



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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C.L. "Butch" Otter, Governor
John H. Tippetts, Director

November 21, 2016

Mr. Chris Leatherman
Mine Development and CERCLA Manager P4 Production, LLC
P.O. Box 816
Soda Springs, Idaho 83276

Subject: Point of Compliance Determination for the Caldwell Canyon Mine

Dear Mr. Leatherman:

Enclosed please find the Idaho Department of Environmental Quality's (DEQ) Point of Compliance (POC) determination for the proposed Caldwell Canyon Mine. DEQ is setting this POC in response to the May 3, 2016 application submitted by P4 Production to establish a monitored outer boundary where Idaho's ground water resources must comply with Idaho's Ground Water Quality Rule (GWQR).

The enclosed determination is divided into four parts. The introduction gives general background information along with an explanation of state authority for regulating ground water. The second part discusses the POC and indicator wells proposed as part of the original application. The third part speaks to additional POC monitoring wells that DEQ has determined necessary to ensure there is no injury to current or projected future beneficial uses of ground water. The final section discusses the monitoring plan for the ground water wells.

The GWQR also allows for changes in point(s) of compliance based on new information or a change in mining activities (IDAPA 58.01.11.401.08). Possible sources of new information include data from the required ground water monitoring, data from newly installed wells, and any changes to the mine operation and reclamation plan.

Please let me know if you have any questions. You may also contact Wayne Crowther to discuss POC implementation.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce Olenick", is written over a horizontal line.

Bruce Olenick
Pocatello Regional Administrator
State of Idaho-Department of Environmental Quality

c: Randy Vranes - P4
Ed Hagan – DEQ, Douglas Tanner – DEQ, Wayne Crowther, P.E. – DEQ, Brady Johnson - DEQ
Gary Billman - IDL
David Alderman - U.S. Bureau of Land Management
Barry Meyers - U.S. Bureau of Land Management

Point of Compliance Determination for Caldwell Canyon Mine

Introduction

The proposed Caldwell Canyon Mine (CCM) is located on Federal Phosphate Lease I-000002, IDI-014080, IDI-013738, proposed lease modifications, and a portion of State of Idaho Lease E07959. A Final Environmental Impact Statement (EIS) and Record of Decision for the mine are expected to be issued near the end of 2018. Active mining is projected to begin shortly after the Record of Decision is issued. Surface water and ground water investigations conducted for the POC application and the best management plan analysis (BMPA) resulted in the identification of potential environmental impacts. Mining is proposed to start in the central area of the South Pit and mining would proceed to the south. Once mining reaches the southern end of the South Pit mining will continue north from the central area of the South Pit to the north end of the South Pit. Mining will then start in the south end of the North Pit and proceed north until mining is completed in the North Pit.

Mitigation measures including temporary routing of Caldwell Canyon stream at roadway crossings, construction of surface water management controls, and cap design improvements were evaluated and are presented in Appendix C *Best Management Plan Analysis* of the POC application (P4 Productions 2016). With the application of the best management practices proposed in the BMPA there are no predicted impacts above Idaho's ground water standards to the alluvial ground water systems outside of the mine pit. Impacts, to the Dinwoody Formation/ Rex Chert Member or Wells Formation regional ground water system, above Idaho's ground water quality standards are not predicted to extend to or beyond the mining area of the proposed mine as presented in the POC application.

The Idaho Ground Water Quality Rule (IDAPA 58.01.11.401) allows a mine operator of a new or expanding mine to request the DEQ set point(s) of compliance at which the mine operator must meet ground water quality standards as described in IDAPA 58.01.11.200. P4 submitted a POC application for CCM on May 3, 2016. The application was determined to be complete by DEQ as expressed in a letter to P4 dated June 6, 2016.

In their application, P4 proposed the use of existing and new monitoring wells to establish the POC area where elevated naturally occurring contaminants in the alluvial, Dinwoody Formation/Rex Chert Member, and Wells Formation ground water systems are allowed in the active mining area. P4 has proposed POCs and indicator wells for the alluvial ground water system, the Dinwoody Formation/Rex Chert Member, and the Wells Formation.

