

**AQUIFER PROTECTION PERMIT NO. P- 100507  
PLACE ID 4296, LTF 61779  
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, ASARCO LLC is hereby authorized to operate the facilities listed within this permit at the ASARCO Hayden Operations located near the town of Hayden, Arizona, over groundwater of the Gila River groundwater basin in parts of Sections 8-12, 14-16, 21-23, and 26-28, Township 5 South, Range 15 East of the Gila and Salt River Base Line 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, LLC-Hayden Operations

**Permittee:**

ASARCO, LLC

**Mailing Address:**

ASARCO, LLC  
Hayden Operations  
P.O. Box 8  
Hayden, Arizona 85135

**Facility's Street Address:**

866 N. Hayden Avenue  
Hayden, Gila County, Arizona

**Facility Contact:** Jack Garrity      Technical Services Manager      (520) 356-3284

**Emergency Telephone Number:** (520) 356-3284

**Latitude:** 33° 00' 15" N

**Longitude:** 110° 46' 59" W

**Legal Description:** Parts of Sections 8-12, 14-16, 21-23, and 26-28, Township 5 South, Range 15 East of the Gila and Salt River Base Line and Meridian.

**Annual Registration Fee Flow Rate:** 10 million gallons per day (gpd) or more

**1.2 Authorizing Signature**

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**Trevor Baggio, Director**  
Water Quality Division  
Arizona Department of Environmental Quality  
Signed this \_\_\_\_ day of \_\_\_\_\_, 2016

**THIS AMENDMENT SUPERSEDES ALL PREVIOUS AMENDMENTS**

## 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 Hayden Operations primarily include the following components:

- Assay and metallurgical laboratories (2)
- Solid waste landfills (2)
- Primary copper smelter
- Concentrate and byproduct storage areas
- Slag deposition areas (active and inactive)
- Rail and truck acid loading stations and storage tanks
- Sulfuric acid plant, concentrate filter plant and lime slaker
- Petroleum product storage tanks
- Copper ore concentrator and crusher
- Vehicle wash racks
- Water treatment plant
- Inactive limestone quarry
- AB-BC and D Tailings Impoundments

Hayden receives sulfide ore from the Ray Mine via the Copper Basin Railway, which delivers seven times a day in railcars having a 100-ton capacity each. Secondary and tertiary crushing, conveying, and rod and ball milling are performed. This is followed by flotation, filtering and smelting. Tailings generated in the flotation process are deposited at the AB-BC and D tailings impoundments. Low grade slag resulting from the smelting process is deposited in the slag deposition area. Higher grade slag and some byproducts are recycled through the crushing, milling, and flotation systems.

During the copper extraction process, procedures are employed to minimize waste products. Water is recycled within the process. Sulfuric acid, produced as a co-product from air pollution control equipment at the smelter is either used at the Ray Mine or sold. Copper anodes produced by the Hayden Smelter contain over 98 percent copper. The primary source of fresh water for the Hayden Operations is groundwater wells located in the floodplains of the Gila and San Pedro Rivers.

The Hayden Operations receives B+ effluent from the Town of Hayden Wastewater Treatment Plant. This treated water is piped to the milling process stream. Effluent quality will be monitored under the separate Town of Hayden Wastewater Treatment Plant APP.

The tailing slurry is spigotted around the periphery of the tailings impoundments, and water is reclaimed from the central areas of the impoundments where it ponds during active deposition. The reclaimed water is conveyed by pipeline to basins adjacent to the reclaim pump station near the Hayden Golf Course and then pumped to storage/head tanks for re-use in the grinding and flotation processes. In the event of a power outage, the in-process tailing volume flows by gravity to an emergency pond on the lower elevation of the tailing disposal facility. Accumulated material in the emergency pond is removed as needed to the upper areas of the tailing structure.

The site includes the following permitted discharging facilities:

**TABLE 2.1**

<b>Facility No.</b>	<b>Facility Name</b>	<b>Latitude NAD1927</b>	<b>Longitude NAD1927</b>	<b>Northing</b>	<b>Easting</b>
D42	AB-BC Tailings Impoundment	32.998906	-110.800386	728924	842243
D42.2	Tailings Last Chance Basin	33.00438284	-110.8193739	730857	836402
E1	D Tailings Impoundment	32.988086	110.820618	724922	836081
E2	D Tailings Maintenance Pond	32.982116	-110.792044	722784.3	845081.3
D42.3	Emergency Pump-back Ponds	32.987019	-110.792082	724626	844835
	Decant Pond	33.01081435	-110.7870436	733302	846289
D1	Smelter Last Chance Pond	33.01081435	-110.7870436	733302	846289
D23	Concentrator Runoff Pond (Winn's Pond)	33.00126174	-110.7838189	729837	847315
D28.5	Smelter Lined Impoundment	33.00014412	-110.7784909	729448	848953
D28.7	Smelter Main Gate impoundment	33.00255356	-110.7768813	730330	849437
D34	CP-1	33.00378807	-110.7718262	730796	850982
D39	East Ponds (west)	33.00079713	-110.7678694	729721	852207
D39	East Ponds (east)	33.00077488	-110.7672435	729715	852399
D39.1	South Ponds	32.99801581	-110.7696732	728703	851665
D42.1	Water Reclamation Ponds (includes Contingency Ponds)	32.98615047	-110.7798575	724352	848589
D8	Concentrator Solid Waste Landfill	33.01420043	-110.7800816	734557	848410
D32	Smelter Landfill	33.00547094	-110.7704182	731413	851407
D3.2	Concentrate Storage Area	33.01177366	-110.7825103	733666	847675
D25.2	Petroleum Coke Storage Area	33.00497882	-110.7767033	731213	849482
D19.1A	Truck Wash Facility	33.00633984	-110.7788712	731701	848812
D21.1	Concentrator Wash Rack	33.00831976	-110.780493	732416	848307
D30.6	Smelter Truck Wash	33.00531807	-110.7741287	731345	850270

**Latitude and Longitude are in NAD1927.**

**Northings and Easting are in State Plane, Arizona Central, Int. Feet, NAD1927.**

**Annual Registration Fee [A.R.S. § 49-242]**

The Annual Registration Fee for this permit is established by A.R.S. § 49-242 and is payable to ADEQ each year. The design flow is 10 million gallons per day or more.

**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 and post-closure costs have been estimated at \$9,429,126 and \$1,764,962, respectively. The financial assurance mechanism was demonstrated through a financial test for self-assurance pursuant to A.A.C. R18-9-A203(C)(1).

**2.2 Best Available Demonstrated Control Technology**

**[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**

See Table 4.1.1 for descriptions of BADCT for each permitted facility.

**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 4.0, Table 4.2.1. Results of these inspections and monitoring activities shall be documented and maintained on location for at least 10 years, 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 pursuant to A.R.S. § 49-201(12), proper repairs shall be promptly performed.

**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 listed below to prevent, unauthorized discharges as defined in A.R.S. § 49-201(12) that result from failure or bypassing of BADCT pollutant control technologies including liner failure<sup>1</sup>, uncontrollable leakage, overtopping (e.g., exceeding the maximum storage capacity, defined as a fluid level exceeding the crest elevation of a permitted impoundment), berm breaches that result in an unexpected loss of fluid, accidental spills, or other unauthorized discharges. The discharge limitations in this section are not applicable to any discharge caused by precipitation in excess of a single design storm event or process overflow during a power outage exceeding 24 hours in duration.

**2.3.1 Process Solution Impoundments**

The process solution impoundments are designed and authorized to receive and contain process solutions, stormwater, and process upset events.

