

STATE OF ARIZONA
AQUIFER PROTECTION PERMIT NO. P-100514
PLACE ID 5683, LTF 92043
SIGNIFICANT AMENDMENT

1.0 AUTHORIZATION

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2, and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A.A.C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, the Arizona Department of Environmental Quality (ADEQ) hereby authorizes Excelsior Mining Arizona, Inc. (Excelsior) to operate the Johnson Camp Mine located near the Town of Dragoon, Cochise County Arizona, over the groundwater of the Willcox Groundwater Basin, within Township 15 South, Range 22 East, and all or parts of Sections 22, 23, 24, 25, 26, 27, 34, 35 and 36, of the Gila and Salt River Base Line and Meridian.

This permit becomes effective on the date of the Water Quality Division Deputy Director's signature and shall be valid for the life of the facility (operational, closure, and post-closure periods) unless suspended or revoked pursuant to A.A.C. R18-9-A213. The permittee shall construct, operate and maintain the permitted facilities:

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and
2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable point(s) of compliance (POC) set forth below, or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant and as determined at the applicable POC occurs as a result of the discharge from the facility.

1.1. PERMITTEE INFORMATION

Facility Name:	Johnson Camp Mine
Facility Address:	3048 N. Seven Dash Road Dragoon, AZ 85609
County:	Cochise
Annual Registration Fee Flow Rate:	8,200,000 gallons per day (gpd)
Permittee:	Excelsior Mining Arizona, Inc.
Permittee Address:	2999 N. 44th Street, Suite 300 Phoenix, AZ 85018
Facility Contact:	Matt Williams, Plant Manager
Emergency Phone No.:	520-485-6285 / 520-425-4245 (mobile)
Latitude/Longitude:	32° 06' 0.14" N/110° 04' 9.22" W
Legal Description:	Township 15 South, Range 22 East, and all or parts of Sections 22, 23, 24, 25, 26, 27, 34, 35 and 36, of the Gila and Salt River Base Line and Meridian.

1.2. AUTHORIZING SIGNATURE

Randall Matas, Deputy Director
Water Quality Division
Arizona Department of Environmental Quality

Signed this _____ day of _____, 2022

THIS AMENDED PERMIT SUPERCEDES ALL PREVIOUS PERMITS

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2.0 SPECIFIC CONDITIONS

[A.R.S. §§ 49-203(4), 49-241(A)]

2.1. FACILITY / SITE DESCRIPTION

[A.R.S. § 49-243(K)(8)]

Johnson Camp Mine (JCM) is an open pit base metal mining/extraction operation located near the town of Dragoon in Cochise County, Arizona, approximately 60 miles east of Tucson. The mine property is located within Township 15 South, Range 22 East, and all or parts of Sections 22, 23, 24, 25, 26, 27, 34, 35, and 36 (Gila and Salt River Base Line and Meridian). The property consists of multiple patented, unpatented, and fee simple mining claims totaling approximately 3,092 acres, or about 4.8 square miles. The mine is located in the southern half of the property. Access to the property is via Exit 322 off of Interstate Highway 10 and approximately one mile north on Johnson Road, which becomes Seven Dash Road near the mine entrance.

The mining history of the property dates to the 1880s, with intermittent underground and open pit mining activity. Until recently, JCM produced cathode copper through leaching and solvent extraction/electrowinning (SX/EW) methods. Mine facilities include:

- Two inactive open pits (the Burro Pit and the Copper Chief Pit)
- Four heap leach pads
- Four process solution impoundments
- Five non-stormwater ponds and two inactive non-stormwater ponds
- A SX/EW plant
- Former crushing, agglomeration, and conveying systems
- Supporting infrastructure, including offices and warehouses, repair and maintenance facilities, tanks, ponds, piping, vehicles, and miscellaneous equipment

The JCM property was acquired by Nord Resources Corporation (Nord) in 1999. Nord expanded and upgraded the mine facilities and actively mined the Burro and Copper Chief pits in 2009 and 2010. Nord ceased mining activities in July 2010 and continued to leach the existing heap leach pads and operate the SX/EW plant until October 2015. Current activities consist of site maintenance and security, and circulating process solution through the heap leach pads to maintain freeboard in the pregnant leach solution (PLS) and raffinate ponds and to allow process solution to evaporate. The property was placed into receivership in November 2014. Excelsior entered into an agreement to purchase the property with the Receiver, Christopher Linscott of Keegan, Linscott & Kenon, P.C., in September 2015. The sale was approved in October 2015 and closed in December 2015.

Planned activities consist of mining from the open pits and placement of run of mine ore on Leach Pad #5 and use of the JCM ponds to contain process solution from the Gunnison Copper Project (APP No. 511633) and/or JCM. During the Stage 1 operations of the Gunnison Copper Project, PLS will be pumped from Gunnison to the JCM impoundments located (APP No. P-100514) for processing at the SX/EW plant. Raffinate will be stored, re-acidified, and pumped back to the Gunnison Copper Project wellfield. Operation of Leach Pad #5 and the Gunnison wellfield can be adjusted to accommodate each other, in order to stay within the operating capacity of the SX-EW plant and the permitted flow rate of 8,200,000 gallons per day.

2.1.1. Permitted Discharging Facilities

JCM's facility identification number is shown in parentheses for each facility below:

2.1.1.1. Leach Pad #1 (JCM 008)

This facility is a leach stockpile located southwest of Burro Pit and east-southeast of Leach Pad #2. Constructed by Cyprus Mines Corporation in 1975, it currently occupies 35.5 acres containing approximately 11.8 million tons.

2.1.1.2. Leach Pad #2 (JCM 013)

This facility is a leach stockpile located west-northwest and adjacent to Leach Pad #1 and east-southeast and adjacent to Leach Pad #3. Constructed by Cyprus Mines Corporation in 1981-1984, it currently occupies 39 acres containing approximately 10.3 million tons.

2.1.1.3. Leach Pad #3 (JCM 015)

This facility is located west-northwest and adjacent to Leach Pad #2. Constructed by Arimetco during 1993-1994, it currently occupies 28.6 acres containing approximately 9.5 million tons.

2.1.1.4. Solution Pond #1 (JCM 009)

This facility is located east-southeast of Leach Pad #1 and has been reconstructed as a double-lined pond with a leak collection and removal system with a surface area of 2.4 acres. This pond will be partitioned into two cells with a lined earthen berm thus forming Draindown Cell #1 to contain draindown and stormwater runoff from Leach Pad #1, and Solution Cell #1 which will be used to contain raffinate, PLS and hydraulic control water from the Gunnison Copper Project at the maximum rate of up to 5,000 gallons per minute (gpm) on an as needed basis. The current existing leak collection and removal system (LCRS) will remain intact and it will serve Solution Cell #1.

2.1.1.5. Intercept Sump (Old PLS Pond #2) (Nord 014)

This facility is located east-southeast of Leach Pad #2 and north of Leach Pad #1 in the invert (lowest point) of old PLS Pond #2. It is considered to be part of the design of Leach Pad #2. This facility is currently covered by Leach Pad #1/#2, and it will be closed concurrently when Leach Pad #1/#2 is granted APP closure. The capacity of the sump is estimated to be 8.3 million gallons and consists of the void space in the Leach Pad #1/#2 backfill.

2.1.1.6. Solution Pond #3 (JCM 016)

This facility is located east-southeast of Leach Pad #2 and has been reconstructed as a double-lined pond with a leak collection and removal system with a surface area of 78,905 square feet. This pond will be partitioned into two cells with a lined earthen berm, thus forming Draindown Cell #3 to contain draindown and stormwater runoff from Leach Pad #3, and Solution Cell #3 which will be used to contain PLS from the Gunnison Copper Project at the maximum rate of up to 5,000 gpm on an as needed basis. The current existing LCRS will remain intact and it will serve Solution Cell #3.

2.1.1.7. Raffinate Pond #1 (JCM 029)

This facility is located southwest of the SX/EW Plant. It receives solution discharged from the Solvent Extraction (SX) Plant following copper recovery from PLS and assay wastewater from the Main Laboratory. Raffinate Pond #1 has been reconstructed as a double-lined pond with a LCRS with a surface area of 30,456 square feet with an estimated capacity of 1.7 million gallons. Raffinate Pond #1 will be connected to the ILS Pond via a pipeline. Solutions from this facility will be re-acidified and pumped to the Gunnison Copper Project wellfield. On an as needed basis, raffinate may be routed to Solution Cell #1.

2.1.1.8. ILS Pond (JCM 030)

This facility is located southwest of Raffinate Pond #1 and northeast of the Intercept Sump. / This pond will receive raffinate from Raffinate Pond #1 via a pipeline connecting the two ponds. The ILS Pond has been reconstructed as a double-lined pond with a LCRS with a surface area of 25,830 square feet with a capacity of 1.6 million gallons.

2.1.1.9. SWCP #057 (JCM 057)

This facility receives non-stormwater runoff from the southwestern side of the heap leach pads. It is located west of the leach pads and east of the western property boundary. It shall be lined with a single 80-mil HDPE liner on a minimum of 6 inches of prepared subgrade.

2.1.1.10. SWCP #058 (JCM 058)

This facility receives non-stormwater runoff from the southwestern side of the heap leach pads. It is located west of the leach pads and east of the western property boundary. It shall be lined with a single 80-mil HDPE liner on a minimum of 6 inches of prepared subgrade.

2.1.1.11. SWCP #59 (JCM 059)

This facility receives non-stormwater runoff from the northeastern side of the heap leach pads. It is clay lined and serves to minimize stormwater runoff from leaving the mine site. This facility is currently covered by Leach Pad #3, and it will be closed concurrently when Leach Pad #3 is granted APP closure.

2.1.1.12. SWCP #60 (JCM 060)

This facility receives non-stormwater runoff from the northeastern side of the heap leach pads. It is clay lined and serves to minimize stormwater runoff from leaving the mine site. This facility is currently covered by Leach Pad #3, and it will be closed concurrently when Leach Pad #3 is granted APP closure.

2.1.1.13. Secondary Containment Pond #1 (JCM 011)

This facility is an unlined impoundment connected to Solution Pond #1 by a geomembrane lined ditch. The facility formerly served as an emergency overflow impoundment to receive PLS infrequently from Solution Pond #1 and/or non-stormwater runoff. A water balance demonstration was provided under an amendment (LTF 65043), and it was determined that this facility is no longer required. Closure activities shall be completed at the time of APP closure for the entire facility.

2.1.1.14. Secondary Containment Pond #2 (JCM 012)

This facility formerly served as an emergency overflow impoundment down gradient from Secondary Containment Pond #1 and received only non-stormwater runoff on an infrequent basis. It is clay lined. A water balance demonstration was provided under an amendment (LTF 65043), and it was determined that this facility is no longer required. Closure activities shall be completed at the time of APP closure for the entire facility.

2.1.1.15. Main Leach Pad #5 Area (JCM 028)

This facility is a leach stockpile that will be located north of the Burro and Copper Chief pits. It will be constructed in two phases. During the first phase, the southern section will be constructed first and will occupy 167 acres and contain approximately 48 million tons of ore when it is fully built out. The northern extension (not permitted at this time) will be approximately 63 acres in size and will contain approximately 15 million tons of ore.

2.1.1.16. Leach Pad #5 Emergency Overflow Pond (JCM 033)

The Leach Pad #5 Emergency Overflow Pond (LP5-EOP-33) will be located at the southeast corner of Main Leach Pad #5 Area. The minimum design capacity for the pond is 9.1 million gallons plus 2-feet of dry freeboard. The pond is a combination of storage in the natural drainage along the southeast corner of the leach pad and an excavated pond area parallel the east side of the leach pad. It has a single liner and is constructed to meet Prescriptive BADCT for non-stormwater ponds.

