

STATE OF ARIZONA  
AQUIFER PROTECTION PERMIT NO. P-100517  
PLACE ID 2476, LTF 93500  
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, Origin Mining Company, LLC is hereby authorized to operate the Mineral Park Mine located 16 miles north of Kingman, Arizona, in Mohave County, over groundwater of the Hualapai Groundwater Basin, in Township 23N, Range 17W, Section 19, and Range 18W Sections 24, 25, 26, 35, and 36, of the Gila and Salt River Baseline 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:** Mineral Park Mine  
**Facility Address:** 8275 N. Mineral Park Road  
Golden Valley, Arizona 86413  
**County:** Mohave  
**Permitted Flow Rate:** 21,312,000 gallons per day (gpd)  
**Permittee:** Origin Mining Company, LLC  
**Permittee Address:** 8275 N. Mineral Park Road  
Golden Valley, Arizona 86413  
**Facility Contact:** JD Palmer, Mine Manager  
**Emergency Phone No.:** (928) 326-2741  
**Latitude/Longitude:** 35° 21' 55" N/114° 08' 40" W  
**Legal Description:** Township 23N, Range 17W, Section 19, and Range 18W Sections 24, 25, 26, 35, and 36, of the Gila and Salt River Baseline 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)]

Origin Mining Company, LLC, operates the Mineral Park Mine, an open pit copper mine, utilizing a leaching process with recovery of copper from the leach solution through a solvent extraction-electrowinning (SX-EW) process. The owner is authorized to conduct dump and in situ rubblized leaching, and operate process solution ponds, stormwater runoff ponds, and other facilities according to the design and operational plans approved by the Arizona Department of Environmental Quality (ADEQ), Groundwater Protection Value Stream. The pregnant leach solution (PLS) is collected and pumped to the SX plant where an organic solvent is added to extract the copper. The copper-rich feed solution is then pumped to the EW plant for electrowinning. The resulting cathodes are physically stripped of copper and the copper is shipped off-site for further processing. The raffinate is reformed with sulfuric acid and circulated back to the active leach areas.

The site includes the following permitted discharging facilities:

Table 1: Discharging Facilities		
Raffinate Pond (1)	35° 22' 18" N	114° 09' 06" W
SX PLS Pond (15)	35° 22' 17" N	114° 09' 02" W
Hardy LCP Pond (24)	35° 22' 20" N	114° 08' 05" W
Bismark Seepage Collection and Management System (SCMS)	35° 21' 24" N	114° 09' 38" W
Hardy Dump (50)	36° 22' 20" N	114° 08' 23" W
Bismark Dump (54)	35° 21' 33" N	114° 09' 30" W
Back Dump (51)	35° 21' 36" N	114° 08' 10" W
Duval Dump (52)	35° 21' 11" N	114° 08' 31" W
Turquoise Dump (53)	35° 21' 05" N	114° 09' 20" W
Gross Dump (55)	35° 21' 47" N	114° 09' 26" W
Shop Dump (56)	35° 21' 59" N	114° 09' 14" W
Central Sump (58)	35° 21' 58" N	114° 08' 43" W
Ithaca Sump (59)	35° 21' 36" N	114° 08' 28" W
Gross Sump (60)	35° 21' 37" N	114° 09' 06" W
Flood Control Basin (27)	35° 22' 17" N	114° 09' 18" W
Terminal Storage Facility (TSF) (62)	35° 20' 33" N	114° 09' 24" W
No-Name Wash Non-Stormwater Impoundment	35° 21' 54" N	114° 09' 47" W
Runoff Conveyance Channels	Various	Various
Non-Stormwater Impoundment	35° 21' 08" N	114° 09' 56" W

**2.1.1. 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 4.2. If the facility is not constructed or is incapable of discharge, the permittee may be eligible for reduced fees pursuant to A.A.C. R18-14-104(A), Table 2. 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.

### **2.1.2. 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 cost estimate is \$4,256,846 and the approved post-closure cost is \$1,977,449. The financial assurance mechanism was demonstrated through a Surety Bond for \$6,234,295 from Lexon Insurance Company under A.A.C. R18-9-A203(C)(2).

## **2.2. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY (BADCT)**

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

The permittee is authorized to operate the permitted facilities in Table 1: . The Mineral Park Mine relies on operational, hydrogeologic, and engineered controls to demonstrate BADCT requirements described in Table 9: Permitted Facilities BADCT. The facilities shall be designed, operated and maintained to provide surface water control for a 100-year, 24-hour storm event. Facility design and construction details are contained in the approved aquifer protection permit (APP) application dated November 1, 1995, APP application supplement dated May 1996, APP application for permit amendment dated April 2007 and supplemental documents.

### **2.2.1. Engineering Design**

BADCT descriptions for the permitted facilities is located in Section 4.1, Table 9: Permitted Facilities BADCT

### **2.2.2. Site-Specific Characteristics**

Refer to Section 2.5.3.3 – Passive Containment Demonstration.

### **2.2.3. Pre-Operational Requirements**

Upon completion of construction, the results of all Minimum Testing Frequency, Construction Quality Assurance (CQA) observations and testing (field and laboratory) shall be presented in a certification report to the Arizona Department of Environmental Quality (ADEQ). See Table 25: . The certification report shall be sealed and signed by a professional engineer registered in the state of Arizona.

### **2.2.4. Operational Requirements**

1. The discharging facilities shall be operated according to and inspected for compliance with the items listed in Section 4.2, Table 25:
2. If any damage is identified during inspection that could cause or contribute to a discharge, proper repair procedures shall be promptly performed in accordance with Section 2.6. All repair procedures and materials used shall be documented in the facility log book as per Section 2.7.2 and reported to ADEQ in the event of a violation or exceedance as per Section 2.7.3.

## **2.3. DISCHARGE LIMITATIONS**

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

1. 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 applicable BADCT.
2. Liner failure in a single-lined impoundment is any condition that would result in leakage exceeding 550 gallons per day per acre.
3. The discharge limitations in this section are not applicable to any discharge caused by precipitation in excess of a single 100-year/24 hour storm event or process overflow during a power outage exceeding 24 hours in duration.

**2.3.1. Discharge Limitations for the Leaching Facilities and Diversion Structures**

The Leaching Facilities are designed and authorized for use in leaching of ore and other copper bearing materials that can be economically processed. The Leaching Facilities shall be constructed and operated in accordance with the BADCT outlined in Section 2.2, and the ultimate heights shall not exceed those elevations set forth in Section 4.1, Table 9: Permitted Facilities BADCT.

The drainage system for the Leaching Facilities shall be constructed and operated in a manner to ensure adequate capacity to manage draindown solutions and stormwater runoff as approved and direct it to the open pit and/or designated impoundments (ponds), respectively. Residual heap materials and fluids shall not leave the heap or overtop the berms.

**2.3.2. Discharge Limitations for Non-stormwater Impoundments**

The permitted non-stormwater impoundments shall only receive stormwater runoff and run-on, seepage, and process solutions as a result of storm events or process upset events.

**2.3.3. Discharge Limitations for Pregnant Leach Solution (PLS) Ponds and Impoundments**

The PLS Ponds and Impoundments shall only receive pregnant leach solution, stormwater, process water and process upset events.

**2.4. POINT OF COMPLIANCE (POC)**

[A.R.S. § 49-244]

The Point of Compliance (POCs) wells have been established at the following locations:

Table 2: Point of Compliance				
POC #	POC Designation	ADWR 55#	Latitude (North)	Longitude (West)
MW-2B	Hazardous and non-hazardous POC	55-918540	35° 20' 24.42" N	114° 10' 24.90" W
MW-5B	Hazardous and non-hazardous POC	55-918541	35° 19' 54.30" N	114° 10' 26.22" W
MW-6	Hazardous and non-hazardous POC	55-542766	35° 21' 51" N	114° 50' 27" W
MW-19	Hazardous and non-hazardous POC	55-565213	35° 21' 56" N	114° 09' 45" W
MW-20	Hazardous and non-hazardous POC	55-565214	35° 22' 20" N	114° 09' 31" W

Monitoring requirements for each POC are listed in Section 4.2.

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

**2.4.1. CORRECTIVE ACTION MONITORING WELLS**

The Corrective Action Monitoring Wells have been established at the following locations.

Table 3: Corrective Action Monitoring Wells				
Monitoring Well #	Description	ADWR 55#	Latitude (North)	Longitude (West)
HDMW - 01	Downgradient of Hardy Dump Wellfield	NA	35° 22' 19.21" N	114° 8' 57.9" W
HDMW - 02	Downgradient of Hardy Dump Wellfield	NA	35° 22' 18.2" N	114° 8' 57.0" W
HDMW - 03	Downgradient of Hardy Dump Wellfield	NA	35° 22' 17.7" N	114° 8' 57.1" W

Monitoring requirements for each of the Corrective Action Monitoring Wells are listed in Section 4.2, Table 23: .

## **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. Routine Discharge Monitoring**

Not applicable.

### **2.5.2. Facility / Operational Monitoring**

At a minimum, permitted facilities shall be inspected for performance levels listed in Section 4.2, Table 25: Facility Inspection and Operational Monitoring to verify that all components are functioning properly. 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. The permittee shall document facility monitoring activities, inspection results, and all repair procedures, methods and materials used to return the system or structure to operating condition as described in Section 2.7.2 of this permit. A log of the inspections and related monitoring activities shall be kept at the facility for ten (10) years from the date of each inspection or the life time of the facility, and made available for review by ADEQ personnel as necessary. A summary of facility monitoring activities, inspection results, facility repairs or any other corrective actions shall be submitted quarterly in accordance with Section 2.7.4 of this permit.

### **2.5.3. Groundwater Monitoring and Sampling Protocols**

Compliance groundwater monitoring is required under the terms of this permit. 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, 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 the low-flow purging method as described in the Arizona Water Resources Research Center, March 1995 Field Manual for Water Quality Sampling. 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, and DOD protocols. In addition, the HydraSleeve™ or similar type sampler shall be placed just below the water table.

#### **2.5.3.1. POC Well Replacement**

In the event that one or more of the designated POC wells should become unusable or inaccessible due to damage, exceedance of an alert level (AL) for water level as required by Section 2.6.2.4.4, or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the



replacement well is fifty 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.

#### **2.5.3.2. Compliance Groundwater Monitoring**

The permittee shall analyze groundwater samples for the parameters listed in Section 4.2, Table 10 through Table 14. In addition to quarterly compliance groundwater monitoring, every year (annual) the permittee shall analyze samples from the POC wells for the list of parameters listed in Section 4.2, Table 15 through Table 19. The annual sampling event shall occur concurrently with the regularly scheduled quarterly sampling event.

The permittee may submit a written request to ADEQ to modify, reduce, or delete a monitoring parameter in the quarterly or annual compliance groundwater monitoring tables (Section 4.2) in accordance with the following criteria:

1. The parameter in question has not been detected for at least two (2) consecutive annual or four (4) consecutive quarterly monitoring events in the well. The PQL reported by the laboratory shall be less than 80% of the established numeric AWQS, and shall not be greater than three (3) times the laboratory method detection limit for that parameter.
2. The permittee shall submit a written report indicating the parameter(s) proposed for modification, accompanied by supporting data, including laboratory analytical reports and quality assurance/quality control data, to ADEQ for review.
3. Upon review, ADEQ will determine if the modification(s) requested is justified and approved. The respective changes, if approved, will require an amendment to the permit.