**2.3.2 Non-Stormwater Impoundments**

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

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<sup>1</sup> Liner failure in a single-lined impoundment is any condition that would result in a leakage exceeding 550 gallons per day per acre.

**2.4 Point(s) of Compliance [A.R.S. § 49-244]**

There are five established POC well locations in this permit. A sixth well will be established as required by the Compliance Schedule Items in Section 3.0 Table 2.4.1 lists the POC locations.

<b>TABLE 2.4.1 POINTS OF COMPLIANCE FOR ASARCO HAYDEN OPERATIONS</b>					
Well Number	Designation	Cadastral Location	Latitude North	Longitude West	ADWR Number
H-1	Hazardous/Non-Hazardous	D(5-15)8dad	33° 00' 00"	110° 45' 57"	55-535503
H-3	Hazardous/Non-Hazardous	D(5-15)8cab	32° 59' 43"	110° 49' 08"	55-535507
H-5	Hazardous/Non-Hazardous	D(5-15)16dad	32° 59' 56"	110° 48' 48"	55-535508
H-6	Hazardous/Non-Hazardous	D(5-15)13bda	32° 59' 52"	110° 45' 58"	55-535504
H-8	Hazardous/Non-Hazardous	D(5-15)15aad	33° 00' 10"	110° 47' 31"	55-539676
Well to be determined (TBD)	TBD	TBD	TBD	TBD	TBD

Monitoring requirements for each Point of Compliance are listed in Section 4.0, Tables 4.2.2 and 4.2.3. The Director may amend this permit to designate additional Points of Compliance, if information on groundwater gradients 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. Monitoring shall commence the first full monitoring period following permit issuance. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and Chain-of-Custody procedures shall be followed, in accordance with currently accepted standards of professional practice. Copies of laboratory analyses and Chain-of-Custody forms shall be maintained at the permitted facility. Upon request, these documents shall be made immediately available for review by ADEQ personnel.

**2.5.1 Discharge Monitoring**

None required by this permit.

**2.5.2 Groundwater Monitoring and Sampling Protocols**

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

As an alternative method for sampling, the Permittee may conduct the sampling using 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.

**2.5.2.1 Point of Compliance 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 2.6.2.3.4, 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 2.5.2.2 , 2.5.2.3 and 2.5.2.4 of this permit.

**2.5.2.2 Ambient Groundwater Quality Monitoring for Point of Compliance and Alert Level Wells**

Eight consecutive quarterly groundwater samples shall be completed to establish existing ambient groundwater quality conditions for evaluating any short-term or long-term changes in water quality. Each ambient groundwater sample, as applicable, shall be analyzed for the parameters listed in Section 4.0, Table 4.2.3.

**2.5.2.3 Alert Levels for Point of Compliance and Alert Level Wells**

Alert levels (AL) shall be calculated for all contaminants with established AWQS for any new or replacement POC wells.

For each new or replacement well referenced in Section 2.4, the Permittee shall submit the ambient groundwater monitoring data in tabulated form to the ADEQ Groundwater Section for review as required by the Compliance Schedule, Section 3.0. Copies of all laboratory analytical reports, field notes, the Quality Assurance/Quality Control (QA/QC) procedures used in collection and analysis of the samples, and a report including the statistical calculation of the alert levels (ALs) and aquifer quality limits (AQLs) for all parameters listed in Section 4.0, Table 4.2.3 to be established for each well, shall be included. The Permittee may submit a report with the calculations for each AL and AQL included in the permit for review and approval by ADEQ. The ALs shall be established and calculated by the following formula, or another valid statistical method submitted to the GWS in writing and approved for this permit by the GWS.

$$AL = \bar{x} + K\Phi$$

Where  $\bar{x}$  = mean,  $\Phi$  = standard deviation, and K = one-sided normal tolerance interval with a 95% confidence level (Lieberman, G.J. (1958) Tables for One-sided Statistical Tolerance Limits: Industrial Quality Control, Vol. XIV, No. 10) using a K value of 3.188 for eight samples from Table 1 of the Lieberman 1958 report. Obvious outliers should be excluded from the data used in the AL calculation.

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

1. The AL will be calculated for a parameter using the analyses from a minimum of eight consecutive, monthly, sample rounds. The Permittee shall not use more than 12 sample rounds in the calculation.
2. Any data where the practical quantitation limit PQL exceeds 80% of the AWQS shall not be included in the AL calculation.
3. If a parameter is below the detection limit, the Permittee must report the value as “less than” the numeric value for the PQL or detection limit for the parameter, not just as “non-detect”. For those parameters, the Permittee shall use a value of one-half the reported detection limit for the AL calculation.
4. If the analytical results from more than 50 percent of the samples for a specific parameter are non-detect, then the AL shall be set at 80 percent of the AWQS.

5. If the calculated AL for a specific constituent and well is less than 80 percent of the AWQS, the AL shall be set at 80 percent of the AWQS for that constituent in that well.

#### **2.5.2.4 Aquifer Quality Limits for Point of Compliance Wells**

AQLs will be established in the permit for all parameters listed in Section 4.0, Table 4.2.3 for which an AWQS has been adopted. For each of the monitored analytes for which a numeric AWQS has been adopted, the AQL shall be established as follows:

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

#### **2.5.2.5 Compliance Groundwater Quality Monitoring for Point of Compliance and Alert Level Wells**

Quarterly compliance groundwater monitoring in each Point of Compliance (POC) well shall commence within the first calendar quarter after the effective date of this permit and within the first calendar quarter after completion of ambient groundwater sampling period for new and replacement wells. The parameters to be analyzed for quarterly compliance monitoring are listed in Section 4.0, Table 4.2.2. In addition to quarterly compliance groundwater monitoring for parameters listed in Section 4.0, Table 4.2.2 for Point of Compliance wells, an additional list of parameters shall be monitored at each POC well every 8<sup>th</sup> quarter (biennial). For the biennial monitoring events, the additional parameters listed in Section 4.0, Table 4.2.3 shall be analyzed.

The Permittee may submit a written request to the Groundwater Section (GWS) to reduce the monitoring parameters in either the Quarterly or the Biennial Compliance Groundwater Monitoring Tables (Section 4.0, Tables 4.2.2 and 4.2.3) in accordance with the following criteria:

1. The parameter in question has not been detected for at least two consecutive biennial or four consecutive quarterly monitoring events in the well. The PQL reported by the laboratory shall be less than 80% of the established numeric AWQS.
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 the ADEQ GWS for review.
3. Upon review, the GWS will determine if the modification(s) requested is justified and approved. The respective changes, if approved, shall require an amendment to the permit.

#### **2.5.3 Surface Water Monitoring and Sampling Protocols**

None required by this permit.

#### **2.5.4 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 17<sup>th</sup> Avenue  
Phoenix, AZ 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 ADEQ Groundwater Section for approval prior to installation and the permit shall be amended to include any new 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 the approved contingency and emergency response plan(s) 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 that is exceeded or any violation of an AQL, discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3.

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. The Permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit. 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.

### **2.6.2 Exceeding of Alert Levels**

#### **2.6.2.1 Exceeding of Alert Levels Set for Operational Conditions**

##### **1. Performance Levels Set for Freeboard**

In the event that freeboard performance levels required by Section 4.2, Table 4.2.1 in a surface impoundment are not maintained, the Permittee shall:

- a. 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.
- b. Within 5 days of discovery, evaluate the cause of the incident and adjust operational conditions as necessary to avoid future occurrences.
- c. 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 in the facility log, the amount of fluid removed, a description of the removal method, and the disposal arrangements. The facility log shall be maintained according to Section 2.7.2 (Operational Inspection / Log Book Recordkeeping). Records documenting each freeboard incident and actions taken to correct the problem shall be included in the current report as required in Section 2.7.1 (Self-monitoring Report Forms).

