**STATE OF ARIZONA**
**AQUIFER PROTECTION PERMIT NO. P-100508**
**PLACE ID 932, LTF 70268**
**SIGNIFICANT AMENDMENT**

## 1.0 AUTHORIZATION

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, the Arizona Department of Environmental Quality (ADEQ) hereby authorizes ASARCO LLC to operate the ASARCO Mission Mine Complex located at 4201 W. Pima Mine Road, Sahuarita, Arizona, in Sections 35 and 36 in Township 16S, Range 12E; Sections 31, 32, 33 and 34 in Township 16S, Range 13E; Sections 1 and 2 in Township17S, Range 12E; Sections 3, 4, 5, 6, 7, 8, 9, 10, and 15 in Township 17S, Range 13E, of the Gila and Salt River Baseline and Meridian.

This permit becomes effective on the date of the Water Quality Division 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:** ASARCO Mission Mine Complex
**Facility Address:** 4201 W. Pima Mine Road
Sahuarita, Arizona 85629

**County:** Pima County

**Permittee:** ASARCO LLC
**Permittee Address:** 4201 W. Pima Mine Road
Sahuarita, Arizona 85629

**Annual Registration Fee Flow Rate:** 10,000,000 gallons per day (gpd)

**Facility Contact:** Environmental Manager
**Emergency Phone No.:** (520) 393-4671

**Latitude/Longitude:** 31° 58' 47" N/111° 02' 31" W
**Legal Description:** Sections 35 and 36 in Township 16S, Range 12E; Sections 31, 32, 33 and 34 in Township 16S, Range 13E; Sections 1 and 2 in Township17S, Range 12E; Sections 3, 4, 5, 6, 7, 8, 9, 10, and 15 in Township 17S, Range 13E, of the Gila and Salt River Baseline and Meridian.

## 1.2 AUTHORIZING SIGNATURE

_____

**Trevor Baggiore, Director**
Water Quality Division
Arizona Department of Environmental Quality

Signed this _____ day of _____ , 2018

**THIS AMENDED PERMIT SUPERCEDES ALL PREVIOUS PERMITS**

## 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)]

The ASARCO Mission Complex is located approximately 15 miles south of Tucson, Arizona on non-tribal land. The Mission Complex consists of tailing impoundments, overburden and waste rock deposition areas, open pits, concentrators and other ancillary facilities associated with hard rock mining.

The Mission Complex extracts and processes copper ore from an open pit mine and operates two mills, the Mission Mill (aka North Mill) and the South Mill. The output produced by the Mission Complex is a copper concentrate which is shipped to Hayden, Arizona for final processing at a smelter.

The water used for current mining and milling operations consists of a combination of groundwater from production wells located along Pima Mine Road and water from the Central Arizona Project (CAP) provided by the Central Arizona Water Conservation District (CAWCD), as well as a minor amount from pit dewatering activities

ADEQ has reviewed and approved the vertical expansion of tailings storage facility (TSF) number four and to remove the truck wash from the permit.

The site includes the following permitted discharging facilities:

| Facility Name | Latitude | Longitude |
|---|---|---|
| Tailing Storage Facility Number 4 | 31 ° 59’ 13” N | 111 ° 00’ 31” W |
| Tailing Storage Facility Number 5 | 31 ° 58’ 47” N | 111 ° 02’ 31” W |
| Tailing Storage Facility Number 6 | 31 ° 57’ 47” N | 111 ° 00’ 47” W |
| Tailing Storage Facility Number 7 | 31 ° 57’ 53” N | 111 ° 00’ 21” W |
| Tailing Storage Facility Number 8 | 31 ° 59’ 13” N | 111 ° 00’ 31” W |

**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 in Section 1.1 .

**Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203 ]**
The Permittee shall be required to demonstrate financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The Permittee shall be required to maintain financial capability throughout the life of the facility. The closure costs are $4,097,974, post-closure costs are $386,691, and indirect cost are $1,596,076, for a total of $6,080,741. The financial assurance mechanism shall be demonstrated through a Performance Bond per 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)]

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

#### 2.2.1 Engineering Design

##### 2.2.1.1 Tailings Storage Facility # 4

The tailing dam shall be expanded using the upstream method. The Engineer of Record (EOR) shall inspect the starter dike during construction to assure proper surface preparation, embankment keyway, and suitable material and lift thickness and compaction. Design drawings, specifications and as-built documentation for the starter dams shall be submitted in accordance with Section 3.0, Compliance Schedule Items 3.4.

Presliming with fine tailing material shall be initially deposited during construction of the expansion to reduce discharge. The tailing discharge shall be controlled by spigotting to ensure that the coarser sandy tailing are deposited near the expansion starter dike. The EOR shall inspect the construction of the base of the TSF to assure the use of suitable materials for presliming and verify the thickness of the presliming layer is a minimum of 3 feet thick. Tailing shall be delivered to the tailing facility at a rate

not to exceed 23 million tons per year, based on dry weight of tailing from the Mission Complex concentrators.