#### **2.5.3.3. Passive Containment Demonstration**

1. Post Audit Passive Containment Demonstration - A post audit report shall be conducted every five (5) years in accordance with Section 3.0 Compliance Schedule Item No. 1. The results of the post-audit shall be submitted to the Groundwater Protection Value Stream for review in a report that summarizes the original passive containment demonstration, any updates or revisions made to the model, recommendations from previous passive containment demonstrations, and a discussion of the previous model predictions. The assumptions about mine development and infiltration shall be reviewed in terms of the actual changes in the pit configuration, leaching areas, leach rates, sump locations, water balance, annual precipitation and storm events. The resulting compilation shall be compared to predictions provided by the groundwater flow model for the previous calibration period.

Other factors to be evaluated in the post-audit include groundwater inflow, the estimated static water level in the pit, the estimated time to reach static water level, and any potential for the water level in the pit to rise to an elevation where the hydraulic gradient reverses and the pit ceases to function as a passive containment. The report shall include a table listing groundwater elevations from piezometer and monitor wells current at the time of the post-audit, used to demonstrate the configuration of the passive containment, a potentiometric contour map based on groundwater elevations collected during the post-audit monitoring period, and a map showing the APP facilities that depend on passive containment for BADCT. The passive containment modeling projections shall be based solely on natural or engineered topographical, geological, or hydrological control measures that can operate without continuous maintenance (A.R.S. § 49-243(G)(1)).

#### **2.5.4. Surface Water Monitoring and Sampling Protocols**

Routine surface water monitoring is not required under the terms of this permit.

### **2.5.5. 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 state-certified laboratories in Arizona can be obtained at the address below:

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

### **2.5.6. 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**

At least one copy of this permit and the approved contingency and emergency response plan submitted in the application 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. 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 has 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 required by Section 4.2 Table 25: 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 impoundment until the water level is restored at or below the permitted freeboard limit.
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 compliance with this permit, or remove the affected system(s) from service as specified in Section 2.8 (Temporary Cessation) and Section 2.9 (Closure) of this permit. 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, 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 24: Leak Collection and Removal System Monitoring or Table 25: Facility Inspection and Operational Monitoring has been observed or noted 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. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 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.
4. The facility is no longer on alert status once the operational indicator no longer indicates that the performance level is being exceeded. The permittee shall complete all tasks necessary to return the facility to its pre-alert operating condition.

**2.6.2.1.3. Exceedance of Alert Level #1 for Normal Liner Leakage**

If an Alert Level #1 (AL #1) as specified in Section 4.2, Table 24: Leak Collection and Removal

System Monitoring, has been exceeded, the permittee shall take the following actions:

NOTE: The notification and reporting identified in this section is in lieu of the reporting requirement in Section 2.7.3 Permit Violation and Alert Level Status Reporting.

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. The permittee shall submit to the Groundwater Protection Value Stream a liner leakage assessment and repair 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. 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.

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

If the Liner Leakage Discharge Limit (AL #2) specified in Section 4.2, Table 24: Leak Collection and Removal System Monitoring has been exceeded, the permittee shall:

NOTE: The notification and reporting identified in this section is in lieu of the reporting requirement in Section 2.7.3 Permit Violation and Alert Level Status Reporting.

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 2.6.2.1.3, shall be referenced in the next annual report described in Section 2.7.4.1 (Annual Reporting) of this permit.

#### **2.6.2.2. TSF Slope Conditions**

The permittee shall monitor and inspect the TSF perimeter road and embankment for general slope conditions as per Section 4.2, Table 25: Facility Inspection and Operational Monitoring to identify unusual erosion or degradation of materials, sloughing, rolling rocks or visible seepage. Results of these inspections shall be documented and maintained on location for at least 10 years from the date of each inspection, as required by Section 2.7.2 of this permit. If the TSF exhibits any signs that require maintenance, the permittee shall take the following actions:

1. After discovery prevent vehicle and/or foot traffic in the area.
2. Notify the design engineer.
3. If necessary, perform remedial actions approved by the engineer.
4. Monitor the area for signs of decreasing slope stability.

#### **2.6.2.3. TSF Piezometric Head**

The permittee shall monitor the piezometric head per Section 4.2, Table 26: Piezometer Monitoring Requirements. Monitoring data shall be documented and maintained on location for at least 10 years from the date of each inspection, as required by Section 2.7.2 of this permit. If the piezometers read a phreatic surface in excess of an Alert Level in Section 4.2, Table 26: Piezometer Monitoring Requirements, the permittee shall take the following actions:

1. Notify an Arizona Registered Engineer that is qualified to work on tailings dams.

2. Monitor the phreatic surface within the TSF.
3. Initiate an evaluation to determine the cause of the incident. Identify the circumstances that resulted in the elevated phreatic surface. Implement corrective actions including pumping, if necessary, to resolve the problems identified in the evaluation.
4. If necessary, perform a slope stability analysis on the TSF with the elevated phreatic surface to determine if any reduction in safe operation of the facility has occurred.
5. Record in the facility log book, the piezometer number, reading and location. Graphs of this and all other relevant piezometers will be recorded on at least a monthly basis to allow quick inspection and evaluation of historic facility operations.

#### **2.6.2.4. Exceeding of Alert Levels in Groundwater Monitoring**

##### **2.6.2.4.1. Alert Levels for Indicator Parameters**

1. If an Alert Level (AL) set in Section 4.2, Table 10 through Table 19 for total dissolved solids, sulfate, copper and zinc, has been exceeded, the permittee shall request that the laboratory verify the sample results within five (5) days. If the analysis does not confirm that an exceedance has occurred, the permittee may assume there has been no exceedance and no further action is required.
2. Within five (5) days after receiving laboratory confirmation of an Alert Level (AL) being exceeded, the permittee shall notify the Groundwater Protection Value Stream within five (5) days and submit written confirmation within thirty (30) days after receiving laboratory confirmation of an AL being exceeded. The permittee shall submit the laboratory results to the Groundwater Protection Value Stream.
3. If the results indicate an exceedance of an AL, the permittee shall conduct a verification sample of groundwater from the well within fifteen (15) days from laboratory confirmation. If the verification sample does not confirm that an exceedance has occurred, the permittee shall notify ADEQ of the results and assume there has been no exceedance. No further action is required under this subsection.
4. If verification sampling confirms that the AL has been exceeded, the permittee shall increase the frequency of monitoring to monthly. In addition, the permittee shall immediately investigate the cause of the exceedance and report the results of the investigation with the 30-day confirmation noted above. ADEQ may require additional investigations, the installation of additional wells or corrective action in response to the report. The permittee shall continue monthly testing for the parameter(s) until the parameter(s) has remained below the AL for two (2) consecutive monthly sampling events.

##### **2.6.2.4.2. Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards**

1. In the case of an exceedance of an AL for a pollutant set in Section 4.2, Table 10 through Table 19, the permittee may conduct verification sampling for those pollutant(s) that exceeded their respective AL(s) within five (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 confirms the AL exceedance or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring for each pollutant exceeding its' respective AL(s) as follows:

Table 4: Accelerated Monitoring - Alert Level Exceedance	
Specified Monitoring Frequency	Monitoring Frequency for AL Exceedance
Daily	Daily
Weekly	Daily
Monthly	Weekly
Quarterly	Monthly
Semi-annually	Quarterly
Annually	Quarterly

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 has been exceeded, the pollutant(s) that exceeded 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 exceeded 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 each pollutant that exceeded an AL, 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 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, amendments to permit conditions or other actions.
6. For each pollutant that exceeded an AL, the increased monitoring required as a result of an AL exceedance may be reduced to the monitoring frequency in Section 4.2, Table 10 though Table 19 if the results of four sequential sampling events of those pollutants demonstrate that they did not exceed the AL.
7. If the increased monitoring required as a result of an AL exceedance continues for more than six (6) sequential sampling events, the permittee shall submit to ADEQ a second report documenting an investigation of each pollutant which continued to exceed an AL. This report is due within 30 days of the receipt of laboratory results of the sixth sampling event.

**2.6.2.4.3. Alert Levels to Protect Downgradient Users from Pollutants Without Numeric Aquifer Water Quality Standards**

Not required at time of issuance.

**2.6.2.4.4. Alert Level for Groundwater Level**

1. If monitoring indicates the groundwater level is not within the allowable range established by the Alert Level (AL) in Section 4.2, Table 10 though Table 19, the permittee shall submit a written report to the Groundwater Protection Value Stream within 30 days after becoming aware of the exceedance. The report shall document the following:

- a. the as-built configuration of the well including the screened interval;
  - b. all groundwater level measurements available for the well;
  - c. a discussion and analysis of any trends or seasonal variations in the groundwater level measurements;
  - d. information on groundwater recharge, withdrawal, or other hydrologic conditions in the vicinity of the well, and;
  - e. any other pertinent information obtained by the permittee.
2. If monitoring indicates the groundwater level is not within the allowable range established by the Alert Level (AL) in Section 4.2, Table 10 through Table 19 for more than two (2) sequential sampling events, the permittee shall submit a second report which evaluates the cause(s) of the exceedance and recommends whether the well should be replaced pursuant to Section 2.5.3.1. The report shall discuss and demonstrate whether samples representative of the water quality of the relevant aquifer can be practicably obtained from the well.
  3. Upon review of the submitted report, the Department may amend the permit to require replacement of the well, require additional permit conditions, or other actions.

### **2.6.3. Discharge Limit Violation**

#### **2.6.3.1. Water Level Exceedance in the Gross Sump, Central Sump and Ithaca Sump**

In the event of an exceedance in the permitted water elevation of the Gross Sump, Central Sump or Ithaca Sump the permittee shall, within 15 days of becoming aware of the exceedance, make operational adjustments to lower the pit water at or below the permitted elevation. If, after the 15 days, the permittee is unable to achieve the water elevation prescribed by this permit or if any two exceedances occur during a six (6)-month period, then within 30 days of either violation, the permittee shall submit to the Groundwater Protection Value Stream a written report that includes the information as specified in A.A.C. R18-9-113(C)(1) through (5). ADEQ shall review this report to determine if additional actions are required.

#### **2.6.3.2. Exceedance of an Alert Level Set for the Free Water Pond**

In the event that the free water pond on top of the impoundment encroaches and remains within 500 feet of the dam crest for a period greater than 30 days, the permittee shall, within 15 days of becoming aware of the exceedance, make operational adjustments to increase the distance between the pond and the dam crest to or greater than the permitted distance. If, after 15 days, the permittee is unable to increase the distance between the pond and the dam crest as prescribed by this permit, then within 30 days of the exceedance, the permittee shall submit to the Groundwater Protection Value Stream a written report that includes the information specified in A.A.C. R18-9-113(C)(1) through (5). ADEQ shall review this report to determine if additional actions are required.