- d. If design improvements are necessary, submit an amendment application within 90 days of discovery.
- e. 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. Performance Levels, Other Than Freeboard**

- a. If an operational AL listed in Section 4.0, 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 or exceedance of an AL or violation of an AQL, the Permittee shall immediately investigate to determine the cause of the condition. The investigation shall include the following:
  - i. 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.
  - ii. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences.
  - iii. Consult with a geotechnical engineer as specified in Table 4.2.1.
- b. The AL exceedance, results of the investigation, and any corrective action taken shall be reported to the Groundwater Section, 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.
- c. The Permittee shall initiate actions identified in the approved contingency plan referenced in Section 3.0 and any specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the Permittee shall obtain prior approval from ADEQ according to Section 2.6.6.

**2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring**

Not applicable

**2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring**

**2.6.2.3.1 Alert Levels for Indicator Parameters**

None required by this permit.

**2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards**

- 1. If an AL for a pollutant set in Section 4.0, Tables 4.2.2 or 4.2.3 has been exceeded, the Permittee may conduct verification sampling within 5 days of becoming aware of an AL being exceeded. 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 being exceeded or if the Permittee opts not to perform verification sampling, then the Permittee shall increase

the frequency of monitoring to monthly. In addition, the Permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in a discharge resulting in the exceedance of an AL, and hydrologic review of groundwater conditions including up-gradient water quality.

3. The Permittee shall initiate actions identified in the approved contingency plan and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. 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 Section, that although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the Groundwater Section.
4. Within 30 days after confirmation of an AL being exceeded, the Permittee shall submit the laboratory results to the Groundwater Section along with a summary of the findings of the investigation, the cause of the AL being exceeded, 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 monthly sampling events demonstrate that no parameters exceed the AL.
7. If the increased monitoring required as a result of an AL exceedance continues for more than four (4) consecutive sampling events, the permittee shall submit a second report documenting an investigation of the continued AL exceedance within 30 days of the receipt of laboratory results of the fourth sampling event.

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

None required by this permit.

**2.6.2.3.4 Alert Level for Groundwater Level**

If the groundwater level is not within the allowable range established by the Alert Level in Section 4.2, Tables 4.2.2 and 4.2.3, the permittee shall submit a written report within 30 days after becoming aware of the exceedance. The report shall document the following:

1. If the groundwater level is not within the allowable range established by the Alert Level in Section 4.2, Tables 4.2.2 and 4.2.3, the permittee shall submit a written report to the Groundwater Section 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. and any other pertinent information obtained by the permittee.
  2. If the groundwater level is not within the allowable range established by the Alert Level in Section 4.2, Tables 4.2.2 and 4.2.3 for more than four (4) sequential sampling events, the permittee shall submit a second report that evaluates the cause(s) of the exceedance and recommends whether the well should be replaced pursuant to Section 2.5.2.1. 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 Limitations Violations**

If a DL set in Section 2.3 has been violated, the Permittee shall immediately investigate to determine the cause of the violation.

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

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

1. As soon as practicable, cease all discharges to the surface impoundment as necessary to prevent any further releases to the environment.
2. Within 24-hours of discovery, notify the ADEQ Groundwater Section.
3. Within five days of discovery of a failure that resulted in a release to the subsurface, collect representative samples of the fluid remaining in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4.0, Table 4.2.3. Within 30 days of the incident, submit a copy of the analytical results to ADEQ Groundwater Section.
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 surface impoundment 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 surface impoundment. The Permittee shall not resume discharging to the surface impoundment 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 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, conclude 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, within 120 days of discovery Permittee shall 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 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, mitigation, or other actions.

#### **2.6.3.2 Overtopping of a Surface Impoundment**

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

1. As soon as practicable, cease all discharges to the surface impoundment to prevent any further releases to the environment.
2. Within 24-hours of discovery, notify the ADEQ Groundwater Section.
3. Within five days, collect representative samples of the fluid contained in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4.0, Table 4.2.3. Within 30 days of the incident, submit a copy of the analytical results to ADEQ Groundwater Section.
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 4.0, Table 4.2.1. Record in the facility log, the amount of fluid removed, a description of the removal method, and the disposal arrangements. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 (Operation Inspection / Log/Recordkeeping File).
5. Within 30 days of discovery, evaluate the cause of the overtopping and identify the circumstances that resulted in the incident. Implement corrective actions and adjust operational conditions as necessary to resolve the problems identified in the evaluation. Repair any systems as necessary to prevent future occurrences of overtopping.
6. Within 30 days of discovery of overtopping, submit a report to ADEQ as specified in section 2.7.3.2 (Permit Violation and 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 60 days of discovery, and based on sampling in Subsection 3 above, conclude 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, within 120 days of discovery Permittee shall 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, mitigation, or other actions.

#### **2.6.3.3 Inflows of Unexpected Materials to a Surface Impoundment**

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

1. As soon as practicable, cease all unexpected inflows to the surface impoundment(s).
2. Within 24-hours of discovery, notify the ADEQ Groundwater Section.
3. Within five 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 Permit Violation and AL Status Reporting). Include a description of the actions performed in Subsections 1 through 3 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
5. Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, mitigation, or other actions.

#### **2.6.3.4 Slope and Berm Failures**

If a slope or berm failure involving tailings facilities or retention structures (dams) or an unauthorized discharge occurs, 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 4.0, Tables 4.2.2, or 4.2.3 has been exceeded, the Permittee may conduct verification sampling within 5 days of becoming aware of an AQL being exceeded. 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 any parameter or if the Permittee opts not to perform verification sampling, then the Permittee shall increase the frequency of monitoring to monthly. 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 a discharge that caused or may have caused the violation.

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 correct and mitigate the violation and cause of the violation. 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.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, mitigation, or other actions.
4. The Permittee shall notify in writing any downstream or down gradient users who may be directly affected by the discharge.
5. The Permittee shall continue monitoring at the increased frequency until the contaminant(s) is below the AQL and AL for at least three consecutive months, or as otherwise directed in an approved mitigation or corrective action plan.

#### **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**

##### **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(18)) 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 ADEQ Groundwater Section 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 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 Section within 24-hours upon discovering the discharge of non-hazardous material which: a) has the potential to cause an AQL to be exceeded; or b) 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 Groundwater Section 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 that 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 and actions identified in the approved contingency plan referenced in Section 3.0 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 Section prior to implementing a corrective action to accomplish any of the following goals in response to exceeding 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 Permittee shall submit to the ADEQ Groundwater Section, 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 (SMRF)**

1. The Permittee shall complete the SMRFs provided by ADEQ, and submit them to the Groundwater Section.
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 quarter, the Permittee shall enter “not required” on the SMRF and submit the report to ADEQ. The Permittee shall use the format devised by ADEQ.
3. The following tables contained in Section 4.0 list the parameters to be monitored and the frequency for reporting results on the SMRFs: Tables 4.2.2 and 4.2.3. The parameters listed in the identified tables from Section 4.0 are the only parameters for which SMRF reporting is required..
4. In addition to the SMRF, the information contained in A.A.C. R18-9-A206(B)(1) shall be included for exceeding an AL or violation of an AQL, DL, or any other permit condition being reported in the current reporting period.