P4 has the mineral rights on the northern pit area, but does not have surface ownership. DEQ acknowledges that P4 is in negotiation for the surface ownership encompassing the north pit and the land adjacent to it for the installation of POC wells. Based on P4's belief that the property ownership is imminent and the proposed mine plan does not contemplate mining in the north section of the mine until 2023 or later; DEQ agrees with P4's well placement for the North Pit, with noted exceptions. However, the Determination for Setting Points of Compliance for the North Pit is contingent upon P4 demonstrating to DEQ's satisfaction that land ownership or a water degradation easement and access rights to the land at the location of the POC well have been secured by P4. If P4 is not successful in obtaining the surface rights or easement agreements for the POC Boundary Area prior to the final record of decision (ROD), DEQ will not be able to document to the BLM the CCM's compliance with Idaho Code and rules. As there are no other suitable POC locations to adequately monitor portions of the North Mine pit, it is likely mining of the North Pit would be prohibited.

P4's Proposed Points of Compliance and Indicator Wells

DEQ accepts the following proposed monitoring wells as POC and indicator wells, except as noted. Approximate well locations are depicted in Figure 1.

Existing Wells:

1. MW-14-02A – DEQ agrees with the use of this proposed existing well as an alluvial POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
2. MW-14-03D – DEQ agrees with the use of this proposed existing well as a Dinwoody POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
3. MW-14-04A – DEQ agrees with the location and use of this proposed existing well as an alluvial POC.
4. MW-14-05D– DEQ agrees with the location and use of this proposed existing well as a Dinwoody POC.
5. MW-14-06A – DEQ agrees with the location and use of this proposed existing well as an alluvial POC.
6. MW-14-07D– DEQ agrees with the location and use of this proposed existing well as a Dinwoody POC.
7. MW-14-08A – DEQ agrees with the use of this proposed existing well as an alluvial POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
8. MW-14-09A – DEQ agrees with the location and use of this proposed existing well as an alluvial POC.
9. MW-14-10D– DEQ agrees with the location and use of this proposed existing well as a Dinwoody POC.
10. MW-14-13D– DEQ agrees with the location and use of this proposed existing well as a Dinwoody POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
11. MW-14-14W– DEQ agrees with the location and use of this proposed existing well as a Wells Formation POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
12. MW-14-15W– DEQ agrees with the location and use of this proposed existing well as a Wells Formation POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
13. MW-14-17D– DEQ disagrees with the location of this proposed existing well as a Dinwoody POC; this well is located in the boundary of the Northern Pit and is inconsistent with the IDAPA 58.01.11.401.03. The well should be moved to approximately to 42.749292°N 111.369287°W. Final location will be determined by field placement with P4 and IDEQ. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
14. MW-14-18W– DEQ agrees with the location and use of this proposed existing well as a Wells Formation POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the

- well sits on. However as the well looks as if it may be located at the edge of the proposed mine pit if this well will be adversely impacted, the well location may be moved to the west.
15. MW-14-21A– DEQ agrees with the location and use of this proposed existing well as an alluvium POC.
 16. MW-14-22D– DEQ agrees with the location and use of this proposed existing well as a Dinwoody POC.
 17. MW-14-29W– DEQ agrees with the location and use of this proposed existing well as a Wells Formation POC.
 18. MW14-30W – DEQ agrees with the location and use of this proposed existing well as a Wells Formation indicator well to determine site background.
 19. MW-14-32A– DEQ agrees with the location and use of this proposed existing well as an alluvium POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ’s satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
 20. MW-BLR-01– DEQ agrees with the location and use of this proposed existing well as an alluvium POC.
 21. MW-BLR-15– DEQ agrees with the location and use of this proposed existing well as an alluvium POC.
 22. PSW13-01– DEQ agrees with the location and use of this proposed existing well as a Wells Formation POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ’s satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
 23. Allen Stock Well– DEQ agrees with the location and use of this proposed existing well as an alluvium POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ’s satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
 24. GW-12D – DEQ agrees with the location and use of this proposed existing well as a Wells Formation background indicator well. This well is appointed as an Active Mineral Extraction Consent Order well for the Wells aquifer Formation at the Dry Valley Mine.
 25. GW-8D – DEQ agrees with the location and use of this proposed existing well as a Wells Formation background indicator well. This well is appointed as an Active Mineral Extraction Consent Order well for the Wells aquifer Formation at the Dry Valley Mine.

Future/proposed new POC wells:

26. MW-BLR-17– DEQ agrees with the location and use of this proposed existing well as an alluvium POC.
27. PZ14-37A – DEQ agrees with the use of this proposed existing well as an alluvial POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ’s satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
28. POC-1D (Now POC-01D) – DEQ agrees with the approximate location and use of this proposed new well as Dinwoody POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ’s satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on. This well name should be changed to POC-01D to maintain sequential numbering for the new POC wells. Final location will be determined by field placement with P4 and IDEQ.
29. POC-2A (Now POC-02A) – DEQ agrees with the approximate location and use of this proposed new well as an alluvium POC. This well cannot be set as a POC well until P4 demonstrates, to DEQ’s satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on. This well name should be changed to POC-02A to maintain sequential numbering for the new POC wells. Final location will be determined by field placement with P4 and IDEQ.