#### **2.6.3.3. Liner Failure, Containment Structure Failure, or Unexpected Loss of Fluid**

In the event of overtopping, 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 non-gravity inflows to the surface impoundment 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 estimate the quantity released, collect representative samples of the fluid remaining in affected impoundments and drainage structures. Samples shall



be analyzed for copper and the parameters specified in Section 4.2, Table 10: MW-2B Quarterly Groundwater Monitoring reported in accordance with Section 2.7.3 (Permit Violation and AL Status Reporting). In the 30-day report required under Section 2.7.3, 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.

5. As soon as practicable, remove fluid remaining in the surface impoundment as necessary to prevent further releases to the subsurface and/or to perform repairs. Record in the facility log/recordkeeping file the amount of fluid removed, a description of the removal method, and other disposal arrangements. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 (Operation Inspection/Log/Recordkeeping File).
6. Within thirty (30) days of discovery of the incident, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and AL 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 sixty (60) days of discovery, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident. 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.
8. Within thirty (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.

#### **2.6.3.4. 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 non-gravity 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, collect representative samples of the fluid contained in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4.2, Table 10: MW-2B Quarterly Groundwater Monitoring. 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 25: 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 (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, conduct an assessment 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.

#### **2.6.3.5. 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 five (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.

#### **2.6.3.6. 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 10 through Table 19 has been exceeded, the permittee may conduct verification sampling for those pollutant(s) that were above their respective AQL(s) within five (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 an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

4. 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.
5. The permittee shall notify any downstream or downgradient users who may be directly affected by the discharge.
6. 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), and upon ADEQ approval.

## 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.

### 2.6.5.5. Emergency Response

The permittee shall develop and maintain an emergency response plan at the location where day-to-day decisions regarding the operation of facilities are made. The permittee shall revise promptly all copies of the emergency response plan to reflect approved changes. The permittee shall advise anyone responsible for the operation of the facility of the location of copies of all contingency and emergency response plans. The emergency response plan shall be kept at the facility and at a minimum provide the following:

1. A plan to provide emergency response on a 24-hour basis in the event that a condition arises, which results in an imminent and substantial endangerment to the public health or the environment.
2. The designation of an emergency response coordinator to be responsible for activation of the contingency plan and emergency response measures.

3. A requirement that the emergency response coordinator notify the Department immediately in the event that emergency response measures are taken or those portions of a contingency plan that address an imminent and substantial endangerment are activated.
4. A list of names, addresses and telephone numbers of persons to be contacted in the event that an imminent and substantial endangerment to the public health or the environment arises.
5. A general description of the procedures, personnel and equipment to be used to assure appropriate mitigation of unauthorized discharges.

The permittee shall submit reports describing the causes, impacts, or mitigation of the discharge.

#### **2.6.5.6. Power Outage**

In the event of a power outage which continues longer than 4 hours, the permittee shall make provisions for emergency power within eight (8) hours of the incident to mitigate operational fluid capacity exceedances or other environmental impacts.

#### **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, and submit the form to the Groundwater Protection Value Stream.
3. The tables contained in Section 4.0 list the monitoring parameters and the frequencies for reporting results on the SMRF:
  - a. Section 4.2, Table 10 through Table 23

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; and
6. Any other information required by this permit to be entered in the log book.
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 five (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**

#### **2.7.4.1. Annual Report**

If an Alert Level #1 has been exceeded as discussed in Section 2.6.2.1.3, 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.

**2.7.4.2. Remedial Action Plan (RAP) Reporting**

If any actions were taken under the approved RAP, a report shall be submitted to ADEQ at the end of each quarter where actions were taken. The report shall include, but not be limited to the following:

1. A summary of the actions taken, and
2. A description of any impact to APP permitted facilities or permit conditions.

**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>

All other documents required by this permit shall be mailed to:

The Arizona Department of Environmental Quality  
Groundwater Protection Value Stream  
Mail Code 5415B-3  
1110 West Washington Street  
Phoenix, Arizona 85007  
Phone (602) 771-4571

**2.7.6. Reporting Deadline**

The following table lists the quarterly report due dates:

Table 6: Quarterly Reporting Deadlines	
<b>Monitoring Conducted During Quarter:</b>	<b>Quarterly Report Due By:</b>
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 report due dates if applicable:

Table 7: Semi-Annual & Annual Reporting Deadlines	
<b>Monitoring Conducted:</b>	<b>Report Due By:</b>
Semi-annual: January-June	July 30
Semi-annual: July-December	January 30
Annual: January-December	January 30

**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). Furthermore, the plan shall include the following specific activities:

1. The approximate quantities and the chemical, biological, and physical characteristics of the materials to be removed from the facility.
2. The destination of the materials to be removed from the facility and an indication that placement of the materials at that destination is approved.
3. The approximate quantities and the chemical, biological, and physical characteristics of the materials that will remain at the facility.
4. The methods to be used to treat any materials remaining at the facility.
5. The methods to be used to control the discharge of pollutants from the facility.
6. Any limitation on future land or water uses created as a result of the facility operations or closure activities.
7. The methods to be used to secure the facility.
8. An estimate of the cost of closure.
9. A schedule for implementation of the closure plan and the submission of a post-closure plan.

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. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial, mitigative or corrective actions or controls are necessary to comply with A.R.S. § 49-201(30) and Title 49, Chapter 2, Article 3;
5. Further action is necessary to meet property use restrictions.
6. 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(30) 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**

The post-closure plan shall describe all of the following:

1. The duration of post-closure care.
2. The monitoring procedures to be implemented by the permittee, including monitoring frequency, type and location.
3. A description of the operating and maintenance procedures to be implemented for maintaining aquifer quality protection devices, such as liners, treatment systems, pump-back systems, and monitoring wells.
4. A schedule and description of physical inspections to be conducted at the facility following closure.
5. An estimate of the cost of post-closure maintenance and monitoring.
6. A description of limitation on future land or water uses, or both at the facility site as a result of facility operations.

### **2.10.2. Post-Closure Completion**

The permittee shall give written notice that a closure or post-closure plan has been fully implemented.

**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 8: Compliance Schedule Items			
No.	Description	Due By:	Permit Amendment Required?
1	<p><b>Passive Containment Post Audit Report</b> The permittee shall submit a post audit report per the requirements stated in Section 2.5.3.3 to the Groundwater Protection Value Stream updating the passive containment demonstration, including any revisions resulting from hydrologic or operational changes observed during the re-evaluation every five (5) years, and recommendations from previous passive containment demonstrations. The collection, analysis and interpretation of groundwater elevation, gradient information and or groundwater quality collected from the hydrologic sink demonstration wells will be required throughout the life of the facility. The data from the hydrologic sink demonstration wells shall be used to update the initial passive containment demonstration.</p>	October 31, 2027 and every five years thereafter.	No, unless a post audit report indicates a change to the APP
2	<p><b>Update Closure and Post-closure Cost Estimate</b> The permittee shall submit a permit amendment application with updated cost estimates for facility closure and post-closure, as per A.A.C. R18-9-A201(B)(5) and A.R.S. § 49-243.N.2.a.</p> <p><b>NOTE:</b> When submitting the closure and post-closure costs the permittee may provide a statement for the type of financial mechanism they intend to provide (CSI #3). The financial assurance mechanism, may then be submitted following ADEQ’s approval of the closure and post-closure costs.</p>	May 3, 2023 and every six (6) years thereafter for the duration of the permit.	Yes
3	<p><b>Update Financial Assurance Mechanism</b> The permittee shall submit a demonstration that the financial assurance mechanism listed in Section 2.1, Financial Capability, is being maintained as per A.R.S. 49-243.N.4 and A.A.C. R18-9-A203(H) for all estimated closure and post-closure costs including updated costs submitted under Section 3.0, No. 6 above. The demonstration shall include a statement that the closure and post-closure strategy has not changed, the discharging facilities listed in the permit have not been altered in a manner that would affect the closure and post-closure costs, and discharging facilities have not been added. The demonstration shall also include information in support of a performance surety bond as required in A.A.C. R18-9-A203(C)(2).</p> <p><b>NOTE:</b> When submitting the closure and post-closure costs (CSI #2) the permittee may provide a statement for the type of mechanism they intend to provide. The financial assurance mechanism, may then be submitted following ADEQ’s approval of the closure and post-closure costs.</p>	May 3, 2023 and every six (6) years thereafter, for the duration of the permit.	No

Table 8: Compliance Schedule Items			
No.	Description	Due By:	Permit Amendment Required?
4	<p><b>Effect of Erosion on Stability Analysis of the Tailings Storage Facility (TSF)</b> The permittee shall conduct additional work to understand the need for repair of the erosion gullies. Following completion of the evaluation, the permittee shall submit an updated stability analysis that demonstrates factor of safety as per the Arizona Mining BADCT Guidance Manual for the TSF. Perform material testing as recommended by the Engineer of Record (EOR) licensed in the state of Arizona. The report shall be sealed by the EOR, and document the following:</p> <ul style="list-style-type: none"> <li>Evaluation of the heavy erosion noted on the TSF slopes and its impact on the slope stability. If the EOR's evaluation indicates the erosion needs to be remedied for slope stability, a plan and schedule to address identified stability issues shall be provided to ADEQ in the revised TSF Stability Analysis Report.</li> <li>Methodology, Results and Conclusions of the stability analysis</li> </ul> <p>The permittee may begin construction using the Hybrid Centerline Method upon ADEQ approval of the Effect of Erosion on Stability Analysis of the TSF Report.</p>	Prior to placement of any new tailings material on the TSF	No
5	<p><b>Tailings Governance Framework</b> The permittee shall provide an updated site-specific approach to tailings governance framework to minimize the risk of a catastrophic failure.</p>	Prior to placement of any new tailings material on the TSF	No
7	<p><b>Collaboration with Mohave County-Cerbat Landfill</b> In the event Alert Levels or Aquifer Quality Limits are exceeded at POC wells designed to monitor the Former Disposal Area (FDA) at the Cerbat Landfill for Volatile Organic Compounds, or when notified by the Department of other pollutants reasonably attributable to leaching from that facility, and groundwater elevation is shown to intersect the bottom of the FDA within two weeks of when the leaching may have occurred, within 90 days, Origin shall make reasonable efforts to:</p> <p><u>Option A. (Collaborate with County)</u> Review and compare historic groundwater elevations from Origin and Mohave County monitoring wells, Review and compare historic groundwater quality results from Origin and Mohave County monitoring wells, Meet with the county to identify and evaluate potential actions to be undertaken to mitigate/prevent potential leaching from the FDA that is causing exceedances of alert levels or aquifer quality limits at POCs. This evaluation may rely on data provided under CSI #7 and supplemented by other data. Provide to the Department a summary of the activities and conclusions made from items 1-3</p> <p><b>Or</b></p> <p><u>Option B. (OMC Data Submittal)</u> Provide a demonstration to the Department that the groundwater elevation is not due to mining activities</p>	Upon notification from Mohave County that Alert Levels or Aquifer Quality Limits are exceeded at POC wells designed to monitor groundwater quality from the FDA, or when notified by the Department of other pollutants reasonably attributable to leaching	No

