Permittee: PacifiCorp Idaho Falls Pole Yard
Facility Identification/Permit Number: IDD000602631

INTRODUCTION AND SIGNATURE PAGE

Pursuant to the Idaho Hazardous Waste Management Act of 1983 (HWMA), Idaho Code §§ 39-4401 *et seq.*, and the *"Rules and Standards for Hazardous Waste"*, as amended, IDAPA 58.01.05.000 *et seq.*, a Post-Closure and Corrective Action Permit (Permit) is hereby issued to PacifiCorp (Permittee) to conduct corrective action, maintain, and care for a closed hazardous waste facility located at latitude 43.48131 North and longitude -112.04610 West on 2200 Leslie Avenue, Idaho Falls, Idaho.

The Permittee shall comply with all of the terms and conditions of this Permit and Attachments 1 through 4 of this Permit. The Permittee shall comply with all applicable state regulations, including IDAPA 58.01.05.004 through 58.01.05.013 [40 Code of Federal Regulations (CFR), Parts 124, 260 through 266, 268, and 270], and as specified in this Permit.

Applicable state regulations are those which are in effect on the date of final administrative disposition of this Permit and any self-implementing statutory provisions and related regulations which, according to the requirements of the Hazardous and Solid Waste Amendments (HSWA), are automatically applicable to the Permittee's hazardous waste management activities, notwithstanding the conditions of this Permit.

This Permit is based upon the administrative record, as required by IDAPA 58.01.05.013 [40 CFR § 124.6 and 124.9]. The Permittee's failure, in the application or during the permit issuance process, to fully disclose all relevant facts, or the Permittee's misrepresentation of any relevant facts, at any time, shall be grounds for the termination or modification of this Permit and/or initiation of an enforcement action, including criminal proceedings. To the extent there are inconsistencies between the Permit and the attachments the language of the Permit shall prevail. The Permittee must inform the Director of the Idaho Department of Environmental Quality (hereinafter referred to as "Director") of any deviation from the permit conditions or changes in the information on which the application is based, which would affect the Permittee's ability to comply or actual compliance with the applicable regulations or permit conditions, or which alters any permit condition in any way. The Director has the authority to enforce all conditions of this Permit. Any challenges of any permit condition shall be appealed to the Idaho Board of Environmental Quality, in accordance with IDAPA 58.01.05.013 [40 CFR § 124.19], and in accordance with the "Rules of Administrative Procedure Before the Board of Environmental Quality," IDAPA 58.01.23.

The United States Environmental Protection Agency (EPA) shall maintain an oversight role of the state-authorized program and in such capacity, shall enforce any permit condition based on state requirements if, in the EPA's judgment, the Director should fail to enforce that permit condition. Any challenges to the EPA-enforced conditions shall be appealed to the EPA, in accordance with 40 CFR § 124.19.

The latest Post Closure Care Permit is effective as of **December 17, 2019.** This permit shall remain in effect until **December 17, 2029** unless, in accordance with IDAPA 58.01.05.012, the Permit is revoked and reissued [40 CFR § 270.41], further modified [40 CFR § 270.42, Appendix I.A.6], terminated [40 CFR § 270.43], or continued [40 CFR § 270.51].

December 17. 2019
Date

John H. Tippets
John H. Tippets, Director
Idaho Department of Environmental Quality
12/16/2019

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LIST OF TABLES

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LIST OF ATTACHMENTS

Attachment 2 includes key sections of the Permittee's Administrative Record. The listed documents have been updated to reflect site conditions as of March 2019 and are hereby incorporated, in their entirety into this Permit. The Director, as deemed necessary, modified specific language in the attachments. These modifications are described in the permit conditions (Modules I through V) and, thereby, supersede the language of the original attachment. These incorporated attachments are enforceable conditions of this Permit, as modified by the specific permit condition(s). These incorporated attachments are enforceable conditions of the Permit.

ATTACHMENT 1 RCRA PART A Application Dated March 2019

ATTACHMENT 2 SUPPLEMENTAL INFORMATION

FACILITY DESCRIPTION; WASTE ANALYSIS, consisting of:

Facility Description: Volume I – Chapter 2 – Pages 2-1 through 2-20
Topographic Map Figure 2.3
Waste Analysis/Characterization and Waste Disposal Plan: Volume I – Chapter 3 Pages 3-1 through 3-3.
Creosote Compounds: Tables 3.1 through 3.2

PROCEDURES TO PREVENT HAZARDS, consisting of:

Spill Prevention and Response Plan: Volume 1 – Chapter 6 – Pages 6-1 through 6-20
Inspections: Volume I – Chapter 6 – Pages 6-17 through 6-18
Security: Volume I – Chapter 6 – Pages 6-19 through 6-20
In Case of Creosote Spill: Table 6.2
Gates and Uses: Table 6.5
Required Inspection: Table 6.4
Inspection Checklists: Forms 6.1 through 6.4
Contingency Plan: Volume I – Chapter 5 – Pages 5-1 through 5-15.
Emergency Information: Tables 5.1 through 5.3
Contingency Plan: Form 5.1 through 5.2

PERSONNEL TRAINING, consisting of:

Training: Volume I – Chapter 7 – Pages 7-1 through 7-6
Training Sign-Off Sheets: Forms 7.1A through 7.1C

GROUNDWATER MONITOR PLAN, consisting of:

Groundwater Monitoring: Volume I – Chapter 4 – Pages 4-1 through 4-19
Figures 4.1A, 4.1B, and 4.1C
Evaluation Procedures: Tables 4.9 through 4.10
Sampling Sheets: Forms 4.1 through 4.3

CORRECTIVE ACTION FOR GROUNDWATER, consisting of:

Corrective Action Plan for Groundwater: Volume I – Chapter 9 – Pages 9-1 through 9-22
Groundwater Treatment Plan Operation and Maintenance Manual: Volume I Chapter 10 pages 10-1 through 10-61
Treatment Plant Design Criteria: Table 10.3 – Pages 1 through 3
Idaho Falls Pole Treatment Yard Remediation System Modifications: Volume II – Chapter 1 – Pages II 1-1 through II 1-8

FINANCIAL ASSURANCE, consisting of :

Post Closure Cost Estimate and Financial Assurance Requirements: Volume I Chapter 8 – Page 8-1.

ATTACHMENT 3 POST CLOSURE AND CORRECTIVE ACTION COST ESTIMATE, consisting of:

Post-Closure Cost Estimate dated January of Current Year

ATTACHMENT 4 REVISION LOG

DEFINITIONS

For purposes of this Permit, the following definitions shall apply:

"Active Well" shall mean any well being pumped at the time of that sampling event:

"Ancillary equipment" shall mean any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal on-site, or to a point of shipment for disposal off-site.

"Application" shall mean the following: PacifiCorp - Idaho Falls Pole Yard, Inc., Idaho Falls, Idaho, Part A and Part B Post-Closure Permit Re-Application.

"Days" shall mean calendar day(s) unless otherwise specified. Any requirement of submittal under the terms of this Permit that would be due on a Saturday, Sunday, or a state or federal holiday shall be due on the following business day."

"Department" shall mean the Idaho Department of Environmental Quality (IDEQ).

"Director" shall mean either the Director IDEQ the Director's designee, or authorized representative.

"Discovery (discovered)" shall mean the initial identification of a Solid Waste Management Unit (SWMU) or other Area of Concern, which has the potential to release hazardous waste or hazardous waste constituents to the environment.

"Facility" or "site", within the permit body, shall mean the physical description of the property (including structures, appurtenances, and improvements) used to manage hazardous waste including the groundwater treatment plant

"HSWA" shall mean the Hazardous and Solid Waste Amendment of 1984.

"HWMA" shall mean the State of Idaho, Hazardous Waste Management Act of 1983, as amended, Idaho Code § 39-4401 et seq.

"Hazardous Waste" shall mean a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, or chemical, or infectious characteristics may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed [See 42 United States Code (USC) § 6903(5)].

"Hazardous Waste Constituent" shall mean any constituent identified in Appendix VIII of IDAPA 58.01.05.005 [40 CFR Part 261], or any constituent identified in Appendix IX of IDAPA 58.01.05.008 [40 CFR Part 264].

"Hazardous Waste Management Unit (HWMU)" shall mean those operable units subject to the requirements of IDAPA 58.01.05.012 [40 CFR § 270.14 through .25].

"Owner/ Operator" shall mean PacifiCorp

"Permit" shall mean this Permit issued by the Idaho Department of Environmental Quality.

"Permittee" shall mean PacifiCorp.

"RCRA" shall mean the Resource Conservation and Recovery Act of 1976, as amended by HWSA in 1984.

"Release" shall mean any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous waste constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous waste constituents).

"Remedial Action" shall mean actions required to reduce contaminant concentrations to achieve corrective action goals

"Schedule of compliance" shall mean a schedule of remedial and/or closure measures included in a permit, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the HWMA and regulations.

"Solid Waste Management Unit" (SWMU) shall mean any discernable unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous wastes. Such units include any area at a facility at which solid wastes have been routinely and systematically released.

All definitions contained in IDAPA 58.01.05.004, .005, .008, and .010 through .013 [40 CFR Parts 260, 261, 264, 266, 268, 270, and 124] are hereby incorporated, in their entirety, by reference into this Permit, except that any of the definitions used above shall supersede any definition of the same term given in IDAPA 58.01.05.000 et seq. Where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
bgs	below ground surface
CAMP	corrective action monitoring program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CMP	compliance monitoring program
DMP	detection monitoring program
DNAPL	dense nonaqueous phase liquid
DOT	Department of Transportation
NPDES	National Pollutant Discharge Elimination System
EPA	U.S. Environmental Protection Agency
EQL	Estimated Quantitation Limit
FR	Federal Register
GAC	granular activated carbon
GPM	gallons per minute
GPS	Ground Water Protection Standards
HMI	Human Machine Interface
HWMA	Hazardous Waste Management Act of 1983, as amended
HWMF	Hazardous Waste Management Facility
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDWR	Idaho Division of Water Resources
IFPY	Idaho falls Pole Yard
LDU	Land Disposal Unit
MCL	Maximum Contaminant Levels
MDL	method detection limit
MSDS	Material Safety Data Sheet
SDS	Safety Data Sheet
NFPA	National Fire Protection Association
OAC	oil absorption column
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbons
POC	Point of Compliance
PERCO	PacifiCorp Environmental Remediation Company
PLC	programmable logic controller
PQL	practical quantitation limit
QAQC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RfD	reference dose
RFI	RCRA Facility Investigation
RMP-NSD	Rocky Mountain Power North Switching Desk
SARA	Superfund Amendments and Reauthorization Act
SCADA	Supervisory control and data acquisition
SPR	Spill Prevention and Response
SW-846	Test Methods for Evaluating Solid Waste: Physical/Chemical Methods
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
VFD	variable frequency drive

MODULE I - STANDARD PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

The Permittee is required to maintain the closed hazardous waste landfill, remove and treat contaminated groundwater, and perform corrective action as expressly described in this Permit. Any storage, treatment, or disposal of hazardous waste by the Permittee at this Facility that is not authorized by this Permit or by IDAPA 58.01.05.006 [40 CFR § 262.34], and for which a permit is required under Idaho Code § 39.4409 or Section 3005 of RCRA, is prohibited.

Pursuant to IDAPA 58.01.05.012 [40 CFR § 270.4], compliance with this Permit generally constitutes compliance, for purposes of enforcement, with the Idaho Hazardous Waste Management Act (HWMA), as amended, except for those requirements not included in this Permit, which become effective by statute or future regulatory changes to include those requirements promulgated under IDAPA 58.01.05.011 [40 CFR Part 268] restricting the placement of hazardous waste in or on the land. Issuance of this Permit does not convey any property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations.

I.B. ENFORCEABILITY

I.B.1. The terms and conditions of this Permit are enforceable pursuant to the HWMA or any other applicable federal, state, or local law. Violations of this Permit may result in civil penalties in accordance with HWMA [Idaho Code § 39-4414] and the HWMA Civil Penalty Policy.

I.B.2. Any person who knowingly makes any false statement or representation in any application, label, manifest, record, report, permit, or other document filed, maintained or used for the purposes of complying with the provisions of Idaho Code § 39-4415 shall be guilty of a misdemeanor and subject to a fine of not more than ten thousand dollars ($10,000) or imprisonment not to exceed one (1) year, or to both, for each separate violation or for each day of a continuing violation.

I.C. OTHER AUTHORITY

The Department expressly reserves any right of entry provided by law and any authority to order or perform emergency or other response activities as authorized by law.

I.D. PERMIT ACTIONS

I.D.1. This Permit may be modified, revoked and reissued, or terminated for cause, as specified in IDAPA 58.01.05.012 [40 CFR §§ 270.41, 270.42, or 270.43].

I.D.2. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

I.D.3. The Director may modify this Permit when the standards or regulations on which the Permit was based have been changed by statute, amended standards or regulations, or by judicial decision after the effective date of this Permit.

I.D.4. Except as provided by specific language in this Permit or except for the Director's approval of a Class 1 or 2 Permit Modification, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.42(a) and (b)], any modifications which substantially alter the facility or its operation, as covered by this Permit, shall be administered as a Class 3 Permit Modification prior to such change taking place, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.42(c)].

I.D.5. Within forty-five (45) days of a permit modification being put into effect or approved, the Permittee shall provide clean copies of the relevant portions of the Permit and attachments to incorporate the change (if not already reflected/provided in the change pages submitted with the permit modification request), reprint the documents (as necessary), and submit them to the Director. The Permittee shall submit an electronic version of all permit modifications to the Director.

I.E. SEVERABILITY

I.E.1 The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any state or federal statutory or regulatory provision, which forms the basis for any condition of this Permit, does not affect the validity of any other state or federal statutory or regulatory basis for said provision.

I.E.2 In the event that a condition of this Permit is stayed for any reason, the Permittee shall continue to comply with the related applicable and relevant permitted standards in IDAPA 58.01.05.008 [40 CFR Part 264] until final resolution of the stayed condition, unless compliance with the related applicable and relevant interim status standards would be technologically incompatible with compliance with other conditions of this Permit that have not been stayed.

I.F. DUTIES TO COMPLY

I.F.1. The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with IDAPA 58.01.05.012 [40 CFR § 270.61]. Any Permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of HWMA and is grounds for enforcement action, for permit termination, revocation and reissuance or modification, or for denial of a Permit renewal application.

I.F.2. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under §§ 3007, 3008, 3013, or 7003 of RCRA [42 U.S.C. §§ 6927, 6928, 6934 and 6973], §§ 104, 106(a), or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [42 U.S.C. §§ 9604, 9606(a), or 9607, commonly known as CERCLA], as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), or any other state or federal law providing for protection of public health or the environment from any imminent and substantial endangerment to human health or the environment.

I.G. DUTY TO REAPPLY

If the Permittee wishes to or is required to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee shall reapply to obtain a new Permit at a minimum of 180 calendar days prior to the expiration date of this Permit, in accordance with IDAPA 58.01.05.012 [40 CFR §§ 270.10(h) and 270.30(b)].

I.H. PERMIT EXPIRATION

Except as renewed, modified, revoked, reissued, or terminated by the Department, this Permit shall automatically expire ten (10) years from the effective date of this Permit.

I.I. CONTINUATION OF EXPIRING PERMIT

This Permit, and all conditions herein, shall continue in force until the effective date of a new permit, if the Permittee has submitted a timely and complete application (in accordance with IDAPA 58.01.05.012 [40 CFR §§ 270.10, 270.13 through 270.29]), and through no fault of the Permittee, the Director has neither issued nor denied a new permit under IDAPA 58.01.05.013 [40 CFR § 124.5] on or before the expiration date of this Permit. In the event the Permittee fails to submit a timely and complete application, this Permit will remain enforceable until the effective date of a new permit.

I.J. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for the Permittee in an enforcement action that halting or reducing the permitted activity would have been necessary to maintain compliance with the conditions of this Permit.

I.K. DUTY TO MITIGATE

In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases to the environment resulting from the noncompliance, and shall carry out such measures, as are reasonable, to prevent significant adverse impacts on human health or the environment.

I.L. PROPER OPERATION AND MAINTENANCE

The Permittee shall, at all times, properly maintain and operate the facilities, including any systems of treatment and control (and related appurtenances) which are installed and/or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary equipment or similar systems only when necessary to achieve compliance with the conditions of this Permit.

I.M. DUTY TO PROVIDE INFORMATION

The Permittee shall furnish to the Department and/or the Director, within a reasonable time, any relevant information that the Department and/or the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Department and/or the Director, upon request, copies of records required to be kept by this Permit.

I.N. INSPECTION AND ENTRY

In accordance with IDAPA 58.01.05.012 [40 CFR § 270.30(i)], the Permittee shall allow the Department, the Director, and/or their authorized officers, employees, or representatives, upon the presentation of credentials and other documents as may be required by law, to:

I.N.1. Enter at reasonable times upon the Permittee's premises where a regulated Facility or activity is located or conducted, or where records are kept as required by the conditions of this Permit;

I.N.2. Have access to and to copy, at reasonable times, any records that are kept as required by the conditions of this Permit;

I.N.3. Inspect, at reasonable times, any portion of the Facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

I.N.4. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by HWMA or RCRA, any substances or parameters at any location.

I.O. MONITORING AND RECORDS

I.O.1. The Permittee shall maintain, at the Facility, until Post-Closure is completed and Certification by an independent registered professional engineer has been approved by the Director: 1) a copy of this Permit and its Attachments and all modifications to this Permit; and 2) records from all groundwater monitoring wells and associated groundwater surface elevations.

I.O.2. The Permittee shall retain, at the Facility, records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Permit, the certification required by IDAPA 58.01.05.008 [40 CFR § 264.73(b)(9)], and records of all data used to complete the application for this Permit for a period of at least three (3) years from the date of the report, record, or certification unless a longer retention period for certain information is required by other conditions of this Permit. These periods may be extended by request of the Director, at any time, by written notification to the Permittee, and the retention times are automatically extended during the course of any unresolved enforcement action regarding this facility to three (3) years beyond the conclusion of the enforcement action.

I.O.3. Copies of any/all records, maintained at the PacifiCorp Facility, shall be made available to the Department, the Director, and/or their authorized officers, employees, or representatives, within three (3) business days of the receipt of a certified mail request for such. The PacifiCorp contact for access to the records is:

Jeff Tucker
PacifiCorp
1407 West North Temple
Salt Lake City, Utah 84116
Telephone: (801) 220-2989

I.O.4. In accordance with IDAPA 58.01.05.012 [40 CFR § 270.30(j)(3)], records of monitoring information shall specify the following:

I.O.4.a. The date(s), exact place, and times of sampling or measurements;

I.O.4.b. The name(s), title(s), and affiliation of individuals who performed the sampling or measurements;

I.O.4.c. The date(s) analyses were performed;

I.O.4.d. The name(s), title(s), and affiliation of individuals who performed the analyses;

I.O.4e. The analytical techniques or methods used; and

I.O.4.f. The results of such analyses, including the Quality Control/Quality Assurance summary

I.O.5. Samples and measurements taken for monitoring purposes shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed shall be the appropriate method from IDAPA 58.01.05.005 [40 CFR Part 261, Appendix I] or an equivalent method approved by the Director. Laboratory methods shall be those specified in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846* (prevailing edition, hereinafter referred to as SW-846), *Standard Methods of Wastewater Analysis* (prevailing edition), or other alternate methods approved in this Permit, or an equivalent method in accordance with Permit Condition I.O.6. of this Permit.

I.O.6. The Permittee may substitute analytical methods that are equivalent or superior to those specifically approved for use in this Permit in accordance with the following:

I.O.6.a. The Permittee submits to the Director a request for substitution of analytical method(s) specifically approved for use in this Permit. The request shall provide information demonstrating that the proposed method(s) requested to be substituted are equivalent or superior in terms of sensitivity, accuracy, and precision (*i.e.,* reproducibility); and

I.O.6.b. The Permittee receives written approval from the Director for the substitution of analytical method(s). Such approval shall not require a Permit Modification under IDAPA 58.01.05.012 [40 CFR § 270.42].

I.O.7. The Department may, during the life of this Permit, require the Permittee to revise the format(s) used to present the raw data and conclusions associated with the monitoring reports. These format changes may include, but not be limited to, requiring tabular and/or graphical presentations of the raw data or the submittal of raw data in ASCII format on computer diskettes for direct input into the Department's groundwater monitoring database.

I.P. REPORTING PLANNED CHANGES

The Permittee shall give notice to the Director as soon as possible, but not to exceed sixty (60) calendar days prior to any planned physical alteration or additions to the permitted facility, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.30(l)(1)].

I.Q. REPORTING ANTICIPATED NONCOMPLIANCE

The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with requirements of this Permit, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.30(l)(2)]. Advance notice shall not constitute a defense for any noncompliance.

I.R. CERTIFICATION OF CONSTRUCTION OR MODIFICATION

I.R.1. The Permittee may not commence treatment of hazardous waste in a modified portion of an existing permitted Hazardous Waste Management Unit until the Permittee has submitted to the Director by certified mail, express mail, or hand delivery a letter signed by the Permittee and a registered professional engineer certifying that the permitted unit(s) at the facility have been constructed or modified in compliance with this Permit; and

I.R.2. The Director has reviewed and inspected (if deemed appropriate) the modified unit(s) and has notified the Permittee in writing that the unit(s) was found in compliance with the conditions of this Permit; or

I.R.3. If within fifteen (15) calendar days of the date of submission of the letter in Permit Condition I.R.1. of this Permit, the Permittee has not received notice from the Director of the intent to inspect, prior inspection is waived and the Permittee may commence storage of hazardous waste in the permitted unit, certified in accordance with Permit Condition I.R.1. of this Permit.

I.S. TRANSFER OF PERMIT

This Permit may be transferred to a new owner or operator only if it is modified or revoked and reissued, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.40]. Prior to transferring ownership or operation of the facility during its Post-Closure period and/or Corrective Action, the Permittee shall notify the new owner or operator, in writing, of the requirements of IDAPA 58.01.05.008, and 58.01.05.012 [40 CFR §§ Parts 264 and 270] and this Permit.

I.T. TWENTY-FOUR HOUR REPORTING

I.T.1. In accordance with IDAPA 58.01.05.012 [40 CFR § 270.30(l)(6)], the Permittee shall verbally report any noncompliance with this Permit that may endanger human health or the environment to the Director. Any such information shall be reported as soon as possible, but not later than twenty-four (24) hours from the time the Permittee becomes aware of the noncompliance. Potential endangerment to human health and the environment may include, but not be limited to, information concerning:

I.T.1.a. Noncompliance with Permit Condition II.A.1. of this Permit; or

I.T.1.b. A release of any hazardous waste that may endanger public drinking water supplies, or

I.T.1.c. A release or discharge of hazardous waste, or of a fire or explosion at the Facility, that could threaten human health or the environment outside the Facility.

I.T.2. The verbal description of the occurrence and its cause shall include:

- Name, title, and telephone number of individual reporting;
- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the Facility;
- Date, time, and type of incident;
- Location and cause of the accident;
- Name and quantity of materials involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to the environment and human health, where this is applicable;
- Description of any emergency action taken to minimize possible threat(s) to human health and the environment;
- Estimated quantity and disposition of recovered material that resulted from the incident; and
- Any other information necessary to evaluate the situation fully and to develop an appropriate course of action.

I.T.3. Within five (5) calendar days after the Permittee is required to provide verbal notification, as specified in Permit Conditions I.T.1. and I.T.2. of this Permit, the Permittee shall provide to the Director a written submission. The written submission shall include, but not be limited to, the following:

- Name, address, and telephone number of individual reporting;
- A description (including cause, location, extent of injuries, if any, and an assessment of actual or potential hazard(s) to the environment and human health outside the Facility, where this is applicable) of the incident (noncompliance and/or release);
- The period(s) in which the incident (noncompliance and/or release) occurred (including exact dates and times);
- Whether the results of the incident remain a threat to human health and the environment (whether the noncompliance has been corrected and/or the release has been adequately remediated); and
- If not, the anticipated time it is expected to continue; the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and/or the steps taken or planned to adequately remediate the release.

I.T.4. The Permittee need not comply with the five (5) calendar day written notice requirement if the Director waives, in writing, the requirement and the Permittee submits a written report within fifteen (15) calendar days from the time the Permittee is required to provide verbal notification, as specified in Permit Condition I.T.1. of this Permit. Reporting shall not constitute a defense for any noncompliance.

I.T.5 Reporting requirements specified in this permit do not supersede or replace any of the facility's other emergency reporting obligations.

I.U. OTHER NONCOMPLIANCE

The Permittee shall report all other instances of noncompliance, not otherwise required to be reported in accordance with Permit Condition I.T. of this Permit, at the time the semi-annual monitoring reports are submitted. The reports shall contain the information listed in Permit Condition I.T. of this Permit. Reporting shall not constitute a defense for any noncompliance.

I.V. OTHER INFORMATION

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the Permit Application or submitted incorrect information in a Permit Application or in any report to the Director, the Permittee shall promptly submit such facts or information to the Director in accordance with Permit Condition I.Y. of this Permit.

I.W. SIGNATORY REQUIREMENT

All applications, reports, or information requested by or submitted to the Director shall be signed and certified, in accordance with IDAPA 58.01.05.012 [40 CFR §§ 270.11 and 270.30(k)].

I.X. CONFIDENTIAL INFORMATION

Pursuant to Title 9, Chapter 3, of the Idaho Code; IDAPA 58.01.05.012 [40 CFR § 270.12]; or any other applicable federal, state, or local law; the Permittee may assert a claim of confidentiality regarding any information required to be submitted pursuant to this Permit. The Department shall determine whether said information is exempt from disclosure, pursuant to applicable law.

I.Y. REPORTS, NOTIFICATIONS, AND SUBMISSIONS

All reports, notifications, or other submissions, which are required by this Permit and IDAPA 58.01.05.012 [40 CFR § 270.30], shall be sent or given to the Director as one hard copy and one electronic copy by certified mail, express mail, or hand delivered at:

Director,
c/o Hazardous Waste Program Manager
Idaho Department of Environmental Quality
1410 North Hilton, 2nd Floor
Boise, Idaho 83706-1255

Telephone No. (208) 373-0502
Twenty-four (24) hour telephone number 1-800-632-8000

The addresses and telephone numbers listed above are current as of the effective date of this Permit and may be subject to change.

I.Z. DOCUMENTS TO BE MAINTAINED BY THE PERMITTEE

I.Z.1. The Permittee shall maintain until Post-closure and corrective action is completed and certified by an independent, registered, professional engineer (unless otherwise stated), the following documents as well as any/all amendments, revisions and/or modifications to these documents as follows:

I.Z.1.a. A complete copy of this Permit including attachments, tables and modifications.

I.Z.1.b. Operating Record, as required by IDAPA 58.01.05.008 [40 CFR § 264.73] and this Permit;

I.Z.1.c. Inspection Procedures, Schedules, Logs, Records and Results for each HWMU of this Permit, as required by IDAPA 58.01.05.008 [40 CFR §§ 264.15(b)(2) and 264.73(b)(5)] and this Permit, for a period of three (3) years.

I.Z.1.d. Personnel training requirements for each HWMU of this Permit, as required by IDAPA 58.01.05.008 [40 CFR § 264.16(d)(e)] and this Permit, until post-closure is completed and certified by an independent, registered, professional engineer, or for three (3) years from the date the employee left the facility.

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MODULE II - GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF THE FACILITY

II.A.1. The Permittee shall construct, maintain, and operate the facility to minimize the possibility of a fire, explosion, or any unplanned, sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, ground water, or surface water which could threaten human health or the environment.

II.A.2. The Permittee shall construct and/or maintain the facility, including any systems of treatment and control (and related appurtenances) installed in accordance with the approved designs and specifications and maintenance schedules that are included in Permit Attachment 2 Volume I Chapters 6 and 10. Minor deviations from the approved designs or specifications, necessary to accommodate proper construction and the substitution of the use of equivalent or superior materials or equipment, shall be noted on the as-built drawings and the rationale for those deviations shall be provided in narrative form. After completion of construction of each system of treatment and control, the Permittee shall submit final as-built drawings and the narrative report to the Director, as part of the construction certification document specified in Permit Condition I.R.

II.B. RECEIPT OF HAZARDOUS WASTES GENERATED OFF-SITE

The Permittee shall not receive hazardous waste generated off-site from the Facility.

II.C. GENERAL WASTE ANALYSIS

The Permittee shall follow the procedures described in the attached Waste Analysis Plan (Attachment 2 Volume I Chapter 3). The Permittee shall maintain a copy of the approved Waste Analysis Plan, , and any approved modifications to the Plan at the Facility until the Groundwater Treatment Facility is fully closed and certified, as approved by the Director

II.D. SECURITY

The Permittee shall comply with the security provisions of IDAPA 58.01.05.008 [40 CFR § 264.117(b)], and as follows: The Permittee shall comply with the security provisions of IDAPA 58.01.05.08 [40 CFR §§ 264.14 (b) and (c), 264.117 (b) and (d)], as described in Attachment 2 Volume I Chapters 5 and 6.

II.D.1. The Facility as specified in Attachment 1 of this Permit, The site is surrounded by a 7.8 foot high galvanized steel, chain link security fence. The steel poles to which the fence is attached are set in concrete, the chain link extends 6.8 feet above the ground and above that are three strands of barbed wire angled away from the site.

II.D.2. Access to the Facility shall be controlled by a locked chain-link security gate on the west side of the fence as described above.

II.D.3. Warning signs meeting the requirements of IDAPA 58.01.05.008 [40 CFR § 264.14(c)] shall be posted at the entrance and along the fence on each side of the Facility.

II.E. GENERAL INSPECTION REQUIREMENTS

II.E.1. The Permittee shall follow the inspection schedules, as provided in Attachment 2 Volume I Chapters 5, 6, and 10.

II.E.2. The Permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by IDAPA 58.01.05.08 [40 CFR § 264.15(c)] and Attachment 2 Volume I Chapters 5, 6 and 10.

II.E.3. The Permittee shall maintain a copy of the Inspection Plan, included in Permit Attachment 2 Volume I Chapter 6.of this Permit, at the Facility. Inspection reports shall be recorded and maintained, as required by IDAPA 58.01.05.08 [40 CFR § 264.15(d)], for at least three (3) years from the inspection date.

II.E.4. The Permittee may add inspection requirements to an existing inspection form, without modifying the permit, in cases where such additional requirements will result in a more comprehensive or detailed Inspection Plan. The Permittee must submit a copy of the revised inspection form, for the Director's approval, accompanied by a narrative explanation, to the Director within fifteen (15) calendar days of the date of the revision.

II.F. TRAINING PLAN

The Permittee shall ensure that all personnel who are involved in the operation, inspection, and/or maintenance of the Facility are instructed in the proper operation of the equipment and instrumentation, including: training in inspection and record keeping procedures, location of fire extinguishers, local emergency contacts for police and fire departments, and the location of the nearest telephone, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.14(b)(12)] and IDAPA 58.01.05.008 [40 CFR § 264.16(a)(1)(3) and § 264.14(b)].

In addition, the Permittee shall ensure that all personnel who are involved in the corrective action and post-closure activities will be trained in hazardous waste management, safety, and emergency procedures, as applicable to their job description. Training and record keeping shall be in accordance with the applicable sections of IDAPA 58.01.05.008 [40 CFR § 264.16] and Permit Attachment 2 Volume I Chapter 7.

II.G. PREPAREDNESS AND PREVENTION

II.G.1. At a minimum, the Permittee shall maintain, at the Facility, the equipment as set forth in the Contingency Plan (Permit Attachment 2 Volume I Chapter 5) and in accordance with IDAPA 58.01.05.008 [40 CFR § 264.32].

II.G.2. The Permittee shall test and maintain the equipment specified in Permit Condition II.G.1., as necessary, to assure its proper operation in time of emergency, as provided in Attachment 2 Volume I Chapter 5.

II.G.3. The Permittee shall provide and maintain immediate access to the communications and alarm systems, as required by IDAPA 58.01.05.008 [40 CFR § 264.34], wherever hazardous waste is being poured, mixed, spread, or otherwise handled.

II.G.4. At a minimum, the Permittee shall maintain sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the Facility in an emergency.

II.G.5. The Permittee shall attempt to maintain arrangements with state and local authorities as required by IDAPA 58.01.05.008 [40 CFR § 264.37]. If state or local officials refuse to enter into preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record. Such refusal shall not relieve the Permittee of any obligations under Attachment 2 Volume I Chapters 5 and 6.

II.G.6. The Permittee shall comply with the requirements of IDAPA 58.01.05.008 [40 CFR § 264.l7(a)] and the requirements of Attachment 2 Volume I Chapters 5 and 6.

II.H. CONTINGENCY PLAN

II.H.1. The Permittee shall immediately carry out the provisions of the Contingency Plan, as provided in Attachment 2 Volume I Chapter 5 whenever a fire, explosion, or release of hazardous waste or hazardous waste constituents occurs that could threaten human health or the environment, in accordance with IDAPA 58.01.05.008 [40 CFR § 264.56]. The Permittee shall comply with the Contingency Plan provisions of IDAPA 58.01.05.008 [40 CFR 264 Subpart D] and as follows:

II.H.2. The Permittee shall maintain a copy of the Contingency Plan (Attachment 2 Volume I Chapter 5) at the Facility and shall submit a copy to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services, in accordance with IDAPA 58.01.05.008 [40 CFR § 264.53(b)].

II.H.3. The Permittee shall review and amend the Contingency Plan (Attachment 2 Volume I Chapter 5) in accordance with IDAPA 58.01.05.008 [40 CFR § 264.54 and, if necessary, in accordance with § 264.118(d)].

II.H.4. The Permittee shall comply with the requirements of IDAPA 58.01.05.008 [40 CFR § 264.55] concerning the Emergency Coordinator, as provided in Attachment 2 Volume I Chapter 5.

II.H.5. The Permittee shall submit to the Director, the names, addresses, and phone numbers of all persons qualified to act as emergency coordinators. The Permittee shall ensure that a trained emergency coordinator be available at all times in case of an emergency.

II.H.6. The Permittee shall document the time, date, and details of any incident that requires implementing the Contingency Plan in the facility Operating Record. Within fifteen (15) days after the incident, the Permittee shall submit a written report of the incident to the Director. Such report shall include, at a minimum, the items in Permit Condition I.T.2.

II.I. RECORD KEEPING AND REPORTING

II.I.1. In addition to record keeping and reporting requirements specified elsewhere in this Permit, the Permittee shall maintain a written Operating Record at the Facility until Post-Closure is completed, in accordance with IDAPA 58.01.05.008 [40 CFR § 264.73], including, but not limited to, the following:

II.I.1.a. A map showing the location of the hazardous waste;

II.I.1.b. Records and results of waste analyses performed as specified in the Waste Analysis Plan (Attachment 2 Volume I Chapter 3), the Corrective Action Plan (Attachment 2, Volume I Chapter 9), and the Operation and Maintenance Plan (Attachment 2, Volume I Chapter 10);

II.I.1.c. Summary reports including the details of all incidents, as described in IDAPA 58.01.05.008 [40 CFR § 264.56(j)], that require implementing the Contingency Plan (Attachment 2 Volume I Chapter 5);

II.I.1.d. Records and results of inspections; and

II.I.1.e. Monitoring, testing, or analytical data.

II.I.2. The Permittee shall maintain an Equipment Information Manual for groundwater monitoring and corrective action equipment. This shall list suppliers, manufacturers, and installers for all equipment purchased and left on the Facility as well as any/all monitoring and/or analytical instruments used to gather information or data during corrective action or post-closure activities at the Facility and shall include the available manufacturers' literature on operation and maintenance. This manual shall be kept up to date, and equipment shall be operated and maintained in accordance with the manufacturers' literature.

II.I.3. The Permittee shall, by March 1st of each even numbered year, submit to the Director a biennial report covering the facility activities during the previous calendar year pursuant to IDAPA 58.01.05.008 58.01.05.006, 58.01.05.012 [40 CFR §§ 264.75(a) through (j), 262.41, 270.30(l)(9)].

II.I.4. All reports, notifications, applications, or other materials required to be submitted to the Director shall be submitted in accordance with Permit Condition I.Y. of this Permit.

II.J. POST-CLOSURE CARE COST ESTIMATE

The Permittee shall maintain a current post-closure cost estimate, as presented in Attachment 3 of this Permit. The post-closure cost estimate and financial assurance mechanism for Post-Closure care must include cost of on-going corrective action for contaminated groundwater and be prepared in accordance with IDAPA 58.01.05.008 [40 CFR § 264.144(a)].

II.J.1. The Permittee shall comply with the requirements of IDAPA 58.01.05.008 [40 CFR § 264.144(a)].

II.J.2. The Permittee shall adjust the post-closure cost estimate for inflation within thirty (30) calendar days after the close of the Permittee's fiscal year and before submission of updated information to the Director, as specified in IDAPA 58.01.05.008 [40 CFR § 264.144(b)]. The updated closure cost estimates shall be maintained by the Department as part of the facility's administrative record.

II.J.3. The Permittee must revise the post-closure cost estimate whenever a change in the Facility's Post-Closure operation occurs, the Permittee shall submit a revised post-closure cost estimate, within thirty (30) calendar days after the Director has approved a modification to the Post-Closure Permit if such modification results in an increase in the post-closure cost estimate from the latest post-closure cost estimate in accordance with IDAPA 58.01.05.008 [40 CFR § 264.144(c)].

II.J.4. The Permittee must keep the latest post-closure cost estimate and financial assurance at the Facility, in accordance with IDAPA 58.01.05.008 [40 CFR § 264.144(d)].

II.J.5. All revised post-closure cost estimates, as approved by the Director, shall become incorporated into this Permit to amend Attachment 3.

II.K. FINANCIAL ASSURANCE FOR FACILITY POST-CLOSURE CARE

II.K.1. The Permittee shall demonstrate continuous compliance with IDAPA 58.01.05.008 [40 CFR § 264.145] by maintaining, at the Facility, documentation for financial assurance (see IDAPA 58.01.05.008 [40 CFR § 264.151]) in at least the amount of the cost estimate required by Permit Condition II.J. Changes in financial assurance mechanisms must be approved by the Director. Financial Assurance shall be submitted within ninety (90) days of the closing of the Permittee’s fiscal year.

The Permittee shall comply with IDAPA 58.01.05.008 [40 CFR § 264.145] by providing documentation of financial assurance, as required by IDAPA 58.01.05.008 [40 CFR § 264.151], in the amount of the cost estimates required by Permit Condition II.J.1 of this Permit.

II.K.2. Changes in financial assurance mechanisms must be approved by the Director pursuant to IDAPA 58.01.05.008 [40 CFR § 264.145].

II.L. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

The Permittee shall comply with IDAPA 58.01.05.008 [40 CFR § 264.148] whenever necessary. In the event the financial assurance mechanism is to be canceled through failure of the financial institution, bankruptcy by the Permittee or moved to another institution, the Permittee shall notify the Department and the Director, by certified mail, within 10 days after commencement of the proceeding and must establish other financial assurance or liability coverage within Sixty (60) days.

II.M. EQUIVALENT MATERIALS/INFORMATION

II.M.1. If certain equipment, materials, and administrative information (such as names, phone numbers, addresses) are specified in this Permit, the Permittee is hereby authorized to use equivalent or superior items. Use of such equivalent or superior items shall not be considered a modification of this Permit, but the Permittee shall place the revision in the Operating Record (prior to the institution of such revision), accompanied by a narrative explanation and the date the revision became effective. The Director may judge the soundness of the revision during inspections of the facility and take appropriate action. The format of tables, forms, and figures are not subject to the requirements of this Permit, and may be revised at the Permittee's discretion.

II.M.2. If the Department determines that the substitution was not equivalent to the original, it will notify the Permittee that the Permittee's claim of equivalency has been denied, the reasons for the denial, and that the original material or equipment must be used. If the product substitution is denied, the Permittee shall comply with the original, approved product specification, find an acceptable substitution, or apply for a permit modification, in accordance with Permit Condition I.D.4.

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MODULE III - GROUNDWATER MONITORING

III.A. GROUNDWATER MONITORING PROGRAMS

The Groundwater Monitoring Programs, applicable under the terms of this Permit, shall be undertaken in accordance with IDAPA 58.01.05.008 [40 CFR §§ 264.97, 264.98, 264.99, and 264.100] and as follows:

III.A.1. A Corrective Action Monitoring Program (CAMP) shall be in effect until:

III.A.1.a The compliance monitoring criteria of Permit Condition III.H. are demonstrated to not have been exceeded in all monitoring wells during two (2) consecutive CAMP events.

III.A.1.b The plumes in Aquifers 1 and 2 are stable and/or shrinking; and

III.A.1.c PacifiCorp petitions the IDEQ for a change in system operations and is granted such change as evidenced in a certified letter. At such time, the Compliance Monitoring Program criteria of Permit Condition III.A.2. shall be in effect.

III.A.2. A Compliance Monitoring Program (CMP), which shall remain in effect until:

III.A.2.a. The compliance monitoring criteria of Permit Condition III.I. are demonstrated to not have been exceeded during six (6) consecutive CMP sampling events, at which time the Permittee shall initiate the DMP; or

III.A.2.b. The compliance monitoring criteria, listed in Table 1 as Groundwater Protection Standards (GPS), are demonstrated to have been exceeded, at which time the Permittee shall proceed in accordance with Permit Condition III.A.1.; or

III.A.2.c. The Health-Based Risk level as calculated using Table 2 equations for Carcinogens ($Group_1$) **or** the Screening Indices for Systemic Toxicant Groups (SI_2 and SI_3) is equal to or exceeds unity [*i.e.,* ≥ one (1)], in accordance with Permit Condition III.H., at which time the Permittee shall proceed in accordance with Permit Condition III.A.1.

III.A.2.d. In the event any monitoring well exceeds the compliance monitoring criteria, as defined in Permit Conditions III.A.2.b. and III.A.2.c., all wells listed in Permit Condition III.C.1. shall be placed into the CAMP.

III.A.3. A Detection Monitoring Program (DMP), which shall remain in effect until:

III.A.3.a. The detection monitoring criteria, for any Table 1 parameters are demonstrated through Permit Condition III.I. to have been exceeded, at which time the Permittee shall proceed in accordance with Permit Condition III.A.1. or III.A.2 as appropriate; or

III.A.3.b. The Post-Closure period is over.

III.A.4. The Groundwater Monitoring criteria for determining procedures and responses to be taken during corrective action, compliance, or detection monitoring programs are described in Permit Conditions III.G., III.H., III.I., and outlined in the Flow Diagram in Table 3.

III.B. WELL INSPECTION AND MAINTENANCE

III.B.1. The Permittee shall inspect and maintain, in good working order, any/all monitoring wells throughout the Post-Closure Corrective-Action period in accordance with Permit Attachment 2 Volume I Chapter 6 (Spill Prevention and Response Plan).

III.B.2. The need for maintenance shall not constitute grounds for missing a sampling event without prior written approval from the Director. Under no circumstances shall a monitoring well remain out of commission for two consecutive sampling periods.

III.B.3. The Director shall be notified at least five (5) days before the installation of any replacement wells. Replacement wells shall be constructed in accordance with IDAPA 58.01.05.008 [40 CFR § 264.97].

III.C. GROUNDWATER MONITORING WELLS

The following wells, as depicted in Figures 4.1B and 4.1C of Attachment 2 Volume I Chapter 4 of this Permit, shall be included in the groundwater monitoring program in effect.

III.C.1. The following wells are included in the CAMP:

Corrective Action Monitoring Wells			
Aquifer 1	Point of Compliance wells	Annual	A-1, B-1, C-1, D-1, and MW-4
	Wells**:** property boundary or between the Point of Compliance and the property boundary	Annual	R-6, MW-13, and MW-16
	Plume core wells	Biennial	R-1, R-5, and R-11
Aquifer 2	Point of Compliance wells	Annual	B-2, C-2, D-2, E-2 and MW-14
	Wells**:** property boundary or between the Point of Compliance and the property boundary	Annual	MW-12 and MW-17
	Plume core wells	Biennial	A-2, MW-9, R-2, R-7, and R-8

III.C.2. The following wells will be included in the CMP:

Compliance Monitoring Wells		
Aquifer 1	Point of Compliance wells	A-1, B-1, C-1, D-1, and MW-4
	Wells on the property boundary or between the Point of Compliance and the property boundary	R-6, MW-13, and MW-16
Aquifer 2	Point of Compliance wells	B-2, C-2, D-2, E-2 and MW-14
	Wells on the property boundary or between the Point of Compliance and the property boundary	MW-12 and MW-17

III.C.3. The following wells will be included in the DMP:

Detection Monitoring Wells		
Aquifer 1	Point of Compliance wells	A-1, B-1, C-1, D-1, and MW-4
Aquifer 2	Point of Compliance wells	B-2, C-2, D-2, E-2, and MW-14

III.C.4. If MW-4 has a detection above the GPS for any constituent listed in Table 1, for any CAMP, CMP, or DMP sampling event, then MW-3 shall be included as an Aquifer 1, Point of Compliance monitoring well and continue until the GPS is no longer exceeded.

III.C.5. If MW-14 has a detection above the GPS for any constituent listed in Table 1, for any CAMP, CMP, or DMP sampling event, then MW-10 shall be included as an Aquifer 2, Point of Compliance monitoring well and continue until the GPS is no longer exceeded.

III.C.6 The repair or replacement of an existing well or construction of a new well shall be in accordance with IDAPA 58.01.05.008 [40 CFR § 264.97(c)].

III.C.6.a For any new well the Permittee must sample quarterly for the first year, modify the permit to include the new well and establish sampling schedule.

III.D. GROUNDWATER SAMPLING AND ANALYSIS

III.D.1. The Permittee shall use the techniques and procedures specified in Attachment 2 Volume I Chapter 4 Section 4.2 when collecting, preserving and shipping, tracking, and controlling groundwater samples.

III.D.2. The Permittee shall either:

III.D.2.a. Treat all purge waters through the on-site treatment system; or

III.D.2.b. Store all purged groundwater associated with the sampling events in accordance with Permit Condition IV.C.2.

III.D.3. The Permittee shall analyze all groundwater samples collected during implementation of the DMP, CMP, and CAMP for Phenols and PAHs (listed in Table 1) using EPA Method 8270 in either selective ion or full scan modes as appropriate to meet the method detection and practical quantitation limits (PQLS and MDLs) listed in Table 1. Substitution of an equivalent or superior method shall require prior approval by the Director, in accordance with Permit Condition I.O.5.

III.E. GROUNDWATER ELEVATION

III.E.1. The Permittee shall determine the groundwater surface elevation at each monitoring well, within a twenty-four (24) hour time period, prior to each sampling event.

III.E.2. The Permittee shall calculate the groundwater flow direction and rate, annually, until the end of the Post-Closure period.

III.F. SAMPLING FREQUENCY

III.F.1. While performing monitoring under the CAMP, the Permittee shall sample Point of compliance wells, property boundary wells and wells between the point of compliance and property boundary listed in Permit Condition III.C.1.annually. Plume core wells listed in Permit Condition III.C.1 shall be sampled biennially.

III.F.2. While performing monitoring under the CMP, the Permittee shall sample all wells listed in Permit Condition III.C.2, semi-annually.

III.F.3. While performing monitoring under the DMP, the Permittee shall sample all wells listed in Permit Condition III.C.3., semi-annually.

III.F.4. Modifications to the groundwater sampling schedule are a Class 1 Permit modification with prior approval of the Director.

III.G. CAMP DATA EVALUATION

The Groundwater Monitoring Criteria for evaluating data from each corrective action monitoring sampling event shall be to compare the sampling results with the GPS(s) and PQL(s) set forth in Table 1 of this Permit.

III.G.1. If any Table 1 parameter exceeds the GPS in any CAMP well(s), then continuation of the CAMP is appropriate.

III.G.2. If the analytical results show that no Table 1 parameters exceed the GPS, but that **two (2) or more** Table 1 parameters from either Group 1, 2 or 3 are exceeding PQL(s), the Permittee shall calculate the Risk levels for Carcinogens ($Group_1$) and/or the Screening Indices for each Systemic Toxicants Group (SI_2, SI_3), as appropriate, in accordance with Table 2.

III.G.2.a. If any calculated index **is equal to or exceeding** unity (*i.e.,* ≥1), then continuing the CAMP is appropriate.

III.G.2.b. If the calculated indices **are less than** unity (*i.e.,* <1), the Permittee shall continue with the CAMP, in accordance with Permit Condition III.A.1.

III.G.3. If the analytical results show that **only one** (1) Table 1 parameter is exceeding a PQL (but not the GPS), the Permittee shall continue with the CAMP, in accordance with Permit Condition III.A.1.

III.G.4. If the analytical results obtained from a corrective action monitoring sampling event demonstrate that **none** of the parameter(s) listed in Table 1 are in exceedance of the PQL(s) specified in Table 1, the Permittee shall continue with the CAMP until Permit Condition III.A.1. is satisfied.

III.H. CMP DATA EVALUATION

The Groundwater Monitoring Criteria for evaluating data from each compliance monitoring sampling event shall be to compare the sampling results with the GPS(s) and the PQL(s) set forth in Table 1 of this Permit.

III.H.1. Upon detection of any Table 1 parameter(s) exceeding the PQL(s), the Permittee shall proceed as follows:

III.H.1.a. If the analytical results show that **only one** (1) Table 1 parameter from any Group 1, 2 or 3 constituent exceeds a PQL (but not the GPS), the Permittee shall continue with the CMP.

III.H.1.b. If the analytical results show that **two (2) or more** Table 1 parameters from either Group 1, 2, or 3 are exceeding a PQL (but none exceed a GPS), the Permittee shall calculate the Risk Levels for Carcinogens ($Group_1$) and/or the Hazard Indices for each Systemic Toxicants Group (HI_2, HI_3), as appropriate, in accordance with Table 2.

III.H.1.b.(1) If the calculated indices **are less than** unity (*i.e.,* <1), the Permittee shall continue with the CMP.

III.H.1.b.(2) If a calculated index **is equal to or exceeding** unity (*i.e.,* ≥1), the Permittee shall initiate the CAMP, unless the criteria of Permit Condition III.H.1.c. are met.

III.H.1.c. If the Permittee successfully demonstrates to the Director that an off-site source caused the exceedance of the criteria established in Permit Condition III.H.1.b.(2) or that the exceedance resulted from an error in sampling, analysis or evaluation, the Director shall notify the Permittee to remain in the CMP. If IDAPA 58.01.05.008 [40 CFR § 264.99(j)] is applicable, the Permittee shall, within ninety (90) calendar days, submit a request for a Permit Modification to make appropriate changes to the monitoring programs initiated in accordance with Permit Condition III.A.

III.H.2. If the analytical results obtained from a compliance monitoring sampling event show that **none** of the parameter(s) listed in Table 1 are in exceedance of the PQL(s) listed in Table 1, the Permittee shall determine, in accordance with Permit Condition III.A.2., the appropriate monitoring program.

III.I. DMP DATA EVALUATION

The Groundwater Monitoring Criteria for evaluating data from each detection monitoring sampling event shall be to compare the sampling results, for the parameters set forth in Table 1 of this Permit, with the PQL(s), also set forth in Table 1.

III.I.1. Upon detection of any Table 1 constituent(s), in any monitoring well, exceeding a PQL, the Permittee shall notify the Director of this finding within seven (7) calendar days, in accordance with Permit Condition I.Y.

III.I.2. The Permittee shall sample the affected well(s) within fifteen (15) calendar days and analyze for the constituents identified on Table 1 of this permit. Within 120 calendar days of receipt of the Table 1 results, the Permittee shall submit to the Director:

III.I.2.a. A report that shall include, but not be limited to, the results of the Table 1 analysis, a health risk-based assessment of the release, a determination as to the appropriateness of the analytical and data evaluation methods required by Permit Conditions III.G., III.H., and III.I. of this Permit for use in the implementation of the monitoring program initiated in accordance with Permit Condition III.A.; or

III.I.2.b. A report demonstrating that an off-site source caused the contamination or that the contamination resulted from an error in sampling, analysis, or evaluation. If IDAPA 58.01.05.008 [40 CFR § 264.98(h)] is applicable, the Permittee shall, within ninety (90) calendar days, submit an application for a Permit Modification to make any appropriate changes to the monitoring programs of Permit Condition III.A.

III.I.2.b.1. In the case where the Permittee believes there may have been an error in the sampling, analysis, or evaluation, the Permittee has the option to resample within thirty (30) days of the initial sampling event. Upon receipt of sample analysis, the Permittee shall submit a report to the director as specified in Permit Condition III.I.2.a. and III.I.2.b.

III.I.3. If, in accordance with Permit Condition III.I.2.b., the Permittee successfully demonstrates to the Director that an off-site source caused the exceedance or that the exceedance resulted from an error in sampling, analysis or evaluation, the Director shall notify the Permittee to remain in the DMP. Otherwise, the Director shall inform the Permittee that compliance with Permit Condition III.I.2.a. is required within the time frame to be established by the Director. This time frame will not be less than ten (10) calendar days of the receipt of such a notice.

III.J. SEMIANNUAL REPORTING

Permittee shall submit semiannual reports to the Director. These reports shall contain at least the following information concerning the period since the previous semiannual report:

III.J.1. A cover letter describing the contents of the report.

III.J.2 A narrative summary of any anomalies. The narrative will include an explanation of any nonroutine maintenance performed on the treatment plant facility, groundwater monitoring equipment, site wells, and asphalt cover over the Land Disposal Unit.

III.J.3 A table summarizing daily run times for individual extraction wells (CAMP Program only).

III.J.4 A table summarizing daily total flow (gallons per day) for each extraction well and the combined total flow through the system each day. A graph of the total combined daily flows (gallons per day) through the treatment plant over the last six months (Camp Program only).

III.J.5 Laboratory analytical reports for groundwater sampling. The data shall be submitted via email in Microsoft Word, PDF or other acceptable electronic format. Under the CAMP Program groundwater sampling is limited to only one time per year (Fall).

III.J.6 In the event the CMP and DMP are running concurrently, a table summarizing the monitoring program for each monitoring well.

III.J.7 A Hydrogeologic Summary Report including:

III.J.7.a A narrative summary of the groundwater monitoring data collected including groundwater elevations measured, samples collected, and laboratory analyses performed.

III.J.7.b Capture zone analyses for Aquifers 1 and 2 to be performed during the Fall of each year under the CAMP Program only. Potentiometric maps for each aquifer shall be prepared and presented as a part of this analysis.

III.J.7.c Summary of annual specific capacity testing performed during the Fall of each year under the CAMP Program only. The raw data and calculations used to compile the specific capacity test results shall be included as an Appendix to the Hydrogeologic Summary Report submitted in January of each year.

III.J.7.d Summary table of groundwater elevations for site monitoring wells obtained by hand measuring depths to groundwater from surveyed vertical reference points. The field forms used to record the groundwater elevations shall be included in an Appendix to the Hydrogeologic Summary Report.

III.J.7.e Summary table of analytical laboratory results. The laboratory reports and an explanation of any Quality Assurance / Quality Control issues associated with the lab data (i.e., control limits, holding times, etc) shall be included in an appendix to the Hydrogeologic Summary Report. Groundwater sampling is to be completed only annually (Fall) under the CAMP program. Semiannual sampling is required under the CMP and DMP programs.

III.J.7.f An estimate of the total creosote mass removed by the groundwater treatment system over the past six month period. This requirement applies to the Fall CAMP Semiannual Report only.

III.J.7.g An evaluation of the effectiveness of the corrective action based on hydraulic containment and contaminant recovery, in accordance with IDAPA 58.0105.008 [40 CFR 264.100(g)]. This requirement applies to the CAMP program only.

III.J.7.h A summary/statement that either:

III.J.7.h.1 The data indicate that the monitoring well network(s), as described in this Permit, is (are) still valid for satisfying the requirements of IDAPA 58.01.05.008 [40 CFR § 264.97(a)]; or

III.J.7.h.2 The data indicate that an in-depth evaluation of the monitoring well network is warranted and a proposal, including a schedule, for such will be submitted to the Director within ten (10) calendar days of the submittal of this summary.

III.J.8 An update of the toxicity factors for the Table 1 parameters, *i.e.,* provide new and/or revised Reference Doses (RfD, oral) for the systemic toxicants and Slope Factors (SF, oral) for the carcinogens, shall be conducted every five (5) years as part of the scheduled five (5) year Reopener or the ten (10) year permit renewal, in accordance with IDAPA 58.01.05.012 [40 CFR § 270.50]. Updated information shall be based on the published values in the Integrated Risk Information System (IRIS) and Health Effects Assessment Summary Tables (HEAST) databases maintained by the U.S. EPA. The information provided by the Permittee shall be used by the Department to revise the Groundwater Protection Standards presented in Table 1.

MODULE IV - CORRECTIVE ACTION FOR CONTAMINATED GROUNDWATER

IV.A. CORRECTIVE ACTION PROGRAM

The Corrective Action Program (CAP), applicable under the terms of this Permit, shall be undertaken in accordance with IDAPA 58.01.05.008 [40 CFR § 264.100] and as follows:

IV.A.1. The Corrective Action Period shall be the period during which the Corrective Action Program is being implemented. The CAP shall be implemented as follows:

IV.A.1.a. The CAP shall remain in effect until, in accordance with Permit Conditions III.A.1. and III.H., the compliance monitoring criteria are not exceeded for two (2) consecutive CAMP events.

IV.A.1.b. The CAP shall resume within sixty (60) calendar days of a confirmed exceedance of the groundwater protection criteria established in accordance with Permit Condition III.H. or III.I.

IV.A.1.c. Once the CAP is resumed, it shall remain in effect until the criteria established in Permit Condition IV.A.1. is satisfied.

IV.A.2. The goals of the CAP are as follows:

IV.A.2.a. Contaminant containment which shall be accomplished through the implementation of the Pumping Strategy, in accordance with Permit Condition IV.B. and Attachment 2 Volume I Chapter 4, and demonstrated by groundwater monitoring and by maintaining an inward hydraulic gradient near contaminant concentrations.

IV.A.2.b. Aquifer Restoration, which shall be accomplished through implementation of the Pumping Strategy and operation of the Groundwater Treatment Plant, in accordance with Permit Condition IV.B. and Attachment 2 Volume I Chapters 4 and 9.

IV.B. WELL FIELD STRATEGY

The Permittee shall, in implementing the Well Field Strategy, maintain and operate the following wells during the corrective action period, in accordance with Attachment 2 Volume I Chapters 4, 9, and 10, and as follows:

Pumping Strategy Wells		
Aquifer 1	Standard pumping wells	R-6, A-1, B-1, C-1
	Contingency wells	R-5, R-11, & R-12
Aquifer 2	Standard pumping wells	R-2, R-7 A-2 R-10
	Contingency wells	B-2, R-8, MW-9

IV.B.1.a. The Permittee shall conduct specific capacity tests at least annually on the following wells:

Specific Capacity Wells	
Aquifer 1	A-1, B-1,C-1 R-5, R-6, R-11
Aquifer 2	A-2 R-2 R-7, MW-9

IV.B.1.b. The Permittee shall conduct semiannual groundwater elevation on the following wells:

Monitoring Wells	
Aquifer 1	A-1, B-1,C-1,D-1, R-4, R-5, R-6, R-11, R-12, MW-1, MW-4, MW-13,MW-16
Aquifer 2	A-2, B-2, C-2, D-2, R-2 R-7, R-8, R-9, R-10, MW-9, MW-12, MW-14, MW-17

IV.B.1.b.2. The results shall be recorded on the form provided in Permit Attachment 2 Chapter 4 (Form 4.1).

IV.B.1.c. The Permittee shall notify the Director within fifteen (15) calendar days, in accordance with Permit Condition I.Y., as follows:

IV.B.1.c.1 If the total well yield declines to the point where the ability to maintain the zone of capture is impacted; and/or

IV.B.1.c.2 If an inspection reveals that a well is unserviceable or requires maintenance (e.g., well casing damage is preventing pump function or serviceability).

IV.B.1.d. The Permittee shall provide a schedule for implementation of remedial efforts and a summary of any interim measures that may have already been initiated, in accordance with Permit Attachment 2 Volume I Chapter 9.

IV.B.1.e The need for maintenance shall not constitute grounds for missing a sampling event without prior written approval from the Director. Under no circumstances shall a monitoring well remain out of commission for two consecutive sampling periods.

IV.B.2. The Director shall be notified, in accordance with Permit Condition III.B.3., before the installation of any replacement wells.

IV.C. GROUNDWATER TREATMENT PLANT

The Permittee shall maintain and operate the groundwater treatment plant during the corrective action period in a practical manner that efficiently removes creosote constituents from groundwater, as specified in Attachment 2 Volume I Chapter 4 and IDAPA 58.01.05.008 [40 CFR § 264.73(b)], and as follows:

IV.C.1. All contaminated groundwater from the site shall be managed as a hazardous waste and treated in the groundwater treatment plant or transported to an off-site treatment, storage, and disposal facility.

IV.C.2. Constituents removed from the groundwater shall be managed as hazardous waste. Accumulated wastes shall be managed in accordance with IDAPA 58.01.05.006 [40 CFR § 262].

IV.C.3. Except as provided below, pumping and treating of groundwater shall continue 24 hours a day, seven (7) days a week during the Corrective Action Period.

IV.C.3.a. The pumping and treating facilities may be shut down for operation, maintenance and repair, and for emergencies and Facility malfunctions or failures caused by events beyond the control of Permittee such as extreme weather conditions. Any shutdowns must be noted in the Operating Record, as required in accordance with Permit Condition II.I.

IV.C.3.b. If, through no fault of the Permittee, the City of Idaho Falls unilaterally revokes the discharge agreement or the state of Idaho revokes or restricts the groundwater withdrawal permit, the Permittee shall meet this condition only if best efforts are made to obtain an alternate discharge and/or supplemental groundwater withdrawal permit. For this Permit Condition, "best efforts" shall mean submittal of a complete application for the permit(s) and/or approval(s) at the earliest opportunity after the information necessary to prepare the application is available to the Permittee.

IV.C.3.c. The Director shall be contacted, at least three (3) days prior to, if the treatment plant is not going to be operating for more than seventy-two (72) consecutive hours. A report summarizing any cessation of pumping and treating and the actions taken to minimize and prevent further cessations shall be submitted with the next annual/semiannual report.

IV.C.4. Treated groundwater from the groundwater treatment plant effluent is not a hazardous waste and may be discharged either to the City of Idaho Falls Wastewater Treatment Plant or to the Snake River under a National Pollutant Discharge Elimination System (NPDES) permit, if one is issued and in effect.

IV.C.5. During the Compliance and Detection Monitoring periods the Groundwater Treatment Plant shall be maintained in readiness for restarting. The plant shall be operated semiannually for three (3) consecutive days to demonstrate readiness to restart the plant. This operation shall follow within one (1) week after the groundwater sampling.

IV.D. CORRECTIVE ACTION PROGRAM MONITORING

IV.D.1. The Permittee shall, during the corrective action period, determine the groundwater surface elevations, in accordance with Attachment 2 Volume I Chapter 4 and Volume I Chapter 9. The groundwater surface elevation shall be determined in the following wells:

Surface Elevation Wells	
Aquifer 1	A-1, B-1,C-1,D-1, R-4, R-5, R-6, R-11, R-12, MW-1, MW-4, MW-13,MW-16
Aquifer 2	A-2, B-2, C-2, D-2, R-2 R-7, R-8, R-9, R-10, MW-9, MW-12, MW-14, MW-17

IV.D.2. The Permittee shall, during the corrective action period, prepare and submit potentiometric surface maps for Aquifers 1 and 2 annually.

IV.E. REPORTING REQUIREMENTS

The Permittee must submit semiannual reports during the corrective action period, on the effectiveness of the CAP to the Director. This report shall be in accordance with Permit Condition III.J.

IV.E.1. Semiannual Reports shall be submitted to the Department by July 31 of the same year (for the spring low water monitoring events) and by January 31 of the following year (for the fall high water monitoring events).

IV.F. TERMINATION OF CORRECTIVE ACTION PROGRAM

If the Permittee determines that all Point of Compliance wells, all wells between the Point of Compliance and the property boundary, have been below the compliance monitoring criteria for two (2) consecutive periods, and all plume core wells show that the plume is stable and or shrinking in accordance with Permit Conditions III. A. 1. and III.H, the Permittee may petition the Director, in accordance with Permit Condition I.Y to cease pumping and treating and begin the Compliance Monitoring Program. Termination of Corrective Action activities shall be contingent upon the Director’s approval.

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MODULE V - POST-CLOSURE CARE

V.A. POST-CLOSURE

The period of Post-Closure care for the Facility shall be thirty (30) years, which commenced October 11, 1988. Post-Closure care shall be performed in accordance with IDAPA 58.01.05.008 [40 CFR §§ 264.117, 264.118, 264.119 and 264.120]. At any time during the Post-Closure period, the Director may, in accordance with the Permit Modification procedures in IDAPA 58.01.05.013, and .012 [40 CFR Parts 124 and 270]:

V.A.1. Extend the Post-Closure period, if necessary, to protect human health and the environment (e.g., groundwater monitoring results indicate a potential for migration of hazardous wastes at levels that may be harmful to human health and the environment), or

V.A.2. Shorten the Post-Closure care period if determined that the reduced period is sufficient to protect human health and the environment.

V.B. POST-CLOSURE CARE INSPECTION PLAN

The Permittee shall comply with the inspection provisions of IDAPA 58.01.05.008 [40 CFR § 264.15] and as follows:

V.B.2. Post-Closure care shall be performed in accordance with Permit Module V and Permit Attachment 2 Volume I Chapter 4 (Groundwater Monitoring Plan) and Volume I Chapter 9 (Corrective Action For Groundwater).

V.B.1. The Permittee shall follow the inspection and maintenance schedules and procedures provided in Permit Attachment 2 Volume I Chapter 5 (Contingency Plan), Volume I Chapter 6 (Spill Prevention and Response Plan), and Volume I Chapter 10 (Groundwater Treatment Plan Operations and Maintenance Manual).

V.B.2. The Permittee shall remedy, as required by IDAPA 58.01.05.008 [40 CFR § 264.15(c)], any deterioration or malfunction discovered by an inspection immediately,

V.B.2.a The Permittee shall inspect the asphalt cap and fifteen (15) feet beyond the perimeter of the cap for effects of settling, subsidence, erosion or other events (i.e., vegetation).

V.B.2.b. The Permittee shall repair the asphalt cap according to the specifications.

V.B.3. The Permittee shall record inspections as specified in IDAPA 58.01.05.008 [40 CFR § 264.15(d)]. At a minimum, the following information shall be recorded:

- The date and time of the inspection;
- The name of the inspector;
- A notation of the observations made including any/all deficiencies identified; and
- The date and nature of any repairs or other remedial actions.

V.B.4. The Permittee shall retain documentation of the inspections and maintenance activities at the Facility, as required by IDAPA 58.01.05.008 [40 CFR § 264.73(b)(5)], for at least three (3) years from inspection date.

V.B.5. The Permittee may add inspection requirements to an existing inspection form in cases where such additional requirements will result in a more comprehensive or detailed Inspection Plan, without receiving a permit modification. These changes shall be noted in the Facility Operating Record at the time the changes are made.

V.C. POST-CLOSURE MAINTENANCE ACTIVITIES

The Permittee shall maintain the Facility, as described, in accordance with IDAPA 58.01.05.008 [40 CFR §§ 264.117(a), (b), and (c)] during the Post-Closure period. The Permittee shall be responsible for conducting the following:

V.C.1. Maintenance activities to:

V.C.1.a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

V.C.1.b. Maintain and monitor the Groundwater Pump and Treat system. Maintain the groundwater Monitoring System and comply with all other applicable requirements of IDAPA 58.01.05.008 [40 CFR Part 264, Subpart F];

V.C.1.c. Prevent run-on and runoff from eroding or otherwise damaging the final cover; and

V.C.1.d. Protect and maintain surveyed benchmarks used in complying with IDAPA 58.01.05.008 [40 CFR § 264.309].

V.C.1.e Maintain the security of the Facility in accordance with IDAPA 58.01.05.008 [40 CFR § 264.14].

V.C.2. Post-Closure care shall be performed in accordance with Permit Module V and Permit Attachment2 Volume I Chapter 4 (Groundwater Monitoring Plan), Volume I Chapter 5 (Contingency Plan), Volume I Chapter 6 (Spill Prevention and Response Plan), and Volume I Chapter 10 (Groundwater Treatment Plan Operations and Maintenance Manual).

V.D. POST-CLOSURE PROPERTY USE

V.D.1. Post-Closure use of property must not be allowed to disturb the integrity of the final cover or the function of the Facility's Corrective Action or Groundwater Monitoring Systems, unless the Director finds the disturbance is necessary to the proposed use of the property and will not increase the potential hazard to human health and the environment, or is necessary to reduce a threat to human health and the environment.

V.D.2. If the Permittee, or any subsequent owner or operator of the land upon which the hazardous waste disposal unit is located, wishes to remove hazardous waste and hazardous waste residues, the liner (if any), or contaminated soils, a request for a modification to this Permit shall be submitted in accordance with the applicable requirements of IDAPA 58.01.05.012 and .013 [40 CFR Parts 270 and 124]. The Permittee or subsequent owner or operator of the land shall demonstrate that the removal of hazardous waste or hazardous waste residues shall satisfy the criteria of IDAPA 58.01.05.008 [40 CFR § 264.117(c)].

V.E. POST-CLOSURE CARE OF GROUNDWATER EQUIPMENT

When the Post-Closure period is completed, all monitoring and recovery wells, including associated piping and pumps, shall be decommissioned, in accordance with IDAPA 58.01.05.008 [40 CFR § 264.114] and Permit Attachment 2 Volume I Chapter 4 (Groundwater Monitoring Plan), Volume I Chapter 9 (Corrective Action Plan For Groundwater), and Volume I Chapter 10 (Groundwater Treatment Plan Operations and Maintenance Manual).

V.F. CERTIFICATION

No later than sixty (60) calendar days after completion of the established Post-Closure period, the Permittee shall submit, to the Director by registered mail, certification that the Post-Closure care was performed in accordance with this Permit. The certification must be signed by the Permittee and an independent, registered professional engineer. Documentation supporting the independent, registered professional engineers' certification must be furnished to the Director, upon request, until the Director releases the Permittee from the Post-Closure care monitoring requirements, in accordance with IDAPA 58.01.05.008 [40 CFR § 264.145(I)].

V.G. POST-CLOSURE COST ESTIMATE AND FINANCIAL ASSURANCE

The Permittee shall maintain a current Post-Closure cost estimate, as presented in Attachment 3 of this Permit. The Post-Closure cost estimate and financial assurance mechanism for Post-Closure care shall include corrective action costs, prepared in accordance with IDAPA 58.01.05.008 [40 CFR § 264.144].

V.G.1. The Permittee shall adjust the Post-Closure cost estimate for inflation within thirty (30) days after the close of the Permittee's fiscal year.

V.G.2. The Permittee shall revise the Post-Closure cost estimate whenever a change in the Facility's Post-Closure operation occurs.

V.G.3. The Permittee shall keep the latest Post-Closure cost estimate and financial assurance at the Facility.

V.G.4. All revised Post-Closure cost estimates, as approved by the Director, shall be incorporated into this Permit and amended into Attachment 3 of this Permit.

V.G.5 The Permittee shall demonstrate continuous compliance with IDAPA 58.01.05.008 [40 CFR § 264.145] by maintaining, at the Facility, documentation for financial assurance, as required by IDAPA 58.01.05.008 [40 CFR § 264.151], for at least the amount of the cost estimates required by Permit Condition V.G. Changes to financial assurance mechanisms must be approved by the Director. Financial Assurance shall be submitted within ninety (90) days after the close of the Permittee's fiscal year.

TABLE 1
ANALYSIS PARAMETERS

INDICATOR PARAMETER	CAS NUMBER	RfD[1]	SF[1]	ST AND /OR C[1]	GROUP[1, 4]	MDL (µg/l)[2]	PQL (µg/l)	GPS (µg/l)[2]
2-Methyl phenol	95-48-7	0.05 i		ST	2	3.53	10	1,700
2-Nitrophenol	88-75-5			ST[3]	2	2.97	10	1,700
2-Methylnaphthalene	91-57-6	0.004 i		ST	3	0.471	0.5	130
2,4-Dimethylphenol	105-67-9	0.02 i		ST	2	2.23	10	670
4-Methylphenol	106-44-5	0.005 h		ST	2	2.07	10	3,300
Acenaphthene	83-32-9	0.06 i		ST	3	0.079	0.1	2,000
Acenaphthylene	208-96-8			ST[3]	3	0.0689	0.1	1,000
Anthracene	120-12-7	0.3 i		ST	3	0.209	0.5	10,000
Benzo(a)anthracene	56-55-3		0.73 n	C	1	0.0584	0.2	90
Benzo(a)pyrene	50-32-8		7.3 i	C	1	0.0536	0.1	9
Benzo(b)fluoranthene	205-99-2		0.73 n	C	1	0.135	0.2	90
Benzo(g,h,i)perylene	191-24-2			ST[3]	3	0.0541	0.2	1,000
Benzo(k)fluoranthene	207-08-9		0.073 n	C	1	0.133	0.2	900
Chrysene	218-01-9		0.0073 n	C	1	0.189	0.2	9,000
Dibenzo(a,h)anthracene	53-70-3		7.3 n	C	1	0.0573	0.2	9
Dibenzofuran	132-64-9	0.002 n		ST	3	1.62	10	30
Fluoranthene	206-44-0	0.04 i		ST	3	0.131	0.2	1,300
Fluorene	86-73-7	0.04 i		ST	3	0.137	0.2	1,300
Indeno(1,2,3,-cd)pyrene	193-39-5		0.73 n	C	1	0.0477	0.2	90
Naphthalene	91-20-3	0.02 i		ST	3	0.175	0.2	700
Phenanthrene	85-01-8			ST[3]	3	0.245	0.5	1,000
Phenol	108-95-2	0.3 i		ST	2	1.82	10	10,000
Pyrene	129-00-0	0.03 i		ST	3	0.175	0.2	1,000

1) Reference dose (RfD) for systemic (ST) effects and slope factor (SF) for carcinogenic (C) effects obtained from Environmental Protection Agency (EPA) Regional Screening Level (RSL) Table (November 2017) and based on Integrated Risk Information System (IRIS) (i), Agency for Toxic Substances and Disease Registry (ATSDR) (a), EPA RSL User's Guide Section 2.3.6 (e), or Provisional Peer Reviewed Toxicity Value appendix value (x).
2) Groundwater Protection Standard (GPS) based on a target cancer risk of 1×10^{-4} and target hazard of 1. GPSs were calculated using procedures in EPA Risk Assessment Guidance for Superfund (RAGS) Volume 1, Part B, Development of Risk-based Preliminary Remediation Goals, December 1991). K volatilization factor equal to 0 for all constituents (semi-volatiles). Exposure parameters obtained from EPA Office of Solid Waste and Emergency Response Directive 9200.1-120 Human Health Evaluation Manual Supplemental Guidance, Update of Standard Default Exposure Factors (2014). Calculated values were rounded to two significant figures.
3) Because no reference dose or cancer slope factor is available, a chemical with similar toxicity is used as a surrogate to calculate the GPS. Specifically, 2-methylphenol is used as a surrogate for 2-nitrophenol and pyrene is used as a surrogate for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene,

TABLE 2
FORMULAS FOR CARCINOGENS AND TOXICANTS

Formula for Carcinogens	
SI_c =	**$(Conc_a/GPS_a)+(Conc_b/GPS_b)+(Conc_c/GPS_c)$**
Where	$Conc_x$ = the concentration of each carcinogen detected in the analytical results obtained during groundwater monitoring GPS_x = Groundwater Protection Standard (GPS) for the carcinogen listed in able 5.
Formula for Toxicants	
SI_T =	**$(Conc_a/GPS_a)+(Conc_b/GPS_b)+(Conc_c/GPS_c)$**
Where	$Conc_x$ = the concentration of each systemic toxicant detected in the analytical results obtained during groundwater monitoring GPS_x = Groundwater Protection Standard (GPS) for the systemic toxicant listed in able 5.

(CI_C) Screening Index for Carcinogens
(SI_T) Screening Index for Systemic Toxicants

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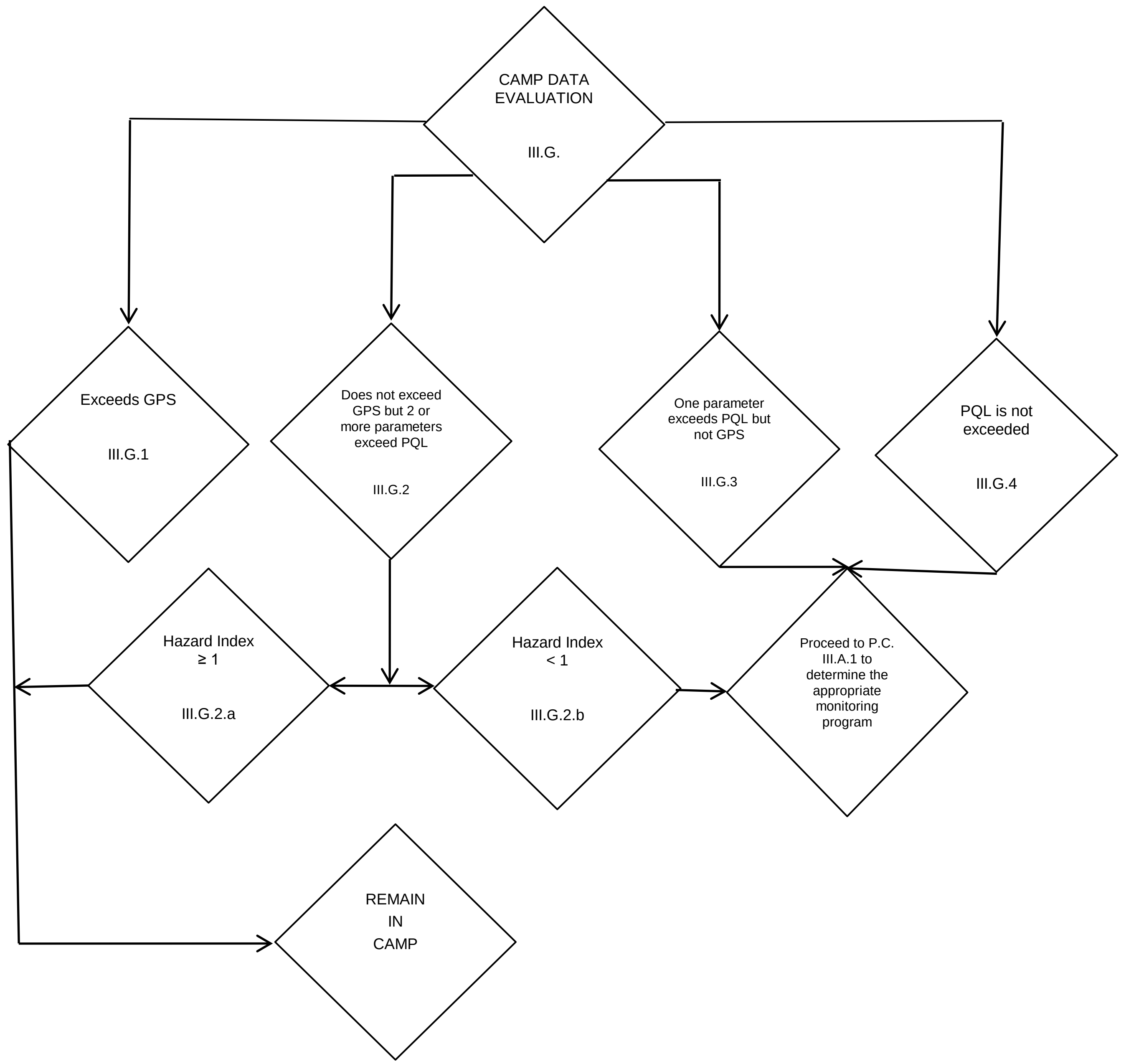
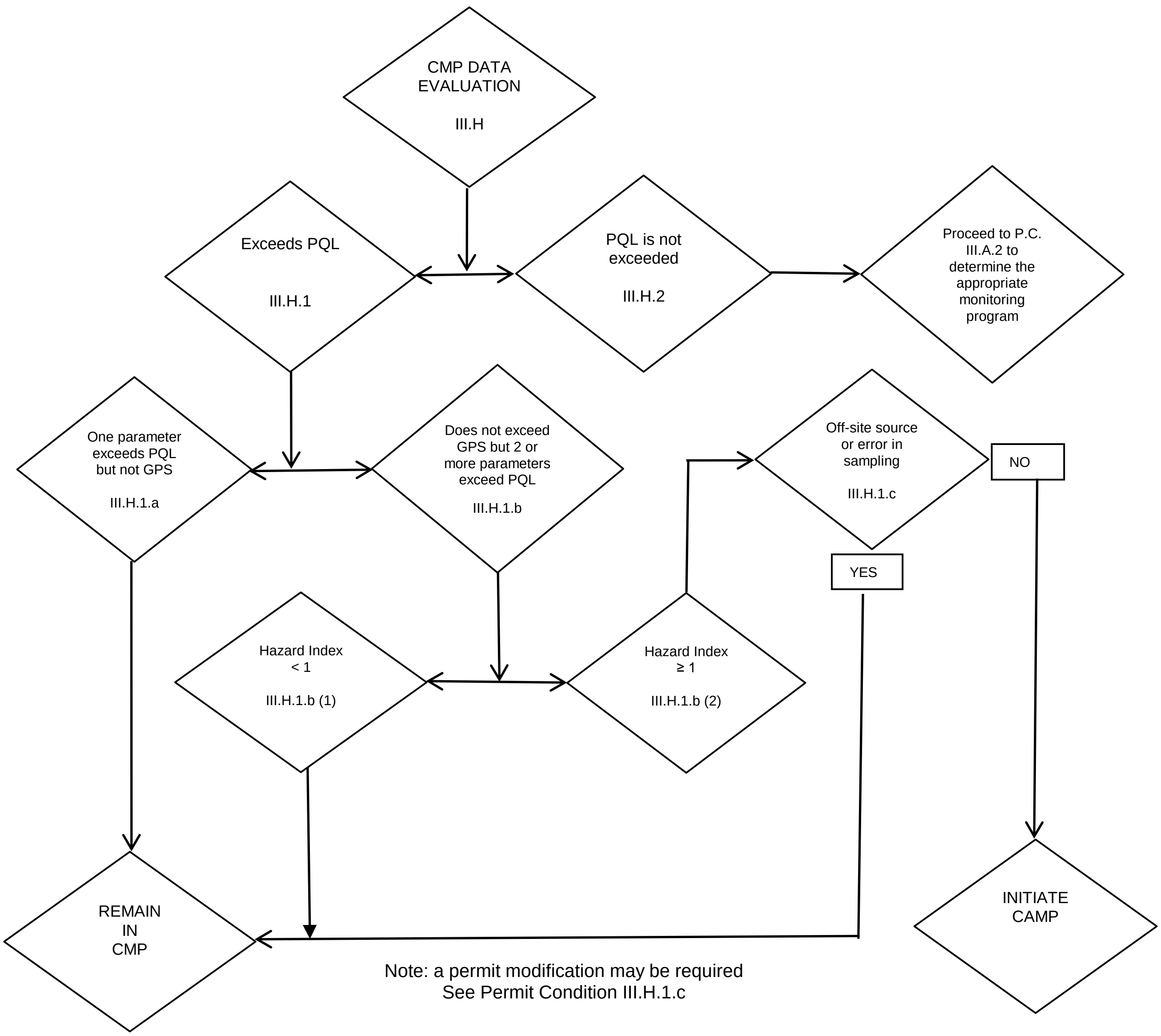
TABLE 3
MONITORING PROGRAMS DATA EVALUATION FLOWCHARTS



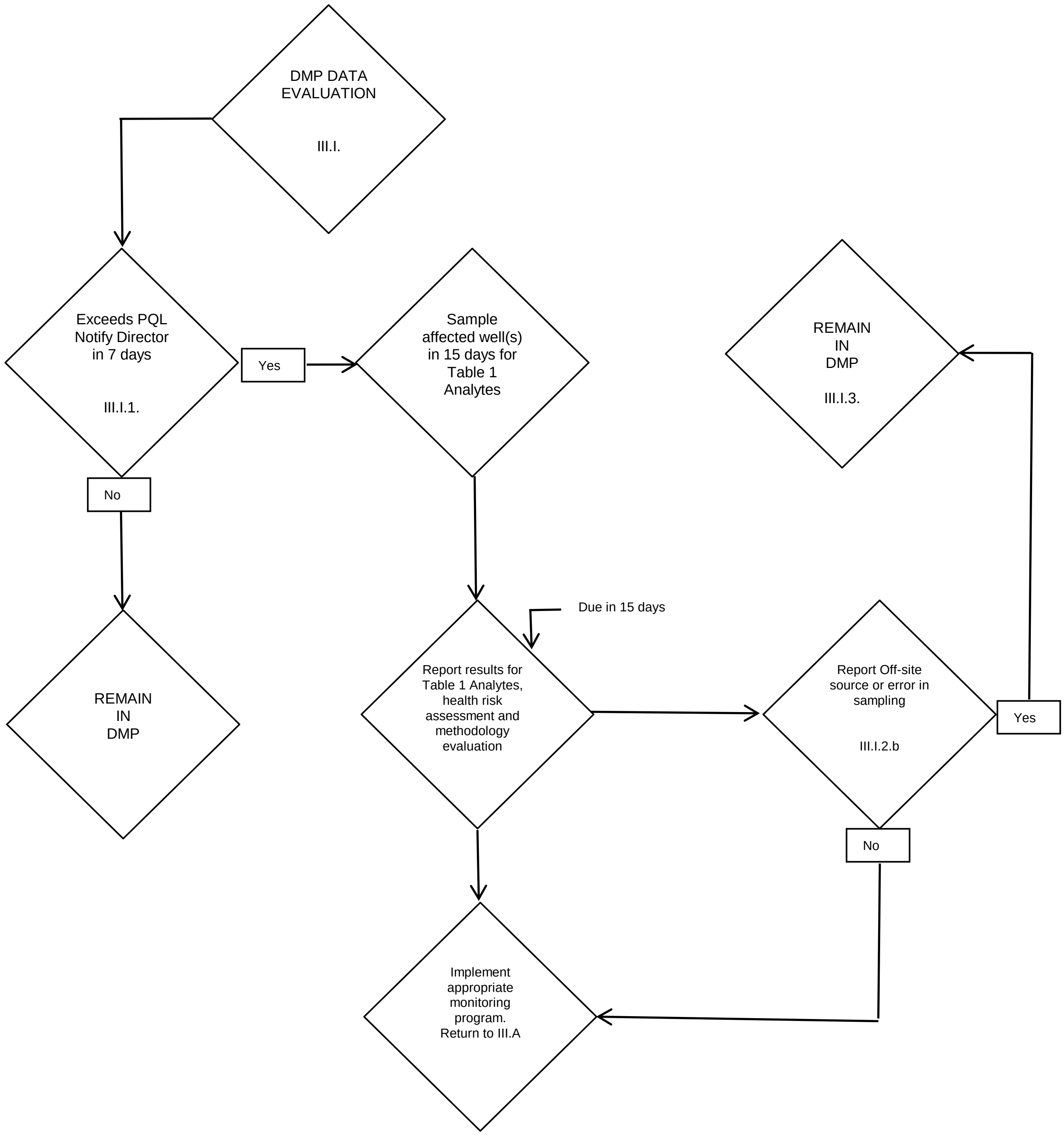
Corrective Action Monitoring Program

TABLE 3 (continued)
MONITORING PROGRAMS DATA EVALUATION FLOWCHARTS



Compliance Monitoring Program

TABLE 3 (continued)
MONITORING PROGRAMS DATA EVALUATION FLOWCHARTS



Detection Monitoring Program

ATTACHMENT 1

RCRA PART A APPLICATION

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for an on-going regulated activity that will continue for a period of time. (Includes HSM activity)
☐	Submitting as a component of the Hazardous Waste Report for ___________ (Reporting Year)
	☐ Site was a TSD facility and/or generator of > 1,000 kg of hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in **one or more months of the reporting year** (or State equivalent LQG regulations)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☒	Submitting a new or revised Part A Form

2. Site EPA ID Number

I	D	D	0	0	0	6	0	2	6	3	1

3. Site Name

PacifiCorp Idaho Falls Pole Yard

4. Site Location Address

Street Address **2200 Leslie Avenue**		
City, Town, or Village **Idaho Falls**		County **Bonneville**
State **Idaho**	Country **USA**	Zip Code **83402**

5. Site Mailing Address ☑ Same as Location Address

Street Address		
City, Town, or Village		
State	Country	Zip Code

6. Site Land Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary) **562211**	C.
B.	D.

8. Site Contact Information

☐ Same as Location Address

First Name **Jeffery**	MI **L.**	Last Name **Tucker**
Title **Principal Engineer - HWMF Manager**		
Street Address **1407 West North Temple**		
City, Town, or Village **Salt Lake City**		
State **Utah**	Country **USA**	Zip Code **84116**
Email **jeff.tucker@pacificorp.com**		
Phone **801-220-2989**	Ext	Fax

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner

☐ Same as Location Address

Full Name PacifiCorp	Date Became Owner (mm/dd/yyyy) 12/31/1929

Owner Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address 1407 West North Temple		
City, Town, or Village Salt Lake City		
State Utah	Country **USA**	Zip Code 84116
Email jeff.tucker@pacificorp.com		
Phone 801-220-2989	Ext	Fax
Comments		

B. Name of Site's Legal Operator

☐ Same as Location Address

Full Name Dennis Vanderbeek	Date Became Operator (mm/dd/yyyy) 3/01/1986

Operator Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **2200 Leslie Avenue**		
City, Town, or Village **Idaho Falls Idaho**		
State **Idaho**	Country **Bonneville**	Zip Code **83402**
Email dennis.vanderbeek@pacificorp.com		
Phone **208-522-6034**	Ext	Fax
Comments		

10. Type of Regulated Waste Activity (at your site)
Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities

☒ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c	
☐	a. LQG	-Generates, in any calendar month (includes quantities imported by importer site) 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste; or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
☐	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
☒	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
If "Yes" above, indicate other generator activities in 2 and 3, as applicable.		
☐ Y ☒ N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.	
☐ Y ☒ N	3. Mixed Waste (hazardous and radioactive) Generator	
☐ Y ☒ N	4. Treater, Storer or Disposer of Hazardous Waste—Note: A hazardous waste Part B permit is required for these activities.	
☐ Y ☒ N	5. Receives Hazardous Waste from Off-site	
☐ Y ☒ N	6. Recycler of Hazardous Waste	
☐	a. Recycler who stores prior to recycling	
☐	b. Recycler who does not store prior to recycling	
☐ Y ☒ N	7. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.	
☐	a. Small Quantity On-site Burner Exemption	
☐	b. Smelting, Melting, and Refining Furnace Exemption	

B. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

U051						

C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes. Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

11. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)

A. Other Waste Activities

☐ Y ☑ N		1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
	☐	a. Transporter
	☐	b. Transfer Facility (at your site)
☐ Y ☑ N		2. Underground Injection Control
☐ Y ☑ N		3. United States Importer of Hazardous Waste
☐ Y ☑ N		4. Recognized Trader—If "Yes", mark all that apply.
	☐	a. Importer
	☐	b. Exporter
☐ Y ☑ N		5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
	☐	a. Importer
	☐	b. Exporter

B. Universal Waste Activities

☐ Y ☑ N		1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
	☐	a. Batteries
	☐	b. Pesticides
	☐	c. Mercury containing equipment
	☐	d. Lamps
	☐	e. Other (specify) ____________________
	☐	f. Other (specify) ____________________
	☐	g. Other (specify) ____________________
☐ Y ☑ N		2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

☐ Y ☑ N		1. Used Oil Transporter—If "Yes", mark all that apply.
	☐	a. Transporter
	☐	b. Transfer Facility (at your site)
☐ Y ☑ N		2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
	☐	a. Processor
	☐	b. Re-refiner
☐ Y ☑ N		3. Off-Specification Used Oil Burner
☐ Y ☑ N		4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
	☐	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
	☐	b. Marketer Who First Claims the Used Oil Meets the Specifications

12. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR 262 Subpart K.

☐ Y ☒ N		A. Opting into or currently operating under 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories—If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
	☐	1. College or University
	☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
	☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or univer-
☐ Y ☒ N		B. Withdrawing from 40 CFR 262 Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☒ N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator.

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☒ N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQGs hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

☐ Y ☒ N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
☐	A. Central Accumulation Area (CAA) or tire Facility
☐	B. Expected closure date: ____________ mm/dd/yyyy
☐	C. Requesting new closure date: ____________ mm/dd/yyyy
☐	D. Date closed : ____________ mm/dd/yyyy 1. In compliance with the closure performance standards 40 CFR 262.17(a)(8) 2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☒ N	A. Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.
☐ Y ☒ N	B. Are you notifying under 40 CFR 260.43(a)(4)(iii) that the product of your recycling process has levels of hazardous constituents that are not comparable to or unable to be compared to a legitimate product or intermediate but that the recycling is still legitimate? If "Yes", you may provide explanation in Comments section. You must also document that your recycling is still legitimate and maintain that documentation on site.