The overall slope of the embankment is approximately 3.7H:1V. The embankment crest will be raised in 12-foot increments, with 50-foot wide benches every 3 raises (30 feet) to facilitate raising of the tailings delivery line. Each raise is constructed with a downstream slope of 2H:1V and an upstream slope of approximately 1.6H:1V and a crest width of approximately 14 feet. The sequence of raises will be continued until the embankment reaches its final elevation of 3,175 feet above mean sea level (amsl). Upon completion of each bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

#### 2.2.1.2 Tailings Storage Facility # 5

Tailing will be placed in this facility only when needed for emergency control not to exceed 30,000 tons (solids) per year. The tailing dam is constructed using the upstream method. The tailing discharge is controlled by spigotting to ensure that the coarser sandy tailing are deposited near the starter dike. Total deposition of tailing over the life of the facility shall cause the ultimate dam height not to exceed an elevation of 3,235 feet AMSL. Upon completion of each 30 foot bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

#### 2.2.1.3 Tailings Storage Facility # 6

Tailing will be placed in this facility only when needed for emergency control not to exceed 30,000 tons (solids) per year. The tailing dam is constructed using the upstream method. The tailing discharge is controlled by spigotting to ensure that the coarser sandy tailing are deposited near the starter dike. Total deposition of tailing over the life of the facility shall cause the ultimate dam height not to exceed an elevation of 3,170 feet AMSL. Upon completion of each 30 foot bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

#### 2.2.1.4 Tailings Storage Facility # 7

The tailing dam is constructed using the upstream method. The tailing discharge is controlled by spigotting to ensure that the coarser sandy tailing are deposited near the starter dike. Total deposition of tailing over the life of the facility shall cause the ultimate dam height not to exceed an elevation of 3,150 feet AMSL. Tailing shall be delivered to the tailing facility at a rate not to exceed 11 million tons per year, based on dry weight of the tailing from the Mission Complex concentrators. Upon completion of each 30 foot bench, concurrent reclamation shall be commenced including applying a minimum 6" layer of alluvial material and reseeding with native vegetation.

#### 2.2.1.5 Tailings Storage Facility # 8

The tailing dam was constructed using the upstream method. The tailings facility has been capped with a minimum 6 inches of alluvial materials and shall not receive additional tailings. The capped facility shall be maintained and repaired as needed to assure that vegetation is established.

#### 2.2.1.6 Decant Ponds

The decant ponds shall be maintained at least 500 feet from the embankment crest to ensure dam integrity and minimum 4.5 feet of freeboard shall be maintained.

#### 2.2.1.7 TSF Stormwater runoff and run-on controls

Stormwater runoff and run-on controls for TSF #4, #5, #6, #7 and #8 shall be provided per Compliance Schedule Section 3.0. item 3.3.

### 2.2.2 Site-specific Characteristics

Not applicable

### 2.2.3 Pre-operational Requirements

Not applicable

#### 2.2.4 Operational Requirements

At a minimum, permitted facilities shall be inspected for performance levels listed in Section 4.2, Table 4.2.1. 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 damage is identified during an inspection that could cause or contribute to a discharge, proper repairs shall be promptly performed and documented as described in Section 2.5.2 and Section 2.7.2.

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

The permittee shall operate and maintain all permitted facilities to prevent unauthorized discharges as defined in A.R.S. § 49-201(12) resulting from failure or bypassing of BADCT pollutant control technologies including liner failure, uncontrollable leakage, berm breaches that result in an unexpected loss of fluid, or accidental spills, or other unauthorized discharges. Liner failure in a single-lined impoundment is any condition that would result in leakage exceeding 550 gallons per day per acre. 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.

### 2.4 Point of Compliances (POCs) [A.R.S. § 49-244]

Three hazardous/non-hazardous points of compliance (POCs) have been designated for TSF No. 4 and this site as identified below:

| Well Number | Well Name | POC Locations | Latitude (North) | Longitude (West) | ADWR Number |
|---|---|---|---|---|---|
| POC-1 | MW-2 | Northeast of TSF No. 8 | 31°57′25″ N | 110°59′45″ W | 55-531807 |
| POC-2 | MW-3 | Northeast of TSF No. 4 | 31°59′39″ N | 110°59′44″ W | 55-558068 |
| POC-3 | MW-6r | Northeast of TSF No. 7 | 31°58′28″ N | 110°59′47″ W | 55-565267 |

Groundwater monitoring is required at the POC Wells. The Director may amend this permit to designate an additional point or points of compliance if information on groundwater gradient or groundwater usage indicates the need.

