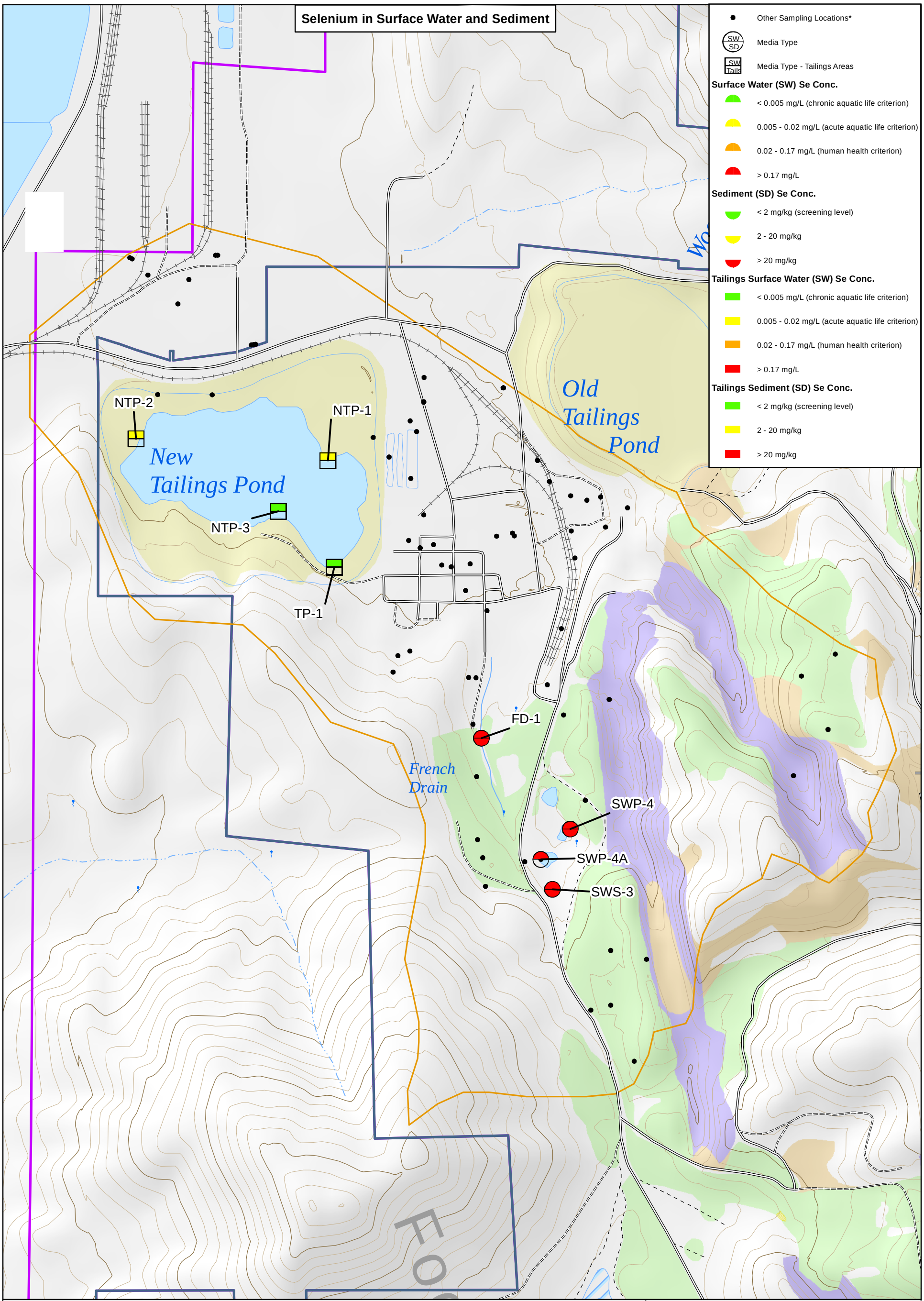
FIGURE 6-63

FRENCH DRAIN SUB-BASIN AQUATIC AND RIPARIAN MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-063_FrenchDrainLocs.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Sub-Basins
- Mine
- Non-Mine
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins

N

0 500 1,000
Feet

Note:
-Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- As active facilities, areas associated with the pump station and the New Tailings Pond (where water for the pump station is stored) are not being addressed under CERCLA.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

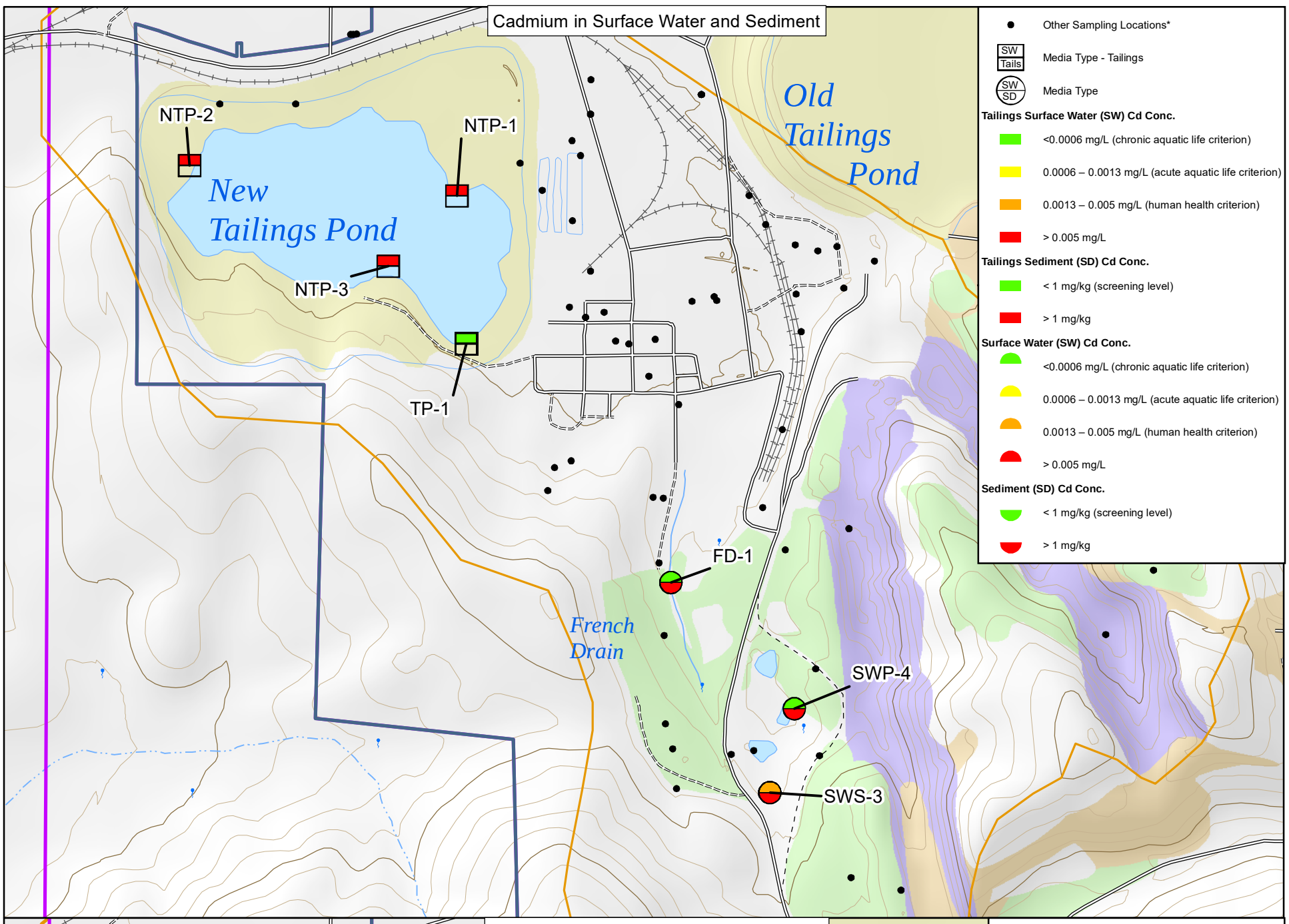
FIGURE 6-64

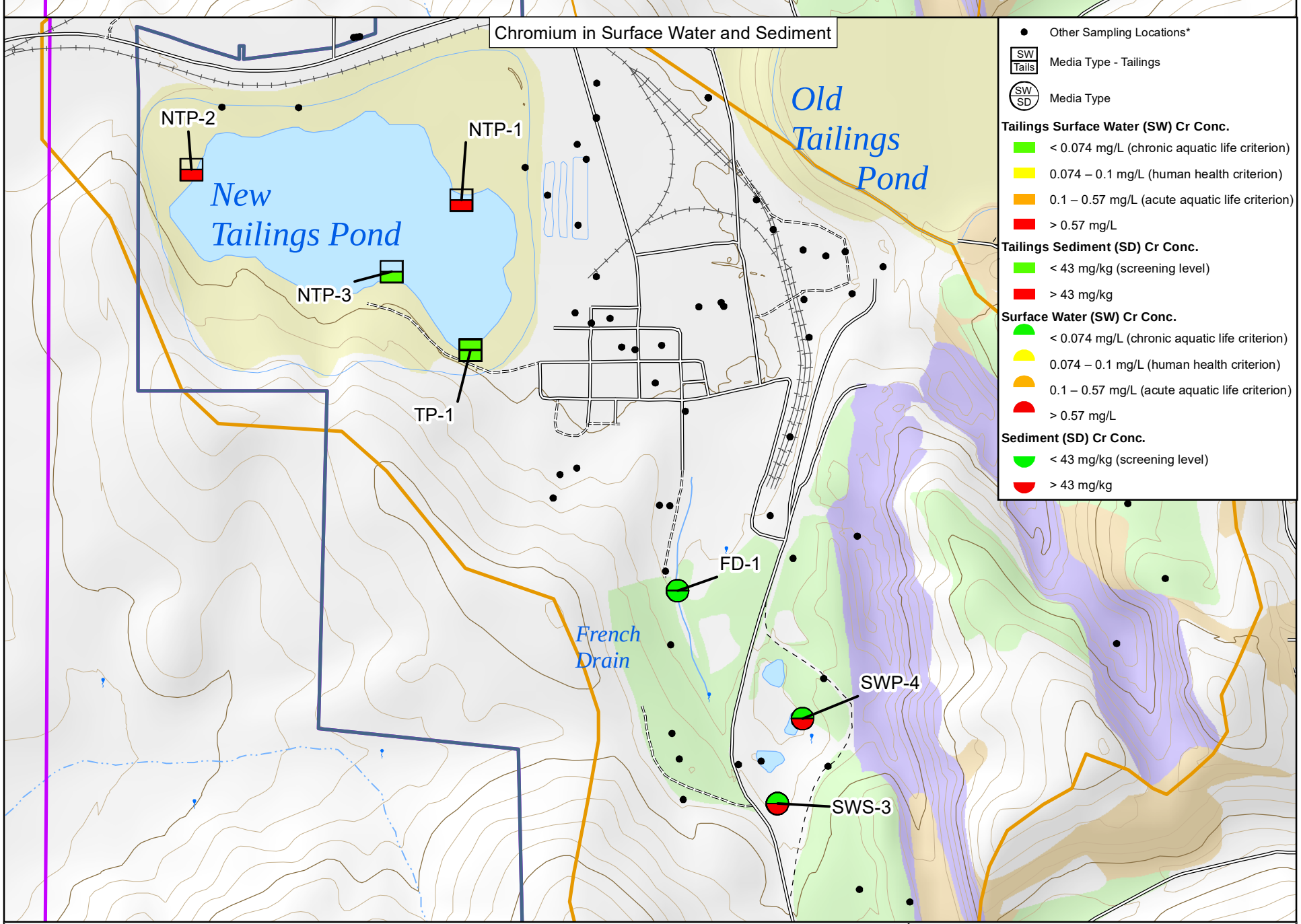
FRENCH DRAIN SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-064_FrenchDrainSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area

N

0 500 1,000
Feet

Note:
-Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- As active facilities, areas associated with the pump station and the New Tailings Pond (where water for the pump station is stored) are not being addressed under CERCLA.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

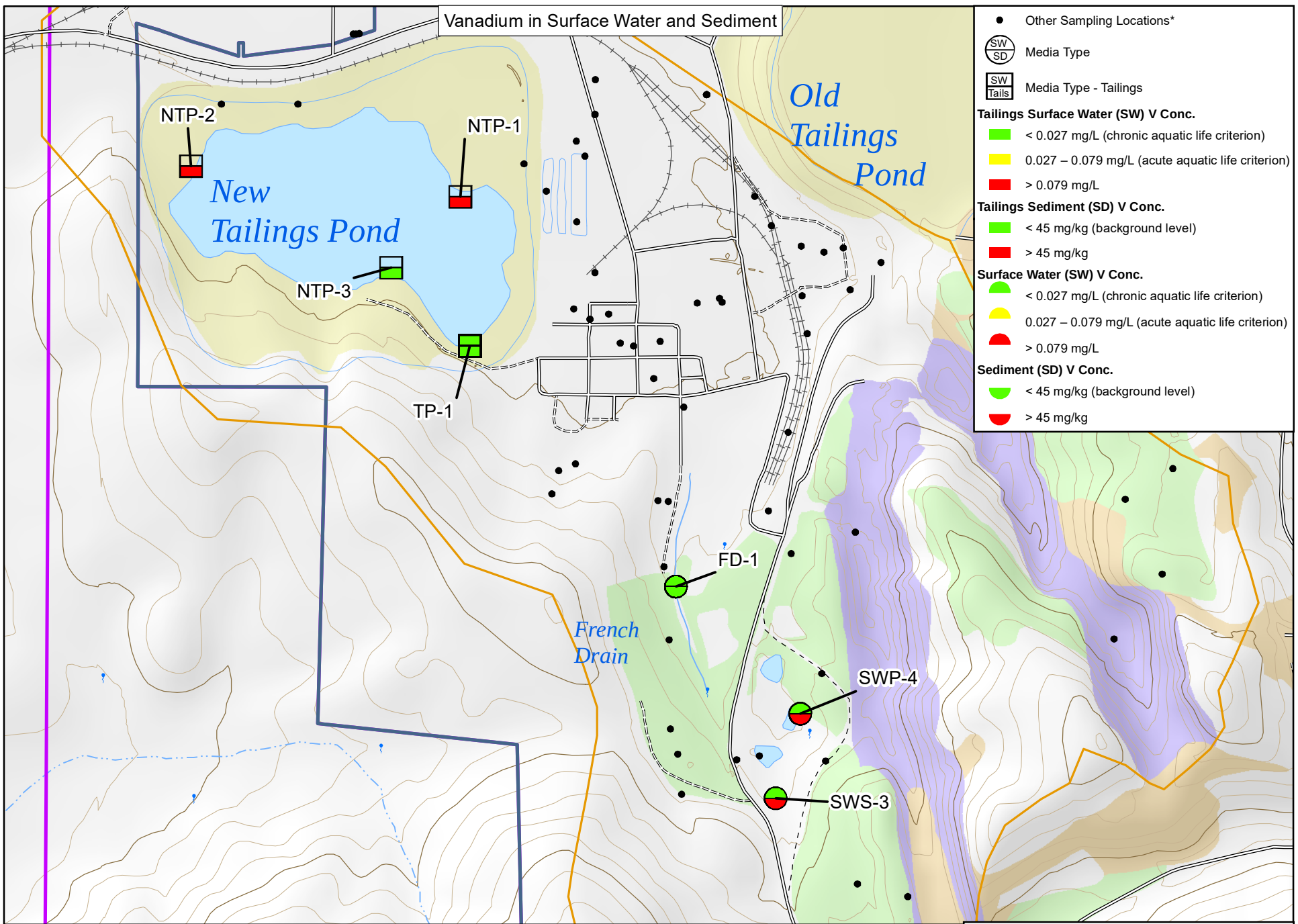
FIGURE 6-65

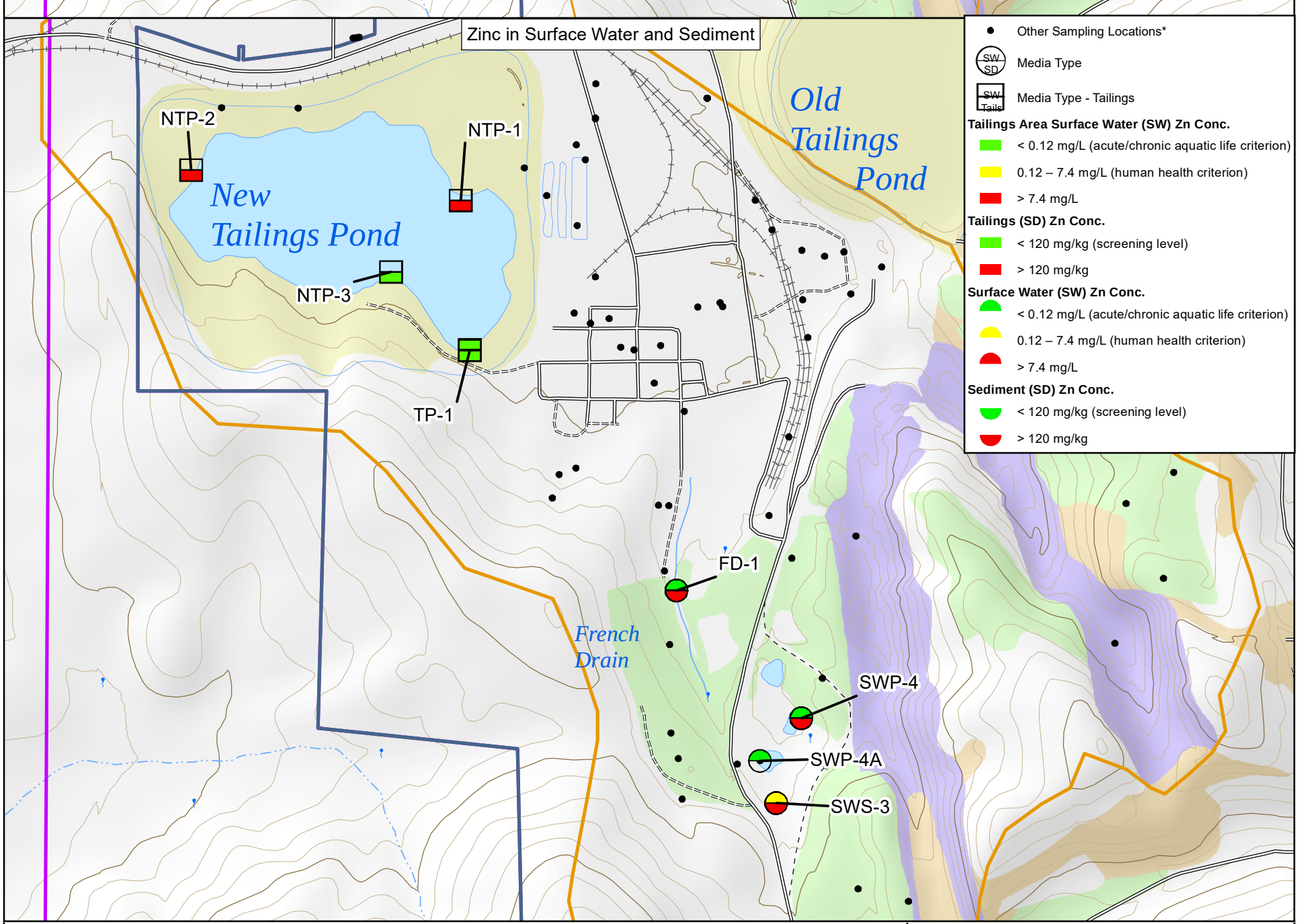
FRENCH DRAIN SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-065_FrenchDrain_CdCr_ConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area

N

0 500 1,000
Feet

Note:
-Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- As active facilities, areas associated with the pump station and the New Tailings Pond (where water for the pump station is stored) are not being addressed under CERCLA.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

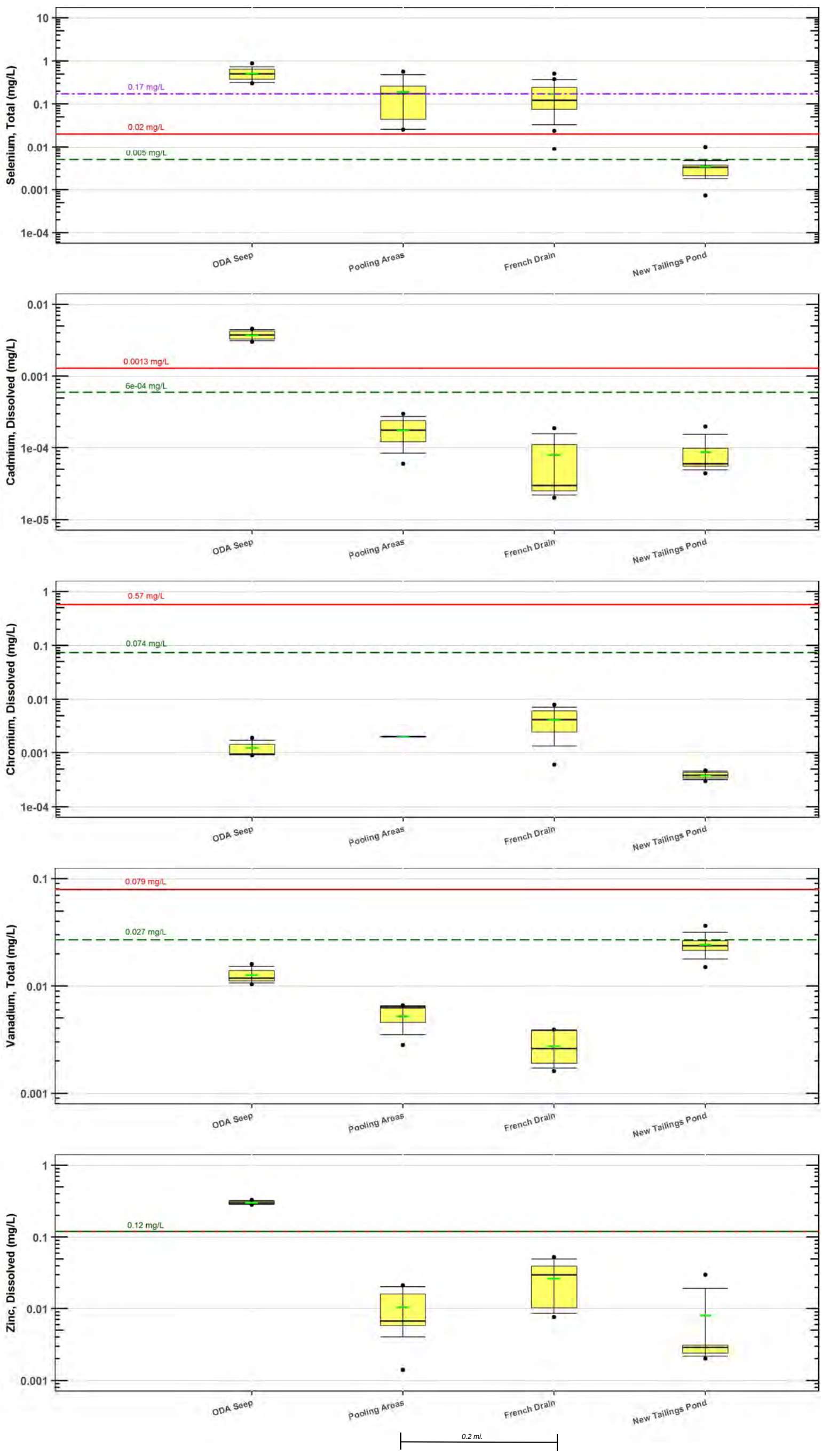
FIGURE 6-66

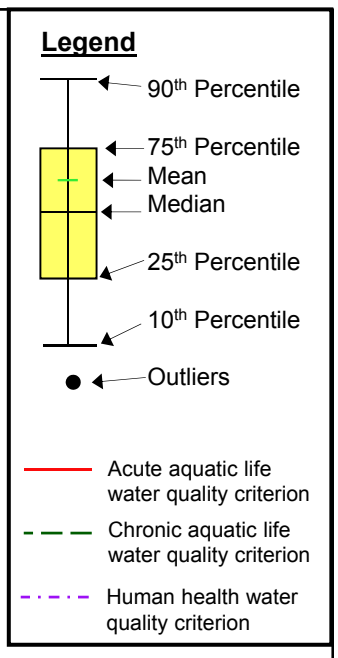
FRENCH DRAIN SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: CRL
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-066_FrenchDrain_VZn_ConcAq.mxd





Location	Station
ODA Seep	SWS-3
Pooling Areas	SWP-4
	SWP-4A
French Drain	FD-1
New Tailings Pond	TP-1

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for surface water quality criteria and standards.

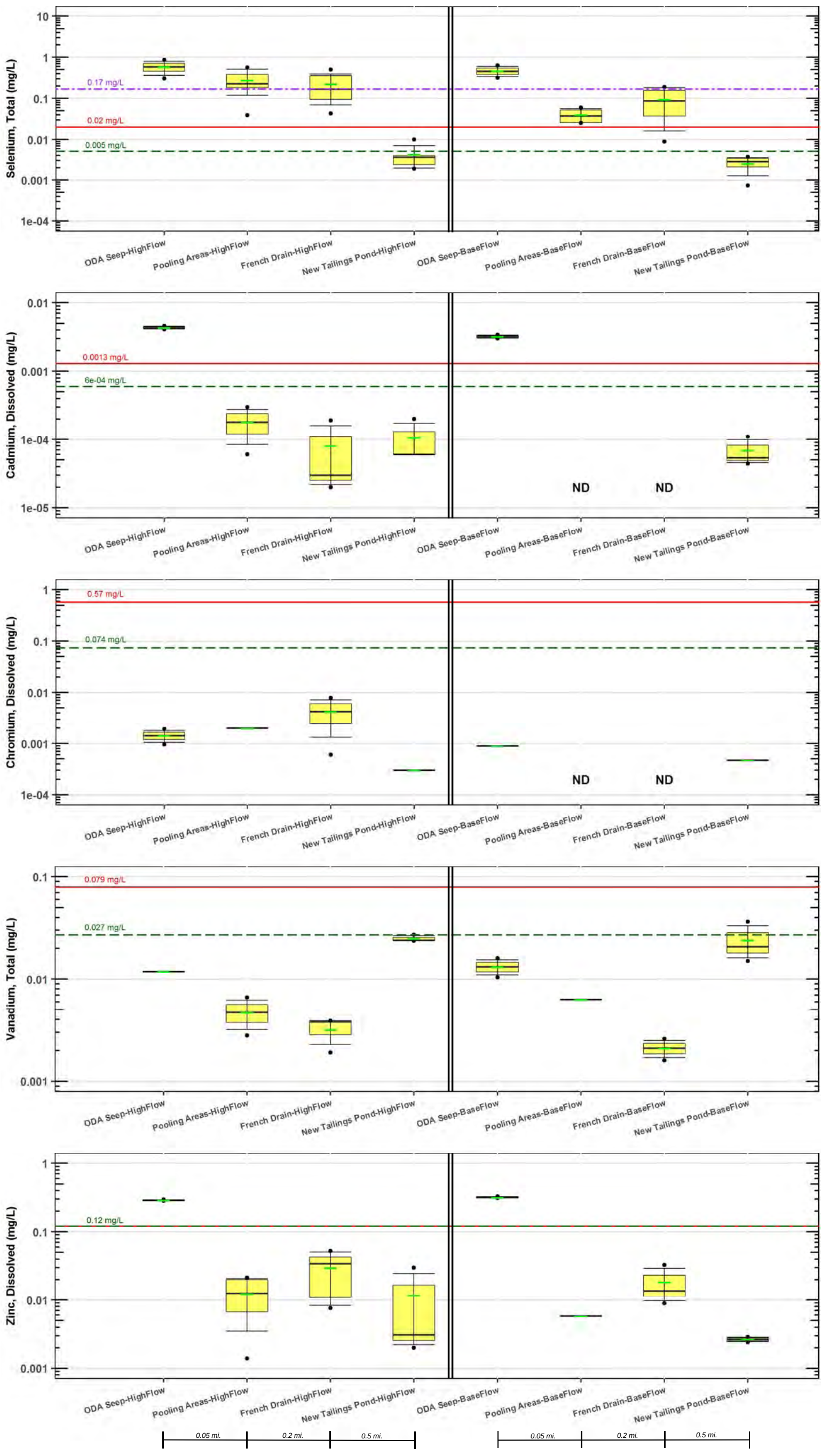
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-67
FRENCH DRAIN SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\FrenchDrain\FrenchDrain_Boxplot.ppt



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Acute aquatic life water quality criterion
- Chronic aquatic life water quality criterion
- Human health water quality criterion
- **ND** Non-detects

Location	Station
Pooling Areas	SWP-4
	SWP-4A
ODA Seep	SWS-3
French Drain	FD-1
New Tailings Pond	TP-1

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for surface water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-68

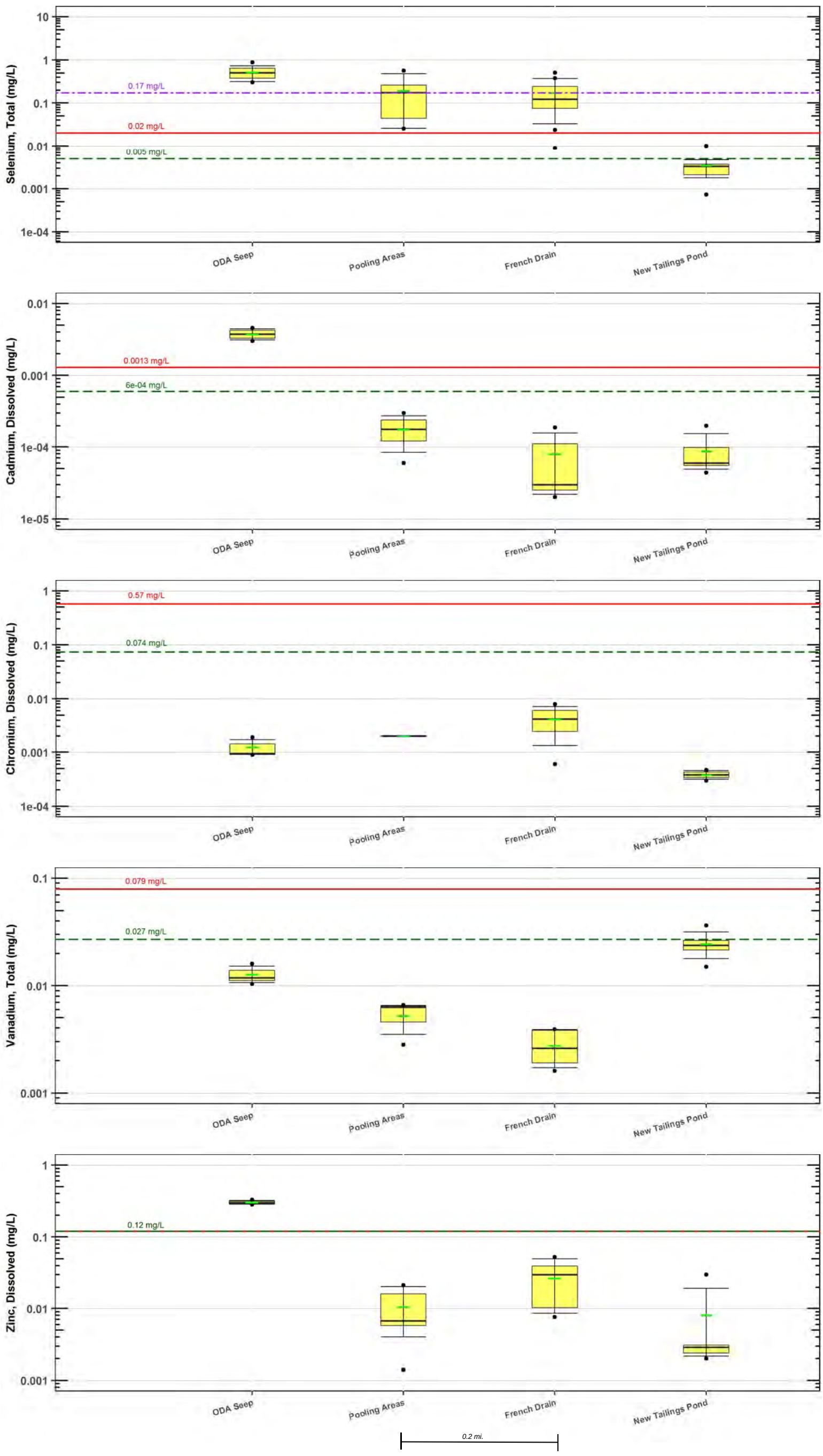
FRENCH DRAIN SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY FLOW SEASON

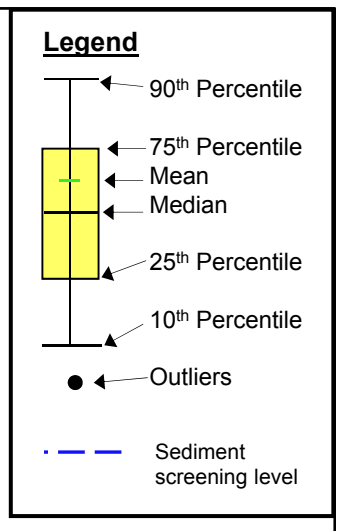
DATE: MAY 2016

BY: AJ/RCR/BAP | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\FrenchDrain\FrenchDrain_Boxplot.ppt





Location	Station
ODA Seep	SWS-3
Pooling Areas	SWP-4
French Drain	FD-1

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

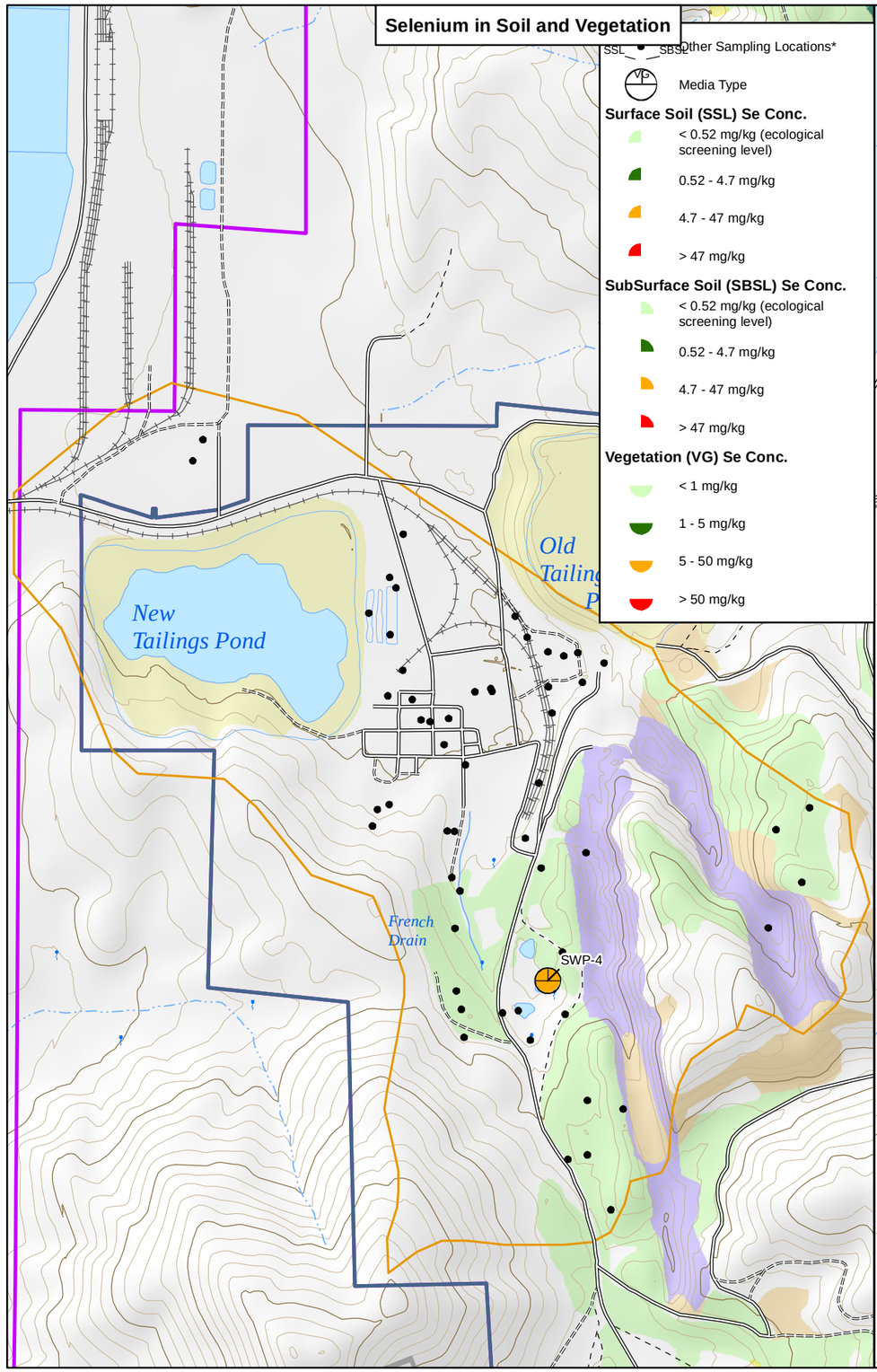
FIGURE 6-69

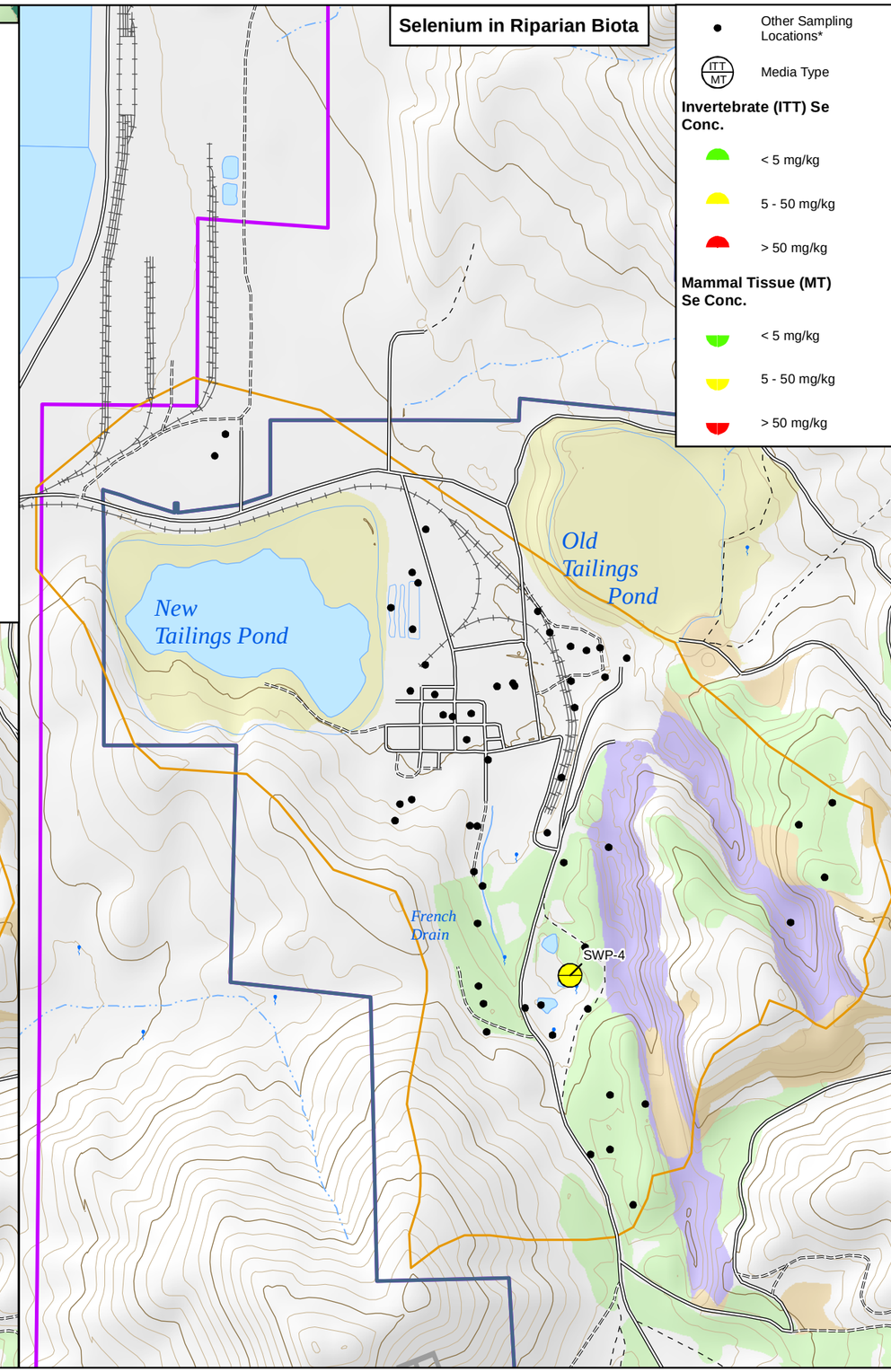
FRENCH DRAIN SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\FrenchDrain\FrenchDrain_Boxplot.ppt





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.
- As active facilities, areas associated with the pump station and the New Tailings Pond (where water for the pump station is stored) are not being addressed under CERCLA.

0 1,500 3,000
Feet
N

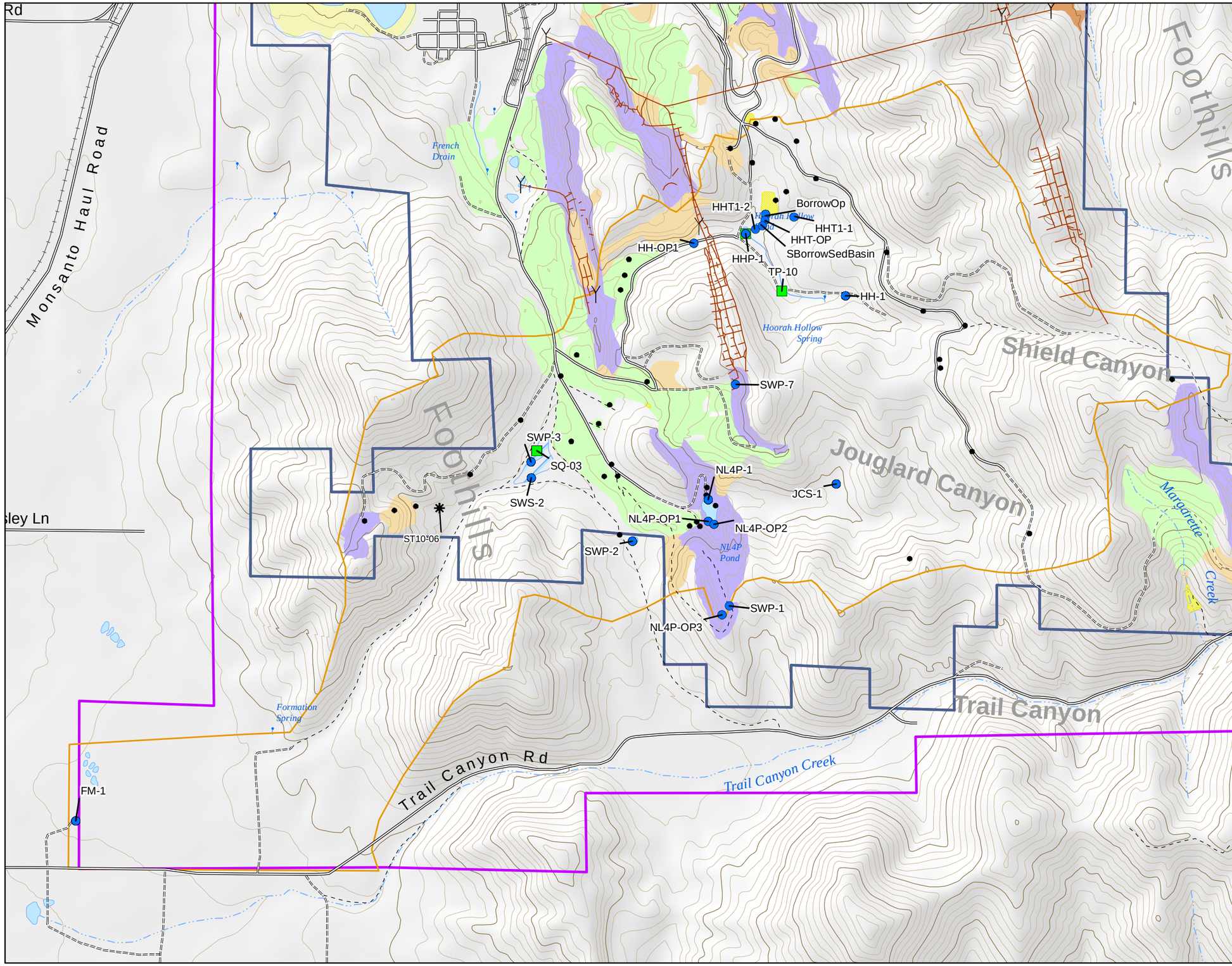
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-70

FRENCH DRAIN SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN RIPARIAN MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-070_FrenchDrainSeConcRip.mxd



Legend

- Aquatic Monitoring Locations
- Riparian Monitoring Locations
- Upland Adjacent to RMM
- Other Sampling Locations*
- Adit Portal
- Underground Workings
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Sub-Basins
- Mine Area
- Non-Mine Area
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Note:
*Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,000 2,000
Feet
N

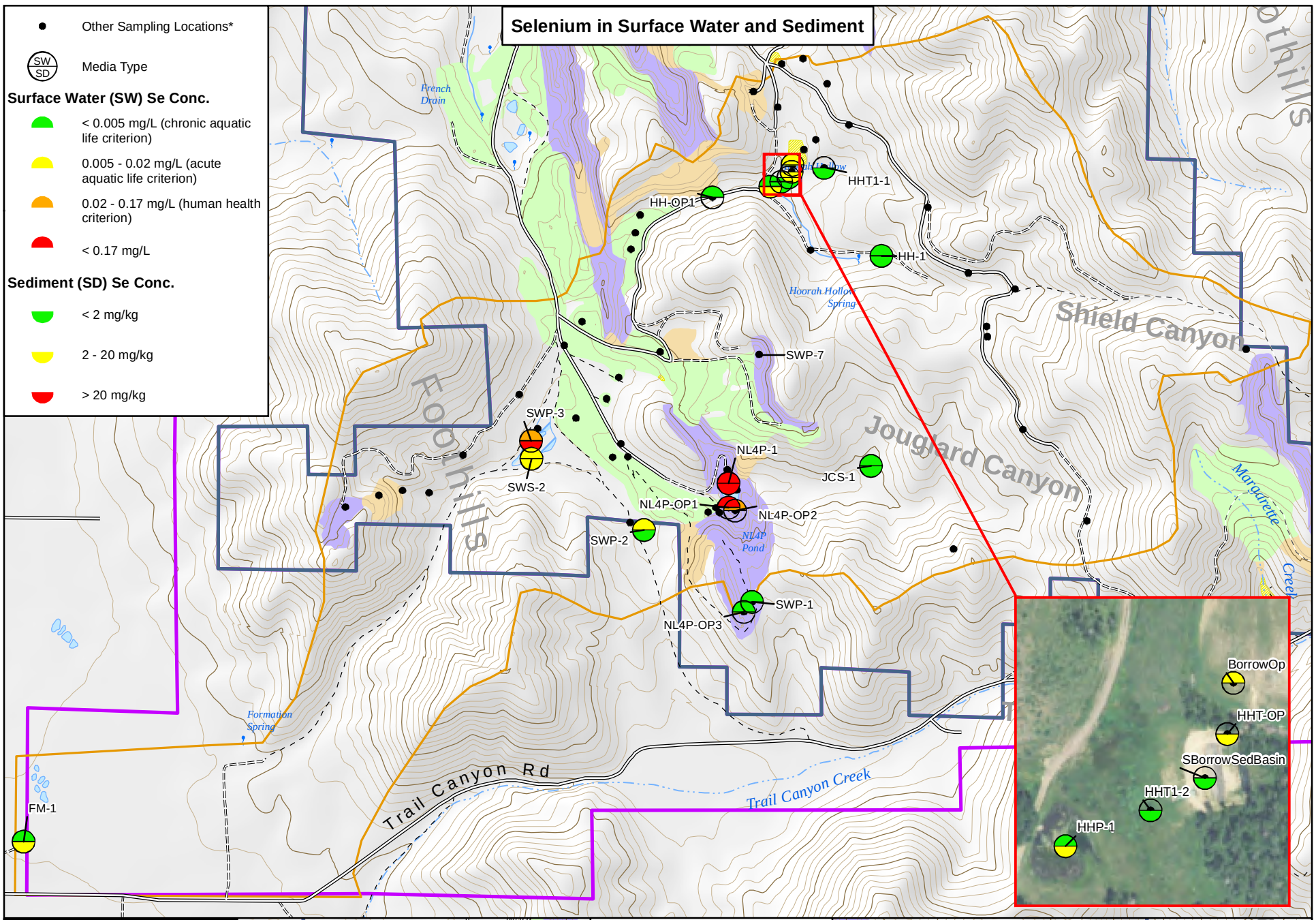
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