17. Electronic Manifest Broker

☐ Y ☒ N	Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

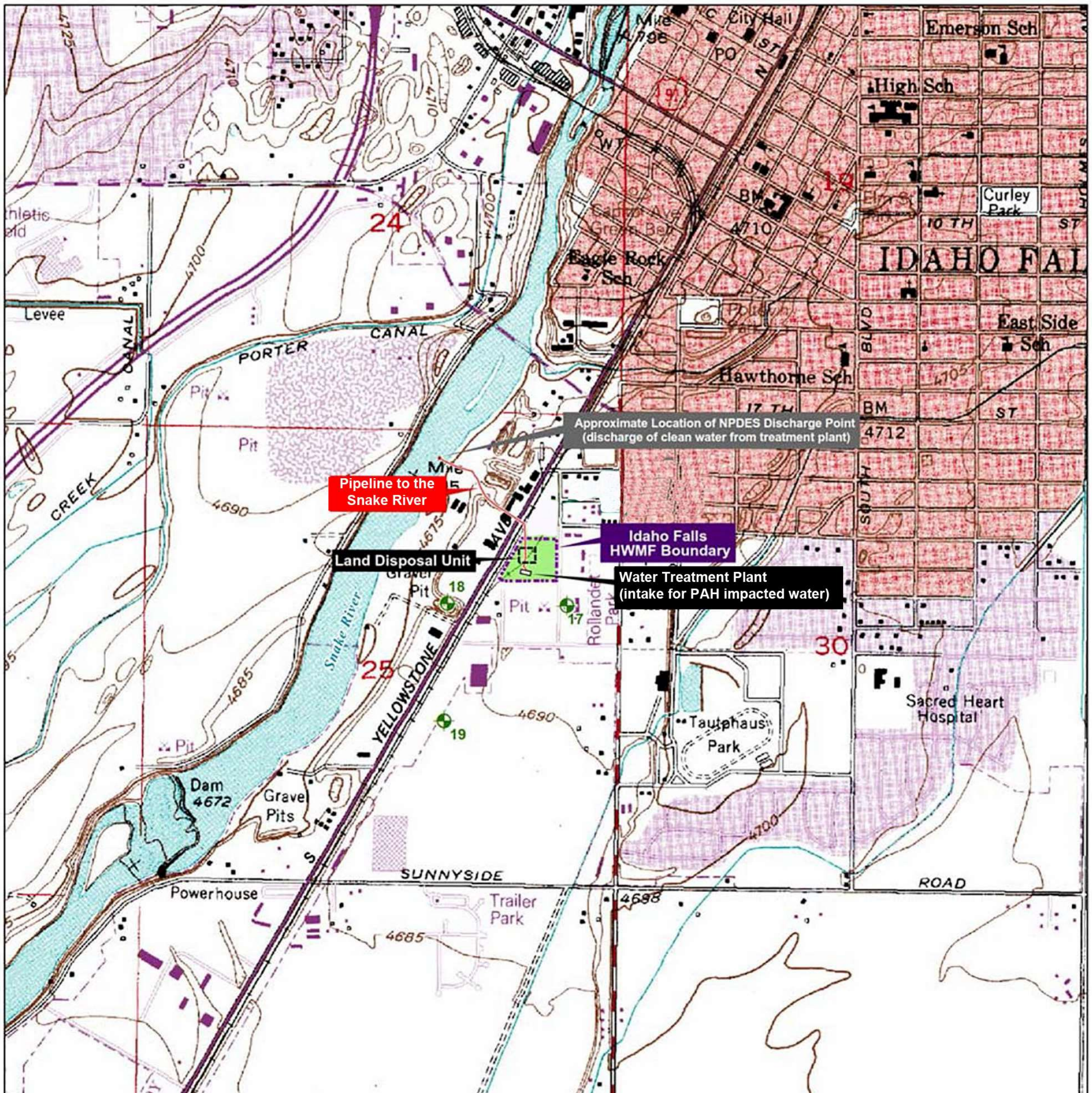
18. Comments (include item number for each comment)

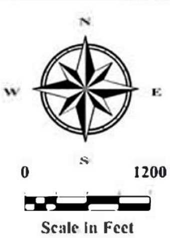
19. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11).**

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Jeffery L Tucker	April 1, 2019
Printed Name (First, Middle Initial Last) **Jeffery L. Tucker**	Title **Principal Engineer**
Email **jeff.tucker@pacificorp.com**	

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last)	Title
Email	

FILE Fig_Part_A-1_Idaho_Falls_Location11X17.mxd 12/2/08 SLC





EXPLANATION

19 Private water well

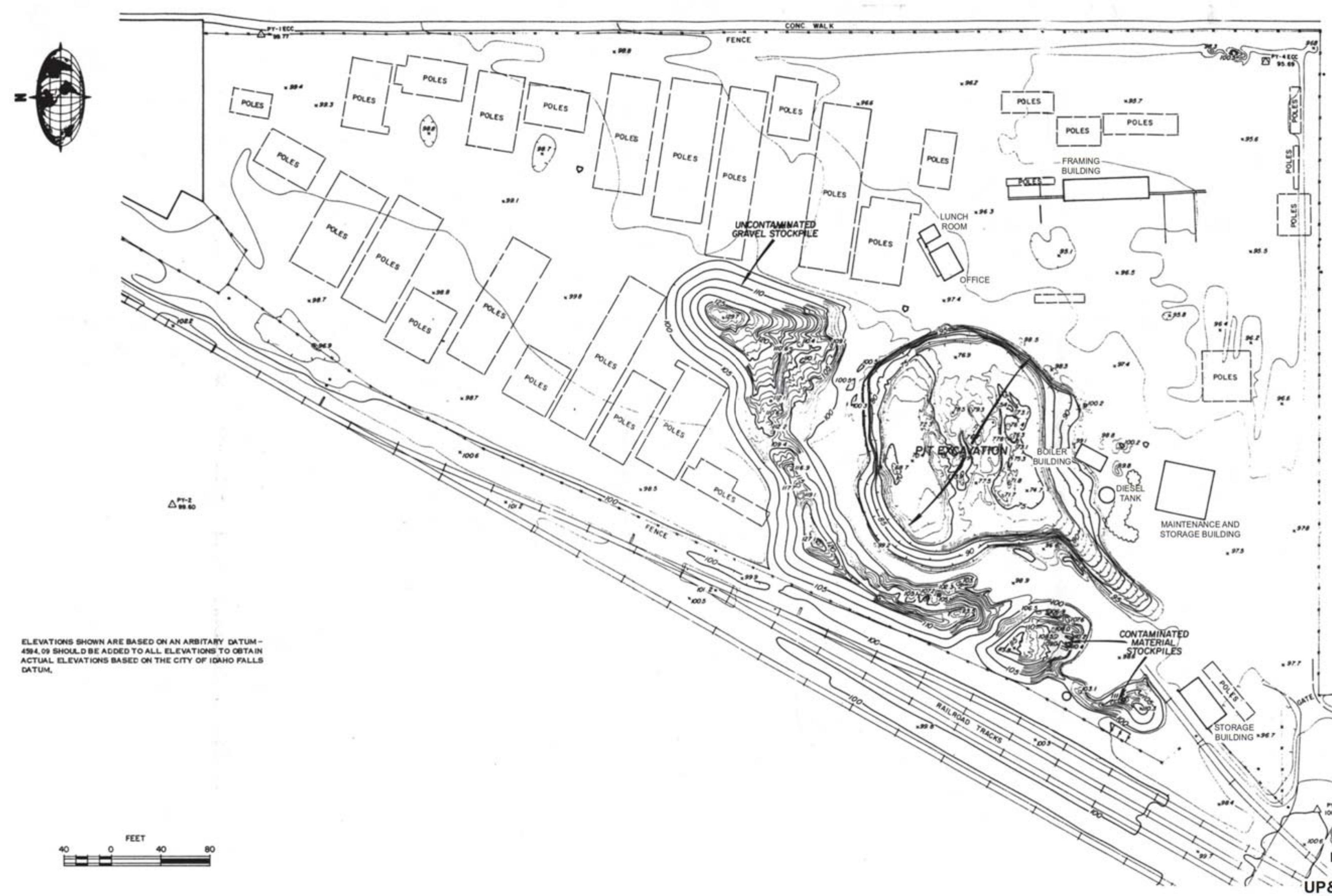
Notes: 1. Location of aditional site monitoring and extraction wells shown on Figure 4.1 of Part B Application.

2. Base is USGS Idaho Falls North 7.5 quadrangle. Datum: UTM NAD27 Zone 12N.

IDAHO FALLS
POLE YARD

LOCATION MAP

FIGURE PART A-1



ELEVATIONS SHOWN ARE BASED ON AN ARBITARY DATUM – 4594.09 SHOULD BE ADDED TO ALL ELEVATIONS TO OBTAIN ACTUAL ELEVATIONS BASED ON THE CITY OF IDAHO FALLS DATUM.

Reference: Adapted from typographic map entitled "Idaho Falls Pole Treatment Yard" prepared by Aero-Graphics, Inc. - Salt Lake City, Utah - for Utah Power & Light. Dated October 5, 1983

Source: Dames & Moore, December 1984.

IDAHO FALLS POLE YARD

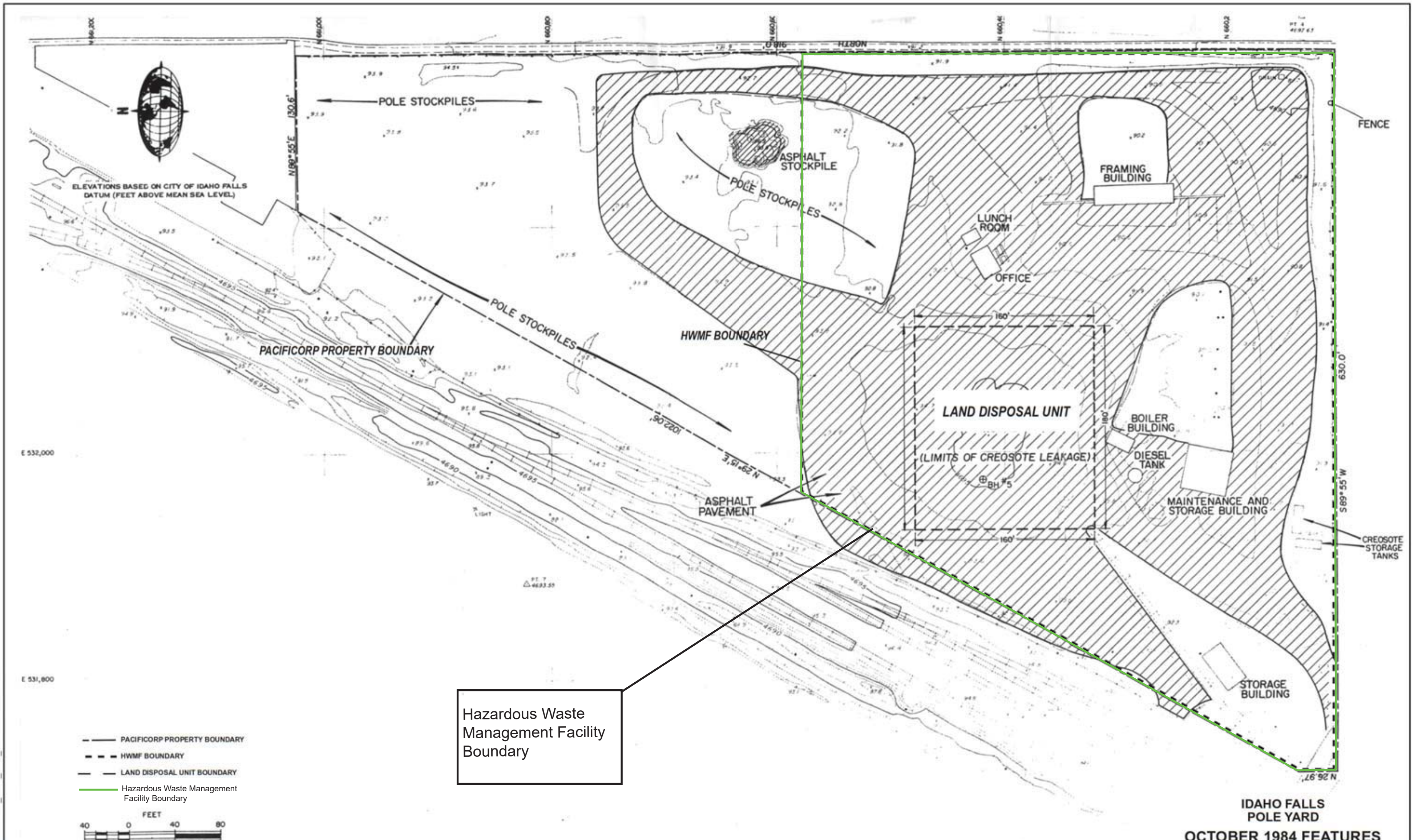
UP&L POLE YARD

OCTOBER 1983

(Excavation Phase)

FIGURE Part A-2

FILE Fig_Part_A-2_Existing features Oct_1984_Pole Yard.pdf 12/22/08 SLC



Reference: Adapted from typographic map entitled "Idaho Falls Pole Treatment Yard" prepared for Utah Power & Light by Aero-Graphics, Inc. - Salt Lake City, Utah. Dated 10 - 4- 1984.

Source: Dames & Moore, December 1984.

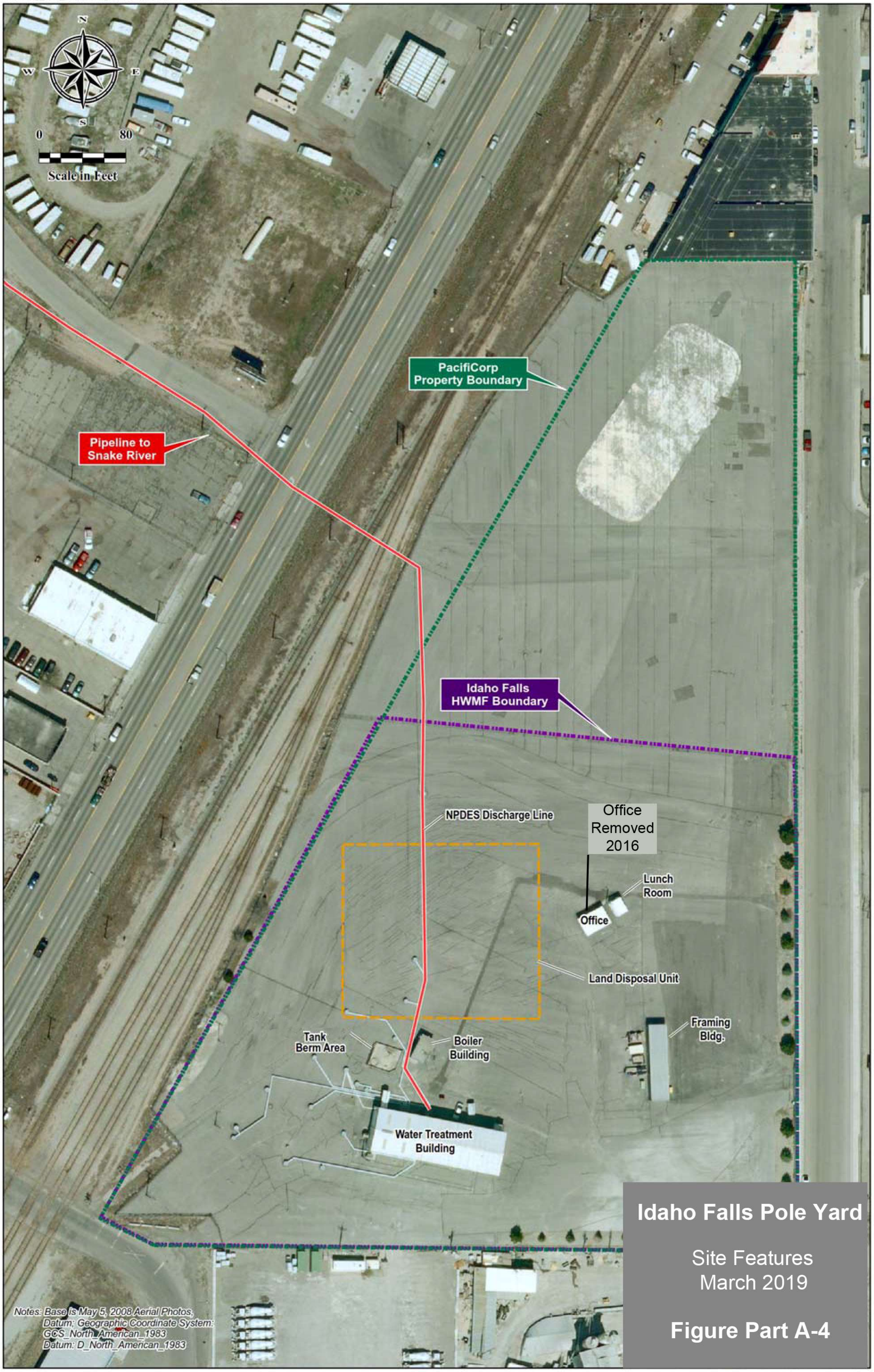
IDAHO FALLS POLE YARD

OCTOBER 1984 FEATURES UP&L POLE YARD

Figure Part A-3

FILE Fig2.1 Features Oct_1984_Pole_Yard.ai 12/22/08 SLC

FILE Fig_Part_A-3.Existing 2008 featrues.mxd 12/3/08 SLC



Idaho Falls Pole Yard

Site Features
March 2019

Figure Part A-4

ATTACHMENT 2

SUPPLEMENTAL INFORMATION

TABLE OF CONTENTS FOR ATTACHMENT 2

VOLUME I

LIST OF FIGURES IN ATTACHMENT 2

LIST OF FIGURES IN ATTACHMENT 2 (CONTINUED)

LIST OF TABLES IN ATTACHMENT 2

LIST OF FORMS IN ATTACHMENT 2

VOLUME I CHAPTER 1

1.0 INTRODUCTION

1.1 INTRODUCTION

The 2019 RCRA Post Closure Care Permit application represents the third reapplication for a RCRA Part B Hazardous Waste Permit addressing a creosote release that occurred at PacifiCorp's Idaho Falls Hazardous Waste Management Facility (HWMF) prior to July of 1983. Figure 1.1 shows the location of the former wood treatment facility and its proximity to the Snake River in Idaho Falls, Idaho. The original Part B Post Closure Care Permit was issued in October of 1988 and then reapproved in November of 2000. The 2009 reapplication was used as a basis for the 2019 reapplication. Permit IDD000602631 is re-issued by the Idaho Department of Environmental Quality with an effective date of September 30, 2019.

1.2 REGULATORY HISTORY

PacifiCorp utilized the HWMF to treat wooden electrical poles with creosote and as such was not regulated by RCRA regulations, i.e., 40 CFR 265. However, in July of 1983, a leak was discovered in the pole treatment facility. Upon discovering the leak, corrective action activities were commenced, including the excavation of contaminated gravel from below the leak area. In addition, EPA and the State of Idaho were notified of the creosote leak and clean-up activities. EPA issued a Complaint and Compliance Order to PacifiCorp, which stated that the EPA considered PacifiCorp the operator of a hazardous waste management facility. This was done because the creosote remaining in site bedrock is considered disposal, and creosote is a listed hazardous waste (U051). The facility is regulated by the EPA and the State of Idaho under a Part B Permit first issued in October 1988 and reapproved in November 2000. The permit covers the operation of a hazardous waste, storage and disposal facility which, in this case, primarily addresses ground water protection.

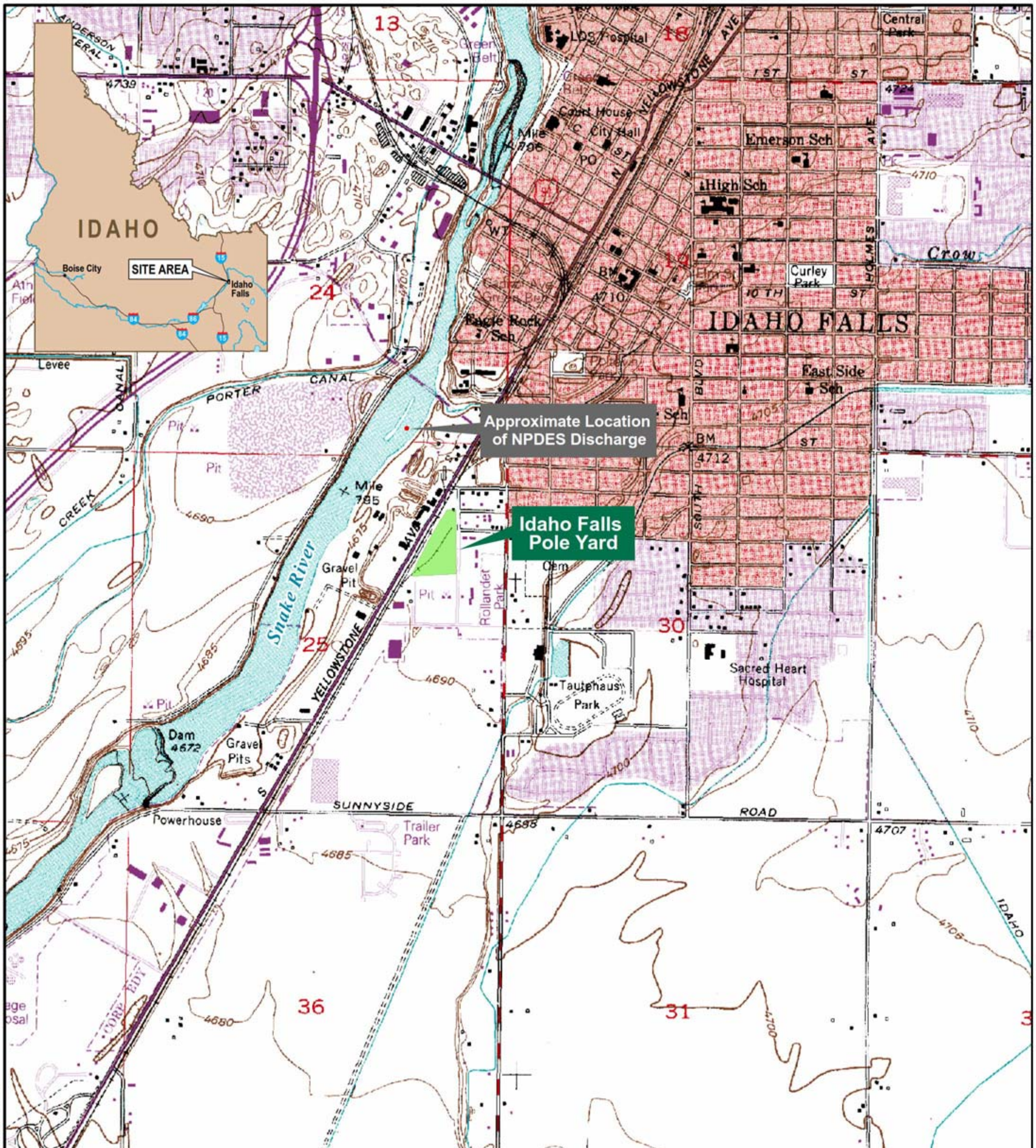
All reasonably excavatable contaminated materials and soils were removed from the spill area in 1983 and 1984. However, creosote constituents observed within the unsaturated bedrock (Aquifer 1) and the bedrock aquifer (Aquifer 2) below the HWMF area could not be removed and are therefore being addressed by pumping and treating groundwater. The treated groundwater is discharged to the Snake River under an approved NPDES permit.

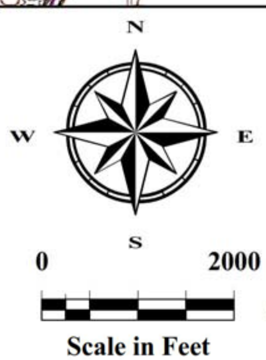
Initial ground water monitoring and soil sampling conducted at the site indicated that significant concentrations of hazardous constituents were detected within the ground water and unsaturated bedrock above the ground water levels. Plumes consisting of polynuclear aromatic hydrocarbons (PAHs) have been identified within two of three hydrogeologic units beneath the site. Currently submersible pumps extract groundwater from wells screened within Aquifers 1 and 2. The extracted water is piped to a treatment system composed of granular activated carbon. The groundwater passes through the carbon and is then piped to the Snake River for discharge.

In calendar years 2010 and 2011, PacifiCorp made several mechanical and instrumentation improvements to the existing wastewater treatment system at the former Pole Treatment Yard in Idaho Falls, Idaho. The completed system makes it possible to operate the site remotely and reduce the amount of time that the operator works on the site. The operator is present intermittently through out the year as needed to evaluate the operations of the automated systems, perform groundwater monitoring, specific capacity testing, operations and maintenance, respond to alarms, and prepare reports.

1.3 PART B APPLICATION REVIEW

To aid Idaho Department of Environmental Quality (IDEQ) in the review of the 2009 Part B Application, the IDEQ's own checklist was completed and included within the 2009 permit application. For reference purposes, this checklist has also been included herein as Table 1.1.





Notes: Base is USGS Idaho Falls North 7.5 quadrangle.
Datum; UTM NAD27 Zone 12N

IDAHO FALLS
POLE YARD

LOCATION MAP

FIGURE 1.1

FILE *Fig01.1_Idaho_Falls_Location.mxd 5/8/08* SLC

Table 1.1

2019 Checklist for IFPY RCRA Post Closure Care Permit Reapplication

40 CRF Section Requirement	Section Requirement	Location within Permit
270.14 (b) 1	General Description of the Facility	Part B Volume I Chapter 2
270.14 (b) 4	Security	Part B Volume I Chapter 2 Section 2.4 and Chapter 6 Section 6.3. Figures 6.1 through 6.3. Tables 6.1 through 6.5.
270.14 (b) 5	Inspection Schedules	Part B Volume I Chapter 6 Section 6.2. Forms 6.1 through 6.5.
270.14 (b) 6	Justification for Waiver(s) of Preparedness and Prevention Requirements of 40 CFR 264 Subpart C.	No Waiver Requested. Spill Prevention, Contingency, and O&M Plans are provided in Chapters 5, 6, and 10 of Volume 1 Part B Attachment 2. Note that additional spill preparedness planning is performed under the sites NPDES Best Management Practices Plan which is updated yearly.
270.14 (b) 11	Facility Location Information	
	Seismic	Part B Vol I Sec 2.11.1
	Floodplain	Figure 2.20 and Part B Vol I Sec 2.11.2
270.14 (b) 13	Closure Plan	Part B Volume I Attachment 2 Chapter 9 Section 9.2.4. Standby Operations and Decommissioning of the Treatment Plant and Wells. Permit locations for descriptions of the CAMP, DMP, and CMP groundwater monitoring programs are described below.
270.14 (b) 14	Evidence of Recording Land Disposal Unit With Bonneville County per 40 CFR 264.119	Part B Volume II Chapter 11 Figure II.11.3
270.14 (b) 16	Most Recent Post Closure Cost Estimate	Part B Volume I Attachment 3
270.14 (b) 18	Proof of Financial Assurance	Part B Volume II Chapter 9 Section II.9.2
270.14 (b) 19	Topographic Map with 100-year Flood Plain	Figure 2.3
	Wind Rose	Figure 2.3
	Characterization of Impacted Groundwater	Part B Volume I Chapters 2 and 4. Figures 2.11 through 2.16, 2.22, 2,23, 4.1B, and 4.1C.
	Corrective Action Program	Part B Volume I Chapter 9
	Groundwater Monitoring Program	Part B Volume I Chapter 4
	Groundwater Action Levels	Part B Volume II Chapter 7 Section II.7.2
	Point of Compliance Wells and Maps	Part B Volume I Figure 4.2
	CAMP, DMP, CMP Compliance Programs	Part B Volume I Figures 4.14, 4.15, and 4.16

Table 1.1
2019 Checklist for IFPY RCRA Post Closure Care Permit Reapplication

40 CRF Section Requirement	Section Requirement	Location within Permit
270.14 (c)	Historical Groundwater Sampling Data	Part B Volume II Chapters 6, 10, and 12.
	Aquifer Delineation and Hydrogeology	Part B Volume I Chapters 2 and 4. Figures 2.11 through 2.16, 2.22, 2,23, 4.1B, and 4.1C.
	Plume Delineation	Part B Volume I Chapters 2 and 4. Figures 2.11 through 2.16, 2.22, 2,23, 4.1B, and 4.1C.
	Appendix IX Constituents	Part B Volume II Chapter 6
	List of Coal Tar Creosote Constituents	Part B Volume I Chapter 2 Table 2.1
	Background Values	NA Background values for coal tar creosote constituents are below laboratory detection limits.
	Statistical Analyses	Historical statistical discussion provided in Part B Volume II Chapter 8. Compliance, however, is based on the CAMP, CMP, and DMP programs rather than statistical analyses.
	Groundwater Protective Standards	Part B Volume II Chapter 7 Section II.7.2
	Description of Wastes Managed at the Facility	Part B Volume I Chapter 2 Sections 2.1.3 through 2.2
270.14 (d)	Delineation of Land Disposal Unit (LDU)	Part B Volume II Chapter 11
	Wastes Managed in the LDU	Part B Volume I Chapter 2 Sections 2.1.3 through 2.2
	Releases from LDU	Part B Volume I Chapter 2 Sections 2.1.4, 2.2 and Part B Volume I Chapter 3
	Owner and Operator of the Hazardous Waste Management Facility	Part A
	Summary of Historical Sampling and Analysis	Part B Volume 2 Chapter 12

Notes: Part B Information Checklist is in accordance with 40 CFR Part 270.28 (see below).
NA - Not Applicable

§270.28 Part B information requirements for post-closure permits.

For post-closure permits, the owner or operator is required to submit only the information specified in §§270.14(b)(1), (4), (5), (6), (11), (13), (14), (16), (18) and (19), (c), and (d), unless the Regional Administrator determines that additional information from §§270.14, 270.16, 270.17, 270.18, 270.20, or 270.21 is necessary. The owner or operator is required to submit the same information when an alternative authority is used in lieu of a post-closure permit as provided in §270.1(c)(7).

VOLUME I CHAPTER 2

2.0 GENERAL FACILITY DESCRIPTION

2.1 GENERAL FACILITY DESCRIPTION

2.1.1 General

The 2019 Part B Hazardous Waste Permit Reapplication was prepared in accordance with permanent facility standards, 40 CFR 264, to cover post-closure care and ground water protection measures due to the on-site disposal of creosote. Creosote leaked into the subsurface gravels and bedrock, and creosote constituents have been detected in ground water located below the PacifiCorp Hazardous Waste Management Facility (HWMF). From a regulatory stand point, the remaining creosote impacts are being interpreted as a landfill type of land disposal unit (LDU).

2.1.2 Location

The PacifiCorp Idaho Falls HWMF is located in the northeast quarter of Section 25, Township 2N, Range 37E in Bonneville County, Idaho, as shown on Figure 2.1. The site occupies 5.4 acres located between 20th and 23rd Streets and Leslie and Yellowstone Avenues in Idaho Falls, Idaho. The creosote release occurred in the southwest portion of the site within the area labeled as the LDU on Figure 2.2.

2.1.3 Creosote Treatment Facility

The PacifiCorp Idaho Falls Pole Treatment Yard was a facility for non-pressurized creosote treatment of wooden electrical power poles. The poles were dipped into a treatment vat containing creosote until takeup of creosote was completed, then they were removed and suspended over the tank to allow excess creosote to run off. The poles were then transferred to other areas of the site where they were left to cure and stored until needed.

The creosote which was utilized to treat the poles is listed as a hazardous substance and is assigned hazardous waste number U051 (40 CFR 261.33(f)).

Prior to July 1983 when the creosote leak was discovered, the creosote treatment facility consisted of a treatment vat, a condensate tank, a storage tank and a boiler to provide heating of the creosote. These facilities were located in the area labeled as the LDU as shown on Figure 2.2, except for the boiler located south of the LDU in the boiler building. All creosote treatment facilities have been removed from the site and disposed of at on off-site hazardous waste management facility (Envirosafe Services of Idaho near Mountain Home, Idaho) and no future pole treatment facilities or operations are proposed at the facility.

2.1.4 Creosote Leakage at Facility

In July of 1983, a leak in the creosote line was discovered in the underground piping connecting the vat to the storage tank. Exploration borings, surface sampling and earthwork activities performed as part of the corrective action indicated that creosote contaminated the soil immediately below the original treatment equipment and also has contaminated the bedrock both below and immediately adjacent to these facilities. Ground water detection monitoring wells also indicate the presence of some creosote constituents in the ground water. The amount of creosote released at the site is difficult to determine because the site was operated as a creosote treatment facility for approximately sixty years.

2.1.5 Topography

The original site topography was relatively level with maximum relief from the north to the south on the order of four to five feet. Figure 2.3 presents the site topography as it was (October 1984). The excavation area where the creosote leakage occurred has been backfilled and graded to provide positive drainage away from the spill area with an established slope of one to two percent.

The more regional topography is also relatively level except where the surface slopes down approximately 20 feet to the Snake River located 1,000 yards northwest of the site.

2.1.6 Land Use

The site is located in the southwest part of Idaho Falls along Yellowstone Avenue. Commercial/industrial facilities presently border Yellowstone Avenue with the nearest residential structures located several blocks east of the site.

The pole yard area is zoned I&M-1 Industrial and Manufacturing, (Idaho Falls, 2007). Therefore, this area is presently zoned to continue to be developed primarily for commercial and industrial purposes. The 2019 zoning map for the city of Idaho Falls is provided as Figure 2.4 and available online at https://ifgis.maps.arcgis.com/apps/webappviewer.

2.1.7 Climate

The Idaho Falls area has the semi-arid continental climate typical of eastern Idaho. Summers are warm and winters are cold. Summer day temperatures are moderated by the high altitude and the evenings are cool. Spring is usually cool and often windy. Average January minimum and maximum temperatures are 10.1 and 28.4° F, respectively while average July minimum and maximum temperatures are 52.1 and 86.3°F, respectively.

Annual precipitation averages 8.7 inches, most of which occurs during the winter. Precipitation during November through March normally falls in the form of snow. Pan evaporation is approximately 50 inches per year (Kohler and others, 1955). Therefore, as is typical of semi-arid climates, annual evapotranspiration greatly exceeds precipitation. The prevailing wind direction is from the south-southwest as shown by the wind rose on Figure 2.5.

2.1.8 Subsurface Investigation Findings

2.1.8.1. Soil Investigation Findings

The subsurface investigation conducted at the site determined that the primary source of creosote release was from a failure of an underground piping system which conveyed creosote between the boiler and the treatment vat. The creosote vat was located in the general vicinity of soil boring BH-5 shown on Figure 2.6. Creosote impacts were observed in the thirty feet of shallow overburden sands and gravels as well as the underlying fractured basaltic bedrock.

Remedial activities implemented at the site involved the decommissioning of the creosote treatment facilities and the excavation and disposal of approximately 37,000 tons of impacted soil. The limits of the October 1983 excavation are illustrated on Figure 2.7. The excavation area was backfilled by placing approximately 12 feet of compacted clay immediately above bedrock, followed by clean native gravel to a depth of approximately 2.5 feet below grade. The excavation was then filled with a low permeability clay layer to existing grade. The area of excavation and cross sectional views through the clay cover are shown on Figures 2.8 and 2.9.

The site investigation determined that groundwater in two hydrogeologic units (Aquifers 1 and 2) beneath the site had been impacted with creosote constituents. No impacts were discovered in Aquifer 3. Historical geologic cross sections through the Idaho Falls Pole Yard site are provided in Figures 2.6 through 2.16.

An unconfined aquifer (Aquifer 1) exists within alternating layers of basalt and interflow deposits positioned between the static water level and a depth of 160 feet below ground surface (bgs). Depths to static water level vary seasonally between approximately 110 and 140 feet bgs. The saturated thickness of Aquifer 1, therefore, ranges between a low of approximately 20 feet to a high of 50 feet.

A hard basalt aquitard extending between the depths of approximately 160 and 250 feet bgs underlies Aquifer 1. Aquifer 2 was encountered between the depths of approximately 250 and 270 feet bgs. This semiconfined aquifer exists within a zone of cinder, broken rock, rubble, and fractured basalt. A second aquitard consisting of very dense basalt was then found between the depths of approximately 270 and 370 feet bgs. Aquifer 3 is encountered within high permeability cinder, broken rock, rubble, and fractured basalt materials immediately beneath the second aquitard. The bottom of Aquifer 3 was not defined during the subsurface investigation.

2.2 CHEMICAL AND PHYSICAL ANALYSES OF CREOSOTE

Creosote is a listed hazardous substance with an assigned hazardous waste number of UO51 (40 CFR 261.33(f)). Creosote consists of an oily, translucent distillate of coal tar whose properties vary depending upon the source of the tar. Over 400 individual compounds have been identified. The majority of these compounds are present only in small quantities with major constituents comprising 21 compounds which are listed in Table 2.1. Major components of creosote include polynuclear aromatic hydrocarbons (PAHs), phenols, and cresols. Creosote is heavier than water having a specific gravity of 1.05 to 1.09 (at 15 degrees C), but may sink or float on water depending on its composition. Coal-tar creosote as a whole is considered practically insoluble.

Wood-preserving creosote is a distillate from coal tar made by high temperature carbonization of bituminous coal; the typical boiling range of creosote is 175°C to about 450°C (Nestler, 1974). Differences between coal-tar creosotes result from the relative amounts and distribution of types of chemical compounds but not the nature of the compounds. Although numerous individual compounds have been identified in creosote, the components belong to a relatively small number of chemical classes. One of these, the polynuclear aromatic hydrocarbons (PAH), generally accounts for 90 percent of the constituents in creosote and the major members of this class contain no substituent groups. All high-temperature coal-tar creosotes are similar to the extent that they contain varying quantities of the same restricted number of chemical classes. Because of the high distillation temperature, no significant amounts of volatile organic compounds would be expected. Chlorinated organics would also not be expected.

To evaluate the chemical and physical properties of the contaminated material, a sample of creosote-contaminated soil and water was obtained from BH-5, which is located as shown on Figure 2.6. BH-5 was drilled into the bedrock below the area where the release occurred. Creosote-contaminated liquid accumulated in the open borehole after drilling and a sample of this material was obtained and analyzed. Organic constituents measured are similar to those which would be expected in creosote. No pentachlorophenol was used at the site and none has been detected. Measurements of total arsenic and total cyanide were very low.

Creosote was sampled from bedrock fractures in the bottom of the pit excavation. This sampling was performed jointly with the EPA. EP-toxicity tests indicated very low levels of heavy metals, arsenic and selenium far below levels which would define soils as hazardous waste.

Based on the results of the analyses it was concluded that the major constituents of creosote occur in the sample from BH-5 and sample 15DUP. The reason all of the major constituents of creosote were not present in the samples is because the compounds in a particular creosote product are dependent on the creosote distilling (temperature) process performed.

2.3 WASTE ANALYSES PLAN

The creosote which was released from the treatment facility is a highly complex material. However, major constituents which are typically identified in creosote have also been identified in the subsurface samples. Therefore, it is believed that the single sample from BH-5 is representative of the residual creosote material. Historical groundwater sampling results for 40 CFR Part 264 Appendix IX analytes is provided in Part B Volume II Chapter 6.

2.4 SECURITY

The PacifiCorp HWMF is surrounded by a 7.8 foot high galvanized steel, chain link security fence as shown on Figure 2.2. The steel poles to which the fence is attached are set in concrete, the chain link extends 6.8 feet above the ground and above that are three strands of barbed wire angled away from the site. The fence extends completely around the HWMF. This security fence is maintained with locked gates to limit access during non-business hours.

There are warning signs located every 50 feet on the perimeter fence. This sign reads:

"DANGER - HAZARDOUS WASTE, AUTHORIZED PERSONNEL ONLY."

2.5 GENERAL INSPECTIONS

Presented in Permit Attachment 2 (Volume I Chapter 6 Section 2).

2.6 PREPAREDNESS AND PREVENTION MEASURES

Presented in Permit Attachment 2 (Volume I Chapters 5 and 6).

2.6.1 Design and Operation of Facility

Presented in Permit Attachment 2 (Volume I Chapters 9 and 10 and Volume II Chapter 1).

2.6.2 Required Equipment

2.6.2.1. Alarm System

Presented in Permit Attachment 2 (Volume I Chapter 10).

2.6.2.2. Emergency Equipment

Emergency equipment is presented in Figure 2.17, and Table 2.2. Also refer to Permit Attachment 2 Volume I Chapters 5 and 6 for further details regarding the contingency and spill prevention/response plans.

2.6.2.3. Water Supply - Fire Fighting

There are four city fire hydrants located outside and near the HWMF. Three are located on the east side of Leslie Avenue approximately 400 feet apart, supplied by the Idaho Falls public water supply and have rated capacities of 1277 gpm at 54 flow psig. The other hydrant is located on the east side of 23rd Street near the main gate and has a rated capacity of 1060 gpm at 42 flow prig. (City of Idaho Falls Fire Department 1984).

In the event of an emergency where the hydrants were not functional, the Snake River is located 3,000 feet from the northwest corner of the facility and water could be obtained by pumping or hauling to the site.

2.6.2.4. Testing and Maintenance of Equipment

All emergency equipment, outer perimeter fence and gate, and communication system are inspected on a regular basis. Most of the emergency equipment is inspected monthly. Detailed information can be found in Permit Attachment 2 (Volume I Chapter 10).

2.6.3 Access to Alarm Systems, Emergency Services and Required Aisle Space

Due to the relatively small size of this facility and the short distances which separate the few relatively small buildings, all access to alarm systems or emergency equipment can be easily attainable by either direct contact or visual/voice contact with another employee.

All remedial action facilities added will be located to allow movement of emergency equipment to all areas of the site.

2.6.4 Arrangements with Local Authorities

The City of Idaho Falls Ambulance, Fire, and Police Departments, the State Police Headquarters, the Public Works Division, Columbia Eastern Idaho Regional Medical Center, and the State of Idaho's Emergency Medical Service, Environmental Health Division and Department of Water Resources services are available to the HWMF for emergency assistance. In addition, there is a Poison Control Center in Idaho Falls and a Telephone-Medical Information number available. Emergency contact numbers are listed in Table 2.3.

2.7 CONTINGENCY PLAN

The site Contingency Plan is presented in Permit Attachment 2 (Volume I Chapter 5).

2.8 GENERAL HAZARD PREVENTION

All the creosote and creosote-contaminated material is located under the surface of the ground, below a low permeability cap. Present HWMF operations do not pose a hazard to human life or the environment due to unloading/loading operations, run-off, surface water supply contamination, equipment failures and power outages, and exposure to personnel. However, the ground water sampling operations generate small quantities of contaminated ground water, which is treated on site at the facility or shipped off as samples for analysis.

2.8.1 Unloading/Loading Operations

The following procedures should be observed for all contaminated ground water or granular activated carbon (GAC) loading, unloading and transporting operations:

1. Establish quick and easy lines of communication for all those involved in loading, unloading or transportation or other operations.

2. Load/unload vehicles in asphalt-paved areas which are removed from drains or storm sewers.
3. Load/unload vehicles carrying liquids in a bermed or diked area so in the event of a spill, the material will be contained in a limited area.
4. Require that a manifest and/or record be kept of all pickups and transportation.
5. Drivers should be equipped with sets of procedures and a spill equipment control kit in case of an emergency.

2.8.2 Run-off

The asphalt cover over the HWMF area was constructed to provide positive drainage away from the LDU during precipitation events. All graded slopes were constructed at one to two percent grade with the overall drainage from the LDU toward the southeast corner of the HWMF site. Details of the asphalt cover over the LDU are presented on the drawings labeled as Sheet 1 (As-Built Grading and Paving Plan) and Sheet 2 (Details and Notes) provided at the end of this chapter.

The HWMF is not located in the 100-year flood plain as described in detail in Section 2.11.2 of this chapter.

2.8.3 Water Supply Contamination

The entire 5.4 acres of the HWMF have been paved with asphalt to establish a very low permeability surface to minimize infiltration. This effectively reduces the potential for ground water contamination by minimizing the potential of surface water infiltrating through the contaminated unsaturated bedrock zones, which could contribute to the leaching of creosote contaminants down to underlying aquifers. In addition, the asphalt surface minimizes the possibility that a creosote or contaminated ground water spill from the treatment plant would infiltrate into the subsurface bedrock and ground water.

2.8.4 Effects of Equipment Failures and Power Outages

Under the present operating conditions, equipment failures or power outages would not be expected to cause any immediate hazards to human life or the environment. But to be conservative, Permit Attachment 2 provides the emergency coordination plan (Volume I Chapter 5) and spill prevention control and countermeasures plan (Volume I Chapter 6).

2.8.5 Exposure of Personnel

All personnel who conduct operations, inspections, etc., in and around the HWMF have some level of exposure to hazardous materials. All on-site personnel need to comply with the requirements of the site-specific Health and Safety Plan. In addition, waste exposure is emphasized in the training program detailed in Permit Attachment 2 (Volume I Chapter 7).

2.8.6 Ongoing Repair of the Land Disposal Unit Asphalt Cover

The portion of the asphalt that covers the Land Disposal Unit at the site will be inspected weekly and maintained as necessary to facilitate runoff of precipitation and snow melt. If cracks in the asphalt are discovered, any volume of washed out soil beneath the crack would be filled immediately with clean sand and then plastic sheeting temporarily placed over the cracked area. The plastic sheets would be held in place with sand bags or other materials as needed. Sand and plastic sheeting materials will be stored on site to allow for rapid response to any evidence of deterioration of the asphalt covering the Land Disposal Unit. As soon as possible after discovering the need for repair, PacifiCorp would contract with a local company to replace the damaged asphalt.

2.9 PREVENTION OF IGNITION OR REACTION OF WASTES

Creosote-contaminated materials will be handled on-site. Creosote is listed as a hazardous material by virtue of its toxicity (carcinogenicity) rather than its ignitability or reactivity. Also, since the creosote may be removed from an aqueous environment this material would not be considered ignitable or reactive and the demonstration of compliance with 40 CFR 264.17 is not applicable.

2.10 TRAFFIC

Figure 2.18 shows the roadways into and surrounding the Idaho Falls HWMF. All entrance gates into the facility are located on Figure 2.17. Visitor and employee parking are available near the office and on the west side of Leslie Avenue, just outside and along the facility.

Yellowstone Avenue, adjacent to the west side of the property, is the main public road used near the facility. Employees use the 23^{rd} Street and Leslie Avenue to gain access into the facility area. Leslie Avenue on the east side and 23^{rd} Street along the southwest corner are also public roadways; however, they are not as heavily traveled as Yellowstone. Yellowstone Avenue is an asphalt-surfaced, four-lane roadway. There is a traffic light at the Yellowstone and 12^{th} Street (Pancheri) intersection located north-northeast of the facility. The speed limit along Yellowstone Avenue is 35 miles per hour. Leslie and 23^{rd} street are asphalt-surfaced, two-lane roadways. The speed limit along Leslie is 25 miles per hour and the speed limit along 23^{rd} where it curves in front of the main gate to the site is 15 miles per hour. The following stop signs are located near the facility:

- on Leslie at 19^{th} on
- 20^{th} at Leslie on 21^{st} at Leslie on
- Leslie at 25'''
- on Gallatin at 15^{th}

There is also a flashing yellow light on 19^{th} and Yellowstone.

Roadways within the site are traveled by company trucks, outside contractor vehicles, and employee private vehicles. Employee private vehicle traffic is generally limited to movement from entrance gates to their respective office or work buildings. The roadways within the site are asphalt paved.

Generated regulated materials are removed and taken to a licensed HWMF. Below is the anticipated route to be taken to get to 1-15.

1. The transporter will load the hazardous material and if travel is required through the site, the safest route will be taken to the main gate.
2. Once at the main gate, the transporter will turn right (west) out through the main gate and onto 23rd Street.
3. The railroad tracks will be crossed to get to the Yellowstone Avenue intersection.
4. A left turn (south) will be made onto South Yellowstone Avenue.
5. The transporter will travel approximately 0.7 miles to W Sunnyside Rd
6. A right turn (west) will be made onto W Sunnyside Rd.
7. The transporter will travel 1.5 miles to the 1-15 southbound entrance ramp at exit 116 and will then proceed to the designated HWMF.

2.11 FACILITY LOCATION INFORMATION

2.11.1 Seismic Considerations

The PacifiCorp HWMF is located in Bonneville County, Idaho, which is a political jurisdiction listed in Appendix VI of 40 CFR 264. Facilities which are located in an area listed in Appendix VI must comply with the seismic standards of 40 CFR 264.18(a).

The following section describes the work completed by Dames and Moore and reported in the 1998 Post Closure Reapplication for the site.

Dames and Moore reviewed published geologic studies and analyzed aerial photographs and no faults were identified within 3,000 feet of the facility. Aerial photographs, which were analyzed for possible fault evidence, included the following:

1. United States Department of Agriculture (USDA) aerial photographs dated August 6, 1941, with a scale of 1:20,000 (Project CXO line lB frames 71, 72 and 73).
2. USDA aerial photographs dated August 4, 1978, with a scale of 1:40,000 (Project 16019 line 178 frames 153 and 154).
3. Aerographics, Inc. of Salt Lake City aerial photographs dated October 4. 1984, with scales of 1:12,000 and 1:6,000 (Project Idaho Falls line 100 frames 03-08 (1:6000), 09 and 10 (1:12,000).

According to Dames and Moore, published geologic mapping in the Idaho Falls region indicate that the closest fault to the site is approximately 16 miles to the northwest (La Point, 1977). This fault is identified as a lineation, which may represent a fault in basalt of Pleistocene age (probably about 500,000 years old).

The nearest fault cutting surficial deposits is located about 20 miles northeast of the site (Scott, 1982) and is shown on Figure 2.19. This fault provides the contact between deposits of the modem flood plain of the Snake River and the deposits of the most recent glacial period; consequently, the fault appears to displace Holocene materials (less than 10,000 years old).

The absence of faults near the site on Scott's (1982) map is significant because he has been involved in a number of fault investigations and is sensitive to the subtle features of Holocene fault displacements.

Kuntz (1978) has identified several northwest-trending volcanic rift zones in the Snake River Plain to the west of the site. He has noted that nearly all Quaternary volcanoes in the eastern Snake River Plain represent rift- or fissure-controlled eruptions. The closest of these rifts to Idaho Falls is the Circular Butte-Kettle Butte rift zone, which projects two to four miles southwest of the site.

Review of aerial photographs and geologic maps of the site area reveals no evidence of faults, which have had displacement neither in Holocene time nor of lineations which suggest the presence of a fault within 3,000 feet of the facility. MWH contacted Mr. Bill Phillips the Idaho Geologic Survey (Geohazards Section) on April 11, 2008. Mr. Phillips indicated that he was not aware of any newly identified faults in the subject area.

Based on the 2006 International Building Code (IBC), the Idaho Falls Pole Yard falls into Seismic Design Category D. The selection of Category D is based on an occupancy category of III and ground motion values S_{DS} and S_{D1} of 0.47 and 0.24, respectively. The seismic design categories, occupancy categories, and ground motion values are defined in Section 1613 of the IBC.

2.11.2 Flood Plain Considerations

The facility is located within 3,000 feet of the Snake River, which is one of the principal rivers of Idaho. The Federal Emergency Management Agency (FEMA) 100-year flood plain information for the Snake River and the flood map indicates that the HWMF is not located within the 100-year flood plain. A copy of the FEMA flood map as referenced in the 100-year flood plain is delineated on Figure 2.20. As of March 6, 2019, the latest flood plain delineation map encompassing the IFPY site was published on 10/15/1982.

The elevation of the 100-year flood plain averages 4,678 feet (MSL) adjacent to the site area. The HWMF has a minimum surface elevation of 4,690 feet, which is at least 12 feet above the 100-year flood plain.

2.11.3 Current Conditions of the Facility

Currently there are four buildings located within the boundaries of the HWMF. The buildings are identified on Figure 2.17 and the current operations at each are described below.

The water treatment building contains the granular activated carbon systems needed to remove creosote from the extracted groundwater. Currently, water is pumped from eight wells (A-1, A-2, R-5, C-1, R-10, R-2, R-6, and R-7) through above ground piping to the treatment building. Once inside the building, water flows through a series of weir boxes before being delivered to the clarifier and then on to a wet well positioned near the center of the building. Water is then pumped from the wet well, through a series of granular activated carbon vessels before exiting the treatment building. The discharged water is then transported via above ground pipeline for approximately 300 feet. At that point, the discharge line transitions to a buried pipeline that extends to the Snake River.

The Boiler Building shown on Figure 2.5 was historically used to heat creosote. The creosote was heated before being delivered via a historical buried pipeline to a treatment vat. Poles were dipped into the vat filled with creosote and allowed to become saturated. All heating equipment within the Boiler Building was removed in the 1980s along with the treatment vat and the interconnecting piping. Currently the Boiler Building is not in use at the facility.

The small building labeled as the "office" was demolished in calendar year 2016 due to problems with mold. After demolition and some minor grading, an asphalt cover was placed within the footprint of the former building to minimize infiltration of rainfall and snow melt. In 2016, the nearby "lunch room" building began use for data backup and electronic file storage. The original name given to the "lunch room" apparently goes back to the time when the pole yard was in operation and site workers would get lunches from this building.

The Framing Building located on the eastern side of the HWMF property is currently used to store clean granular activated carbon. The carbon is used, as needed, to replace spent granular activated carbon in the treatment building.

2.12 PERSONNEL TRAINING PROGRAM

All employees that will be onsite at any time will be adequately trained as specified in Permit Attachment 2 (Volume I Chapter 7.0).

For all work areas where there is a potential for emergencies, responsible persons shall take all necessary steps to ensure that employees are instructed in, and follow, the procedures for personnel safety as well as any other procedures appropriate to the specific operation or process.

Personnel who are assigned to containment or cleanup crews will have received training in these procedures.

Only personnel trained in the emergency containment and cleanup procedures and protected against the attendant hazards, shall shut off sources of contaminated ground water, control and repair leaks, cleanup spills and fight fires in these areas.

All other personnel training requirements are detailed in Permit Attachment 2 (Volume I Chapter 7.0).

2.13 CLOSURE COST ESTIMATE AND FINANCIAL ASSURANCE

The projected costs and Certification of Financial Assurance associated with closure are summarized in Permit Attachment 2 (Volume I Chapter 8). Detailed estimates of Post-Closure costs and letters documenting financial assurance are provided in Permit Attachment 3.

2.14 LIABILITY REQUIREMENTS

Adequate liability coverage is maintained by PacifiCorp which satisfies the requirements of 40 CFR 264.147. The letter in Permit Attachment 2 (Volume I Chapter 8) provides documentation for PacifiCorp's liability coverage.

2.15 COVERAGE BY STATE FINANCIAL MECHANISMS

Financial responsibility for compliance with state and federal regulations is being managed by PacifiCorp and therefore this requirement is not applicable to the facility.

2.16 MAPPING REQUIREMENTS

A topographic map was developed at a scale of one inch equals 200 feet with 2-foot contour intervals to satisfy the requirements of 40 CFR 270.14(b)(19). The topography has been presented on an orthophotographic base (Figure 2.5) and includes the 100-year flood plain, wind rose, a distance of at least 1,000 feet around the facility and the property boundaries of the HWMF. As required under 40 CFR 264.97, the location of the negotiated "points of compliance" and monitoring well locations for the site are presented in Figures 2.21 through 2.24.

The following paragraphs provide additional details concerning the mapping requirements. Outlines of each of the areas described below are graphically presented on Figure 2.5.

A legal description of the boundaries of the HWMF boundary is as follows:

> *A tract of land located in the east half of the NE1/4 of Section 25, Township 2N, Range 37E, described as follows:*
>
> *Beginning at a point located 18 feet west and 2 feet south of BM#5: thence south 89°55' west 630 feet; thence north 0°0' 463 feet; thence north 89°55' east 391.6 feet; thence south 29°15' west 509.5 feet; thence south 0°0' 26.97 feet to the point of beginning, being about 5.4 acres.*

The legal description of the boundaries of the HWMF Land Disposal Unit (the creosote release area) as proposed in this Part B Application is as follows:

> *A tract of land located in the east half of the NE1/4 of Section 25, Township 2N., Range 37 E., described as follows:*
>
> *Beginning at a point located 207 feet north and 207 feet east of BM#5: thence east 180 feet; thence north 160 feet; thence west 180 feet; thence south 160 feet to the point of beginning, being about 0.66 acres.*

The wind rose was developed from wind measurements performed at the Idaho Falls airport, which is approximately two miles from the PacifiCorp HWMF. Wind data was provided by the National Climatic Data Center in Asheville, North Carolina.

Land uses within a 1,000-foot radius of the HWMF include commercial, industrial and manufacturing facilities.

There are no wells within the 1,000-foot radius of the HWMF which are considered on-site or off-site injection or withdrawal wells. There are, however, numerous on-site monitor wells installed as part of the corrective action ground water monitoring program and remediation wells used to extract and treat groundwater as required for the site.

2.17 REFERENCES

Bruce, Lawrence, City of Idaho, Public Works Division, November 8, 1984, personal communication.

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Dames and Moore, 1998, RCRA Post Closure Care Permit Reapplication, Idaho Falls Pole Yard, Idaho Falls Idaho.

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La Point, P.J.I., 1977, Preliminary photogeologic map of the eastern Snake River Plain, Idaho U.S. Geological Survey Miscellaneous Field Studies Map MF-850.

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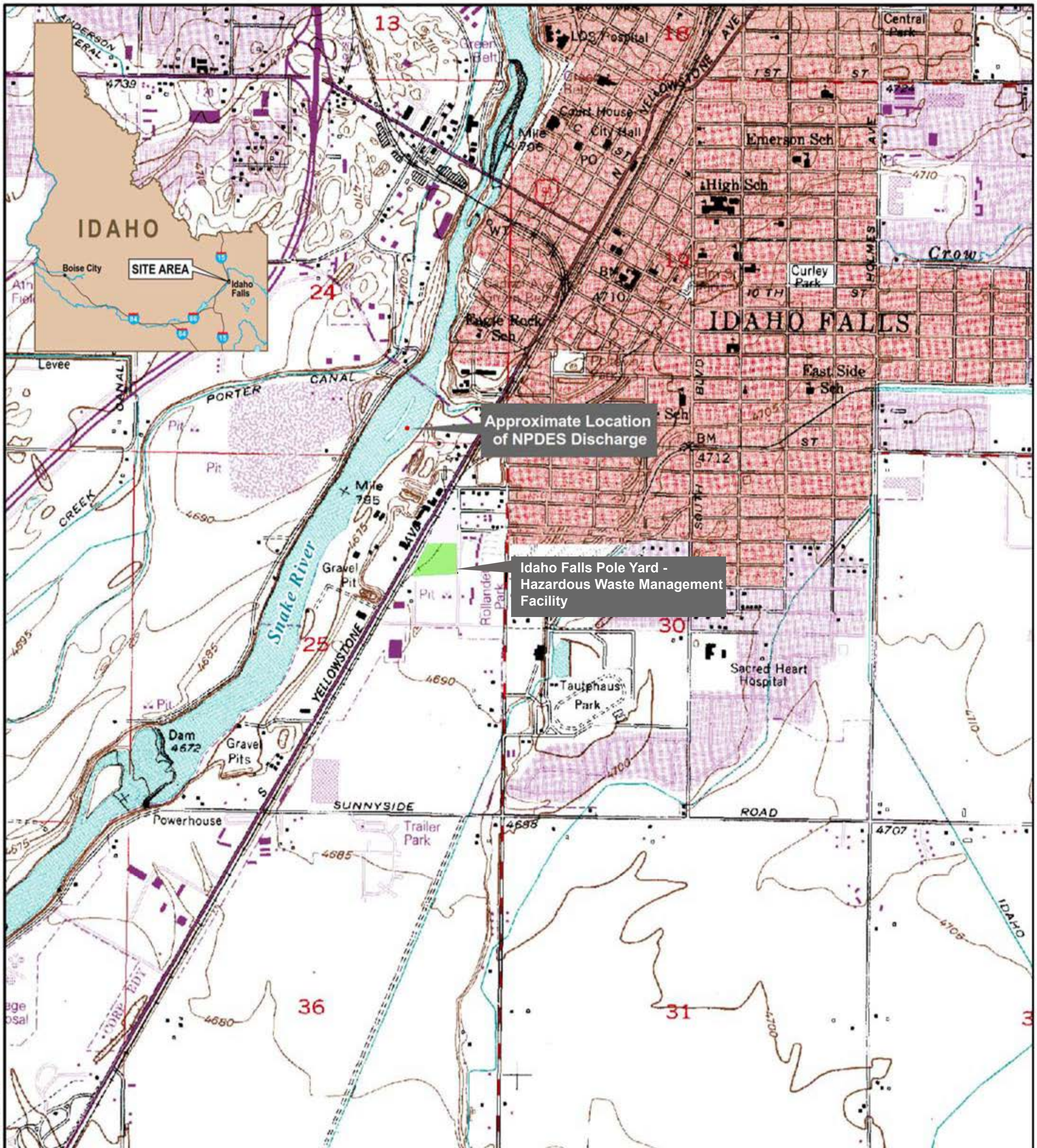
Steams, H.T., Crandall, L. and Steward, W.G., 1938, Geology and Ground Water Resources of the Snake River Plain in southeastern Idaho: U.S. Geological Survey Water-Supply Paper 774, 268 p.

Witkind, I.J., *1975,* Preliminary map showing known and suspected active faults in Idaho: U.S. Geological Survey Open-File Report 75-278, 71 p., Scale 1:500,000.



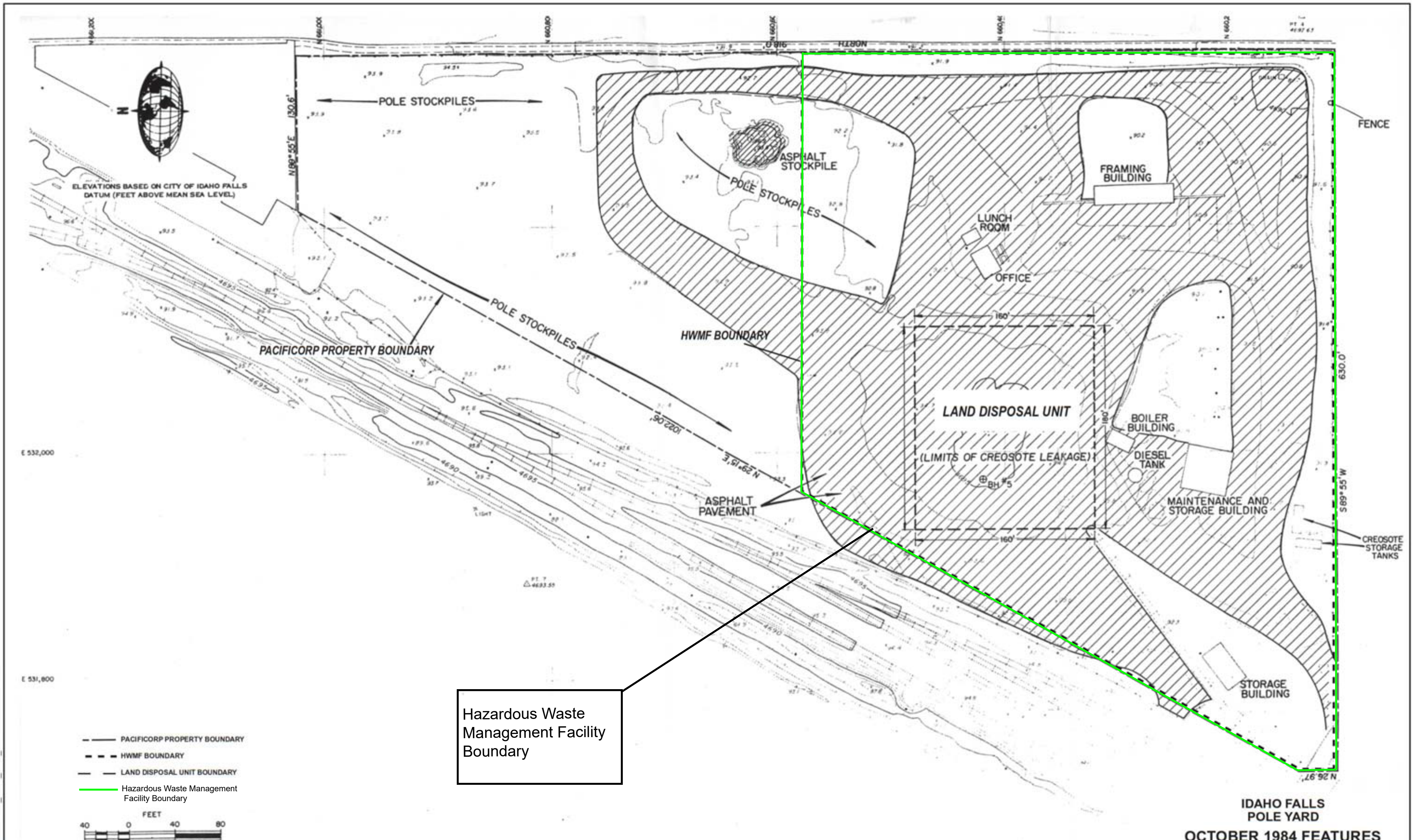
Notes: Base is USGS Idaho Falls North 7.5 quadrangle.
Datum; UTM NAD27 Zone 12N

IDAHO FALLS POLE YARD

LOCATION MAP

FIGURE 2.1

FILE Fig01.1_Idaho_Falls_Location.mxd 5/8/08 SLC



Reference: Adapted from typographic map entitled "Idaho Falls Pole Treatment Yard" prepared for Utah Power & Light by Aero-Graphics, Inc. - Salt Lake City, Utah. Dated 10 - 4- 1984.

Source: Dames & Moore, December 1984.

FILE Fig2.1 Features Oct_1984_Pole_Yard.ai 12/22/08 SLC

IDAHO FALLS POLE YARD

OCTOBER 1984 FEATURES UP&L POLE YARD

FIGURE 2.2

FILE *Fig2.3 Topographic map_Pole_Yard.a 5/8/08 SLC*

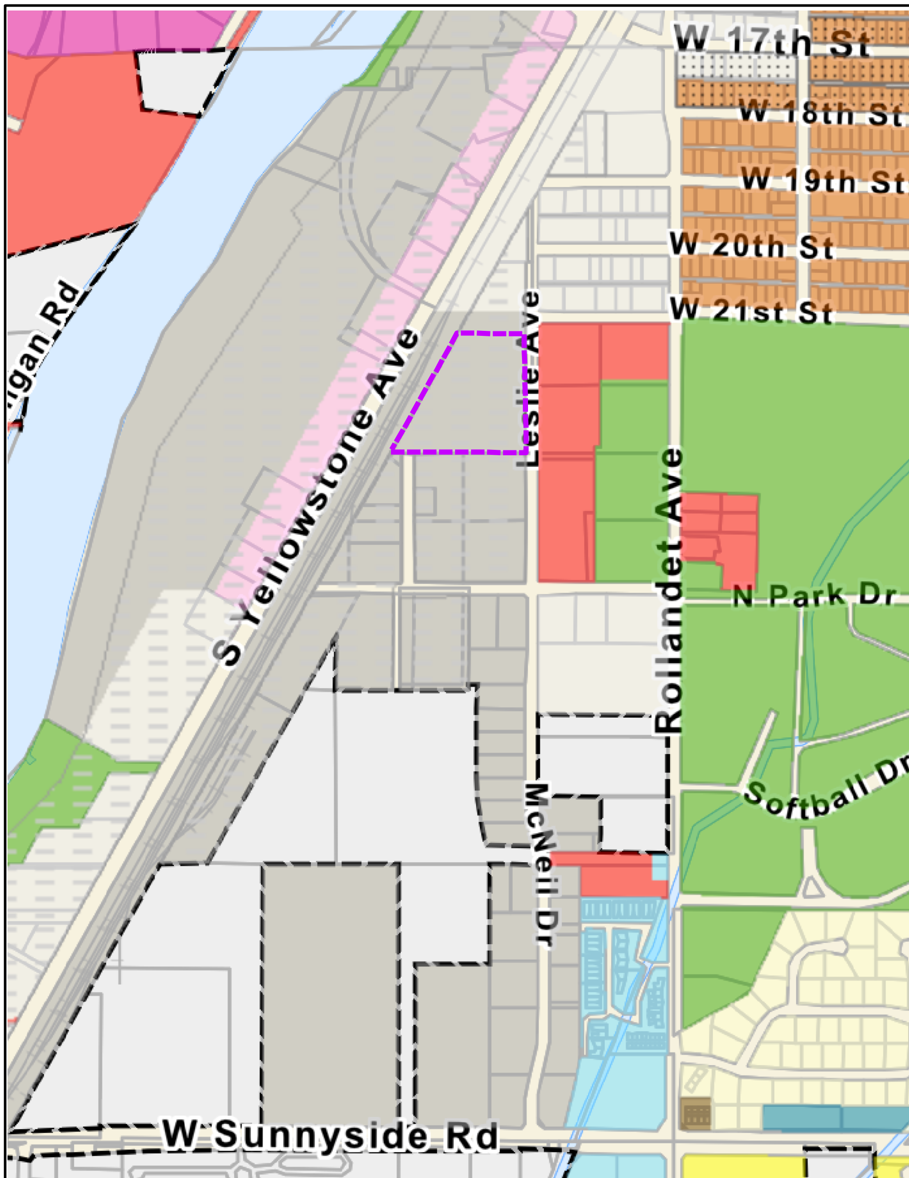
Reference: Adapted from photogrammetric print entitled "Idaho Falls Pole Treatment Yard" prepared for Utah Power & Light by Aero-Graphics, Inc. - Salt Lake City, Utah. Dated 10-4-1984

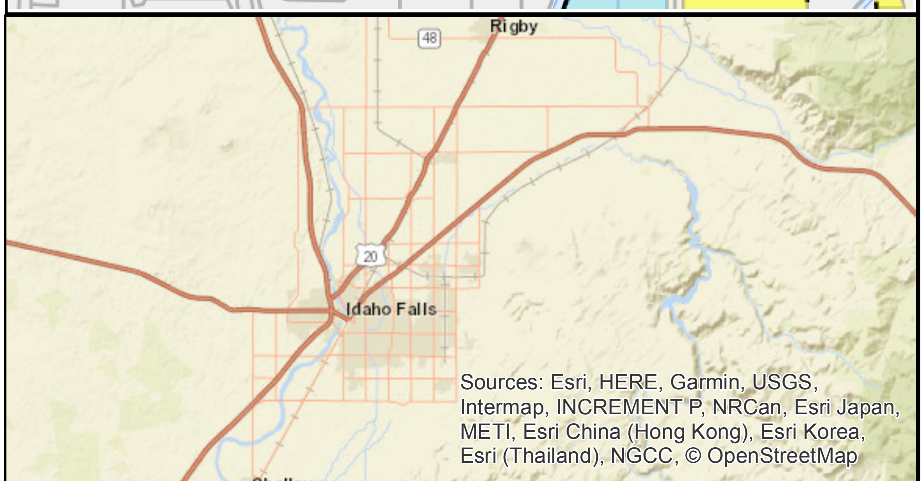
Source: Dames & Moore, December 1984.

IDAHO FALLS POLE YARD

TOPOGRAPHIC MAP UP&L POLE YARD 1984

FIGURE 2.3





Legend

Parcel Info

Zoning

- RE - Residential Estate
- RP- Residential Park
- R1- Single Dwelling Residential
- R2- Mixed Residential
- TN- Traditional Neighborhood
- RMH- Residential Mobile House
- R3- Multiple Dwelling Residential
- R3A- Residential Mixed Use
- PB - Professional Business Office
- CC- Central Commercial
- LC- Limited Commercial
- HC- highway Commercial
- R&D- research and Development
- LM- Light Manufacturing
- I&M- Industrial and Manufacturing
- P- Parks and Open Space
- HWMF Boundary (Idaho Falls)

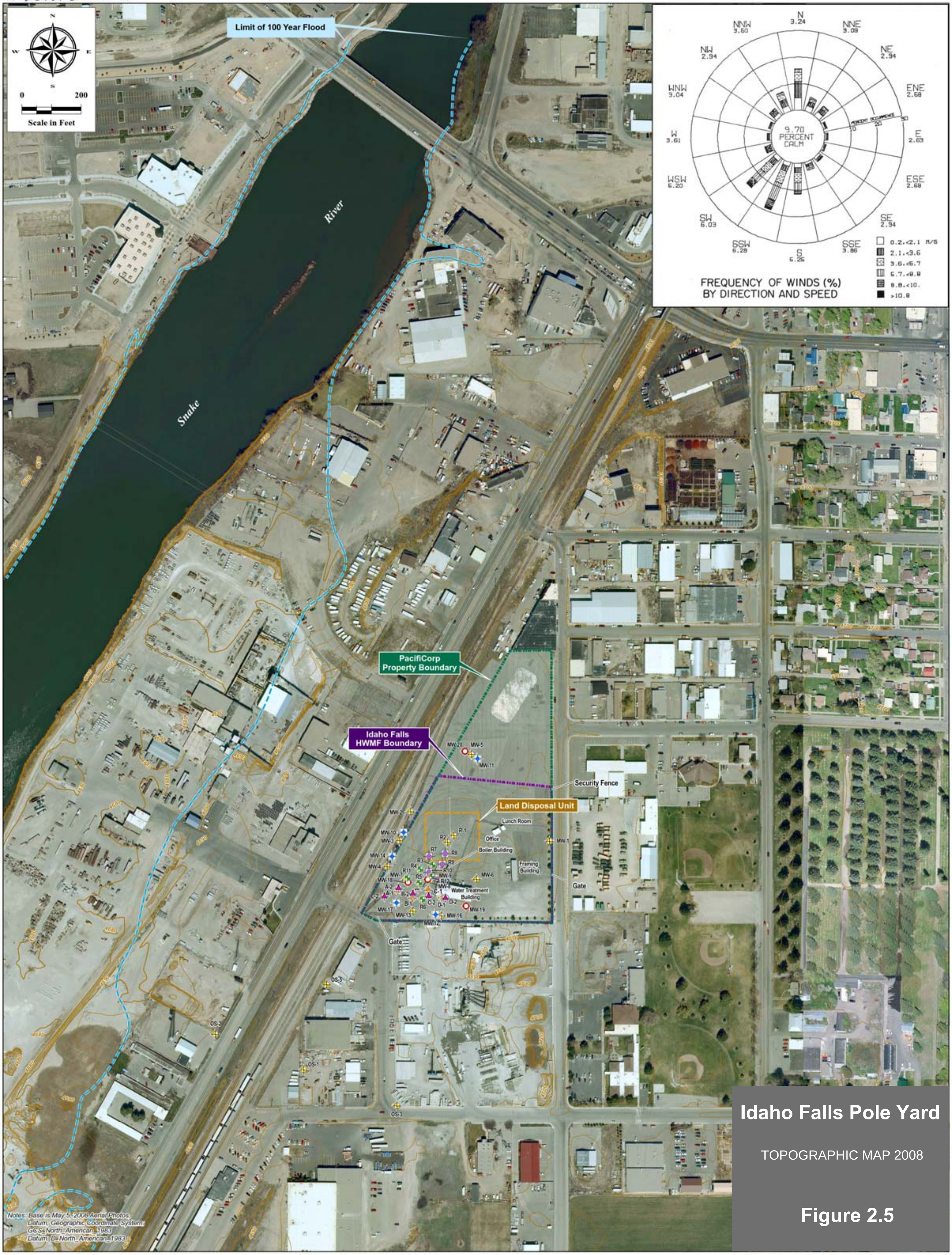
Other Zones

- PT
- PT and T1
- PUD
- T-1
- T-2

N

IDAHO FALLS
POLE YARD
IDAHO FALLS
ZONING CLASSIFICATIONS
FIGURE 2.4

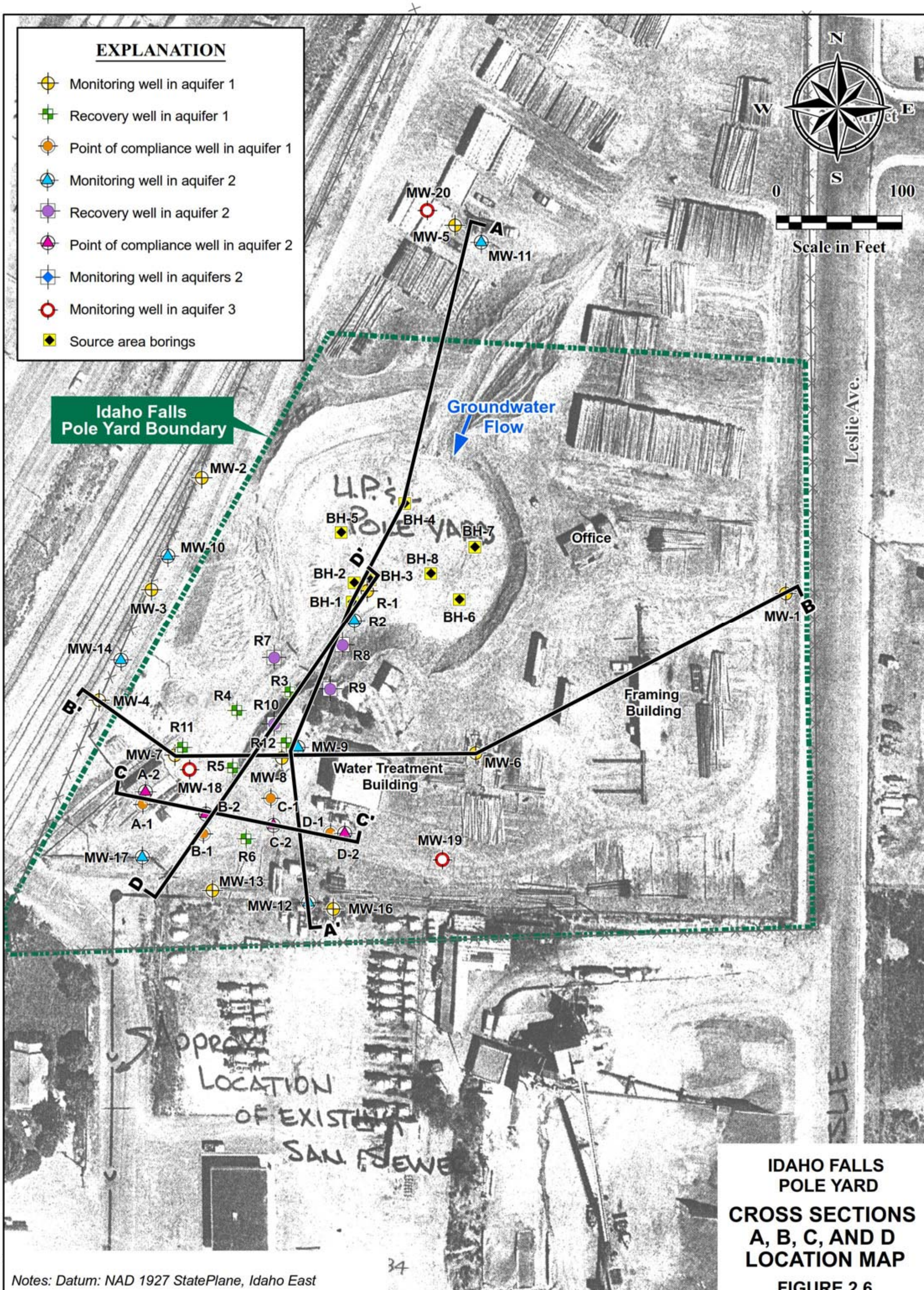
FILE Fig2.5_Topographic_2011.mxd 4/7/11 SLC



Idaho Falls Pole Yard

TOPOGRAPHIC MAP 2008

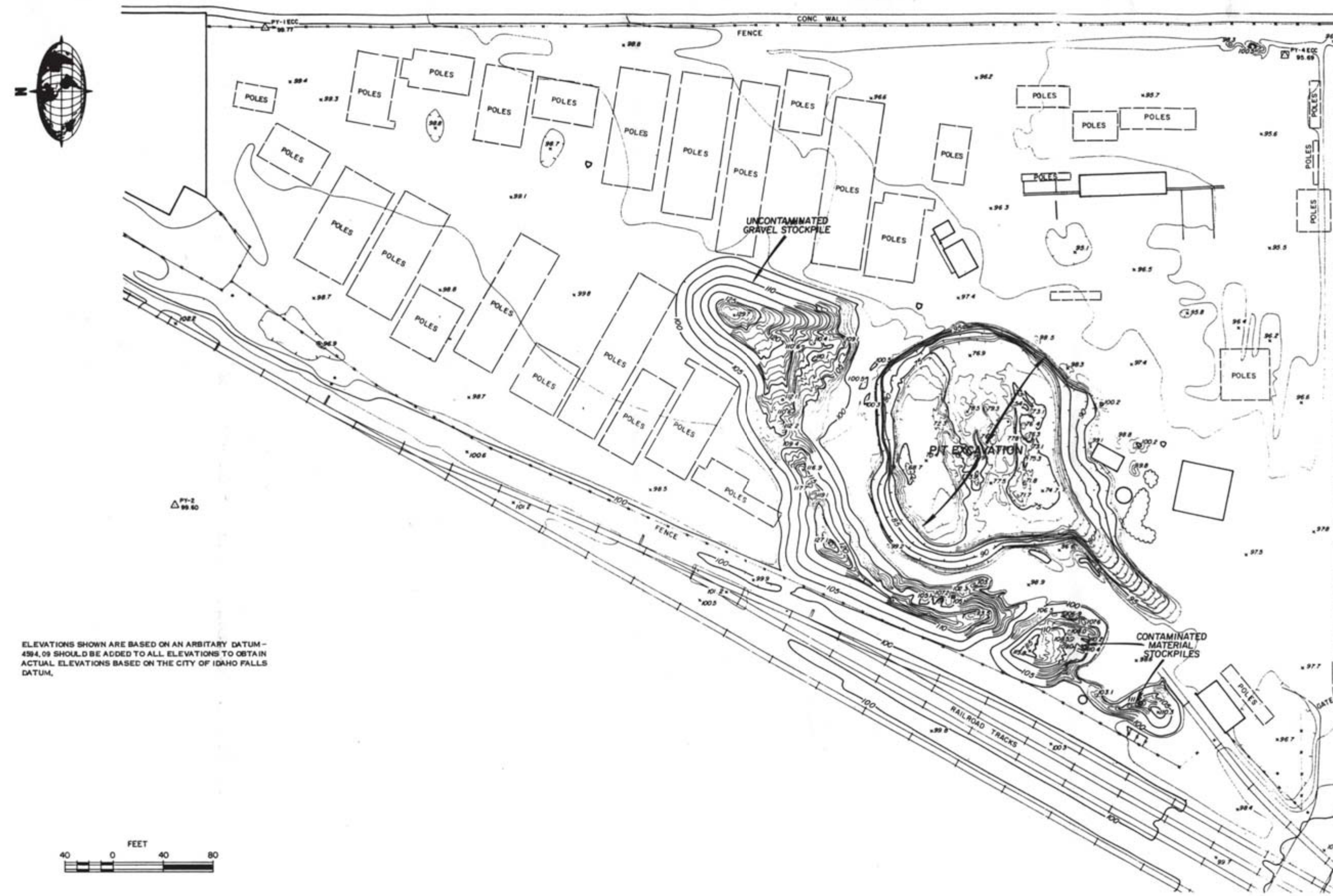
Figure 2.5



IDAHO FALLS
POLE YARD
CROSS SECTIONS
A, B, C, AND D
LOCATION MAP
FIGURE 2.6

Notes: Datum: NAD 1927 StatePlane, Idaho East

File Fig02.7 IF_PoleYard_A-D_Cross_section_Locs.mxd 12/22/2008 SLC



Reference: Adapted from typographic map entitled "Idaho Falls Pole Treatment Yard" prepared by Aero-Graphics, Inc. - Salt Lake City, Utah - for Utah Power & Light. Dated October 5, 1983

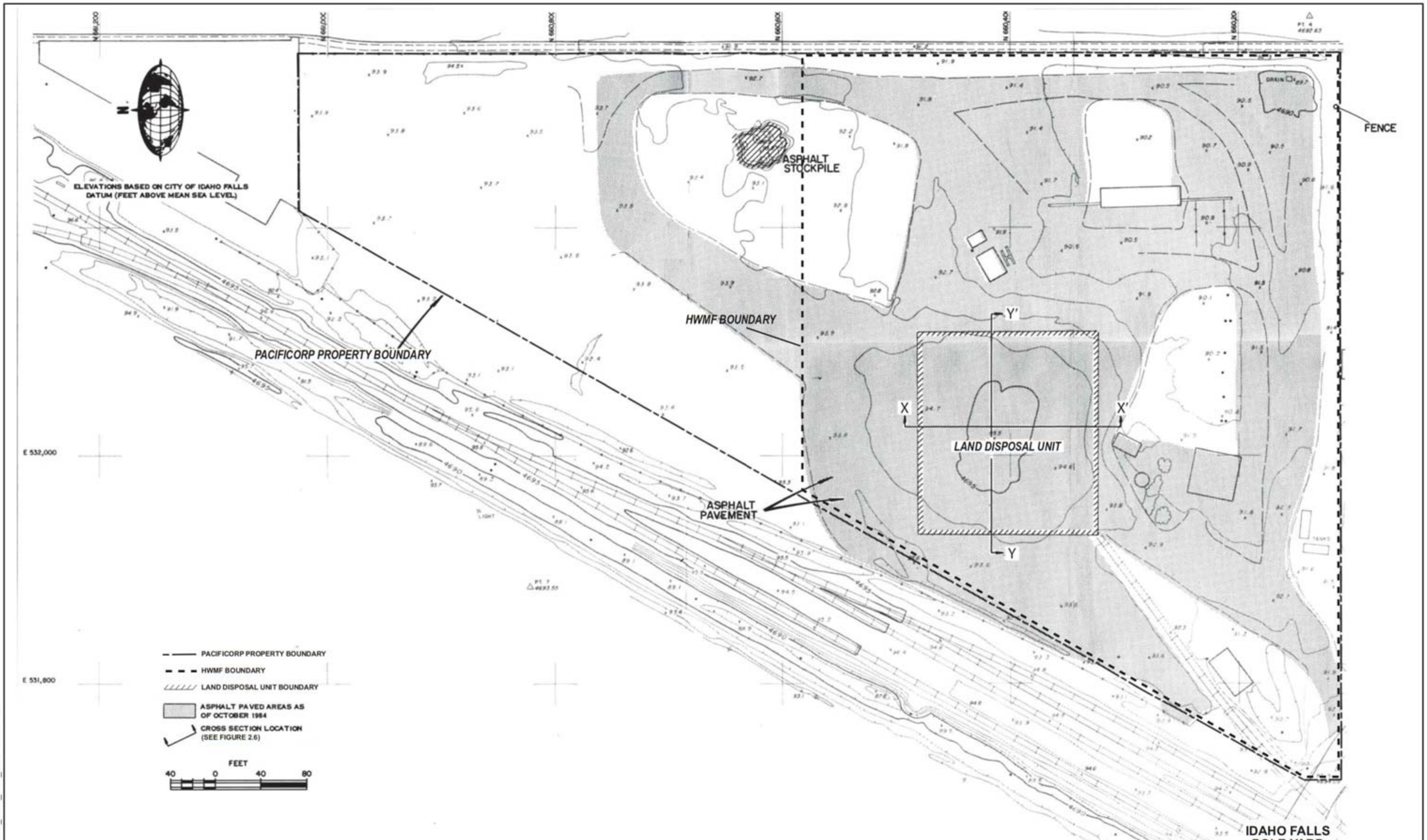
Source: Dames & Moore, December 1984.

IDAHO FALLS POLE YARD

UP&L POLE YARD OCTOBER 1983

FIGURE 2.7

FILE Fig02.4 October_1983_Pole_Yard.ai 5/8/08 SLC



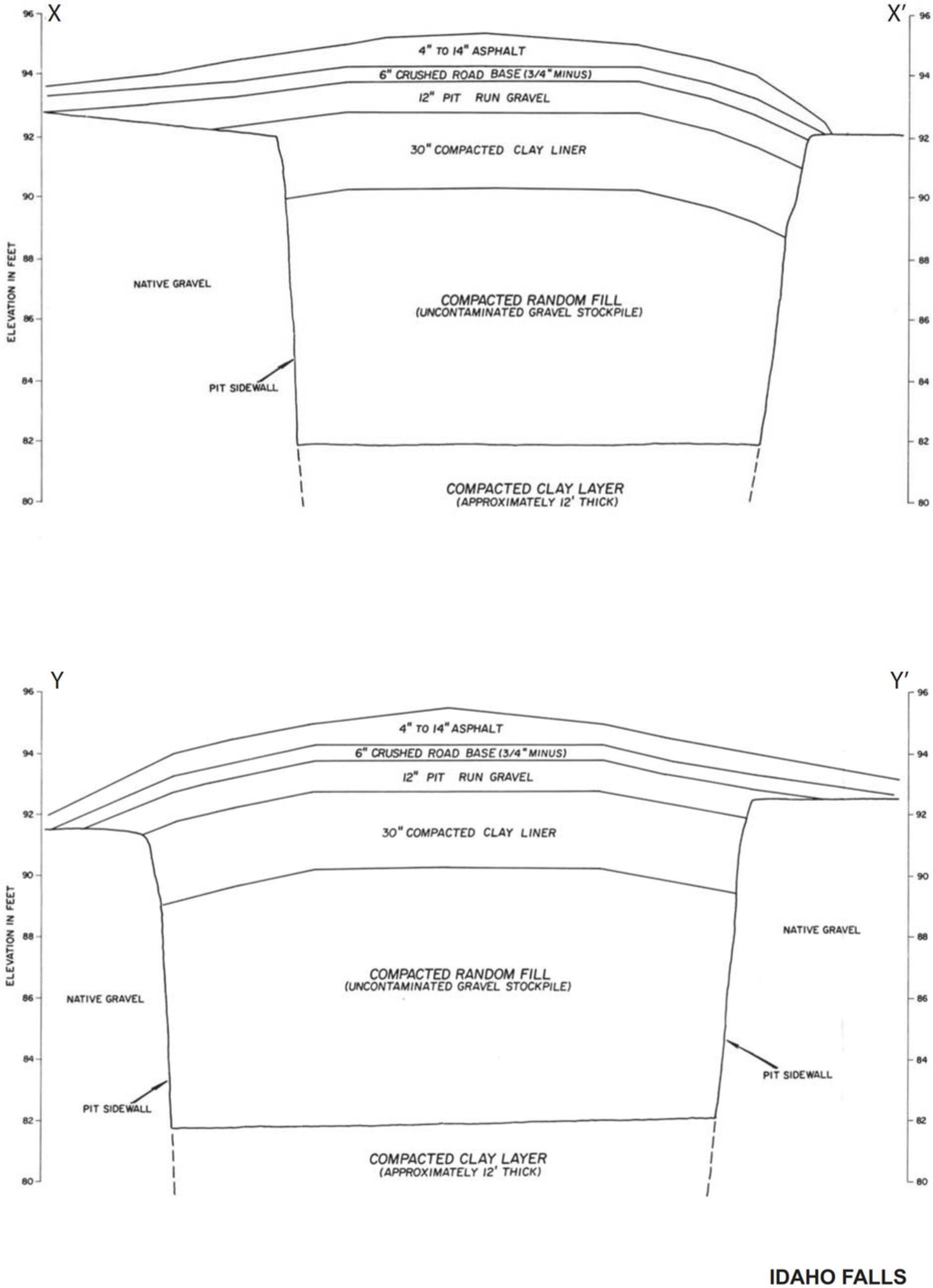
Reference: Adapted from typographic map entitled "Idaho Falls Pole Treatment Yard" prepared for Utah Power & Light by Aero-Graphics, Inc. - Salt Lake City, Utah. Dated 10 - 4 -1984.

Source: Dames & Moore, December 1984.