30. POC-3W (Now POC-03W) – DEQ agrees with the approximate location and use of this proposed new well as a Wells Formation POC. This well name should be changed to POC-03W to maintain sequential numbering for the new POC wells. Final location will be determined by field placement with P4 and IDEQ.
31. POC-4A (Now POC-04A) – DEQ agrees with the approximate location and use of this proposed new well as an alluvium POC. This well name should be changed to POC-04A to maintain sequential numbering for the new POC wells. Final location will be determined by field placement with P4 and IDEQ.
32. POC-5A (Now POC-05A) – DEQ agrees with the approximate location and use of this proposed new well as an alluvium POC. This well name should be changed to POC-05A to maintain sequential numbering for the new POC wells. Final location will be determined by field placement with P4 and IDEQ.
33. POC-6A (Now POC-06A) – DEQ agrees with the approximate location and use of this proposed new well as an alluvium POC. This well name should be changed to POC-06W to maintain sequential numbering for the new POC wells. Final location will be determined by field placement with P4 and IDEQ.
34. POC-7W (Now POC-07W) – DEQ agrees with the approximate location and use of this proposed new well as a Well Formation POC. This well name should be changed to POC-07W to maintain sequential numbering for the new POC well. Final location will be determined by field placement with P4 and IDEQ.

Additional DEQ Determined POC Wells to Protect Beneficial Uses of Ground Water

DEQ has determined additional wells are also necessary to adequately monitor the ground water flow systems at CCM. These wells and their approximate proposed locations (Figure 1) are as follows.

1. MW14-19W – DEQ requires a Wells Formation POC well for the North end of the South Pit. This well is already drilled and would only require necessary development and monitoring. This well will be omitted for being a required POC well when ownership or easement documents can be provided for the North Pit property.
2. POC –SP-01A – DEQ requires an alluvium well for the North area of the South Pit. The proposed location for this well is located at 42.736458°N 111.367756°W. Final location will be determined by field placement with P4 and IDEQ. This well will be omitted for being a required POC well when ownership or easement documents can be provided for the North Pit.
35. MW14-27W – DEQ requires a Wells Formation Well in the western-central location of the South Pit. The well will serve as a POC well for the Wells Formation in this area of the mine. This well is already drilled and would only require necessary development and monitoring.
36. POC -08W – DEQ requires a Wells Formation Well in the north end of the North Pit. The suggested location for the well is 42.773789°N 111.392707°W. Final location will be determined by field placement with P4 and IDEQ. This well will be set as a POC well when P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
37. POC -09A – DEQ requires an alluvium well in the central area of the North Pit. The suggested location for the well is 42.759700 °N 111.392690 °W. Final location will be determined by field placement with P4 and IDEQ. This well will be set as a POC well when P4 demonstrates, to DEQ's satisfaction, land ownership or a water degradation easement and access rights to the land the well sits on.
38. POC -10D – DEQ requires a Dinwoody Formation Well in the southern location of the South Pit. The suggested location for the well is 42.710111°N 111.357645°W. Final location will be determined by field placement with P4 and IDEQ.

39. MW-CCM-01 – DEQ requires an alluvial indicator well for SCP-1, SCP-3, & SCP-4. The suggested location for the well is 42.736863°N 111.357645°W. Final location will be determined by field placement with P4 and IDEQ.
40. MW-CCM-02 – DEQ requires an alluvial indicator well for SCP-2. The suggested location for the well is 42.740124°N 111.361316°W. Final location will be determined by field placement with P4 and IDEQ.
41. MW-CCM-03 – DEQ requires an alluvial indicator well for SCP-5. The suggested location for the well is 42.742668°N 111.332093°W. Final location will be determined by field placement with P4 and IDEQ.
42. MW-CCM-04 – DEQ requires an alluvial indicator well for WMP-3. The suggested location for the well is 42.747039°N 111.331429°W. Final location will be determined by field placement with P4 and IDEQ.