The site includes the following permitted discharging facilities:

Table 1: Discharging Facilities		
Facility	Latitude	Longitude
Leach Pads		
Leach Pad #1 (JCM 008)	32° 05' 45'' N	110° 04' 07'' W
Leach Pad #2 (JCM 013)	32° 05' 55'' N	110° 04' 29'' W
Leach Pad #3 (JCM 015)	32° 06' 01'' N	110° 04' 26'' W
Main Leach Pad #5 Area (JCM 028)	32° 06' 37'' N	110° 03' 57'' W
PLS and Raffinate Ponds		
Solution Pond #1 (JCM 009)	32° 05' 42'' N	110° 03' 54'' W
Intercept Sump (JCM 014; buried under Leach Pad #1/#2)	32° 05' 51'' N	110° 04' 15'' W
Solution Pond #3 (JCM 016)	32° 05' 57'' N	110° 04' 14'' W
Raffinate Pond #1 (JCM 029)	32° 05' 56'' N	110° 04' 11'' W
ILS Pond (JCM 030)	32° 05' 54'' N	110° 04' 12'' W
Non-Stormwater Ponds		
SWCP #057 (JCM 057)	32° 05' 53'' N	110° 04' 35'' W
SWCP #058 (JCM 058)	32° 05' 52'' N	110° 04' 34'' W
SWCP #59 (JCM 059; buried under Leach Pad #3)	32° 06' 06'' N	110° 04' 27'' W
SWCP #60 (JCM 060; buried under Leach Pad #3)	32° 06' 06'' N	110° 04' 24'' W
Leach Pad #5 Emergency Overflow Pond (JCM33)	32° 06' 29'' N	110° 03' 36'' W
Inactive Non-Stormwater Ponds		
Secondary Containment Pond #1 (JCM 011)	32° 05' 41'' N	110° 03' 40'' W
Secondary Containment Pond #2 (JCM 012)	32° 05' 33'' N	110° 03' 23'' W

2.1.2. Annual Registration Fee

[A.R.S. § 49-242 and A.A.C. R18-14-104]

The annual registration fee for this permit is payable to ADEQ each year. The annual registration fee flow rate is established by the permitted flow rate identified in Section 1.1 Permittee Information. If the facility is not constructed or is incapable of discharge, the permittee may be eligible for reduced fees pursuant to Table 2 under A.A.C. R18-14-104(A). Send all correspondence requesting reduced fees to the Groundwater Protection Value Stream. Please reference the permit number, LTF number, and the reason for requesting reduced fees under this rule.

2.1.3. Financial Capability

[A.R.S. § 49-243(N) and A.A.C. R18-9-A203]

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated closure and post-closure cost is \$5,080,757. The financial assurance mechanism will be demonstrated through a performance surety bond as per A.A.C. R18-9-A203(C)(2) and compliance schedule item (CSI) No. 2.

2.2. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)

[A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]

Facilities regulated by this permit shall be designed, constructed, operated, and maintained to meet requirements specified by A.R.S. §49-243(B) and A.A.C. R18-9-A202(A)(5).

2.2.1. Engineering Design

The facilities list is provided in Table 1 Discharging Facilities, and BADCT descriptions are included in Section 4.1, Table 10: Permitted Facilities and BADCT.

2.2.2. Site-Specific Characteristics

Not applicable.

2.2.3. Pre-Operational Requirements

Not applicable.

2.2.4. Operational Requirements

The discharging facilities shall be operated according to and inspected for compliance with the requirements in Section 4.2, Table 11: Facility Inspection and Operational Monitoring, and recorded in a log as required by Section 2.7.2 Operation Inspection / Log Book Recordkeeping. If damage is identified during an inspection that could cause or contribute to a discharge, proper repairs shall be promptly performed in accordance with Section 2.6 Contingency Plan Requirements of this permit and recorded in a log.

2.3. DISCHARGE LIMITATIONS

[A.R.S. §§ 49-201(14), 49-243 and A.A.C. R18-9-A205(B)]

The permittee shall operate and maintain all permitted facilities to prevent unauthorized discharges pursuant to A.R.S. §§ 49-201(12) resulting from failure or bypassing of BADCT pollutant control technologies including liner failure, uncontrollable leakage, berm breaches that result in an unexpected loss of fluid, accidental spills, or other unauthorized discharges.

2.3.1. Discharge Limitations for the Heap Leach Facility

The drainage system for the Heap Leach Facility (Leach Pad #1, Leach Pad #2, Leach Pad #3, and the Main Leach Pad #5 Area), shall be operated in a manner to ensure adequate capacity to manage draindown solutions and stormwater runoff and direct it to the designated impoundments (ponds). Residual heap materials and fluids shall not leave the heap liner or overtop the berms.

2.3.2. Discharge Limitations for Non-Stormwater Impoundments

The permitted non-stormwater are authorized to receive stormwater runoff and run-on, and process solutions as a result of storm events or process upset events.

2.3.3. Discharge Limitations for Process Solution Impoundments and Cells

The four process solution impoundments/cells (Solution Cell #1, Solution Cell #3, Raffinate Pond #1, and the ILS Pond) are designed and authorized to receive PLS, raffinate, stormwater, and other process solutions from JCM and the Gunnison Copper Project.

2.3.4. Discharge Limitations for Draindown Cells

The two draindown cells (Draindown Cell #1 and Draindown Cell #3) are designed and authorized to receive draindown and stormwater runoff from the Heap Leach Facility (Leach Pad #1, Leach Pad #2, and Leach Pad #3).

2.4. POINT OF COMPLIANCE (POC)

[A.R.S. § 49-244]

2.4.1. Provisional Point(s) of Compliance Locations

The provisional POC well locations are established at the following locations:

Table 2: Provisional Point of Compliance					
POC #	POC Location	ADWR Registration Number	Latitude	Longitude	Screen Interval
POC-1	Northeast of SX/EW Plant	NA	32° 06' 00.50" N	110° 04' 08.22" W	NA
POC-2	Downgradient of Solution Pond #1	NA	32° 05' 44.30" N	110° 03' 44.90" W	NA

NOTE: The above listed POC-1 and POC-2 are provisional due to likely impact from the historical discharges from the existing heap leach pads, since those discharges are covered under an ADEQ-approved Prospective Purchaser Agreement (PPA) excluding existing contamination at JCM.

2.4.2. Point of Compliance Location

One POC well (POC-3) will be installed east of the Main Leach Pad #5 Area. The POC wells will be located as follows.

Table 3: Point of Compliance					
POC #	POC Location	ADWR Registration Number	Latitude	Longitude	Screen Interval
POC-3	Downgradient of Leach Pad #5 and Emergency Overflow Pond	TBD	32° 6' 32.23" N	110° 3' 32.150" W	TBD

2.4.3. Monitoring requirements for POC-3 are listed in Section 4.2, Table 17: Quarterly Groundwater Monitoring of POC Well and Table 18: Biennial Groundwater Monitoring of POC Well. The Director may amend this permit to designate additional POCs, if information on groundwater gradients or groundwater usage indicates the need. Data Continuity Wells

The Data Continuity Wells (DCW) are established at the following monitoring locations:

Table 4: Data Continuity Wells					
POC #	POC Location	ADWR Registration Number	Latitude	Longitude	Screen Interval
Durham	Southwest of Heap Leach Pad #1	55-595927	32° 05' 37" N	110° 04' 08" W	168-178, 198-208, 228-268
Hill	South of Heap Leach Pad #2	55-563955	32° 05' 44" N	110° 04' 18" W	115-175
Saddle	South of Heap Leach Pad #2	55-561563	32° 05' 51" N	110° 04' 35" W	60-120
Cross	South of Leach Pad #5	55-561565	32° 06' 17.43" N	110° 04' 5.4" W	450-500

Groundwater monitoring is required for the DCWs as per Section 4.2, Table 15: Quarterly Groundwater Monitoring of Data Continuity Wells and Table 16: Biennial Groundwater Monitoring of Data Continuity Wells.

2.5. MONITORING REQUIREMENTS

[A.R.S. § 49-243(K)(1), A.A.C. R18-9-A206(A)]

Unless otherwise specified in this permit, all monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. Unless otherwise provided, monitoring shall commence the first full monitoring period following permit issuance. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and Chain-of-Custody procedures shall be followed, in accordance with currently accepted standards of professional practice. Copies of laboratory analyses and Chain-of-Custody forms shall be maintained at the permitted facility. Upon request, these documents shall be made immediately available for review by ADEQ personnel.

2.5.1. Discharge Monitoring

Discharge monitoring shall be conducted on a one time basis as per CSI Nos. 3 & 4 for the PLS pumped from Main Leach Pad #5 Area, and also for the PLS pumped from the Gunnison Copper Project at Solution Pond #3, and for the raffinate from the SX/EW plant at Raffinate Pond #1 for the parameters listed in Section 4.2, Table 13: Initial Discharge Monitoring as per compliance schedule item (CSI) CSI Nos. 3 and 4 in Section 3.0 Compliance Schedule.

2.5.2. Facility / Operational Monitoring

At a minimum, permitted facilities shall be inspected for performance levels listed in Section 4.2, Table 11: Facility Inspection and Operational Monitoring. If damage is identified during an inspection that could cause or contribute to an unauthorized discharge pursuant to A.R.S. § 49-201(12), proper repairs shall be promptly performed. Results of these inspections and monitoring activities shall be documented and maintained at the facility location for at least 10 years, and as required by Section 2.7.2 of this permit.

2.5.3. Groundwater Monitoring and Sampling Protocols

For all sampling methods, static water levels shall be measured and recorded prior to sampling.

Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters (pH, temperature, and conductivity) are stable, whichever represents the greater volume. If evacuation results in the well going dry, the well shall be allowed to recover to 80 percent of the original borehole volume, or for 24 hours, whichever is shorter, prior to sampling. If after 24 hours there is not sufficient water for sampling, the well shall be recorded as “dry” for the monitoring event. An explanation for reduced pumping volumes, a record of the volume pumped, and modified sampling procedures shall be reported and submitted with the Self-Monitoring Report Form (SMRF).

As an alternative method for sampling, the permittee may conduct the sampling using a low-flow purging method in accordance with accepted EPA, USGS, or DOD protocols. The well must be purged until indicator parameters stabilize. Indicator parameters shall include dissolved oxygen, turbidity, pH, temperature, and conductivity.

As a third alternative method for sampling within POC wells with very low recharge rates, the permittee may conduct the sampling using no-purge sampling techniques using HydraSleeve™ or similar type methodology. The use of HydraSleeve™ or similar type samplers shall follow accepted EPA, USGS, or DOD protocols. In addition, the HydraSleeve™ or similar type sampler shall be placed just below the water table.

2.5.3.1. Point of Compliance Well Replacement

In the event that one or more of the designated POC wells listed in Table 3: Point of Compliance and Table 4: Data Continuity Wells should become unusable or inaccessible due to damage or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the replacement well is 50 feet or less from the original well, the ALs and/or aquifer quality limits (AQLs)

calculated for the designated POC well shall apply to the replacement well however, if the permittee can provide a technical demonstration that the original ALs and AQLs are not appropriate for the replacement well ADEQ may review and consider recalculation of the ALs and AQLs. Otherwise, the ALs and/or AQLs shall be set following the provisions in Section 2.5.3.4 and Section 2.5.3.5 of this permit.

2.5.3.2. Point of Compliance Well Installation

Groundwater monitor well POC-3 shall be installed prior to operation of Main Leach Pad #5 Area.

2.5.3.3. Ambient Groundwater Quality Monitoring for Point of Compliance Wells

In accordance with CSI No. 9 in Section 3.0, the permittee shall complete eight and a maximum of twelve (12) rounds of ambient groundwater monitoring for POC well POC-3 for all constituents listed in Section 4.2, Tables Table 14: Parameters for Ambient Groundwater Monitoring .