### **2.7.2 Operation Inspection / Log Book Recordkeeping**

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

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

### **2.7.3 Permit Violation and Alert Level Status Reporting**

1. The Permittee shall notify the Groundwater Section in writing within five days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition or discharge limitation, an AQL violation, or of an Alert Level being exceeded.
2. The Permittee shall submit a written report to the Groundwater Section within 30 days of becoming aware of the violation of any permit condition or discharge limitation, an AQL violation, or an AL exceedance. The report shall document all of the following:
  - a. Permit Section and description of the permit condition for which there has been a violation and a description of its 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 Aquifer Water Quality Standard.
  - e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
  - f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

**2.7.4 Operational, Other or Miscellaneous Reporting**

The Permittee shall, upon completion of the biennial sampling described in 4.2.3, submit a monitoring summary report to the Groundwater Section. This report shall be due at the same time as the SMRF form for the biennial sampling event. The report shall include, but not be limited to the following:

1. A description of any deviations from standard sampling protocols during the reporting period.
2. A summary of all exceedances of ALs, AQLs, Action Levels, or operational limits that occurred during the reporting period.
3. Graphical time versus concentration plots of field pH, sulfate, total dissolved solids, and any parameter which exceeded an applicable AL or AQL in the past eight quarters at each POC well, and tabulated sampling data for all wells required to be sampled by this permit during the last eight quarters.
4. An updated table of all monitor wells and piezometers in the Discharge Impact Area including, but not limited to, location of well, depth of well, depth to water.
5. A summary of any groundwater monitor wells replaced in the reporting period including, but not limited to, location of well, depth of well, depth to water, and screened interval.
6. A list of any new sumps, impoundments, or vehicle washes constructed within the pollutant management area, unless exempt or covered by a general APP.

**2.7.5 Reporting Location**

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality  
Groundwater Section  
Mail Code: 5415B-3  
1110 W. Washington Street  
Phoenix, AZ 85007

Phone (602) 771-4681

-or-

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

All documents required by this permit to be submitted to the Groundwater Section shall be directed to:

Arizona Department of Environmental Quality  
Groundwater Section  
Mail Code: 5415B-3  
1110 W. Washington Street  
Phoenix, AZ 85007  
Phone (602) 771-

**2.7.6 Reporting Deadline**

The following table lists the quarterly report due dates:

<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 biennial report due date:

<b>Monitoring conducted during 2 year period:</b>	<b>Quarterly Report due by:</b>
January 1 <sup>st</sup> of the first year –December 31 <sup>st</sup> of the second year	April 30

**2.7.7 Changes to Facility Information in Section 1.0**

The Groundwater Section shall be notified within 10 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 Section before ceasing operation of the facility for a period of 60 days or greater.

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’s 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 Section 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 Section of the Permittee’s intent to cease operation without resuming activity for which the facility was designed or operated.

**2.9.1 Closure Plan**

Within 90 days following notification of closure, the Permittee shall submit for approval to the Groundwater Section, 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 Section 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 aquifer water quality standards at the applicable point of compliance;
3. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial or mitigative measures are necessary to achieve compliance with Title 49, Ch. 2;
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 Section.

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the Permittee shall submit for approval to the Groundwater Section 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**

Reserved

**2.10.2 Post-Closure Completion**

Reserved

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

For each compliance schedule item listed below, the Permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section.

<b>ITEM DESCRIPTION</b>	<b>TIME TO COMPLETE</b>	<b>REQUIREMENTS</b>	<b>AMEND. REQUIRED</b>
1. Financial Capability Demonstration	Every 2 years from the date of permit signature, for the duration of the permit.	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. 2 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 closure and post-closure costs, and discharging facilities have not been added. The demonstration shall also include information in support of the self-assurance demonstration as required in A.A.C. R18-9-A203(C)(1).	No
2. Updated cost estimate	Every 6 years from the date of permit signature, for the duration of the permit.	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.	Yes
3. Concentrator Runoff Pond (Facility #D23)	Within 6 months of permit signature	Submit detailed closure design drawings and specifications for backfilling and capping the pond and the analysis and criteria for drainage design and erosion control design. Include the analytical results from the three samples from the borrow material and three samples from the alluvial material used for the cap per the ADEQ approved sampling plan.	No
4. Tailings Last Chance Basin (Facility #D42.2)	By June 10, 2017	Submit the results of the approved runoff study and proposed design for basin upgrades. Provide operational criteria for freeboard and inspections/frequency.	Yes
5. D Tailings Maintenance Pond (Facility #E2)	Within 6 months of permit signature	Submit design drawings, specifications and construction QA/QC plan for pond upgrades including installation of a liner constructed from tailings, 2:1 berm side slopes, erosion control and access ramp. Provide design analysis and criteria for pond capacity including freeboard, erosion control for the berms, spillway and pipe penetration. Provide operational criteria for cleanout after a drain down event and re-construction of the liner. Provide operational criteria for freeboard and inspections/frequency.	Yes
6. Petroleum Coke Storage Area (Facility #D25.2)	Within 6 months of permit signature	Complete construction of the concrete pad and submit as-built drawings.	No
7. AB/BC Tailings (Facility #D42)	Within 6 months of permit signature	For the AB TSF portion, provide the design for a proposed drainage system, a proposed deposition rate and a proposed maximum storage elevation, and provide a stability analysis demonstrating the facility meets the BADCT prescribed stability safety factors for static and	Yes

<b>ITEM DESCRIPTION</b>	<b>TIME TO COMPLETE</b>	<b>REQUIREMENTS</b>	<b>AMEND. REQUIRED</b>
		pseudo-static conditions. Also, provide a schedule for construction of the proposed drainage system.	
8. Smelter Lined Impoundment (Facility #D28.5)	Within 6 months of permit signature	Provide results of characterization for the cap materials to include a minimum of three samples to confirm the material is clean fill. Provide the design of the cap to include final design drawings, specifications and construction QA/QC plan. Provide inspections criteria and frequency.	No
9. Groundwater Monitoring Well Evaluation	Within 6 months of permit signature	Evaluate existing groundwater flow direction and depth downgradient of the Smelter Lined Impoundment. Provide a workplan for ADEQ approval, to include location and well design to monitor the Smelter Lined Impoundment during the closure and post-closure period to determine the effectiveness of the closure to eliminate discharge to the aquifer. The well design shall be screened across the water table.	Yes
10. Alert Levels (ALs) in existing POC wells	Within 6 months of permit signature	Depth to groundwater alert levels for all existing POC wells shall be proposed with the following information provided: screen intervals and current depth to water.	Yes
11 Concentrate Storage Area Pad	Within 6 months of permit signature	Complete construction of a new concentrate storage area on a concrete pad which meets the APP tank exemption and submit as-built drawings.	Yes
12 Concentrate Storage Area (#D3.2) Closure	Within 6 months of permit signature	Sample and characterize soil below the existing storage area and submit a closure plan in accordance with Section 2.9 and a post-closure plan in accordance with Section 2.10.	Yes
13. Decant Pond Leak Detection System	Within 6 months of permit signature	Provide proposed leakage rate alert levels for the Decant Pond Leak Detection System.	Yes

**TABLES OF MONITORING REQUIREMENTS**

**4.1 BADCT TABLE**

TABLE 4.1.1 Permitted Facilities and BADCT

**4.2 COMPLIANCE AND OPERATIONAL MONITORING**

TABLE 4.2.1 Required Inspections and Operational Monitoring

TABLE 4.2.2 Quarterly Compliance Groundwater Monitoring for Points of Compliance

TABLE 4.2.3 Biennial Compliance Groundwater for Points of Compliance

**Best Available Demonstrated Control Technology [A.R.S. §49-243(B) and A.A.C. R18-9-A202 (A) (5)]**

The Permittee is authorized to operate the facilities listed in Section 2.1. The discharging facilities located at Hayden Operations have been designed to conform to the BADCT requirements of Arizona Revised Statutes (A.R.S.) 49-243.B, Arizona Administrative Code (A.A.C.) R18-9-A201.B.5, A.A.C. R18-9-A202.A.3, A.A.C. R18-9-204.D2/4, and the Arizona Mining Guidance Manual BADCT.