New POC Well Work Plan and Installation Schedule

A well installation work plan and schedule for the new POC and indicator wells will be provided to DEQ for approval no later than thirty (30) calendar days prior to commencement of drilling activities. It is the intent of DEQ that all wells will be installed by September 30, 2017. The work plan will specify approximate new well locations, drilling method(s), expected borehole depths, well construction details, and development procedures. Exact well locations will be determined during a well siting visit with DEQ staff in attendance. Following installation of the wells, P4 shall provide a well completion report (well lithology, construction details, completion logs, sampling/development record, coordinates and elevation in a readily accessible coordinate system, etc.) for inclusion in the first annual report following installation of the well(s).

P4 will provide DEQ with daily activity reports during well drilling and installation activities. Daily activity reports should include the drilling progress, type of materials encountered (geologic formations), all depths at which formation water is encountered, unexpected conditions, and any other information that may aid DEQ in evaluating the well. Daily reports are to be sent to wayne.crowther@deq.idaho.gov. DEQ also requests that to the extent possible coordination calls be held prior to execution of major deviations from the approved Well Installation Work Plan.

Monitoring Plan for the Ground Water Wells

Ground water monitoring will be conducted as approved under the final Environmental Monitoring Plan.

Annual Report

An annual report is due on or before June 30 of each year for the preceding year or as required under the approved Environmental Monitoring Plan. The report is to include a summary of data collected the prior year, discussion of any anomalous or unexpected data, and all available validated water quality data from all POC and indicator wells in an electronic, easily editable format such as Excel or Access files. Identification of any possible data gaps, or unanticipated changes in water quality or site conditions, should also be presented and discussed. As such, DEQ will determine based upon the information submitted, P4's compliance with ground water quality standards and the effectiveness of the best management practices for the mine activities. The report shall identify proposed or approved natural background concentrations. P4 shall also include a well completion report for all wells drilled during the reporting cycle.

Constituents to Monitor

The constituents listed in Table 1 in addition to those required under the approved Environmental Monitoring Plan (if different) will be monitored for each sampling event and reported annually. Constituents may be removed or added to the list after a written request from P4 or governing Agency and agreement between all parties or at the request of DEQ.

Table 1 Minimum Ground water Analytical Suit		
Parameter	Analytical Method	Analytical Basis
Nitrate-nitrite (as N) (Total)	EPA 353.2	N/A
pH, Laboratory	SM4500H+B	N/A
pH, Field		N/A
Sulfate	EPA 300.0	Dissolved
TSS	SM2540D	Total
TDS	SM2540C	Dissolved
Turbidity	EPA 180.1	
Aluminum	EPA 6020A	Total/Dissolved
Antimony	EPA 6020A	Total/Dissolved
Arsenic	EPA 6020A	Total/Dissolved
Cadmium	EPA 6020A	Total/Dissolved
Chromium	EPA 6020A	Total/Dissolved
Iron	EPA 6010C	Total/Dissolved
Lead	EPA 6020A	Total/Dissolved
Manganese	EPA 6010C	Total/Dissolved
Selenium	EPA 6020A	Total/Dissolved
Zinc	EPA 6010C	Total/Dissolved

Monitoring Schedule

Below is the initial monitoring schedule based on type of well and amount of data previously collected.

Well	Well Type	Completion (hydrostatigraphic unit)	Monitoring Schedule [€]	Well Installation/Completion
MW-14-02A ^N	POC	Alluvium	Four Annually	Existing
MW-14-03D ^N	POC	Dinwoody Formation	Four Annually	Existing
MW-14-04A ^N	POC	Alluvium	Four Annually	Existing
MW-14-05D ^N	POC	Dinwoody Formation	Four Annually	Existing

