



## Idaho Department of Environmental Quality Point of Compliance Determination

**June 14, 2011**

**Project Name:** Proposed Blackfoot Bridge Mine, Caribou County, Idaho

**Applicant:** P4 Production, L.L.C.

**Ground Water Potentially Affected:** Ground water is present in multiple aquifers below and adjacent to the proposed mine; ground water of concern primarily occurs in the alluvium/colluvium, Dinwoody Formation, Rex Chert Member of the Phosphoria Formation, and Wells Formation.

**Existing Ground Water Quality Conditions:** Ground water quality varies areally and vertically within the project area. Ground water quality at the north end of the mine is influenced by the upwelling of deep ground waters characterized by greater concentrations of total dissolved solids, aluminum, iron, and manganese in wells MW-13A and MW-14W and total dissolved solids and manganese in MW-17W that do not meet current ground water quality standards. Ground water quality in monitoring wells not affected by the deep upwelling of ground waters typically meets current ground water standards. Although the ground water in monitoring wells MW-18Da and MW-18Db has on occasion exceeded the current ground water quality standards for aluminum and iron, these wells are not influenced by the deep upwelling of ground waters.

**Project Location:** This project is located in the following sections of Township 7 South, Range 42 East: SE  $\frac{1}{2}$  of the NE  $\frac{1}{4}$  and the SE  $\frac{1}{4}$  of Section 22; W  $\frac{1}{2}$  of Section 23; W  $\frac{1}{2}$  of the SE  $\frac{1}{4}$ , W  $\frac{1}{2}$  of the NE  $\frac{1}{4}$ , and W  $\frac{1}{2}$  of Section 26; N  $\frac{1}{2}$  of the NE  $\frac{1}{4}$ , SE  $\frac{1}{4}$  of the NE  $\frac{1}{4}$ , and the NE  $\frac{1}{4}$  of the NW  $\frac{1}{4}$  of Section 27; and W  $\frac{1}{2}$  of the SE  $\frac{1}{4}$ , W  $\frac{1}{2}$  of the NE  $\frac{1}{4}$ , E  $\frac{1}{2}$  of the SW  $\frac{1}{4}$ , and the NW  $\frac{1}{4}$  of Section 35.

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### **Authorities:**

Pursuant to the provisions of subsection 401.01 the Ground Water Quality Rule (IDAPA 58.01.11, hereafter referred to as the Rule), the Idaho Department of Environmental Quality (DEQ) has authority to set a point of compliance or points of compliance at the request of a mine operator. The points of compliance shall be set as close as possible to the boundary of the mining area, taking into consideration the relevant factors set forth in Subsection 401.03.a through 401.03.h of the Rule, but in no event shall the point(s) of compliance be within the boundary of the mining area.

DEQ has reviewed the relevant information presented in the *Request for Setting Points of Compliance, Proposed Blackfoot Bridge Mine, Caribou County, Idaho*. DEQ also reviewed and considered other material and information related to the proposed activity, including but not limited to the following:

- *Draft Environmental Impact Statement, Blackfoot Bridge Mine, Caribou County, ID* (July 2009);
- *Blackfoot Bridge Mine Environmental Monitoring Plan* (September 2010); and
- *Water Management Plan Proposed Blackfoot Bridge Mine, Caribou County, Idaho* (November 2010).

Based upon its review of the points of compliance application and associated information for the above referenced activity, DEQ establishes points of compliance for the Blackfoot Bridge Mine in accordance with Subsection 401 of the Rule. As long as the applicant complies with the terms and conditions imposed by DEQ in this document, then there is reasonable assurance that the activity will comply with the applicable requirements of the Idaho Ground Water Quality Rule (IDAPA 58.01.11).

### **Introduction**

P4 submitted a revised *Request for Setting Points of Compliance* application to the Department on July 12, 2010. Supplemental information to be incorporated into the application was received from P4 on August 6, 2010. The DEQ reviewed the application in accordance with the Rule and determined it to be complete in accordance with IDAPA 58.01.11.401.02.a on August 12, 2010 in a letter to Mr. David Farnsworth (the applicant). Subsequently DEQ contacted and sought recommendations regarding proposed points of compliance from other State and Federal agencies that have regulatory authority over mining activities in accordance with IDAPA 58.01.11.401.05. These agencies included the U.S. Environmental Protection Agency (EPA), the U.S. Bureau of Land Management (BLM), the Idaho Department of Water Resources (IDWR), and the Idaho Department of Lands (IDOL). Inter-Agency meetings to discuss the Blackfoot Bridge Project and proposed points of compliance were held on September 28, 2010 and October 19, 2010.

As a result of the coordination meetings and our further review of the application, the DEQ has determined that the P4 POC application, though complete, proposes points of compliance and monitoring that do not fully satisfy the following requirements of the Ground Water Quality Rule.

#### *IDAPA 58.01.11.401.03*

“The point(s) of compliance shall be set so that, outside the mining area boundary, there is no injury to current or projected future beneficial uses of ground water and there is no violation of water quality standards applicable to any interconnected surface waters.”

*IDAPA 58.01.11.401.04*

“The Department shall require ground water monitoring and reporting whenever the Department sets the point(s) of compliance. The Department shall not require ground water monitoring that duplicates ground water monitoring required by other state or federal agencies as long as the mine operator provides the data to the Department.”

“a. A ground water monitoring system required under Subsection 401.04 shall be designed to: i. Represent the quality of background ground water that has not been affected by the mining activity; and ii. Represent the quality of ground water passing the point(s) of compliance in order to determine compliance with ground water quality standards or effectiveness of best management practices.”

To fully comply with the components of the Rule identified above, some monitoring activities in addition to those proposed in the August 6, 2010 Groundwater Points of Compliance application will be necessary. The following identifies the requirements that are needed in addition to those that were deemed acceptable as outlined in the August 6, 2010 POC application. The requirements generally fall into four categories: 1) areas requiring additional monitoring locations, 2) sampling frequencies, 3) sampling parameters, and 4) reporting requirements. Additional activities needed to comply with the Rule in each of these categories are discussed.

### **Points of Compliance**

The compliance points are located within the Blackfoot River watershed and are identified in Table 1 and Appendix A. A total of 21 compliance point wells are approved in this POC Determination. The well locations, well construction plans, and anticipated completion depths for all new wells must be approved by the Pocatello Regional Office Project Manager.

### **North Pit & Mid-Pit**

The proposed compliance points are inadequate north of the North Pit between MW-17W and MW-14W (see Figure 19 for proposed monitoring well locations from the POC application). Therefore, at least three additional monitoring wells (points of compliance) are needed in the Wells Formation at locations distributed between the existing wells MW-17W and MW-14W, but skewed eastward toward MW-17W to coincide with the modeled selenium plume geometry. Figure 42 (modified from *FINAL Groundwater Modeling Report Blackfoot Bridge Project, July 2010*) identifies this additional area of concern between the north end of the mine and the Blackfoot River. The base map for the figure is the maximum plume extent modeled for the "Proposed Action" as described in the Draft EIS and Final EIS. This figure was selected to represent the area of additional concern because mining of the North Pit and the building of the Northwest Overburden Pile will occur over several years and mine reclamation and final cover placement under Alternative 1A (the selected alternative) cannot occur instantaneously after the cessation of mining or overburden placement in this area of the mine. Figure 42 (modified from *FINAL Groundwater Modeling Report Blackfoot Bridge Project, July 2010*) presents

the modeled iso-contours for selenium concentrations in the ground water of the Wells Formation and shows the predicted pathway for the ground water to move toward the Blackfoot River which lies between the existing monitoring wells MW-17W to the east and MW-14W to the west.