**TABLE 4.1.1 Permitted Facilities and BADCT**

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
D42 and D42.3	AB-BC Tailings Impoundment (D42) including Emergency Pump-back Ponds (D42.3)	<p>The AB-BC Tailings Impoundment is located on the North side of the Gila River, and consists of two adjoining tailing storage facilities (TSF), AB TSF and BC TSF, and water reclaim systems. The AB-BC Tailings Impoundment is approximately 10,000 feet long by 4,000 feet wide, covering an area of approximately 1,130 acres. The facility was placed in service in 1911, and the thickness of tailings is approximately 200 feet. The AB-BC Tailings Impoundment also includes the Emergency Pump-back Ponds (D42.3), located within a channel that flows around the base of the impoundment. Decant water from the AB-BC Tailings shall be routed to the Water Reclamation Ponds and Contingency Ponds (D42.1).</p> <p>The AB TSF portion of the facility shall be operated only for dust control or during upset conditions, and the deposition rate shall be restricted to 0.25 foot per year. An engineered drainage system shall be designed and installed to allow for safely lowering the phreatic surface within the dam, and stability analysis shall be performed to determine the allowable deposition rate and maximum storage elevation to meet the BADCT prescribed stability safety factors for static and pseudo-static conditions as required by the compliance schedule (Section 3.0). Four feet of freeboard<sup>2</sup> shall be maintained.</p> <p>The BC TSF portion of the facility shall be operated at a maximum deposition rate of two (2) feet per year, up to the maximum storage elevation of 2,188 feet above mean sea level (amsl) as required by permit Section 3.0. Four feet of freeboard shall be maintained. Slope stability analysis indicates the BC TSF portion of the facility meets the BADCT prescribed stability safety factors for static and pseudo-static conditions, as described in July 16, 2013 AMEC Tailings Dam Assessment Report AB-BC and D</p>	

<sup>2</sup> Freeboard for Tailings Impoundments AB-BC and D shall be measured as the vertical distance between the tailings embankment crest elevation and the supernatant pool elevation.

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
		Tailings Storage Facilities, ASARCO Hayden Operations (AMEC July 16, 2013 Report).	
D42.2	Tailings Last Chance Basin	The Tailings Last Chance Basin, located at the northwest end of the AB-BC tailings impoundment, is the farthest down-gradient facility at the Hayden Operations. The Last Chance Basin is contained by an earth and rock fill berm that is five to eight feet high. It covers an area of approximately 54 acres and has a holding capacity of approximately 65 acre-feet. Any overflow from up-gradient stormwater impoundments would ultimately flow to the Tailings Last Chance Basin if flow volumes were sufficiently large. This impoundment also receives runoff from the AB-BC tailings impoundment via channels that run along the perimeter of the tailings impoundment. A runoff study shall be completed and design for basin upgrades shall be submitted as required by the compliance schedule (Section 3.0).	65
E1	D Tailings Impoundment	The D Tailings Impoundment is Hayden Operations' primary tailings impoundment at the current time. It is located on the south side of the Gila River, and covers an area of approximately 470 acres. It is estimated that the final footprint will be 1160 acres. Deposition of the starter dam for the D tailings impoundment began in 1981-1982. Buried decant lines drain to the Water Reclamation Ponds (D42.1) on the north side of the Gila and San Pedro Rivers. The tailings impoundment is wedge-shaped, approximately 100 feet thick at the north side to only a few feet thick at the south side. The D Tailings Impoundment shall be operated at a maximum deposition rate of fifteen (15) feet per year, up to the maximum storage elevation of 2326 feet (Hayden Concentrator Datum) Four feet of freeboard <sup>2</sup> shall be maintained. Slope stability analysis indicates the D Tailings Facility meets the BADCT prescribed stability safety factors for static and pseudo-static conditions, as described the AMEC July 16, 2013 Report.	

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
E2	D Tailings Maintenance Pond	The D-Tailings Maintenance Pond receives drain down from the D-Tailings Impoundment pipeline a minimum of 3 to 4 times per year during line maintenance and mill shutdown. This pond is excavated in the alluvial plain of the Gila River, approximately 800 feet from the active channel. It is unlined and has approximately 2.5 acre feet of total holding capacity, based on surface area of approximately 13,500 square feet and assuming a depth of 8 feet. Tailing from the D-Tailings Impoundment pipeline enters the pond via an inlet pipe. The impoundment has bermed walls to prevent stormwater from running in to the pond. The conceptual design to line the pond using tailings and create 2:1 sidewall slopes shall be supplemented by additional information to be submitted as required by the compliance schedule (Section 3.0).	2.5
D1	Smelter Last Chance Pond	The Smelter Last Chance Pond (SLCP), a non-stormwater pond, is part of a site-wide system that is designed to control stormwater runoff at the Hayden operations. The SLCP is located immediately south of the closed Kennecott Slag Dump. The SLCP receives runoff from the Concentrate Storage Area and from the Lime Slaking Plant Area through a pump-back station to the SLCP. The SLCP is constructed using a single 60-mil High Density Polyethylene (HDPE) geomembrane liner over an engineered compacted sub-base. The SLCP has a total volume of 9.2 acre-feet (2,997,833 gallons); approximately 16-feet deep; internal side-slopes of no less than 3H:1V; and has sufficient capacity to retain the 100-year 24-hour storm event while maintaining 2-feet of freeboard.	8.8
	Decant Pond	The Decant Pond, a non-stormwater pond, receives rainfall and overflow from the Concentrate Filter Plant Containment Sump. The Decant Pond is located approximately 700-feet southeast of the Concentrate Filter Plant. The Decant Pond liner system consists of (from bottom to top): minimum 6" compacted subgrade, 40 mil High Density Polyethylene (HDPE) liner, 175 mil geonet, and 60 mil textured HDPE liner. The liner system is secured in an engineered anchor trench. A leak detection sump is located in the southeast corner of the pond, constructed between the two HDPE liners. The pond capacity, while maintaining 2-feet of freeboard, is 4.83 acre-feet. Internal side slopes are no steeper than 2.5H:1V. Fluid collected in the Decant Pond is pumped back to the Concentrate Filter Plant to be reused in the process.	4.83