MW-14-06A ^N	POC	Alluvium	Four Annually	Existing
MW-14-07D ^N	POC	Dinwoody Formation	Four Annually	Existing
MW-14-08A ^N	POC	Alluvium	Four Annually	Existing
MW-14-09A ^N	POC	Alluvium	Four Annually	Existing
MW-14-10D ^N	POC	Dinwoody Formation	Four Annually	Existing
MW-14-13D ^N	POC	Dinwoody Formation	Four Annually	Existing
MW-14-14W ^N	POC	Wells Formation	Four Annually	Existing
MW-14-15W ^N	POC	Wells Formation	Four Annually	Existing
MW-14-17D ^N	POC	Dinwoody Formation	Four Annually	Existing
MW-14-18W ^N	POC	Wells Formation	Four Annually	Existing
MW-14-19W	POC	Wells Formation	Four Annually	Existing
MW-14-21A	POC	Alluvium	Four Annually	Existing
MW-14-22D	POC	Dinwoody Formation	Four Annually	Existing
MW-14-27W	POC	Wells Formation	Four Annually	Existing
MW-14-29W	POC	Wells Formation	Four Annually	Existing
MW-14-30W	Indicator	Wells Formation	Four Annually	Existing
MW-14-32A	POC	Alluvium	Four Annually	Existing
MW-BLR-01	POC	Alluvium	Four Annually	Existing
MW-BLR-15	POC	Alluvium	Four Annually	Existing
MW-BLR-17	POC	Alluvium	Four Annually	Twelve samples prior to mining
PSW 13-01	POC	Wells Formation	Four Annually	Existing
GW-8D ^A	Indicator	Wells Formation	Four Annually	Existing
GW-12D ^A	Indicator	Wells Formation	Four Annually	Existing
POC-01D ^N	POC	Dinwoody Formation	Four Annually	Mining north in South Pit
POC-02A ^N	POC	Alluvium	Four Annually	Mining north in South Pit

POC-03W	POC	Wells Formation	Four Annually	Twelve samples prior to mining
POC-04A	POC	Alluvium	Four Annually	Twelve samples prior to mining
POC-05A	POC	Alluvium	Four Annually	Twelve samples prior to mining
POC-06A	POC	Alluvium	Four Annually	Twelve samples prior to mining
POC-07W	POC	Wells Formation	Four Annually	Twelve samples prior to mining
POC-08W ^N	POC	Wells Formation	Four Annually	Mining north in South Pit
POC-09A ^N	POC	Alluvium	Four Annually	Mining north in South Pit
POC-10D	POC	Dinwoody Formation	Four Annually	Twelve samples prior to mining
POC-SP-01A	POC	Alluvium	Four Annually	Twelve samples prior to mining
MW-CCM-01	Indicator	Alluvium	Annual	Twelve samples prior to mining
MW-CCM-02	Indicator	Alluvium	Annual	Twelve samples prior to mining
MW-CCM-03	Indicator	Alluvium	Annual	Twelve samples prior to mining
MW-CCM-04	Indicator	Alluvium	Annual	Twelve samples prior to mining
Allen Stock ^N	POC	Alluvium	Four Annually	Twelve samples prior to mining
PZ14-37A ^N	Indicator	Alluvium	Four Annually	Twelve Samples prior to mining

^eSampling may be conducted more frequently if needed.

^AAgrium Dry Valley Mine monitoring well – Agrium is also sampling this well, data may be shared between companies for this well to avoid duplicating sampling efforts as long as all sampling and data quality objectives are met.

^NNorth Pit Well –Sampling may continue to develop background.

POC Well Background, Indicator Well Baseline and Projected Water Quality Report

DEQ recommends P4 submit a background ground water quality analysis of any natural occurring constituent that has demonstrated concentrations above Idaho’s ground water quality standards prior to commencement of mining activities for DEQ review and approval. For DEQ’s approval, the report will need to outline the methodology used to develop background conditions for ground water quality unimpacted by mining activity at each of the POC wells, provide background concentration limits for each constituent P4 is seeking a natural or site background variance to the standards, and be accompanied by an editable electronic copy of the data set used in the statistical analysis. Development of background water quality should follow DEQ’s statistical guidance (DEQ 2014) or other statistical methods for determining background as approved by DEQ.

For the background determination please note:

- Until natural background concentration limits are approved on an intra-well basis for each of the POC wells, an interim inter-well approach using data from existing site wells maybe developed and submitted to DEQ for determining site wide ground water quality and compliance with the GWQR. DEQ will allow this on a case by case basis
- A minimum of 12 samples from each well is expected to be collected with a sampling frequency of no greater than once a month, preferably four times annually, for the development of natural background water quality.
- In addition, P4 shall provide the maximum model predicted cadmium, manganese, selenium, and sulfate concentrations and the predicted timing of the peak concentrations, which pass through the POC and indicator wells. For example; the maximum predicted peak concentration of selenium at well MW-XX is 0.047 mg/L occurring approximately 25 years after the start of mining. This data will be used to verify the model predictions and the conceptual site model.
- Wells used for background determination should be submitted to DEQ for review and approval prior to mining or construction activities for the mine.

Once the dataset is achieved and DEQ has approved the natural background concentration limits, sampling of these wells will then be included into the Bureau of Land Management-approved Environmental Monitoring Plan sampling schedule.