The model predicts the highest selenium concentrations in the Wells Formation nearest the mining area boundary will occur in the red shaded area and the probability that preferential ground water pathways (narrow width and/or at discreet depths) exist between the sources of selenium and the Blackfoot River is high. These proposed monitoring wells will be the only warning system available should the modeling predictions prove to be non-conservative; these monitoring wells are needed to maintain operations at the mine while protecting the Blackfoot River.

In addition to the new wells described above, please provide evidence (for example, an easement or license included in an access agreement) that P4 has permission to access the property needed to install and monitor for the necessary length of time the proposed monitoring well MW-20W (note: the "W" has been added to the well designation for consistency with the other well designations) located to the north of the Blackfoot River. MW-20W (Table 1) will monitor ground water in the Wells Formation for predicted manganese exceedances north of the Blackfoot River below private property, but a contractual agreement has not been reached with the property owner at the time of submittal of this request. This well will be a point of compliance for purposes of monitoring manganese. Unless a legal agreement is reached with the landowner, the applicant will need to identify an alternative location on property owned by the applicant.

DEQ agrees with the following proposed points of compliance locations MW-13A, MW-14W, and MW-17W will monitor ground water in the alluvium and the Wells Formation to the northwest and north of the North Pit and wells MW-18Da and MW-18Db will monitor ground water in the Dinwoody Formation east-northeast of the North Pit. These wells will be points of compliance.

### **South Pit**

MW-2R and MW-3A will monitor ground water in the Rex Chert Member of the Phosphoria Formation and the alluvium northeast of the South Pit. These wells will be points of compliance.

MW-21W will be drilled between the northern boundary of the Conda Mine and the southern boundary of the South Pit. Although this well will not be a point of compliance, it is a necessary monitoring point to fulfill the requirements identified in §401.04.a.i of the Rule. This well is needed to determine background, up gradient ground water quality that may be impacted by the Conda Mine.

Since this well is also a required down gradient well for Simplot as part of the Conda/Woodall Mountain Mine Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation, coordination and

planning for the well (specific location, completion, construction, and development) must also include the J.R. Simplot Company, and appropriate Agency staff responsible for the CERCLA activities.

### **Water Management Ponds**

The two monitoring wells proposed by P4 (MW-19T and MW-19S) will be located to the west of the ponds and shall be points of compliance. Four additional monitoring wells are required to the north of the ponds. These wells also will be points of compliance. Existing monitoring wells and piezometers near the Water Management Ponds were considered, but cannot serve as points of compliance for the Water Management Ponds. The existing monitoring wells and piezometers in the vicinity of the ponds (MW-WMP1, MW-WMP2, MW-WMP3, WMP-BH-1, WMP-BH-2, WMP-BH-3, WMP-BH-4, and WMP-BH-5) have completion intervals ranging between 16.0 and 70 feet below top of casing. A review of the drilling logs for the "BH" series does not indicate the reason for the depth of the piezometer completions. Drilling logs have not been provided for the "MW" series of monitoring wells, but the reported ground water levels are at ground surface in 2 of the 3 wells and 4 feet below ground surface in the third well. The anticipated shallow water table, near land surface, is the cause for the ground water drainage system (discussed below) under the ponds. The close proximity of the ponds and the existing monitoring wells to the boundary of the mine area limits the potential for any leakage from the ponds to move downward to these relatively deep completion intervals.

In addition, two monitoring wells are also needed south of the Water Management Ponds to determine whether there is a component of southward flow in the shallowest ground water. Although a strong southward flow component is not anticipated based on information from the existing well network, the effects of the pond construction on the shallowest aquifer are difficult to predict. Therefore, the two wells shall be installed south of the pond to better characterize the shallowest and most vulnerable flow system. These wells must be installed during the construction of the ponds and details on the construction of the wells and ground water elevations for the wells must be reported to DEQ within 6 months of the start of pond construction. DEQ will review the ground water elevation data from all the new shallow wells around the Water Management Ponds. If, on the basis of the ground water elevation data from the new wells, DEQ determines that there is a component of southward flow in the uppermost aquifer beneath the pond, then DEQ will incorporate the new wells south of the Water Management Ponds as additional points of compliance in accordance with the Rule (IDAPA 58.01.11.08).

The wells will be installed with the objective of monitoring the shallowest ground water found at the ponds, and well construction and anticipated completion depths must be approved by DEQ and BLM prior to drilling.

The discharge from the drainage system is an additional point of compliance during periods of high ground water. The ground water drain system under the Water

Management Ponds will capture leakage from the ponds if the water table is high enough for water to flow from the drainage pipe system that will be installed as part of the construction of the ponds. Under these conditions, the leakage will not move downward to the completion intervals of the existing monitoring wells or piezometers within the mine area. Therefore, when water is flowing from the ground water drainage system under the ponds, the ground water drain system is the equivalent of a lateral well network and must be monitored for water quality purposes.

### **Sampling Frequency Required**

The proposal to sample new point of compliance wells “as often as monthly” to achieve a minimum data set of 12 samples per well is an acceptable approach. The new monitoring wells (point of compliance) must be installed at least two years prior to the start of mining; P4 may request a shortened time frame. DEQ will consider such requests, and may approve a shorter time frame if adequate justification is provided that doing so will not compromise the needed background data set. The purpose of this monitoring is to establish existing ground water quality at the points of compliance prior to initiation of mining activity.

The proposal to sample on a semi-annual (twice per year) schedule for Wells MW-2R and MW-3A is acceptable until mining, including timbering, occurs within 1,000 feet of these wells. At that time, the schedule must be increased to quarterly until the data base indicates the sampling frequency can be reduced. The criteria that will be used to determine whether sampling frequencies at these wells can be reduced will be identified in the final Environmental Monitoring Plan. It is P4’s obligation to present the data and an analysis of the data to DEQ supporting a request for a reduced sampling frequency.

Once mining begins, a semi-annual (twice per year) sampling frequency for wells MW-13A, MW-14W, MW-17W is not adequate. The sampling frequency for MW-13A, MW-14W, MW-17W and the required new point of compliance monitoring wells located between MW-14W and MW-17W must be quarterly during top soil removal operations and monthly once waste rock and ore removal begin. Sampling at MW-14W, MW-17W, and the required new wells may be increased to weekly if ground water concentration trends are not consistent with modeling completed for the EIS. The weekly sampling of the noted wells would only be required if the elevation of ground water in that well is higher than the elevation of the surface water in the Blackfoot River nearest the monitoring well, and is needed because of the short ground water travel time from the northern boundary of mining activities to the Blackfoot River. Frequent sampling is warranted along the north end of the North Pit in the monitoring wells required as points of compliance along the mine boundary because of the close proximity of the North Pit to the Blackfoot River. Frequent sampling will enable P4 and the DEQ and BLM to closely monitor the hydraulic gradient between the North Pit and the river and to sample the required points of compliance when ground water flow is toward the river. Observation of ground water gradients and trends in the hydrochemistry, primarily selenium, will enable P4 and DEQ and BLM to react in a timely fashion if the trends indicate the

possibility that ground water could impact the river at concentrations greater than predicted by the modeling.

The schedule for sampling MW-20W, once installed, and an adequate data base has been established can be reduced to semi-annual (twice per year) as proposed.

Sampling of the existing monitoring wells MW-18Da and MW-18Db on a semi-annual (twice per year) schedule is acceptable until mining (waste rock and ore removal) commences in the northern half of the North Pit. At that time, the sampling frequency must increase to quarterly. It is P4's obligation to submit data collected from these wells in conjunction with an analysis of the data to support a change in the frequency of the sampling.