IDAHO FALLS POLE YARD
UP&L POLE YARD
OCTOBER 1984

FIGURE 2.8

FILE Fig02.5 October_1984_Pole_Yard 5/8/08 SLC



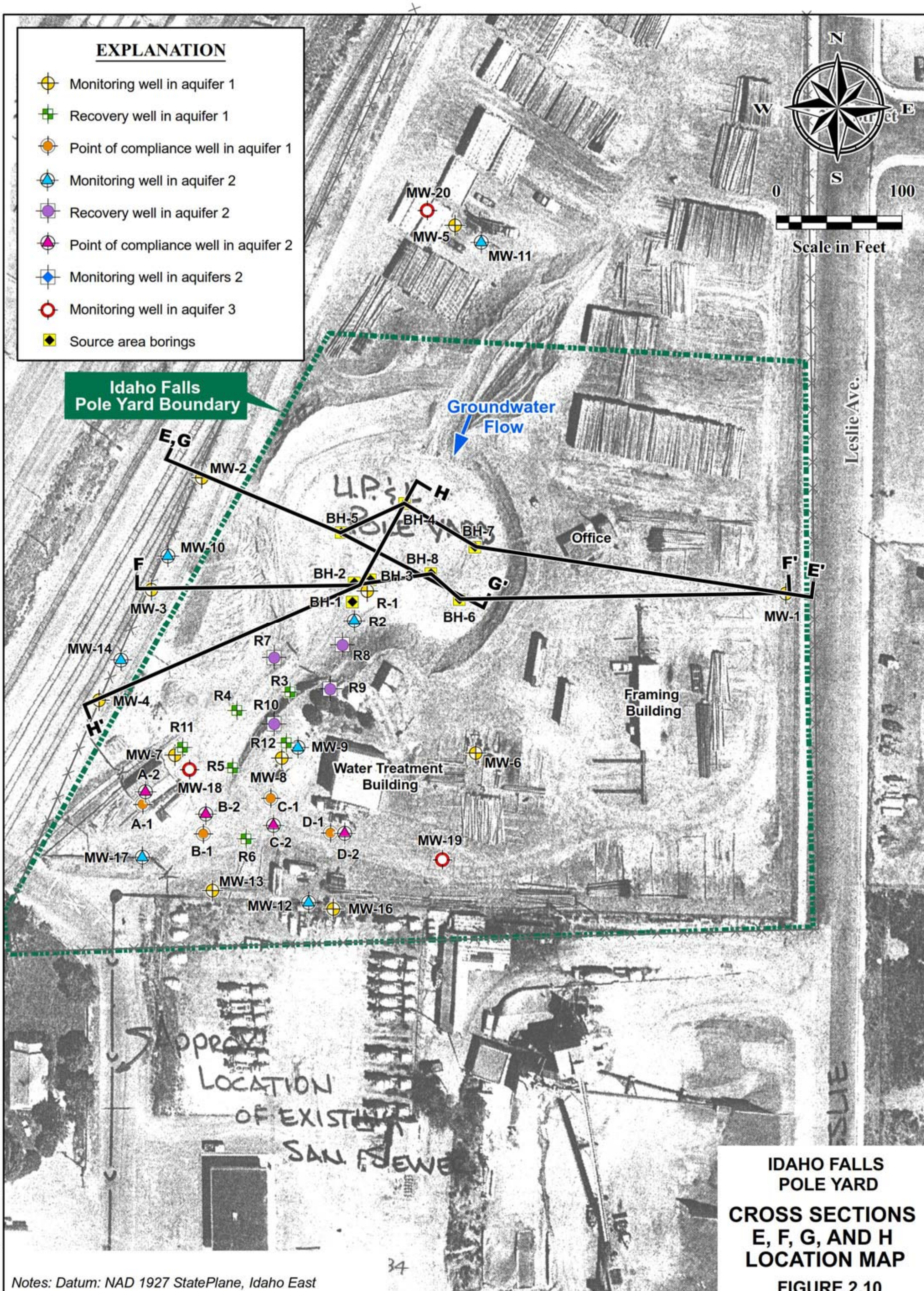
IDAHO FALLS POLE YARD

CROSS SECTIONS AND COVER DETAILS

FIGURE 2.9

Source: Dames & Moore

FILE *Fig02.6 Cover Details.ai 5/8/08 SLC*



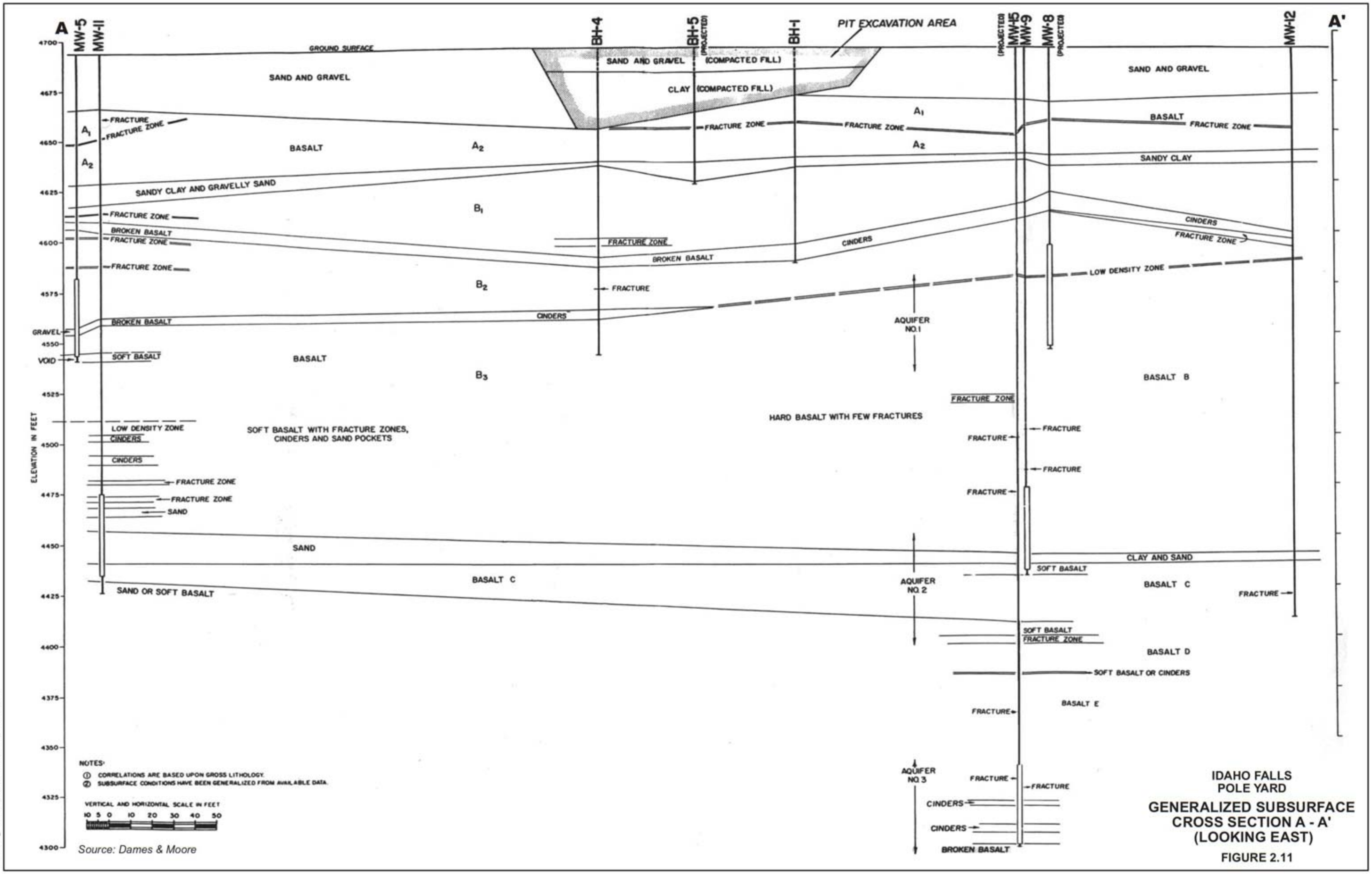
FILE Fig02.8 IF_PoleYard_E-H_Cross_section_Locs.mxd 5/8/08

Notes: Datum: NAD 1927 StatePlane, Idaho East

IDAHO FALLS POLE YARD

CROSS SECTIONS E, F, G, AND H LOCATION MAP

FIGURE 2.10

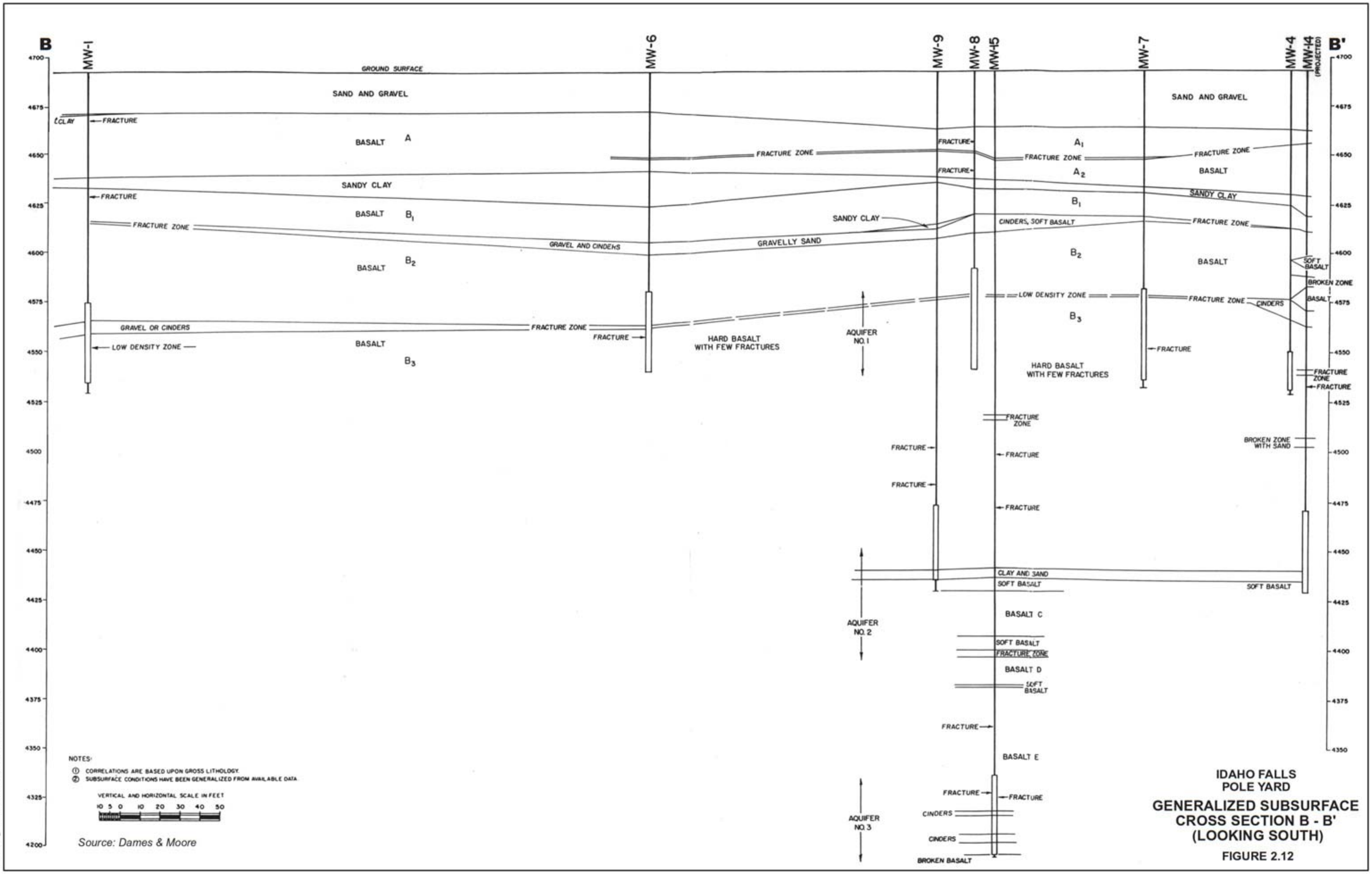


IDAHO FALLS
POLE YARD

GENERALIZED SUBSURFACE CROSS SECTION A - A' (LOOKING EAST)

FIGURE 2.11

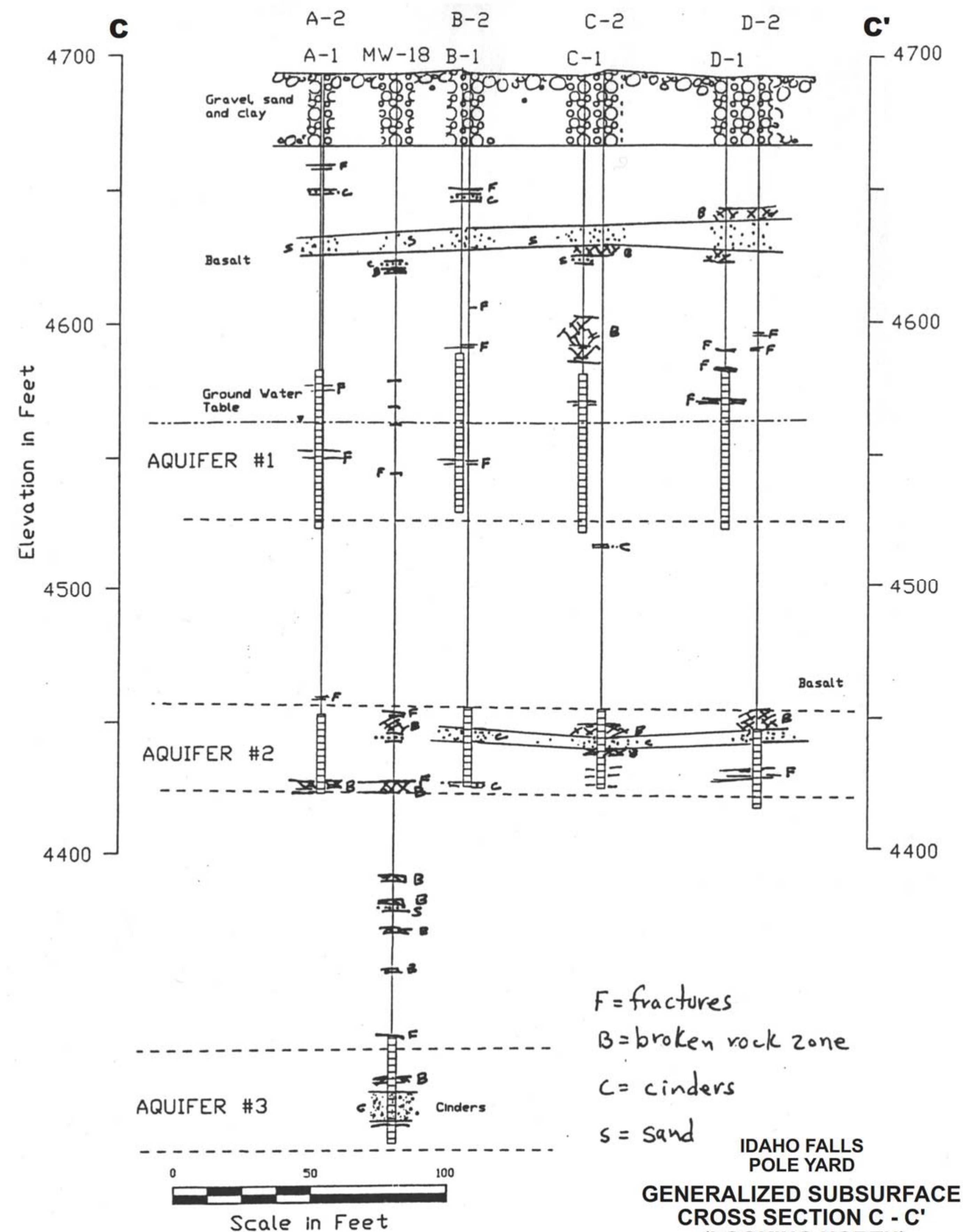
FILE Fig02.9 Cross Section A.ai 5/8/08 SLC



Source: Dames & Moore

IDAHO FALLS
POLE YARD
GENERALIZED SUBSURFACE CROSS SECTION B - B' (LOOKING SOUTH)
FIGURE 2.12

FILE Fig02.10 Cross Section B.ai 4/4/08 SLC



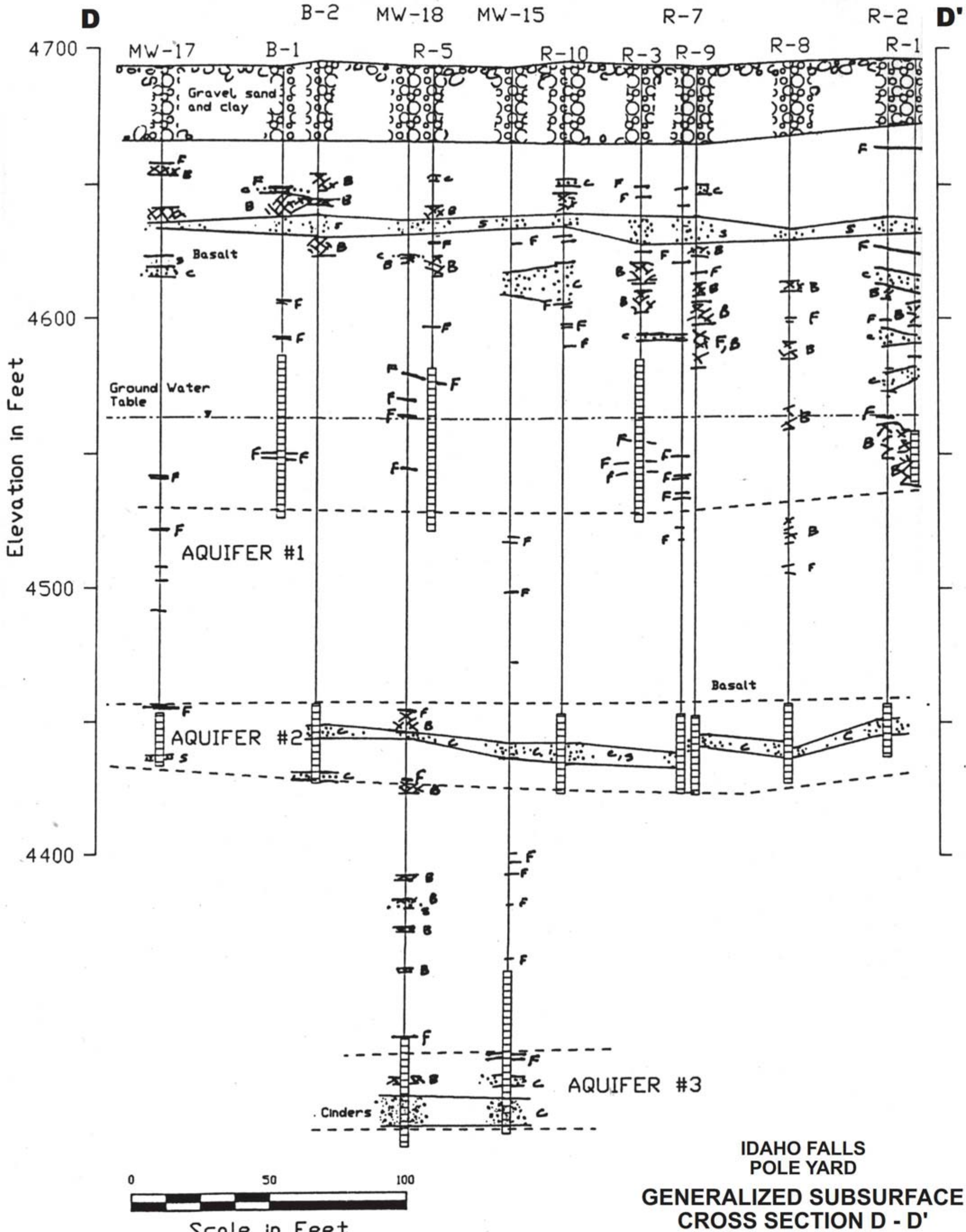
Source: Dames & Moore

IDAHO FALLS POLE YARD

GENERALIZED SUBSURFACE CROSS SECTION C - C' (LOOKING NORTH)

FIGURE 2.13

FILE Fig02.11 Cross Section C.ai 5/8/08 SLC



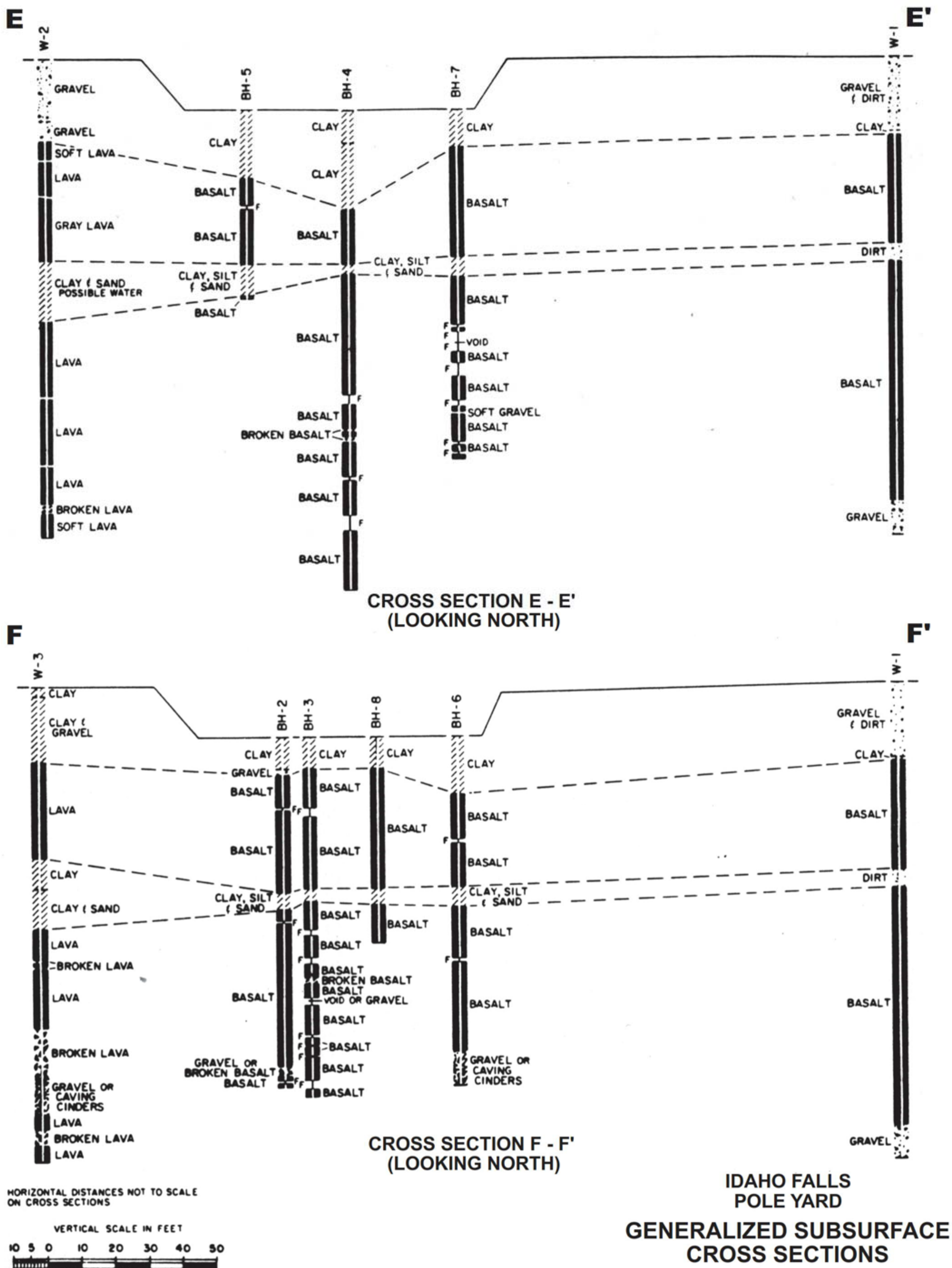
IDAHO FALLS
POLE YARD

GENERALIZED SUBSURFACE CROSS SECTION D - D' (LOOKING NORTHWEST)

FIGURE 2.14

Source: Dames & Moore

FILE *Fig02.12 Cross Section D.ai 5/8/08 SLC*



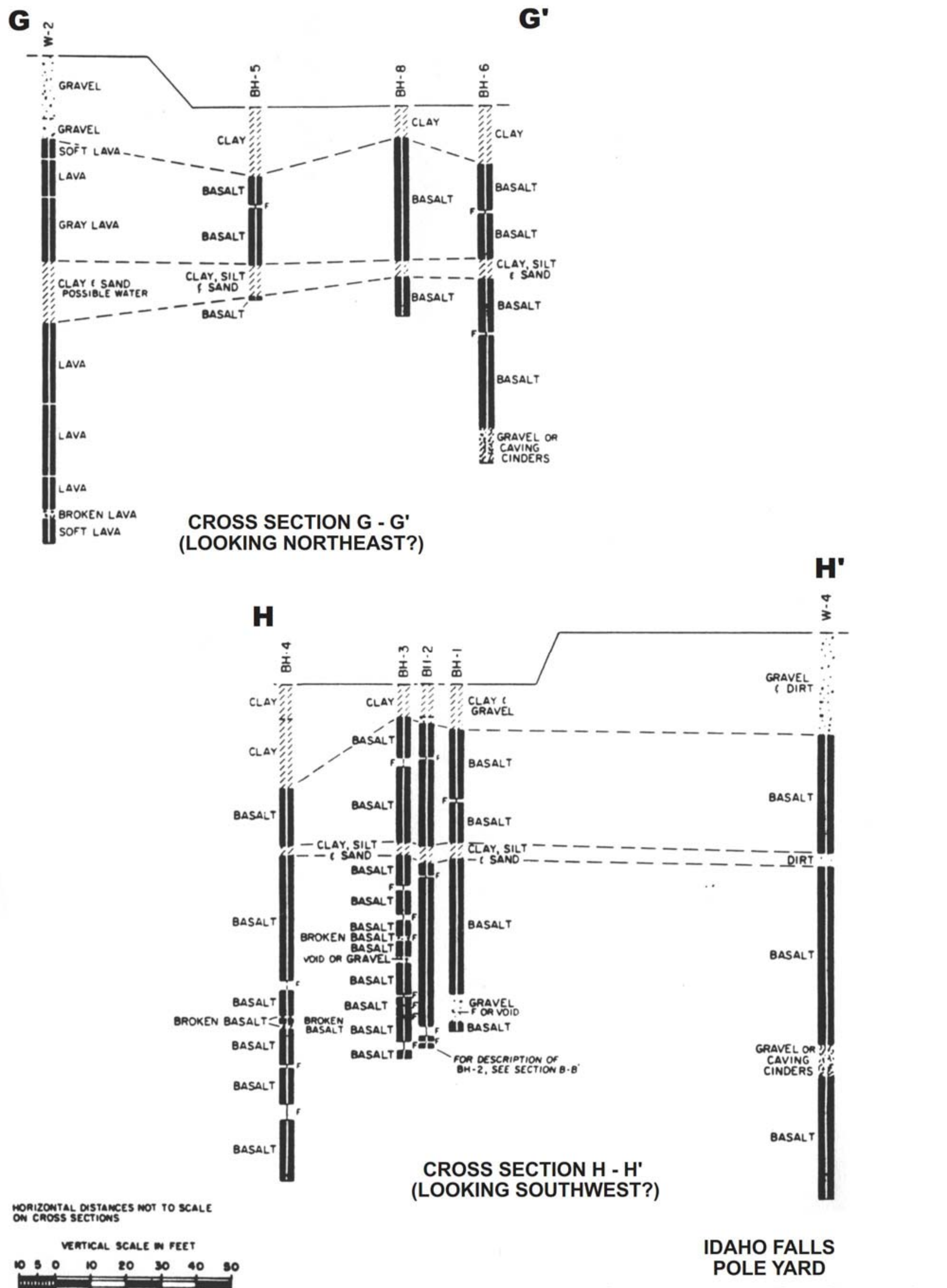
IDAHO FALLS
POLE YARD

GENERALIZED SUBSURFACE CROSS SECTIONS E - E' AND F - F'

FIGURE 2.15

Source: Dames & Moore

FILE Fig02.13 Cross Section E&F.ai 4/4/08 SLC



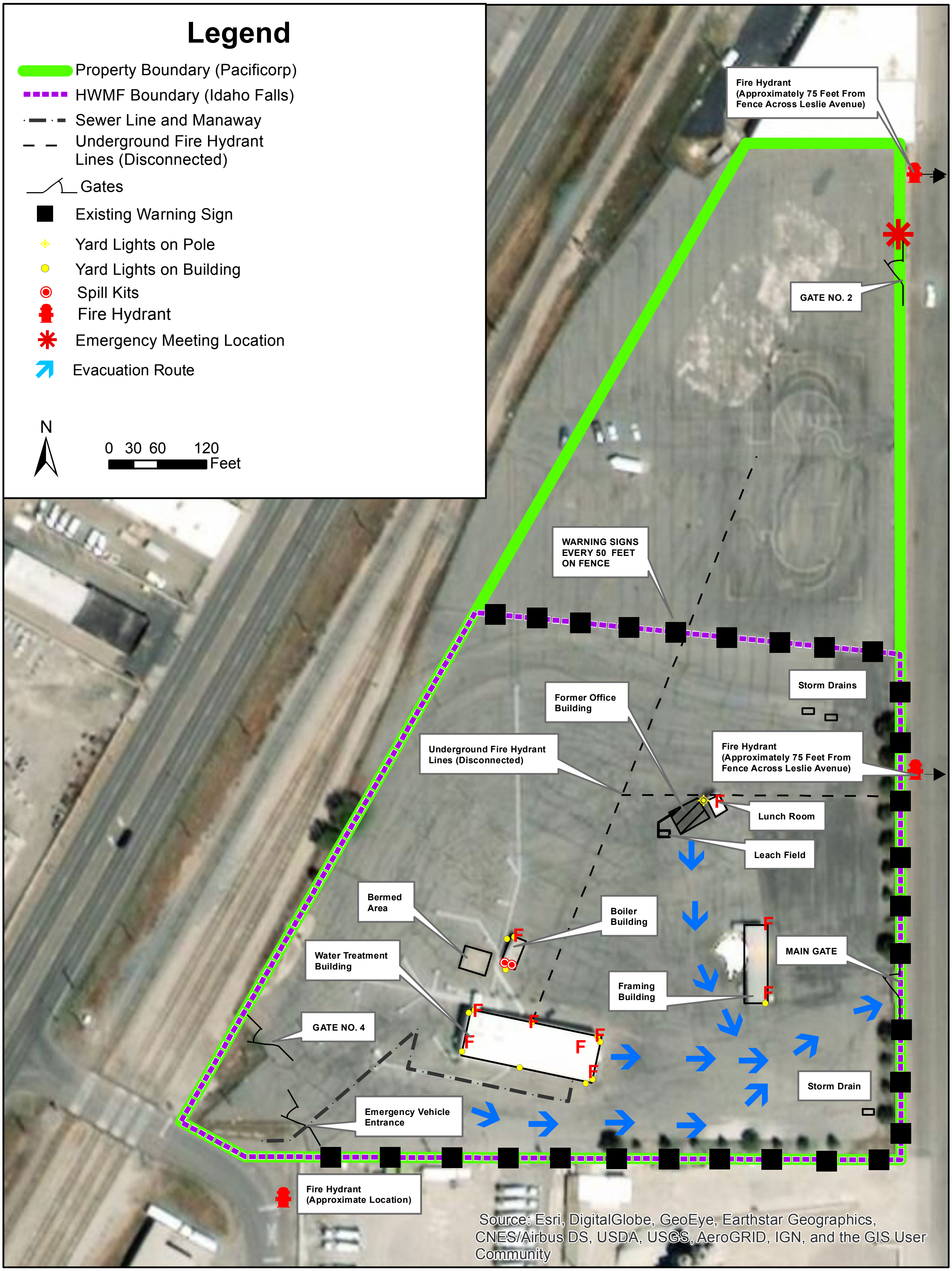
IDAHO FALLS
POLE YARD

GENERALIZED SUBSURFACE CROSS SECTIONS G - G' AND H - H'

FIGURE 2.16

Source: Dames & Moore

FILE *Fig02.14 Cross Section E&F.ai 4/4/08 SLC*



IDAHO FALLS POLE YARD EMERGENCY EQUIPMENT, UTILITY LINES, EVACUATION ROUTE AND GATE INFORMATION

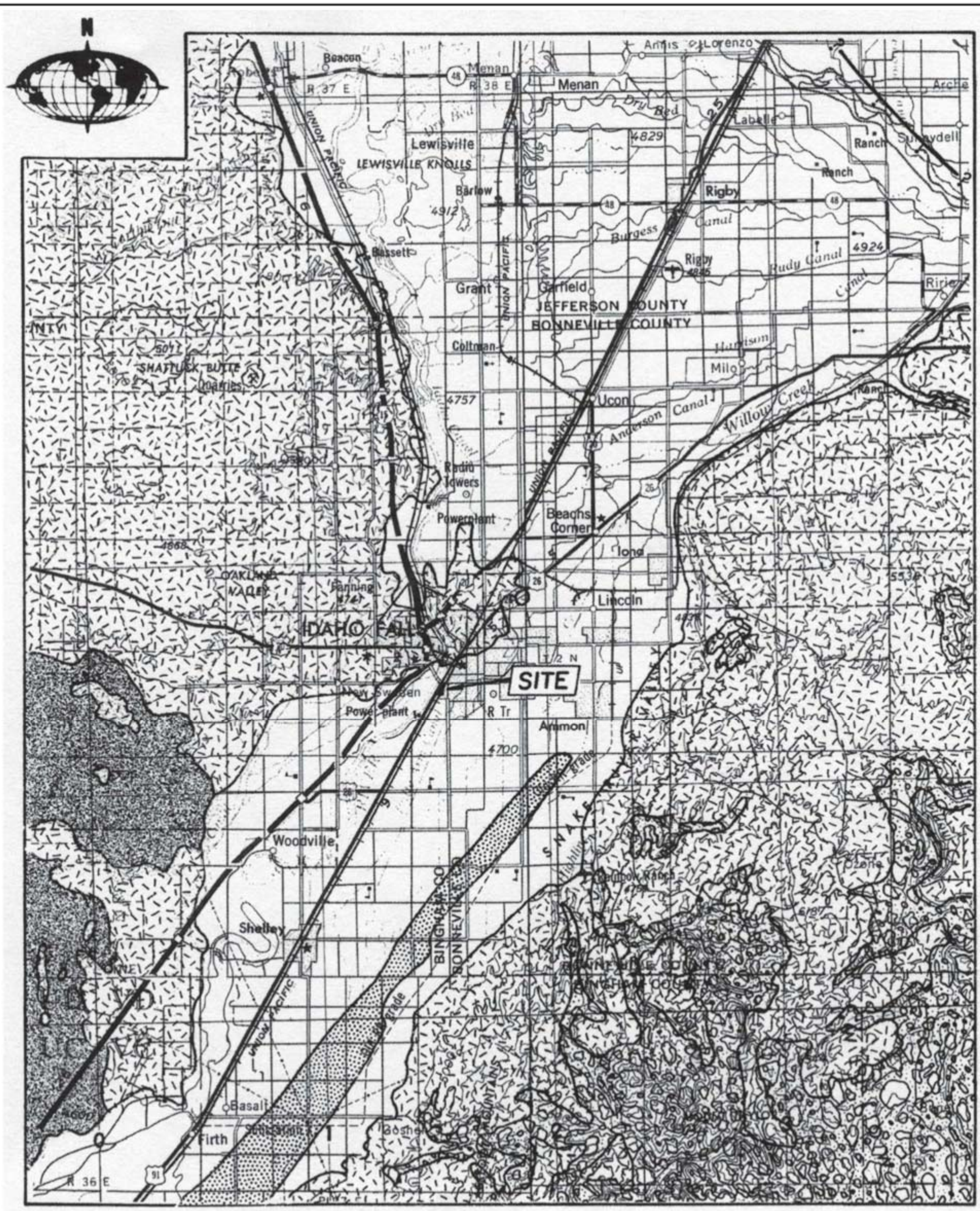
Figure 2.17

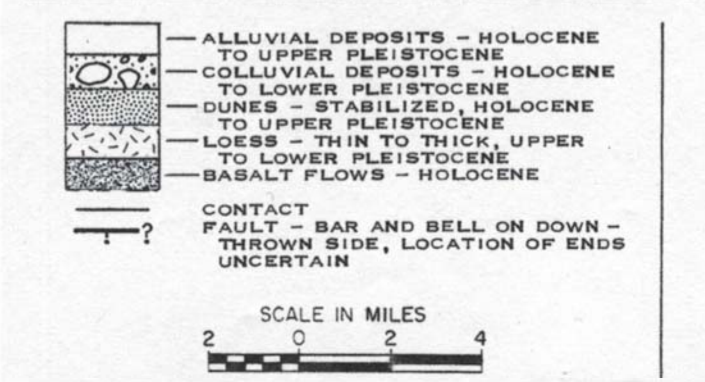
FILE Fig2.18 Pole_Yard General Traffic and Security.mxd 4/7/10 SLC

Idaho Falls Pole Yard

General Traffic and Security Information

Figure 2.18





IDAHO FALLS
POLE YARD

SURFICIAL GEOLOGY
(Modified from Scott, 1982)

FIGURE 2.19

FILE Fig02.17 Surficial Geology 5/8/08 SLC

IDAHO FALLS
POLE YARD
FIRM INSURANCE RATE MAP
FIGURE 2.20

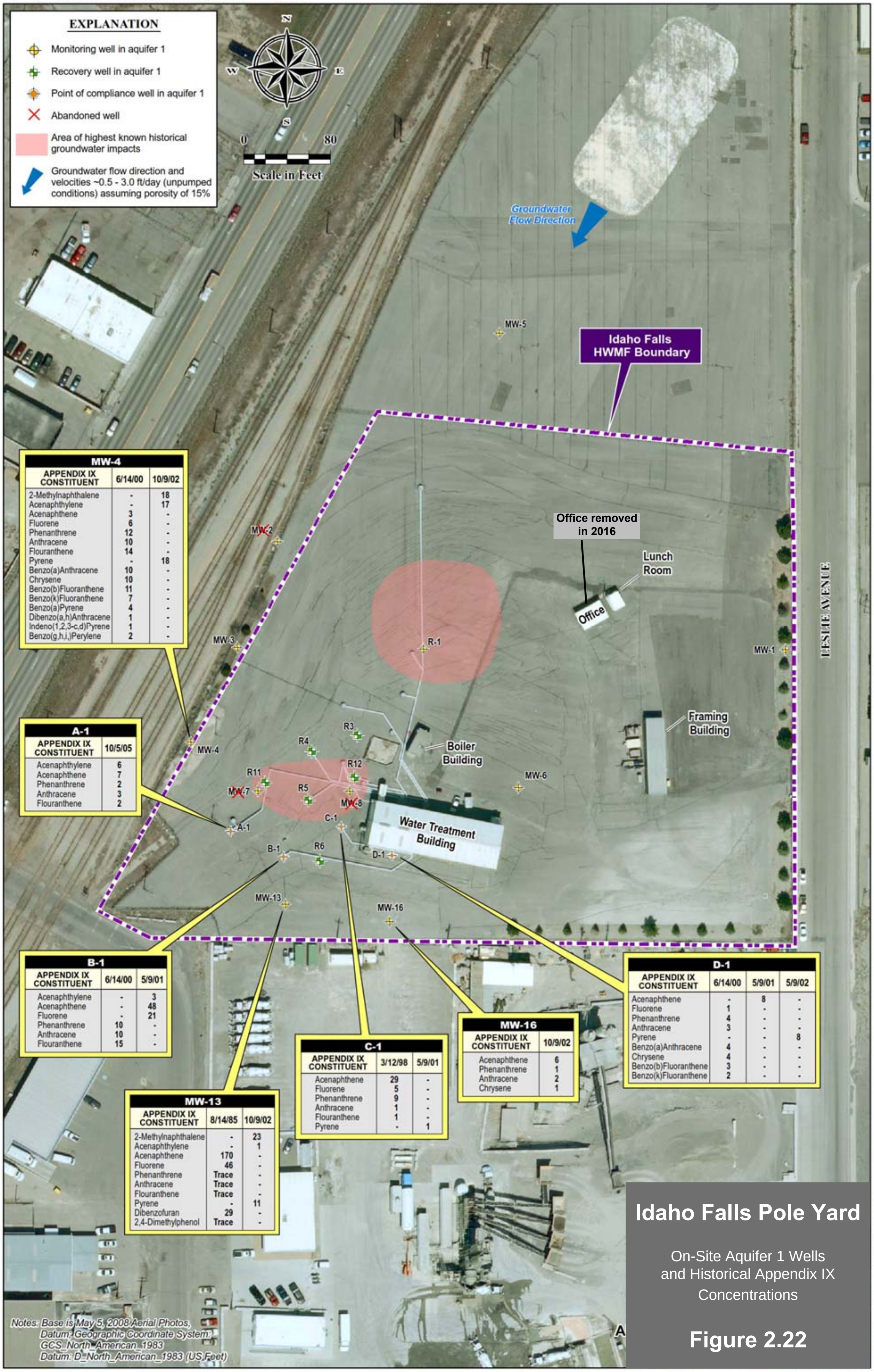
FILE Fig2.21_IF_PoleYard_MW_locations_Apr2011.mxd 4/7/11 SLC

Idaho Falls Pole Yard

Well Locations

Figure 2.21

FILE Fig4.01B_IF_PoleYard_Aquifer1_Charts_NAD83_1110.mxd 11/24/09 SLC



MW-4

APPENDIX IX CONSTITUENT	6/14/00	10/9/02
2-Methylnaphthalene	-	18
Acenaphthylene	-	17
Acenaphthene	3	-
Fluorene	6	-
Phenanthrene	12	-
Anthracene	10	-
Flouranthene	14	-
Pyrene	-	18
Benzo(a)Anthracene	10	-
Chrysene	10	-
Benzo(b)Fluoranthene	11	-
Benzo(k)Fluoranthene	7	-
Benzo(a)Pyrene	4	-
Dibenzo(a,h)Anthracene	1	-
Indeno(1,2,3-c,d)Pyrene	1	-
Benzo(g,h,i,)Perylene	2	-

A-1

APPENDIX IX CONSTITUENT	10/5/05
Acenaphthylene	6
Acenaphthene	7
Phenanthrene	2
Anthracene	3
Flouranthene	2

B-1

APPENDIX IX CONSTITUENT	6/14/00	5/9/01
Acenaphthylene	-	3
Acenaphthene	-	48
Fluorene	-	21
Phenanthrene	10	-
Anthracene	10	-
Flouranthene	15	-

MW-13

APPENDIX IX CONSTITUENT	8/14/85	10/9/02
2-Methylnaphthalene	-	23
Acenaphthylene	-	1
Acenaphthene	170	-
Fluorene	46	-
Phenanthrene	Trace	-
Anthracene	Trace	-
Flouranthene	Trace	-
Pyrene	-	11
Dibenzofuran	29	-
2,4-Dimethylphenol	Trace	-

C-1

APPENDIX IX CONSTITUENT	3/12/98	5/9/01
Acenaphthene	29	-
Fluorene	5	-
Phenanthrene	9	-
Anthracene	1	-
Flouranthene	1	-
Pyrene	-	1

MW-16

APPENDIX IX CONSTITUENT	10/9/02
Acenaphthene	6
Phenanthrene	1
Anthracene	2
Chrysene	1

D-1

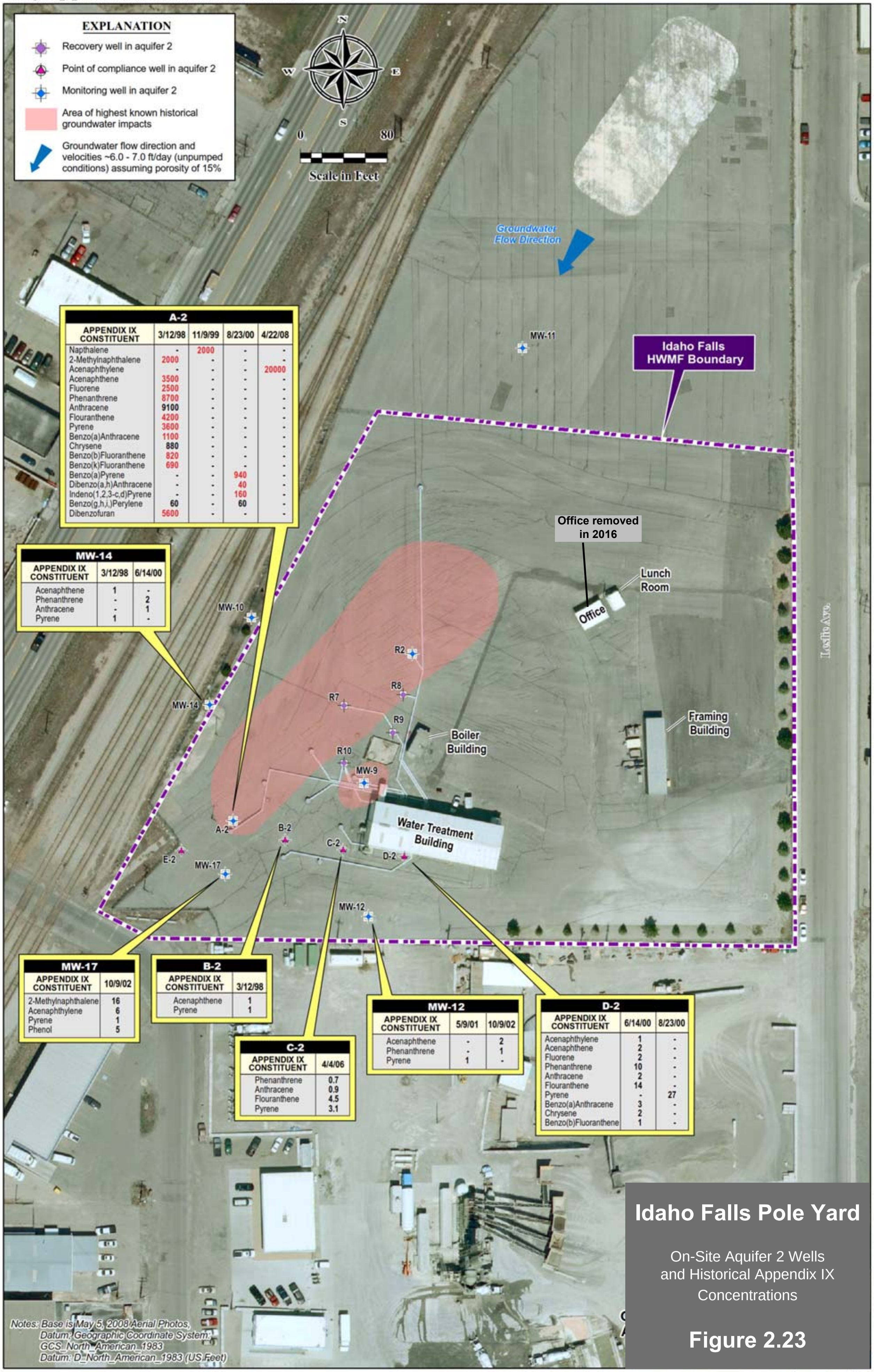
APPENDIX IX CONSTITUENT	6/14/00	5/9/01	5/9/02
Acenaphthene	-	8	-
Fluorene	1	-	-
Phenanthrene	4	-	-
Anthracene	3	-	-
Pyrene	-	-	8
Benzo(a)Anthracene	4	-	-
Chrysene	4	-	-
Benzo(b)Fluoranthene	3	-	-
Benzo(k)Fluoranthene	2	-	-

Idaho Falls Pole Yard

On-Site Aquifer 1 Wells and Historical Appendix IX Concentrations

Figure 2.22

FILE Fig4.01C_IF_PoleYard_Aquifer2_Charts_NAD83_1110.mxd 11/24/10 SLC



A-2

APPENDIX IX CONSTITUENT	3/12/98	11/9/99	8/23/00	4/22/08
Napthalene	-	2000	-	-
2-Methylnaphthalene	2000	-	-	-
Acenaphthylene	-	-	-	20000
Acenaphthene	3500	-	-	-
Fluorene	2500	-	-	-
Phenanthrene	8700	-	-	-
Anthracene	9100	-	-	-
Flouranthene	4200	-	-	-
Pyrene	3600	-	-	-
Benzo(a)Anthracene	1100	-	-	-
Chrysene	880	-	-	-
Benzo(b)Fluoranthene	820	-	-	-
Benzo(k)Fluoranthene	690	-	-	-
Benzo(a)Pyrene	-	-	940	-
Dibenzo(a,h)Anthracene	-	-	40	-
Indeno(1,2,3-c,d)Pyrene	-	-	160	-
Benzo(g,h,i,)Perylene	60	-	60	-
Dibenzofuran	5600	-	-	-

MW-14

APPENDIX IX CONSTITUENT	3/12/98	6/14/00
Acenaphthene	1	-
Phenanthrene	-	2
Anthracene	-	1
Pyrene	1	-

MW-17

APPENDIX IX CONSTITUENT	10/9/02
2-Methylnaphthalene	16
Acenaphthylene	6
Pyrene	1
Phenol	5

B-2

APPENDIX IX CONSTITUENT	3/12/98
Acenaphthene	1
Pyrene	1

C-2

APPENDIX IX CONSTITUENT	4/4/06
Phenanthrene	0.7
Anthracene	0.9
Flouranthene	4.5
Pyrene	3.1

MW-12

APPENDIX IX CONSTITUENT	5/9/01	10/9/02
Acenaphthene	-	2
Phenanthrene	-	1
Pyrene	1	-

D-2

APPENDIX IX CONSTITUENT	6/14/00	8/23/00
Acenaphthylene	1	-
Acenaphthene	2	-
Fluorene	2	-
Phenanthrene	10	-
Anthracene	2	-
Flouranthene	14	-
Pyrene	-	27
Benzo(a)Anthracene	3	-
Chrysene	2	-
Benzo(b)Fluoranthene	1	-

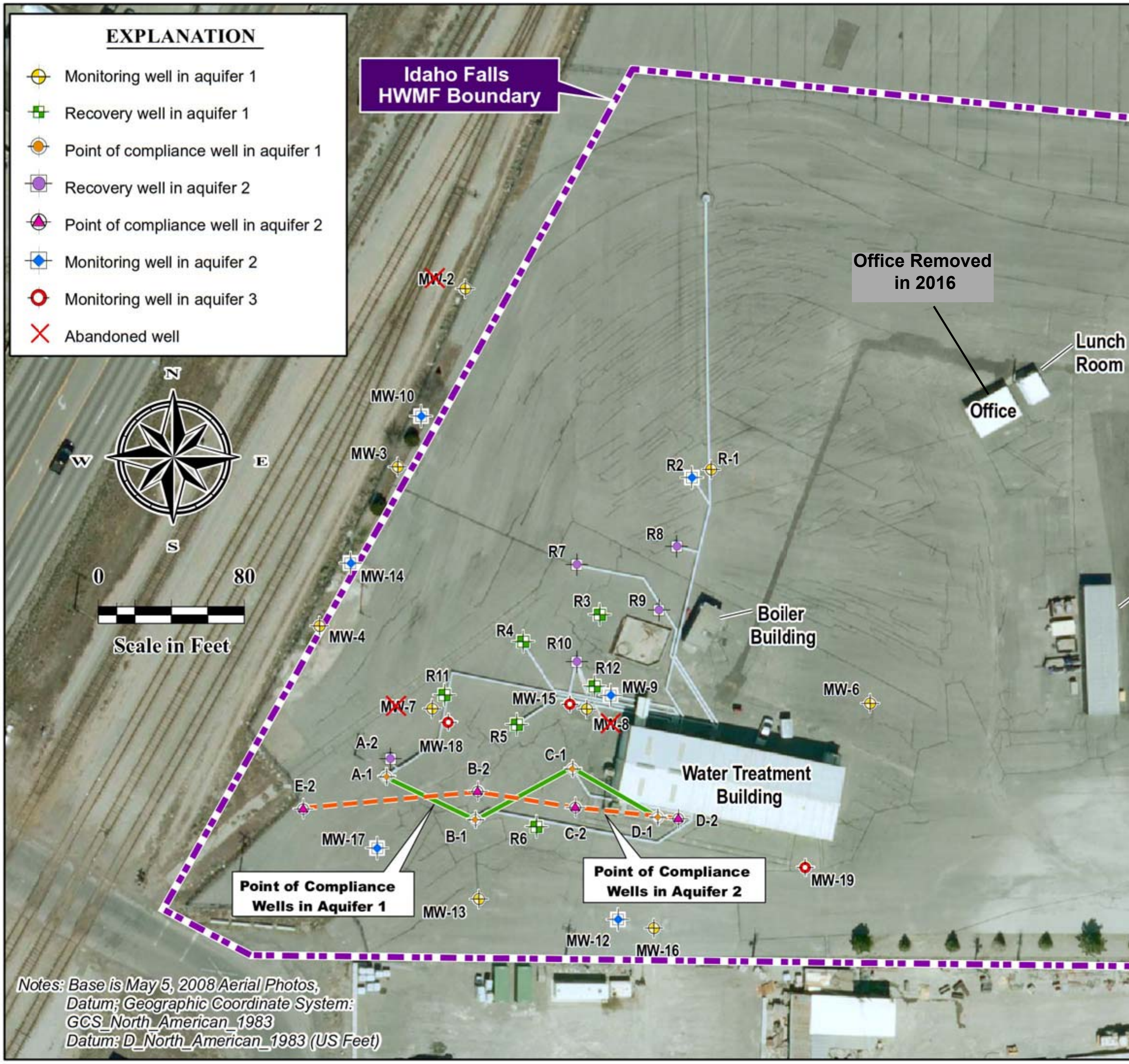
Notes: Base is May 5, 2008 Aerial Photos,
Datum: Geographic Coordinate System:
GCS_North_American_1983
Datum: D_North_American_1983 (US Feet)

Idaho Falls Pole Yard

On-Site Aquifer 2 Wells
and Historical Appendix IX
Concentrations

Figure 2.23

FILE *Fig4.02IF_PoleYard_POC_wells_NAD83_1110.mxd 11/23/10 SLC*

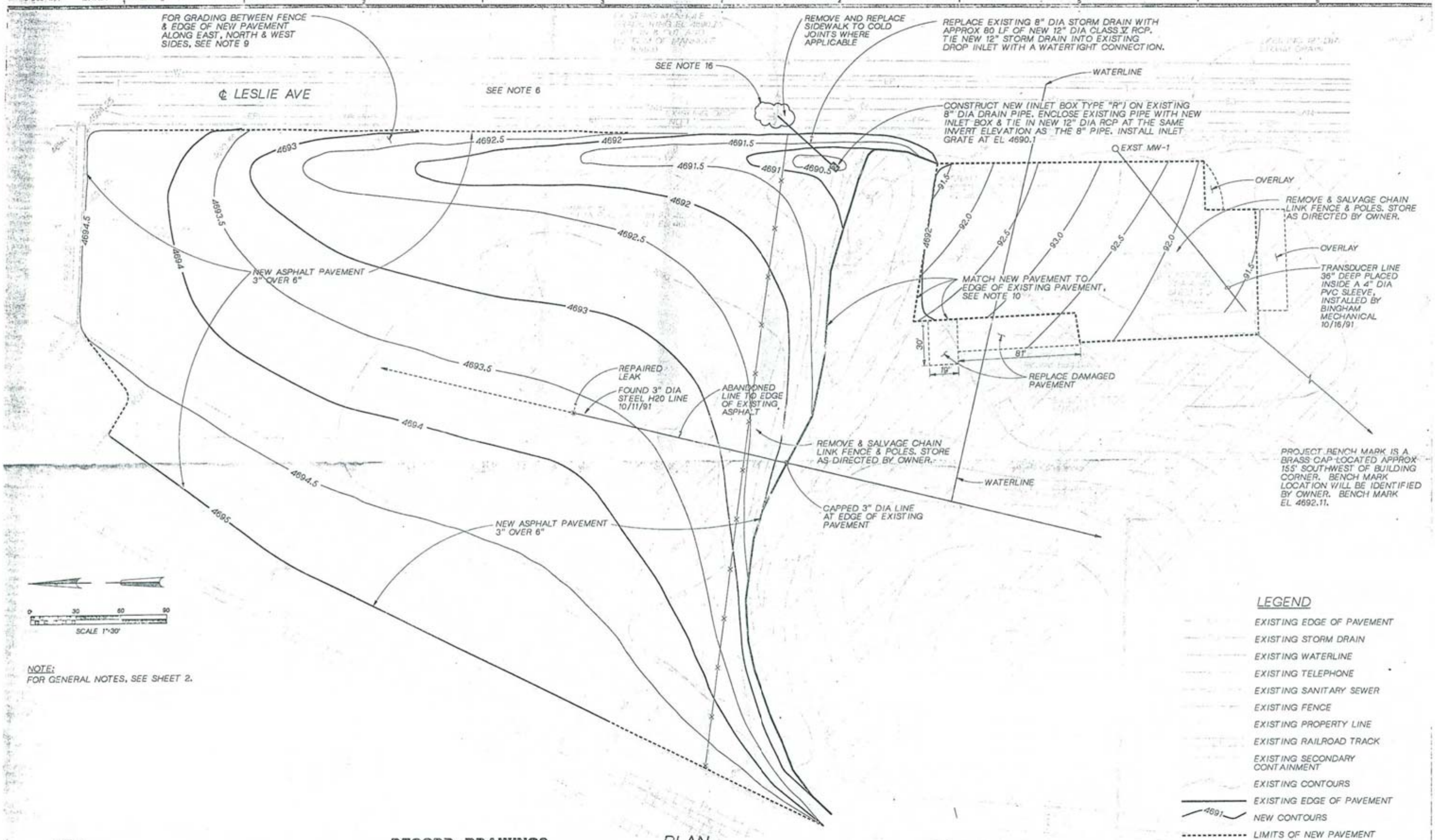


Idaho Falls Pole Yard

On-Site Wells and Points of Compliance

Figure 2.24

13-Dec-1991 15:47:54 UPLPY.dgn



NOTE:
FOR GENERAL NOTES, SEE SHEET 2.

LEGEND

- EXISTING EDGE OF PAVEMENT
- EXISTING STORM DRAIN
- EXISTING WATERLINE
- EXISTING TELEPHONE
- EXISTING SANITARY SEWER
- EXISTING FENCE
- EXISTING PROPERTY LINE
- EXISTING RAILROAD TRACK
- EXISTING SECONDARY CONTAINMENT
- EXISTING CONTOURS
- EXISTING EDGE OF PAVEMENT
- 4691 NEW CONTOURS
- LIMITS OF NEW PAVEMENT

RECORD DRAWINGS
Revisions Drawn by B.W. CLEGG Date 11/6/91

PLAN

DSGN R.L. MOKWA
DR J.L. BROOK
CHK J.B. FULLER
APVD J.B. FULLER

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NO. | DATE | REVISION | BY | APVD

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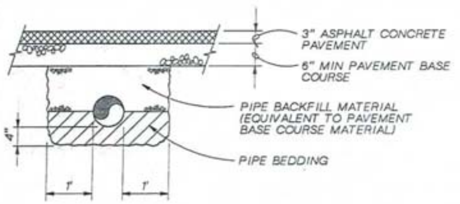
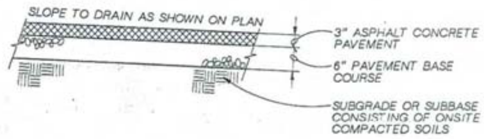
UTAH POWER AND LIGHT
POLE YARD NORTH END
CAPPING PROJECT
IDAHO FALLS, IDAHO

AS-BUILT
GRADING AND PAVING PLAN
CHANGE ORDER NO. 1

SHEET 1 OF 2
DWG NO.
DATE OCT 1991
PROJ NO. BO132868.A1



TYPICAL STORM DRAIN TRENCH DETAIL (1/1)
NTS



TYPICAL PAVEMENT SECTION (2/1)
NTS

NOTES:

1. BASE TAKEN FROM DRAWING ENTITLED "TOPOGRAPHIC MAP OF IDAHO FALLS POLE YARD; UTAH POWER AND LIGHT COMPANY," BY THOMPSON ENGINEERING, INC. DATED MARCH 1987.
2. CONTOUR INTERVAL IS 0.5-FOOT.
3. ELEVATIONS AND TOPOGRAPHY OF THE EXISTING SITE WERE NOT AVAILABLE DURING THE DESIGN PHASE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING EXISTING TOPOGRAPHY FOR USE IN ESTIMATING CUT AND FILL QUANTITIES.
4. THE LOCATION AND IDENTIFICATION OF THE PROJECT BENCH MARK WILL BE PROVIDED BY THE OWNER.
5. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF THE 8-INCH DIAMETER STORM DRAIN (BOTH HORIZONTAL LOCATION AND VERTICAL ELEVATION) PRIOR TO BEGINNING EXCAVATION FOR THE NEW 12-INCH DIAMETER DRAIN LINE.
6. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO EXCAVATION.
7. THE CATCH BASIN SHALL BE TYPE 3 AS SPECIFIED IN DRAWING E-6-A OF THE IDAHO TRANSPORTATION DEPARTMENT DIVISION OF HIGHWAYS STANDARD DRAWINGS.
8. THE MANHOLE SHALL BE MANHOLE TYPE-B WITH A CLASS 1 STANDARD MANHOLE COVER AS SPECIFIED BY THE IDAHO TRANSPORTATION DEPARTMENT DIVISION OF HIGHWAYS STANDARD DRAWINGS.
9. FINISHED GRADES FROM THE EAST, NORTH AND WEST EDGES OF INSTALLED PAVEMENT SHALL BE SLOPED TO MATCH EXISTING GRADE AT THE FENCE LINE.
10. CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT, AS DIRECTED BY THE FIELD ENGINEER, TO PROVIDE A NEAT EDGE PRIOR TO PLACING ADJACENT NEW PAVEMENT. MATCH EDGE OF NEW PAVEMENT TO EDGE OF COMPETENT EXISTING PAVEMENT.
11. PIPE FOR STORM DRAIN SHALL CONFORM TO ASTM SPECIFICATIONS C76. JOINTS FOR CONCRETE PIPE SHALL BE FLEXIBLE, WATERTIGHT, RUBBER GASKETS CONFORMING TO ASTM SPECIFICATION C443.
12. BED THE 12-INCH DRAIN PIPE IN SANDY SOIL, ALL OF WHICH PASSES A 3/8-INCH SIEVE AND NOT MORE THAN 10 PERCENT OF WHICH PASSES A NO. 200 SIEVE. BEDDING MATERIAL SHALL EXTEND AT LEAST 4-INCHES BELOW THE BOTTOM OF THE PIPE AND EXTEND UP TO PIPE SPRINGLINE AS SHOWN ON THE TYPICAL DETAIL. PIPE BEDDING SHALL BE COMPACTED TO 90 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557.
13. PIPE BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF PAVEMENT BASE COURSE AS SPECIFIED IN THE CONTRACT SPECIFICATIONS. PIPE BACKFILL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 6-INCHES ON BOTH SIDES OF THE PIPE AND SHALL BE BROUGHT UP TO THE TOP OF SUBGRADE AS SHOWN IN TYPICAL DETAIL. EACH LAYER OF PIPE BACKFILL MATERIAL SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557.
14. AFTER CATCH BASIN CONSTRUCTION, MANHOLE CONSTRUCTION, AND DROP INLET MODIFICATIONS ARE COMPLETE THE CONTRACTOR SHALL BACKFILL THE EXCAVATED AREA AROUND EACH STRUCTURE USING MATERIAL THAT MEETS THE REQUIREMENTS OF PAVEMENT BASE COURSE AS SPECIFIED IN THE CONTRACT SPECIFICATIONS. PAVEMENT BASE COURSE MATERIAL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 6-INCHES IN LOOSE DEPTH AND COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.
15. CONTRACTOR SHALL PLACE A MINIMUM OF 6-INCHES OF BASE COURSE MATERIAL ON TOP OF THE SUBGRADE. CONSTRUCT BASE IN LIFTS NOT EXCEEDING 6-INCHES IN DEPTH SUCH THAT WHEN COMPACTED TO THE SPECIFIED DENSITY, THE FINISHED SURFACE WILL CONFORM TO THE GRADES AND DIMENSIONS SHOWN, WITH PROPER ALLOWANCE FOR THE ASPHALT PAVING.
16. ALL SIDEWALKS, ASPHALT PAVEMENT, FENCES, DITCHES, UTILITIES, SIGNS, TREES, HEDGES, ETC. THAT ARE DISTURBED OR IN ANY WAY ALTERED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE ORIGINAL CONDITION; THAT IS, THE CONDITION THAT, IN THE OPINION OF THE OWNER IN CONJUNCTION WITH THE ENTITY OR INDIVIDUAL AFFECTED, EXISTED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
17. CONTRACTOR SHALL REMOVE, ROLL UP, AND STORE THE EXISTING PERIMETER FENCE, AS DIRECTED BY THE OWNER, AT AN ON-SITE LOCATION AS DIRECTED BY THE OWNER.
18. INLET AND OUTLET PIPES SHALL EXTEND THROUGH THE WALLS OF THE STRUCTURES FOR A SUFFICIENT DISTANCE BEYOND THE OUTSIDE SURFACE TO ALLOW FOR CONNECTIONS BUT SHALL BE CUT OFF FLUSH WITH THE WALL ON THE INSIDE SURFACE. LINK-SEAL, MORTAR, OR OTHER APPROVED WATER-TIGHT METHOD SHALL BE USED TO FORM A TIGHT, NEAT CONNECTION.

6509

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DR J.L. BROOK					
CHK J.B. FULLER					
APVD J.B. FULLER	NO.	DATE	REVISION	BY	APVD

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UTAH POWER AND LIGHT
POLE YARD NORTH END
CAPPING PROJECT

IDAHO FALLS, IDAHO

DETAILS AND NOTES
CHANGE ORDER NO. 1

SHEET 2 OF 2
DWG NO.
DATE OCT 1991
PROJ NO. BO132888.A1

TABLE 2.1

TYPICAL CREOSOTE COMPOUNDS
(Page 1 of 2)

Coumarone
1,2,3-Trimethylbenzene
Cymene
Hydrindene
Phenol
Indene
Aniline
3,4-Dimethylethylbenzene
Ammonium thiocyanate
6-Methylcoumarone
o-Cresol
Benzonitrile
3 or 5-Methylcoumarone
n-Undecane
Durene (1,2,4,5-tetramethylbenzene)
4-Methylcoumarone
Isodurene (1,2,4,5-tetramethylbenzene)
p-Toluidine
o-Toluidine
p-Cresol
Acetophenone
m-Crcsol
m-Toluidine
4-Methylindene
Tetrahydronaphthalene
2,4-Xylenol
2,6-Xylenol
2,5-Xylenol
2,4-Xylidine
3,6-Dimethylcoumarone
4,5-Dimethylcoumarone
4,6-Dimethylcoumarone
Thionaphthene
2,3-Xylidine
3-4-Xylenol
Dimethylindene
Pseudocumenol (2,4,5-trimethylphenol)
3-Ethyl-5-methylphenol
7-Hydroxycoumarone
Methylthionaphthene
2-Methylnaphthalene
Isoquinoline
1-Methylnaphthalene
4-Hydroxyhyrindene
2-Methylquinoline
8-Methylquinoline
3,4,5-Trimethylphenol
Durenol (2,3,5,6-tetra-methylphenol)
Benzoic acid
5-Hydroxyhydrindene
2-Ethylnaphthalene
3-Methylisoquinoline
Indole
Diphenyl
1-Methylisoquinoline
2,8-Dimethylquinoline
7-Methylquinoline
6-Methylquinoline
3-Methylquinoline
2,6-Dimethylnaphthalene
2,7-Dimethylnaphthalene
1,7-Dimethylnaphthalene
1,3-Dimethylisoquinoline
1,6-Dimethylnaphthalene
5-Methylquinoline
4-Methylquinoline
5- or 7-Methylisoquinoline (probable)
3-Methylindole (skatole)
1,5-Dimethylnaphthalene
6-Methylisoquinoline (probable)
7-Methylindole
2,3-Dimethylnaphthalene
1,2-Dimethylnaphthalene
4-Methylindole
5-Methylindole
3-Methyldiphenyl
2,3,4,5-Tetramethylpyridine
Isopseudocumenol (2,3,5-trimethylphenol)
Quinoline (leucoline)
1,3,7-Trimethylnaphthalene

TABLE 2.1

TYPICAL CREOSOTE COMPOUNDS
(Page 2 of 2)

a-Naphthol	2-Methylindole
Acenaphthene	o-Phenylphenol
a-Naphthofurane	Phenanthridine
b-Naphthofurane	3-Methylphenanthrene
2,3,5-Trimethylnaphthalene	Carbazole
2,3,6-Trimethylnaphthalene	2-Hydroxyfluorene
B-Naphthol	4,5-Phenanthrylenemethane
Diphenylene oxide	9-Methylphenanthrene
2,4,6-Trimethylquinoline	1-Methylphenanthrene
3,4-Dimethyldiphenyl	2-Phenylnaphthalene
4,4-Dimethyldiphenyl	Hydroxyanthracene
g-Diphenylenemethane	Naphthacene
4,5-Benzindan	2-Methylanthracene
1-Naphthonitrile (1-cyanonaphthalene)	2,7-Dimethylanthracene
Methyldiphenylene oxide	2-Methylcarbazole
Fluorene	1,2,3,4-Tetrahydrofluoranthene
Hydroacridine	3-Methylcarbazole
l-Naphthylamine	Fluoranthene
2-Methyldiphenylene oxide	2,3,5,6-Dibenzocourarone
2-Naphthonitrile (2-cyanonaphthalene)	Pyrene
2-Naphthylamine	1,9-Benzoxanthene
Paraffin (octadecane)	2-Hydroxyphenanthrene (2-phenanthrol)
5,8-Dimethylquinoline	Retene (8-methyl-30-isopropylphenanthrene)
4-Methyldiphenyl	

TABLE 2.2

EMERGENCY EQUIPMENT

		DESCRIPTION
1. FIRST AID KIT (in Lab)		Standard
2. EYE WASH STATION (in Lab)		Standard eye wash
3. EMERGENCY SHOWER (next to Lab)		Cold Water
4. SPILL CLEANUP KIT		
2-4 pairs	Disposable gloves	Neoprene or approved alternate
1-2 sets	Disposable plastic boots, jackets and pants	Water resistant
2 pairs	Chemical goggles	ANSI 287.1-1989
1 each	Short-handled broom	Standard
1-5 lbs.	Absorbent rags	Standard
1-5 lbs.	Oil sorbent	Standard
1-2 each	Large plastic bags	Standard
1 can	Hand cleaner	Standard
1 gal.	Solvent	Penetone-Water based solvent
1 roll	Tape	Duct tape
1-6 each	"HAZARDOUS WASTE" labels	Standard
1 each	Pencil	Standard
1 each	Short-handled shovel	Standard
1 each	Dustpan	Standard
1 each	Sealable 55-gal. drum (containing the above)	Steel

TABLE 2.2

EMERGENCY EQUIPMENT

5. OTHER STANDARD SPILL RESPONSE EQUIPMENT

Quantity		Description
1 set	Disposable chemical-resistant clothing (gloves, jacket, pants, boots)	Neoprene or approved alternate
1	Chemical goggles	ANSI Z87.1-1989
1 set	Sealable 55-gallon drum	Steel
1 liter	Solvent	Penetone or Stoddard
1 set	Shovel and Drum Handling Equipment	Standard
100 feet	Nylon cord	¼-inch diameter
2	Barricades	Standard
1-5 lbs.	Absorbent rags	Standard
1-10 lbs	Sorbent materi.al.	Saw Dust or Sorball
1-10 lbs	Sorbent mats	Oil absorbing mats
1-30 lbs	Sorbant booms	Oil absorbing booms

6. Covers for three Storm Drains and one Sewer Manway

Quantity	Location	Description
4	Stored next to northeast door of treatment building	Water proof covers

TABLE 2.2

EMERGENCY EQUIPMENT

7. FIRE EXTINGUISHERS

Building	Location/Quantity	Fire Extinguisher Type - Capabilities
Lunch Room Building	North Wall /1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
Framing Shed	North Wall / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	South Wall / 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
Treatment Bld &Lab	Northwest Door / 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Clarifier Tank /1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Northeast Door /1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Partition Door / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	Laboratory / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	VFD Room/ 1	FE-36 Electrical Fire (Clean Agent)
Boiler Building	West Wall/ 1	20 # Dry Chemical - Compressed CO_2 fire suppressant

8. TELEPHONES

Building	Location/Quantity	Phone Type
Laboratory	East Side / 1	Dedicated land line
Laboratory	Northeast Side / 1	Dedicated land line

TABLE 2.3

EMERGENCY CONTACTS

LIST OF EMERGENCY COORDTNATORS

Below is a list of qualified emergency Coordnators posted in the order in which they will assume responsibility. Included is their addresses and phone numbers (office and cell). This list has been supplied to the Chief Dispatcher and to the HWMF Manager.

1	Gary Mecham		
	1425 Higham St.	Office:	208-557-7866
	Idaho Falls, Idaho 83402	Cell:	208-221-4224
2	Dennis Vanderbeek		
	2200 Leslie Avenue	Office:	208-745-6075
	Idaho Falls, Idaho 83402	Cell:	208-705-7757
3	Saige Ballack-Dixon	Office:	208-557-7832
	1425 Higham St.	Cell:	208-520-6157
	Idaho Falls, Idaho 83402		
4	Nathan Helm	Office:	208-557-0838
	1425 Higham St.	Cell:	208-351-5693
	Idaho Falls, Idaho 83402		
5	Jeff Tucker		
	1407 West North Temple #210	Office:	801-220-2989
	Salt Lake City, Utah 84116	Cell:	801-660-5750

EMERGENCY PHONE NUMBERS

- Idaho Falls Police Department	208-529-1200
- Idaho State Police	208-884-7000
- Idaho Falls Fire Department	208-529-1200
- Bureau of Homeland Security	208-422-3040
- Idaho Falls Hospital	208-529-6111
- Idaho Falls HWMF Personnel:	
Dennis Vanderbeek	208-745-6075

IDAHO FALLS HWMF POST-CLOSURE CONTACT PERSON AND RESPONSIBLE PERSON FOR DOCUMENT UPDATE

Jeff Tucker
Principal Engineer
PacifiCorp Environmental Remediation Company
1407 W. North Temple, #210
Salt Lake City, UT 84116
(801) 220-2989

VOLUME I CHAPTER 3

3.0 WASTE ANALYSIS/CHARACTERIZATION AND WASTE DISPOSAL PLAN

3.1 GENERAL FACILITY INFORMATION

3.1.1 Site Location

The PacifiCorp Idaho Falls Hazardous Waste Management Facility (HWMF) is located in the NE $^{1}/4$ of Section 25, T 2 N, R 37 E in Bonneville County, Idaho. The site is a trapezoidal-shaped area of 8.2 acres, which is located between 20th and 23rd Streets and Leslie and Yellowstone Avenues in Idaho Falls, Idaho.

3.1.2 Creosote Treatment Facility

The PacifiCorp Idaho Falls HWMF was a facility for non-pressurized creosote treatment of wooden electrical power poles. The poles were dipped into a treatment vat containing creosote until take up of creosote was completed, and then removed and suspended over the tank to allow excess creosote to run off. The poles were then transferred to other areas of the site where they were left to cure and stored until needed.

In July 1983, a leak in the creosote line was discovered in the underground piping connecting the treatment vat to the creosote boiler building. Because creosote is listed as a hazardous substance (40 CFR § 261.33 (f)), EPA designated the area of the leak as a hazardous waste management facility pursuant to the Resource Conservation and Recovery Act (RCRA). The boiler within the HWMF was decontaminated. The remaining creosote pole treating facilities within the HWMF were decommissioned and disposed of at an offsite hazardous waste disposal facility. All of the reasonably excavatable contaminated materials within the HWMF were removed and disposed of offsite at a hazardous waste disposal facility. However, creosote and/or creosote constituents remain within the unsaturated bedrock and the bedrock aquifer below the HWMF area. The current remedial activities are directed toward removing these contaminants and/or containing them within the boundaries of the HWMF. This is done by pumping impacted groundwater and treating the water on site before it is discharged into the Snake River through the general NPDES discharge permit [ID-G91-0000].

Several mechanical and instrumentation improvements to the existing wastewater treatment system at the former Pole Treatment Yard in Idaho Falls, Idaho were implemented in 2011. The completed system enables the treatment system to be operated remotely and reduces the amount of time that an operator is required to be on-site. Details of the system automations implemented in 2010 and 2011 are discussed in Permit Attachment 2 (Volume II Chapter 1).

3.2 ANALYSIS OF CREOSOTE

Creosote is a listed hazardous substance with an assigned hazardous waste number of U051 (40 CFR § 261.33 (f)). Creosote consists of an oily, translucent distillate of coal tar whose properties vary depending upon the source of the tar. Over 400 individual compounds have been identified. The majority of these compounds are present only in small quantities with major constituents comprising 21 compounds listed in Table 3.1. Major components are polynuclear aromatic hydrocarbons (PAH), phenols, and cresols. Creosote is heavier than water, having a specific gravity of 1.05 to 1.09 (at 15° C), but may sink or float on water depending upon its composition. Coal-tar creosote as a whole is considered practically insoluble.

Wood-preserving creosote is a distillate from coal tar made by high-temperature carbonization of bituminous coal; the typical boiling range of creosote is 175° C to about 450° C. Differences between coal-tar creosotes result from the relative amounts and distribution of types of chemical compounds but not the nature of the compounds. Although numerous individual compounds have been identified in creosote, the components belong to a relatively small number of chemical classes. One of these, the PAH, generally accounts for 90 percent of the constituents in creosote and the major members of this class contain no substituent groups. See Tables 3.1 and 3.2.

All high-temperature coal-tar creosotes are similar to the extent that they contain varying quantities of the same restricted number of chemical classes. Because of the high distillation temperature, no significant amounts of volatile organic compounds would be expected. Chlorinated organics would also not be expected.

3.3 WASTE DISPOSAL PLAN

Disposal of the various waste streams at the HWMF shall be as follows:

Groundwater pumped to the surface from wells

- Packaged as a sample for laboratory analysis, or
- Treated at the plant, or
- Properly containerized and shipped off site to an appropriate disposal facility.

Spent activated carbon

- Will be sent for regeneration to permitted facility or properly containerized and shipped off site to an appropriate disposal facility.

Plant effluent

- Discharged to the Snake River through under NPDES permit ID-G911000.

All other waste materials

- Properly characterized, containerized and shipped off site to an appropriate disposal facility. All wastes at the site will be managed in accordance with the generator standards detailed in federal regulations 40 CFR 262.

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TABLE 3.1

TYPICAL CREOSOTE COMPOUNDS
(Page 1 of 2)

Coumarone
1,2,3-Trimethylbenzene
Cymene
Hydrindene
Phenol
Indene
Aniline
3,4-Dimethylethylbenzene
Ammonium thiocyanate
6-Methylcoumarone
o-Cresol
Benzonitrile
3 or 5-Methylcoumarone
n-Undecane
Durene (1,2,4,5-tetramethylbenzene)
4-Methylcoumarone
Isodurene (1,2,4,5-tetramethylbenzene)
p-Toluidine
o-Toluidine
p-Cresol
Acetophenone
m-Crcsol
m-Toluidine
4-Methylindene
Tetrahydronaphthalene
2,4-Xylenol
2,6-Xylenol
2,5-Xylenol
2,4-Xylidine
3,6-Dimethylcoumarone
4,5-Dimethylcoumarone
4,6-Dimethylcoumarone
Thionaphthene
2,3-Xylidine
3-4-Xylenol
Dimethylindene
Pseudocumenol (2,4,5-trimethylphenol)
3-Ethyl-5-methylphenol
7-Hydroxycoumarone
Methylthionaphthene
2-Methylnaphthalene
Isoquinoline
1-Methylnaphthalene
4-Hydroxyhyrindene
2-Methylquinoline
8-Methylquinoline
3,4,5-Trimethylphenol
Durenol (2,3,5,6-tetra-methylphenol)
Benzoic acid
5-Hydroxyhydrindene
2-Ethylnaphthalene
3-Methylisoquinoline
Indole
Diphenyl
1-Methylisoquinoline
2,8-Dimethylquinoline
7-Methylquinoline
6-Methylquinoline
3-Methylquinoline
2,6-Dimethylnaphthalene
2,7-Dimethylnaphthalene
1,7-Dimethylnaphthalene
1,3-Dimethylisoquinoline
1,6-Dimethylnaphthalene
5-Methylquinoline
4-Methylquinoline
5- or 7-Methylisoquinoline (probable)
3-Methylindole (skatole)
1,5-Dimethylnaphthalene
6-Methylisoquinoline (probable)
7-Methylindole
2,3-Dimethylnaphthalene
1,2-Dimethylnaphthalene
4-Methylindole
5-Methylindole
3-Methyldiphenyl
2,3,4,5-Tetramethylpyridine
Isopseudocumenol (2,3,5-trimethylphenol)
Quinoline (leucoline)
1,3,7-Trimethylnaphthalene

TABLE 3.1

TYPICAL CREOSOTE COMPOUNDS
(Page 2 of 2)

a-Naphthol	2-Methylindole
Acenaphthene	o-Phenylphenol
a-Naphthofurane	Phenanthridine
b-Naphthofurane	3-Methylphenanthrene
2,3,5-Trimethylnaphthalene	Carbazole
2,3,6-Trimethylnaphthalene	2-Hydroxyfluorene
B-Naphthol	4,5-Phenanthrylenemethane
Diphenylene oxide	9-Methylphenanthrene
2,4,6-Trimethylquinoline	1-Methylphenanthrene
3,4-Dimethyldiphenyl	2-Phenylnaphthalene
4,4-Dimethyldiphenyl	Hydroxyanthracene
g-Diphenylenemethane	Naphthacene
4,5-Benzindan	2-Methylanthracene
1-Naphthonitrile (1-cyanonaphthalene)	2,7-Dimethylanthracene
Methyldiphenylene oxide	2-Methylcarbazole
Fluorene	1,2,3,4-Tetrahydrofluoranthene
Hydroacridine	3-Methylcarbazole
l-Naphthylamine	Fluoranthene
2-Methyldiphenylene oxide	2,3,5,6-Dibenzocourarone
2-Naphthonitrile (2-cyanonaphthalene)	Pyrene
2-Naphthylamine	1,9-Benzoxanthene
Paraffin (octadecane)	2-Hydroxyphenanthrene (2-phenanthrol)
5,8-Dimethylquinoline	Retene (8-methyl-30-isopropylphenanthrene)
4-Methyldiphenyl	

TABLE 3.2

MAJOR COMPONENTS OF CREOSOTE

Naphthalene
2-Methylnaphthalene
l-Methylnaphthalene
Biphenyl
Dimethylnaphthalenes
Acenaphthene
Dibenzofuran
Fluorene
9,10-pihydroanthracene
Methylfluorene
Phenanthrene
Anthracene
Acridine
Carbazole
Methylphenanthrenes
2-Phenylnaphthalene
Methylanthracenes
Pyrene
Benzofluorenes
Chrysene
9,10-Benzophenanthrene

VOLUME I CHAPTER 4

4.0 GROUNDWATER MONITORING

4.1 IDAHO FALLS POLE YARD GROUNDWATER WELL SYSTEMS

4.1.1 General

A total of 40 on-site and 5 off-site wells have been installed on or in the vicinity of the PacifiCorp HWMF in Idaho Falls, Idaho as shown on Figures 4.1A, 4.1B, 4.1C and 4.2. Of the on-site wells, twenty have been completed in Aquifer 1, sixteen were completed in Aquifer 2 and four were completed in Aquifer 3. Twelve of the on-site wells were constructed as recovery wells with seven completed in Aquifer #1 and five in Aquifer #2. All five offsite monitor wells are completed in Aquifer 1. Eight point of compliance (POC) monitor wells were also installed with four each completed in Aquifers 1 and 2. A new point of compliance well (E-2) was installed in September of 2009 which replaces well A-2 as a point of compliance (Figure 4.2). Well A-2 contains creosote constituents well above solubility limits thereby indicating the presence of phase separated creosote product in the well. The impacts to well A-2 make it undesirable for continued use as a point of compliance. Wells MW-2, MW-7, MW-8, and OS-2 have been abandoned and no longer exist. According to telephone and email conversations (December 3, 2008) with Mr. Dennis Dunn of the Idaho Division of Water Resources (IDWR), no formal well abandonment records are on file with the department. The IDWR did not require the filing of well abandonment records until July of 2005 and all of these wells are thought to have been abandoned prior to that date. According to prior information included in the 1997 Post Closure Permit reapplication, recovery well MW-7, was permanently abandoned by a water well driller licensed in the State of Idaho. No further information on when or who abandoned these wells is currently available.

4.1.2 Installed Wells

Original construction details for site wells are listed in Tables 4.1 through 4.5. Typical well construction features are summarized graphically in Figures 4.3 through 4.8. Table

4.6 provides a listing of the original pump installation details and specific capacity data. Updated well construction information is included in Table 4.7). Historical geologic logs for the site monitoring wells were provided in Volume II, Chapter 3.1.1 of the 2009 RCRA Part B Permit Application. A well construction diagram and a geologic log for new point of compliance well E-2 are provided as Figures 4-9 and 4-10. Figures 4.11, 4.12, and 4.13 provide details relating to the well head completions and groundwater collection piping systems. Methods used to drill, log and complete the installed wells are described in detail in the Following historical documents:

1. Appendix C.l of the Part B Permit Application (December 1984) for MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7', MW-8', MW-9, MW-10, MW-11, AMW-12, MW-13, MW-14 and MW-15.

2. Appendix A of the Groundwater Quality Assessment Report (October 1985) for MW-16, MW-17, R-1, R-2, OS-1, OS-2, OS-3, OS-4 and OS-5.

3. Appendix A of the Installation and Testing of Recovery Wells Report (April 1987) for R-3, R-4, R-5, R-6, R-7, R-8, R-9, R-10, R-1 1, and R-12.

4. Appendix A of the Installation and Testing of Aquifer #3 Monitor Well Report (January 1988) for MW-18, MW-19, and MW-20.

5. "As-built Drawings, Well and Piping System, Pole Treatment Yard, Idaho Falls, Idaho", (December 2, 1988, summarizes information for all wells and the piping system.

These documents also include descriptions of health and safety and contamination prevention and clean-up procedures.

Point of Compliance Wells installed between April and August 1988 were drilled and completed in a manner similar to previous monitor wells except that 4.5-inch PVC well screen and casing were used in place of 4-inch PVC to facilitate installation of submersible pumps. Typical well construction for the POC wells is summarized in Table 4.5. Construction of additional recovery wells was similar to that of previous recovery wells. All wells were installed in accordance with the appropriate Idaho State regulations by a driller who was licensed in the State of Idaho.

4.1.3 Construction of Point of Compliance Wells

Steel surface casing was used in all POC wells to separate the surficial gravel from the underlying basalt and to separate Aquifers 1 from 2. While surface steel casing was being driven through the surficial gravel to bedrock, bentonite was introduced into the annulus created by the drive shoe in accordance with Idaho State regulations. All other steel casings were grouted in place with an appropriate cement grout by positive displacement methods using a tremie or pressure grouting method.

Gravel pack consisted of clean, washed 1/4-inch pea gravel that was overlain by a fine to coarse sand and bentonite to prevent the grout seal from entering the screened interval. Gravel pack was placed using tremie methods.

Dedicated submersible pumps with stainless steel discharge pipe for all lengths below the static water level were installed in the POC wells. Dedicated submersible pumps were employed because of the large volumes of water necessary to purge each well prior to sampling as is required by the QA/QC plan presented in Section 4.2 of this chapter. Stainless steel discharge pipe was used because it provided greater strength than the PVC yet is relatively inert with respect to the constituents that are being monitored.

4.1.4 Down-Hole Camera Logging

Borings were logged using a down-hole camera prior to grouting in steel casings and before installation of well casings and screen. These provided a view of the geology and ground water movement, and also assisted in proper placement of gravel packs and well screen locations. Down-hole camera surveying was employed because the rock cuttings produced by the air rotary/air hammer method are often finely ground and because return to surface circulation is sometimes lost when drilling through the volcanic sequence underlying the site.

4.1.5 Specific Capacity Tests

Specific capacity tests were conducted on completed wells in order to estimate the transmissivity and water production capability of the screened interval. This information was used to choose the appropriate submersible pump in the point of compliance and recovery wells and to locate subsequent recovery wells. Table 4.6 summarizes specific capacities for each well tested and other pertinent pump information. The proposed plan for conducting future specific capacity tests at the facility are presented in Permit Attachment 2 (Volume I Chapter 10) and Permit Module IV.B1.a.

4.1.6 Surveying

Upon completion, all wells were surveyed to obtain horizontal coordinates, vertical elevations for top of casing and ground surface. These values were presented in the 2009 Permit Reapplication (Volume II Chapter 3 Section 3.2). Also included was a letter explaining discrepancies with previous surveys and an adjusted table of horizontal coordinates.

In 1988 Ellsworth Engineering reported that the previous surveys had used an erroneous correction factor to convert from the Idaho Falls City control system and that results previously reported were not true state plane coordinates. These survey coordinates were also provided in Volume II Chapter 3 Section II.3.2 of the 2009 RCRA Permit reapplication.

In May of 2009 the site was resurveyed and the vertical reference points tied to the North American Vertical Datum of 1988 (NAVD88). Horizontal positions were also surveyed at the same time and tied to the NAD 83 Datum and use an Idaho East State Plane coordinate projection. These new coordinates are provided in Table 4-8.

4.1.7 Nearby Private and Municipal Water Well Systems

A formal survey of private and public water wells within a one mile radius of the Idaho Falls Pole Yard was conducted in the early 1980s and reported in the original 1984 RCRA Part B Permit. A description of the survey, location of wells, well construction information, and results of sampling of selected water wells was provided in the 2009 RCRA Part B Permit Reapplication (Volume II Chapter 4 Section 4.1).

In 2007, the Idaho Department of Water Resource on-line interactive map server was accessed to update the water wells present within one mile down gradient of the site. The findings of the updated survey were also provided in the 2009 Permit Reapplication (Volume II Chapter 4 Section 4.2).

As indicated in the survey, use of groundwater down gradient of the Idaho Falls Pole Yard is well documented. Nineteen drinking water wells of potential concern were identified. The Idaho Department of Environmental Quality (IDEQ) has also prepared source water protection plans for municipal water wells in the area. The IFPY site is located within the groundwater capture zone of one of these wells (Valley Trailer Court IDEQ Well Permit # 7100102). Volume II Chapter 4 Section 4.2 of the 2009 Permit Reapplication contains the capture zone analyses diagram for this well. The analyses suggest that the primary area contributing water to the Valley Trailer Court Well would be approximately 20 miles long and one to two miles wide. A six year time of travel is estimated for groundwater to migrate the twenty miles from the Snake River to the Valley Trailer Court Well.

Based on verbal communications with the Idaho DEQ, the Valley Trailer Court well went dry during recent drought conditions and, as a result, the trailer court was connected to the city water supply. The potential for future use of the Valley Trailer Court well is unknown at this time.

4.1.8 August 1985 Groundwater Sampling and Background Locations

In order to provide an understanding of the creosote impacts to groundwater and conditions that were identified during the original site investigation, laboratory reports for the August 1985 sampling round were provided in Volume II Chapter 10 of the 2009 RCRA Permit Reapplication. During that sampling round, analyses for metals, water quality parameters, and semivolatile organic constituents were performed for nineteen on-site wells (R-1, R-2 and MW-1 through MW-17) and five off-site down gradient wells (OS-1 through OS-5). Monitoring wells MW-1 and MW-5 are the primary upgradient (background) locations for Aquifer 1 and well MW-11 is the primary background well for Aquifer 2.

4.2 QUALITY ASSURANCE/QUALITY CONTROL PLAN

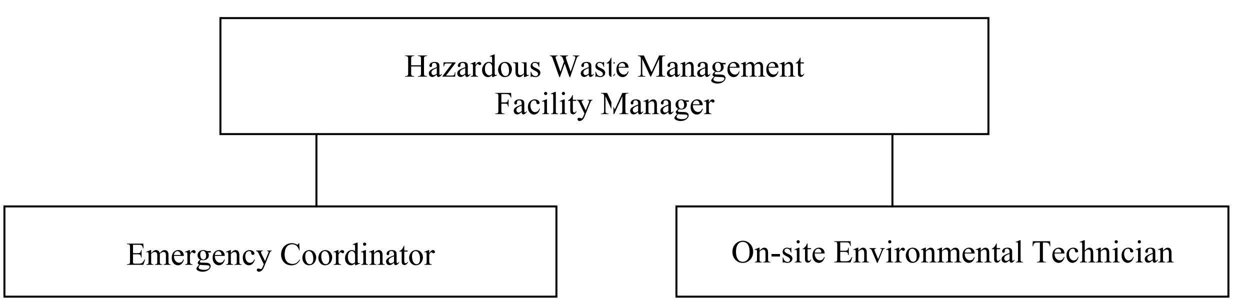
4.2.1 Introduction

This plan outlines quality assurance/quality control (QAQC) procedures for corrective action, compliance and detection monitoring and waste characterization activities at the Hazardous Waste Management Facility (HWMF), Idaho Falls, Idaho.

4.2.2 Project Organization and Responsibility

4.2.2.1. Organization

The following is the PacifiCorp organization for the groundwater monitoring and waste characterization activity:



4.2.2.2. Responsibilities

The HWMF Manager will have overall responsibility for direction of these project activities, including quality control, review of all reports and will also serve as the prime contact with EPA and State DEQ.

The HWMF Manager will (1) review all quality control data; and (2) identify QA problems and recommend corrective action as necessary.

4.2.3 Analytical Parameters and QA Objectives for the RCRA Program

Analytical parameters, their method detection limits (MDL), practical quantitation limits (PQL), and methods of analysis are provided below and in Permit Table 1:

INDICATOR PARAMETER	CAS NUMBER	MDL (µg/l)[2]	PQL (µg/l)
2-Methyl phenol	95-48-7	1.0	5.0
2-Nitrophenol	88-75-5	1.0	5.0
2-Methylnaphthalene	91-57-6	1.0	5.0
2,4-Dimethylphenol	105-67-9	1.0	5.0
4-Methylphenol	106-44-5	1.0	5.0
Acenaphthene	83-32-9	0.2	1.0
Acenaphthylene	208-96-8	0.2	1.0
Anthracene	120-12-7	0.1	0.5
Benzo(a)anthracene	56-55-3	0.2	1.0
Benzo(a)pyrene	50-32-8	0.2	1.0
Benzo(b)fluoranthene	205-99-2	0.1	0.5
Benzo(g,h,i)perylene	191-24-2	0.2	1.0
Benzo(k)fluoranthene	207-08-9	0.1	0.5
Chrysene	218-01-9	0.2	1.0
Dibenzo(a,h)anthracene	53-70-3	0.1	0.5
Dibenzofuran	132-64-9	1.0	5.0
Fluoranthene	206-44-0	0.1	0.5
Fluorene	86-73-7	0.2	1.0
Indeno(1,2,3,-cd)pyrene	193-39-5	0.1	0.5
Naphthalene	91-20-3	1.0	5.0
Phenanthrene	85-01-8	0.1	1.0
Phenol	108-95-2	1.0	5.0
Pyrene	129-00-0	0.2	1.0

Analysis by USEPA Method SW846-8270

The groundwater samples collected during implementation of the DMP (detection monitoring program), CMP (compliance monitoring program), and CAMP (corrective action monitoring program) will be analyzed for Phenols and PAHs using EPA Method 8270 in either selective ion or full scan modes as appropriate to meet the method detection and practical quantitation limits (PQLS and MDLs) listed in Table 1. Substitution of an equivalent or superior method will require prior approval by the Director, in accordance with Permit Condition I.O.6.a.