Data Summary Notice

If data indicate ground water quality standards or DEQ approved natural background limits have been exceeded during a sampling event a data summary notice will be prepared and submitted to DEQ no later than 60 days after the last sample is collected during a particular field event (e.g., monthly, quarterly, spring, fall). The summary will include notification of any ground water quality standard exceedance and all data collected during the event.

References

P4 Productions,. 2016, Point of Compliance Application Caldwell Canyon Project Caribou County, Idaho

DEQ. 2014. Statistical Guidance for Determining background Ground Water Quality and Degradation, March. 2014 (<https://www.deq.idaho.gov/media/1226/guidance-statistical-degradation.pdf>)

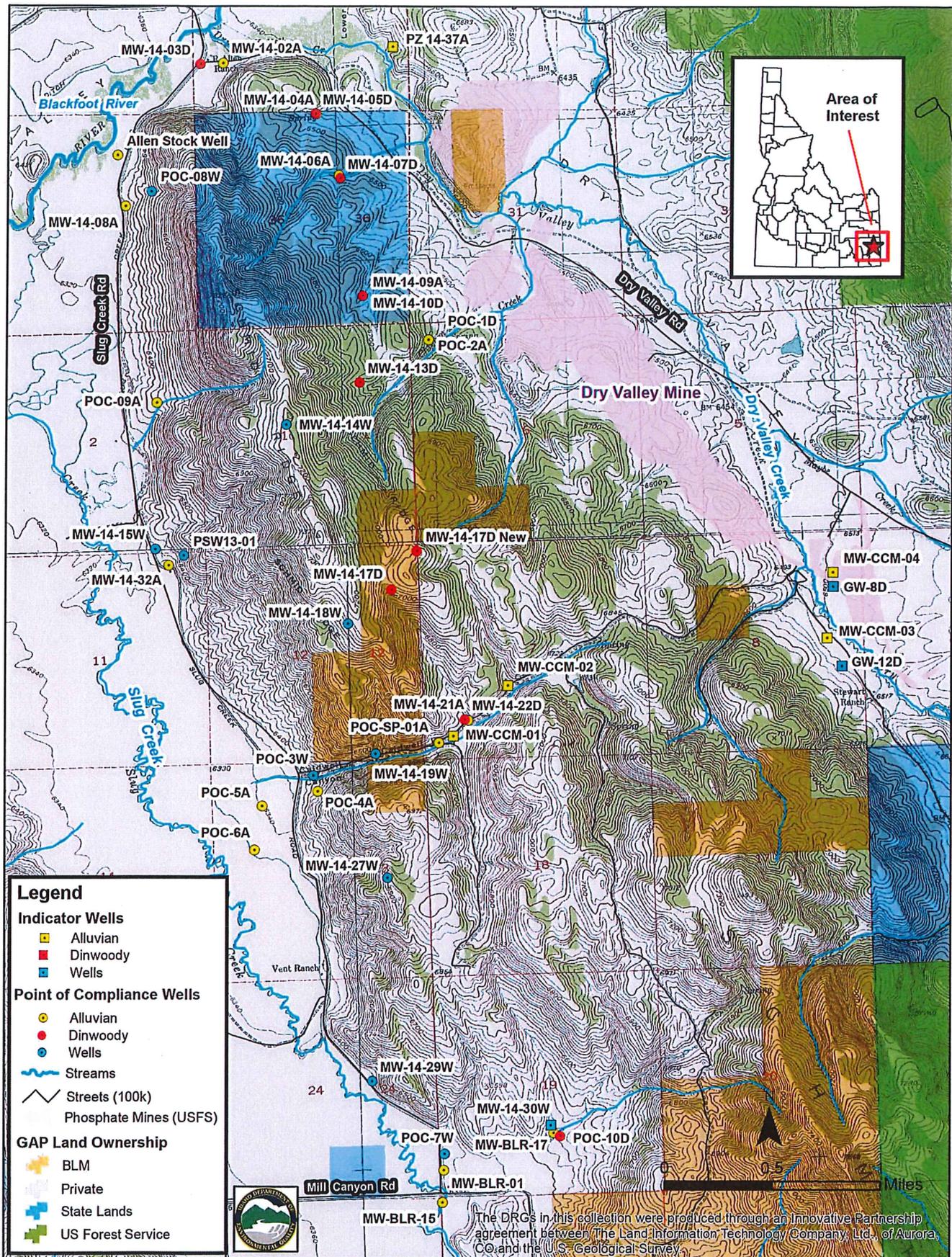


Figure 1. Caldwell Canyon Mine Point of Compliance Monitoring Well Network