**Piezometer Well**

Water level monitoring is required in the piezometers as an indication of the formation of saturated zone(s) or an increase in phreatic level during dam operation which may compromise the stability of the dam. The piezometers are not POC wells, but shall be monitored pursuant to Section 2.6.2.5 and Section 4.2, Table 4.2.1.

| Piezometer ID | Location | Latitude | Longitude |
|---|---|---|---|
| 4S | South | 31.979585° | -110.998626° |
| 4CA | Center, Upper | 31.987785° | -110.998800° |
| 4CB | Center, Lower | 31.987766° | -110.998048° |
| 4NA | North, Upper | 31.994872° | -110.998882° |
| 4NB | North, Lower | 31.994935° | -110.998069° |
| 5S | South | 31.972656° | -111.038693° |
| 5N | North | 31.976454° | -111.038671° |
| 6S | South | 31.958961° | -111.014588° |
| 6N | North | 31.970843° | -111.016077° |
| 7A | Upper | 31.966307° | -111.000907° |
| 7B | Lower | 31.966334° | -111.000248° |
| 8A | Upper | 31.951856° | -110.997159° |
| 8B | Center | 31.951893° | -110.996575° |
| 8C | Lower | 31.951793° | -110.996177° |

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

**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 Pre-Operational Monitoring**
Not applicable

**2.5.2 Facility / Operational Monitoring**
Operational monitoring inspections shall be conducted according to Section 4.2, Table 4.2.1.
If any damage of the pollution control structures is identified during inspection that could cause or contribute to a discharge as defined in A.R.S. § 49-201(12), proper repair procedures shall be performed. All repair procedures and materials used shall be documented in the facility log book as per Section 2.7.2.

**2.5.3 Compliance Groundwater Monitoring and Sampling Protocols**
Compliance groundwater monitoring is required under the terms of this permit per Section 4.2 Table 4.2.2 for Annual Groundwater monitoring and Table 4.2.3 Biennial Groundwater monitoring.

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

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.

**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 or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the replacement well is 50 feet or less from the original well, the ALs and/or aquifer quality limits (AQLs) calculated for the designated POC well shall apply to the replacement well. Otherwise, the ALs and/or AQLs shall be set following the provisions in Sections 2.5.3.2, 2.5.3.3 and 2.5.3.4 of this permit.

**2.5.4 Surface Water Monitoring and Sampling Protocols**
Not applicable

**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 contingency requirements of Section 2.6 and may propose "other actions" including amending the permit to set higher limits. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification unless exempted under A.R.S. § 36-495.02. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state-certified laboratories can be obtained at the address below:

Arizona Department of Health Services
Office of Laboratory Licensure and Certification
250 North 17th Avenue
Phoenix, 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. A revised contingency plan per Section 3.0 item 3.6 for updating contingency actions for TSF #4.

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 Sections 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 of a DL or AQL or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL or DL. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling had been conducted.

The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit.

#### 2.6.2 Exceeding of Alert Levels and Performance Levels

##### 2.6.2.1 Exceeding of Performance Levels Set for Freeboard

In the event that the minimum 4.5 feet of freeboard required, measured from the surface of the supernatant pool to the lowest point of the TSF embankment listed in Section 4.2, Table 4.2.1 are not maintained, the permittee shall:

1. As soon as practicable and to the extent practicable, cease or reduce discharging to the impoundment to prevent overtopping. Remove and properly dispose or recycle to other operations the excess fluid in the reservoir until the water level is restored at or below the 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.

#### 2.6.2.2 Exceeding of Performance Levels Set for Conditions

1. If an operational performance level (PL) listed in Section 4.2, Table 4.2.1 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 and any necessary contingency measures to resolve problems identified by the investigation which may have led to a PL being exceeded. To implement any other corrective action the permittee may choose to obtain prior approval from ADEQ according to Section 2.6.6.

#### 2.6.2.3 Dam Stability

If physical evidence shows the formation of saturated zone(s) above the starter dam which may compromise the stability of the dam, the permittee shall:

1. Within five days of becoming aware of the situation notify the ADEQ Groundwater Protection Value Stream, and
2. Within 30 days, submit a written report to the ADEQ Groundwater Protection Value Stream and identify alternate methods of control which may include but are not limited to: temporary cessation within the area of instability, dewatering, and peripheral spigotting management

#### 2.6.2.4 TSF(s) Slope Conditions

The permittee shall monitor the TSF(s) perimeter for general slope conditions as per Section 4.2, Table 4.2.1 to identify unusual scour or degradation of materials, sloughing, rolling rocks or visible seepage. If a TSF exhibits any signs that require maintenance, the permittee shall take the following actions:

1. Notify the design engineer.
2. If necessary, perform remedial actions approved by the engineer.
3. Monitor the area for signs of decreasing slope stability.

#### 2.6.2.5 TSF Piezometric Level

The permittee shall monitor the piezometric level per Section 4.2, Table 4.2.1. If the piezometers read a phreatic surface of less than 50 ft. below the surface of the tailings, the permittee shall take the following actions:

1. Notify the design engineer.
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. Hydrographs of this and all other piezometers will be recorded on at least a weekly basis to allow quick inspection and evaluation of historic facility operations.