Table 8: Compliance Schedule Items

No.	Description	Due By:	Permit Amendment Required?
8	<p><b>Bismark LCP Pond Closure</b> The Bismark LCP shall be closed along with the construction of the Bismark SCMS. Materials impacted during the operation of the Bismark LCP Pond, shall be removed and disposed appropriately.</p>	18 months from the signature date of this permit	Yes
9	<p><b>Bismark SCMS Construction Report and As-Built Documents</b> The permittee shall submit a construction report along with as-built drawings and QA/QC documentation sealed by an Arizona registered professional engineer for the Bismark SCMS to confirm that the facility was constructed in accordance with the design report, engineering plans and specifications submitted in the application for this permit.</p>	Within 120 days of completion of construction.	No
10	<p><b>Installation of Hardy Dump Wellfield and Monitoring Wells</b> Submit a well construction and installation completion report for Hardy Dump Wellfield Monitoring Wells HDMW-01, HDMW-02, and HDMW-03. At a minimum the report shall contain copies of ADWR documents related to as-built well construction diagrams and locations (latitude and longitude). The submittal shall be sealed by an Arizona Registered Geologist or other qualified registrant.</p>	Within 90 days following permit issuance.	No

**4.0 TABLES OF BADCT AND MONITORING REQUIREMENTS**

**4.1. FACILITY TABLES**

Table 9: Permitted Facilities BADCT	
Facility (#)	Facility BADCT
Raffinate Pond (1)	<p>The proposed raffinate pond will provide approximately 1.5 million gallons of operational storage. At maximum operational depth there will be a static water level of 9.9 feet plus 2 feet of freeboard and 0.4 feet to contain the 24-hour, 100-year storm event falling on the pond surface.</p> <p>The pond liner system (from the top down) consists of geonet between two 60-mil HDPE double sided textured geomembrane layers overlying a Geosynthetic Clay Liner (GCL) and approximately 2 to 4 inches of liner bedding material. GCL will be used for the underliner instead of a low permeability soil layer (LPSL).</p> <p>The grading of the base of the pond will be such that Leak Collection and Removal System (LCRS) pipe will be on a relatively continuous 12 percent slope from the toe of the inside pond perimeter fill to the pond sump. The pond sump will be installed between the primary and secondary liner at the pond low point and will be roughly circular. It will have a 6-foot minimum diameter at the bottom with a depth of 2-feet. Non-woven geotextile wrapped drain gravel will be installed in the sump.</p> <p>Engineered fill will be used to shape the interior of the existing pond. Fill material will be placed to create a 2H:1V sloped surface around the interior of the pond from the crest of the existing concrete walls to the proposed pond floor, with the LCRS in the center of the facility. Engineered fill will also be placed from the toe of the 2H:1V slope to LCRS pond sump to create a continuous slope.</p>
SX PLS Pond (15)	<p>The pond shall be double-lined with 60-mil HDPE liners incorporating a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Solution from the PLS pond transfers to the solvent extraction (SX) plant via gravity flow. Overflow shall drain into the raffinate pond. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond shall be approximately <math>3 \times 10^6</math> gallons which corresponds to fluid static head of 6.5 feet. The maximum depth of the pond shall be 8.5 feet, including a minimum of 2 feet of freeboard.</p>
Hardy LCP Pond (24)	<p>The pond shall be double-lined with HDPE liner (primary 80-mil, secondary 40-mil) and incorporates a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Overflow shall report to the Flood Control Basin. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond shall be approximately <math>2.0 \times 10^6</math> gallons which corresponds to fluid static head of 16.5 feet. The maximum depth of the pond shall be 18.5 feet, including a minimum of 2 feet of freeboard. The existing unlined Hardy pond area shall be upgraded using a French drain and interceptor trench to collect leachate and minimize discharge.</p>
Bismark LCP Pond (61)	<p>The Bismark LCP Pond shall be closed and the Bismark SCMS shall be constructed in its place in accordance with the compliance schedule item (CSI) No. XX in Section 3.0.</p>
Bismark SCMS	<p>The Bismark SCMS shall capture and manage flows from the Bismark Dump. The design shall include two cutoff trenches (upper cutoff wall and lower cutoff wall), pipe-in-pipe conveyance pipelines, a transfer tank, pumping requirements to the TSF, and proposed stormwater control measures.</p> <p>The upper cutoff wall shall be located approximately 170 feet downgradient of the former Bismark LCP Pond. The lower cutoff wall shall be constructed approximately 1,100 feet downgradient of the upper cutoff wall. The lower trench is intended to function as a secondary containment and capture flows that may bypass the upper trench and contribute to the existing subsurface surface flows. The two cutoff walls shall extend to the unweathered bedrock and capture groundwater flow in the alluvium and weathered bedrock (upper zone) immediately downgradient of the Bismark Dump. Half the base width and the downslope side of the upper cutoff trench shall be lined. The whole bottom width and the downslope side of the lower cutoff trench shall be lined. Liner for both cutoff trenches shall be 80 mil double-sided textured HDPE geomembrane.</p> <p>Flows at the cutoff trenches shall be captured in an 8-inch-diameter perforated corrugated polyethylene pipe</p>

Table 9: Permitted Facilities BADCT

Facility (#)	Facility BADCT
	<p>(CPEP) collection pipe. Conveyance pipelines from both cutoff trenches shall consist of a solid-wall 4-inch HDPE Standard Dimension Ration (SDR) 11 leak detection pipe. The two conveyance pipelines shall join approximately 150 feet downgradient from the lower cutoff trench and continue to the transfer tank.</p> <p>The seepage flow shall be routed via gravity flow to a new, skid-mounted 20,000-gallon horizontal dual walled, stainless-steel tank located on a concrete pad adjacent to the permitted location of the non-stormwater pond north of the TSF. Seepage flows collected in the tank shall be pumped continuously with a variable frequency drive (VFD) pump rated up to 24 gpm to the TSF via a 2-inch-diameter 1,100-foot-long HDPE SDR 17 surface pipeline. The pipeline shall discharge into the supernatant pool at the northern extent of the TSF, and once constructed, the non-stormwater pond. The tank shall be fitted with a 3-inch HDPE SDR 17 emergency overflow pipe, which will be routed to the non-stormwater pond.</p>
Hardy Dump (50)	<p>The leach dump is located on gently-to-steeply sloping topography which shall minimize the potential for discharge and accumulation of acid rock drainage. The hydraulic conductivity of the underlying alluvial and bedrock materials in the expansion area ranges between <math>1 \times 10^{-4}</math> cm/sec and <math>1 \times 10^{-7}</math> cm/sec. The existing discharge control technologies (DCTs) include leachate collection pond, interceptor drain system, seepage cutoff wall, ten groundwater extraction wells with pumping rates of 2.5 to 50 gpm, and a flood control basin. Stormwater diversion ditches shall be designed to divert surface water run-off away from the Hardy Dump area. Specific conditions that pertain to facility expansion are:</p> <ol style="list-style-type: none"> <li>1. The maximum crest elevation of the dump shall not exceed 4,800 feet amsl. The facility has a total footprint of approximately 297 acres, and contains approximately 225 million tons of material.</li> <li>2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated May 29, 2013.</li> </ol>
Bismark Dump (54)	<p>The leach dump is located on relatively steeply sloping (2H:1V) canyon walls, with surface drainage sloping approximately 7 percent. The hydraulic conductivity of the underlying alluvial and bedrock (granite, gneisses, and schists) materials ranges between <math>3 \times 10^{-4}</math> cm/sec and <math>5 \times 10^{-7}</math> cm/sec. The existing DCTs comprise low hydraulic conductivity bedrock and leachate collection pond that intercepts majority of subsurface flows from the Bismark Dump area. The topographic conditions limit surface water run-on. The stormwater run-off from the side slopes of the dump shall discharge in the Terminal Storage Facility (TSF) and subsequently in the Non-stormwater Impoundment. Specific conditions that pertain to facility expansion are:</p> <ol style="list-style-type: none"> <li>1. The maximum crest elevation of the dump shall not exceed 4,400 amsl.</li> <li>2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated April 16, 2007.</li> </ol>
Back Dump (51) Duval Dump (52) Turquoise Dump (53) Gross Dump (55)	<p>Operation of the waste rock dumps relies on gentle-to-steeply dipping subsurface conditions beneath the dumps, which shall minimize the potential for acid rock drainage production or accumulation. Impacted storm water run-off shall either be captured in pit sumps or channeled to the TSF through low permeability conveyance ditches with sufficient capacity to contain 100-year, 24-hour storm event. Impacted storm water run-off shall be reclaimed and recycled to the process water control system. Run-off from the eastern slope of Back Dump shall be contained within a closed drainage basin lying on the eastern toe of the Back Dump. The construction of surface water control for run-on and run-off from a 100-year, 24-hour storm event and/or operational upset conditions shall be completed according to Section 2.2 of this permit. The facility design plans shall be approved by ADEQ prior to construction.</p>
Shop Dump (56)	<p>The waste rock dump is located on relatively steeply sloping (2H:1V) canyon walls, with surface drainage sloping approximately 10 percent. The hydraulic conductivity of the underlying alluvial (gravely and clayey sand) and bedrock materials ranges between <math>1 \times 10^{-3}</math> cm/sec and <math>1 \times 10^{-6}</math> cm/sec. The existing DCTs comprise low hydraulic conductivity bedrock. The topographic conditions limit surface water run-on. The stormwater run-off from the side slopes of the dump shall be captured in the Gross Sump or channeled to the No Name</p>

