STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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

August 5, 2016

Mr. Chris Guedes
Mine Permitting Lead
Agrium Conda Phosphate Operations
3010 Conda Road
Soda Springs, ID 83276

Re: Point of Compliance Determination for the Rasmussen Valley Mine

Dear Mr. Guedes:

Enclosed please find the Idaho Department of Environmental Quality's (DEQ) Point of Compliance (POC) determination for the proposed Rasmussen Valley Mine. DEQ is setting this POC, in response to the April 7, 2016 application submitted by Agrium Conda Phosphate Operations (Agrium), 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 wells DEQ has determined necessary to ensure there is no injury to current or projected future beneficial uses of ground water or violation of surface water standards. 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 this 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 Scott Miller to discuss POC implementation.

Sincerely,

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

e: Scott Donahoo - Agrium
Ed Hagan - DEQ
Douglas Tanner - DEQ
Scott Miller - DEQ
Gary Billman - IDL
Matthew Wilson - U.S. Forest Service
William Volk - U.S. Bureau of Land Management

Introduction

The proposed Rasmussen Valley Mine (RVM) is located on Federal Phosphate Lease I-05975 and a portion of State of Idaho Lease 1-7958. A Final Environmental Impact Statement (EIS) and Record of Decision for the mine are expected to be issued near the end of 2016. Active mining is projected to begin shortly after the Record of Decision is issued. Surface water and ground water investigations, conducted under the EIS, resulted in the identification of potential environmental impacts. Mitigation measures, such as the Rasmussen Collaborative Alternative, modification of the proposed county road realignment, construction of surface water management controls, and cap design improvements were evaluated and are presented in Appendix D *Best Management Plan Analysis* (BMPA) of the POC application[1] and in the Final EIS. With the application of the best management practices proposed in the BMPA there are no predicted impacts to the alluvial, Dinwoody Formation, or Rex Chert Member ground water systems. Impacts, to the Wells Formation regional ground water system, above Idaho's ground water quality standards are not predicted to extend to or beyond the Rasmussen Fault located north of the proposed mine.

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. Agrium submitted a POC application for RVM on April 7, 2016. The application was determined to be complete by DEQ as expressed in a letter to Agrium dated May 5, 2016.

In their application, Agrium proposed the use of existing and new monitoring wells to establish the POC area where elevated naturally occurring contaminants in the alluvial and Wells Formation ground water systems are allowed. One existing and nine new monitoring wells are proposed as POCs for the alluvial ground water system and one new well is proposed as a Wells Formation POC. In addition to the Wells Formation POC Agrium proposed 2 existing and 4 new wells as Wells Formation indicator wells. No POC or indicator wells were proposed for the Dinwoody Formation or Rex Chert ground water systems.

Proposed Points of Compliance and Indicator Wells

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

- MW-20A – DEQ agrees with the use of this proposed new well as an alluvial POC; however, DEQ has deemed the location be moved closer to the county road to approximately 42° 50' 39.2" north latitude, 111° 21' 39" west longitude.
- MW-21A – DEQ agrees with the use of this proposed new well as an alluvial POC; however, DEQ has deemed the location be moved to approximately 42° 50' 30.4" north latitude, 111° 21' 22" west longitude.
- MW-22A – DEQ agrees with the location and use of this proposed well as an alluvial POC.
- MW-23A – DEQ agrees with the location and use of this proposed well as an alluvial POC.
- MW-24A – DEQ agrees with the location and use of this proposed well as an alluvial POC.
- MW-25A – DEQ agrees with the use of this proposed well as an alluvial POC; however, DEQ has deemed the location be moved to approximately 42° 50' 5.31" north latitude, 111° 20' 20" west longitude.

[1] Brown and Caldwell 2016. Application for Setting Points of Compliance. Rasmussen Valley Min Project, Caribou County, Idaho, April.