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
D23	Concentrator Runoff Pond (a.k.a. Winns Pond)	This unlined stormwater pond is made up of two (2) sub-basins that are 0.6 and 0.7 acres in size. The basins have total capacities of 1.1 and 1.9 acre-feet. Winn's Pond is constructed on old tailings from the Kennecott operations. This pond prevents water from flowing through crusher operations during a storm event. The sampling and analysis portions of the closure plan dated July 25, 2014, supplemented by submittals on February 13, 2015 and March 30, 2016, are approved for implementation. A revised closure design including erosion control and capping shall be submitted as required by the compliance schedule (Section 3.0).	0.83
D28.5	Smelter Lined Impoundment	<p>The Smelter Lined Impoundment, also referred to as the Calcium Sulfate Pond or Mist Precipitator Sludge Pond, is approximately 10 acres in area and was constructed in 1983. It operated until about 1990 and is no longer in service. The impoundment contains calcium sulfate (CaSO<sub>4</sub>) solids from the distillation process at the water treatment plant (Facility D28).</p> <p>The impoundment is lined with synthetic rubberized asphalt. It is located within a natural drainage, and was created by an earthen embankment called the "82 Dam". The embankment has a crest width of 20 feet and 3:1 upstream and downstream slopes.</p> <p>This lined impoundment shall be closed in place and capped. The characterization of materials to remain in place has been completed. Characterization of materials used for the cap shall include a minimum of three samples to confirm the material is clean fill. Design of the cap shall be submitted as required by the compliance schedule (Section 3.0).</p>	50.4
D28.7	Smelter Main Gate Impoundment	The Smelter Main Gate Impoundment (SMGI), a non-stormwater pond, is part of a site-wide system that is designed to control stormwater runoff at the Hayden operations. The SMGI receives runoff from areas of Hayden Watershed 6 that contains the Concentrate Storage Bins, Clean-out Pad, Petroleum Coke Storage Area, and Smelter Main Gate area. The SMGI is constructed using a single 60-mil High Density Polyethylene (HDPE) geomembrane liner over an engineered compacted sub-base. The SMGI has a total volume of 5.49 acre-feet (1,788,924 gallons); approximately 8-feet deep; internal side-slopes of no less than 3H:1V; and has sufficient capacity to retain the 100-year 24-hour storm event while maintaining 2-feet of freeboard.	4

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
D34	CP-1	<p>CP-1 is a lined non-stormwater pond having an area of 1.6 acres and a total capacity of approximately 14.9 acre feet. BADCT was upgraded when a liner (60-mil HDPE) was installed in late 1996 and early 1997. This pond was installed over a former pond referred to as Louie's Lagoon/Pond. CP-1 receives overflow from a concrete-lined sump located on the south side of the impoundment. Solutions flowing into the sump (which may in turn overflow to CP-1 if flow is sufficient) include stormwater and solutions from facilities in the smelter area including truck wash water, treated effluent from 3 sewage treatment plants, and cooling tower blowdown (two cooling towers at the acid plant, one at the anode plant, and one at the oxygen plant). Water that overflows from the sump to CP-1 is pumped back to the sump when water levels in the sump decline. From the sump the water is pumped to the concentrator as process water makeup. CP-1 is also designed to receive excess stormwater from a stormwater run-on pond located on the north side of CP-1. BADCT has been demonstrated for this facility. Current construction is consistent with prescriptive BADCT for non-stormwater impoundments. Flow meters have been installed to monitor inflow and outflow.</p>	13
D39	East Ponds (west)	<p>Two unlined stormwater ponds called the East Ponds have a total area of approximately 2.4 acres. The ponds are east of the ASARCO slag pile. BADCT demonstration showed that no upgrades are warranted after considering cost vs. discharge reduction.</p>	4.5
D39	East Ponds (east)	see above	6.2
D39.1	South Ponds	<p>Two unlined South Ponds are designed to collect stormwater that runs off the ASARCO slag pile. Virtually all of the area of the northernmost South Pond has been covered by slag. These ponds have an approximate total area of approximately 0.7 acres. Based on the characterization of slag, a BADCT demonstration showed that no upgrades are warranted after considering cost vs. discharge reduction.</p>	4.7

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
D42.1	Water Reclamation Ponds (includes Contingency Ponds)	<p>The Water Reclamation Ponds are located at the southeast end of the AB-BC tailings impoundment and consist of two rectangular-shaped ponds, having a total area of 7.2 acres. Two additional ponds to the east are called the Contingency Ponds, which are inactive. The Water Reclamation ponds were constructed with a 10 mil PVC liner overlain by a clay liner. The ponds currently contain an abundance of cattails and other vegetation. Each pond has a contingency pond for overflow but the pipe to link the reclamation ponds to the contingency ponds has not been installed, so the contingency ponds are inactive. There are two sources of water in these reclamation ponds: decant water from the AB-BC and D tailings impoundments and fresh (potable) make-up water from PZ Ranch (located several miles away). Water is pumped from the water reclamation ponds to storage tanks (facility D9) and to the Powerhouse and Secondary Pump Reservoir (D19) for reuse in the process.</p> <p>Solution characterization did not identify any AWQS exceedances. BADCT for this facility includes: (1) installing the reinforced concrete pipe that is shown on the design drawings in order to link the Water Reclamation Ponds to the Contingency Ponds to provide additional capacity, (2) repairing the existing liner as needed, and (3) using operational controls to prevent the overtopping during outages.</p>	
D8	Concentrator Solid Waste Landfill	<p>The Concentrator Solid Waste Landfill is an unlined facility located within the pollutant management area of this aquifer protection permit. The landfill has obtained authorization for disposal of solid waste pursuant to the Disposal General Permit: Non-Municipal Solid Waste Landfills at Mining Operations (A.A.C. R18-13-802). The Disposal General Permit requires stormwater diversion around the landfill, restricts the types of wastes that may be landfilled, requires application of cover material over the wastes and regular inspections, maintenance and repairs as necessary. The Disposal General Permit also requires maintenance of an operating record that documents compliance with the general permit. Methane monitoring is not required at this landfill.</p> <p>One cell of this landfill was listed as the Solid Waste Landfill (D8.3) in a previous version of this aquifer protection permit. However, ASARCO indicated in their March 2010 amendment application that this portion of the landfill is used only for asbestos and meets the definition of inert material, therefore this cell is exempt from aquifer</p>	N/A

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
		protection permit requirements and has not been included as a discharging facility.	
D32	Smelter Landfill	The Smelter Landfill is an unlined facility located within the pollutant management area of this aquifer protection permit. The landfill has obtained authorization for disposal of solid waste pursuant to the Disposal General Permit: Non-Municipal Solid Waste Landfills at Mining Operations (A.A.C. R18-13-802). The Disposal General Permit requires stormwater diversion around the landfill, restricts the types of wastes that may be landfilled, requires application of cover material over the wastes and regular inspections, maintenance and repairs as necessary. The Disposal General Permit also requires maintenance of an operating record that documents compliance with the general permit. Methane monitoring is not required at this landfill.	N/A
D3.2	Concentrate Storage Area	<p>Concentrate is the product created by the flotation process. The Concentrate Storage Area is a temporary staging area for concentrate. Concentrate is stored on the bare ground in stockpiles. There are no structures such as storage bins or concrete pads in this area. From this location, concentrate goes to the bedding plant. Depending on the smelter operation, concentrate from any of these three sources can be stored in the Concentrate Storage Area. There are three primary sources of concentrate at the Hayden Operations: the Ray Mine, the Mission Mine, and the Hayden concentrator. Ray Mine concentrate is generally delivered in rail cars directly to the Hayden smelter from the Ray Mine. Hayden concentrate is typically stored at the concentrator filter plant until it is loaded into rail cars to go to the smelter. Mission Mine concentrate is delivered by truck to this concentrate storage area before being loaded into rail cars and shipped to the smelter.</p> <p>The facility will be upgraded with a concrete pad designed to meet the APP tank exemption, according to the compliance schedule (Section 3.0). After submittal of as-</p>	N/A