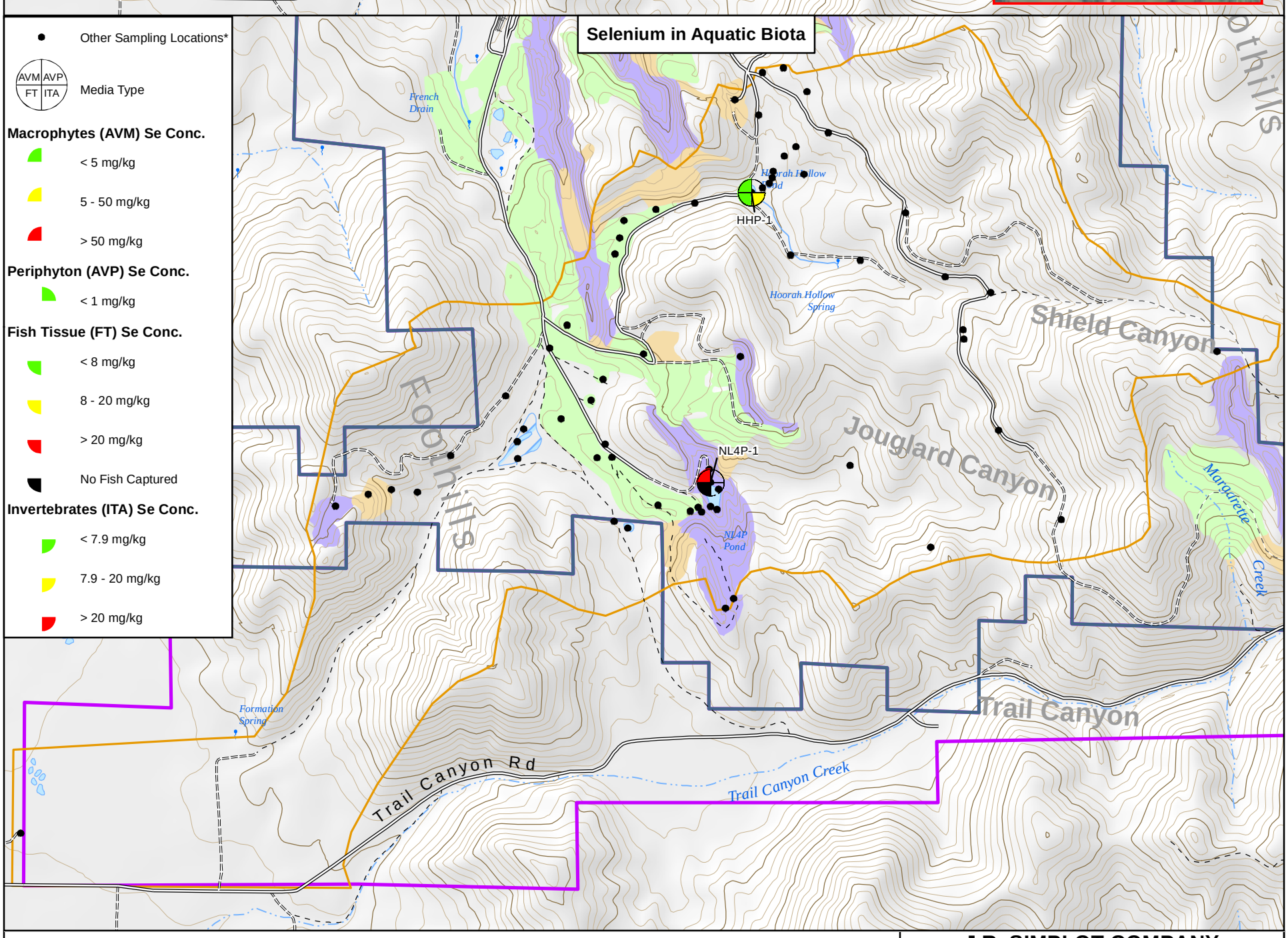
FIGURE 6-71

SHIELD AND JOUGLARD CANYONS SUB-BASIN AQUATIC AND RIPARIAN MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plh\RI_2016\Fig_6-071_ShieldJouglardLocs.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 2,000 4,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

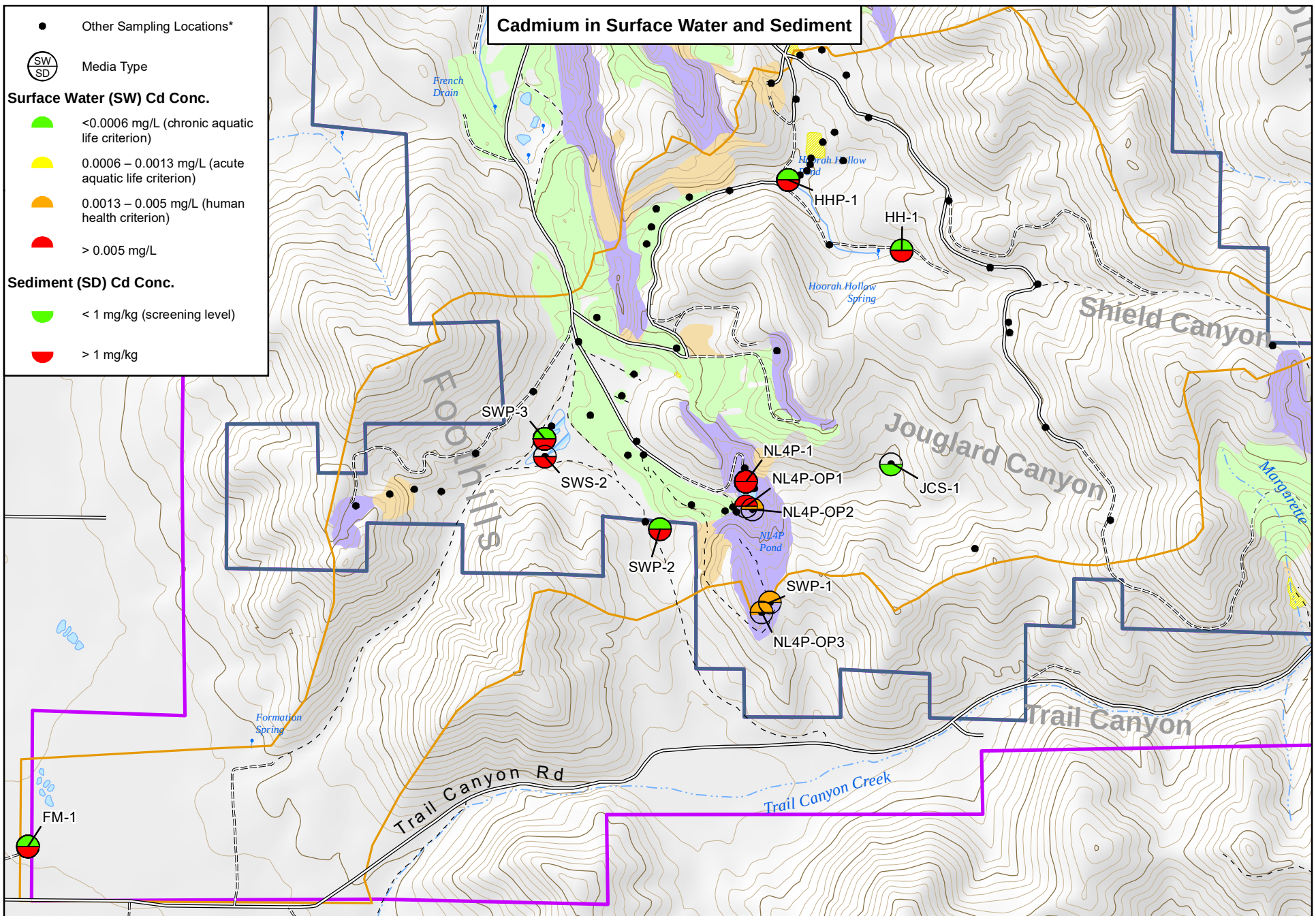
FIGURE 6-72

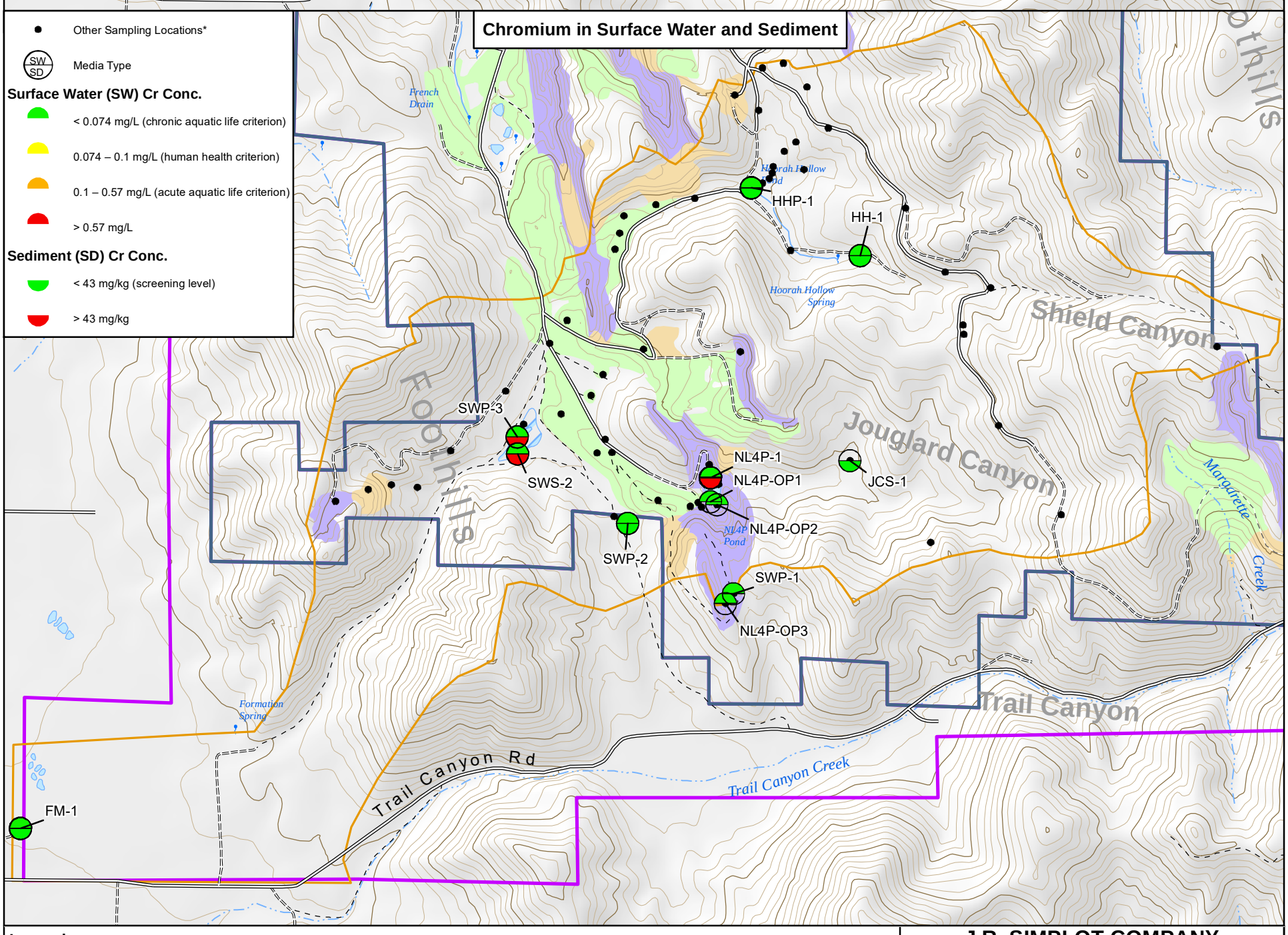
SHIELD AND JOUGLARD CANYONS SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-072_ShieldJouglardSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 2,000 4,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

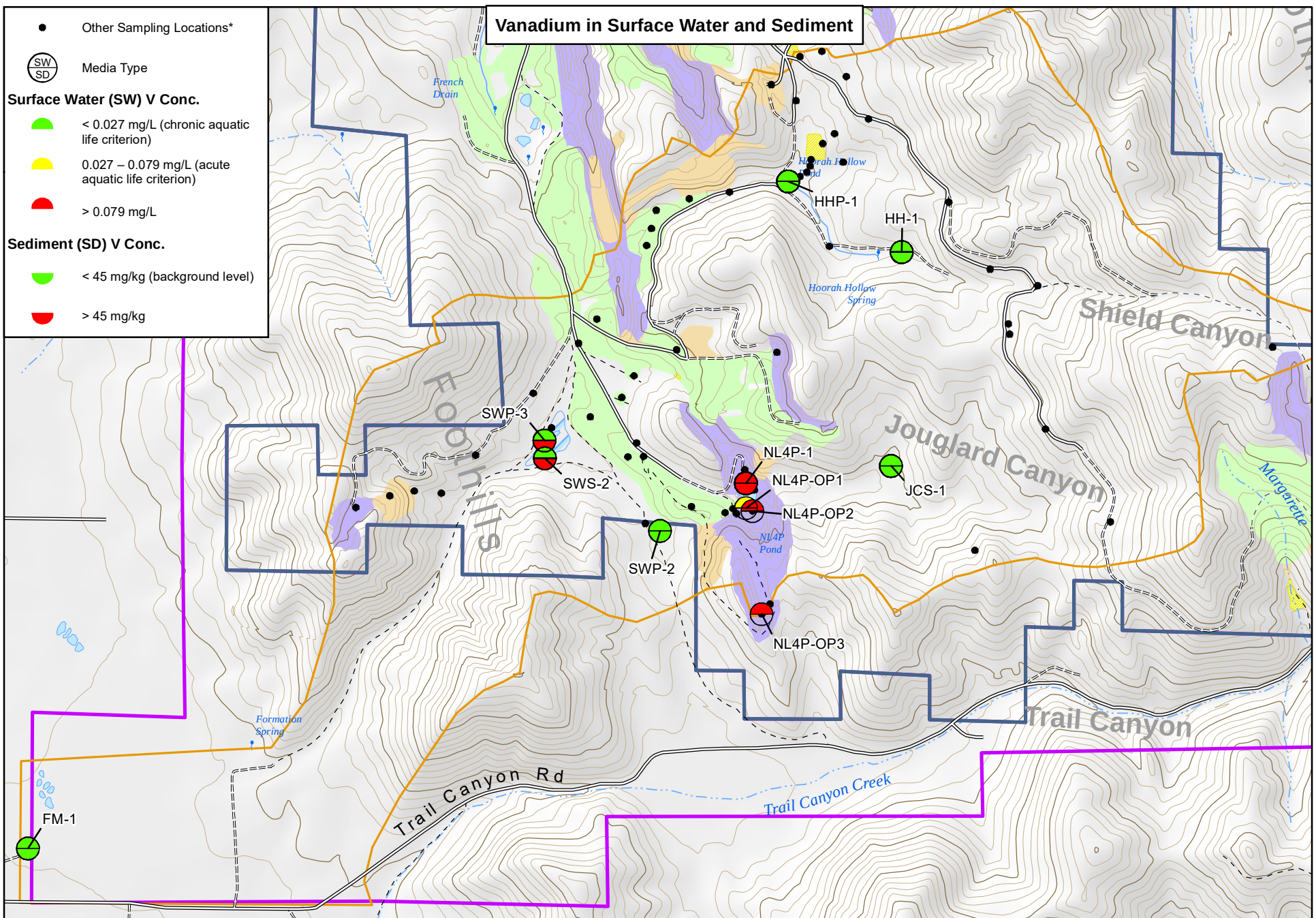
FIGURE 6-73

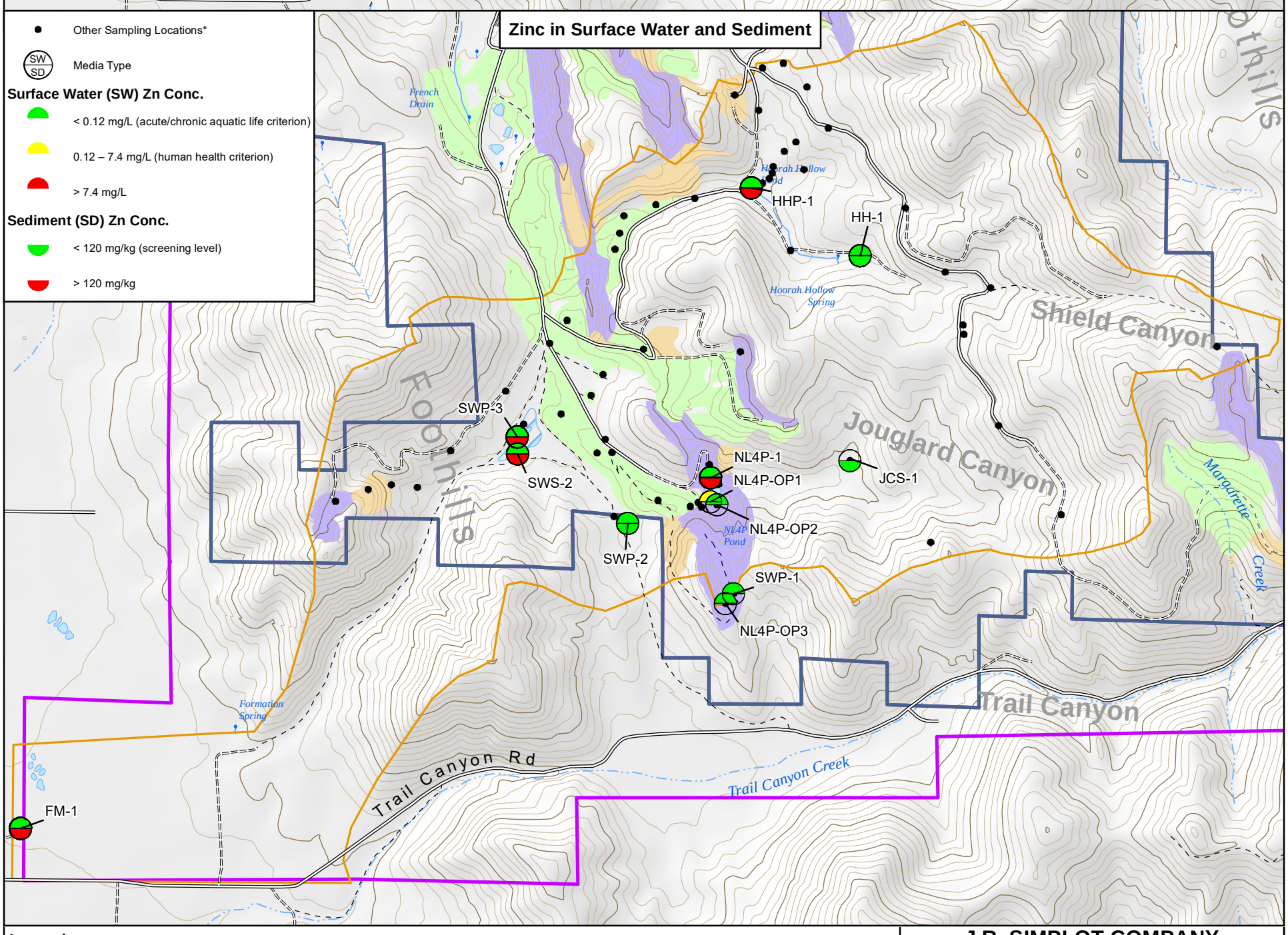
SHIELD AND JOUGLARD CANYONS SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-073_ShieldJouglard_CdCr_ConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 2,000 4,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

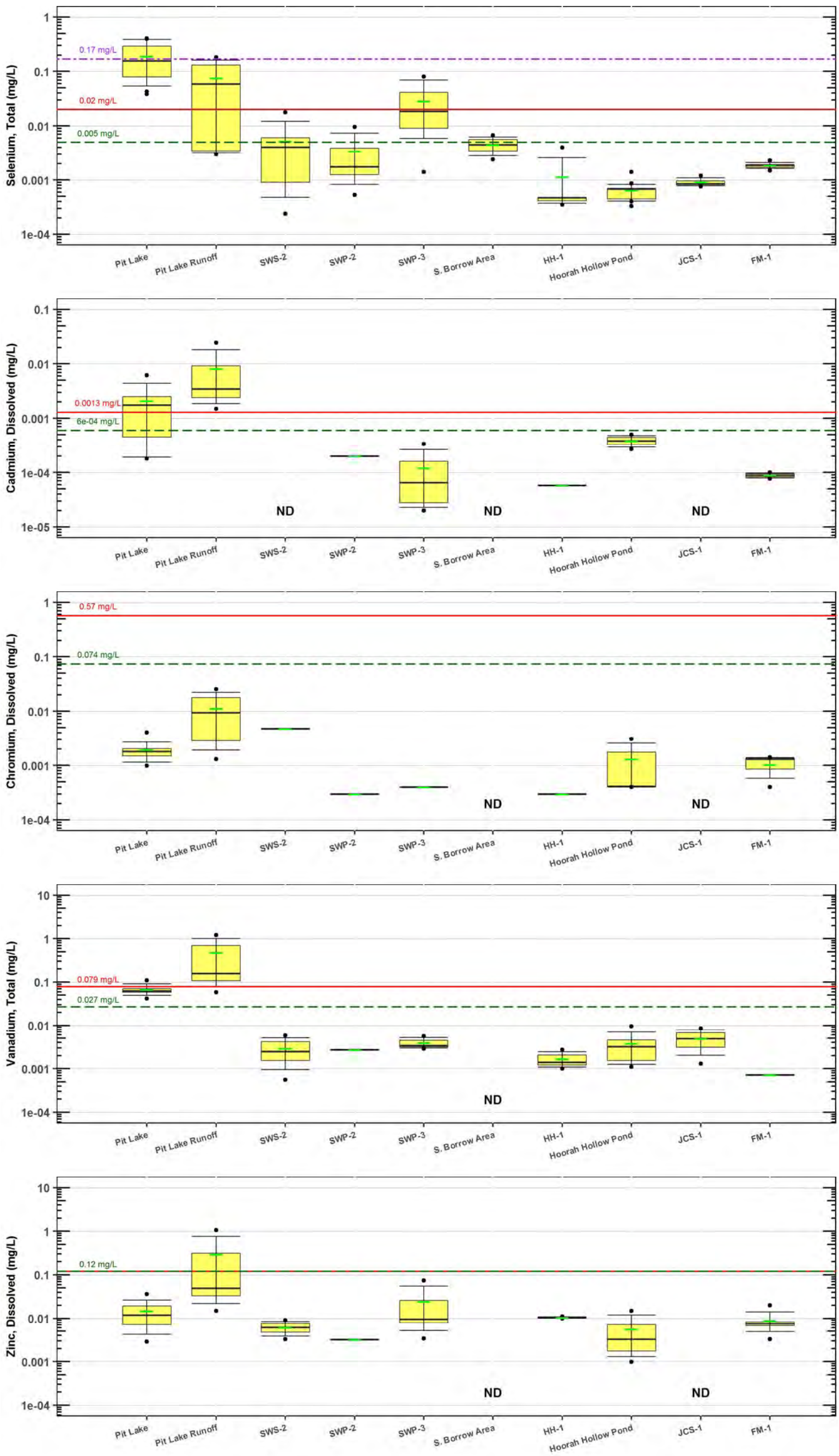
FIGURE 6-74

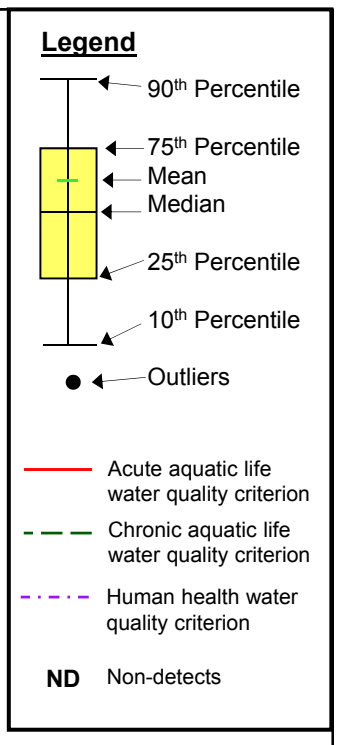
SHIELD AND JOUGLARD CANYONS SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-074_ShieldJouglard_VZn_ConcAq.mxd





Location	Station
Pit Lake	NL4P-1
Pit Lake Runoff	NL4P-OP1
	NL4P-OP2
	NL4P-OP3
	SWP-1
SWS-2	SWS-2
SWP-2	SWP-2
SWP-3	SWP-3
S. Borrow Area	BorrowOp
HH-1	HH-1
Hoorah Hollow Pond	HH-OP1
	HHP-1
JCS-1	JCS-1
FM-1	FM-1

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium and vanadium, and dissolved cadmium, chromium, and zinc.
- Refer to Section 4 for surface water quality criteria and standards.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

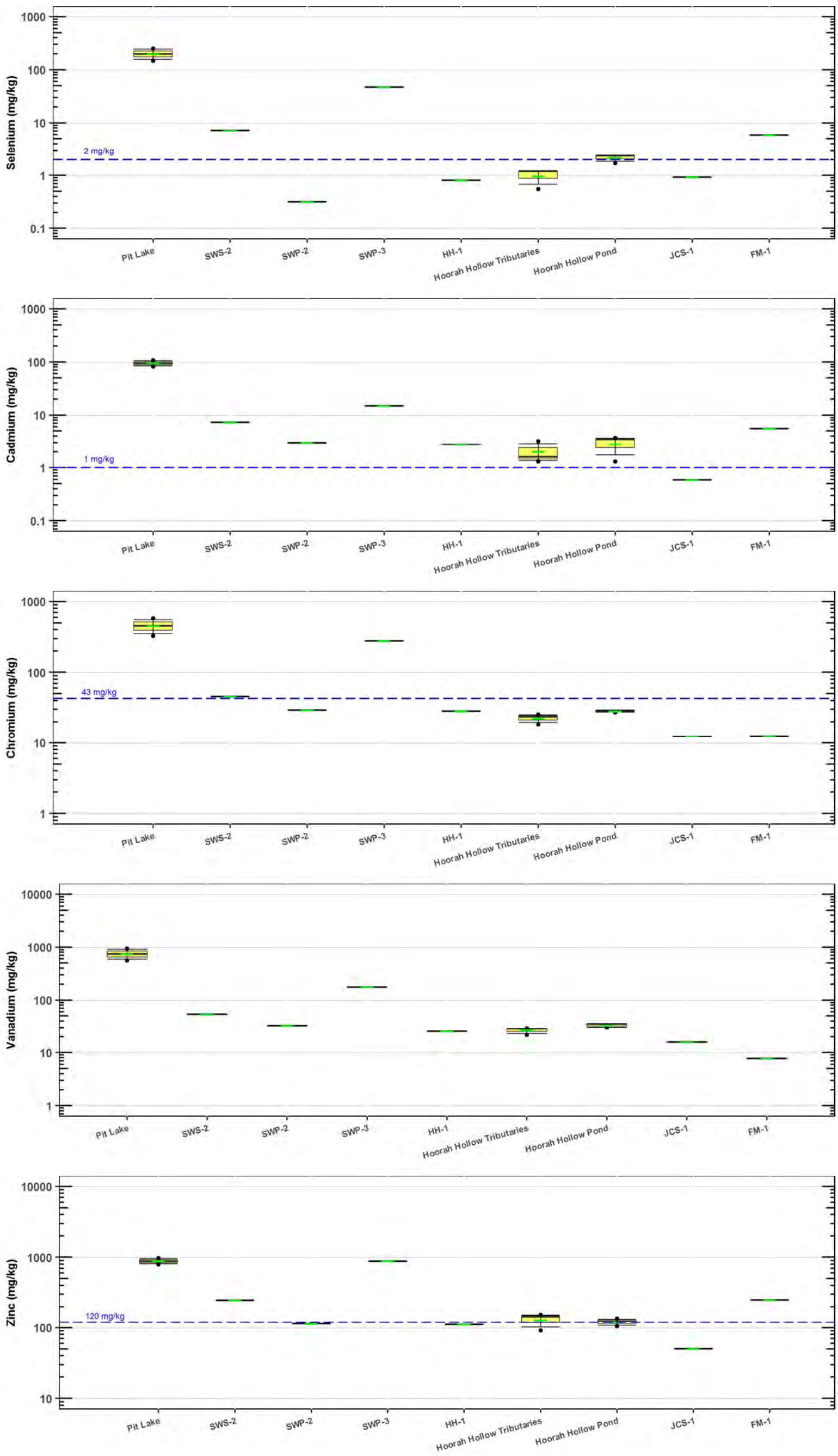
FIGURE 6-75

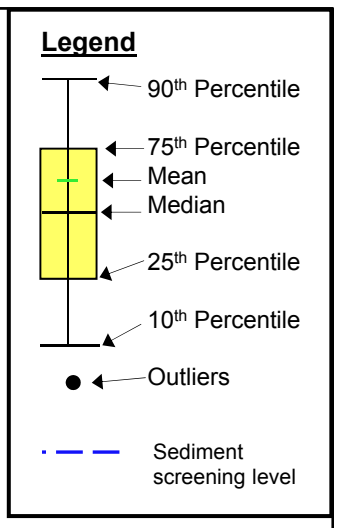
SHIELD AND JOUGLARD CANYONS SUB-BASIN SURFACE WATER COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\ShieldJouglard\ShieldJouglard_Boxplot.ppt





Location	Station
Pit Lake	NL4P-1
SWS-2	SWS-2
SWP-2	SWP-2
SWP-3	SWP-3
HH-1	HH-1
Hoorah Hollow Tributaries	HHT1-1
	HHT1-2
	SBorrowSedBasin
Hoorah Hollow Pond	HHP-1
	HHT-OP
JCS-1	JCS-1
FM-1	FM-1

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

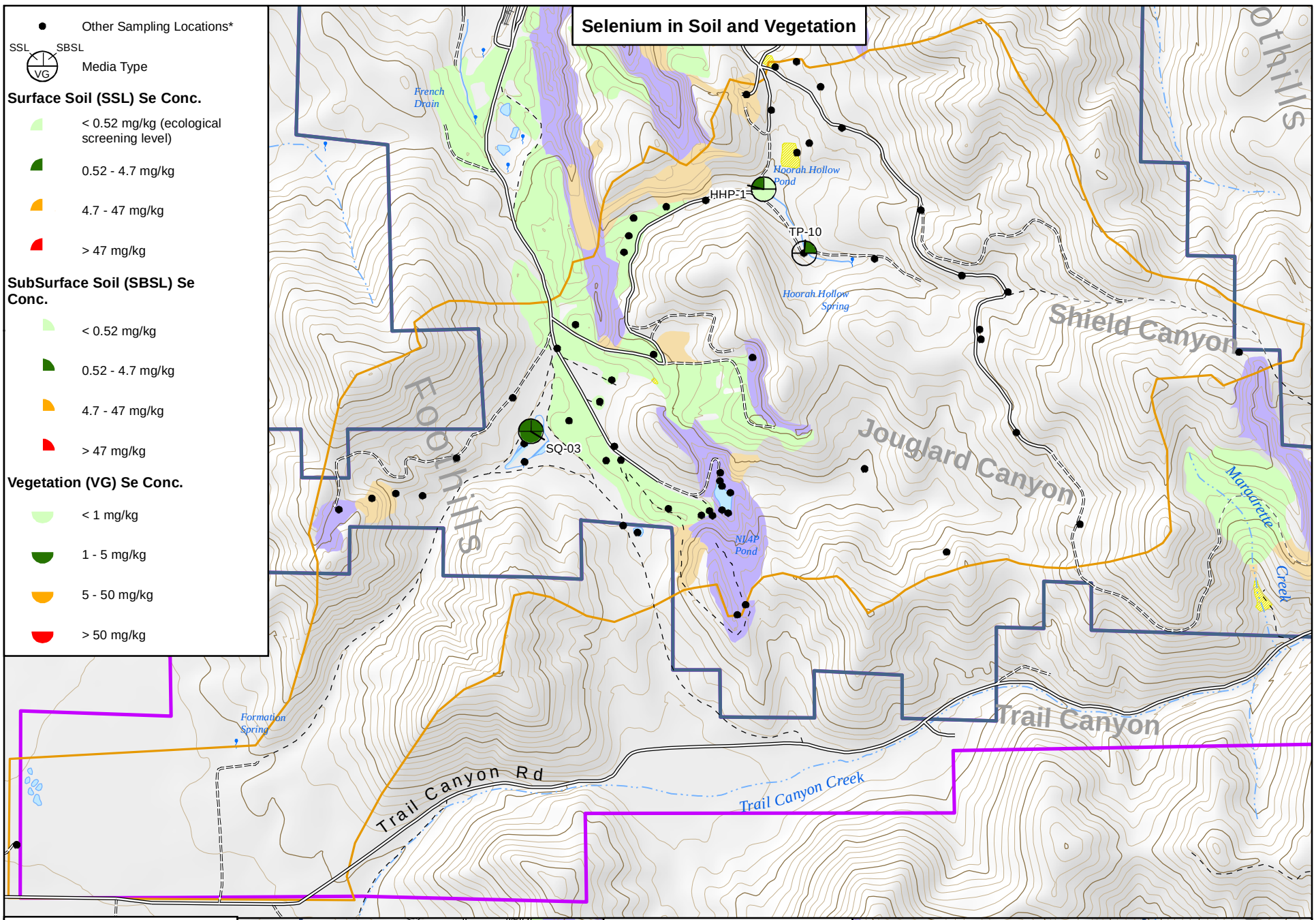
FIGURE 6-76

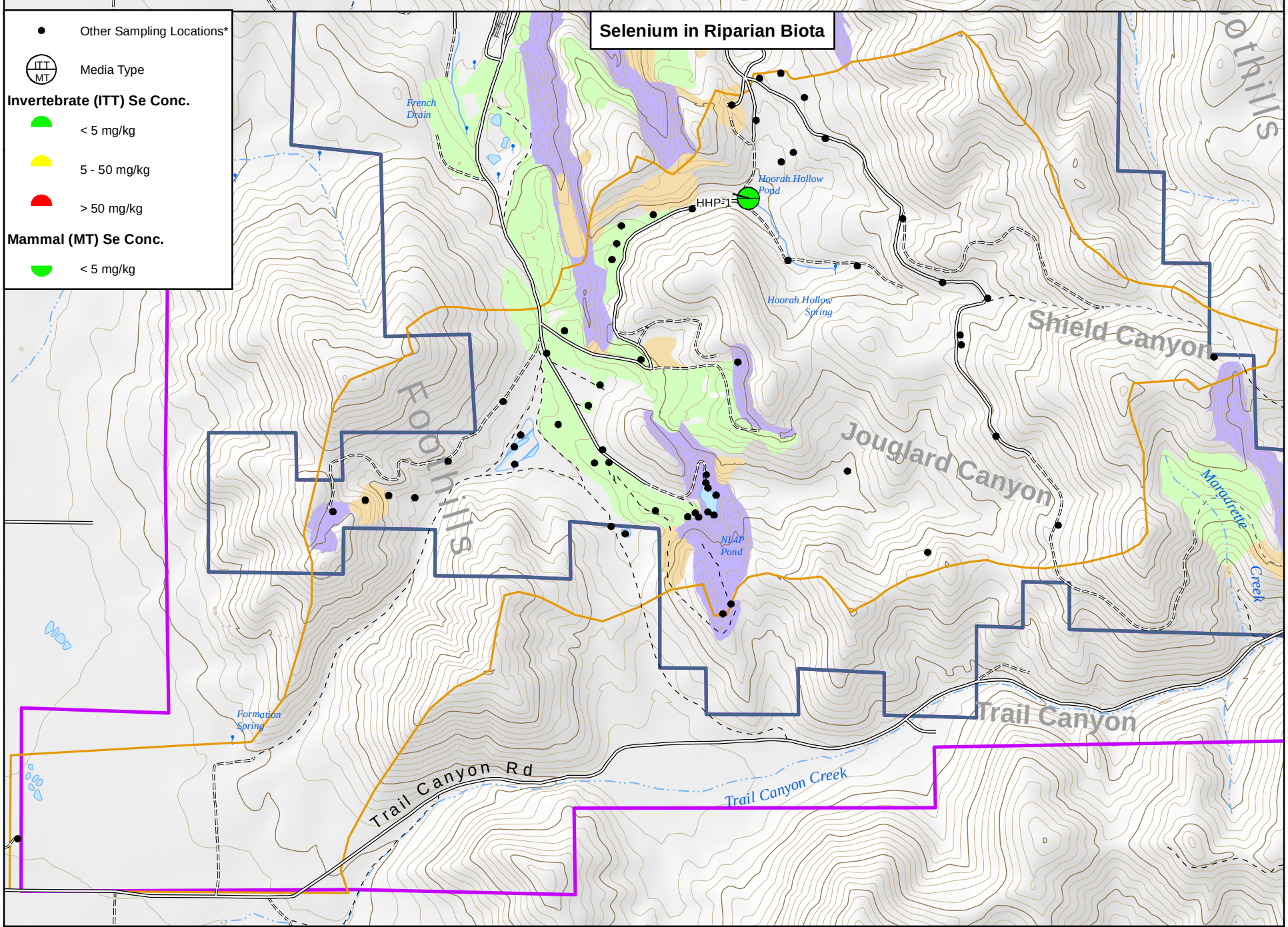
SHIELD JOUGLARD CANYONS SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016
BY: AJ/RCR/BAP
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\ShieldJouglard\ShieldJouglard_Boxplot.ppt





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 2,500 5,000
Feet

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

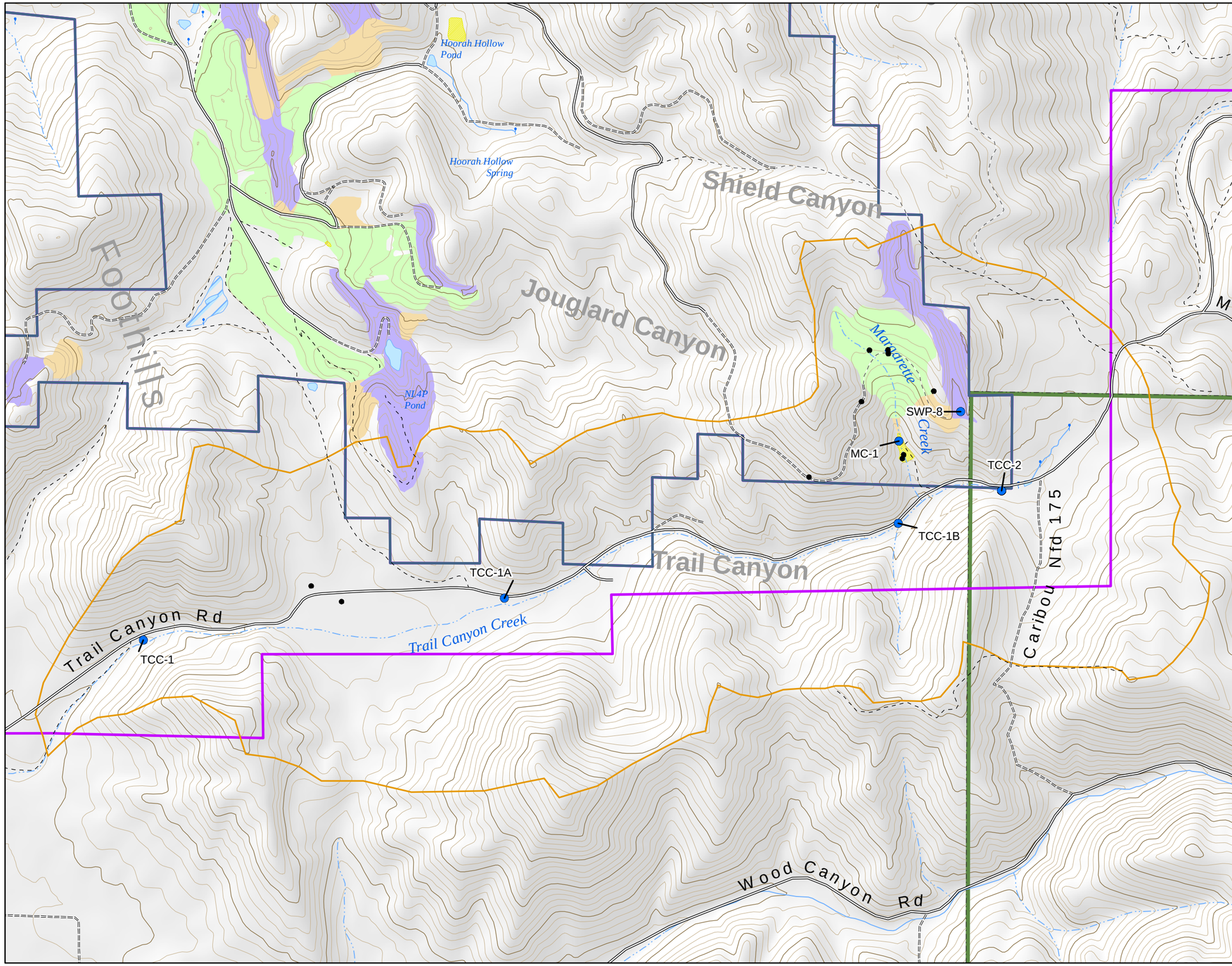
FIGURE 6-77

SHIELD AND JOUGLARD CANYONS SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN RIPARIAN MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-077_ShieldJouglardSeConcRip.mxd



Legend

- Aquatic Monitoring Locations
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,000 2,000
Feet

N

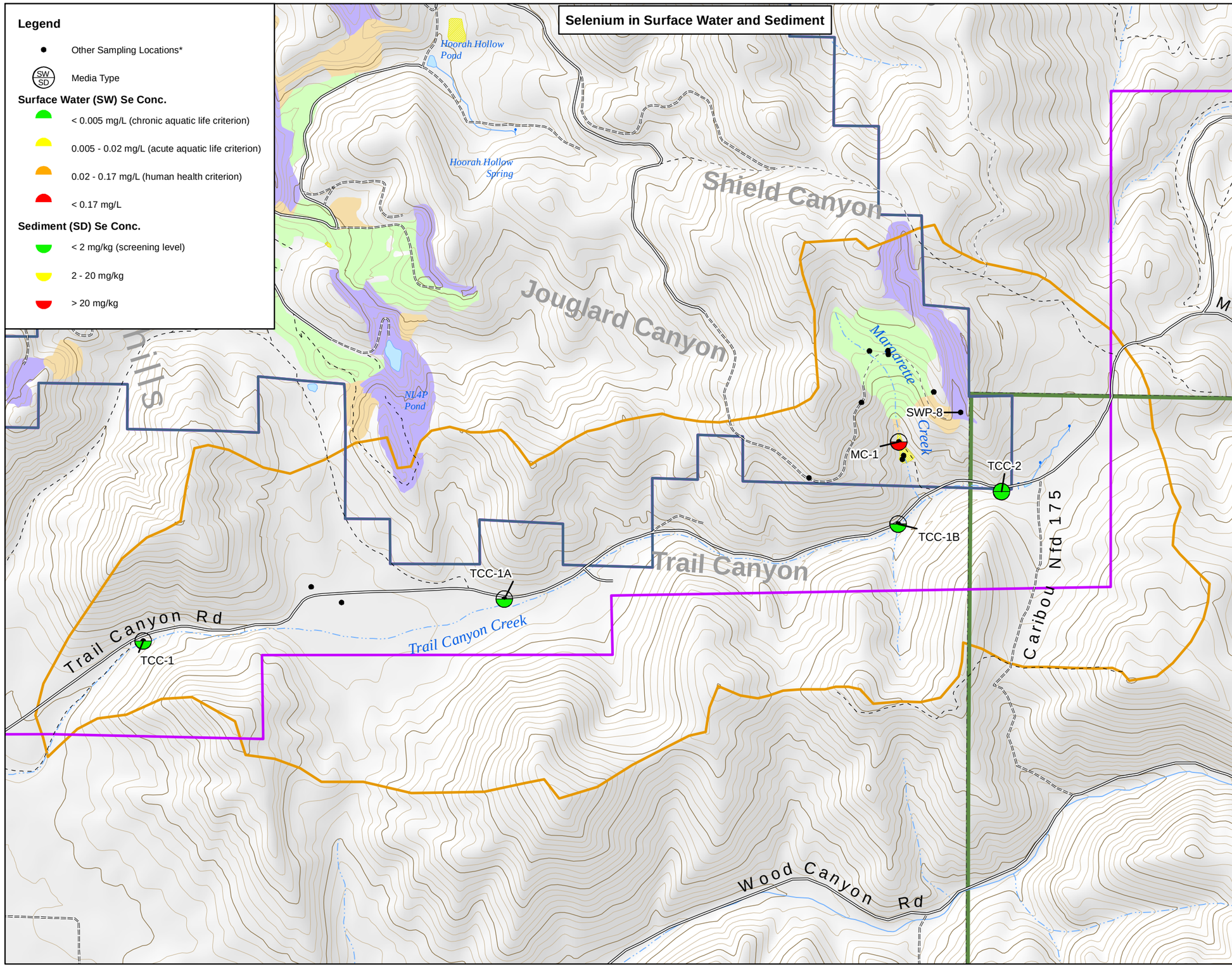
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-78

MARGARETTE CREEK/ TRAIL CANYON SUB-BASIN AQUATIC MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-078_MargaretteTrailLocs.mxd



Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins
- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

0 1,000 2,000
Feet
N

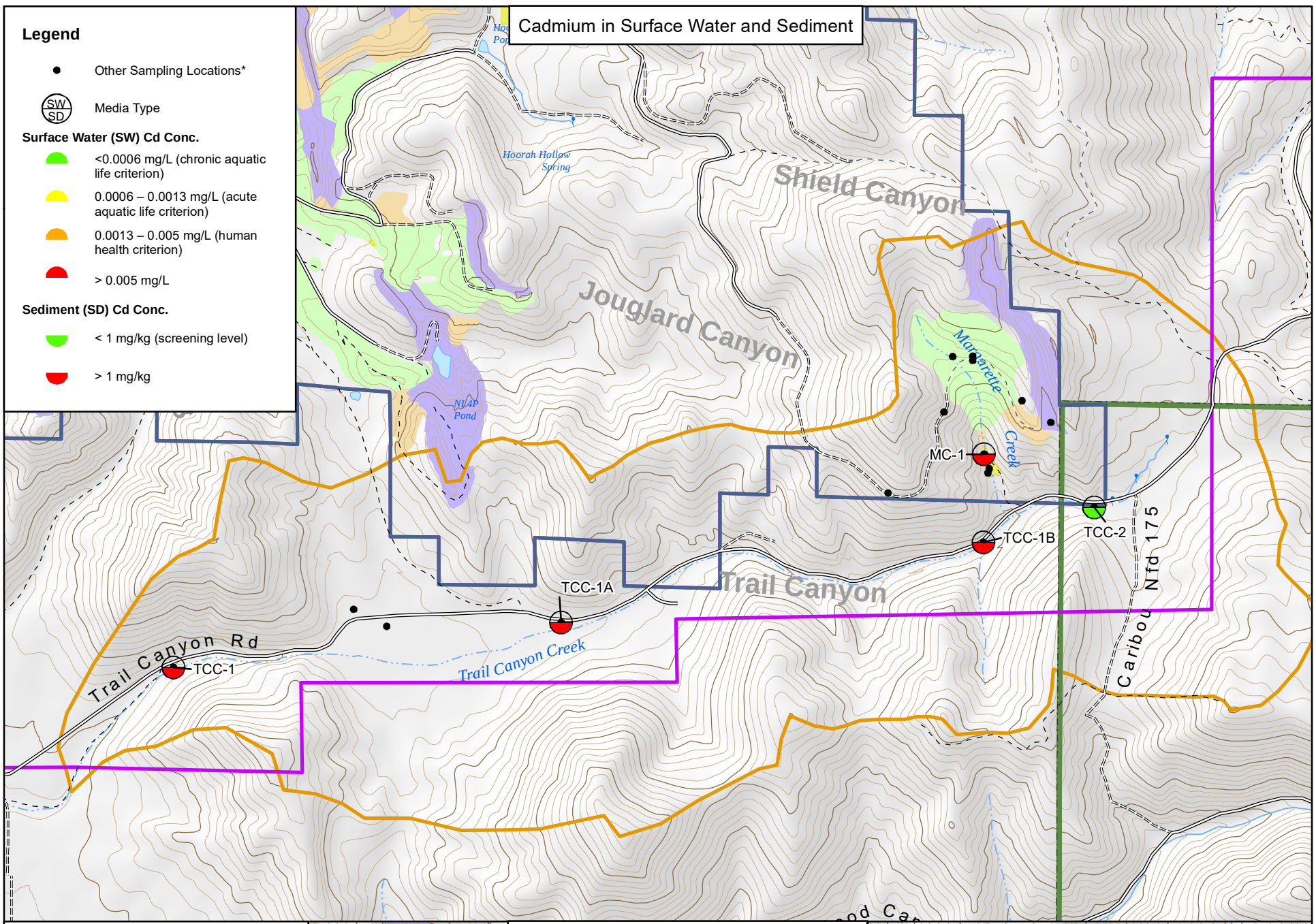
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