Groundwater samples shall be obtained no more frequently than monthly and no less frequently than quarterly. Each ambient sample shall be analyzed for the parameters listed in Section 4.2, Table 14: Parameters for Ambient Groundwater Monitoring and aquifer quality limits shall be established for the POC wells as required in Sections 2.5.2.4 and 2.5.2.5.

2.5.3.4. Alert Levels for Point of Compliance Wells

ALs shall be calculated for all contaminants with an established numeric AWQS for POC-3. For any new or replacement POC wells, ALs shall be calculated for all contaminants with an established numeric AWQS, as described below.

As per the compliance schedule item No. 9, following receipt of the laboratory analyses for the final month of the ambient groundwater monitoring period for POC-3, the permittee shall submit the ambient groundwater data in tabulated form to the Groundwater Protection Value Stream for review. Copies of all laboratory analytical reports, field notes, and the Quality Assurance/Quality Control (QA/QC) procedures used in collection and analyses of the samples for all parameters listed in Section 4.2, Table 14: Parameters for Ambient Groundwater Monitoring , to be established for each POC well, shall be submitted to the Groundwater Protection Value Stream. The permittee may submit a report with the calculations for each AL and AQL included in the permit for review and approval by ADEQ, or the permittee may defer calculation of the ALs and AQLs by the Groundwater Protection Value Stream. The ALs shall be established and calculated by the following formula, or another valid statistical method submitted to Groundwater Protection Value Stream in writing and approved for this permit by the Groundwater Protection Value Stream:

$$AL = M + KS$$

Where M = mean, S = standard deviation, and K = one-sided normal tolerance interval with a 95% confidence level (Lieberman, G.J. (1958) Tables for One-sided Statistical Tolerance Limits: Industrial Quality Control, Vol XIV, No. 10). Obvious outliers should be excluded from the data used in the AL calculation.

The following criteria shall be met in establishing ALs in the permit:

1. The AL shall be calculated for a parameter using the analyses from a minimum of eight sample events.
2. Any data where the laboratory Practical Quantitation Limit (PQL) exceeds 80% of the AWQS shall not be included in the AL calculation.
3. If a parameter is below the detection limit, the permittee must report the value as “less than” the numeric value for the PQL or detection limit for the parameter, not just as “non-detect”.

For those parameters, the permittee shall use a value of one-half the reported detection limit for the AL calculation.

4. If the analytical results from more than 50% of the samples for a specific parameter are non-detect, then the AL shall be set at 80% of the AWQS.
5. If the calculated AL for a specific constituent and well is less than 80% of the AWQS, the AL shall be set at 80% of the AWQS for that constituent in that well.

2.5.3.5. Aquifer Quality Limits for POC Wells

For each of the monitored analytes for which a numeric AWQS has been adopted, the AQL shall be established as follows:

1. If the calculated AL is less than the AWQS, then the AQL shall be set equal to the AWQS.
2. If the calculated AL is greater than the AWQS, then the AQL shall be set equal to the calculated AL value, and no AL shall be set for that constituent at that monitoring point

2.5.3.6. Compliance Groundwater Quality Monitoring for POC Wells

Quarterly compliance groundwater monitoring in each POC well shall commence within the first calendar quarter after completion of the ambient groundwater sampling period. For quarterly compliance monitoring, the permittee shall analyze groundwater samples for the parameters listed in Section 4.2, Table 17: Quarterly Groundwater Monitoring of POC Well. In addition to quarterly compliance groundwater monitoring, every two years (biennial) the permittee shall analyze samples from the POC wells for an expanded list of parameters. For the biennial monitoring events in POC wells, the parameters listed in Section 4.2, Table 18: Biennial Groundwater Monitoring of POC Well shall be analyzed. The first biennial sampling event shall commence with the eighth quarter after completion of the ambient monitoring permit (e.g., first calendar quarter after permit issuance) and shall replace the regularly scheduled quarterly sampling event. Biennial sampling shall occur every two years thereafter.

2.5.4. Data Continuity Wells

Static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters (pH, temperature, and conductivity) are stable, whichever represents the greater volume. If evacuation results in the well going dry, the well shall be allowed to recover to 80 percent of the original borehole volume, or for 24 hours, whichever is shorter, prior to sampling. If after 24 hours there is not sufficient water for sampling, the well shall be recorded as “dry” for the monitoring event. An explanation for reduced pumping volumes, a record of the volume pumped, and modified sampling procedures shall be reported and submitted with the Self-monitoring Report Form (SMRF).

2.5.4.1. Data Continuity Well Replacement

In the event that one or more of the designated DCWs should become unusable or inaccessible due to damage, insufficient water in the well for more than 2 sampling events, or any other event, a replacement DCW well shall be constructed and installed upon approval by ADEQ.

2.5.5. Surface Water Monitoring and Sampling Protocols

Not applicable.

2.5.6. Waste Rock Characterization

Waste rock placed on the waste rock stockpile will be characterized. A minimum of one sample per one million tons of waste rock material will be collected and submitted for leach testing (e.g., Synthetic

Precipitation Leaching Potential [SPLP] or Nevada Meteoric Water Mobility Procedure), paste pH and Acid Base Accounting (ABA) analysis. The material shall be selected to be volumetrically, geologically, and geochemically representative of the waste rock it is intended to represent. If the Net Neutralization Potential (NNP) value of any sample is less than 20 tons of CaCO₃/kton or if the ratio between the Acid Neutralization Potential (ANP) and Acid Generating Potential (AGP) is less than 3:1, the sample will be submitted to a laboratory for further kinetic testing. If it is determined that any materials demonstrate a potential to be acid generating and/or leach constituents, contingency actions will apply as noted in Section 2.6.2.2. The reporting of waste rock characterization results shall be submitted to ADEQ on a semi-annual basis in accordance with instructions to be provided by ADEQ.

2.5.7. Analytical Methodology

All samples collected for compliance monitoring shall be analyzed using Arizona state-approved methods. If no state-approved method exists, then any appropriate EPA-approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. If all methods have detection limits higher than the applicable limit, the permittee shall follow the applicable contingency requirements of Section 2.6 and may propose “other actions” including amending the permit to set higher limits. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification unless exempted under A.R.S. § 36-495.02. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state-certified laboratories can be obtained at the address below:

Arizona Department of Health Services
Office of Laboratory Licensure and Certification
250 North 17th Avenue
Phoenix, AZ 85007
Phone: (602) 364-0720

2.5.8. Installation and Maintenance of Monitoring Equipment

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells are determined to be necessary, the construction details shall be submitted to the Groundwater Protection Value Stream for approval prior to installation and the permit shall be amended to include any new monitoring points.

2.6. CONTINGENCY PLAN REQUIREMENTS

[A.R.S. § 49-243(K)(3), (K)(7) and A.A.C. R18-9-A204 and R18-9-A205]

2.6.1. General Contingency Plan Requirements

The permittee shall prepare and implement a contingency plan consistent with the circumstances and actions described in Sections 2.6.2 through 2.6.5 and with A.A.C. R18-9-A204. At least one copy of this permit and the contingency plan shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any AL exceedance, or violation of an AQL, DL, or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3, unless more specific reporting requirements are set forth in Section 2.6.2 through 2.6.5.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL or DL. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling

result to be confirmed as if verification sampling had been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit.

2.6.2. Exceeding of Alert Levels and Performance Levels

2.6.2.1. Exceeding of Performance Levels Set for Operational Conditions

2.6.2.1.1. Performance Levels Set for Freeboard

In the event that freeboard performance levels established in Section 4.2, Table 11: Facility Inspection and Operational Monitoring in a surface impoundment are not maintained, the permittee shall:

1. As soon as practicable, cease or reduce discharging to the impoundment to prevent overtopping. Remove and properly dispose or recycle to other operations the excess fluid in the reservoir until the water level is restored at or below the freeboard performance level.
2. Within 5 days of discovery, evaluate the cause of the incident and adjust operational conditions or identify design improvements to the affected system as necessary to avoid future occurrences.
3. Within 30 days of discovery, initiate repairs to the affected system, structure, or other component as necessary to return the system to the established performance levels. Record any repair procedures, methods, and materials used to restore the facility to operating condition in the facility log/recordkeeping file.
4. If design improvements are necessary and if they trigger a permit amendment, submit an amendment application within 90 days of discovery.
5. The facility is no longer on alert status once the operational indicator no longer indicates that the freeboard performance level is being exceeded. The permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

2.6.2.1.2. Performance Levels, other than Freeboard

1. If an operational performance level (PL) listed in Section 4.2, Table 11: Facility Inspection and Operational Monitoring has not been maintained during required inspection and operational monitoring, such that the result could cause or contribute to an unauthorized discharge, the permittee shall immediately investigate to determine the cause of the condition. The investigation shall include the following:
 - a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the operational performance condition.
 - b. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences.
2. The PL exceedance, results of the investigation, and any corrective action taken shall be reported to the Groundwater Protection Value Stream, within 30 days of the discovery of the condition. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
3. Within 30 days, the permittee shall initiate actions identified in the contingency plan referenced in Section 2.6.1 General Contingency Plan Requirements and any necessary contingency measures to resolve problems identified by the investigation which may have

led to a PL being exceeded. To implement any other corrective action the permittee may choose to obtain prior approval from ADEQ according to Section 2.6.6.

2.6.2.2. Exceedance of Alert Level #1 for Normal Liner Leakage

If an Alert Level #1 (AL #1) as specified in Section 4.2, Table 12: Leak Collection and Removal System Monitoring, has been exceeded, the permittee shall take the following actions:

1. Within 5 days of AL #1 exceedance, notify Groundwater Protection Value Stream in accordance with Section 2.7.3 Permit Violation and Alert Level Status Reporting. Continue monitoring to determine if the leakage rate is increasing.
2. If the leakage rate continues to exceed AL#1 for 15 days following notification of initial AL #1 exceedance, perform a visual inspection of the liner above the solution level, to determine the location of the leaks in the primary liner.
3. Within 45 days of AL #1 exceedance, if liner damage is evident, the permittee shall complete liner repairs.
4. Within 45 days of AL #1 exceedance, if the visual inspection does not identify the location of leaks, formulate a corrective action plan to determine their location and repair them.
5. Within 90 days of AL #1 exceedance and following formulation of a corrective action plan, the permittee shall complete liner repairs.
6. Within 75 days of AL #1 exceedance (if repairs were completed in Step 3), or 120 days of AL #1 exceedance (if corrective action plan was implemented per Steps 4 and 5), if no alert level exceedance is observed for 30 consecutive days, notify Groundwater Protection Value Stream and document assessment and/or repairs in the log book.
7. Within 120 days of AL #1 exceedance (if repairs were completed in Step 3), or 165 days of AL #1 exceedance (if corrective action plan was implemented per Steps 4 and 5), if 30 consecutive days without an AL #1 exceedance is not achieved, notify Groundwater Protection Value Stream and reassess the entire liner system and complete any necessary repairs as described in Steps 2 and 3 (and if necessary Steps 4 and 5 also). Repeat the assessment and liner repair cycle until requirements of Step No. 6 are attained.
8. A liner leakage assessment and repair report shall be included in the next annual report described in Section 2.7.4.1 Annual Reporting of this permit. The permittee may also submit the liner leakage assessment report to the ADEQ prior to the annual report due date. This liner leakage assessment and repair report shall be submitted to Groundwater Protection Value Stream. Upon review of the report, ADEQ may require that the permittee take additional corrective actions to address the problems identified from the assessment of the liner and perform other applicable repair procedures.