Table 9: Permitted Facilities BADCT

Facility (#)	Facility BADCT
	<p>Wash Headwall and the TSF. Specific conditions that pertain to facility expansion are:</p> <ol style="list-style-type: none"> <li>1. The maximum crest elevation of the dump shall not exceed 4,450 amsl.</li> <li>2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated April 16, 2007.</li> </ol>
<p>Central Sump (58)</p> <p>Ithaca Sump (59)</p> <p>Gross Sump (60)</p>	<p>A rubblized in situ leaching method, using sulfuric acid, relies on engineered controls and operational procedures to demonstrate BADCT. Ithaca Sump acts as an operational hydrologic sink and low permeability conditions minimize the potential for discharge. Discharge shall be further minimized by using static head reduction as follows: Central Sump - Maximum operating static head shall not exceed elevation 4,365 feet AMSL. Ithaca Sump - Maximum operating static head shall not exceed elevation 4,150 feet AMSL. Gross Sump - Maximum operating static head shall not exceed elevation 4,310 feet AMSL.</p> <p>The Central Sump and Ithaca Sump are located within the Passive Containment Capture Zone (PCCZ) and rely on the PCCZ for BADCT per A.R.S. 49-243(G)(1).</p>
<p>Flood Control Basin (27)</p>	<p>Upstream embankment of the Flood Control Basin (FCB) shall be lined with a geosynthetic clay liner, overlain by a single 80-mil HDPE geomembrane. The remainder of the FCB liner system includes 12 inches of prepared subgrade, overlain by a single 80-mil HDPE geomembrane. The facility shall be constructed with a concrete overflow spillway, energy dissipaters, and a splash basin. Several underdrains shall be installed within the embankment and basin foundation. The collection sump shall be equipped with 3 pumps, 3 h.p. each, for the pump-back system (Construction Report - Final Stormwater Control Plan Project, June 27, 1995). Construction was approved by the Arizona Department of Water Resources.</p>
<p>Terminal Storage Facility (TSF) (62)</p>	<p>Facility expansion relies on engineered controls and operational procedures to demonstrate BADCT. Fine sediments accumulating at the bottom of the impoundment provide low permeability (approximately <math>1 \times 10^{-5}</math> cm/sec) conditions which shall minimize the potential for discharge of impacted stormwater and process water. Surface seepage along the dam embankment, if present, shall be contained using seepage collector drain and pump-back system or eliminated using alternative DCTs as approved by the ADEQ. The impoundment has more than adequate storage capacity for containment of the stormwater run-on from the 100-year, 24-hour storm event. Specific conditions that pertain to facility expansion are:</p> <p>For any height increase the tailings impoundment shall be raised using a hybrid centerline method. The maximum crest elevation shall be limited to 4,040 feet. The TSF raise shall achieve maximum elevation in approximately 8 years as presented in the APP amendment application dated June 14, 2019.</p> <ul style="list-style-type: none"> <li>• The individual lifts shall be placed in horizontal layers of between 0.5 and 1.5 feet in the raise and buttress areas.</li> <li>• The average tailings rate shall be limited to either 50,000 tpd or 65,000 tpd depending on piezometric levels at the embankment.</li> <li>• A drainage system to intercept seepage and control the phreatic surface shall be installed as presented in the June 14, 2019 amendment application or modified based on field conditions and the results of the CPT investigation.</li> <li>• The facility footprint shall not exceed the footprint shown in the permit amendment application dated March 29, 2013.</li> <li>• To ensure dam safety, the free water pond on top of the impoundment shall not encroach and remain within 500 feet of the dam crest.</li> </ul>
<p>No-Name Wash Non-Stormwater Impoundment</p>	<p>The proposed No-Name Wash Non-Stormwater Impoundment shall be designed to temporarily store and convey impacted stormwater runoff from the waste rock dumps to the Tailings Storage Facility (TSF) located downstream. The lower section of the 12-inch thick headwall shall be constructed using concrete (compressive strength of 4,000 psi) and the upper section shall be a lined earth-fill embankment. The embankment liner shall comprise 80-mil HDPE geomembrane over 6 inches of 2-inch minus compacted bedding. The structural fill and bedding material shall be compacted to 95 percent maximum dry density of standard Proctor (ASTM</p>

Table 9: Permitted Facilities BADCT

Facility (#)	Facility BADCT
	<p>D698), within 3 percent of the optimum moisture content. A concrete pad shall be constructed in the basin to facilitate removal of sediments using rubber-tired equipment. Any subsurface flows shall be captured by an under-drain system and conveyed to the TSF via 6-inch HDPE pipeline. The facility shall be designed to capture run-off from a 100-year, 24-hour storm event and convey the fluid, via gravity, through an HDPE pipeline to the TSF. A diversion ditch shall be constructed to intercept run-off from the north side of the No Name Wash, thus reducing the amount of stormwater entering the headwall basin. The main features of the proposed Headwall/Pipeline System Design are summarized below.</p> <ul style="list-style-type: none"> <li>• Embankment crest elevation 4,038 feet above mean sea level (amsl)</li> <li>• Spillway elevation 4,035 feet amsl</li> <li>• Total volume of run-off due to a 100-year, 24-hour storm event = 8.1 acre feet</li> <li>• 12-inch diameter HDPE Outlet pipe</li> <li>• Maximum pipe discharge rate = 6.9 cubic feet per second</li> <li>• Time to drain the impoundment behind headwall = Approximately 26.5 hours</li> </ul>
Runoff Conveyance Channels	<p>The stormwater runoff channels below the rock dumps shall be designed for the peak runoff from the 100-year, 24-hour storm event. The channels shall be constructed and maintained to provide a continuous, low permeability conveyance from the nearest practicable collection point below the dumps to the TSF. The channels shall be excavated or constructed in native bedrock. Segments of channels not underlain by competent bedrock material shall be lined with shotcrete or similar low permeability material. The construction of the channels shall be completed according to Section 2.2 of this permit. The facility design plans shall be approved by ADEQ prior to construction.</p>
Non-Stormwater Impoundment (New Facility)	<p>The facility is a single-lined impoundment that shall be constructed using 80-mil HDPE geomembrane, underlain with 12 inches minimum native material compacted to 95 percent maximum dry density. The geomembrane shall be anchored in an engineered trench around the impoundment perimeter. The design capacity of the impoundment shall be approximately 40 acre-feet of fluid, with a depth of 7 feet. The impoundment shall contain stormwater run-on and direct precipitation from a 100-year, 24-hour storm event, with a minimum of 2 feet of freeboard. The facility shall be designed, constructed and operated to meet prescriptive BADCT in accordance with the Arizona Mining BADCT Guidance Manual.</p>



#### **4.2. COMPLIANCE OR OPERATIONAL MONITORING**

##### **Notes for Table 10 through Table 19:**

1. Metals shall be analyzed for dissolved metal concentrations.
2. AQL = Aquifer Quality Limit
3. AL = Alert Level
4. bgs = below ground surface
5. amsl = above mean sea level
6. Not Established = analysis is required but limit or level is not established at permit issuance.
7. If Gross Alpha Particle activity is greater than fifteen (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 uranium 238, uranium 235, and uranium 234 isotopes).
8. Table 10 through Table 14 indicate parameters for monitoring on a quarterly basis. The Self-Monitoring Report Form shall be completed for this quarterly sampling for every quarterly sampling event. On an annual basis, additional parameters listed in Table 15 through Table 19 shall be analyzed, and reported on the Self-Monitoring Report Form for Annual Sampling.
9. Table 15 through Table 19 lists the parameters for monitoring on an annual basis. The Self-Monitoring Report Form shall be completed for this annual sampling for every annual sampling event. The annual sampling shall be conducted concurrently with a quarterly sampling event, so that analysis shall be conducted for both the annual and quarterly parameters listed in Table 10 through Table 19.

Table 10: MW-2B Quarterly Groundwater Monitoring					
Latitude (North)			Longitude (West)		
35° 20' 24.42" N			114° 10' 24.90" W		
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Depth to Water Level - High	18.5	Not Established	Feet bgs	Quarterly	Quarterly
Depth to Water Level - Low	55	Not Established	Feet bgs	Quarterly	Quarterly
Water Level Elevation	Not Established	Not Established	Feet amsl	Quarterly	Quarterly
pH – Field and Lab	Not Established	Not Established	SU	Quarterly	Quarterly
Specific Conductance - Lab	Not Established	Not Established	(µmhos/cm)	Quarterly	Quarterly
Total Dissolved Solids (TDS)	4751	Not Established	mg/l	Quarterly	Quarterly
Fluoride	Not Established	18.8	mg/l	Quarterly	Quarterly
Sulfate	3330	Not Established	mg/l	Quarterly	Quarterly
Metals (Dissolved):					
Beryllium	Not Established	0.027	mg/l	Quarterly	Quarterly
Cadmium	Not Established	0.144	mg/l	Quarterly	Quarterly
Copper	Not Established	Not Established	mg/l	Quarterly	Quarterly
Nickel	Not Established	1.06	mg/l	Quarterly	Quarterly

Table 11: MW-5B Quarterly Groundwater Monitoring					
Latitude (North)			Longitude (West)		
35° 20' 24.42" N			114° 10' 24.90" W		
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Depth to Water Level - High	18.5	Not Established	Feet bgs	Quarterly	Quarterly
Depth to Water Level - Low	55	Not Established	Feet bgs	Quarterly	Quarterly
Water Level Elevation	Not Established	Not Established	Feet amsl	Quarterly	Quarterly
pH – Field and Lab	Not Established	Not Established	SU	Quarterly	Quarterly
Specific Conductance - Lab	Not Established	Not Established	(µmhos/cm)	Quarterly	Quarterly
Total Dissolved Solids (TDS)	3469	Not Established	mg/l	Quarterly	Quarterly
Fluoride	3.2	4	mg/l	Quarterly	Quarterly
Sulfate	2269	Not Established	mg/l	Quarterly	Quarterly
Metals (Dissolved):					
Beryllium	0.003	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Copper	Not Established	Not Established	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly

Table 12: MW-6 Quarterly Groundwater Monitoring					
Latitude (North)			Longitude (West)		
35° 21' 51" N			114° 50' 27" W		
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Depth to Water Level	Not Established	Not Established	Feet bgs	Quarterly	Quarterly
Water Level Elevation	Not Established	Not Established	Feet amsl	Quarterly	Quarterly
pH – Field and Lab	Not Established	Not Established	SU	Quarterly	Quarterly
Specific Conductance - Lab	Not Established	Not Established	(µmhos/cm)	Quarterly	Quarterly
Total Dissolved Solids (TDS)	19,437	Not Established	mg/l	Quarterly	Quarterly
Fluoride	Not Established	223	mg/l	Quarterly	Quarterly
Sulfate	13,411	Not Established	mg/l	Quarterly	Quarterly
Metals (Dissolved):					
Beryllium	Not Established	1.29	mg/l	Quarterly	Quarterly
Cadmium	Not Established	1.78	mg/l	Quarterly	Quarterly
Copper	277	Not Established	mg/l	Quarterly	Quarterly
Nickel	Not Established	8.86	mg/l	Quarterly	Quarterly

Table 13: MW-20 Quarterly Groundwater Monitoring					
Latitude (North)			Longitude (West)		
35° 22' 20" N			114° 09' 31" W		
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Depth to Water Level	Not Established	Not Established	Feet bgs	Quarterly	Quarterly
Water Level Elevation	Not Established	Not Established	Feet amsl	Quarterly	Quarterly
pH – Field and Lab	Not Established	Not Established	SU	Quarterly	Quarterly
Specific Conductance - Lab	Not Established	Not Established	(µmhos/cm)	Quarterly	Quarterly
Total Dissolved Solids (TDS)	6,080	Not Established	mg/l	Quarterly	Quarterly
Fluoride	Not Established	13.5	mg/l	Quarterly	Quarterly
Sulfate	4,509	Not Established	mg/l	Quarterly	Quarterly
Metals (Dissolved):					
Beryllium	Not Established	0.061	mg/l	Quarterly	Quarterly
Cadmium	Not Established	0.48	mg/l	Quarterly	Quarterly
Copper	Not Established	Not Established	mg/l	Quarterly	Quarterly
Nickel	Not Established	1.84	mg/l	Quarterly	Quarterly