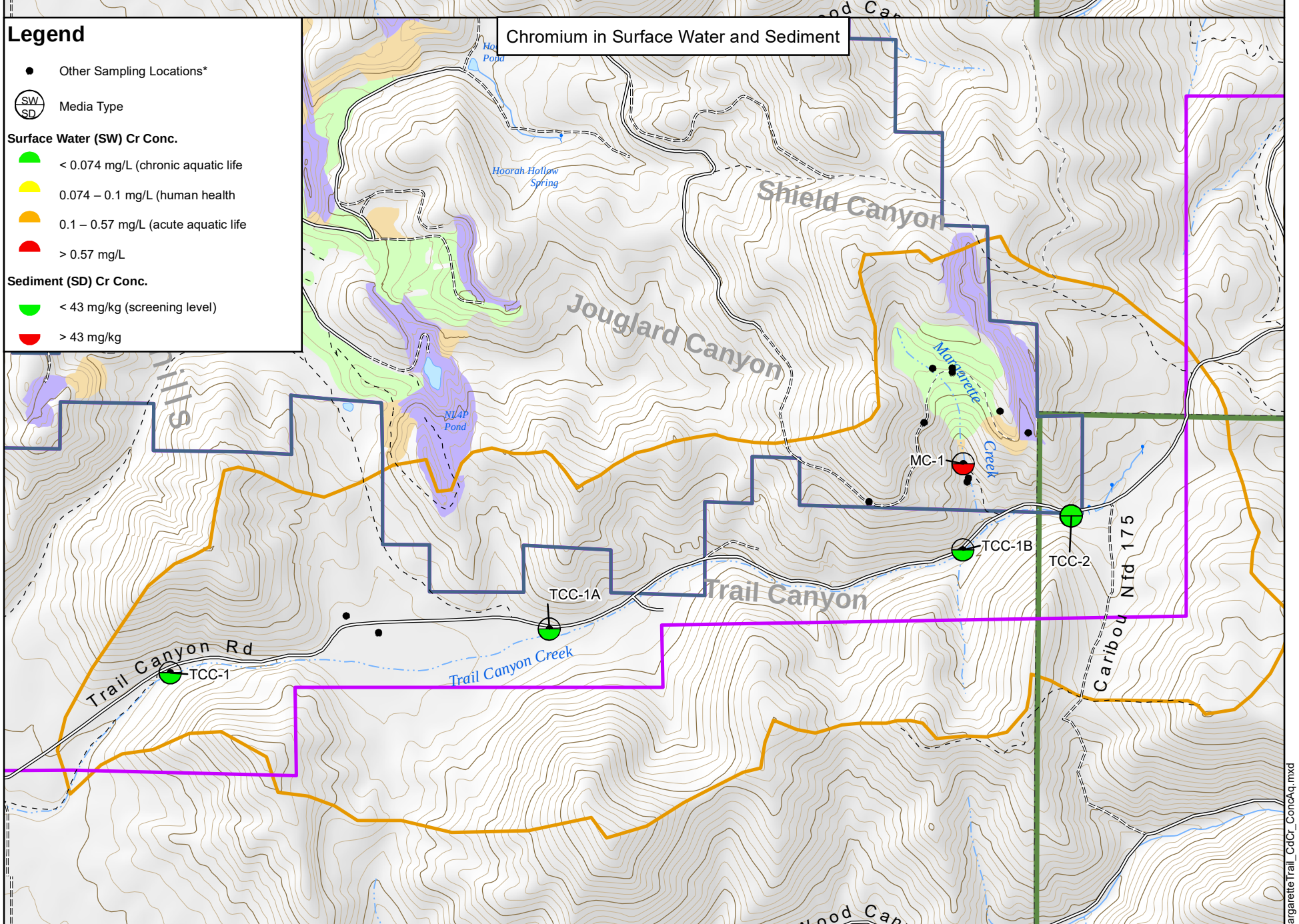
FIGURE 6-79

MARGARETTE CREEK/TRAIL CANYON SUB-BASIN MAXIMUM SELENIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-079_MargaretteTrailSeConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

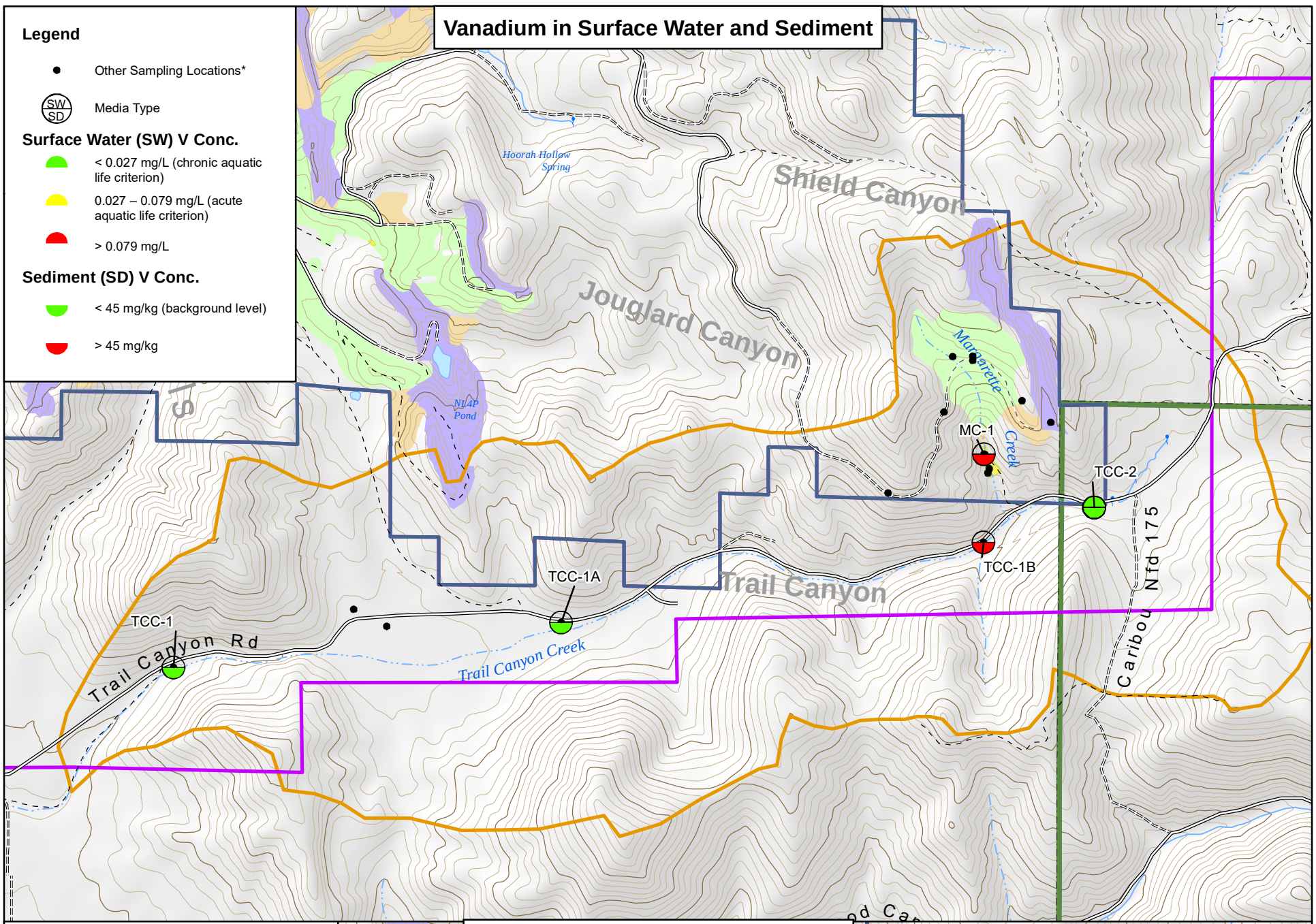
FIGURE 6-80

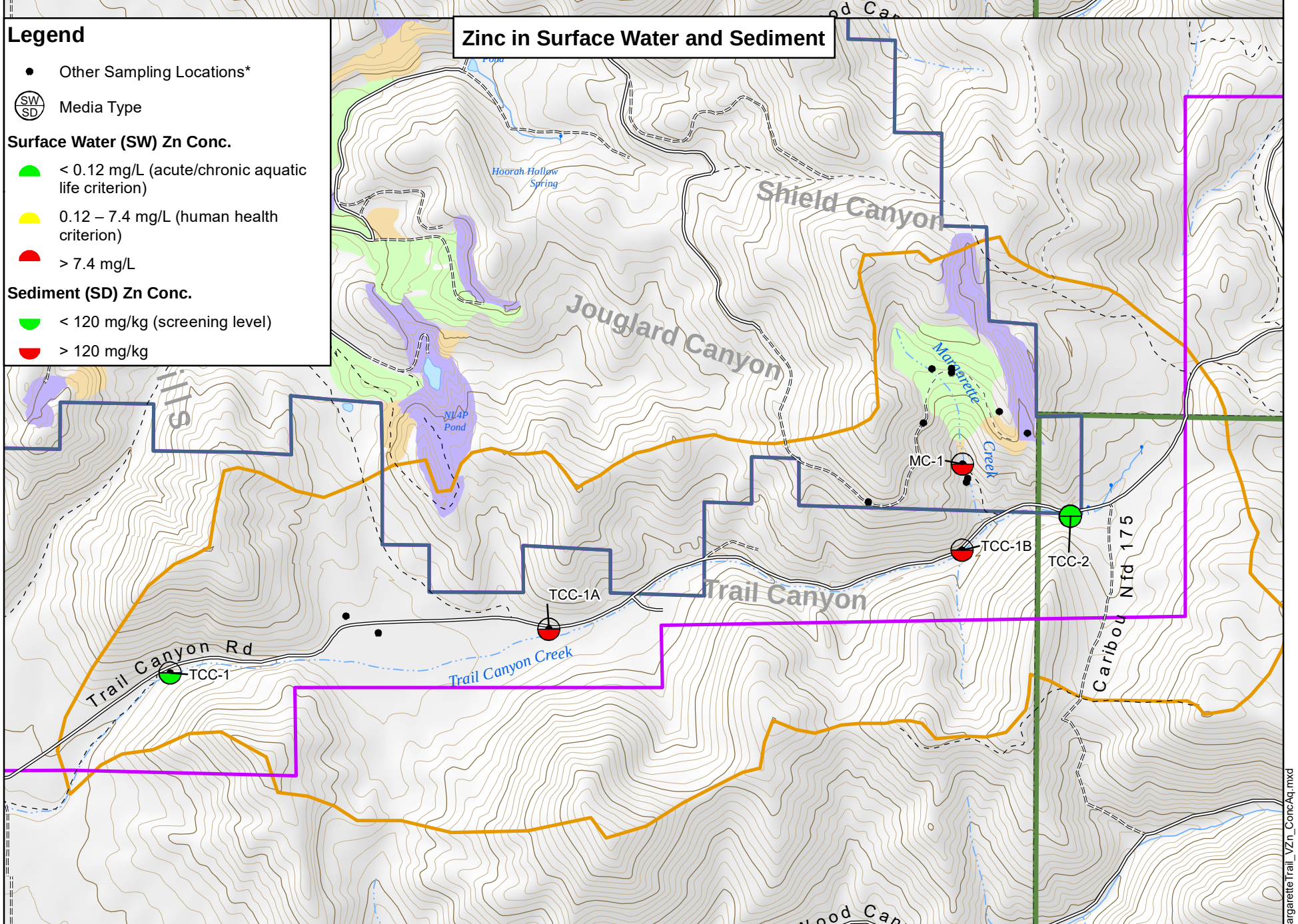
MARGARETTE CREEK/TRAIL CANYON SUB-BASIN MAXIMUM CADMIUM AND CHROMIUM CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-080_MargaretteTrail_CdCr_ConcAq.mxd





Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Overburden Disposal Area
- Sedimentation Basins

- Mine Area
- Non-Mine Area
- Sub-Basins

Notes:
- Data are from 2001 onward and "A" data use level only.
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

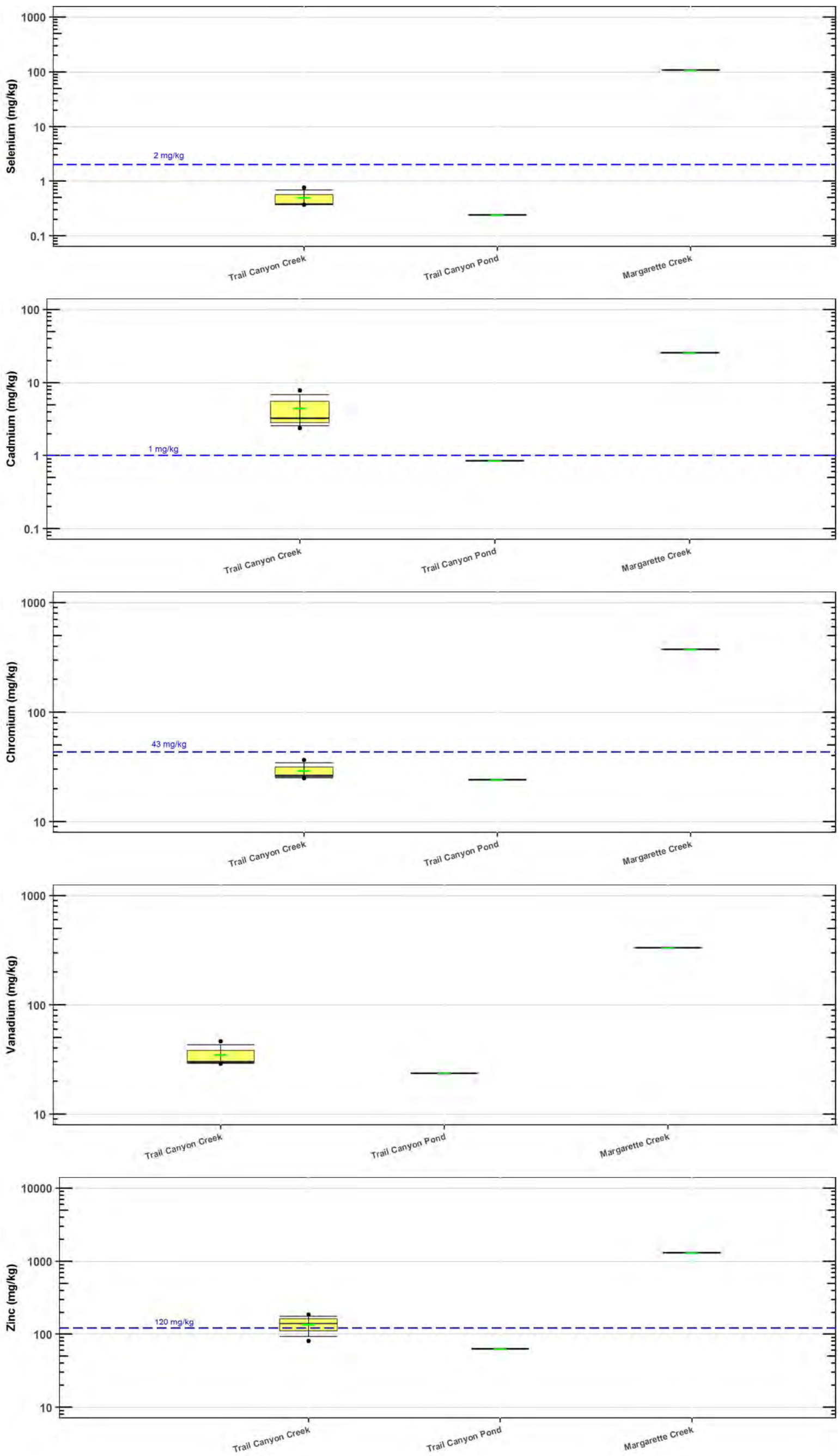
FIGURE 6-81

MARGARETTE CREEK/TRAIL CANYON SUB-BASIN MAXIMUM VANADIUM AND ZINC CONCENTRATIONS IN AQUATIC MEDIA

DATE: DEC 14, 2016
BY: KAM | FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-081_MargaretteTrail_VZn_ConcAq.mxd



Legend

- 90th Percentile
- 75th Percentile
- Mean
- Median
- 25th Percentile
- 10th Percentile
- Outliers
- Sediment screening level

Location	Station
Trail Canyon Creek	TCC-1
	TCC-1A
	TCC-1B
Trail Canyon Pond	TCC-2
Margarette Creek	MC-1

NOTES:

- Only detected values are used in boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in the graph include total selenium, cadmium, chromium, vanadium, zinc.
- Refer to Section 4 for sediment screening levels.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-82

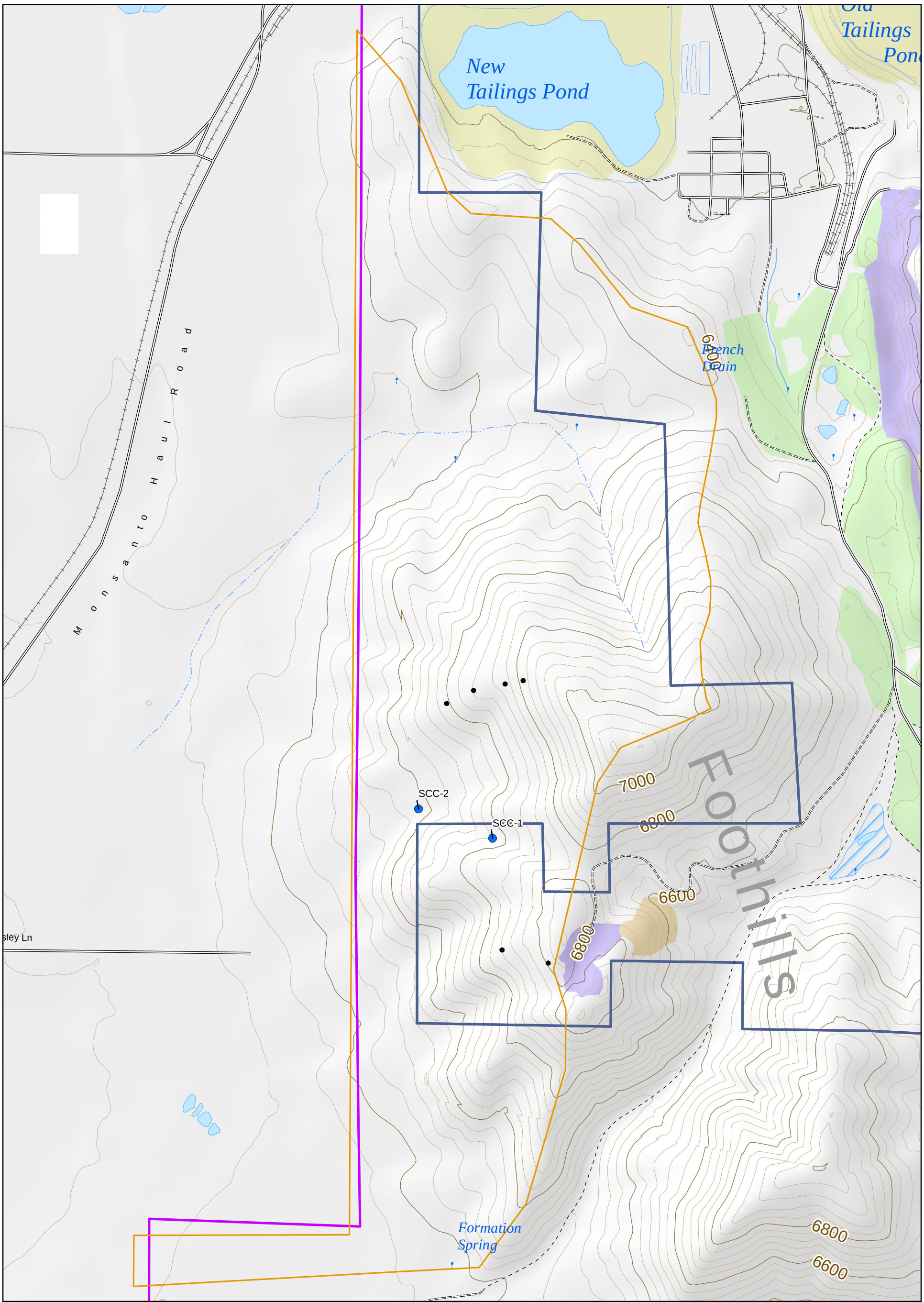
MARGARETTE CREEK / TRAIL CANYON SUB-BASIN SEDIMENT COPC CONCENTRATIONS BY LOCATION

DATE: MAY 2016

BY: AJ/RCR/BAP | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\MargaretteCreek\MargaretteCreek_Boxplot.ppt



Legend

- Aquatic Monitoring Locations
- Other Sampling Locations*
- Minor Road
- Unimproved Road
- Trail (4WD)
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh

Residual Mining Materials (RMM)

- Reclaimed Overburden Disposal Area
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area

- Mine Area
- Non-Mine Area
- Sub-Basins

N

0 500 1,000
Feet

Note:
- *Refer to figures in Section 6.2 for additional information on other sampling locations.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

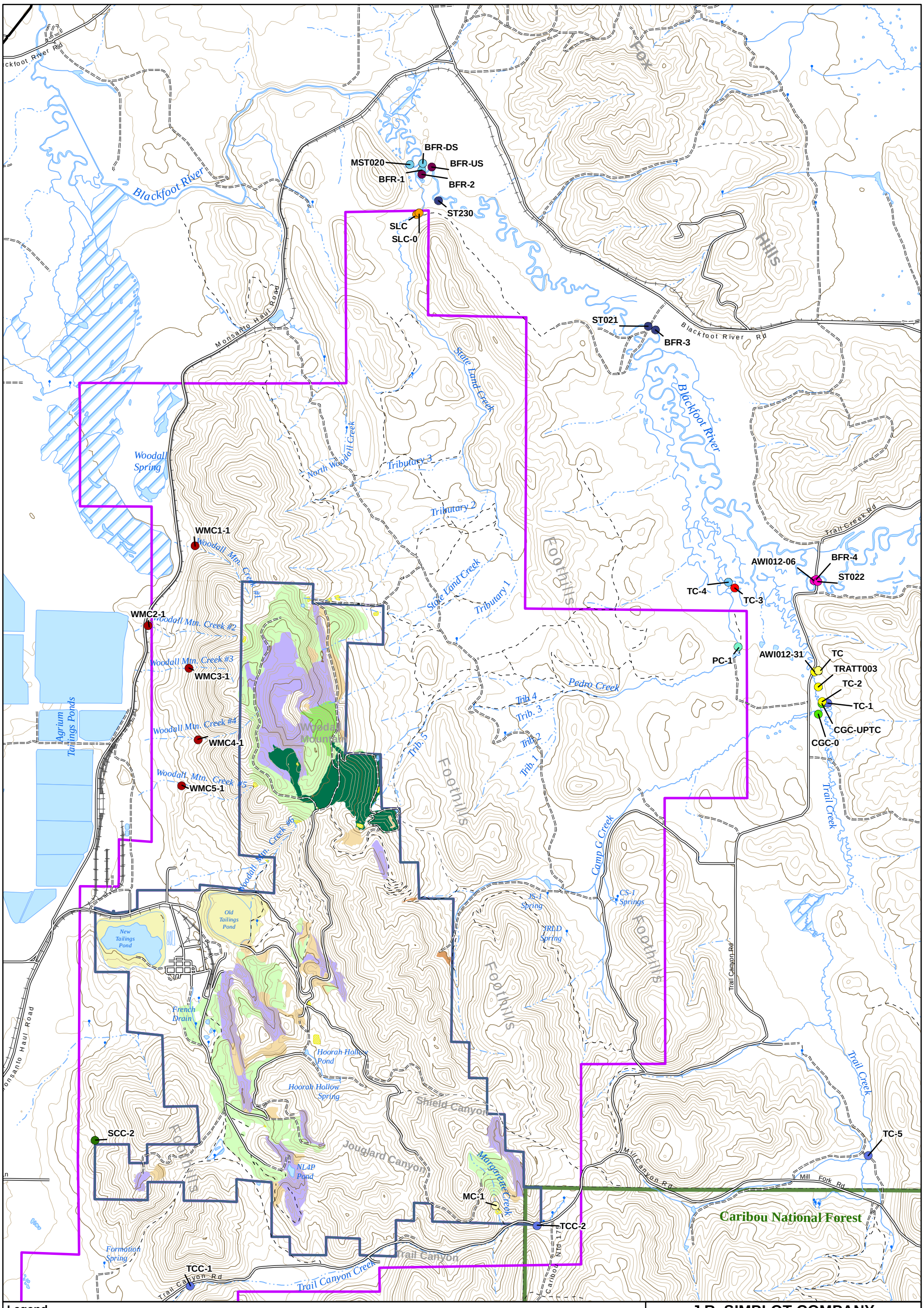
FIGURE 6-83

SOUTHWEST CONDA SUB-BASIN AQUATIC MONITORING LOCATIONS

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj\2010139\plt\RI_2016\Fig_6-083_SWCondaLocs.mxd



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area

Offsite Monitoring Locations

- Trail Creek U/S of Camp G
- Camp G Creek Mouth
- Trail Creek D/S of Camp G
- Trail Creek U/S of Pedro
- Pedro Creek Mouth
- Trail Creek D/S of Pedro
- Blackfoot River U/S of Trail
- Blackfoot River D/S of Trail
- Blackfoot River U/S of State Land
- State Land Creek Mouth
- Blackfoot River D/S of State Land
- Margarette Creek
- Southwest Conda Creek
- Woodall Mountain Creeks

N

0 2,500 5,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

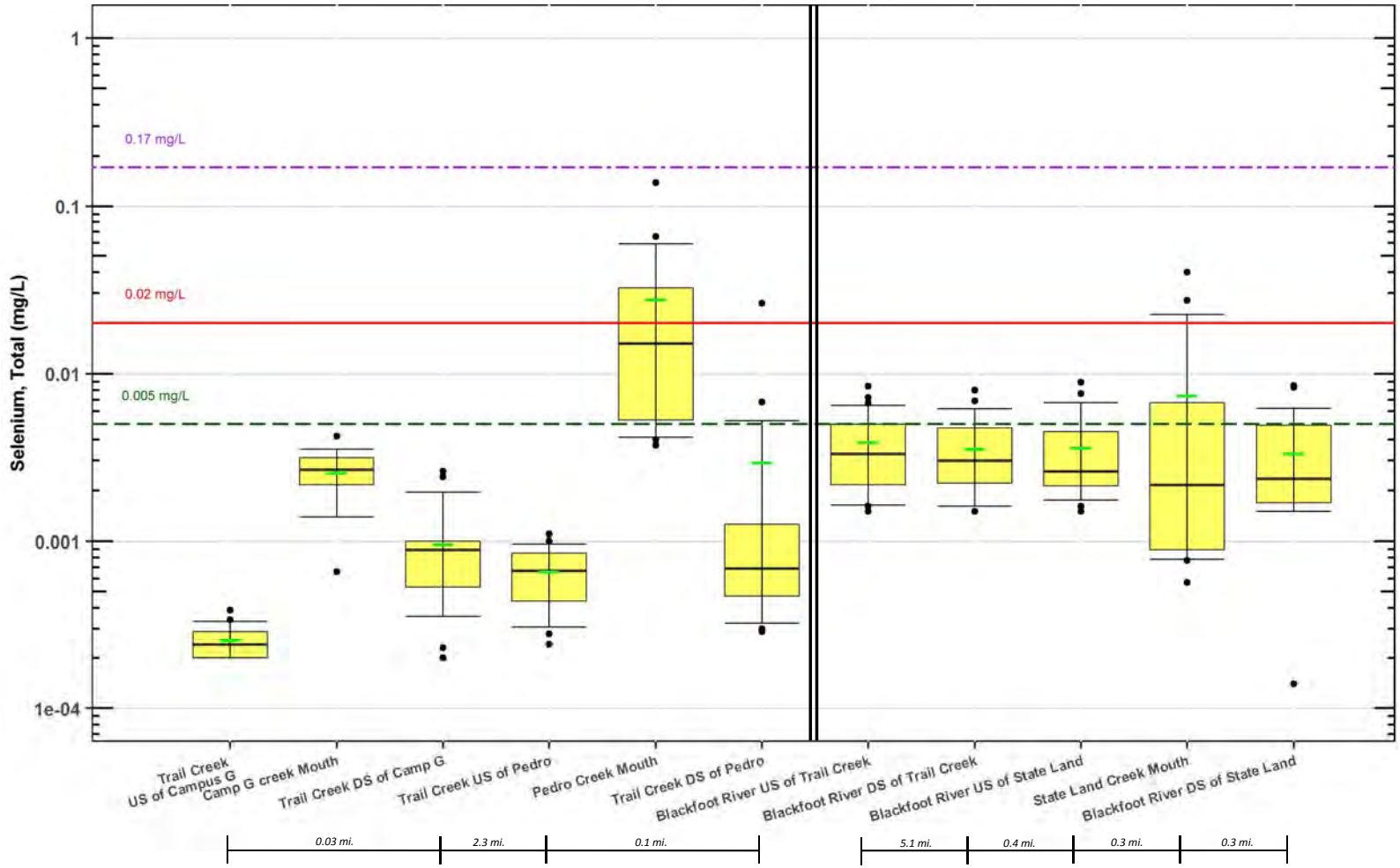
FIGURE 6-84

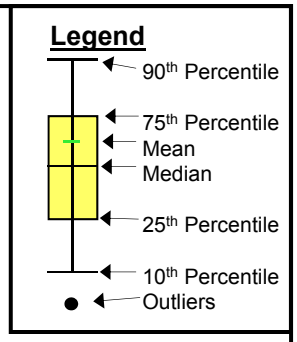
CONDA OFFSITE LOCATIONS

DATE: DEC 14, 2016
BY: EJS
FOR: SMC

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-084_OffsiteLocs_SWFTSD.mxd





Location	Station
Trail Creek US of Campus G	TC-1
	TC-5
Camp G creek Mouth	CGC-0
	CGC-UPTC
Trail Creek DS of Camp G	AWI012-31
	TC-2
	TRATT003
Trail Creek US of Pedro	TC-3
Pedro Creek Mouth	PC-1
Trail Creek DS of Pedro	TC-4
Blackfoot River US of Trail Creek	AWI012-06
	BFR-4
	ST022
Blackfoot River DS of Trail Creek	BFR-3
	ST021
	ST230
Blackfoot River US of State Land	BFR-2
	BFR-US
State Land Creek Mouth	SLC-0
Blackfoot River DS of State Land	BFR-1
	BFR-DS
	MST020

Acute aquatic life water quality criterion

Chronic aquatic life water quality criterion

Human health water quality criterion

Notes:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Both non-detect and detected values are used in the boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Results reported in this graph include total/total recoverable selenium.
- Refer to Section 4 for water quality criterion levels.
- US = Upstream; DS = Downstream
- Negative non-detect results from stations ST022, ST201, and ST230 are not included in boxplot statistics.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-85

OFFSITE SURFACE WATER SELENIUM CONCENTRATIONS BY LOCATION

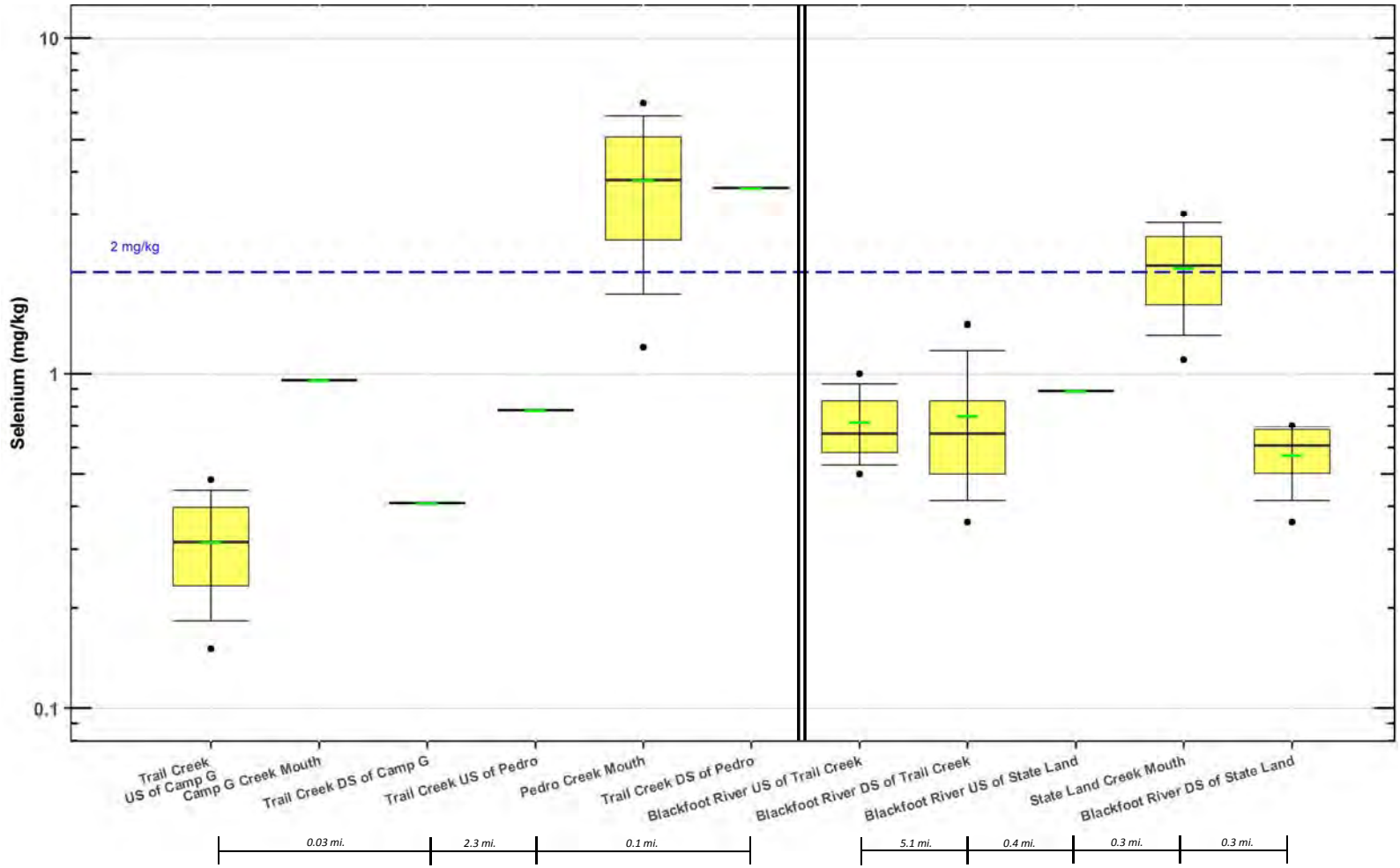
DATE: MAY 2016

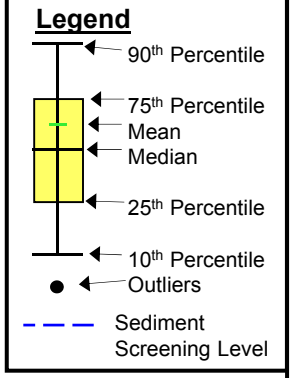
BY: AJ/RCR/BAP

FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\2_Offsite\Offsite_Boxplots_SD_SW_FT.pptx





Location	Station
Trail Creek US of Camp G	TC-1
Camp G Creek Mouth	CGC-0
Trail Creek DS of Camp G	TC-2
Trail Creek US of Pedro	TC-3
Pedro Creek Mouth	PC-1
Trail Creek DS of Pedro	TC-4
Blackfoot River US of Trail Creek	BFR-4
	ST022
Blackfoot River DS of Trail Creek	BFR-3
	ST021
	ST230
Blackfood River US of State Land	BFR-2
State Land Creek Mouth	SLC
	SLC-0
Blackfoot River DS of State Land	BFR-1
	MST020

Notes:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Both non-detect and detected values are used in the boxplot statistics. Boxplot statistics were calculated and plotted using R.
- Refer to Section 4 for sediment screening levels.
- US = Upstream; DS = Downstream

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-86

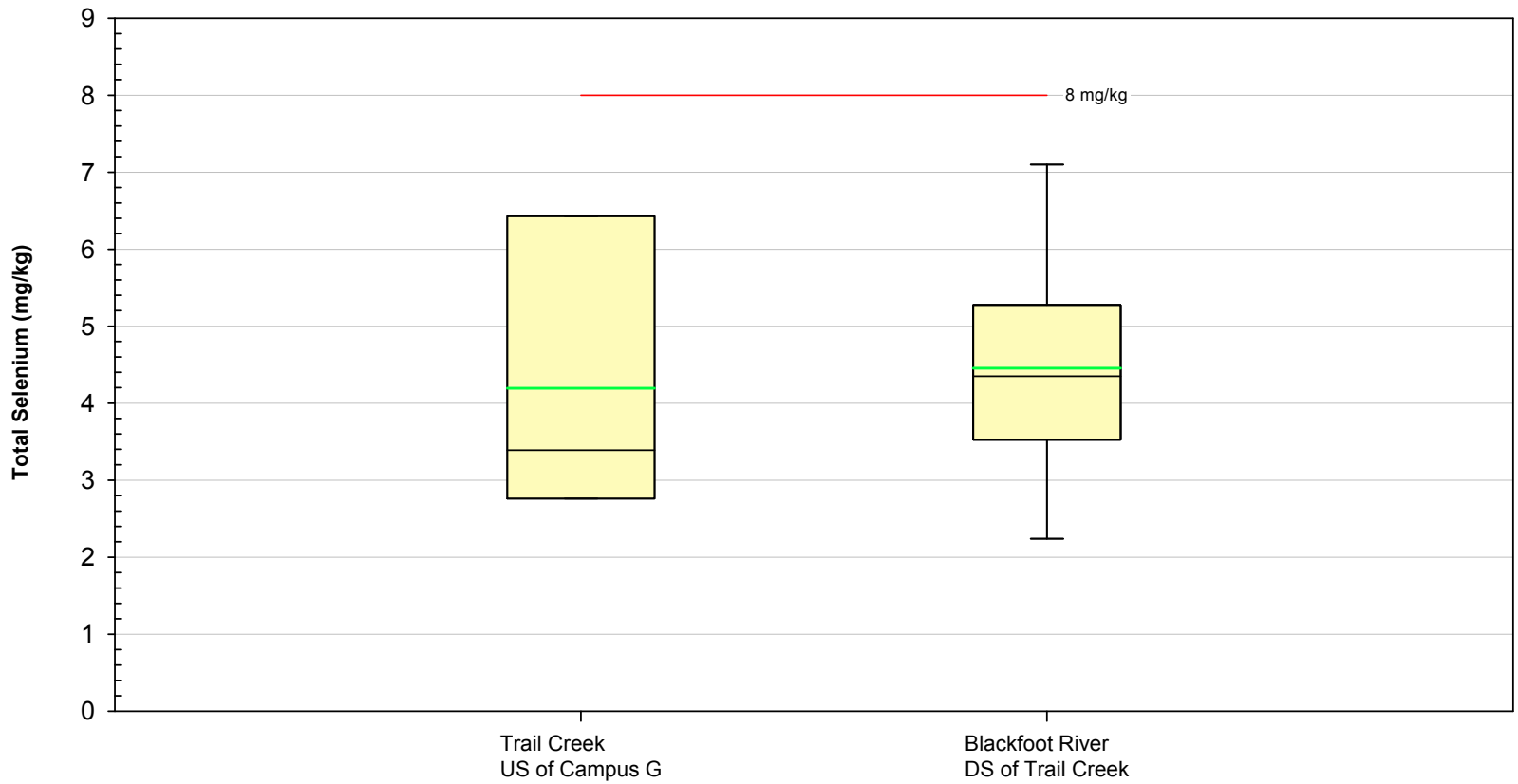
OFFSITE SEDIMENT
SELENIUM CONCENTRATIONS BY LOCATION

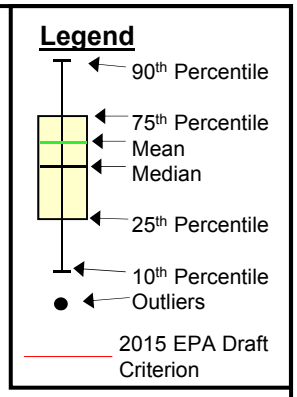
DATE: MAY 2016

BY: AJ/RCR/BAP | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fn\Sect6_BoxplotUpd\2_Offsite\Offsite_Boxplots_SD_SW_FT.pptx





Location	Station
Trail Creek US of Camp G	TC-5
Blackfoot River DS of Trail Creek	ST021

Notes:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in the boxplot statistics. Boxplot statistics were calculated and plotted using SigmaPlot.
- Refer to Section 4 for 2015 EPA Draft Criterion.
- US = Upstream; DS = Downstream

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-87

OFFSITE SALMONID FISH TISSUE SELENIUM CONCENTRATIONS BY LOCATION

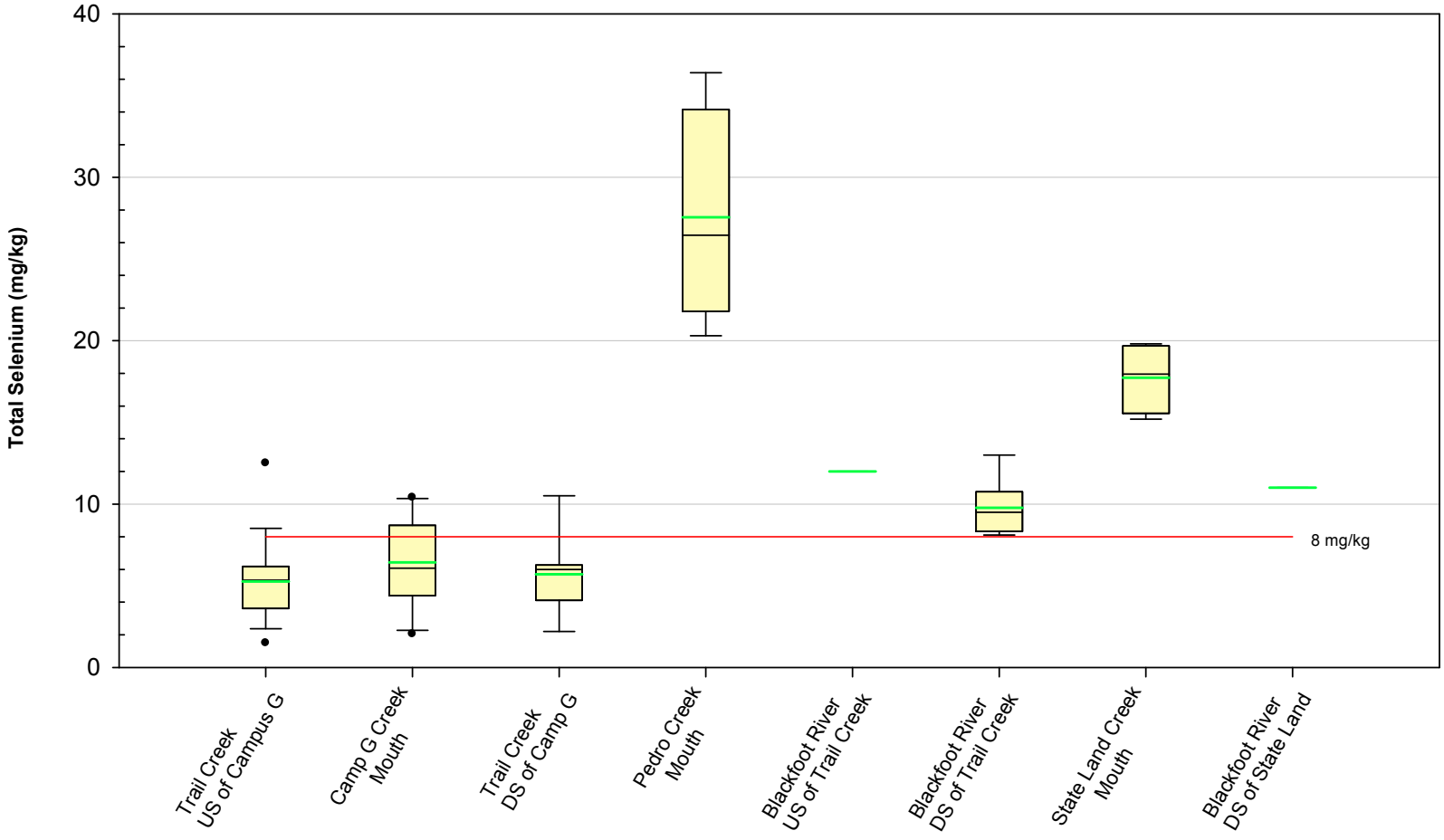
DATE: MAY 2016

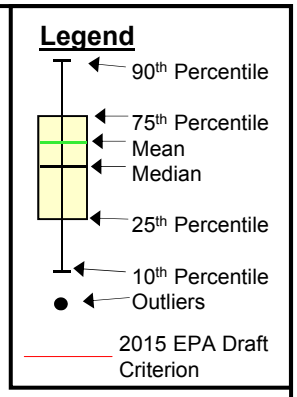
BY: AJ

FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\2_Offsite\Offsite_Boxplots_SD_SW_FT.pptx





Location	Station
Trail Creek US of Camp G	TC-5
	TC-1
Camp G Creek Mouth	CGC-0
Trail Creek DS of Camp G	TC
Pedro Creek Mouth	PC-1
Blackfoot River US of Trail Creek	ST022
Blackfoot River DS of Trail Creek	ST021
	ST230
State Land Creek Mouth	SLC
	SLC-0
Blackfoot River DS of State Land	MST020

Notes:

- From left to right, locations are listed from upstream to downstream by reach segment and type.
- Only detected values are used in the boxplot statistics. Boxplot statistics were calculated and plotted using SigmaPlot.
- Refer to Section 4 for 2015 EPA Draft Criterion.
- US = Upstream; DS = Downstream

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-88

OFFSITE NON-SALMONID FISH TISSUE SELENIUM CONCENTRATIONS BY LOCATION

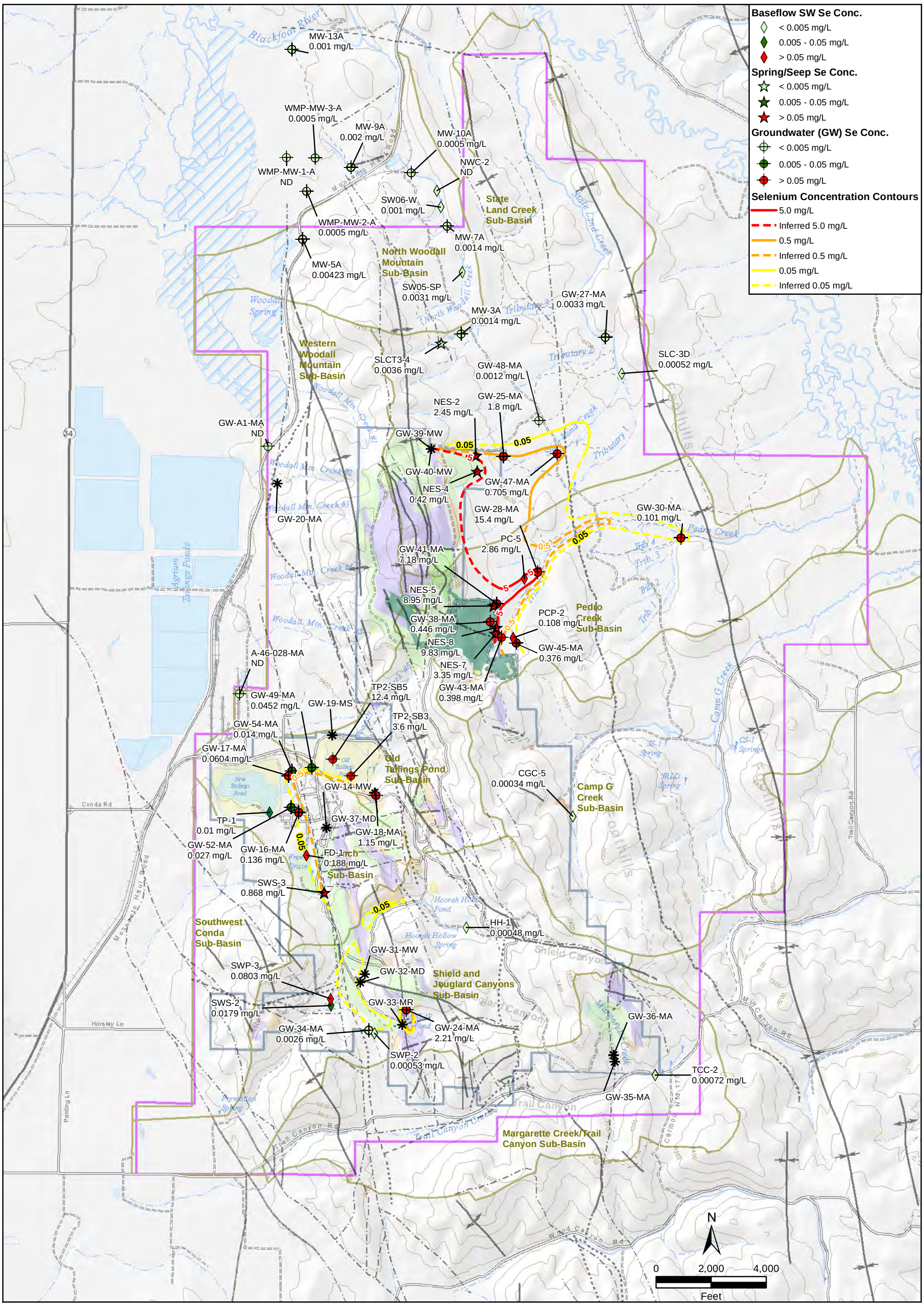
DATE: MAY 2016

BY: AJ

FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\Sect6_BoxplotUpd\2_Offsite\Offsite_Boxplots_SD_SW_FT.pptx



Legend

- Wells without GW in the alluvium/colluvium during drilling of the borehole
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Other Sub-Basins
- Mine Area
- Non-Mine Area

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Geologic Structures

- Anticline
- Syncline
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

Notes:
ND = non-detected
-Data are from 2001-2015 and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-89