2.6.2.3. Exceedance of Alert Level #2 for Liner Failure or Rips

If the Liner Leakage Discharge Limit (AL #2) specified in Section 4.2, Table 12: Leak Collection and Removal System Monitoring, has been exceeded, the permittee shall:

1. As soon as practicable, cease all discharge to the impoundment, implement control measures to prevent new solution buildup that may subsequently report to the impoundment, and immediately notify Groundwater Protection Value Stream of the AL #2 exceedance.
2. Within 15 days of initial AL #2 exceedance, perform a visual inspection of the liner above the solution level to identify the location of the leak(s). The permittee shall complete liner repairs and discharge to the impoundment shall not be re-initiated until the leak(s) have been identified and repaired.

3. Within 60 days of initial AL #2 exceedance if leaks were found and fixed and if no AL #2 exceedance is observed for 30 consecutive days, submit a liner leakage assessment and repair report to ADEQ. The report shall include the results of the initial liner evaluation, methods used to locate the leak(s), repair procedures and quality assurance/quality control implemented to restore the liner to optimal operational status, and other information necessary to ensure the future occurrence of the incidence will be minimized.
4. Within 30 days of initial AL #2 exceedance if the visual inspection does not identify the location of leaks and AL #2 exceedance continues, formulate a corrective action plan to determine their location and repair them. The corrective action plan will take into account the schedule for a 3rd party contractor to perform electronic leak detection or other methods if required.
5. Within 75 days of initial AL #2 exceedance and following formulation of a corrective action plan, the permittee shall complete liner repairs
6. Within 105 days of AL #2 exceedance and implementation of the corrective action plan per Steps 4 and 5, if no AL #2 exceedance is observed for 30 consecutive days, notify Groundwater Protection Value Stream and document assessment and/or repairs in the log book.
7. Within 105 days of initial AL #2 exceedance, (if repairs were completed in Step 3), or 150 days of AL #2 exceedance (if corrective action plan was implemented per Steps 4, 5, and 6) if 30 consecutive days without an AL #2 exceedance is not achieved, repeat Steps 1 through 7 until AL #2 is not exceeded for 30 consecutive days. When the Steps 1 through 7 are repeated, the notification date is reset. Discharge to the impoundment shall not be re-initiated until the leak(s) have been identified and repaired.
8. Liner leakage assessment and repair reports required by Section 2.6.2.2, shall be referenced in the next annual report described in Section 2.7.4.1 Annual Reporting of this permit.

2.6.2.4. Exceeding of Alert Levels Set for Discharge Monitoring

Not applicable.

2.6.2.5. Exceeding of Alert Levels in Groundwater Monitoring

2.6.2.5.1. Alert Levels for Indicator Parameters

Monitoring for Indicator Parameters is not required under the terms of this permit.

2.6.2.5.2. Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4.2, Table 17: Quarterly Groundwater Monitoring of POC Well or Table 18: Biennial Groundwater Monitoring of POC Well has been exceeded, the permittee may conduct verification sampling of the pollutant(s) that exceed their respective AL(s) within 5 days of becoming aware of an AL exceedance. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL exceedance or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring for the pollutant(s) exceeding their respective AL(s) to monthly. In addition, the permittee shall immediately initiate an investigation of the cause of the AL exceedance, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.

3. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL exceedance. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Groundwater Protection Value Stream, that although an AL is exceeded, the pollutant(s) that exceed their respective AL(s) are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency, for those pollutant(s) that exceed their respective AL(s), for approval in writing by the Groundwater Protection Value Stream.
4. Within 30 days after confirmation of an AL exceedance for those pollutant(s), the permittee shall submit the laboratory results to the Groundwater Protection Value Stream along with a summary of the findings of the investigation, the cause of the AL exceedance, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring for those pollutant(s) required as a result of an AL exceedance may be reduced to the frequency shown for groundwater monitoring in Section 4.2, Section 4.2, Table 17: Quarterly Groundwater Monitoring of POC Well or Table 18: Biennial Groundwater Monitoring of POC Well , if the results of three sequential sampling events demonstrate that the parameter(s) does/do not exceed their respective AL(s).
7. If the increased monitoring required as a result of an AL exceedance for those pollutant(s) continues for more than six sequential sampling events, the permittee shall submit a second report documenting an investigation of the continued AL exceedance within 30 days of the receipt of laboratory results of the sixth sampling event.

2.6.2.5.3. Alert Levels to Protect Downgradient Users from Pollutants without Numeric Aquifer Water Quality Standards

Not applicable.

2.6.2.5.4. Alert Level for Groundwater Level

Not applicable.

2.6.3. Discharge Limit Violation

2.6.3.1. Liner Failure, Containment Structure Failure, or Unexpected Loss of Fluid for reasons other than Overtopping

In the event of liner failure, containment structure failure, or unexpected loss of fluid as described in Section 2.3, the permittee shall take the following actions:

1. As soon as practicable, cease all discharges as necessary to prevent any further releases to the environment, including removal of any fluid remaining in the impoundment as necessary, and capture and containment of all escaped fluids.
2. Within 24 hours of discovery, notify Groundwater Protection Value Stream.
3. Within 24 hours of discovery of a failure, or soon as practicable, estimate the quantity released, collect representative samples of the fluid remaining in affected impoundments and drainage structures, analyze sample(s) according to Section 4.2, Table 19: Contingency

Monitoring Parameters, . Should the permittee determine that these actions cannot be performed within 24 hours of discovery, as practicable, document the reasons in the log book and the subsequent 30-day report, as necessary. In the 30-day report required under Section 2.7.3 Permit Violation and AL Status Reporting, include a copy of the analytical results and forward the report to Groundwater Protection Value Stream.

4. Within 15 days of discovery, initiate an evaluation to determine the cause for the incident. Identify the circumstances that resulted in the failure and assess the condition of the discharging facility and liner system. Implement corrective actions as necessary to resolve the problems identified in the evaluation. Initiate repairs to any failed liner, system, structure, or other component as needed to restore proper functioning of the discharging facility. The permittee shall not resume discharge to the facility until repairs of any failed liner or structure are performed.

Repair procedures, methods, and materials used to restore the system(s) to proper operating condition shall be described in the facility log/recordkeeping file and available for ADEQ review. Record in the facility log/recordkeeping file the amount of fluid released, a description of any removal method and volume of any fluid removed from the impoundment and/or captured from the release area. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 Operation Inspection / Log/Recordkeeping File.

5. Within 30 days of discovery of the incident, submit a report to Groundwater Protection Value Stream as specified in Section 2.7.3 Permit Violation and Alert Level Status Reporting. Include a description of the actions performed in Subsections 1 through 4 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
6. Within 60 days of discovery, assess of the impacts to soil and/or groundwater resulting from the incident. If soil or groundwater is impacted such that it could or did cause or contribute to an exceedance of an AQL at the applicable point of compliance, submit to ADEQ, for approval, a corrective action plan to address such impacts, including identification of remedial actions and a schedule for completion of activities. At the approval of ADEQ, the permittee shall implement the approved plan.
7. Within 30 days of completion of corrective actions, submit to Groundwater Protection Value Stream, a written report as specified in Section 2.6.6 Corrective Actions.
8. Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions.

2.6.3.2. Overtopping of a Surface Impoundment

If overtopping of fluid from a permitted surface impoundment occurs, and results in a discharge pursuant to A.R.S. § 49-201(12), the permittee shall:

1. As soon as practicable, cease all discharges to the surface impoundment to prevent any further releases to the environment.
2. Within 24 hours of discovery, notify Groundwater Protection Value Stream.
3. Within 24 hours, or as soon as practicable, collect representative samples of the fluid contained in the surface impoundment. Should the permittee determine that these actions cannot be performed within 24 hours of discovery, as practicable, document the reasons in the log book and the subsequent 30-day report, as necessary. Samples shall be analyzed for the

parameters specified in Section 4.2, Table 19: Contingency Monitoring Parameters. Within 30 days of the incident, submit a copy of the analytical results to Groundwater Protection Value Stream.

4. As soon as practicable, remove and properly dispose of excess water in the impoundment until the water level is restored at or below the appropriate freeboard as described in Section 4.2, Table 11: Facility Inspection and Operational Monitoring. Record in the facility log/recordkeeping file the amount of fluid released, a description of the removal method and volume of any fluid removed from the impoundment and/or captured from the release area. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 Operation Inspection/LogBook/Recordkeeping File.
5. Within 30 days of discovery, evaluate the cause of the overtopping and identify the circumstances that resulted in the incident. Implement corrective actions and adjust operational conditions as necessary to resolve the problems identified in the evaluation. Repair any systems as necessary to prevent future occurrences of overtopping.
6. Within 30 days of discovery of overtopping, submit a report to ADEQ as specified in Section 2.7.3(2) Permit Violation and Alert Level Status Reporting. Include a description of the actions performed in Subsections 1 through 5 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
7. Within 60 days of discovery, and based on sampling in Item No. 3 above, assess of the impacts to the subsoil and/or groundwater resulting from the incident.
8. If soil or groundwater is impacted such that it could cause or contribute to an exceedance of an AQL at the applicable point of compliance, submit to ADEQ for approval, a corrective action plan to address such impacts, including identification of remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
9. Within 30 days of completion of corrective actions, submit to ADEQ, a written report as specified in Section 2.6.6 Corrective Actions. Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions.

2.6.3.3. Inflows of Unexpected Materials to a Surface Impoundment

The types of materials that are expected to be placed in the permitted surface impoundments are specified in Section 2.3 Discharge Limitations. If any unexpected materials flow to a permitted surface impoundment, the permittee shall:

1. As soon as practicable, cease all unexpected inflows to the surface impoundment(s).
2. Within 24-hours of discovery, notify Groundwater Protection Value Stream.
3. Within 5 days of the incident, identify the source of the material and determine the cause for the inflow. Characterize the unexpected material and contents of the affected impoundment, and evaluate the volume and concentration of the material to determine if it is compatible with the surface impoundment liner. Based on the evaluation of the incident, repair any systems or equipment and/or adjust operations, as necessary to prevent future occurrences of inflows of unexpected materials.

4. Within 30 days of an inflow of unexpected materials, submit a report to ADEQ as specified in Section 2.7.3(2) Permit Violation and Alert Level Status Reporting. Include a description of the actions performed in Subsections 1 through 3 listed above.
5. Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions including remediation.

2.6.3.4. Slope and Berm Failures

If a slope or berm failure involving heap or dump leach facilities, waste rock dumps, tailings facilities, or retention structures (dams) occurs which affects the ability of the facility to operate in accordance with this permit or results in an unauthorized discharge, the permittee shall promptly close the active area in the vicinity of the failure, and conduct a field investigation of the failure to analyze its origin and extent, its impact on the facility operations, temporary and permanent repairs and changes in operational plans considered necessary. Within 30 days of a slope or berm failure, the permittee shall submit a written report, which includes the documentation specified in Section 2.7.3 of this permit. The permittee shall initiate the actions necessary to mitigate the impacts of the failure, consistent with Department approval.

2.6.4. Aquifer Quality Limit Exceedances

1. If an AQL set in Section 4.2, Table 17: Quarterly Groundwater Monitoring of POC Well or Table 18: Biennial Groundwater Monitoring of POC Well has been exceeded, the permittee may conduct verification sampling for those pollutant(s) that were above their respective AQL(s) within 5 days of becoming aware of the exceedance. The permittee may use results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling does not confirm an AQL exceedance, no further action is needed under this Section.
3. If verification sampling confirms that an AQL was exceeded for any parameter or if the permittee opts not to perform verification sampling, then, the permittee shall increase the frequency of monitoring for those parameters as follows:

Table 5: Accelerated Monitoring – Aquifer Quality Limit Violation	
Specified Monitoring Frequency	Monitoring Frequency for AQL Violation
Daily	Daily
Weekly	Daily
Monthly	Weekly
Quarterly	Monthly
Semi-annually	Quarterly
Annually	Quarterly

In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected

soil, surface water, or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in the contingency plan, or separately approved according to Section 2.6.6.

Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.

The permittee shall notify any downstream or downgradient users who may be directly affected by the discharge.

The increased monitoring for those pollutant(s) required as a result of an AQL exceedance may be reduced to the original sampling frequency for each respective pollutant, if the results of three sequential sampling events demonstrate that the parameter(s) does not exceed their respective AQL(s).

2.6.5. Emergency Response and Contingency Requirements for Unauthorized Discharges

[A.R.S. § 49-201(12) AND PURSUANT TO A.R.S. § 49-241]

2.6.5.1. Duty to Respond

The permittee shall act immediately to correct any condition resulting from a discharge pursuant to A.R.S. § 49-201(12) if that condition could pose an imminent and substantial endangerment to public health or the environment.

2.6.5.2. Discharge of Hazardous Substances or Toxic Pollutants

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(19)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the discharged material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the Groundwater Protection Value Stream within 24 hours of discovering the discharge of hazardous material which (a) has the potential to cause an AWQS or AQL exceedance, or (b) could pose an endangerment to public health or the environment.

2.6.5.3. Discharge of Non-Hazardous Materials

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of non-hazardous materials from the facility, the permittee shall promptly attempt to cease the discharge and isolate the discharged material. Discharged material shall be removed and the site cleaned up as soon as possible. The permittee shall notify the Groundwater Protection Value Stream within 24 hours of discovering the discharge of non-hazardous material which has the potential to cause an AQL exceedance, or could pose an endangerment to public health or the environment.

2.6.5.4. Reporting Requirements

The permittee shall submit a written report for any unauthorized discharges reported under Sections 2.6.5.2 and 2.6.5.3 to the Groundwater Protection Value Stream within 30 days of the discharge or as required by subsequent ADEQ action. The report shall summarize the event, including any human exposure, and facility response activities and include all information specified in Section 2.7.3. If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in the notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

2.6.6. Corrective Actions

Specific contingency measures identified in Section 2.6 have already been approved by ADEQ and do not require written approval to implement.

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Groundwater Protection Value Stream prior to implementing a corrective action to accomplish any of the following goals in response to exceedance of an AL, AQL, DL, or other permit condition:

1. Control of the source of an unauthorized discharge;
2. Soil cleanup;
3. Cleanup of affected surface waters;
4. Cleanup of affected parts of the aquifer;
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

Within 30 days of completion of any corrective action, the operator shall submit to the Groundwater Protection Value Stream, a written report describing the causes, impacts, and actions taken to resolve the problem.

2.7. REPORTING AND RECORDKEEPING REQUIREMENTS

[A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B) and R18-9-A207]

2.7.1. Self-Monitoring Report Form

1. The permittee shall complete the Self-Monitoring Reporting Forms (SMRFs) provided by ADEQ, and submit the completed report through the myDEQ online reporting system. The permittee shall use the format devised by ADEQ.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the form. If no information is required during a reporting period, the permittee shall enter “not required” on the form, include an explanation.
3. The tables contained in Section 4.0 list the monitoring parameters and the frequencies for reporting results on the SMRF:
 - a. Table 15: Quarterly Groundwater Monitoring of Data Continuity Wells
 - b. Table 16: Biennial Groundwater Monitoring of Data Continuity Wells
 - c. Table 17: Quarterly Groundwater Monitoring of POC Well
 - d. Table 18: Biennial Groundwater Monitoring of POC Well

The parameters listed in the above-identified tables from Section 4.0 are the only parameters for which SMRF reporting is required.

2.7.2. Operation Inspection / Log Book Recordkeeping

A signed copy of this permit shall be maintained at all times at the location where day-to-day decisions regarding the operation of the facility are made. A log book (paper copies, forms, or electronic data) of the inspections and measurements required by this permit shall be maintained at the location where day-to-day decisions are made regarding the operation of the facility. The log book shall be retained for ten years from the date of each inspection, and upon request, the permit and the log book shall be made immediately available for review by ADEQ personnel. The information in the log book shall include, but not be limited to, the following information as applicable:

1. Name of inspector;
2. Date and shift inspection was conducted;
3. Condition of applicable facility components;
4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
6. Any other information required by this permit to be entered in the log book; and
7. Monitoring records for each measurement shall comply with A.A.C. R18-9-A206(B)(2).

2.7.3. Permit Violation and Alert Level Status Reporting

1. The permittee shall notify the Groundwater Protection Value Stream within 5 days (except as provided in Section 2.6.5) of becoming aware of an AL exceedance, or violation of any permit condition, AQL, or DL for which notification requirements are not specified in Sections 2.6.2 through 2.6.5.
2. The permittee shall submit a written report to the Groundwater Protection Value Stream within 30 days of becoming aware of the violation of any permit condition, AQL, or DL. The report shall document all of the following:
 - a. Identification and description of the permit condition for which there has been a violation and a description of the cause;
 - b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue;
 - c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation;
 - d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an AWQS;
 - e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring; and
 - f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

2.7.4. Operational, Other or Miscellaneous Reporting

The permittee shall record the information as required in Section 4.2, Table 11: Facility Inspection and Operational Monitoring in the facility log book as per Section 2.7.2, and report to the Groundwater Protection Value Stream any violations or exceedances as per Section 2.7.3.

2.7.4.1. Annual Report

The permittee shall submit an Annual Report summarizing the results of groundwater monitoring from the DCWs and POCs per Section 4.2, Table 15: Quarterly Groundwater Monitoring of Data Continuity Wells, and Table 17: Quarterly Groundwater Monitoring of POC Well,. For the year when biennial monitoring, the Annual Report shall also contain this information: the biennial monitoring information per Section 4.2, Table 16: Biennial Groundwater Monitoring of Data Continuity Wells, and Table 18: Biennial Groundwater Monitoring of POC Well. The permittee shall submit this report to the Groundwater Protection Value Stream in accordance with the table in Section 2.7.6. This report shall contain concentration graphs, hydrographs, and a discussion on concentration trends.

If an Alert Level #1 has been exceeded discussed in Section 2.6.2.2, the permittee shall submit an annual report that summarizes the results of the liner assessment. The Liner Leakage Assessment Report shall also include information including but not limited to the following: number and location of holes identified; and a table summarizing alert level exceedances including the frequency and quantity of fluid removed, and corrective actions taken. Appropriate components of the report required by this Section shall be sealed by an Arizona registered professional engineer, in accordance with Arizona Board of Technical Registration (BTR) requirements.

2.7.4.2. Well Installation Reports

A well installation report shall be submitted to ADEQ within 90 days of the completion of any new well installations in accordance with Section 2.4 of this permit and the Compliance Schedule in Section 3.0. Well installation reports shall be sealed in accordance with Arizona BTR requirements and shall include the following:

1. Arizona Department of Water Resources (ADWR) Notice of Intent and Well Drilling Report;
2. Boring log and well as-built diagram;
3. Total depth of well measured after installation;
4. Top of well casing or sounding tube (whichever is used as the fixed reference measuring point) and ground surface elevation;
5. Geophysical logging reports and subsurface sampling results;
6. Description of well drilling method;
7. Description of well development method;
8. Summary of analytical results for initial groundwater sample collected after installation; and
9. GPS coordinates for each new well.

2.7.4.3. Well Abandonment Reports

If monitor wells associated with this permit are abandoned due to poor performance, casing collapse, or other reasons, or are abandoned at the end of the post-closure period, then within 90 days of completing abandonment, the permittee shall submit a well abandonment report to ADEQ Groundwater Protection Value Stream. Appropriate contents of the report shall be sealed by an Arizona professional geologist or professional engineer, in accordance with BTR requirements. Well abandonment records shall be provided to ADEQ within 90 days of monitor well abandonment and shall include:

1. Copies of ADWR Notice of Intent to Abandon;
2. Copies of ADWR Abandonment Reports;
3. A description of the methods used to seal the well casing and the perforated or screened interval of the well; and
4. Global Positioning System (GPS) coordinates of the former well location.

2.7.5. Reporting Location

All Self-Monitoring Report Forms (SMRFs) shall be submitted through the myDEQ portal accessible on the ADEQ website at: <http://www.azdeq.gov/welcome-mydeq>. Contact at 602-771-4571 for any inquiry related to the SMRFs.

5-day and 30-day contingency notification and reports, laboratory reports, and verification sampling results required by this permit should be submitted through the myDEQ portal accessible on the ADEQ website at: <http://www.azdeq.gov/welcome-mydeq>.

If the required reports cannot be submitted, or require further documentation that cannot be submitted on the myDEQ portal, then submit items to groundwaterpermits@azdeq.gov or the address listed below:

The Arizona Department of Environmental Quality
Groundwater Protection Value Stream
1110 West Washington Street
Phoenix, Arizona 85007
Phone (602) 771-4999

2.7.6. Reporting Deadline

The following table lists the quarterly SMRF report due dates:

Table 6: Quarterly Reporting Deadlines	
Monitoring Conducted During Quarter:	Quarterly Report Due By:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30

The following table lists the semi-annual and annual SMRF report due dates (if applicable):

Table 7: Biennial Reporting Deadlines	
Monitoring conducted during biennial period:	Biennial Report due by:
January-December of the following year	Every two years from the date of the last report

The following table lists the due date for the annual report per Section 2.7.4.1:

Table 8: Annual Reporting Deadlines	
Monitoring conducted during biennial period:	Annual Report due by:
January-December of the following year	April 30, 2023, every year thereafter

2.7.7. Changes to Facility Information in Section 1.0

The Groundwater Protection Value Stream shall be notified within ten days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person, or Emergency Telephone Number.

2.8. Temporary Cessation

[A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A209(A)]

The permittee shall give written notice to the Groundwater Protection Value Stream before ceasing operation of the facility for a period of 60 days or greater. The permittee shall take the following measures upon temporary cessation:

1. Submittal of Self-Monitoring Report Forms (SMRFs) is still required; report “temporary cessation” in the comment section.

At the time of notification, the permittee shall submit for ADEQ approval a plan for maintenance of discharge control systems and for monitoring during the period of temporary cessation. Immediately following ADEQ approval, the permittee shall implement the approved plan. If necessary, ADEQ shall amend permit conditions to incorporate conditions to address temporary cessation. During the period of temporary cessation, the permittee

shall provide written notice to the Groundwater Protection Value Stream of the operational status of the facility every three years. If the permittee intends to permanently cease operation of any facility, the permittee shall submit closure notification, as set forth in Section 2.9 below.

2.9. Closure

[A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]

For a facility addressed under this permit, the permittee shall give written notice of closure to the Groundwater Protection Value Stream of the intent to cease operation without resuming activity for which the facility was designed or operated. Submittal of SMRFs is still required; report “closure in process” in the comment section.

2.9.1. Closure Plan

Within 90 days following notification of closure, the permittee shall submit for approval to the Groundwater Protection Value Stream, a closure plan which meets the requirements of A.R.S. § 49-252 and A.A.C. R18-9-A209(B)(3).

If the closure plan achieves clean-closure immediately, ADEQ shall issue a letter of approval to the permittee. If the closure plan contains a schedule for bringing the facility to a clean-closure configuration at a future date, ADEQ may incorporate any part of the schedule as an amendment to this permit.