An objective of 80 percent or greater completeness is appropriate. Completeness is the percent of data expected that is considered valid. Acceptance criteria for laboratory routine QC checks will be as specified in the appropriate EPA methodology and as established by the laboratory.

Aquifers 1 and 2 are currently in the Corrective Action Monitoring Program and will eventually proceed through the Compliance Monitoring (CMP) and Detection Monitoring Programs (DMP). The current path to site closure for each aquifer involves three RCRA groundwater monitoring programs, each of which must be completed successfully before proceeding to the next step. The requirements to complete each step are graphically presented in Figures 4.14 through 4.16. The current monitoring requirements are summarized in Permit Modules IIIC.1, IIIC.2, and IIIC.3.

The 2009 Permit Reapplication requested and received IDEQ authorization to drop the historical requirement to analyze any monitoring wells in the CMP for constituents identified at IDAPA 58.01.05.008 [40 CFR Part 264, Appendix IX]. Historical groundwater sampling results for RCRA Appendix IX analytes were provided in the 2009 RCRA Permit Reapplication (Volume II Chapter 6).

The basis to remove the requirements for reporting 40 CFR Part 264 Appendix IX analytes include:

- The historical use of the site for wood treatment purposes only. This narrows the required analyte list to the polynuclear aromatic hydrocarbons, (PAHs), phenols, and creosols currently analyzed for under the Corrective Action Monitoring Program (CAMP);

- The mercury contamination reported at the site represented an isolated result which was detected at a concentration of less than one part per billion; and
- The IFPY has been inactive since the mid 1980s with no hazardous waste materials managed on-site other than creosote impacted groundwater.

4.2.4 Sampling Procedures

The following sections describe the general sampling procedures to be implemented at the HWMF. Further details on the RCRA and NPDES sampling requirements are provided in the RCRA and NPDES site specific Sampling and Analysis Plans. The latest version of these plans are available on the book shelf in the Environmental Technicians office at the IFPY site.

4.2.4.1. Water Level Measurement

Measurements of the depth to the water surface from the top of the well casing will be made using an electronic probe (Form 4.1). Field personnel will subtract the depth to water from the surveyed top of casing elevation to derive the groundwater elevations. Alternately, groundwater elevations displayed on the Human Machine Interface (HMI) computer screens will be used to determine purge volumes. Water level measurements shall be made before initiating pumping, taking care not to contaminate the water in the well. If a downhole probe is used, the wetted portion of the water level indicator tape and sensor will be cleaned after each measurement to prevent cross-contamination. The equipment will be rinsed with distilled water and wiped with a clean paper towel.

Permit Attachment 2 (Volume II Chapter 1) summarizes the system automations completed in 2010 and 2011. Since automating the well field and treatment plant, groundwater levels are regularly measured electronically with dedicated pressure transducers. The transducers record the absolute pressure above their position in the wells and these measurements are then corrected for atmospheric pressure. Atmospheric pressure is recorded with an on-site barometric probe and then subtracted from the absolute pressure readings at each well. The on-site PLC / SCADA computer system is programmed to automatically perform these calculations and store the results for subsequent interpretation and reporting. The groundwater elevations calculated by the site PLC / SCADA system are tied to the NAVD88 (North American Vertical Datum of 1988) coordinate system.

4.2.4.2. Well Evacuation

The following steps will be performed prior to sampling to ensure representative groundwater samples are collected from the Site.

1. Measure and record depths to groundwater at all monitoring wells in accordance with Section 5.2.1. Also use the print screen function on the HMI control computer to record pumping rates from the extraction wells in both aquifers immediately before, during, and immediately after measuring depths to groundwater in site wells.

2. Purge three well casing volumes of water from the monitoring wells not being used as dual purpose extraction/monitoring wells. To calculate the three well casing volumes to be purged, use the water level measured during step 1 (above), the depth to bottom of the well, and the well casing diameter. Keep a record of this calculation and the volume of water purged from each well.

   Typically wells A-1, B-1, C-1, A-2, MW-9, R-2, R-5, R-6, R-7, R-8, and R-11 are used as dual purpose pumping/monitoring wells and purging of three well casing volumes will not be performed. Purging of three casing volumes is not to be performed for any monitoring well that is being used for groundwater extraction two or more days immediately preceding the sampling event.

3. After purging three well volumes from select wells as described in step 2 above, record the time of day and then shut down all active pumping wells for approximately 8 hours. This will allow both aquifers to recharge and coal tar creosote constituent concentrations to return to near equilibrium conditions.

4. At the end of the 8 hour shut down period, use the human machine interface (HMI) computer screens to record the static water level elevations in each well to be sampled. Calculate the height of standing water contained within the small

diameter discharge pipe connected to the submersible pumps. This is done by subtracting the elevation of the top of the submersible pump from the static water level elevation.

Calculate the volume of water contained in the small diameter pump discharge line using the pipe's internal diameter and height of standing water. Then purge 1.2 times this volume before sampling. If a sheen of coal tar creosote appears before the purge volume is released, start sample collection at that point.

5. Record field measurements of pH, conductivity, and temperature in the presample purge water for each monitoring well immediately prior to collecting the groundwater sample.
6. Sample each monitoring well in accordance with Section 5.2.3 below.
7. The HWMF extraction wells can be off for a maximum of 72 hours during the groundwater sampling event.

The purging and sampling described above will typically be performed using a submersible pump dedicated to each well. For monitoring wells that do not have dedicated pumps, a portable downhole submersible well pump will be used. The portable submersible well pump will be decontaminated as described in Section 5.3 prior to and after sampling each well. All decon and purge water will be processed through the treatment plant.

4.2.4.3. Groundwater Sample Collection and Preservation

As described above, water samples will typically be collected using a submersible pump dedicated to each well. At each well the water samples will be placed into various glass or plastic containers as specified by the appropriate method in EPA SW-846 (Reference 1 in Section 4.2.14 below). Sample containers will have preservatives added in advance. Each bottle will be filled to the top without overflowing and will be rinsed at the site. All samples will be placed on ice and. kept out of direct sunlight. For each sample, the date, time of sample collection, well identification, depth to water, field measurement equipment used, and results of measurements made will be recorded in the field notes.

Sample containers will be preserved, shipped, and analyzed within the maximum allowable hold times as specified in EPA SW-846 (Reference 1).

Blank and duplicate samples will also be collected in the field as outlined in Section 4.2.9.

Sample labels, field sampling and analysis records, and chain-of-custody records will be prepared as detailed in Section 4.2.5.

4.2.4.4. NPDES Plant Effluent Sample Collection, Preservation, and Analyses

As required by the site's NPDES Permit (ID-G911000), samples of the plant effluent will be collected and analyzed as described on the following page.

Field measurements of pH and water temperature will be collected with a portable field instrument calibrated in accordance with manufactures recommendations. The flow rate of the treatment plant at the time of sample collection will be obtained from the human machine interface (HMI) computer screen and then recorded in the field notes. Water samples collected for laboratory analyses will be placed into various glass or plastic containers as specified by the appropriate method in EPA SW-846 (Reference 1 in Section 4.2.14 below). Sample containers will have preservatives added in advance. Each bottle will be filled to the top without overflowing and will be rinsed at the site. All samples will be placed on ice and kept out of direct sunlight. For each sample, the date, time of sample collection, sample location, treatment plant flow rate, pH, water temperature, field measurement equipment used, and equipment calibration information will be recorded in the field notes.

Sample containers will be preserved, shipped, and analyzed within the maximum allowable hold times as specified in EPA SW-846 (Reference 1).

A summary of the laboratory analyses, reporting limits, and NPDES effluent limits are provided in the summary tables below.

NPDES Sampling Requirements

Parameter	Facilities Discharging to Receiving Waters Protected for Domestic Water Supply (DWS) Uses		Facilities Discharging to All Other Receiving Waters (Not Protected for DWS)		Minimum Limits - If Granted a Mixing Zone		ML	Sample Type	2018 Sample Frequency
	AML	MDL	AML	MDL	AML	MDL			
	In ug/L unless otherwise noted		In ug/L unless otherwise noted		In ug/L unless otherwise noted		In ug/L unless other-wise noted		
TSS	-	-	-	-	-	-	-	Grab	Monthly
Temperature	-	-	-	-	-	-	-	Grab	Monthly
pH	Not Less than 6.5 and not greater than 9.0 standard units (s.u.)		Not Less than 6.5 and not greater than 9.0 standard units (s.u.)		Not Less than 6.5 and not greater than 9.0 standard units (s.u.)		-	Grab	Monthly
Flow	-	-	-	-	-	-	-	Recording	Monthly
Total-Petroleum Hydrocarbons (TPH)	3.4 mg/L	5.0 mg/L	3.4 mg/L	5.0 mg/L	3.4 mg/L	5.0 mg/L	-	Grab	Monthly
Benzene	2.2	3.2	3.4	5.0	3.4	5.0	-		Annual
Total BTEX[1]	68	100	68	100	68	100	-	Grab	Annual
Naphthalene	68	100	68	100	68	100	-	Grab	Annual
Benzo (a) Anthracene	0.0038	0.0055	0.018	0.026	0.4	0.6	0.6	Grab	Annual
Benzo (a) Pyrene	0.0038	0.0055	0.018	0.026	0.14	0.2	1	Grab	Annual
Benzo (b) Flouranthene	0.0038	0.0055	0.018	0.026	1.1	1.6	1.6	Grab	Annual
Benzo (k) Fluoranthene	0.0038	0.0055	0.018	0.026	1.1	1.6	1.6	Grab	Annual
Chrysene	0.0038	0.0055	0.018	0.026	0.4	0.6	0.6	Grab	Annual
Dibenzo (a,h) anthracene	0.0038	0.0055	0.018	0.026	1.1	1.6	1.6	Grab	Annual
Indeno (1,2,3-cd) Pyrene	0.0038	0.0055	0.018	0.026	0.68	1.0	1.0	Grab	Annual
Acenapthene	137	200	137	200	137	200	-	Grab	Annual
Acenapthylene	137	200	137	200	137	200	-	Grab	Annual
Anthracene	137	200	137	200	137	200	-	Grab	Annual
Fluoranthene	137	200	137	200	137	200	-	Grab	Annual
Fluorene	137	200	137	200	137	200	-	Grab	Annual
Phenanthrene	137	200	137	200	137	200	-	Grab	Annual

NPDES Sampling Requirements (continued)

Parameter	Facilities Discharging to Receiving Waters Protected for Domestic Water Supply (DWS) Uses		Facilities Discharging to All Other Receiving Waters (Not Protected for DWS)		Minimum Limits - If Granted a Mixing Zone		ML	Sample Type	2018 Sample Frequency
	AML	MDL	AML	MDL	AML	MDL			
	In ug/L unless otherwise noted		In ug/L unless otherwise noted		In ug/L unless otherwise noted		In ug/L unless other-wise noted		
Pyrene	137	200	137	200	137	200	-	Grab	Annual
Chromium III	22.7	45.5	22.7	45.5	68.5 Total Chrome	100 Total Chrome	-	24-hr Composite	Monthly
Chromium VI	8.0	16.0	8.0	16.0	68.5 Total Chrome	100 Total Chrome	-	24-hr Composite	Monthly
Nickel	13.2	26.5	13.2	26.5	13.2	26.5	-	24-hr Composite	Monthly
Zinc	18	37	18	37	18	37	-	24-hr Composite	Monthly
Iron	685	1000	685	1000	685	1000	-	24-hr Composite	Monthly

Footnotes:

BTEX[1] = sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

AML= average monthly limit.

MDL= maximum daily limit.

ML= minimum level. This is the minimum concentration EPA will use for compliance evaluation.
If, after twelve months of monitoring according to the requirements in permit IDG911000, the data demonstrate that a particular contaminant of concern is not present in the effluent stream, then the facility will be required to monitor annually for that COC for the duration of Permit coverage.

NPDES Whole Effluent Toxicity Testing

Test Method	Testing Frequency [1]	Sample Type
EPA/821-R02-013 Methods 1000.06 [2] and 1002.0 [2]	Annually	Grab

Notes:

1. Annual testing shall be conducted once per year, during a different quarter from the previous year's testing, unless the timing of discharge precludes WET testing during a particular quarter.

2. Chronic tests shall be conducted in accordance with the testing protocols outlined in EPA/821-R-02-013. The test must be a 7-day static renewal test.

NPDES/BMP GAC Breakthrough Testing (During CAMP only)

Testing	Lab Method	Schedule	Sample Type	Sample Location
Annual Inlet Carbon Loading		Jan	Grab	After Clarifier but before 1st GAC Vessel.
Acenaphthene	8270E SIM			
Acenaphthylene	8270E SIM			
Anthracene	8270E SIM			
Benzo(a)anthracene	8270E SIM			
Benzo(a)pyrene	8270E SIM			
Benzo(b)flouranthene	8270E SIM			
Benzo(k) fluoranthene	8270E SIM			
Chrysene	8270E SIM			
Dibenz(a,h)anthracene	8270E SIM			
Fluoranthene	8270E SIM			
Fluorene	8270E SIM			
Indeno(1,2,3-cd)pyrene	8270E SIM			
Naphthalene	8270E SIM			
Phenanthrene	8270E SIM			
Pyrene	8270E SIM			
Perylene	8270E SIM			
TPH	BTEX/GRO (624) DRO/ORO (8015D)			
Annual Sampling Between Lead and Lag Sets of GAC Vessels		Jan	Grab	Between Lead and Lag GAC vessels.
Acenaphthene	8270E SIM			
Acenaphthylene	8270E SIM			
Anthracene	8270E SIM			
Benzo(a)anthracene	8270E SIM			
Benzo(a)pyrene	8270E SIM			
Benzo(b)flouranthene	8270E SIM			
Benzo(k) fluoranthene	8270E SIM			
Chrysene	8270E SIM			
Dibenz(a,h)anthracene	8270E SIM			
Fluoranthene	8270E SIM			
Fluorene	8270E SIM			
Indeno(1,2,3-cd)pyrene	8270E SIM			
Naphthalene	8270E SIM			
Phenanthrene	8270E SIM			
Pyrene	8270E SIM			
Perylene	8270E SIM			
TPH	BTEX/GRO (624) DRO/ORO (8015D)			

4.2.5 Sample Custody

4.2.5.1. Field Operations

An essential part of the sample collection activity is the documentation of site measurements and the ensuring of the integrity of the sample from collection to data reporting. This includes the ability to trace the possession and handling of samples from the time of collection through analysis and final disposition. This documentation of the history of the sample is referred to as chain-of-custody. The following records and actions will be taken:

1. Sample Labels - Sample labels are necessary to prevent misidentification of samples. A sample label similar to that shown on Form 4.2 will be completely filled out and attached to each sample container at the time of collection.

2. Field Sampling and Analysis Record - Pertinent field measurements and observations will be recorded. To facilitate these records, at a minimum the information outlined in Section 4.2.4 will be recorded for each sample.

3. Chain-of-Custody Record - To establish the documentation necessary to trace sample possession from the time of collection, the chain-of-custody record such as shown on Form 4.3 shall be filled out with one copy to accompany every sample shipment from the time of collection through receipt by the analytical laboratory. The field sampler will retain one copy of the form. A record of the relinquishing of the sample will be obtained as provided on Form 4.2. The sample will be delivered to the laboratory for analysis as soon as possible and within the appropriate hold times specified in EPA SW-846.

4.2.5.2. Laboratory Operations

The analytical laboratory will acknowledge receipt of the samples by initiating and dating the appropriate box on the chain-of-custody form.

The laboratory will be EPA- and/or state-certified. The laboratory will maintain internal chain-of-custody control in accordance with its own standard quality assurance program.

4.2.6 Calibration Procedures and Frequency

4.2.6.1. General

The meter used to measure pH will be calibrated as outlined below prior to and during use. The pH solutions used to calibrate will be recorded in the field notes. Identification numbers of the instruments used will be recorded in the field notes.

4.2.6.2. Field Measurements

Field pH is to be performed with the Horiba U-52 Water Quality instrument serial number HGS#VUS6DKXX or equivalent.

The pH meter has automatic temperature correction.

Manufacturer's instructions for operation and standardization of instruments will be followed. A two-buffer standardization with buffers approximately 3 pH units apart that span the anticipated measurement values will be performed prior to collecting site measurements.

If creosote gets on the electrodes, the electrodes will be cleaned with hexane or distilled water.

4.2.6.3. Temperature

Temperature will be measured using a Horiba U-52 Water Quality instrument serial number HGS#VUS6DKXX or equivalent, checked periodically against a precision thermometer. Temperature shall be reported to the nearest 1 ^{o}C.

4.2.7 Analytical Procedures

Analytical methods to be used are identified in Sections 4.2.3 (RCRA) and 4.2.4.4 (NPDES) above.

As part of the laboratory's quality control program, blanks, duplicates, and spikes will be run as discussed in Section 4.2.9 below.

4.2.8 Data Reduction

Validation and reporting analytical results will be reviewed on the original laboratory certificates of analysis. Outliers will be identified based upon comparisons with other samples and results of internal quality control checks. Original laboratory certificates of analysis will be used to report analytical results. Key individuals and responsibilities are given in Section 4.2.2.

4.2.9 Internal Quality Control Checks

4.2.9.1. Field Operations

At least one blind field duplicate will be collected and submitted to the laboratory for analysis each sampling round.

At least one field blank will be collected per sampling round. The blank sample will be prepared by filling sample containers with distilled water in the same manner as is done for a typical sample.

4.2.9.2. Laboratory Operations

The laboratory will conduct internal quality control checks in accordance with its own QA program and as required by the appropriate methodology. This will include running at least 10 percent lab duplicate and spike samples. The laboratory will run at least one method blank per set of samples. The laboratory will summarize the results of these quality control checks and submit them with the analytical results.

4.2.10 Performance and System Audits

System audits will consist of qualitative reviews of the results of all analyses and quality control checks upon the receipt of laboratory results.

4.2.11 Preventive Maintenance

Meters and probes will be cleaned and checked after each sampling period and any problems corrected.

4.2.12 Procedures Used to Assess Data Precision Accuracy and Completeness

Results of blind duplicates will be compared to assess precision. To assess accuracy, the laboratory will calculate percent recovery of spikes. Completeness will be calculated as a percentage of valid data compared to the amount of data expected. Equations used to calculate these are given in Reference 2. QA objectives are given in Section 4.2.3.

4.2.13 QA/QC Corrective Action

Corrective action, as defined in EPA SW-846 (Reference 1) will be initiated when QA objectives are not met or if work is not conducted in accordance with the plan. Any individual on the project may request corrective action but approval and initiation is the responsibility of the HWMF Manager.

4.2.14 References

1. EPA, 1997, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods: EPA SW-846.

2. EPA, 1992, Handbook for Sampling and Sample Preservation of Water and Wastewater.

4.3 GROUNDWATER FLOW DIRECTION AND RATE CALCULATION PROCEDURE

Groundwater elevations in Aquifers 1 and 2 will be reviewed semiannually. Automatically collected and/or manually measured groundwater elevations will be reviewed for evidence of gradient reversal throughout the known areas of creosote impacts to Aquifers 1 and 2. To perform semiannual evaluations, groundwater elevations and pumping rates displayed on the HMI computer screens shall be reviewed for evidence of reversal of gradient and overall extraction rates exceeding the projected natural flux through each aquifer. Confirmation of the electronically derived groundwater elevations will be made by hand measuring depths to groundwater and then converting the field data to elevations.

4.4 PROCEDURES FOR EVALUATING WELL YIELD PROBLEMS

4.4.1 Introduction

This section outlines procedures to be followed in order to ascertain the nature of the problem and possible solutions when the yield of a well decreases significantly or ceases.

4.4.2 Procedures - No Yield from Well System

The well yield may completely cease. In this case, it is most likely that one of the mechanical aspects of the system (pump, piping, electrical system, etc.) has a problem. Table 4.9 lists potential problems, symptoms and corrective actions that can be taken.

4.4.3 Procedures - Reduced Yield from Well System

If the well system continues to yield but the yield is less than expected, the problem may be due to the malfunction of the system which removes water from the well (such as a worn pump, partially blocked pipe, etc.) or with the aquifer yielding water to the well.

A problem with the pump will usually be indicated by the pump not meeting the total head vs. discharge rate specifications of the pump curve. Problems of the aquifer yielding water to the well may be related to a plugged well screen (or gravel pack) or may be due to a natural condition of the aquifer (such as low water levels). If the specific capacity (discharge rate per foot of drawdown) of the well is within the normal historic range, plugging of the well screen is not likely a problem. However, because of the wide range of specific capacities of the wells and changes in specific capacity of a well with fluctuation in the water table elevation (particularly Aquifer 1 wells), it is not always clear what the specific capacity of a well should be at a given time. Specific capacity test data are presented in the report of as-built drawings (Dames and Moore - As-built Drawings, Well and Piping System, Pole Treatment Yard, Idaho Falls, Idaho December 2, 1988). PacifiCorp also keeps records of discharge rates and water levels from which historic specific capacities can be obtained. In general, specific capacities of Aquifer #1 wells decreases greatly in the late spring of each year when water levels are at their lowest.

Table 4.10 lists potential problems, symptoms and corrective actions that can be taken if there is significantly reduced yield from the aquifer.

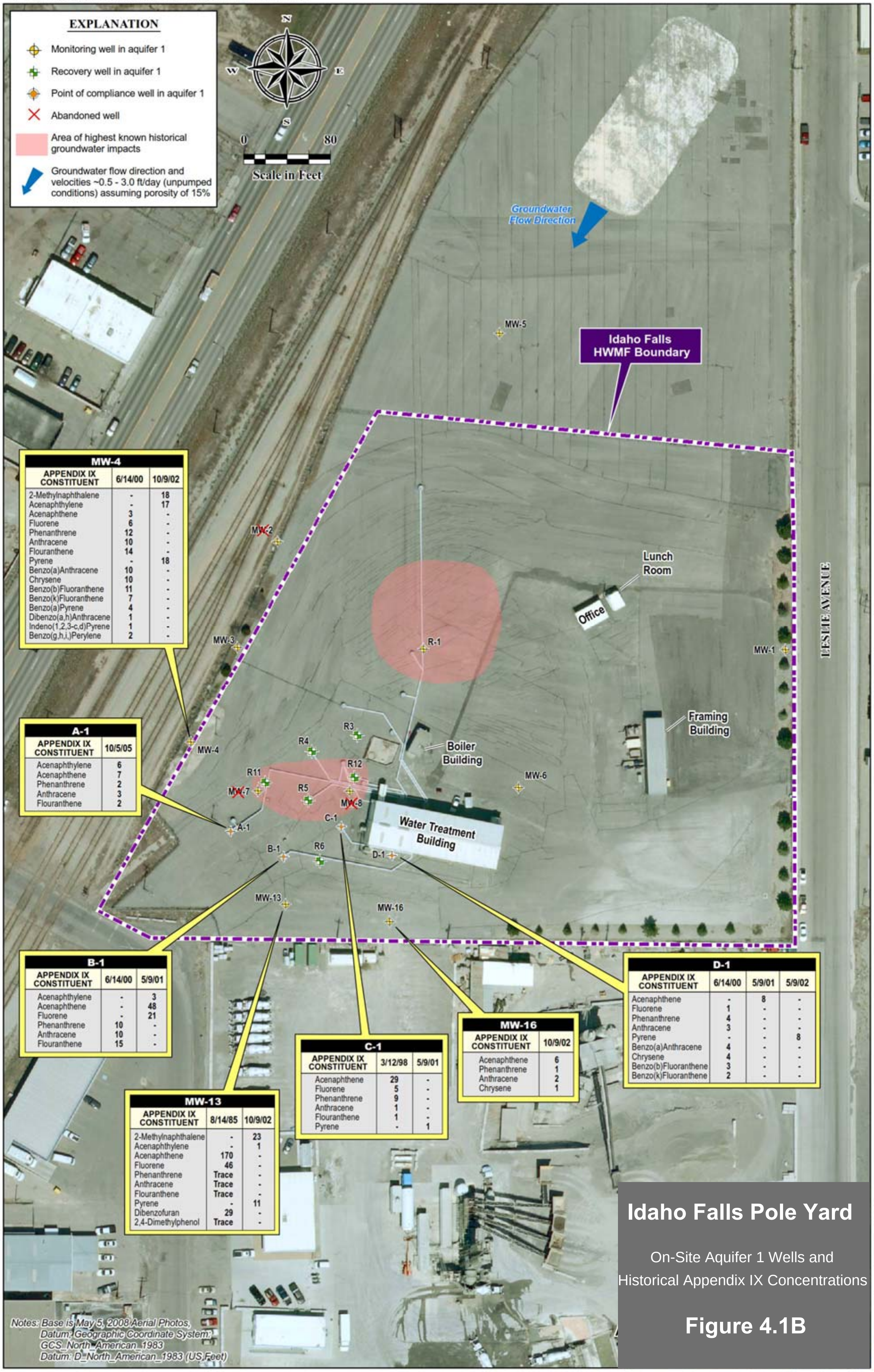
FILE Fig4.01A_IF_PoleYard_MW_locations_1110.mxd 11/23/10 SLC

Idaho Falls Pole Yard

Well Locations

Figure 4.1A

FILE Fig4.01B_IF_PoleYard_Aquifer1_Charts_NAD83_1110.mxd 11/24/09 SLC



MW-4

APPENDIX IX CONSTITUENT	6/14/00	10/9/02
2-Methylnaphthalene	-	18
Acenaphthylene	-	17
Acenaphthene	3	-
Fluorene	6	-
Phenanthrene	12	-
Anthracene	10	-
Flouranthene	14	-
Pyrene	-	18
Benzo(a)Anthracene	10	-
Chrysene	10	-
Benzo(b)Fluoranthene	11	-
Benzo(k)Fluoranthene	7	-
Benzo(a)Pyrene	4	-
Dibenzo(a,h)Anthracene	1	-
Indeno(1,2,3-c,d)Pyrene	1	-
Benzo(g,h,i,)Perylene	2	-

A-1

APPENDIX IX CONSTITUENT	10/5/05
Acenaphthylene	6
Acenaphthene	7
Phenanthrene	2
Anthracene	3
Flouranthene	2

B-1

APPENDIX IX CONSTITUENT	6/14/00	5/9/01
Acenaphthylene	-	3
Acenaphthene	-	48
Fluorene	-	21
Phenanthrene	10	-
Anthracene	10	-
Flouranthene	15	-

MW-13

APPENDIX IX CONSTITUENT	8/14/85	10/9/02
2-Methylnaphthalene	-	23
Acenaphthylene	-	1
Acenaphthene	170	-
Fluorene	46	-
Phenanthrene	Trace	-
Anthracene	Trace	-
Flouranthene	Trace	-
Pyrene	-	11
Dibenzofuran	29	-
2,4-Dimethylphenol	Trace	-

C-1

APPENDIX IX CONSTITUENT	3/12/98	5/9/01
Acenaphthene	29	-
Fluorene	5	-
Phenanthrene	9	-
Anthracene	1	-
Flouranthene	1	-
Pyrene	-	1

MW-16

APPENDIX IX CONSTITUENT	10/9/02
Acenaphthene	6
Phenanthrene	1
Anthracene	2
Chrysene	1

D-1

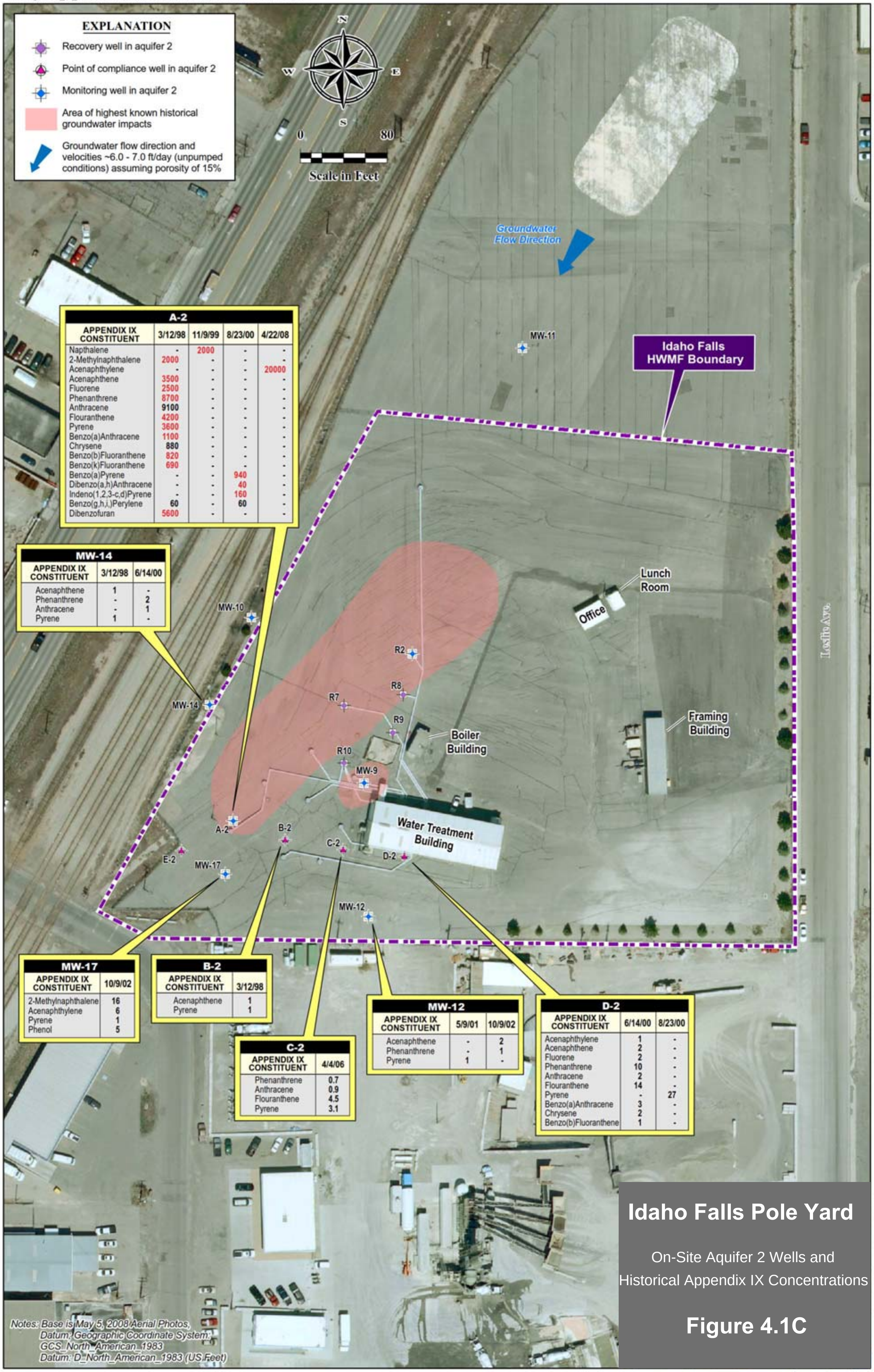
APPENDIX IX CONSTITUENT	6/14/00	5/9/01	5/9/02
Acenaphthene	-	8	-
Fluorene	1	-	-
Phenanthrene	4	-	-
Anthracene	3	-	-
Pyrene	-	-	8
Benzo(a)Anthracene	4	-	-
Chrysene	4	-	-
Benzo(b)Fluoranthene	3	-	-
Benzo(k)Fluoranthene	2	-	-

Idaho Falls Pole Yard

On-Site Aquifer 1 Wells and Historical Appendix IX Concentrations

Figure 4.1B

FILE Fig4.01C_IF_PoleYard_Aquifer2_Charts_NAD83_1110.mxd 11/24/10 SLC



A-2

APPENDIX IX CONSTITUENT	3/12/98	11/9/99	8/23/00	4/22/08
Napthalene	-	2000	-	-
2-Methylnaphthalene	2000	-	-	-
Acenaphthylene	-	-	-	20000
Acenaphthene	3500	-	-	-
Fluorene	2500	-	-	-
Phenanthrene	8700	-	-	-
Anthracene	9100	-	-	-
Flouranthene	4200	-	-	-
Pyrene	3600	-	-	-
Benzo(a)Anthracene	1100	-	-	-
Chrysene	880	-	-	-
Benzo(b)Fluoranthene	820	-	-	-
Benzo(k)Fluoranthene	690	-	-	-
Benzo(a)Pyrene	-	-	940	-
Dibenzo(a,h)Anthracene	-	-	40	-
Indeno(1,2,3-c,d)Pyrene	-	-	160	-
Benzo(g,h,i,)Perylene	60	-	60	-
Dibenzofuran	5600	-	-	-

MW-14

APPENDIX IX CONSTITUENT	3/12/98	6/14/00
Acenaphthene	1	-
Phenanthrene	-	2
Anthracene	-	1
Pyrene	1	-

MW-17

APPENDIX IX CONSTITUENT	10/9/02
2-Methylnaphthalene	16
Acenaphthylene	6
Pyrene	1
Phenol	5

B-2

APPENDIX IX CONSTITUENT	3/12/98
Acenaphthene	1
Pyrene	1

C-2

APPENDIX IX CONSTITUENT	4/4/06
Phenanthrene	0.7
Anthracene	0.9
Flouranthene	4.5
Pyrene	3.1

MW-12

APPENDIX IX CONSTITUENT	5/9/01	10/9/02
Acenaphthene	-	2
Phenanthrene	-	1
Pyrene	1	-

D-2

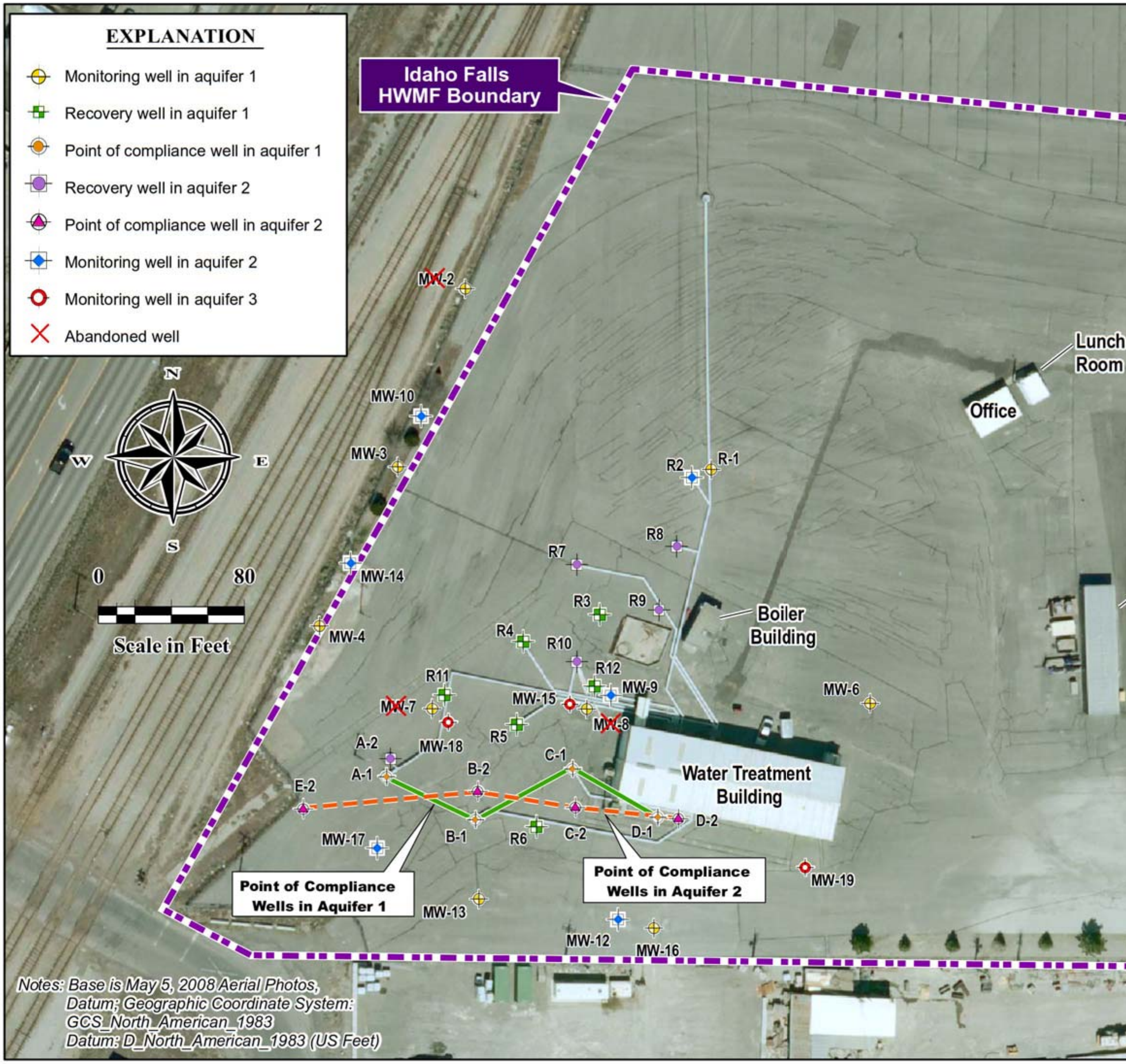
APPENDIX IX CONSTITUENT	6/14/00	8/23/00
Acenaphthylene	1	-
Acenaphthene	2	-
Fluorene	2	-
Phenanthrene	10	-
Anthracene	2	-
Flouranthene	14	-
Pyrene	-	27
Benzo(a)Anthracene	3	-
Chrysene	2	-
Benzo(b)Fluoranthene	1	-

Idaho Falls Pole Yard

On-Site Aquifer 2 Wells and Historical Appendix IX Concentrations

Figure 4.1C

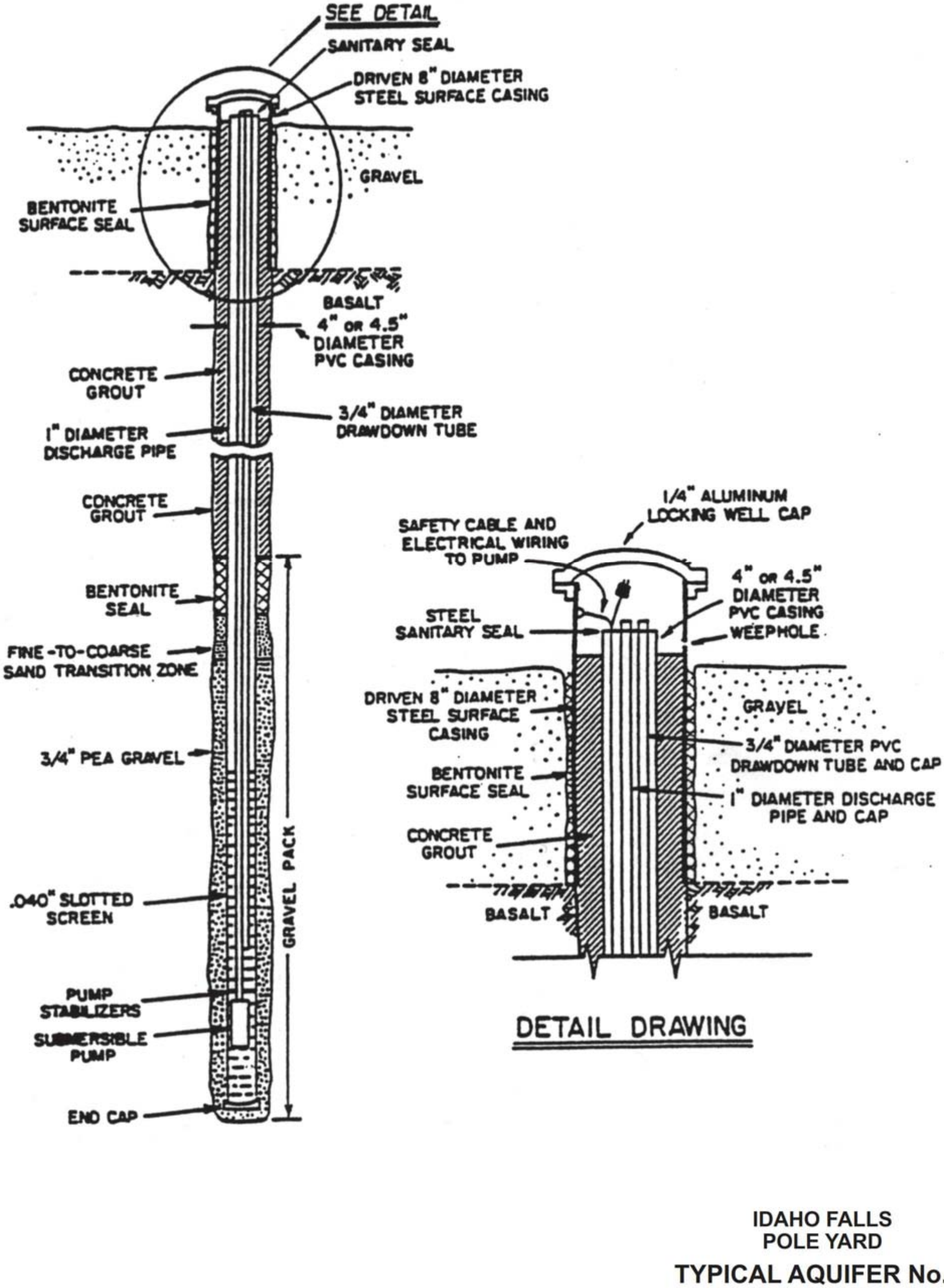
FILE *Fig4.02IF_PoleYard_POC_wells_NAD83_1110.mxd 11/23/10 SLC*



Idaho Falls Pole Yard

On-Site Wells and
Points of Compliance

Figure 4.2



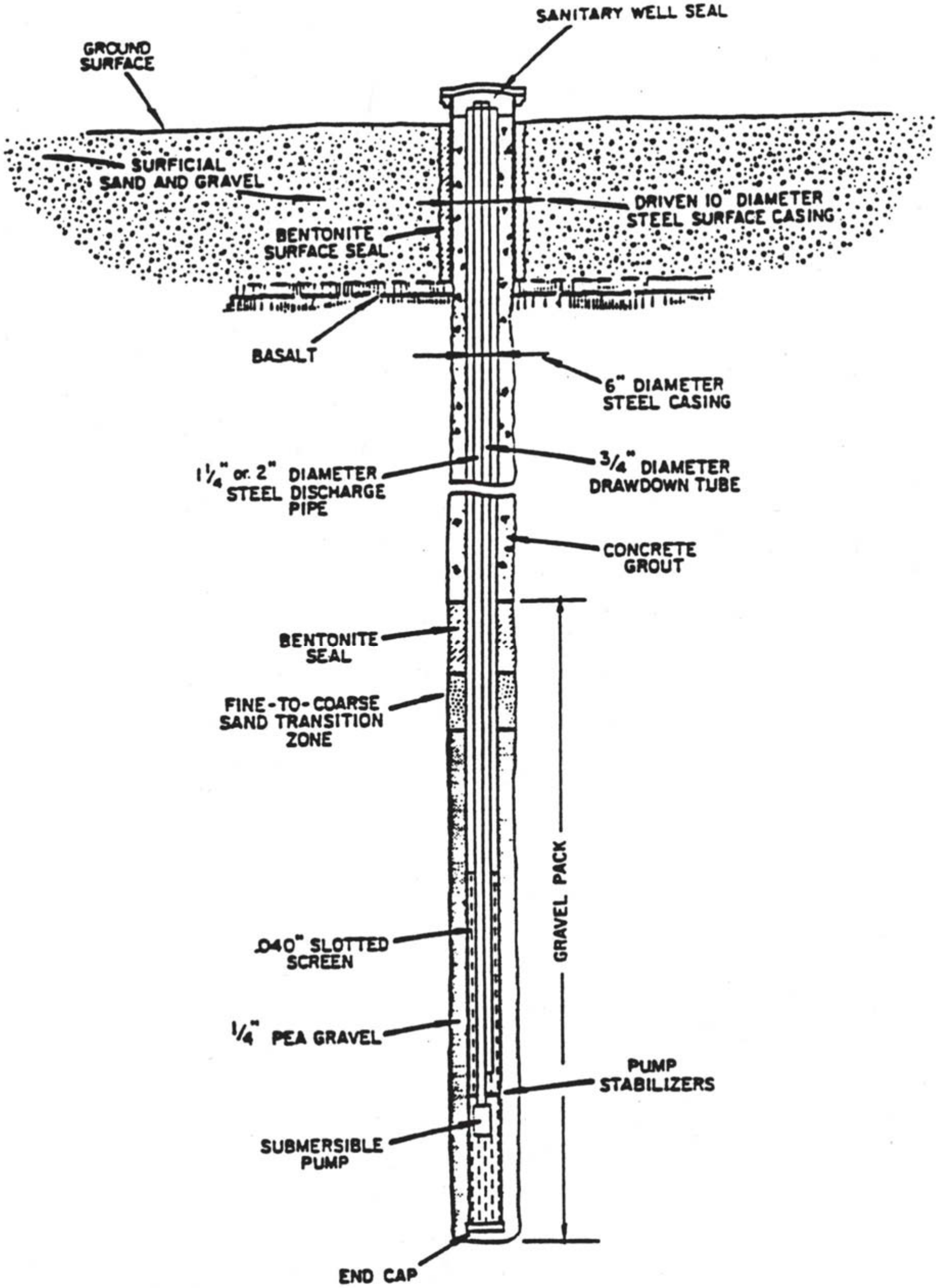
IDAHO FALLS
POLE YARD

TYPICAL AQUIFER No. 1 MONITORING WELL

FIGURE 4.3

Source: Dames & Moore

FILE *Fig4.03 Typical Aquifer No.1 MW.ai 5/8/08 SLC*



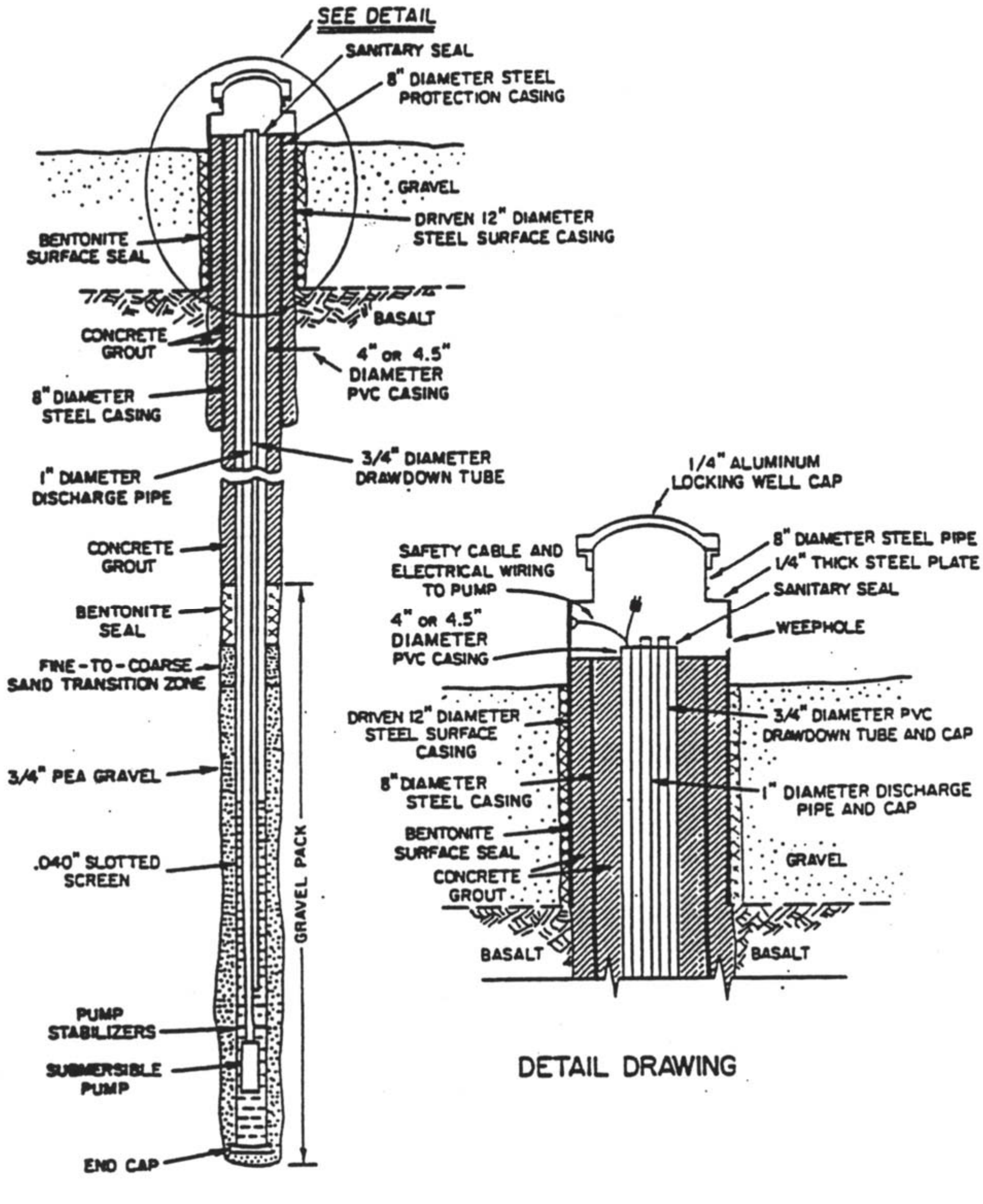
IDAHO FALLS
POLE YARD

TYPICAL AQUIFER No. 1 RECOVERY WELL

FIGURE 4.4

Source: Dames & Moore

FILE *Fig4.04 Typical Aquifer No.1 Recovery Well.ai 5/8/08 SLC*



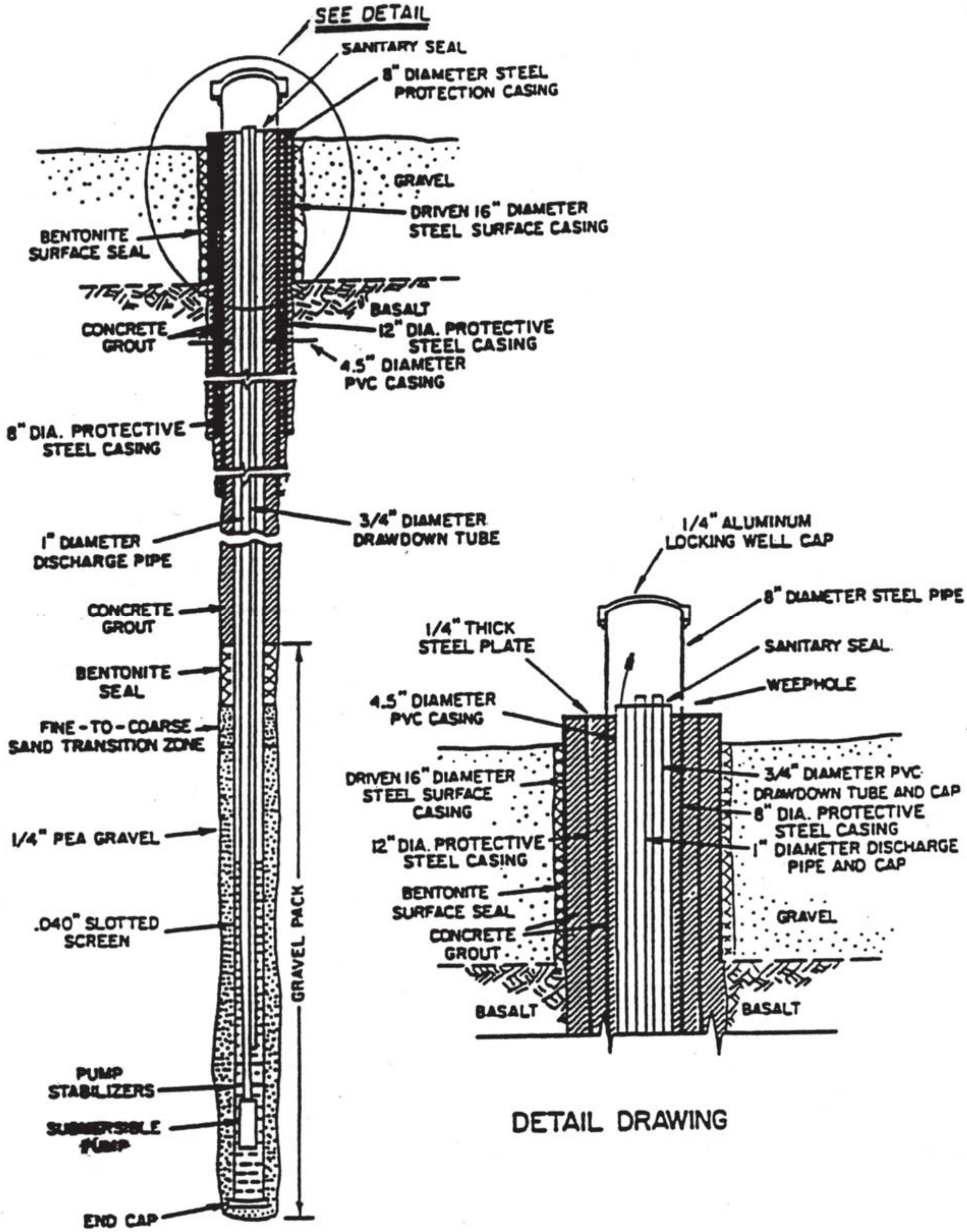
Source: Dames & Moore

IDAHO FALLS POLE YARD

TYPICAL AQUIFER No. 2 MONITORING WELL

FIGURE 4.5

FILE Fig4.05 Typical Aquifer No.2 MW.ai 5/8/08 SLC



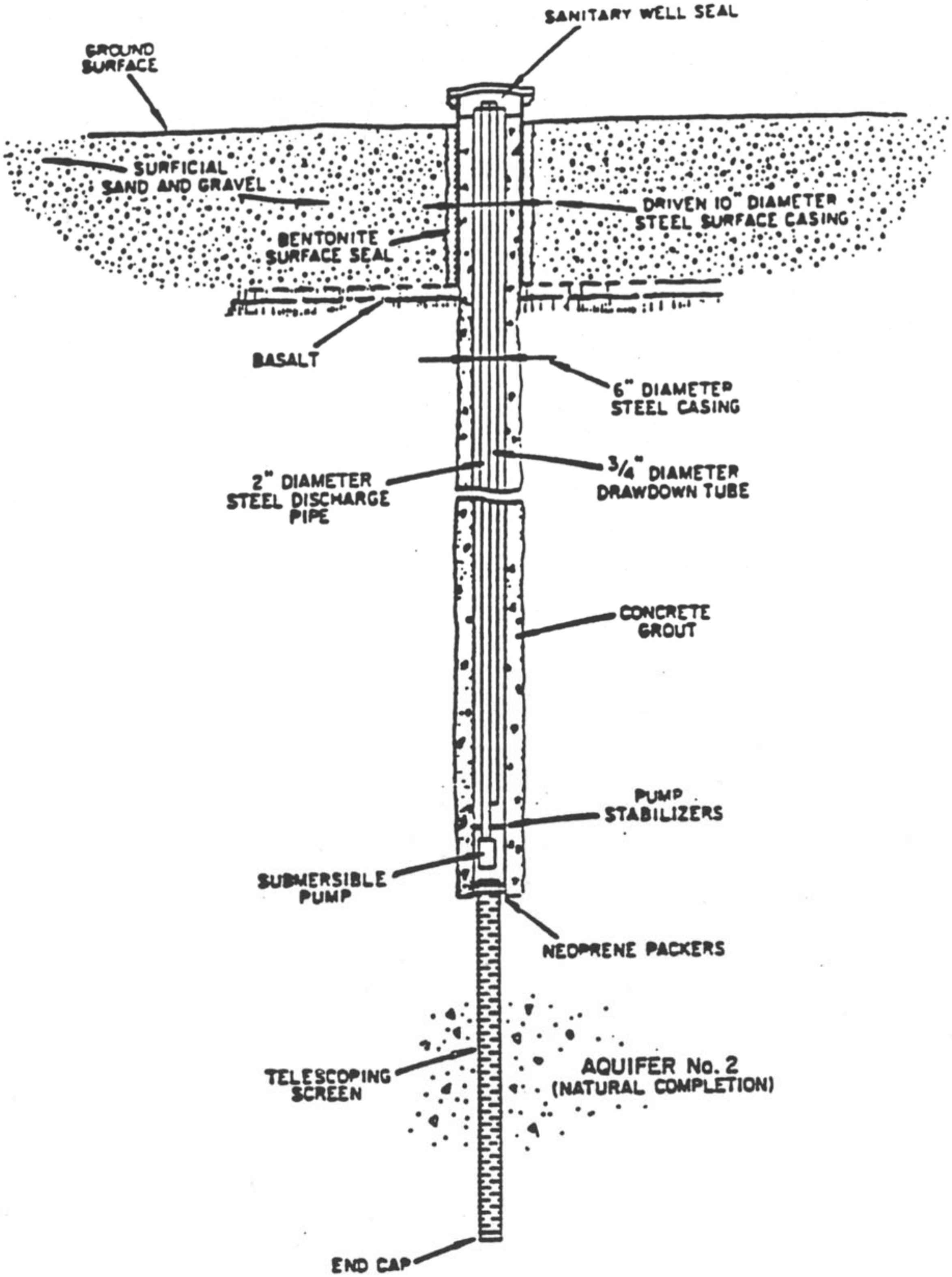
IDAHO FALLS
POLE YARD

TYPICAL AQUIFER No. 3 MONITORING WELL

FIGURE 4.6

Source: Dames & Moore

FILE *Fig4.06 Typical Aquifer No.3 MW.ai 5/8/08 SLC*



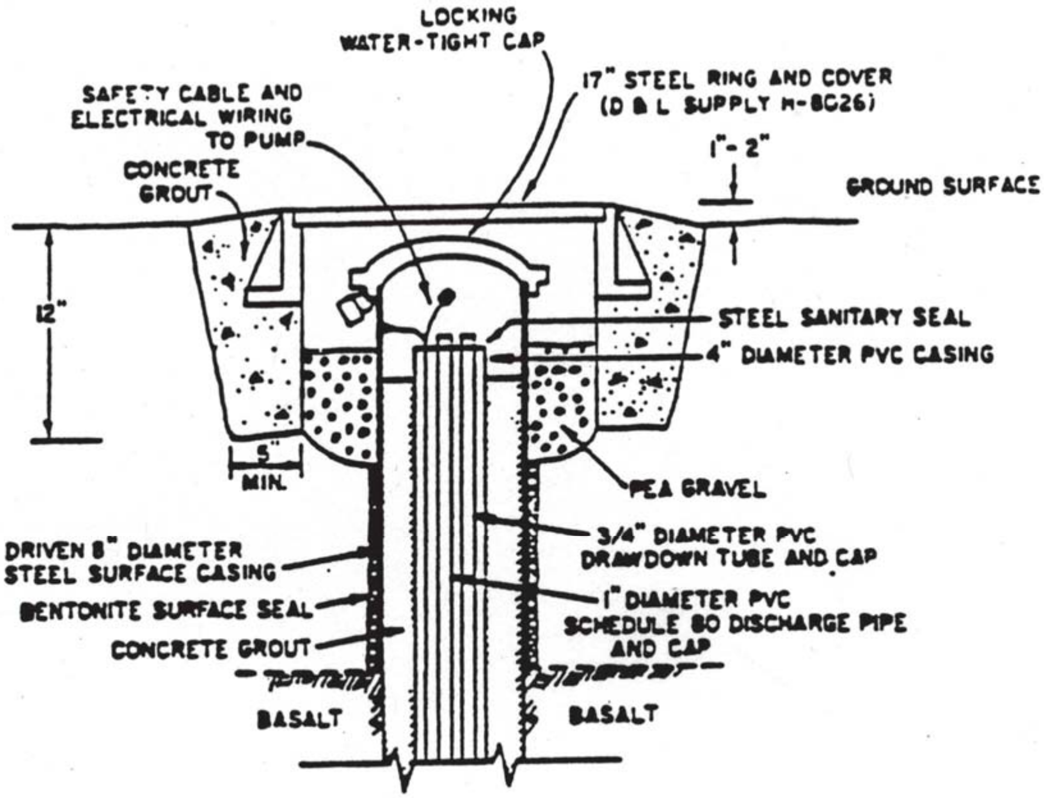
IDAHO FALLS
POLE YARD

TYPICAL AQUIFER No. 2 RECOVERY WELL

FIGURE 4.7

Source: Dames & Moore

FILE *Fig4.07 Typical Aquifer No.2 Recovery Well.ai 5/8/08* SLC



NOT TO SCALE

IDAHO FALLS
POLE YARD

TYPICAL AT-GRADE SURFACE COMPLETION (OFFSITE WELLS)

FIGURE 4.8

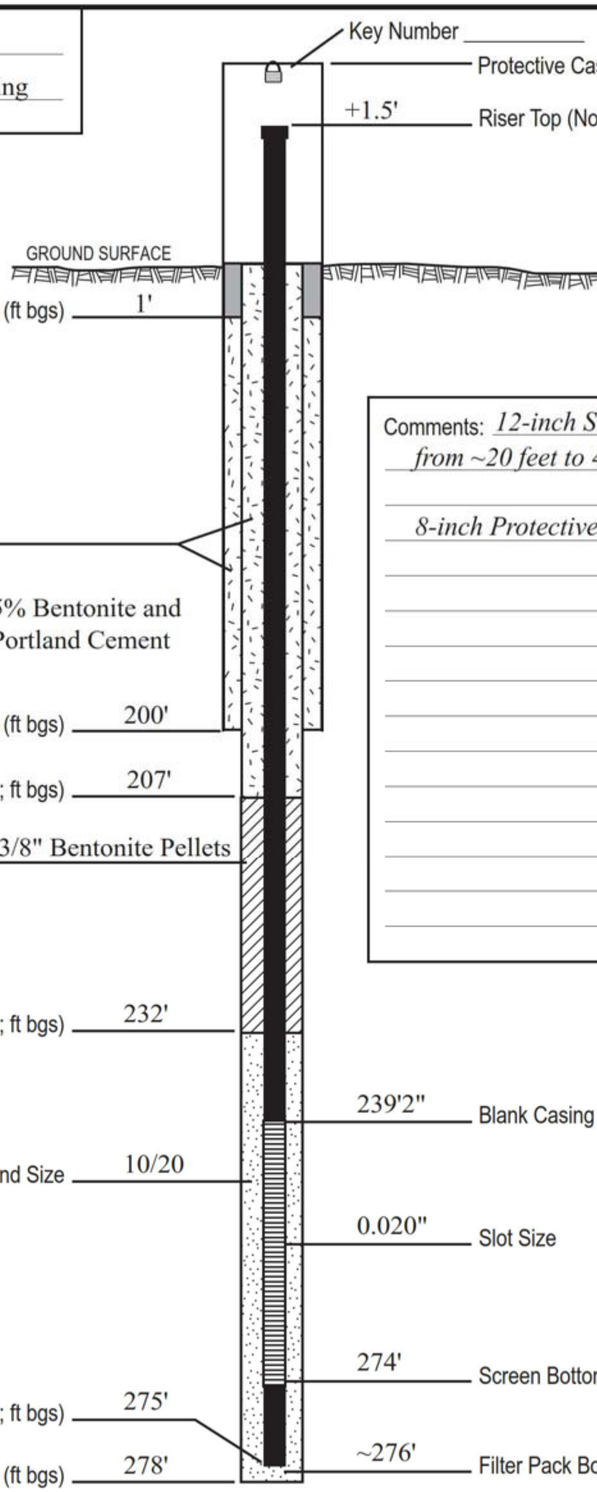
Source: Dames & Moore

FILE *Fig4.08 At_Grade Surface Well.ai 5/8/08 SLC*

MONITORING WELL COMPLETION FORM

Project No: 105400

Drilling Company: Andrew Well Drilling



Key Number ___________

Protective Casing Top (ft ags)

Riser Top (Not applied to Flush Mount; ft ags): +1.5'

Concrete Bottom/Grout Top Depth (ft bgs): 1'

Grout Type: 5% Bentonite and Portland Cement

Protective Casing Depth (ft bgs): 200'

Grout Bottom Depth (Seal Top Depth; ft bgs): 207'

Seal Material: 3/8" Bentonite Pellets

Top of Sand (seal bottom depth; ft bgs): 232'

Blank Casing Bottom (Screen Top; ft bgs): 239'2"

Coarse Sand Size: 10/20

Slot Size: 0.020"

Screen Bottom (Foot Top; ft bgs): 274'

Foot/End Cap Bottom (Well Total Depth; ft bgs): 275'

Filter Pack Bottom (ft bgs): ~276'

Borehole Depth (ft bgs): 278'

Comments: *12-inch Surface casing in boring from ~20 feet to 44.5 feet bgs.*

8-inch Protective casing +2' to 200' bgs.

NOT TO SCALE

Loc ID/Well ID: **E-2**	Blank Casing Material/Diameter: Low Carbon Steel / 4 inch
Geologist: Bill Bragdon, MWH, Salt Lake City, Utah	Screen Material/Diameter: Stainless Steel / 4 inch
Date Construction Started: 9/17/2009	Protective Casing Type: 8 inch Carbon Steel to 200 feet
Date Construction Completed: 9/21/2009	Borehole Diameter: 12 inch to 200 feet, 8 inch from 200 to 278 feet bgs
LOC Type (i.e. Monitoring Well): Monitoring Well	Above Ground Completion [x] Flush Mount [ ]
Riser Material/Diameter: Low Carbon Steel / 4 inch	USCS Classification of Screened Interval: Basalt with cinders

MONITORING WELL COMPLETION FORM FOR E-2

FIGURE 4.9

BORING LOCATION

Project: **Pacificorp** Project No: **1005400**
Date Drilled: **8/19/09** Date Completed: **9/16/09**
Logged By: **Bill Bragdon**

Water Elevation (ft.):
Date Measured:

Total Depth (ft.): **12": 0' to 200', 8": 200' to 275'**
Diameter (in.) **12"and 8"**

Abandonment Information:

Boring ID: **E-2**
Northing: Easting:

Ground Surface Elevation (ft.):
Datum: NGVD (1988)

Drilling Contractor: **Andrew Well Drilling**
Drilling Method: **Air Rotary**

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICATION	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
0									Asphalt.	
1	40	10	50	0.0	NA	G	GM		(GM) Silty gravel, very dark, grayish brown (2.5Y 3.2), some fine to coarse sand.	
2										
3										
4	60	30	10	0.0	NA	G	GP		(GP) Grades fine to coarse sandy gravel, grayish brown (2.5Y 5/2) dry, subrounded, trace to some silt.	
5										14:55

* C California Split Spoon Sampler (2.5" I.D.)
S Standard penetration test sampler
c Cuttings
▼ Elevation of ground water

GEOLOGIC LOG FOR WELL E-2
FIGURE 4.10

Drill Date: **8/19/09 and 8/20/09** Location ID: **E-2**

Site ID: **Pole Yard**

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
5	60	30	10	0.0	NA	G	GP		Fine to coarse sandy gravel, trace silt as above at 5 feet bgs, sand and gravel primarily quartzite and fine-grained sandstone.	
6										
7										
8										
9				0.0	NA	G	GP		As above	
10										15:38
11									8/19/09	
12									8/20/09	
13										
14										
15	60	40	<5 to 10%	0.0	NA	G	GP		Fine to coarse sandy fine and coarse gravel with trace to some silt, grayish brown (2.5Y 5/2) dry, subrounded gravel and coarse sand, wet from drilling water.	09:14
16									Grades to dark yellowish brown (2.5Y 4/2) to olive brown (2.5Y 4/3).	
17										
18										
19										
20										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: **8/20/09** Location ID: **E-2**

Site ID: **Pole Yard**

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
20										
21				0.0	NA		GP			
22										
23										
24										
25										10:40
26	50	50	<5	0.0	NA	G	SP/ GP		Grades fine to coarse sand and fine to coarse gravel with some cobbles, grayish brown (2.5Y 5/2) to olive brown (2.5Y 4/3), trace clay. Gravel is quartzite that is subrounded.	
27										
28										
29										11:57
30	70	10	20				GC		Poor recovery between 30-35 feet. Cobbles and boulders. Rounded to subrounded material of quartzite and some clay. Clay is very pale brown (10YR 7/4).	
31										
32										
33									Basalt bedrock, fractured and weathered. Fine-grained basalt of black (N1) with some interbedded clay of very pale brown (10YR 7/4).	
34										
35										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 8/20/09 Location ID: E-2
Site ID: Pole Yard

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
35										
36	<5	<5	100	0.0	NA	G	CL		Clay layer in basalt, low plasticity with some silt. Yellowish brown (10YR 5/4).	
37										
38										
39										
40									Fractured fine-grained basalt, black (N1) to dark reddish brown (5YR 3/4).	16:03
41									Some gas vesicles.	
42										
43										
44										
45				0.0	NA	G			Basalt as above.	
46										
47										
58										
49										
50										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 8/20/09 and 8/21/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
50										16:52
51									8/20/09 8/21/09	17:32
52										
53										
54										
55										14:33
56										
57									Fine-grained basalt with no fractures (57-61), dark gray (N4) to back (N1).	
58										
59										14:51
60										
61				0.0	NA	G			Clay with fine to coarse gravel and cobbles, gravel is subrounded, yellowish brown (10YR 5/4) to light gray (N7) with few cinders, dark reddish brown (10R 2/2).	
62							CL			
63										
64									Broken or fractured basalt, black (N1).	
65										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 8/21/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	GRAIN SIZE % SAND	GRAIN SIZE % FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
65										
66										
67										
68									Grades to fine-grained basalt, medium gray (N5), few to no fractures.	
69										
70				0.0	NA	G			ND using Naphthalene detector tube.	16:50
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 8/21, 24 and 25/09 Location ID: E-2
Site ID: Pole Yard

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
80									Grades to fractured and broken basalt, medium gray (N5) to black (N1).	17:49
81										
82									Grades to fine-grained vesicular basalt. Poor recovery.	
83										
84										
85										
86				0.0	NA	G			ND using Naphthalene detector tube	
87										17:55
88										
89									8/21/09	
90									8/24/09	18:08
91									ND using Naphthalene detector tube	
92									As above at 80 feet, grading to dark gray (N3) to black (N1). Some gas vesicles. 8/24/09	
93									8/25/09	09:41
94										11:34
95										

GEOLOGIC LOG FOR WELL E-2
FIGURE 4.10

Drill Date: 9/2/09 and 9/3/09 and   Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
95										
96										
97										
98										
99										
100									9/2/09 9/3/09	17:20
101										
102				0.0	NA	G	VOID		Very fractured bedrock or void. Basalt is fine grained, very dark gray (N3) to black (N1).	
103										
104									Fractured basalt with some gas vesicles, very dark gray (N3) to black (N1).	
105										
106										
107										
108										
109				0.0	NA	G				
110										16:09

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
110										
111										
112										
113				0.0	NA	G			With some interbedded of fractured-filled fine and coarse quartzite gravel. Basalt is medium gray (N5), contains vesicles. ND using Naphthalene detector tube.	
114										
115										16:27
116										
117										
118										
119										
120										
121										
122										
123										17:00
124										
125										

Drill Date: 9/3/09
Location ID: E-2
Site ID: Pole Yard

GRAIN SIZE: % GRAVEL, % SAND, % FINES

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/3/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
125										
126				0.0	NA	G			With trace clay at 127 feet bgs.	
127										17:06
128										
129										
130										
131										
132										
133										
134									Fine-grained basalt with gas vesicles, medium gray (N5).	
135										17:26
136										
137										
138										
139									9/3/09	
140										17:43

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	Drill Date: 9/4/09 Location ID: E-2 Site ID: Pole Yard LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
140									9/4/09 Fine-grained basalt, medium gray (N5) to olive gray (5Y 6/1).	
141										
142										
143										
144										
145										
146										
147										
148									Grades to black (N1).	
149										
150										
151										
152										
153										
154										
155										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	Drill Date: 9/4/09 Location ID: E-2 Site ID: Pole Yard LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
155									Very slow drilling in basalt.	
156										
157									ND using Naphthalene detector tube.	
158										09:45
159										
160										
161										
162										
163				0.0	NA	G			Fine-grained basalt, black (N1) with trace quartz or quartzite, slow drilling.	
164										
165										10:03
166										
167										
168										
169										
170										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/4/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
170										
171										
172										
173										
174				0.0	NA	G			Fine-grained basalt, black (N1) and dark gray (N3), slow drilling	
175										10:51
176										
177										
178										
179										
180										11:17
181										
182										
183										
184										
185										11:50

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/4/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
185				0.0	NA	G				11:50
186										
197										
188										
189				0.0	NA	G			Fine-grained basalt, black (N1) to very dark gray (N3).	
190										12:23
191										
192										
193										
194										
195										13:10
196										
197										
198										
199									**Changed from12-inch boring to 8-inch boring.**	
200										13:23

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/16/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
200									**Changed to eight-inch boring.** Fine-grained basalt, black (N1) and dark gray (N3).	
201				0.0	NA	G			At 202 feet bgs grades to Olive brown (2.5Y 4/3) with black (N1).	
202									ND using Naphthalene detector tube.	
203										
204										10:22
205										
206				9.8	NA	G			Possible false reading on PID. ND using Naphthalene detector tube at 1045 feet bgs.	
207									No odor or sheen on water.	
208										
209										
210										
211										
212										
213										
214				2.1	NA	G				11:02
215										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/16/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
215										
216										
217										
218										
219										
220									Some fractures in basalt.	
221										
222										
223										
224				0.0	NA	G			Fine-grained basalt, platey texture, black (N1), no odors.	
225										
226										
227										
228										
229										
230										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/16/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
230							VOID		Very fractured basalt or possible void with cinders (230 to 232 bgs).	11:20
231				0.0	NA	G			Fine-grained basalt with few fractures.	
232										
233										11:26
234										
235										
236										
237										
238										
239				0.0	NA	G			Fine-grained basalt, dark gray (N1) with trace dusky red (10H 3/4) Fe Oxide locally and along fractures. ND using Naphthalene detector tube.	
240										11:50
241										
242										
243										
244										
245										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/16/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
245										
246										
247										
248										
249				0.0	NA	G			Grades to dark gray (N3) to black (N1).	12:10
250										
251									Void or fractured basalt with dark reddish brown (10R 3/4) cinders.	
252				0.0	NA	G				
253									Void from about 252 to 259 feet bgs making abundant water.	12:25
254										
255							VOID			
256										
257										
258										
259									Fine-grained basalt, black (N1), some gas vesicles.	13:45
260										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

Drill Date: 9/16/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	% GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
260										
261							VOID		Void or very fractured basalt, black (N1) with dark reddish brown (10R 3/4) cinders.	
262									Fine-grained basalt, black (N1).	
263										
264										
265									Void at 265 to 269 feet bgs with some dark reddish brown (10R 3/4) cinders.	
266							VOID			
267										
268										
269										
270										
271										
272										
273										
274				0.0	NA	G	VOID		Void or fractured basalt 274 to 275 feet bgs. Fine-grained basalt, black (N1).	
275										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

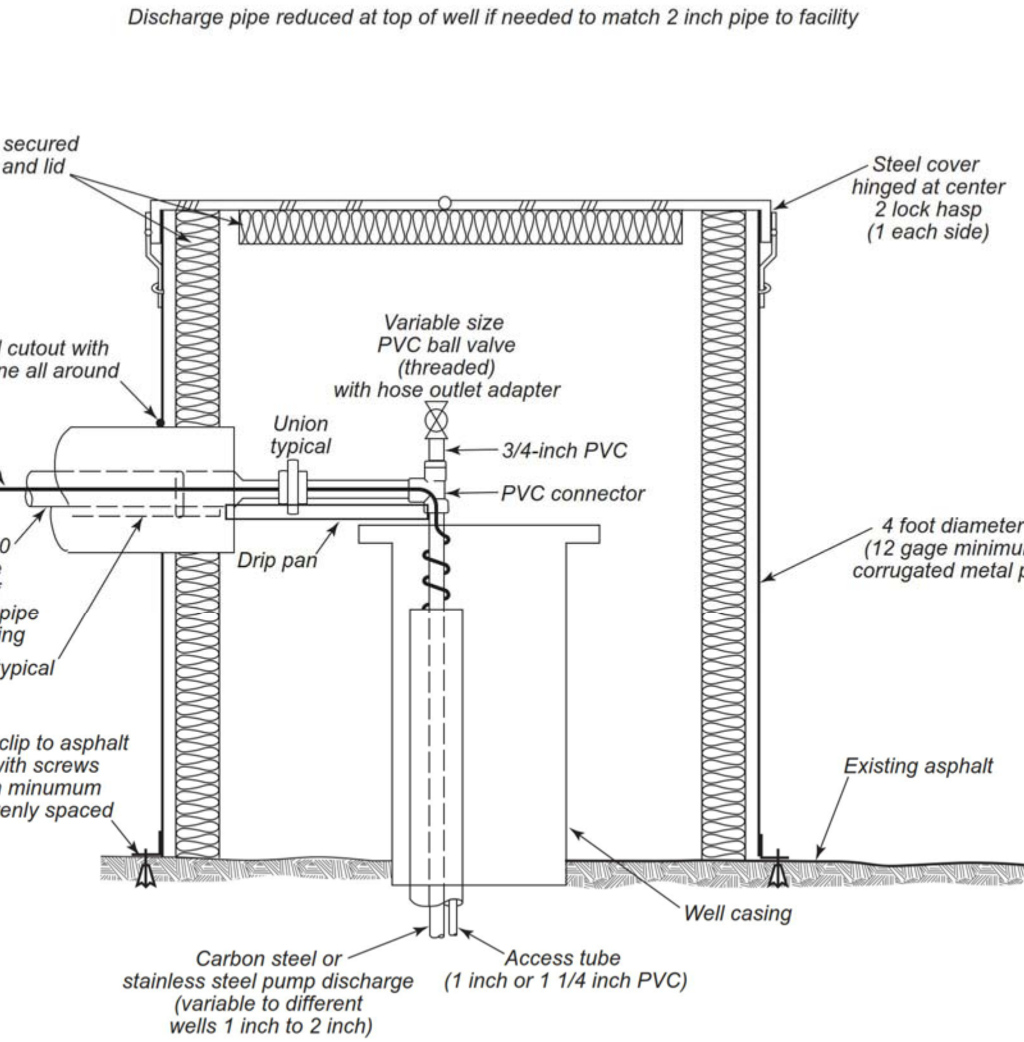
Drill Date: 9/16/09 Location ID: E-2

Site ID: Pole Yard

DEPTH (FEET)	GRAIN SIZE % GRAVEL	% SAND	% FINES	MAX. PID READING (ppm)	BLOWS (6 IN.)	SAMPLE TYPE*	USCS/ASTM CLASSIFICAT.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION (USCS name; color; size and angularity of each component or plasticity; density; moisture content; additional facts)	DRILLING TIME (MST)
275										
276										
277				0.0	NA	G			TD 278 feet bgs.	
278										
279										
280										

GEOLOGIC LOG FOR WELL E-2

FIGURE 4.10

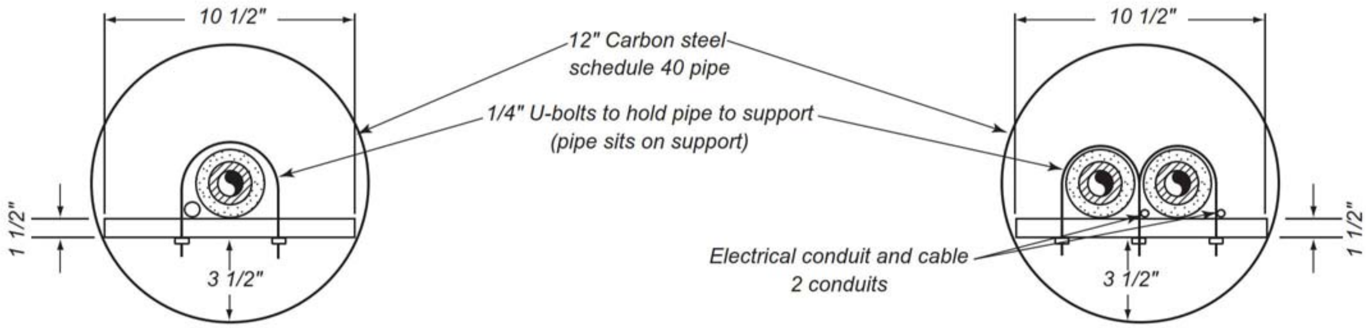


IDAHO FALLS POLE YARD

WELL HEAD MODIFICATIONS

FIGURE 4.11

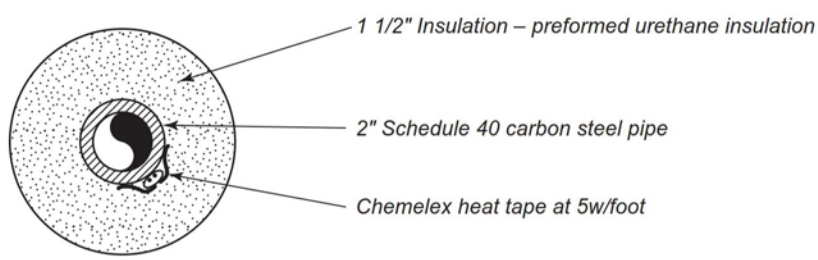
FILE Fig4.11 Well head mods 5/8/08 SLC



SINGLE PIPE AND INSULATION

DUAL PIPE AND INSULATION

PIPE SUPPORTS



WATER PIPE WITH HEAT TRACING

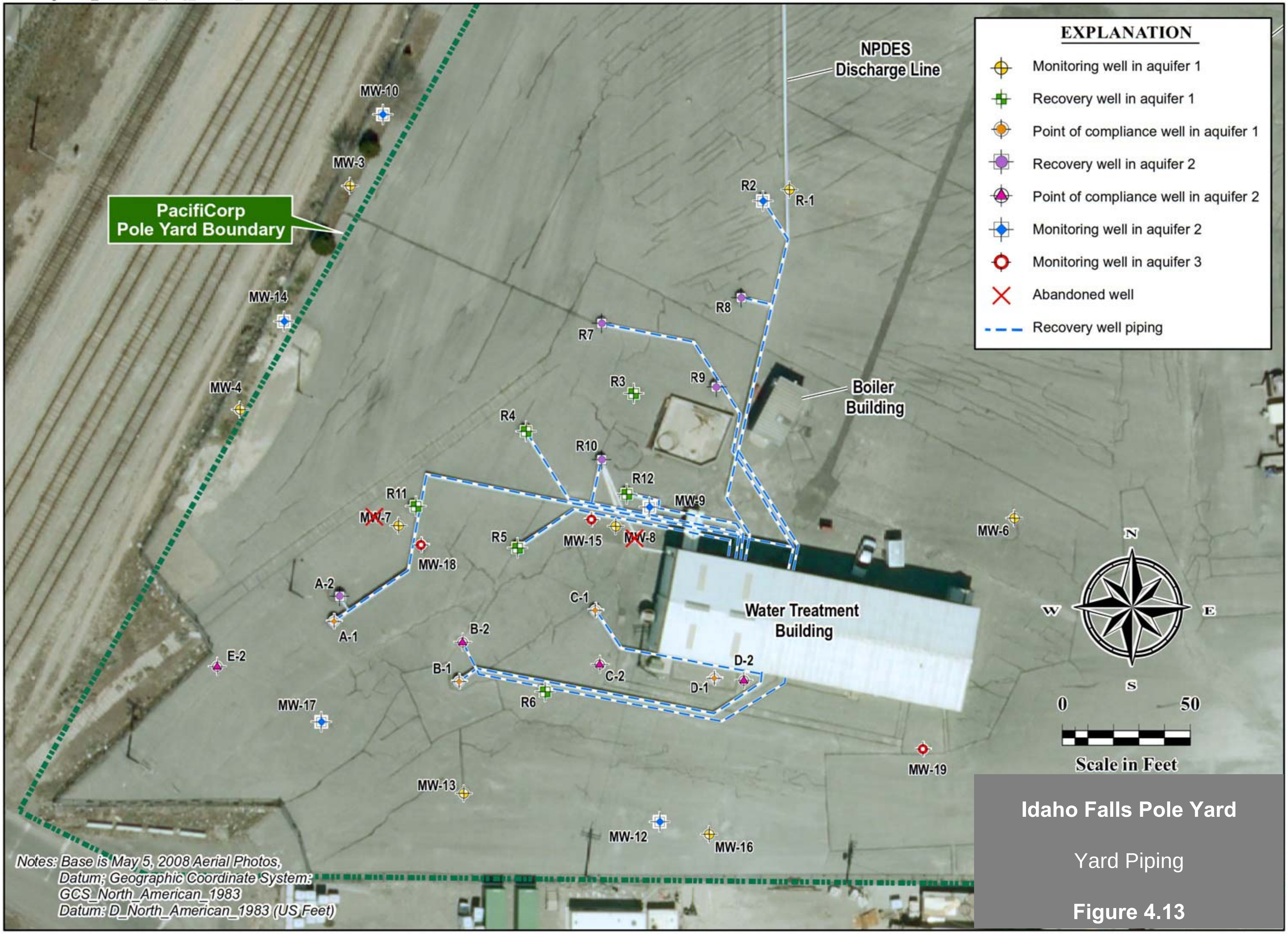
IDAHO FALLS POLE YARD

WATER PIPE DIAGRAMS

FIGURE 4.12

FILE Fig4.12 Water Pipe diagrams.ai 4/19/11 SLC

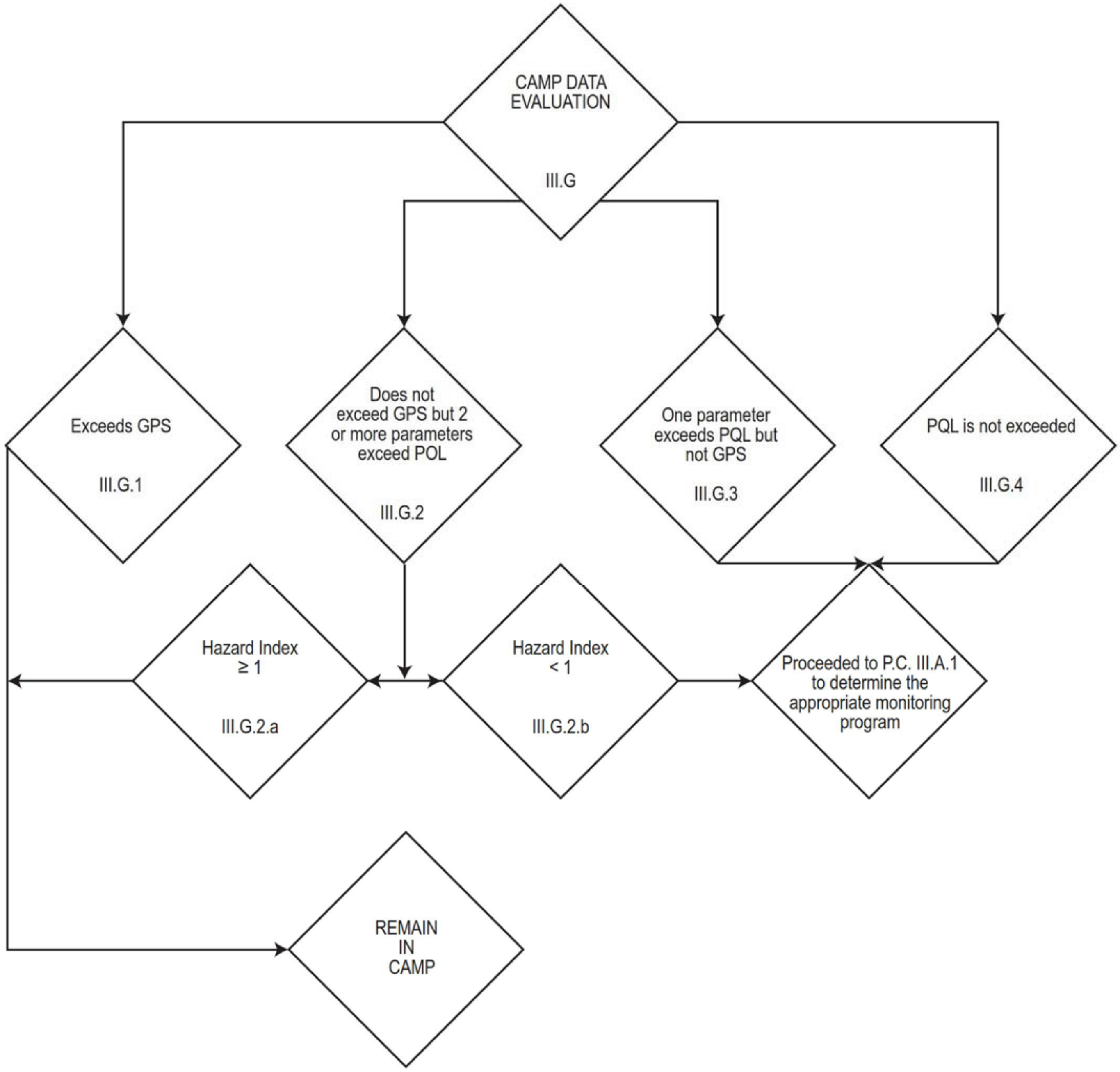
FILE FigA-3 IF_PoleYard_piping_NAD83_1110.mxd 11/30/10 SLC



Idaho Falls Pole Yard

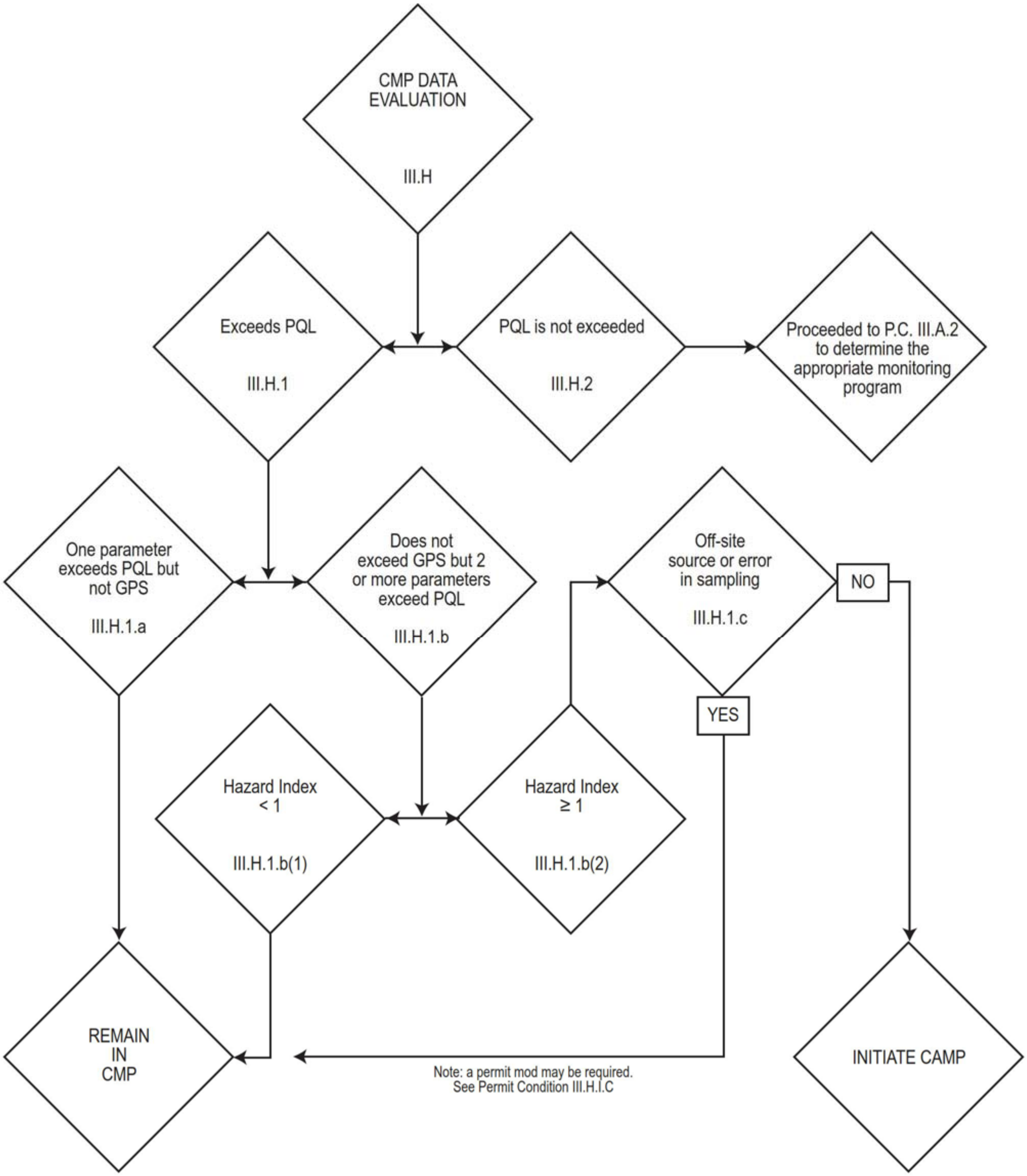
Yard Piping

Figure 4.13



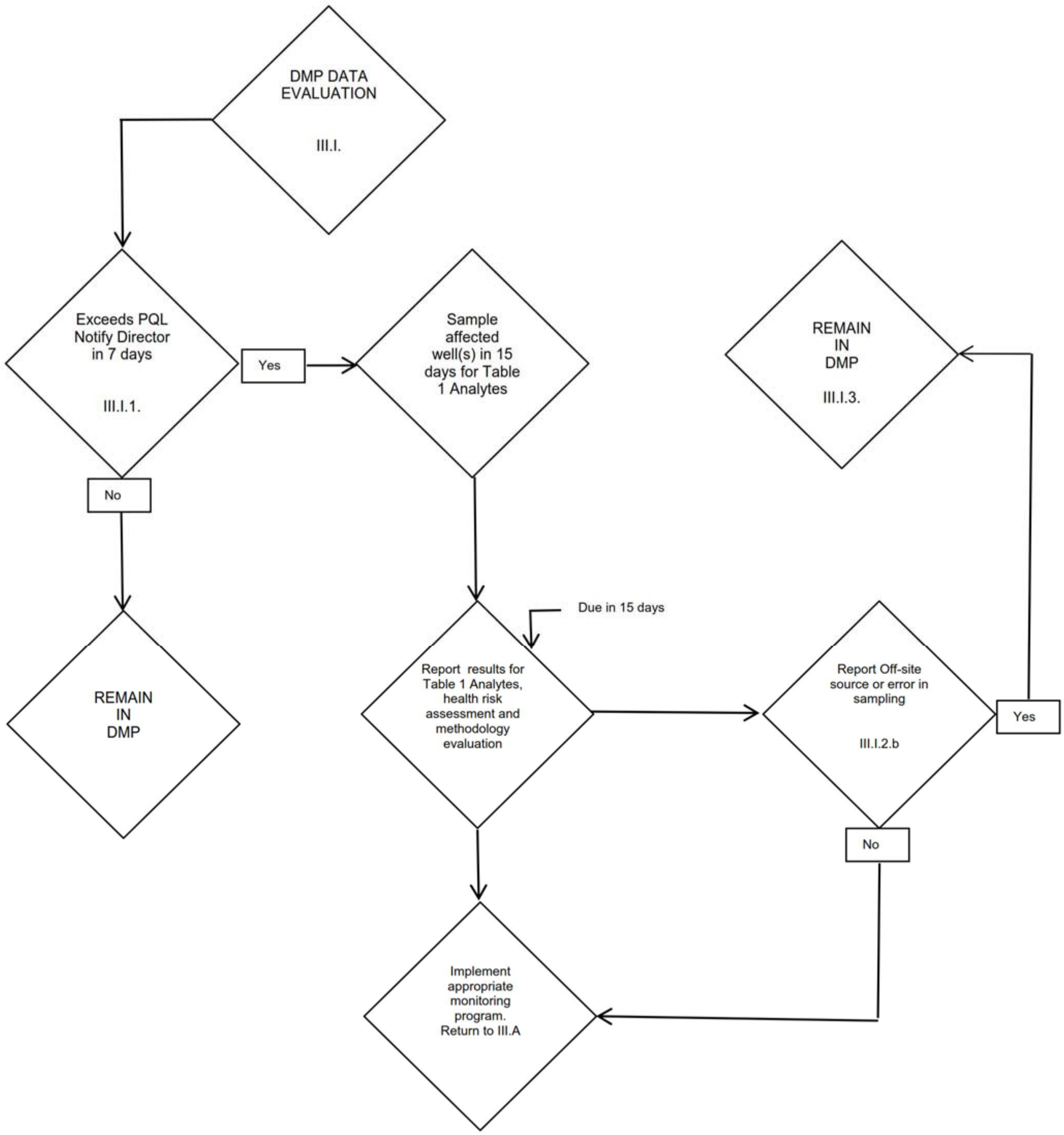
IDAHO FALLS
POLE YARD
Corrective Action Monitoring Program
FIGURE 4.14

FILE *Fig4.12 Corrective Action Monitoring.ai 05/09/08 SLC*



IDAHO FALLS
POLE YARD
Compliance Monitoring Program
FIGURE 4.15

FILE Fig4.13 Detection Monitoring.ai 05/09/08 SLC



Idaho Falls Pole Yard

Detection Monitoring Program Figure 4.16

TABLE 4.1

AQUIFER #1 MONITOR WELL CONSTRUCTION
(all data in feet)

Monitor Well No.	Coordinates		Elevation of Ground Surface at Well	Elevation of [d] Top of Steel Surface Casing	Drilled [e] Depth of Boring	8" Steel Casing [e]		Grout-back [e]		Total [e] Depth of 4" PVC Screen & Casing	Screened Interval [e]		Top of [e] Gravel Pack	Pump [e] Setting
	Northing	Easting				From:	To:	From:	To:		From:	To:		
MW-1 [b]	660,383.15	532,347.85	4692.0	4693.41	161.5	+1.5	23			157	117	157	100	152
MW-2 [a,b]	660,474.69	531,883.02												
MW-3 [b]	660,385.91	531,842.94	4693.6	4694.18	172	+1.0	22			154	134	154	129	150
MW-4 [b]	660,297.67	531,801.14	4694.0	4695.13	162	+2.0	30	70	135	162	142	162	132	158
MW-5 [b]	660,675.17	532,084.48	4693.4	4694.57	152	+1.5	28.5	15	100	150	110	150	90	144
MW-6 [b]	660,255.55	532,101.02	4690.9	4693.12	151	+2.0	20	56	100	150	110	150	91	146
MW-7 (a,b)	660,254.06	531,861.50	4692.6	4693.83	160	+1.5	28	28	100	156	116	156	93	1
MW-8 (a,b)	660,251.82	531,946.74	4692.4	4693.49	150	+1.5	29	68	100	149	109	149	92	147
MW-13 [c]	660,146.63	531,891.52	4692.2	4693.2	162	+1.5	32			162	122	162	108	153
MW-16 [c]	660,131.99	531,987.76	4692.8[g]	4693.87[g]	160	+1.0	28			158	138	158	116	155
OS-1 [c]	659,640.88	531,523.94	4691.7	4691.45	162	-0.2 [f]	19	85	125	161	141	161	125	155
OS-2 (a,b)	659,738.07	531,216.80	4691.7	4691.46	162	-0.2 [f]	28			162	142	162	128	155
OS-3 [c]	659,512.21	531,836.91	4690.5	4691.38	164	+0.9	18.5			159	139	159	122	155
OS-4 [c]	658,325.12	530,987.99	4688.9	4689.58	162	+0.7	18.5	60	139	159	139	159	125	155
OS-5 [c]	659,878.15	531,596.18	4691.2	4692.47	163	+1.2	30.5			159	139	159	120	155
R-1 [c,h]	660,385.00	532,014.67	4695.4	4696.38	161	+1.0	24			158	138	158	133	(i)

a. Plugged and Abandoned.
b. As surveyed by P/S Associates, Inc. based upon Idaho State Plane Coordinates.
c. As surveyed by Bush & Cudgell, Inc. based upon Idaho State Plane Cooordinates.
d. On top of steel casing on north side with lid removed - City of Idaho Falls datum.
e. Datum is ground surface at well at the time boring was being drilled.
f. At-grade completion.
g. Elevation surveyed by Thompson Engineering.
h. R-1 was installed as a recovery well, but is inlcuded in this table because its construction is similar to that of an aquifer #1 monitor well.
I. Currently no pump installed.