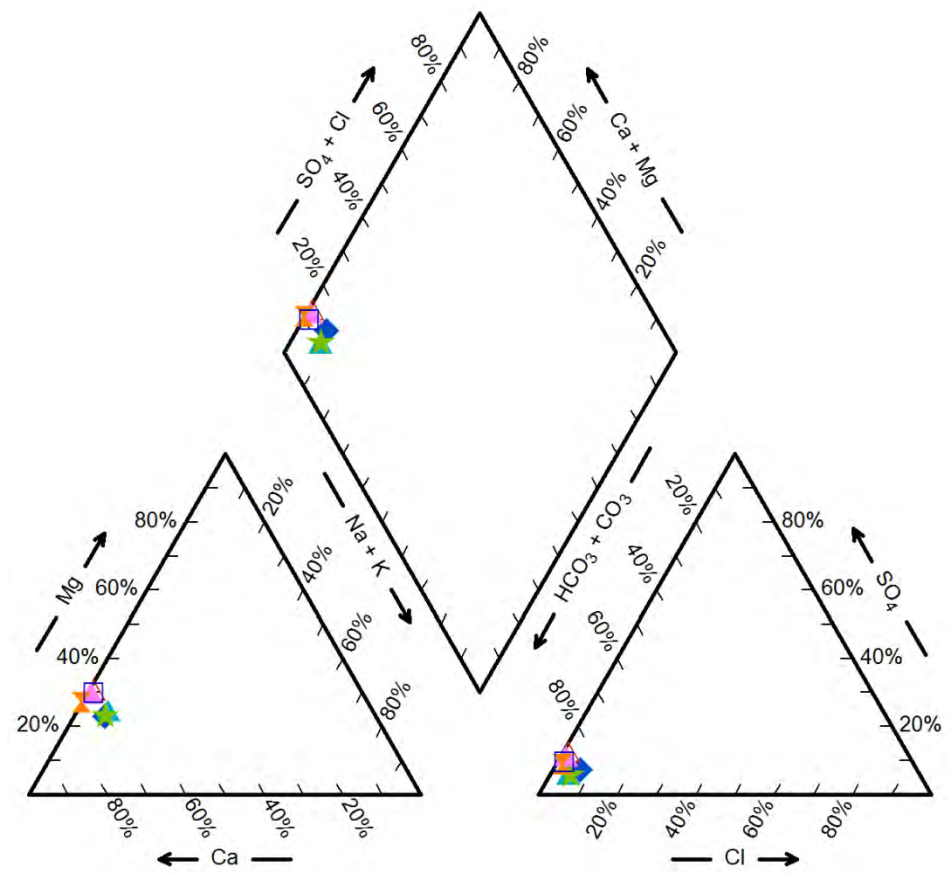
MAXIMUM SELENIUM CONCENTRATIONS IN SHALLOW HYDROSTRATIGRAPHIC SYSTEM

DATE: DEC 14, 2016
BY: KAM/DDZ FOR: RPS

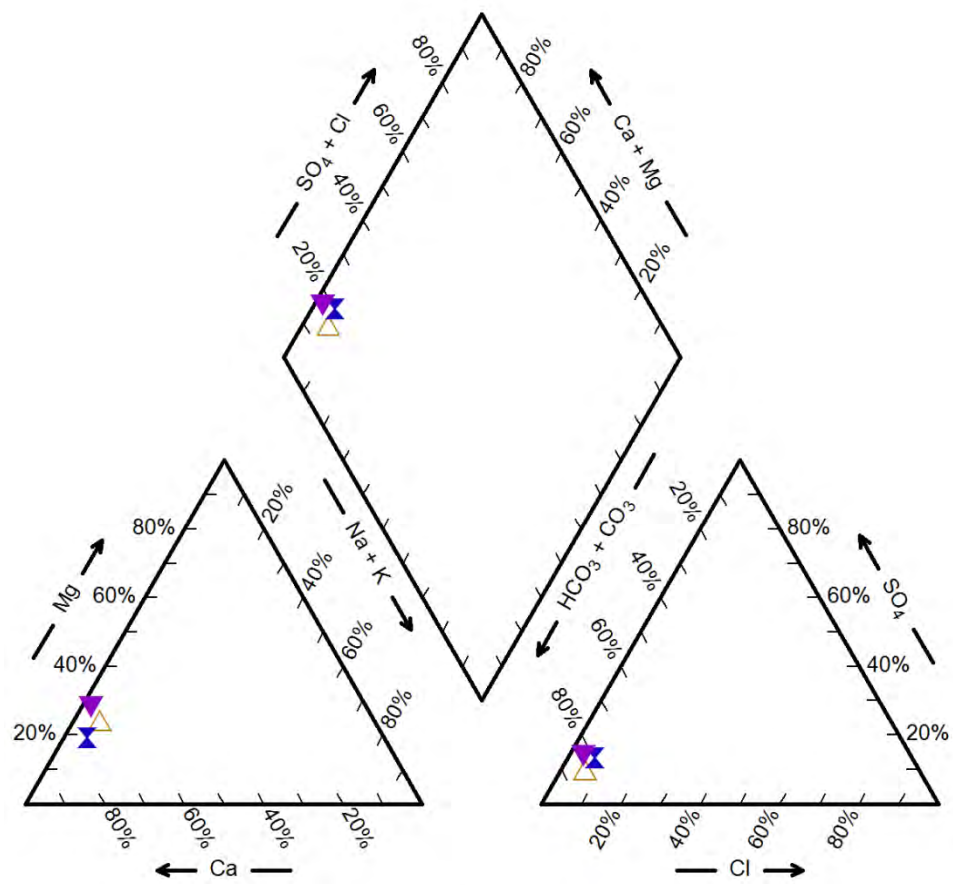
FORMATION ENVIRONMENTAL

S:\GIS\arcprj\2010139\plt\RI_2016\Fig_6-089_GW_SeConc_ShallowHydrostrat.mxd

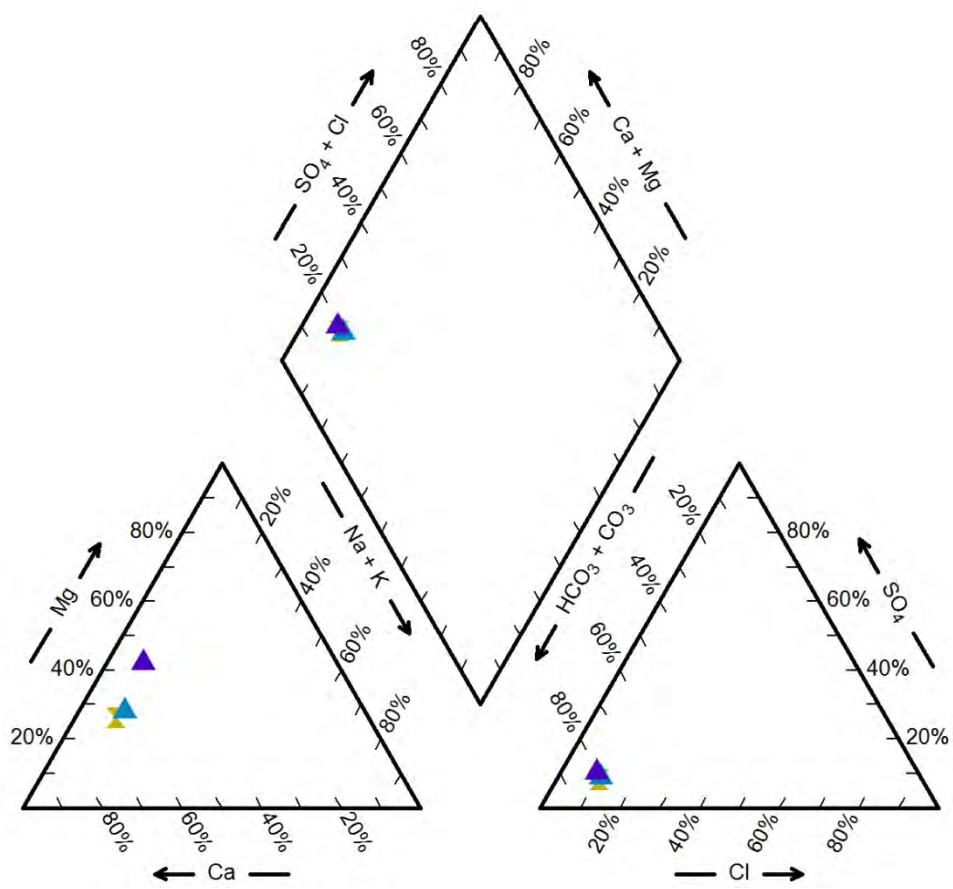
Springs and RMM affected Seeps



Shallow Hydrostratigraphic System



Intermediate Hydrostratigraphic System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

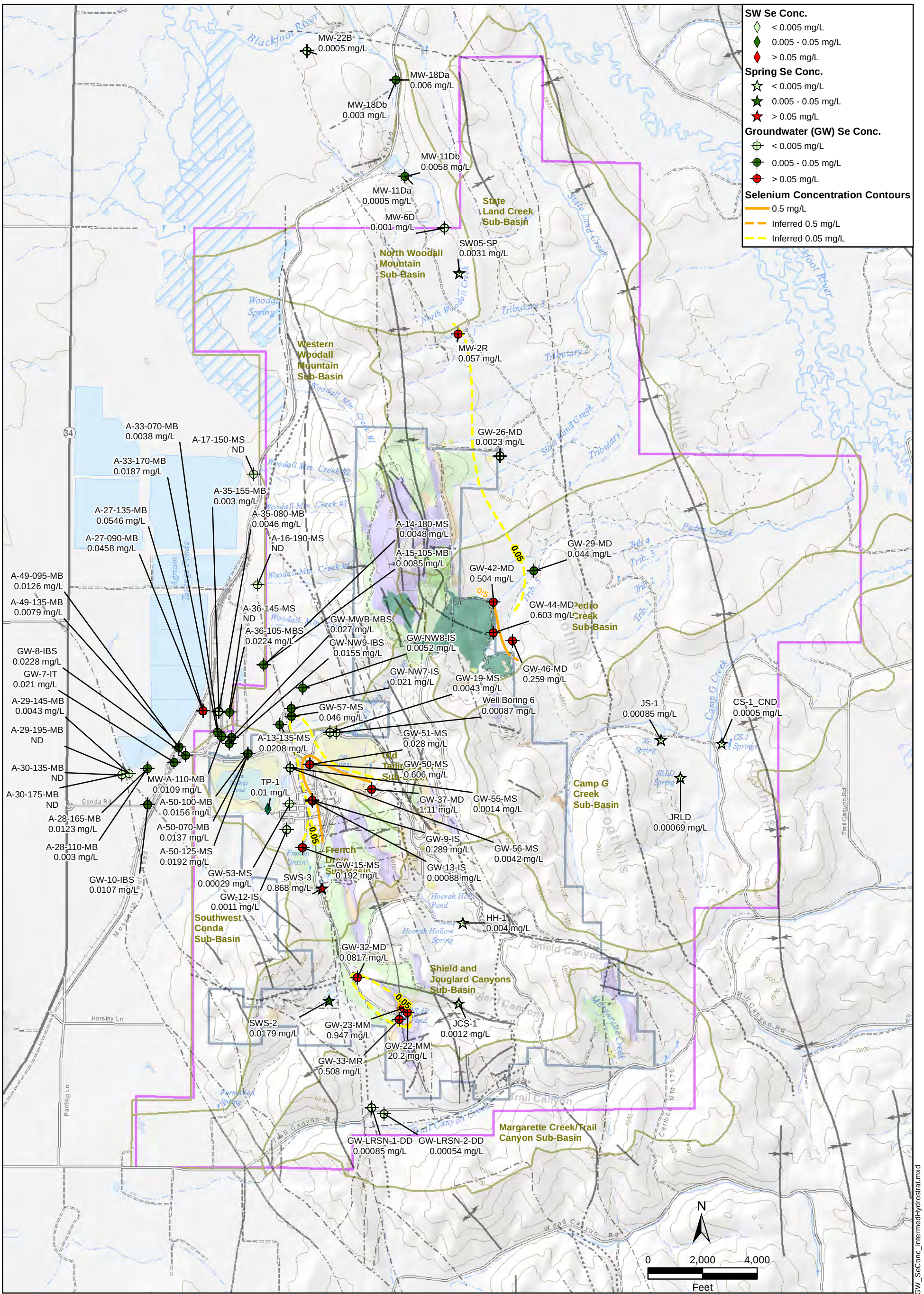
FIGURE 6-90

NORTH WOODALL SUB-BASIN MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEMS

DATE: MAY18, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\NorthWoodallTest.ppt



Legend

- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Other Sub-Basins
- Mine Area
- Non-Mine Area

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Geologic Structures

- Anticline
- Syncline
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

Notes:
- Boring 6 results are for dissolved fraction only.
*Data used for maximum concentration at MW-2R are from May 2006 - Oct 2009, and do not include the first result from drilling, which is an outlier.
-Data are from 2001-2015 and "A" data use level only.
ND = non-detect

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

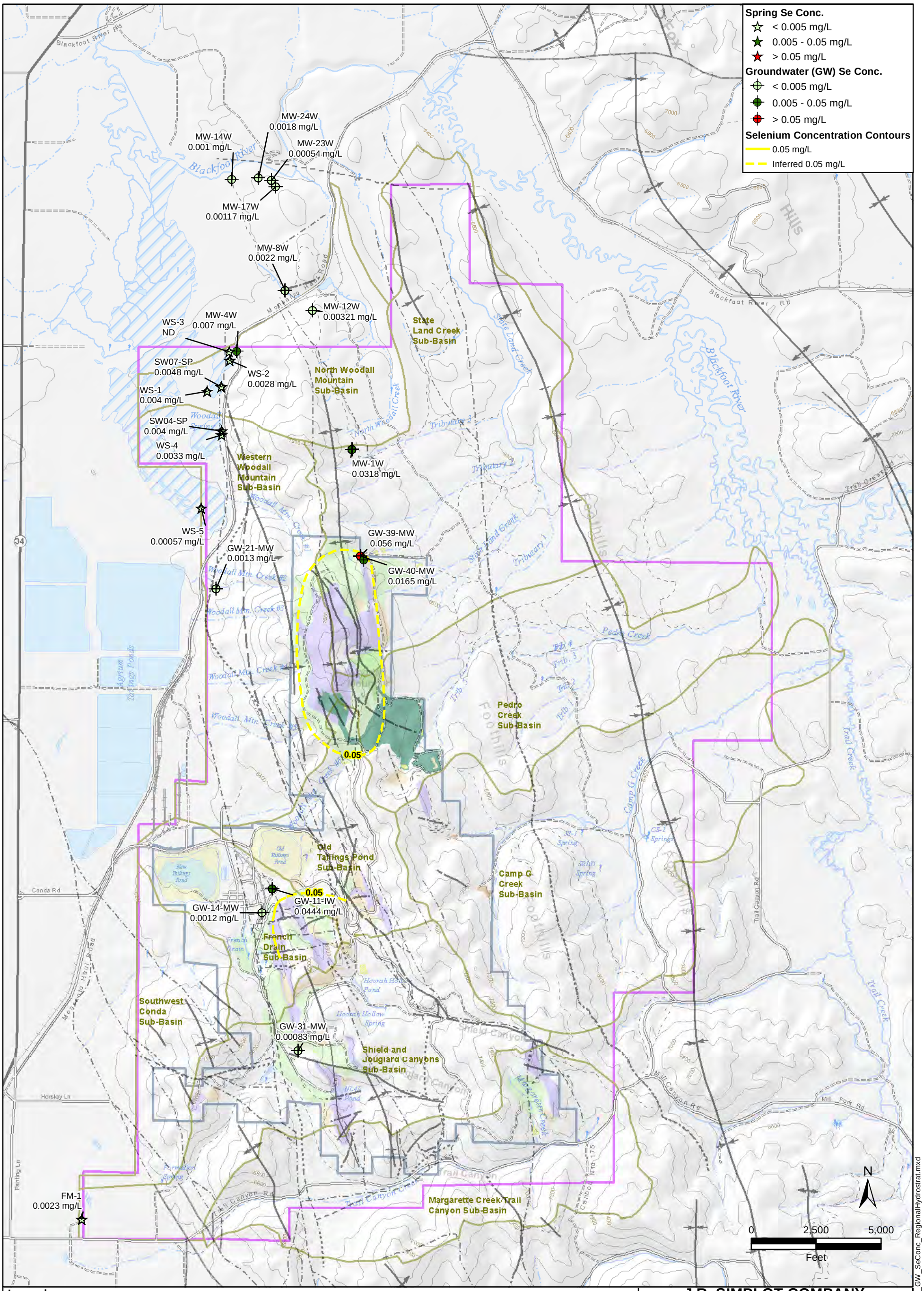
FIGURE 6-91

MAXIMUM SELENIUM CONCENTRATIONS IN INTERMEDIATE HYDROSTRATIGRAPHIC SYSTEM

DATE: DEC 14, 2016
BY: KAM
FOR: KSR

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-091_GW_SeConc_IntermedHydrostrat.mxd



Legend

- Premine contour
- Major Road
- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intemittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Sub-Basins

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

Geologic Structures

- Anticline
- Syncline
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

Notes:
ND - non-detected
- Total selenium data are from 2001-2015 and "A" data use level only.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-92

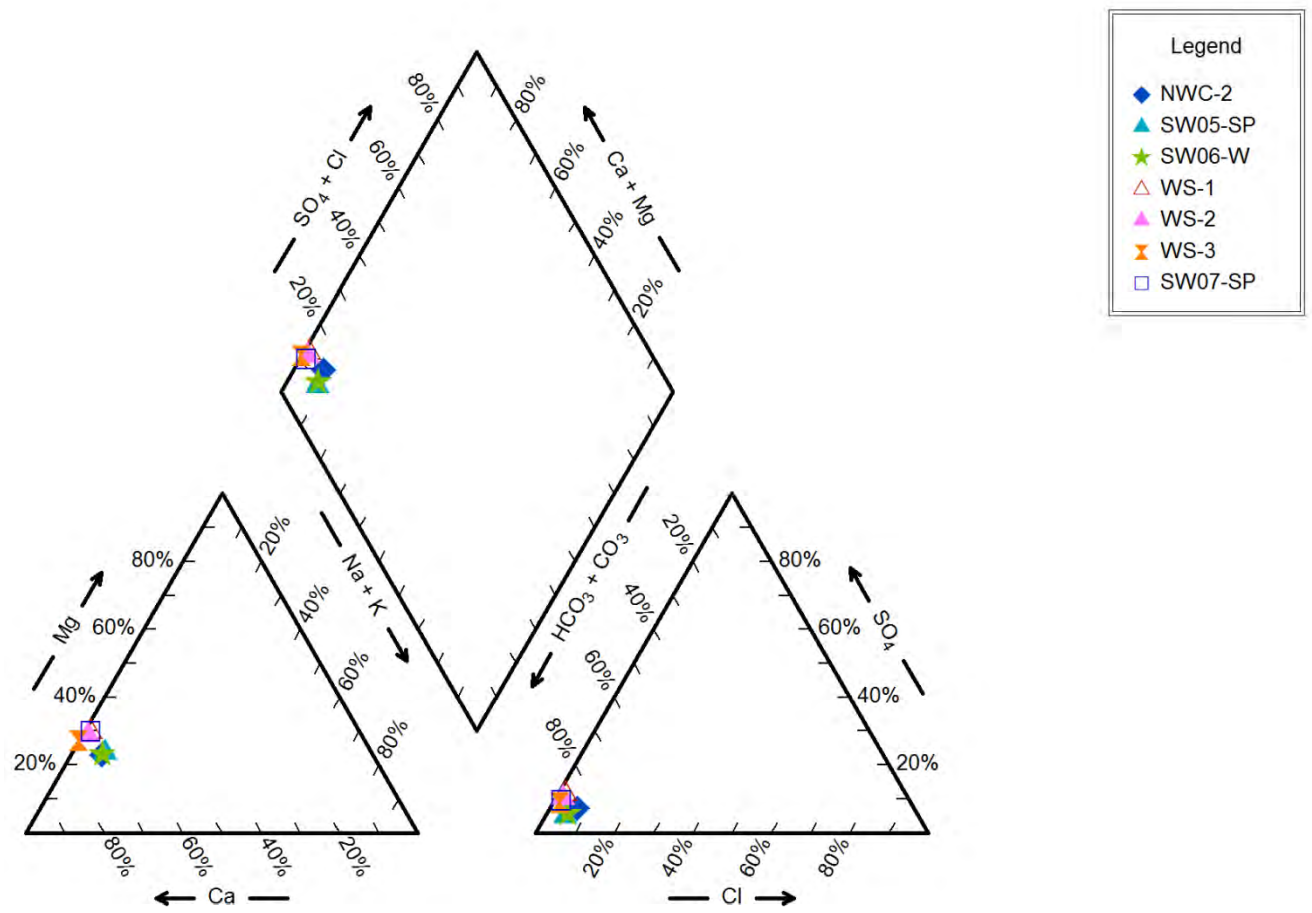
MAXIMUM SELENIUM CONCENTRATIONS IN DEEP HYDROSTRATIGRAPHIC SYSTEM

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

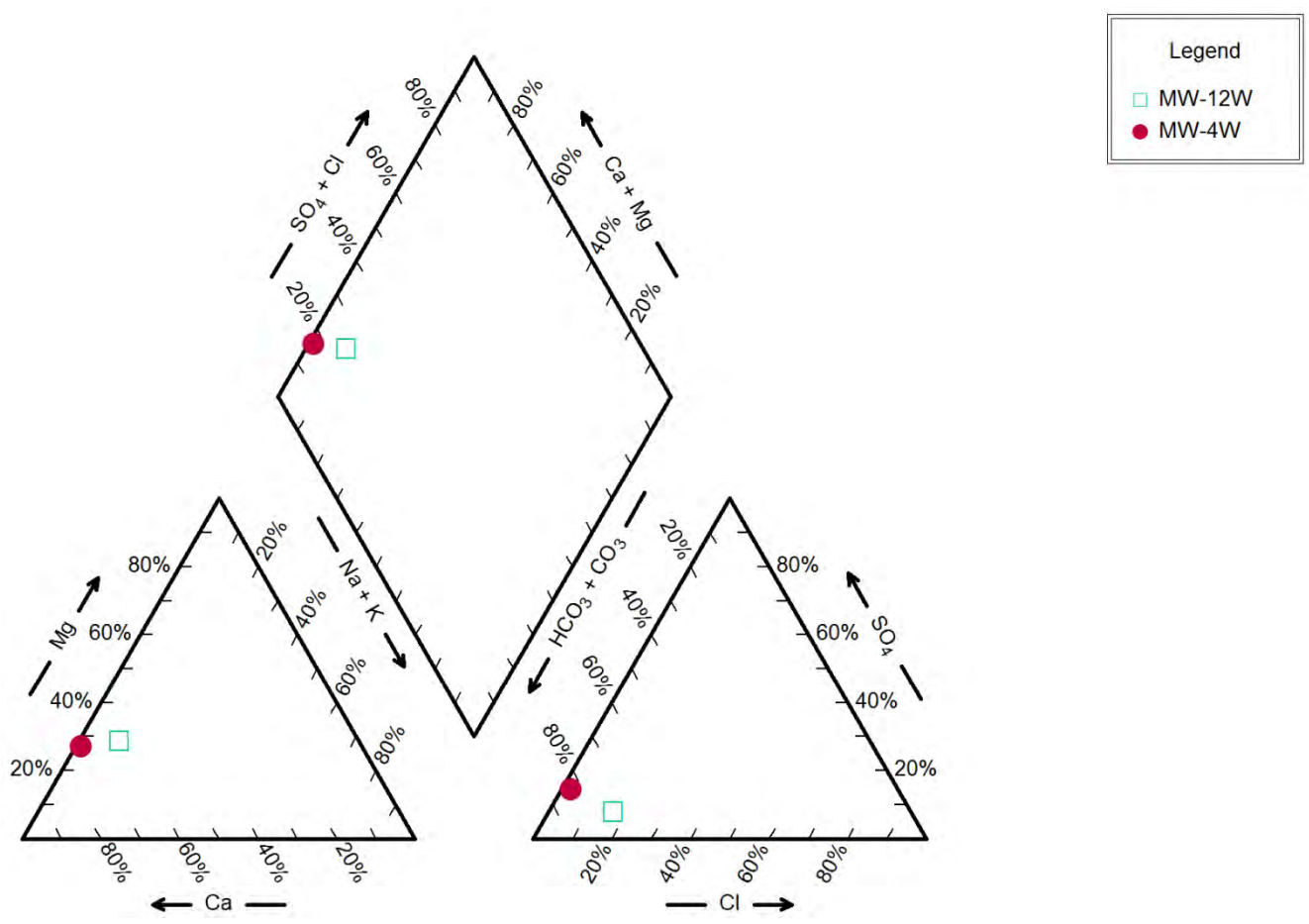
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-092_GW_SeConc_RegionalHydrostrat.mxd

Springs and RMM affected Seeps



Deep GW System



NOTES:

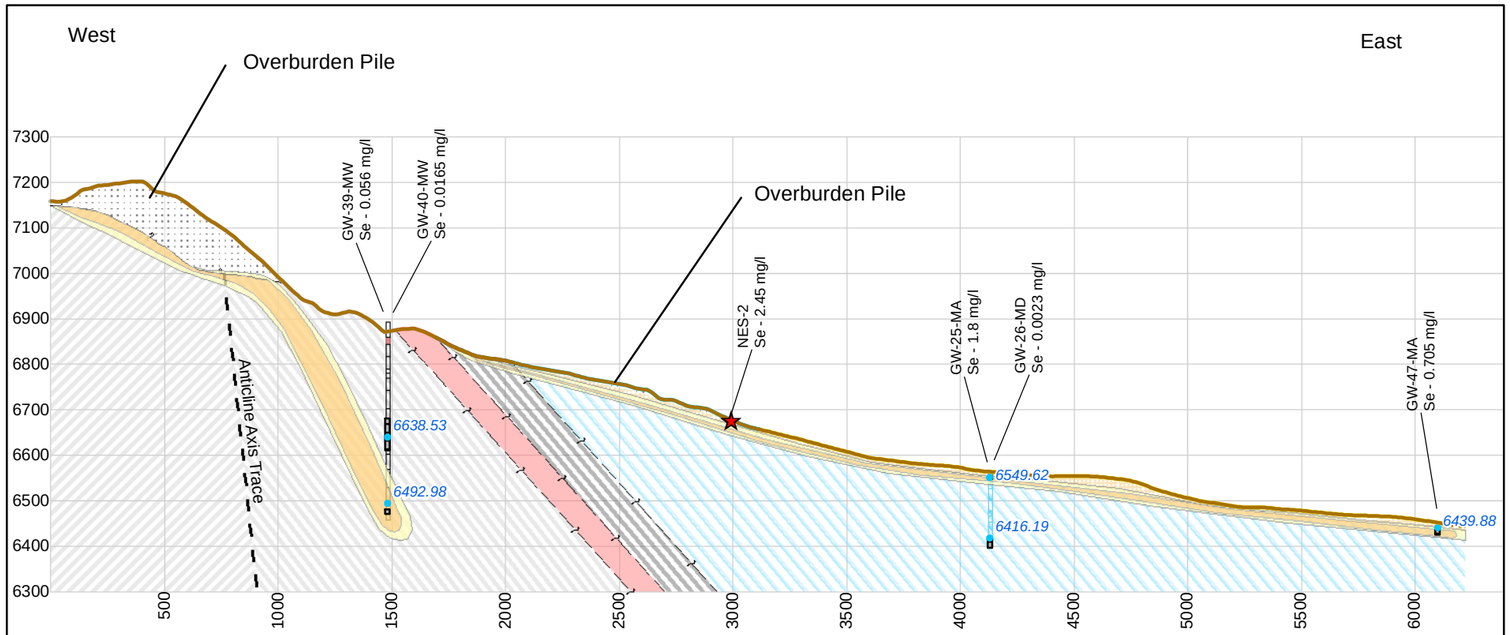
- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-93
NORTH WOODALL SUB-BASIN MAJOR ION COMPOSITION DEEP SYSTEM

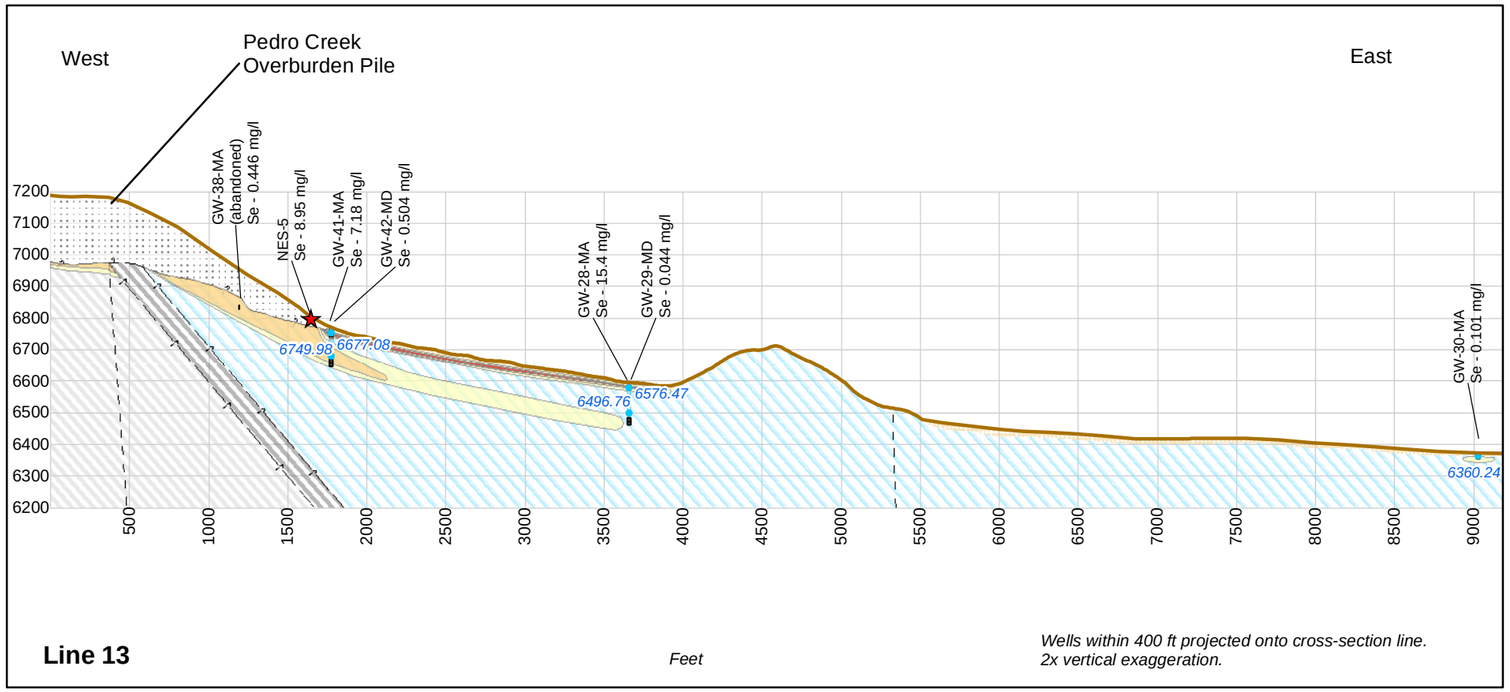
DATE: MAY18, 2016
BY: KAM
FOR: RPS
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\NorthWoodallTest.ppt



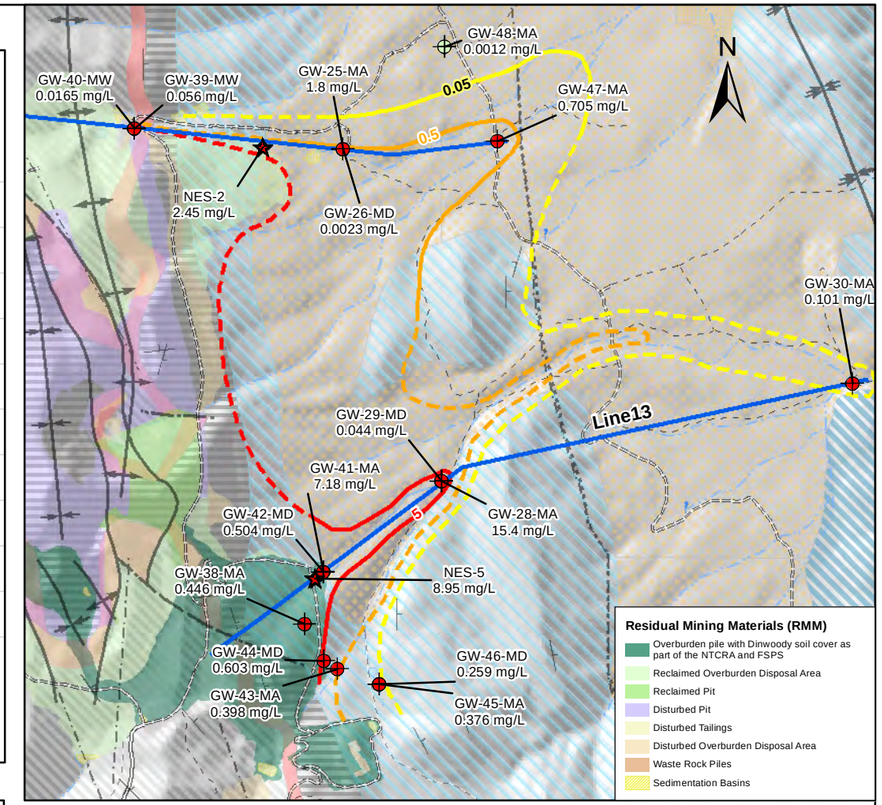
Line 11

Wells within 400 ft projected onto cross-section line.
2x vertical exaggeration.



Line 13

Wells within 400 ft projected onto cross-section line.
2x vertical exaggeration.



Plan View Legend

GW Se Conc. (Max)

- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L
- Seeps and Springs
- Cross Sections Lines

Se Concentration Contours

- 5.0 mg/L
- Inferred 5.0 mg/L
- 0.5 mg/L
- Inferred 0.5 mg/L
- 0.05 mg/L
- Inferred 0.05 mg/L
- Strike/Dip
- Fault
- Anticline
- Syncline

Cross Section Legend

- GW Elevation Oct 2013
- Post Mine Ground Surface
- Well Screen Intervals
- Inferred vertical extent of plume with [Se] >= 0.05 mg/l
- Inferred vertical extent of plume with [Se] >= 0.5 mg/l
- Inferred vertical extent of plume with [Se] >= 5 mg/l

Interpretive Contacts

- Anticline Axis
- Fault Trace
- Inferred Contact

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

Total selenium results based on dataset through 2015.
ND = non-detected

0 500 1,000 2,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-94

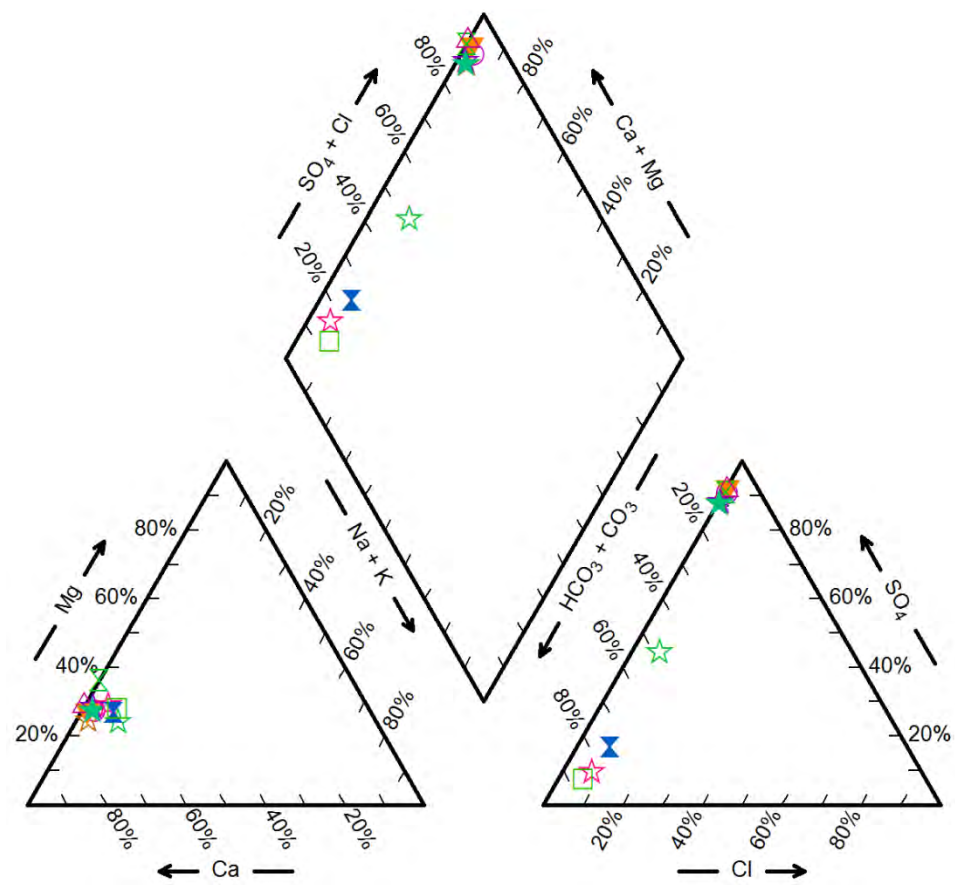
PEDRO CREEK SUB-BASIN VERTICAL PLUME EXTENT LINES 11 AND 13

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

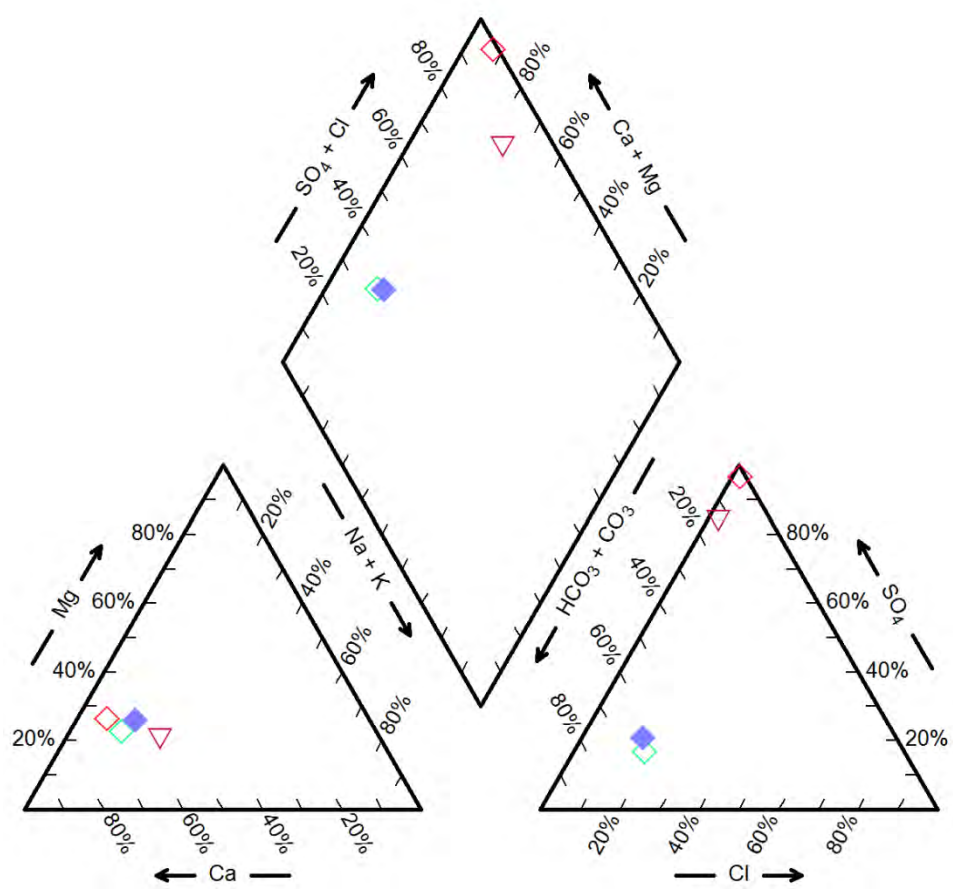
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_6-094_vertplume_Lines1113_REV.mxd

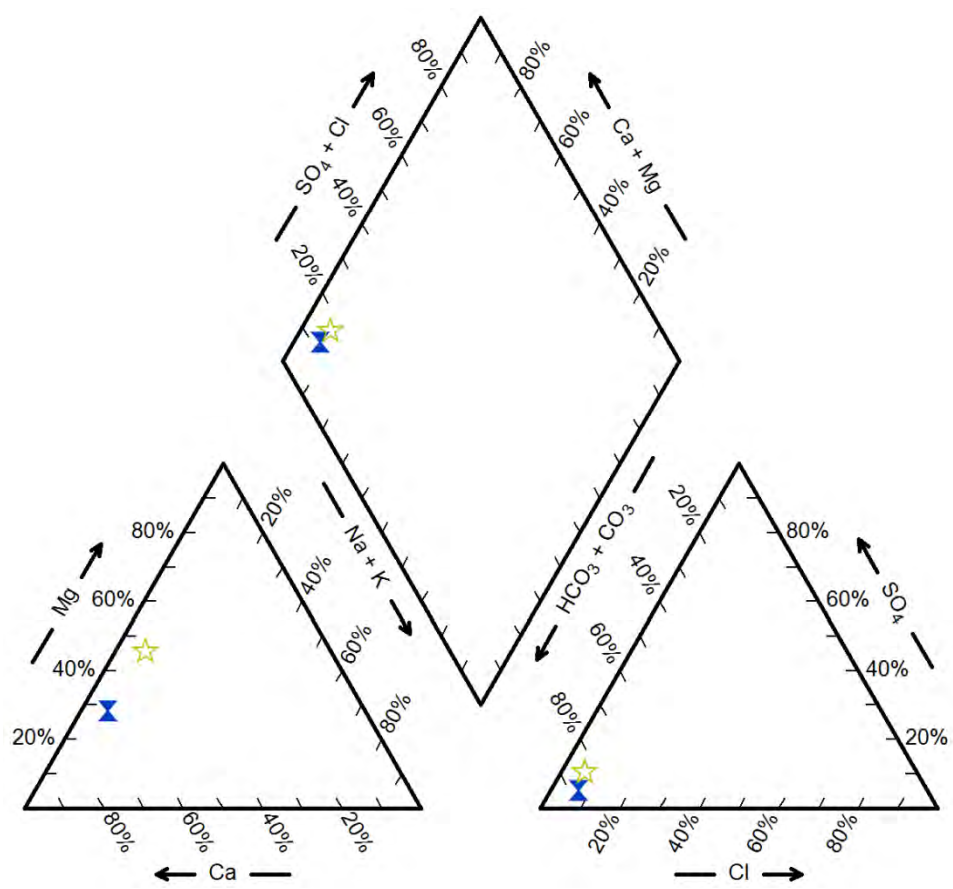
Springs and RMM affected Seeps



Shallow Hydrostratigraphic System



Intermediate Hydrostratigraphic System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

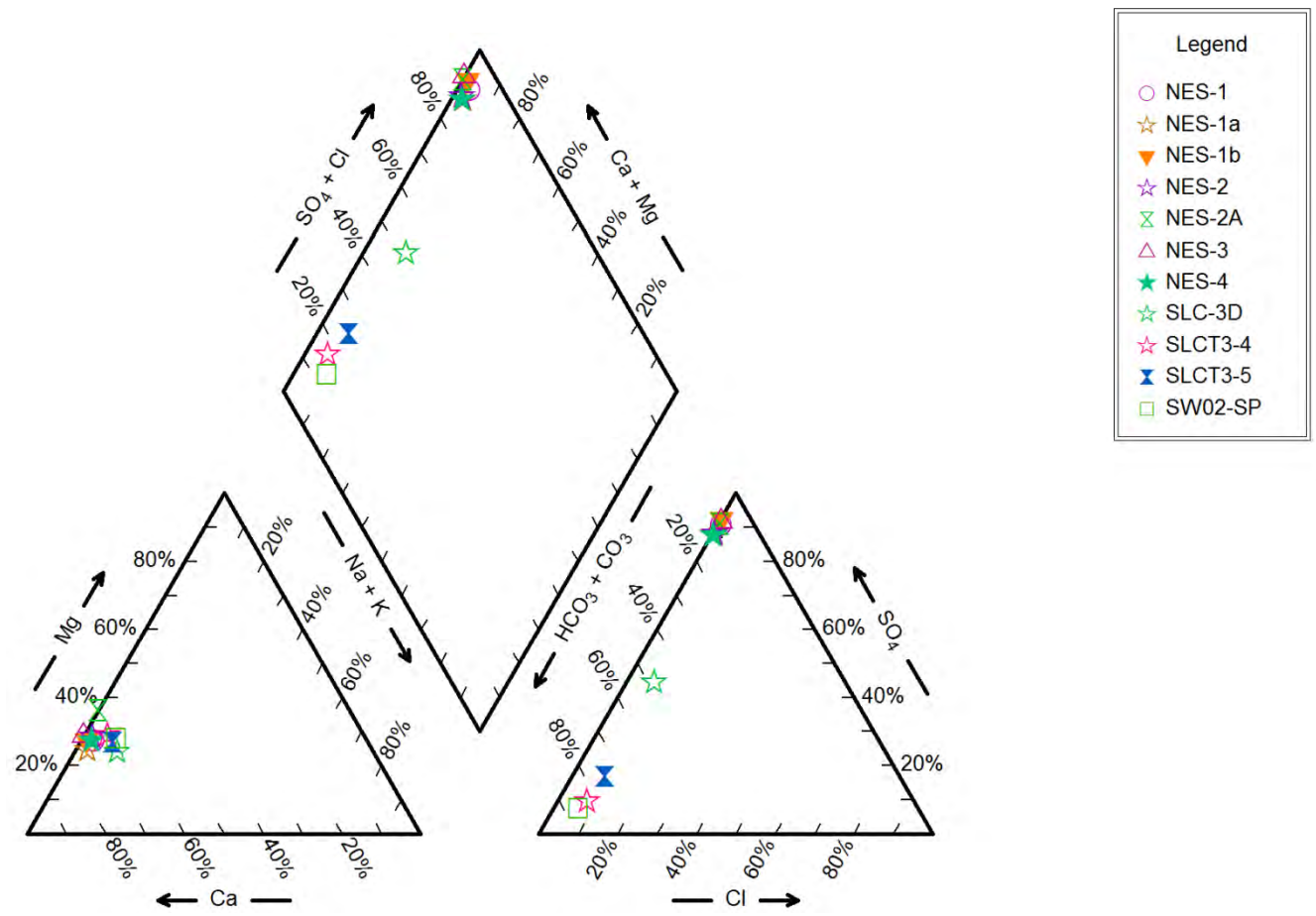
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-95
STATE LAND CREEK SUB-BASIN MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

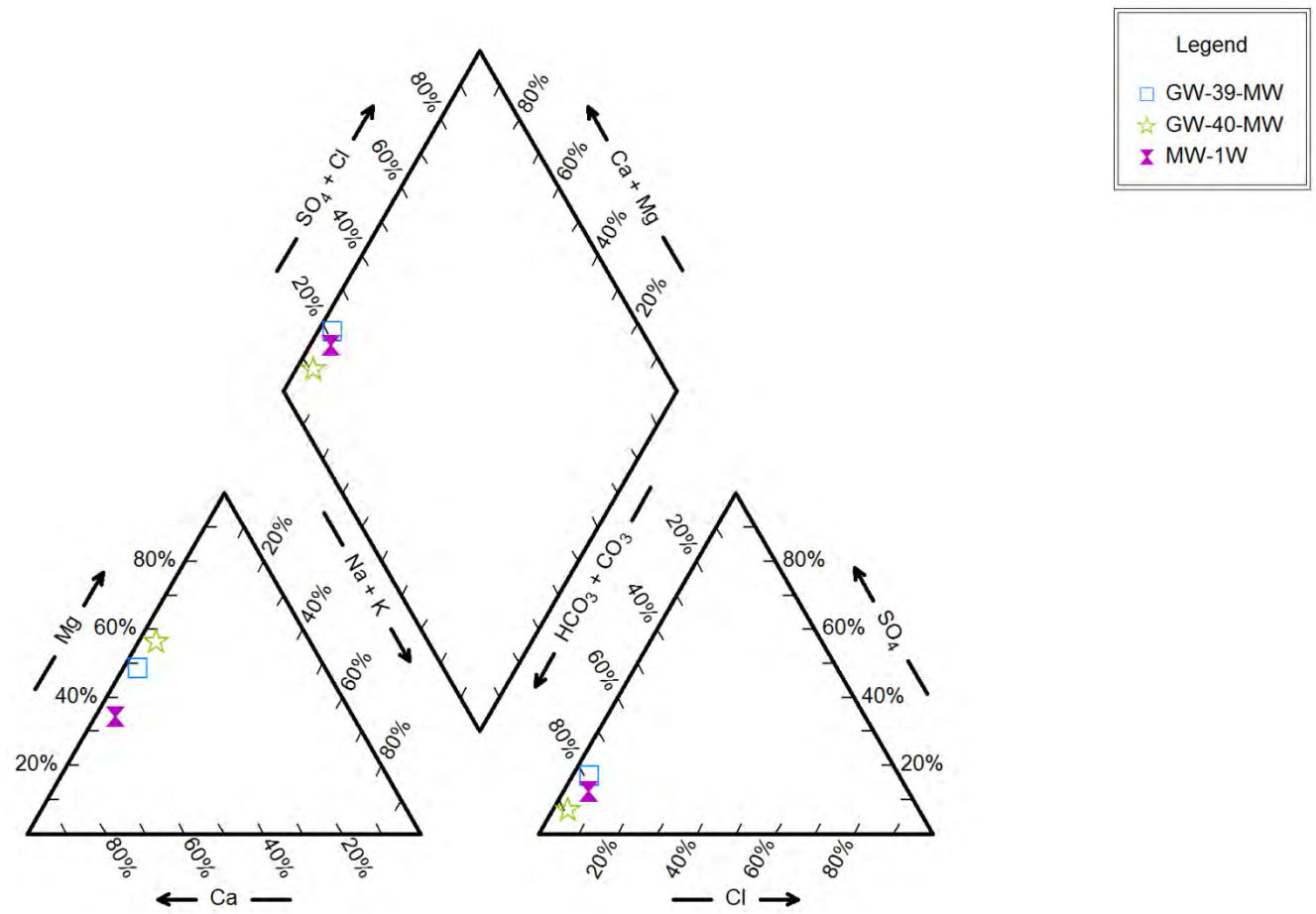
DATE: MAY18, 2016
BY: KAM
FOR: RPS
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\StateLandTest.ppt