The sampling schedule for the proposed point of compliance monitoring wells, MW-19T and MW-19S, and all other required monitoring wells in the immediate vicinity of the Water Management Ponds shall be monthly once the ponds begin to receive water. In addition, the ground water drain system under the water management ponds is a point of compliance if water is discharging from the drainage system and shall be sampled weekly when water is discharging from the drainage system.

A sampling schedule for the proposed background monitoring well, MW-21W located south of the South Pit, is not proposed but a reduced schedule for sampling can be proposed by P4 once an adequate baseline data set has been collected and analyzed. The application states the well will be installed "within the next two years or prior to ore production from the Blackfoot Bridge mine site, whichever comes first." Every effort should be made to install this well during the 2011 field season.

Monitoring will continue as long as necessary to ensure there is no injury to current or projected future beneficial uses of ground water and no violation of water quality standards applicable to any interconnected surface waters. DEQ, and BLM will review the monitoring locations, sampling schedule, and parameter list annually and determine if changes in the monitoring plan and/or points of compliance are needed. Modifications to the points of compliance and/or monitoring requirements described herein will be in accordance with the Rule (IDAPA 58.01.11.08).

### **Water Analysis Parameter List**

All new wells must be sampled for common ions on a quarterly basis until the minimum data set of 12 has been achieved. At that time P4 can submit the data and analysis of the data to DEQ requesting a reduction in the sampling frequency of the new wells for the common ions. Future sampling for common ions is anticipated to be needed only in select cases where the general chemistry of the ground water is suspect because of anomalies in the data for the point of compliance parameters.

P4 proposed to analyze for the following parameters in the field: depth to water, pH, electrical conductivity, oxidation reduction potential, dissolved oxygen, and temperature.

P4 proposes the following analyses in the laboratory: total dissolved solids, sulfate, aluminum, antimony, cadmium, chromium, iron, manganese, nickel, selenium, and zinc. The proposed parameter lists for field and laboratory analyses are acceptable.

Table 1. Point of Compliance Locations and Sampling Frequency.

Well ID	Formation	Location	Sampling Frequency
MW-20W	Wells Formation	North of Blackfoot River	12 samples for baseline then 2 times/year
MW-13A	Alluvium	Northwest of NW Overburden Pile	Quarterly or monthly
MW-14W	Wells Formation	Northwest of NW Overburden Pile	Quarterly or monthly
MW-17W	Wells Formation	N of North Pit	Quarterly or monthly
MW-??W (3 new wells)	Wells Formation	North of North Pit and NW Overburden Pile	12 samples for baseline then quarterly, monthly, or weekly
MW-18Da	Dinwoody (shallow)	Northeast of North Pit	2 times/year or quarterly
MW-18Db	Dinwoody (deep)	Northeast of North Pit	2 times/year or quarterly
MW-19T	Travertine	West of Water Management Ponds	12 samples for baseline then monthly
MW-19S	Salt Lake Formation	West of Water Management Ponds	12 samples for baseline then monthly
MW-??S (6 new wells)	Salt Lake Formation	North, West and South of Water Management Ponds	12 samples for baseline then monthly
WMP-underdrain	Alluvium	Under Water Management Ponds	Weekly samples when discharge occurs from pipe
MW-21W	Wells Formation	Between Conda Mine and South Pit (up gradient reference point for South Pit)	12 samples for baseline then reset frequency
MW-2R	Rex Chert	Between South & Mid Pits	2 times/year then quarterly
MW-3A	Alluvium	Between South & Mid Pits	2 times/year then quarterly

### **Reporting Results of Monitoring**

P4 shall prepare and submit annual reports to DEQ and BLM at an agreed to time that includes all data collected to date for each monitoring location which will consist primarily of ground water and surface water (Blackfoot River near the North Pit) elevations and qualified ground water quality data as previously specified. The ground water quality data shall be evaluated using statistical procedures described in *Statistical Guidance for Determining Background Ground Water Quality and Degradation* (May 2009 Version 2008-1) which can be found at the following link:

([http://www.deq.idaho.gov/water/data\\_reports/ground\\_water/guidance\\_statistical\\_degradation.pdf](http://www.deq.idaho.gov/water/data_reports/ground_water/guidance_statistical_degradation.pdf)). Alternate statistical procedures to those described in the guidance can be proposed to the Department.

P4 shall submit to DEQ and BLM on a quarterly basis all data collected during the previous quarter. The quarterly submittals can include preliminary ground water quality data. The ground water quality and water elevation data shall be submitted in tabular form as well as graphical form as concentrations or elevations versus time. An analysis of the data is not needed to support the quarterly reports but explanations should be provided that describe variances from normal sampling procedures or changes in mine operations that P4 believes may be affecting the data or resultant changes in mine operations that P4 initiated to mitigate potential adverse impacts to water quality.

The annual report and quarterly submittals shall be submitted to DEQ and BLM as hard copy and in electronic format such as a CD. The data shall be submitted in electronic format such as an EXCEL spreadsheet accompanying the report and quarterly submittals. The required contents, format, and submittal schedules for the annual and quarterly reports will be described in the final Environmental Monitoring Plan.

### **Right to Appeal Final Determination**

The final Points of Compliance Determination may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5), and the Rules of Administrative Procedure Before the Board of Environmental Quality, IDAPA 58.01.23, within 35 days of the date of the final determination.

Questions regarding the actions taken in this determination should be directed to Margie English, Pocatello Regional Office at 208.373.0306 or email at [margaretha.english@deq.idaho.gov](mailto:margaretha.english@deq.idaho.gov).