#### 2.6.2.6 Exceeding of Discharge Limitation for Tailings Deposition Height

1. If the DL for tailings deposition height set in Section 4.2, Table 4.2.1 has been exceeded, the permittee shall immediately investigate to determine the cause of the DL being exceeded. The investigation shall include a review of recent process logs, reports, and other operational control information to identify the cause of the exceedance.
2. The Permittee shall initiate actions to return to compliance with the DL as soon as practicable.
3. Within 30 days of a DL being exceeded, the Permittee shall submit to the ADEQ Groundwater Protection Value Stream, a summary of the findings of the investigation, the cause of the DL being exceeded, and actions taken to resolve the problem.
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.

#### 2.6.2.7 Exceeding of Alert Levels in Groundwater Monitoring

##### 2.6.2.7.1 Alert Levels for Indicator Parameters

Permittee shall monitor the sulfate and TDS concentrations in the POC monitor wells and report the results per Section 2.7.4.2.

##### 2.6.2.7.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4.2, Tables 4.2.2 and 4.2.3 has been exceeded, the Permittee may request that the laboratory verify the sample results within five (5) days of becoming aware of an AL exceedance. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL exceedance or if the Permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring for that parameter to Quarterly from Annually. In addition, the permittee shall immediately initiate an investigation of the cause of the AL exceedance, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The Permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL exceedance. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Groundwater Protection Value Stream, that although an AL is exceeded, the pollutant(s) for which the AL is exceeded are not reasonably expected to cause a violation of an AQL at any POC. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the Groundwater Protection Value Stream for any pollutant that exceeded its AL.
4. Within 30 days after confirmation of an AL exceedance, the permittee shall submit the laboratory results to the Groundwater Protection Value Stream along with a summary of the findings of the investigation, the cause of the AL exceedance, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring required as a result of ALs being exceeded may be reduced to the regularly scheduled frequency, if the results of three (3) consecutive quarterly sampling events demonstrate that the pollutant(s) which have been monitored for more frequently no longer exceed the AL(s).
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 a second (2nd) report

documenting an investigation of the continued AL exceedance within 30 days of the receipt of laboratory results of the sixth (6th) sampling event.

**2.6.2.7.3 Alert Levels to Protect Downgradient Users from Pollutants Without Numeric Aquifer Water Quality Standards**
Not applicable

**2.6.2.7.4 Alert Level for Groundwater Level**
Not applicable

**2.6.3 Discharge Limit Violation**

**2.6.3.1 Slope and Berm Failures**
If a slope or berm failure involving 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, 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 Violation**

1. If an AQL set in Section 4.2 Table 4.2.2 and or 4.2.3 has been exceeded, the permittee may conduct verification sampling for those pollutant(s) that were above their respective AQL(s) within 5 days of becoming aware of an AQL exceedance. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms that the AQL is violated for those pollutant(s) that were above their respective AQL(s) or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring for those pollutant(s) that were above their respective AQL(s) to Quarterly from Annually. 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(2), 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 90 days or a longer time period if agreed to by ADEQ 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.
3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
4. The permittee shall notify any downstream or downgradient users who may be directly affected by a verified exceedance of the AQL.
5. The permittee shall continue monitoring at the increased frequency until the contaminant(s) are below the AQL and AL for three consecutive quarters.

**2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. § 49-201(12) and pursuant to A.R.S. § 49-241 That Are Not Addressed Elsewhere in Section 2.6**

#### 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 as defined in 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 and the Southern Regional Office within 24 hours upon discovering the discharge of hazardous material which (a) has the potential to cause an AWQS or AQL to be exceeded, 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 as defined in 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 and the Southern Regional Office 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 required to be reported under Sections 2.6.5.2 and 2.6.5.3 to the Groundwater Protection Value Stream and the Southern Regional Office 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(2). If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in the notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

### 2.6.6 Corrective Actions

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

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

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 4.2 list the monitoring parameters and the frequencies for reporting results on the SMRF:

   - Table 4.2.2 Annual Groundwater Compliance Monitoring
   - Table 4.2.3 Biennial Groundwater Compliance Monitoring

   The parameters listed in the above-identified tables from Section 4.2 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 time 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.

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 in writing within five (5) days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an AL exceedance 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 or discharge limitation. 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**

The permittee shall submit construction QA/QC Report and as-built drawings, sealed by an Arizona registered professional engineer, for each section of starter dike for TSF 4 expansion. . No annual reports are due after the annual report verifying completion of the starter dike for the TSF 4 expansion has been submitted.

When required the annual report is to be submitted by January 30 of each year to cover activities from January 1 through December 31st of the previous year, consistent with Section 2.7.6.

