STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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Governor Brad Little
Director John H. Tippets

23 December 2019

Ms. Lori Lusty
Senior Environmental Engineering Manager 2
J. R. Simplot Company
PO Box 912
Pocatello, ID 83204

Re: Finalized Point(s) of Compliance for Dairy Syncline Mine

Dear Ms. Lusty:

Enclosed please find the Idaho Department of Environmental Quality's (IDEQ) final determination of point(s) of compliance (POC) for Dairy Syncline Mine. IDEQ is setting POC to establish a monitoring boundary at the Dairy Syncline Mine where Idaho's groundwater resources must comply with Idaho's Ground Water Quality Rule (GWQR) and thus ensure there is no injury to current or projected future beneficial uses of downgradient groundwater.

The enclosed determination is divided into three parts. The introduction gives general background information along with the explanation of state authority for regulating groundwater. The second part discusses the POC and site background wells as proposed. The final section discusses the monitoring plan for the groundwater wells.

The GWQR also allows for changes in POC or groundwater monitoring (IDAPA 58.01.11.401.08). This could result from new information gleaned from required POC and site background monitoring data indicating differences in predicted groundwater modeling and observed groundwater conditions. Changes to the mine and reclamation plan for the site (i.e., changes in mining activities) could also prompt a review and possible change in POC or groundwater monitoring.

Please let me know if you have any questions. You can also contact Mike Rowe of the Pocatello Regional Office to discuss POC implementation.

Sincerely,

Bruce Olenick
Regional Administrator

e: Doug Tanner, Mike Rowe, Bill Lawrence – IDEQ
Bill Stout – Bureau of Land Management
Louis Wasniewski – U.S. Forest Service

Point(s) of Compliance Determination
Dairy Syncline Mine

Introduction

J.R. Simplot Company (Simplot) is the proponent for the Dairy Syncline Mine Project located about 14 miles east of Soda Springs, Idaho. Simplot will mine phosphate ore on federal leases, which are located on National Forest System land. The Environmental Impact Statement was released on 8 November 2019. In addition to the area of mining, the project will also include a mill and shop complex, stockpile areas, roads, pipeline and powerline corridors, and a detached tailings storage facility, which will be located about one mile to the north of the mine area.

The preferred alternative for the site includes the selective handling of overburden, which entails separating overburden according to whether it is low in selenium or has elevated selenium concentrations. This best management practice will reduce the overall seleniferous footprint of the mine minimizing the potential for elevated contaminants of potential concern (COPCs) infiltrating to groundwater. In addition, selective handling would eliminate the risk from permanent external overburden disposal areas that may produce seeps outside of pit backfills.

Predictive monitoring indicates that the preferred alternative (i.e., selective handling) would result in local, long-term, and moderate impacts to groundwater quality in the Wells Formation aquifer around the mine pit and the tailings storage facility. Cadmium, manganese, selenium, uranium, nitrite, sulfate, and total dissolved solids were identified as COPCs at the mine site. COPCs at the tailings storage facility included aluminum and manganese. Based on the predictive model and application of BMPs with the proposed mine design detailed in the EIS, there are no predicted impacts exceeding Idaho's groundwater quality standards in the shallow aquifer system and interconnected surface water.

The Idaho Ground Water Quality Rule (IDAPA 58.01.11.401) allows a mine operator to request the Idaho Department of Environmental Quality (IDEQ) set point(s) of compliance (POC) at which the mine operator must meet groundwater quality standards as described in IDAPA 58.01.11.200.01. Exceedance of groundwater quality standards at the POC boundary invoke a state response as outlined in IDAPA 58.01.11.400.03. Simplot submitted a POC application for Dairy Syncline Mine on 24 June 2019, which was determined to be complete by IDEQ in a letter to Simplot dated 24 July 2019.

In the application Simplot proposes seven POC wells to monitor where groundwater quality standards must be met thereby protecting downgradient beneficial uses from naturally occurring constituent contamination in the Wells Formation groundwater flow system. The Wells Formation is the only hydrostratigraphic unit (HSU) predicted to incur groundwater impacts from mining at Dairy Syncline. The proposed POC wells will consist of six new wells and one existing well. Simplot also proposed to continue sampling two additional existing wells to monitor site background in the Wells Formation HSU.