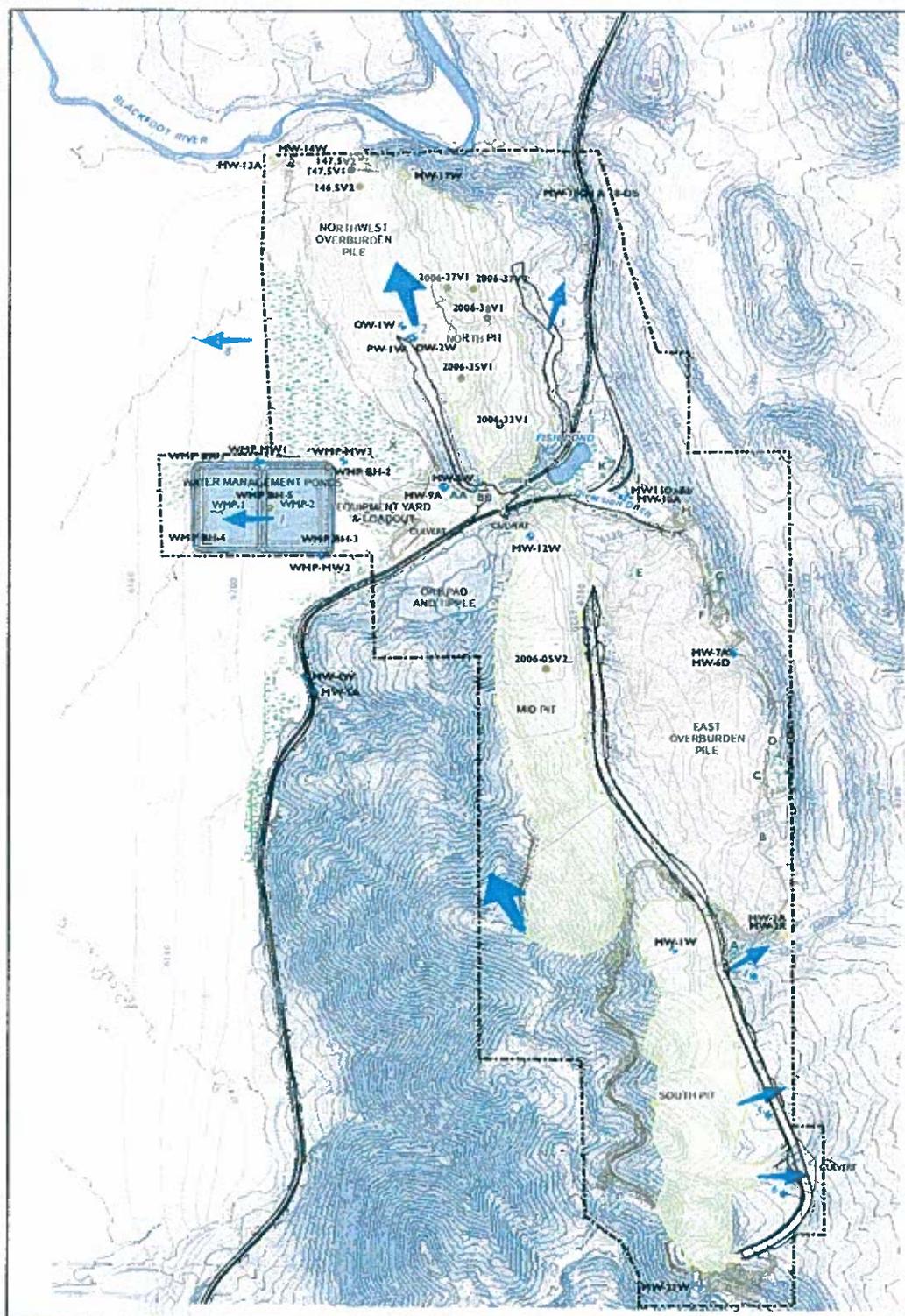


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Barry N. Burnell  
Water Quality Division Administrator

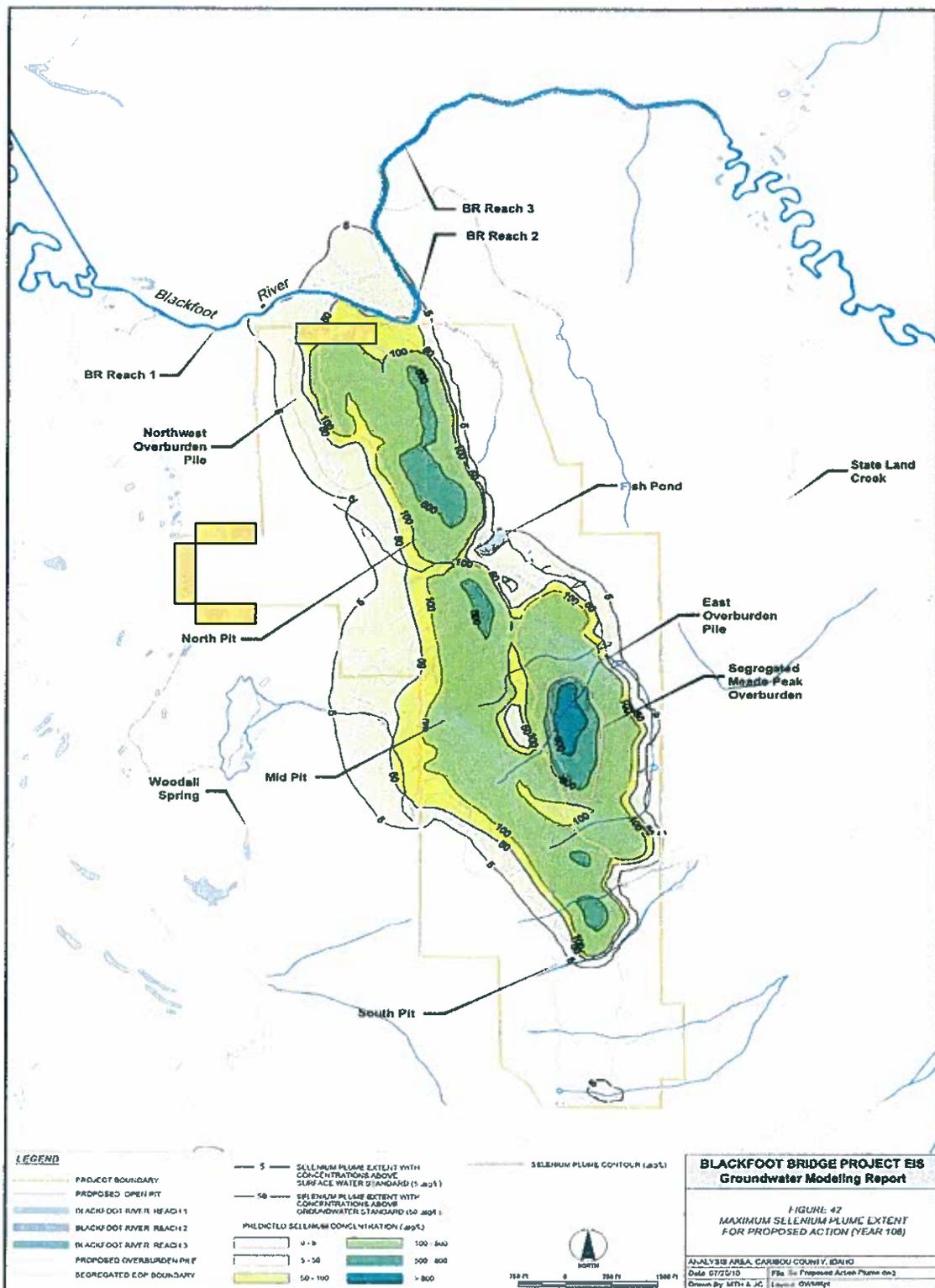
## **Appendix A**

### **Point of Compliance Wells, Existing Piezometers and Background Well Locations Blackfoot Bridge Mine**



- Groundwater Flow Path
- Water Management Structures
- POC - See Figure 28 for Close Detail - Blue Dashed
- Positioning Surveys Control Lines - Overburden Pile (Scale 1:50,000)
- Method Area
- Main Area
- Existing Protonator
- Proposed Future Background WPC to be Decommissioned
- Existing Proposed Compliance WPC
- Flanking WPC

Proposed POC Locations  
Blackfoot Bridge Project  
Caribou County, Idaho  
FIGURE 19



Additional Points of Compliance Areas





*North Pit & Mid Pit*

DEQ stated that P4 must provide evidence of permission to access property required to install and monitor proposed well MW-20W. In the absence of such evidence, DEQ stated that P4 will need to identify an alternative point of compliance on property owned by P4.

**Comment:** P4 recognizes that until such time as P4 has negotiated the ability to install and monitor proposed well MW-20W, that DEQ will not consider such location the point of compliance. Until such time as P4 reaches a contractual agreement with the landowner, P4 proposes that wells MW-14W and MW-17W serve as the point of compliance for manganese. Once the appropriate access has been obtained and well MW-20W has been installed, P4 will inform DEQ and that location will be considered the point of compliance for manganese.

**Response:** The points of compliance for manganese are MW-14W, MW-17W, and the three new monitoring wells that will be located between MW-14W and MW-17W. If P4 obtains a contractual agreement with the property owner on the north bank of the Blackfoot River such that the proposed monitoring well MW-20W can be drilled, P4 can apply for a modification to this points of compliance determination.

DEQ also determined that at least three additional points of compliance monitoring wells are required in the Wells Formation between MW-17W and MW-14W.