#### 2.7.4.2 Alert Levels for Indicator Parameters Report

The permittee shall submit a time versus concentration plot for each parameter (sulfate and TDS) following every five (5) years of compliance sampling. In addition to the plots, the permittee must submit to the Groundwater Protection Value Stream for evaluation and approval, a report which interprets the data and current trend, and extrapolates future trends for each parameter per Section 3.0, item 3.8.

The Aquifer Protection Permit Program reserves the right to require the permittee to calculate and establish numeric Alert Levels for sulfate and total dissolved solids at any time based upon the submitted trend analysis report(s) if it indicates that there is a potential for endangering human health or that reasonably foreseeable uses of the aquifer are impaired due to their presence per Section 2.6.2.7.1.

#### 2.7.4.3 Site Hydrogeologic Report

The permittee shall submit an updated site hydrogeologic and groundwater modeling report in accordance with the Compliance Schedule in Section 3.0, item 3.7. Every five (5) years thereafter, the permittee shall update the site hydrogeology, groundwater assessment and groundwater model, in accordance with the Compliance Schedule.

The site hydrogeologic and groundwater modeling report shall address data gaps, adequacy of well locations and screen intervals, and performance of the groundwater model. The report shall also include hydrographs, trending analysis for each well and constituents in the compliance monitoring program; stiff diagrams and/or tri-linear diagrams as appropriate; groundwater modeling to assess fate, transport and well spacing. The model shall assess the post-closure period required by this permit and recommend adjustments to the post-closure monitoring period based on aquifer properties, groundwater modeling results, trending analysis and groundwater quality data.

### 2.7.5 Reporting Location

All Self-Monitoring Report Forms (SMRFs) shall be submitted to:

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

Or

Through the myDEQ portal accessible on the ADEQ website at:
http://www.azdeq.gov/welcome-mydeq

All other documents required by this permit to be submitted to the Groundwater Protection Value Stream shall be directed to:

Arizona Department of Environmental Quality
Groundwater Protection Value Stream
Mail Code 5415B-3
1110 West Washington Street
Phoenix, Arizona 85007
Phone (602) 771-4449

### 2.7.6 Reporting Deadline

The following table lists the due dates:

| **Monitoring conducted during quarter:** | **Quarterly Report due by:** |
|---|---|
| January-March | April 30 |

| Monitoring conducted during quarter: | Quarterly Report due by: |
|---|---|
| April-June | July 30 |
| July-September | October 30 |
| October-December | January 30 |

The following table lists the due date for the Annual report per Section 2.7.4.1 and the semi-annual groundwater compliance monitoring required by Section 4.2, Table 4.2.4:

| Monitoring conducted: | Report due by: |
|---|---|
| Annual: January-December | January 30 |
| Semi-Annual: January-June | July 30 |
| Semi-Annual: July-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 and the Southern Regional Office before ceasing operation of the facility for a period of 60 days or greater. The permittee shall take the following measures upon temporary cessation:

- 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 and the Southern Regional Office 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)]**
At closure, the permittee shall demonstrate the post-closure effects of the open pit. Factors to be evaluated shall include groundwater intrusion, estimated static water level in the pit and estimated amount of time needed to reach static water level, chemistry of the pit water, and the geochemistry of exposed rocks in the pit. The demonstration shall also evaluate the potential for the water level in the pit to rise to an elevation where the hydraulic gradient reverses and the pit ceases to act as a hydrologic sink. This closure/ post-closure evaluation must be submitted to ADEQ Aquifer Protection Permit Program prior to complete closure of the mine.

Upon completion of the closure activities, the permittee shall conduct a post-closure audit of the computer modeling efforts, submitted with the area-wide Aquifer Protection Permit Program application, which predicted changes in water levels and the fate and transport of pollutants in the cone of depression after closure. The post-closure audit shall consist of re-evaluating the calculations and assumptions made in the computation. The permittee shall submit a report to the Aquifer Protection Permit Program describing the post-closure audit as well as any changes in the conceptual model, any model redesign, and any changes in predicted post-closure conditions.

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

### 2.9.1 Closure Plan

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

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

### 2.9.2 Closure Completion

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

1. Clean-closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with the AWQS at the applicable POC or, for any pollutant for which the AWQS was exceeded at the time this permit was issued, further action is necessary to prevent the facility from further degrading the aquifer at the applicable POC with respect to that pollutant;
3. Activities are necessary to verify that actions or controls specified as closure requirements in an approved closure plan or strategy are routinely inspected or maintained;
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; and
5. Further action is necessary to meet property use restrictions.

## 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

A specific post-closure plan may be required upon the review of the closure plan.

### 2.10.2 Post-Closure Completion

Not required at the time of permit issuance.