Table 14: MW-19 Quarterly Groundwater Monitoring					
Latitude (North)			Longitude (West)		
35° 21' 56" N			114° 09' 45" W		
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Depth to Water Level	Not Established	Not Established	Feet bgs	Quarterly	Quarterly
Water Level Elevation	Not Established	Not Established	Feet amsl	Quarterly	Quarterly
pH – Field and Lab	Not Established	Not Established	SU	Quarterly	Quarterly
Specific Conductance - Lab	Not Established	Not Established	(µmhos/cm)	Quarterly	Quarterly
Total Dissolved Solids (TDS)	23,594	Not Established	mg/l	Quarterly	Quarterly
Fluoride	Not Established	304.6	mg/l	Quarterly	Quarterly
Sulfate	19,241	Not Established	mg/l	Quarterly	Quarterly
Metals (Dissolved):					
Beryllium	Not Established	0.4105	mg/l	Quarterly	Quarterly
Cadmium	Not Established	3.445	mg/l	Quarterly	Quarterly
Copper	Not Established	Not Established	mg/l	Quarterly	Quarterly
Magnesium	Not Established	Not Established	mg/l	Quarterly	Quarterly
Nickel	Not Established	8.85	mg/l	Quarterly	Quarterly

Table 15: MW-2B Annual Groundwater Monitoring

Latitude (North)		Longitude (West)			
35° 20' 24.42" N		114° 10' 24.90" W			
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Temperature-field	Not Established	Not Established	°F	Annually	Annually
Alkalinity	Not Established	Not Established	mg/L	Annually	Annually
Carbonate	Not Established	Not Established	mg/L	Annually	Annually
Bicarbonate	Not Established	Not Established	mg/L	Annually	Annually
Calcium	Not Established	Not Established	mg/L	Annually	Annually
Chloride	Not Established	Not Established	mg/L	Annually	Annually
Magnesium	Not Established	Not Established	mg/L	Annually	Annually
Nitrate	8	10	mg/L	Annually	Annually
Nitrite	0.8	1	mg/L	Annually	Annually
Potassium	Not Established	Not Established	mg/L	Annually	Annually
Sodium	Not Established	Not Established	mg/L	Annually	Annually
<b>Metals (Dissolved):</b>					
Antimony	0.005	0.006	mg/L	Annually	Annually
Arsenic	0.04	0.05	mg/L	Annually	Annually
Barium	1.6	2	mg/L	Annually	Annually
Chromium	0.08	0.1	mg/L	Annually	Annually
Lead	0.04	0.05	mg/L	Annually	Annually
Mercury	0.0016	0.002	mg/L	Annually	Annually
Molybdenum	Not Established	Not Established	mg/L	Annually	Annually
Selenium	0.04	0.05	mg/L	Annually	Annually
Thallium	0.0016	0.002	mg/L	Annually	Annually
Zinc	Not Established	Not Established	mg/L	Annually	Annually
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/L	Annually	Annually
Toluene	0.8	1	mg/L	Annually	Annually
Ethylbenzene	0.56	0.70	mg/L	Annually	Annually
Total Xylenes	8	10	mg/L	Annually	Annually
<b>Radionuclides:</b>					
Gross Alpha	Not Established	17.93	pCi/L	Annually	Annually
Radium 226+ Radium 228	4	5	pCi/L	Annually	Annually
Uranium	Not Established	Not Established	mg/L	Annually	Annually

Table 16: MW-5B Annual Groundwater Monitoring

Latitude (North)		Longitude (West)			
35° 19' 54.30" N		114° 10' 26.22" W			
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Temperature-field	Not Established	Not Established	°F	Annually	Annually
Alkalinity	Not Established	Not Established	mg/L	Annually	Annually
Carbonate	Not Established	Not Established	mg/L	Annually	Annually
Bicarbonate	Not Established	Not Established	mg/L	Annually	Annually
Calcium	Not Established	Not Established	mg/L	Annually	Annually
Chloride	Not Established	Not Established	mg/L	Annually	Annually
Magnesium	Not Established	Not Established	mg/L	Annually	Annually
Nitrate	8	10	mg/L	Annually	Annually
Nitrite	0.8	1	mg/L	Annually	Annually
Potassium	Not Established	Not Established	mg/L	Annually	Annually
Sodium	Not Established	Not Established	mg/L	Annually	Annually
<b>Metals (Dissolved):</b>					
Antimony	0.005	0.006	mg/L	Annually	Annually
Arsenic	0.04	0.05	mg/L	Annually	Annually
Barium	1.6	2	mg/L	Annually	Annually
Chromium	0.08	0.1	mg/L	Annually	Annually
Lead	0.04	0.05	mg/L	Annually	Annually
Mercury	0.0016	0.002	mg/L	Annually	Annually
Molybdenum	Not Established	Not Established	mg/L	Annually	Annually
Selenium	0.04	0.05	mg/L	Annually	Annually
Thallium	0.0016	0.002	mg/L	Annually	Annually
Zinc	Not Established	Not Established	mg/L	Annually	Annually
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/L	Annually	Annually
Toluene	0.8	1	mg/L	Annually	Annually
Ethylbenzene	0.56	0.70	mg/L	Annually	Annually
Total Xylenes	8	10	mg/L	Annually	Annually
<b>Radionuclides:</b>					
Gross Alpha	Not Established	79.9	pCi/L	Annually	Annually
Radium 226+ Radium 228	4	5	pCi/L	Annually	Annually
Uranium	Not Established	Not Established	mg/L	Annually	Annually

Table 17: MW-6 Annual Groundwater Monitoring

Latitude (North)						Longitude (West)					
35° 21' 51" N						114° 50' 27" W					
Parameter		Alert Level	Aquifer Quality Limit	Units	Sampling Frequency		Reporting Frequency				
Temperature-field		Not Established	Not Established	°F	Annually		Annually				
Alkalinity		Not Established	Not Established	mg/L	Annually		Annually				
Carbonate		Not Established	Not Established	mg/L	Annually		Annually				
Bicarbonate		Not Established	Not Established	mg/L	Annually		Annually				
Calcium		Not Established	Not Established	mg/L	Annually		Annually				
Chloride		Not Established	Not Established	mg/L	Annually		Annually				
Magnesium		Not Established	Not Established	mg/L	Annually		Annually				
Nitrate		8.0	10	mg/L	Annually		Annually				
Nitrite		0.8	1.0	mg/L	Annually		Annually				
Potassium		Not Established	Not Established	mg/L	Annually		Annually				
Sodium		Not Established	Not Established	mg/L	Annually		Annually				
<b>Metals (Dissolved):</b>											
Antimony		0.0048	0.006	mg/L	Annually		Annually				
Arsenic		0.04	0.05	mg/L	Annually		Annually				
Barium		1.6	2.0	mg/L	Annually		Annually				
Chromium		0.08	0.1	mg/L	Annually		Annually				
Lead		0.04	0.05	mg/L	Annually		Annually				
Mercury		0.0016	0.002	mg/L	Annually		Annually				
Molybdenum		Not Established	Not Established	mg/L	Annually		Annually				
Selenium		0.04	0.05	mg/L	Annually		Annually				
Thallium		0.0016	0.002	mg/L	Annually		Annually				
Zinc		295	Not Established	mg/L	Annually		Annually				
<b>Volatile Organic Compounds (VOCs):</b>											
Benzene		0.004	0.005	mg/L	Annually		Annually				
Toluene		0.800	1.000	mg/L	Annually		Annually				
Ethylbenzene		0.560	0.700	mg/L	Annually		Annually				
Total Xylenes		8	10	mg/L	Annually		Annually				
<b>Radionuclides:</b>											
Gross Alpha <sup>5</sup>		12	15	pCi/L	Annually		Annually				
Radium 226+ Radium 228 <sup>7</sup>		4.0	5.0	pCi/L	Annually		Annually				
Uranium		Not Established	Not Established	mg/L	Annually		Annually				

Table 18: MW-20 Annual Groundwater Monitoring

Latitude (North)		Longitude (West)			
35° 22' 20" N		114° 09' 31" W			
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Temperature-field	Not Established	Not Established	°F	Annually	Annually
Alkalinity	Not Established	Not Established	mg/L	Annually	Annually
Carbonate	Not Established	Not Established	mg/L	Annually	Annually
Bicarbonate	Not Established	Not Established	mg/L	Annually	Annually
Calcium	Not Established	Not Established	mg/L	Annually	Annually
Chloride	Not Established	Not Established	mg/L	Annually	Annually
Magnesium	Not Established	Not Established	mg/L	Annually	Annually
Nitrate	8.0	10	mg/L	Annually	Annually
Nitrite	0.8	1.0	mg/L	Annually	Annually
Potassium	Not Established	Not Established	mg/L	Annually	Annually
Sodium	Not Established	Not Established	mg/L	Annually	Annually
<b>Metals (Dissolved):</b>					
Antimony	0.0048	0.006	mg/L	Annually	Annually
Arsenic	0.04	0.05	mg/L	Annually	Annually
Barium	1.6	2.0	mg/L	Annually	Annually
Chromium	0.08	0.1	mg/L	Annually	Annually
Lead	0.04	0.05	mg/L	Annually	Annually
Mercury	0.0016	0.002	mg/L	Annually	Annually
Molybdenum	Not Established	Not Established	mg/L	Annually	Annually
Selenium	0.04	0.05	mg/L	Annually	Annually
Thallium	0.0016	0.002	mg/L	Annually	Annually
Zinc	32.4	None	mg/L	Annually	Annually
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/L	Annually	Annually
Toluene	0.800	1.000	mg/L	Annually	Annually
Ethylbenzene	0.560	0.700	mg/L	Annually	Annually
Total Xylenes	8	10	mg/L	Annually	Annually
<b>Radionuclides:</b>					
Gross Alpha <sup>5</sup>	12	15	pCi/L	Annually	Annually
Radium 226+ Radium 228 <sup>7</sup>	4.0	5.0	pCi/L	Annually	Annually
Uranium	Not Established	Not Established	mg/L	Annually	Annually

Table 19: MW-19 Annual Groundwater Monitoring

Latitude (North)		Longitude (West)			
35° 21' 56" N		114° 09' 45" W			
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Temperature-field	Not Established	Not Established	°F	Annually	Annually
Alkalinity	Not Established	Not Established	mg/L	Annually	Annually
Carbonate	Not Established	Not Established	mg/L	Annually	Annually
Bicarbonate	Not Established	Not Established	mg/L	Annually	Annually
Calcium	Not Established	Not Established	mg/L	Annually	Annually
Chloride	Not Established	Not Established	mg/L	Annually	Annually
Nitrate	8.0	10.0	mg/L	Annually	Annually
Nitrite	0.8	1.0	mg/L	Annually	Annually
Potassium	Not Established	Not Established	mg/L	Annually	Annually
Sodium	Not Established	Not Established	mg/L	Annually	Annually
<b>Metals (Dissolved):</b>					
Antimony	0.0048	0.006	mg/L	Annually	Annually
Arsenic	0.04	0.05	mg/L	Annually	Annually
Barium	1.6	2.0	mg/L	Annually	Annually
Chromium	Not Established	0.18	mg/L	Annually	Annually
Lead	0.04	0.05	mg/L	Annually	Annually
Mercury	0.0013	0.0016	mg/L	Annually	Annually
Molybdenum	Not Established	Not Established	mg/L	Annually	Annually
Selenium	0.04	0.05	mg/L	Annually	Annually
Thallium	0.0016	0.002	mg/L	Annually	Annually
Zinc	388	Not Established	mg/L	Annually	Annually
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/L	Annually	Annually
Toluene	0.800	1.000	mg/L	Annually	Annually
Ethylbenzene	0.560	0.700	mg/L	Annually	Annually
Total Xylenes	8	10	mg/L	Annually	Annually
<b>Radionuclides:</b>					
Gross Alpha <sup>5</sup>	Not Established	562	pCi/L	Annually	Annually
Radium 226+ Radium 228 <sup>7</sup>	Not Established	9	pCi/L	Annually	Annually
Uranium	Not Established	Not Established	pCi/L	Annually	Annually



Table 20: WR-MAG RAP Quarterly Monitoring Requirements			
Latitude (North)	35° 21' 10.63"	Longitude (West)	114° 11' 29.47"
Parameter	Units	AL	
Field pH	SU	<6.0	
Field specific conductance	µmhos/cm	Monitor	
Total dissolved solids	mg/L	Monitor	
Sulfate	mg/L	Monitor	
Arsenic	mg/L	0.045	
Beryllium	mg/L	0.0036	
Cadmium	mg/L	0.0045	
Fluoride	mg/L	3.6	
Nickel	mg/L	0.09	
Selenium	mg/L	0.045	

WR-MAG is the Alert Well identified in the Remedial Action Plan (RAP). According to the RAP “Groundwater samples collected from the Alert Well and any other private well shall be analyzed for Total Recoverable Metals and shall *not* be field filtered.”