**Comment:** For the reasons stated in the request, P4 believes that monitoring wells MW- 17W and MW-14W are sufficient to detect any contaminants of potential concern migrating northward from the north pit. DEQ's apparent concern over the plume contours depicted on Figure 42 from the Final Groundwater Modeling Report is misguided as that figure is based on the proposed action after 108 years. As DEQ is aware, P4 is not proceeding with the proposed action, but is instead completing Alternative 1A.

Although P4 disagrees with DEQ's determination that additional points of compliance monitoring wells are required between MW-17W and MW-14W, DEQ's concerns could be addressed through the installation of one additional well, just east of the center between the two existing wells. This additional well, operating in conjunction with the existing wells, would allow for detection of any contaminants of potential concern well before there was any concern over potential impact to the Blackfoot River. The proposed construction and location of the additional well would be approved prior to drilling.

**Response:** The north end of the North Pit of the Blackfoot Bridge Project is the most sensitive area of the proposed mine because of the proximity of the North Pit to the Blackfoot River and the fact that ground water in the Wells Formation naturally discharges to the river within 650 feet of mine. The spatial position of the plume contours was used to indicate the probable ground water flow path that will occur from the North Pit area to the Blackfoot River which lies between the existing monitoring wells. The model output used to assess the spatial position of the probable ground water flow path is not from the selected Alternative 1A; the most conservative alternative was used to compare the probable ground water flow path to the locations of the existing monitoring wells to assess their adequacy as points of compliance. The occurrence of several discreet spring discharges from the Wells Formation to the Blackfoot River at the north end of the mine are the rationale for assuming the existence of preferential ground water flow paths which occur at a scale that is impractical to model. The spatial distribution of the proposed and existing monitoring wells is believed to be adequate to detect movement of contaminated ground water before that water can impact the river. Data from other southeast Idaho phosphate mining

locations indicate that the flow paths can be quite narrow within the same hydrostratigraphic unit and concentrations can change by an order of magnitude within 200 feet, even though the source(s) of selenium is 0.6 to 2.5 miles from the monitoring locations. Therefore, more than one additional monitoring well is needed between the existing monitoring wells MW-14W and MW-17W; these wells are separated by over 1,500 feet and the north end of the North Pit is less than 650 feet from the south bank of the Blackfoot River. The modeling cannot exactly replicate the mining on a temporal scale and there will be time frames when the waste rock cannot be covered immediately. Consequently, the proposed monitoring well network is necessary to adequately protect the river. Because ground water flow toward the river will only occur when the hydraulic gradient is not reversed by pit dewatering, the monitoring schedule is linked to the relationship between the river stage and ground water elevations.

*South Pit*

P4 agrees with DEQ's determination for points of compliance with regard to the South Pit. Additionally, P4 will coordinate its efforts concerning the background well, MW-21W, with appropriate personnel.

*Water Management Ponds*

DEQ determined that four additional monitoring wells are required to the north of the water management ponds and that these wells will become additional points of compliance.

**Comment:** The attached shallow potentiometric surface map (Figure 1) demonstrates that shallow ground water flow moves generally to the northwest. Additionally, the water management ponds are lined with impermeable material and underlain with a drainage collection system which, as noted above, creates an inward gradient beneath the water management ponds within the shallow subsurface flow system. DEQ's concern regarding the potential for shallow flow despite these protective measures is acknowledged; however, this concern can and should be addressed by a single point of compliance well developed in the shallow groundwater to the north of the water management ponds just west of WMP-MW1. This additional well, along with the two point of compliance wells to the west (MW-19T and MW-19S), would provide adequate monitoring capabilities and be protective of downgradient uses of ground water and surface water.

**Response:** As noted in the POC determination, the existing monitoring wells completed near or within the footprint of the Water Management Ponds are completed too deep to monitor the shallow ground water that is targeted by the lateral drain system under the ponds. The water level data provided by P4 indicates the presence of a shallower ground water system that may have different flow directions than indicated by the data provided in the figure provided by P4. The requirement to determine the direction(s) of ground water flow in this shallow system is necessary, as described in the POC determination. The proposed shallow well network is also needed to monitor for potential releases from the Water Management Ponds during those times of the year when the water table drops below the lateral drain system.

The DEQ also stated that P4 must provide additional ground water elevation data to confirm or refute the need for additional monitoring wells to the south of the water management ponds.

**Comment:** As noted above, the potentiometric surface map for the shallow system (Figure 1) demonstrates that shallow ground water flow moves generally to the northwest. Therefore, additional points of compliance to the south are not necessary or appropriate.

**Response:** See reply to previous comment.

DEQ also commented that the discharge from the drainage system underlying the water management ponds is an additional point of compliance during periods of high ground water.

**Comment:** P4 disagrees with this assessment of the status of the water management ponds' underdrain system. That system is designed to remove water from the subsurface that builds up beneath the WMPs and will be discharged subject to NPDES requirements. In contrast, a point of compliance is defined as "the vertical surface where the Department determines compliance with the ground water quality standards." IDAPA 58.01.11.007.25. Ground water collected and managed without moving laterally away from the source does not pass a point of compliance as contemplated by the rule. Once this water is removed from the subsurface it is no longer ground water and is not subject to the Ground Water Quality Rule. Thus, the discharge from a system that extracts ground water, including, as here, a lateral well network within the mine property to create an inward gradient and / or capture ground water before it reaches the point of compliance, does not constitute a separate point of compliance. Further, no monitoring of the discharge is required to represent the quality of groundwater passing the vertical surface(s) identified as the point(s) of compliance identified by DEQ. As part of the project, P4 will seek appropriate NPDES coverage for the discharge points associated with the underdrain system. Monitoring of this water will be conducted in compliance with the appropriate NPDES permit requirements and included in the Environmental Monitoring Plan ("EMP"). DEQ will have an opportunity to review the monitoring program as part of its review of the EMP.

**Response:** The underdrain system under the ponds is designed to depress the surface of the ground water beneath the ponds for geotechnical stability by preventing the buildup of hydrostatic pressure under the pond liner. The role of the underdrain system is described in the Water Management Plan and the response to comments on that document notes the water would be directed to the exterior edges of the pond. When the elevation of the shallow ground water is high enough, any leakage from the ponds should be captured by the underdrain system and unlikely to reach the proposed shallow monitoring wells at the edge of the pond. However, when the shallow ground water system drops below the underdrain system, which will likely occur in later Spring or Summer, the required shallow monitoring wells will intercept the uppermost ground water flow paths and thus monitor for any potential releases from the ponds.

The Environmental Monitoring Plan is a living document that encompasses all sampling requirements for the BLM, EPA, and DEQ. Therefore, DEQ agrees that it should document sampling of the lateral drainage system required by this POC determination, as well as any NPDES sampling required by EPA.

## Sampling Frequency

DEQ stated that new point of compliance monitoring wells should be installed at least two years prior to the start of mining and preferably three years prior to the start of mining; the necessity for a shortened time frame must be discussed with DEQ and approved prior to adopting a one year pre-mining installation target

**Comment:** As an initial matter, P4 will work with DEQ to install the new point of compliance wells as early as practicable. Because there is no requirement in the rule regarding installation of point of compliance wells so far in advance of initiation of activities,\* P4 interprets DEQ's statement of the requirements for pre-mining installation to be limited and in response to P4's discussion of its plan to perform a statistical evaluation of background water quality for point of compliance wells in accordance with Section 3.6 of the Statistical Guidance for Determining Background Ground Water Quality and Degradation (DEQ 2009) and its further plan to rely on statistical baseline thresholds established for each proposed point of compliance well to evaluate potential degradation of water quality in the wells, as described in the request.