## 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.

| No. | Description | Due by: | Permit Amendment Required? |
|---|---|---|---|
| 3.1 | The permittee shall submit design drawings and specifications signed, dated, and sealed by an Arizona-registered Professional Engineer for the for the redesigned stormwater controls located on the south side of Tailings Storage Facilities #6 and #7 and for Retention Basin 27. | January 31, 2019 | No |
| 3.2 | The permittee shall submit construction QA/QC Report and as-built drawings, sealed by an Arizona registered professional engineer, for the redesigned stormwater controls located on the south side of Tailings Storage Facilities #6 and #7 and Retention Basin 27, which demonstrate they were constructed in accordance with plans and specifications approved by ADEQ. | April 7, 2020 | No |
| 3.3 | The permittee shall submit as-built drawings, sealed by an Arizona registered professional engineer, for the existing stormwater controls for the Tailings Facilities (TSF #4, #5, #6, #7 and #8). | December 31, 2019 | No |
| 3.4 | The permittee shall submit design drawings, specifications and QA/QC plan, sealed by an Arizona registered professional engineer, for the starter dike for TSF 4 expansion. | February 28, 2019 | No |
| 3.5 | The permittee shall submit construction QA/QC Report and as-built drawings, sealed by an Arizona registered professional engineer, for each section of starter dike for TSF 4 expansion per Section 2.7.4.1. | January 30, 2020 until the starter dike is completed | No |
| 3.6 | The permittee shall submit a monitoring plan, describing the processes and procedures for inspection and identification of contingency actions, for TSF 4 to assure that the actual site conditions remain consistent with the assumptions used in the design analysis, particularly as it relates to stability. The plan shall include the installation of piezometers and any other instrumentation utilized to measure parameters that influence stability of TSF 4. (see Section 2.6.1) | December 31, 2019 | No |
| 3.7 | The permittee shall update the site hydrogeologic report with an update to the current groundwater flow model. A site hydrogeologic report and groundwater flow model shall be submitted every five (5) years thereafter. (See Section 2.7.4.3) | October 31, 2021 and every five years thereafter. 2026, etc. | No |
| 3.8 | The permittee shall conduct groundwater trend analysis for each parameter (sulfate and TDS) in the POC wells every five (5) years and submit to the Groundwater Protection Value Stream for evaluation and approval, a report which interprets the data and current groundwater trend, and extrapolates future trends for each parameter. (see Sections 2.6.2.7.1 and 2.7.4.2) | October 31, 2023 and every five years thereafter. 2028, etc. | No |
| 3.9 | 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, below. 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 | December 15, 2024 and every six (6) years, for the duration of the permit. | No |

| | | | |
|---|---|---|---|
| | closure and post-closure costs, and discharging facilities have not been added. The demonstration shall also include information in support of a cash deposit as required in A.A.C. R18-9-A203(C)(2). | | |
| 3.10 | The permittee shall submit 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. | By October 15, 2024 and every 6 years thereafter. | Yes |

## TABLES OF MONITORING REQUIREMENTS

### 4.1 PRE-OPERATIONAL MONITORING (or CONSTRUCTION REQUIREMENTS)

Not Required

### 4.2 COMPLIANCE AND OPERATIONAL MONITORING

Table 4.2.1 Facility Inspection Monitoring (Log Book)
Table 4.2.2 Annual Compliance Groundwater Monitoring
Table 4.2.3 Biennial Compliance Groundwater Monitoring

## 4.0 TABLES OF MONITORING REQUIREMENTS and BADCT DEMONSTRATIONS

### 4.1 PRE-OPERATIONAL MONITORING (or CONSTRUCTION REQUIREMENTS)

Not Required.

## 4.2 COMPLIANCE (or OPERATIONAL) MONITORING

**TABLE 4.2.1**
**FACILITY INSPECTION (OPERATIONAL MONITORING) - LOG BOOK[1]**

**TAILINGS STORAGE FACILITY # 4 - Log Book**

| Parameter | Performance Standard | Monitoring Frequency |
|---|---|---|
| Facility Height | Does not exceed 3,175 ft amsl | Annually |
| Dam Structural Integrity | No visible structural weakness, seepage erosion, sloughing, rolling rocks, evidence of crest failure, slips at toe, cracks or other hazardous conditions | Quarterly and after rainfall ≥3 inches in 24 hours |
| Concurrent Reclamation | Reclamation of outer slopes, a minimum 6" layer of alluvial material and reseeding with native vegetation. | Quarterly |

**TAILINGS STORAGE FACILITY # 5 - Log Book**

| Parameter | Performance Standard | Monitoring Frequency |
|---|---|---|
| Facility Height | Does not exceed 3,235 ft amsl | Annually |
| Dam Structural Integrity | No visible structural weakness, seepage erosion, sloughing, rolling rocks, evidence of crest failure, slips at toe, cracks or other hazardous conditions | Quarterly and after rainfall ≥3 inches in 24 hours |

**TAILINGS STORAGE FACILITY # 6 - Log Book**

| Parameter | Performance Standard | Monitoring Frequency |
|---|---|---|
| Facility Height | Does not exceed 3,170 ft amsl | Annually |
| Dam Structural Integrity | No visible structural weakness, seepage erosion, sloughing, rolling rocks, evidence of crest failure, slips at toe, cracks or other hazardous conditions | Quarterly and after rainfall ≥3 inches in 24 hours |