Springs and RMM affected Seeps



Deep GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

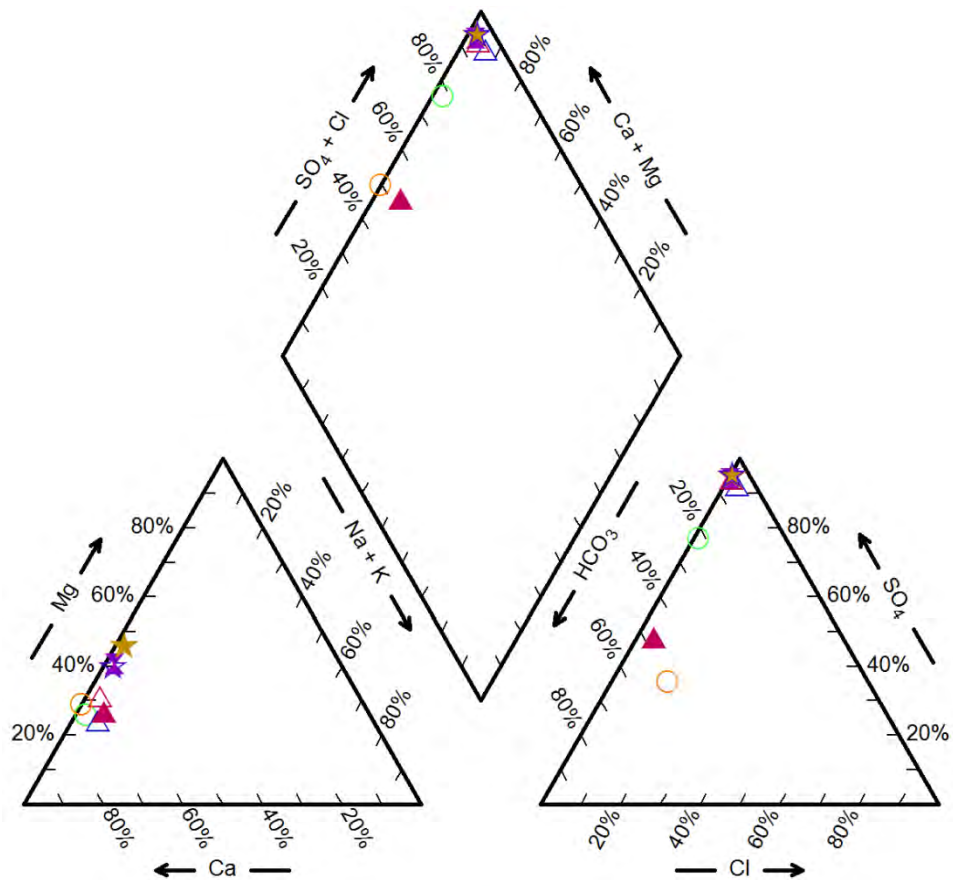
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-96
STATE LAND CREEK SUB-BASIN MAJOR ION COMPOSITION DEEP SYSTEM

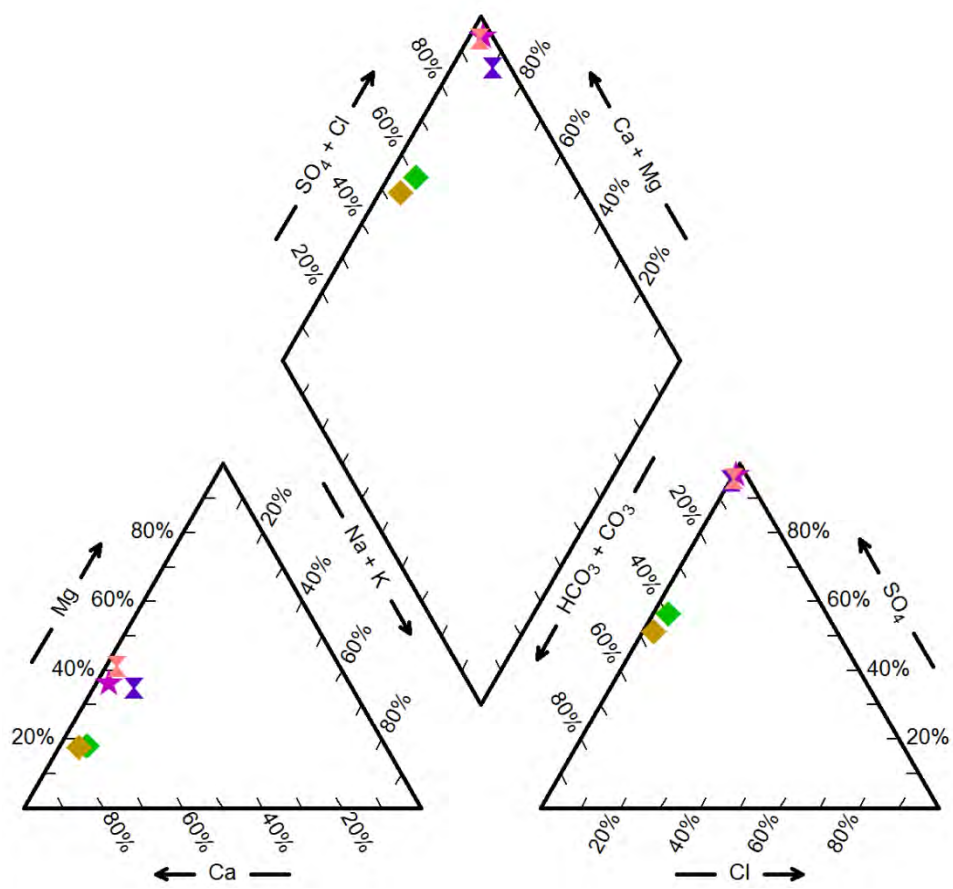
DATE: MAY18, 2016
BY: KAM
FOR: RPS
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_FnlGWanalyses\PiperDiagrams\StateLandTest.ppt

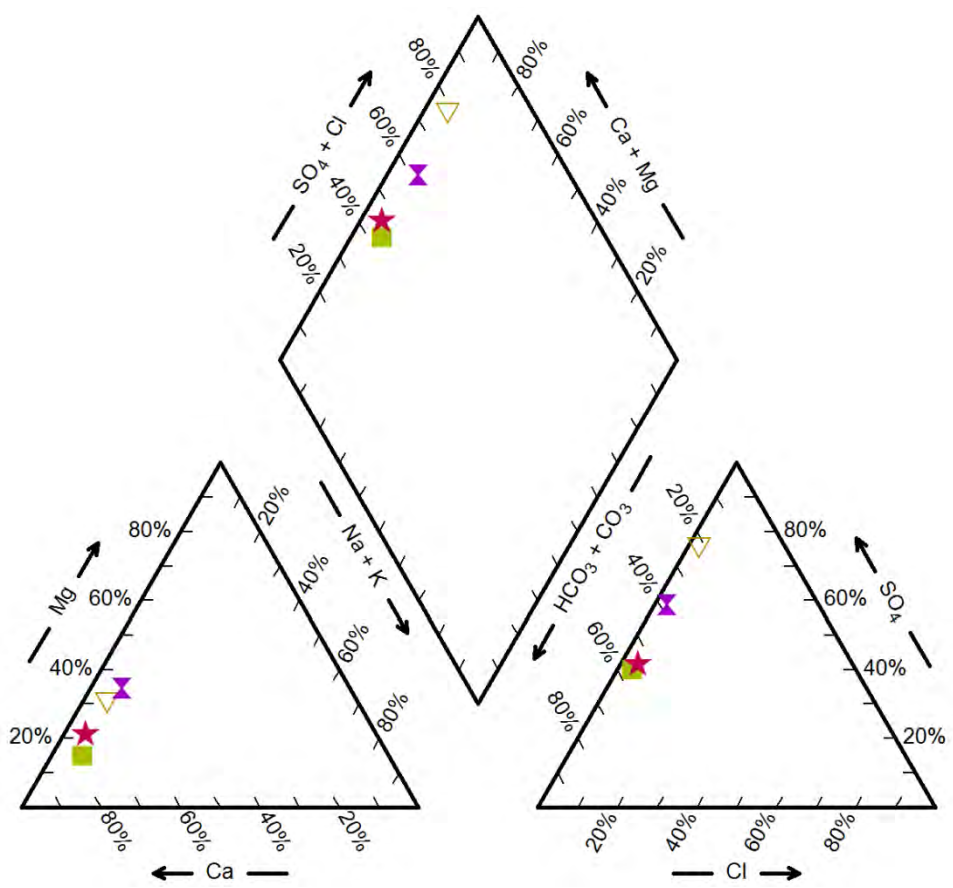
Springs and RMM affected Seeps



Shallow GW System



Intermediate GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

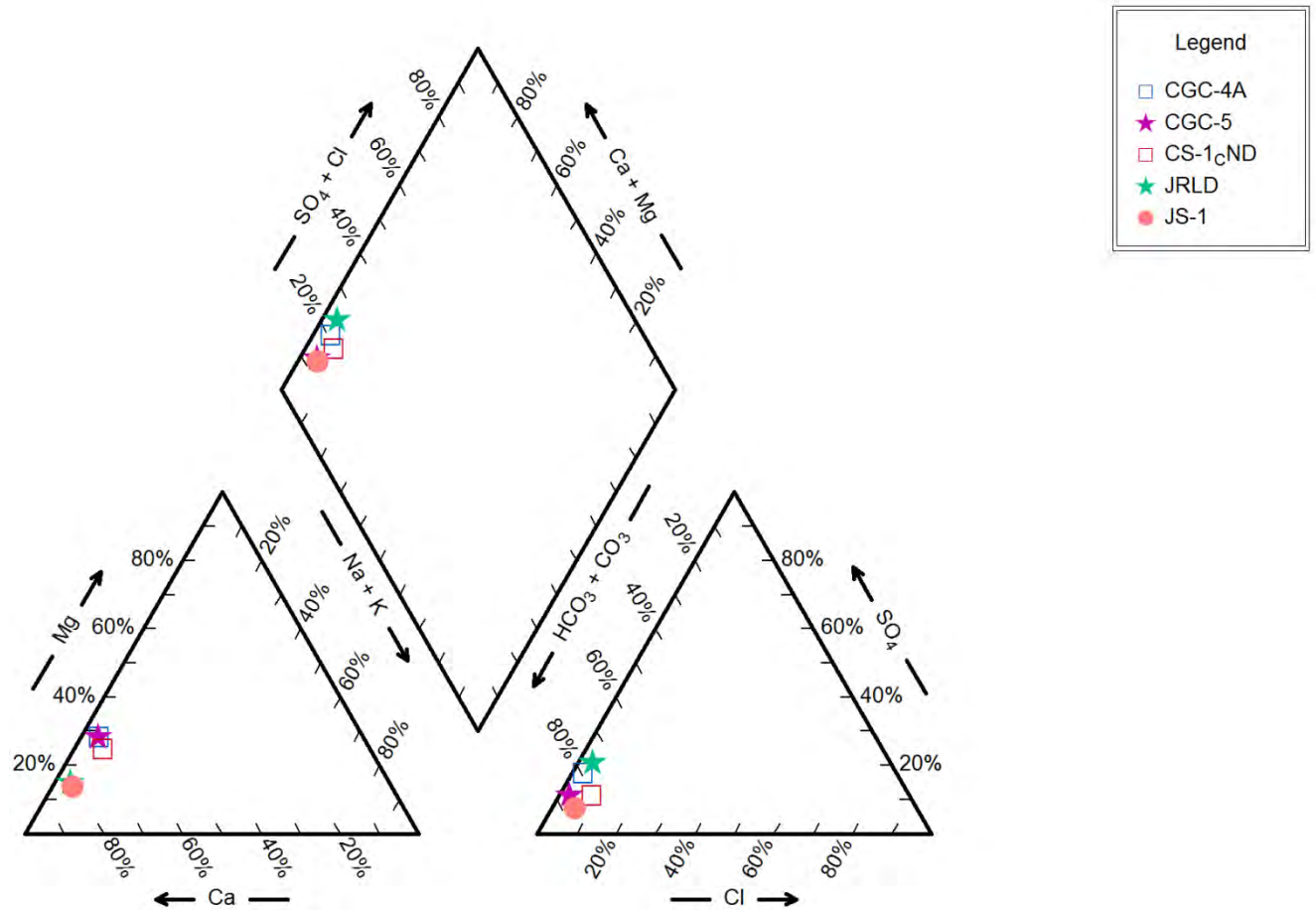
FIGURE 6-97
PEDRO CREEK SUB-BASIN MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RI\DataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\PedroCreek.ppt

Springs and RMM affected Seeps



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-98

CAMP G CREEK MAJOR ION COMPOSITION SHALLOW SYSTEM

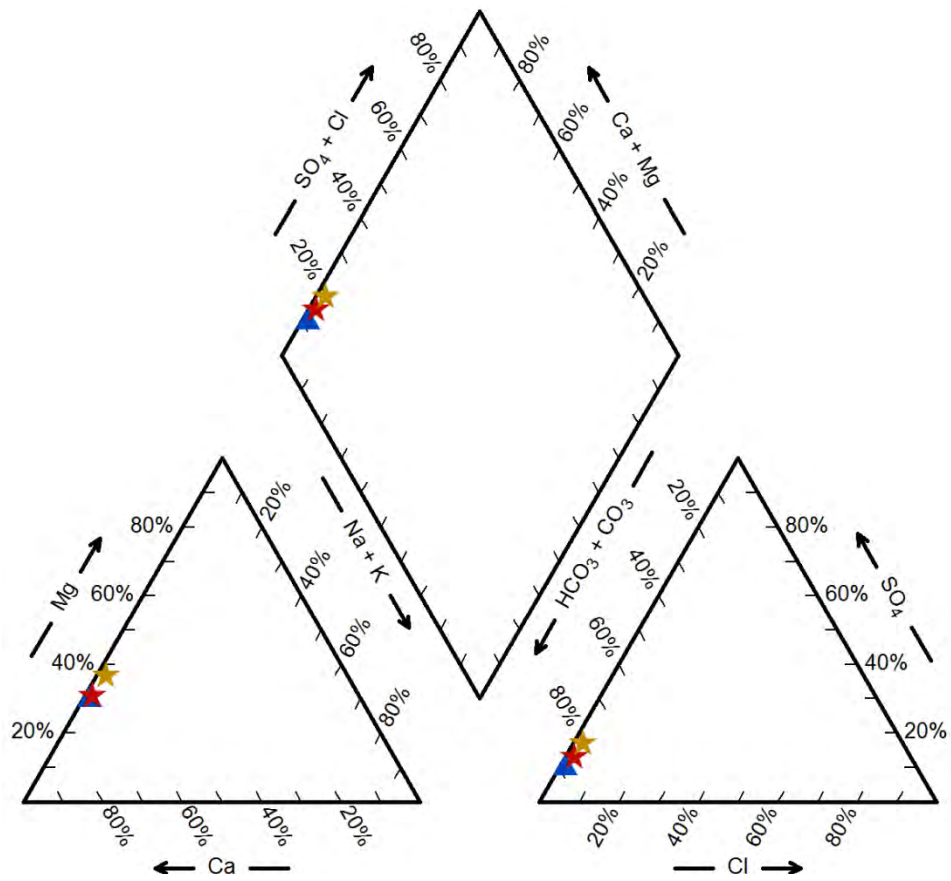
DATE: MAY 19, 2016

BY: KAM | FOR: RPS

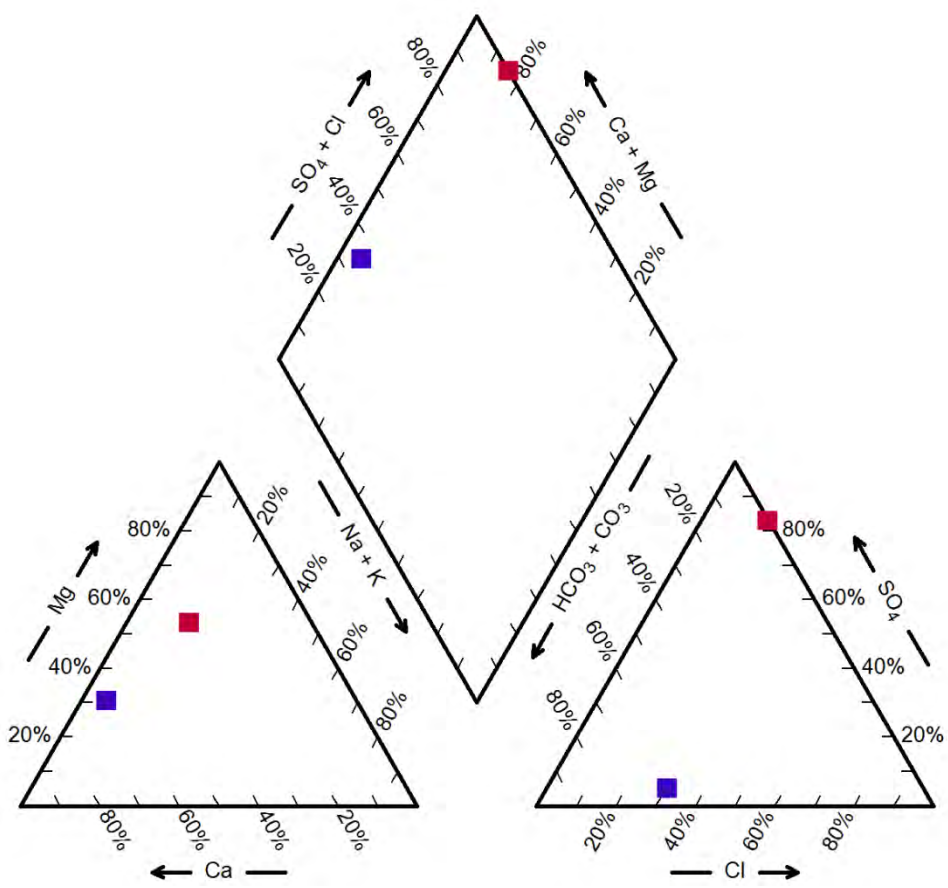
FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RIREPORT\RIDATAANALYSES_V4_FNL\GWANALYSES\PIPERDIAGRAMS\CAMPG.PPTX

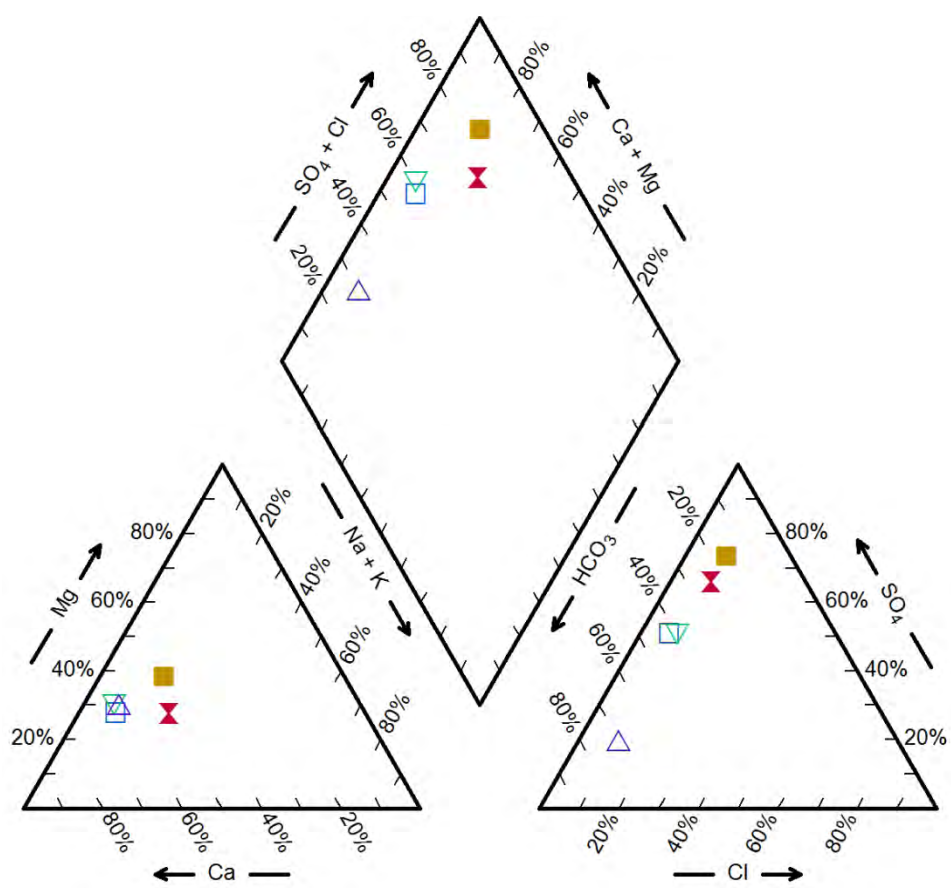
Springs and RMM affected Seeps



Shallow GW System



Intermediate GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

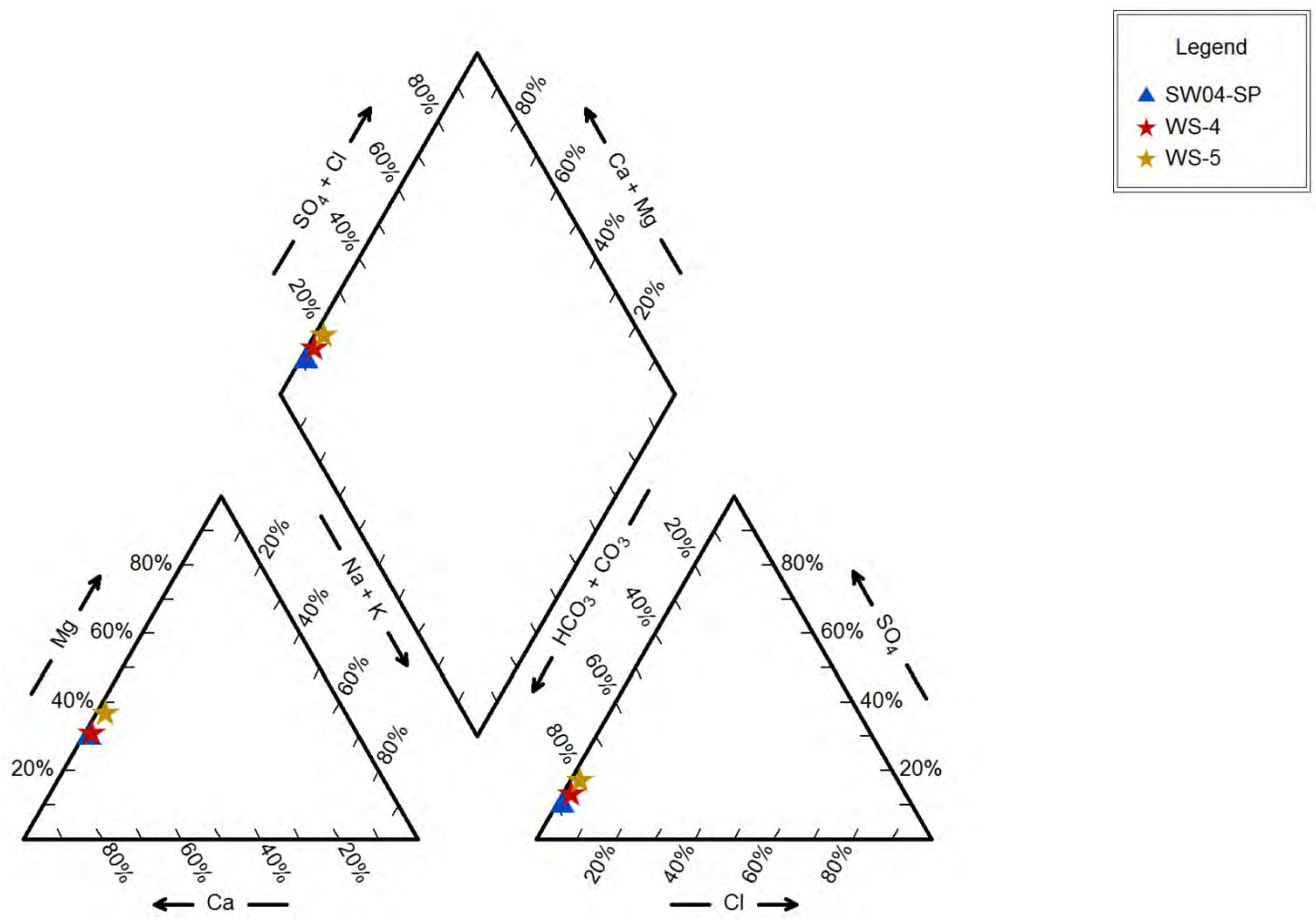
FIGURE 6-99
WESTERN WOODALL SUB-BASIN MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS

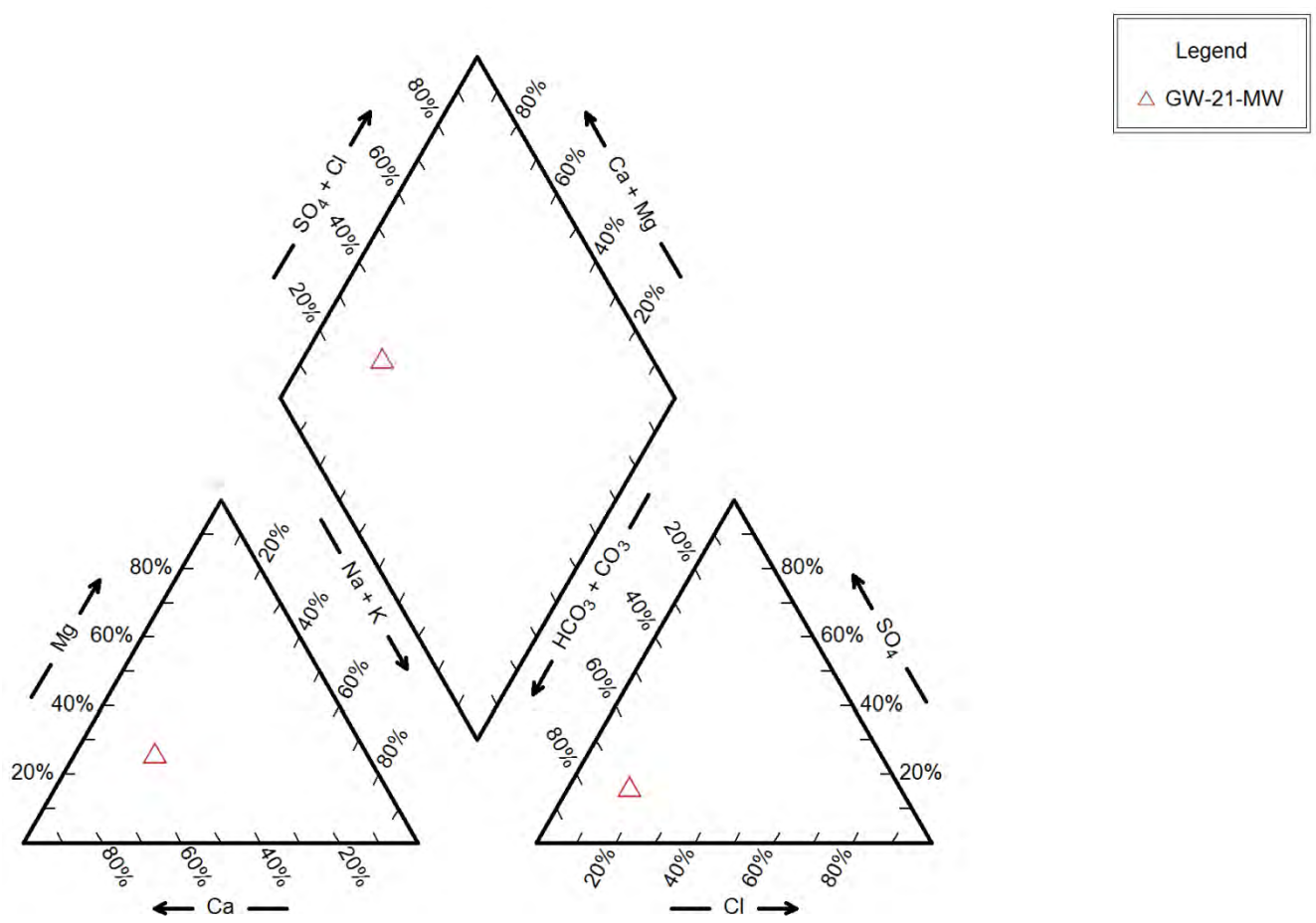
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\WestWoodall.ppt

Springs and RMM affected Seeps



Deep GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

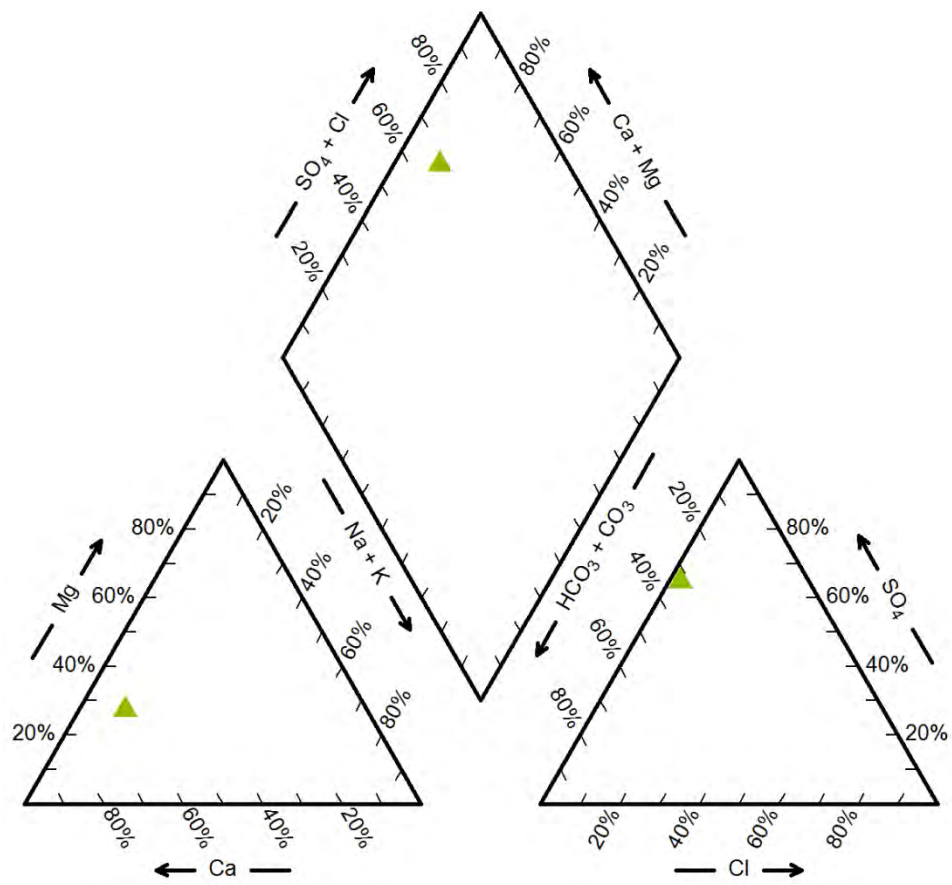
FIGURE 6-100
WESTERN WOODALL SUB-BASIN MAJOR ION COMPOSITION DEEP SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS

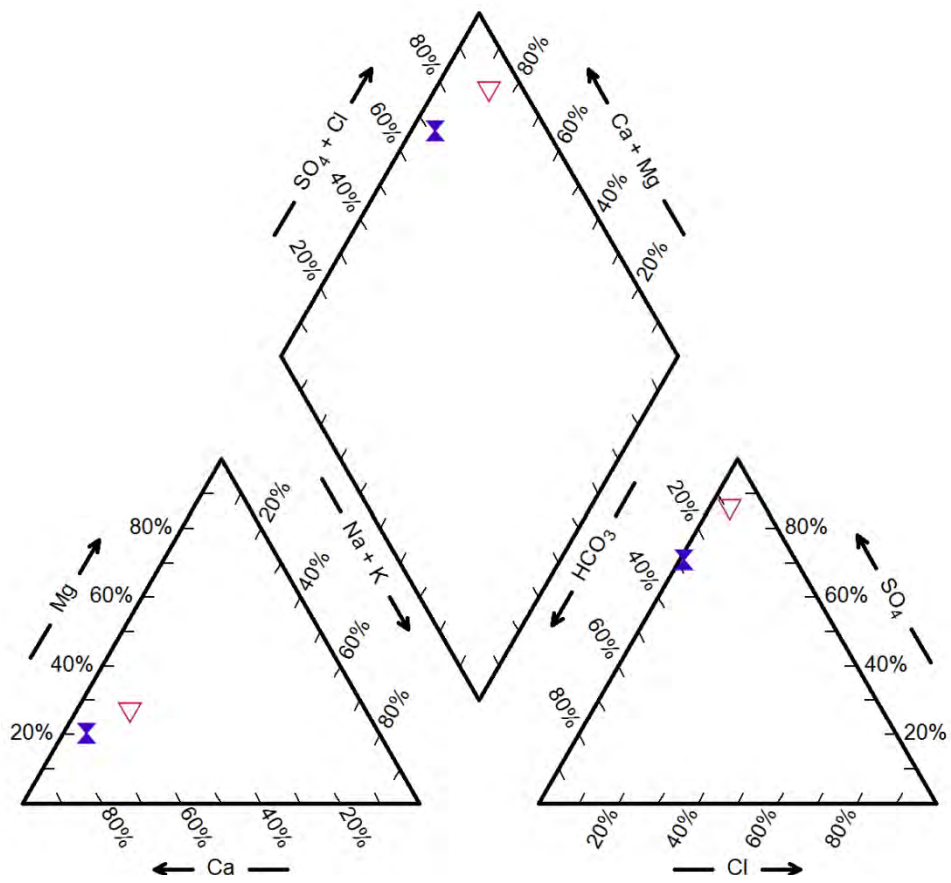
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\WestWoodall.ppt

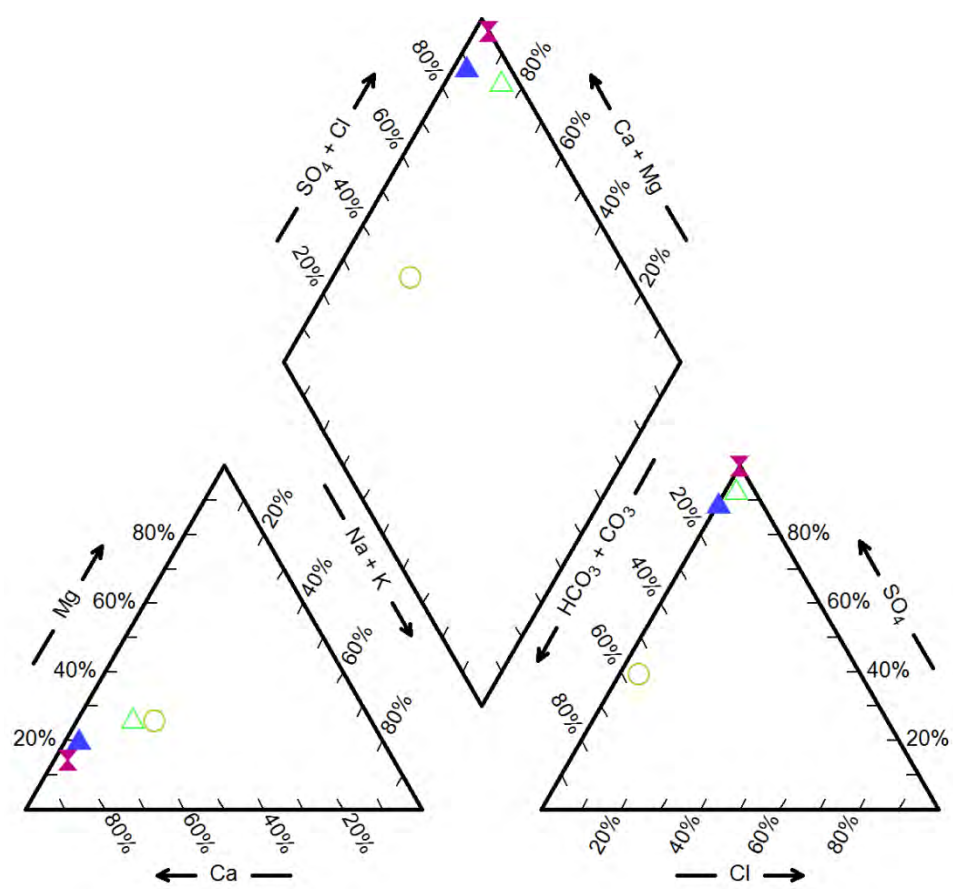
Springs and RMM affected Seeps



Shallow GW System



Intermediate GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

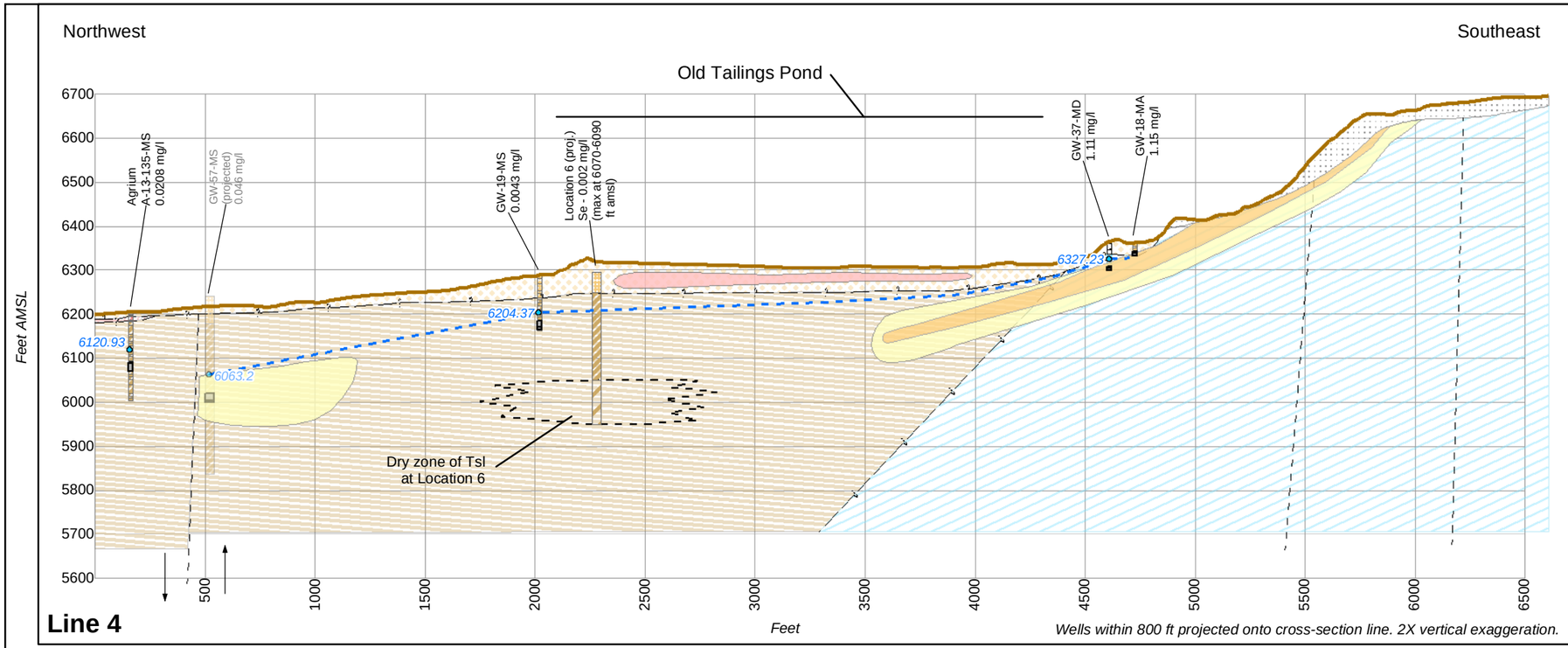
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

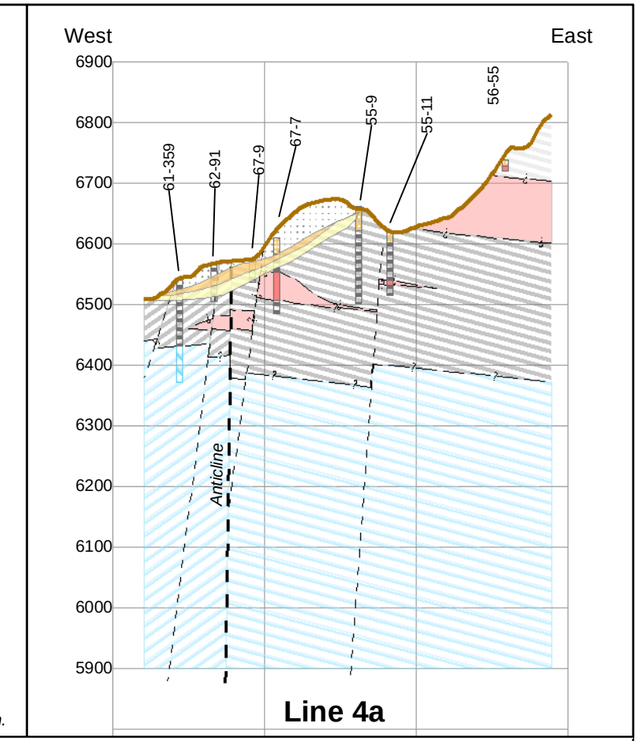
FIGURE 6-101
OLD TAILINGS POND SUB-BASIN MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

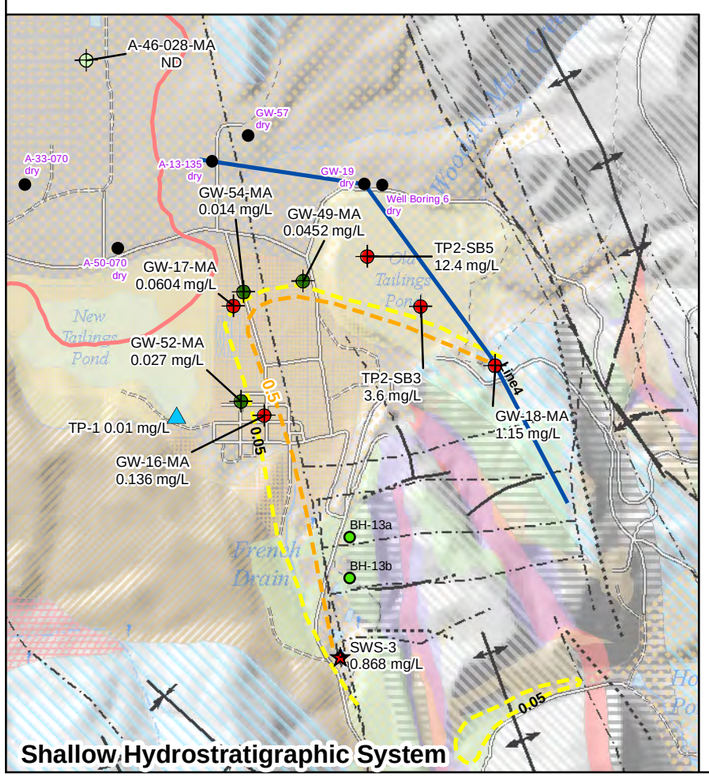
DATE: MAY18, 2016
BY: KAM
FOR: RPS

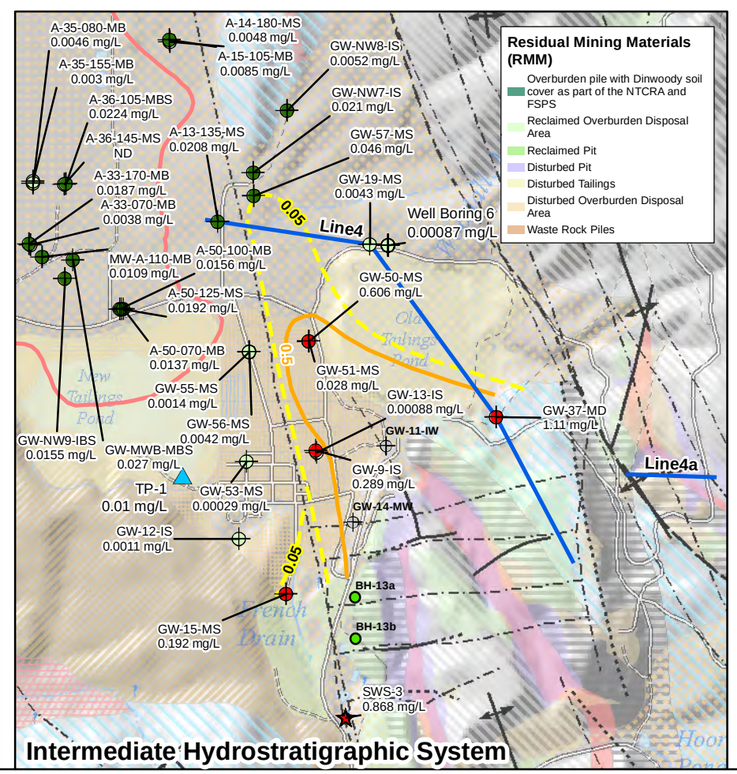
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\OldtailingsPond.ppt









Legend

Groundwater (GW) Se Conc. (Max)

- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L
- Conda Site wells
- Seeps and Springs
- Boring Logs noting dry alluvium
- TP-1 SW sample
- Boreholes/Test Pits w/ Lithology
- GW-11/14 (wells not completed in intermed. system but shown to provide context)
- Approx. extent of basalt
- Cross Section Lines

Se Concentration Contours

- 0.5 mg/L
- Inferred 0.5 mg/L
- 0.05 mg/L
- Inferred 0.05 mg/L
- Fault
- Anticline
- Syncline

Cross Section Legend

- Post Mine Ground Surface
- GW elevation Sept/Oct 2013
- Inferred potentiometric surface
- Well Screens
- Well Screen (projected)
- Inferred vertical extent of plume with [Se] >= 0.05 mg/l
- Inferred vertical extent of plume with [Se] >= 0.5 mg/l
- 0.5 mg/l

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- CL
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

Notes:
-Boring 6 results are for dissolved fraction only.
-Total selenium results based on 2001-2015 data.
ND = non-detected