P4 will work with DEQ to ensure sufficient lead time for well installation and sample analysis to perform this statistical evaluation.

\* Nor should one be read into the regulation as the regulation provides the same process for determining points of compliance for existing activities or changing points of compliance during operation of an activity.

**Response:** DEQ appreciates P4's willingness to work collaboratively to establish good baseline data sets for new monitoring wells prior to mining in areas where the ground water quality may be impacted.

DEQ has requested numerous changes in the proposed sampling schedule.

As noted by DEQ,

"a. A ground water monitoring system required under Subsection 401.04 shall be designed to: i. Represent the quality of background ground water that has not been affected by the mining activity; and ii. Represent the quality of ground water passing the point(s) of compliance in order to determine compliance with ground water quality standards or effectiveness of best management practices."

IDAPA 58.01.11.401.04.a.

P4 contends that the sampling frequency proposed in the request is adequate to meet the requirements of this provision. Additionally, some of these wells will be located such that, during storm conditions or heavy snowpack, it may be impossible to safely access and sample these wells. Despite this, P4 does not object to the proposed changes except as follows:

**Response:** Alternate means are available for obtaining ground water elevation data besides manually measuring the depths to ground water and converting these measurements to elevations. Electronic monitoring systems have become quite sophisticated and reliable. Such electronic systems may be warranted in those locations that are particularly sensitive such as the monitoring wells

P4 acknowledges that the proximity of the North Pit to the Blackfoot River may warrant more frequent sampling of Wells MW-13A, MW-14W, MW-17W and any additional wells installed between the North Pit and the Blackfoot River during active operations in the North Pit. P4, however, contends that the more frequent sampling should only be required during active operations and to the extent that conditions allow the wells to be safely accessed and sampled. Further, due to the estimated ground water travel times, quarterly sampling of these wells would be more than sufficient to meet the requirements of the rule. Any requirement for more frequent monitoring should not be included in this initial determination. If additional information becomes available that quarterly monitoring no longer meets the requirements in IDAPA 58.01.11.401.04.a, DEQ is free to require additional monitoring at that time. See IDAPA 58.01.11.401.08.c. Under no circumstances, however, is weekly monitoring required to meet the requirements of the rule that the ground water monitoring system represent the quality of groundwater passing the point(s) of compliance.

Therefore, the determination should be revised to clarify that, with respect to Wells MW- 13A, MW-14W, MW-17W and any additional wells installed between the North Pit and the Blackfoot River, (1) quarterly sampling is required during active mining in the North Pit; and, (2) semi-annual monitoring frequency is appropriate both before active mining and after active mining in the North Pit has ceased. Further, the proposal that weekly sampling may be required in the event that "ground water concentration trends are not consistent with modeling completed for the EIS," should be deleted.

Additionally, P4 fails to comprehend the rationale for the proposed monthly sampling requirement for monitoring wells in the immediate vicinity of the water management ponds. These ponds are lined with impermeable material and underlain with a drainage collection system which, as noted above, creates an inward gradient beneath the water management ponds. P4 believes that semi-annual sampling of these wells, as proposed, is sufficient to represent the quality of groundwater passing these points of compliance, absent some indication that these systems have failed. Thus, the determination should be revised to state that semi-annual sampling of wells in the vicinity of the water

located between the North Pit and the Blackfoot River. Obtaining ground water samples in inclement conditions can be impractical and DEQ recognizes that difficulty; notifying the agency of such problems and adjusting the sampling schedule can be resolved with DEQ as the need arises.

Sampling the monitoring wells only during active mining operations completely neglects the necessity for collecting data needed to assure DEQ and the public that the mining operation will not adversely impact the Blackfoot River. Ground water will continue to move through the aquifer whether mining operations are ongoing or curtailed. Because the north end of the North Pit is less than 650 feet from the Blackfoot River and access to monitor ground water between the northern boundary of the mine and the river is impractical, a responsive system is needed that provides P4 with adequate warning that modifications to their operations are warranted to reverse adverse trends in ground water quality. Concerns about contaminated ground water moving from the North Pit area to the river are tied to the hydraulic gradient and direction of ground water flow. Sampling on a frequent schedule would only be necessary if ground water flow is toward the river.

Weekly monitoring would only be required, as noted in the POC determination, "if ground water concentration trends are not consistent with modeling completed for the EIS" and "would only be required if the elevation of ground water in that well is higher than the elevation of the surface water in the Blackfoot River nearest the monitoring well..."

Quarterly or more frequent monitoring may be required in the new monitoring wells between the North Pit and Blackfoot River in order to establish an adequate baseline, especially since data collected to date from existing monitoring wells indicate intra-well comparisons of the ground water quality data is the most suitable evaluation technique. Semi-annual sampling after active mining ceases is inappropriate since ground water flow will return to near pre-mining conditions (i.e., flow toward the river). It is after pit dewatering has ceased, either intermittently or permanently that contaminant movement toward the river poses the greatest risk. The ground water monitoring frequency must accommodate the reversal of ground water flow toward the river and be flexible to allow for schedule changes as warranted by the

management ponds is generally acceptable. Upon a reasonable showing that the systems designed to prevent flow from the water management ponds are not operating as designed, more frequent monitoring may be required.

Further, as discussed above, the ground water drain system is not a point of compliance. Thus, no sampling of this water is required under IDAPA 58.01.11.401.04.a.ii. Sampling and monitoring of the underdrain discharge water, however, will occur as part of other regulatory programs and DEQ will have an opportunity to review the monitoring program as part of its review of the EMP.

data.

Monthly sampling of ground water from monitoring wells in the immediate vicinity of the Water Management Ponds is warranted to ensure the ponds are not leaking. Monitoring inflow and water losses from the ponds (which has not been proposed by P4) is inherently inaccurate as a tool to determine if the ponds are leaking. The liner system proposed for the ponds does not provide redundancy in the ability to detect leaks. The monitoring system required herein evaluates the shallow ground water under and adjacent to the ponds to determine if there are releases from the ponds.

Sampling the underdrain system is a simple and efficient means to sample the shallow ground water under the ponds. As stated previously, the Environmental Monitoring Plan is a living document that encompasses all sampling requirements for the BLM, EPA, and DEQ. Therefore, DEQ agrees that it should document sampling of the lateral drainage system required by this POC determination, as well as any NPDES sampling required by EPA.

### **Water Analysis Parameter List and Reporting Results of Monitoring**

P4 has no comments on any of the changes proposed by DEQ in these sections.

P4 appreciates the effort of DEQ staff in working with P4 to establish appropriate points of compliance and respectfully requests that the Draft Ground Water Points of Compliance determination be amended to as proposed in these comments. Thank you for your consideration of these comments.

### **Commentor: Marv Hoyt Idaho Director for Greater Yellowstone Coalition**

Following are the Greater Yellowstone Coalition's (GYC) comments on the above referenced document. GYC is a 501 (c)(3) non-profit organization dedicated to protecting the wildlands, wildlife, and other outstanding natural resources of the Greater Yellowstone Ecosystem. GYC has offices in Idaho, Wyoming, and Montana with more than 20,000 members and supporters nationwide. Our members regularly use and enjoy the lands and waters of southeast Idaho for a variety of activities such as fishing, hiking, hunting, wildlife viewing, spiritual

renewal, biological and botanical research, photography, and other pursuits. GYC has been involved in the issues and impacts of phosphate mining in southeast Idaho for more than 15 years. The Blackfoot Bridge Mine, in particular the proposed mine's impacts to ground and surface waters will negatively affect GYC members' opportunities to use and enjoy the aquatic resources of the Blackfoot River basin.