The inclusion of this table in this permit is for ease of reporting only, and the monitoring requirements in the RAP are to be followed if this table shows any discrepancies to the RAP requirements.

Table 21: MW-7 RAP Annual Monitoring Requirements			
Latitude (North)	35° 21' 31.46"	Longitude (West)	114° 10' 12.12"
Parameter	Units	AQL	AL
pH	SU	Monitor	Monitor
Specific Conductivity- field	µmhos/cm	Monitor	Monitor
Total dissolved solids	mg/L	Monitor	Monitor
Hardness	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total alkalinity	mg/L	Monitor	Monitor
Cation /anion balance	%	Monitor	Monitor
Nitrate	mg/L	Monitor	Monitor
Nitrite	mg/L	Monitor	Monitor
Nitrate/Nitrite as Total N	mg/L	Monitor	Monitor
Sulfate	mg/L	Monitor	Monitor
Fluoride	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Calcium	mg/L	Monitor	Monitor
Magnesium	mg/L	Monitor	Monitor
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Antimony	mg/L	Monitor	Monitor
Barium	mg/L	Monitor	Monitor
Beryllium	mg/L	Monitor	Monitor
Cadmium	mg/L	Monitor	Monitor
Chromium	mg/L	Monitor	Monitor
Copper	mg/L	Monitor	Monitor
Iron	mg/L	Monitor	Monitor
Lead	mg/L	Monitor	Monitor
Manganese	mg/L	Monitor	Monitor
Mercury	mg/L	Monitor	Monitor
Nickel	mg/L	Monitor	Monitor
Selenium	mg/L	Monitor	Monitor
Thallium	mg/L	Monitor	Monitor
Zinc	mg/L	Monitor	Monitor
Gross alpha	pCi/L	Monitor	Monitor

Metals shall be analyzed for dissolved concentrations. The inclusion of this table in this permit is for ease of reporting only, and the monitoring requirements in the RAP are to be followed if this table shows any discrepancies to the RAP requirements.

Table 22: MW-15 RAP Annual Monitoring Requirements			
Latitude (North)	35° 21' 29.47"	Longitude (West)	114° 10' 49.62"
Parameter	Units	AQL	AL
Field pH	SU	Monitor	Monitor
Field Temperature	F	Monitor	Monitor
Field Specific Conductivity	µmhos/cm	Monitor	Monitor
Total dissolved solids	mg/L	Monitor	Monitor
Hardness	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total alkalinity	mg/L	Monitor	Monitor
Cation /anion balance	%	Monitor	Monitor
Nitrate	mg/L	Monitor	Monitor
Nitrite	mg/L	Monitor	Monitor
Nitrate/Nitrite as Total N	mg/L	Monitor	Monitor
Sulfate	mg/L	Monitor	Monitor
Fluoride	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Calcium	mg/L	Monitor	Monitor
Magnesium	mg/L	Monitor	Monitor
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Antimony	mg/L	Monitor	Monitor
Barium	mg/L	Monitor	Monitor
Beryllium	mg/L	Monitor	Monitor
Cadmium	mg/L	Monitor	Monitor
Chromium	mg/L	Monitor	Monitor
Copper	mg/L	Monitor	Monitor
Iron	mg/L	Monitor	Monitor
Lead	mg/L	Monitor	Monitor
Manganese	mg/L	Monitor	Monitor
Mercury	mg/L	Monitor	Monitor
Nickel	mg/L	Monitor	Monitor
Selenium	mg/L	Monitor	Monitor
Thallium	mg/L	Monitor	Monitor
Zinc	mg/L	Monitor	Monitor
Gross alpha	pCi/L	Monitor	Monitor

Metals shall be analyzed for dissolved concentrations. The inclusion of this table in this permit is for ease of reporting only, and the monitoring requirements in the RAP are to be followed if this table shows any discrepancies to the RAP requirements

Table 23: Corrective Action Monitoring

Monitoring Well Number	Sampling Point Identification			Latitude (North)	Longitude (West)
HDMW-01	Downgradient of Hardy Dump Wellfield			35° 22' 19.21" N	114° 8' 57.9" W
HDMW-02	Downgradient of Hardy Dump Wellfield			35° 22' 18.2" N	114° 8' 57.0" W
HDMW-03	Downgradient of Hardy Dump Wellfield			35° 22' 17.7" N	114° 8' 57.1" W
Parameter	Alert Level	Aquifer Quality Limit	Units	Sampling Frequency	Reporting Frequency
Field Parameters					
Static Water Level	Monitor	Monitor	ft bgs	Quarterly	Quarterly
Specific Conductance	Monitor	Monitor	µmhos/cm	Quarterly	Quarterly
Groundwater Elevation	Monitor	Monitor	ft amsl	Quarterly	Quarterly
Dissolved Oxygen	Monitor	Monitor	mg/L	Quarterly	Quarterly
Temperature	Monitor	Monitor	°F	Quarterly	Quarterly
Turbidity	Monitor	Monitor	NTU	Quarterly	Quarterly
pH	Monitor	Monitor	SU	Quarterly	Quarterly
Oxygen Reduction Potential	Monitor	Monitor	mV	Quarterly	Quarterly
Wet Chemistry Analysis					
pH	Monitor	Monitor	SU	Quarterly	Quarterly
Specific Conductance	Monitor	Monitor	µmhos/cm	Quarterly	Quarterly
Total Dissolved Solids	Monitor	Monitor	mg/L	Quarterly	Quarterly
Total Alkalinity	Monitor	Monitor	mg/L	Quarterly	Quarterly
Bicarbonate Alkalinity	Monitor	Monitor	mg/L	Quarterly	Quarterly
Carbonate Alkalinity	Monitor	Monitor	mg/L	Quarterly	Quarterly
Sulfate	Monitor	Monitor	mg/L	Quarterly	Quarterly
Chloride	Monitor	Monitor	mg/L	Quarterly	Quarterly
Fluoride	Monitor	Monitor	mg/L	Quarterly	Quarterly
Nitrate + Nitrite as N	Monitor	Monitor	mg/L	Quarterly	Quarterly
Acidity as CaCO <sub>3</sub>	Monitor	Monitor	mg/L	Quarterly	Quarterly
Ammonia	Monitor	Monitor	mg/L	Quarterly	Quarterly
Metals <sup>1</sup>					
Antimony	Monitor	Monitor	mg/L	Quarterly	Quarterly
Arsenic	Monitor	Monitor	mg/L	Quarterly	Quarterly
Barium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Beryllium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Cadmium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Calcium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Chromium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Copper	Monitor	Monitor	mg/L	Quarterly	Quarterly
Lead	Monitor	Monitor	mg/L	Quarterly	Quarterly
Mercury	Monitor	Monitor	mg/L	Quarterly	Quarterly
Nickel	Monitor	Monitor	mg/L	Quarterly	Quarterly
Magnesium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Molybdenum	Monitor	Monitor	mg/L	Quarterly	Quarterly
Potassium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Selenium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Sodium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Thallium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Uranium	Monitor	Monitor	mg/L	Quarterly	Quarterly
Zinc	Monitor	Monitor	mg/L	Quarterly	Quarterly

<sup>1</sup> Metals shall be analyzed as dissolved.

Table 23: Corrective Action Monitoring

<b>Monitoring Well Number</b>	<b>Sampling Point Identification</b>			<b>Latitude (North)</b>	<b>Longitude (West)</b>
HDMW-01	Downgradient of Hardy Dump Wellfield			35° 22' 19.21" N	114° 8' 57.9" W
HDMW-02	Downgradient of Hardy Dump Wellfield			35° 22' 18.2" N	114° 8' 57.0" W
HDMW-03	Downgradient of Hardy Dump Wellfield			35° 22' 17.7" N	114° 8' 57.1" W
<b>Parameter</b>	<b>Alert Level</b>	<b>Aquifer Quality Limit</b>	<b>Units</b>	<b>Sampling Frequency</b>	<b>Reporting Frequency</b>
<b>Radionuclides</b>					
Gross Alpha	Monitor	Monitor	pCi/L	Quarterly	Quarterly
Radium 226	Monitor	Monitor	pCi/L	Quarterly	Quarterly
Radium 228	Monitor	Monitor	pCi/L	Quarterly	Quarterly
<b>Volatile Organic Compounds (VOCs)</b>					
Benzene	Monitor	Monitor	mg/L	Quarterly	Quarterly
Toluene	Monitor	Monitor	mg/L	Quarterly	Quarterly
Ethylbenzene	Monitor	Monitor	mg/L	Quarterly	Quarterly
Total Xylenes	Monitor	Monitor	mg/L	Quarterly	Quarterly

Table 24: Leak Collection and Removal System Monitoring					
LCRS Sump	Parameter	AL1 gallons per day (gpd)	AL2 gallons per day (gpd)	Monitoring Method	Monitoring Frequency <sup>2</sup>
SX PLS Pond (15)	Liquid Pumped <sup>3</sup>	500	5,000	Manual/Visual	Daily
Hardy LCP Pond (24)	Liquid Pumped	400	4,000	Automatic	Daily
Raffinate Pond (1)	Liquid Pumped	200	4,200	Manual/Visual	Daily

Note: The volume of liquid pumped from the LCRS shall be 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(s) for the impoundment(s) listed in this table is greater than the applicable quantity. Contingency requirements as per Sections 2.6.2.1.3 and 2.6.2.1.4 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.

<sup>2</sup> LCRS inspection and leakage quantification shall be performed daily. Any liquids detected shall be returned to the process pond.