2.9.2. Closure Completion

Upon completion of closure activities, the permittee shall give written notice to the Groundwater Protection Value Stream indicating that the approved closure plan has been implemented fully and providing supporting documentation to demonstrate that clean-closure has been achieved (soil sample results, verification sampling results, groundwater data, as applicable). If clean-closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of post-closure stated in this permit:

1. Clean-closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with the AWQS at the applicable POC or, for any pollutant for which the AWQS was exceeded at the time this permit was issued, further action is necessary to prevent the facility from further degrading the aquifer at the applicable POC with respect to that pollutant;
3. Remedial, mitigative or corrective actions, or controls are necessary to comply with A.R.S. § 49-201(36) and Title 49, Chapter 2, Article 3;
4. Further action is necessary to meet property use restrictions.
5. SMRF submittals are still required until Clean Closure is issued.

2.10. Post-Closure

[A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9 A209(C)]

Post-closure requirements shall be established based on a review of facility closure actions and will be subject to review and approval by the Groundwater Protection Value Stream.

In the event clean-closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Groundwater Protection Value Stream a post-closure plan that addresses post-closure maintenance and monitoring actions at the facility. The post-closure plan shall meet all requirements of A.R.S. §§ 49-201(36) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the post-closure plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the post-closure plan.

2.10.1. Post-Closure Plan

Reserved.

2.10.2. Post-Closure Completion

Reserved.

3.0 COMPLIANCE SCHEDULE

[A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]

Unless otherwise indicated, for each compliance schedule item listed below, the permittee shall submit the required information to the Groundwater Protection Value Stream.

NOTE: Arizona law requires that engineering and geological documents such as cost estimates, drawings, specifications, maps, plans, and reports be signed and sealed by an Arizona registered professional engineer or an Arizona registered geologist, pursuant to the Arizona Board of Technical Registration statutes, unless a statutory exclusion or exemption applies. See A.R.S. § 32-101 to -152; A.A.C. R4-30-101 to -306.

Table 9: Compliance Schedule Items			
No.	Description	Due By:	Permit Amendment Required?
1	Submit updated closure and post-closure costs and if necessary an updated closure strategy for all APP facilities. Following ADEQ’s approval of the closure and post-closure strategy and costs for the facilities listed in Section 2.1 of the permit (with the exception of Leach Pad #5), Excelsior shall provide a financial assurance mechanism for the approved amount.	April 6, 2026; i.e. 10 Years from permit dated April 6, 2016 under LTF 63194 when the permit was transferred to Excelsior Mining Arizona, Inc.	Yes
2	The permittee shall submit a “other” amendment application along with a financial assurance mechanism as per A.A.C. R18-9-A203(C)(2) for the estimated closure and post-closure costs for the APP facilities as per Section 2.1.3 Financial Capability of this permit.	90 days prior to placing any mineralized rock within the footprint of Leach Pad #5.	Yes
3	Conduct discharge monitoring at Solution Pond #3 on a one time basis in accordance with Section 2.5.4, for the PLS pumped from the Gunnison Copper Project, and for the raffinate from SX/EW plant at the Raffinate Pond #1.	Within 120 days of start-up of the injection and recovery operations at the Gunnison Copper Project	No
4	Conduct discharge monitoring at Solution Pond #3 on a one time basis in accordance with Section 2.5.4, for the PLS pumped from Leach Pad #5.	Within 120 days of start-up of the operations at Leach Pad #5	No
5	Notify ADEQ when laboratory analytical results are received for the discharge monitoring conducted under CSI Nos. 3 & 4.	Upon receipt of laboratory analytical results.	No
6	Submit results of the discharge monitoring.	Within 30 days from receipt of the laboratory analytical results under CSI No. 3	No
7	Submit an annual report per Section 2.7.4.1.	The report is due on April 30, 2021 (as per Section 2.7.6), and every year thereafter.	No

8	Install POC-3	Prior to operation of Leach Pad #5 and with sufficient advance time to conduct ambient monitoring in CSI #9.	No
9	Permittee shall conduct up to 12 monthly or quarterly Ambient Groundwater Quality Monitoring rounds at POC 3 in accordance with Section 2.4 and Section 2.5.3.3. The permittee shall submit the Ambient Groundwater Monitoring Report with a Permit Amendment application, along with copies of all laboratory analytical reports, field notes, QA/QC procedures used in collection and analysis of the samples, and a report including the statistical calculations of the ALs, and AQLs per Section 2.5.3.4. Begin monitoring under Section 4.2, for the parameters listed in Table 14. To receive the SMRFs for reporting contact the ADEQ Data Unit.	Final monitoring round to be completed prior to Leach Pad #5 operation. Report to be submitted within 90 days of receipt of the laboratory analytical analysis of the final ambient sampling round.	Yes
10	The permittee shall submit as-built design report for Leach Pad #5 following construction of the southern section. The design documents shall be sealed by an Arizona-licensed professional engineer.	Within 90 days after completion of construction of each section.	No
11	Submit an updated Contingency and Emergency Response plan.	Within 30 days of commencement of construction of Leach Pad #5.	No
12	Submit an APP Application to amend the permit prior to the start of construction of Leach Pad #5 North Extension. Submit design documents and closure and post-closure cost estimates for the Leach Pad #5 North Extension.	Prior to the start of construction of Leach Pad #5 North Extension.	Yes

4.0 TABLES OF MONITORING REQUIREMENTS

4.1. PERMITTED FACILITIES AND BADCT

Table 10: Permitted Facilities and BADCT
Facility Name and BADCT
Leach Pads
<p><u>Leach Pad #1 (JCM Facility No. 008):</u></p> <p>Individual BADCT: Leach Pad #1 is a leach stockpile of 11.8 million tons constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. Maximum lift is set at 225 feet. Located southwest of Burro Pit and east-southeast of Leach Pad #2. Currently occupying 35.5 acres. Constructed over Pioneer Shale formations (average hydraulic conductivity of 1.0×10^{-7} cm/s) by removal of vegetation and filling the main drainage invert with 10-15 feet of coarse quartzite to form a drainage media for gravity flow of solution into Solution Pond #1. Stability analyses demonstrate acceptable factors of safety. A water quality monitoring program will verify effectiveness of BADCT for this facility.</p>
<p><u>Leach Pad #2 (JCM Facility No. 013):</u></p> <p>Individual BADCT: Leach Pad #2 is a leach stockpile with 10.3 million tons constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. Maximum lift is set at 300 feet. Currently occupying 39 acres in the same drainage of Leach Pad #1. Constructed over Pioneer Shale formations (average hydraulic conductivity of 1.0×10^{-7} cm/s) by removal of vegetation and filling the main drainage invert with 10-15 feet of coarse quartzite to form a drainage media for gravity flow of solution into Solution Pond #1 and into the Intercept Sump for pumping into PLS #3 under normal operating conditions. Stability analyses demonstrate acceptable factors of safety. A water quality monitoring program will verify effectiveness of BADCT for this facility</p>
<p><u>Leach Pad #3 (JCM Facility No. 015):</u></p> <p>Individual BADCT: Leach Pad #3 is a leach stockpile of 9.5 million tons constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. Maximum lift is set at 340-455 feet. Currently occupying 28.6 acres. Constructed over Pioneer Shale formations (average hydraulic conductivity of 1.0×10^{-7} cm/s) following removal of vegetation. A clay liner was constructed over the areas as part of foundation preparation forming a drainage media for gravity flow of solution into Solution Pond #3 and into the Intercept Sump for pumping into the SX/EW Plant under normal operating conditions. Stability analyses demonstrate acceptable factors of safety. A water quality monitoring program will verify effectiveness of BADCT for this facility.</p>
<p><u>Main Leach Pad #5 Area (JCM Facility No. 028):</u></p> <p>Prescriptive BADCT: Leach Pad #5 will be located north of the current mine operations. This facility will consist of the Main Lead Pad #5 Area, and a North Expansion Area which will be permitted under a future amendment. The Main Leach Pad #5 Area will be constructed on approximately 165 acres and contain about 48 million tons of ore. The Main Leach Pad #5 Area facility will be built in two stages. Initially, approximately 20 million tons of ore will be placed on about 80 acres. Truck-dump placement of the ROM ore shall be achieved in lifts up to 30 feet thick with side slopes of 2H (horizontal):1V (vertical), and maximum height of 220-feet. A 12-inches thick soil liner with a hydraulic conductivity coefficient no greater than 1×10^{-6} cm/sec shall be placed over a prepared subgrade. An 80-mil HDPE liner shall be installed over the soil liner. PLS shall be intercepted by a network of collection pipes which merge into a single trunk-line that drains directly into the Solution Pump Station Leach Pad #5 Pump Station. The PLS is then pumped from the station to the PLS Pond #3. During the first stage, a 2-ft berm shall be constructed with soil liner material to secure the edge of liner and prevent run-on of precipitation from the unlined area of the leach pad.</p> <p>The HDPE liner shall be secured in an engineered anchor trench around the perimeter to contain solution flows and runoff around the edge of the heap. Three feet (3-feet) high perimeter berms designed to contain ore that sloughs from the side of the</p>

heaps and to contain solution flows from pipeline leaks within the limits of the leach pad. The offset of the toe of the heap from the berm shall be at a nominal 5 feet distance for purposes of routing solution pipeline and runoff flows.

A diversion ditch shall be constructed to divert runoff from the upland area around the leach pad to an adjacent drainage. The ditch shall be designed to contain the peak flow from the 100-year, 24-hour design storm event.

An emergency overflow pond (Leach Pad #5 Emergency Overflow Pond) shall be constructed near the southeast corner of Main Leach Pad #5 Area.

PLS and Raffinate Ponds

Solution Pond #1 (JCM Facility No. 009):

Solution Pond #1 will be partitioned into two cells (Draindown Cell #1 and Solution Cell #1), with a lined earthen berm (divider berm) constructed in between the two cells. The entire pond system has a surface area of 2.4 acres, with a depth of 24 feet at the lowest point. Draindown Cell #1 will have a capacity of 1,856,738 gallons, and Solution Cell #1 will have a capacity of 7,115,238 gallons. The divider berm will be approximately 161 feet wide and 26 feet high, and the crest is approximately 120 feet from the eastern edge of Leach Pad #1. A 50 feet long by 32 feet wide spillway located two feet below the crest is provided in the approximate central portion of the divider berm. Upper and lower liners are composed of 60-mil HDPE with geonet matting placed in between the liners. The dam and pond embankment under the liner are compacted soil with an emergency overflow spillway designed into the dam. Embankment side slopes are constructed to 1.5H:1V with the dam sloping into the pond at 2.5H:1V. The divider berm shall be constructed with a slope of 3:1 and lined with 80-mil HDPE underlain by geosynthetic clay liner (GCL) in the Draindown Cell and double lined separated by geonet in the Solution Cell. The liner shall be tied into the existing 60-mil liner at the cutoff trench on the Draindown Cell side and to the double liner system on the Solution Cell side. The GCL shall have a permeability of less than 5×10^{-9} cm/s. Solution Cell #1 will be used to store raffinate or PLS from the future Gunnison Copper Project (APP P-511633), and the Draindown Cell #1 is designed to contain runoff from the 100-yr, 24-hr storm event in addition to 12 hours of heap draindown. A sub-surface drain shall be installed on the heap side of the cutoff trench connecting to a pump which shall be installed in the northwest portion of the Draindown Cell #1. The current existing leak collection and removal system (LCRS) shall remain intact. Two feet of freeboard shall be provided for the entire pond system. Portable pumps and electric generators provide backup in case of a power failure. A water quality monitoring program will verify effectiveness of BADCT for this facility.

Intercept Sump (JCM Facility No. 014):

Individual BADCT: The Intercept Sump is located in the invert (lowest point) of old PLS Pond #2. It is considered as part of the design of Leach Pad #2. The integrity of the old clay liner was maintained or reconstructed along with the overlying gravel collection area with embedded collection pipes leading northward to the pump station near ILS Pond. Solution collected in this pond shall be pumped to the leach pads. Any solution not collected by the sump will remain in the heap underflow pathway that drains to Draindown Cell #1. This facility is currently covered by Leach Pad #1/#2, and it will be closed concurrently when Leach Pad #1/#2 is granted APP closure. A water quality monitoring program will verify effectiveness of BADCT for this facility.