The groundwater monitoring plan as presented in Appendix A of the FEIS for the Blackfoot Bridge Mine and referenced in the draft groundwater POC document, claims to be robust. It does appear that it would be able to detect the groundwater degradation that will likely be caused by the mining operations. However, from GYC's point of view, the issue is not just whether the POC wells are numerous enough or completed at the right geologic formation and in appropriate locations.

As we pointed out in our comments on the DEIS for this proposal,

[T]he [monitoring] plan should include specific, *enforceable triggers requiring P4 to take corrective actions*. Possible actions should include ceasing mining operations until the cause of any unanticipated impacts are determined and remedied or, in the case of illegal selenium discharges, those discharges cease. Requiring anything less will only cast further doubt in the public mind regarding the BLM's interest in protecting water quality and other public resources. 1

We conveyed this same message to P4 staff during meetings with them after the comment period on the DEIS closed. Unfortunately, nothing has changed in respect to trigger points from the DEIS to the FEIS. Yet, IDEQDEQ is prepared to endorse and accept the groundwater monitoring plan for the Blackfoot Bridge Mine with its toothless and meaningless "triggers". As noted in Appendix A of the FEIS the only thing that IDEQDEQ and the BLM will require of P4 "[s]hould analytical results from groundwater samples collected from any indicator groundwater wells or points of compliance wells, as required by IDEQDEQ, detect selenium concentrations at levels statistically higher than background concentrations in groundwater" is more

**Response:** The goal of the monitoring required in the POC determination is to establish a good baseline data set for the hydrochemistry of each monitoring well and to track trends in concentrations in the ground water at that monitoring well. Assessing the changing trends is a better indicator for calling for changes in operations than only a "trigger level" to protect the ground water and the Blackfoot River. A single laboratory result that is statistically higher than background for one or more constituents of concern in the ground water must be re-sampled to verify the result. If the confirmation sample result verifies the initial sample result, a sampling plan will be submitted to BLM and DEQ to investigate possible causes for the deviation from background, and any trends that exceed modeling predictions. In addition, sample results that exceed any of the ground water quality standards will initiate a re-sampling of a well to confirm the exceedance. If confirmed, an investigation plan addressing possible causes and remedies for the exceedance will be submitted to BLM and DEQ for review and approval. The potential remedies may include, for example, managing ground water flow directions within the Wells Formation through pumping and re-injection to contain contamination within the mine site and protect the Blackfoot River. However, it is premature to prescribe specific remedies at this time, because if they are needed they will be evaluated, selected, and implemented based upon site-specific information and conditions. If implemented, these mitigative measures would be optimized on the basis of performance monitoring. This adaptive management strategy, described in the Environmental Monitoring Plan, is an iterative process which is appropriate as mining proceeds and any associated environmental impacts are observed.

Also note that ground water quality degradation would be addressed in accordance with the Ground Water Quality Rule. If a Ground Water Quality Standard is exceeded, in addition to investigation and

sampling.2  
...the well(s) would be re-sampled as soon as feasible...  
If re-sampling confirms prior results, a sampling plan would be submitted to IDEQDEQ and BLM to investigate possible causes.... Should any indicator groundwater wells or points of compliance wells, as assigned per IDEQDEQ, exceed any of the groundwater quality standards assigned to the well(s), the well(s) would be re-sampled as soon as feasible to confirm the exceedance.3

evaluation, DEQ may pursue enforcement actions to stop further contamination and clean up of existing contamination in accordance with IDAPA 58.01.11.400.03.

This process would obviously drag out for years. In the meantime contamination would continue to seep towards and into the Blackfoot River, causing short term and long term harm. The only action that will be required is that P4 will develop:

...an investigation plan to address possible causes and remedies would be submitted to BLM and IDEQDEQ for their concurrence. This investigation plan may include, as appropriate, inspection and sampling of springs (e.g., SW10 and 11) and nearby surface water to assess any impacts.

**Response:** The goal of the POC determination with the requirements for ground water monitoring locations and the variable sampling regime is to collect frequent samples of ground water from specific POC wells such that trends in concentrations of contaminants of concern can be tracked and actions implemented to prevent contaminated ground water from entering the Blackfoot River.

Ground water quality degradation would be addressed in accordance with the Ground Water Quality Rule. If a Ground Water Quality Standard is exceeded, in addition to investigation and evaluation, DEQ may pursue enforcement actions to stop further contamination and clean up of existing contamination (IDAPA 58.01.11.400.03).

Such actions could include, for example; requiring a ground water pump back system to reverse the normal ground water gradient, so that the contaminated ground water is contained on site.

No action to abate the contamination, or cessation of the action (mining) causing the contamination is required, or apparently anticipated. We have already seen this at the Smoky Canyon Mine. In that instant when monitoring of the “culinary” well, a de facto POC for the mining of Panels B & C, showed alarming increases in selenium – well in excess of the drinking water standard, the only action that took place was the closing and sealing of the well.

**Response:** The cessation of mining would not necessarily abate the problem in ground water or surface water quality. The cessation of mining would stop the process for ore removal but it also stops management and containment of overburden materials that are the source of the selenium that contaminates the ground water and potentially surface water. It should be noted that the Overburden Seepage Management System under the waste rock disposal areas will capture the majority of the water that infiltrates through the waste rock until the final covers are completed; this water will be directed to the Water Management Ponds if the quality of the water requires containment. The key to protecting the Blackfoot River is managing the movement of ground water while completing reclamation processes for closing out mine pits and placing covers in a manner that minimizes infiltration through the seleniferous waste rock.

By the time all the sampling, consulting, re-sampling, discussion of possible remedies, and other meaningless exercises are exhausted, mining at the Blackfoot Bridge Mine will have progressed to the point that long term contamination is the only result that can be expected. The groundwater monitoring plan will not protect the Blackfoot River from additional Se loading, once it commences.<sup>5</sup> In reality this is exactly the type of inaction on the part of IDEQDEQ, the BLM, and in many cases the Forest Service, that has resulted in the cluster of 17 Superfund sites in the phosphate mining district of southeast Idaho.

**Response:** See the previous reply.

Rather than defaulting to the BLM’s anemic “triggers”, IDEQDEQ should require insist on actions at the Blackfoot Bridge Mine that are intended to halt further contamination of ground and surface waters, including requiring the cessation of mining until the

**Response:** The cessation of mining would stop the process for ore removal but it also stops the removal of overburden materials that are needed to develop covers over the disposed waste rock that is the source of the selenium that contaminates the ground

source of contamination is determined, the causes of the contamination are understood, and measures taken that will prevent further contamination – including permanent cessation of mining. Since IDEQ, the BLM, and P4 have confidently dismissed the possibility that the mine will cause any such contamination, then these types of measures/requirements should not be considered too onerous. After all, the agencies and the company have assured us that no illegal contamination will result from the mine.

water and potentially surface water. Ground water management coupled with an appropriate monitoring plan will facilitate the development and implementation of an approach that controls the movement of the contaminated ground water to protect the Blackfoot River as the covers are completed over the disposed waste rock or other actions are taken to mitigate problems.

**Commentor: Kate Kelly, Director, EPA Office of Ecosystems**

Preface: Some aspects of the following comments offered by EPA are addressed in the Environmental Monitoring Plan, Water Management Plan, or the Adaptive Management Plan. Only those aspects of the comments that are directly related to the POC determination are replied to in the following sections.

Appendix A of the FEIS describes the proposed environmental monitoring scheme. A number of shortcomings are noted as follows in the surface water and groundwater monitoring programs. Again, we note that several of these shortcomings will be addressed if groundwater monitoring requirements proposed by Idaho DEQ are adopted as proposed.