- MW-26A – DEQ agrees with use of this proposed well as an alluvial POC; however, DEQ has deemed the location be moved to approximately 42° 49' 54.2" north latitude, 111° 20' 6.6" west longitude.
- MW-27A – DEQ agrees with the location and use of this proposed well as an alluvial POC.
- MW-28A – DEQ agrees with the location and use of this proposed well as an alluvial POC.
- MW-9A – DEQ agrees with the use of this existing well as an alluvial POC.
- MW-13W – DEQ agrees with the use of this existing well as a Wells Formation indicator well.
- MW-1W-R – DEQ does not require the installation of this proposed Wells Formation indicator well, at this time. However, installation of a well at this location is at Agrium's discretion.
- MW-29W – DEQ agrees with the use of this proposed new well as a Wells Formation indicator well; however, DEQ has deemed the location be moved to approximately 42° 50' 49.9" north latitude, 111° 21' 33" west longitude.
- MW-30W – DEQ agrees with the use of this proposed new well as a Wells Formation POC; however, DEQ has deemed the location be moved to approximately 42° 51' 2.41" north latitude, 111° 22' 1.4" west longitude.
- MW-31W – DEQ does not require a monitoring well at this location. However, installation of a monitoring well located between the South Rasmussen and Rasmussen Valley mines is at Agrium's discretion.
- MW-32W – DEQ agrees with the use of this proposed new well as a Wells Formation indicator well; however, DEQ has deemed the location be moved to approximately 42° 50' 49.9" north latitude, 111° 21' 33" west longitude. A monitoring well at Agrium's proposed location for MW-32W may be installed at Agrium's discretion.
- SR-Well-7W – DEQ agrees with the use of this existing well as a Wells Formation indicator well.

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

- Existing Rex Chert monitoring well MW-5R and Well Formation monitoring wells MW-3W, -16W and -17W will be used as indicator wells to verify the conceptual site model and the numerical modeling efforts.
- MW-10D-R – This Dinwoody indicator well is to be located approximately 50 feet southwest of the current MW-10D, at approximately 42° 50' 38.8" north latitude, 111° 21' 24" west longitude. This well will replace MW-10D in the Dinwoody Formation ground water system and used to verify the conceptual site model and numerical ground water model that the Dinwoody Formation will not be impacted above the GWQSs by mining activities.
- MW-33R - This Rex Chert indicator well is to be located east of the North Main storage area, near the haul road at approximately 42° 50' 11.0" north latitude, 111° 20' 12" west longitude and is to be completed in the first encountered water in the Rex Chert. This well will monitor ground water quality in the Rex Chert ground water system and verify the conceptual site model and numerical ground water model that the Rex Chert will not be impacted above the GWQSs by mining activities.

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, Agrium 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).

Agrium 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 scott.miller@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.

POC well background, indicator well baseline and projected water quality report

Agrium will submit a background ground water quality analysis for all POC and indicator wells by May 1, 2021 for DEQ review and approval. The report will outline the methodology used to develop background conditions for ground water quality unimpacted by mining activity at each of the POC and indicator wells and provide background concentration limits for each constituent listed in Table 1. Until background concentration limits are approved for each of the POC and indicator wells an interim inter-well approach using data from existing site wells will be developed and submitted to DEQ for approval by no later than January, 27 2017 for determining site ground water quality compliance with the GWQR. Development of background water quality will follow DEQ's statistical guidance[2] or other statistical methods for determining background as approved by DEQ.

For the background determination please note:

- DEQ will allow the existing POC and indicator wells to be used to establish site background/baseline water quality, determined on a well by well basis, until such a time a well is deemed by DEQ to be impacted by Agrium's mining activities.
- A minimum of 12 samples from each well, over a three year-period is expected to be collected with a sampling frequency of no greater than once a month, preferably four times annually, for the development of site background/baseline water quality.
- In addition, Agrium 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.

Once the dataset is achieved and DEQ has approved the background/baseline 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 degradation 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).

[2]DEQ, 2014. Statistical Guidance for Determining background Ground Water Quality and Degradation, March.

The summary will include notification of any ground water quality standard exceedance or degradation of ground water quality not approved by DEQ and all data collected during the event.

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

Ground Water Monitoring Plan

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

Annual Report

An annual report is due on or before August 31 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, Agrium'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 background/baseline concentrations for constituents identified in Table 1. Agrium 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 Agrium or governing Agency and agreement between all parties or at the request of DEQ.