Proposed Points of Compliance and Site Background/Indicator Wells

IDEQ agrees with the following POC wells as proposed by Simplot (see attached figures). The area each respective well will be monitoring is in parentheses:

- POC well 1 (northwest of North Pit) – IDEQ agrees with the installation and location of this well as a Wells Formation POC well.
- POC well 2 (west of North Pit) – IDEQ agrees with the installation and location of this well as a Wells Formation POC well.
- POC well 3 (South Pit, west of well SP-WVWP) – IDEQ agrees with the installation and location of this well as a Wells Formation POC well.
- POC Well SP-SWFMW (south end of South Pit) – IDEQ agrees with the use of this existing well as a Wells Formation POC well.
- POC well 4 (north of tailings dam) – IDEQ agrees with the installation and location of this well as a Wells Formation POC well.
- POC well 5 (east of tailings pond) – IDEQ agrees with the installation and location of this well as a Wells Formation POC well.
- POC well 6 (south of tailings pond) – IDEQ agrees with the installation and location of this well as a Wells Formation POC well.

IDEQ agrees with the proposed existing wells to monitor site background as listed below.

- Well DC-WFMW2 (east of Slug Creek) – IDEQ agrees with the use of this existing well for monitoring possible impacts to the Wells Formation HSU from nearby mines to the east.
- Piezometer EP-VWP (southeast of ore stockpile) – IDEQ agrees with the use of this existing piezometer for monitoring possible impacts to the Wells Formation HSU from nearby mines to the east. This well will also serve as an indicator well monitoring possible impacts from an ore stockpile and an overburden disposal area proximal to the piezometer.

Groundwater Monitoring & Reporting

<u>Well installation</u>

New POC wells shall be installed as soon as possible with an installation schedule provided to IDEQ no later than 28 February 2020. Prior to the installation of any new well, Simplot will submit a work plan for IDEQ review and approval, which will specify well installation, completion, and development procedures. The intent, based on approval of the mine, is that all wells will be installed in calendar year 2020. The window of installation will be adjusted should there be any delay in mine approval. Following installation of the wells, Simplot shall provide a well completion report (well construction details, well completion logs, well sampling/development record, etc.) for inclusion in the annual report following installation of the wells.

Groundwater monitoring

Subject to IDEQ review and approval, Simplot will develop sampling protocol for monitoring points of compliance at the Dairy Syncline Mine project. This POC groundwater monitoring plan is expected to be in congruence with the overall environmental monitoring plan to be approved by BLM for the project.

Monitoring schedule

To establish a baseline dataset, a minimum of twelve (12) samples are to be collected from all POC and site background wells with a sampling frequency of no more often than once a month, preferably quarterly (see below for an initial monitoring schedule). Once an IDEQ-agreed upon dataset with a minimum of 12 samples is achieved, sampling can be done on a semiannual basis (e.g., spring [high flow] and fall [low flow]). Reduced sampling can be implemented if sampling warrants and if agreed to by all parties.

Although historic data currently exist for proposed POC well SP-SWFMW and site background wells DC-WFMW2 and EP-VWP, it is important to characterize water quality within a well by collecting data throughout the year (e.g., quarterly). Additional sampling outside the semiannual time frame may be required to help ensure representative data in the dataset.

Well	Type	Completion (hydro stratigraphic unit)	Sampling events* (through 2019)	Monitoring schedule**
DC-WFMW2	Site background	Wells Formation	6	Semiannual**
EP-VWP	Site background	Wells Formation	5	Semiannual**
SP-SWFMW	POC	Wells Formation	5	Semiannual**
POC well 1	POC	Wells Formation	--	quarterly
POC well 2	POC	Wells Formation	--	quarterly
POC well 3	POC	Wells Formation	--	quarterly
POC well 4	POC	Wells Formation	--	quarterly
POC well 5	POC	Wells Formation	--	quarterly
POC well 6	POC	Wells Formation	--	quarterly

*Constituents sampled varied by sampling event

**The monitoring scheduled may need to be expanded to ensure adequate characterization of groundwater in the well. Previous sampling did not necessarily occur in all four quarters, so additional sampling at a frequency greater than semiannual may be needed initially to ensure adequate distribution of sampling events throughout the year

Constituents to monitor

Based on previous groundwater monitoring at Dairy Syncline, the following list of parameters will be sampled to establish background at, and characterization of, the new POC wells (and the other wells, as needed). A minimum number of 12 samples will be collected.