TABLE 4.2

AQUIFER #2 MONITORING WELL CONSTRUCTION

Monitor Well No.	Coordinates		Elevation of Ground Surface at Well	Elevation of [c] Top of 8" Steel Surface Casing	Drilled [d] Depth of Boring	12" Steel Casing [d]		8" Steel Casing [d]		Grout-back [d]		Total [d] Depth of 4" PVC Screen & Casing	Screened Interval [d]		Top of [d] Gravel Pack	Pump [d] Setting
	Northing	Easting				From:	To:	From:	To:	From:	To:		From:	To:		
MW-9 [a]	660,260.19	531,959.68	4692.3	4694.33	262	+1.5	31	+1.0	161	49	100	260	219	259	197	256
MW-10 [a]	660,412.91	531,856.08	4693.4	4695.39	424	+1.5	23	+1.0	160	319	420	319	279	319	259	314
MW-11 [a]	660,662.00	532,105.59	4693.4	4696.14	264	+2.0	19.5	+1.5	163			254	214	254	196	246
MW-12 [b]	660,137.06	531,968.12	4692.1	4693.93	282			+1.8	24	70		259	239	259	230	255
MW-14 [b]	660,329.98	531,818.66	4694.0	4695.66	262			+1.6	29	100	140	262	222	262	203	257
MW-17 [b]	660,173.19	531,835.78	4691.8	4693.9	260	+1.0	30	+2.1	188	56	100	259	239	259	219	255
R-2 [b,e,f]	660,381.02	532,004.58	4695.2	4696.9	262	+1.0	24	+1.7	174			259	239	259	215	253

a. As surveyed by P/S Associates, Inc. based upon Idaho State Plane Coordinates.
b. As surveyed by Bush & Cudgell, inc. based upon Idaho State Plane Coordinates.
c. On top of steel casing on north side with lid removed - City of Idaho Falls datum.
d. Datum is ground surface at well at the time boring was being drilled.
e. R-2 was installed as a recovery well but its construction is similar to that of an aquifer #2 monitor well.
f. Pump lowered 5/96.

TABLE 4.3

AQUIFER #3 MONITOR WELL CONSTRUCTION
(All data in feet)

Monitor Well No.	Coordinates [a]		Elevation [b] of Ground Surface at Well	Elevation of Top of 8-in Steel Surface Casing	Drilled [c] Depth of Boring	Nominal [c] 16-in Steel Casing		Nominal [c] 12" Steel Casing		Nominal [c] 8" Steel Casing		Total Depth [c] of 4.5" PVC Screen & Casing	Screened Interval [c]		Top of [c] Gravel Pack	Pump [c] Setting
	Northing	Easting				From:	To:	From:	To:	From:	To:		From:	To:		
MW-15 [d]	660,254.78	531,939.84	4693.0	4694.38	396			+1.2	29	+1.4	328	395	335	395	330	390
MW-18 [e]	660,248.00	531,875.00	4693.2	4694.73	402	+0.2	27	+0.2	193	+1.5	339	400	361	401	350	396
MW-19	660,168.00	532,066.00	4691.7	4693.23	401	+0.2	27	+0.2	196	+1.5	335	400.5	360.5	400.5	346	393
MW-20	660,690.00	532,064.00	4693.6	4695.74	403	+0.2	29	+0.2	185 [f]	+2.1	331.5 [g]	402	362	402	350	395

a. Location of MW-15 surveyed by Bush & Cudgell; coordinates of MW-18, MW-19 and MW-20 estimated by Dames & Moore from hand tape measurements, based upon Idaho State Plane Coordinates.
b. Elevation of ground surface at time well was drilled.
c. Datum is ground surface at well at time well was drilled.
d. MW-15 was installed during fall 1984 whereas MW-18, MW-19 and MW-20 were installed during fall 1987.
e. MW-18 was grouted across the interval from 69 to 80 feet and redrilled.
f. Pea gravel was installed in the annulus of MW-20 across the interval from 95 to 120 feet below ground surface, and grouted above and below.
g. Pea gravel was installed in the annulus of MW-20 across the interval from 205 to 246 feet below ground surface, and grouted above and below.

TABLE 4.4

RECOVERY WELL CONSTRUCTION
(All data in feet)

Recovery Well No.	Aquifer	Coordinates [b]		Elevation [b] of Ground Surface at Well	Elevation of [b] Top of 6" Steel Surface Casing	Drilled [c] Depth of Boring	10" Steel Casing [c]		6" Steel Casing [c]		Total Depth of [c] 6" Steel Screen & Casing	Screened Interval [c]		Top of [c] Gravel Pack	Approx. Pump Depth Setting
		Northing	Easting				From:	To:	From:	To:		From:	To:		
R3 [e]	#1	660,304.46	531,953.44	4693.7	4695.09	171	+1.5	27	+1.5	109	169	109	169	77	-
R4	#1	660,289.78	531,911.04	4693.6	4694.89	170	+1.3	28	+1.3	105	165	105	165	96	161
R5	#1	660,244.02	531,907.65	4692.7	4694.12	173	+1.5	27	+1.5	112	172	112	172	93	168
R6	#1	660,187.74	531,918.30	4692.8	4694.31	173	+1.5	26	+1.5	112	171	111	171	95	167
R7 [f,g]	#2	660,331.95	531,940.75	4694.5	4695.46	272	+1.0	39	+1.0	241	270	241	270	(d)	241
R8 [g]	#2	660,341.93	531,995.06	4694.91	4696.92	271	+2.0	36.5	+2.0	239	269	239	269	(d)	260
R9 [g]	#2	660,306.92	531,985.23	4692.67	4694.64	271	+2.0	28.5	+2.0	241	271	241	271	(d)	257
R10 [g]	#2	660,279.17	531,940.63	4693.64	4695.60	270	+2.0	28	+2.0	240	270	240	270	(d)	256
R11	#1	660,260.38	531,867.64	4693.43	4695.54	170	+2.1	29.5	+2.1	109	169	109	169	103.5	160
R12	#1	660,264.15	531,950.35	4692.41	4694.53	171	+2.1	27.5	+2.1	109.5	169.5	109.5	169.5	104	160

a. R-1 is listed in Aquifer #1 monitor well construction data table and R-2 is listed in Aquifer #2 monitor well construction data table.
b. As surveyed by Thompson Engineering, based upon Idaho State Plane Coordinates.
c. Datum is ground surface at well at time boring was drilled.
d. Telescoping well screen was installed in open hole at bottom of 6-inch casing.
e. R-3 was drilled to 103 feet, grouted back to 74 feet, and redrilled.
f. Pump refusal at top of screen and cannot be lowered deeper.
g. Pump lowered 5/96.

TABLE 4.5

POINT OF COMPLIANCE WELL CONSTRUCTION
(All depths in feet below ground surface)

Proposed Point of Compliance Well No.	Aquifer	Coordinates		Elev of Ground Surface at Well	Elev of Top of PVC Casing[b]	Elev of Surveyed Reference Point[d]	Drilled Depth of Boring[c]	12" Steel Casing[c]		8" Steel Casing[c]		Total Depth of 4.5-in PVC Screen & Casing[c]	Total Depth of 4-in SS Screen & Casing[c]	Screened Interval (ft)[c]		Top of Gravel Pack[c]	Approx. Pump Depth Setting[c]
		Northing	Easting					From:	To:	From:	To:			From:	To:		
A-1[a]	#1	660,215.26	531,835.95	4692.89	4694.86		172			+0.5	27	170		110	170	105	158.5
B-1[a]	#1	660,191.67	531,884.29	4692.82	4694.76		168.5			+0.5	33	166.5		106.5	166.5	101.5	158.5
C-1[a]	#1	660,220.10	531,937.99	4692.41	4694.36		172			+0.5	30	171		111	171	104	158.5
D-1[a]	#1	660,192.67	531,985.58	4692.33	4694.35		171			+0.5	23	170		110	170	105	158.5
A-2[a]	#2	660,224.96	531,838.14	4692.93	4694.97		274	+0.5	27.5	+2.0	220	270.5		240.5	270.5	235	258.5
B-2[a]	#2	660,207.38	531,886.44	4692.72	4694.76		272	+0.5	29.5	+2.0	198	268.5		238.5	268.5	234	238.5
C-2[a]	#2	660,198.53	531,940.14	4692.42	4694.42		271	+0.5	27	+2.0	201	269.5		239.6	269.5	228	238.5
D-2[a]	#2	660,192.34	531,996.84	4692.36	4694.32		276.5	+0.5	23	+2.0	197	276		246	276	236	238.5
E-2[d]	#2	660,177.99	687,789.25	4696.19		4697.50	278	20[e]	44.5	+2.0	200		275	274	239.17	232	No pump

[a]As surveyed by Ellsworth Engineering, Inc.

[b]On top of PVC casing on north side with cap removed - City of idaho Falls datum.

[c]Datum is ground surface at well at time boring was drilled. Pump settings shown represent historical information. Refer to Technical Manual 1 (July 2010) for the modifications to pump depths implemented during system automation (2010).

[d] As surveyed by Harper Leavitt Engineering in 2009 (Horizontal = WGS 84, Vertical = NGVD 88 (mean se level))

[e] 12-inch casing broke off at approximately 20 feet below ground surface.

Note: Wells MW-4 and MW-14 have also been designated as Point of Compliance monitoring wells. Construction data are given in Tables A-1 and A-2.

TABLE 4.6

PUMP INSTALLATION AND WELL CAPACITY DATA (PRE 2010 SYSTEM AUTOMATION)

Well Number	Pump Brand Name	Model No.	Year of Pump Renewal	Motor Size (hp)	Voltage (volts)	Power Wire Type	Discharge Pipe Diameter (inches)	Approximate Pump Depth Setting (feet)	Anticipated Pumping Rate (gpm)	Specific Capacities Low Water (gpm/ft)	Specific Capacities High Water (gpm/ft)
MW-1	Berkeley	B4AM-15		3/4	220		1	152	11 to 12	1100	
MW-2	Permanently Abandoned										
MW-3	Berkeley	B4AM-15		3/4	220		1	150	12	290	610
MW-4	Berkeley	B4AM-15		3/4	220		1	158	11 to 12	22	1200
MW-5	Berkeley	B4AM-15		3/4	220		1	144	11	220	550
MW-6	Berkeley	B4AM-15		3/4	220		1	146	11 to 13	90	330
MW-7	Permanently Abandoned										
MW-8	Permanently Abandoned										
MW-9	Berkeley	4CM15-5		5	460		2[b]	256	40 to 60	1	1
MW-10	Berkeley	B4AM-15		3/4	220		1	314	11 to 12	60	60
MW-11	Berkeley	B4AM-15		3/4	220		1	246	11	370	
MW-12	Berkeley	B4AM-15		3/4	220		1	255	9	17	17
MW-13	Grundfos	10SO5-9		1/2	460		2[b]	153	5	2.3	4.4
MW-14	Berkeley	B4AM-15		3/4	220		1	257	11	3.0	
MW-15	Berkeley	B4AM-15		3/4	220		1	390	12	>1200	
MW-16	Berkeley	10S07-12	1993	3/4	220		1	155			
MW-17	Berkeley	10MG10-07		3/4	220		1	255	14	0.4	
MW-18	Berkeley	10MG10-07		3/4	220		1	396	12		100
MW-19	Berkeley	10MG10-07		3/4	220		1	393	12		110
MW-20	Berkeley	10MG10-07		3/4	220		1	395	12		110
OS-1	Berkeley	10MG10-07		3/4	220		1	155	12	140	
OS-2	Berkeley	10MG10-07		3/4	220		1	155	14	2	
OS-3	Berkeley	10MG10-07		3/4	220		1	155	11	1100	
OS-4	Berkeley	10MG10-07		3/4	220		1	155	11	370	
OS-5	Berkeley	10MG10-07		3/4	220		1	155	12	1	
R-1	(a)									>1200	
R-2	Berkeley	40S50-15	1996	5	460	12	1 1/2 [b]	253	40	3	
R-3	(a)				220		1				>180
R-4	Grundfos	SP4-14		1	460		2[b]	161	25 to 27		6
R-5	Grundfos	10S05-9	1998	1 1/2	460	12-4	1 1/4[b]	168	9 to 10		0.6
R-6	Grundfos	SP4-10		1	460		2[b]	167	19 to 22		4
R-7	Berkeley	40S50-10	1996	5	460	12	2[b]	241	40		3.5
R-8	Berkeley	4CL17-3	1996	3	460	10-3	2	260	15 to 25		0.8
R-9	Berkeley	4CL17-3	1996	5	460	12	2	257	15 to 30		10.7
R-10	Berkeley	4LL-17	1996	3	460	12	2	256	15 to 40		12
R-11	Grundfos	10S05-9		1/2	460	12-3	1 1/4	160	4 to 10		1.1
R-12	Grundfos	5S03-9	2000	1 1/2	460	12-3	1 1/4	160	2 to 5		0.4
A-1	Grundfos	10S05-9	2000	1 1/2	460	12-3	1 1/4[c]	159	3 to 4		0.8
B-1	Grundfos	10S05-9	1998	2	230	12	1 1/4[c]	159	3 to 5		1
C-1	Grundfos	16S10-10	1999	1 1/2	460	12-3	1 1/4[c]	159	5 to 15		6.5
D-1	Grundfos	5S03-9		1/2	230		1 1/4[c]	159	1		0.1
A-2(d)	Grundfos	40S50-12	1996	5	460	12-3	2[c]	259	5 to 15		0.5
B-2	Berkeley	10MG10-07		3/4	230		2[c]	239	10		36
C-2	Berkeley	10MG10-07		3/4	230		2[c]	239	10		21.1
D-2	Berkeley	10MG10-07		3/4	230		2[c]	239	5		0.2

a. No pump presently installed.
b. Steel Discharge pipe; others are PVC unless noted.
c. 304 stainless steel discharge pipe.
d. A-2 - installed higher hp pumps 5/96

TABLE 4.7 9.7 and 10.2

WELLFIELD CONSTRUCTION SUMMARY

Well No.	New Pump installed Y or N	Date Motor Installed	New or Existing Pump Make/Model/HP/ Voltage/Phase	Well Casing	SRP Elevation (NAVD88) (ft)	Depth to Bottom of Well from SRP (ft)	Pump Depth from SRP (in HMI) (ft)	Approx Drop Pipe Length (to Landing Plate) (ft)	Approx Elev of top of pump (ft)	Pump Discharge Pipe (Nominal Diameter in Inches and Material Type)*	Transducer Type	Transducer Cable Type and Length (type / ft)	Transducer Depth to SRP (in HMI) (ft)	Transducer Elevation (ft)	Date of Elevation Calibration	HMI GW Elevation June 28 2018 (ft)	Water Level Difference (ft)	Measured Water Depth June 28, 2018 (ft)	Fluctuation High to Low (ft)	Transducer Range (ft)	Access Tube (Nominal Diameter in Inches and Material Type)	Access Tube Length (ft) / Drilled Intervals	Other Comments
A-1	Y	Apr-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4698.11	172.1	164.33	162	4533.78	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	163.05	4535.06		4539.31	-0.53	4539.84	0.53	69.30	1" PVC SCH. 40 Flush Thread	162 / Bottom 10 ft	
B-1	Y	Mar-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.81	168.5	170.08	168	4527.73	1-1/4"	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.95	4536.86		4543.97	7.11	4554.95	10.98	69.30	1" PVC SCH. 40 Flush Thread	168 / Bottom 10 ft	
C-1	Y	Jun-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.50	172.7	168	168	4529.50	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	168.00	4529.50		4533.91	4.41	4536.76	2.85	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
D-1	Y	Oct-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH (need to confirm)	5" OD PVC Flush Thread	4697.24	168.5	- -	160		1-1/4"	LevelTROLL 500 (30 PSI)	Polyurethane / 170	160.97	4536.27	9/11/18	4543.98	7.71	4559.70	15.72	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
MW-4	Y	Sep-2010	Grundfos / 7S10-19 / 1.0 Hp / 230VAC / 1 PH	4" ID PVC	4698.50	150*	- -	145.7		1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 170	146.21	4552.29	9/6/18	4552.31	0.02	4568.58	16.27	69.30	1" PVC SCH. 40 Flush Thread	145.7 / Bottom 10 ft	Old pump is stuck in the well. Elevation of the top of the stuck pump is approximately 4547.8 NAVD 88 (7 feet below top of screen). New pump installed above the one that is stuck.
MW-13	N	- -	Grundfos / 10S05-9 / 1.0 Hp / 230VAC / 1 PH	4" ID PVC	4697.14	158.8	- -	152.5		1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	152.63	4544.51	9/6/18	4544.47	-0.04	4559.63	15.16	69.30	1" PVC SCH. 40 Flush Thread	152.5 / Bottom 10 ft	
MW-16	N	- -	Grundfos / 10S07-12 / 1.5 Hp / 230VAC / 1PH	4" ID PVC	4696.77	156.3	- -	150	4546.77	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	151.13	4545.64	9/6/18	4545.70	0.06	4559.92	14.22	69.30	1" PVC SCH. 40 Flush Thread	150 / Bottom 10 ft	
R-1	N	- -	Grundfos / 16S10-10 / 1.0 Hp / 240VAC / 1PH	4" ID PVC	4700.31	159.5	- -	155	4545.31	1" SST	LevelTROLL 300 (30 PSI)	Polyurethane / 165	152.26	4548.05		4548.18	0.13	4569.00	20.82	69.30	1" PVC SCH. 40 Flush Thread	150 ft / Bottom 15 ft	
R-4	N	- -	Grundfos / 14S / 1.5 Hp / 460VAC / 3 PH	6" ID CS	4698.10	171.5	- -	157		2" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 170	158.06	4540.04		4548.64	8.60	4569.52	20.88	69.30	1-1/4" PVC SCH. 40 Flush Thread	157 / Bottom 10 ft	
R-5	N	- -	Grundfos / 10S05-9 **/ 1.5 Hp** / 460VAC / 3PH	6" ID CS	4697.32	168.7	165	165	4532.32	1-1/2" SST (3 - 20' 0") 1-1/4" CS (5 - 21' 0")	LevelTROLL 500 (30 PSI)	Polyurethane / 180	159.07	4538.25		4539.14	0.89	4563.04	23.90	69.30	1-1/4" PVC SCH. 40 Flush Thread	165 / Bottom 10 ft	
R-6	Y	Sep-2010	Grundfos / 25S15-9 / 1.5 Hp / 460VAC / 3PH	6" ID CS	4697.56	171.8	170	168	4527.56	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 180	169.63	4527.93		4531.50	3.57	4541.92	10.42	69.30	1-1/4" PVC SCH. 40 Flush Thread	168 / Bottom 10 ft	
R-11	N	- -	Grundfos / 10S05-9 / 0.5 Hp / 460VAC / 3PH	6" ID CS	4698.66	171.5	161.1	161	4537.56	1-1/4" CS (5 - 20' 0") 1-1/4" SST (3 - 20' 0")	LevelTROLL 500 (30 PSI)	Tefzel / 170	161.02	4537.64		4549.56	11.92	4567.87	18.31	69.30	1-1/4" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
R-12	N	- -	Grundfos / 10S07-12 / 0.75 Hp / 460VAC / 3PH	6" ID CS	4697.96	168.5	159.8	156.8	4538.16	1-1/4" SST (6 - 20' 3") 1-1/4" CS (1 - 15' 0") 1-1/4" Galv. (1 - 20' 0")	LevelTROLL 500 (30 PSI)	Tefzel / 170	161.71	4536.25		4557.93	21.68	4568.58	10.65	69.30	1-1/4" PVC SCH. 40 Flush Thread	156.8 / Bottom 10 ft	
A-2	Y	Apr-2010	Grundfos / 40S50-15 / 5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4699.01	274	264	261	4435.01	2" Galv.	LevelTROLL 300 (100 PSI)	Tefzel / 270	262.08	4436.93	9/6/18	4499.92	62.99	4460.16	-39.76	231.00	1" PVC SCH. 40 Flush Thread	261 / Bottom 10 ft 145 - 160 ft BGS	
B-2	N	Sep-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.63	271.2	241	240	4456.63	2" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.10	4541.53		4543.62	2.09	4554.95	11.33	69.30	1" PVC SCH. 40 Flush Thread	241 / Bottom 10 ft 145 - 160 ft BGS	
C-2	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	5" OD PVC Flush Thread	4697.31	270.7	- -	240	4457.31	2" Galv.	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.32	4536.99	9/6/18	4543.91	6.92	4563.01	19.10	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
D-2	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	5" OD PVC Flush Thread	4697.20	278.2	- -	240.6	4456.60	1-1/4" Galv. (First 6") 2" SST (Remainder to Pump)	LevelTROLL 500 (30 PSI)	Polyurethane / 165	153.94	4543.26		4544.11	0.85	4563.44	19.33	69.30	1" PVC SCH. 40 Flush Thread	240.6 / Bottom 10 ft 145 - 160 ft BGS	A 2" x 1-1/4" reducer and a 6" x 1-1/4" dia. Nipple was placed at the top of well D-2. The remainde of the drop pipe is 2" SST.
E-2	Y	Nov-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH (need to confirm)	4" ID CS	4697.89	276.8		260	4697.89	1" SST	LevelTROLL 500 (30 PSI)	Polyurethane/165	165.64	4532.25	9/6/18	4544.15	11.90	4563.24	19.09	69.30	1" PVC SCH. 40 Flush Thread	260 ft / Bottom 15 ft 245 - 260 ft	Pump depth is approximate and should be confirmed the next time the pump is pulled, Make, model, and HP of pump / motor should also be confirmed.
MW-9	Y	Jul-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	4" ID PVC	4697.20	216 (to fracture)	201.8	201	4495.40	1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.99	4540.21		4543.59	3.38	4562.89	19.30	69.30	1" PVC SCH. 40 Flush Thread	201 / Bottom 10 ft 145 - 160 ft BGS	
MW-12	N	- -	Berkeley / 4AM-15 / 0.75 HP 230VAC / 1PH	4" ID PVC	4696.83	257	- -	251	4445.83	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	158.48	4538.35	9/6/18	4544.41	6.06	4563.57	19.16	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	A 1-1/4" galvanized nipple was installed at the landing plate to connect to the existing quick connect.
MW-14	Y	May-2010	Grundfos / 10S07-12 / 1.5 Hp / 230VAC / 1PH	4" ID PVC	4698.54	263.4	- -	256	4442.54	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.39	4538.15	9/6/18	4544.39	6.24	4563.82	19.43	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
MW-17	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	4" ID PVC	4696.79	260.6	- -	255	4441.79	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.36	4540.43	9/6/18	4544.68	4.25	4563.12	18.44	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
R-2	Y	Apr-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	8" ID CS	4700.45	261	246.5	246	4453.95	1-1/2" SST	LevelTROLL 300 (100 PSI)	Tefzel / 265	246.33	4454.12		4507.20	53.08	4529.62	22.42	231.00	1-1/4" SCH. 40 PVC Flush Thread	226 / Bottom 10 ft 145 - 160 ft BGS	
R-7	Y	Apr-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	6" ID CS	4698.99	266.4	254	254	4444.99	2" Galv.	LevelTROLL 500 (100 PSI)	Polyurethane / 250	235.76	4463.23		4513.46	50.23	4538.14	24.68	231.00	1-1/4" SCH. 40 PVC Flush Thread	254 / Bottom 10 ft 145 - 160 ft BGS	
R-8	Y	Jun-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	6" ID CS	4700.45	268.6	251	251	4449.45	2" SST (7 - 20' 3") 2" CS (5 - 20' 0") 2" CS (1 - 4' 0")	LevelTROLL 500 (30 PSI)	Polyurethane / 165	165.12	4535.33		4544.00	8.67	4563.18	19.18	69.30	1-1/4" SCH. 40 PVC Flush Thread	251 / Bottom 10 ft 145 - 160 ft BGS	
R-9	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	6" ID CS	4698.08	267.9	- -	255		1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	155.91	4542.17		4543.89	1.72	4563.28	19.39	69.30	1-1/4" SCH. 40 PVC Flush Thread	160 / Bottom 15 ft	
R-10	Y	Jun-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	6" ID CS	4698.74	265.5	258	258	4440.74	2" SST	LevelTROLL 300 (100 PSI)	Polyurethane / 265	257.75	4440.99		4541.35	100.36	4556.66	15.31	231.00	1-1/4" SCH. 40 PVC Flush Thread	260 / Bottom 10 ft 145 - 160 ft BGS	

Notes: * All drop pipe is SCH 40 threaded pipe with external couplings; ** Indicates standard elevations that have changed

Acronyms:

BGS - Below Ground Surface
CS - Carbon Steel
ft - Feet
hp - Horse Power
ID - Inside Diameter
OD - Outside Diameter
PH - Phase
PSI - Pound per Square Inch
PVC - Polyvinyl Chloride
SRP - Surveyed Reference Point
SST - Stainless Steel
VAC - Volts Alternating Current
- - Not applicable

Table 4.8

Idaho Falls Pole Yard
2009 Survey Data

HLE	*Project*	*Project*	*Project Elevation*	*Latitude*	*Longitude*	*Point Description*	*Measuring Reference Point*	*Top of Ground Surface*
Point #	*Northing*	*Easting*	*(GPS)-NAVD88*	*(WGS 84)*	*(WGS 84)*		*(MRP) Elevation-NAVD88*	*Elevation-NAVD88*
100	659410.859	687904.94	4,694.388	43°28'31.91740"N	112°02'52.11595"W	60D WP-BASE-4.78 SFT ARP		
101	661380.436	682546.083	4,705.829	43°28'51.43386"N	112°04'04.74436"W	USCGS BRS CAP IDA 15-107		
102	659469.584	687827.879	4,696.303	43°28'32.49834"N	112°02'53.15969"W	CITY OF IF BM/FH/25TH-GALLATIN		
103	659459.402	687371.885	4,697.446	43°28'32.40412"N	112°02'59.34263"W	CITY OF IF BM/FH/END 25TH-E. OF YLLWSTN		
104	660060.802	688410.606	4,698.523	43°28'38.32789"N	112°02'45.24701"W	CITY OF IF BM/1ST HYDRNT N OF 25TH E. LESL		
105	660773.915	688421.43	4,696.760	43°28'45.36909"N	112°02'45.08631"W	CITY OF IF BM/FH/NW BOLT 21ST-LESLIE		
106	662041.02	689070.796	4,692.572	43°28'57.87130"N	112°02'36.25588"W	FND CITY OF IF AC-NE25		
107	659434.749	689069.436	4,695.229	43°28'32.13669"N	112°02'36.32628"W	FND 3" AL CAP-E 1/4 S25		
108	661419.346	688384.407	4,696.253	43°28'51.74268"N	112°02'45.57575"W	CITY OF IF BM/FH N SIDE 19TH/LESLIE		
109	660691.087	688409.426	4,694.096	43°28'44.55142"N	112°02'45.25071"W	SET PK W/SHINER AS WP		
106G	662041.1	689070.79	4,692.310	43°28'57.87209"N	112°02'36.25595"W	CALC NE 25		
107G	659434.7	689069.45	4,695.240	43°28'32.13621"N	112°02'36.32609"W	E 1/4 S25-CALC		
108G			4,696.930			CALC BM		
103G			4,694.600			CALC BM		
105G			4,693.950			CALC BM		
	660177.986	687789.251	4,696.190	43°28'39.49373"N	112°02'53.66987"W	E-2	4697.89	4696.19
200	660361.572	688342.986	4,696.438	43°28'41.29869"N	112°02'46.15803"W	CLMW 1	4696.28	4694.91
201	660144.04	688061.848	4,696.279	43°28'39.15472"N	112°02'49.97430"W	CLMW 19	4696.02	4694.73
202	660170.802	687992.079	4,697.171	43°28'39.41995"N	112°02'50.91980"W	CLMMW D2	4697.20	4695.21
203	660170.982	687980.794	4,697.313	43°28'39.42189"N	112°02'51.07281"W	CLMW D1	4697.24	4695.23
204	660176.876	687935.386	4,697.424	43°28'39.48072"N	112°02'51.68840"W	CLMW C2	4697.31	4695.28
205	660230.435	687941.819	4,697.494	43°28'40.00948"N	112°02'51.60013"W	CLMW 8	4696.61	4695.06
206	660233.773	687932.437	4,697.437	43°28'40.04257"N	112°02'51.72729"W	CLMW 15	4697.10	4695.26
207	660223.183	687866.028	4,697.701	43°28'39.93893"N	112°02'52.62795"W	CLMW 18	4697.13	4696.04
208	660185.77	687881.583	4,697.664	43°28'39.56930"N	112°02'52.41776"W	CLMW B2	4697.63	4695.64
209	660110.215	687978.24	4,696.786	43°28'38.82190"N	112°02'51.10861"W	CLMW 16	4696.77	4695.66
210	660115.534	687958.601	4,696.946	43°28'38.87471"N	112°02'51.37480"W	CLMW 12	4696.83	4695.71
211	660126.426	687882.11	4,697.218	43°28'38.98332"N	112°02'52.41176"W	CLMW 13	4697.14	4695.61
212	660154.006	687826.87	4,696.937	43°28'39.25642"N	112°02'53.16024"W	CLMW 17	4696.79	4695.81
213	660276.401	687795.35	4,698.518	43°28'40.46540"N	112°02'53.58528"W	CLMW 4/11	4698.50	4696.80
214	660310.924	687812.55	4,698.652	43°28'40.80605"N	112°02'53.35140"W	CLMW 14	4698.54	4696.98
215	660364.175	687838.035	4,697.229	43°28'41.33150"N	112°02'53.00482"W	CLMW 3	4697.02	4696.44
216	660391.31	687851.257	4,698.408	43°28'41.59925"N	112°02'52.82502"W	CLMW 10	4698.29	4696.44
217	660282.936	687948.602	4,698.163	43°28'40.52779"N	112°02'51.50716"W	CLMW R3	4697.96	4696.35
218	660397.472	687970.016	4,699.759	43°28'41.65843"N	112°02'51.21459"W	CLMW ?1	4699.77	4698.37
219	660362.697	688009.288	4,700.484	43°28'41.31450"N	112°02'50.68275"W	CLMW R1	4700.31	4698.65
220	660233.848	688096.535	4,696.567	43°28'40.04101"N	112°02'49.50224"W	CLMW 6	4696.29	4694.85
221	660640.433	688100.793	4,699.146	43°28'44.05562"N	112°02'49.43663"W	CLMW 11	4698.34	4697.03
222	660653.641	688079.555	4,699.627	43°28'44.18634"N	112°02'49.72435"W	CLMW 5	4697.10	4697.19
223	660665.008	688057.916	4,698.783	43°28'44.29888"N	112°02'50.01754"W	CLMW 20	4698.06	4697.46
224	660358.893	687999.141	4,700.953	43°28'41.27709"N	112°02'50.82042"W	CL R-2	4700.45	4698.59
225	660320.274	687990.232	4,700.006	43°28'40.89588"N	112°02'50.94195"W	CL R-8	4700.45	4697.82
226	660285.445	687980.47	4,697.913	43°28'40.55211"N	112°02'51.07500"W	CL R-9	4698.08	4695.55
227	660310.522	687935.921	4,699.222	43°28'40.80036"N	112°02'51.67857"W	CL R-7	4698.99	4697.27
228	660268.216	687906.204	4,698.502	43°28'40.38304"N	112°02'52.08233"W	CL R-4	4698.66	4696.40
229	660257.585	687935.752	4,699.242	43°28'40.27764"N	112°02'51.68188"W	CL R-10	4698.12	4696.45
230	660242.616	687945.537	4,697.735	43°28'40.12971"N	112°02'51.54949"W	CL R-12	4697.98	4695.39
231	660238.59	687954.762	4,697.590	43°28'40.08983"N	112°02'51.42449"W	CL MW-9	4697.20	4695.08
232	660238.714	687862.948	4,698.665	43°28'40.09234"N	112°02'52.66942"W	CL R-11	4698.73	4696.20
233	660203.326	687833.348	4,699.348	43°28'39.74332"N	112°02'53.07145"W	CL A-2	4699.01	4695.91
234	660193.665	687831.159	4,698.459	43°28'39.64796"N	112°02'53.10131"W	CL A-1	4698.11	4695.81
235	660222.312	687902.698	4,697.895	43°28'39.92983"N	112°02'52.13075"W	CL R-5	4697.32	4695.58
236	660198.525	687933.222	4,697.600	43°28'39.69451"N	112°02'51.71732"W	CL C-1	4697.50	4695.36
237	660170.282	687879.436	4,698.291	43°28'39.41640"N	112°02'52.44716"W	CL B-1	4697.81	4695.77
238	660166.144	687913.507	4,698.390	43°28'39.37507"N	112°02'51.98527"W	CL R6	4697.56	4695.60
239	658320.314	686948.339	4,692.692	43°28'21.16241"N	112°03'05.10666"W	CL OS-4		

Table 4.8

Idaho Falls Pole Yard
2009 Survey Data

HLE	*Project*	*Project*	*Project Elevation*	*Latitude*	*Longitude*	*Point Description*	*Measuring Reference Point*	*Top of Ground Surface*
Point #	*Northing*	*Easting*	*(GPS)-NAVD88*	*(WGS 84)*	*(WGS 84)*		*(MRP) Elevation-NAVD88*	*Elevation-NAVD88*
240	659493.002	687817.026	4,694.299	43°28'32.72972"N	112°02'53.30638"W	CL OS-3		
241	659862.873	687582.419	4,695.350	43°28'36.38514"N	112°02'56.48036"W	CL OS-5		
242	659468.258	688430.416	4,697.168	43°28'32.47676"N	112°02'44.98999"W	BMFH LES-25TH		
243	660093.39	688114.021	4,694.954	43°28'38.65386"N	112°02'49.26785"W	BM 4692.11		
300	660134.001	688325.68	4,692.667	43°28'39.05187"N	112°02'46.39713"W	SE CB 1X2.5		
301	660131.279	688327.633	4,692.809	43°28'39.02496"N	112°02'46.37069"W	SE CB SE CONC COR		
302	660131.172	688323.762	4,692.738	43°28'39.02396"N	112°02'46.42318"W	SE CB SW CONC COR		
303	660136.437	688323.949	4,692.737	43°28'39.07595"N	112°02'46.42055"W	SE CB NW CONC COR		
304	660136.379	688327.864	4,692.778	43°28'39.07532"N	112°02'46.36746"W	SE CB NE CONC COR		
305	660091.315	688348.757	4,695.835	43°28'38.63006"N	112°02'46.08505"W	SE FNC COR		
306	660114.496	688328.225	4,693.447	43°28'38.85923"N	112°02'46.36300"W	FND PK		
307	660227.629	688348.597	4,694.918	43°28'39.97603"N	112°02'46.08457"W	FNC PI		
308	660258.861	688348.632	4,695.002	43°28'40.28443"N	112°02'46.08348"W	FNC PI		
309	660259.01	688345.607	4,694.887	43°28'40.28594"N	112°02'46.12449"W	N GATE POST		
310	660229.523	688345.867	4,695.024	43°28'39.99477"N	112°02'46.12154"W	S GATE POST		
311	660262.231	688348.949	4,694.938	43°28'40.31769"N	112°02'46.07911"W	S GATE POST		
312	660265.72	688348.872	4,695.077	43°28'40.35215"N	112°02'46.08009"W	N MAN GATE POST		
313	660229.186	688231.299	4,693.916	43°28'39.99308"N	112°02'47.67501"W	SE BLDG COR		
314	660228.636	688214.296	4,693.847	43°28'39.98788"N	112°02'47.90557"W	SW BLDG COR		
315	660299.02	688211.87	4,694.153	43°28'40.68290"N	112°02'47.93710"W	NW BLDG COR		
316	660299.644	688228.959	4,694.074	43°28'40.68882"N	112°02'47.70537"W	NE BLDG COR		
317	660395.381	688186.69	4,694.799	43°28'41.63473"N	112°02'48.27666"W	FND PK		
318	660398.743	688184.105	4,695.016	43°28'41.66797"N	112°02'48.31164"W	SW BLDG COR		
319	660403.945	688193.563	4,695.018	43°28'41.71920"N	112°02'48.18329"W	SE BLDG COR		
320	660416.955	688186.502	4,694.993	43°28'41.84776"N	112°02'48.27878"W	NE BLDG COR		
321	660411.819	688176.798	4,694.728	43°28'41.79718"N	112°02'48.41047"W	NW BLDG COR		
322	660408.564	688169.769	4,694.595	43°28'41.76514"N	112°02'48.50584"W	NE BLDG COR		
323	660396.037	688147.329	4,695.099	43°28'41.64177"N	112°02'48.81035"W	NW BLDG COR		
324	660380.627	688155.924	4,694.849	43°28'41.48948"N	112°02'48.69411"W	SW BLDG COR		
325	660393.074	688178.276	4,695.039	43°28'41.61208"N	112°02'48.39078"W	SE BLDG COR		
326	660407.074	688348.875	4,694.703	43°28'41.74789"N	112°02'46.07729"W	S MAN GATE POST		
327	660411.772	688349.208	4,694.576	43°28'41.79427"N	112°02'46.07269"W	N MAN GATE POST		
328	660485.445	688308.836	4,692.863	43°28'42.52231"N	112°02'46.61868"W	1X2.5 CB GRATE		
329	660506.74	688329.53	4,692.857	43°28'42.73228"N	112°02'46.33765"W	1X2.5 CB GRATE		
330	660540.349	688348.87	4,694.116	43°28'43.06387"N	112°02'46.07477"W	FNC T /N-S-W		
331	660550.069	688251.094	4,695.252	43°28'43.16123"N	112°02'47.40037"W	E GATE POSP		
332	660551.149	688241.338	4,695.244	43°28'43.17203"N	112°02'47.53264"W	CENTER GATE POSTED		
333	660551.499	688237.058	4,695.435	43°28'43.17555"N	112°02'47.59067"W	N GATE POST		
334	660562.853	688187.644	4,695.231	43°28'43.28836"N	112°02'48.26047"W	FND PK		
335	660566.679	688090.511	4,695.467	43°28'43.32751"N	112°02'49.57747"W	S GATE POST		
336	660567.078	688086.377	4,695.599	43°28'43.33151"N	112°02'49.63352"W	N GATE POST		
337	660582.415	687929.072	4,697.507	43°28'43.48515"N	112°02'51.76621"W	FNC T/ N-S-E		
338	660764.189	688008.02	4,697.901	43°28'45.27890"N	112°02'50.69220"W	FNC LINE		
339	660786.063	688018.586	4,697.432	43°28'45.49474"N	112°02'50.54851"W	FNC LINE		
340	660864.915	688063.116	4,696.608	43°28'46.27271"N	112°02'49.94318"W	FNC LINE		
341	660981.778	688145.448	4,696.332	43°28'47.42547"N	112°02'48.82452"W	NW FNC COR		
342	660967.135	688172.304	4,697.296	43°28'47.28051"N	112°02'48.46063"W	FNC COR		
343	661002.542	688213.181	4,697.715	43°28'47.62954"N	112°02'47.90567"W	IR FNC 1FT TO COR BLDG COR		
344	660992.937	688349.104	4,697.229	43°28'47.53277"N	112°02'46.06277"W	FNC LINE 10 FT BLDNG		
345	660812.216	688328.904	4,695.752	43°28'45.74859"N	112°02'46.34019"W	FND PK		
346	660754.658	688348.994	4,694.851	43°28'45.17998"N	112°02'46.06891"W	N GATE POST		
347	660730.252	688348.891	4,694.596	43°28'44.93899"N	112°02'46.07078"W	S GATE POST		
348	660562.252	688327.687	4,693.454	43°28'43.28044"N	112°02'46.36157"W	FND PK		
349	660464.775	687934.394	4,697.359	43°28'42.32348"N	112°02'51.69631"W	UPL PROP COR ALUM CAP		
350	660219.453	687756.148	4,696.348	43°28'39.90364"N	112°02'54.11793"W	FNC COR		
351	660199.668	687771.033	4,698.549	43°28'39.70807"N	112°02'53.91647"W	W RR GATE POST		

Table 4.8

Idaho Falls Pole Yard
2009 Survey Data

HLE Point #	*Project* Northing	*Project* Easting	*Project Elevation* (GPS)-NAVD88	*Latitude* (WGS 84)	*Longitude* (WGS 84)	*Point Description*	*Measuring Reference Point* (MRP) Elevation-NAVD88	*Top of Ground Surface* Elevation-NAVD88
352	660183.684	687782.903	4,698.576	43°28'39.55008"N	112°02'53.75583"W	E RR GATE POST		
353	660181.737	687784.212	4,695.738	43°28'39.53083"N	112°02'53.73811"W	FNC COR		
354	660121.672	687721.935	4,695.810	43°28'38.93862"N	112°02'54.58370"W	FNC COR		
355	660121.536	687810.251	4,695.522	43°28'38.93604"N	112°02'53.38620"W	FNC CO N GATE POST		
356	660092.253	687822.682	4,694.702	43°28'38.64673"N	112°02'53.21820"W	FNC CO S GATE POST		
357	660170.419	687951.23	4,695.182	43°28'39.41674"N	112°02'51.47369"W	W BLDNG LINE		
358	660187.016	687938.708	4,695.291	43°28'39.58080"N	112°02'51.64316"W	S BLDNG LINE		
359	660226.719	687944.494	4,694.931	43°28'39.97276"N	112°02'51.56394"W	N BLDNG LINE		
360	660230.626	687963.159	4,694.970	43°28'40.01107"N	112°02'51.31078"W	W BLDNG LINE		
361	660256.475	687981.616	4,694.890	43°28'40.26604"N	112°02'51.06001"W	DIESEL TANK HOLDING AREA		
362	660253.776	687974.95	4,694.803	43°28'40.23949"N	112°02'51.15046"W	DIESEL TANK HOLDING AREA		
363	660260.589	687955.369	4,695.134	43°28'40.30703"N	112°02'51.41583"W	DIESEL TANK HOLDING AREA		
364	660281.936	687963.585	4,695.455	43°28'40.51771"N	112°02'51.30401"W	DIESEL TANK HOLDING AREA		
365	660273.757	687988.472	4,695.109	43°28'40.43660"N	112°02'50.96672"W	DIESEL TANK HOLDING AREA		
366	660268.564	687993.23	4,695.322	43°28'40.38525"N	112°02'50.90231"W	SW BLDG CORNER		
367	660262.925	688003.954	4,695.418	43°28'40.32942"N	112°02'50.75700"W	SE BLDG CORNER		
368	660284.361	688015.497	4,695.395	43°28'40.54092"N	112°02'50.60008"W	NE BLDG CORNER		
369	660290.343	688004.666	4,695.498	43°28'40.60014"N	112°02'50.74683"W	NW BLDG CORNER		
370	660214.831	688082.814	4,693.897	43°28'39.85342"N	112°02'49.68865"W	E BLDG LINE		
371	660197.498	688094.568	4,694.088	43°28'39.68212"N	112°02'49.52961"W	N BLDG LINE		
372	660158.799	688082.667	4,694.622	43°28'39.30017"N	112°02'49.69172"W	S BLDG LINE		
373	660148.985	688069.769	4,694.423	43°28'39.20344"N	112°02'49.86680"W	E BLDG LINE		
110	660123.528	687720.06	4,696.348	43°28'38.95697"N	112°02'54.60908"W	FND ALU CAP SW COR UPL P CORNER		
111	660090.382	687809.782	4,694.842	43°28'38.62843"N	112°02'53.39316"W	FND 1/2" IR-LS 8795		
112	660104.433	687811.218	4,695.149	43°28'38.76715"N	112°02'53.37342"W	FND LRG SPIKE IN ARIAL TARGET		
113	660090.468	687701.631	4,697.173	43°28'38.63079"N	112°02'54.85960"W	FND PK NAIL		
114	660090.109	688350.056	4,695.295	43°28'38.61813"N	112°02'46.06746"W	FND IR 8795		
115	661002.702	688350.246	4,696.986	43°28'47.62917"N	112°02'46.04709"W	FND ALU CAP UPL P CORNER		
116	660305.18	688114.105	4,695.774	43°28'40.74510"N	112°02'49.26262"W	FND BNT 5/8" IR-PULLED & SET 5/8" W 1" AC		
117	660465.094	688114.129	4,696.682	43°28'42.32411"N	112°02'49.25919"W	FND BNT 5/8" IR-PULLED & SET 5/8" W 1" AC		
118	660464.812	687934.367	4,696.834	43°28'42.32386"N	112°02'51.69668"W	FND 5/8 IR UPL P CORNER		
119	660304.949	687934.264	4,697.125	43°28'40.74534"N	112°02'51.70114"W	FND 5/8 IR UPL P CORNERSET ALU CAP		
101G	661380.447	682546.054	4,705.830	43°28'51.43396"N	112°04'04.74476"W	USCGS BRS CAP-IDA 15-107		
102G			4,696.200			CALC BM		
104G			4,698.530			CALC BM		
243G			4,694.960			3" BRS CAP-4692.11		
100G	659410.859	687904.94	4,694.387	43°28'31.91740"N	112°02'52.11595"W	BASE PNT-60D NAIL/OPUS		
201G			4,696.250			MW-19 TOP OF WELL CAP		
212G			4,696.820			MW-17 TOP OF WELL CAP		
213G			4,698.530			MW-4 TOP OF WELL CAP		
219G			4,700.490			R-1 TOP OF WELL CAP		
222G			4,699.610			MW-5 TOP OF WELL CAP		
200G			4,696.460			MW-1 TOP OF WELL CAP		
100	659411.043	687903.685	4,700.041	43°28'31.91924"N	112°02'52.13296"W			
	Means these locations were resurveyed for vertical elevation in Nov 2009							
	Means these locations were resurveyed for vertical elevation May 13, 2011 by Phil Meehan of NorthWind							

TABLE 4.9

EVALUATION PROCEDURES WHEN THERE IS NO YIELD FROM WELL SYSTEM

Possible Causes	Diagnostic Symptoms	Corrective Action
Low pressure mercury switch shutting off power to well pumps.	Check pump panel in treatment building. If low pressure, check to see whether there is open valve in building or break in discharge line.	Correct condition causing low pressure.
Circuit breaker in pump panel trips off.	Check panel.	Determine reason for excess power demand such as seized or burned out pump, blocked discharge line, or electrical short.
Discharge line between wellhead and treatment plant is plugged or frozen.	Water will discharge from sampling port at wellhead but not at floor level inside the treatment plant. Will probably trip breaker in building.	Fix line.
Discharge line above ground is broken.	Water runs out of containment piping inside treatment plant or runs into well housing.	Fix line.
Discharge piping inside well is broken.	Water can be heard cascading inside well. No drawdown in well when pump system is operating.	Fix line.
Discharge line in well is plugged.	When pump is turned off, water will not drain down through discharge pipe from surface.	Fix line.
Electrical wire short.	Circuit breaker in building trips. Check wiring with continuity meter.	Repair wiring.
Pump motor is burned out.	Amp meter indicates excessive current draw. Will probably trip breaker in building.	Pull pump assembly, check and repair or replace.
Well pump is broken.	Excessive current draw.	Pull pump assembly, check and repair or replace.
Pump intake is plugged.	Pump and motor appear to operate but there is no yield. Pump intake is visually observed to be plugged.	Pull pump assembly, check and clean intake screen or replace.

TABLE 4.10

EVALUATION PROCEDURES WHEN THERE IS SIGNIFICANTLY REDUCED YIELD FROM THE WELL SYSTEM

Possible Causes	Diagnostic Symptoms	Corrective Action
Well screen is encrusted or bio-fouled.	Pump is performing up to specifications of pump curve. Well specific capacity decreased from historic levels. Aquifer background water levels are within normal range.	Pull pump assembly. Check to determine if sediment has filled screened zone in well. Redevelop well using physical and chemical treatment techniques. If problem persists, video log the well to determine if other problems are evident.
Aquifer conditions are reducing possible flow to well	Low background water levels due to season, long-term trends or drawdown due to nearby pumping wells.	Curtail pumping in less important wells.
Well pump is worn.	Excessive current draw. Low yield but specific capacity is normal.	Pull pump assembly, check and repair or replace.
Newly rewired pump does not produce rated discharge.	Pump motor pulls excessive amperage. Well specific capacity is normal.	Electric wires are reversed. Rewire.
Pump intake is partially plugged.	Well yield has decreased but specific capacity of well is normal. Pump intake is visually observed to be plugged.	Pull pump assembly, check and clean intake screen or replace.
Pump motor is burned out.	Amp meter indicates excessive current draw. Will probably trip breaker in building.	Pull pump assembly, check and repair or replace.
Well pump is broken.	Excessive current draw.	Pull pump assembly, check and repair or replace.
Pump intake is plugged.	Pump and motor appear to operate but there is no yield. Pump intake is visually observed to be plugged.	Pull pump assembly, check and clean intake screen or replace.

Form 4.1

SPECIFIC CAPACITY or WATER LEVEL MEASUREMENT FORM

Date:	**Initial depth (ft) to static water level (SWL), initial GW elevation from HMI screen, pumping rate, or other notes:**
Operator(s):	
Location: IFPY	

Well #	**Depth to Water (DTW) From Surveyed Reference Point or Elevation on HMI Screen. (ft)**	**Time**	**Drawdown (DTW-SWL) or Elev Difference (ft)**	**Pumping Rate (gpm)**

Final or Average Pumping Rate (Q)	**gpm**
Final Average Drawdown (ft)	**ft**
Specific Capacity (Q/d)	**gpm/ft**

FORM 4.2

SAMPLE LABEL

Monitor Well No.____

Sample No.____

Date ______________________________ Time: ____________________________

Collector Name: ____

Preservative: ____

FORM 4.3

CHAIN OF CUSTODY RECORD

PACIFICORP
ENVIRONMENTAL REMEDIATION CO.

2200 Leslie Avenue, Idaho Falls, ID 83402
(208) 522-6034 • FAX (208) 522-6045

Sample Chain of Custody

0033

Client Name: ______________________________

Phone #: ____________________ Fax #: ____________________

Project Name/#: ______________________________

Sampler: ______________________________

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Oil	Total of Containers	Analysis Required			Rush?	Remarks

Turnaround Time Requested (please circle): Normal Rush

Rush results requested by (please circle): Phone Fax

Report Results To: ____________________

____

Phone # ____________ Fax # ____________

Name of Shipper	Date	Time	Sample relinquished by:	Date	Time
Received By (Lab)	**Date**	**Time**	**Sample received by:**	**Date**	**Time**

VOLUME I CHAPTER 5

5.0 CONTINGENCY PLAN

5.1 PURPOSE

This Contingency Plan has been prepared in compliance with federal regulations 40 CFR Part 264 Subpart D in order to identify potential hazards to human health or the environment from fires or any unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents to air, soil, or surface water. This Contingency Plan then establishes measures to prevent or minimize these potential hazards and also establishes guidelines for personnel to follow. These guidelines include emergency plans which are to be implemented after an accident, i.e., spill cleanup procedures, fire control methods, evacuation procedures. This plan, therefore, provides specific emergency procedures to be implemented immediately whenever an identified hazard occurs at the facility. Signatures certifying knowledge of and approval by individuals responsible for compliance with the 2009 contingency plan are included as Forms 5.1 and 5.2.

The Spill Prevention and Response (SPR) Plan has also been included in Permit Attachment 2 (Volume I Chapter 6). The SPR Plan supplements the Contingency Plan.

5.2 SCOPE

This Contingency Plan and the SPR Plan must be implemented whenever there is a creosote or creosote-contaminated groundwater leak, spill or discharge, or a fire which threatens the release of creosote constituents (see 40 CFR Part 264.52).

5.3 RESPONSIBILITIES

There are three primary roles for personnel involved with the Idaho Falls Pole Yard Treatment Facility:

- The **HWMF Manager** shall be responsible for remotely monitoring the facility and directing activities of an on-site Environmental Technician. The

HWMF manager will also be responsible for implementing the RCRA Post Closure Care Permit requirements, enforcing the site specific Health and Safety Plan (29 CFR Part 1910.120), ensuring compliance with all hazardous waste management regulations (40 CFR Part 262), ensuring compliance with this contingency plan, and implementing the spill prevention and response plan.

- In the event that an emergency condition develops at the site, an **Emergency Coordinator** will serve as the first responder operations level as defined in the code of federal regulations (29 CFR 1910.120(q)(6)(ii)). This person would be notified of the emergency condition by the on-site technician or by the automated electronic monitoring systems. The Emergency Coordinator would initiate requests to supporting governmental agencies and serve as the PacifiCorp representative as required by the emergency situation.

- The on-site **Environmental Technician** will be responsible for groundwater monitoring, maintaining the treatment system, and perform weekly, monthly, and quarterly inspections. It is anticipated that the Environmental Technician will be on-site at least one day per week. If an emergency occurs while the technician is on-site he/she would serve as the first responder at the awareness level as defined in federal regulations (29 CFR 1910.120(q)(6)(i)). The technician would stay a safe distance from the emergency and communicate with the local emergency responders and the PacifiCorp Emergency Coordinator. If the Environmental Technician has had the OSHA Hazwoper Supervisors Training including instruction on emergency response at the operations level, then the on-site Environmental Technician will serve as the Emergency Coordinator.

5.4 ORGANIZATION AND DUTIES

5.4.1 Emergency Coordination

In most cases, the on-site Environmental Technician will also serve as the primary Emergency Coordinator. Upon detection of an emergency or significant alarm condition, the Control Computer's automated electronics will notify personnel in the order listed on Table 5.1.

The Control Computer will continue to cycle through and send messages to the personnel listed on Table 5.1 until one of the Emergency Coordinators acknowledge receipt of the message.

If the on-site smoke detector senses the presence of a potential fire, the emergency notification sequence remains as described above and the Idaho Falls Fire Department would be notified by the Emergency Coordinator.

5.4.2 Emergency Response

The Emergency Coordinator will do the following:

- Determine initial emergency response, i.e., fire control, countermeasures, or evacuation.
- If there is a potential for creosote impacted water to reach the storm drains at the facility, the Emergency Coordinator will place covers over the storm drains. The Emergency Coordinator will make sure that it is safe to complete this task before proceeding but will make this one of the first priorities if significant amounts of water are being released from the facility.
- By telephone or voice, contact all personnel onsite, inform them of any hazard and direct their activities.
- Initiate SPR Plan and fire-fighting procedures per the guidance provided in this chapter and Permit Attachment 2 Volume I Chapter 6.

- Notify appropriate local agencies (fire departments, police, hospitals, ambulances, etc.) with designated response roles whenever their assistance is needed (see Section 5.5.2 below).
- In compliance with federal regulation 40 CFR 302.6, if a release occurs, within any 24 hour reporting period, that exceeds the CERCLA reportable quantity of 1 pound of creosote, then immediately notify the National Response Center (1-800-424-8802).
- Once on site, ascertain the severity of the situation by observation and/or review of Material Safety Data Sheets, Safety Manual, facility records or shipping documents, and, if necessary, by review of chemical substance handbooks.
- Assess possible hazards to the environment and human health (i.e., effect of toxic gases generated due to fire, need to disconnect power, etc.).
- Note existing weather conditions to guide response.
- Take all reasonable measures necessary to ensure that fires and releases do not occur, recur or spread.
- Monitor for leaks, pressure buildup, or ruptures in valves, pipes or other equipment when the operations of the facility are affected.
- Secure assistance from the General Office or Regional forces of PacifiCorp if required.
- Contact and secure services of contractors for hazardous waste spills if the spill containment and cleanup is beyond the capability of the utility.
- Take notes in the operating record of the following: the time, date and details of any incident that requires implementing this Contingency Plan.
- Maintain a list of all telephone calls and actions regarding the event, including times of calls and events.

- Prepare and submit a written report to the HWMF Manager as soon as possible after the event. Included in this report will be recommendations regarding any preventive measures that could be taken to prevent any future hazardous waste contingencies.

- Notify appropriate local authorities if his assessment of the situation indicates that evacuation of local areas may be advisable.

- Report immediately any hazardous waste spill that can, may, or does become water-borne to the U. S. Coast Guard National Response Center, phone 1-800-424-8802; DEQ State of Idaho Office at 1-208-373-0502.; DEQ Regional Idaho Falls Office at 1-208-528-2650. The number for State Communication where information about a hazardous spill will be dispatched to either the DEQ or to Homeland Security is 1-800-632-8000.

- Notify the DEQ State Office or its duly-appointed representative; the Idaho Department of Environmental Quality, Waste Management and Remediation Division, phone 1-208-373-0502; and appropriate state and local authorities that no waste that may be incompatible with the discharged material will be treated, stored, or disposed of until cleanup procedures are completed, and all emergency equipment listed in the Contingency Plan is cleaned and fit for its intended use before operations are resumed.

- Within 15 days after the incident the HWMF Manager must submit a written report on the incident to the DEQ Director. The report must include:

  1. Name, address, and telephone number of the owner or operator;

  2. Name, address, and telephone number of the facility;

  3. Date, time, and type of incident (e.g., fire, explosion);

  4. Name and quantity of material(s) involved;

  5. The extent of injuries, if any;

6. An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
7. Estimated quantity and disposition of recovered material that resulted from the incident.

5.5 COORDINATED EMERGENCY SERVICES

5.5.1 List of Emergency Coordinators and Alternatives

A list of qualified emergency coordinators including the HWMF Manager is posted with the coordinators listed in the order in which they will assume responsibility; this list is shown on Table 5.1. Included are their addresses and phone numbers (office and cell). This list has been supplied to all parties involved.

5.5.2 Off-Site Emergency Services

5.5.2.1. Emergency Episode Notification

In the event of an emergency episode that may involve offsite persons, property, or resources or which may cause any injury or damage, the emergency coordinator will initiate notification of the proper agencies as follows:

Note: The following agencies are to be called by or with the approval of the HWMF Manager or emergency coordinator only:

- U. S. Coast Guard National Response Center Phone: 1-800-424-8802
- State of Idaho Emergency Communications: 1-800-632-8000

5.5.2.2. Local Authorities

This section of the Contingency Plan identifies available off-site emergency services. According to 40 CFR 264.37(a) "The owner or operator must attempt to make the following arrangements, as appropriate for the type of waste handled at his facility and the potential need for the services of these organizations".

Arrangements, along with the distribution of the Contingency Plan, have been made with the following:

Emergency	911
Idaho Falls Police Department	1-208-529-1200
Idaho Falls Fire Department	1-208-529-1200
Idaho State Police	1-208-884-7000
State Emergency Communications	1-800-632-8000
Eastern Idaho Public Health Dept. District 7	1-208-522-0310
Bureau of Homeland Security	1-208-422-3040

The following hospital has been contacted and made aware of the activities of the Idaho Falls HWMF and of the properties of creosote and type of injuries or illnesses which could result from fires or releases at the facility:

Eastern Idaho Regional Medical Center 1-208-529-6111

5.5.2.3. Contractors

Should HWMF personnel be unable to perform the cleanup operation and it is necessary for cleanup to begin immediately outside contractors may be notified for on-site cleanup only. Outside contractors will have received, and kept current, 40 hour OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Local contractors that may be sub-contracted in the event of a cleanup operation are listed on the DEQ website, www.deq.idaho.gov. There is a link at the DEQ website entitled ‘Waste’ and following another for ‘Assistance to Businesses’ where lists of investigation, remediation, management, laboratories, and disposal contractors.

The following companies are qualified hazardous spill clean-up contractors listed at the DEQ website:

Pacific West Environmental
1515 West 2200 South, Suite C
Salt Lake City, UT 84119
(801) 972-2727

Northwind Resource Consulting
1425 Highman Street
Idaho Falls, ID 83402
(208) 577-7866
Contact: Gary Mecham
www.northwind-inc.com

West Valley Contractor
737 French Gulch Road #A
Kingston, ID 83839
(208) 691-7813

Other contractors with light earth-moving capabilities who are willing to do cleanup work and have current HAZWOPER training may also be contacted and used for cleanup operations. However, it is necessary to inform the contractor that the contaminated material he is handling must be transported by an EPA-permitted handler and disposed of at an EPA-permitted hazardous waste disposal site. If the discharge is massive, special cleanup efforts such as those provided by the Coast Guard may be necessary. In this case, Mr. Jeff Tucker of PacifiCorp at 1-801-220-2989 (office) or 1-801-660-5750 (cell) would initiate this effort.

The following companies are qualified to transport hazardous material off-site to a permitted hazardous waste disposal facility:

U.S. Ecology of Idaho
PO Box 400
Grandview, ID 83624
www.americanecology.com

Enviro Care of Utah, Inc.
505 North Main
Salt Lake City, UT 84054
www.envirocareusa.com

Clean Harbors Environmental Services
11600 North Aptus Road
Grantsville, UT 84029
(435) 884-8201

Hazardous wastes/materials that are removed from the site are to be taken to one of the following permitted hazardous waste disposal sites:

U.S. Ecology – Site B
P.O. Box 400
Grandview, ID 83624
1-800-274-1516

Clean Harbors Grassy Mountain, LLC
Grassy Mountain Landfill
Grassy Mountain HWMF near Knolls, UT
Phone: 1-435-884-8900
EPA ID No. UTD 991 301 748

NOTE: All of these services are to be requested only by the HWMF Manager in conjunction with the Environmental Director of PacifiCorp.

5.5.3 List of Emergency Equipment

A summary of all emergency equipment and facilities on site, including locations, physical descriptions, and capabilities, is presented on Figure 5.1 and in Table 5.2.

5.5.3.1. Internal Communication or Alarm System

In the event that a significant alarm is encountered, the autodialer system will initiate communications as described in Section 5.4.1. Due to the size of the site and the limited number of personnel who would be expected at the site, visual and vocal communication is considered adequate for on-site communication.

5.5.3.2. External Communication System

Telephones are the external communication system which will be used by any personnel on site to make any necessary calls to police, fire departments or any other emergency service. WIN911 is the software package installed on the Control Computer that will automatically initiate external communications when the operator is not present at the site.

5.5.3.3. Fire Extinguishing System

Should a fire occur at the treatment plant, fumes could result from creosote present in the treatment columns. A fire alarm system has been programmed to alert the Control Computer which will then initiate the notification procedures outlined in Section 5.4.1. No other fire is anticipated which could release hazardous materials. Buildings, however, are susceptible to fire, and one or more fire extinguishers have been situated in obvious and easily obtainable locations. In the event of a fire starting while the HWMF Manager or Environmental Technician is onsite, there are presently adequate fire extinguishers as described on Table 5.2 and in the locations shown on Figure 5.1.

There are four city fire hydrants located outside but near the HWMF. Three are located on the east side of Leslie Avenue approximately 400 feet apart, supplied by the Idaho Falls public water supply and have rated capacities of 1277 gpm at 54 flow psig. The other hydrant is located on the east side of 23rd Street near the main gate and has a rated capacity of 1060 gpm at 42 flow psig.

In the event of a severe emergency the Snake River is located about 3,000 feet from the northwest side of the facility.

5.5.3.4. Spill Control Equipment

This facility has two spill control equipment kits located near the pre-treatment clarifier. Each truck, which would transport creosote for off-site disposal, should also carry a kit similar to this. The kits are contained in sealable 55-gallon drums. The contents are itemized in Table 5.2.

Covers for the three storm drains and the one 36-inch diameter sewer manway are stored near the northeast door of the Treatment Building. The locations of the sewer manway and three storm drains to be covered are shown on Figure 5.1.

All facility communications or alarm systems, fire protection equipment, safety equipment, discharge control equipment, and decontamination equipment where required, shall be tested and maintained as necessary to assure its proper operation in time of emergency. Existing emergency equipment locations are given in Figure 5.1.

5.5.3.5. Emergency Phone Numbers

Emergency phone numbers for additional assistance or after-hours notification are included in Table 5.1.

5.6 EVACUATION PLANS

The Emergency Coordinator is responsible for ascertaining the need for evacuation and extent of evacuation and for implementing the evacuation procedure. He is also responsible for the immediate evacuation of himself and any other personnel that might be on site. He is responsible for directing employees and visitors to the proper exits and to a designated safe area outside of the facility boundaries. The Emergency Coordinator shall review the evacuation procedures and routes at least once per year. Escape routes, building, emergency equipment, gate locations and escape routes are shown in Figure 5.1 and must be posted by the Emergency Coordinator in visible areas around the site.

5.6.1 Evacuation Procedures

- The Emergency Coordinator will notify all employees if an evacuation may be necessary.
- The Emergency Coordinator will assess the conditions and order an evacuation or other actions required and will call the police and fire

departments to inform them of what actions are being implemented.

- When an evacuation is announced, stop work. The Emergency Coordinator will direct visitors and employees to the appropriate exit(s).
- All visitors and employees must leave the facility and report to the designated assembly area. Do not run. Do not linger in entranceways or driveways. Stay together in the assigned safe area.
- Each visitor and employee must report to the Emergency Coordinator once outside the facility.
- The Emergency Coordinator must report to the HWMF Manager when all personnel have cleared the facility.
- Stay outside the facility until notified by the Emergency Coordinator to re-enter.

5.6.2 Evacuation Routes - Exit Assignments

- The attached layout of the HWMF, Figure 5.1, identifies the buildings, emergency equipment, gate locations, and escape routes. Fire stations and fire extinguishers are noted on the layout.
- The designated assembly areas shall be located outside the facility - one near the pedestrian gate #3 and the other south of the main gate #5.

5.6.3 Emergency Precautions

- Keep calm; think; avoid panic and confusion.
- Know the exit locations. Be sure you know the safest and quickest way out of the facility.
- Do not lock office doors when vacating the facility. The Emergency Coordinator and outside emergency support personnel must have visual access to all areas to ensure that the facility is clear of any personnel.

- Do not delay evacuation of the facility for any reason.
- Do not assist in any emergency response activities in which you are not properly trained and qualified.
- When evacuating the facility, WALK to the exit. Report to the designated area away from the facility and wait for instructions.
- Keep out of the way, stay clear of the facility, and DO NOT interfere with emergency conditions.

DO NOT re-enter the facility until instructed to do so.

5.6.4 Follow-through

- The Emergency Coordinator shall confer with fire department personnel and police and other emergency response personnel who respond to evaluate the extent of danger and proper countermeasures (firefighting, etc.) and the safety precautions to be taken.
- The Emergency Coordinator under the direction of the HWMF Manager will assign qualified personnel to assist in the countermeasures and will direct the effort.
- The Emergency Coordinator, in cooperation with governmental emergency response personnel, will ascertain when the emergency has been contained and when it is safe for personnel to re-enter the site for cleanup activities. He will determine which personnel will re-enter the site and direct the re-entry.
- At this point the SPR Plan becomes the guiding document for cleanup operations.
- All tools, equipment, and contaminated surfaces must be decontaminated as spelled out in the SPR Plan.
- The HWMF Manager and Emergency Coordinator will maintain contact with Environmental Director of PacifiCorp, who will supply skilled personnel as required.

5.7 COPIES OF THE CONTINGENCY PLAN

A copy of the Contingency Plan has been submitted to the Idaho Department of Environmental Quality, with the RCRA Part B Post Closure Permit Application.

Copies and revisions of the Contingency Plan shall be maintained at the main office of the HWMF, and when it is deemed appropriate, it shall be given to the proper off-site emergency services. A list of copies has been included as Table 5.3 and will be maintained at the HWMF including the following:

- The number of copies of the Contingency Plan in existence
- The recipients of the Plan
- Transmittal letters documenting delivery of the Plans
- The number of copies being retained at the site
- The location of the copies on the site

5.8 AMENDMENTS TO THE CONTINGENCY PLAN

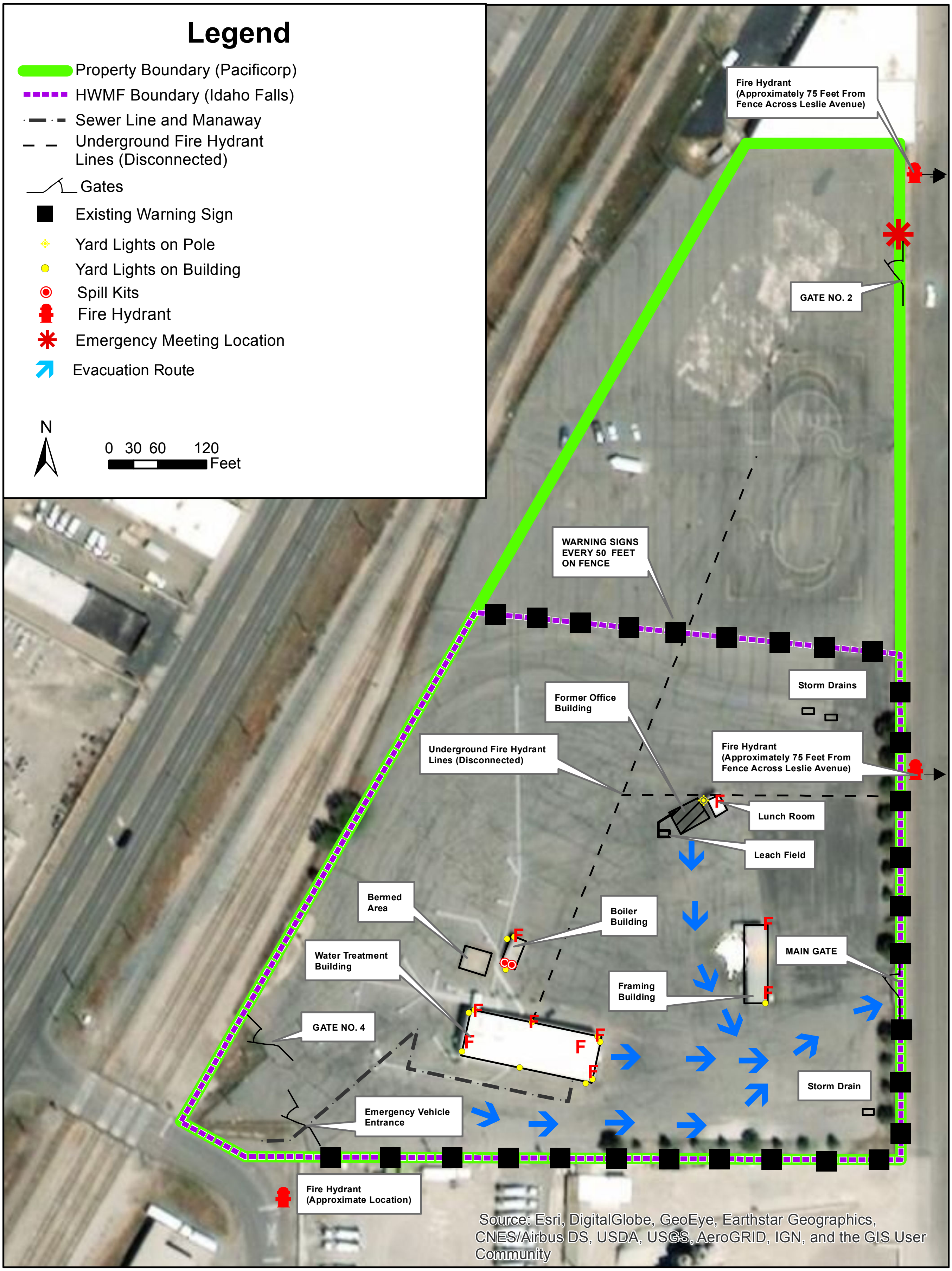
The Contingency Plan will be reviewed and amended whenever the following occurs:

- The facility permit is revised
- The plan fails in an emergency
- The list of emergency equipment changes
- The facility design, construction, operation, maintenance, or other circumstances change to increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.

Amendments to the Contingency Plan will be addressed as class 1 or 2 changes to the permit as required by 40 CFR 270.42 Appendix I B.6.

Any proposed modifications to the Contingency Plan will be submitted to the Idaho Department of Environmental Quality for approval. Contingency Plan modifications requiring Agency approval are outlined in 40 CFR Part 264.54(d) and (e).

The Emergency Coordinator will be responsible for periodically checking the Contingency Plan for any needed revisions and if appropriate notifying the appropriate emergency responders of the changes.



IDAHO FALLS POLE YARD EMERGENCY EQUIPMENT, UTILITY LINES, EVACUATION ROUTE AND GATE INFORMATION
Figure 5.1

TABLE 5.1

EMERGENCY CONTACTS

LIST OF EMERGENCY COORDINATORS

Below is a list or qualified Emergency Coordinators posted in the order in which they will assume responsibility. included is their addresses and phone numbers (office and cell). This list has been supplied to the Chief Dispatcher and to the HWMF Manager.

1.	Gary Mecham		
	1425 Higham St.	Office:	208-557-7866
	Idaho Falls, Idaho 83402	Cell:	208-221-4224
2.	Dennis Vanderbeek		
	2200 Leslie Avenue	Office:	208-745-6075
	Idaho Falls, Idaho 83402	Cell:	208- 705-7757
3.	Saige Ballack-Dixon	Office:	208-557-7832
	1425 Higham St.	Cell:	208-520-6157
	Idaho Falls, Idaho 83402		
4.	Nathan Helm	Office:	208-557-0838
	1425 Higham St.	Cell:	208-351-5693
	Idaho Falls, Idaho 83402		
5.	Jeff Tucker		
	1407 West North Temple, #210	Office:	801-220-2989
	Salt Lake City, Utah 84116	Cell:	801-660-5750

EMERGENCY PHONE NUMBERS

-	Idaho Falls Police Department	208-529-1200
-	Idaho State Police	208-884-7000
-	Idaho Falls Fire Department	208-529-1200
-	Bureau of Homeland Security	208-422-3040
-	Idaho Falls Hospital	208-529-6111
-	Idaho Falls HWMF Personnel:	
	Dennis Vanderbeek	208-745-6075

IDAHO FALLS HWMF POST-CLOSURE CONTACT PERSON AND RESPONSIBLE PERSON FOR DOCUMENT UPDATE

Jeff Tucker
Principal Engineer
PacifiCorp
1407 W. North Temple, #210
Salt Lake City, UT 84116
(801) 220-2989

TABLE 5.2
EMERGENCY EQUIPMENT

		DESCRIPTION
1. FIRST AID KIT (in Lab)		Standard
2. EYE WASH STATION (in Lab)		Standard eye wash
3. EMERGENCY SHOWER (next to Lab)		Cold Water
4. SPILL CLEANUP KIT		
2-4 pairs	Disposable gloves	Neoprene or approved alternate
1-2 sets	Disposable plastic boots, jackets and pants	Water resistant
2 pairs	Chemical goggles	ANSI 287.1-1989
1 each	Short-handled broom	Standard
1-5 lbs.	Absorbent rags	Standard
1-5 lbs.	Oil sorbent	Standard
1-2 each	Large plastic bags	Standard
1 can	Hand cleaner	Standard
1 gal.	Solvent	Penetone-Water based solvent
1 roll	Tape	Duct tape
1-6 each	"HAZARDOUS WASTE" labels	Standard
1 each	Pencil	Standard
1 each	Short-handled shovel	Standard
1 each	Dust pan	Standard
1 each	Sealable 55-gal. drum (containing the above)	Steel

TABLE 5.2

EMERGENCY EQUIPMENT

5. OTHER STANDARD SPILL RESPONSE EQUIPMENT

Quantity		Description
1 set	Disposable chemical-resistant clothing (gloves, jacket, pants, boots)	Neoprene or approved alternate
1	Chemical goggles	ANSI Z87.1-1989
1 set	Sealable 55-gallon drum	Steel
1 liter	Solvent	Penetone or Stoddard
1 set	Shovel and Drum Handling Equipment	Standard
100 feet	Nylon cord	¼-inch diameter
2	Barricades	Standard
1-5 lbs.	Absorbent rags	Standard
1-10 lbs	Sorbent material	Saw Dust or Sorball
1-10 lbs	Sorbent mats	Oil absorbing mats
1-30 lbs	Sorbant booms	Oil absorbing booms

6. COVERS FOR THREE STORM DRAINS AND ONE SEWER MANWAY

Quantity	Location	Description
4	Stored next to northeast door of treatment building	Water proof covers

TABLE 5.2
EMERGENCY EQUIPMENT

7. FIRE EXTINGUISHERS

Building	Location/Quantity	Fire Extinguisher Type - Capabilities
Lunch Room Building	North Wall / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
Framing Shed	North Wall / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	South Wall/ 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
Treatment Bld &Lab	Northwest Door / 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Clarifier Tank / 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Northeast Door /1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Partition Door /1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	Laboratory /1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	VFD Room /1	FE-36 Electrical Fire (Clean Agent)
Boiler Building	West Wall/ 1	20 # Dry Chemical - Compressed CO_2 fire suppressant

8. TELEPHONES

Building	Location/Quantity	Phone Type
Laboratory	East Side /1	Dedicated land line
Laboratory	Northeast Side/1	Dedicated land line

TABLE 5.3

RECORD OF COPIES
CONTINGENCY PLAN INCLUDING
SPILL PREVENTION AND RESPONSE PLAN

PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY

The following copies of these plans are now on file. All copies will be maintained in updated condition. All substantive changes will be submitted to the Idaho Department of Environmental Quality for approval as stated in Section 8.0 of the Contingency Plan.

There are seven (7) copies of this Contingency Plan:

The original and one copy are on file at the Idaho Falls Hazardous Waste Management Facility Main office.

One copy is on file at the PacifiCorp office located at 1407 West North Temple, Salt Lake City, UT 84116.

One copy has been sent to Robert Bullock, Idaho Department of Environmental Quality- Waste Management and Remediation Division, 1410 North Hilton, Boise, ID 83706.

One copy has been sent to the Idaho Falls Fire Department, 208 Constitution Way, Idaho Falls, ID 83402.

One copy has been sent to the Columbia Eastern Idaho Regional Medical Center, 625 Shoup Ave., Idaho Falls, ID 83402.

One copy has been sent to the Bonneville County Sheriff, 605 North Capital, Idaho Falls, ID 83402.

FORM 5.1

CONTINGENCY PLAN

40 CFR 264.50 requires that a Contingency Plan be implemented at the PacifiCorp Hazardous Waste Management Facility in Idaho Falls, Idaho. Jeff Tucker of PacifiCorp has the responsibility for providing company resources for implementation of this Contingency Plan. The Hazardous Waste Management Facility (HWMF) Manager has the responsibility to ensure said plan is implemented and complied with. The HWMF Manager is also responsible for implementing the Plan and coordinating the activities specified. The following signatures certify that these people have knowledge of the Hazardous Waste Management Facility Contingency Plan.

Jeff Tucker ______________________ 6/16/2008

Jeff Tucker, HWMF Manager — Date

Dennis Vanderbeek ______________________ 6/19/08

Dennis Vanderbeek, On-site Environmental Technician — Date

FORM 5.2

CONTINGENCY PLAN REVIEW BY LOCAL OFFICIALS

Sirs and Madams:

Today, 6-16-08, I have received an information package from Mr. Jeff Tucker, representing PacifiCorp, concerning the operation of a Hazardous Waste Management Facility at the Idaho Falls site, 2200 Leslie Avenue, Idaho Falls, Idaho 83401.

Printed Name: Lynet Smith

Signed: Lynet Smith

Title: Exec. Assistant

Organization: Administration, EIRMC

FORM 5.2

CONTINGENCY PLAN REVIEW BY LOCAL OFFICIALS

Sirs and Madams:

Today, JUNE 16, 2008, I have received an information package from Mr. Jeff Tucker, representing PacifiCorp, concerning the operation of a Hazardous Waste Management Facility at the Idaho Falls site, 2200 Leslie Avenue, Idaho Falls, Idaho 83401.

Printed Name: MICHAEL S. TAYSON

Signed: Michael D. Tayson

Title: Director Emergency Management Office

Organization: Bonneville County

FORM 5.2

CONTINGENCY PLAN REVIEW BY LOCAL OFFICIALS

Sirs and Madams:

Today, June 16, 2008, I have received an information package from Mr. Jeff Tucker, representing PacifiCorp, concerning the operation of a Hazardous Waste Management Facility at the Idaho Falls site, 2200 Leslie Avenue, Idaho Falls, Idaho 83401.

Printed Name: SAMUEL M HULSE L.T. Bonneville CO S.O.

Signed: [signature]

Title: Lieutenant Operations.

Organization: Bonneville CO SO.

FORM 5.2

CONTINGENCY PLAN REVIEW BY LOCAL OFFICIALS

Sirs and Madams:

Today, 6-16-08, I have received an information package from Mr. Jeff Tucker, representing PacifiCorp, concerning the operation of a Hazardous Waste Management Facility at the Idaho Falls site, 2200 Leslie Avenue, Idaho Falls, Idaho 83401.

Printed Name: Jon C. Burnham

Signed: Jon C. Burnham

Title: Desk Officer I.F.P.D.

Organization: Idaho Falls Police Dept.

FORM 5.2

CONTINGENCY PLAN REVIEW BY LOCAL OFFICIALS

Sirs and Madams:

Today, January 16, 2008 I have received an information package from Mr. Jeff Tucker, representing PacifiCorp, concerning the operation of a Hazardous Waste Management Facility at the Idaho Falls site, 2200 Leslie Avenue, Idaho Falls, Idaho 83401.

Printed Name: Tamara Cox

Signed: Tamara Cox

Title: HPRS Division Director

Organization: Eastern Idaho Public Health

FORM 5.2

CONTINGENCY PLAN REVIEW BY LOCAL OFFICIALS

Sirs and Madams:

Today, 6/16/08, I have received an information package from Mr. Jeff Tucker, representing PacifiCorp, concerning the operation of a Hazardous Waste Management Facility at the Idaho Falls site, 2200 Leslie Avenue, Idaho Falls, Idaho 83401.

Printed Name: Julie Miller

Signed: Julie Miller

Title: Admin Assistant

Organization: Idaho Falls Fire Dept

VOLUME I CHAPTER 6

6.0 SPILL PREVENTION AND RESPONSE PLAN

6.1 General

6.1.1 Purpose

The purpose of this Spill Prevention and Response (SPR) Plan is to identify hazardous substances in use at this facility and to identify potential sources of spills, establish measures of prevention, control, and cleanup for the Idaho Falls Hazardous Waste Management Facility (HWMF), which is located between 20th and 23rd Streets and South Yellowstone and Leslie Avenue, Idaho Falls, Bonneville County, Idaho.

Responsibility for compliance with this plan lies with the HWMF Manager or other responsible company official who has signed this plan for company management.

6.1.1.1. Legal Reference

Preparation of this plan generally follows the requirements of Section 311, Oil and Hazardous Substance Liability of the Federal Water Pollution Control Act (public Law 92-500 as amended). The current waste water treatment facility is exempt from the Section 311 requirements as noted in the code of federal regulations 40 CFR Part 112.1 (d) (6). Despite this exemption, a spill prevention and response plan has been prepared as a pollution prevention measure to minimize the likelihood of occurrence and the potential impacts of a sudden release of groundwater from the treatment plant or a spill of spent granular activated carbon (GAC).

6.1.1.2. Scope

Creosote was formerly used and stored at the Idaho Falls Pole Yard. All creosote has been removed. CERCLA has redefined "Spill" of hazardous materials, as defined below, as a "Release". The term "Spill" has been retained herein in most instances to agree with common usage at PacifiCorp.

6.1.1.3. Definition of Reportable Spill (Release)

A legally reportable "oil spill" is any spillage, leakage, discharge or disposal of oil, grease, or other petroleum product that enters or is threatening to enter any waterway. A "waterway" includes any river, stream, canal, lake, sewer, drain, or pond. Further definition is given in 40 CFR, 112.2(a).

A legally reportable spill of a hazardous material such as creosote contaminated water is defined as an unplanned sudden or non-sudden release of a reportable quantity of a hazardous waste constituent to air, soil, or surface water. The reportable quantity for creosote is one pound. If the total dissolved PAHs concentration coming into the treatment plant were 10 milligrams per liter then it would take a release of approximately 12,000 gallons of untreated groundwater to represent a reportable release.

6.1.2 Description of Facility

6.1.2.1. General

The Idaho Falls HWMF is located between 20th and 23rd Streets and South Yellowstone and Leslie Avenues, Idaho Falls, Bonneville County, Idaho. The area is industrial with drainage to the east within the yard as shown in Figure 6.1.

6.1.2.2. Potential Source of Spills

Creosote-contaminated spent extraction media includes spent granular activated carbon (GAC), which may be contained onsite temporarily awaiting shipment to disposal facilities.

Creosote-contaminated groundwater continuously flows through the Treatment Facility during the removal of contaminants by GAC adsorbers. The contaminated groundwater represents by definition a hazardous material because it contains a hazardous material. The potential for a spill from the treatment system such as a piping flange leak is addressed by methods of spill containment. The facility design provides for the direction of spills onto the floor into containment with pumps.

6.1.3 Prevention and Control of Spills

Prevention measures are centered on proper design, inspection, and maintenance of groundwater treatment equipment. The treatment system, groundwater extraction wells, and water collection piping are inspected regularly for leaks. Data are entered into the logbook or on to site forms for each inspection. Automated leak detection systems were installed at the site in 2010 and 2011 to monitor the system and immediately notify the appropriate response personnel if a leak is detected. The water treatment building is designed to capture leakage from the water treatment equipment separately in the two rooms of the building. Leakage is directed by the sloped floors to concrete structures, i.e. the floor sump in one room and the wet well in the other room.

Leak detection alarms occur in response to high level switches located in both the floor sump and the wet well that sense the overflow of wastewater. High level alarms for the wet well and the floor sump shut down the wellfield submersible pumps. Both of these alarm conditions initiate immediate notification of the plant operator through the use of an autodialer system. The operator would mobilize to the site to inspect for leaks and address the high water level condition.

The function and operation of the wet well is described in detail in Permit Attachment 2 Chapter 10 Section 10.1.5.4 (Plant Design Criteria). A portion of the text from chapter 10 is included herein to provide understanding of the wet wells capabilities when it comes to spill prevention.

The purpose of the wet well/pump station is twofold. It acts as a containment basin for spills that occur on the floor of the building, and it provides the hydraulic pressure to pump the water through the remaining treatment processes.

The wet well is designed to provide suction head prior to pumping to the carbon adsorption tanks. The wet well is equipped with a pressure transducer that provides continuous level measurement and delivers a signal to the PLC. The PLC uses the level signal data to start and stop the three transfer pumps in the wet well, and the pumps are programmed to turn on and off based on a target water level. As water rises in the wet well the first pump will turn on. If the flow rate of the incoming water is higher than the first pump capacity, the water will continue to rise and trigger the start of the second pump. The same sequence will be used for operation of the third pump. The system is designed such that if one of the wet well pumps fail, an alarm condition is sent to the SCADA Computer.