N

0 400 800 1,600
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-102

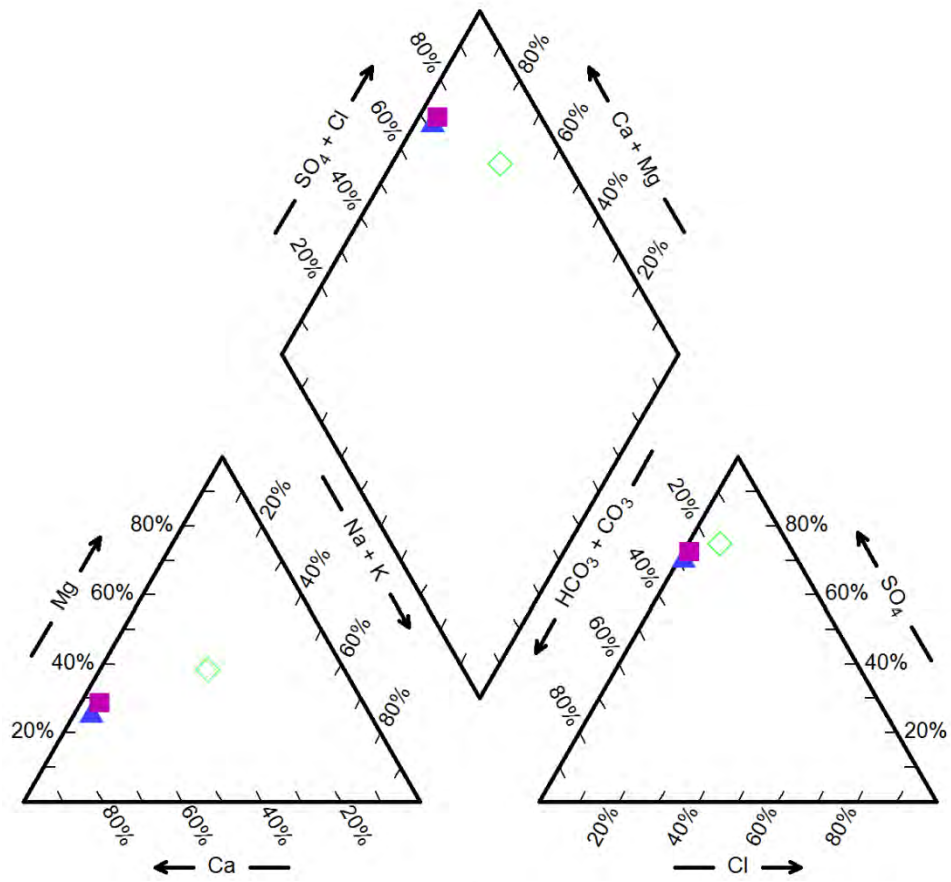
OLD TAILINGS POND SUB-BASIN VERTICAL PLUME EXTENT LINES 4 AND 4A

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

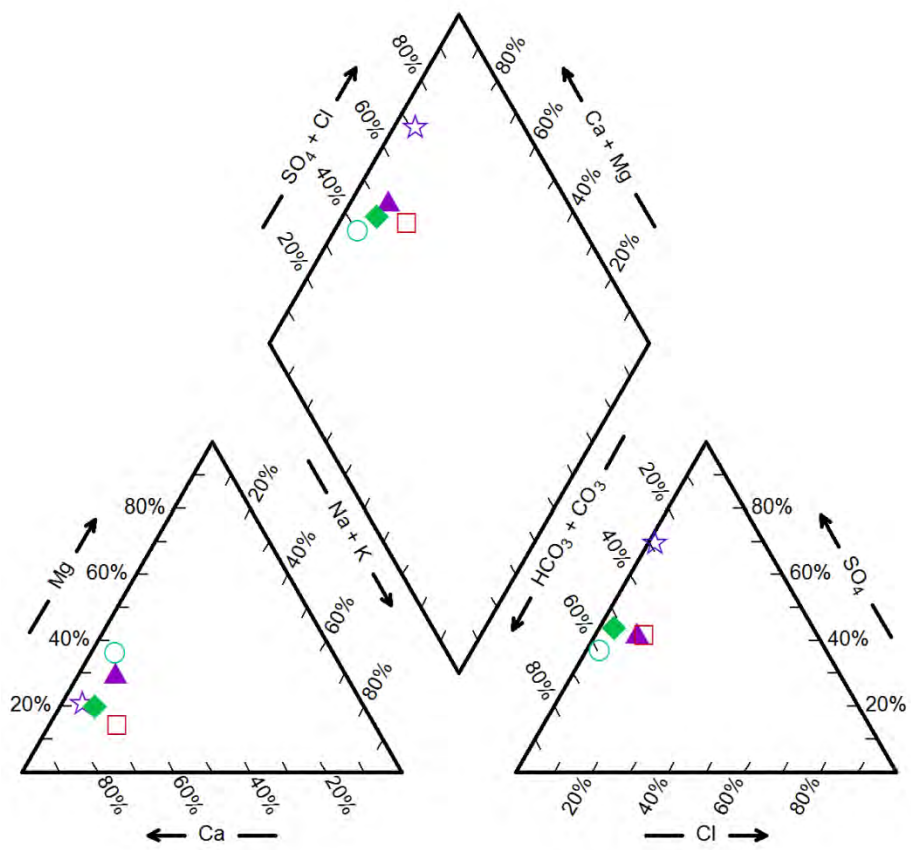
FORMATION ENVIRONMENTAL

S:\GIS\arcpj2\010139\plt\RI_2012\Fig_5-13_X_Sections_Lines12.mxd

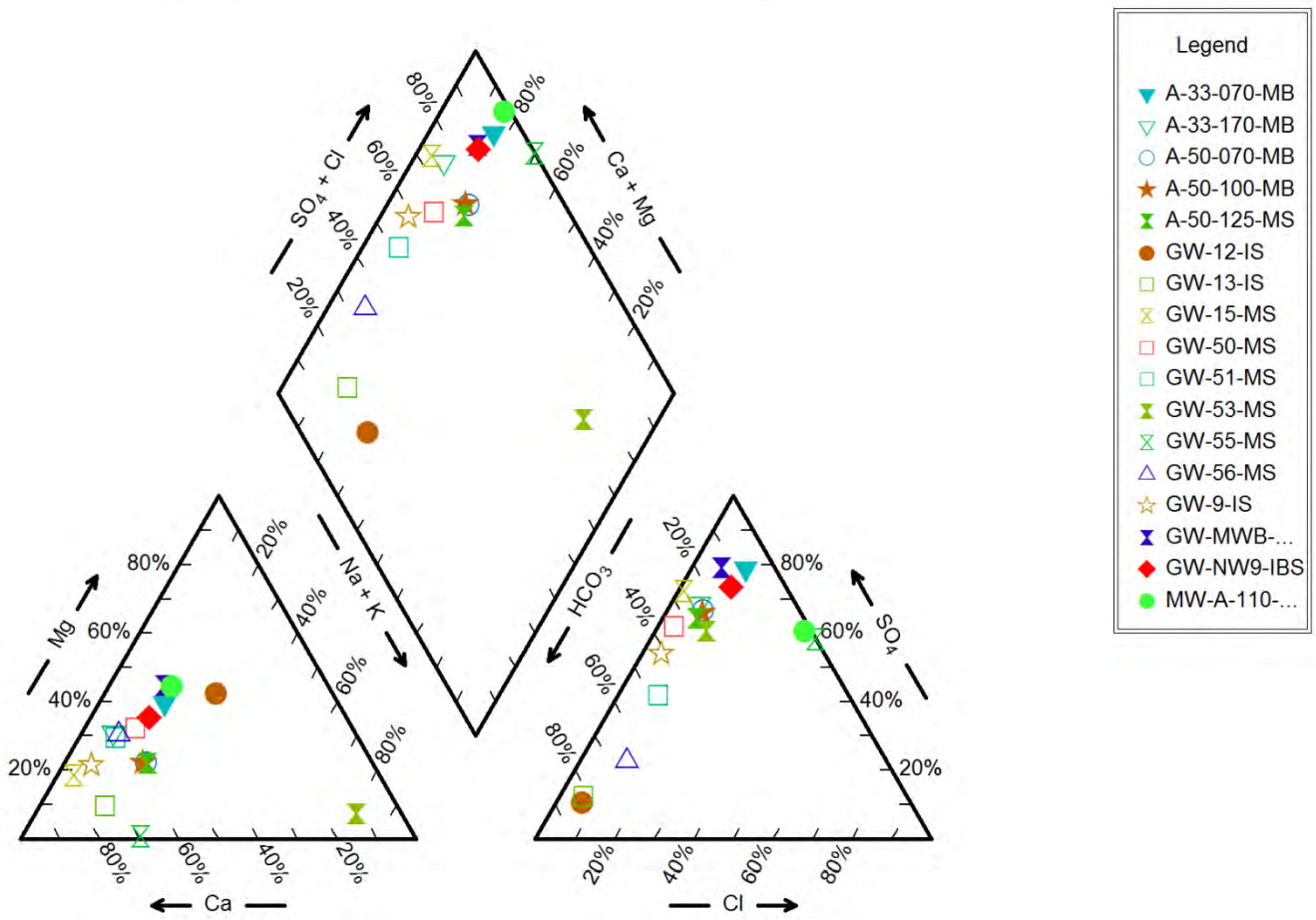
Springs and RMM affected Seeps



Shallow GW System



Intermediate GW System



NOTES:

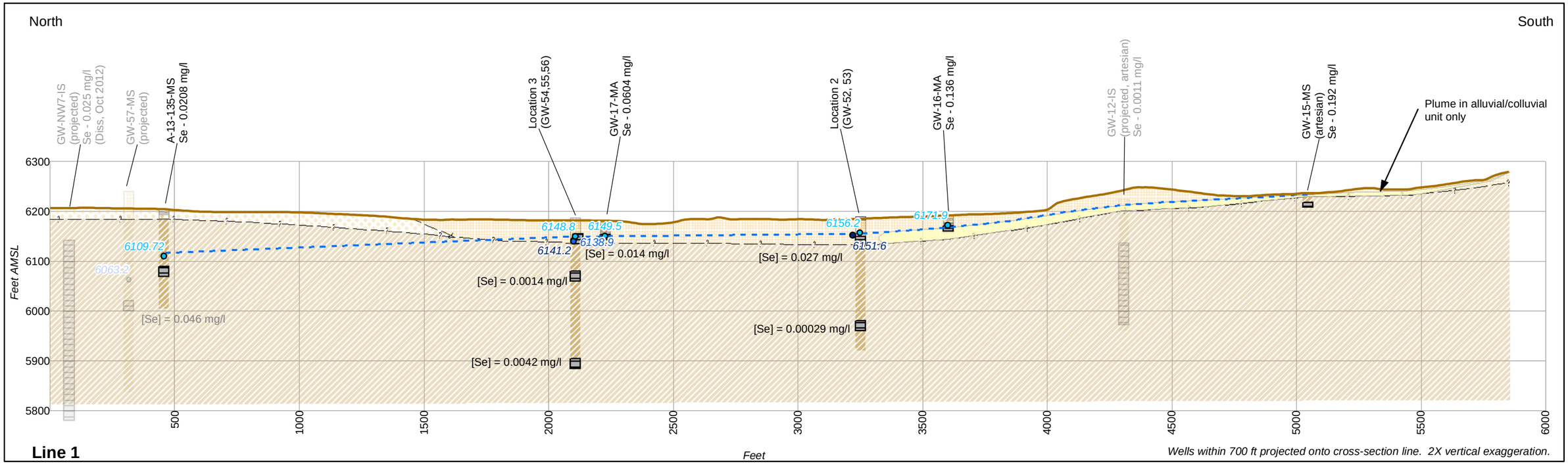
- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

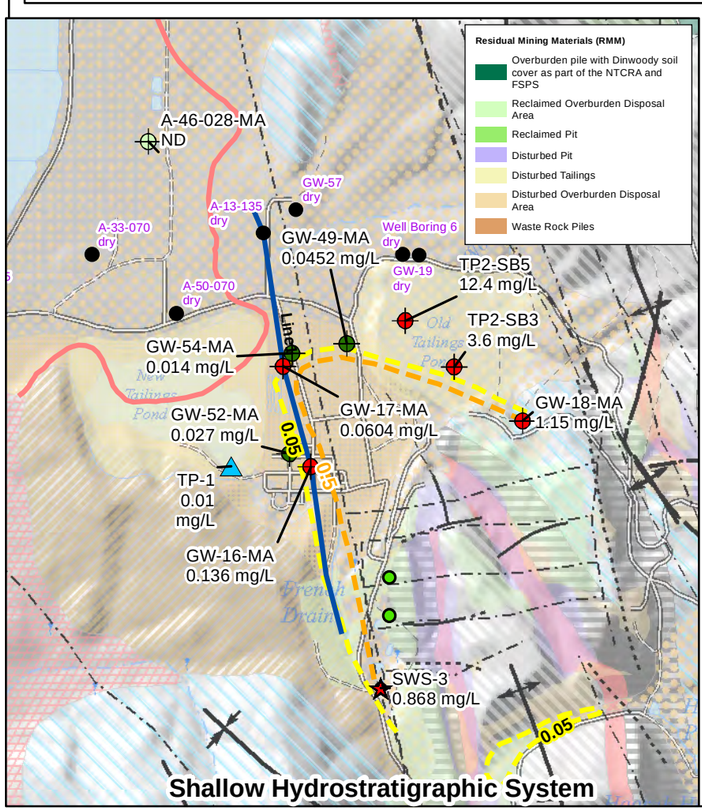
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

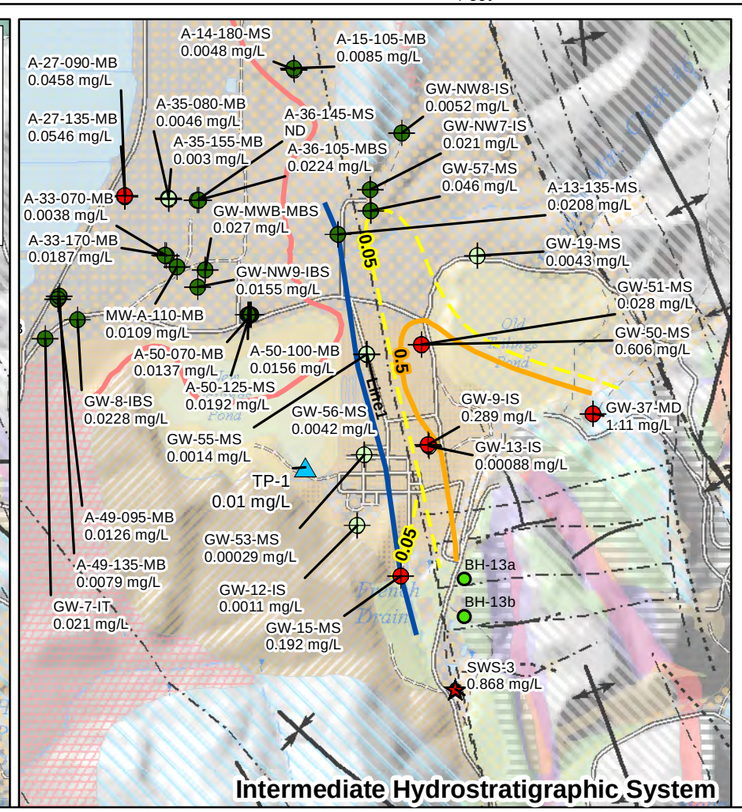
FIGURE 6-103
FRENCH DRAIN SUB-BASIN MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\FrenchDrain.ppt







Plan View Legend

Groundwater (GW) Se Conc. (Max)

- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L
- Conda Site wells
- Seeps and Springs
- Boring Logs noting dry alluvium
- Boreholes/Test Pits w/ Lithology
- TP-1 SW sample
- Approx. extent of basalt
- Cross Section Lines

Se Concentration Contours

- 0.5 mg/L
- Inferred 0.5 mg/L
- 0.05 mg/L
- Inferred 0.05 mg/L
- Fault
- Anticline
- Syncline

Notes:
-Total selenium results based on 2001-2015 data.
ND = non-detected

Cross Section Legend

- Postmine Ground Surface
- GW Elev - March/April 2015
- Inferred potentiometric surface
- Well Screen Intervals
- Inferred vertical extent of plume with [Se] >=0.5 mg/L
- Inferred vertical extent of plume with [Se] >=0.05 mg/L

Interpretive Contacts

- Fault trace
- Geologic

[Se] *Total selenium concentration unless otherwise noted

Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

N

0 1,000 2,000
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

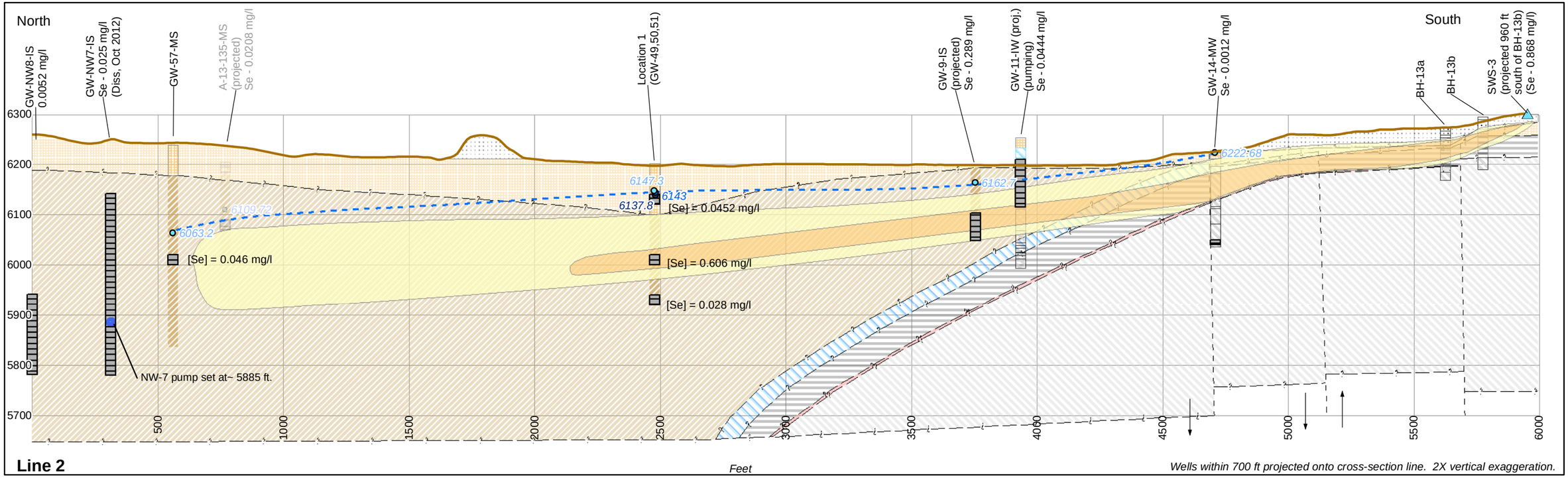
FIGURE 6-104

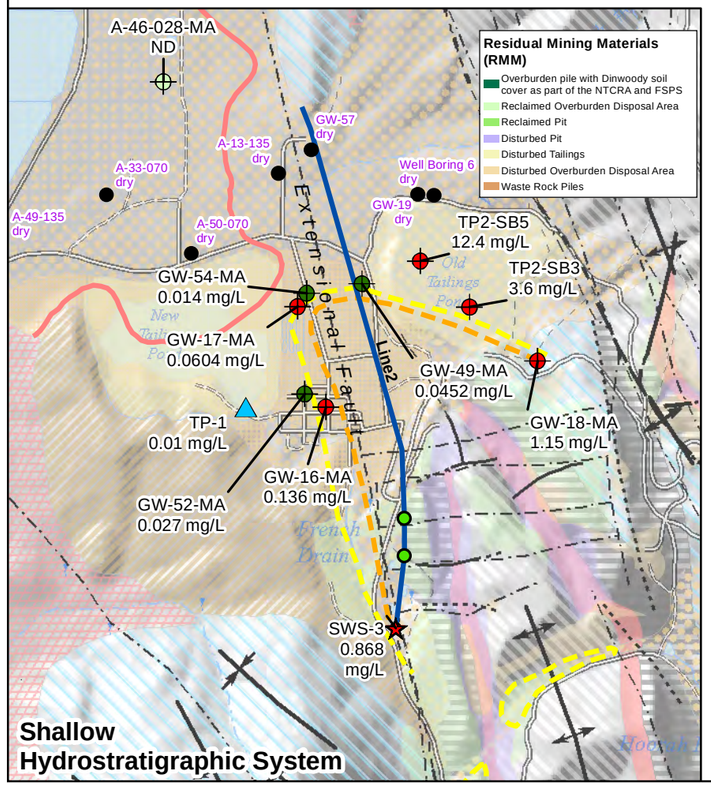
FRENCH DRAIN SUB-BASIN VERTICAL PLUME EXTENT LINE 1

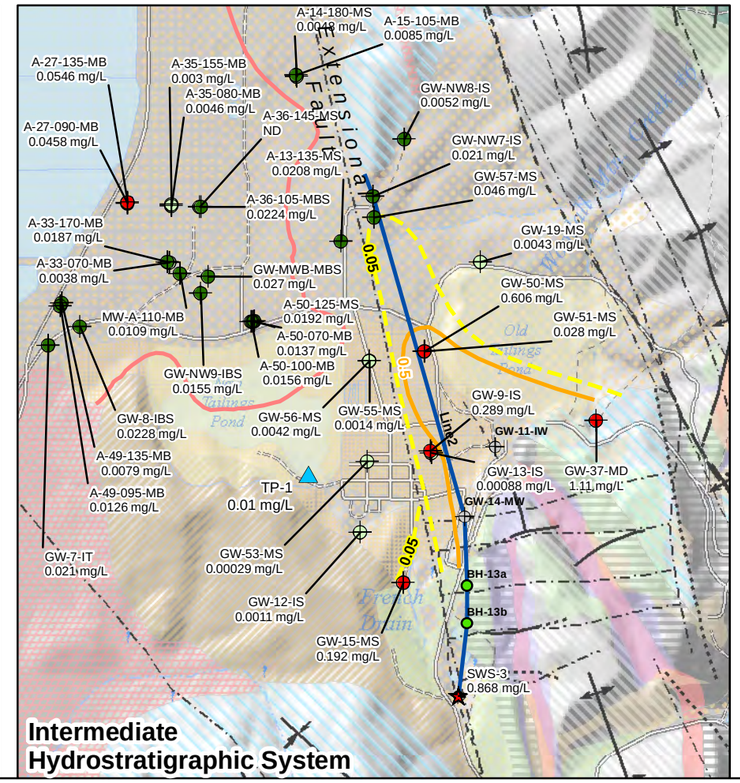
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

Document Path: S:\GIS\arcprj2\01139\plt\RI_2016\Fig_6-104_vertplume_Line1_REV2.mxd







Plan View Legend

Groundwater (GW) Se Conc. (Max)

- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L
- Conda Site wells
- Seeps and Springs
- TP-1 SW sample
- Boring Logs noting dry alluvium
- Boreholes/Test Pits w/ Lithology
- GW-11/14 (wells not completed in intermed. system but shown to provide context)
- Approx. extent of basalt
- Cross Section Lines

Se Concentration Contours

- 0.5 mg/L
- Inferred 0.5 mg/L
- 0.05 mg/L
- Inferred 0.05 mg/L
- Fault
- Anticline
- Syncline

Cross Section Legend

- Postmine Ground Surface
- GW Elev - March/April 2015
- Inferred potentiometric surface
- Well Screen Intervals
- Inferred vertical extent of plume with [Se] >= 0.5 mg/L
- Inferred vertical extent of plume with [Se] >= 0.05 mg/L

Interpretive Contacts

- Fault trace
- Geologic
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

[Se] *Total selenium concentration unless otherwise noted

Notes:
-Total selenium results based on 2001-2015 data.
ND = non-detected

N

0 1,000 2,000
Feet

J.R. SIMPLOT COMPANY

CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-105

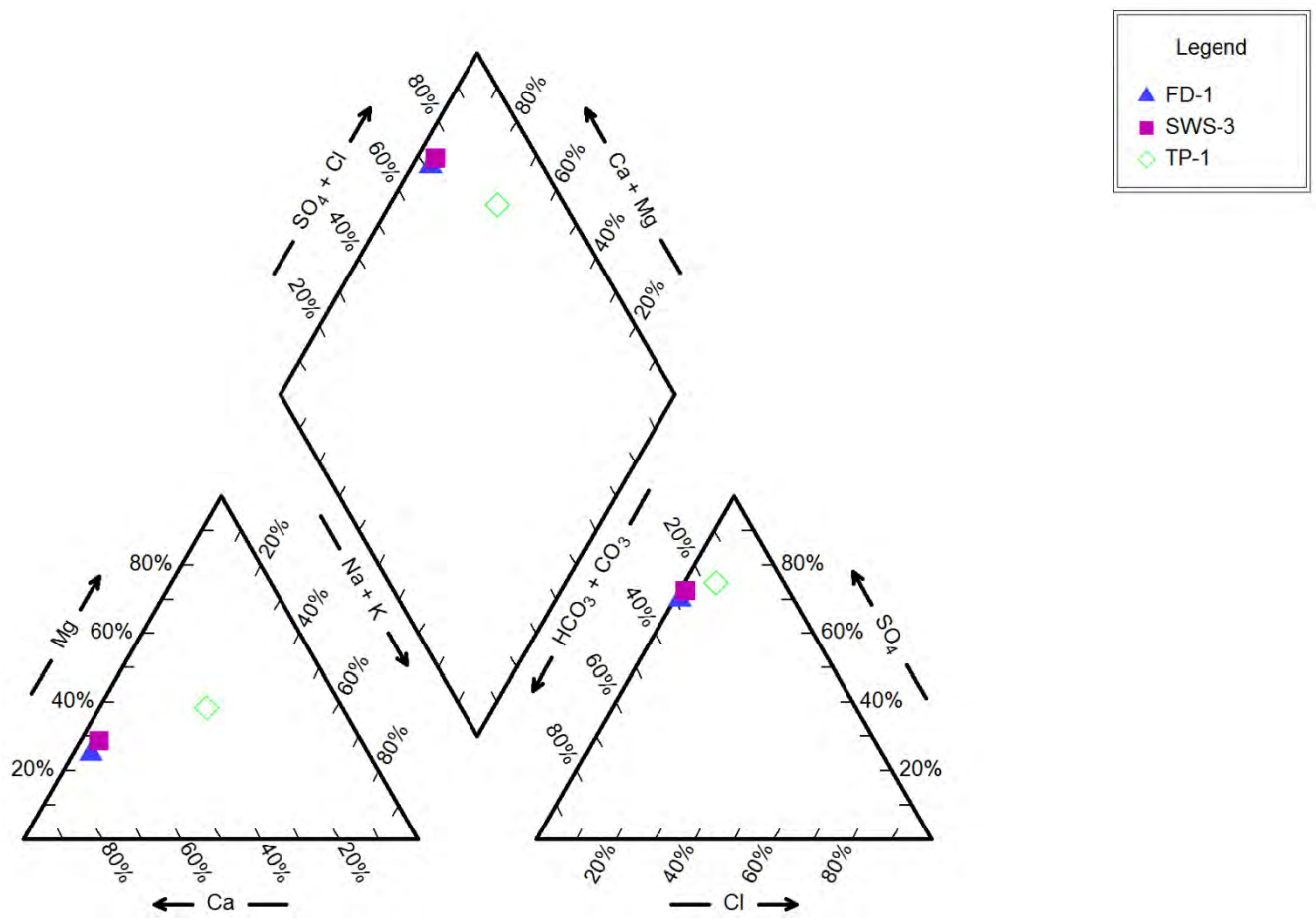
FRENCH DRAIN SUB-BASIN VERTICAL PLUME EXTENT LINE 2

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

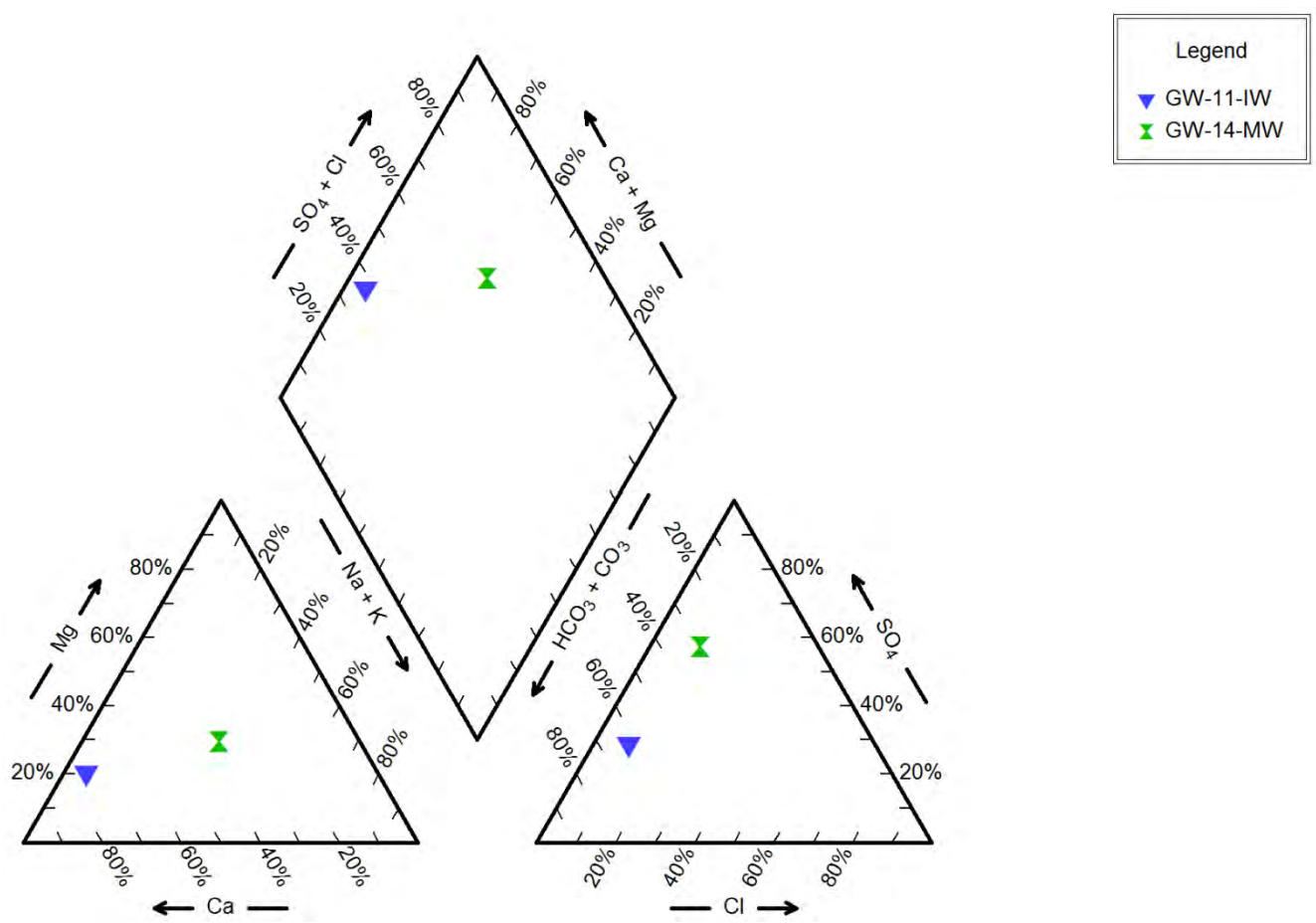
FORMATION ENVIRONMENTAL

Document Path: S:\GIS\arcprj2\010139\pl\RI_2016\Fig_6-105_ventplume_Line2_REV.mxd

Springs and RMM affected Seeps



Deep GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

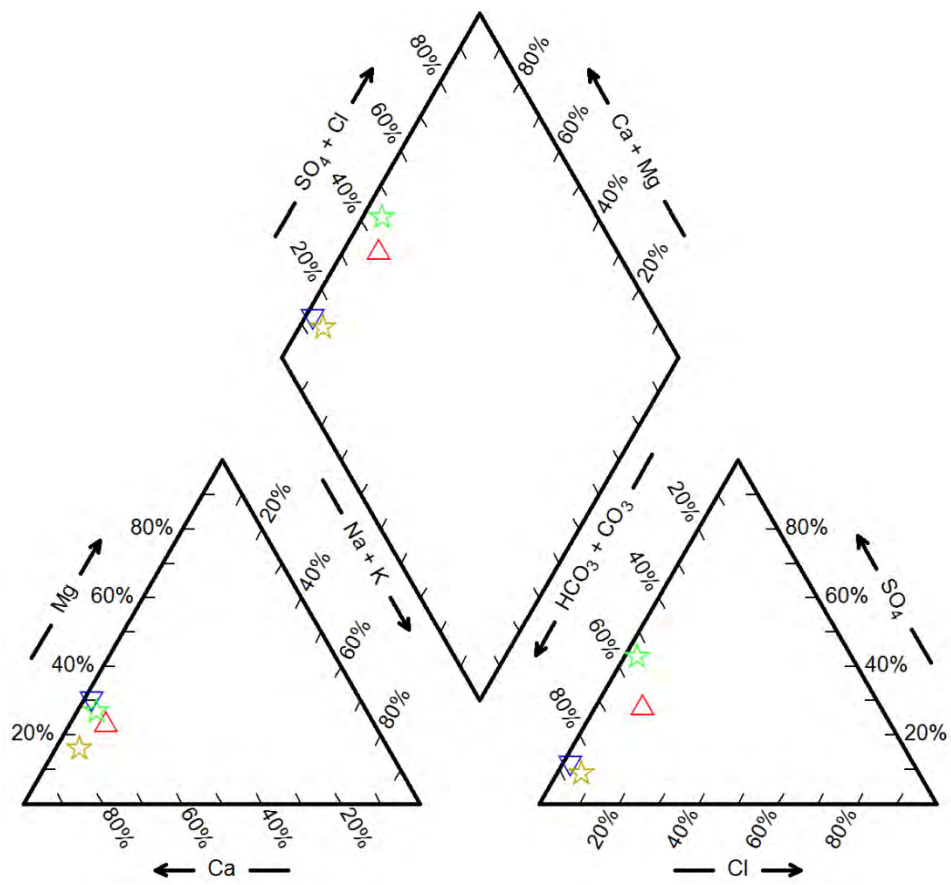
FIGURE 6-106
FRENCH DRAIN SUB-BASIN MAJOR ION COMPOSITION DEEP SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS

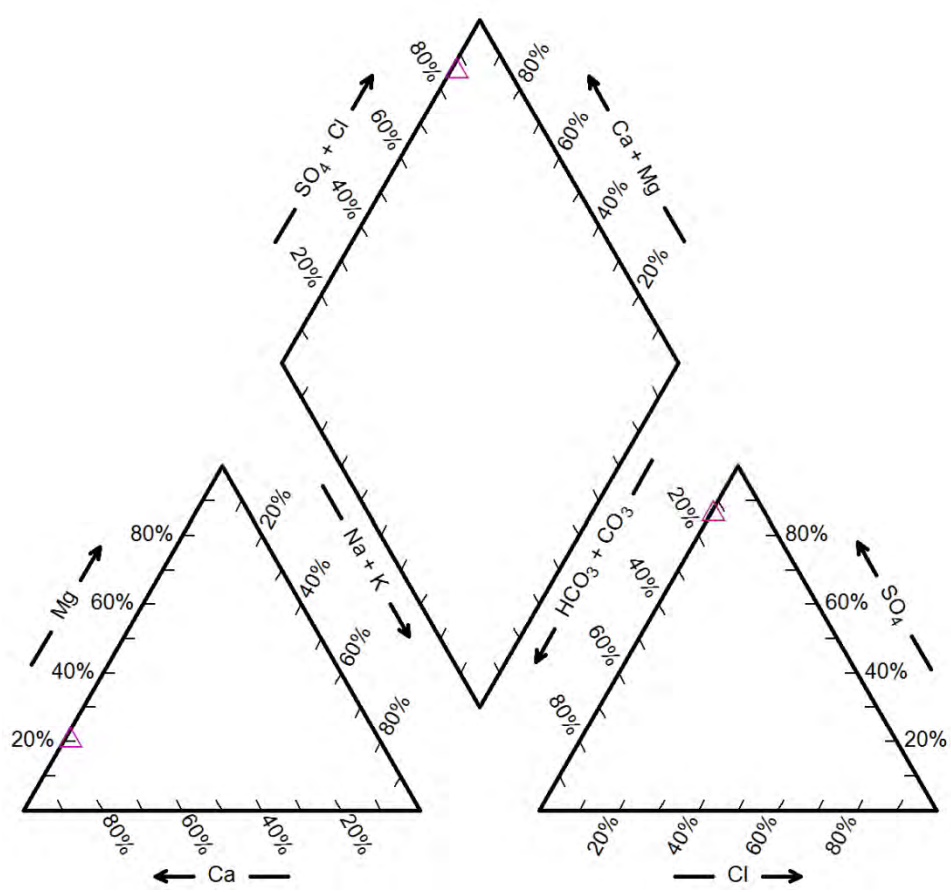
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\FrenchDrain.ppt

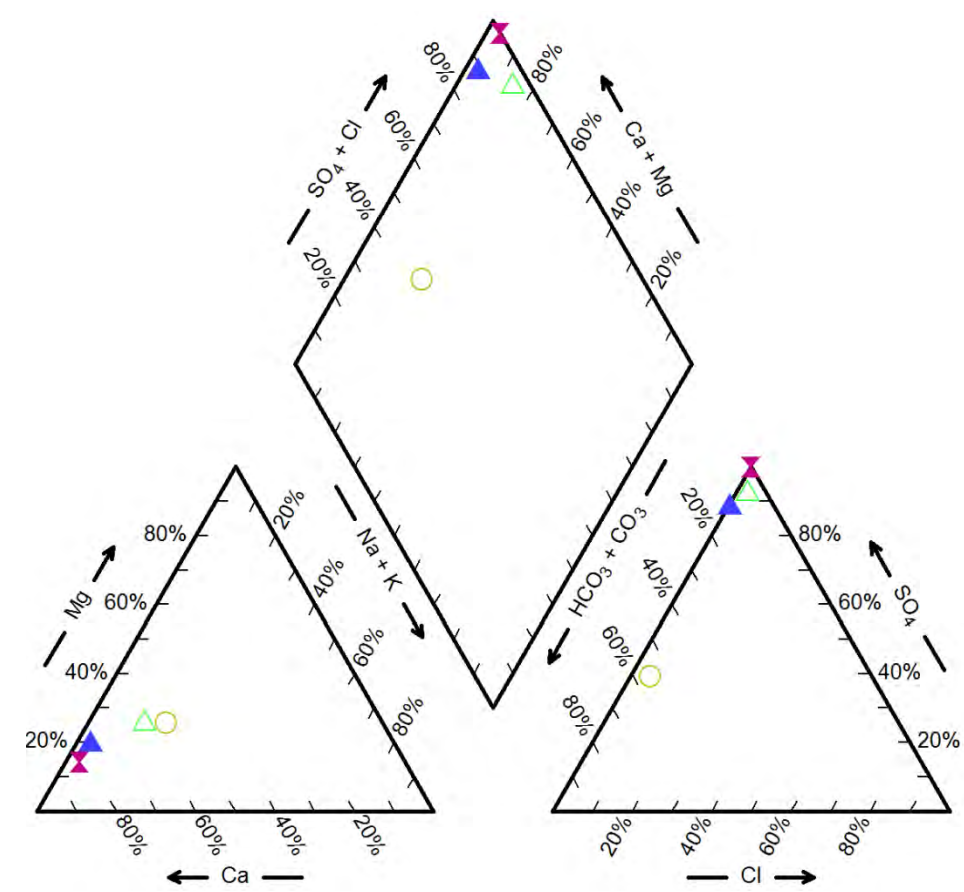
Springs and RMM affected Seeps



Shallow GW System



Intermediate GW System



NOTES:

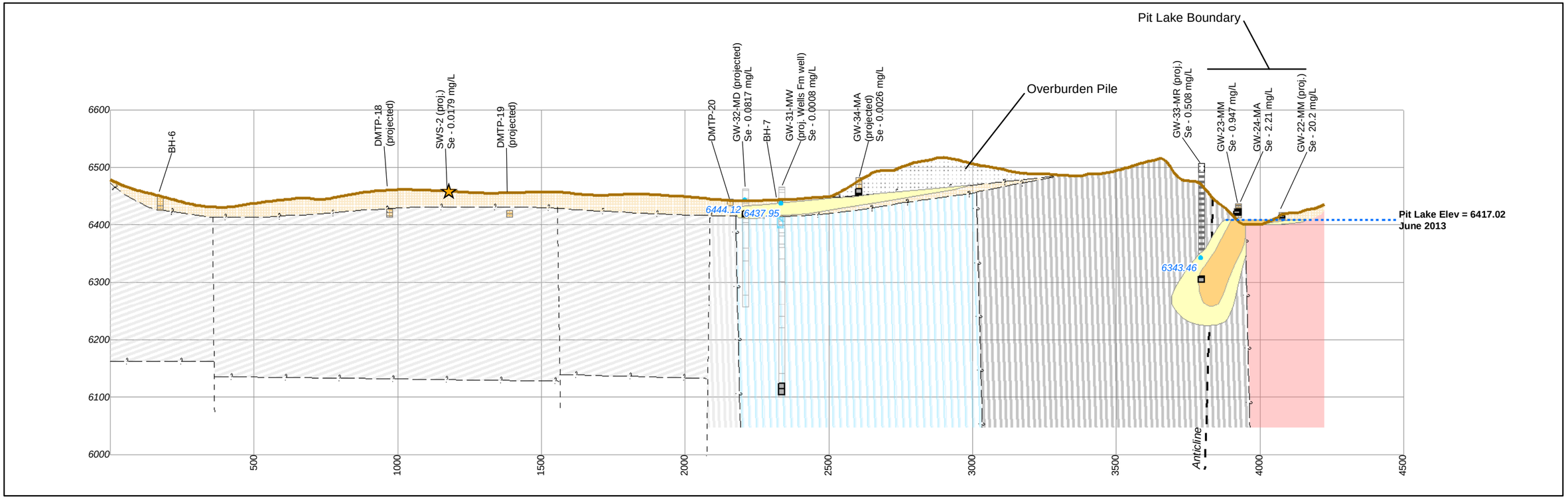
- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

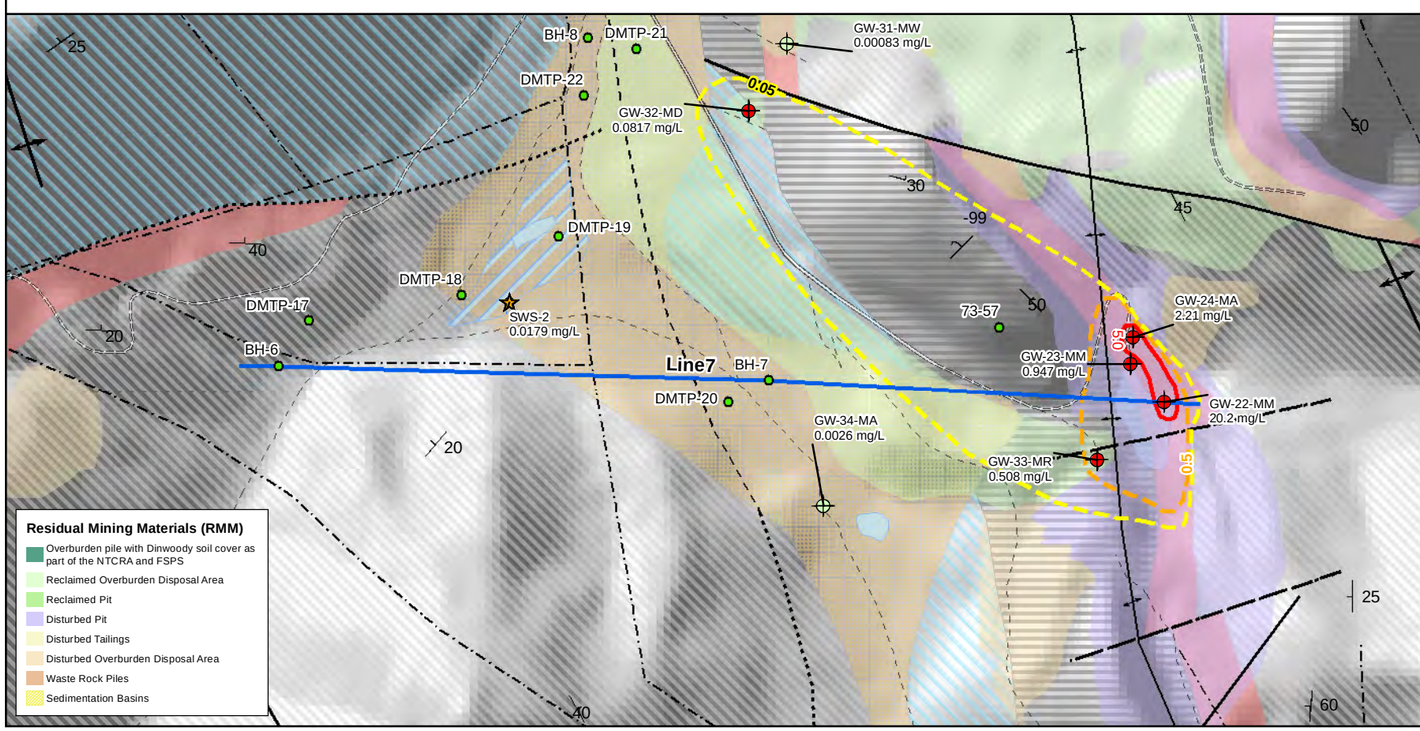
J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-107
SHIELD AND JOUGLARD CANYON MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\ShieldJouglard.ppt





Plan View Legend

Groundwater (GW) Se Conc. (Max)

- < 0.005 mg/L
- 0.005 - 0.05 mg/L
- > 0.05 mg/L
- Conda Site wells
- Seeps and Springs
- Boreholes/Test Pits w/ Lithology
- Cross Section Line

Se Concentration Contours

- 5.0 mg/L; Selenium Concentration Contour, 5.0
- Inferred 5.0 mg/L
- 0.5 mg/L
- Inferred 0.5 mg/L
- 0.05 mg/L
- Inferred 0.05 mg/L

Structure

- Anticline
- Syncline
- Fault
- Strike/Dip
- Strike/Dip Overturned

Cross Section Legend

- Pit Lake Elevation, June 2013
- Post Mine Ground Surface
- GW elevation Sept/Oct 2013
- Well Screens
- Inferred vertical extent of plume with [Se] >= 0.05 mg/l
- Inferred vertical extent of plume with [Se] >= 0.5 mg/l

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Fault, arrows indicate relative movement

Geologic Formation

- Fill
- Breccia
- Qls
- Qf
- Qal
- Qw
- Qt
- Qbc
- Qb
- Ql
- Tsl
- TRt
- TRd
- Cpa
- Cpb
- Cw
- Cb