**TAILINGS STORAGE FACILITY # 7 - Log Book**

| Parameter | Performance Standard | Monitoring Frequency |
|---|---|---|
| Facility Height | Does not exceed 3,150 ft amsl | Annually |
| Dam Structural Integrity | No visible structural weakness, seepage erosion, sloughing, rolling rocks, evidence of crest failure, slips at toe, cracks or other hazardous conditions | Quarterly and after rainfall ≥3 inches in 24 hours |

**TAILINGS STORAGE FACILITY # 8 - Log Book**

| Parameter | Performance Standard | Monitoring Frequency |
|---|---|---|
| Cap /Structural Integrity | Visually inspect for erosion of cap material, no visual slips at toe, no visible cracks, no evidence of seepage. | Quarterly and after rainfall ≥3 inches in 24 hours |

[1] The permittee shall record the inspection performance levels in a log book as per Section 2.7.2. In the case of an exceedance, identify which structure exceeds the performance level in the log book.

## 4.2 COMPLIANCE (or OPERATIONAL) MONITORING

**TABLE 4.2.1**
**FACILITY INSPECTION (OPERATIONAL MONITORING) - LOG BOOK[2] -**Continued

**PIEZOMETER WELLS[3]**

| Parameter | Performance Standard | Monitoring Frequency |
|---|---|---|
| Piezometer water level and conditions | • Phreatic level shall be maintained at least 50 feet below the surface of the tailings.<br>• Proper operation and no obstructions.<br>• Check for no evidence of seepage | Quarterly and after rainfall ≥3 inches in 24 hours |

DECANT COLLECTION PONDS - Log Book

| TSF | Performance Standard | Monitoring Frequency |
|---|---|---|
| TSF #4 | • A minimum 4.5 feet of freeboard required, measured from the surface of the supernatant pool to the lowest point of the TSF embankment.<br>• Maintained at least 500 feet from the embankment crest to ensure dam integrity. | Daily |
| TSF #5 | • A minimum 4.5 feet of freeboard required, measured from the surface of the supernatant pool to the lowest point of the TSF embankment.<br>• Maintained at least 100 feet from the embankment crest to ensure dam integrity | Daily |
| TSF #6 | • A minimum 4.5 feet of freeboard required, measured from the surface of the supernatant pool to the lowest point of the TSF embankment.<br>• Maintained at least 500 feet from the embankment crest to ensure dam integrity | Daily |
| TSF #7 | • A minimum 4.5 feet of freeboard required, measured from the surface of the supernatant pool to the lowest point of the TSF embankment.<br>• Maintained at least 500 feet from the embankment crest to ensure dam integrity | Daily |

[2] The permittee shall record the inspection performance levels in a log book as per Section 2.7.2. In the case of an exceedance, identify which structure exceeds the performance level in the log book.

[3] If replacement of a piezometer is necessary due to malfunction, the permittee may install a replacement piezometer in the same general location, and no permit amendment is necessary. The locational information may be updated in the permit, during any future amendment.

## 4.2 COMPLIANCE (or OPERATIONAL) MONITORING

**TABLE 4.2.2**

**COMPLIANCE GROUNDWATER MONITORING**

| **Sampling Point Number** | **Sampling Point Identification** | | | **Latitude** | **Longitude** |
|---|---|---|---|---|---|
| 1 | Northeast of TSF No. 8 (MW-2) | | | 31°57′25″ N | 110°59′45″ W |
| 2 | Northeast of TSF No. 4 (MW-3) | | | 31°59′39″ N | 110°59′44″ W |
| 3 | Northeast of TSF No. 7 (MW-6r) | | | 31°58′28″ N | 110°59′47″ W |
| **Parameter[4]** | **AL[5]** | **AQL[6]** | **Units** | **Monitoring Frequency** | **Reporting Frequency** |
| Depth to Water Level | Monitor[7] | Monitor | Feet | Annually | Annually |
| Temperature | Monitor | Monitor | Degrees | Annually | Annually |
| Field pH | Monitor | Monitor | S.U. | Annually | Annually |
| Specific Conductance[8] | Monitor | Monitor | µmhos/cm | Annually | Annually |
| Total Dissolved Solids | Monitor | Monitor | mg/L | Annually | Annually |
| Sulfate | Monitor | Monitor | mg/L | Annually | Annually |
| Nitrite (as N) | Monitor | Monitor | mg/L | Annually | Annually |
| **Metals[9] (total):** | | | | | |
| Antimony | 0.006 | 0.0048 | mg/L | Annually | Annually |
| Copper | Monitor | Monitor | mg/L | Annually | Annually |
| Manganese | Monitor | Monitor | mg/L | Annually | Annually |
| Zinc | Monitor | Monitor | mg/L | Annually | Annually |

[4] Metals shall be analyzed as dissolved metals.
[5] AL = Alert Levels
[6] AQL = Aquifer Quality Limits
[7] Monitor = Analysis is required but an AQL and/or AL is not established in the permit
[8] Specific Conductance – both Field and Laboratory
[9] Metals shall be analyzed as dissolved metals, in milligrams per liter, unless otherwise specified.