Facility ID	Facility Name	BADCT	Capacity with 2 feet freeboard (acre-feet)
		<p>built drawings, the facility new concrete pad will not be regulated under APP.</p> <p>The soil below the existing storage area shall be sampled and characterized and a closure plan submitted in accordance with the compliance schedule, Section 3.0.</p>	
D25.2	Petroleum Coke Storage Area	<p>Petroleum coke is a reagent in the smelting process. The existing practice is to stockpile petroleum coke at this location on bare ground. The existing practice shall be discontinued and the area shall be covered by a concrete pad to effectively cap and close the area in place. The compliance schedule (Section 3.0) requires construction of the concrete pad and submittal of as-built drawings. The concrete pad shall be designed, constructed, operated and maintained as to not discharge and will not be regulated under APP requirement. The area will be listed as a closed facility and shall be monitored in accordance with the groundwater monitoring requirements of Section 2.5. At final closure of the mine, the closed area will need to either remain capped by the concrete structure, or some other method shall be required to cap it.</p>	N/A
D19.1A	Truck Wash Facility	<p>This truck wash is located on the concentrator side of the Hayden Operations. The facility consists of a concrete pad that was originally a basin for the Powerhouse Cooling Tower, which was removed. A concrete-lined trench drain in the center of the wash pad routes wash water to the Powerhouse and Secondary Pump Reservoir (D19), to be recycled back into the process. There is no runoff from the concrete pad. The ingress and egress of the truck wash are paved to reduce infiltration of “drive-off” water. No upgrades are planned.</p>	N/A
D21.1	Concentrator Wash Rack	<p>The wash rack is used primarily by the truck shop staff. A high pressure washer that can be used as steam cleaner is used for cleaning various pieces of equipment. The area is paved with concrete. Wash water drains to a grated concrete-lined sump. From the sump, water is directed to a lined impoundment, and is eventually returned to the flotation or milling process for recycling/reclamation. No upgrades are planned.</p>	N/A
D30.6	Smelter Truck Wash	<p>This truck wash consists of a concrete pad that drains to a sump with an oil-water separator. The water is routed from the separator to CP-1 and then to the concentrator. BADCT for the facility includes maintaining the concrete containment, water conservation through recycling, and monthly cleanout and inspection of sump. No upgrades are planned.</p>	N/A

**TABLE 4.2.1 Required Inspections and Operational Monitoring**

Facility ID	Facility Name	Inspections	Performance Level
D42	AB-BC Tailings Impoundment	<p><b>Daily:</b> The facility operator shall visually inspect for seeps or other indications of slope instability. If present, consult a geotechnical engineer to evaluate the condition of the facility</p>	<p>Freeboard<sup>2</sup>: 4 feet</p> <p>Seeps or indication of slope instability present</p>
		<p><b>Quarterly:</b> Download daily pore pressure measurements obtained from all piezometer stations located on the AB-BC impoundment dams and evaluate the data to determine whether there is a pressure change of greater than 5 psi during the preceding 12 month period. If there is a change of 5 psi or greater, consult a geotechnical engineer to evaluate the condition of the facility.</p>	<p>Change of 5 psi or greater</p>
		<p><b>Quarterly:</b> An engineer or person familiar with tailings impoundment operation shall visually inspect for seeps or other indications of slope instability. If present, consult a geotechnical engineer to evaluate the condition of the facility</p>	<p>Seeps or indication of slope instability present</p>
		<p><b>Two times per year:</b> A geotechnical engineer shall conduct a visual inspection, preceded by a review of the previous piezometer measurements. The geotechnical engineer shall evaluate whether the monitoring frequency is adequate considering an evaluation of the operating practices and other factors that could potentially impact stability of the dams.</p>	<p>NA</p>
D42.1	Water Reclamation Ponds (including Contingency Ponds)	<p><b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.</p>	<p>Freeboard: 2 feet</p>
		<p><b>Annually:</b> Vegetation and sediment will be removed as needed to maintain capacity and freeboard. Any soils that are removed will be characterized prior to selection of a disposal site.</p>	<p>NA</p>
D42.2	Tailings Last Chance Basin	<p><b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.</p>	<p>Freeboard: 2 feet</p>
		<p><b>Annually:</b> Vegetation and sediment will be removed as needed to maintain capacity and freeboard. Any soils that are removed will be characterized prior to selection of a disposal site.</p> <p>Note: per the compliance schedule, this section shall be revised to reflect the upgraded design.</p>	<p>NA</p>

E1	D Tailings Impoundment	<b>Daily:</b> The facility operator shall visually inspect for seeps or other indications of slope instability. If present, consult a geotechnical engineer to evaluate the condition of the facility	Freeboard <sup>2</sup> : 4 feet  Seeps or indication of slope instability present
		<b>Quarterly:</b> Download daily pore pressure measurements obtained from all piezometer stations located on the D impoundment dams and evaluate the data to determine whether there is a pressure change of greater than 5 psi during the preceding 12 month period. If there is a change of 5 psi or greater, consult a geotechnical engineer to evaluate the condition of the facility.	Change of 5 psi or greater
		<b>Quarterly:</b> An engineer or person familiar with tailings impoundment operation shall visually inspect for seeps or other indications of slope instability. If present, consult a geotechnical engineer to evaluate the condition of the facility	Seeps or indication of slope instability present
		<b>Two times per year:</b> A geotechnical engineer shall conduct a visual inspection, preceded by a review of the previous piezometer measurements. The geotechnical engineer shall evaluate whether the monitoring frequency is adequate considering an evaluation of the operating practices and other factors that could potentially impact stability of the dams.	NA
E2	D Tailings Maintenance Pond	<b>After drain-down events,</b> Asarco will inspect the pond to verify that only tailing is entering the impoundment and that freeboard is maintained.  Note: per the compliance schedule, this section shall be revised to reflect the upgraded design.	Freeboard: 2 feet
D42.3	Emergency Pump-back Ponds	<b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.	Freeboard: 2 feet
		<b>Annually:</b> Vegetation and sediment will be removed as needed to maintain capacity and freeboard. Any soils that are removed will be characterized prior to selection of a disposal site.	NA
D39.1	South Ponds	<b>Annually:</b> Vegetation and sediment will be removed as needed to maintain capacity and freeboard. Any soils that are removed will be characterized prior to selection of a disposal site.	Freeboard: 2 feet
D39	East Ponds	<b>Annually:</b> Vegetation and sediment will be removed as needed to maintain capacity and freeboard. Any soils that are removed will be characterized prior to selection of a disposal site.	Freeboard: 2 feet
D1	Smelter Last Chance Pond	<b>Quarterly:</b> Liner inspection.	Tears, punctures, whales, anchor trench damage

		<b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.	Freeboard: 2 feet
None	Decant Pond	<b>Quarterly:</b> Liner inspection.	Tears, punctures, whales, anchor trench damage
		<b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained. .	Freeboard: 2 feet
D28.5	Smelter Lined Impoundment	<b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.  Note: per the compliance schedule, this facility will be closed, and this section shall be revised to reflect the closure inspection requirements	Freeboard: 2 feet
D28.7	Smelter Main Gate Impoundment	<b>Quarterly:</b> Liner inspection.	Tears, punctures, whales, anchor trench damage
		<b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.	Freeboard: 2 feet
		<b>Annually:</b> Sediment will be removed as needed to maintain capacity and freeboard. Any sediments that are removed will be characterized prior to selection of a disposal site.	NA
D34	CP-1	<b>Monthly:</b> Inflow/outflow will be monitored.	NA
		<b>Following Storm Events:</b> Inspections shall be conducted following each storm event of one (1) inch or more of precipitation to verify pond integrity and that freeboard is maintained.	Freeboard: 2 feet
		<b>Quarterly:</b> Liner inspection.	Tears, punctures, whales, anchor trench damage
		<b>Annually:</b> Sediments will be cleaned out from CP-1 and the sump annually to maintain capacity. Any sediments that are removed will be characterized prior to selection of a disposal site.	NA
D19.1A	Truck Wash Facility	<b>Annually:</b> Sump will be cleaned out and inspected. Inspections according to the Appendix C inspection guidance document (in the 8/3/12 submittal to ADEQ) and documented in a log book. Repairs, if needed, will be made in accordance with Section 4 of EPA's technical Guidance Document "Determining the Integrity of Concrete Sumps" and described in the log book.	NA