Parameter	New POC wells 1, 2, 3	New POC wells 4, 5, 6	SP-SWFMW	Site background wells (DC-WFMW2, EP-VWP)
Metals/metalloids				

Aluminum (Al)	✓	✓	As needed for a minimum of 12 samples	As needed for a minimum of 12 samples
Antimony (Sb)	✓	✓		
Arsenic (As)	✓	✓		
Barium (Ba)	✓	✓		
Beryllium (Be)	✓	✓		
Boron (Bo)	✓	✓		
Cadmium (Cd)	✓	✓		
Chromium (Cr)	✓	✓		
Cobalt (Co)	✓	✓		
Copper (Cu)	✓	✓		
Iron (Fe)	✓	✓		
Lead (Pb)	✓	✓		
Manganese (Mn)	✓	✓		
Mercury (Hg)	✓	✓		
Molybdenum (Mo)	✓	✓		
Nickel (Ni)	✓	✓		
Selenium (Se)	✓	✓		
Silver (Ag)	✓	✓		
Thallium (Tl)	✓	✓		
Uranium (U)	✓	✓		
Vanadium (V)	✓	✓		
Zinc (Zn)	✓	✓		
Major ions				
Bicarbonate, as CaCO3	✓	✓	As needed for a minimum of 12 samples	As needed for a minimum of 12 samples
Calcium	✓	✓		
Carbonate, as CaCO3	✓	✓		
Chloride	✓	✓		
Fluoride	✓	✓		
Magnesium	✓	✓		
Potassium	✓	✓		
Sodium	✓	✓		
Sulfate	✓	✓		
General chemistry				
Alkalinity, total	✓	✓	As needed for a minimum of 12 samples	As needed for a minimum of 12 samples
Ammonia, as N	✓	✓		
Hardness, as CaCO3	✓	✓		
Nitrate+nitrite, as N	✓	✓		
Nitrite	✓	✓		
pH	✓	✓		
Phosphorus, total	✓	✓		
Specific conductance	✓	✓		
Total dissolved solids	✓	✓		
Total suspended solids	✓	✓		
Turbidity	✓	✓		
Field measurements				
Groundwater elevation	✓	✓	✓	✓
Dissolved oxygen	✓	✓	✓	✓
Oxidation-reduction	✓	✓	✓	✓

potential				
pH	✓	✓	✓	✓
Specific conductance	✓	✓	✓	✓
Temperature	✓	✓	✓	✓
Turbidity	✓	✓	✓	✓

Isotopic sampling will assist in the characterization of the groundwater at the various well locations. The following Isotopes are recommended to be sampled once a year for three years.

Parameter	New POC wells 1, 2, 3	New POC wells 4, 5, 6	SP-SWFMW	Site background wells (DC-WFMW2, EP-VWP)
Isotopes				
Hydrogen 2 (δ2H)	✓	✓	As needed for a minimum of 3 annual samples	As needed for a minimum of 3 annual samples
Oxygen 18 (δ 18O)	✓	✓		
Carbon-13 (δ13C)	✓	✓		
Tritium (3H)	✓	✓		
Carbon-14 (14C)	✓	✓		

Once background concentrations are established, the following constituents will continue to be sampled. These analytes, predicted to be of potential concern as part of the modeling process, will be monitored for compliance with groundwater quality standards and to evaluate modeling results.