Notes:
Total selenium results based on 2001-2015 data.
ND = non-detected

N

0 200 400 800
Feet

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-108

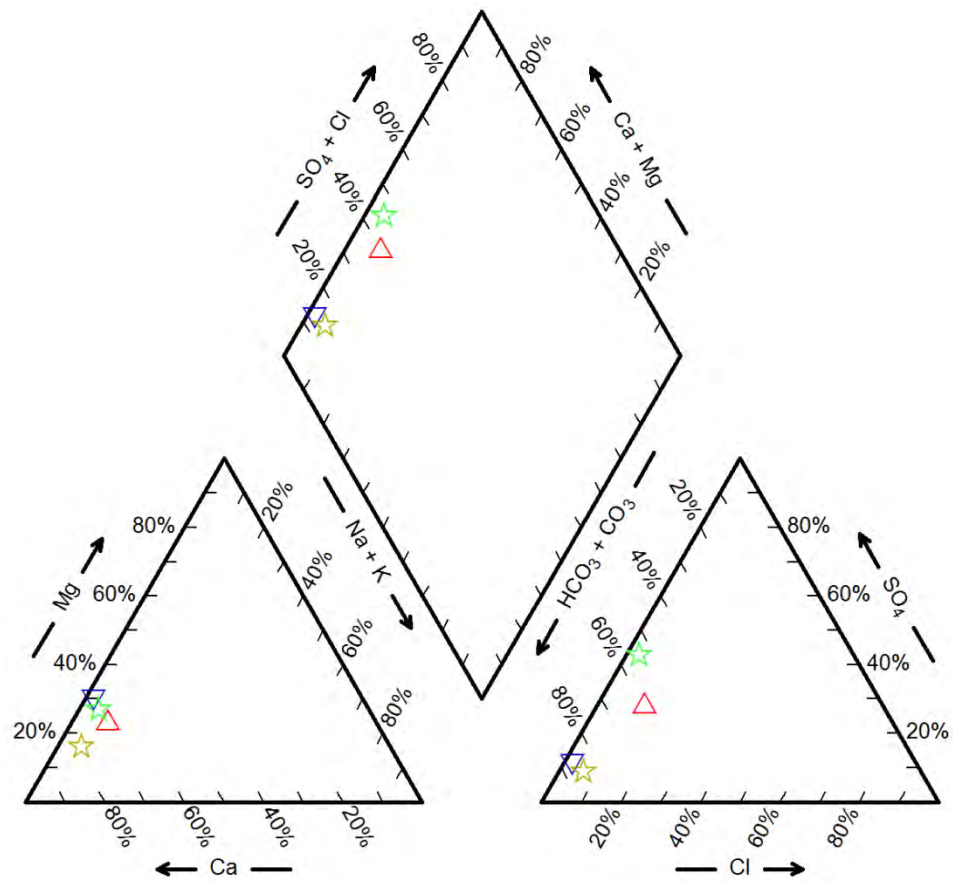
SHIELD AND JOUGLARD VERTICAL PLUME EXTENT LINE 7

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

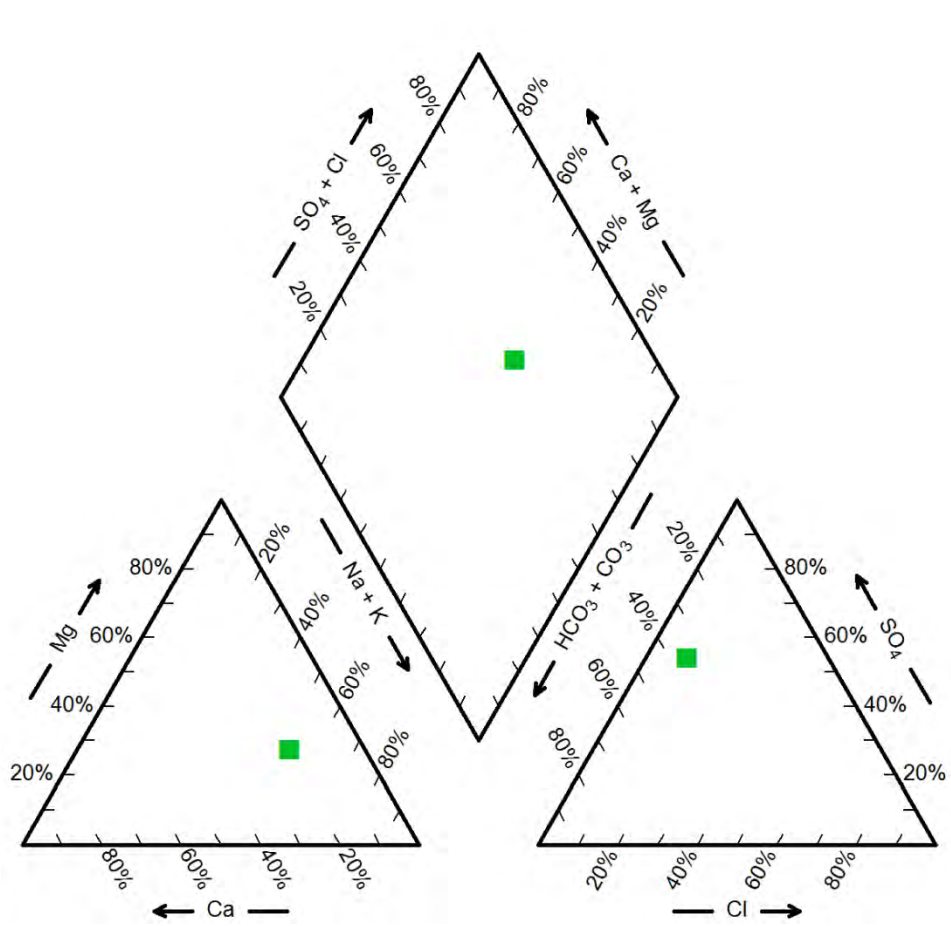
FORMATION ENVIRONMENTAL

S:\GIS\arcpj2\010139\plt\RI_2012\Fig_5-13_X_Sections_Lines12.mxd

Springs and RMM affected Seeps



Deep GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

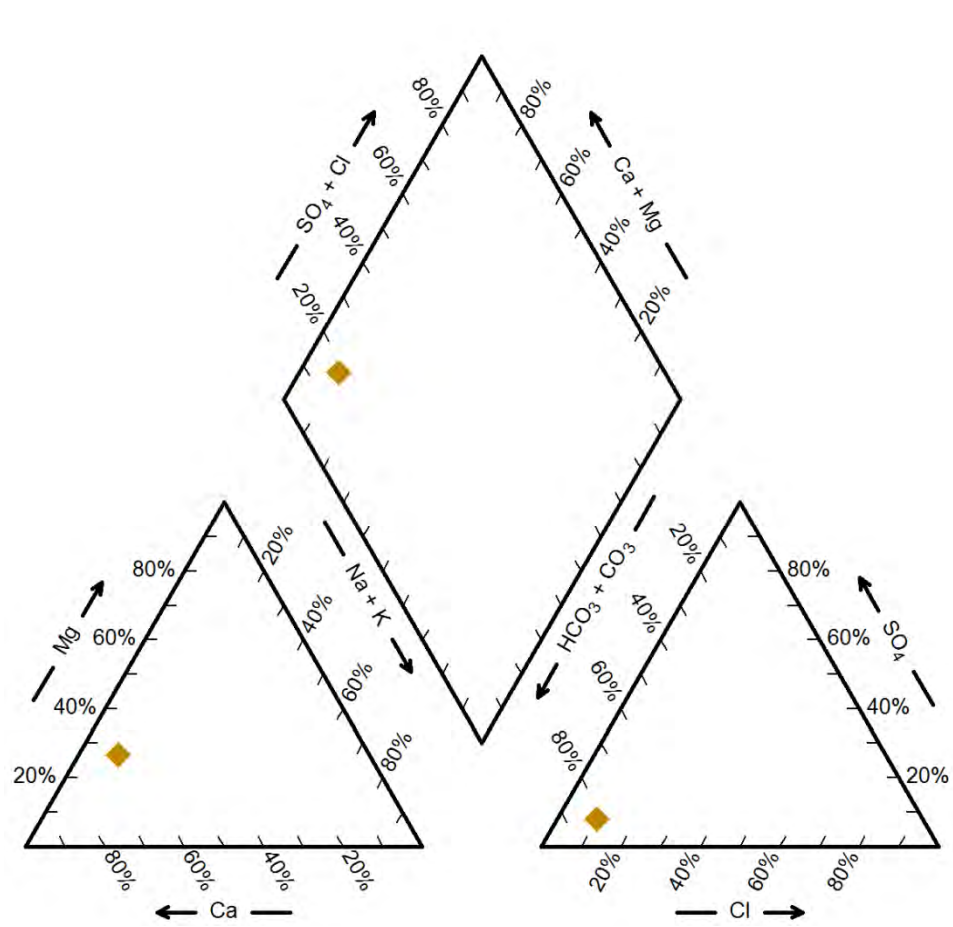
FIGURE 6-109
SHIELD AND JOUGLARD CANYON MAJOR ION COMPOSITION DEEP SYSTEM

DATE: MAY18, 2016
BY: KAM
FOR: RPS

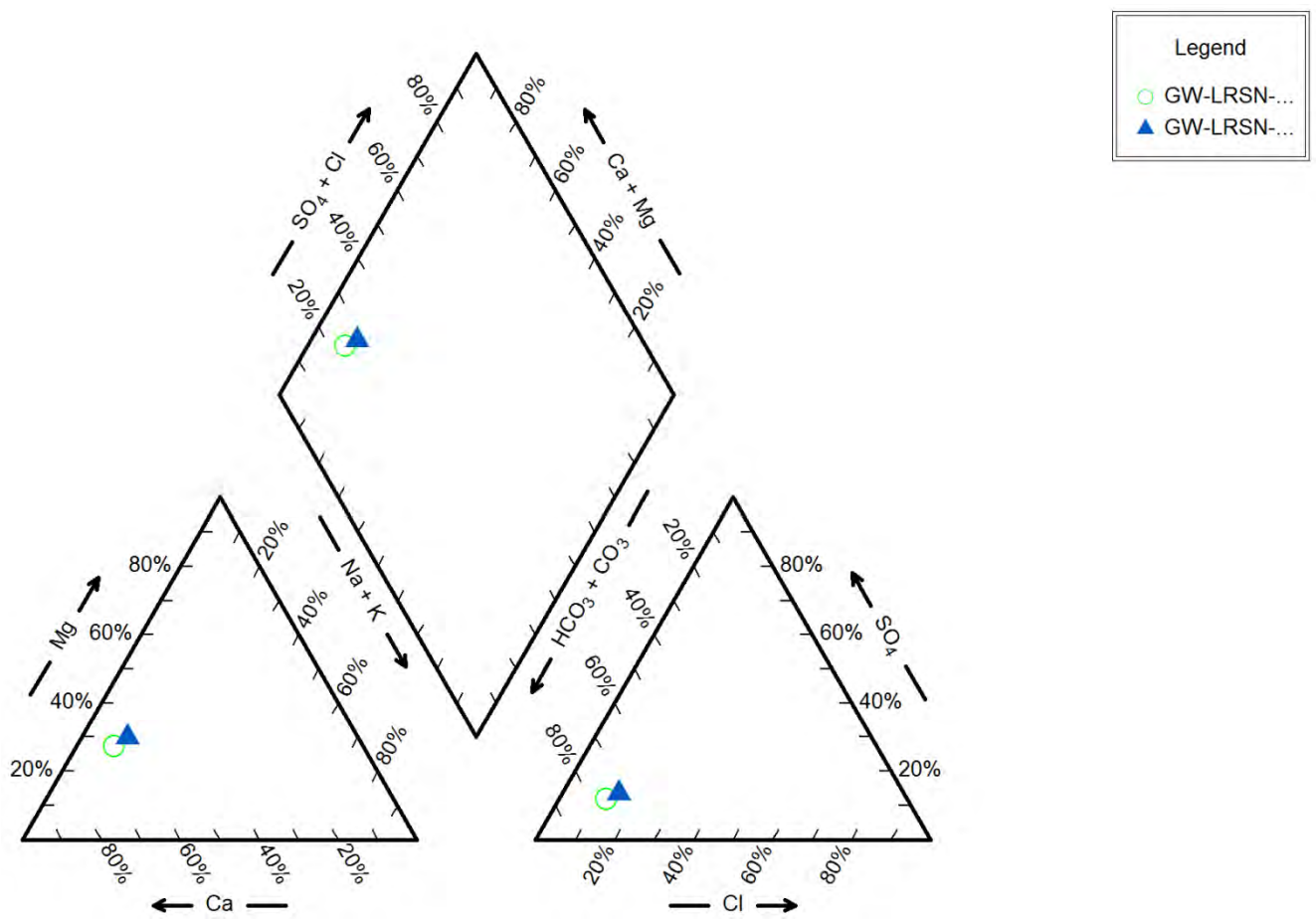
FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\ShieldJouglard.ppt

Springs and RMM affected Seeps



Intermediate GW System



NOTES:

- Bicarbonate in units of mole per kilogram (mol/kg).
- Data presented are averages of base and high flows, except for CGC-4A, CGC-5, NWC-2, PC-5, SLC-3D, and TCC-2 which are baseflow only.
- Data for 2008 to 2014, "A" quality.
- Surface water data only presented for locations with corresponding selenium data.
- GW = ground water; RMM = Residual Mining Material

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 6-110

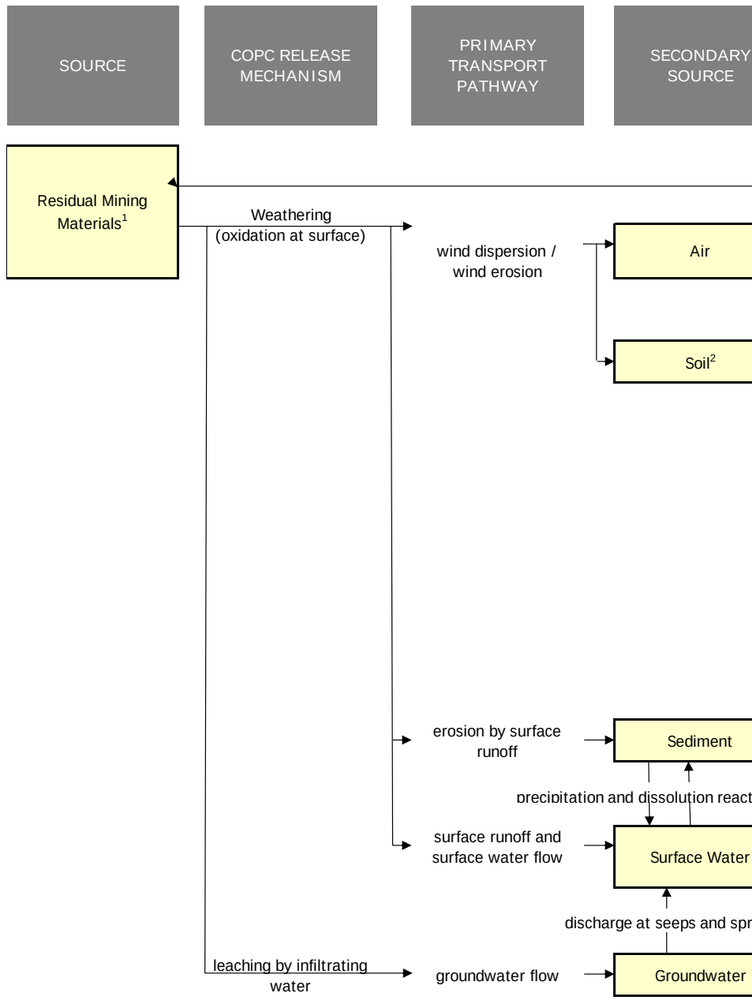
MARGARETTE AND TRAIL CANYON CREEKS MAJOR ION COMPOSITION SHALLOW AND INTERMEDIATE SYSTEM

DATE: MAY18, 2016

BY: KAM | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RIreport\RIDataAnalyses_V4_Fnl\GWanalyses\PiperDiagrams\Margarette.ppt



EXPOSURE MEDIA	POTENTIAL HUMAN EXPOSURE ROUTES	Industrial Worker C/F	Recreational Hunter C/F	Seasonal Rancher C	Seasonal Rancher F	Off-Site Recreational Fisher[4] C/F	Recreating Trespasser C/F	Native American C/F	Livestock herder C/F	Hypothetical Resident F
Residual Mining Materials[1]	Incidental Ingestion	●	●	●	●		●	●	●	●
	Dermal Contact	●	●	●	●		●	●	●	●
	External Radiation	●	●	●	●		●	●	●	●
	Indoor Inhalation of Radon									●
Particulates derived from Source Materials	Inhalation of Particulates	●	●	●	●		●	●	●	●
Particulates derived from Soil	Inhalation of Particulates	●	●	●	●		●	●	●	●
Soil[2]	Incidental Ingestion	●	●	●	●		●	●	●	●
	Dermal Contact	●	●	●	●		●	●	●	●
	External Radiation	●	●	●	●		●	●	●	●
	Indoor Inhalation of Radon									●
Homegrown Produce	Ingestion				●					●
Terrestrial Plants	Ingestion							●		
	Tea Ingestion							●		
	Smoke Inhalation							⊙		
	Dermal Application (salve)							⊙		
Wild Game	Ingestion	●	●	●	●			●		●
Livestock (cattle and sheep)	Ingestion			●	●					●
Sediment[2]	Incidental Ingestion	⊙	⊙	⊙	⊙	⊗	⊙	⊙	⊙	⊙
	Dermal Contact	⊙	⊙	⊙	⊙	⊗	⊙	⊙	⊙	⊙
Aquatic Plants	Ingestion							●		●
Surface Water[3]	Incidental Ingestion	⊙	⊙	⊙	⊙	⊗	⊙	⊙	⊙	⊙
	Dermal Contact	⊙	●	⊙	⊙	⊗	●	●	●	⊙
	Ingestion	⊙	●	⊙	⊙	⊗	●	●	●	⊙
Fish[4]	Ingestion					⊗				
Domestic Water Supply[5]	Ingestion	●		●	●					●
	Dermal Contact	●		●	●					●

Notes:

[1] The Residual Mining Materials are generated during mining and include: waste rock, overburden piles, tailings, etc.

[2] Surface soils are soils (including samples from residual mining material) and non-aquatic sediment. Aquatic sediment exposure is considered potentially complete but insignificant and so is not listed on this table.

[3] Surface water is defined as streams, ponds, seeps, and springs.

[4] No edible size salmonid fish were observed within Site surface waters; therefore, exposure to this media is incomplete at the Site. Exposure to Off-Site Recreational Fisher receptors from consumable fish caught off-site in the Blackfoot River or Trail Creek were evaluated qualitatively/semi-quantitatively.

[5] Domestic Water Supply (DWS) is defined as water from 1) groundwater wells from all formations (except for two wells from Meade Peak formation), and 2) all springs.

Different line weights, colors, and styles are only used to allow ease of reading

Internal radiation is possible whenever ingestion is a complete pathway

C - Current or existing receptor population

F - Future receptor population

● Complete Significant Pathway

⊙ Complete Insignificant Pathway

Incomplete Pathway

⊗ No complete pathways for direct exposure to Site media; exposure to off-Site Blackfoot River/Trail Creek media will be evaluated qualitatively/semi-quantitatively

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 7-1

CONCEPTUAL SITE MODEL FOR HUMAN RECEPTORS

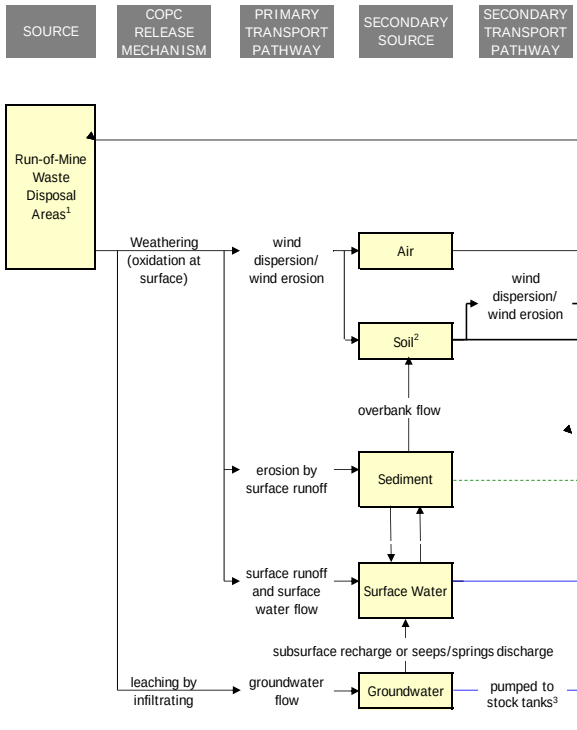
DATE: FEB 2016

BY: RCR | FOR: RPS

FORMATION ENVIRONMENTAL

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RiskAssessRpts\HHRA\DrftFnlReport\Figures\Fig_4-1_HHRA_CSM.xlsx

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RiskAssessRpts\ERA\DrftReport\Figures\source files\Fig2_2-1_ECSM.pptx



	TERRESTRIAL UPLAND RECEPTORS								RIPARIAN/AQUATIC RECEPTORS										DOMESTIC LIVESTOCK RECEPTORS
	1° Producers – Terrestrial Plants	1° Consumers **–Terr.Invertebrates**	1° **Consumers –Terr.** Herbivorous Birds	1° **Consumers – Terr.** Herbivorous Mammals	**2° Consumers – Terr.** Omnivorous Birds	**2° Consumers – Terr.** Omnivorous Mammals/Reptiles	**3° Consumers – Terr.** Carnivorous Mammals	**3° Consumers – Terr.** Raptors	1° Producers and **Consumers – Non-fish** Aquatic Life[4]	**1° Consumers – Fish**	2° and 3° Consumers **– Fish** [5]	**1° Consumers –** Aq./Ripar. Herbivorous Birds	**1° Consumers –** Aq./Ripar. Herbivorous Mammals	**2° Consumers –** Aq./Ripar. Omnivorous Birds	**2° Consumers –** Aq./Ripar. Piscivorous Birds	**2° Consumers –** Aq./Ripar. Benthic-feeding Birds	**2° Consumers –** Aq./Ripar. Omnivorous Mammals	**2° Consumers –** Aq./Ripar. Carnivorous Mammals	**1° Consumers –** Domestic Livestock Receptors
Source Materials – Incidental Ingestion		●	●	●	●	●	●	●											●
Source Materials – Dermal Contact		⊙	⊙	⊙	⊙	⊙	⊙	⊙											⊙
Source Materials – Plant Uptake	●																		
Source Materials – External Radiation	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙											⊙
Food Web Uptake – Ingestion		●	●	●	●	●	●	●											●
Particulates derived from Source Materials – Inhalation of Particulates		⊙	⊙	⊙	⊙	⊙	⊙	⊙											⊙
Particulates derived from Source Materials – Plant Uptake	⊙																		
Particulates derived from Soil – Inhalation of Particulates		⊙	⊙	⊙	⊙	⊙	⊙	⊙											⊙
Particulates derived from Soil – Plant Uptake	⊙																		
Soil[2] – Incidental Ingestion		●	●	●	●	●	●	●				●	●	●				●	●
Soil[2] – Dermal Contact		⊙	⊙	⊙	⊙	⊙	⊙	⊙				⊙	⊙	⊙				⊙	⊙
Soil[2] – Uptake	●																		
Soil[2] – External Radiation	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙											⊙
Food Web Uptake – Ingestion		●	●	●	●	●	●	●				●	●	●				●	●
Sediment – Incidental Ingestion									●	●	●	●	●	●	●	●	●	●	●
Sediment – Dermal Contact									●	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Sediment – Plant Uptake									●										
Food Web Uptake – Ingestion									●	●	●	●	●	●	●	●	●	●	
Surface Water – Ingestion		⊙	⊙	●	⊙	⊙	●	●	●	●	●	●	●	●	●	●	●	●	●
Surface Water – Dermal Contact		⊙	⊙	⊙	⊙	⊙	⊙	⊙	●	●	●	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Surface Water – Plant Uptake									●										
Food Web Uptake – Ingestion									●	●	●	●	●	●	●	●	●	●	●
Stock Tank Water[3] – Ingestion				●			●	●											●

Notes:

[1] The run-of-mine waste disposal areas include: overburden disposal areas, waste rock piles, and the old tailings pond area; these materials are collectively called "source materials". The old tailings pond area (OTP) includes the historical tailings ponds and the ore-slurry overflow storage area. The ore-slurry was predominantly phosphate but the former storage area likely sits on top of one of the earliest tailings ponds, which the whole OTP encompasses.

[2] Non-source material soils, includes both impacted and non-impacted soils.

[3] Hypothetical future use; not a current pathway; no stock tanks currently on site.

[4] includes periphyton, aquatic plants, zooplankton, benthic invertebrates, amphibians

[5] No secondary consumer fish (e.g., trout) were observed during fishing efforts at each of the creeks in July 2009.

Different line weights, colors, and styles are only used to allow ease of reading.

Internal radiation is possible whenever ingestion is a complete pathway.

Surface water is defined as streams, ponds, seeps, and springs.

All receptors include current or future populations.

● Potentially Complete Pathway, and likely to be significant contributor to overall exposure

⊙ Potentially Complete Pathway, but likely to be insignificant to overall exposure

Incomplete Pathway

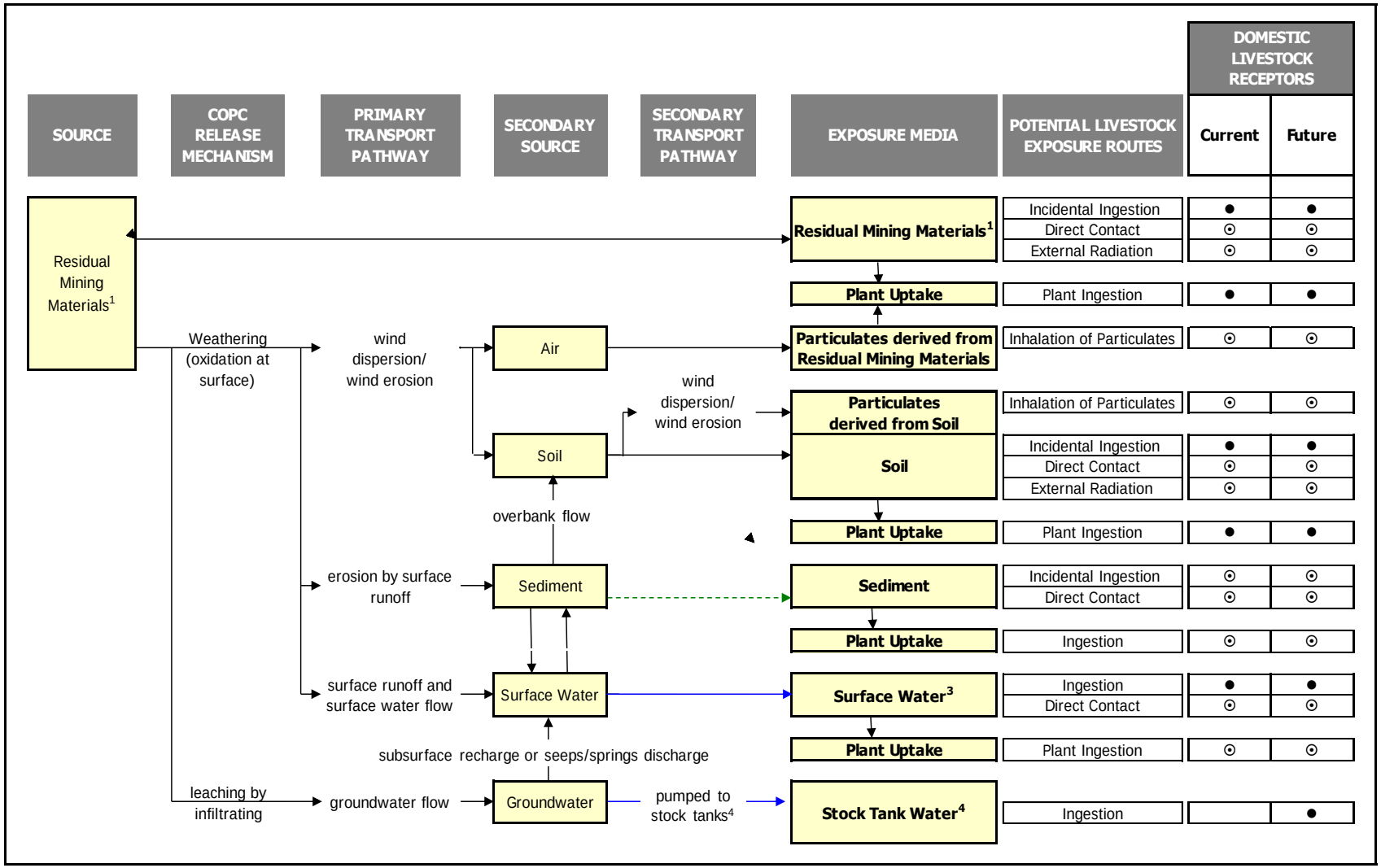
FIGURE 7-2. ECOLOGICAL CONCEPTUAL SITE MODEL

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

PRJ: 009-001 MAY 2015

BY: RCR FOR: RPS

FORMATION ENVIRONMENTAL



Notes:

[1] Residual Mining Materials are generated during mining and include: waste rock, overburden piles, tailings, etc.

[3] Surface water is defined as streams, ponds, seeps, and springs.

[4] Stock tanks are a hypothetical future use; not a current pathway; no stock tanks currently on site. Hypothetical future tank water supply is defined as water from 1) groundwater wells from all formations (except for two wells from Meade Peak formation), and 2) all springs.

Different line weights, colors, and styles are only used to allow ease of reading.

Internal radiation is possible whenever ingestion is a complete pathway.

● Potentially Complete Pathway, and likely to be significant contributor to overall exposure

⊙ Potentially Complete Pathway, but likely to be insignificant to overall exposure

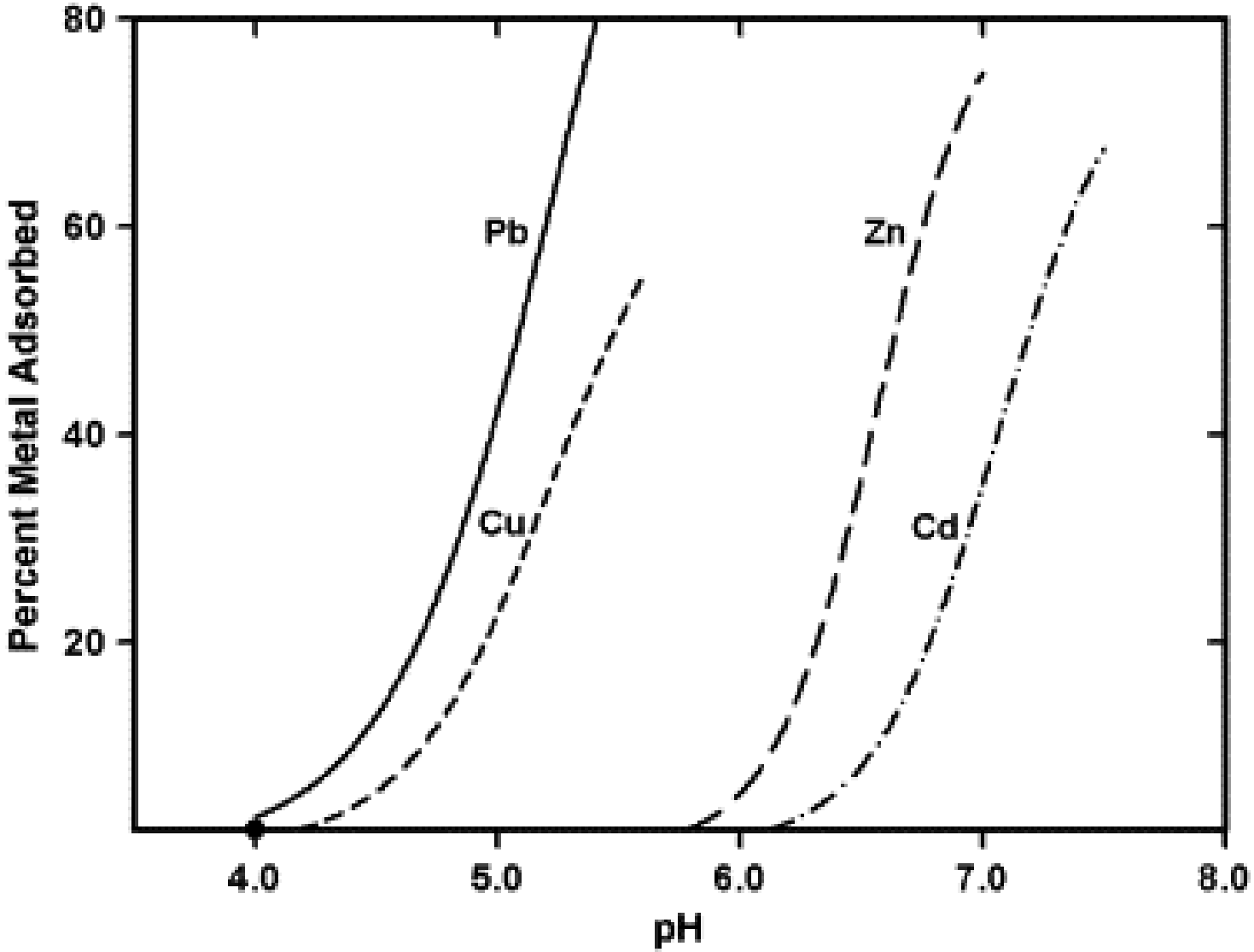
Incomplete Pathway

FIGURE 7-3 CONCEPTUAL SITE MODEL FOR DOMESTIC LIVESTOCK RECEPTORS

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

PRJ: 009-001	Dec 2015	FORMATION ENVIRONMENTAL
BY: RCR	FOR: RPS	

S:\Jobs\0442-001-900-Simplot-Conda\RIFS_RiskAssessRpts\Livestock\DrftReport\Figures



Source: Benjamin and Leckie, 1981

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 7-4

DIFFERING AFFINITIES OF DISSOLVED METALS FOR SORPTION TO SOLIDS WITH VARYING pH

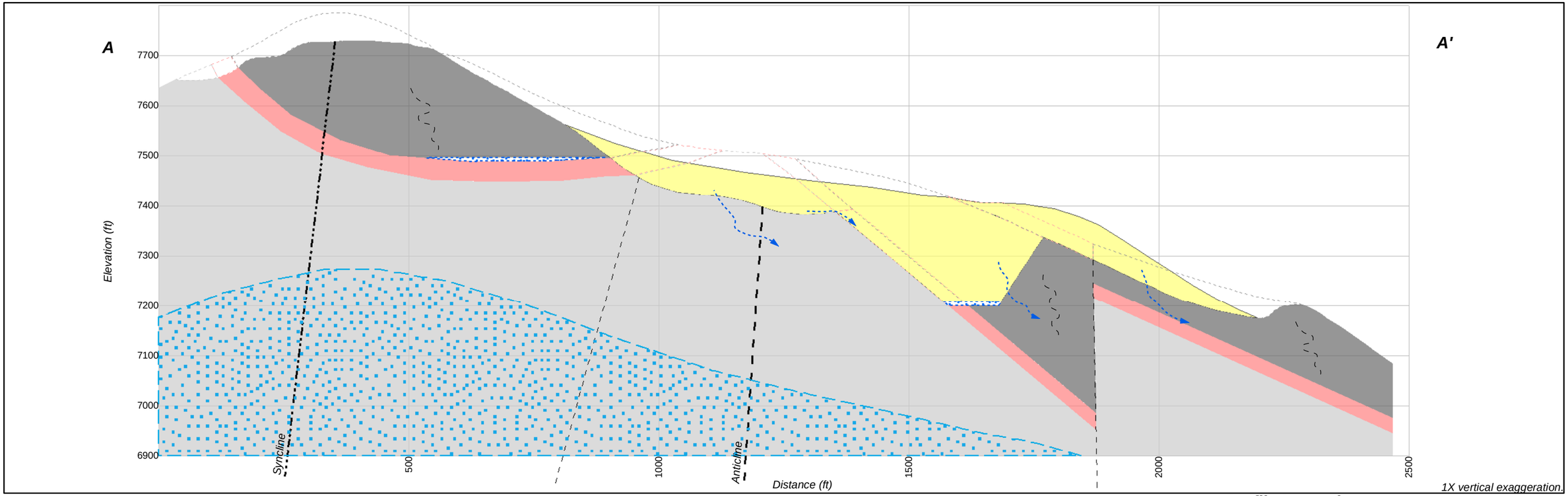
DATE: DEC 2016

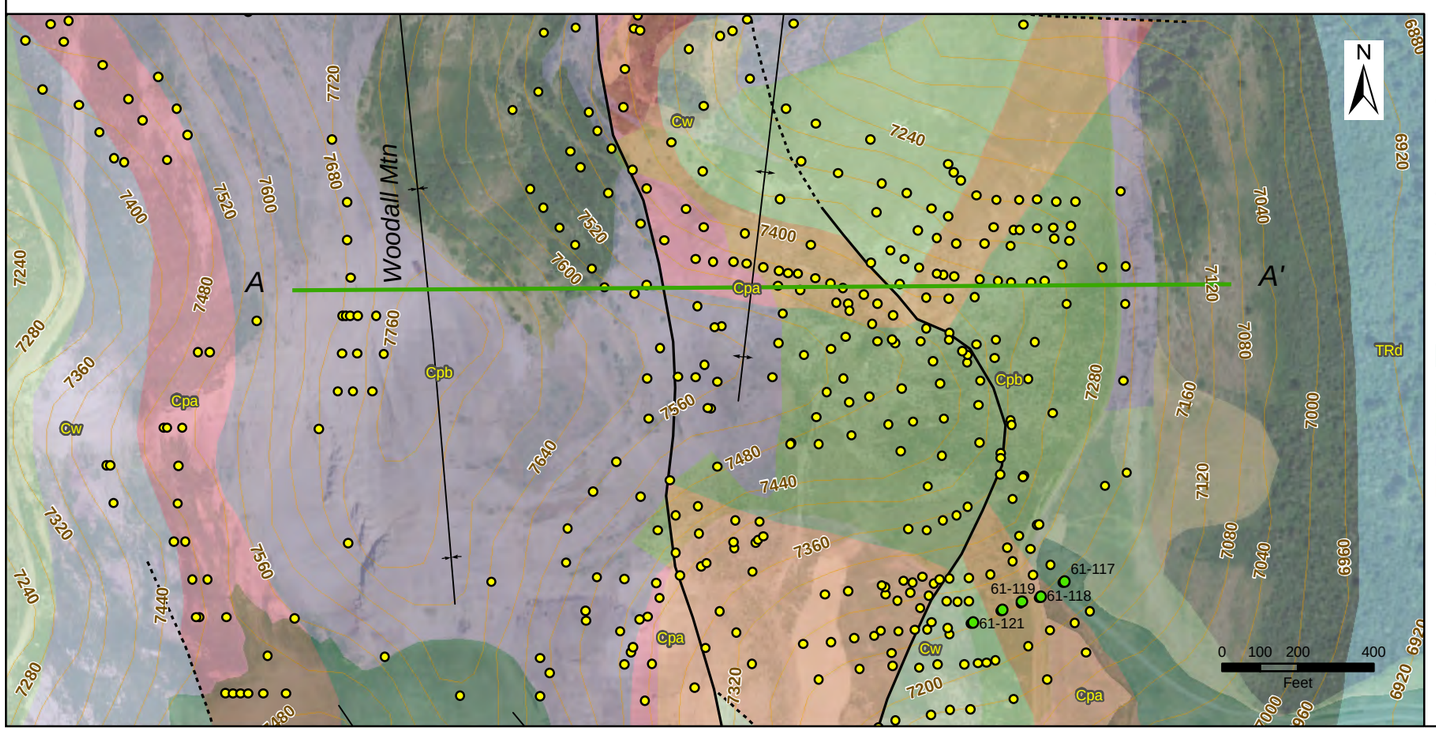
BY: EPH

FOR: RPS

FORMATION ENVIRONMENTAL

S:\JOBS\0442-001-900-SIMPLOT-CONDA\RIFS_RI\REPORT\DraftFnlRIReport\Figures_revised\Fig7-4_model.pptx





Plan View Legend

- Boreholes/Test Pits w/ Lithology
- Historic Exploration Boreholes
- Transect Lines
- Pre-Mining Contours (40-ft)

Geologic Structures

- Anticline
- Syncline
- Fault - Confirmed
- Fault - Inferred

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Overburden Disposal Area

Profile Legend

- Rex Chert fracture flow
- Flow Arrows

Saturated GW (simplified)

- Wells Fm Saturated Zone
- Potential Perched Zones

Interpretive Contacts

- Anticline, Buried
- Fault Trace
- Inferred Contact
- Syncline

Geology

- Fill
- Alluvium (Qal, Qw)
- Tsl - Salt Lake Fm.
- TRw - Dinwoody Fm.
- Cpa - Meade Peak
- Cpa - Meade Peak (rem.)
- Cpb - Rex Chert
- Cpb - Rex Chert (rem.)
- Cw - Wells Fm
- Cw - Wells Fm (rem.)

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

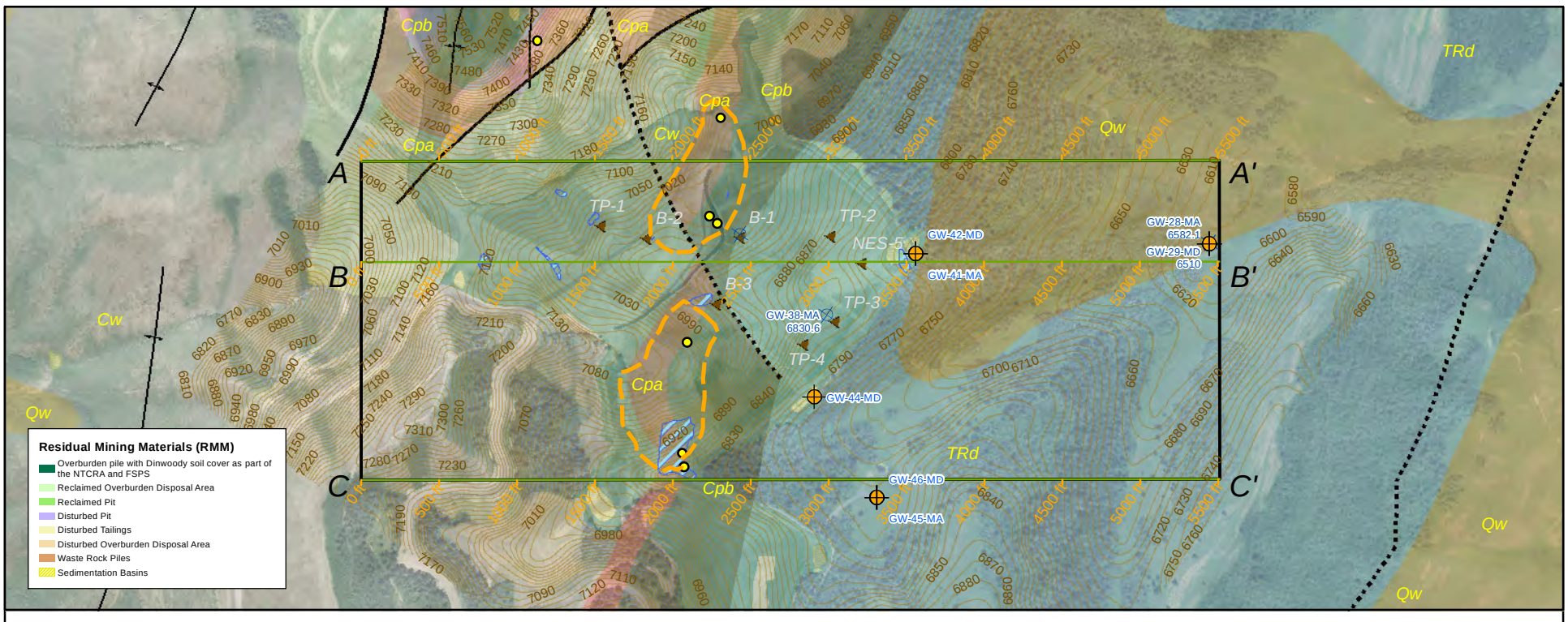
FIGURE 7-5

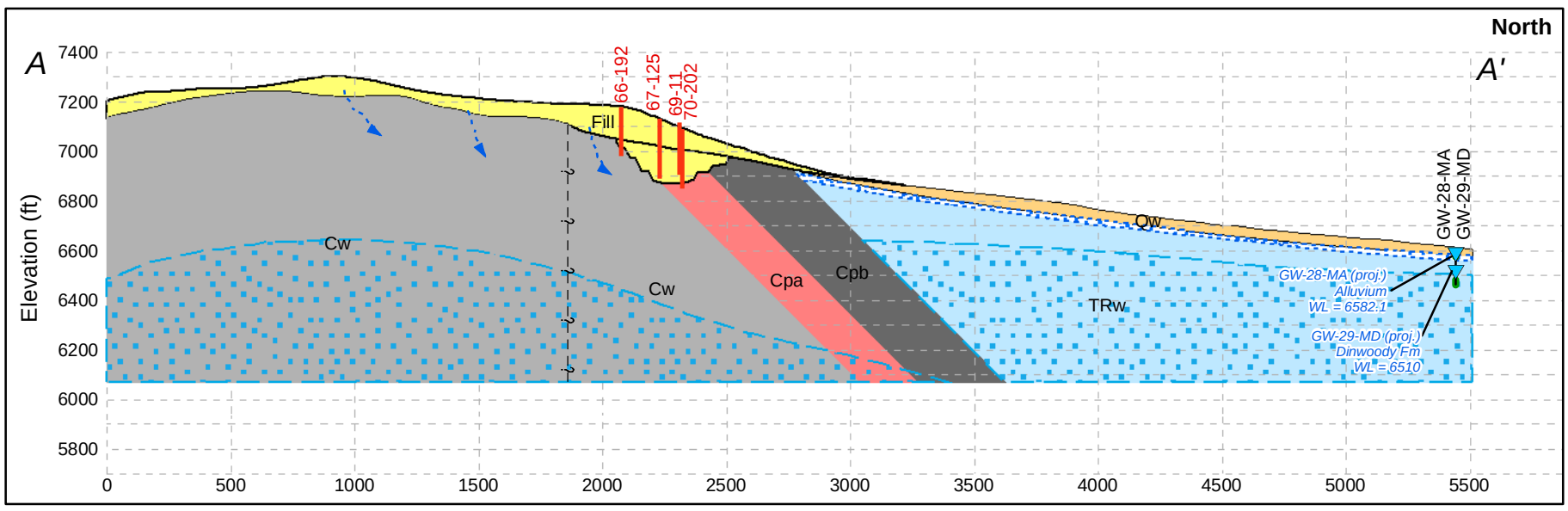
WOODALL PANEL BLOCK MODEL AREA AND CROSS-SECTION

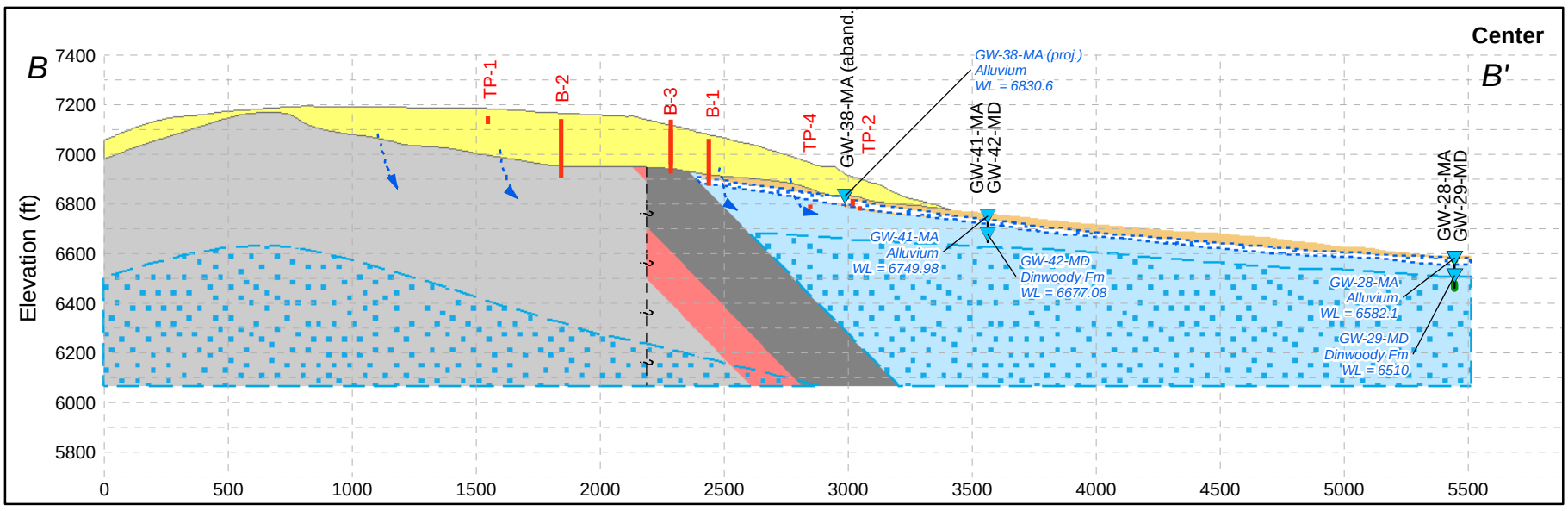
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

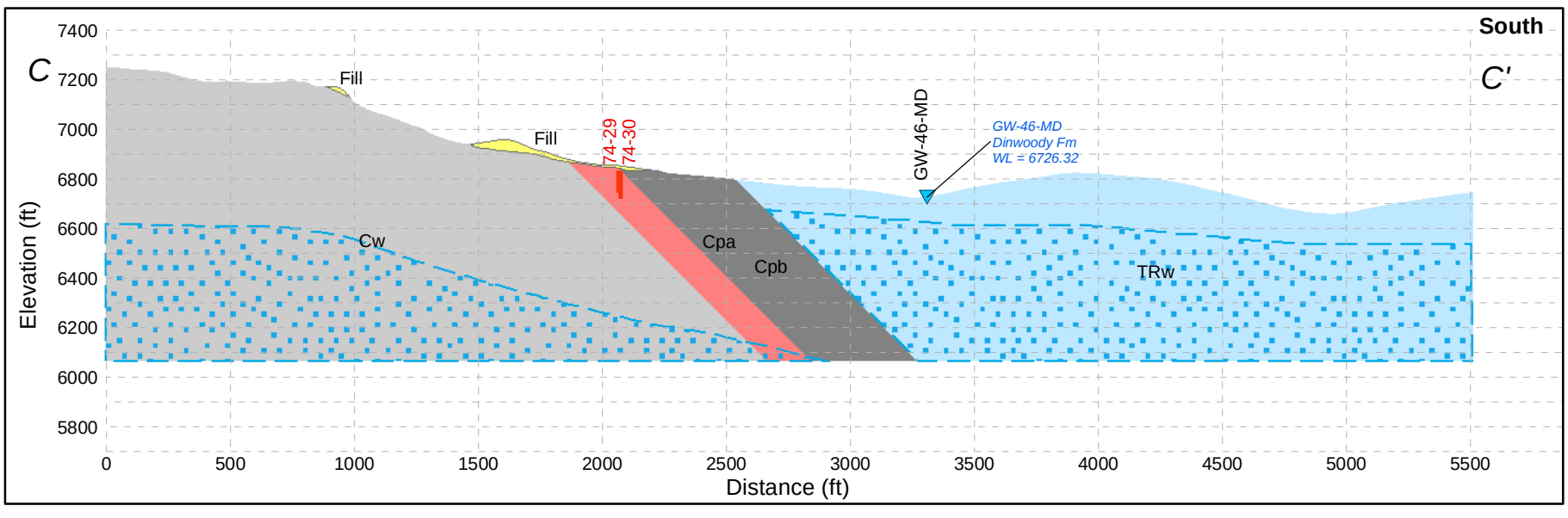
FORMATION ENVIRONMENTAL

S:\GIS\arcpj2\010139\plt\RI_2012\Fig_5-13_X_Sections_Lines12.mxd









Plan View Legend

- Approx. Historical Pit Boundary
- Wells & Avg. GW Elevs
- Historic Exploration Boreholes
- Transect Lines
- Test Pits
- Depression
- Premine surface contours (ft)

Geologic Structures

- Anticline
- Syncline
- Thrust Fault
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

Profile Legend

- Avg. GW Elevs
- Flow Arrows
- Wells
- Well Screen
- Fault (interpreted)

Saturated GW

- Sat. GW (simplified)
- Alluvial Perched Zone

Geology

- Fill
- Alluvium (Qw, Qal)
- Cpa - Meade Peak
- Cpa - Meade Peak (rem.)
- Cpb - Rex Chert
- Cpb - Rex Chert (rem.)
- Cw - Wells Fm
- Cw - Wells Fm (rem.)
- TRw - Dinwoody Fm