<sup>3</sup> The “Liquid Pumped” value to be reported is the amount of liquid pumped from the LCRS sump in gallons per day (gpd).

Table 25: Facility Inspection and Operational Monitoring

Facility Name (#)	Operational Requirements
Raffinate Pond (1)	<p><b>Daily:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect and maintain 2 feet of freeboard.</li> </ul> <p><b>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of:               <ul style="list-style-type: none"> <li>○ Impairment of embankment integrity, excessive erosion in conveyances and diversions, excess accumulation of debris in conveyances and diversions, and impairment of access.</li> <li>○ At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</li> <li>○ Inspect and remove any vegetation present in the impoundment or within five feet of the impoundment. If removal of vegetation in the impoundment is impractical or unsafe, make note of the approximate location, amount, and type of vegetation in the Operation Inspection / Log Book Recordkeeping (Section 2.7.2) along with a scheduled date for removal that shall not exceed 90 days from the date of the initial discovery of the vegetation.</li> </ul> </li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</li> </ul>
Bismark SCMS (61)	<p><b>Daily:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect surface pipeline for leaks and structural integrity.</li> <li>• Visually inspect the storage tank capacity and available freeboard.</li> <li>• Visually inspect tank pad for evidence of spills or leaks from the tank, pump, etc.</li> </ul> <p><b>Monthly and following precipitation events measuring at least 1 inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of:               <ul style="list-style-type: none"> <li>○ Impairment of integrity, excessive erosion, excess accumulation of debris, and impairment of access near surface pipeline or tank pad.</li> <li>○ Impairment of integrity or leaks at the pump location, valves and structures for pump operation.</li> <li>○ Impairment of integrity or leaks at the surface conveyance pipelines.</li> <li>○ Impairment of integrity, or leaks at the transfer tank.</li> <li>○ Excessive sediment accumulation within the transfer tank.</li> <li>○ At pump location, inspect pump, valves and structures for pump operation and structural integrity.</li> </ul> </li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Remove excess sediments/sludge from the transfer tank as needed to maintain at least 80 percent of designed capacity. Inspect structures, pumps, and impairment of access.</li> </ul>
SX PLS Pond (15)	<p><b>Daily:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect and maintain 2 feet of freeboard.</li> <li>• Measure flow rate in the LCRS; confirm that it is less than Action Leakage Rate (AL1) of 500 gallons per day and less than Rapid and Large Leakage (AL2) rate of 5,000 gallons per day; and take appropriate action if exceedance is observed in the ALR or RLL.</li> </ul> <p><b>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such</p>

Table 25: Facility Inspection and Operational Monitoring

Facility Name (#)	Operational Requirements
	<p>measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of:               <ul style="list-style-type: none"> <li>○ Perforated, cut, tear or damaged liner and impairment of anchor trench integrity, impairment of embankment integrity as applicable, excessive erosion in conveyances and diversions, excess accumulation of debris in conveyances and diversions, and impairment of access.</li> </ul> </li> <li>• At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</li> <li>• Inspect and remove any vegetation present in the impoundment or within five feet of the impoundment. If removal of vegetation in the impoundment is impractical or unsafe, make note of the approximate location, amount, and type of vegetation in the Operation Inspection / Log Book Recordkeeping (Section 2.7.2) along with a scheduled date for removal that shall not exceed 90 days from the date of the initial discovery of the vegetation.</li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</li> </ul>
Hardy LCP Pond (24)	<p><b>Daily:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect and maintain 2 feet of freeboard.</li> <li>• Measure flow rate in the LCRS; confirm that it is less than Action Leakage Rate (AL1) of 400 gallons per day and less than Rapid and Large Leakage (AL2) rate of 4,000 gallons per day; and take appropriate action if exceedance is observed in the ALR or RLL.</li> </ul> <p><b>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of:               <ul style="list-style-type: none"> <li>○ Perforated, cut, tear or damaged liner and impairment of anchor trench integrity;</li> <li>○ impairment of embankment integrity as applicable;</li> <li>○ excessive erosion in conveyances and diversions;</li> <li>○ excess accumulation of debris in conveyances and diversions;</li> <li>○ and impairment of access.</li> </ul> </li> <li>• At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</li> <li>• Inspect and remove any vegetation present in the impoundment or within five feet of the impoundment. If removal of vegetation in the impoundment is impractical or unsafe, make note of the approximate location, amount, and type of vegetation in the Operation Inspection / Log Book Recordkeeping (Section 2.7.2) along with a scheduled date for removal that shall not exceed 90 days from the date of the initial discovery of the vegetation.</li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</li> </ul>
Hardy Dump (50) Bismark Dump (54) Back Dump (51) Duval Dump (52) Turquoise Dump (53) Gross Dump (55) Shop Dump (56) Central Sump (58) Ithaca Sump (59) Gross Sump (60)	<p><b>Monthly:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of dump or stockpile deformations, including surface cracks, slides, sloughs, or differential settlement affecting slope stability.</li> </ul>



Table 25: Facility Inspection and Operational Monitoring

Facility Name (#)	Operational Requirements
Flood Control Basin (27)	<p><b>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of:               <ul style="list-style-type: none"> <li>○ impairment of embankment integrity;</li> <li>○ excessive erosion in conveyances and diversions;</li> <li>○ excess accumulation of debris in conveyances and diversions;</li> <li>○ and impairment of access.</li> </ul> </li> <li>• At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</li> <li>• Inspect and remove any vegetation present in the impoundment or within five feet of the impoundment. If removal of vegetation in the impoundment is impractical or unsafe, make note of the approximate location, amount, and type of vegetation in the Operation Inspection / Log Book Recordkeeping (Section 2.7.2) along with a scheduled date for removal that shall not exceed 90 days from the date of the initial discovery of the vegetation.</li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity. Inspect structures, pumps, and impairment of access.</li> </ul>
Terminal Storage Facility (62)	<p><b>Daily:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect and maintain a minimum of 4 feet of freeboard</li> <li>• Visually inspect and take appropriate action if the free water pond on top of the impoundment encroaches and remains within 500 feet (beach width) of the dam crest.</li> </ul> <p><b>Monthly:</b></p> <ul style="list-style-type: none"> <li>• No visible structural weakness, seepage erosion, sloughing, rolling rocks, or other hazardous conditions</li> </ul> <p><b>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of tailings dam deformation, including surface cracks, slides, sloughs, seeps, erosion features or differential settlement affecting dam stability.</li> <li>• At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</li> <li>• Monitor instrumentation equipment along the tailings dam to maintain phreatic surface within safe operating limits and to ensure dam safety.</li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Crest height does not exceed 4,040 ft amsl</li> </ul>
Non-stormwater Impoundment (New Facility)	<p><b>Monthly:</b></p> <ul style="list-style-type: none"> <li>• Visually inspect and maintain a minimum of 2 feet of freeboard. Remove any vegetation present in the impoundment or within five feet of the impoundment.</li> </ul> <p><b>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period:</b> (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <ul style="list-style-type: none"> <li>• Visually inspect and take appropriate action if any evidence of:               <ul style="list-style-type: none"> <li>○ perforated, cut, tear or damaged liner and impairment of anchor trench integrity;</li> <li>○ impairment of embankment integrity;</li> <li>○ excessive erosion in conveyances and diversions;</li> <li>○ excess accumulation of debris in conveyances and diversions;</li> <li>○ and impairment of access.</li> </ul> </li> </ul>

Table 25: Facility Inspection and Operational Monitoring

Facility Name (#)	Operational Requirements
	<ul style="list-style-type: none"> <li>• At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</li> <li>• Inspect and remove any vegetation present in the impoundment or within five feet of the impoundment. If removal of vegetation in the impoundment is impractical or unsafe, make note of the approximate location, amount, and type of vegetation in the Operation Inspection / Log Book Recordkeeping (Section 2.7.2) along with a scheduled date for removal that shall not exceed 90 days from the date of the initial discovery of the vegetation.</li> </ul> <p><b>Annually:</b></p> <ul style="list-style-type: none"> <li>• Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</li> </ul> <p><b>Specific Requirement:</b></p> <ul style="list-style-type: none"> <li>• Remove accumulated fluid - the process solution or impacted stormwater due to process upsets and/or storm event, from the impoundment as soon as practical, but no later than 60 days after cessation of the upset or storm event.</li> </ul>
All POC Wells	<p><b>Semi-Annually:</b></p> <ul style="list-style-type: none"> <li>• Well cap and seals are intact.</li> <li>• No discernable corrosion or deterioration of the well(s).</li> <li>• No discernable materials accumulating in the well.</li> <li>• Any dedicated well equipment are functional and intact.</li> <li>• Any deviations from the operational requirements shall be reported per Section 2.7.3 and 2.5.3.1, all other response actions shall be documented in the logbook and be reported in the Annual Report in Section 2.7.4.1.</li> </ul>

Table 26: Piezometer Monitoring Requirements

Stability Section	Piezometer ID	Elevation (ft)	Latitude	Longitude	Monitoring Frequency	Alert level (ft)		
						Height AMSL	Height Above Piezometer	Depth to Water (from surface)
1	VP 8a	3834	35° 20' 57.12" N	114° 09' 50.55" W	Monthly			20
	VP 8b	3900	35° 21' 00.22" N	114° 09' 52.09" W	Monthly	3930	30	
	VP 8c	3842	35° 21' 00.22" N	114° 09' 52.09" W	Monthly	3857	15	
2	VP 5a	3843	35° 20' 40.77" N	114° 10' 01.27" W	Monthly	3863	20	
	VP 5c	3778	35° 20' 40.95" N	114° 09' 56.61" W	Monthly	3808	30	
3	VP 1a	3732	35° 20' 26.42" N	114° 10' 09.63" W	Monthly	3747	15	
	VP 1b	3780.5	35° 20' 26.54" N	114° 10' 03.07" W	Monthly	3815.5	35	
	VP 1c	3830	35° 20' 26.07" N	114° 10' 00.54" W	Monthly	3845	15	
	VP 1d	3888	35° 20' 26.45" N	114° 09' 52.36" W	Monthly			20
4	VP 2a	3732	35° 20' 07.73" N	114° 10' 09.65" W	Monthly	3747	15	
	VP 2b	3780	35° 20' 08.39" N	114° 10' 03.09" W	Monthly	3815	35	
	VP 2c	3890	35° 20' 09.23" N	114° 09' 53.55" W	Monthly			20
5	VP 3a	3730	35° 20' 02.99" N	114° 09' 56.89" W	Monthly	3745	15	
	VP 3b	3780.5	35° 20' 03.90" N	114° 09' 54.74" W	Monthly	3815.5	35	
	VP 3c	3830	35° 20' 04.30" N	114° 09' 58.33" W	Monthly	3845	15	

NOTE: If replacement of a piezometer is necessary due to malfunction, the permittee may install a replacement piezometer in the same general location, or additional piezometers as necessary may be added and no permit amendment is required. The locational information may be updated in the permit during any future amendment.

**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 22, 2022

Contingency Plan, dated: January 22, 2020

## **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. §§ 49-1009, 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).