Parameter	New POC wells 1, 2, 3	New POC wells 4, 5, 6	SP-SWFMW	Site background wells (DC-WFMW2, EP-VWP)
Metals/metalloids				
Aluminum (Al)	no	✓	✓	✓
Cadmium (Cd)	✓	no	✓	✓
Manganese (Mn)	✓	✓	✓	✓
Selenium (Se)	✓	no	✓	✓
Uranium (U)	✓	no	✓	✓
Major ions				
Sulfate	✓	✓	✓	✓
General chemistry				
Nitrite	✓	✓	✓	✓
Total Dissolved Solids	✓	✓	✓	✓
Field measurements				
Groundwater elevation	✓	✓	✓	✓
Dissolved oxygen	✓	✓	✓	✓
Oxidation-reduction potential	✓	✓	✓	✓
pH	✓	✓	✓	✓
Specific conductance	✓	✓	✓	✓
Temperature	✓	✓	✓	✓
Turbidity	✓	✓	✓	✓

The list of analytes to sample may be reduced or expanded, depending on circumstances (e.g., concentration trends of monitored analytes). Any change to the list of analytes to sample requires prior approval by IDEQ.

Data summary notice

A data summary notice will be prepared and submitted to IDEQ for its review and approval no later than 60 days after the last sample is collected during a particular field event (e.g., monthly, quarterly, spring, fall). The notice will include reporting of any water quality exceedances above background or numeric groundwater quality standards.

Background groundwater quality analysis

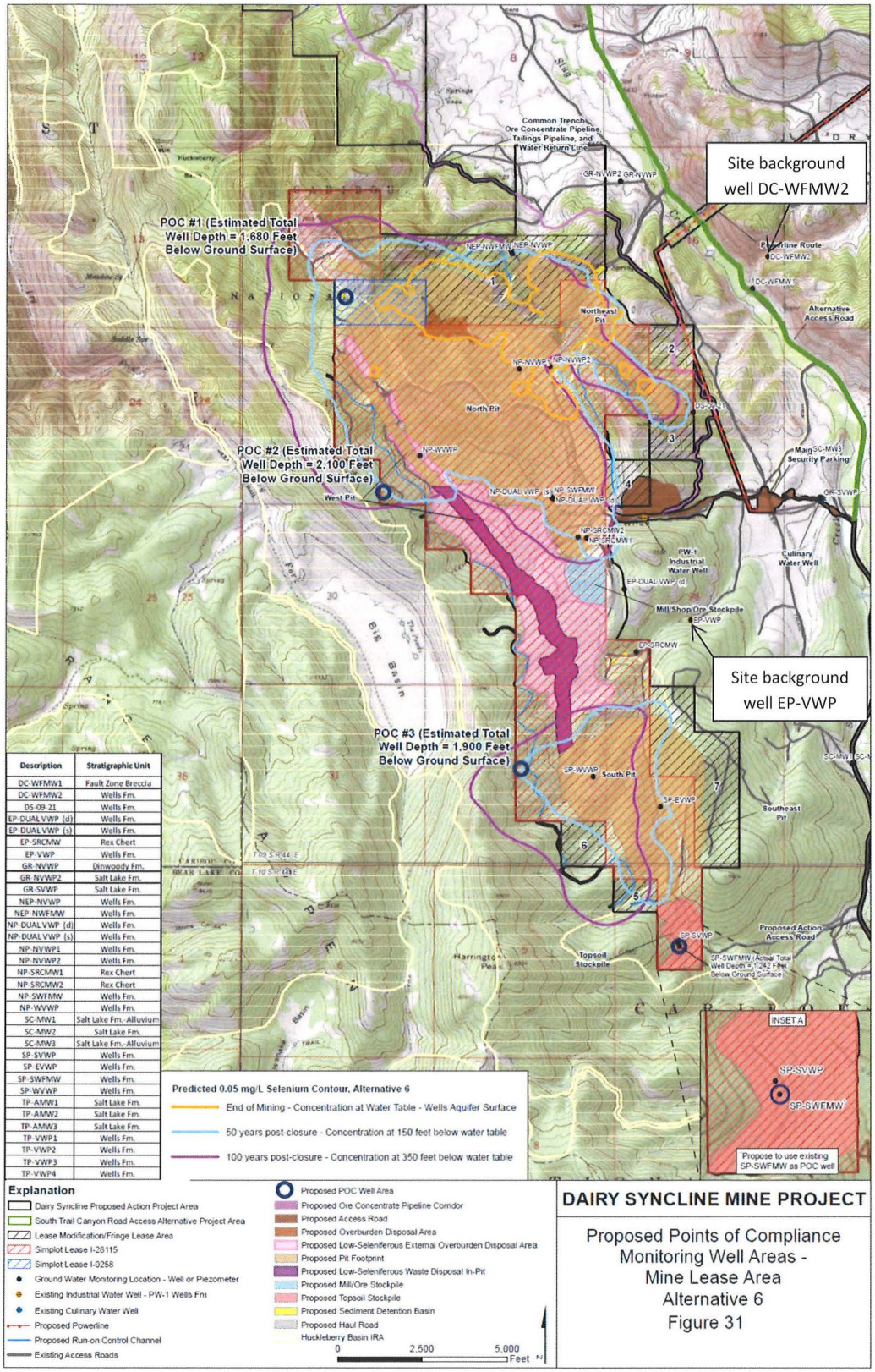
Following the collection of a sufficient number of samples (at least 12), a background groundwater quality analysis for all POC and site background wells will be submitted to IDEQ for its review and approval. The report will outline the methodology used to develop background conditions for groundwater quality unimpacted by mining activity at each of the POC and site background wells and provide background concentration limits for each constituent. Development of background water quality will follow IDEQ's *Statistical Guidance for Determining Background Ground Water Quality and Degradation.*