**Response:** The Environmental Monitoring Plan (EMP) is a living document that encompasses all sampling requirements for the BLM, EPA, and DEQ. Therefore, the EMP will be updated to include requirements pursuant to the final POC determination.

- The FEIS identifies limited groundwater monitoring wells located between the North Pit/NW Overburden Pile and the Blackfoot River at MW-13A and MW-14W, and they are located very close together (see Figure 2, Appendix A). MW-13A is completed in alluvium, and MW-14W is completed in the Wells Formation. We also note that additional monitoring may be required through implementation of EPA’s Multi-Sector General Permit (MSGP). Based on the available information in the FEIS, we believe additional three wells should be added downgradient of the pit and overburden pile and upgradient of the river. These wells should also have the capability of being converted to pump-back wells if contamination is detected. Because of the close proximity of the NW overburden pile and North Pit to the Blackfoot River, wells should

**Response:** DEQ welcomes EPA’s concurrence with the need for additional monitoring wells to be located between the North Pit and the Blackfoot River. Although DEQ concurs that P4 would be well advised to design and construct the noted monitoring wells so the wells can be used to intercept contaminated ground water that would flow into the Blackfoot River, we cannot require it pursuant to the POC determination or Idaho’s Ground Water Quality Rule. DEQ concurs that sampling should occur on a monthly basis once waste rock and ore removal begins. DEQ also concurs that weekly sampling may be warranted under specific circumstances described in the POC determination.

be monitored on at least a monthly basis for constituents of concern including selenium, total dissolved solids (TDS), sulfate, cadmium, iron, manganese, nickel, nitrate, and zinc. During periods of high vulnerability (such as when mining begins in the North Pit area, when groundwater is allowed to rebound in that area or when/if contaminants are detected) monitoring should be increased to weekly.

- Drainage from the Mid Pit and the South Pit both generally flows to the east toward State Land Creek. There is one upstream and one downstream surface water monitoring point on this creek. Mid Pit probably also flows toward Fish Pond. There aren't really any downgradient monitoring points for Mid Pit/East Pit (although MW10A and MW- 1 1Da&b might be downgradient of a certain small portion of the Mid Pit). The only downgradient monitoring points for the South Pit are MW-2R and MW-3A, and they are right next to each other (See Figure 2, Appendix A). More groundwater monitoring points are needed for all of the pits.

**Response:** DEQ evaluated the proposed monitoring well locations for all of the pits and waste rock disposal areas and DEQ believes the proposed well locations combined with surface water monitoring locations that are addressed in the Environmental Monitoring Plan will adequately detect the movement of contaminants from the source areas to the mine property boundary within the various water-bearing units underlying the site. It should be noted that ground water in the Wells Formation will flow toward the north-northwest and the Blackfoot River basically along the strike of the formations and down plunge. Ground water that occurs in the alluvium will tend to follow topography, which is not necessarily consistent with the strike of the underlying formations or the plunge of the geologic structures.

- Surface water and groundwater monitoring are proposed only twice a year – spring and fall. Monitoring should be at least quarterly during the first five years of operation to avoid any potential spread of contamination from the mine.

**Response:** DEQ agrees that sampling only twice a year will be inadequate in many cases but the POC determination scales the sampling frequency to the location of the wells to the timing of mine operations that may affect that location. Monitoring to establish a baseline hydro-chemistry data set can occur on a less frequent basis at POC wells for which there is not yet an upgradient Blackfoot Bridge mining operation.

- Springs could be one of the first indicators of the movement of mine-related contaminants to streams. Figure 1 in Appendix A has locations SW20-SP and SW21-SP identified as “Blackbook River Bank Spring.” Perhaps this is a typographical error and should be “Blackfoot River.” A greater need is that there is no information on the identity of the springs to be sampled or any indication of whether the springs issue from the Webb Fm or other formations. It is important that the springs be sampled separately and not collected all in one sample bottle so potential high concentrations from one spring will not be diluted by lower concentrations from other springs. Field measurements, especially specific conductance, should be used to identify which springs should be sampled during the surface water sampling endeavors.

**Response:** Spring sampling is not included in the POC determination because these expressions of ground water are by definition, surface water. However, the importance of monitoring these springs is not diminished by this fact; spring sampling is included in the Environmental Monitoring Plan.

- Quantification limits for arsenic in groundwater and surface water are too high (0.003 mg/L). EPA Method 200.7 (ICP-AES) may not be able to achieve a lower detection limit, but EPA Method 200.8 (ICP-MS) can and usually has a quantification limit of at least 0.001 mg/L, which is 1/10 the groundwater standard. Quantification limit should be lowered to 0.001 mg/L.
- The acceptable cation/anion balance in Tables 1 and 3 in Appendix A is listed as <0.20%. This appears to be an error as it should be <±20%.

In summary, several important mine operation procedures should be improved before the Blackfoot Bridge Project is approved. Contingency plans for emergency management of mine contact water should be developed or further refined that do not threaten groundwater, spring, and Blackfoot River water quality. Ideally, another lined storage water impoundment should be created and associated with a chemical treatment plant. In addition, a more robust groundwater monitoring system should be created that includes more wells downgradient of all the pits and overburden piles. Wells located between the North Pit/Northwest Overburden Area and the Blackfoot River should be expanded so that a fence of pumpback wells could be created if increasing concentrations of selenium are identified in the wells. Monitoring should be increased to least a monthly basis for locations downgradient of the North Pit and the Northwest Overburden Pile, and to a quarterly basis for all other locations. And there should be triggers for more frequent monitoring and reporting when conditions exist that indicate higher vulnerability.

**Response:** Although not an analyte required by the POC determination, DEQ concurs with EPA's recommendation for achieving lower detection limits for arsenic and recommends that this recommendation be incorporated into the EMP.

**Response:** DEQ concurs that more monitoring wells are needed between the North Pit and the Northwest Overburden Pile and the Blackfoot River because of the proximity of these features and the potential for preferential ground water flow paths that could not be modeled but are evident based on the presence of springs discharging into the Blackfoot River in this area. That is why DEQ's POC determination requires three additional monitoring wells completed in the Wells Formation between wells MW-17 and MW-14W. However, although DEQ concurs that P4 would be well advised to design and construct the noted monitoring wells so the wells can be used to intercept contaminated ground water that would flow into the Blackfoot River, we cannot require it pursuant to the POC determination or Idaho's Ground Water Quality Rule.

DEQ agrees that the collection of timely data from key locations is paramount for protecting the water resources even though the modeling indicates the overall operations and mine closure will be protective. A somewhat flexible sampling schedule is needed to accommodate dynamic site-specific ground water conditions, and to provide a timely indication of subsurface changes in ground water quality that require mitigative measures to protect both ground water and surface water resources.

Also note that ground water quality degradation would be addressed in accordance with the Ground Water Quality Rule (IDAPA 58.01.11.400.03). If a Ground Water Quality Standard is exceeded, in addition to investigation and evaluation,

DEQ may pursue enforcement actions to stop further contamination and clean up of existing contamination.

Such actions could include, for example, requiring a ground water pump back system to reverse the normal ground water gradient so that the contaminated ground water is contained on site. However, it is premature to prescribe specific mitigative/clean up measures at this time. If they are needed they will be evaluated, selected, and implemented based upon site-specific information and conditions. Any mitigative/clean up measures that are implemented would be optimized on the basis of performance monitoring. This adaptive management strategy, described in the Environmental Monitoring Plan, is an iterative process which is appropriate as mining proceeds and any associated environmental impacts are observed.