One pressure transducer is used to sense the water level in the wet well. The wet well vertical turbine pumps operate based on six liquid level setpoints. There are on and off setpoints for each of the three pumps. The system software allows the operator to adjust the wet well level setpoints along with the sequencing of pump operations. Every two months the operator will review the run time for each wet well pump and then adjust the sequencing to distribute the run time evenly. The wet well system can also be set in manual mode allowing the operator the flexibility of starting or stopping pumps as needed. The operational status for each wet well pump is displayed on the SCADA Computer.

There is one additional switch located at the top of the wet well which is used to detect overflow conditions. If water is about to overflow the wet well, this switch sends a signal to the PLC to shutdown all wellfield submersible pumps.

In addition to the spill protection described above, emergency response personnel are under contract should conditions arise that require these services. Over the thirty year history of site operations, there have been no spills requiring the use of outside contractors. Any future spill, however, that has the potential to leave the perimeter of the HWMF or enter storm drains would be addressed by outside contractors. PacifiCorp personnel would only address small spills that can easily be contained within the confines of the HWMF boundary.

Contractors that will be used during an emergency spill are discussed in Permit Attachment 2 Volume I Chapter 5 Section 5.5.2.3. Any necessary response will be commenced immediately. If leaks do occur, they are to be immediately cleaned up as part of the regular operation procedure. Spent cleanup material, gravel, soil and other cleanup debris would be characterized and disposed of in accordance with federal and state hazardous waste regulations (40 CFR Part 262 and applicable state regulations). Currently PacifiCorp does not have their own employees don respirators to cleanup spills at the site. Cleanup activities are subcontracted to local companies with employees properly trained in Hazwoper procedures and certified for respirator usage. Should PacifiCorp change their current policy and require site personnel to wear respirators, the employees would first complete all required respiratory protection training and medical monitoring. The site Environmental Technician would also be required to complete Form 6.4 to confirm the readiness of on-site respirators. Under the current PacifiCorp respirator use policy, it is not necessary to complete Form 6.4.

6.1.3.1. Training of Personnel

In order to reduce the number of human errors that cause spills or releases of hazardous materials, employees must be adequately trained as described in Permit Attachment 2 Volume I Chapter 7.

Other personnel who are assigned to cleanup crews must have received training in these practices.

6.1.3.2. Exposure Prevention Practices

Only personnel trained in emergency oil and hazardous material containment and cleanup procedures and protected against the attendant hazards shall shut off sources of release, control and repair leaks, clean up spills, and fight fires in areas where oil or hazardous material is used.

Personnel entering the spill or leak area shall be furnished with appropriate personal protective equipment and clothing. All other personnel and the public shall be evacuated from and prohibited from entering the area.

In case of skin contact with oil or creosote-contaminated groundwater, wash the area of contact with soap and water. If soap and water are not immediately available, clean the area of contact thoroughly with waterless hand cleaner. Clean and dry the area thoroughly and then repeat the cleansing. Shower as quickly as possible.

In case of oil or creosote-contaminated groundwater contact with eyes, the eyes should be irrigated as soon as possible with copious quantities of running water for at least 15 minutes. Seek immediate medical attention.

The area of a leak or spill shall be adequately ventilated to prevent the accumulation of vapors.

Any facility that contains oil or hazardous materials must have on hand a spill cleanup kits as described in Table 6.1. The Idaho Falls HWMF spill kits are stored in the former boiler building (see Figure 6.1).

6.1.3.3. Security Policies

The Idaho Falls HWMF has a chain link security fence with locked gates to limit access when site personnel are not present (see Figure 6.1). When any gates are unlocked for any reason, the HWMF Manager/Emergency Coordinator must assure that no unauthorized persons enter into the yard.

Warning signs that are visible from 25 feet and that can be seen from any approach have been installed and will be maintained.

6.1.3.4. Asphalt, Gravel and Berm

The entire HWMF ground surface is covered with asphalt and gravel. Concrete berms surrounding the perimeter of the water treatment equipment areas direct contaminated groundwater spills to the two basins located in two separate facility rooms, the floor sump and the wet well. Groundwater or floor washdown will be pumped from the floor sump to the treatment system inlet and will be pumped from the wet well as usual into the

GAC adsorbers. In either case the captured water is treated for contaminant removal. Automatic alarms occur if the floor sump fills with water or if the wet well receives water off the floor. Further details on the function of the floor sump and wet well systems are provided in Section 6.3.1 above and in Permit Attachment 2 Chapter 10 Section 10.1.5.4 (Plant Design Criteria).

6.1.3.5. Operation and Maintenance

Equipment and prevention apparatus such as gaskets, pumps, valves, fittings, and dikes will be maintained and operated in a manner that will prevent failures, leaks, spills, or other incidents that could result in the release of oil or contaminated groundwater from the equipment or apparatus.

If a leak is observed during weekly manual inspections or after responding to an alarm condition, the operator shall respond as follows:

- Oil leaks in small amounts which are detected during the operator's weekly facility inspections will be addressed with drip or catch pans, temporary berms, and oil absorbing blankets and booms as a temporary measure.
- Small contaminated groundwater leaks which are detected during the operator's weekly facility inspections will be addressed with drip or catch pans, temporary berms, and water absorbing blankets. If standing water occurs, it will be transferred using a wet vacuum into the floor sump. Leaks from piping shall be addressed only after depressurizing the system and only by qualified workers.
- Large contaminated groundwater leaks will be directed by the slope of the facility floor into concrete basins, the floor sump or the wet well. These systems contain high level alarms that will shutdown the extraction well pumps and notify the operator. These systems are described in detail in Section 6.1.3 above or in permit Attachment 2 Chapter 10 Section 10.1.5.4.

When responding to a shutdown alarm, contaminated groundwater leaks found in the floor sump or wet well get recycled to the water treatment system inlet following the operator's response to an alarm. Leaks from piping shall be addressed only after depressurizing the system and only by qualified workers.

Repair of the leak will begin immediately. The waste will be characterized, and then treated in the system or appropriately disposed of and equipment decontaminated.

If a leak were large enough to escape the concrete containment berm of the treatment building or originate from a wellhead or yard piping, covers will be placed over the three storm drains and the 36-inch diameter sewer manway. The storm drains are located along the eastern side of the facility while the sewer manway is located approximately 30 feet west of the water treatment building.

All leaks shall be recorded in the operations logbook.

6.1.3.6. Transportation Procedures

Each transport vehicle carrying hazardous materials or wastes will be marked on each end and side with the appropriate placards. When the vehicles are unloaded, the placards will be removed.

Every truck which is assigned to transport spent granular activated carbon or contaminated groundwater to a disposal, regeneration, or storage facility will be equipped with a cleanup kit as described in Section 6.1.4 and shown in Table 6.1. The general response to a creosote spill during transportation is outlined in Table 6.2. All personnel who are involved in the transportation of spent granular activated carbon or contaminated groundwater will receive instructions in safe handling procedures, proper transportation procedures, and spill cleanup procedures for any contingency.

The following procedures must be observed for all loading and transporting operations:

1. Establish quick and easy lines of communication with the Emergency Coordinator and the on-site Environmental Coordinator for all those involved in loading for transportation.
2. Load vehicles in an area removed from storm drains or storm sewers.
3. Assure that a manifest and/or record be kept as required of all pickups, transportation, and deliveries.
4. Drivers must be given the list of procedures in Table 6.2 to be taken in case of emergency.

6.1.4 Countermeasures

The berms described above are designed to contain contaminated groundwater leaks, should they occur, and thus mitigate the possibility of the material getting into a watercourse. In the case of small leaks, which are confined to small areas, cleanup is part of the ordinary operating procedure.

If a leak occurs and there is no chance that the impacted groundwater will be leaving company property, only in-house reporting is necessary, but countermeasures and cleanup must proceed as outlined in the Sections 6.1.4.1 and 6.1.4.2 below.

Direct Countermeasures described in Section 6.1.4.1 below are to be taken immediately when there is any danger of hazardous material entering any waterway, infiltrating into the ground, or any large release.

6.1.4.1. Direct Countermeasures

In the case of a spill or release, the following direct countermeasure actions to terminate the source of flow of the material will be used as necessary. A high level alarm condition for either the floor sump or wet well systems will result in the shutdown of the extraction well pumps, notification of the Environmental Technician (or other authorized personnel), and logging of the alarm condition in the SCADA database. When responding to this condition the Environmental Technician will:

- Verify that the SCADA computer provided a leak detection alarm in combination with the autodialer notification;
- Verify that if the wet well high water alarm is triggered, the SCADA computer has shutdown the extraction well pumps;
- Manually or remotely turn off the extraction well, floor sump pump, and wet well pumps if required and appropriate;
- Verify that either the floor sump has filled with water or that the wet well has filled too high or received water off of the floor;
- Make sure the spill is totally contained;
- Plug the leak;
- Build berms or dikes;
- When appropriate, place waterproof covers over the storm drains and sewer manway cover;
- Get outside help if necessary.

If hazardous material has already left company property, efforts must be made to place appropriate booms and absorbent materials in watercourses or drains or take other actions necessary to minimize environmental damage as a result of the spill.

The person discovering the spill or the SCADA computer alarm system will notify the HWMF Manager or other contact as indicated in Table 6.3. If a person detects a spill, they shall, at their earliest convenience, record the following information:

1. Location of the spill, including type of terrain and nearest waters or drains and anticipated movement of spilled material.
2. Time the spill was first observed.

3. Existing weather conditions.
4. Device or activity involved when spill occurred.
5. Cause of the spill.
6. Material spilled.
7. Estimated quantity of the spill.
8. When and what action was taken for countermeasures control and cleanup.
9. Effectiveness of cleanup operations.

6.1.4.1.1. Notification

Direct operating responsibility for the Idaho Falls HWMF rests with the HWMF Manager. The HWMF Manager or his designee shall be directly responsible for cleanup operation. Upon sensing a significant alarm condition the SCADA computer and autodialer will notify personnel as described in Permit Attachment 2 Chapter 5 Section 5.4.1. The Emergency Coordinator shall manage all immediate concerns and then communicate with the HWMF Manager to direct cleanup efforts.

When notified, the Emergency Coordinator will communicate with the HWMF Manager as described Section 6.1.5.1.1 below to initiate the appropriate response. If the Emergency Coordinator in consultation with the HWMF Manager cannot contain the spill, an emergency response contractor and the appropriate governmental entities (generally the police and fire department) will be notified to respond to the incident as described above in Section 6.1.4.2.

The entire cleanup operation will be directed by the HWMF Manager or the designated emergency response contractor. The HWMF Manager or his designated contractor will order a HWMF cleanup crew and necessary cleanup materials and institute additional countermeasures and initial cleanup procedures. As quickly as possible, the HWMF Manager will:

1. Communicate with the Emergency Coordinator and mobilize to the site.
2. Ascertain the severity of the spill.
3. Initiate necessary additional response steps.
4. Decide if the spill is reportable as defined in Section 6.1.1.3. If it is, contact the HWMF Manager of PacifiCorp. If the HWMF Manager cannot be quickly located, notify the System Dispatcher, who will continue to attempt contact.
5. Maintain a log of all telephone calls and actions regarding the spill.
6. Prepare and submit a written report as described in Section 6.1.5.2.1 to the HWMF Manager as soon as possible after the spill.

Included also in this report will be recommendations regarding any measures that could be taken to prevent any future spills.

6.1.4.2. General Cleanup Procedures

Any quantity of hazardous material spilled must be cleaned up immediately. A trained crew will respond immediately upon notification that a spill has occurred.

All cleanup personnel handling hazardous materials and/or engaged in the actual cleanup labor are to wear protective disposable clothing as described in Section 6.1.3.2, Exposure Prevention Practices.

It is extremely important that any hazardous fluid be prevented from reaching streams, storm drains, sewers, drainage ditches, or any other place where water is flowing. The crew is to exercise every available option open to them to contain the spill, which includes placement of storm drain covers, temporary diking or diversions. In addition, the crew should anticipate and prevent water from flowing into the contaminated area from sources such as nearby sprinkler systems and/or street gutter and rainwater runoff.

If the spill does reach groundwater, flowing waters, storm sewers, or any inaccessible area or non-PacifiCorp area, the HWMF Manager must immediately be notified directly or through the chain of command presented in Table 6.3

A small amount of water and spilled material may be absorbed in sand, sawdust, or commercial absorbents and placed into secure 55-gallon drums; or the water and spilled material may be bailed or pumped into the treatment system. The sediment and sludge from the bottom of the puddle should then be over-excavated to a depth not less than 15 cm, and placed in drums. Contaminated materials would then be characterized and disposed of in compliance with the appropriate state and federal regulations.

Since some components of creosote tend to sink, spills into sizable bodies of water pose a difficult cleanup problem and require special procedures. A vacuum truck may be used, or a contractor with special equipment will be engaged and the advice of State environmental officials will be sought during the response effort.

Secure the area so that members of the public do not come in contact with the spilled fluid. Barricades should be placed as required around the contaminated area to prevent pedestrians and vehicles from entering until the spilled material is cleaned up and removed. For spills on gravel or soil, it may be possible to absorb some of the liquid with absorptive material before removing the gravel or soil. All contaminated gravel or soil must be removed by over-excavation. To verify that creosote contaminated materials have been removed, a photoionization analyzer will be utilized. The analyzer detects the concentration of trace gases which are emitted from creosote-contaminated materials. Contaminated gravel and soil will be excavated and removed until the analyzer does not detect any evidence of creosote vapors (gases), or until visually clean. At this time a representative sample of material at the bottom of the excavation will be taken for chemical analysis of the presence of creosote and cleanup continued until the specified level is reached.

Spills on solid surfaces may be removed with absorptive materials and then cleaned thoroughly with rags wetted with an approved solvent. Approved water-based solvents include but are not limited to Penetone Power Cleaner 155 or Stoddard Solvent. A can of

Penetone is also included in each spill kit. It is effective on all surfaces. Stoddard Solvent also may be used for most cleanup operations, although it will damage asphalt. Care should be taken to avoid breathing fumes of these solvents. A wipe sample of the cleaned surface will be taken for chemical analysis of the presence of creosote.

Company or private vehicles that have been wetted with hazardous materials should also be carefully cleaned with rags and Stoddard Solvent or Power Cleaner 155 and a wipe sample taken and tested as above to assure complete decontamination. For each private vehicle involved, fill out a written record. Record the general condition of the vehicle prior to cleaning and after cleaning, including any damage that may have been caused by utility equipment. This will provide an identification record of private vehicles cleaned for future reference in case a damage claim is filed. Claim forms and return envelopes are to be placed in a weatherproof envelope and left in a secure place where the owner will see it when returning to his/her vehicle. All such instances must be noted in the report to the HWMF Manager per Sections 6.1.5.1.1 and Section 6.1.5.1.2.

Repair all facilities designed for containment purposes should they be damaged during the spill or cleanup operations. Submit recommendations, if any, on preventative measures to prevent or control future spills.

6.1.4.2.1. Decontamination Procedures

All equipment, tools, materials, clothing, etc. used for cleanup of creosote or creosote-contaminated groundwater must be decontaminated or disposed of according to the procedures spelled out herein. All contaminated protective clothing must be placed in sealable drums for disposal as hazardous waste. Contaminated personal clothing must be placed in specially labeled clean drums and the HWMF Manager notified to arrange cleaning by a commercial cleaner or laundry. The cleaning company must be notified of the hazards of the contaminating material.

To decontaminate tools and equipment, wipe down all contaminated surfaces thoroughly with rags wetted with an approved solvent such as Penetone or Stoddard Solvent. This wipedown must be performed three times, each time with clean, fresh solvent. If the items have been exposed to concentrated creosote, wipe tests must then be taken of the surfaces and an analysis made to assure complete decontamination. All solvent, rags, etc. used in decontamination must be disposed of as hazardous material as described herein.

6.1.4.2.2. Outside Contractors

Should PacifiCorp personnel be unable to perform the cleanup operation, and it is necessary for cleanup to be done immediately then refer to the Contingency Plan, Permit Attachment 2 Volume I Chapter 5 Section 5.5.2.3 for specific contractor information.

Any potentially hazardous material must be characterized, handled, transported, and disposed of appropriately. If the spill is large, special cleanup efforts such as those provided by the Coast Guard may be necessary. In this case, notify the PacifiCorp Emergency Coordinator in Table 6.3

6.1.4.3. Hazardous Material Disposal (Creosote)

The HWMF Manager shall be responsible for proper characterization, transportation, and disposal of materials impacted by creosote contaminated groundwater.

6.1.4.3.1. Hazardous Materials Cleanup Checklist

For a copy of the Hazardous Materials Cleanup Checklist see Form 6.5.

6.1.4.4. Cleanup Equipment (Spill Kit)

Each facility, which has hazardous material, must have a spill cleanup kit. The kits are contained in a sealable 55-gallon drum and consist of the items in Table 6.1.

In addition to the spill cleanup kits, the IFPY facility will have on hand additional emergency supplies and equipment as described in Table 6.1.

6.1.5 Reporting

Proper reporting of spills is very critical and must be done carefully, accurately, and in a timely manner.

6.1.5.1. When to Report and When not to Report

As defined in Section 6.1.1.3, a legally-reportable "oil spill" is any spillage, leakage, discharge or disposal of oil, grease or other such petroleum product that enters or is threatening to enter any river, stream, canal, sewer, drain, lake or pond. Any release of a legally-reportable spill in a reportable quantity of hazardous material must be reported. For creosote, the reportable quantity is one pound or approximately 12,000 gallons of creosote impacted groundwater having a total dissolved PAH concentration of 10 micrograms per liter.

6.1.5.1.1. In-house Verbal Reporting

Any personnel discovering leakage or spillage of a hazardous material at the HWMF must notify the HWMF Manager and give the information listed in Section 6.1.4.1.1. The same information shall be recorded in a logbook maintained at the site.

The HWMF Manager will determine if it is a reportable spill or discharge, and if so, will report the event.

As described in Section 6.1.5.1.3 the HWMF Manager will notify officials concerning spills or releases as required.

The HWMF Manager will inform the PacifiCorp Communications Department of all spills and releases, as necessary.

6.1.5.1.2. In-house Written Reporting

Any spill or release not qualifying as a legally reportable spill, will be documented by the on-site Environmental Technician in the weekly operator's log.

6.1.5.1.3. Reporting to State and Federal Agencies

The HWMF Manager will initiate all reporting to the agencies. The HWMF Manager will:

- Immediately report discharges of hazardous material to the EPA, State, and U. S. Coast Guard National Response Center. Verbal notification to the agencies must be made in accordance with federal regulation 40 CFR Part 302.6 for a legally reportable spill.

- Make necessary written reports to the EPA, State, and National Response Center and other agencies as required.

6.1.5.2. Inspections

Inspections will be made on a weekly basis by the on-site Environmental Technician, recorded on Form 6.1. If the Environmental Technician discovers any issues which are causing or may lead to releases to the environment or threats to human health, the Technician will immediately contact the HWMF Manager. Weekly reports will include inspection reports and any recommendations for work performed or maintenance. Any recommendations for work to be performed or required maintenance to be done will be addressed immediately by PacifiCorp.

6.1.5.2.1. Records

Records and reports of spills or releases shall be maintained for a period of three years and shall be made available for inspection, upon request, by EPA, or the state of Idaho.

6.2 INSPECTION PLANS AND CHECKLISTS

6.2.1 General

PacifiCorp requires weekly, monthly, and quarterly inspections be conducted by the onsite Environmental Technician or other appropriate personnel at the Idaho Falls HWMF. Forms 6.1, Weekly Inspection Checklist, Form 6.2, Monthly Inspection Checklist, and Form 6.3, Quarterly Inspection Checklist are to be filled out and copies kept in the HWMF office.

Inspections of all equipment associated with the pumping, transferring, measurement and treatment of the groundwater at the HWMF will be documented using Forms 6.1, 6.2, and 6.3, and a operators logbook. The HWMF cover will be visually inspected and the HWMF will also be inspected after 10-year storm events to detect evidence of any deterioration, malfunction or improper operation of run-on and runoff control systems. All emergency equipment and supplies at the facility are checked on a weekly basis to determine that they are in operating order. A list of required inspections is provided on Table 6.4. The inspection for the perimeter fence will be spot-checked by the onsite Environmental Technician throughout the year. An inspection report must be filed if deterioration is noticed, and immediate action will be taken to rectify problems.

Any necessary repairs or replacement of equipment are to be noted on the inspection sheets and submitted in weekly reports. Repairs, replacements and spill cleanups are conducted as soon as possible, depending upon the availability of replacement parts or heavy machinery for repairing covers.

If specific remedial action is implemented, the inspection procedures and frequency of inspections will be reviewed and updated as necessary.

6.3 SECURITY, TRAFFIC ROUTING, LOADING AND UNLOADING AND PARKING AREAS

6.3.1 Security

The PacifiCorp Hazardous Waste Management Facility (HWMF) is presently surrounded by a 7.8 foot high galvanized steel chain link security fence as shown in Figure 6.1. The steel poles to which the fence is attached are set in concrete. The chain link extends 6.8 feet above the ground and above that are three strands of barbed wire angled away from the site. The fence extends completely around the HWMF site. This security fence is maintained with locked gates to limit access during non-business hours. Table 6.5 and Figure 6.1 show the locations and uses of the various gates at the HWMF.

The onsite Environmental Technician or other onsite personnel are responsible for restricting yard access whenever the main entrance gate is unlocked.

Warning signs have been placed every fifty (50) feet along the perimeter fence so that a sign can be seen and read within twenty-five (25) feet of the fence. These signs read as follows:

CAUTION - HAZARDOUS AREA - AUTHORIZED PERSONNEL ONLY

- The background is yellow.
- "CAUTION" is in yellow letters, 3.0 inches high, on a black background.
- "HAZARDOUS AREA, etc." is in black letters, 2 inches high, on a yellow background.
- The sign dimensions are 14 inches high by 20 inches wide.

Figure 6.2 is a facsimile of the signs used. The signs will be checked regularly and maintained.

PacifiCorp believes that adequate security is being provided for the present operating conditions of the site based on the following considerations:

- The hazardous materials are located inside of the fenced areas.
- All hazardous materials are containerized and sent to the appropriate facilities within the required ninety (90) days or within applicable regulations.

6.3.2 Traffic Routing

The traffic routing within the HWMF is shown in Figure 6.3.

6.3.3 Loading/Unloading

The storage shed identified as the Framing Shed is used for storage of carbon used in the treatment plant and groundwater sampling equipment. Access to the Framing Shed storage is through a roll-up garage door on the south end of the building and a locked man door on the north end.

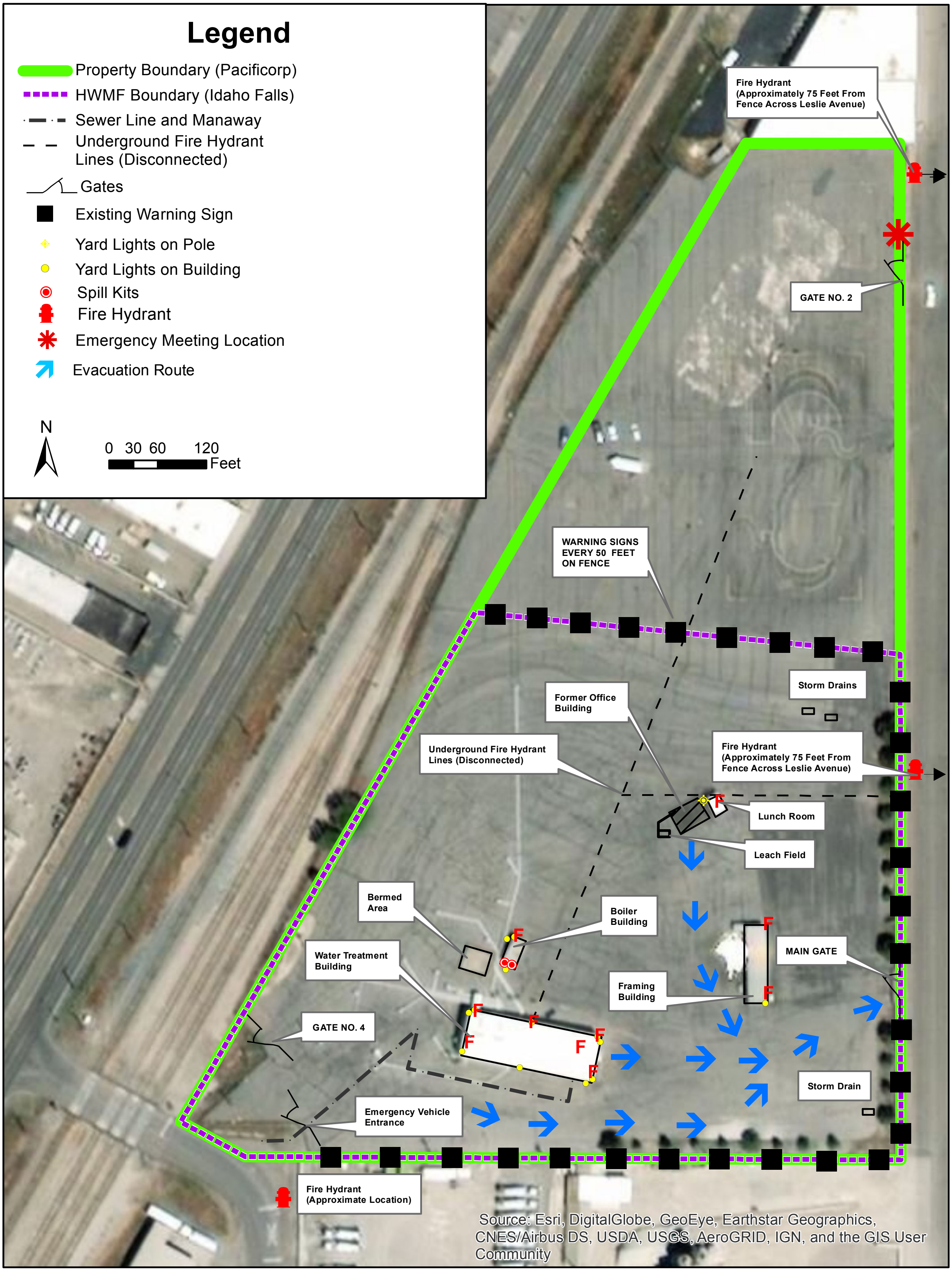
Roll-up garage doors are found in both west and east ends of the water treatment buildings. These are used as needed for the loading of barrels containing hazardous waste and as chemical and equipment loading and unloading areas.

6.3.4 Parking

No parking is allowed that would hinder daily operations and emergency equipment.

6.3.5 Security Lighting

The water treatment building entrances have security lighting activated by a photocell - that operates dusk to dawn.



IDAHO FALLS POLE YARD EMERGENCY EQUIPMENT, UTILITY LINES, EVACUATION ROUTE AND GATE INFORMATION

Figure 6.1

CAUTION

**HAZARDOUS AREA
AUTHORIZED
PERSONNEL ONLY**

FILE *Fig6.1 Caution Sign.ai 05/09/08 SLC*

**IDAHO FALLS
POLE YARD**

Caution Sign

FIGURE 6.2

Idaho Falls Pole Yard

General Traffic and Security Information

Figure 6.3

Q:\Projects\Pacificorp\2015 PacifiCorp IFPY\09_Data\GIS\Semi Annual Monitoring Reports\Fall 2016\Fig6.3_PoleYardGeneralTraffic_Nov2017.mxd

Revised August 2017

TABLE 6.1

EMERGENCY EQUIPMENT

		DESCRIPTION
1. FIRST AID KIT (in Lab)		Standard
2. EYE WASH STATION (in Lab)		Standard eye wash
3. EMERGENCY SHOWER (next to Lab)		Cold Water
4. SPILL CLEANUP KIT		
2-4 pairs	Disposable gloves	Neoprene or approved alternate
1-2 sets	Disposable plastic boots, jackets and pants	Water resistant
2 pairs	Chemical goggles	ANSI 287.1-1989
1 each	Short-handled broom	Standard
1-5 lbs.	Absorbent rags	Standard
1-5 lbs.	Oil sorbent	Standard
1-2 each	Large plastic bags	Standard
1 can	Hand cleaner	Standard
1 gal.	Solvent	Penetone-Water based solvent
1 roll	Tape	Duct tape
1-6 each	"HAZARDOUS WASTE" labels	Standard
1 each	Pencil	Standard
I each	Short-handled shovel	Standard
1 each	Dust pan	Standard
1 each	Sealable 55-gal. drum (containing the above)	Steel

TABLE 6.1

EMERGENCY EQUIPMENT

5. OTHER STANDARD SPILL RESPONSE EQUIPMENT

Quantity		Description
1 set	Disposable chemical-resistant clothing (gloves, jacket, pants, boots)	Neoprene or approved alternate
1	Chemical goggles	ANSI Z87.1-1989
1 set	Sealable 55-gallon drum	Steel
1 liter	Solvent	Penetone or Stoddard
1 set	Shovel and Drum Handling Equipment	Standard
100 feet	Nylon cord	¼-inch diameter
2	Barricades	Standard
1-5 lbs.	Absorbent rags	Standard
1-10 lbs	Sorbent materi.al.	Saw Dust or Sorball
1-10 lbs	Sorbent mats	Oil absorbing mats
1-30 lbs	Sorbant booms	Oil absorbing booms

6 . COVERS FOR THREE STORM DRAINS AND ONE SEWER MANWAY

Quantity	Location	Description
4	Stored next to northeast door of treatment building	Water proof covers

TABLE 6.1
EMERGENCY EQUIPMENT

7. FIRE EXTINGUISHERS

Building	Location/Quantity	Fire Extinguisher Type - Capabilities
Lunch Room Building	North Wall / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
Framing Shed	North Wall / 1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	South Wall/ 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
Treatment Bld &Lab	Northwest Door / 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Clarifier Tank / 1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Northeast Door /1	20 # Dry Chemical - Compressed CO_2 fire suppressant
	Partition Door /1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	Laboratory /1	20 # Dry Chemjcal - Compressed CO_2 fire suppressant
	VFD Room /1	FE-36 Electrical Fire (Clean Agent)
Boiler Building	West Wall/ 1	20 # Dry Chemical - Compressed CO_2 fire suppressant

8. TELEPHONES

Building	Location/Quantity	Phone Type
Laboratory	East Side /1	Dedicated land line
Laboratory	Northeast Side/1	Dedicated land line

TABLE 6.2

IN CASE OF CREOSOTE SPILL DURING TRANSPORTATION

1 . Catch, contain or confine any leaks or spillage of creosote - make dikes or dams around the area using dirt, gravel, creosote-sorbing materials, rags, or any such material that is available.

2. It is extremely important that creosote be prevented from entering streams, canals, ponds, drainage ditches, storm drains, sewers or any other place where water flows or is stored.

3. Wear protective clothing and eye-protecting goggles.

4. Secure the area so that members of the public do not come into contact with creosote.

5. Dip, scoop, and clean up the creosote spill using absorbent materials as necessary.

6. Place all creosote mixtures and wastes, including contaminated gravel and earth (6 in. deep) in properly labeled and sealed containers.

7. Decontaminate tools and equipment used to clean up creosote by washing with proper solvents, plus storing and handling these contaminated solvents as creosote mixtures.

8. Decontaminate any pavement, structures, automobiles, etc., by swabbing with rags soaked in solvent. Treat the rags then as creosote-contaminated.

9. Call the HWMF Manager and inform him/her of the event and actions taken;

10. If additional help is needed in cleanup, call the MWMF Manager to arrange for further assistance.

11. Transport all creosote waste, contaminated gravel and earth, and other materials to the original destination.

TABLE 6.3

EMERGENCY CONTACTS

LIST OF EMERGENCY COORDINATORS

Below is a list of qualified Emergency Coordinators posted in the order in which they will assume responsibility. Included is their addresses and phone numbers (office and cell). This list has been supplied to the Chief Dispatcher and to the HWMF Manager.

1.	Gary Mecham		
	1425 Higham St.	Office:	208-557-7866
	Idaho Falls, Idaho 83402	Cell:	208-221-4224
2.	Dennis Vanderbeek		
	2200 Leslie Avenue	Office:	208-745-6075
	Idaho Falls, Idaho 83402	Cell:	208- 705-7757
3	Saige Ballack-Dixon	Office:	208-557-7832
	1425 Higham St.	Cell:	208-520-6157
	Idaho Falls, Idaho 83402		
4	Nathan Helm	Office:	208-557-0838
	1425 Higham St.	Cell:	208-351-5693
	Idaho Falls, Idaho 83402		
5	Jeff Tucker	Office:	801-220-2989
	1407 West North Temple, #210	Cell:	801-660-5750
	Salt Lake City, Utah 84116		

EMERGENCY PHONE NUMBERS

- Idaho Falls Police Department	208-529-1200
- Idaho State Police	208-884-7000
- Idaho Falls Fire Department	208-529-1200
- Bureau of Homeland Security	208-422-3040
- Idaho Falls Hospital	208-529-6111
- Idaho Falls HWMF Personnel:	
Dennis Vanderbeek	208-745-6075

IDAHO FALLS HWMF POST-CLOSURE CONTACT PERSON AND RESPONSIBLE PERSON FOR DOCUMENT UPDATE

Jeff Tucker
Principal Engineer
PacifiCorp
1407 W. North Temple, #210
Salt Lake City, UT 84116
(801) 220-2989

TABLE 6.4

REQUIRED INSPECTIONS AT THE PACIFICORP IDAHO FALLS HWMF

Unit, Area, Equipment		Inspection	Frequency
General Facility	1.	Fire extinguishers	Monthly Visual Inspection / Annual Maintenance Check per 29 CFR1910.157
	2.	Safety shower	Weekly (Per ANSI Standard Z358.1)
	3.	Eyewash	Weekly (Per ANSI Standard Z358.1)
	4.	Spill control equipment !cits	Inspect seal Monthly Inspect Contents Quarterly or after each use
	5.	Face shields, disposable protective clothing	after each use and at least Monthly
	6.	Communication equipment (telephones)	In continuous use (weekly checkoff)
	7.	First-aid kit	Monthly
	8.	Lights	Monthly
	9.	Warning signs	Monthly
	10.	Alarm and emergency shutdown system	Monthly
	11.	Logbook completeness	Weekly
	12.	Manifest completeness and accuracy	As needed
	13.	Manifests returned on time	As needed
	14.	Weekly/ Monthly/ Quarterly Inspection checklists complete	Weekly/ Monthly/ Quarterly

TABLE6.5

GATES AND USES

Gate #I	Location:	West side of south fence
	Use:	Secondary entrance to the facility
	Description:	2 swinging gates
	Total Width:	32 feet
Gate #2	Location:	North end of fence
	Use:	North end access
	Description:	2 swinging gates
	Total Width:	24 feet
Gate #3	Location:	Middle of east fence
	Use:	Pedestrian traffic
	Description:	1 swinging gate
	Total Width:	4.5 feet
Gate #4	Location:	South end of west fence
	Use:	Secondary entrance to facility
	Description:	Manual gate
	Total Width:	30 feet
Gate #5	Location:	South end of east fence
	Use:	Main entrance to facility
	Description:	Motorized roller gate
	Total Width:	30 feet
Gate #6	Location:	North end of gate
	Use:	Pedestrian traffic
	Description:	One swinging gate
	Total Width:	3 feet
Gate #7	Location:	Middle of north HWMF fence
	Use:	Pedestrian gate
	Description:	1 swinging gate
	Total Width:	4 feet
Gate #8	Location:	Middle of east HWMF fence
	Use:	Pedestrian gate
	Description:	1 swinging gate
	Total Width:	4 feet

FORM 6.1 / 10.2

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

Note: Forms 6.1 and 10.2 are exactly the same. The operator is to fill out one 5-page form each week.

Name of Inspector: ___________________________

Date of Inspection: ___________________________

Inspection Items:

		YES / NO
1	**Are all gates operating correctly ?**	
2	**Is there any damage or issues relating to the HWMF asphalt cover, storm drains, treatment building, fences, secondary containment curbing, etc. that requires immediate repair or attention?**	
3	**Are all the well heads locked?**	
4	**Are any of the pumping well heads leaking?**	
5	**Are there any leaks in yard piping from wells to the wastewater facility?**	
6	**Are there any leaks in the piping, vessels or weir box inside the wastewater facility?**	
7	**Are the Eye Wash and Safety Shower systems operating correctly?**	
8	**Is the phone system operating correctly?**	
9	**Are there bags of sand (minimum of 250 lbs) and plastic sheeting (minimum of 10' by 50' in size) stored at HWMF in case temporary repair of the LDU asphalt cover is needed?**	

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

10 Record the well pump flows at the weir box, flow meters, and at the SCADA HMI screen.

	Is a Sheen Present ? (Y/N)	Flow Meter Readout (GPM)	HMI Flow Reading (GPM)
A-1			
A-2			
B-1			
B-2			
C-1			
MW-9			
R-2			
R-5			
R-6			
R-7			
R-8			
R-10			
R-11			
R-12			

Comments on the above readings (if needed)

FORM 6.1 / 10.2

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

11	**Record the treatment plant effluent flow rate and totalized effluent flow from the SCADA HMI display.**	FLOW RATE GPM	TOTAL GALLONS
12	**Observe the wet well and verify that the water level rises and falls while the pumps are operating.**		Working Correctly? YES / NO
13	**Record the inlet and outlet gage pressure at the lead set of GAC adsorption tanks.**	INLET PSIG	OUTLET PSIG
14	**Record the outlet gage pressure at the lag GAC adsorption tank set. If the reading is negative convert from inches of Hg to PSIG by multiplying the measurement by 0.49. Example: -1 in Hg x 0.49 = - 0.49 PSIG** **If the reading is positive, no conversion is required.**		OUTLET PSIG
15	**Are the HMI displayed pressures consistent with the analog measurements shown in Items 13 and 14 above. (Y/N) If no discribe further in Item 20 below.**		

16 Aquifer 1 Gradient Reversal Checks (1st well listed in each pair should have the higher elevation)

16a

Well Pairs	1st well has a higher elevation as shown on the HMI Screen (Y or N)	**If answer is NO**, notify the HWMF Manager, collect manual measurements, convert to elevations, and record below.	
		Measured elevation of 1st well	Measured elevation of 2nd well
MW-16 and D-1			
MW-16 and MW-13			
R-4 and R-5*			

* = Assumes well R-5 is not being used as an extraction well at the time of measurement. If groundwater is being extracted from R-5 note it in the comments section below.

16b Do the four extraction wells in Aquifer 1 have the lowest groundwater elevations posted on the HMI Aquifer 1 display screen? (Y / N)
If the Answer is NO, notify the HWMF Manager. ______

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

17 Aquifer 2 Gradient Reversal Checks (1st well listed in each pair should have a higher elevation)

17a

Well Pairs	1st Well has higher HMI elevation ? (Y or N)	**If answer is NO**, notify the HWMF Manager, collect manual measurements, convert to elevations, and record below.	
		Measured Elevation 1st well	Measured Elevation 2nd well
MW-12 and C-2			
D-2 and MW-9 *			
MW-12 and B-2			

* = Assumes well MW-9 is not being used as an extraction well at the time of measurement. If groundwater is being extracted from MW-9 note it in the comments section below.

17b Do the four extraction wells in Aquifer 2 have the lowest groundwater elevations posted on the HMI Aquifer 2 display screen? (Y / N) ______________________
If the answer is NO, notify the HWMF Manager.

18 Aquifer 1 Target Extraction Rates

Listed below are the target Aquifer 1 combined extraction rates (gpm) for the 1st of each month. Use linear interpolation to estimate target rates as you move through each month.

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
30 gpm	25 gpm	20 gpm	12 gpm	8 gpm	12 gpm	20 gpm	25 gpm	30 gpm	35 gpm	40 gpm	35 gpm

18a The current combined extraction rate for Aquifer 1 is: ______________________GPM

18b Is the current combined extraction rate greater than the target values listed above? (Y / N) ______________________

18c Are all the well pairs evaluated in Item 16 showing reversal of gradient? (Y/N) ______________________

18d Have the extraction rates for all primary and contingency pumping wells in Aquifer 1 been optimized to achieve the target extraction rates? (Y/N) ______________________

Make sure to use professional judgement to protect the well pumps from overheating and excessive drawdown when optimizing the extraction rates.

If the Answer to 18b is No but the answers to both c and d are Yes; there is no need to notify the the HWMF Manager.

If the answer to 18b is No and the answers to either 18c or 18d are No; Notify the HWMF Manager and provide further explanation in Item 20 below.

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

19	**Aquifer 2 Target Extraction Rate = 100 GPM Year round.** Is the total extraction rate for Aquifer 2 equal to or greater than 100 gpm? (Y / N) ___________________ **If the Answer is NO**, adjust all Aquifer 2 extraction well pumping rates up to achieve an overall extraction rate of 100 GPM. Use judgment and experience to prevent over pumping and excessive drawdown. If 100 GPM can not be achieved or maintained due to draught or other conditions notify the HWMF Manager and describe further in Item 20 below.	
20	**COMMENTS AND CORRECTIVE ACTIONS: repairs needed, date repairs were made, corrective measures, damage, labeling, etc.**	

FORM 6-2
MONTHLY FACILITY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY

All items below shall be checked monthly, or more often if need be. The monthly inspections shall be intensive and will disclose preventive maintenance and repair or replacement requirements. In the Observations column, point out these requirements and under Comments include proposed corrective actions. Inspections shall be performed by the Yard Supervisor, or his designee, in accordance with Permit Condition II.E, as required by IDAPA 58.01.05.08 [40 CFR § 264.15].

Inspector Name:

Title:

Weather Conditions:

	Yes/No: Plus Comment (if needed)
SAFETY	
Fire extinguishers Inspected?	
Is the equipment listed in Table 5.2 (Numbers 5 and 6) ready for use?	
Safety shower inspected and is working?	See Weekly Checklist
Eye wash station inspected and is working?	See Weekly Checklist
First aid kits inspected and adequate?	
SECURITY	
Lighting checked and is working?	
Telephones checked and are working?	See Weekly Checklist
Warning Signs checked and are present?	
Fences checked and operating as designed?	
Gates and locks checked and are operating as designed?	
Alarm emergency systems checked?	
Wet well and sump overflow shutdown capability checked?	
SATELLITE ACCUMULATION	
Are the drums properly labeled?	
Have the drums been dated?	
Are any drums leaking?	
Are the drums within designated satellite accumulation area?	
Is the satellite accumulation area sign still in place?	
INVENTORY	
Dewatering paper available if needed?	
HWMF COVER	
Was there any major deterioration this month?	
Does rainwater runoff the asphalt cover as designed?	
Benchmark	
Undamaged	
Spill Kits	
PacifiCorp spill kit seal remains unbroken?	

FORM 6-3 / 10.4
QUARTERLY FACILITY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY
IDAHO FALLS POLE YARD

Unless the seals on the spill kits remain unbroken, all items below shall be checked quarterly, or more often if need be. Inspections shall be performed by the Environmental Technician, or his designee, in accordance with Permit Condition I1.E, as required by IDAPA 58.01 .05.08 [40 CFR § 264.15]. If the seals on the spill control kits remain unbroken, inspection of the contents of the kits will only be required during the 4th Quarter of each year.	
Inspector Name:	
Title	
Date:	
Weather Conditions:	
	Present (YIN)
Spill Control Equipment Kits (PacifiCorp Spill Kit 146)	
2 pairs disposable gloves	
2 sets disposable plastic boots, jackets, pants	
2 pair chemical qoggles	
5lbs. absorbent rags	
5 lbs. oil sorbent	
2 large plastic bags	
1 quart sample container	
1 can hand cleaner	
1 gallon Penetone 155 solvent	
1 roll tape	
2 vinyl "Hazardous Waste" labels	
1 metal marking pen	
1 pencil	
1 copy Disposable Record Report form	
1 short handled broom	
1 dust broom	
1 dust pan	
1 short handled shovel	
1 sealable 55 qallon drum (containinq the above)	
PAPERWORK	
NPDES monitoring requirements completed. Reports sent to EPA/IDEQ and filed on site?	
Manifests complete, accurate for solid waste disposal?	
All manifests returned from transportation and disposal contractors?	
Operator's log and weekly/monthly/quarterly inspection checklists are complete? Note: Each year there will be 52 weekly, 12 monthly and 4 quarterly inspections performed, the respective forms filled out, and then filed at the site.	
COMMENTS AND CORRECTIVE ACTIONS	

FORM 6.4

MONTHLY RESPIRATOR INSPECTION CHECKLIST
PACIFICORP
IDAHO FALLS POLE YARD

Inspector Name:	Date:	
Inspection Items:	Yes	No
1. Are the respirators stored in designated locations?		
2. Are respirators in condition for instant use?		
3. Does each Pole Yard employee have an assigned respirator that is present in storage?		
4. Has each respirator been repaired, cleaned, and disinfected after each use?		
5. Has each canister been inspected after every use?		
6. Respirator cartridges shall be NIOSH approved and rated for sites with organic vapors and particulates.		
COMMENTS AND CORRECTIVE ACTIONS:		

Note: PacifiCorp employees are **NOT** required to don respirators and respond to spills of groundwater containing creosote or any other emergency conditions that might occur at the site. Therefore they are **NOT** required to fill out this form monthly. If an event were to occur requiring the use of respirators, PacifiCorp will retain the services of a local firm to with personnel properly trained and certified for respirator use.

PacifiCorp may train and certify their own employees for respirator use at some point in the future. If this occurs, respirator readiness will be assessed monthly by completing this form.

FORM 6.5

HAZARDOUS MATERIALS CLEANUP CHECKLIST

Hazardous
Materials

1. __________ Flow of hazardous material stopped and area secured.

2. __________ Responsible person or Dispatcher notified.

3. __________ Each crew member wearing protective clothing.

4. __________ Record nameplate of failed equipment and amount of oil or hazardous waste spilled (released).

5. __________ List materials to be placed in 55-gallon drums or container for disposal.

6. __________ Place all contaminated materials in the drums or containers for disposal.

7. __________ All other equipment for reuse decontaminated.

8. __________ Hazardous Material Disposal Record properly completed.

9. __________ Drums labeled, numbered and securely loaded.

10. __________ Trucks and containers labeled as required.

11. __________ Reports filled out properly.

    11a. ______ Facility copy of the Hazardous Material Disposal Record detached and given to the company employee responsible for the site (Emergency Coordinator).

    11b. ______ Other copies of Hazardous Material Disposal Record sent to disposal with drums.

12. __________ Final check for complete cleanup.

VOLUME I CHAPTER 7

7.0 TRAINING

7.1 TRAINING PROGRAM

7.1.1 Purpose

The purpose of this training plan is to meet the requirements of 40 CFR §264.16 which describes training of personnel at a hazardous waste management facility. Also to meet the objectives of PacifiCorp management to supply all of the necessary training to personnel and to operate and maintain the facility in compliance with all environmental regulations, with safety standards, and in the most efficient and effective manner possible.

Following implementation of the system automations, there will be three primary roles for personnel involved with the Idaho Falls Pole Yard system operations. These roles are:

- HWMF Manager,
- Emergency Coordinator, and
- On-site Environmental Technician

A description of the roles and responsibility for each position are described in Permit Attachment 2 Volume I Chapter 5. The training requirements for each role are described below.

7.1.2 Scope

In accordance with RCRA regulations 40 CFR 264.16 and 29 CFR 1910.120 the following paragraphs describe the required training for the Idaho Falls Pole yard personnel:

- PacifiCorp and/or consulting engineers will provide training in operation and maintenance of the facility.
- PacifiCorp will provide job descriptions, including educational and experience/training requirements in accordance with federal regulations 40 CFR 264.16.

7.1.3 Environmental Regulation Training

7.1.3.1. Introduction

PacifiCorp shall only assign personnel with extensive regulatory management experience to the role of HWMF Manager. This person shall either already have the proper experience or be provided specific training relating to the Clean Air Act, Clean Water Act, TSCA, RCRA, CERCLA and SARA prior to serving as the HWMF Manager.

7.1.3.2. Manifesting and Transportation

The HWMF Manager will either already have the proper knowledge or be provided the proper classroom training to appropriately characterize, manifest, and arrange for transport of spent carbon materials. Since carbon has been replaced only every four or five years over the past decade, yearly training is judged to be unnecessary.

7.1.3.3. Contingency and Spill Prevention and Response Plan

The HWMF Manager/Emergency Coordinator and the on-site Environmental Technician are required to attend an initial 40-hour OSHA approved Hazwoper training course that includes for awareness level emergency response training as defined in 29 CFR 1910.120. The Emergency Coordinator shall also attend a Hazwoper Supervisor training course that includes instruction on first responder operations level emergency response. Both of these employees shall receive an 8-hour of annual Hazwoper refresher training in compliance with 29 CFR 1910.120.

Each year the HWMF Manager and the on-site Environmental Technician shall review and if necessary update the Contingency and or SPR Plans. If changes to the plans are required, the entities listed in Table 7.1 will be provided a copy of the modified plans and then send a confirmation letter to the HWMF Manger acknowledging receipt of the modifications.

7.1.3.4. Certification of Training

Sign-off sheets documenting training for each of the three major types of personnel at the HWMF are provided as Forms 7.1A, 7.1B, and 7.1.C. These training forms will be filled in and then kept on file at the facility for at least three years after termination or reassignment of personnel.

7.1.4 Safety Training

7.1.4.1. 40-Hour Hazardous Waste Operations and Emergency Response

Prior to the start of service at the site, the HWMF Manager and on-site Environmental Technician will complete the 40 hour Hazardous Waste Operations and Emergency Response training as presented in federal regulations 29 CFR 1910.120. The HWMF Manager and on-site Environmental Technician will be required to keep this training current by attending yearly 8 hour refresher courses through qualified organizations.

7.1.4.2. Fire Safety Training

The on-site Environmental Technician will be trained on the use of the existing wall mounted fire extinguisher systems at the site. This training will involve discussions with the fire extinguisher equipment manufacturer and then actual practice with the equipment at the site. The on-site Environmental Technician will then annually provide instruction to other personnel on-site. The annual training will emphasize the extinguisher capabilities and limitations, extinguisher operation and application techniques, and the importance of maintenance. Actual "hands-on" exercise will be available during the training.

Following implementation of the system automations in calendar years 2010 and 2011, the HWMF Manager and on-site Environmental Technician were trained on the new electronic smoke detector system and the sequence of electronic notification. This training will be repeated each year.

7.1.4.3. First Aid

Since only one on-site Environmental Technician is expected to be on-site at a given time and because the site is located within the city of Idaho Falls, medical emergencies shall be addressed by calling 911.

7.1.4.4. Respirators

Currently PacifiCorp does not require that any of its Idaho Falls Pole Yard personnel don a respirator. If an activity were to arise at the facility that required respiratory protection, outside personnel fully trained and certified for respirator usage would be contracted to complete the task. If at some point in the future PacifiCorp decides to train and certify their own employees, a respirator protection program would be administered in accordance to 29 CFR 1910.134. Prior to being required to respond to an incident requiring the use of a respirator, the HWMF Manager and/or on-site Environmental Technician would receive initial training to consist of use, maintenance, limitations, and fitting of individual respirators. Medical surveillance of site personnel would also be required prior to donning a respirator. In addition, PacifiCorp personnel would be required to perform positive and negative pressure checks each time a respirator was donned.

7.1.4.5. CPR

Since only one on-site Environmental Technician is expected to be on-site at a given time and because the site is located within the city of Idaho Falls, medical emergencies shall be addressed by calling 911.

7.1.4.6. Initial Right-to-know Training

Initial Right-to-know training has been conducted for all employees of PacifiCorp. PacifiCorp employees will be provided with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard is introduced into their work area.

7.1.4.7. Hazard Communication Training

A chemical inventory for known hazardous chemicals has been completed with MSDSs/SDSs, and chemical literature assembled where MSDSs/SDs were not available. This information is kept and maintained in a binder which is available for employee review. All employees will be given training on the hazard communication program as required by 29 CFR § 1910.1200(h), including:

- Operations and storage areas where hazardous chemicals are present;
- The location and availability of the written hazard communications program stored at the site;
- Methods and observations that may be used to detect the presence or release of hazardous chemicals in the workplace;
- The physical and health hazards of the chemicals in the work place, including the locations and use of MSDSs / SDSs; and
- The measures the employees can use to protect themselves against chemical hazards in the workplace such as specific procedures and use of PPE.

7.1.4.8. General Safety Meetings

General safety meeting will only be performed in the event that more than one person, including the HWMF Manager, is onsite at the same time. Meetings will be recorded and kept onsite in the HWMF office.

7.1.4.9. Communications and Alarms

Prior to working at the site, the HWMF Manager and on-site Environmental Technician shall review the Contingency Plan and O&M Manual (Permit Attachment 2 Volume I Chapters 5 and 10). After completion of the system automations, a contractor will be on-site to startup the treatment system and to provide training on the new electronic alarm and communication systems.

7.1.5 Training in System Operations and Maintenance

Training requirements relating to operations and maintenance of the treatment plant are presented in Permit Attachment 2 Volume I Chapter 10 Section 10.1.9.

7.1.6 Post-closure Training

All elements of this training plan will be continued throughout the life of the corrective action program and post-closure activities.

7.2 TRAINING RECORDS

Training records will be available for inspection by appropriate authorities during normal business hours. The HWMF personnel training records will be filed in the office at the site or in other PacifiCorp offices until the closure of the project. This file will contain the following:

- Training Sign-off Sheets.
- A list of continuing education courses completed with the accompanying certificate of completion or diploma.
- Records of completion for all courses and refresher courses pertinent to the operations at the HWMF.

TABLE 7.1

RECORD OF COPIES
CONTINGENCY PLAN INCLUDING
SPILL PREVENTION AND RESPONSE PLAN

PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY

The following copies of these plans are now on file. All copies will be maintained in updated condition. All substantive changes will be submitted to the Idaho Department of Environmental Quality for approval as stated in Section 8.0 of the Contingency Plan.

There are seven (7) copies of this Contingency Plan:

The original and a second copy are on file at the Idaho Falls Hazardous Waste Management Facility Main office.

One copy is on file at the PacifiCorp office located at 1407 West North Temple, Salt Lake City, UT 84116.

One copy has been sent to Robert Bullock, Idaho Department of Environmental Quality- Waste Management and Remediation Division, 1410 North Hilton, Boise, ID 83706.

One copy has been sent to the Idaho Falls Fire Department, 208 Constitution Way, Idaho Falls, ID 83402.

One copy has been sent to the Columbia Eastern Idaho Regional Medical Center, 625 Shoup Ave., Idaho Falls, ID 83402.

One copy has been sent to the Bonneville County Sheriff, 605 North Capital, Idaho Falls, ID 83402.

FORM 7.1A

Idaho Falls HWMF Manager
Training Sign-off Sheet

SUBJECT	NAME	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
Initial 40-Hour HAZWOPER Training			NA	NA	NA	NA	NA	NA	NA	NA	NA
Initial 8-Hour HAZWOPER Supervisors Training			NA	NA	NA	NA	NA	NA	NA	NA	NA
Initial review of 2019 IFPY RCRA Post Closure Permit Modification			NA	NA	NA	NA	NA	NA	NA	NA	**NA**
Annual 8-Hour HAZWOPER Refresher											
Site Specific Hazard Communications											
Annual review, update, and community notifications relating to Contingency Plan											
Annual review and update of Spill Prevention and Response Plan											
Annual review of Training Plan											
Hazardous Waste Management Training (only as needed)											
Other											

FORM 7.1B

Idaho Falls HWMF Emergency Coordinator
Training Sign-off Sheet

SUBJECT	NAME	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
Initial 40-Hour HAZWOPER Training			NA	NA	NA	NA	NA	NA	NA	NA	NA
Initial 8-Hour HAZWOPER Supervisors Training			NA	NA	NA	NA	NA	NA	NA	NA	NA
Initial review of 2019 IFPY RCRA Post Closure Permit Application			NA	NA	NA	NA	NA	NA	NA	NA	NA
Annual 8-Hour HAZWOPER Refresher (including site specifc PPE Training)and Medical Monitoring											
Respirator Training, Medical Certification, and Fit Test (Not required for Pacificorp Employees under the current PacifiCorp IFPY HWMF policies)											
Annual review of Contingency Plan, PPE Training, and Site Specific Hazard Communication Plan											
Annual review of Spill Prevention and Response Plan											
Annual review of Training Plan											
Annual Fire Safety Training											
Other											

FORM 7.1C

Idaho Falls HWMF On-site Environmental
Technician Training Sign-off Sheet

SUBJECT	NAME	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
Initial 40-Hour HAZWOPER Training			NA	NA	NA	NA	NA	NA	NA	NA	NA
Initial review of 2019 IFPY RCRA Post Closure Permit Modification			NA	NA	NA	NA	NA	NA	NA	NA	NA
Annual 8-Hour HAZWOPER Refresher and Medical Monitoring											
Respirator Training, Medical Certification, and Fit Test (Not required under the current PacifiCorp IFPY HWMF policies)											
Annual review of Contingency Plan, PPE Training, and Site Specific Hazard Communication Plan											
Annual review of Spill Prevention and Response Plan											
Annual review of Training Plan											
Annual Fire Safety Training											
Annual Review and Update of Operation Manual											
Annual Review of Permit Required Monitoring											
Other											

VOLUME I CHAPTER 8

8.0 POST CLOSURE COST ESTIMATE AND FINANCIAL ASSURANCE

8.1 POST CLOSURE COST ESTIMATE

The post closure care cost estimate for 2019 is provided in Application Part B Volume I Attachment 3 (Post Closure and Corrective Action Cost Estimate). Subsequent annual Post Closure and Corrective Action Cost estimates will be maintained in a hardcopy file at the IFPY Facility and in Attachment 3 of the Permit.

8.2 FINANCIAL ASSURANCE

A letter from the Chief Financial Officer of PacifiCorp is provided in Application Part B Volume II Chapter 9 Attachment II.9.2. This letter provides evidence of financial assurance in accordance with the January 31, 2018 post closure estimate. These financial assurance documents were prepared and mailed to the Idaho Department of Environmental Quality (DEQ) prior to March 31, 2019. Subsequent annual financial assurance documents will be submitted to DEQ and maintained in a hardcopy file at the IFPY Facility.

VOLUME I CHAPTER 9

9.0 CORRECTIVE ACTION PLAN FOR GROUNDWATER

Hazardous constituents were detected in ground water beneath the Idaho Falls Pole Yard during investigations performed for the RCRA Part B Permit Application (the "Application") submitted to EPA on December 27, 1984, and subsequently amended. A RCRA Part B Permit (the "Permit") was issued for the site on March 25, 1988, reapproved in November 2000, and then again in September 2009. A Permit Reapplication was submitted to the Idaho Department of Environmental Quality in April of 2019 to extend the post closure care period. Corrective actions have been performed in accordance with the Applications and permits, and significant progress has been made toward removing the mobile fraction of the dense nonaqueous phase liquid (DNAPL) creosote from the subsurface. Extensive activities have been performed and numerous documents have been submitted to the EPA and the State of Idaho which describe the site conditions and corrective actions taken to date. Updated RCRA groundwater protective standards for the site were recalculated in March of 2018 using the latest toxicity factors and are presented in Permit Table 1.

In calendar years 2010 and 2011, PacifiCorp automated the existing groundwater treatment system. The automated system included the installation of pressure transducers in 27 on-site wells. The transducers communicate with a programmable logic controller (PLC). The pumps in each extraction well are now connected to variable frequency drives (VFDs) that are in communication with the PLC. The system has been constructed such that a remote operator is able to access the PLC through an electronic modem, take a snap shot reading of all pumping rates and the groundwater elevations, make evaluations of the capture zones for Aquifers 1 and 2, and then adjust the individual extraction rates as needed. New flow and pressure sensors used to monitor the treatment process and report alarm conditions have also been installed. All of the new flow meters, pressure transducers, and high level switches communicate electronically with the PLC. The PLC has been programmed to detect leaks in the system piping, overflow conditions in both the system wet well and floor sump, high pressure in the granular activated carbon vessels, and provide protection from fire through the use of smoke detectors. The PLC will automatically shut down the groundwater extraction pumps and notify the appropriate personnel upon select alarm conditions. A general schematic of the automated treatment system is provided as Figure 9.1. Refer to the O&M Manual included as Permit Attachment 2 Volume I Chapter 10 for further details regarding the plant operation. Section 10.1.5.4 (Plant Design Criteria) is particularly important in that it provides details relating to the sensors, alarm conditions, and response actions associated with both the wet well (see Permit Attachment 2 Volume I Chapter 10 page 10-19) and floor sump (see Permit Attachment 2 Volume I Chapter 10 page 10-22). The perimeter concrete berm, wet well system, and floor sump represent the primary leak detection and containment systems for the site.

9.1 FEASIBILITY OF ALTERNATIVE CORRECTIVE ACTIONS

9.1.1 General

Detection monitoring and assessment studies performed as part of the original RCRA investigations indicated the presence of hazardous constituents in ground water and within the bedrock fractures and voids. Therefore, a screening study was performed to evaluate the feasibility of alternative remedial responses that could be implemented to contain and/or remove existing contamination. Corrective action activities consisting of the removal of contaminated soils were immediately implemented after the leakage of creosote was discovered. Contaminated soils were excavated and removed to a depth of over 20 feet and the upper bedrock surface was removed. Further excavation of the solid basalt bedrock was found to be extremely difficult. Attempts were made to remove creosote by pumping from borings in the bedrock above the static water level, but were unsuccessful because virtually no creosote accumulated in the borings.

During early investigations, a screening study was performed to evaluate the feasible alternatives to effectively contain and/or remove contamination from the unsaturated and saturated bedrock zones. Two specific EPA guidance documents were utilized in performing the initial alternative remedial response evaluation. These were:

1. Methodology for Screening and Evaluation of Remedial Responses (EPA, 1984).
2. Handbook - Remedial Action at Waste Disposal Sites (EPA, 1982).

The initial screening consisted of an objective evaluation of all applicable remedial technologies. The results of this initial screening are summarized below in Section 9.1.2. Once feasible alternatives were developed, a detailed screening of those alternatives was performed. This evaluation is presented in Section 9.1.3 below.

9.1.2 Initial Screening of Remedial Action Alternatives by Dames and Moore

The initial screening performed by Dames and Moore in the early 1980s included using Work Sheet 1 and Tables 3-3 through 3-11 in the EPA guidance document (EPA, 1984). All soil and waste that could reasonably be excavated was removed. Since ground water was approximately 110 to 140 feet below the ground surface, and the bedrock surface generally at a depth of 20 to 30 feet, it was concluded that the removal of the remaining contamination must utilize methods other than excavation.

Surface water could infiltrate through the upper gravels into the unsaturated bedrock zone, resulting in the possible leaching of creosote downward toward the saturated intervals. Capping of the surface minimized the potential for infiltration and directed runoff away from the contaminated area. A multi-layer cap with an asphalt surface was considered the best method to cover the leakage area and still provide good trafficability for the PacifiCorp hazardous waste management facility operations. This cap has been placed as discussed in Permit Attachment 2 Volume I Chapter 2. Along with the construction of the cap, surface grading was performed to improve drainage of the site. Since that time, the entire site has been paved with asphalt as presented in Permit Attachment 2 Volume I Chapter 2.

The removal and/or containment of creosote contamination in the bedrock (both above and below the ground water) was not considered to be feasible. It was recognized that the complete removal of creosote from the unsaturated bedrock zone would be extremely difficult due to the site geologic conditions, and any such attempt would presumably remove only a relatively small amount of creosote. The placement of containment barriers was evaluated as an alternative to complete removal. The only feasible type of containment barrier within the bedrock was a grout curtain. However, if a vertical grout curtain that circumferentially contained the contamination was installed, the creosote could still move vertically into the ground water and also downward through the ground water due to the heavier-than-water constituents. Thus, in addition to the vertical barrier, a horizontal bottom barrier would have to be placed. A horizontal seal or barrier would be very difficult to install and would be of questionable effectiveness because of the discontinuous and highly variable and fractured nature of the lava flows, cinder beds and interflow zones that comprise bedrock at the site.

In situ treatments were evaluated by Dames and Moore with their preliminary conclusions being that none of the existing methods could be relied upon to effectively reduce the existing contamination in the ground water and within the unsaturated bedrock zone. Pumping of contaminated ground water was evaluated as a method of removing creosote contamination. However, impacts upon existing water rights, and the disposal of the contaminated ground water were considered significant problems. A solution to the problem of disposal of contaminated ground water is to provide chemical and/or physical treatment to remove hazardous components, dispose of these hazardous constituents at an approved facility, and discharge the treated water. It was determined that treatment could occur at an on-site facility and/or in the existing Idaho Falls wastewater treatment plant. Pumping the dilute ground water waste source through a treatment system concentrates the waste constituents and minimizes waste disposal requirements. Discharge of treated water could then be made to the Snake River, by land application or reinjection into the aquifer. Reinjection would minimize impacts upon existing ground water rights.

The alternative of pumping and treatment was selected as the most feasible remedial method to provide for control of existing contamination and more detailed studies were performed upon these treatment alternatives as discussed in the following sections.

9.1.3 Treatment Technology Screening

Pumping water from the extraction wells completed within the plume of creosote contaminated ground water required the development and implementation of a system to treat, concentrate, and minimize waste volumes and dispose of treated water. This system had to render the contaminated ground water fit for disposal and accomplish final disposal in such a way that human health and the environment were not endangered due to residual contaminants in the treated water.

An initial feasibility study of corrective action treatment alternatives was conducted to 1) determine one or more feasible programs for further development, and 2) identify technical, economic, environmental, scheduling and institutional concerns that had to be addressed prior to corrective action program implementation. A range of contaminated ground water management approaches was considered, a treatment technology review was performed, and economic and institutional issue analyses were conducted for six selected technology options. The detailed results of these studies are contained in Appendix E. 1 of Addendum II in the 1998 Post Closure Care permit reapplication. For the two recommended treatment and discharge options, bench-scale treatability studies were performed (Appendix E. 2 of Addendum II in the 1998 Post Closure Care permit reapplication) to assess the need for, feasibility of, and process design criteria for the unit treatment processes recommended on a preliminary basis.

Contaminated ground water management options that were evaluated included:

1. Treatment and surface-water discharge
2. Treatment and reinjection
3. Evaporation
4. Discharge to the Idaho Falls municipal wastewater treatment plant
5. Land application

A treatment technology review was conducted in which alternative technologies were evaluated for each of four treatment steps expected to be necessary based on available ground water quality: primary separation, secondary separation, dissolved organics removal and final polishing (Figure 3-1, Appendix E-1 of Addendum II in the 1998 Post Closure Care permit reapplication). From a listing and evaluation of various unit processes potentially effective on the creosote contamination six potentially feasible alternatives were formulated (Figure 3-2, Appendix E. 1 of Addendum II in the 1998 Post Closure Care permit reapplication).

The six alternatives included:

1. API Gravity Separator; Flocculation - Dissolved Air Flotation; Activated Sludge - Powdered Activated Carbon Biological Treatment (PACT); Sand Filtration

2. API Gravity Separator; Flocculation - Sand Filtration; Granular Activated Carbon (GAC)

3. API Gravity Separator; Flocculation - Sand Filtration; Reverse Osmosis (RO); Granular Activated Carbon

4. API Gravity Separator; Flocculation - Dissolved Air Flotation; Aerated Lagoons; Settling Ponds

5. API Gravity Separator; Flocculation - Dissolved Air Flotation; Land Application; Runoff and Leachate Collection

6. API Gravity Separator; Flocculation - Dissolved Air Flotation; City Discharge

The first four alternatives were expected to provide a level of treatment adequate for surface water discharge (Snake River) or ground water reinjection. Alternative 5, employing the property-intensive land application process, would use ground water recharge and/or leachate/runoff evaporation for final disposal. In Alternative 6, partial onsite treatment would be supplemented by treatment in the Idaho Falls activated bio-filtration/activated sludge plant prior to Snake River discharge. Alternative 2 (GAC) and

Alternative 6 (City Discharge) were selected for further evaluation based on treatment effectiveness, waste minimization, and economic considerations. These two alternative treatment methods were further evaluated by performing bench-scale treatability studies as presented in Section 9.1.4 below and in Appendix E.2 of Addendum II in the 1998 Post Closure Care permit reapplication.

9.1.4 Evaluation of Selected Ground Water Treatment Technologies

Bench-scale treatability studies were conducted on the selected treatment technologies using 30 gallons of bulk ground water samples collected from contaminated Well MW-9. The objectives of these studies were to evaluate the appropriateness of the selected technologies, determine treatment efficiencies and estimate design criteria for pilot or plant-scale treatment units. Details of the treatability studies are presented in Appendix E.2 of Addendum II in the 1998 Post Closure Care permit reapplication. A summary is presented in the following paragraphs.

Treatment processes investigated in the bench-scale treatability work included chemical addition, flocculation, filtration, and granular activated carbon adsorption. Analysis of these processes was conducted using the following creosote contamination indicator parameters:

- Naphthalene
- Phenanthrene
- Fluoranthene
- Pyrene
- Benzothiopene
- Total chromatographable organics

The bench-scale treatability studies showed that highly efficient treatment of creosote-contaminated ground water from the PacifiCorp hazardous waste management facility was potentially feasible using granular activated carbon adsorption. Filtration of the raw ground water substantially reduced PAH loading rate on the carbon, but chemical addition provided no apparent incremental improvement in treatment for the low levels of contamination and suspended solids studied.

9.1.5 Pilot Plant Studies

Treatment technology evaluation and bench-scale treatability tests indicated that adsorption using granular activated carbon was the most feasible treatment alternative. A pilot plant was constructed to investigate the following objectives:

- Determine the hydraulic and water quality responses of the aquifer to pumping;
- Measure changes in contaminant concentrations with pumping time, volume of water removed, and pumping rate.
- Further characterize the aquifer hydraulic properties within the contaminant plume.
- Determine effects of contaminant removal upon ground water quality elsewhere in the aquifer.
- Define design criteria for treatment of contaminated ground water in a full-scale treatment facility.
- Improve ground water quality by removing contaminants during the pilot plant operation.
- Develop a final plan for removal of the creosote contaminants from the aquifer.

See the July 1985 "Ground Water Treatment Pilot Plant Study Plan" (Appendix A of Addendum V in the 1998 Post Closure Care permit reapplication) for more information on the design and implementation of the pilot plant study. At the end of this initial study period (April 1986) the performance of the pilot plant was evaluated to see if the previously stated objectives were met and to determine if a full-scale treatment system could be designed based on the collected data. A report entitled "Ground Water Treatment Pilot Plant Study Report, (Appendix B of Addendum V in the 1998 Post Closure Care permit reapplication) was written and submitted to the U.S. EPA in June 1986. In summary, the report verified the general effectiveness of the selected ground water treatment system consisting of an oil absorbing column followed by granular activated carbon treatment. The report also indicated, however, that there were further studies required prior to the design of the treatment process that would suffice for the corrective action program. The future studies fell into three general categories:

1. Characterization of the insoluble portion of the creosote oil that is produced during pumping.
2. Evaluation of pretreatment options to minimize the waste volume and increase the life of the absorptive media.
3. Evaluation of final treatment plant effluent disposal options.

A second report titled "Hydrologic Investigations and Design Recommendations" (Addendum IV in the 1998 Post Closure Care permit reapplication) was prepared by Dames & Moore as part of the pilot plant study. That report evaluated the ground water monitoring and pumping test data gathered during the study and, on the basis of that evaluation, recommended a well field design for the final corrective action plan.

In response to these recommendations, Utah Power implemented a second phase at the pilot plant study in an effort to complete the collection of information necessary to finally develop the post-closure corrective action plan for the Pole Yard. The objectives of this additional pilot plant work were discussed in the 1986 report "Ground Water Treatment Pilot Plant Study Plan Phase 2" (Appendix C of Addendum V in the 1998 Post Closure Care permit reapplication). In the Phase 2 study, Utah Power completed its design and evaluation, and finalized the treatment plant configuration that was used in the corrective action plan. A major result of the Phase 2 study was the removal of free creosote from the contaminated ground water by flotation and sedimentation. The flotation and sedimentation solids were thickened and dewatered to reduce their volumes. This minimized the waste volume produced by the treatment system during the initial years of treatment.

9.2 CORRECTIVE ACTION PLAN

9.2.1 Pumping System

9.2.1.1. Pumping Objectives

The overall goal of the well pumping system is to contain and recover creosote-contaminated ground water. Pumpage of the wells has removed contaminated water and a large part of the immiscible fraction of the creosote. Part of the immiscible fraction of the contaminant will remain coated on fractures or rock pores and will require time to solubilize and move toward the wells. Because of the fractured nature of the bedrock, effective porosity of the rock is relatively low and the quantity of contaminated water is relatively small. Continued pumpage will draw fresh water through the contaminated zone, thereby continuing to sweep the aquifer of creosote oils. As creosote concentrations decrease and as water is swept through rock, biodegradation will further aid removal of some of the creosote contaminants such as naphthalene. Creosote entering ground water from fractures above the static water level will gradually decrease because of the lack of a concentrated source of creosote and because leaching by precipitation entering the unsaturated zone is prevented by the impermeable cap.

Specific goals of the pumping system include the following:

1. Local reversal of hydraulic gradients in areas where creosote contaminated ground water is detectable in order to prevent off-site migration.
2. Local reversal of vertical hydraulic gradients from downward to upward.
3. Removal of creosote.

9.2.1.2. Current Wells And Equipment

In order to achieve these goals, a recovery well pumping system which includes recovery wells, monitoring wells and Point of Compliance wells, completed in Aquifer 1 and Aquifer 2, was designed and operated. Design recommendations were presented in detail in "Hydrologic Investigations and Design Recommendations, Well Field For Creosote Recovery, Pole Treatment Yard, Idaho Falls, Idaho, for Utah Power & Light Company" (Dames & Moore, 1986a). The system has the capability to provide to the treatment plant combined flows of about 9 to 46 gallons per minute (gpm) from the Aquifer 1 wells (depending upon regional static water level conditions) and up to 150 gpm from the Aquifer 2 wells. The effectiveness of the system to date has been demonstrated in the semi-annual reports submitted to EPA and the State of Idaho.

The locations of Aquifer 1 and 2 wells are shown on Figure 9.2, Tables 9.1 through 9.5 summarize information concerning all wells completed during the course of the program including five wells drilled offsite and new point of compliance well E-2. The locations selected for the wells were based on extensive hydrogeologic and water quality investigations as presented in the original application and subsequent investigations. Decommissioning of these wells will occur in accordance with the provision of Section 9.2.4.4 below.

The wells have electric submersible pumps with the extracted water delivered to the treatment plant in above-grade pipelines with secondary containment. Water rights for pumpage of 200 gallons per minute from the site have been obtained.

The following wells have been closed, grouted shut and abandoned in accordance with requirements of the Idaho Department of Water Resources: MW-7 and MW-8.

9.2.1.3. Progress To Date

Reviews of ground water flow and progress towards meeting ground water protection standards are contained in the semi-annual/annual reports submitted to EPA and Idaho DEQ and have shown the following:

- Pumpage from the remediation system has been sufficient for capture of contaminated ground water for the dates evaluated,
- Carbon usage has dropped to the point where replacement is required only every four to five years, and

Over the past few years, dissolved PAH constituent concentrations in Aquifer 2 well A-2 have fluctuated both above and below the RCRA GPS. Reviews and the results of ground water modeling (Dames & Moore, April, 23, 1986 and MWH 2008 and 2009 RCRA Post Closure Semi-Annual Reports) indicate that total pumpage rates of 9 to 45 gallons per minute (gpm) from Aquifer 1 (depending upon static water level) and 80 to 150 gpm from Aquifer 2 (depending upon ground water levels and the need to reverse *flow* from the area of well A-2) have been sufficient to contain contaminated ground water. Considerable improvements in the contaminant levels and distribution have occurred within the contaminated area in the Pole Yard as a result of the remediation activities.

9.2.1.4. Description Of Aquifers

Aquifers at the site are formed within a sequence of basalt flows and interflow zones between the basalt flows. Aquifer 1 lies between the static water level and a dense basalt zone at a depth of about 160 ft. In the northern and eastern portions and western edge of the PacifiCorp hazardous waste management facility, Aquifer 1 is comprised of fractured basalt, cinders, and gravel. In the area of contamination, Aquifer 1 has a low permeability due to the low fracture density. Aquifer 2 is separated from Aquifer 1 by a very dense basalt *flow* which extends from 160 to 250 ft in depth. Aquifer 2 is an interflow zone characterized by the presence of cinders, broken rock and rubble, and fractured basalt. Aquifer 3 is separated from Aquifer 2 by a very dense basalt flow which extends from 270 to 370 ft in depth. Aquifer 3 is similarly characterized by cinders, broken rock and rubble, and fractured basalt.

Ground water levels vary seasonally and from year to year in response to irrigation and water supply practices, and long-term climatic and hydrologic conditions. The static water level lies at depths typically ranging from 110 to 140 ft below the ground surface under non-pumping conditions.

9.2.1.5. Aquifer And Well Capabilities

The transmissivities of Aquifer 1 are highly variable from area to area at the Pole Yard. In the northern and eastern parts of the yard and along the western edge of the yard, transmissivities are very high and individual wells are capable of producing over 1000 gallons per minute per foot of drawdown (gpm/ft). A table documenting specific capacities along with original pump models and well configuration information is provided as Table 9.6. Note that the system automations completed in calendar years 2010 and 2011 resulted in many changes to the well field including the installation of a new well (E-2), new pumps, and the addition of pressure transducers. These modifications are documented in Table 9.7.

Creosote contamination has been encountered in the lower transmissive parts of the aquifer. In this part of the yard, the transmissivity of Aquifer 1, which is an unconfined aquifer, varies greatly with the static water elevation (seasonal water level fluctuations are typically on the order of 30 ft and are greater over the longer-term). With a drop in the static water level, the available drawdown in the aquifer also decreases. In addition, pumping of one well causes drawdown at other wells in the vicinity and further decreases the capacity of the aquifer to yield to wells. These factors make well yields (and aquifer flow rates) highly variable from season-to-season and year-to-year. Specific capacities of individual wells showing creosote contamination vary between 6 gpm/ft to less than 0.6 gpm/ft. Several wells in Aquifer 1 are completed in rock with so few fractures that the wells produce very little ground water; during the low water level conditions, some wells produce virtually no flow.

Aquifer 2 is hydrogeologically more uniform than Aquifer 1 and is not subject to variations in transmissivity due to water level fluctuations. However, ground water level changes affect the available drawdown in the Aquifer 2 wells and influence their yield rates. Measured specific capacities of Aquifer 2 recovery wells range from 0.5 to 12 gpm/ft.

Specific capacities of Aquifer 3 wells range from 100 to over 1200 gpm/ft. Aquifer 3 wells are not pumped for recovery. No contamination has been detected in Aquifer 3.

9.2.1.6. Pumping Strategy

The objectives of the pumping strategy are to remove creosote contaminants from the subsurface and to minimize the off-site migration of dissolved creosote constituents by maintaining a reversal of hydraulic gradient at the property boundary. Permit module IV.B. indentifies standard and contingency pumping wells to be used to control the hydraulic gradient at the site.

Since there are no extraction wells located in the area of the primary release (the former creosote vat near boring BH-5), the pumping strategy is to intercept DNAPL and dissolved phase creosote as it migrates down gradient toward the property boundary.

The proposed strategy for Aquifer 1 is to pump from wells A-1, B-1, R6, and C-1. Wells R5, R11, and R12 are designated as “contingency” wells and will be used for groundwater extraction on an as-needed basis. With the completion of the system automations, regular evaluations of the capture zone for Aquifer 1 will be possible via remote monitoring data and the optimal pumping scenario will be established for the site. Based on prior capture zone analyses for the site, the anticipated total extraction rates from Aquifer 1 are expected to range from 10 to 40 gallons per minute. Figure 9.3 presents the location of the proposed Aquifer 1 pumping wells in relation to historically documented creosote impacts.

With the presence of PAH constituents above solubility limits in well A-2, pumping from wells R-2, R-7, A-2, and R-10 is recommended for Aquifer 2. During the automation of the system, wells B-2, R-8, and MW-9 were constructed as “contingency pumping wells” and are capable of being added to the pumping program as needed. With the completion of the system automations, pumping from various combinations of wells A-2, B-2, R-2, R-7, R-8, R-10, and MW-9 will be monitored and controlled remotely to maintain hydraulic capture of Aquifer 2. Based on prior capture zone analyses for the site, the total required extraction rates from Aquifer 2 are expected to range from 60 to 150 gallons per minute. Figure 9.4 presents the location of the proposed Aquifer 2 pumping wells in relation to historically documented creosote impacts.

It is not prudent to set specific pumping rates for wells at the site since individually and collectively ground water flow through the aquifers and well yields vary greatly from season to season and year to year. Pumping rates should be greater in high water seasons than in low water seasons. These variations are greatest in Aquifer 1.

The operator should be allowed flexibility in the above pumping strategy since aquifer and well performance in terms of yield and water quality change with time and season.

9.2.2 Groundwater Treatment Plant

Figure 9.5 shows the yard layout for the hazardous waste management facility, including the location of the treatment plant building, monitoring and recovery well locations and yard piping layout. Each extraction well has a dedicated collection pipeline. In some cases, the collection lines are piggy backed one on top of the other.

The treatment system, consisting of a flow measurement weir, settling operation, granular activated carbon adsorption systems, and a wet well is designed to treat ground water at a maximum supply rate of 200 gpm, 24 hours a day. The actual flow to the treatment plant varies depending on which wells are being pumped.

Treated ground water is discharged to the Snake River under NPDES Permit No ID-G91-000. Spent media will be regenerated or characterized and disposed of in accordance with federal and state regulations. Solidified sludges (if any) will be disposed at an approved hazardous waste landfill or incinerated at an approved hazardous waste incinerator facility. Details relating to the operations and monitoring of the treatment plant are provided in Permit Attachment 2 Volume I Chapter 10.

9.2.3 Protection of the Site Cover

In compliance with 40 CFR 264.310, the entire site has been graded and paved with asphalt in order to promote drainage and minimize erosion or abrasion of the constructed site cover. This system prevents run-on and run-off from eroding or otherwise damaging the final cover.

The PacifiCorp hazardous waste management facility does not receive any run-on from adjacent areas. The railroad tracks that run on the west edge of the site prevent water from flowing onto the yard from the west. The area to the north slopes away from the hazardous waste management facility. This keeps water from the north from running onto the yard. The east and south sides of the site are adjacent to Leslie Avenue and 23rd Street, respectively. Each of these streets employ storm drainage systems that collect water, preventing it from running onto the PacifiCorp hazardous waste management facility.

PacifiCorp will operate and maintain the run-off management system for the length of the post-closure period.

Figure 9.6 shows the topography of the PacifiCorp hazardous waste management facility. Two catch basins in the yard collect storm water runoff. Catch Basin No. 1 is located in the northeast corner of the yard and collects runoff from Area No. 1. Catch Basin No. 2 is located in the southeast corner of the yard and collects run-off from Area No. 2. Both catch basins drain to the City of Idaho Falls storm sewer system on Leslie Avenue. The pipe size from the catch basin is eight inches in diameter at a one percent slope.

9.2.4 Standby Operations and Decommissioning of Treatment Plant and Wells

9.2.4.1. Introduction

Following the determination of a successful clean-up at the point of compliance, the treatment plant will exist under three distinct states of readiness through the remainder of the post-closure period. These states of readiness (phases) are:

- Standby operations during compliance monitoring
- Standby operations during detection monitoring
- Decommissioning of the treatment plant

The following is a description of the state of readiness, the associated decontamination and removal activities, and timeframe for each phase.

9.2.4.2. Standby Operations During Compliance Monitoring

The standby operations during compliance monitoring will occur following one continuous year of treatment plant operation where ground water monitoring samples at the point of compliance show no contaminant concentration exceeding the Ground Water Protection Standard. At such time, the treatment plant will be shut down and will be maintained in a high state of readiness.

Compliance monitoring will continue for a 3-year period. The treatment plant will remain in a high state of readiness to allow reactivation within 90 days of sample test results exceeding the Ground Water Protection Standard at the point of compliance. On a quarterly basis, the treatment plant will be reactivated and operated for several days to verify its state of readiness. Treatment plant operation and testing will coincide with the quarterly compliance monitoring events.

The only contaminated material to be removed from the treatment plant during this phase will be the sludge accumulated in the backwash waste tank and concentrated through the gravity filter system. This waste material will be pumped into drums, manifested, and shipped to an approved hazardous waste disposal facility. No removal of equipment will occur during this phase. PacifiCorp will document in compliance monitoring reports the date at which no contaminant concentration above background is detected at the point of compliance. A compliance report will document when the treatment plant has operated for one year without detection of contaminants above background levels at the point of compliance. This compliance report will document the start of standby operations during compliance monitoring.

The standby operations during compliance monitoring will last 3 years following the one year of continued operations without contaminant detection above background levels at the point of compliance. Reactivation of the treatment plant during this phase will occur within 90 days of a detected noncompliance condition as required by the Permit.

9.2.4.3. Standby Operations During Detection Monitoring

The standby operations during detection monitoring will occur following four years of compliance monitoring without detection of contaminants above background at the point of compliance. The treatment plant will be maintained in a lower state of readiness during this phase.

Major portions of the treatment plant such as tanks, piping, valves and filters will remain in place so that the treatment system can be reactivated within 180 days of detection of noncompliance conditions at the point of compliance. The components of the treatment plant will be operated semiannually during detection monitoring testing to verify their readiness to operate.

The only contaminated material to be removed from the treatment plant during this phase will be the sludge accumulated in the backwash waste tank and concentrated through the gravity filters during the semi-annual testing. The waste material will be pumped into drums, manifested and shipped to an approved hazardous waste disposal facility. Equipment such as lab equipment, pumps, and flow meters may be decontaminated and removed for use elsewhere by PacifiCorp.

PacifiCorp will report the date that detection monitoring begins. As equipment is removed from the treatment plant, the removal will also be documented in semiannual status reports. The operational reports documenting the operational readiness of remaining portions of the treatment plant will be prepared semiannually.

The standby operations during the detection monitoring will last until the end of the post-closure period.

9.2.4.4. Decommissioning of Treatment Plant and Wells

The total decommissioning of the treatment plant and wells will occur after the end of the detection monitoring period.

9.2.4.4.1. Treatment Plant

All contaminated materials will be removed and disposed of at a hazardous waste disposal facility. All liquids and sludges accumulated in the tanks and the filter media will be pumped or shoveled into drums, manifested, and shipped to an approved hazardous waste disposal facility.

All the piping will be disassembled, manifested, and shipped to an approved hazardous waste disposal facility.

Equipment such as tanks, valves, motors, flow measurement devices, and laboratory equipment will be emptied, cleaned with a solvent and wipe-tested. All materials generated in such cleanup will be disposed of at an approved hazardous waste disposal facility.

Following decontamination, the tanks will be removed from the building and either reused or disposed of as a solid waste.

Upon removal of the tanks and equipment within the treatment building, the concrete floor will be swept, washed and triple rinsed. Following this cleaning procedure, the floor will be chemically wipe tested. Cleaning of the floor will continue until a wipe test indicates that the floor can appropriately be characterized as non-hazardous waste. If the floor can not be characterized as non hazardous waste following the cleaning and rinsing activities, it will be broken up and disposed of at an approved hazardous waste disposal facility.

The total decommissioning procedures will be observed by a professional engineer. Upon completion the engineer will certify the decommissioning of the treatment plant in accordance with the process described above.

9.2.4.4.2. Wells

Monitor and recovery wells will be decommissioned and abandoned by first removing pump assemblies and discharge pipe. Pump assemblies and discharge pipe from wells that produced ground water with detectable levels of organic compounds associated with creosote will be handled as contaminated material as is described for the treatment plant. Pump assemblies and discharge pipe that did not produce ground water with detectable levels of organic compounds associated with creosote may be disposed of at a municipal landfill.

At the time of decommissioning of the corrective action facility and/or at the end of the post-closure period, monitor wells and recovery wells will be abandoned. Procedures for abandonment will, at a minimum, be in accordance with the State of Idaho Department of Water Resources Rules and Regulations for Well Construction Standards (IDPA 37.03.09).

9.3 COST ESTIMATE

An estimate of the future post-closure cost is provided in Permit Attachment 2 Volume I Chapter 8.

9.4 ANNUAL REPORTING

Reports will be prepared and submitted to the state and U.S. EPA as required by the Permit.

9.5 REFERENCES

Utah Power & Light Company, Part B Permit Application For Hazardous Waste Management Facility, Pole Treatment Yard, Idaho Falls, Idaho, dated December 27, 1984.

Dames & Moore, report dated April 23, 1986, Hydrologic Investigations and Design Recommendations, Well Field for Creosote Recovery, Pole Treatment Yard, Idaho Falls, Idaho, For Utah Power & Light.

Dames & Moore, report dated December 2, 1988, entitled: As-Built Drawings, Well and Piping System, Pole Treatment Yard, Idaho Falls Idaho, For Utah Power & Light Company.

Ecova Corporation, 1995, Response to OPB Concerns, Idaho Falls Pole Yard, EPA ID No. IDD000602631, report dated March 28, 1995.

PacifiCorp/Utah Power, Idaho Falls Pole Yard RCRA Post Closure Semi-annual Report For October 1993 Through March 1994

PacifiCorplUtah Power, Idaho Falls Pole Yard RCRA Post Closure Semi-annual Report For April 1994 Through September 1994

PacifiCorp/Utah Power, Idaho Falls Pole Yard Appendix IX Analytical Reports, August 1994

Ground Water Flow Evaluation Reports:

Dames & Moore, report dated March 18, 1988: Covers date 12-31-87.

Dames & Moore, report dated March 2, 1989: Covers date 1-26-89.

Dames & Moore, report dated March 7, 1989: Covers dates 3-30-88, 6-30-88, 9-30-88. Dames & Moore, report dated June 5, 1990: Covers dates 5-22-90.

Dames & Moore, report dated January 16, 1991: Covers dates 5-23-90, 8-1-90, 10-10-90. Dames & Moore, report dated July 3, 1991: Covers dates 11-13-90, 1-11-91, 3-11-91.

GeoWest Golden, Inc., report dated July 9, 1992: Covers dates 1-6-92, 3-25-92.

GeoWest Golden, Inc., report dated January 26, 1993: Covers dates 8-18-92, 10-29-92.

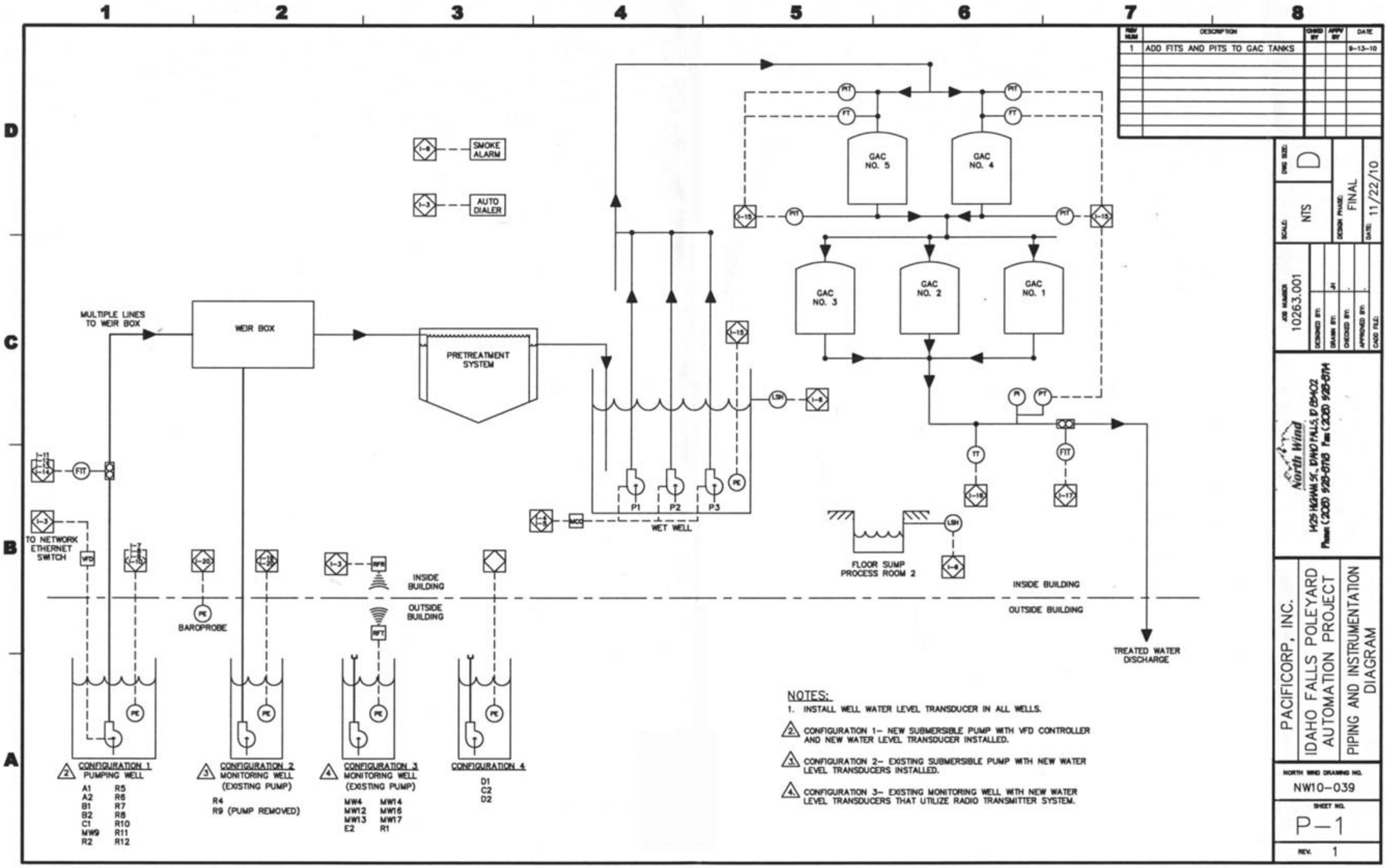
GeoWest Golden, Inc., report dated May 17, 1993: Covers dates 6-23-92, 8-18-92, 10-29-92, 3-23-93.