Annual report

The annual report is due on or before 31 March of each year for the preceding year. The report to be approved by IDEQ will include a summary of data collected in the prior year along with a discussion of any anomalous or unexpected data. All available validated water quality data from all POC and site background wells will be provided in an electronic, easily editable format such as Excel files. Identification of any possible data gaps, or changes in water quality or site conditions, should also be presented and discussed. Simplot shall also include the specifications from all wells drilled the previous year.

Future changes

Point(s) of compliance and groundwater monitoring are subject to change (IDAPA 58.01.11.401.08) as, for example, new information becomes known or in situ conditions encountered require modification of the mining and reclamation plan. The modifications might involve a change in POC or monitoring as requested by the mine operator or as required by IDEQ. Adjustments in POC may also necessitate additional indicator wells.



Description	Stratigraphic Unit
DC-WFMW1	Fault Zone Breccia
DC-WFMW2	Wells Fm.
DS-09-21	Wells Fm.
EP-DUAL VWP (d)	Wells Fm.
EP-DUAL VWP (s)	Wells Fm.
EP-SRCMW	Rex Chert
EP-VWP	Wells Fm.
GR-NVWP	Dinwoody Fm.
GR-NVWP2	Salt Lake Fm.
GR-SVWP	Salt Lake Fm.
NEP-NVWP	Wells Fm.
NEP-NWFMW	Wells Fm.
NP-DUAL VWP (d)	Wells Fm.
NP-DUAL VWP (s)	Wells Fm.
NP-NVWP1	Wells Fm.
NP-NVWP2	Wells Fm.
NP-SRCMW1	Rex Chert
NP-SRCMW2	Rex Chert
NP-SWFMW	Wells Fm.
NP-WVWP	Wells Fm.
SC-MW1	Salt Lake Fm.-Alluvium
SC-MW2	Salt Lake Fm.
SC-MW3	Salt Lake Fm.-Alluvium
SP-SVWP	Wells Fm.
SP-EVWP	Wells Fm.
SP-SWFMW	Wells Fm.
SP-WVWP	Wells Fm.
TP-AMW1	Salt Lake Fm.
TP-AMW2	Salt Lake Fm.
TP-AMW3	Salt Lake Fm.
TP-VWP1	Wells Fm.
TP-VWP2	Wells Fm.
TP-VWP3	Wells Fm.
TP-VWP4	Wells Fm.

Figure from the 14 November 2019 letter from Jonathan Williams (Alpine Environmental Consultants representing Simplot) to Bruce Olenick (IDEQ) regarding Dairy Syncline Mine Project Application for Setting Groundwater Points of Compliance, Responses to Comments dated 3 October 2019.