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

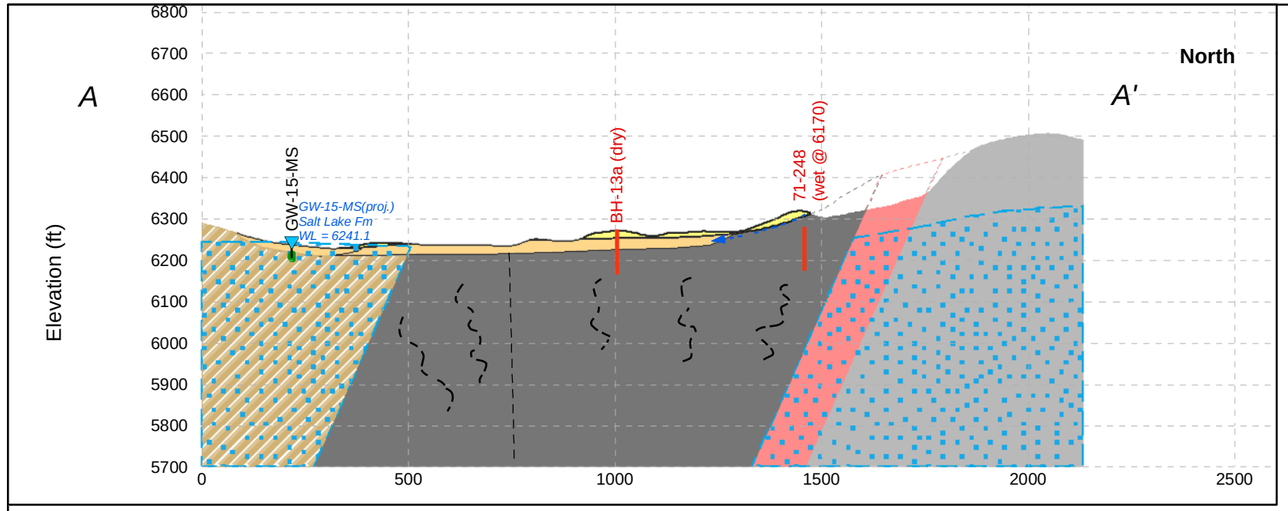
FIGURE 7-6

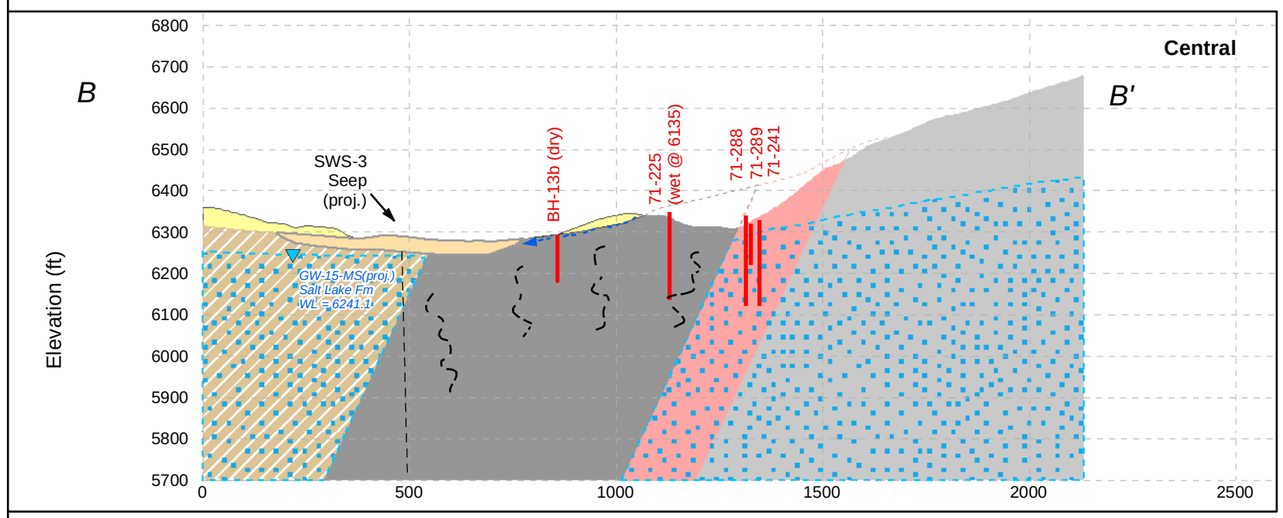
PEDRO CREEK ODA BLOCK MODEL AREA AND CROSS-SECTIONS

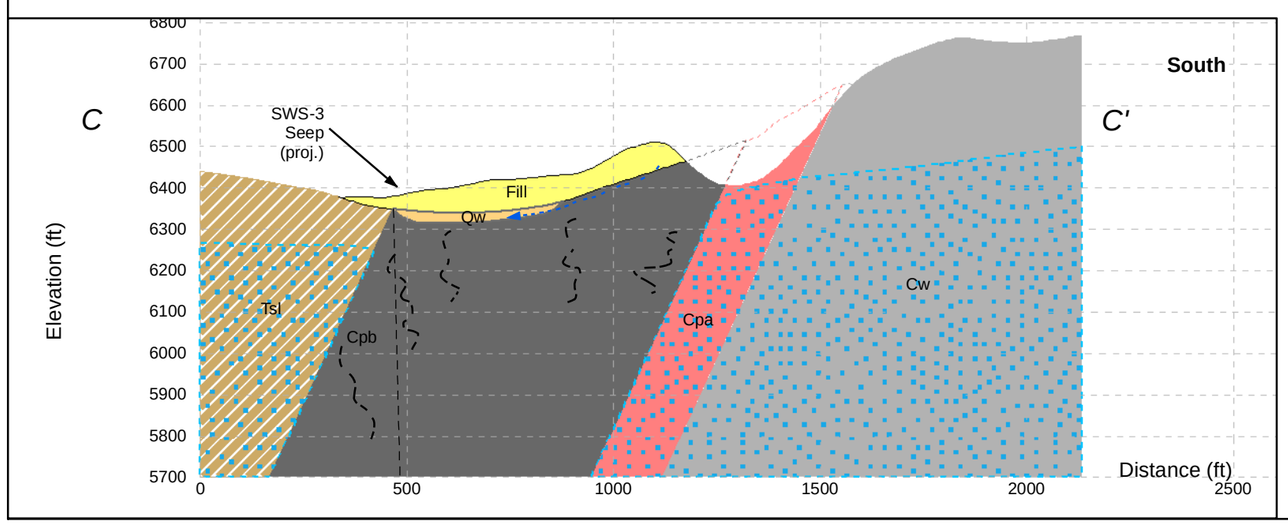
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

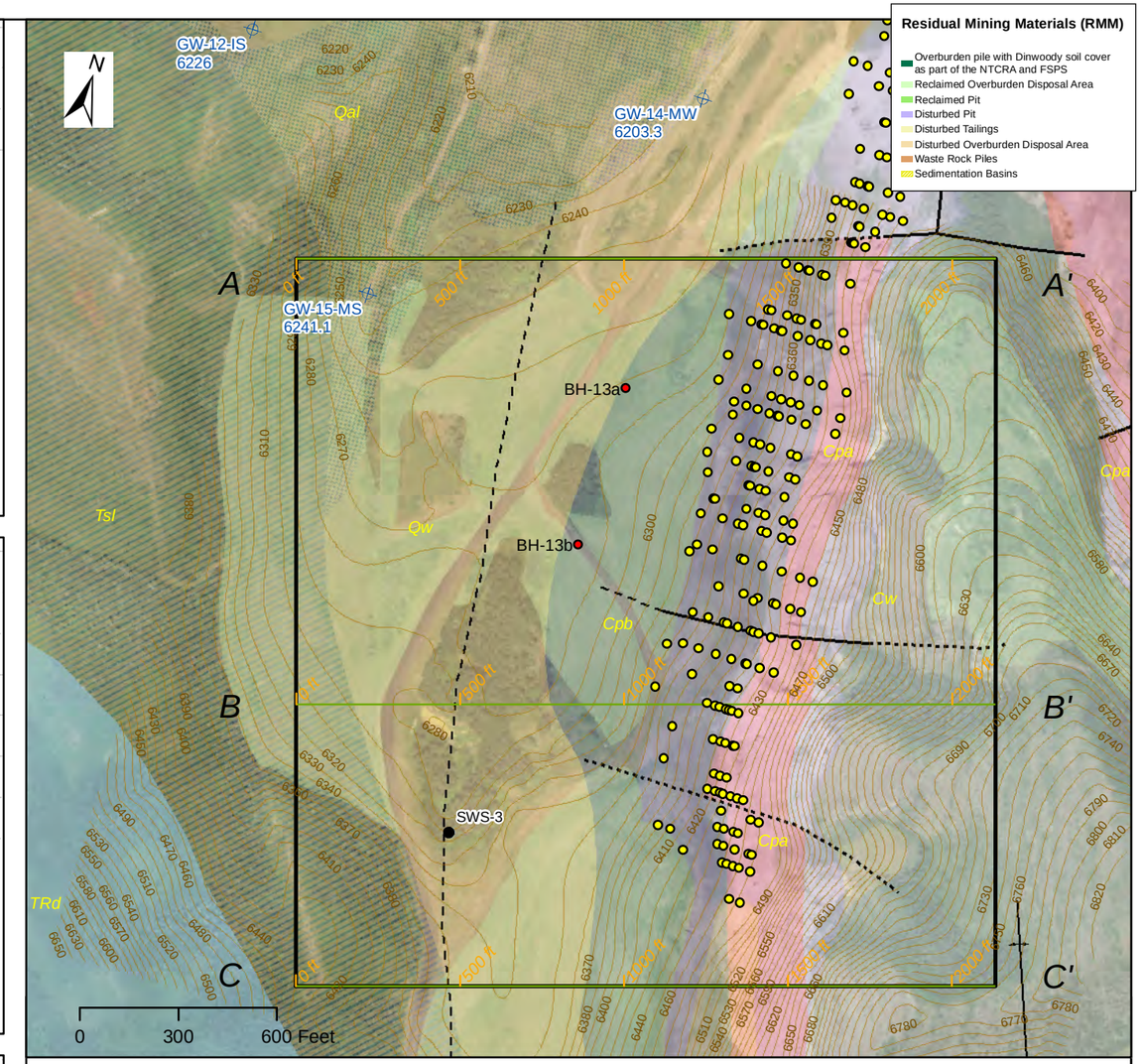
FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_7-6_PedroCreekBlkModel.mxd









Profile Legend

- Flow Arrows
- Avg. GW Elevs
- Fault (interpreted)
- Borings
- Wells
- Well Screen
- Rex Chert fracture flow

Saturated GW (simplified)

- Wells, Salt Lake, Alluvium Saturated Zone

Geologic Fm

- Fill
- Alluvium (Qw, Qal)
- Cpa - Meade Peak
- Cpa - Meade Peak (rem.)
- Cpb - Rex Chert
- Cpb - Rex Chert (rem.)
- Cw - Wells Fm
- Cw - Wells Fm (rem.)
- TRw - Dinwoody Fm
- Tsl - Salt Lake Fm

Plan View Legend

- Wells & Avg. GW elevs
- Seep SW sample location
- Selected "BH" Soil Borings
- Historic Exploration Boreholes
- Transect Lines
- Premine surface contours (ft)

Geologic Structures

- Anticline
- Syncline
- Thrust Fault
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

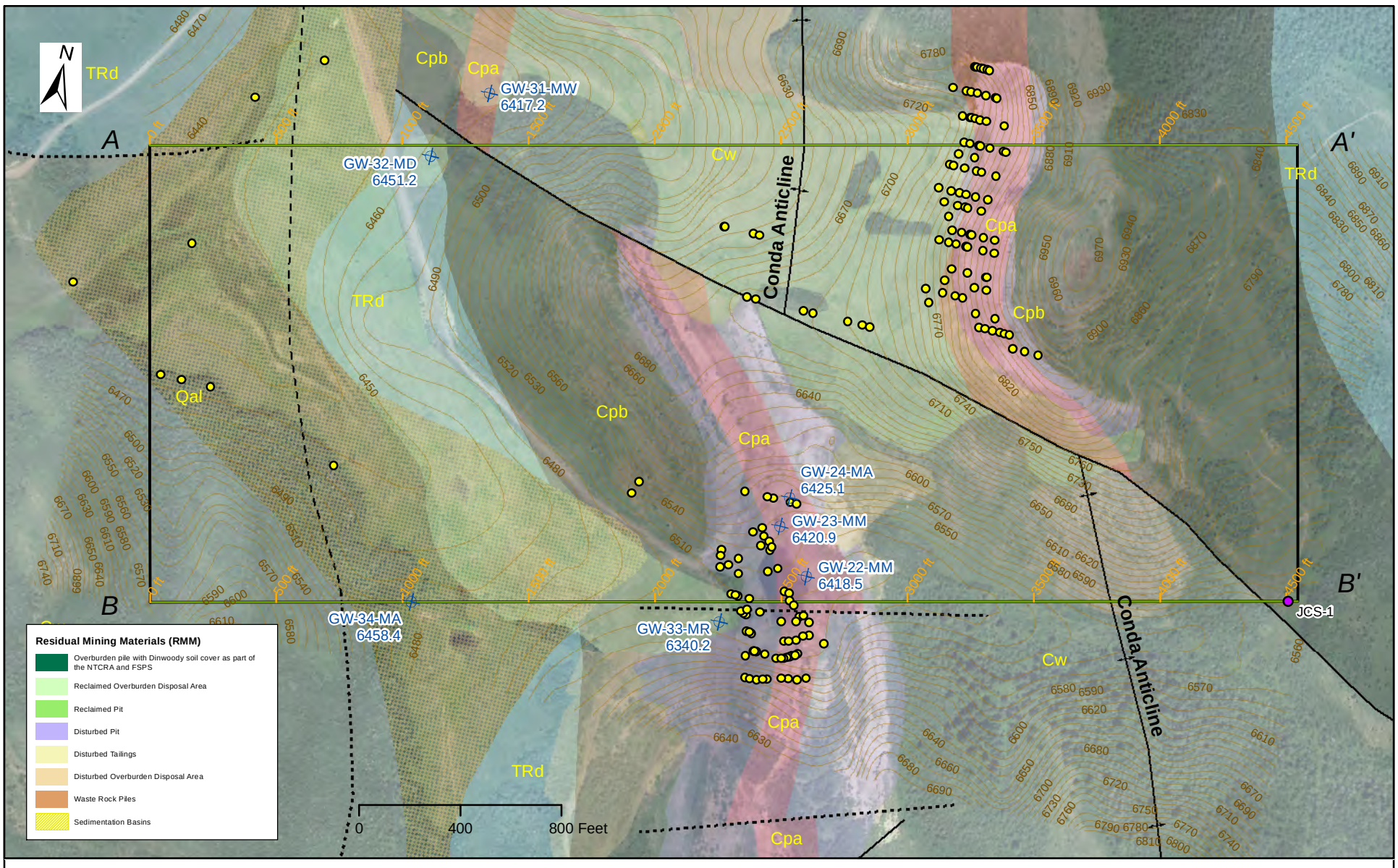
FIGURE 7-7

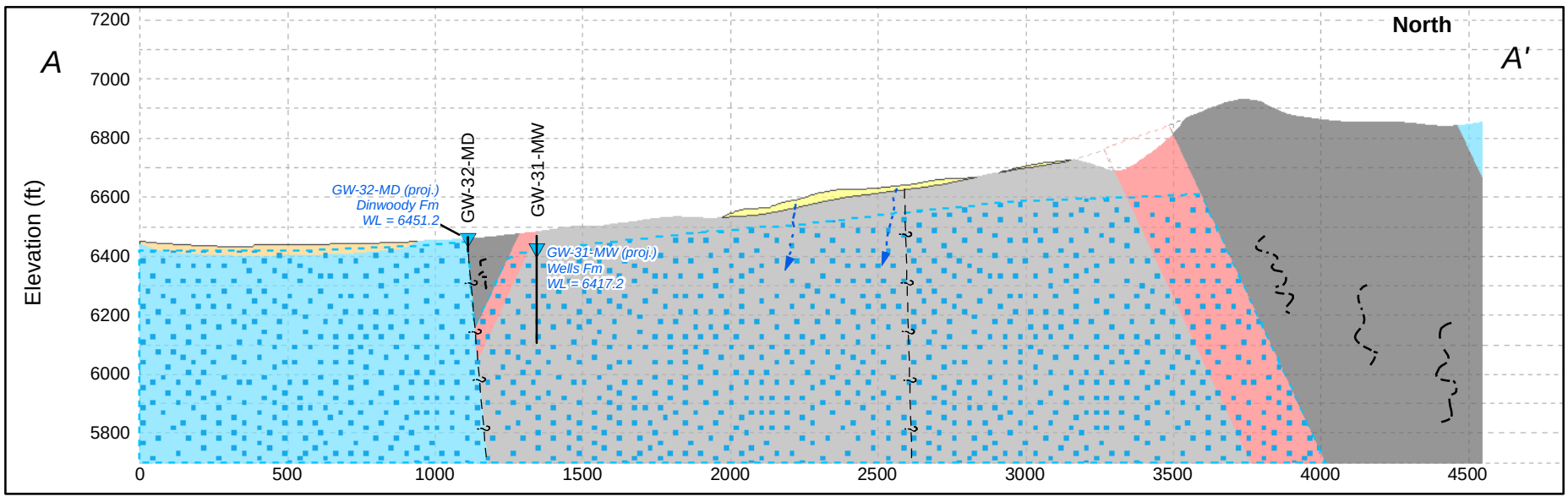
FRENCH DRAIN BLOCK MODEL AREA AND CROSS-SECTIONS

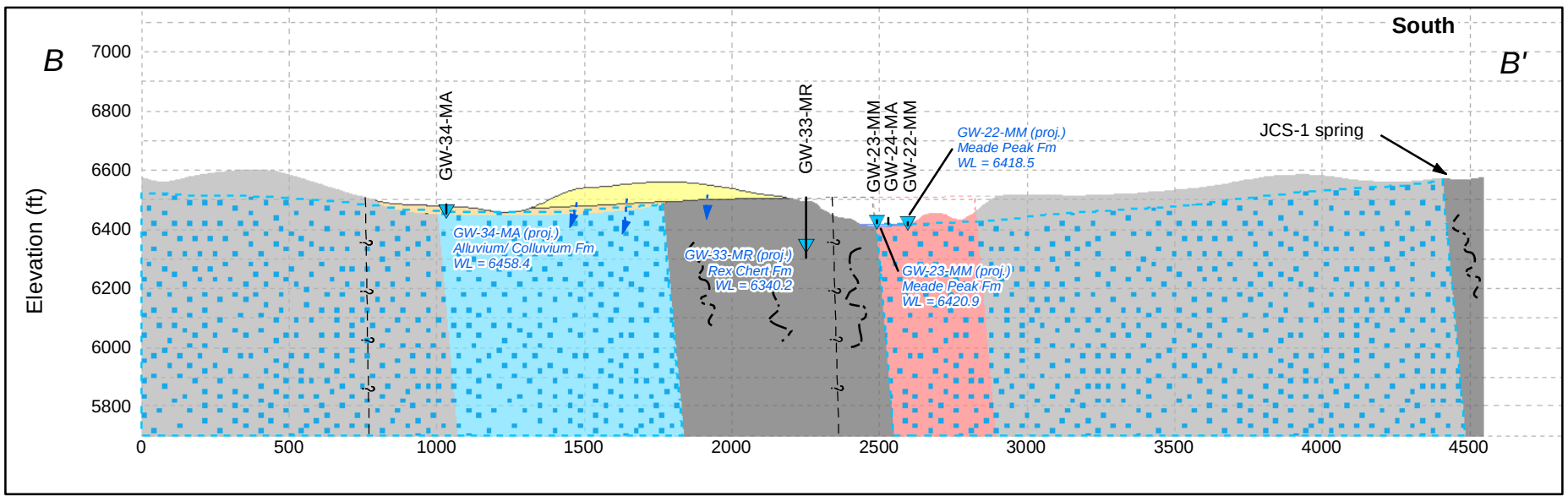
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_7-7_FrenchDrainBlkModel.mxd







Plan View Legend

- Wells & Avg. GW elevs
- Spring Location
- Historic Exploration Boreholes
- Transect Lines
- Premine surf. contours (ft)

Geologic Structures

- Anticline
- Syncline
- Thrust Fault
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

Profile Legend

- Flow Arrows
- Wells
- Fault (interpreted)
- Avg. GW Elevs
- Rex Chert fracture flow

Saturated GW (simplified)

- Wells, Dinwoody Sat. Zone

Geologic Fm

- Fill
- Alluvium (Qw, Qal)
- Pit Lake
- Cpa - Meade Peak
- Cpa - Meade Peak (rem.)
- Cpb - Rex Chert
- Cpb - Rex Chert (rem.)
- Cw - Wells Fm
- Cw - Wells Fm (rem.)
- TRw - Dinwoody Fm

J.R SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

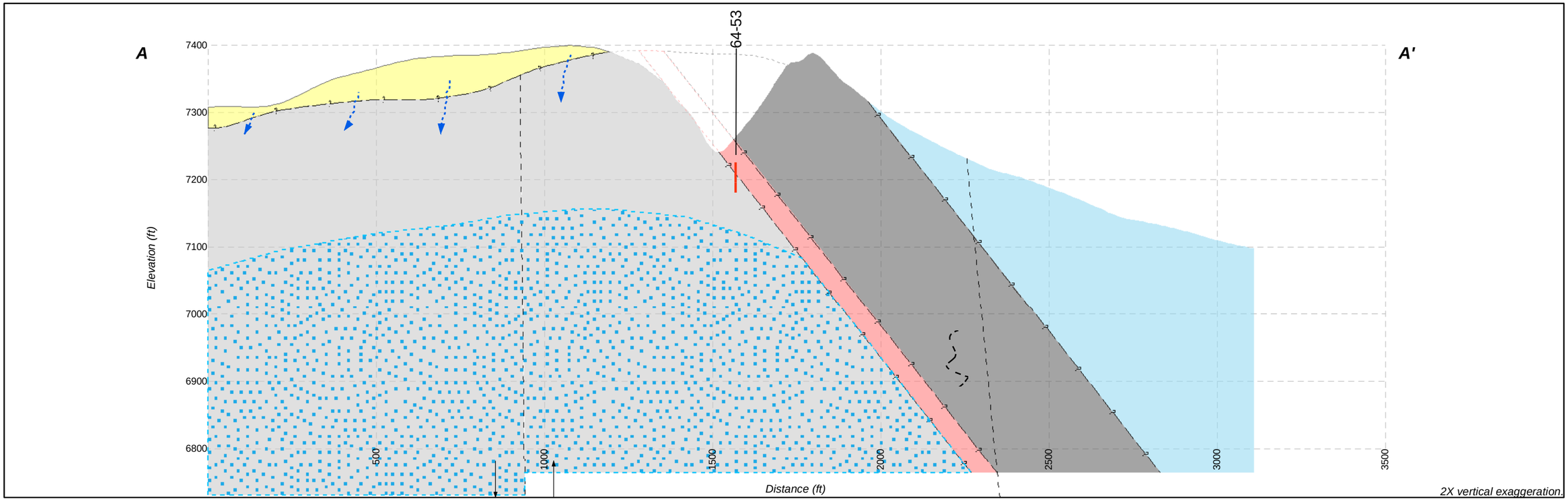
FIGURE 7-8

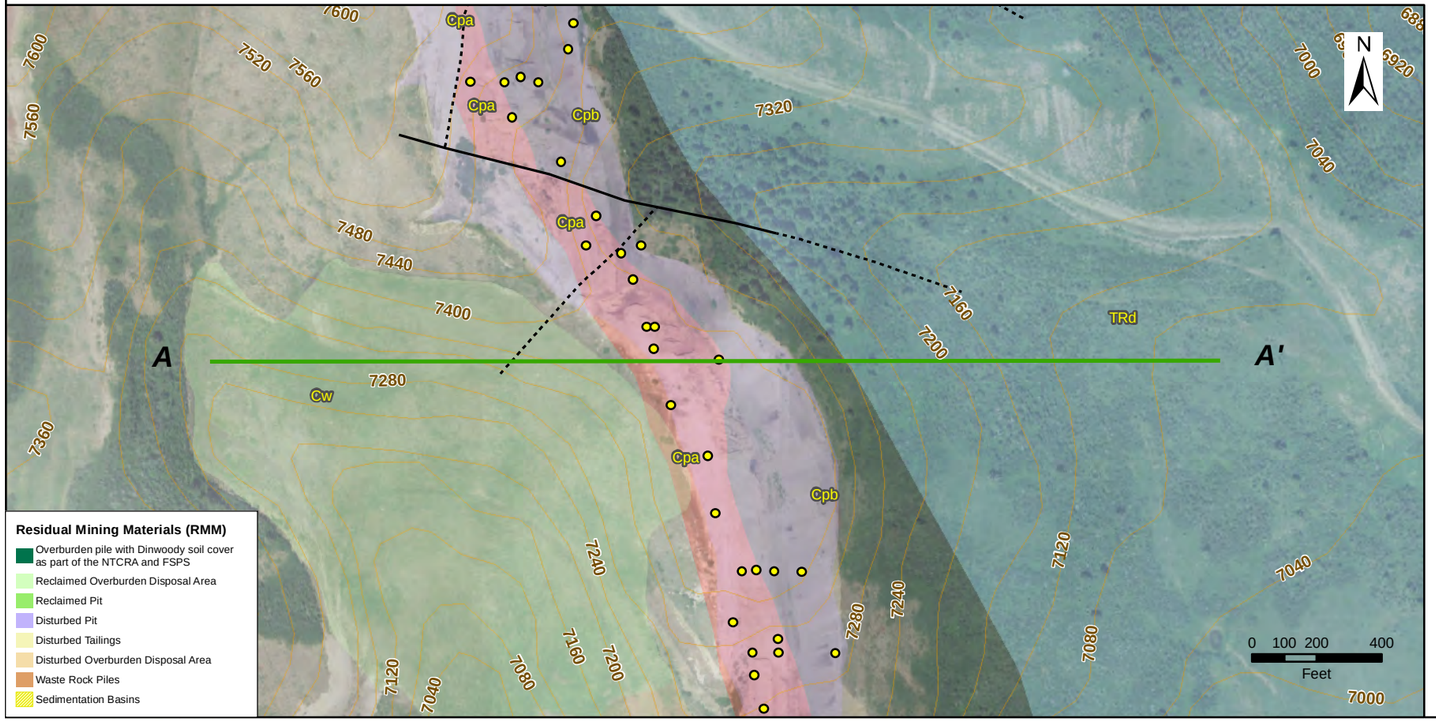
JOUGLARD CANYON BLOCK MODEL AREA AND CROSS-SECTIONS

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139\plt\RI_2016\Fig_7-8_JougCanyonBlkModel.mxd





Profile Legend

- Rex Chert fracture flow
- Borings
- Flow Arrows
- Wells Saturated Zone

Interpretive Contacts

- Geologic
- Fault
- Fault, arrows indicate relative movement

Geology

- Fill
- Alluvium (Qal, Qw)
- Tsl - Salt Lake Fm.
- TRw - Dinwoody Fm.
- Cpa - Meade Peak
- Cpa - Meade Peak (rem.)
- Cpb - Rex Chert
- Cpb - Rex Chert (rem.)
- Cw - Wells Fm
- Cw - Wells Fm (rem.)

Plan View Legend

- Historic Exploration Boreholes
- Pre-Mining Contours (40-ft)
- Transect Line

Geologic Structures

- Anticline
- Syncline
- Thrust Fault
- Fault
- Fault - Confirmed
- Fault - Buried
- Fault - Inferred

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

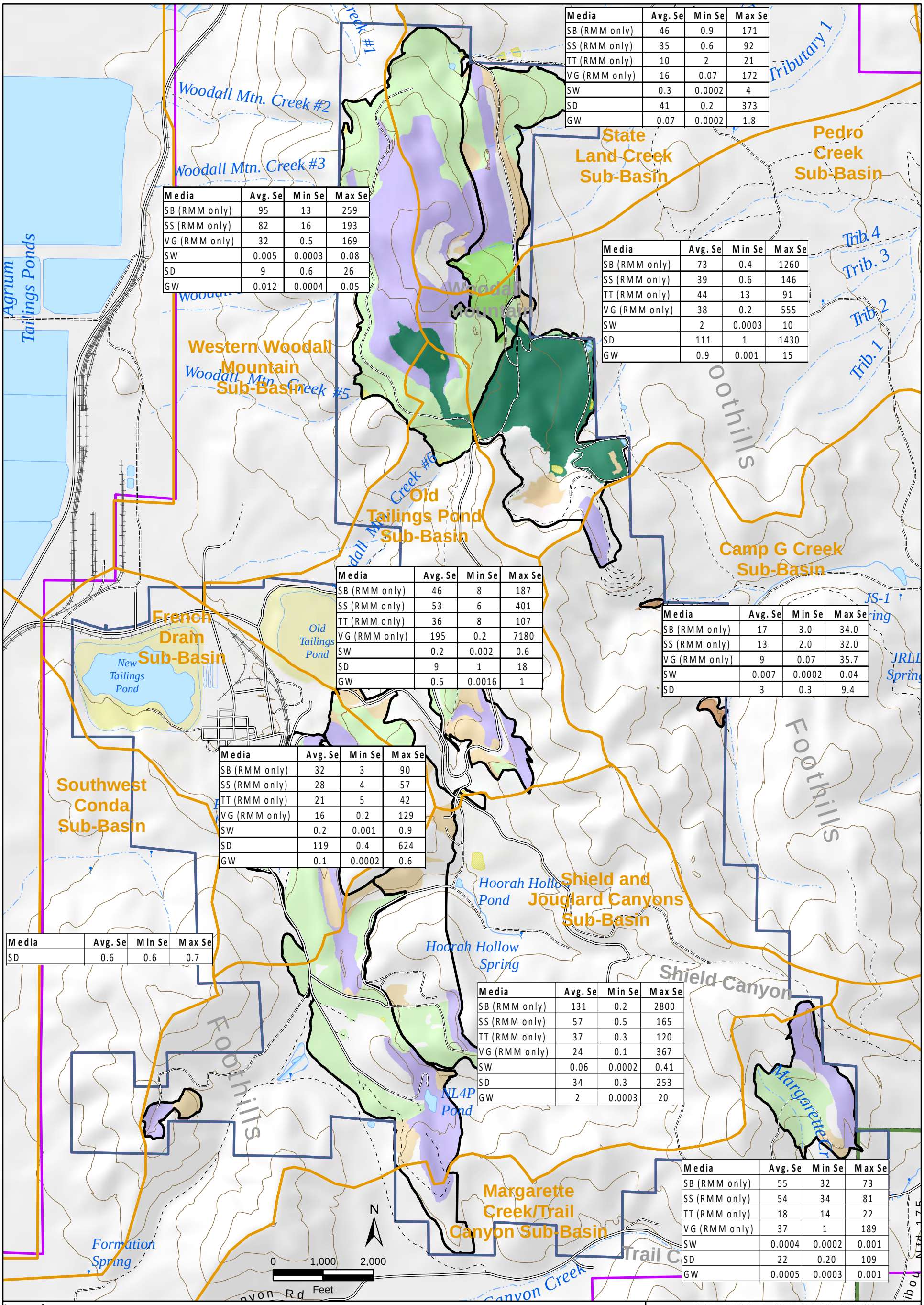
FIGURE 7-9

NORTH TRAIL PANEL BLOCK MODEL AREA AND CROSS-SECTION

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcgis\2010\139\rdl\RI_2012\Fig_5-13_X_Sections_Lines12.mxd



Media	Avg. Se	Min Se	Max Se
SB (RMM only)	46	0.9	171
SS (RMM only)	35	0.6	92
TT (RMM only)	10	2	21
VG (RMM only)	16	0.07	172
SW	0.3	0.0002	4
SD	41	0.2	373
GW	0.07	0.0002	1.8

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	95	13	259
SS (RMM only)	82	16	193
VG (RMM only)	32	0.5	169
SW	0.005	0.0003	0.08
SD	9	0.6	26
GW	0.012	0.0004	0.05

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	73	0.4	1260
SS (RMM only)	39	0.6	146
TT (RMM only)	44	13	91
VG (RMM only)	38	0.2	555
SW	2	0.0003	10
SD	111	1	1430
GW	0.9	0.001	15

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	46	8	187
SS (RMM only)	53	6	401
TT (RMM only)	36	8	107
VG (RMM only)	195	0.2	7180
SW	0.2	0.002	0.6
SD	9	1	18
GW	0.5	0.0016	1

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	17	3.0	34.0
SS (RMM only)	13	2.0	32.0
VG (RMM only)	9	0.07	35.7
SW	0.007	0.0002	0.04
SD	3	0.3	9.4

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	32	3	90
SS (RMM only)	28	4	57
TT (RMM only)	21	5	42
VG (RMM only)	16	0.2	129
SW	0.2	0.001	0.9
SD	119	0.4	624
GW	0.1	0.0002	0.6

Media	Avg. Se	Min Se	Max Se
SD	0.6	0.6	0.7

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	131	0.2	2800
SS (RMM only)	57	0.5	165
TT (RMM only)	37	0.3	120
VG (RMM only)	24	0.1	367
SW	0.06	0.0002	0.41
SD	34	0.3	253
GW	2	0.0003	20

Media	Avg. Se	Min Se	Max Se
SB (RMM only)	55	32	73
SS (RMM only)	54	34	81
TT (RMM only)	18	14	22
VG (RMM only)	37	1	189
SW	0.0004	0.0002	0.001
SD	22	0.20	109
GW	0.0005	0.0003	0.001

Legend

- Minor Road
- Unimproved Road
- Trail (4WD)
- Trail (Other than 4WD)
- Railroad
- Intermittent Stream
- Perennial Stream
- Lake/Pond
- Reservoir
- Swamp/Marsh
- Mine Area
- Non-Mine Area
- Mine Panels

Residual Mining Materials (RMM)

- Overburden pile with Dinwoody soil cover as part of the NTCRA and FSPS
- Reclaimed Overburden Disposal Area
- Reclaimed Pit
- Disturbed Pit
- Disturbed Tailings
- Disturbed Overburden Disposal Area
- Waste Rock Piles
- Sedimentation Basins

SB - Subsurface Soil
SS - Surface Soil
VG - Vegetation
TT - Terrestrial Tissue
SW - Surface Water
SD - Sediment
GW - Groundwater

Notes:
- Overburden areas include in-pit ODAs and external to pit ODAs.
- Only Site locations relevant to the RMM analysis are shown on this figure.
-GW data includes 2015 results.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

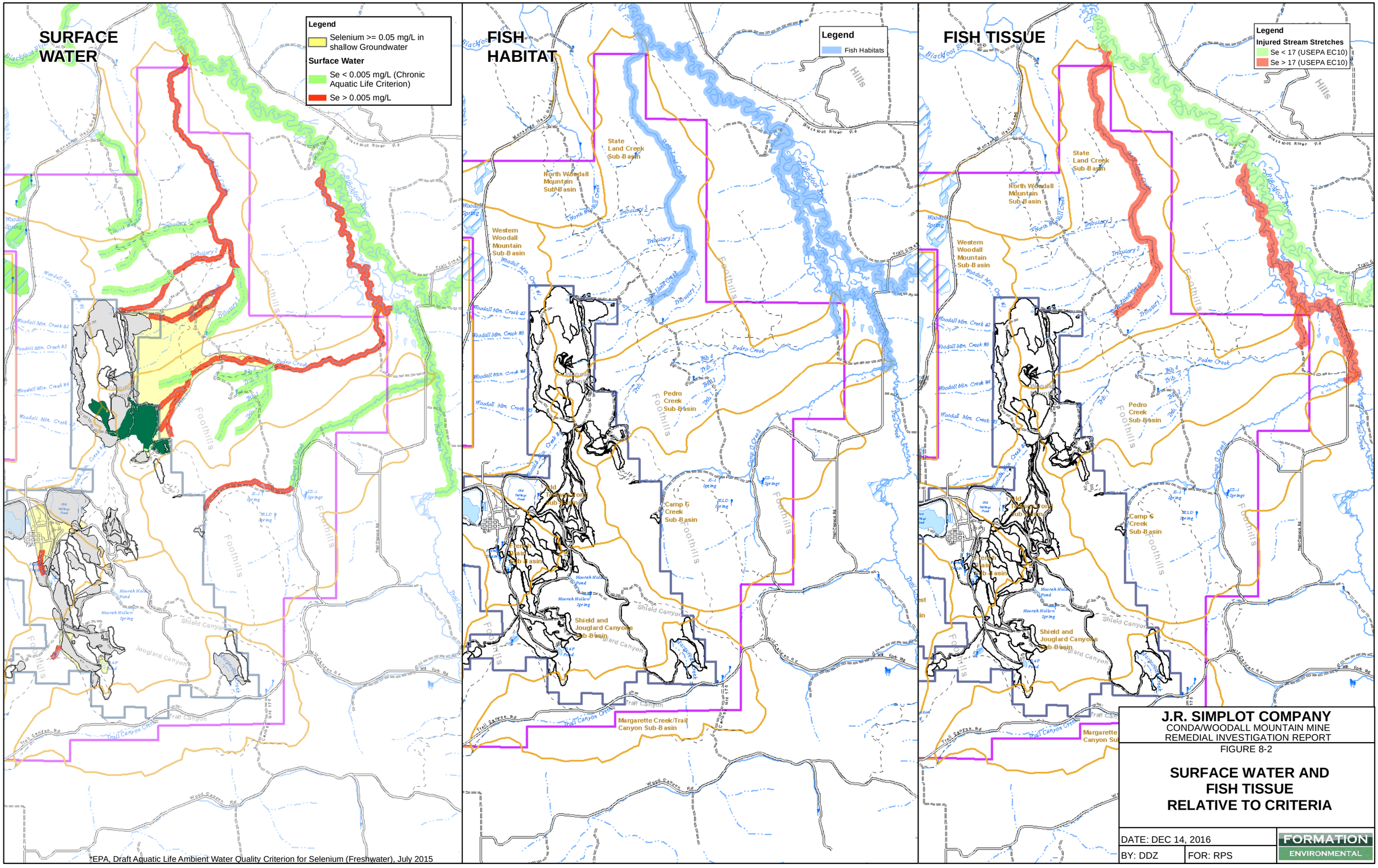
FIGURE 8-1

MAXIMUM SOIL SELENIUM CONCENTRATIONS IN ODAs, TAILINGS, AND WASTE ROCK

DATE: DEC 14, 2016
BY: KAM
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj\2010139\plt\RI_2016\Fig_8-01_SL_Se_ODAs.mxd



EPA, Draft Aquatic Life Ambient Water Quality Criterion for Selenium (Freshwater), July 2015

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

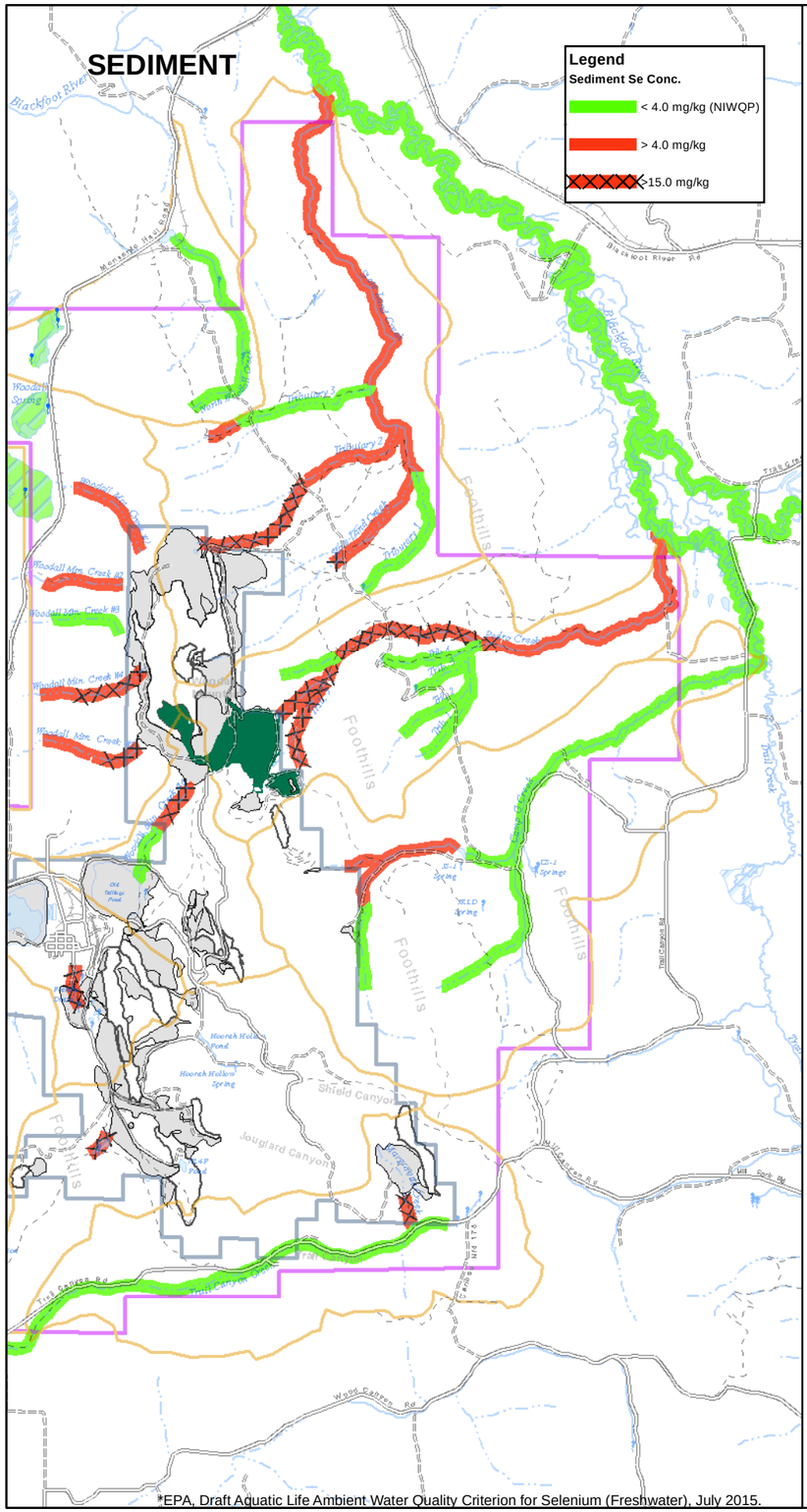
FIGURE 8-2

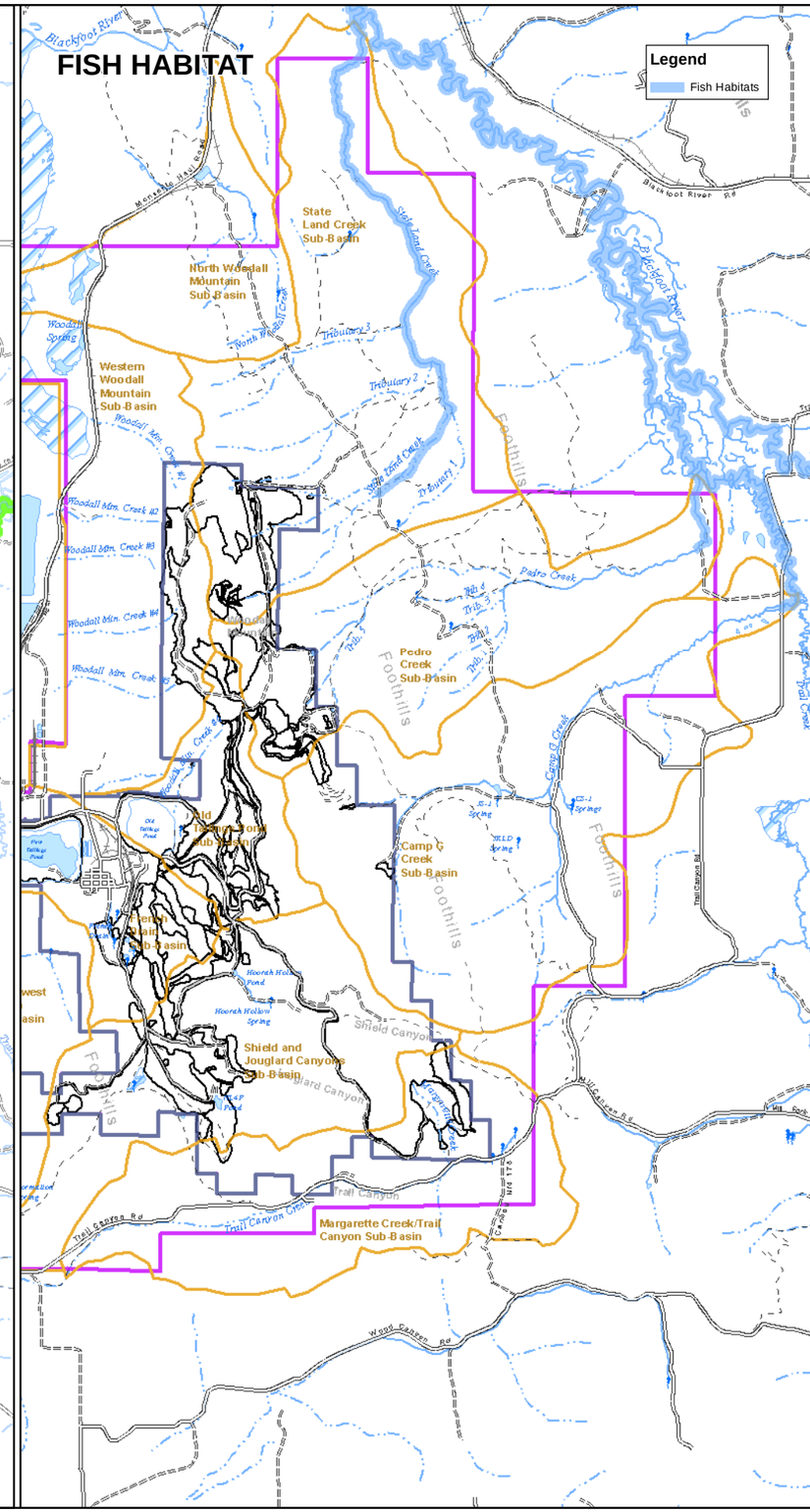
SURFACE WATER AND FISH TISSUE RELATIVE TO CRITERIA

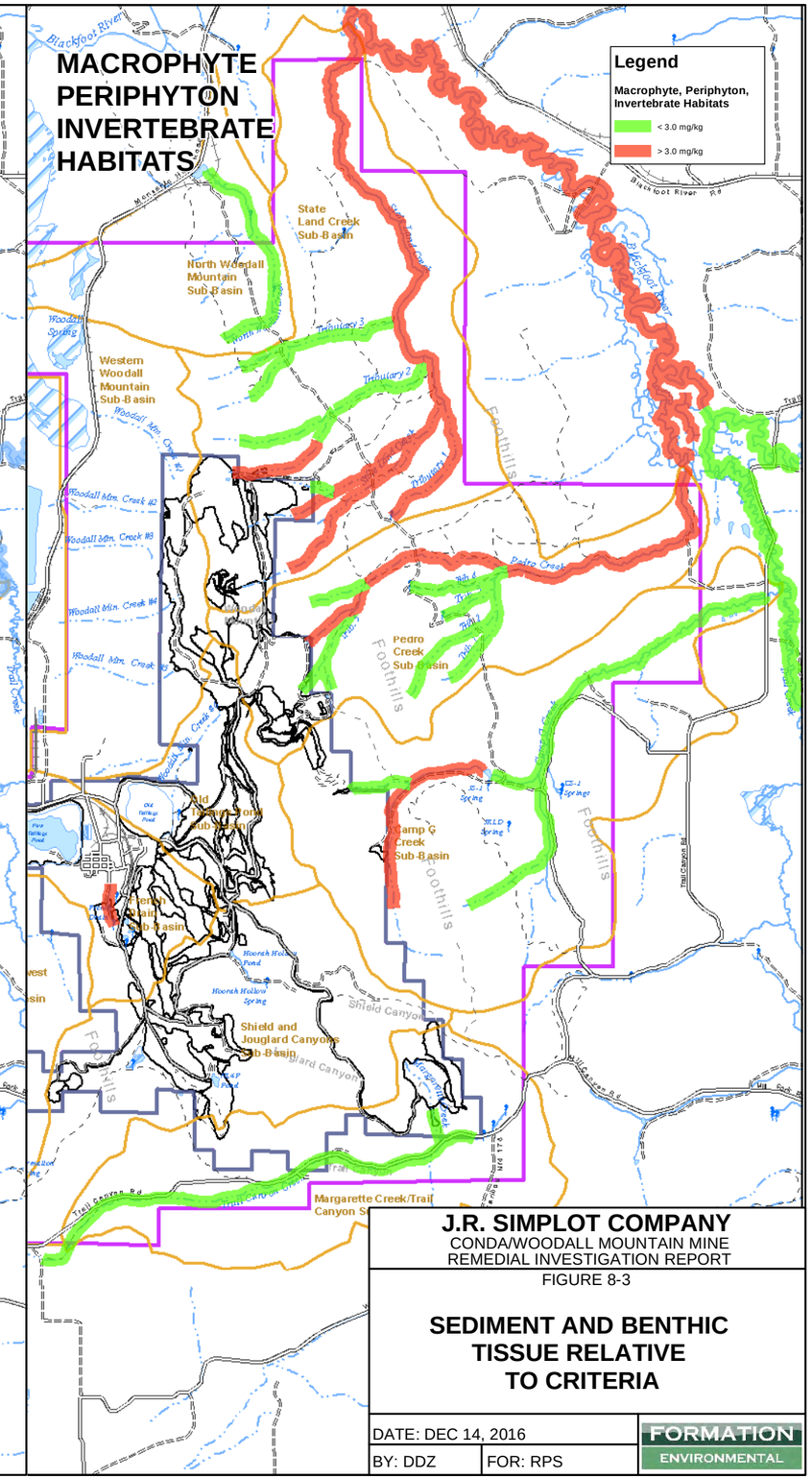
DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\010139plt\RI_2016\Fig_8-02_SeSWFish_Summary_EC10.mxd







*EPA, Draft Aquatic Life Ambient Water Quality Criterion for Selenium (Freshwater), July 2015.

J.R. SIMPLOT COMPANY
CONDA/WOODALL MOUNTAIN MINE
REMEDIAL INVESTIGATION REPORT

FIGURE 8-3

SEDIMENT AND BENTHIC TISSUE RELATIVE TO CRITERIA

DATE: DEC 14, 2016
BY: DDZ
FOR: RPS

FORMATION ENVIRONMENTAL

S:\GIS\arcprj2\0101139\plt\RI_2016\Fig_8-03_SeSD_Benthic_Summary.mxd