D21.1	Concentrator Wash Rack	<p><b>Annually:</b> Sump will be cleaned out and inspected. Inspections according to the Appendix C inspection guidance document (in the 8/3/12 submittal to ADEQ) and documented in a log book. Repairs, if needed, will be made in accordance with Section 4 of EPA's technical Guidance Document "Determining the Integrity of Concrete Sumps" and described in the log book.</p>	NA
D30.6	Smelter Truck Wash	<p><b>Monthly:</b> The sump will be cleaned out and inspected. Inspections according to the Appendix C inspection guidance document (in the 8/3/12 submittal to ADEQ) and documented in a log book. Repairs , if needed, will be made in accordance with Section 4 of EPA's technical Guidance Document "Determining the Integrity of Concrete Sumps" and described in the log book</p>	NA

<b>Table 4.2.2 Quarterly Compliance Groundwater Monitoring for Points of Compliance<sup>3</sup></b>										
<b>Parameter<sup>4,5</sup></b>	<b>H-1</b>		<b>H-3</b>		<b>H-5</b>		<b>H-6</b>		<b>H-8</b>	
	<b>AQL<sup>6</sup></b>	<b>AL<sup>7</sup></b>	<b>AQL</b>	<b>AL</b>	<b>AQL</b>	<b>AL</b>	<b>AQL</b>	<b>AL</b>	<b>AQL</b>	<b>AL</b>
Depth to Water(in feet bgs)	Monitor <sup>8</sup>	Res <sup>9</sup>	Monitor	Res	Monitor	Res	Monitor	Res	Monitor	Res
Water Level Elevation (in feet amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Specific Conductance (µmhos/cm) – Field	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature (°F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate+Nitrite	10	8	10	8	10	8	10	8	10	8
Fluoride	4.0	3.2	6.1	None	4.0	3.2	4.0	3.2	4.0	3.2
Arsenic	0.050	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.050	0.04
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Selenium	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.184	None

<sup>3</sup> Table 4.2.2. indicates the 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 a biennial basis, the additional parameters listed in Table 4.2.3 shall be analyzed, and reported on the Self-Monitoring Report Form for biennial sampling.

<sup>4</sup> All concentrations are in milligrams per liter (mg/L) unless otherwise specified.

<sup>5</sup> Metals shall be analyzed as dissolved metals.

<sup>6</sup> AQL = Aquifer Quality Limit

<sup>7</sup> AL = Alert Level

<sup>8</sup> Monitor = Monitoring required, but no limit established in the permit.

<sup>9</sup> Res = Reserved = Alert Levels (ALs) for Depth to Water is reserved. The ALs shall be established as described in the Compliance Schedule, Section 3.0.

**Table 4.2.3  
 Biennial Compliance Groundwater Monitoring  
 for Points of Compliance<sup>10</sup>**

Parameter <sup>11, 12</sup>	H-1		H-3		H-5		H-6		H-8	
	AQL <sup>13</sup>	AL <sup>14</sup>	AQL	AL	AQL	AL	AQL	AL	AQL	AL
Total Alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Antimony	0.006	0.0048	0.006	0.0048	0.006	0.0048	0.006	0.0048	0.006	0.0048
Barium	2.0	1.6	2.0	1.6	2.0	1.6	2.0	1.6	2.0	1.6
Beryllium	0.004	0.0032	0.004	0.0032	0.004	0.0032	0.004	0.0032	0.004	0.0032
Cadmium	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004
Chromium	0.1	0.08	0.1	0.08	0.1	0.08	0.1	0.08	0.1	0.08
Lead	0.050	0.040	0.050	0.040	0.050	0.040	0.050	0.040	0.050	0.040
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	0.002	0.0016	0.002	0.0016	0.002	0.0016	0.002	0.0016	0.002	0.0016
Nickel	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08
Thallium	0.002	0.0016	0.002	0.0016	0.002	0.0016	0.002	0.0016	0.002	0.0016
Zinc	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Gross Alpha	15	12	15	12	15	12	15	12	15	12

<sup>10</sup> Table 4.2.3 lists the parameters for monitoring on a biennial basis (i.e. every 8<sup>th</sup> quarter). The Self-Monitoring Report Form shall be completed for this biennial sampling for every biennial sampling event. The biennial sampling shall be conducted concurrently with a quarterly sampling event, so that analysis shall be conducted for both the biennial and quarterly parameters listed in Tables 4.2.3 and 4.2.2, respectively. See also permit Section 2.5.2.5 and 2.7.

<sup>11</sup> Metals shall be analyzed as dissolved metals.

<sup>12</sup> All concentrations are in milligrams per liter (mg/L) unless otherwise specified.

<sup>13</sup> AQL = Aquifer Quality Limit

<sup>14</sup> AL = Alert Level

**Table 4.2.3**  
**Biennial Compliance Groundwater Monitoring**  
**for Points of Compliance<sup>10</sup>**

Parameter <sup>11,12</sup>	H-1		H-3		H-5		H-6		H-8	
	AQL <sup>13</sup>	AL <sup>14</sup>	AQL	AL	AQL	AL	AQL	AL	AQL	AL
Particle Activity (pCi/L) <sup>17</sup>										
Radium 226 + Radium 228 (pCi/L)	5	4	15	12	15	12	15	12	15	12
Uranium (mg/L)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Benzene	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004	Res.	Res.
Toluene	1	0.4	1	0.4	1	0.4	1	0.4	Res.	Res.
Ethylbenzene	0.7	0.56	0.7	0.56	0.7	0.56	0.7	0.56	Res.	Res.
Xylene	10	8	10	8	10	8	10	8	Res.	Res.

<sup>12</sup>Metals shall be analyzed as dissolved metals.

<sup>13</sup>All concentrations are in milligrams per liter (mg/L) unless otherwise specified.

<sup>14</sup>AQL = Aquifer Quality Limit

<sup>15</sup>AL = Alert Level

<sup>16</sup>Monitor = Monitoring required, but no limit established in the permit.

<sup>17</sup>If gross alpha particle activity is greater than the AL (12 pCi/L) or the AQL (15 pCi/L), then test for and report adjusted gross alpha particle activity in accordance with Sections 2.6.2.3.2 or 2.6.4. If the adjusted gross alpha exceeds the AQL or AL, a permit exceedance has occurred and the contingency actions required by Sections 2.6.2.3.2 or 2.6.4 shall be followed. The adjusted gross alpha particle activity is the gross alpha activity, including radium 226, minus radon and uranium (the sum of uranium 238, uranium 235 and uranium 234 isotopes) reported in pCi/L.

#### **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. Significant Amendment Application dated: January 29, 2015, and subsequent submittals
2. Public Notice: August 10, 2016
3. Responsiveness Summary:

## **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 upon the amount of daily influent or discharge of pollutants in gallons per day as established by A.R.S. § 49-242.

### **6.2 Duty to Comply [A.R.S. §§ 49-221 through 49-263]**

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 of 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 at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard 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(D), 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.
2. The entry of any order or judgment not issued by the Director against the Permittee for the enforcement of any environmental protection statute or rule.

### **6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]**

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

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

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

**6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]**

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

**6.10 Permit Action: Amendment, Transfer, Suspension & 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, renewed, or revoked for cause, under the rules of the Department.

The Permittee shall notify the Groundwater Section 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).