GeoWest Golden, Inc., report dated November 22, 1993: Covers dates 6-24-93, 9-20-93.

GeoWest Golden, Inc., report dated May 2, 1994: Covers dates 12-20-93, 3-15-94.

Ecova Corporation, report dated January 30, 1995: Covers dates 6-20-94, 8-16-94.

Ecova Corporation, report dated May 30, 1995: Covers dates 11-1-94, 3-29-95.

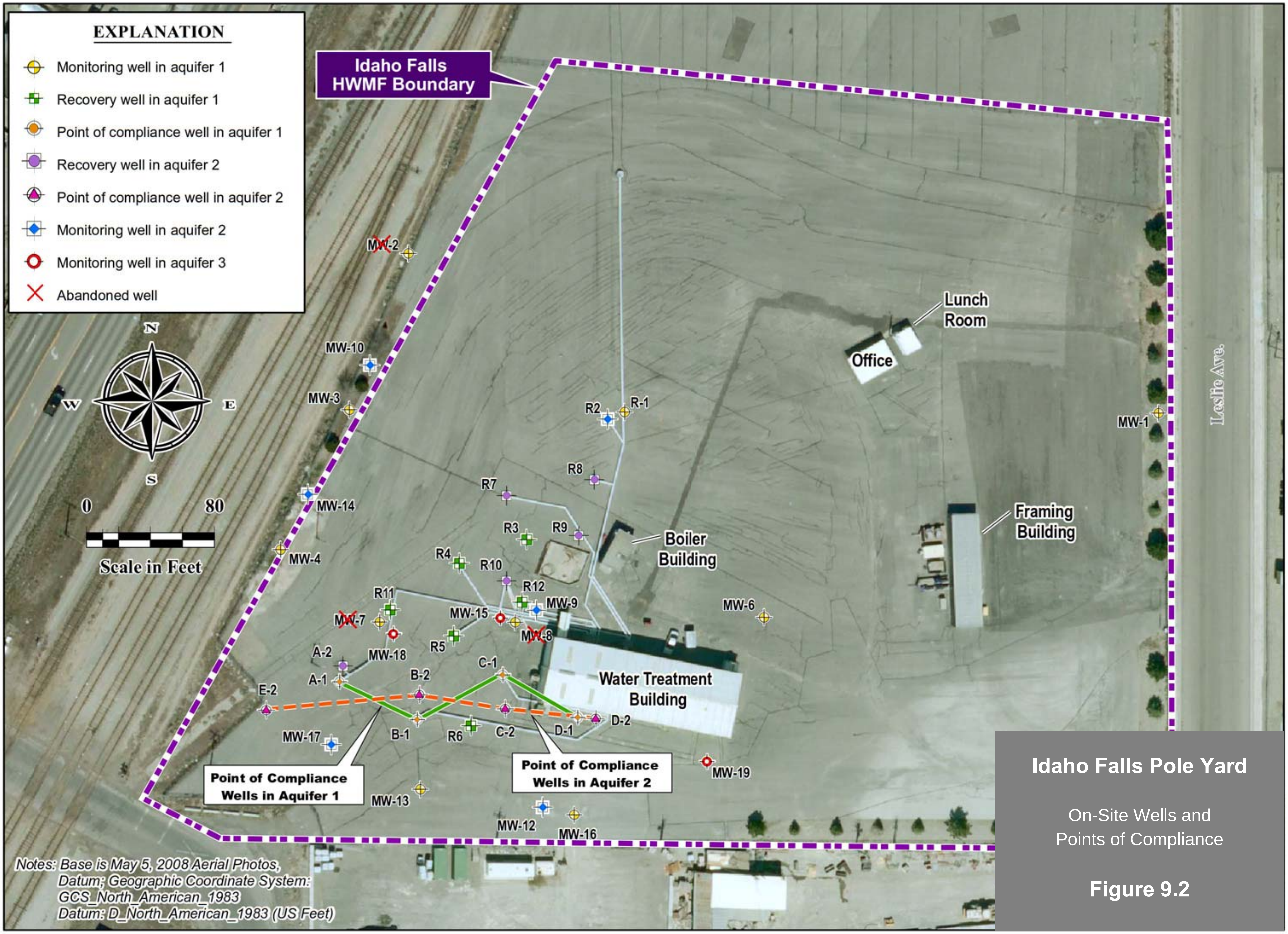


IDAHO FALLS
POLE YARD
PIPING AND INSTRUMENTATION DIAGRAM
FIGURE 9.1

Source: North Wind.

FILE Fig9.1 Piping Instrumentation Diagram.ai 4/8/11 SLC

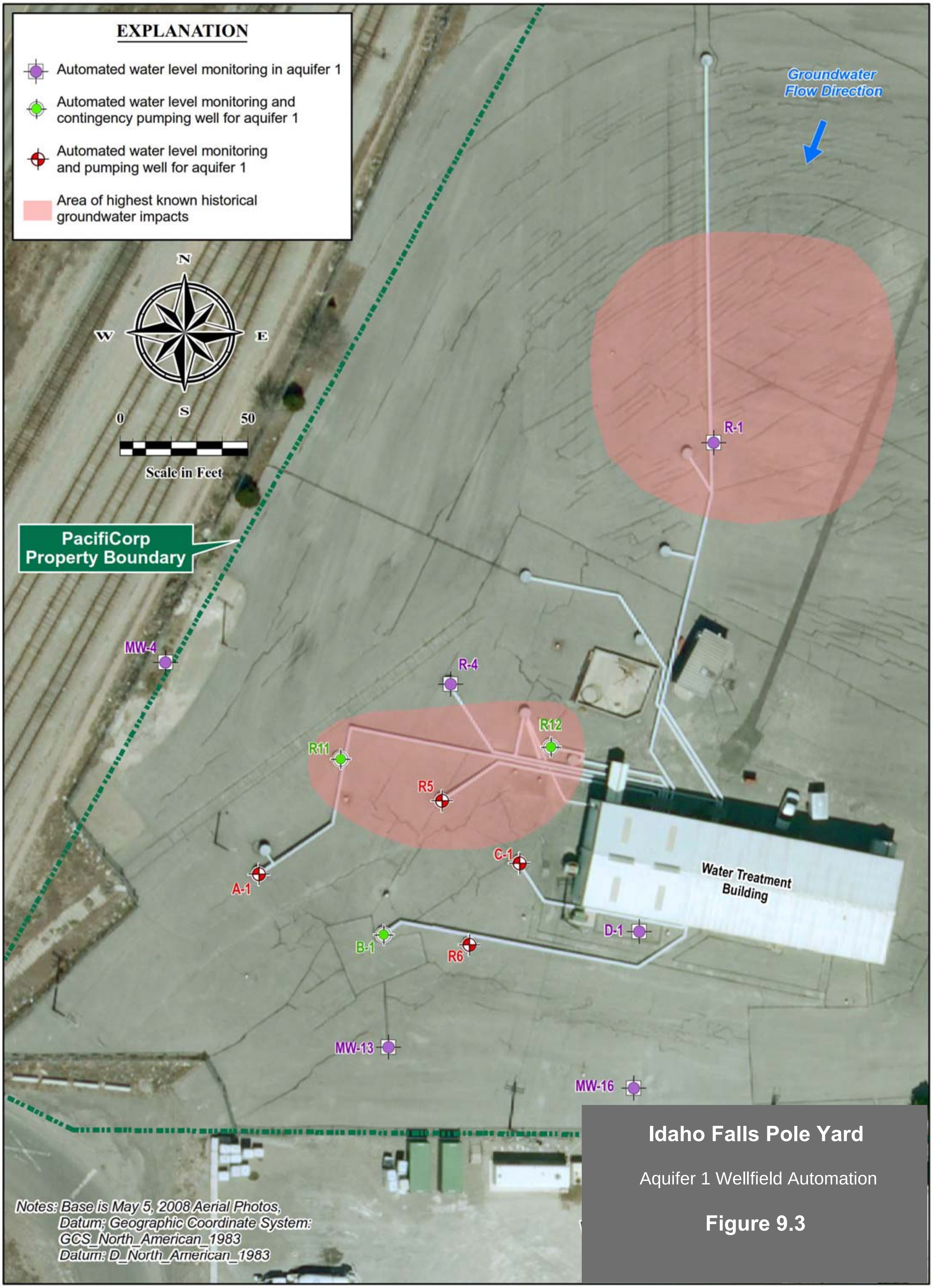
FILE *Fig4.02IF_PoleYard_POC_wells_NAD83_1110.mxd 11/23/10 SLC*



Idaho Falls Pole Yard

On-Site Wells and Points of Compliance

Figure 9.2

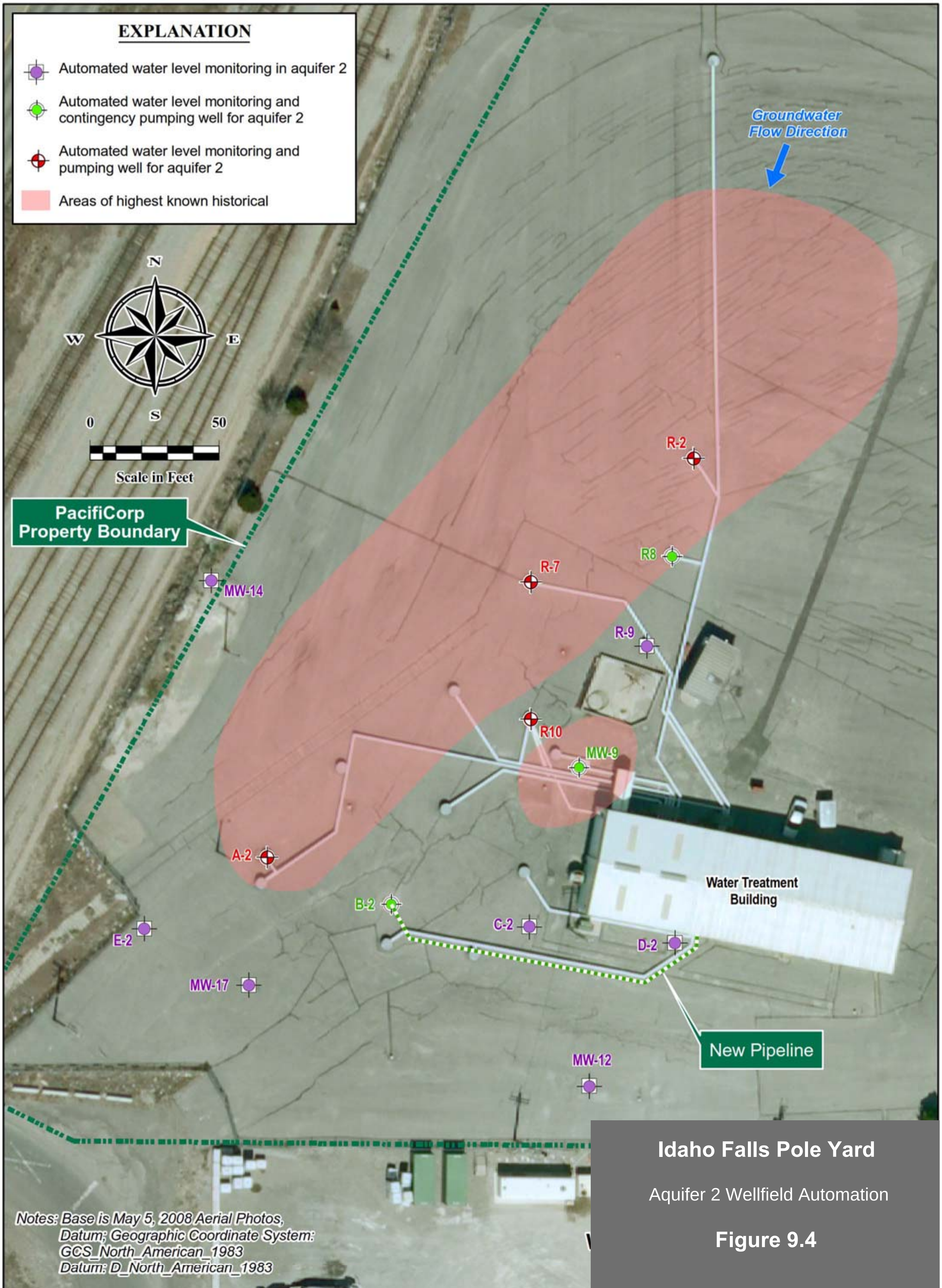


Idaho Falls Pole Yard

Aquifer 1 Wellfield Automation

Figure 9.3

FILE Fig9.3_IF_PoleYard_Aquifer1_MW_NAD83.mxd 4/7/11 SLC



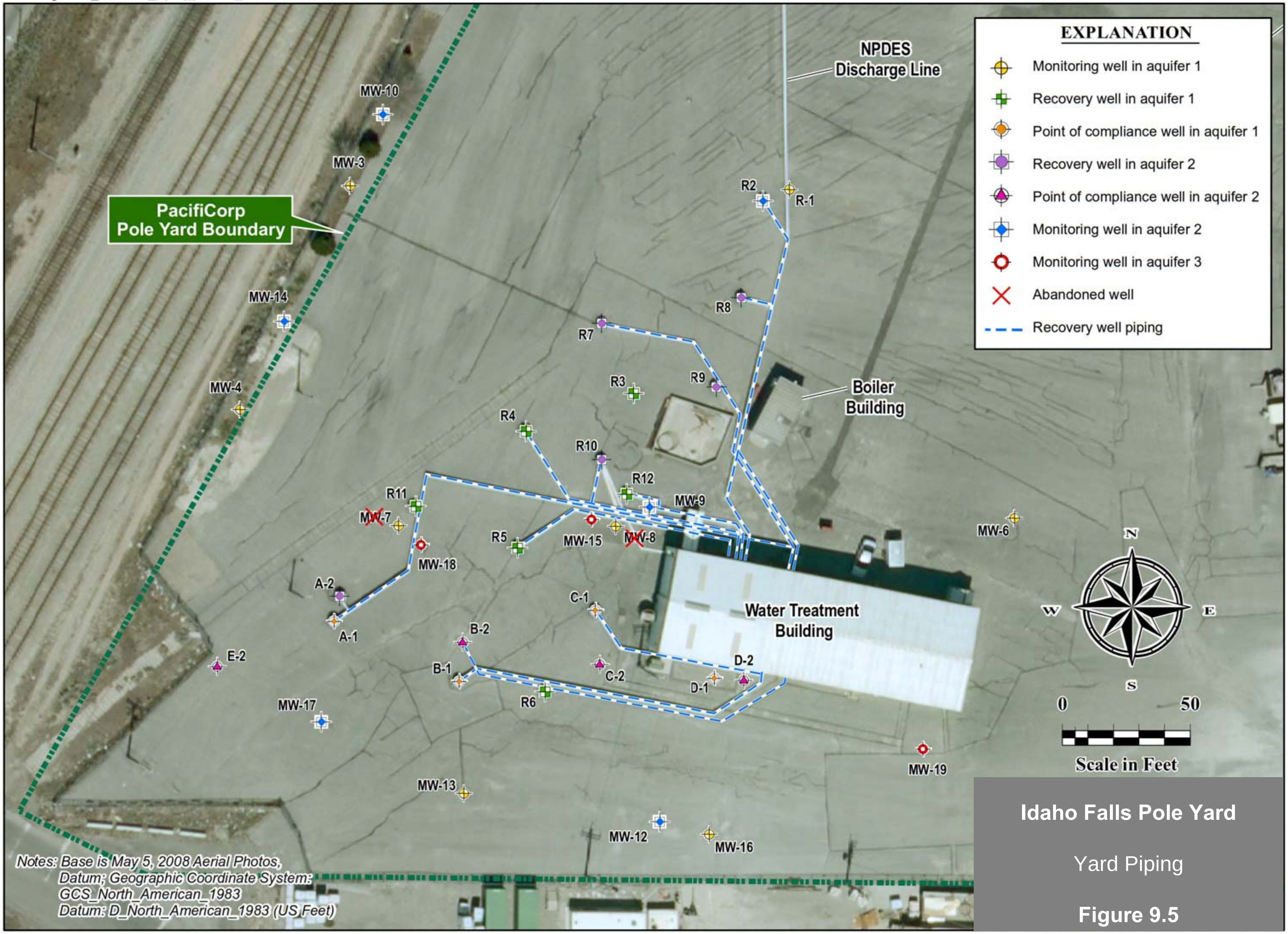
Idaho Falls Pole Yard

Aquifer 2 Wellfield Automation

Figure 9.4

FILE Fig9.3IF_PoleYard_Aquifer2_MW_NAD83_1210.mxd 11/23/10 SLC

FILE *FigA-3 IF_PoleYard_piping_NAD83_1110.mxd 11/30/10 SLC*

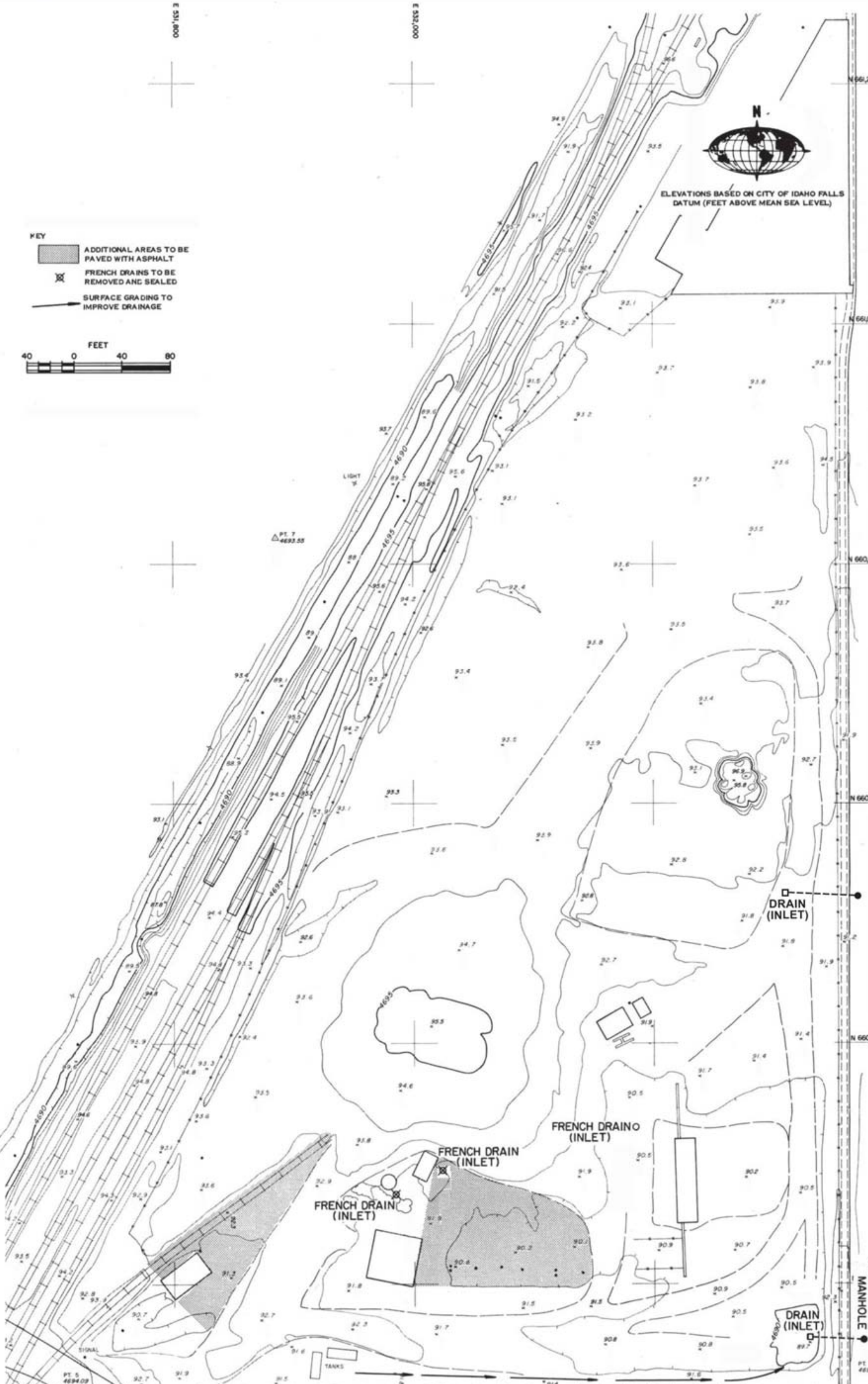


Idaho Falls Pole Yard

Yard Piping

Figure 9.5

FILE Fig9.6 Pole_Yard Drainage Alterations.ai 4/7/10 SLC



IDAHO FALLS
POLE YARD
UP&L POLE YARD DRAINAGE ALTERATIONS

FIGURE 9.6

Reference: Adapted from typographic map entitled "Idaho Falls Pole Treatment Yard" prepared for Utah Power & Light by Aero-Graphics, Inc. - Salt Lake City, Utah. Dated 10 - 4 -1984.

Source: Dames & Moore, December 1984.

TABLE 9.1

AQUIFER #1 MONITOR WELL CONSTRUCTION
(all data in feet)

Monitor Well No.	Coordinates		Elevation of Ground Surface at Well	Elevation of [d] Top of Steel Surface Casing	Drilled [e] Depth of Boring	8" Steel Casing [e]		Grout-back [e]		Total [e] Depth of 4" PVC Screen & Casing	Screened Interval [e]		Top of [e] Gravel Pack	Pump [e] Setting
	Northing	Easting				From:	To:	From:	To:		From:	To:		
MW-1 [b]	660,383.15	532,347.85	4692.0	4693.41	161.5	+1.5	23			157	117	157	100	152
MW-2 [a,b]	660,474.69	531,883.02												
MW-3 [b]	660,385.91	531,842.94	4693.6	4694.18	172	+1.0	22			154	134	154	129	150
MW-4 [b]	660,297.67	531,801.14	4694.0	4695.13	162	+2.0	30	70	135	162	142	162	132	158
MW-5 [b]	660,675.17	532,084.48	4693.4	4694.57	152	+1.5	28.5	15	100	150	110	150	90	144
MW-6 [b]	660,255.55	532,101.02	4690.9	4693.12	151	+2.0	20	56	100	150	110	150	91	146
MW-7 (a,b)	660,254.06	531,861.50	4692.6	4693.83	160	+1.5	28	28	100	156	116	156	93	1
MW-8 (a,b)	660,251.82	531,946.74	4692.4	4693.49	150	+1.5	29	68	100	149	109	149	92	147
MW-13 [c]	660,146.63	531,891.52	4692.2	4693.2	162	+1.5	32			162	122	162	108	153
MW-16 [c]	660,131.99	531,987.76	4692.8[g]	4693.87[g]	160	+1.0	28			158	138	158	116	155
OS-1 [c]	659,640.88	531,523.94	4691.7	4691.45	162	-0.2 [f]	19	85	125	161	141	161	125	155
OS-2 (a,b)	659,738.07	531,216.80	4691.7	4691.46	162	-0.2 [f]	28			162	142	162	128	155
OS-3 [c]	659,512.21	531,836.91	4690.5	4691.38	164	+0.9	18.5			159	139	159	122	155
OS-4 [c]	658,325.12	530,987.99	4688.9	4689.58	162	+0.7	18.5	60	139	159	139	159	125	155
OS-5 [c]	659,878.15	531,596.18	4691.2	4692.47	163	+1.2	30.5			159	139	159	120	155
R-1 [c,h]	660,385.00	532,014.67	4695.4	4696.38	161	+1.0	24			158	138	158	133	(i)

a. Plugged and Abandoned.
b. As surveyed by P/S Associates, Inc. based upon Idaho State Plane Coordinates.
c. As surveyed by Bush & Cudgell, Inc. based upon Idaho State Plane Cooordinates.
d. On top of steel casing on north side with lid removed - City of Idaho Falls datum.
e. Datum is ground surface at well at the time boring was being drilled.
f. At-grade completion.
g. Elevation surveyed by Thompson Engineering.
h. R-1 was installed as a recovery well, but is inlcuded in this table because its construction is similar to that of an aquifer #1 monitor well.
I. Currently no pump installed.

TABLE 9.2

AQUIFER #2 MONITORING WELL CONSTRUCTION

Monitor Well No.	Coordinates		Elevation of Ground Surface at Well	Elevation of [c] Top of 8" Steel Surface Casing	Drilled [d] Depth of Boring	12" Steel Casing [d]		8" Steel Casing [d]		Grout-back [d]		Total [d] Depth of 4" PVC Screen & Casing	Screened Interval [d]		Top of [d] Gravel Pack	Pump [d] Setting
	Northing	Easting				From:	To:	From:	To:	From:	To:		From:	To:		
MW-9 [a]	660,260.19	531,959.68	4692.3	4694.33	262	+1.5	31	+1.0	161	49	100	260	219	259	197	256
MW-10 [a]	660,412.91	531,856.08	4693.4	4695.39	424	+1.5	23	+1.0	160	319	420	319	279	319	259	314
MW-11 [a]	660,662.00	532,105.59	4693.4	4696.14	264	+2.0	19.5	+1.5	163			254	214	254	196	246
MW-12 [b]	660,137.06	531,968.12	4692.1	4693.93	282			+1.8	24	70		259	239	259	230	255
MW-14 [b]	660,329.98	531,818.66	4694.0	4695.66	262			+1.6	29	100	140	262	222	262	203	257
MW-17 [b]	660,173.19	531,835.78	4691.8	4693.9	260	+1.0	30	+2.1	188	56	100	259	239	259	219	255
R-2 [b,e,f]	660,381.02	532,004.58	4695.2	4696.9	262	+1.0	24	+1.7	174			259	239	259	215	253

a. As surveyed by P/S Associates, Inc. based upon Idaho State Plane Coordinates.
b. As surveyed by Bush & Cudgell, inc. based upon Idaho State Plane Coordinates.
c. On top of steel casing on north side with lid removed - City of Idaho Falls datum.
d. Datum is ground surface at well at the time boring was being drilled.
e. R-2 was installed as a recovery well but its construction is similar to that of an aquifer #2 monitor well.
f. Pump lowered 5/96.

TABLE 9.3

AQUIFER #3 MONITOR WELL CONSTRUCTION
(All data in feet)

Monitor Well No.	Coordinates [a]		Elevation [b] of Ground Surface at Well	Elevation of Top of 8-in Steel Surface Casing	Drilled [c] Depth of Boring	Nominal [c] 16-in Steel Casing		Nominal [c] 12" Steel Casing		Nominal [c] 8" Steel Casing		Total Depth [c] of 4.5" PVC Screen & Casing	Screened Interval [c]		Top of [c] Gravel Pack	Pump [c] Setting
	Northing	Easting				From:	To:	From:	To:	From:	To:		From:	To:		
MW-15 [d]	660,254.78	531,939.84	4693.0	4694.38	396			+1.2	29	+1.4	328	395	335	395	330	390
MW-18 [e]	660,248.00	531,875.00	4693.2	4694.73	402	+0.2	27	+0.2	193	+1.5	339	400	361	401	350	396
MW-19	660,168.00	532,066.00	4691.7	4693.23	401	+0.2	27	+0.2	196	+1.5	335	400.5	360.5	400.5	346	393
MW-20	660,690.00	532,064.00	4693.6	4695.74	403	+0.2	29	+0.2	185 [f]	+2.1	331.5 [g]	402	362	402	350	395

a. Location of MW-15 surveyed by Bush & Cudgell; coordinates of MW-18, MW-19 and MW-20 estimated by Dames & Moore from hand tape measurements, based upon Idaho State Plane Coordinates.
b. Elevation of ground surface at time well was drilled.
c. Datum is ground surface at well at time well was drilled.
d. MW-15 was installed during fall 1984 whereas MW-18, MW-19 and MW-20 were installed during fall 1987.
e. MW-18 was grouted across the interval from 69 to 80 feet and redrilled.
f. Pea gravel was installed in the annulus of MW-20 across the interval from 95 to 120 feet below ground surface, and grouted above and below.
g. Pea gravel was installed in the annulus of MW-20 across the interval from 205 to 246 feet below ground surface, and grouted above and below.

TABLE 9.4

RECOVERY WELL CONSTRUCTION
(All data in feet)

Recovery Well No.	Aquifer	Coordinates [b]		Elevation [b] of Ground Surface at Well	Elevation of [b] Top of 6" Steel Surface Casing	Drilled [c] Depth of Boring	10" Steel Casing [c]		6" Steel Casing [c]		Total Depth of [c] 6" Steel Screen & Casing	Screened Interval [c]		Top of [c] Gravel Pack	Approx. Pump Depth Setting
		Northing	Easting				From:	To:	From:	To:		From:	To:		
R3 [e]	#1	660,304.46	531,953.44	4693.7	4695.09	171	+1.5	27	+1.5	109	169	109	169	77	-
R4	#1	660,289.78	531,911.04	4693.6	4694.89	170	+1.3	28	+1.3	105	165	105	165	96	161
R5	#1	660,244.02	531,907.65	4692.7	4694.12	173	+1.5	27	+1.5	112	172	112	172	93	168
R6	#1	660,187.74	531,918.30	4692.8	4694.31	173	+1.5	26	+1.5	112	171	111	171	95	167
R7 [f,g]	#2	660,331.95	531,940.75	4694.5	4695.46	272	+1.0	39	+1.0	241	270	241	270	(d)	241
R8 [g]	#2	660,341.93	531,995.06	4694.91	4696.92	271	+2.0	36.5	+2.0	239	269	239	269	(d)	260
R9 [g]	#2	660,306.92	531,985.23	4692.67	4694.64	271	+2.0	28.5	+2.0	241	271	241	271	(d)	257
R10 [g]	#2	660,279.17	531,940.63	4693.64	4695.60	270	+2.0	28	+2.0	240	270	240	270	(d)	256
R11	#1	660,260.38	531,867.64	4693.43	4695.54	170	+2.1	29.5	+2.1	109	169	109	169	103.5	160
R12	#1	660,264.15	531,950.35	4692.41	4694.53	171	+2.1	27.5	+2.1	109.5	169.5	109.5	169.5	104	160

a. R-1 is listed in Aquifer #1 monitor well construction data table and R-2 is listed in Aquifer #2 monitor well construction data table.
b. As surveyed by Thompson Engineering, based upon Idaho State Plane Coordinates.
c. Datum is ground surface at well at time boring was drilled.
d. Telescoping well screen was installed in open hole at bottom of 6-inch casing.
e. R-3 was drilled to 103 feet, grouted back to 74 feet, and redrilled.
f. Pump refusal at top of screen and cannot be lowered deeper.
g. Pump lowered 5/96.

TABLE 9.5

POINT OF COMPLIANCE WELL CONSTRUCTION
(All depths in feet below ground surface)

Proposed Point of Compliance Well No.	Aquifer	Coordinates		Elev of Ground Surface at Well	Elev of Top of PVC Casing[b]	Elev of Surveyed Reference Point[d]	Drilled Depth of Boring[c]	12" Steel Casing[c]		8" Steel Casing[c]		Total Depth of 4.5-in PVC Screen & Casing[c]	Total Depth of 4-in SS Screen & Casing[c]	Screened Interval (ft)[c]		Top of Gravel Pack[c]	Approx. Pump Depth Setting[c]
		Northing	Easting					From:	To:	From:	To:			From:	To:		
A-1[a]	#1	660,215.26	531,835.95	4692.89	4694.86		172			+0.5	27	170		110	170	105	158.5
B-1[a]	#1	660,191.67	531,884.29	4692.82	4694.76		168.5			+0.5	33	166.5		106.5	166.5	101.5	158.5
C-1[a]	#1	660,220.10	531,937.99	4692.41	4694.36		172			+0.5	30	171		111	171	104	158.5
D-1[a]	#1	660,192.67	531,985.58	4692.33	4694.35		171			+0.5	23	170		110	170	105	158.5
A-2[a]	#2	660,224.96	531,838.14	4692.93	4694.97		274	+0.5	27.5	+2.0	220	270.5		240.5	270.5	235	258.5
B-2[a]	#2	660,207.38	531,886.44	4692.72	4694.76		272	+0.5	29.5	+2.0	198	268.5		238.5	268.5	234	238.5
C-2[a]	#2	660,198.53	531,940.14	4692.42	4694.42		271	+0.5	27	+2.0	201	269.5		239.6	269.5	228	238.5
D-2[a]	#2	660,192.34	531,996.84	4692.36	4694.32		276.5	+0.5	23	+2.0	197	276		246	276	236	238.5
E-2[d]	#2	660,177.99	687,789.25	4696.19		4697.50	278	20[e]	44.5	+2.0	200		275	274	239.17	232	No pump

[a]As surveyed by Ellsworth Engineering, Inc.

[b]On top of PVC casing on north side with cap removed - City of idaho Falls datum.

[c]Datum is ground surface at well at time boring was drilled. Pump settings shown represent historical information. Refer to Technical Manual 1 (July 2010) for the modifications to pump depths implemented during system automation (2010).

[d] As surveyed by Harper Leavitt Engineering in 2009 (Horizontal = WGS 84, Vertical = NGVD 88 (mean se level))

[e] 12-inch casing broke off at approximately 20 feet below ground surface.

Note: Wells MW-4 and MW-14 have also been designated as Point of Compliance monitoring wells. Construction data are given in Tables A-1 and A-2.

TABLE 9.6

HISTORICAL PUMP INSTALLATION AND WELL CAPACITY DATA (PRE 2010 SYSTEM AUTOMATION)

Well Number	Pump Brand Name	Model No.	Motor Size (hp)	Voltage (volts)	Power Wire Type	Discharge Pipe Diameter (inches)	Approximate Pump Depth Setting (feet)	Anticipated Pumping Rate (gpm)	Specific Capacities (gpm/ft)	
									Low Water	High Water
MW-1	Berkeley	B4AM-15	3/4	220		1	152	11 to 12	1100	
MW-2	Permanently Abandoned									
MW-3	Berkeley	B4AM-15	3/4	220		1	150	12	290	610
MW-4	Berkeley	B4AM-15	3/4	220		1	158	11 to 12	22	1200
MW-5	Berkeley	B4AM-15	3/4	220		1	144	11	220	550
MW-6	Berkeley	B4AM-15	3/4	220		1	146	11 to 13	90	330
MW-7	Permanently Abandoned									
MW-8	Permanently Abandoned									
MW-9	Berkeley	4CM15-5	5	460		2[b]	256	40 to 60	1	1
MW-10	Berkeley	B4AM-15	3/4	220		1	314	11 to 12	60	60
MW-11	Berkeley	B4AM-15	3/4	220		1	246	11	370	
MW-12	Berkeley	B4AM-15	3/4	220		1	255	9	17	17
MW-13	Grundfos	10SO5-9	1/2	460		2[b]	153	5	2.3	4.4
MW-14	Berkeley	B4AM-15	3/4	220		1	257	11	3.0	
MW-15	Berkeley	B4AM-15	3/4	220		1	390	12	>1200	
MW-16	Berkeley	10S07-12	3/4	220		1	155			
MW-17	Berkeley	10MG10-07	3/4	220		1	255	14	0.4	
MW-18	Berkeley	10MG10-07	3/4	220		1	396	12		100
MW-19	Bcrkclcy	10MG10-07	3/4	220		1	393	12		110
MW-20	Berkeley	10MG10-07	3/4	220		1	395	12		110
OS-1	Berkeley	10MG10-07	3/4	220		1	155	12	140	
OS-2	Berkeley	10MG10-07	3/4	220		1	155	14	2	
OS-3	Berkeley	10MG10-07	3/4	220		1	155	11	1100	
OS-4	Berkeley	10MG10-07	3/4	220		1	155	11	370	
OS-5	Berkeley	10MG10-07	3/4	220		1	155	12	1	
R-1	(a)								>1200	
R-2	Berkeley	40S50-15	5	460	12	1 1/2[b]	253	40	3	
R-3	(a)			220		1				>180
R-4	Grundfos	SP4-14	1	460		2[b]	161	25 to 27		6
R-5	Grundfos	10S05-9	1 1/2	460	12-4	1 1/4[b]	168	9 to 10		0.6
R-6	Grundfos	SP4-10	1	460		2[b]	167	19 to 22		4
R-7	Berkeley	40S50-10	5	460	12	2[b]	241	40		3.5
R-8	Berkeley	4CL17-3	3	460	10-3	2	260	15 to 25		0.8
R-9	Berkeley	4CL17-3	5	460	12	2	257	15 to 30		10.7
R-10	Berkeley	4LL-17	3	460	12	2	256	15 to 40		12
R-11	Grundfos	10S05-9	1/2	460	12-3	1 1/4	160	4 to 10		1.1
R-12	Grundfos	5S03-9	1 1/2	460	12-3	1 1/4	160	2 to 5		0.4
A-1	Grundfos	10S05-9	1 1/2	460	12-3	1 1/4[c]	159	3 to 4		0.8
B-1	Grundfos	10S05-9	2	230	12	1 1/4[c]	159	3 to 5		1
C-1	Grundfos	16S10-10	1 1/2	460	12-3	1 1/4[c]	159	5 to 15		6.5
D-1	Grundfos	5S03-9	1/2	230		1 1/4[c]	159	1		0.1
A-2(d)	Grundfos	40S50-12	5	460	12-3	2[c]	259	5 to 15		0.5
B-2	Berkeley	10MG10-07	3/4	230		2[c]	239	10		36
C-2	Berkeley	10MG10-07	3/4	230		2[c]	239	10		21.1
D-2	Berkeley	10MG10-07	3/4	230		2[c]	239	5		0.2

a. No pump presently installed.
b. Steel Discharge pipe; others are PVC unless noted.
c. 304 stainless steel discharge pipe.
d. A-2 - installed higher hp pumps 5/96

TABLE 4.7 9.7 and 10.2

WELLFIELD CONSTRUCTION SUMMARY

Well No.	New Pump installed Y or N	Date Motor Installed	New or Existing Pump Make/Model/HP/ Voltage/Phase	Well Casing	SRP Elevation (NAVD88) (ft)	Depth to Bottom of Well from SRP (ft)	Pump Depth from SRP (in HMI) (ft)	Approx Drop Pipe Length (to Landing Plate) (ft)	Approx Elev of top of pump (ft)	Pump Discharge Pipe (Nominal Diameter in Inches and Material Type)*	Transducer Type	Transducer Cable Type and Length (type / ft)	Transducer Depth to SRP (in HMI) (ft)	Transducer Elevation (ft)	Date of Elevation Calibration	HMI GW Elevation June 28 2018 (ft)	Water Level Difference (ft)	Measured Water Depth June 28, 2018 (ft)	Fluctuation High to Low (ft)	Transducer Range (ft)	Access Tube (Nominal Diameter in Inches and Material Type)	Access Tube Length (ft) / Drilled Intervals	Other Comments
A-1	Y	Apr-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4698.11	172.1	164.33	162	4533.78	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	163.05	4535.06		4539.31	-0.53	4539.84	0.53	69.30	1" PVC SCH. 40 Flush Thread	162 / Bottom 10 ft	
B-1	Y	Mar-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.81	168.5	170.08	168	4527.73	1-1/4"	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.95	4536.86		4543.97	7.11	4554.95	10.98	69.30	1" PVC SCH. 40 Flush Thread	168 / Bottom 10 ft	
C-1	Y	Jun-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.50	172.7	168	168	4529.50	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	168.00	4529.50		4533.91	4.41	4536.76	2.85	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
D-1	Y	Oct-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH (need to confirm)	5" OD PVC Flush Thread	4697.24	168.5	- -	160		1-1/4"	LevelTROLL 500 (30 PSI)	Polyurethane / 170	160.97	4536.27	9/11/18	4543.98	7.71	4559.70	15.72	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
MW-4	Y	Sep-2010	Grundfos / 7S10-19 / 1.0 Hp / 230VAC / 1 PH	4" ID PVC	4698.50	150*	- -	145.7		1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 170	146.21	4552.29	9/6/18	4552.31	0.02	4568.58	16.27	69.30	1" PVC SCH. 40 Flush Thread	145.7 / Bottom 10 ft	Old pump is stuck in the well. Elevation of the top of the stuck pump is approximately 4547.8 NAVD 88 (7 feet below top of screen). New pump installed above the one that is stuck.
MW-13	N	- -	Grundfos / 10S05-9 / 1.0 Hp / 230VAC / 1 PH	4" ID PVC	4697.14	158.8	- -	152.5		1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	152.63	4544.51	9/6/18	4544.47	-0.04	4559.63	15.16	69.30	1" PVC SCH. 40 Flush Thread	152.5 / Bottom 10 ft	
MW-16	N	- -	Grundfos / 10S07-12 / 1.5 Hp / 230VAC / 1PH	4" ID PVC	4696.77	156.3	- -	150	4546.77	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	151.13	4545.64	9/6/18	4545.70	0.06	4559.92	14.22	69.30	1" PVC SCH. 40 Flush Thread	150 / Bottom 10 ft	
R-1	N	- -	Grundfos / 16S10-10 / 1.0 Hp / 240VAC / 1PH	4" ID PVC	4700.31	159.5	- -	155	4545.31	1" SST	LevelTROLL 300 (30 PSI)	Polyurethane / 165	152.26	4548.05		4548.18	0.13	4569.00	20.82	69.30	1" PVC SCH. 40 Flush Thread	150 ft / Bottom 15 ft	
R-4	N	- -	Grundfos / 14S / 1.5 Hp / 460VAC / 3 PH	6" ID CS	4698.10	171.5	- -	157		2" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 170	158.06	4540.04		4548.64	8.60	4569.52	20.88	69.30	1-1/4" PVC SCH. 40 Flush Thread	157 / Bottom 10 ft	
R-5	N	- -	Grundfos / 10S05-9 / **1.5 Hp** / 460VAC / 3PH	6" ID CS	4697.32	168.7	165	165	4532.32	1-1/2" SST (3 - 20' 0") 1-1/4" CS (5 - 21' 0")	LevelTROLL 500 (30 PSI)	Polyurethane / 180	159.07	4538.25		4539.14	0.89	4563.04	23.90	69.30	1-1/4" PVC SCH. 40 Flush Thread	165 / Bottom 10 ft	
R-6	Y	Sep-2010	Grundfos / 25S15-9 / 1.5 Hp / 460VAC / 3PH	6" ID CS	4697.56	171.8	170	168	4527.56	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 180	169.63	4527.93		4531.50	3.57	4541.92	10.42	69.30	1-1/4" PVC SCH. 40 Flush Thread	168 / Bottom 10 ft	
R-11	N	- -	Grundfos / 10S05-9 / 0.5 Hp / 460VAC / 3PH	6" ID CS	4698.66	171.5	161.1	161	4537.56	1-1/4" CS (5 - 20' 0") 1-1/4" SST (3 - 20' 0")	LevelTROLL 500 (30 PSI)	Tefzel / 170	161.02	4537.64		4549.56	11.92	4567.87	18.31	69.30	1-1/4" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
R-12	N	- -	Grundfos / 10S07-12 / 0.75 Hp / 460VAC / 3PH	6" ID CS	4697.96	168.5	159.8	156.8	4538.16	1-1/4" SST (6 - 20' 3") 1-1/4" CS (1 - 15' 0") 1-1/4" Galv. (1 - 20' 0")	LevelTROLL 500 (30 PSI)	Tefzel / 170	161.71	4536.25		4557.93	21.68	4568.58	10.65	69.30	1-1/4" PVC SCH. 40 Flush Thread	156.8 / Bottom 10 ft	
A-2	Y	Apr-2010	Grundfos / 40S50-15 / 5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4699.01	274	264	261	4435.01	2" Galv.	LevelTROLL 300 (100 PSI)	Tefzel / 270	262.08	4436.93	9/6/18	4499.92	62.99	4460.16	-39.76	231.00	1" PVC SCH. 40 Flush Thread	261 / Bottom 10 ft 145 - 160 ft BGS	
B-2	N	Sep-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.63	271.2	241	240	4456.63	2" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.10	4541.53		4543.62	2.09	4554.95	11.33	69.30	1" PVC SCH. 40 Flush Thread	241 / Bottom 10 ft 145 - 160 ft BGS	
C-2	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	5" OD PVC Flush Thread	4697.31	270.7	- -	240	4457.31	2" Galv.	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.32	4536.99	9/6/18	4543.91	6.92	4563.01	19.10	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
D-2	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	5" OD PVC Flush Thread	4697.20	278.2	- -	240.6	4456.60	1-1/4" Galv. (First 6") 2" SST (Remainder to Pump)	LevelTROLL 500 (30 PSI)	Polyurethane / 165	153.94	4543.26		4544.11	0.85	4563.44	19.33	69.30	1" PVC SCH. 40 Flush Thread	240.6 / Bottom 10 ft 145 - 160 ft BGS	A 2" x 1-1/4" reducer and a 6" x 1-1/4" dia. Nipple was placed at the top of well D-2. The remainde of the drop pipe is 2" SST.
E-2	Y	Nov-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH (need to confirm)	4" ID CS	4697.89	276.8		260	4697.89	1" SST	LevelTROLL 500 (30 PSI)	Polyurethane/165	165.64	4532.25	9/6/18	4544.15	11.90	4563.24	19.09	69.30	1" PVC SCH. 40 Flush Thread	260 ft / Bottom 15 ft 245 - 260 ft	Pump depth is approximate and should be confirmed the next time the pump is pulled, Make, model, and HP of pump / motor should also be confirmed.
MW-9	Y	Jul-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	4" ID PVC	4697.20	216 (to fracture)	201.8	201	4495.40	1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.99	4540.21		4543.59	3.38	4562.89	19.30	69.30	1" PVC SCH. 40 Flush Thread	201 / Bottom 10 ft 145 - 160 ft BGS	
MW-12	N	- -	Berkeley / 4AM-15 / 0.75 HP 230VAC / 1PH	4" ID PVC	4696.83	257	- -	251	4445.83	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	158.48	4538.35	9/6/18	4544.41	6.06	4563.57	19.16	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	A 1-1/4" galvanized nipple was installed at the landing plate to connect to the existing quick connect.
MW-14	Y	May-2010	Grundfos / 10S07-12 / 1.5 Hp / 230VAC / 1PH	4" ID PVC	4698.54	263.4	- -	256	4442.54	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.39	4538.15	9/6/18	4544.39	6.24	4563.82	19.43	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
MW-17	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	4" ID PVC	4696.79	260.6	- -	255	4441.79	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.36	4540.43	9/6/18	4544.68	4.25	4563.12	18.44	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
R-2	Y	Apr-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	8" ID CS	4700.45	261	246.5	246	4453.95	1-1/2" SST	LevelTROLL 300 (100 PSI)	Tefzel / 265	246.33	4454.12		4507.20	53.08	4529.62	22.42	231.00	1-1/4" SCH. 40 PVC Flush Thread	226 / Bottom 10 ft 145 - 160 ft BGS	
R-7	Y	Apr-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	6" ID CS	4698.99	266.4	254	254	4444.99	2" Galv.	LevelTROLL 500 (100 PSI)	Polyurethane / 250	235.76	4463.23		4513.46	50.23	4538.14	24.68	231.00	1-1/4" SCH. 40 PVC Flush Thread	254 / Bottom 10 ft 145 - 160 ft BGS	
R-8	Y	Jun-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	6" ID CS	4700.45	268.6	251	251	4449.45	2" SST (7 - 20' 3") 2" CS (5 - 20' 0") 2" CS (1 - 4' 0")	LevelTROLL 500 (30 PSI)	Polyurethane / 165	165.12	4535.33		4544.00	8.67	4563.18	19.18	69.30	1-1/4" SCH. 40 PVC Flush Thread	251 / Bottom 10 ft 145 - 160 ft BGS	
R-9	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	6" ID CS	4698.08	267.9	- -	255		1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	155.91	4542.17		4543.89	1.72	4563.28	19.39	69.30	1-1/4" SCH. 40 PVC Flush Thread	160 / Bottom 15 ft	
R-10	Y	Jun-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	6" ID CS	4698.74	265.5	258	258	4440.74	2" SST	LevelTROLL 300 (100 PSI)	Polyurethane / 265	257.75	4440.99		4541.35	100.36	4556.66	15.31	231.00	1-1/4" SCH. 40 PVC Flush Thread	260 / Bottom 10 ft 145 - 160 ft BGS	

Notes: * All drop pipe is SCH 40 threaded pipe with external couplings; ** Indicates standard elevations that have changed

Acronyms:

BGS - Below Ground Surface
CS - Carbon Steel
ft - Feet
hp - Horse Power
ID - Inside Diameter
OD - Outside Diameter
PH - Phase
PSI - Pound per Square Inch
PVC - Polyvinyl Chloride
SRP - Surveyed Reference Point
SST - Stainless Steel
VAC - Volts Alternating Current
- - Not applicable

VOLUME I CHAPTER 10

10.0 GROUNDWATER TREATMENT PLAN OPERATION AND MAINTENANCE MANUAL

10.1 INTRODUCTION

This Operations and Maintenance (O&M) Manual is designed to provide guidance and reference information needed by the site operator to effectively and safely operate the IFPY treatment plant. Documents in addition to this O&M Manual that the operator will need to be thoroughly familiar with include but are not limited to:

1. RCRA Permit IDD000602631,
2. NPDES Permit ID-G91-0000,
3. PacifiCorp Site Specific Health and Safety Plan,
4. Permit Attachment 2 Volume I Chapter 5 (Contingency Plan) and Chapter 6 (Spill Prevention and Response Plan),
5. Equipment Information Manual (provides summary of original equipment installed during the construction of the treatment plant in 1988),
6. 2011 Equipment Information Manual (provides vender supplied information on equipment installed during the system automation in 2010 - 2011),
7. SCADA Manual (provides information on the PLC/SCADA hardware and software systems installed in 2010 - 2011).
8. Warrantee Manual (Includes warrantee and licenses for equipment and software installed in 2010 – 2011).

9. 2011 System Drawings Manual (Includes as-built drawings for the system following the 2010-2011 system automation.)

References to these key documents are made throughout this manual to provide further details relating to permit requirements, equipment, software systems, and safety requirements.

10.1.1 General History

In 1983, Utah Power & Light (UP&L) discovered that creosote was leaking from their pole treatment facility located in Idaho Falls, Idaho as shown in Figure 10.1. They immediately began corrective action including the excavation of contaminated gravel from below the leak area. After contaminants were removed from the site to the extent possible by excavation, further investigation revealed that the unsaturated bedrock and aquifers below the leak area were also contaminated with creosote constituents. The Environmental Protection Agency (EPA) determined that the site constituted a Hazardous Waste Management Facility and that it must be closed under existing federal Resource Conservation and Recovery Act (RCRA) regulations. In compliance with these regulations, a groundwater monitoring system was installed to monitor creosote contaminants in the groundwater at the facility. Based on the contamination detected, a plan for cleanup of the aquifer was developed. Findings obtained from this initial groundwater monitoring study were reported in UP&L's RCRA Part B Application submitted to EPA on December 31, 1984.

A pumping program for six onsite wells was initiated to characterize groundwater quality and to determine the aquifer's response to pumping. The extracted groundwater was treated in the Phase 1 pilot plant that operated for a 6-month period (October 29, 1985 to April 29, 1986). This pilot plant had a design capacity of 100 gallons per minute. The Phase 1 pilot plant provided design data used in subsequent pilot testing as well as for the full-scale treatment facility. The Phase I pilot plant results are described in "Groundwater Treatment Pilot Plant Report" (CH2M HILL, June 1986).

Based on the results of the Phase I testing, a number of design changes were recommended. These recommendations included the following:

- Use of black steel in place of PVC in yard and plant piping materials. PVC materials have a tendency to become brittle and rupture after exposure to creosote contaminants.
- Need of a pretreatment process to reduce influent concentration of insoluble oils and to remove creosote slugs. This prevents overloads in the oil absorption column (OAC).
- Use of hydraulic weirs to measure untreated groundwater flows into the treatment plant. Paddlewheel flow sensors and nonresettable totalizer indicator flow meters are satisfactory only for use after OAC treatment.
- Use of a pressure-sensing safety system to shut down the plant in the case of high or low pressure in the yard and plant piping and a mechanical system to sense high water levels within the treatment plant building.
- Use of an inside drums storage area. This will eliminate potential problems associated with winter storage of generated wastes.
- Use of 6-inch diameter casing in onsite wells. This aids the circulation of cooling water around the pumps and facilitates pump installation and removal. Larger pump screen sizes should be used to prevent caking of these screens with creosote.

The Phase 2 pilot plant was constructed in 1987 and 1988 with a design capacity of 200 gpm and operates 24 hours a day 7 days a week. Hydraulic capture and groundwater treatment has been ongoing at the site using the Phase 2 treatment plant since 1988.

In 2008, PacifiCorp began a process to design and implement electronic automations to the existing treatment plant and well field. These new systems were constructed during the 2010 - 2011 time frame. The original treatment plant remained in operation during the construction to maintain hydraulic capture of the creosote impacts in Aquifers 1 and 2.

A draft version of the Operations and Maintenance Manual was prepared and submitted as Chapter 10 of the 2009 RCRA permit reapplication. Now that the system automations are in place, Chapter 10 has been updated to document the new equipment, control systems, and operational procedures.

The treatment system continues to process a maximum of 200 gpm of creosote impacted groundwater. Fourteen extraction pumps have been equipped with variable frequency drives (VFDs) to allow electronic adjustments to groundwater extraction flow rates. There are four primary pumping wells for each aquifer (eight total) and then three additional "contingency" pumping wells for each of the two aquifers (six total). Under "normal" site conditions, the six contingency pumping wells sit idle but remain capable of pumping if needed to maintain hydraulic capture. The VFDs attached to the fourteen pumping wells are controlled by a central programmable logic controller (PLC) and SCADA system.

The well field was automated by installing pressure transducers in 14 pumping and 13 monitoring wells at the site. One baroprobe was installed to measure atmospheric pressure and allow correction of the transducer data for changes in atmospheric pressure. Data from pressure transducers installed in the site monitoring and extraction wells are directed to and then processed by a central PLC / SCADA computer system. The upgraded system allows the operator to observe real time groundwater elevations and flows and adjust pumping rates needed to maintain hydraulic capture. The operator may monitor and control the system either from the human interface (HMI) computer screen at the site or login through a remote internet access.

The treatment plant itself has also been automated with pressure sensors, flow meters, and control systems. The SCADA computer provides the operator interface, manages alarms, initiates notifications, and archives data for report generation. Figure 10.2 is the piping and instrumentation diagram for the upgraded system. Details regarding the SCADA HMI screens and capabilities of the PLC system are provided in the SCADA Manual.

The automated system is being monitored multiple times per week via remote internet login by the HWMF Manager or his designated representative. The on-site Environmental Technician/operator also checks the status of the system during a weekly site visit. Alarm conditions which occur when the Environmental Technician is not on-site will be addressed by the automated system according to their severity and an auto-dialer software system will notify the appropriate emergency response personnel. A table summarizing the automated system alarms requiring external communications and the type of communication implemented is provided in the SCADA Manual.

10.1.2 Description of the Treatment Process

The following paragraphs provide a general overview of the treatment process beginning with ground water entering the treatment plant from the well field and ending with the water being transported via pipeline to the Snake River.

Groundwater enters the treatment plant building from recovery wells completed in two aquifers beneath the site (Aquifers 1 and 2). This water remains in individual discharge lines as it flows through magnetic flow meters, and then into separate compartments of the weir box. Data is transmitted electronically from the individual flow meters to the PLC/SCADA systems for subsequent interpretation, storage, and reporting.

Process water flows through the weir box compartments and enters a circular clarifier which now serves simply as an equalization tank. Originally the suspended solids in the groundwater required flocculation with polymer addition to the clarifier. Improved water clarity has eliminated the need for chemical addition. Also the groundwater solids and creosote sludge previously deposited in the clarifier required disposal using the sludge dewatering system but this operation is no longer necessary.

Water flows out of the clarifier and into a wet well. A pressure transducer measures water levels in the wet well and controls three vertical turbine wet well pumps. These pumps transfer water to four tanks filled with granular activated carbon (GAC). The GAC tanks are manifolded in sets of two, with water flowing through each set in parallel.

The water recollects into a single manifold between and after the two sets of tanks. A fifth GAC tank is present alongside the second set of GAC tanks but held in reserve. This reserve tank is used if break through is observed in the effluent of the second set of GAC tanks. After the GAC tanks, temperature, pH, and flow rate are measured before the effluent is discharged via pipeline to the Snake River. Figure 10.3 shows the facility layout, including the location of the treatment plant building, monitoring and recovery well locations, and yard-piping. Treated groundwater is discharged to the Snake River by authority of NPDES Permit No. ID-G911000.

10.1.3. Hazardous Waste Management Facility

Groundwater pumped into the treatment plant building may contain hazardous constituents. Safety precautions must be practiced at all times during plant operation.

Personnel must comply with the provisions outlined in the PacifiCorp Site Specific Health and Safety Plan (HASP), Contingency Plan, Spill Prevention and Response Plan, and complete the training requirements outlined in Attachment 3 of the RCRA permit. Spent GAC and any other waste requiring offsite disposal shall be characterized and disposed of in accordance with the site specific Waste Management Plan.

10.1.4. Objectives of the Treatment System

The objectives of the treatment plant are to:

- Prevent offsite migration of creosote constituents in Aquifers 1 and 2 by controlling the hydraulic gradient.
- Remove creosote constituents in the extracted groundwater while maintaining a pH and water temperature required by the sites NPDES permit for discharge to the Snake River.
- Identify the frequency, volume, and characteristics of phase separated creosote oil produced by the aquifer in response to pumping.

10.1.5 Operation Plan

10.1.5.1. Introduction

This section of the report describes in detail the operation of the treatment plant. It is intended to be used as a reference section for the plant operator and contains key information and references to other documents containing operational guidance or equipment details. Before operating any equipment, the operator should read the information provided in this manual. Equipment referenced in this manual is described further in other manuals which have been developed for the site. The historical "Equipment Information Manual" provides specifications and vender contact information for the original treatment plant installed in 1988. The 2011 Equipment Information Manual contains a summary and detailed vendor supplied cut sheets for equipment installed as a part of the system automation activities in 2010 - 2011. The SCADA Manual documents the PLC / SCADA systems, software, and programming implemented in 2010 - 2011. As-built drawings for the system are documented in the System Drawings Manual while warrantee and license information are provided in the Warrantee Manual. Contact information for key equipment, software, and services associated with the treatment plant and well field is also provided in Section 10.2 below.

10.1.5.2. Wells and Pumps

Historical pump specifications, installation depths, anticipated production, and specific capacity data for both onsite and offsite wells are summarized in Table 10.1. The 2011 Equipment Information Manual contains key details relating to the automation of the well field in 2010 - 2011 including specifications for new submersible well pumps, motors, performance curves, and position in each well. Because submersible pumps are water-cooled and lubricated, routine maintenance is not required. However, experience to date at the Hazardous Waste Management Facility, HWMF, indicates that malfunctions do occur that require a trained technician to remove and service pumps. The objective of this section is to provide the operator with procedures and information to help distinguish pump malfunctions from changes in yield due to seasonal variations in groundwater elevations.

Specific Capacity Testing

Expected well yields were originally estimated by conducting specific capacity tests, a technique that is also useful as a trouble-shooting method to distinguish changes in pump performance from changes in well performance. Specific capacity is defined as yield per unit drawdown and is indicative of both the transmissivity of the aquifer in the immediate vicinity of the well and the efficiency of the well. A specific capacity test is typically conducted by first measuring the static water level (nonpumping water level). The pump is then turned on, and the pumping rate and water level in the pumping well are both measured at regular intervals until drawdown stabilizes (drawdown = pumping water level - static water level). Note that the pumping rate is held constant. Specific capacity is then calculated by dividing the pumping rate by the observed drawdown depth. Results of specific capacity tests of individual wells are listed in Table 10.1.

Specific capacities of wells completed in Aquifer 1 have been observed to change as a function of the water level in the aquifer. Water level elevations in Aquifers 1, 2, and 3 fluctuate in an annual cycle that has an amplitude of about 20 to 25 feet. Water level elevations are highest during mid-October and lowest during late May. Specific capacities are smaller in Aquifer 1 during the low water season than during the high water season because of the reduced saturated thicknesses and corresponding reduction in transmissivity.

Specific capacity of wells completed in Aquifer 2 do not change with seasonal water level fluctuations because the aquifer is semiconfined and the primary flow interval found between the depths of 250 and 270 feet bgs does not become dewatered. The seasonal water level fluctuations, however, do change the yield of the pumps in Aquifer 2 (and Aquifer 1) because of the change in total pumping head.

According to Permit Module IV.B.1.a, specific capacity tests will be conducted annually on ten wells (Aquifer 1: A-1, B-1, C-1, R-4, R-6, R-11 and Aquifer 2: A-2, R-2, R-7, MW-9). These tests will be performed during the high water level season (September-October). The site operator will utilize a slightly modified method in which equilibrium water levels will be recorded electronically (or manually) with the ten specific capacity wells pumping in each aquifer. The operator or an automated computer program will record pumping rates, baseline groundwater elevations, as well as the data and time of the measurements. The groundwater extraction pumps will then be turned off and water levels allowed to recover to near static conditions. These rebounded water levels will be observed by the operator on the HMI screen, recorded electronically by the PCL software program, or measured manually. The specific capacity will then be calculated using the difference between baseline and recovered groundwater elevations and the original extraction rates.

The site operator my combine groundwater sampling with the specific capacity testing. If so, the maximum time the pumping could remain off while both activities are performed is 72 hours. The specific capacity data will be included in the annual reports and be interpreted in comparison to historical trends.

Annual specific capacity field test data will be recorded either electronically to the site database or manually on Form 10.1. If an automated program is used to perform the specific capacity tests, data will be recorded into the electronic database and then the automated reporting software system (XL Reporter) will generate the data in EXCEL format.

Pump Selection

Before the original extraction well pumps were selected, extensive aquifer testing and computer modeling were conducted. This was done to estimate what each recovery well would yield and determine the pumping rate from that well that would help achieve one or more of the design goals. These goals can be summarized as follows:

- Local reversal of horizontal hydraulic gradients in Aquifers 1 and 2 to prevent off-site migration of creosote impacted groundwater.
- Local reversal of vertical hydraulic gradients from downward to upward.
- Removal of creosote.

Historical well yields, water level fluctuations, well construction, well damage (MW9), and total dynamic heads were considered when selecting replacement pumps for the system automation in 2010 - 2011.

When pumping at a rate that exceeds the specific capacity, the water level in the well will be drawn down to the intake of the pump, allowing air to enter. When a submersible pump is allowed to pump air it can heat up, causing damage to the motor. Pumps with the appropriate water yielding characteristics were selected by inspecting and comparing rating curves.

Discharge rate, plotted against total dynamic head for each of the original pumps installed at the HWMF is included in the "Pumps" section of the Equipment Information Manual. A summary of the well field modifications including the pumps replaced during the 2010 - 2011 system automation are shown on Table 10.2. The performance curves for the new submersible pumps are provided in the “Pumps” section of the 2011 Equipment Information Manual. Pump performances were estimated for both the Spring (low water) and Fall (high water) conditions for all replacement pumps. The estimates for brake horse power and pump performance under the low and high water conditions are also provided.

Note on the pump curves, that the pumping rate decreases as the total dynamic head increases. Total dynamic head is equal to the sum of the elevation head against which the pump is operating plus the total friction loss. Friction loss is caused as the fluid passes along the walls of the pipe and through fittings, valves, etc. and can be estimated using standard tables. Elevation head is calculated by subtracting the water level elevation in the well from the elevation of the final discharge point of the piping.

The extraction well pumps and motors were selected based on the required total dynamic head and brake horsepower requirements.

Pump Installation

All the pumps listed in Tables 10.1 and 10.2 were installed by trained submersible pump technicians. Note that Table 10.2 includes the pump model and manufacturer, motor size, voltage and phase requirements, discharge pipe diameter and material, and approximate pump settings as of December 2011. It is imperative that the operator continue to maintain up-to-date version of Table 10.2 to help trouble shoot and maintain the submersible well pumps.

Pump Operation

Proper operation of the pumps in the extraction wells includes, but is not limited to, the following:

1. Maintaining discharge rate that will achieve the design goals of the extraction well system.
2. Maintaining up-to-date versions of Pump Installation and well configuration as shown in Table 10.2
3. Maintaining a discharge rate or level for each pump that does not cause the water level in the well to be drawn down to the point where excessive cycling of the pump (on and off) begins to occur. Adjustments to the selected level or flow may need to be adjusted by the operator as often as every one to two months particularly for the extraction wells in Aquifer 1.
4. Recognizing pump malfunctions when they occur and distinguishing them from seasonal changes in the aquifer transmissivity and/or changes in well efficiency.

5. The automated groundwater extraction system accomplishes these tasks with the operator’s input of a flow or level setpoint for each extraction pump. The PLC computer will adjust the speed of each pump in order to achieve the specific pump’s flow or level setpoint.

10.1.5.3. Operation of the Treatment Plant

Normal operation consists of pumping the well water from outside well locations into the treatment building. The extraction wells are individually piped into the building. Flowmeters on these individual pipelines permit flow control by means of variable frequency drive (VFD) adjustment. The flows are combined into a common header that goes into the pre-treatment clarifier. The clarifier effluent flows by gravity to the wet well/pump station. Next, the water is pumped from the wet well to granular activated carbon (GAC) adsorption tanks. After the GAC tanks the temperature, pH, and flow rate are measured before discharging to the Snake River. Effluent from the treatment plant is tested in accordance with the requirements in NPDES Permit IDG911000 and it’s associated Best Management Practices Plan.

The system has the capability to measure individual flow rates from the fourteen extraction pumps using in-line electronic flowmeters. Under normal circumstances, flow would come from a total of eight active pumping wells with six contingency wells sitting idle. Flow measurement signals from each meter are wired to the PLC. If a given extraction pump’s measured flow rate or level differs from the operator’s setpoint then the PLC will adjust the pump’s speed. The speed for each of the extraction pumps is adjusted in order to bring about flow rates or levels that match the operator’s setpoint.

The flow meters are installed on the extraction pump discharge piping after it enters the building. They are preceded by a check valve to prevent reverse flow from the piping leading up to the weir box. Hand operated ball valves exist immediately prior to the check valves in each discharge line and allow for groundwater sampling or venting of the discharge lines when the pumps are off. The flow from each well is piped to a separate compartment in the weir box and then combined into a common header pipe that feeds the clarifier.

The initial step in the treatment process is a clarifier tank for separation of the heavy and light fractions in the groundwater. The clarifier effluent flows by gravity into a wet well where vertical impeller pumps transfer the water to a series of GAC vessels. The wet well pumps are controlled through communication between the PLC and a pressure transducer and high level switch. The transducer measures water levels in the wet well and the high level switch provides protection from over filling. Water discharges from the wet well into two lead GAC tanks operating in parallel. Effluent from the lead tanks collects into a manifold which again splits to allow the water to flow through two additional GAC tanks in parallel. A fifth GAC vessel is held in reserve in case break through is observed in the plant effluent. The GAC removes organic contaminants dissolved in the extracted groundwater.

Under the pressure of the wet well pumps the treatment plant effluent continues to flow in a pipeline that extends all the way to the Snake River. Before exiting the facility, the operator manually measures groundwater temperature and pH. The effluent flow rate and totalized annual flow is measured using a vortex flow meter which electronically records and transmits the measurements to the PLC. In compliance with the NPDES permit requirements, each quarter the operator manually measures the pH and effluent temperature using a Horiba U-52 Water Quality instrument serial number HGS#VUS6DKXX or equivalent.

The GAC tanks are backwashed every one to two weeks and the media replaced as required. The need for replacement of the GAC media is based on treatment plant effluent samples collected quarterly and analyzed for creosote constituents (method SW846-8270).

The automated system provides continuous pressure measurement at the GAC inlet and outlet piping. The PLC receiving this information will record an alarm if the pressure drop across the GAC vessels reaches the threshold level selected by the operator.

Pressure sensors with electronic transmitters are positioned prior to the first bank of parallel vessels, between the two sets of vessels, and after the second bank of vessels as shown on Figure 10.2.

A clean water storage tank acts as the reservoir to supply water for backwashing. During backwashing, spent backwash water is stored in the backwash waste tank. In this tank, water is allowed time for the solids to settle. The decanted water overflows to the floor sump where it is recycled as influent to the treatment plant.

In the event that clarifier solids result in the process they are to be thickened in a gravity filter system. Thickened sludge will be characterized and then transported and disposed of in accordance with RCRA regulations. Filtrate from the process is piped to the wet well/pump station for recycling through the treatment plant. For more than a decade, there have been no solids generated by the backflushing operation and none are anticipated in the future.

10.1.5.4. Plant Design Criteria

Treatment plant unit sizes, plant design criteria, and design factors are presented in Table 10.3.

Sludge Dewatering

During the initial years of system operation, management of sludge from the clarification process was required at the treatment plant. When the sludge level built up to the second tap on the side of the clarifier, the sludge was removed and dewatered. The sludge was piped to a dewatering bed which used filter fabric and a press to separate water and capture the sludge for disposal. This practice is no longer needed since creosote sludge is no longer present in the extracted groundwater, and clarification is no longer taking place.

Groundwater Extraction System Depth Measurement

There are presently 40 wells located on-site and 5 off-site. During the system automation, 27 of these 45 wells were enhanced to provide remote monitoring of water level elevations. The position of each transducer, depth of submersible well pump, and location of holes drilled in the PVC access pipes are provided in Table 10.2.

The extraction and monitoring wells are equipped with submersible pumps capable of transferring water from the wells to the groundwater treatment system located in a dedicated building on the site. Twenty five monitoring and extraction wells were equipped with pressure transducers that measure the total pressure of fluids and send a signal to the PLC that is converted into groundwater elevation.

A barometric probe located within the equipment shed allows for correction of the absolute pressure reading recorded by the transducer in each well. Elevations are referenced to surveyed points at each well head tied to the 1988 North American Vertical Datum coordinate system. Hand measurements of depths to water from the surveyed vertical reference points are used to calibrate each transducer measurement.

The baroprobe will continuously record atmospheric pressure and then send a signal to the data logger for storage. The data logger will input the data from the transducers (adjusted using the baroprobe readings) to the SCADA Computer for storage and integration into graphical displays and input to the pump operating controls. Level input from the wells will provide the operator with real-time groundwater elevations in each well. The groundwater elevations and supporting data will be stored in the SCADA Computer and used for estimating the capture zones and the potentiometric surfaces in Aquifers 1 and 2. Groundwater elevations stored on the SCADA Computer can be used to automatically control the extraction pumps if the operator chooses the "level mode" for the Variable Frequency Drives (VFDs). Alternately, the operator may control the drawdown in each well by programming the VFD in "flow mode" to maintain a steady extraction rate. The decision on whether to use level, flow, or manual modes for the

VFDs will depend on specific conditions in each well including seasonal water level, yield, and well construction.

Flow Measurement and Control

Each well that pumps water to the treatment system will have a flow meter installed in the discharge line to record and totalize the quantity of water produced from the well. Each flow meter will transmit a 4 to 20 milliamp signal which is converted and displayed as gallons per minute (gpm). The data from each flow meter will be displayed on the SCADA HMI screen. The flow rate for each well is averaged by the SCADA Computer over a 24 hour period, entered into the database and then used in generating the weekly operating reports. The flow reports are created by the SCADA system in EXCEL format, updated daily, and then reviewed and incorporated into the operators log weekly. The flow reports include both the daily flow data and the total minutes each day that each groundwater extraction pump was running. The operator can also take an instantaneous reading of flow from each well by reading the values off a display screen on the SCADA Computer.

The fourteen extraction / contingency extraction wells are connected to dedicated VFDs that modulate the speed of the pump motors. The VFD drive has inputs and outputs that allow the operator to automatically change the motor frequency and thus speed up or slow down the pump.

The SCADA Computer has a screen with a visual display showing percent of full speed for each VFD. This feature allows the operator to inspect the VFD operating conditions and adjust the pumping rate for each well. These adjustments can be made from the HMI computer screen at the site or through a remote login linked to the SCADA computer.

The system operator is able to remotely and locally start and stop each pump, change the pumping rate, and set the system into either manual or automated pump control mode. Detailed operating instructions relating to the HMI screens are provided in the SCADA Manual.

The system is equipped with an interlock that shuts off any pump that continually cycles or experiences either an under or overvoltage condition. In the event that an overall system shut down is initiated by the PLC, the extraction well pumps remain in fail mode until an operator intervenes. Detailed information on system alarms, system shut downs, and operator responses to alarm conditions are provided in the SCADA Manual.

Treatment System Influent Weir Box

The original system used a large steel box divided into separate compartments to measure the incoming flow from each well. Each compartment in the box has a V-notch weir and measuring gauge that is used to determine the height of water behind the weir plate. The height measurement can be converted manually to a flow rate using the equation below. There are no electronic instruments used in the weir box. Since completion of the system automations, the weir box is used as a secondary or backup flow measurement device and for visual inspection of the influent. The original weir box will be replaced with a new stainless steel system in November of 2016.

The rates of flow into the individual weir boxes are determined by reading the water head in the weir box from the staff gauge attached to the side of the influent box and converting the head to a flow rate using the nomograph shown in Figure 10.4 for the 60-degree, V-notch weir. The water head is the distance from the bottom point of the V-notch to the top of the water. The flow rate can also be calculated using the formula:

$$\text{Flow rate (gpm)} = 1.2664 \times [\text{water head (inches)}]^{2.5}$$

With no flow through the weir box and with the water level at the bottom of the V-notch, the water head should read zero.

Opening or closing the butterfly valve immediately above each weir box may change groundwater flows. These valves are easily accessible from the catwalk around the weir box unit. Each weir box has a drain valve underneath for draining of water below the bottom of the V-notch. This valve is to remain closed unless the plant is being shut down. See the Shutdown Procedures outlined in the SCADA Manual for more information.

Clarifier

Flow from the weir box is combined into a single pipe that discharges into a circular clarifier. The clarifier is designed to remove solids through settling. The clarifier provides residence time to equalize flows from the wells and if the water is unusually laden with organics the clarifier permits the operator to check for a sheen on the water surface. The clarifier is gravity operated and requires no pumps or equipment to process water. There is a sludge collection rake connected to a motor-driven rotating center well on the clarifier, but it is seldom used and would be locally operated. Water enters the center of the clarifier (called the feedwell) and is forced downward and outward to exit the tank. In the process, the heavy fraction would settle to the bottom as sludge. The sludge would accumulate and could be dewatered for disposal. As previously mentioned, sludge dewatering is no longer required. If sludge dewatering were to be required at some point in the future the operator would open the sample taps on the side of the clarifier to determine how high the sludge is in the tank. If the sludge level were between the top two ports, the sludge must be thickened and dewatered. The thickening and dewatering process is discussed in a later section. Flows enter the clarifier tank through a 6-inch composite line from the weir box. A bypass valve exists in this line to direct flow to the wet well/pump station, bypassing the clarifier. Normally, flow will not be bypassed. For normal operation with flows going through the tank valve MV-16 should be open and MV-17 closed as shown in Figure 10.2. For bypassing, the position of these two valves should be reversed.

Early in the remediation effort creosote-contaminated groundwater entering the tank with entrained air bubbles and light nonaqueous phase liquids floated to the water surface. This no longer occurs as the extracted groundwater has improved in quality, however the historical procedure for handling the float is described here. The floatable contaminants were trapped on the surface of the tank between the center feedwell and the outside baffle. A skimming mechanism would channel the floatable portion to a scum trough located on the side of the tank. This trough is piped to the sludge dewatering system along with the sludge piping. The skimmer mechanism was locked in the engaged or disengaged position during normal operation, depending on whether the scum needed to be pushed into the scum trough.

Sludge Dewatering

Sludge dewatering is no long required at the site however, should it be needed at some point in the future. The following procedure would be used:

1. Lock the skimmer on the pretreatment tank in a disengaged position so that it will not skim.
2. Turn the speed controller (mounted on the top of the catwalk) so that the rotational seed of the raker arm slowly increases to the point where the tank contents are being thoroughly mixed.
3. Keep the raker arm spinning for 5 minutes and then slowly turn back the rotational speed until it is stopped.
4. Turn on the motor that drives the old filter media off the end of the bed into the container. This can be done by turning the motor control switch to the "HAND" position until enough paper has been removed and then turning it back to the "off" position. If the controller is in the "auto" position, the filter paper will automatically scroll off the end of the bed until the float switch returns to a down position. Do not operate in auto mode if you wish to solidify each bath of dewatered sludge.
5. Continue to dewater until no more sludge can be piped out of the tank.
6. When dewatering is complete, place into a 55-gallon drum.

Please note that the pretreatment tank can be bypassed during sludge dewatering to allow for continuous operation of the treatment plant. See the Clarifier section of this chapter for more information on tank bypassing. If the tank is bypassed, the operator should consider the nature of the groundwater quality in the event that it is too contaminated to send straight through the GAC adsorption tanks without pretreatment.

Wet Well / Pump Station

Automating the treatment system allows the control of the amount of groundwater being pumped from each extraction well, then controlling the three wet well pumps in the concrete basin to match incoming flow from the clarifier. The purpose of the wet well/pump station is twofold. It acts as a containment basin for spills that occur on the floor of the building, and it provides the hydraulic pressure to pump the water through the remaining treatment processes.

The wet well is designed to provide suction head prior to pumping to the carbon adsorption tanks. The wet well is equipped with a pressure transducer that provides continuous level measurement and delivers a signal to the PLC. The PLC uses the level signal data to start and stop the three transfer pumps in the wet well, and the pumps are programmed to turn on and off based on a target water level. As water rises in the wet well the first pump will turn on. If the flow rate of the incoming water is higher than the first pump capacity, the water will continue to rise and trigger the start of the second pump. The same sequence will be used for operation of the third pump. The system is designed such that if one of the wet well pumps fail, an alarm condition is sent to the SCADA Computer.

One pressure transducer is used to sense the water level in the wet well. The wet well vertical turbine pumps operate based on six liquid level setpoints. There are on and off setpoints for each of the three pumps. The system software allows the operator to adjust the wet well level setpoints along with the sequencing of pump operations. Every two months the operator will review the run time for each wet well pump and then adjust the sequencing to distribute the run time evenly. The wet well system can also be set in manual mode allowing the operator the flexibility of starting or stopping pumps as needed. The operational status for each wet well pump is displayed on the SCADA Computer.

There is one additional switch located at the top of the wet well which is used to detect overflow conditions. If water is about to overflow the wet well, this switch sends a signal to the PLC to shutdown all wellfield submersible pumps.

GAC Adsorption Tanks

The pumps in the wet well discharge into a common 4-inch composite line that leads to GAC adsorption tanks. There are four tanks in the system that receive flow from the wet well. One additional GAC tank is held in reserve to allow for continued operation of the treatment plant should breakthrough of creosote constituents be detected during quarterly effluent sampling required by the NPDES permit.

As shown on Figure 10.2 flow through GAC Tanks 4 and 5 occurs in parallel with each tank receiving a maximum of 100 gpm (200 gpm total maximum throughput). Effluent from these two lead tanks is combined and then pumped in parallel through GAC Tanks 1 and 2. Tank 3 is held in reserve with fresh GAC in case breakthrough is detected.

Each set of tanks, is equipped with a pressure transmitter located on the influent and effluent manifolds (Figure 10.2). The transmitters send a 4 to 20 milliamp signal to the PLC and the PLC sends the data to the SCADA Computer for display on the HMI screen. The pressure data is displayed in pounds per square inch gage (psig). This information along with other data described under report section 10.1.6 (below) will allow the operator to determine when the carbon in the tanks has become clogged and needs to be backwashed or changed.

Wastewater leaving the first set of tanks can be sampled prior to entering the second set of tanks to determine if the carbon is still actively treating the wastewater. The operator will consult with the HWMF Manager to determine when to change the GAC media. See the Replacement of Column Media section for more information.

Final Effluent Flow, pH, and Temperature

Following treatment in the carbon tanks, the wastewater is combined into a single pipe and ultimately discharges into the Snake River. The effluent pipeline is equipped with an electronic flowmeter that records the flow rate and totalizes the quantity of water leaving the plant. The flow rate is transmitted to the PLC and displayed on the SCADA Computer. The SCADA Computer is programmed to store the instantaneous flow rate, calculate and store a daily total, a monthly total, six month total, and yearly total as needed for reporting. The daily run time for each pump is also recorded and included in the automatically generated reports.

A sample port on the treatment plant effluent line allows the operator to collect a water sample and then use a portable meter to measure pH and temperature as required by the NPDES permit. The measurements are manually entered by the operator into EXCEL spreadsheets automatically generated by the SCADA reporting software. The pH and temperature data is reported as required by the NPDES permit. .

Back Wash Storage Tank

The backwash storage tank acts as the clean water supply for backwashing each of the GAC tanks. The effective volume available for backwashing is 3,000 gallons.

Floor Sump Pump

The floor sump pump is activated by a level switch in the sump which is wired through the PLC. If the sump fills with water the pump will start and the operator will be notified. If the operator is on-site conducting a backwash operation this will involve the sump pump and will also cause a notification which is simply acknowledged by the operator.

Leak Detection

Leak detection alarms occur in response to high level switches located in both the floor sump and the wet well that sense the overflow of wastewater. High level alarms for the wet well and the floor sump shut down the wellfield submersible pumps. Both of these alarm conditions initiate immediate notification of the plant operator through the use of an autodialer system.

SCADA Computer System

The automated system is monitored by an operator who will be on-site to inspect the wells and treatment system once per week and by the HWMF Manager who logs on remotely to check the system multiple times per week. The system is designed with alarms that activate when there are certain operating conditions, equipment failures, fire, or security breaches. The control computer has been programmed to initiate notifications in the order described in Permit Attachment 2 Volume I Chapter 5 (Contingency Plan). Detailed descriptions of the SCADA hardware and software systems as well as the operating instructions for control of the system through the SCADA HMI screens are provided in the SCADA Manual.

The SCADA computer runs proprietary commercial plant software and is located in the water treatment building. The SCADA computer receives the instrument input and output data handled by the PLC. It also provides data to the PLC from the operator such as setpoint values and equipment status selections like auto/manual or start/stop settings. The software graphically displays the treatment plant process and control systems on the SCADA computer screen.

The SCADA Computer is equipped such that it can be accessed remotely over the internet. Remote access allows full control of the system and access to all stored data and reports. Remote access allows the operator and the system designer to monitor the process, review and analyze data, and make adjustments to the system from any location providing internet access. The SCADA Computer is backed up to a computer located in the “supervisor’s office” building located northeast of the treatment building. Data is backed up via hardwired cable extending between the two buildings. Should something happen to the computer the data can be retrieved and reloaded from this second computer.

The system generates alarms if there are mechanical or electrical failures in the equipment. For example, if the VFD detects that a pump has stopped or is having electrical problems, it will create an alarm and display it on the SCADA Computer. Also, if there is a leak in the building piping and water completely fills the wet well or floor sump then level sensing will shut off treatment system equipment to prevent the leakage from accumulating. An alarm will be sent to the SCADA Computer and the operator will be notified. A list of alarms is provided in the SCADA Manual.

The SCADA Computer is set up to record and send notification of appropriate system alarms to the proper personnel. The WIN 911 software package can communicate via telephone, email, or cell phone. Notification shall be in accordance with the Permit Attachment 2 Volume I Chapter 5 (Contingency Plan) requirements.

System operating permits require the collection of daily flow rate records for each well, quarterly effluent pH, quarterly temperature, and a detailed operating log. The SCADA Computer has been configured to generate the permit required reports. PacifiCorp will prepare a semi-annual letter report and a complete annual report that summarizes the system performance with respect to hydraulic capture in Aquifers 1 and 2, identifies areas of noncompliance, and provides permit required site data.

10.1.5.5 Startup Procedures

Startup procedures for the automated system are provided in the SCADA Manual. Prior to initiating the startup procedures open and close the appropriate valves so that the treatment plant will be in the desired mode of operation when the well extraction pumps are turned on. For an overview of the treatment system and the piping scheme refer to Figure 10.2. Sampling/vent valves located next to the flow meters on the individual well pump discharge lines should be opened during startup to allow air to escape and thereby reduce the initial hydraulic pressure. Once the flow reaches the valve, the operator will shut the valve and direct the water up to the weir box.

10.1.5.6 Shutdown Procedures

Shutdown procedures are provided in the SCADA Manual.

10.1.5.7 Backwashing

Current operations typically require backflushing of the two lead GAC tanks only. When the inlet pressure to the two lead GAC vessels rises to levels above 70 psi (for wet well discharge rates of approximately 150 gpm), backflushing is generally required. Another commonly used indicator that backwashing is needed is the increased operation of the second pump in the wet well. Following backwashing, the backpressure through the GAC tanks is low enough that one wet well pump can meet the needs of the system with the second pump turning on only intermittently. When the system requires two wet well pumps to run most of the time, it is an indication that the lead GAC tanks require back flushing.

Prior to backflushing, the treatment plant effluent is redirected to a clean water tank. When the clean water tank is full, the treatment plant is temporarily shut down and water from the backwash clean water storage tank run backwards through a selected GAC vessel. The discharge from this operation is directed into a backwash waste tank. The typical procedure is to backflush one full tank (3000 gallons) from the clean water tank through the two lead GAC vessels (approximately 1500 gallons through each one). On certain occasions, multiple filling of the clean water storage tank maybe required to complete the backflushing process. Refilling of the clean water tank would be accomplished by restarting the treatment plant and directing the plant effluent to the clean water storage tank. Once the clean water tank is refilled, the treatment plant would be shut down and the back flushing process continued. The backflushing procedure requires real time interpretation of the flow and pressure data as wells as a mastery of the treatment plant operations. New operators will be trained by an experienced operator prior to performing these duties on their own.

The two lead GAC tanks have individual effluent flow meters which provides additional information used to interpret the status of the backflushing operations. When finished with the back flushing process, the inlet pressure to the lead GAC vessels is expected to drop to approximately 30 psi (for a wet well flow rate of approximately 150 gpm). Generally the backfush process is performed every two weeks.

The media in the GAC adsorption tanks performs both filtering of suspended solids and removal of dissolved organics. Two factors will lead to excessive pressure loss across a column and, therefore, necessitate backwashing.

- Particulate matter will be trapped in the column media bed.
- The media in the tanks will compress over time.

During backwash, previously treated water will be pumped through the bed in a direction opposite to normal flow. This will cause particulates to dislodge and be carried out of the system into the backwash waste tank.

10.1.5.8. Pressure Indicators on GAC Tanks

Each set of two GAC tanks is equipped with inlet and outlet pressure gauges. The difference between the two gauge pressures for a given set of tanks indicates the pressure loss across the combined set of tanks. When the differential pressure across the lead set of GAC tanks is greater than 50 psi the operator should consider backflushing.

10.1.6 Maintenance

10.1.6.1. General

The upkeep and maintenance of the facility is critical to providing the continuous operation required to maintain hydraulic capture of impacted groundwater as well as to maintain the efficiency of the GAC treatment system. Timely and proper equipment maintenance, housekeeping, inspection and repairs to the Land Disposal Unit asphalt cover, maintenance and testing of fire extinguishers (Figure 10.5), and general facilities upkeep are important aspects of the program.

10.1.6.2. Planning and Scheduling

This treatment facility will be operated 24 hours per day, 365 days a year. Under these conditions maintenance must be planned and scheduled so that as little downtime as possible occurs. Maintenance activities requiring system shut down shall be limited to a total of 72 hours or less. Shut downs that are expected to exceed this require capture analyses and prior authorization from the Idaho Department of Environmental Quality.

Preventive Maintenance

The manufacturer's maintenance manual is generally the best guide for preventive maintenance instructions for specific equipment. Vendor supplied equipment maintenance manuals are provided in the 2011 Equipment Information Manual. Most equipment is mass-produced on a competitive basis, and the cost of maintenance should be consistent with the equipment's value, life expectancy, and replacement costs.

The following list is a preventative maintenance schedule suggested for the groundwater treatment plant:

Weekly Monthly and Quarterly

- Complete the inspections and fill out Forms 10.2, 10.3, and 10.4. Note that inspection forms provided in Chapter 6 (Forms 6.1, 6.2, and 6.3) are duplicates of Forms 10.2, 10.3, and 10.4, respectively.
- Enter the weekly maintenance activities and operations information into the EXCEL spreadsheet automatically generated by the XL Reporter software system. Print the spreadsheet out weekly and maintain in a three ring binder in the project files at the facility,
- Check all operating supplies and replace as required.
- Perform weekly lubrication or as needed.

Annually

- Review the performance of each pump during seasonal low and high water conditions and adjust between manual, flow, or level control as appropriate. Service the pumps if required.
- During the first year of automation, compare manual measurements of groundwater elevations to pressure transducer measurements for each well. Adjust the user input transducer elevation or service the pressure transducer as appropriate.
- Clean all ventilation screens and openings.
- Clean or replace ventilation filters.
- All electrical devices should be inspected for proper operation and condition.

10.1.6.3 Major Equipment Information

The original Equipment Information Manual lists the suppliers, manufacturers, and installers of the original equipment at the groundwater treatment plant. The 2011

Equipment Information Manual provides detailed information for the automated systems installed in 2010 - 2011. Manufacturers or suppliers should be contacted for spare or replacement parts, or for information regarding unusual problems. Changes in addresses, phone numbers, and representatives' names should be recorded for future reference.

Where available, manufacturers’ literature on operation and maintenance have been included in each chapter of the original or 2011Equipment Information Manuals. Maintenance is required for pumps, down well pressure transducers, GAC, and HVAC equipment at the site. The following sections discuss this maintenance.

Pumps

Groundwater Extraction Pumps and Wells

The submersible pumps that have been installed in the monitoring and recovery wells, are water-cooled and lubricated and should require very little maintenance. Pumps do malfunction on occasion, and it is possible that the yields of some wells will diminish beyond what is expected from the seasonal water level fluctuations. It is the objective of this section to provide some simple tests to help the operator distinguish decreases in well yield due to the seasonal water level cycle and/or interference from other wells in the recovery well pumping system from pump malfunctions and actual deterioration of well performance.

Usually the first indication that a pump or well is malfunctioning is an observed decrease in yield. As has been pointed out, well yield in most wells at the HWMF and Aquifer 1 wells in particular decrease as water levels fall during winter and spring and increase as water levels rise during summer and fall. Well yields will also decrease as water levels fall due to the combined drawdowns of all the extraction wells in the pumping system. If the decrease in yield is greater than would be expected or than has been previously observed from the seasonal or pumping system lowering of water levels, then further checking is required.

If the flow rate measured electronically, calculated from the weir, or, by timing the discharge into a 55-gallon drum, is less than expected, a specific capacity test should be conducted. Results should be compared with what would be expected, or ideally what has been previously observed, for the time of year, interference from nearby wells, etc.

If the resulting specific capacity is significantly different from what would be expected, then the pump should be checked. Before a pump technician is consulted, the operator should compare the performance of the pump with that which is predicted by its rating curve. Brand names and model numbers of pumps installed in individual wells are listed in the "Pumps" section of the original and 2011 Equipment Information Manuals. The rating curves for the pumps are also provided in the referenced manuals. Total dynamic head is equal to the sum of the static head and the friction losses. Static head can be estimated by measuring the pumping water level elevation and subtracting it from elevation (approximate) of the discharge point. Friction losses should be negligible for the pipe diameters and recommended pumping rates when compared to the total head.

If the discharge rate of the pump indicates a total dynamic head that is much less than what it is estimated, then the pump may be malfunctioning. Before a trained pump technician is called in, the operator should surge the pump. At the HWMF, creosote has been observed to adsorb strongly to clay particles and become stuck to the screens of some pumps. Sometimes a pump screen that is clogged in such a way can be cleared by alternately turning on and turning off the pump. This should be done in 5-minute intervals taking care that the pump is not turned on while water is still flowing back down through the pump. Because the check valve has been removed from the pumps, when a pump is turned off the water in the discharge pipe above the water level in the well will flow backward through the pump and out the pump screen, effectively surging the pump. If the pump is turned on while the water is still flowing backwards, the pump motor can be seriously damaged. If back flushing does not significantly increase the discharge rate, a trained pump technician should be called in by the operator to service the pump

Remember that when surging the pump, have the sample tap open immediately inside the treatment building so that an air release occurs and a water hammer does not develop.

Otherwise, pipe damage may occur and water will not backflow through the pump as desired.

If the pump appears to be operating up to its specification and the specific capacity appears to be smaller than would be expected as the result of seasonal water level fluctuations or interference from other pumping wells, then the actual yield of the well may have diminished. Driscoll (1986) lists five major causes of deteriorating well performance, which can be summarized as follows:

1. Growth of biological material on the well screen and formation materials surrounding the well screen.
2. Chemical precipitation of mineral matter on the well screen and formation materials surrounding the well screen.
3. Plugging of the formation around the well screen by fine particles.
4. Sand pumping which can cause localized corrosion of the well screen or casing, pitting of the pump impellers, and damage to the pump bearings.