Solution Pond #3 (JCM Facility No. 016):

Solution Pond #3 will be partitioned into two cells (Draindown Cell #3 and Solution Cell #3), with a lined earthen berm (divider berm) constructed in between the two cells. The entire pond system has a surface area of 1.81 acres, with a depth of 20 feet at the lowest point. Draindown Cell #3 will have a capacity of 1,177,636 gallons, and Solution Cell #3 will have a capacity of 4,436,650 gallons. The divider berm will be approximately 116 feet wide and 17 feet high, and the crest is approximately 80 feet from the eastern edge of Leach Pad #1. A 40 feet long by 20 feet wide spillway located one foot below the crest is provided in the approximate central portion of the divider berm. Upper and lower liners are composed of 60-mil HDPE with geonet matting placed in between the liners. The dam and pond embankment under the liner are compacted soil. The divider berm shall be constructed with a slope of 3:1 and lined with 80-mil HDPE underlain by geosynthetic clay liner (GCL) in the Draindown Cell and double lined separated by geonet in the Solution Cell. The liner shall be tied into the existing 60-mil liner at the cutoff trench on the Draindown Cell side and to the double liner system on the Solution Cell side. The GCL shall have a permeability of less than 5×10^{-9} cm/s. Solution Cell #3 will be used to store PLS from the future Gunnison Copper Project

(APP P-511633), and the Draindown Cell #1 is designed to contain runoff from the 100-yr, 24-hr storm event in addition to 12 hours of heap draindown. A sub-surface drain shall be installed on the heap side of the cutoff trench connecting to a pump which shall be installed in the northwest portion of the Draindown Cell #3. The current existing leak collection and removal system (LCRS) shall remain intact. Two feet of freeboard shall be provided for the entire pond system. Portable pumps and electric generators provide backup in case of a power failure. A water quality monitoring program will verify effectiveness of BADCT for this facility.

Raffinate Pond #1 (JCM Facility No. 029):

Prescriptive BADCT: Raffinate Pond #1 receives solution discharged from the Solvent Extraction (SX) Plant following copper recovery from PLS. The acid content in the solution is adjusted and then pumped to the leach pads for leaching of the ore. In the future, Raffinate Pond #1 will receive raffinate generated from the Gunnison Copper Project (APP P-511633) at 5,000 gpm. Raffinate Pond #1 has been reconstructed applying QA/QC standards as a double-lined pond with a leak collection and removal system with a surface area of 30,456 square feet, 13 feet deep at the lowest point, with a capacity of 1,714,214 gallons allowing for 2 feet of freeboard. Upper and lower liners are 60-mil HDPE with geonet drainage matting between layers. Beneath the lowest HDPE liner is a minimum 6-inch thick compacted soil liner. Pond side slopes are constructed to a slope of 3.3H:1V. Pond capacity is designed to contain runoff from the 100-yr, 24-hr storm event. A 24-inch diameter HDPE pipe connecting the Raffinate Pond #1 and the ILS Pond will be placed in the area of the existing pumps. A water quality monitoring program will verify effectiveness of BADCT for this facility.

ILS Pond (JCM Facility No. 030):

Prescriptive BADCT: ILS Pond will receive only raffinate from Raffinate Pond #1. The solution is pumped to the Gunnison Wellfield for injection into the wells. ILS Pond is double-lined pond with a leak collection and removal system with a surface area of 25,830 square feet, 14 feet deep at the lowest point, with a capacity of 1,688,191 gallons allowing for 2 feet of freeboard. Upper and lower liners are 60-mil HDPE with geonet drainage matting between layers. Beneath the lowest HDPE liner is a minimum 6-inch thick compacted soil liner. Pond side slopes are constructed to a slope of 3H:1V. Pond capacity is designed to contain runoff from the 100-yr, 24-hr storm event. A 24-inch diameter HDPE pipe will be installed to connect the Raffinate Pond #1 and the ILS Pond. The pond outlet shall consist of a set of suction pumps with low level intake pipes. The pumps and associated tanks, electrical items and pipes will be located on the pond embankment crest adjacent to the Raffinate Pond pump station. A water quality monitoring program will verify effectiveness of BADCT for this facility..

Leach Pad #5 Emergency Overflow Pond (JCM Facility No. 033):

Prescriptive BADCT: LP5-EOP-33, located at the drainage area along the southeast corner of the leach pad, shall serve as a non-stormwater pond for emergency containment of excess solutions and runoff from Main Leach Pad #5 Area. The pond shall have the capacity to contain runoff from a 100-year, 24-hour storm event in addition to 12-hours of heap leach drain-down and maintain 2-feet of freeboard. The pond is a combination of storage in the natural drainage along the southeast corner of the leach pad and an excavated pond area parallel the east side of the leach pad. Liner design for LP5-EOP-33 shall be installed using prescriptive BADCT guidelines for non-stormwater ponds. The upper synthetic liner shall be constructed of 60-mil HDPE material over 6-inch to 1-foot of compacted layer consisting of 3/8-inch minus native material. The pond containment berms shall be less than 25-feet in height and the berm crest is set at 25-feet in width to maintain access around the pond. The downstream slopes of the containment berm are set at 2.5H:1V and the interior slopes are set at 3H:1V.

Non-stormwater Ponds

SWCP #057 (JCM Facility No. 057):

Individual BADCT: SWCP #057 receives non-stormwater runoff from the southwestern side of the heap leach pads. It is located west of the leach pads and east of the western property boundary. This facility has 0.59 acre-feet capacity, and lined with single 80-mil HDPE liner on a minimum of 6 inches of prepared subgrade. The liner shall be anchored in a trench on the pond embankment crest and a cutoff trench at the heap slope toe. A ditch shall direct slope runoff to the ponds. The regrading and berms on the heap bench shall control slope runoff and promote drainage into the heap.. Water will be pumped out of the pond after storm events. A prefabricated HDPE (more than 80-mil thick) sump 2 feet square by 2 feet deep placed in the southwestern portion of the pond will be used to keep the pump submerged while operating. Portable pumps and electric

generators provide backup in case of a power failure. A water quality monitoring program will verify effectiveness of BADCT for this facility.

SWCP #058 (JCM Facility No. 058):

Individual BADCT: SWCP #058 receives non-stormwater runoff from the southwestern side of the heap leach pads. It is located west of the leach pads and east of the western property boundary. This facility has 1.26 acre-feet capacity, and lined with single 80-mil HDPE liner on a minimum of 6 inches of prepared subgrade. The liner shall be anchored in a trench on the pond embankment crest and a cutoff trench at the heap slope toe. A ditch shall direct slope runoff to the ponds. The regrading and berms on the heap bench shall control slope runoff and promote drainage into the heap. Water will be pumped out of the pond after storm events. A prefabricated HDPE (more than 80-mil thick) sump 2 feet square by 2 feet deep placed in the northwestern portion of the pond will be used to keep the pump submerged while operating. Portable pumps and electric generators will provide backup in case of a power failure. A water quality monitoring program will verify effectiveness of BADCT for this facility.

SWCP #059 (JCM Facility No. 059):

Individual BADCT: SWCP #59 receives non-stormwater runoff from the northeastern side of the heap leach pads. It is located where Leach Pad #4 was planned for construction. It is clay lined. This facility is currently covered by Leach Pad #3. A water quality monitoring program will verify effectiveness of BADCT for this facility.

SWCP #060 (JCM Facility No. 060):

Individual BADCT: SWCP #60 receives non-stormwater runoff from the northeastern side of the heap leach pads. It is located where Leach Pad #4 was planned for construction. It is clay lined. This facility is currently covered by Leach Pad #3. A water quality monitoring program will verify effectiveness of BADCT for this facility.

Inactive Non-stormwater Ponds

Secondary Containment Pond #1 (JCM Facility No. 011):

Individual BADCT: Secondary Containment Pond #1 serves as an emergency overflow impoundment down gradient from Solution Pond #1 receiving both PLS and non-stormwater runoff on an as needed basis. It is lined with 60-mil HDPE. Portable pumps and electric generators provide backup in case of a power failure. A water quality monitoring program will verify effectiveness of BADCT for this facility. A water balance demonstration was provided under an amendment (LTF 65043), and it was determined that this facility is no longer required. Closure activities shall be completed at the time of APP closure for the entire facility.

Secondary Containment Pond #2 (JCM Facility No. 012):

Individual BADCT: Secondary Containment Pond #2 serves as an emergency overflow impoundment down gradient from Secondary Containment Pond #1 receiving non-stormwater runoff on an as needed basis. It is clay lined. Portable pumps and electric generators provide backup in case of a power failure. A water quality monitoring program will verify effectiveness of BADCT for this facility. A water balance demonstration was provided under an amendment (LTF 65043), and it was determined that this facility is no longer required. Closure activities shall be completed at the time of APP closure for the entire facility.

4.2. COMPLIANCE OR OPERATIONAL MONITORING

Table 11: Facility Inspection and Operational Monitoring			
Facility Name / Pollution Control Structure	Operational Requirement / Performance Alert Level	Inspection Frequency	Reporting Frequency
SWCP #057, SWCP #058, SWCP #059, and SWCP #0560	Visually inspect monthly or during and following a storm event of 1-inch or more precipitation and take appropriate action if evidence of: <ol style="list-style-type: none"> 1. visible liner tears, punctures, cracks, deformities, or other damage due to sunlight, wind, weather, debris, vegetation or other causes; 2. animals, or other adverse conditions affecting liner stability; 3. accumulation of erosion and other debris from the upgradient Waste Rock Disposal pile; and/or 4. spillway and connecting ditch integrity/instability or impairment. 	Monthly	See Section 2.6.2.1.2
Solution Pond #1, Solution Pond #2, Intercept Sump, Raffinate Pond, ILS Pond, and Leach Pad #5 Emergency Overflow Pond	Visually inspect monthly or during and following a storm event of 1-inch or more precipitation and take appropriate action if evidence of: <ol style="list-style-type: none"> 1. a minimum of two feet of freeboard. For Solution Pond #1 and Solution Pond #3, the freeboard requirement is for the Solution Cell and Draindown Cell in each pond. 2. visible liner tears, punctures, cracks, deformities, or other damage due to sunlight, wind, weather, debris, vegetation or other causes; 3. animals, or other adverse conditions affecting liner stability; 5. accumulation of erosion and other debris from the upgradient Waste Rock Disposal pile; 6. spillway integrity/instability or impairment; and/or 7. ditch connecting to another facility inspected for the above listed features requiring remedial action. 	Monthly	For Freeboard see Section 2.6.2.1.1, and for all other parameters See Section 2.6.2.1.2
Leach Pad #1, Leach Pad #2, Leach Pad #3, and Main Leach Pad #5 Area	Visually inspect and take appropriate action if evidence of: <ol style="list-style-type: none"> 1. differential settlement or other developed features which may result in plumbing impairment or failure promoting leakage of sewage onto underlying ground; 2. visible tears, punctures, cracks, deformities, or other damage to plumbing fixtures resulting in undetected process solution leakage; and/or 3. excessive erosion around process solution pipelines. 	Monthly	See Section 2.6.2.1.2
Emergency Generators and Pumps	Visually inspect and take appropriate action to maintain <ol style="list-style-type: none"> 1. starting and operation efficiency; 2. portability and frame integrity; and 3. proper hookup/connector on the rig. 	Weekly	Facility log/recordkeeping file
POC Well: POC-3; and Data Continuity Wells: Durham, Hill, Saddle, and Cross	Wells locked and secured. Well cap and seals are intact. No discernable corrosion or deterioration of the well(s). No discernable materials accumulating in the well. Any dedicated well equipment are functional and intact.	Monthly	Facility log/recordkeeping file

Table 12: Leak Collection and Removal System Monitoring				
LCRS Sump	Alert Level 1 (gpd)	Alert Level 2 (gpd)	Monitoring Method	Monitoring Frequency
Raffinate Pond #1	1,440	7,074	Manual	Weekly
ILS Pond	1,440	7,074	Manual	Weekly
Solution Pond #1	3,140	20,895	Manual	Weekly
Solution Pond #3	1,849	12,358	Manual	Weekly

Note: The information in this table shall be maintained in a Log Book.