## 4.2 COMPLIANCE (or OPERATIONAL) MONITORING

**TABLE 4.2.3**

**BIENNIAL GROUNDWATER COMPLIANCE MONITORING**

| **Sampling Point Number** | **Sampling Point Identification** | | | **Latitude** | **Longitude** |
|---|---|---|---|---|---|
| 1 | Northeast of TSF No. 8 - (MW-2) | | | 31°57′25″ N | 110°59′45″ W |
| 2 | Northeast of TSF No. 4 - (MW-3) | | | 31°59′39″ N | 110°59′44″ W |
| 3 | Northeast of TSF No. 7 - (MW-6r) | | | 31°58′28″ N | 110°59′47″ W |
| **Parameter** | **AL[10]** | **AQL[11]** | **Units** | **Monitoring Frequency** | **Reporting Frequency** |
| **Common Ions and Miscellaneous Analysis** | | | | | |
| Total Alkalinity | Monitor[12] | Monitor | mg/L | Biennially | Biennially |
| Bicarbonate | Monitor | Monitor | mg/L | Biennially | Biennially |
| Calcium | Monitor | Monitor | mg/L | Biennially | Biennially |
| Carbonate | Monitor | Monitor | mg/L | Biennially | Biennially |
| Chloride | Monitor | Monitor | mg/L | Biennially | Biennially |
| Fluoride | 3.6 | 4.0 | mg/L | Biennially | Biennially |
| Magnesium | Monitor | Monitor | mg/L | Biennially | Biennially |
| Potassium | Monitor | Monitor | mg/L | Biennially | Biennially |
| Sodium | Monitor | Monitor | mg/L | Biennially | Biennially |
| Nitrate +Nitrite (as N) | Monitor | Monitor | mg/L | Biennially | Biennially |
| Total Petroleum Hydrocarbons | 0.05 | Monitor | mg/L | Biennially | Biennially |
| **Metals[13] (total):** | | | | | |
| Iron | Monitor | Monitor | mg/L | Biennially | Biennially |
| Aluminum | Monitor | Monitor | mg/L | Biennially | Biennially |
| Arsenic | 0.04 | 0.05 | mg/L | Biennially | Biennially |
| Barium | 1.6 | 2.0 | mg/L | Biennially | Biennially |
| Beryllium | 0.0032 | 0.004 | mg/L | Biennially | Biennially |
| Cadmium | 0.004 | 0.005 | mg/L | Biennially | Biennially |
| Chromium | 0.08 | 0.1 | mg/L | Biennially | Biennially |
| Lead | 0.04 | 0.05 | mg/L | Biennially | Biennially |
| Mercury | 0.0016 | 0.002 | mg/L | Biennially | Biennially |
| Nickel | 0.0808 | 0.1 | mg/L | Biennially | Biennially |
| Selenium | 0.04 | 0.05 | mg/L | Biennially | Biennially |
| Silica | Monitor | Monitor | mg/L | Biennially | Biennially |
| Thallium | 0.0016 | 0.002 | mg/L | Biennially | Biennially |
| **Radionuclide** | | | | | |
| Adjusted Gross Alpha Particle Activity (pCi/L) [14] | 12 | 15 | pCi/l[15] | Biennially | Biennially |

[10] AL = Alert Levels
[11] AQL = Aquifer Quality Limits
[12] Monitor = Analysis is required but an AQL and/or AL is not established in the permit
[13] Metals shall be analyzed as dissolved metals, in milligrams per liter, unless otherwise specified.
[14] The adjusted gross alpha particle activity is the gross alpha particle activity, including radium 226, and any other alpha emitters, if present in the water sample, minus radon and total uranium (the sum of uranium 238, uranium 235 and uranium 234 isotopes). The gross alpha analytical procedure (evaporation technique: EPA Method 900.0) drives off radon gas in the water samples. Therefore, the Adjusted Gross Alpha should be calculated using the following formula: (Laboratory Reported Gross Alpha MINUS Sum of the Uranium Isotopes).

## 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:

1. APP Application, dated: February 7, 2018
2. Contingency Plan, dated: January 10, 2018
2. Final Financial Memo dated: September 19, 2018
3. Final Engineering Memo dated: August 8, 2018
4. Final Hydrologist Memo dated: May 24, 2018
3. Public Notice, dated:
4. Public Hearing, dated:
5. Responsiveness Summary, dated:



[15] Radionuclides shall be measured in PicoCuries per liter (pCi/l)

## 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 stipulated in the permit 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).