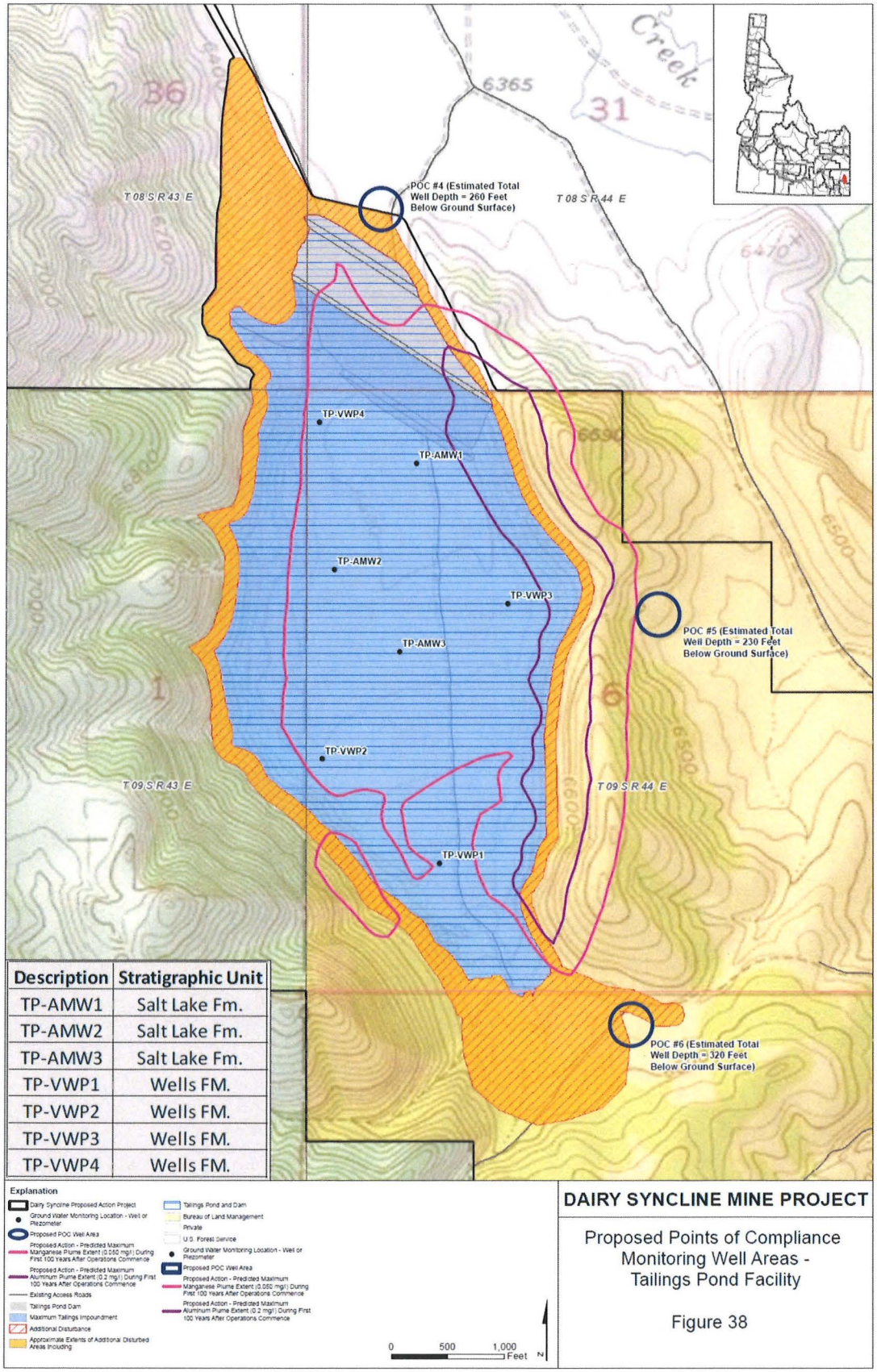


Figure from J.R. Simplot's Point of Compliance application for Dairy Syncline Mine project dated 20 June 2019.