The volume of liquid pumped from the LCRS shall be monitored on a continuous basis using a totalizer and entered in a facility log book on a daily basis. The Alert Level 1 (AL1) or Alert Level 2 (AL2) shall be exceeded when the amount of leakage pumped from the sump for the UCP is greater than the applicable quantity above. Contingency requirements of Sections 2.6.2.2 and 2.6.2.3 shall be followed for AL1 and AL2 exceedances, respectively. An exceedance of AL 1 or AL2 is not a violation of the permit unless the permittee fails to perform actions as required under the Sections referenced above.

Table 13: Initial Discharge Monitoring		
Facility	Latitude	Longitude
Solution Pond #3	32° 05' 57'' N	110° 04' 14'' W
Raffinate Pond #1	32° 05' 56'' N	110° 04' 11'' W
Main Leach Pad #5 Area	32° 06' 37'' N	110° 03' 57'' W
Parameters for One-Time Discharge Monitoring (in mg/L unless otherwise noted) ¹		
pH – field & lab (SU)	Sodium	Nickel
Specific Conductance - field and lab (µmhos/cm)	Iron	Selenium
Total Dissolved Solids	Aluminum	Thallium
Total Alkalinity	Antimony	Zinc
Carbonate	Arsenic	Gross Alpha Particle Activity (pCi/L) ²
Bicarbonate	Barium	Radium 226 + Radium 228 (pCi/L)
Nitrate	Beryllium	Uranium-Isotopes (pCi/L) ³
Sulfate	Cadmium	Total Petroleum Hydrocarbons
Chloride	Chromium	Benzene
Fluoride	Cobalt	Toluene
Calcium	Copper	Ethylbenzene
Ammonia	Lead	Total Xylenes
Magnesium	Manganese	Uranium, Total (µg/L)
Potassium	Mercury	

¹ Metals shall be analyzed as total metals.

² The adjusted gross alpha particle activity is the gross alpha particle activity, including radium 226, and any other alpha emitters, if present in the water sample, minus radon and total uranium (the sum of uranium 238, uranium 235 and uranium 234 isotopes). The gross alpha analytical procedure (evaporation technique: EPA Method 900.0) drives off radon gas in the water samples. Therefore, the Adjusted Gross Alpha should be calculated using the following formula: (Laboratory Reported Gross Alpha MINUS Sum of the Uranium Isotopes).

³ Uranium Isotope activity results must be used for calculating Adjusted Gross Alpha. No SMRF reporting is required.

Table 14: Parameters for Ambient Groundwater Monitoring (in mg/L unless otherwise noted) ⁴	
Depth to Water (feet)	Benzene
Water Level Elevation (in feet amsl)	Toluene
pH – field & lab (SU)	Ethylbenzene
Specific Conductance - field and lab (µmhos/cm)	Xylene
Temperature Field (°F)	Total Alkalinity
Total Dissolved Solids	Carbonate
Fluoride	Bicarbonate
Nitrate-Nitrite as N	Hydroxide
Sulfate	Chloride
Antimony	Phosphate
Arsenic	Calcium
Barium	Magnesium
Beryllium	Potassium
Cadmium	Sodium
Chromium	Cobalt
Copper	Iron
Lead	Aluminum
Mercury	Manganese
Nickel	Total Petroleum Hydrocarbons (TPH)
Selenium	Gross Alpha Particle Activity (pCi/L) ⁵
Thallium	Radium 226 + Radium 228 (pCi/L)
Zinc	Uranium

⁴ Metals shall be analyzed as dissolved metals.

⁵ If Gross Alpha Particle Activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha activity, including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes).

Table 15: Quarterly Groundwater Monitoring of Data Continuity Wells
(in mg/L⁶ unless otherwise noted)

Parameter	Durham		Hill		Saddle		Cross	
	AL (mg/l)	AQL (mg/l)	AL (mg/l)	AQL (mg/l)	AL (mg/l)	AQL (mg/l)	AL (mg/l)	AQL (mg/l)
Depth to Water (feet)	Monitor ⁷	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field & Lab pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature Field (°F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Fluoride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate-Nitrite as N	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Metals (Dissolved mg/l)⁸								
Antimony	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Arsenic	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Barium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Beryllium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Cadmium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chromium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Lead	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nickel	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Selenium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Thallium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Zinc	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Volatile Organic Compounds (VOCs)								
Benzene	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Toluene	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Ethylbenzene	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Xylene	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

⁶ mg/L = milligrams per liter

⁷ Monitoring required, but no AQL or AL will be established in the permit.

⁸ Metals shall be analyzed as total metals.

Table 16: Biennial Groundwater Monitoring of Data Continuity Wells
(in mg/L unless otherwise noted)

Parameter	Durham		Hill		Saddle		Cross	
	AL (mg/l)	AQL (mg/l)	AL (mg/l)	AQL (mg/l)	AL (mg/l)	AQL (mg/l)	AL (mg/l)	AQL (mg/l)
Total Alkalinity	Monitor ⁹	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Phosphate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Petroleum Hydrocarbons (TPH)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Metals (Dissolved mg/l)¹⁰								
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Cobalt	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Aluminum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Radionuclides (pCi/L)								
Gross Alpha Particle Activity (pCi/L) ¹¹	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Radium 226 + Radium 228 (pCi/L)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Uranium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

⁹ Monitoring required, but no AQL or AL will be established in the permit.

¹⁰ Metals shall be analyzed as total metals.

¹¹ If Gross Alpha Particle Activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha activity, including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes).

Table 17: Quarterly Groundwater Monitoring of POC Well (in mg/L ¹² unless otherwise noted)		
Parameter	POC-3	
	AL (mg/l)	AQL (mg/l)
Depth to Water (feet)	Monitor	Monitor
Water Level Elevation (in feet amsl)	Monitor	Monitor
Field & Lab pH (S.U.)	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor
Temperature Field (°F)	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor
Fluoride	Reserved	Reserved
Nitrate-Nitrite as N	Reserved	Reserved
Sulfate	Monitor	Monitor
Metals (Dissolved mg/l) ¹³		
Antimony	Reserved	Reserved
Arsenic	Reserved	Reserved
Barium	Reserved	Reserved
Beryllium	Reserved	Reserved
Cadmium	Reserved	Reserved
Chromium	Reserved	Reserved
Copper	Monitor	Monitor
Lead	Reserved	Reserved
Mercury	Reserved	Reserved
Nickel	Reserved	Reserved
Selenium	Reserved	Reserved
Thallium	Reserved	Reserved
Zinc	Monitor	Monitor
Volatile Organic Compounds (VOCs)		
Benzene	Reserved	Reserved
Toluene	Reserved	Reserved
Ethylbenzene	Reserved	Reserved
Xylene	Reserved	Reserved

¹² mg/L = milligrams per liter

¹³ Metals shall be analyzed as dissolved metals.

Table 18: Biennial Groundwater Monitoring of POC Well (in mg/L ¹⁴ unless otherwise noted)		
Parameter	POC-3	
	AL (mg/l)	AL (mg/l)
Total Alkalinity	Monitor ¹⁵	Monitor
Carbonate	Monitor	Monitor
Bicarbonate	Monitor	Monitor
Hydroxide	Monitor	Monitor
Chloride	Monitor	Monitor
Phosphate	Monitor	Monitor
Total Petroleum Hydrocarbons (TPH)	Monitor	Monitor
Metals (Dissolved mg/l) ¹⁶		
Calcium	Monitor	Monitor
Magnesium	Monitor	Monitor
Potassium	Monitor	Monitor
Sodium	Monitor	Monitor
Cobalt	Monitor	Monitor
Iron	Monitor	Monitor
Aluminum	Monitor	Monitor
Manganese	Monitor	Monitor
Radionuclides (pCi/L)		
Gross Alpha Particle Activity (pCi/L) ¹⁷	Reserved	Reserved
Radium 226 + Radium 228 (pCi/L)	Reserved	Reserved
Uranium	Monitor	Monitor

¹⁴ mg/L = milligrams per liter

¹⁵ Monitoring required, but no AQL or AL will be established in the permit.

¹⁶ Metals shall be analyzed as dissolved metals.

¹⁷ If Gross Alpha Particle Activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha activity, including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes).

Table 19: Contingency Monitoring Parameters for All Point of Compliance (POC) Wells (in mg/L unless otherwise noted) ¹⁸		
Depth to Water Level (ft.)	Phosphate	Copper
Water Level Elevation (ft. amsl)	Calcium	Lead
Temperature - field (F°)	Magnesium	Manganese
pH - field & lab (SU)	Potassium	Mercury
Field Specific Conductance (µmhos/cm)	Sodium	Nickel
Total Dissolved Solids -lab	Iron	Selenium
Total Alkalinity	Aluminum	Thallium
Carbonate	Antimony	Zinc
Bicarbonate	Arsenic	Total Petroleum Hydrocarbons (TPH)
Hydroxide	Barium	Volatile Organic Compounds (VOCs)
Sulfate	Beryllium	Gross Alpha Particle Activity (pCi/L) ¹⁹
Chloride	Cadmium	Radium 226 + Radium 228 (pCi/L)
Fluoride	Chromium	Uranium
Nitrate-Nitrite as N	Cobalt	

¹⁸ Metals shall be analyzed as dissolved metals.

¹⁹ If Gross Alpha Particle Activity is greater than 15 pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha activity, including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes).



5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

APP Application, dated: March 31, 2022

Contingency Plan, dated: October 2022

6.0 NOTIFICATION PROVISIONS

6.1 Annual Registration Fees

The permittee is notified of the obligation to pay an Annual Registration Fee to ADEQ. The Annual Registration Fee is based on the amount of daily influent or discharge of pollutants in gallons per day (gpd) as established by A.R.S. § 49-242.

6.2 Duty to Comply

[A.R.S. §§ 49-221 through 263]

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

6.3 Duty to Provide Information

[A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

6.4 Compliance with Aquifer Water Quality Standards

[A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an Aquifer Water Quality Standard (AWQS) at the applicable point of compliance (POC) for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an AWQS for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

6.5 Technical and Financial Capability

[A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(C), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

6.6 Reporting of Bankruptcy or Environmental Enforcement

[A.A.C. R18-9-A207(C)]

The permittee shall notify the Director within five days after the occurrence of any one of the following:

1. the filing of bankruptcy by the permittee; or
2. the entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

6.7 Monitoring and Records

[A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§ 49-241 through 49-252.

6.8. Inspection and Entry

[A.R.S. §§ 41-1009, 49-203(B), and 49-243(K)(8)]

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

6.9. Duty to Modify

[A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]

The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices authorized by this permit.

6.10. Permit Action: Amendment, Transfer, Suspension, and Revocation

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

This permit may be amended, transferred, suspended, or revoked for cause, under the rules of the Department. The permittee shall notify the Groundwater Protection Value Stream in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

7.0 ADDITIONAL PERMIT CONDITIONS

7.1 Other Information

[A.R.S. § 49-243(K)(8)]

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

7.2 Severability

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

7.3 Permit Transfer

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements as specified in A.A.C. R18-9-A212(B) and (C).