Of these five possibilities, biological growth and clay and silt plugging have the greatest potential to affect the yield of wells in the extraction well pumping system at the HWMF.

If performance deteriorates for a well or wells in the extraction well pumping system, then remedial measures may be required and an experienced hydrogeologist or engineer may need to be consulted.

In summary, maintenance of the submersible well pumps should be minimal. The operator can conduct some simple tests to help identify the cause of deteriorating well yield and should contact a trained pump technician specified in Section 10.3 if the pump itself appears to be malfunctioning.

Wet Well Vertical Turbine Pumps

No routine maintenance is required for the wet well pumps, but there is maintenance required for the motors. The motors must be inspected at regular intervals. Keep the motors clean and the ventilation openings clear of dust dirt or other debris. Lubricate the units in accordance with the operating instructions in the original Equipment Information Manual and the instruction plate on the unit. Excessive lubrication may damage the unit.

Horizontal Centrifugal Pumps

Backwash Pump

The water running through the pump keeps it lubricated. So long as it never runs dry, it will require no routine lubrication. Periodically check the output of the pump versus its performance curve to be assured that the pump is operating properly. See the original Equipment Information Manual for more detailed information.

Sump Pump

This pump requires no periodic maintenance; however, occasional manual priming and draining may be required.

Pump Priming

1. Use nipple, tee, and pipe plug in discharge opening of the pump.
2. Remove plug from tee in the discharge piping.
3. Fill the pump with water through the opening in tee until it remains full or above the inlet of the pump.
4. Replace the plug.
5. A steady flow of water will be noted if the pump is properly primed.

6. If the pump does not prime in 5 to 10 minutes, check all pipe connections or use vacuum gauge to determine a possible leak.

Pump Draining

1. Turn off the electrical power to the pump.
2. Drain pump body by removing the drain plug in the bottom of the body.
3. Disconnect the power before working on the pump or motor.

10.1.7 Safety

Due to the nature of this facility, and the fact that it deals with a hazardous waste, safety is a top priority. Site personnel should follow the directions provided in:

1. The PacifiCorp site specific Health and Safety Plan,
2. Permit Attachment 2 Volume I Chapter 5 (Contingency Plan), and
3. Permit Attachment 2 Volume I Chapter 6 (Spill Prevention and Response Plan).

10.1.7.1. Normal Operating Conditions

Under normal operating conditions, the following items will be available:

1. Chemical resistant coveralls
2. Fire extinguisher
3. Protective goggles
4. Rubber boots and gloves
5. Hard hat

6. Safety glasses
7. Steel tipped boots

10.1.7.2. Replacement Of Column Media

An air purifying respirator, APR, either half or full-face, with an organic vapor cartridge, must be worn at all times during the removal of column media or the filling of a tank with new media. Rubber boots, gloves, and coveralls must be worn when media is being replaced. This work is expected to be subcontracted to GAC supplier and the site HWMF Manager will coordinate with the selected subcontractor to ensure that they have the proper HAZWOPER training and are licensed to haul hazardous and/or solid waste. If PacifiCorp employees are used to perform the carbon exchange field services, a complete respirator training and fit testing program would be implemented prior to performing the work. All wastes would be properly characterized under the direction of the HWMF manager and disposed of in accordance with RCRA and state requirements.

10.1.7.3. Emergency Phone Numbers

In case of an emergency, contact information for the Emergency Coordinators is available in Table 10.4. This table also includes emergency contact numbers for the fire department, the police, and the medical center.

10.1.8 Recordkeeping

Daily treatment plant information is electronically archived and automated reports generated by the SCADA computer are generated to prepare required quarterly, semiannual and annual reports. Hand written site inspection checklist must also be completed by the operator to maintain compliance with the RCRA permit. Forms 10.2 (Weekly Inspection), 10.3 (Monthly Inspection), and 10.4 (Quarterly Inspection) are to be completed and stored in the project folders on site.

It is the responsibility of the operator to verify that clear and accurate records of all data are being collected both automatically and manually and then stored at the site.

10.1.9 Personnel Training for Treatment Plant Operations

10.1.9.1. Introduction

The PacifiCorp groundwater treatment plant in Idaho Falls has been constructed to allow the proper treatment and disposal of the hazardous constituents that are currently in the groundwater beneath the site. This chapter details the staff-training program for the successful operation of the treatment plant. It discusses training issues related only to the operation of the treatment system. Refer to Permit Attachment 2 Volume I Chapter 7 (Training) for further requirements.

10.1.9.2. Job Descriptions

The three classifications of PacifiCorp employees involved with system operations or emergency response at the site are:

1. Hazardous Waste Management Facility Manager
2. Emergency Coordinator
3. On-site Environmental Technician / Operator

The role of the Emergency Coordinator is defined in detail in Permit Attachment 2 Volume I Chapter 5 (Contingency Plan) and therefore is not discussed in the follow section.

Further descriptions of the roles of the on-site Environmental Technician and HWMF Manager with respect to operation of the treatment plant are presented below.

On-site Environmental Technician / Operator

The Environmental Technician / operator is responsible for the successful weekly operation of the treatment plant under the guidance and direction of the HWMF manager. His/her duties with *respect to treatment plant operation* include, but are not limited to:

1. Checking and managing computer generated reports
2. Performing weekly and monthly inspection of the treatment facility along with maintaining the permit required records of these inspections.
3 Maintaining a detailed log of system operations and maintenance activities and entering these data into EXCEL spreadsheets generated by the SCADA computer system.
4. Compliance with all system sampling, testing and monitoring requirements required by the NPDES and RCRA permits.
5. Back flushing of the GAC tanks.
6. Exchange of GAC media when required.
7. Infrequent dewatering of hazardous sludge with proper containerization, labeling, and manifesting of dewatered sludge.
8. Routine maintenance of the facility including but not limited to the lighting, fire extinguishers, HVAC, gates, and the asphalt cap covering the Land Disposal Unit.
9. Annual notification of the local emergency responders of any changes to the Contingency or Spill Response plans for the site.
10. Complying with and documenting all training that has been performed.

Hazardous Waste Management Facility Manager

A HWMF Manager is responsible for remotely monitoring the facility and overseeing the activities of the Environmental Technician. He or she must understand all aspects of treatment plant operation and comply with all federal, state, and local regulations. The supervisor's duties with respect to treatment plant operation include, but are not limited to:

1. Liaison with local officials.
2. Maintain the necessary records to comply with regulations.
3. Oversee and communicate with the on-site Environmental Technician.
4. Coordinate the infrequent shipment of containerized regulated wastes.
5. Coordinate all site training requirements.
6. Updating Contingency and Spill Response plans when needed.

10.1.9.3 Treatment Plant Operations Training

This section discusses the training program for treatment plant operation including content, frequency, and techniques to be used. The training is grouped into two categories: new employee training, and continuing education. Also refer to Permit Attachment 2 Volume I Chapter 7 (Training) for additional requirements.

New Employee Training

Following completion of the appropriate health and safety training, each new on-site Environmental Technician will be instructed by experienced personnel in each of five areas:

1. Unit operations.

2. Pumps and VFDs.
3. Sampling procedures.
4. Routine equipment maintenance.
5. General operation of the treatment plant.
6. SCADA computer operation of the treatment plant.

Hazardous Waste Management Facility Manager

New employees hired as HWMF Managers will have the current HWMF Manager work with him/her for period of time to transfer knowledge about the following topics:

1. Scheduling of infrequent hazardous waste shipments.
2. Introduction to local authorities as deemed necessary.
3. Required paperwork and computer data management.
4. Employee evaluation process.
5. Applicable regulations.
6. Routine equipment maintenance.
7. Sampling procedures.
8. General operation of the treatment plant.
9. SCADA computer operation of the treatment plant.
10. Any other topics as deemed necessary by the current supervisor.

10.1.9.4 Training Duties

The HWMF Manager is responsible for implementing and overseeing the training program. He/she will be responsible for the following duties:

1. Ensuring proper training of employees.
2. Reviewing training documents and the training plan to ensure adequacy with all regulations.
3. Reviewing test scores when required.
4. Coordinating and scheduling training.
5. Reviewing continuing education certificates and maintaining training records.

10.2 ORIGINAL TREATMENT PLANT EQUIPMENT

This section contains information on the suppliers, manufacturers, and installers of the equipment associated with the treatment plant. The original equipment covered in this section is listed below.

- Laboratory Fume Hood
- HVAC
- HVAC Control System
- Pumps
- Pressure Switches
- Pressure Indicators
- Floor Sealer
- Sludge Dewatering System
- Treatment System Media
- Polymer and Feed System
- Fiberglass Tanks
- Yard Piping
- Valves

- Treatment Tanks
- Electrical

For more detailed information on the original (1988) equipment, refer to the Equipment Information Manual. This Manual is stored in the treatment building at the Idaho Falls Hazardous Waste Management Facility. Information relating to the new equipment and electronics installed during the system automations in 2010 - 2011 is documented in the 2011 Equipment Information Manual.

LABORATORY FUME HOOD

Description	Type
Fume Hood	Hamilton Industries Model 5545858-EVectaire Fume Hood, Vectrol Auxiliary Air Assembly, 6-foot hood size, 100-FPM exhaust, 70-percent hood air requirement. Gas, air, and vacuum excluded.
Manufacturer:	Hamilton Industries Two Rivers, Wisconsin 54241 (414) 793-1121

SUPPLY FANS

Item	Description	Type
SF-1	Plant Supply	Greenheck Model BSQ HP 36-50 6,000-CFM, 2.25” H O total static pressure, 5-hp, 460-V, 3-phase
SF-2	Plant Supply	Greenheck Model BSQ HP 14-10 1,600-CFM, 2.0’ H O total static pressure, 1-hp, 460-V, 3-phase
SF-3	Laboratory Supply	Greenheck Model BSQ 12-7, 1,400 CFM, 1.5’ H O total static pressure, ¾-hp, 460-V, 3-phase
SF-4	Fume Hood Supply	Greenheck Model BSQ 9-3, 875-CFM, .625” H O total static pressure, 1/3-hp, 460-V, 3-phase

EXHAUST FANS

Item	Description	Type
EF-1	Plant Addition Exhaust	Greenheck Model BSQ HP 36-50 6,000-CFM, 2.25" H O total static pressure, 5-hp, 460-V, 3-phase
EF-2	Plant Exhaust	Greenheck Model BSQ HP 14-10 1,600-CFM, 2" H O total static pressure, 1-hp, 460-V, 3-phase
EF-3	Fume Hood Exhaust	Greenheck Model BSQ 12-3 1,250-CFM, .625" H O total static pressure, 1/3-hp, 460-V, 3-phase
EF-4	Laboratory Exhaust	PACE Model SCF 73A, 800-CFM, .75' H O total static pressure, 1/3-hp, 115-V, 1-phase
EF-5	Toilet Exhaust	Greenheck Model CSP-55, 400-CFM, .45" H O total static pressure, 360-watts, 115-V, 1-phase

HEAT PUMP

Type:	Trane Company Outdoor Unit Mode No. BWA060A400A Heating/Cooling Coil Model No. BxA 748 P Type A with Coil Casing

THERMAL RECOVERY UNITS

Item	Description	Type
TRU #1	Plant Thermal Recovery Unit	Q-Dot Corporation TRU 120 AL5-42, 6,000-CFM, 36"H x 84"W x 10"D, 6 rows, 8 fins/in., Model TP 120-10 tilt package
TRU #2	Plant Thermal	Q-Dot Corporation TRU 120 AL5-24, 1,600-CFM, 18" H x 48"W x 100", 6 rows, 8 fins/in., Model TP 120-20 tilt package

LOUVERS

Item	Description	Type
L-1	Plant OSA Louver Intake	Construction Specialties Model 4110, 72"W x 6"D, 6,000-CFM
L-2	Plant Exhaust Louver	Construction Specialties Model 4110, 64"W x 4"H x 6"D, 6,000-CFM
L-3	OSA Louver Intake for Plant	Construction Specialties Model 4110, 48"W x 24"H x 6"D, 1,600-CFM
L-4	Exhaust Louver for Existing Plant	Construction Specialties Model 4110, 48"W x 24"H x 6"D, 1,600-CFM
L-5	Laboratory OSA Intake	Construction Specialties Model 4110, 48"H x 48"W x 4"D
L-6	Laboratory Exhaust Louver	

BACK DRAFT DAMPERS

Item	Description	Type
BDD #1	EF-3 Exhaust	American Warming and Ventilating Inc., Model BD-12 with flanged frame, 16x15, 1,250-CFM
BDD #2	EF-4 Exhaust	American Warming and Ventilating Inc., Model BD-12 with flanged frame, 15x9, 800-CFM
BDD #3	EF-5 Exhaust	American Warming and Ventilating Inc., Model BD-12 with flanged frame, 12x6, 460-CFM

MANUAL OPPOSED BLADE DAMPERS

Supply	Rectangular Dampers	Carnes Model 5-60 with externally operated gang damper blades
Exhaust	Round Dampers	American Warming Model VC-23

MOTORIZED DAMPERS

Item	Description	Type
MD-1A	TRU-1 Supply	Ruskin Model CD-50 opposed blade damper with electric operator, 24"W x 24"H, 6,000-CFM
MD-1B	TRU-1 Exhaust	Ruskin Model CD-50 opposed blade damper with electric operator, 24"W x 24"H, 6,000-CFM

MOTORIZED DAMPERS (Continued)

MD-2A	TRU-2 Supply	Ruskin Model CD-50 opposed blade damper with electric operator, 16:W x 12"H, 1,000-CFM
MD-2B	TRU-2 Exhaust	Ruskin Model CD-50 opposed blade damper with electric operator, 16:W x 12"H, 1,600-CFM
MD-3	Laboratory Intake	Ruskin Model CD-50 opposed blade damper with electric operator, 24"W x 24"H, 1,400-CFM
MD-4	Fume Hood Intake	Ruskin Model CD-50 opposed blade, damper with electric operator, 24"W x 24"H, 875-CFM
MD-5	TRU-2 Intake and Building Intake	Ruskin Model CD-50 opposed blade, with electric operator, 48"W x 24"H, 1,600-CFM
MD-6	TRU-2 Exhaust and Building Exhaust	Ruskin Model CD-50 opposed blade, with electric operator, 48"W x 24"H, 1,600-CFM
MD-7	TRU-1 Intake and Building Intake	Ruskin Model CD-50 opposed blade, with electric operator, 75"W x 48"H, 6,000-CFM
MD-8	TRU-2 Exhaust and Building Exhaust	Ruskin Model CD-50 opposed blade, with electric operator, 72"W x 48"H, 6,000-CFM

DUCT HEATERS

Item	Type
EDH-1	Indeeco Model QUA, open coil, 75kW, 4-stage, 480-V, 3-phase, 42"W x 20"H, airflow switch interlock, control Option #, right terminal box overhang.
EDH-2	Indeeco Model QUA, open coil, 25-kW, 3-stage, 480-V, 3-phase, 24"W x 16"H, airflow switch interlock, control Option E, left terminal box overhang
EDH-3	Indeeco Model QUA, open coil, 20-kW, 1-stage, 480-V, 3-phase, 16"W x 16"H, airflow switch interlock, control Option E, right terminal box overhang
EDH-4	Indeeco Model QUA, open coil, 20-kW, 1-stage, 480-V, 3-phase, 16"W x 16"H, airflow switch interlock, control Option E, right terminal box overhang
EDH-5	Indeeco Model QUA, open coil, 12.5kW, 2-stage, 480-V, 3-phase, 14"W x 14"H, airflow switch interlock control Option E, right terminal box overhang
EDH-6	Indeeco Model QUA, open coil, 12.5-kW, 2-stage, 480-V, 3-phase, 14"W x 14"H, airflow switch interlock, control Option E, right terminal box overhang

FILTERS

Item	Description	Type
FH-1	Serves SF-1	Farr30/30, 6,000 CFM, 4 @ 24”x24”x2”, 4@ 16”x25”x2”, 14”x14” sheet metal blank
FH-2	Serves SF-2	Farr 30/30, 1,600 CFM, 2 @ 12”x24”x2”, 1 @ 24”x24”x2”, 12”x12” sheet metal blank
FH-3	Serves SF-3	Farr 30/30, 1,400 CFM, 1 @ 24”x24”x2”
FH-4	Serves SF-4	Farr 30/30, 875 CFM 1 @ 16”x25”x2”
FH-5	Serves TRU-1	Farr 30/30, 6,000 CFM, 2 @ 24”x24”x2”, 2 @ 12”x24”x2”
FH-6	Serves TRU-1	Farr 30/30, 6,000 CFM, 2 @ 24”x24”x2”, 2 @ 12”x24”x2”
FH-7	Serves TRU-2	Farr 30/30, 1,600 CFM, 1 @ 24”x24”
FH-8	Serves TRU-2	Farr 30/30, 1,600 CFM, 1 @ 24”x24”

RETURN/EXHAUST REGISTER AND GRILLES

Item	Description	Type
RG-1	Return Grille	Metal Aire Model CC-5,18”x18”, 800-CFM
RG-2	Return Grille	Metal Aire Model CC-t, 12”x12”, 400-CFM

SUPPLY DIFFUSER AND REGISTER GRILLES

Item	Description	Type
SR-1	Supply Register	Metal Aire Model 1-14004D 12”x12”, 26’ throw, 450-CFM
SR-2	Supply Register	Metal Aire Model 1-14004D 12”x8”, 26’ throw, 400-CFM
SR-3	Supply Register	Metal Aire Model 1-14004D 12”x6”, 32’ throw, 320-CFM
SR-4	Supply Register	Metal Aire Model 1-14004D 12”x6”, 23’ throw, 300-CFM
CD-1	Ceiling Diffuser	Metal Aire Series 8000, Model U3, 12”x6”, 8’ throw, 400-CFM
CD-2	Ceiling Diffuser	Metal Aire Series 8000, Model U3, 8”x8”, 7’ throw, 200-CFM

EXTRACTORS

Carnes Type 1250, Style 3, with synchronized steel curved extractor blades. Heavy side rails and screw operator.

TURNING VANES

Elgin All Tight Type VR with vane side rails and shop fabricated double turning vanes.

ACCESS PANELS AND DOORS

Ventlock size 12” x 16” steel frame with gasket-ground perimeter with hinged plexiglass visual panel or separate size 6” x 8” access door on smaller ductwork.

PUMPS

Item	Description	Type
P-1	Wet Well Vertical Turbine Pump	Peerless Pump Model 6LB 4-stage, with 4” discharge, 4-15/32” impeller, 10 hp, 460-V, 3-phase, 3,600-rpm
P-2	Wet Well Vertical Turbine Pump	Peerless Pump Model 6LB 4-stage, with 4” discharge, 4-15/32” impeller, 10-hp, 460-V, 3-phase, 3,600-rpm
P-3	Wet Well Vertical Turbine Pump	Peerless Pump Model 6LB 4-stage, with 4” discharge, 4-15/32” impeller, 10-hp, 460-V, 3-phase, 3,600-rpm
P-4	Backwash Pump	Berkeley B 2-1/2 TPM-S centrifugal gal with 3” discharge, 5-11/16 impeller, 480-V, 3-phase, 15-hp
P-5	Floor Pump	Tait 20 SP, 2-hp, 1-1/2” discharge 220-V, 3-phase

Manufacturer: Peerless Pump
1200 Sycamore Street
Montebello, California 90640
(213) 726-1232

PRESSURE SWITCHES

Item	Description	Type
PS	All recovery well discharge	Mercoid DA-31-3 Range 0-15 psig with a ¼" NPT lower brass connection and Ashcroft gauge 20-1,000', H-026-15, 2" dial, 0-15 psig range, with ¼" NPT back brass connection

Manufacturer: The Mercoid Corporation
4201 West Belmont Avenue
Chicago, Illinois 60641

PRESSURE INDICATORS

Item	Description	Type
PI	All treatment plant pressure indicators	Ashcroft Commercial Pressure Gauge Model 45-1000-H-02L-60# 4-1/2" diameter dial with 1 psi increments, ¼" NPT lower brass connection, 0-60 psi range

Manufacturer: Ashcroft
250 East Main Street
Stratford, Connecticut 06497
(203) 378-8281

FLOOR SEALER

Sikagard 62 Epoxy (red) 4-gallon units
Sikagard 62 Epoxy (gray) 4-gallon units
Sikagard Granuals – Case

Manufacturer:	Sika Corporation P. O. Box 297 Lyndhurst, New Jersey 07071 (201) 933-8800

SLUDGE DEWATERING SYSTEM

Type: J-1800 Gravity Filter System with Disposable Filter Media 25-Micron-Mesh Filter Paper

Manufacturer/ Supplier:	Water Reclamation, Inc. P.O. Box 68 Florence, Kentucky 41042 (606) 283-2121

FIBERGLASS TANKS

Both fiberglass tanks were made to the same specifications as listed below. The gray tank is for backwash waste, while the blue tank holds the treated groundwater to be used as a backwash supply.

Material	Fiberglass reinforced polyester
Diameter (ft)	10
Side Height (ft)	6.5
Volume (ft^3)	500

The observation tank was also produced by the same manufacturer with the same construction materials.

Tanks Supplied By:	George Fisher Fisher Company 3015 South 3600 West West Valley City, Utah 84119 (801) 973-8250

YARD PIPING

All yard piping materials and construction were provided by:

Bingham Mechanical of Wyoming
P.O. Box 2082
Idaho Falls, Idaho 83402
(208) 522-4484

NPDES DISCHARGE LINE

Discharge lines, piping materials and construction were provided by:

Atlas Mechanical
1380 Enterprise
Idaho Falls, Idaho 83402
(208)523-7030

VALVES

Supplier/Installer:	Bingham Mechanical of Wyoming 1085 Milligan Road P.O. Box 2082 Idaho Falls, Idaho 83402 (208) 522-4484

MANUAL VALVES

Valve No.	Type
MV-1 through MV-9	Two-inch Stockham butterfly valve, Teflon seats, stainless steel shaft, 200-psi, lug body, 10-position lever operator
MV-16, MV-17	Six-inch Stockham butterfly valve, Teflon seats, stainless steel shaft, 200-psi, lug body, 10-position lever position
MV-18, MV-19, MV-20	Four-inch Stockham butterfly valve, Teflon seats, stainless steel shaft, 200-psi, lug body, 10-position lever operator
MV-21 through MV-28	Four-inch Dezurik wafer-type butterfly valve with TFE seats, bronze disc, stainless steel shaft, 10-position lever operator
MV-29, MV-30	Four-inch Jamesbury full-bore ball valve, stainless steel body, TFE seats and seals, Type 6150-11-3600TT-1
MV-31, MV-32	Four-inch Dezurik lug-type butterfly valve, TFE seats and seals, bronze disc, stainless steel shaft, 10-position lever operator
MV-35 through MV-68	Four-inch Stockham butterfly valve, Teflon seats, stainless steel shaft, 200-psi, lug body, 10-position lever operator
MV-69, MV-70, MV-71	Two-inch Conbraco Industries Apollo full-bore threaded ball valve, bronze body, TFE seats and seals
MV-72, MV-73	Four-inch Stockham butterfly valve, Teflon seats, stainless steel shaft, 200-psi, lug body, 10-position lever operator
MV-74, MV-76	Four-inch Chemtrol PVC threaded ball valve, Teflon seats and seals
MV-75, MV-77	Four-inch Stockham butterfly valve, Teflon seats, stainless steel shaft, 200-psi, lug body, 10-osition lever operator

CHECK VALVES

CV-1 through CV-9	Two-inch Watts Series 600 threaded spring check valve, bronze body
CV-17, CV-18, CV-19	Four-inch Stockham steel swing check valve
CV-20	Two-inch Stockham steel swing check valve
CV-21	Four-inch Stockham steel swing check valve

SAMPLING VALVES

S-1 through S-9	One-inch Watts or Conbraco Industries Apollo full-bore threaded ball valve, bronze body, TFE seats and seals
S-10, S-11	One-half inch Watts threaded ball valves, bronze body, TFE seats and seals
S-12	One-inch Watts threaded ball valve, bronze body, TFE seats and seals
S-13, 14, 15	One-half inch Watts threaded ball valves, bronze body, TFE seats and seals
S-20, 21	Pressure gauge drain taps, ¼-inch steel gate valve
S-22 through S-27	One inch Watts threaded ball valve, Teflon seats, bronze body

TREATMENT TANKS

Supplier: Hungerford and Terry
226 Atlantic Avenue
P.O. Box 45
Clayton, New Jersey 08312-0045
(609) 881-3200

ELECTRICAL

Installer: Arco Electric
1460 Pedersen Street
Idaho Falls, Idaho 83402
(208) 522-2185

10.3 SYSTEM AUTOMATION EQUIPMENT (INSTALLED 2010 - 2011)

The 2011 Equipment Information Manual and the SCADA Manual provide further details on new equipment and software systems installed during the system automation performed in calendar years 2010 - 2011. General contact information for the primary equipment is summarized below.

MAGNETIC FLOW METERS

Locations: (Well pump discharge lines, GAC tank 1, GAC tank 2)

Manufacturer: Endress Hauser

Supplier: Weidner and Associates
135 West 7065 South
Midvale, Utah 84047
801-565-9598

FLOAT LEVEL SWITCH

Locations: (Wet well, Floor sump)

Manufacturer
and Supplier: Dwyer
102 Indiana Hwy 212
Michigan City, Indiana 46360
219-872-9057

LEVEL TRANSMITTER

Locations: (Wet well, Backwash storage tank)

Manufacturer
and Supplier: Dwyer
102 Indiana Hwy 212
Michigan City, Indiana 46360
219-872-9057

VARIABLE FREQUENCY DRIVES (VFDs)

Locations: (Individual units for each pumping well)

Manufacturer: Square D

Supplier: Cutting Edge Electric
614 Douglas Ave.
Idaho Falls, Idaho 83401
208-360-1573

SUBMERSIBLE WELL PUMPS

Locations: (Individual units for each pumping well)

Manufacturer: Grundfos

Supplier: Robertson’s Supply
1000 Crane Drive
Idaho Falls, Idaho 83402
208-524-5862

WELL LEVEL TRANSMITTER

Locations: (Individual units for selected Aquifer 1 and 2 wells)

Manufacturer: In-Situ Inc. (Level Troll Models 300 and 500)

Supplier: Electronic Data Solutions
PO Box 842
Liberty, Utah 84310
801-745-1437

RADIO TRANSMITTER SYSTEM (Perimeter Wells)

Locations:	(Perimeter wells)
Manufacturer:	Campbell Scientific
Supplier:	Electronic Data Solutions PO Box 842 Liberty, Utah 84310 801-745-1437

PRESSURE TRANSMITTER

Locations:	(Before, between, and after the GAC Tanks)
Manufacturer and Supplier:	Dwyer 102 Indiana Hwy 212 Michigan City, Indiana 46360 219-872-9057

PC WORKSTATION

Location:	(HMI Computer Workstation)
Manufacturer:	Dell
Supplier:	Diversified Control Solutions 2580 East Shoshone Drive Idaho Falls, Idaho 208-522-9365

PROCESS LOGIC CONTROLLER SYSTEM (PLC)

Location:	(West Electronic Control Room)
Manufacturer:	Allen-Bradley
Supplier:	Diversified Control Solutions 2580 East Shoshone Drive Idaho Falls, Idaho 208-522-9365

INDUSTRIAL NETWORK SWITCH

Location: (PLC Cabinet)

Manufacturer: N-Tron

Supplier: Diversified Control Solutions
2580 East Shoshone Drive
Idaho Falls, Idaho
208-522-9365

ELECTRONIC FIREWALL

Location: (HMI Computer)

Manufacturer: Netgear

Supplier: Diversified Control Solutions
2580 East Shoshone Drive
Idaho Falls, Idaho
208-522-9365

BACKUP POWER SUPPLY

Locations: (HMI Computer and PLC Cabinet)

Manufacturer: APC

Supplier: Diversified Control Solutions
2580 East Shoshone Drive
Idaho Falls, Idaho
208-522-9365

ROCKWELL WORKSTATION SOFTWARE

Programs: (Factory Talk View Site Edition, RSLogix 5000 Mini)

Manufacturer: Rockwell Software / Allen Bradley

Supplier: Diversified Control Solutions
2580 East Shoshone Drive
Idaho Falls, Idaho
208-522-9365

AUTODIALER SOFTWARE

Program:	Win-911/Lite
Manufacturer:	Specter Instruments
Supplier:	Diversified Control Solutions 2580 East Shoshone Drive Idaho Falls, Idaho 208-522-9365

AUTOMATED REPORTING SOFTWARE

Program:	XLReporter
Manufacturer:	Sytech
Supplier:	Diversified Control Solutions 2580 East Shoshone Drive Idaho Falls, Idaho 208-522-9365

STANDARD PC SOFTWARE

Programs:	MS Office Basic and SQL Server Express
Manufacturer:	Microsoft
Supplier:	Diversified Control Solutions 2580 East Shoshone Drive Idaho Falls, Idaho 208-522-9365

SOFTWARE FOR REMOTE LOGIN

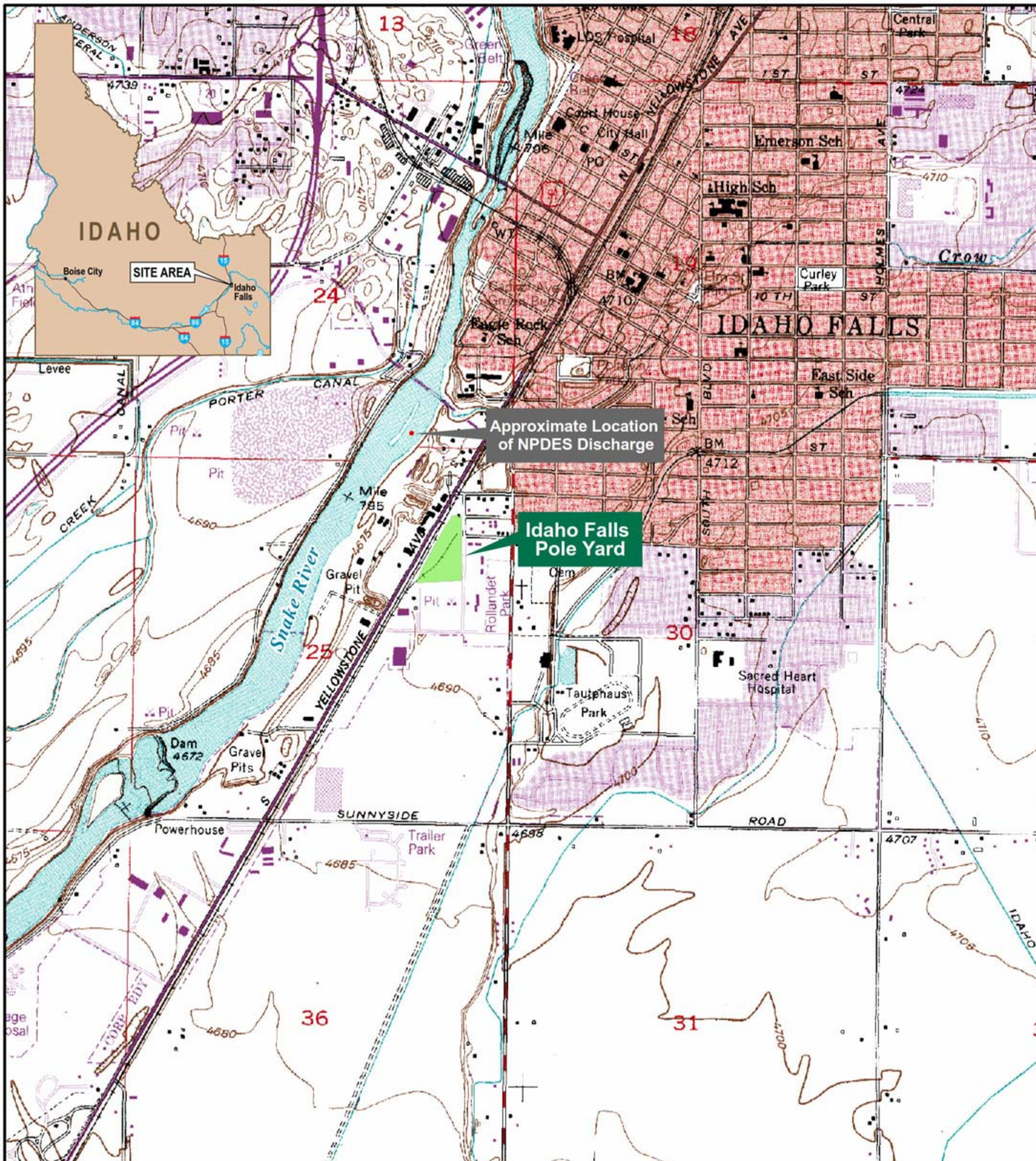
Programs:	Real VNC Enterprise
Manufacturer:	RealVNC
Supplier:	Diversified Control Solutions 2580 East Shoshone Drive Idaho Falls, Idaho 208-522-9365

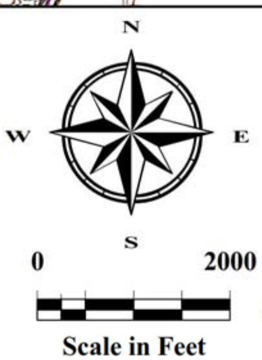
10.4 WEIR BOX REPLACEMENT (INSTALLED OCTOBER 2016)

The wastewater influent weir box was replaced with a new stainless steel box in October 2016. General contact information for the primary equipment is summarized below.

WEIR BOX

Locations:	(After pumping wells and floor sump, prior to clarifier.)
Manufacturer:	Bingham Mechanical
Supplier:	Bingham Mechanical (Jason Olson) 4400 S Yellowstone Idaho Falls, Idaho 83402 208-522-4484





Notes: Base is USGS Idaho Falls North 7.5 quadrangle.
Datum; UTM NAD27 Zone 12N

IDAHO FALLS POLE YARD

LOCATION MAP

FIGURE 10.1

FILE Fig01.1_Idaho_Falls_Location.mxd 5/8/08 SLC

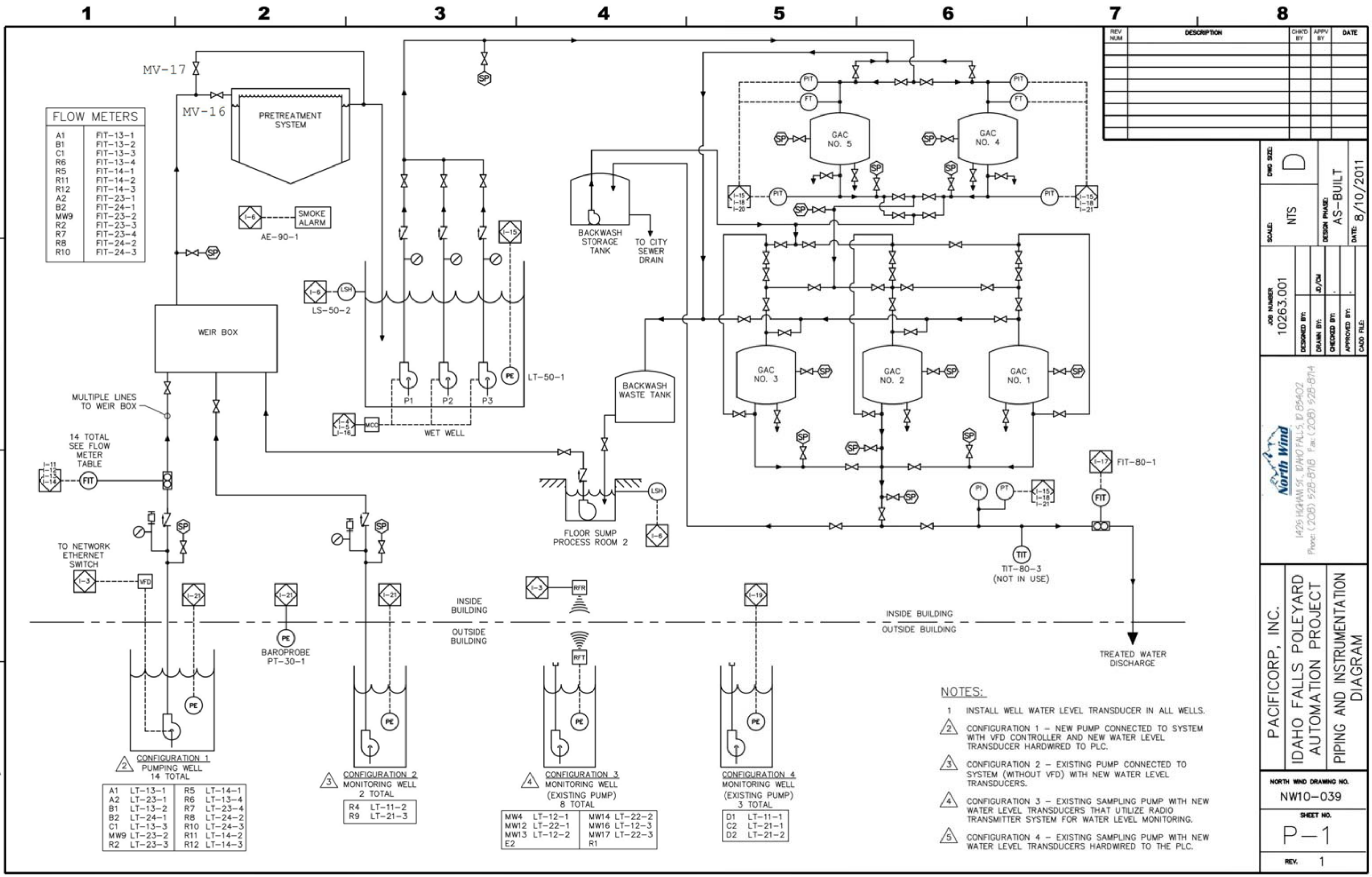
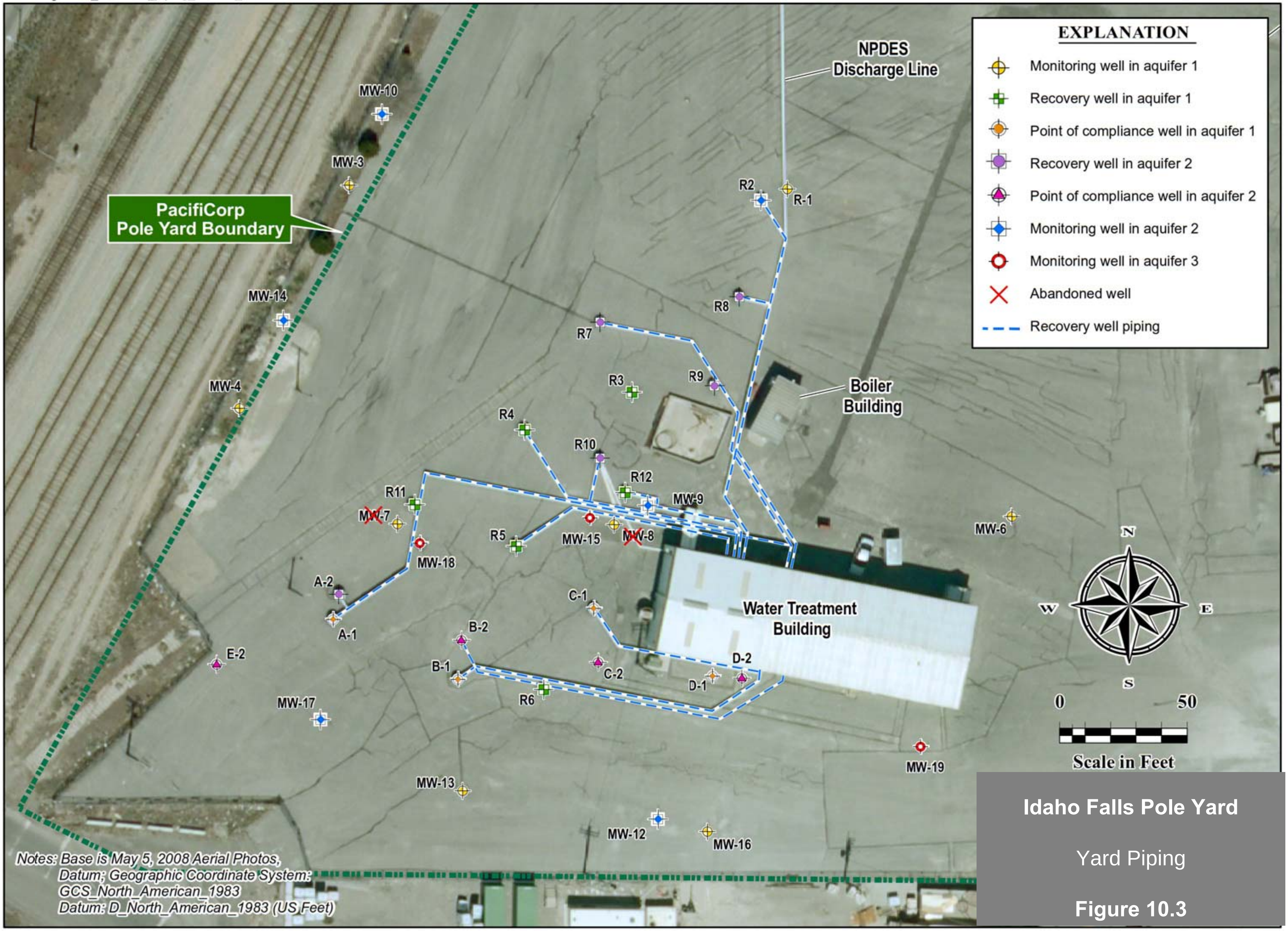

FLOW METERS
A1 FIT-13-1
B1 FIT-13-2
C1 FIT-13-3
R6 FIT-13-4
R5 FIT-14-1
R11 FIT-14-2
R12 FIT-14-3
A2 FIT-23-1
B2 FIT-24-1
MW9 FIT-23-2
R2 FIT-23-3
R7 FIT-23-4
R8 FIT-24-2
R10 FIT-24-3
MV-17
MV-16
PRETREATMENT SYSTEM
SMOKE ALARM
AE-90-1
LS-50-2
LT-50-1
WEIR BOX
P1
P2
P3
WET WELL
MULTIPLE LINES TO WEIR BOX
14 TOTAL SEE FLOW METER TABLE
TO NETWORK ETHERNET SWITCH
BACKWASH STORAGE TANK
TO CITY SEWER DRAIN
BACKWASH WASTE TANK
FLOOR SUMP PROCESS ROOM 2
GAC NO. 5
GAC NO. 4
GAC NO. 3
GAC NO. 2
GAC NO. 1
FIT-80-1
TIT-80-3 (NOT IN USE)
INSIDE BUILDING
OUTSIDE BUILDING
BAROPROBE PT-30-1
TREATED WATER DISCHARGE
CONFIGURATION 1 PUMPING WELL 14 TOTAL
A1 LT-13-1 R5 LT-14-1
A2 LT-23-1 R6 LT-13-4
B1 LT-13-2 R7 LT-23-4
B2 LT-24-1 R8 LT-24-2
C1 LT-13-3 R10 LT-24-3
MW9 LT-23-2 R11 LT-14-2
R2 LT-23-3 R12 LT-14-3
CONFIGURATION 2 MONITORING WELL 2 TOTAL
R4 LT-11-2
R9 LT-21-3
CONFIGURATION 3 MONITORING WELL (EXISTING PUMP) 8 TOTAL
MW4 LT-12-1 MW14 LT-22-2
MW12 LT-22-1 MW16 LT-12-3
MW13 LT-12-2 MW17 LT-22-3
E2 R1
CONFIGURATION 4 MONITORING WELL (EXISTING PUMP) 3 TOTAL
D1 LT-11-1
C2 LT-21-1
D2 LT-21-2
NOTES:
1 INSTALL WELL WATER LEVEL TRANSDUCER IN ALL WELLS.
2 CONFIGURATION 1 – NEW PUMP CONNECTED TO SYSTEM WITH VFD CONTROLLER AND NEW WATER LEVEL TRANSDUCER HARDWIRED TO PLC.
3 CONFIGURATION 2 – EXISTING PUMP CONNECTED TO SYSTEM (WITHOUT VFD) WITH NEW WATER LEVEL TRANSDUCERS.
4 CONFIGURATION 3 – EXISTING SAMPLING PUMP WITH NEW WATER LEVEL TRANSDUCERS THAT UTILIZE RADIO TRANSMITTER SYSTEM FOR WATER LEVEL MONITORING.
5 CONFIGURATION 4 – EXISTING SAMPLING PUMP WITH NEW WATER LEVEL TRANSDUCERS HARDWIRED TO THE PLC.
REV NUM DESCRIPTION CHK'D BY APPV BY DATE
DWG SIZE: D
SCALE: NTS
DESIGN PHASE: AS-BUILT
DATE: 8/10/2011
JOB NUMBER 10263.001
North Wind
1425 HIGHAM ST, IDAHO FALLS, ID 83402
Phone: (208) 528-8718 Fax: (208) 528-8714
PACIFICORP, INC.
IDAHO FALLS POLEYARD AUTOMATION PROJECT
PIPING AND INSTRUMENTATION DIAGRAM
NORTH WIND DRAWING NO. NW10-039
SHEET NO. P-1
REV. 1

Figure 10.2

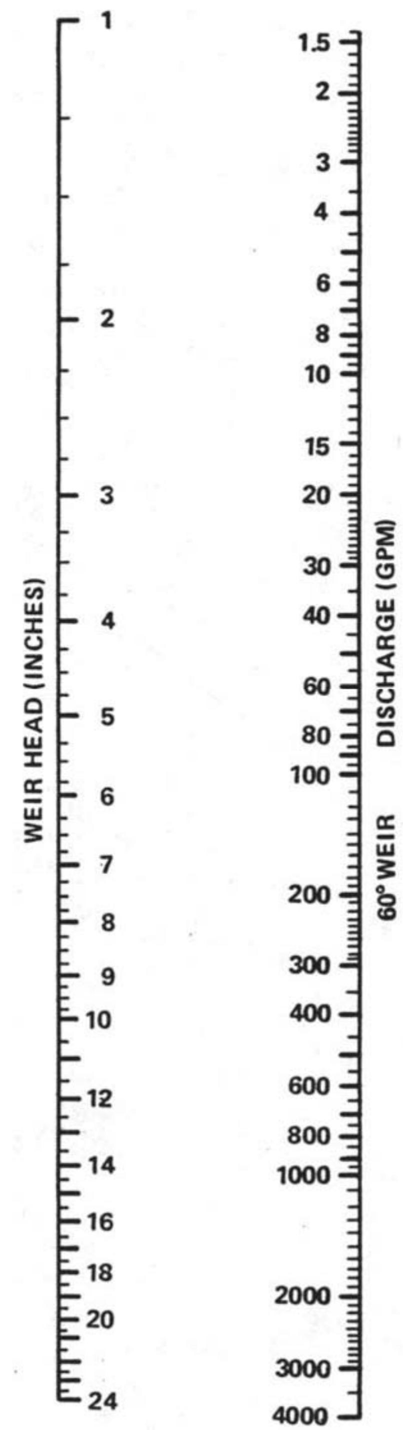
FILE *FigA-3 IF_PoleYard_piping_NAD83_1110.mxd 11/30/10 SLC*



Idaho Falls Pole Yard

Yard Piping

Figure 10.3



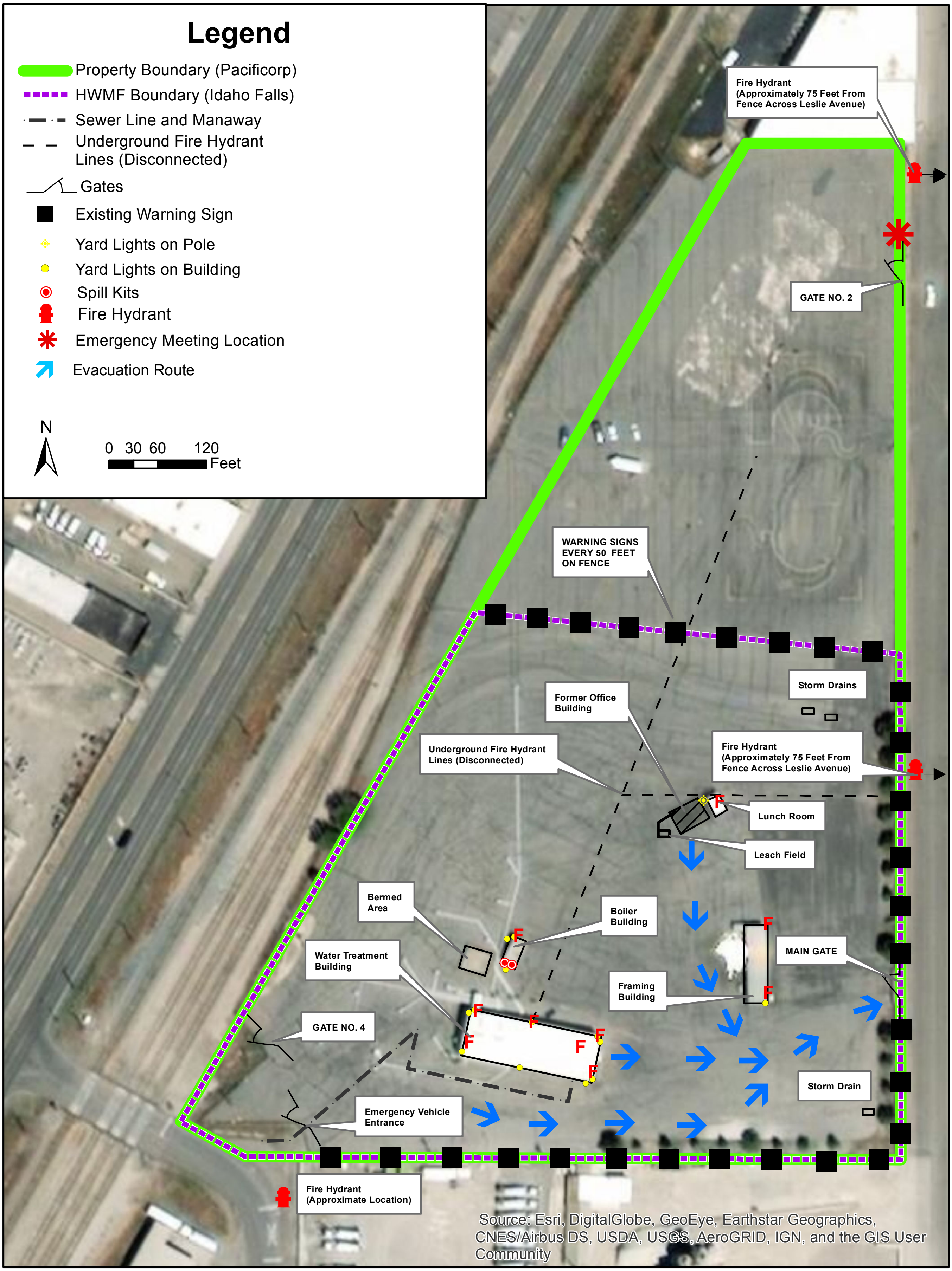
IDAHO FALLS
POLE YARD

V NOTCH WEIR NOMOGRAPH

FIGURE 10.4

Source: CH2M Hill

FILE *Fig 10.4 V-Notch Weir Nomograph.ai 4/11/08 SLC*



IDAHO FALLS POLE YARD EMERGENCY EQUIPMENT, UTILITY LINES, EVACUATION ROUTE AND GATE INFORMATION

Figure 10.5

TABLE 10.1

PUMP INSTALLATION AND WELL CAPACITY DATA (PRE 2010 SYSTEM AUTOMATION)

Well Number	Pump Brand Name	Model No.	Year of Pump Renewal	Motor Size (hp)	Voltage (volts)	Power Wire Type	Discharge Pipe Diameter (inches)	Approximate Pump Depth Setting (feet)	Anticipated Pumping Rate (gpm)	Specific Capacities (gpm/ft) Low Water	Specific Capacities (gpm/ft) High Water
MW-1	Berkeley	B4AM-15		3/4	220		1	152	11 to 12	1100	
MW-2	Permanently Abandoned										
MW-3	Berkeley	B4AM-15		3/4	220		1	150	12	290	610
MW-4	Berkeley	B4AM-15		3/4	220		1	158	11 to 12	22	1200
MW-5	Berkeley	B4AM-15		3/4	220		1	144	11	220	550
MW-6	Berkeley	B4AM-15		3/4	220		1	146	11 to 13	90	330
MW-7	Permanently Abandoned										
MW-8	Permanently Abandoned										
MW-9	Berkeley	4CM15-5		5	460		2[b]	256	40 to 60	1	1
MW-10	Berkeley	B4AM-15		3/4	220		1	314	11 to 12	60	60
MW-11	Berkeley	B4AM-15		3/4	220		1	246	11	370	
MW-12	Berkeley	B4AM-15		3/4	220		1	255	9	17	17
MW-13	Grundfos	10SO5-9		1/2	460		2[b]	153	5	2.3	4.4
MW-14	Berkeley	B4AM-15		3/4	220		1	257	11	3.0	
MW-15	Berkeley	B4AM-15		3/4	220		1	390	12	>1200	
MW-16	Berkeley	10S07-12	1993	3/4	220		1	155			
MW-17	Berkeley	10MG10-07		3/4	220		1	255	14	0.4	
MW-18	Berkeley	10MG10-07		3/4	220		1	396	12		100
MW-19	Berkeley	10MG10-07		3/4	220		1	393	12		110
MW-20	Berkeley	10MG10-07		3/4	220		1	395	12		110
OS-1	Berkeley	10MG10-07		3/4	220		1	155	12	140	
OS-2	Berkeley	10MG10-07		3/4	220		1	155	14	2	
OS-3	Berkeley	10MG10-07		3/4	220		1	155	11	1100	
OS-4	Berkeley	10MG10-07		3/4	220		1	155	11	370	
OS-5	Berkeley	10MG10-07		3/4	220		1	155	12	1	
R-1	(a)									>1200	
R-2	Berkeley	40S50-15	1996	5	460	12	1 1/2[b]	253	40	3	
R-3	(a)				220		1				>180
R-4	Grundfos	SP4-14		1	460		2[b]	161	25 to 27		6
R-5	Grundfos	10S05-9	1998	1 1/2	460	12-4	1 1/4[b]	168	9 to 10		0.6
R-6	Grundfos	SP4-10		1	460		2[b]	167	19 to 22		4
R-7	Berkeley	40S50-10	1996	5	460	12	2[b]	241	40		3.5
R-8	Berkeley	4CL17-3	1996	3	460	10-3	2	260	15 to 25		0.8
R-9	Berkeley	4CL17-3	1996	5	460	12	2	257	15 to 30		10.7
R-10	Berkeley	4LL-17	1996	3	460	12	2	256	15 to 40		12
R-11	Grundfos	10S05-9		1/2	460	12-3	1 1/4	160	4 to 10		1.1
R-12	Grundfos	5S03-9	2000	1 1/2	460	12-3	1 1/4	160	2 to 5		0.4
A-1	Grundfos	10S05-9	2000	1 1/2	460	12-3	1 1/4[c]	159	3 to 4		0.8
B-1	Grundfos	10S05-9	1998	2	230	12	1 1/4[c]	159	3 to 5		1
C-1	Grundfos	16S10-10	1999	1 1/2	460	12-3	1 1/4[c]	159	5 to 15		6.5
D-1	Grundfos	5S03-9		1/2	230		1 1/4[c]	159	1		0.1
A-2(d)	Grundfos	40S50-12	1996	5	460	12-3	2[c]	259	5 to 15		0.5
B-2	Berkeley	10MG10-07		3/4	230		2[c]	239	10		36
C-2	Berkeley	10MG10-07		3/4	230		2[c]	239	10		21.1
D-2	Berkeley	10MG10-07		3/4	230		2[c]	239	5		0.2

a. No pump presently installed.
b. Steel Discharge pipe; others are PVC unless noted.
c. 304 stainless steel discharge pipe.
d. A-2 - installed higher hp pumps 5/96

TABLE 4.7 9.7 and 10.2

WELLFIELD CONSTRUCTION SUMMARY

Well No.	New Pump installed Y or N	Date Motor Installed	New or Existing Pump Make/Model/HP/ Voltage/Phase	Well Casing	SRP Elevation (NAVD88) (ft)	Depth to Bottom of Well from SRP (ft)	Pump Depth from SRP (in HMI) (ft)	Approx Drop Pipe Length (to Landing Plate) (ft)	Approx Elev of top of pump (ft)	Pump Discharge Pipe (Nominal Diameter in Inches and Material Type)*	Transducer Type	Transducer Cable Type and Length (type / ft)	Transducer Depth to SRP (in HMI) (ft)	Transducer Elevation (ft)	Date of Elevation Calibration	HMI GW Elevation June 28 2018 (ft)	Water Level Difference (ft)	Measured Water Depth June 28, 2018 (ft)	Fluctuation High to Low (ft)	Transducer Range (ft)	Access Tube (Nominal Diameter in Inches and Material Type)	Access Tube Length (ft) / Drilled Intervals	Other Comments
A-1	Y	Apr-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4698.11	172.1	164.33	162	4533.78	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	163.05	4535.06		4539.31	-0.53	4539.84	0.53	69.30	1" PVC SCH. 40 Flush Thread	162 / Bottom 10 ft	
B-1	Y	Mar-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.81	168.5	170.08	168	4527.73	1-1/4"	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.95	4536.86		4543.97	7.11	4554.95	10.98	69.30	1" PVC SCH. 40 Flush Thread	168 / Bottom 10 ft	
C-1	Y	Jun-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.50	172.7	168	168	4529.50	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	168.00	4529.50		4533.91	4.41	4536.76	2.85	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
D-1	Y	Oct-2010	Grundfos / 16S10-10 / 1.5 Hp / 460VAC / 3PH (need to confirm)	5" OD PVC Flush Thread	4697.24	168.5	- -	160		1-1/4"	LevelTROLL 500 (30 PSI)	Polyurethane / 170	160.97	4536.27	9/11/18	4543.98	7.71	4559.70	15.72	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
MW-4	Y	Sep-2010	Grundfos / 7S10-19 / 1.0 Hp / 230VAC / 1 PH	4" ID PVC	4698.50	150*	- -	145.7		1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 170	146.21	4552.29	9/6/18	4552.31	0.02	4568.58	16.27	69.30	1" PVC SCH. 40 Flush Thread	145.7 / Bottom 10 ft	Old pump is stuck in the well. Elevation of the top of the stuck pump is approximately 4547.8 NAVD 88 (7 feet below top of screen). New pump installed above the one that is stuck.
MW-13	N	- -	Grundfos / 10S05-9 / 1.0 Hp / 230VAC / 1 PH	4" ID PVC	4697.14	158.8	- -	152.5		1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	152.63	4544.51	9/6/18	4544.47	-0.04	4559.63	15.16	69.30	1" PVC SCH. 40 Flush Thread	152.5 / Bottom 10 ft	
MW-16	N	- -	Grundfos / 10S07-12 / 1.5 Hp / 230VAC / 1PH	4" ID PVC	4696.77	156.3	- -	150	4546.77	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	151.13	4545.64	9/6/18	4545.70	0.06	4559.92	14.22	69.30	1" PVC SCH. 40 Flush Thread	150 / Bottom 10 ft	
R-1	N	- -	Grundfos / 16S10-10 / 1.0 Hp / 240VAC / 1PH	4" ID PVC	4700.31	159.5	- -	155	4545.31	1" SST	LevelTROLL 300 (30 PSI)	Polyurethane / 165	152.26	4548.05		4548.18	0.13	4569.00	20.82	69.30	1" PVC SCH. 40 Flush Thread	150 ft / Bottom 15 ft	
R-4	N	- -	Grundfos / 14S / 1.5 Hp / 460VAC / 3 PH	6" ID CS	4698.10	171.5	- -	157		2" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 170	158.06	4540.04		4548.64	8.60	4569.52	20.88	69.30	1-1/4" PVC SCH. 40 Flush Thread	157 / Bottom 10 ft	
R-5	N	- -	Grundfos / 10S05-9 / **1.5 Hp** / 460VAC / 3PH	6" ID CS	4697.32	168.7	165	165	4532.32	1-1/2" SST (3 - 20' 0") 1-1/4" CS (5 - 21' 0")	LevelTROLL 500 (30 PSI)	Polyurethane / 180	159.07	4538.25		4539.14	0.89	4563.04	23.90	69.30	1-1/4" PVC SCH. 40 Flush Thread	165 / Bottom 10 ft	
R-6	Y	Sep-2010	Grundfos / 25S15-9 / 1.5 Hp / 460VAC / 3PH	6" ID CS	4697.56	171.8	170	168	4527.56	1-1/4" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 180	169.63	4527.93		4531.50	3.57	4541.92	10.42	69.30	1-1/4" PVC SCH. 40 Flush Thread	168 / Bottom 10 ft	
R-11	N	- -	Grundfos / 10S05-9 / 0.5 Hp / 460VAC / 3PH	6" ID CS	4698.66	171.5	161.1	161	4537.56	1-1/4" CS (5 - 20' 0") 1-1/4" SST (3 - 20' 0")	LevelTROLL 500 (30 PSI)	Tefzel / 170	161.02	4537.64		4549.56	11.92	4567.87	18.31	69.30	1-1/4" PVC SCH. 40 Flush Thread	160 / Bottom 10 ft	
R-12	N	- -	Grundfos / 10S07-12 / 0.75 Hp / 460VAC / 3PH	6" ID CS	4697.96	168.5	159.8	156.8	4538.16	1-1/4" SST (6 - 20' 3") 1-1/4" CS (1 - 15' 0") 1-1/4" Galv. (1 - 20' 0")	LevelTROLL 500 (30 PSI)	Tefzel / 170	161.71	4536.25		4557.93	21.68	4568.58	10.65	69.30	1-1/4" PVC SCH. 40 Flush Thread	156.8 / Bottom 10 ft	
A-2	Y	Apr-2010	Grundfos / 40S50-15 / 5 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4699.01	274	264	261	4435.01	2" Galv.	LevelTROLL 300 (100 PSI)	Tefzel / 270	262.08	4436.93	9/6/18	4499.92	62.99	4460.16	-39.76	231.00	1" PVC SCH. 40 Flush Thread	261 / Bottom 10 ft 145 - 160 ft BGS	
B-2	N	Sep-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	5" OD PVC Flush Thread	4697.63	271.2	241	240	4456.63	2" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.10	4541.53		4543.62	2.09	4554.95	11.33	69.30	1" PVC SCH. 40 Flush Thread	241 / Bottom 10 ft 145 - 160 ft BGS	
C-2	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	5" OD PVC Flush Thread	4697.31	270.7	- -	240	4457.31	2" Galv.	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.32	4536.99	9/6/18	4543.91	6.92	4563.01	19.10	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
D-2	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	5" OD PVC Flush Thread	4697.20	278.2	- -	240.6	4456.60	1-1/4" Galv. (First 6") 2" SST (Remainder to Pump)	LevelTROLL 500 (30 PSI)	Polyurethane / 165	153.94	4543.26		4544.11	0.85	4563.44	19.33	69.30	1" PVC SCH. 40 Flush Thread	240.6 / Bottom 10 ft 145 - 160 ft BGS	A 2" x 1-1/4" reducer and a 6" x 1-1/4" dia. Nipple was placed at the top of well D-2. The remainde of the drop pipe is 2" SST.
E-2	Y	Nov-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH (need to confirm)	4" ID CS	4697.89	276.8		260	4697.89	1" SST	LevelTROLL 500 (30 PSI)	Polyurethane/165	165.64	4532.25	9/6/18	4544.15	11.90	4563.24	19.09	69.30	1" PVC SCH. 40 Flush Thread	260 ft / Bottom 15 ft 245 - 260 ft	Pump depth is approximate and should be confirmed the next time the pump is pulled, Make, model, and HP of pump / motor should also be confirmed.
MW-9	Y	Jul-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	4" ID PVC	4697.20	216 (to fracture)	201.8	201	4495.40	1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.99	4540.21		4543.59	3.38	4562.89	19.30	69.30	1" PVC SCH. 40 Flush Thread	201 / Bottom 10 ft 145 - 160 ft BGS	
MW-12	N	- -	Berkeley / 4AM-15 / 0.75 HP 230VAC / 1PH	4" ID PVC	4696.83	257	- -	251	4445.83	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	158.48	4538.35	9/6/18	4544.41	6.06	4563.57	19.16	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	A 1-1/4" galvanized nipple was installed at the landing plate to connect to the existing quick connect.
MW-14	Y	May-2010	Grundfos / 10S07-12 / 1.5 Hp / 230VAC / 1PH	4" ID PVC	4698.54	263.4	- -	256	4442.54	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	160.39	4538.15	9/6/18	4544.39	6.24	4563.82	19.43	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
MW-17	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	4" ID PVC	4696.79	260.6	- -	255	4441.79	1" PVC	LevelTROLL 500 (30 PSI)	Polyurethane / 165	156.36	4540.43	9/6/18	4544.68	4.25	4563.12	18.44	69.30	1" PVC SCH. 40 Flush Thread	160 / Bottom 15 ft	
R-2	Y	Apr-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	8" ID CS	4700.45	261	246.5	246	4453.95	1-1/2" SST	LevelTROLL 300 (100 PSI)	Tefzel / 265	246.33	4454.12		4507.20	53.08	4529.62	22.42	231.00	1-1/4" SCH. 40 PVC Flush Thread	226 / Bottom 10 ft 145 - 160 ft BGS	
R-7	Y	Apr-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	6" ID CS	4698.99	266.4	254	254	4444.99	2" Galv.	LevelTROLL 500 (100 PSI)	Polyurethane / 250	235.76	4463.23		4513.46	50.23	4538.14	24.68	231.00	1-1/4" SCH. 40 PVC Flush Thread	254 / Bottom 10 ft 145 - 160 ft BGS	
R-8	Y	Jun-2010	Grundfos / 25S30-15 / 3 Hp / 460VAC / 3PH	6" ID CS	4700.45	268.6	251	251	4449.45	2" SST (7 - 20' 3") 2" CS (5 - 20' 0") 2" CS (1 - 4' 0")	LevelTROLL 500 (30 PSI)	Polyurethane / 165	165.12	4535.33		4544.00	8.67	4563.18	19.18	69.30	1-1/4" SCH. 40 PVC Flush Thread	251 / Bottom 10 ft 145 - 160 ft BGS	
R-9	N	- -	Berkeley / 10MG10-07 / 0.75 Hp / 230VAC / 1PH	6" ID CS	4698.08	267.9	- -	255		1" SST	LevelTROLL 500 (30 PSI)	Polyurethane / 165	155.91	4542.17		4543.89	1.72	4563.28	19.39	69.30	1-1/4" SCH. 40 PVC Flush Thread	160 / Bottom 15 ft	
R-10	Y	Jun-2010	Grundfos / 60S50-9 / 5 Hp / 460VAC / 3PH	6" ID CS	4698.74	265.5	258	258	4440.74	2" SST	LevelTROLL 300 (100 PSI)	Polyurethane / 265	257.75	4440.99		4541.35	100.36	4556.66	15.31	231.00	1-1/4" SCH. 40 PVC Flush Thread	260 / Bottom 10 ft 145 - 160 ft BGS	

Notes: * All drop pipe is SCH 40 threaded pipe with external couplings;   ** Indicates standard elevations that have changed

Acronyms:

BGS - Below Ground Surface
CS - Carbon Steel
ft - Feet
hp - Horse Power
ID - Inside Diameter
OD - Outside Diameter
PH - Phase
PSI - Pound per Square Inch
PVC - Polyvinyl Chloride
SRP - Surveyed Reference Point
SST - Stainless Steel
VAC - Volts Alternating Current
- - Not applicable

Table 10.3
Treatment Plant Design Criteria

Pretreatment Sedimentation	
Type	Clarifier/Thickener
Maximum Flow (gpm)	200 gpm
Diameter (ft)	18
Side Water Depth (ft)	7
Tank Construction	$^{1}/4$" Steel
Manufacturer	Eimco
Hydraulic Loading Rate (gpm/ft^2)	1.3
Sludge Piping	4" Steel
Bottom Slope (H:L)	2.5:12

Lead Absorption Column (Specifications Per Column)	
Number of Columns	2
Design Flow Rate per Vessel (gpm)	100
Max Design Flow Rate per Vessel (gpm)	113
Hydraulic Loading Rate (gpm/ft^2)	3.5
Column Diameter (ft)	6
Side Shell Height (ft)	6
Media Depth (ft)	3
Media Volume (ft^3)	85
Media Density (lb/ft^3)	60
Media Weight (lb)	5,100
Media Type	Activated Carbon
Empty Bed Contact Time (min)	6.4
Backwash Rate (gpm)	300
Backwash Loading Rate (gpm/ft^2)	10.6
Backwash Bed Expansion	20%
Backwash Time (min)	10
Lead Vessel Inlet Pressure Alarm Setting (psi)	95
Lead Vessel Pressure Differential Alarm Setting (psi)	75

Table 10.3
Treatment Plant Design Criteria

Lag Adsorption Columns (Specifications Per Column)	
Number of Columns	3
Design Flow Rate per Vessel (gpm)	67
Max Design Flow Rate per Vessel (gpm)	113
Hydraulic Loading Rate (gpm/ft^2)	7
Column Diameter (ft)	6
Side Shell Height (ft)	6
Media Depth (ft)	4
Media Volume (ft^3)	113
Media Density (lb/ft^3)	28
Media Weight (lb)	3,167
Media Type	Activated Carbon
Empty Bed Contact Time (min)	4.2
Backwash Rate (gpm)	300
Backwash Loading Rate (gpm/ft^2)	10.6
Backwash Bed Expansion	50%
Backwash Time (min)	10 to 15
Lag Vessel Inlet Pressure Alarm Setting (psi)	95
Lag Vessel Pressure Differential Alarm Setting (psi)	75

Wet Well / Pump Station	
Volume (ft^3)	600
Dimensions	10'L x 10'W x 6' Deep
Type	Vertical Turbine
Number	3
Maximum Flow Rate (gpm)	160
Example Well Pump Discharge Pressure (psig)	60
Rated Motor Horsepower	10
Rated Motor Speed	60

Floor Sump Pump	
Type	Tait
Number	1
Maximum Flow Rate (gpm)	10
Horsepower, Each (hp)	2

Table 10.3
Treatment Plant Design Criteria

Backwash Storage and Waste Tanks (each tank)	
Volume (ft^3)	500
Diameter (ft)	10
Straight Side Height (ft)	6.5
Materials	Fiberglass Reinforced Polyester
Polymer Feed System (no longer utilized)	
Type	Polyblend
Model	PB-100-1.0
Polymer	Nalco 8109
Sludge Dewaterin& System (no longer utilized)	
Type	Clow J-1400 Filter Bed With Disposable Filter Media
Media	25 or 50 Micron Paper
Maximum Sludge Flow Rate	50 gpm

TABLE 10.4

EMERGENCY CONTACTS

LIST OF EMERGENCY COORDINATORS

Below is a list or qualified Emergency Coordinators posted in the order in which they will assume responsibility. included is their addresses and phone numbers (office and cell). This list has been supplied to the Chief Dispatcher and to the HWMF Manager.

1.	Gary Mecham		
	1425 Higham St.	Office:	208-557-7866
	Idaho Falls, Idaho 83402	Cell:	208-221-4224
2.	Dennis Vanderbeek		
	2200 Leslie Avenue	Office:	208-745-6075
	Idaho Falls, Idaho 83402	Cell:	208-705-7757
3.	Saige Ballack-Dixon	Office:	208-557-7832
	1425 Higham St.	Cell:	208-520-6157
	Idaho Falls, Idaho 83402		
4.	Nathan Helm	Office:	208-557-0838
	1425 Higham St.	Cell:	208-351-5693
	Idaho Falls, Idaho 83402		
5.	Jeff Tucker		
	1407 West North Temple, #210	Office:	801-220-2989
	Salt Lake City, Utah 84116	Cell:	801-660-5750

EMERGENCY PHONE NUMBERS

- Idaho Falls Police Department	208-529-1200
- Idaho State Police	208-884-7000
- Idaho Falls Fire Department	208-529-1200
- Bureau of Homeland Security	208-422-3040
- Idaho Falls Hospital	208-529-6111
- Idaho Falls HWMF Personnel:	
Dennis Vanderbeek	208-745-6075

IDAHO FALLS HWMF POST-CLOSURE CONTACT PERSON AND RESPONSIBLE PERSON FOR DOCUMENT UPDATE

Jeff Tucker
Principal Engineer
PacifiCorp
1407 W. North Temple, #210
Salt Lake City, UT 84116
(801) 220-2989

FORM 10.1

SPECIFIC CAPACITY or WATER LEVEL MEASUREMENT FORM

Date:	**Initial depth (ft) to static water level (SWL), initial GW elevation from HMI screen, pumping rate, or other notes:**
Operator(s):	
Location: IFPY	

Well #	Depth to Water (DTW) From Surveyed Reference Point or Elevation on HMI Screen. (ft)	Time	Drawdown (DTW-SWL) or Elev Difference (ft)	Pumping Rate (gpm)

Final or Average Pumping Rate (Q)	**gpm**
Final Average Drawdown (ft)	**ft**
Specific Capacity (Q/d)	**gpm/ft**

FORM 6.1 / 10.2

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

Note: Forms 6.1 and 10.2 are exactly the same. The operator is to fill out one 5-page form each week.

Name of Inspector: ___________________________

Date of Inspection: ___________________________

Inspection Items:

		YES / NO
1	**Are all gates operating correctly ?**	
2	**Is there any damage or issues relating to the HWMF asphalt cover, storm drains, treatment building, fences, secondary containment curbing, etc. that requires immediate repair or attention?**	
3	**Are all the well heads locked?**	
4	**Are any of the pumping well heads leaking?**	
5	**Are there any leaks in yard piping from wells to the wastewater facility?**	
6	**Are there any leaks in the piping, vessels or weir box inside the wastewater facility?**	
7	**Are the Eye Wash and Safety Shower systems operating correctly?**	
8	**Is the phone system operating correctly?**	
9	**Are there bags of sand (minimum of 250 lbs) and plastic sheeting (minimum of 10' by 50' in size) stored at HWMF in case temporary repair of the LDU asphalt cover is needed?**	

FORM 6.1 / 10.2

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

10 Record the well pump flows at the weir box, flow meters, and at the SCADA HMI screen.

	Is a Sheen Present ? (Y/N)	Flow Meter Readout (GPM)	HMI Flow Reading (GPM)
A-1			
A-2			
B-1			
B-2			
C-1			
MW-9			
R-2			
R-5			
R-6			
R-7			
R-8			
R-10			
R-11			
R-12			

Comments on the above readings (if needed)

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

11	**Record the treatment plant effluent flow rate and totalized effluent flow from the SCADA HMI display.**	FLOW RATE GPM	TOTAL GALLONS
12	**Observe the wet well and verify that the water level rises and falls while the pumps are operating.**		Working Correctly? YES / NO
13	**Record the inlet and outlet gage pressure at the lead set of GAC adsorption tanks.**	INLET PSIG	OUTLET PSIG
14	**Record the outlet gage pressure at the lag GAC adsorption tank set. If the reading is negative convert from inches of Hg to PSIG by multiplying the measurement by 0.49. Example: -1 in Hg x 0.49 = - 0.49 PSIG** **If the reading is positive, no conversion is required.**		OUTLET PSIG
15	**Are the HMI displayed pressures consistent with the analog measurements shown in Items 13 and 14 above. (Y/N) If no discribe further in Item 20 below.**		

16 Aquifer 1 Gradient Reversal Checks (1st well listed in each pair should have the higher elevation)

16a

Well Pairs	1st well has a higher elevation as shown on the HMI Screen (Y or N)	**If answer is NO**, notify the HWMF Manager, collect manual measurements, convert to elevations, and record below.	
		Measured elevation of 1st well	Measured elevation of 2nd well
MW-16 and D-1			
MW-16 and MW-13			
R-4 and R-5*			

* = Assumes well R-5 is not being used as an extraction well at the time of measurement. If groundwater is being extracted from R-5 note it in the comments section below.

16b Do the four extraction wells in Aquifer 1 have the lowest groundwater elevations posted on the HMI Aquifer 1 display screen? (Y / N)
If the Answer is NO, notify the HWMF Manager.

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

17 Aquifer 2 Gradient Reversal Checks (1st well listed in each pair should have a higher elevation)

17a

Well Pairs	1st Well has higher HMI elevation ? (Y or N)	**If answer is NO**, notify the HWMF Manager, collect manual measurements, convert to elevations, and record below.	
		Measured Elevation 1st well	Measured Elevation 2nd well
MW-12 and C-2			
D-2 and MW-9 *			
MW-12 and B-2			

* = Assumes well MW-9 is not being used as an extraction well at the time of measurement.
If groundwater is being extracted from MW-9 note it in the comments section below.

17b Do the four extraction wells in Aquifer 2 have the lowest groundwater elevations posted on the HMI Aquifer 2 display screen? (Y / N) ____________________
If the answer is NO, notify the HWMF Manager.

18 Aquifer 1 Target Extraction Rates

Listed below are the target Aquifer 1 combined extraction rates (gpm) for the 1st of each month. Use linear interpolation to estimate target rates as you move through each month.

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
30 gpm	25 gpm	20 gpm	12 gpm	8 gpm	12 gpm	20 gpm	25 gpm	30 gpm	35 gpm	40 gpm	35 gpm

18a The current combined extraction rate for Aquifer 1 is: ____________________GPM

18b Is the current combined extraction rate greater than the target values listed above? (Y / N) ____________________

18c Are all the well pairs evaluated in Item 16 showing reversal of gradient? (Y/N) ____________________

18d Have the extraction rates for all primary and contingency pumping wells in Aquifer 1 been optimized to achieve the target extraction rates? (Y/N) ____________________

Make sure to use professional judgement to protect the well pumps from overheating and excessive drawdown when optimizing the extraction rates.

If the Answer to 18b is No but the answers to both c and d are Yes; there is no need to notify the the HWMF Manager.

If the answer to 18b is No and the answers to either 18c or 18d are No; Notify the HWMF Manager and provide further explanation in Item 20 below.

WEEKLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY IDAHO FALLS HWMF

19	**Aquifer 2 Target Extraction Rate = 100 GPM Year round.** Is the total extraction rate for Aquifer 2 equal to or greater than 100 gpm? (Y / N) ___________________ **If the Answer is NO**, adjust all Aquifer 2 extraction well pumping rates up to achieve an overall extraction rate of 100 GPM. Use judgment and experience to prevent over pumping and excessive drawdown. If 100 GPM can not be achieved or maintained due to draught or other conditions notify the HWMF Manager and describe further in Item 20 below.
20	**COMMENTS AND CORRECTIVE ACTIONS: repairs needed, date repairs were made, corrective measures, damage, labeling, etc.**

FORM 10.3
FACILITY MONTHLY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY

All items below shall be checked monthly, or more often if need be. The monthly inspections shall be intensive and will disclose preventive maintenance and repair or replacement requirements. In the Observations column, point out these requirements and under Comments include proposed corrective actions. Inspections shall be performed by the Yard Supervisor, or his designee, in accordance with Permit Condition II.E, as required by IDAPA 58.01.05.08 [40 CFR § 264.15].

Inspector Name:

Title:

Weather Conditions:

	Yes/No: Plus Comment (if needed)
SAFETY	
Fire extinguishers Inspected?	
Protective clothing ready for use?	
Safety shower inspected and is working?	See Weekly Checklist
Eye wash station inspected and is working?	See Weekly Checklist
Face shields inspected and ready for use?	
First aid kits inspected and adequate?	
Chemical respirators (inspect per Form 6.4)	Not Currently Required
SECURITY	
Lighting checked and is working?	
Telephones checked and are working?	See Weekly Checklist
Warning Signs checked and are present?	
Fences checked and operating as designed?	
Gates and locks checked and are operating as designed?	
Alarm emergency systems checked?	
Wet well and sump overflow shutdown capability checked?	
SATELLITE ACCUMULATION	
Are the drums properly labeled?	
Have the drums been dated?	
Are any drums leaking?	
Are the drums within designated satellite accumulation area?	
Is the satellite accumulation area sign still in place?	
INVENTORY	
Dewatering paper available if needed?	
HWMF COVER	
Was there any major deterioration this month?	
Does rainwater runoff the asphalt cover as designed?	
Benchmark	
Undamaged	
Spill Kits	
PacifiCorp spill kit seal remains unbroken?	

FORM 6-3 / 10.4
QUARTERLY FACILITY INSPECTION CHECKLIST
PACIFICORP HAZARDOUS WASTE MANAGEMENT FACILITY
IDAHO FALLS POLE YARD

Unless the seals on the spill kits remain unbroken, all items below shall be checked quarterly, or more often if need be. Inspections shall be performed by the Environmental Technician, or his designee, in accordance with Permit Condition I1.E, as required by IDAPA 58.01 .05.08 [40 CFR § 264.15]. If the seals on the spill control kits remain unbroken, inspection of the contents of the kits will only be required during the 4th Quarter of each year.

Inspector Name:	
Title	
Date:	
Weather Conditions:	
	Present (YIN)
Spill Control Equipment Kits (PacifiCorp Spill Kit 146)	
2 pairs disposable gloves	
2 sets disposable plastic boots, jackets, pants	
2 pair chemical qoggles	
5lbs. absorbent rags	
5 lbs. oil sorbent	
2 large plastic bags	
1 quart sample container	
1 can hand cleaner	
1 gallon Penetone 155 solvent	
1 roll tape	
2 vinyl "Hazardous Waste" labels	
1 metal marking pen	
1 pencil	
1 copy Disposable Record Report form	
1 short handled broom	
1 dust broom	
1 dust pan	
1 short handled shovel	
1 sealable 55 qallon drum (containinq the above)	
PAPERWORK	
NPDES monitoring requirements completed. Reports sent to EPA/IDEQ and filed on site?	
Manifests complete, accurate for solid waste disposal?	
All manifests returned from transportation and disposal contractors?	
Operator's log and weekly/monthly/quarterly inspection checklists are complete? Note: Each year there will be 52 weekly, 12 monthly and 4 quarterly inspections performed, the respective forms filled out, and then filed at the site.	
COMMENTS AND CORRECTIVE ACTIONS	

ATTACHMENT 3

POST CLOSURE CARE COST ESTIMATES

December 2, 2018

Director
c/o Hazardous Waste Program Manager
State Remediation Program Office
1410 North Hilton, 2nd Floor
Boise, ID 83706-1255

Subject: PacifiCorp's Idaho Falls Pole Yard
RCRA Post-Closure Cost Estimate for FY 2019
Permit #IDD000602631

Enclosed for your review is a copy of the Post Closure Cost Estimate for PacifiCorp's Idaho Falls Pole Yard (Permit #IDD000602631). The estimate is for fiscal year 2019 and reflects an increase for inflation. This submittal is in accordance with the facility's September 30, 2009 Hazardous Waste Facility Corrective Action and Post-Closure Care Permit and Class I modifications which were negotiated and approved in calendar years 2010, 2012, 2014, 2016, 2017, and 2018. This report specifically addresses Permit Condition V.G. and IDAPA 58.01.05.008 (40 CFR 264.145(a)).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

After your review of this report, if you have any questions you may contact me at (801) 220-2989.

Sincerely,

Jeff Tucker
Principal Engineer

PacifiCorp Idaho Falls Pole Yard
2019 Post Closure Cost Estimate Summary

Corrective Action Monitoring Program (Years 2019 - 2025)	$1,365,488	
Compliance Monitoring Program (Years 2026 - 2028)	$239,911	
Detection Monitoring Program (Year 2029)	$76,386	
Decommissioning	$449,894	
Subtotal =	**$2,131,679**	
Inflation Factor=	1.0235714220	< - - - -2018 Q3 / 2017 Q3
Total Post Closure Cost Adjusted for Inflation=	**$2,181,925**	

PacifiCorp Idaho Falls Pole Yard
2019 Post Closure Cost Estimate For Corrective Action Monitoring Program

Cost Item	2008 Excluded	2009 Excluded	2010 Excluded	2011 Excluded	2012 Excluded	2013 Excluded	2014 Excluded	2015 Excluded	2016 Excluded	2017 Excluded	2018 Excluded	2019	2020	2021	2022	2023	2024	2025	Projected Totals For 2019-2025
Lab Analyses PAHs and Phenols: 15 wells, 1 duplicate, 1 trip blank, 4 plant effluent samples. Every other year add 8 plume core wells plus one additional duplicate)	13,260	19,890	11,310	11,700	8,190	11,700	8,305	11,900	8,381	12,183	12,183	12,431	8,858	12,431	8,858	12,431	8,858	12,431	*76,300*
New NPDES Lab Costs Plus BMP Costs for testing inlet to carbon semiannually and then in 2018 sampling quarterly between lead and lag carbon vessels.								1,525	1,539	1,561	1,561	3,026	3,026	3,026	3,026	3,026	3,026	3,026	*21,182*
Consultants - Technical Support for Semiannual or Annual Reports and Specific Conductivity Testing	23,554	23,554	25,720	13,575	13,195	13,020	12,464	12,677	12,792	12,979	12,979	13,483	13,483	13,483	13,483	13,483	13,483	13,483	*94,383*
General Maintenance	12,415	12,415	12,415	12,415	12,415	12,633	12,811	12,849	12,965	13,155	13,155	13,666	13,666	13,666	13,666	13,666	13,666	13,666	*95,663*
Hazardous Waste Disposal	5,130	5,130	5,130	5,130	5,130	5,220	5,294	5,384	5,433	5,512	5,512	5,726	5,726	5,726	5,726	5,726	5,726	5,726	*40,085*
O&M Labor	59,816	59,816	59,816	31,200	31,200	31,748	32,195	32,746	33,042	33,526	33,526	34,027	34,027	34,027	34,027	34,027	34,027	34,027	*238,186*
Sampling (field labor and equipment)	10,000	13,500	5,000	6,500	5,000	6,614	5,151	6,727	5,308	6,932	6,932	7,230	7,230	7,230	7,230	7,230	7,230	7,230	*50,613*
Rent/Lease Costs	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	1,026	*7,182*
Supplies - Office	2,052	2,052	2,052	2,052	2,052	2,088	2,117	2,154	2,173	2,205	2,205	2,291	2,291	2,291	2,291	2,291	2,291	2,291	*16,037*
Supplies - Plant	5,130	5,130	5,130	5,130	5,130	5,220	5,294	5,384	5,433	5,512	5,512	5,726	5,726	5,726	5,726	5,726	5,726	5,726	*40,085*
Training	5,233	5,233	5,233	5,233	5,233	5,324	5,399	5,491	5,541	5,622	5,622	5,840	5,840	5,840	5,840	5,840	5,840	5,840	*40,882*
Utilities	38,167	38,167	38,167	38,167	38,167	38,837	39,384	40,058	40,421	41,012	41,012	42,606	42,606	42,606	42,606	42,606	42,606	42,606	*298,239*
Vehicle	1,077	1,077	1,077	1,077	1,077	1,096	1,111	1,130	1,140	1,157	1,157	1,202	1,202	1,202	1,202	1,202	1,202	1,202	*8,413*
RCRA Post Closure Care Permit Reapplication	105,000	21,122	-	-	-	-	-	-	-	-	25,000	40,000							*40,000*
System Automation Design	35,578		-	-	-	-	-	-	-	-	-								*0*
System Automation Construction and Security Lighting	-	0	520,401	82,500	-	-	-	-	-	-	-								*0*
Automation Construction Oversight and Documentation	-	0	55,667	22,845	-	-	-	-	-	-	-								*0*
Capture Zone Model Calibration	16,000	16,000	-	-	-	-	-	-	-	-	-								*0*
NPDES Permitting & Biological Assessment	14,200	-	-	-	-	-	-	-	-	-	9248	5000				12000			*17,000*
RCRA Permit Modifications Consulting Support			73515	50238	7900					5000	5090.65	10,000	10,000	10,000	10,000	10,000	10,000	10,000	*70,000*
O&M Consulting and General Consulting Support					20,000	21,993	18,932	19,256	19,430	19,714	20,009	25,000	25,000	25,000	25,000	25,000	25,000	25,000	*175,000*
Long Term Strategy Consulting																			*0*
Sampling and Analysis Plans (RCRA and NPDES) and Waste Disposal Plan					20,674														*0*
Engineering PM	23,320	7,281	-	1,629	10,000	7,690	3,768	3,832	3,867	2,966	7,122	9,600	4,200	4,200	4,200	5,640	4,200	4,200	*36,240*
Subtotals	370,958	231,393	821,659	290,417	186,389	164,209	153,251	162,139	158,490	170,062	208,652	237,881	183,908	187,481	183,908	200,921	183,908	187,481	
																		Projected CAMP Subtotal =	**$1,365,488**

Notes:

1) Grey shading indicates that costs for 2008 through 2018 have been excluded from 2019 cost estimate.
2) In accordance with 40 CFR 264.144 (a), costs are provided in present dollars.
3) Cost estimates assumes a reduction in O&M labor costs starting in year 2011 (due to system automation).
4) Original effective date for Post Closure Care Part B Permit is October 11, 1988. 30 year post closure period ends Oct 11, 2018.
5) Costs assume sampling POC wells annually and plume core wells biennially.
6) Sampling of Aquifer 1 and 2 plume core wells assumed for 2013, 2015, and 2017, 2019, 2021, 2023, 2025

PacifiCorp Idaho Falls Pole Yard
2019 Post Closure Cost Estimate For Compliance Monitoring Program

Cost Item	2026	2027	2028	Projected Totals
Lab Analyses for RCRA (PAHs & Phenols - 17 samples semiannually)	14,547	14,547	14,547	*43,640*
Lab Analyses for NPDES	NA	NA	NA	*0*
Consultants - Technical Support for Semiannual Reports	14,283	14,283	14,283	*42,849*
Sampling (field labor and equipment) 15 wells plus one duplicate	10,906	10,906	10,906	*32,719*
Hazardous Waste Disposal	0	0	0	*0*
General Facility Maintenance / Report generation	16,755	16,755	16,755	*50,265*
Rent/Lease Costs	1,026	1,026	1,026	*3,078*
Supplies - Office	2,291	2,291	2,291	*6,873*
Supplies - Plant				
Training				
Utilities	$14,735	$14,735	$14,735	*44,205*
Vehicle	3,713	3,713	3,713	*11,139*
Engineering PM	1,714	1,714	1,714	*5,142*
Subtotals	79,970	79,970	79,970	
Projected CMP Subtotal =				**$239,911**

Notes:

1) In accordance with 40 CFR 264.144 (a), costs are provided in current dollars (no adjustment for inflation).

2) Assumes analyses for RCRA Permit Table 4 parameters only. No Appendix IX analyses performed.

3) Assumes semiannual sampling for six rounds. 15 wells plus 2 QA/QC samples each round.

PacifiCorp Idaho Falls Pole Yard
2019 Post Closure Cost Estimate For Detection Monitoring Program

Cost Item	2029	Projected Totals
Lab Analyses for RCRA (PAHs and Phenols - 12 samples semiannually)	10,268	*10,268*
Lab Analyses for NPDES		
Consultants - Technical Support for Semiannual Reports.	14,283	*14,283*
Sampling (field labor and equipment)	11,164	*11,164*
Hazardous Waste Disposal		
O&M Labor Including Overhead	16,744	*16,744*
Rent/Lease Costs	1,026	*1,026*
Supplies - Office	2,291	*2,291*
Supplies - Plant		
Training		
Utilities	$15,118	*15,118*
Vehicle	3,778	*3,778*
Engineering PM	1,714	*1,714*
Subtotals	76,386	
Projected DMP subtotal =		**$76,386**

Notes:

1) In accordance with 40 CFR 264.144 (a), costs are provided in current dollars (no adjustment for inflation).

2) Assumes analyses for Table 4 parameters only. No Appendix IX analyses performed.

3) Assumes semiannual sampling for two rounds. Ten wells plus 2 QA/QC samples.

PacifiCorp Idaho Falls Pole Yard
2019 Post Closure Cost Estimate For Decommissioning

Cost Item	Projected Totals
Lab Analyses Offsite	*$45,812*
Consultants - Technical Support	*$35,505*
Decontamination	*$48,103*
Demolition	*$29,277*
Dismantling	*$48,103*
Well Abandonment	*$49,331*
General Maintenance	
Hazardous Waste Disposal	*$152,327*
O&M Labor Including Overhead	*$35,709*
Rent/Lease Costs	
Supplies - Office	
Supplies - Plant	
Training	
Utilities	*$2,291*
Vehicle	*$3,435*
Projected Decommissioning subtotal =	**$449,894**

Notes:

1) In accordance with 40 CFR 264.144 (a), costs are provided in current dollars (no adjustment for inflation).

Updated Inflation Factors

Year	Quarter	Value
2008	3rd	94.690
2011	3rd	98.553
2012	3rd	100.225
2013	3rd	101.918
2014	3rd	104.029
2015	3rd	105.117
2016	3rd	106.172
2017	3rd	108.097
2018	3rd	110.645

Gross Domestic Product: Implicit Price Deflator, Index 2012=100, Quarterly, Seasonally Adjusted (July 2018)

Inflation Interval	Duration (years)	Inflation Factor	
2013/2008	5	1.076333298	C18
2013/2011	2	1.034144065	C20
2013/2012	1	1.016891993	C22
2014/2012	2	1.037954602	C24
2014/2013	1	1.02071273	C26
2015/2013	2	1.031387979	C28
2015/2014	1	1.010458622	C30
2015/2008	7	1.110117225	C32
2016/2015	1	1.010036436	C34
2016/2014	2	1.020600025	C36
2017/2016	1	1.018130957	C38
2018/2017	1	1.023571422	C40

ATTACHMENT 4

REVISION LOG