Monitoring schedule

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

Well	Well Type	Completion (hydro stratigraphic unit)	Available Data Points* (through 2015)	Monitoring schedule[€]
MW-20A	POC	Alluvium	0	Four annually
MW-21A	POC	Alluvium	0	Four annually
MW-22A	POC	Alluvium	0	Four annually
MW-23A	POC	Alluvium	0	Four annually
MW-24A	POC	Alluvium	0	Four annually
MW-25A	POC	Alluvium	0	Four annually
MW-26A	POC	Alluvium	0	Four annually
MW-27A	POC	Alluvium	0	Four annually
MW-28A	POC	Alluvium	0	Four annually
MW-9A	POC	Alluvium	23	Semiannual
MW-10D-R	Indicator	Dinwoody	0	Four annually
MW-5R	Indicator	Rex Chert	23	Semiannual
MW-33R	Indicator	Rex Chert	0	Four annually
MW-13W	Indicator	Wells	14	Semiannual
MW-16W	Indicator	Wells	16	Semiannual
MW-17W	Indicator	Wells	19	Semiannual
MW-29W	Indicator	Wells	0	Four annually
MW-30W	POC	Wells	0	Four annually
MW-32W	Indicator	Wells	0	Four annually
MW-3W	Indicator	Wells	23	Semiannual
SR-Well-7W[£]	Indicator	Wells	18	Semiannual

*Constituents sampled may have varied by sampling event.

[€]Sampling may be conducted more frequently if needed.

[£]Monsanto South Rasmussen Mine monitoring well – Monsanto is also sampling this well, data may be shared between companies for this well to avoid duplicating sampling efforts as longs as all sampling and data quality objectives are met.

RVM POC and INDICATOR WELLS					
Well ID	Formation	Type	Status	Latitude	Longitude
MW-9A	Alluvial	POC	Existing	42° 49′ 36.8"	111° 19′ 22"
MW-20A	Alluvial	POC	New	42° 50′ 39.2"	111° 21′ 39"
MW-21A	Alluvial	POC	New	42° 50′ 30.4"	111° 21′ 22"
MW-22A	Alluvial	POC	New	42° 50′ 19.9"	111° 21′ 6.1"
MW-23A	Alluvial	POC	New	42° 50′ 13.0"	111° 20′ 46"
MW-24A	Alluvial	POC	New	42° 50′ 11.4"	111° 20′ 32"
MW-25A	Alluvial	POC	New	42° 50′ 5.31"	111° 20′ 20"
MW-26A	Alluvial	POC	New	42° 49′ 54.2"	111° 20′ 6.6"
MW-27A	Alluvial	POC	New	42° 49′ 45.7"	111° 19′ 52"
MW-28A	Alluvial	POC	New	42° 49′ 32.1"	111° 19′ 3.1"
MW-5R	Rex Chert	Indicator	Existing	42° 49′ 38.9"	111° 19′ 17"
MW-33R	Rex Chert	Indicator	New	42° 50′ 11.0"	111° 20′ 12"
MW-10D-R	Dinwoody	Indicator	New	42° 50′ 38.8"	111° 21′ 24"
MW-13W	Wells	Indicator	Existing	42° 50′ 45.8"	111° 20′ 55"
MW-16W	Wells	Indicator	Existing	42° 49′ 55.6"	111° 19′ 40."
MW-17W	Wells	Indicator	Existing	42° 49′ 38.3"	111° 19′ 18"
MW-29W	Wells	Indicator	New	42° 51′ 0.4"	111° 21′ 56"
MW-30W	Wells	POC	New	42° 51′ 2.41"	111° 22′ 1.4"
MW-32W	Wells	Indicator	New	42° 50′ 49.9"	111° 21′ 33"
MW-3W	Wells	Indicator	Existing	42° 49′ 48.2"	111° 19′ 7.6"
SR-Well-7W	Wells	Indicator	Existing	42° 51′ 8.79"	111° 21′ 50"

RASMUSSEN VALLEY MINE POC MONITORING WELL NETWORK

- Alluvium, POC Well
- Dinwoody, Indicator Well
- Rex Chert, Indicator Well
- Wells Formation, Indicator Well
- Wells Formation, POC Well
- Proposed RVMP RCA Disturbances

N

0 0.075 0.15 0.3 Miles

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY