

**STATE OF ARIZONA
SIGNIFICANT AMENDMENT TO
AQUIFER PROTECTION PERMIT NO.: P- 100517
PLACE ID 2476, LTF 43942**

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, Mineral Park, Inc. is hereby authorized to operate the Mineral Park Mine located 16 miles north of Kingman, Arizona, in Mohave County, over groundwater of the Hualapai Groundwater Basin, in portions of Section 19 of Township 23N, Range 17W, and portions of Sections 24, 25, 26, 35 and 36 of Township 23N, Range 18W of the Gila and Salt River Base Line and Meridian.

This permit replaces the original permit and all previous amendments listed in Section 5 and 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:	Mineral Park Mine	
Permittee:	Mailing Address:	Facility's Street Address:
Mineral Park, Inc.	8275 N. Mineral Park Road Golden Valley, AZ 86413	Mineral Park Mine 8275 N. Mineral Park Road Golden Valley, AZ 86413
Facility Contact:	Bob Spengler	
Emergency Telephone Number:	(928) 565-2226 x243	

Latitude: 35° 21' 55" N

Longitude: 114° 08' 40" W

Legal Description: Section 19 of Township 23N, Range 17W, and portions of Sections 24, 25, 26, 35, and 36 of Township 23N, Range 18W, of the Gila and Salt River Baseline and Meridian.

1.2 AUTHORIZING SIGNATURE

**Joan Card, Director
Water Quality Division
Arizona Department of Environmental Quality**

Signed this ____ day of _____, 2008

THIS AMENDMENT SUPERCEDES ALL PREVIOUS PERMITS

2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]

2.1 Facility / Site Description[A.R.S. § 49-243(K)(8)]

Mineral Park Incorporated (MPI) is operating the Mineral Park Mine, an open pit copper mine, utilizing a leaching process with recovery of copper from the leach solution through a solvent extraction-electrowinning (SX-EW) process. The owner is authorized to conduct dump and in situ rubblized leaching, and operate process solution ponds, stormwater runoff ponds, and other facilities according to the design and operational plans approved by the Arizona Department of Environmental Quality (ADEQ), Groundwater Section. MPI is currently leaching the existing mine waste rock dumps, recently constructed dumps of blasted rock, and rock drilled and blasted in place around existing open pits with dilute sulfuric acid to recover copper. The pregnant leach solution (PLS) is collected and pumped to the SX plant where an organic solvent is added to extract the copper. The copper-rich feed solution is then pumped to the EW plant for electrowinning. The resulting cathodes are physically stripped of copper and the copper is shipped off-site for further processing. The raffinate is reformed with sulfuric acid and circulated back to the active leach areas.

On April 18, 2007, the ADEQ Groundwater Section received from MPI an APP amendment application to expand the mining/extraction operation at the Mineral Park Mine. The amendment includes 1) expansion and deepening of the open pit mine, 2) construction of a froth floatation mill, 3) deposition of tailings material, 4) expansion of existing waste rock and leach dumps, and 5) design and construction of a new stormwater impoundment.

The purpose of facilities expansion and construction of a non-stormwater impoundment is to facilitate recovery of molybdenum and increase the recovery of copper metal.

The APP facilities that are affected by the expansion plan are: 1) Hardy Dump, 2) Bismark Dump, 3) Shop Dump, 4) Terminal Storage Facility (TSF) and 5) construction of a Non-stormwater Impoundment. The proposed changes will comprise ore material added to the existing leach dump, expanded footprint and increase in the facility's permitted elevation. The total estimated discharge of 359 gallons per minute (gpm) for the proposed expansion plan compares with 395 gpm estimated for the affected facilities contained in the APP Application Supplement (TerraMatrix 1996). The discharge reduction is largely due to removal of portion of the dumps by mining and considerable reduction in the pool size at the Terminal Storage Facility (TSF).

The site includes the following permitted discharging facilities:

Table 2.1.1 Regulated Discharging Facilities		
Facility	Latitude	Longitude
Raffinate Pond (1)	35° 22' 18" N	114° 09' 06" W
SX PLS Pond (15)	35° 22' 17" N	114° 09' 02" W
Hardy LCP Pond (24)	35° 22' 20" N	114° 08' 05" W
Bismark LCP Pond (61)	35° 21' 24" N	114° 09' 38" W
Hardy Dump (50)	36° 22' 20" N	114° 08' 23" W
Bismark Dump (54)	35° 21' 33" N	114° 09' 30" W
Back Dump (51)	35° 21' 36" N	114° 08' 10" W
Duval Dump (52)	35° 21' 11" N	114° 08' 31" W
Turquoise Dump (53)	35° 21' 05" N	114° 09' 20" W
Gross Dump (55)	35° 21' 47" N	114° 09' 26" W
Shop Dump (56)	35° 21' 59" N	114° 09' 14" W
Central Sump (58)	35° 21' 58" N	114° 08' 43" W
Ithaca Sump (59)	35° 21' 36" N	114° 08' 28" W
Gross Sump (60)	35° 21' 37" N	114° 09' 06" W
Flood Control Basin (27)	35° 22' 17" N	114° 09' 18" W
Terminal Storage Facility (TSF) 62)	35° 20' 33" N	114° 09' 24" W

Table 2.1.1 Regulated Discharging Facilities		
Facility	Latitude	Longitude
No-Name Wash Non-Stormwater Impoundment	35° 21' 54" N	114° 09' 47" W
Runoff Conveyance Channels	Various	
Non-Stormwater Impoundment	35° 21' 08" N	114° 09' 56" W

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 21,312,000 gallons/day.

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

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated closure and post-closure cost is \$ 3,150,600. The financial assurance mechanism was demonstrated through a Trust Fund in the amount of 3,150,600, under A.A.C. R18-9-A203(C)(4).

2.2 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 permitted facilities in Table 2.1.1. The Mineral Park Mine relies on operational, hydrogeologic, and engineered controls to demonstrate BADCT requirements described in Table 4.1.1. The facilities are designed to provide surface water control for a 100-year, 24-hour storm event. Facility design and construction details are contained in the approved aquifer protection permit (APP) application dated November 1, 1995, APP application supplement dated May 1996, APP application for permit amendment dated April 2007 and supplemental documents.

2.2.1 Engineering Design

2.2.1.1 Raffinate Pond

The pond is double-lined with a 60-mil High Density Polyethylene (HDPE) liner incorporating a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Overflow reports to the Flood Control Basin via HDPE pipeline. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond is approximately 3 x 10⁶ gallons which corresponds to fluid static head of 16 feet. Maximum depth of the pond is 18 feet, including a minimum of 2 feet of freeboard.

2.2.1.2 SX PLS Pond

The pond is double-lined with 60-mil HDPE liners incorporating a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Solution from the PLS pond transfers to the solvent extraction (SX) plant via gravity flow. Overflow drains into the raffinate pond. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond is approximately 3 x 10⁶ gallons which corresponds to fluid static head of 6.5 feet. The maximum depth of the pond is 8.5 feet, including a minimum of 2 feet of freeboard.

2.2.1.3 Hardy LCP Pond

The pond is double-lined with HDPE liner (primary 80-mil, secondary 40-mil) and incorporates a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Overflow reports to the Flood Control Basin. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond is approximately 2.0 x 10⁶ gallons which corresponds to fluid static head of 16.5 feet. The maximum depth of the pond is 18.5 feet, including a minimum of 2 feet of freeboard. The existing unlined Hardy pond area is upgraded using a french drain and interceptor trench to collect leachate and minimize discharge.

2.2.1.4 Bismark LCP Pond

A core dam is keyed into bedrock and constructed with a core of screened 6-inch minus materials compacted to 95% maximum dry density in 6-inch lifts. Fine sediments accumulating at the bottom provide low permeability conditions which along with natural site-specific conditions will minimize the potential for discharge of PLS solution. Discharge is further minimized using static head reduction. The construction of surface water control for run-on and run-off from 100-year, 24-hour storm event and/or operational upset conditions shall be completed according to Section 3.0 of this permit. The facility design plans shall be approved by ADEQ prior to construction. The maximum storage capacity of the pond is approx. 2.5×10^6 gallons which corresponds to fluid static head of 8.5 feet. The maximum depth of the pond is 10.5 feet, including a minimum of 2 feet of freeboard. The maximum operating static head shall not exceed 8.5 feet.

2.2.1.5 Hardy Dump

The facility is an existing leach dump proposed for expansion. Current dump volume is estimated at approximately 91 million tons of oxide ore, with a surface area of 194 acres. Current crest elevation of the dump varies between 4,600 feet and 4,750 feet above mean sea level (amsl), with a thickness up to 250 feet. Low grade ore will be added to the dump resulting in lateral (east and northeast) expansion and upward accretion of the dump. The dump expansion area will cover approximately 42 acres. The expanded dump tonnage is estimated at 125 million tons. The southern part of the dump will be mined out with the planned pit expansion.

2.2.1.6 Bismark Dump

The facility is an existing leach dump proposed for expansion. Current dump volume is estimated at approximately 21 million tons of oxide ore, with a surface area of 120 acres. Current crest elevation of the dump is 4,340 feet amsl, with a thickness up to 200 feet. The waste rock dump will be expanded to the southwest. Most of the existing dump will be mined out to accommodate pit expansion or covered with waste rock. The final dump configuration will contain approximately 130 million tons of leachable material and will cover a surface area of 180 acres.

2.2.1.7 Back Dump, Duval Dump, Turquoise Dump, Gross Dump

Operation of the waste rock dumps relies on gentle-to-steeply dipping subsurface conditions beneath the dumps, which minimize the potential for acid rock drainage production or accumulation. Impacted storm water run-off is either captured in pit sumps or channeled to the TSF through low permeability conveyance ditches with sufficient capacity to contain 100-year, 24-hour storm event. Impacted storm water run-off is reclaimed and recycled to the process water control system. Run-off from the eastern slope of Back Dump is contained within a closed drainage basin lying on the eastern toe of the Back Dump. The headwall in No Name Wash shall minimize the potential of a possible discharge from the rock dumps into the groundwater. The construction of surface water control for run-on and run-off from a 100-year, 24-hour storm event and/or operational upset conditions shall be completed according to Section 3.0 of this permit. The facility design plans must be approved by ADEQ prior to construction.

2.2.1.8 Shop Dump

The facility is an existing waste rock dump proposed for expansion. Current dump volume is estimated at 5.7 million tons of waste rock, with a surface area of 80 acres. Current crest elevation of the dump is 4,430 feet amsl, with a thickness up to 240 feet. The waste rock will be added to the dump resulting into lateral expansion and upward accretion. The facility footprint will be expanded to the west and southwest. The final dump configuration will contain approximately 25.6 million tons of waste rock and will cover a surface area of 92

acres. No leaching has been conducted on the dump to date.

2.2.1.9 Central Sump, Ithaca Sump and Gross Sump

A rubblelized in situ leaching method, using sulfuric acid, relies on engineered controls and operational procedures to demonstrate BADCT. Ithaca Sump acts as an operational hydrologic sink and low permeability conditions minimize the potential for discharge. Discharge is further minimized by using static head reduction as follows: Central Sump - Maximum operating static head shall not exceed elevation 4,365 feet AMSL. Ithaca Sump - Maximum operating static head shall not exceed elevation 4,150 feet AMSL. Gross Sump - Maximum operating static head shall not exceed elevation 4,310 feet AMSL.

2.2.1.10 Flood Control Basin

Upstream embankment of the Flood Control Basin (FCB) is lined with a geosynthetic clay liner, overlain by a single 80-mil HDPE geomembrane. The remainder of the **FCB** liner system includes 12 inches of prepared subgrade, overlain by a single 80-mil HDPE geomembrane. The facility is constructed with a concrete overflow spillway, energy dissipators, and a splash basin. Several underdrains are installed within the embankment and basin foundation. The collection sump is equipped with 3 pumps, 3 h.p. each, for the pump-back system (Construction Report - Final Stormwater Control Plan Project, June 27, 1995). Construction was approved by the Arizona Department of Water Resources.

2.2.1.11 Terminal Storage Facility (TSF)

The facility is an existing tailings impoundment proposed for expansion. The tailings dam will be raised by approximately 10 feet a year, for a total of 200 feet over 20 years. Current volume of the tailings is estimated at 101 million (dry) tons. An estimated 288 millions (dry) tons of tailings material will be deposited in the impoundment as a result of facility expansion. The facility will be laterally expanded to the east. Current crest elevation of the tailings dam is 3,820 feet amsl, with an ultimate crest elevation of 4,020 feet amsl. Currently permitted facility footprint covers approximately 630 acres. The expanded footprint will cover approximately 1,058 acres of surface area.

2.2.1.12 No-Name Wash Non-Stormwater Impoundment

Existing concrete head wall and pipeline system, constructed in 1998, captures impacted surface and subsurface flows from the waste rock dumps. The impacted water is conveyed, via gravity, to a collection facility, Bismark Pond, using a six-inch high-density polyethylene (HDPE) pipeline. The existing headwall and pipeline system is determined inadequate to handle flows from a 100-year, 24-hour storm event.

The proposed No Name Wash Headwall/Pipeline System is designed to temporarily store and convey impacted stormwater runoff from the waste rock dumps to the Tailings Storage Facility (TSF) located downstream. The lower section of the 12-inch thick headwall will be constructed using concrete (compressive strength of 4,000 psi) and the upper section shall be a lined earthfill embankment. The embankment liner will comprise 80-mil HDPE geomembrane over 6 inches of 2-inch minus compacted bedding. The structural fill and bedding material will be compacted to 95 percent maximum dry density of standard Proctor (ASTM D698), within 3 percent of the optimum moisture content. A concrete pad will be constructed in the basin to facilitate removal of sediments using rubber-tired equipment. Any subsurface flows will be captured by an under-drain system and conveyed to the TSF via 6-inch HDPE pipeline. The facility is designed to capture run-off from a 100-year, 24-hour storm event and convey the fluid, via gravity, through an HDPE pipeline to the TSF. A diversion ditch will be constructed to intercept run-off from the north side of the No Name Wash, thus reducing the amount of stormwater entering the headwall basin. The main features of the proposed Headwall/Pipeline System Design are summarized below.

Embankment crest elevation 4,038 feet above mean sea level (amsl)
Spillway elevation 4,035 feet amsl
Total volume of run-off due to a 100-year, 24-hour storm event = 8.1 acre feet
12-inch diameter HDPE Outlet pipe
Maximum pipe discharge rate = 6.9 cubic feet per second
Time to drain the impoundment behind headwall = Approximately 26.5 hours

2.2.1.13 Runoff Conveyance Channels

The stormwater runoff channels below the rock dumps shall be designed for the peak runoff from the 100-year, 24-hour storm event. The channels shall be constructed and maintained to provide a continuous, low permeability conveyance from the nearest practicable collection point below the dumps to the TSF. The channels shall be excavated or constructed in native bedrock. Segments of channels not underlain by competent bedrock material shall be lined with shotcrete or similar low permeability material. The construction of the channels shall be completed according to Section 3.0 of this permit. The facility design plans shall be approved by ADEQ prior to construction.

2.2.1.14 Non-Stormwater Impoundment

The facility is a single-lined impoundment that shall be constructed using 80-mil HDPE geomembrane, underlain with 12 inches minimum native material compacted to 95 percent maximum dry density. The geomembrane shall be anchored in an engineered trench around the impoundment perimeter. The design capacity of the impoundment is approximately 40 acre-feet of fluid, with a depth of 7 feet. The impoundment shall contain stormwater run-on and direct precipitation from a 100-year, 24-hour storm event, with a minimum of 2 feet of freeboard. The facility shall be designed, constructed and operated to meet prescriptive BADCT in accordance with the Arizona Mining BADCT Guidance Manual.

2.2.2 Site-specific Characteristics Not Applicable

2.2.3 Pre-Operational Requirements Upon completion of construction, the results of all Minimum Testing Frequency, Construction Quality Assurance (CQA) observations and testing (field and laboratory) must be presented in a certification report to the Arizona Department of Environmental Quality (ADEQ). See Table 4. The certification report must be sealed and signed by a professional engineer registered in the State of Arizona.

2.2.4 Operational Requirements The operational requirements for the permitted facilities shall be measured at the frequencies indicated in Section 4.2, Table 5 and shall be recorded in a logbook as required in Section 2.5.2. If damage is identified during an inspection that could cause or contribute to a discharge, 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 pursuant to A.R.S. § 49-201(12) resulting from failure or bypassing of BADCT pollutant control technologies including liner failure, 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 100-year, 24 hour storm event or process overflow during a power outage exceeding 24 hours in duration.

2.3.1 Leaching Facilities

The Leaching Facilities are designed and authorized for use in leaching of ore and other copper bearing materials that can be economically processed. The Leaching Facilities shall be constructed

and operated in accordance with the BADCT outlined in Section 4, Table 4.1.1, and the ultimate heights shall not exceed those elevations set forth in Table 4.1.1.

2.3.2 Pregnant Leach Solution (PLS) Ponds and Impoundments

The PLS Ponds and Impoundments are designed and authorized to receive pregnant leach solution, stormwater, process water and process upset events.

2.3.3 Non-Stormwater Impoundments

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

2.4 Points of Compliance (P.O.C.) [A.R.S. § 49-244]

The Points of Compliance are established by the following monitoring locations:

Monitoring Point	Designation	Lat./Long.	ADWR Number
Points of Compliance			
Groundwater Well Number MW-2a	Hazardous and non-hazardous point of compliance	35° 21' 00" N 114° 10' 30" W	55-551147
Groundwater Well Number MW-5	Hazardous and non-hazardous point of compliance	35° 19' 39" N 114° 50' 30" W	55-623090
Groundwater Well Number MW-6	Hazardous and non-hazardous point of compliance	35° 21' 51" N 114° 50' 27" W	55-542766
Groundwater Well Number MW-19	Hazardous and non-hazardous point of compliance.	35° 21' 56" N 114° 09' 45" W	55-565213
Groundwater Well Number MW-20	Hazardous and non-hazardous point of compliance.	35° 22' 20" N 114° 09' 31" W	55-565214

Monitoring requirements for each P.O.C. are listed in Section 4.2, Table 1A through 1E and Table 2A through 2E.

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)]

All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. 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. The permittee shall consult the most recent version of the ADEQ Quality Assurance Project Plan (QAPP) and EPA 40 CFR PART 136 for guidance in this regard. 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

Not Applicable

2.5.2 Facility / Operational Monitoring

The permittee shall inspect the pollution control structures in Section 4.2, Table 5 to verify that all components are functioning properly.

The permittee shall document facility monitoring activities, inspection results, and all repair procedures, methods and materials used to return the system or structure to operating condition as

described in Section 2.7.2 of this permit. A log of the inspections and related monitoring activities shall be kept at the facility for ten (10) years from the date of each inspection or the life time of the facility, and made available for review by ADEQ personnel as necessary. A summary of facility monitoring activities, inspection results, facility repairs or any other corrective actions shall be submitted quarterly in accordance with Section 2.7.4 of this permit.

2.5.3 Groundwater Monitoring and Sampling Protocols

Static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters (pH, temperature, conductivity) are stable, whichever represents the greater volume. If evacuation results in the well going dry, the well shall be allowed to recover to 80% 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.

2.5.3.1 POC Well Replacement

In the event that one or more of the designated POC wells should become unusable or inaccessible due to damage, insufficient water in the well for more than 2 sampling events, or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the replacement well is fifty (50) feet or less from the original well, the ALs and/or AQLs calculated for the designated POC well shall apply to the replacement well.

2.5.3.2 Ambient Groundwater Monitoring for POC Wells

Ambient groundwater sampling shall be conducted at the designated POC monitoring wells for at least eight monthly rounds for those constituents listed as “reserved” at MW-2a, MW-5, MW-6, and MW-20 in accordance with the permit Compliance Schedule. The ambient groundwater monitoring at MW-19 shall begin within fifteen months after the final upgrade to No Name Wash. Each monthly ambient groundwater sample shall be analyzed for the parameters listed in Section 4, Tables 1A through 1E and Tables 2A through 2E. AQLs and ALs shall be calculated in accordance with the methods described in Section 2.5.3.3, and Section 2.5.3.4.

2.5.3.3. Alert Levels for POC Wells

ALs shall be calculated for all contaminants with a numeric aquifer water quality standard (AWQS).

The ALs shall be established and calculated by the following formula, or another valid statistical method submitted to GWS in writing and approved for this Permit by the GWS:

$$AL = \bar{0} + Ks$$

Where $\bar{0}$ = mean, s = standard deviation, and K = one-sided normal tolerance interval with a ninety-five percent (95%) confidence level (Lieberman, G.J. (1958) Tables for One-sided Statistical Tolerance Limits: Industrial Quality Control, Vol XIV, No. 10). Obvious outliers should be excluded from the data used in the AL calculation.

The following criteria shall be used in establishing ALs in the Permit:

1. The AL shall be calculated for a parameter using the analyses from a minimum of eight consecutive monthly sample rounds events.
2. Any data where the MRL exceeds eighty percent (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 MRL or detection limit for the parameter, not just as “non-detect.” For those parameters, the permittee shall use a value of one-half (1/2) the reported detection limit for the AL calculation.
4. If the analytical results from more than fifty percent (50%) of the samples for a specific parameter are non-detect, then the AL shall be set at eighty percent (80%) of the AWQS and the AQL at the AWQS.
5. If the calculated AL for a specific constituent and well is less than eighty percent (80%) of the AWQS, the AL shall be set at eighty percent (80%) of the AWQS for that constituent in that well.

2.5.3.4 Aquifer Quality Limits for POC Wells

AQLs will be established in the Permit as a permit amendment for all parameters listed in Section 4, Tables 1A through 1E and Tables 2A through 2E, for which a numeric 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.

Using the same methodology, ADEQ reserves the right to set ALs or AQLs, where applicable, for those analytes that may have a numeric standard adopted by rule at a future time.

2.5.3.5 Compliance Groundwater Quality Monitoring for POC Wells

For quarterly compliance monitoring, the permittee shall analyze groundwater samples for the parameters listed in Section 4, Tables 1A through 1D. The constituents listed in Table 1E will require quarterly groundwater compliance sampling, once ambient is established after the final facility upgrade in No Name Wash. In addition to quarterly compliance groundwater monitoring, every year (annual) the permittee shall analyze samples from the POC wells for an expanded list of parameters listed in Section 4, Tables 2A through 2D. The constituents listed in Table 2E will require annual groundwater compliance sampling, once ambient is established after the facility upgrade in No Name Wash. The annual sampling event shall replace the regularly scheduled quarterly sampling event.

The permittee may submit a written request to ADEQ to modify, reduce, or delete a monitoring parameter in the quarterly or annual compliance groundwater monitoring tables (Section 4) in accordance with the following criteria:

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

3. Upon review, ADEQ will determine if the modification(s) requested is justified and approved. The respective changes, if approved, will require an amendment to the permit.

2.5.3.6 Passive Containment Demonstration

1. Initial Demonstration

The permittee shall submit to ADEQ's a report containing a demonstration that adequately shows that the expansion of the open pit will meet the requirements set forth in statute for passive containment. Passive containment is described in A.R.S. § 49-243(G)(1) as a mine pit that is sufficient to capture the pollutants discharged and that is hydrologically isolated to the extent that it does not allow pollutant migration from the capture zone. Passive containment means natural or engineered topographical, geological or hydrological control measures that can operate without continuous maintenance. Monitoring and inspection to confirm performance of the passive containment do not constitute maintenance. Demonstration of passive containment is generally made by constructing an analytical or numerical model for the site. Monitoring of the potentiometric surface and groundwater chemistry in observation wells located peripheral to the open pit is generally part of the demonstration. The applicant should state if passive containment will be a component of BADCT for any discharging facilities, and if so, provide a demonstration that this condition will continue without continuous maintenance. The report shall include the collection, analysis and interpretation of current groundwater elevation and groundwater quality data from the aquifers. The groundwater demonstration shall include a groundwater flow model that includes the following:

1. The purpose of the model.
2. The selection of the computer code and code verification.
3. The model design, including the grid selection, model layers and boundaries, time steps, and the selection of initial values for aquifer parameters and hydrologic stresses.
4. Model calibrations.
5. Calibration sensitivity analysis.
6. Presentation of model results.
7. The designation of the vertical and horizontal boundaries of the hydrologic sink. The evaluation shall propose additional points of compliance, if applicable.

The passive containment demonstration report is due within five (5) years from the date of issuance of this permit.

2. Post Audit Passive Containment Demonstration

A post audit report shall be conducted every five (5) years from the effective date of this permit. The results of the post-audit shall be submitted to ADEQ for review in a report that summarizes the original passive containment demonstration and any updates or revisions made to the model, and a discussion of the previous model predictions. The assumptions about mine development and infiltration shall be reviewed in terms of the actual changes in the pit configuration, leaching areas, leach rates, sump locations, water balance, annual precipitation and storm events. The resulting compilation shall be compared to predictions provided by the groundwater flow model for the previous calibration period. A report summarizing the original passive containment demonstration and the revisions made to the model shall be submitted to ADEQ for review.

Other factors to be evaluated in the post-audit include groundwater inflow, the estimated static water level in the pit, the estimated time to reach static water level, and any

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

2.5.4 Surface Water Monitoring and Sampling Protocols

Surface water monitoring is not required as a condition of this permit.

2.5.5 Analytical Methodology

All samples collected for compliance monitoring shall be analyzed using Arizona state approved methods. If no state approved method exists, then any appropriate EPA approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state certified laboratories can be obtained at the address below:

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

2.5.6 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) submitted in the application shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any alert level (AL) that is exceeded or any violation of an aquifer quality limit (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 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. 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. The facility is no longer on alert status once the operational indicator no longer indicates that the performance level is being exceeded. The permittee shall, 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 4.2, Tables 3 or 5 has been observed or noted during required inspection and operational monitoring, such that the result could cause or contribute to an unauthorized discharge, the permittee shall immediately investigate to determine the cause of the condition. The investigation shall include the following:
 - 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.
- b. The AL exceedance, results of the investigation, and any corrective action taken shall be reported to the Water Quality Compliance Section (WQCS), within thirty (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 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.
- d. The facility is no longer on alert status once the operational indicator no longer indicates that the performance level is being exceeded. The permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

3. The facility is no longer on alert status once the operational indicator no longer indicates that an AL is being exceeded. The permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring

2.6.2.2.1 Exceedance of Alert Levels Set for the Action Leakage Rate in the SX PLS Pond or Hardy LCP Pond

The permittee shall, at a minimum, initiate the following actions within three days of becoming aware of an exceedance of the action leakage rate (ALR) of 500 gallons per day (gpd) for the SX PLS Pond and 400 gpd for the Hardy LCP Pond. All information shall be recorded in a log book, as described in Section 2.7.4.

1. Pump out all fluid collected in the leak collection and recovery system.
2. Quantify and record the amount of fluid pumped from the leak collection and recovery system.
3. Assess the potential for migration of liquids out of the containment system.
4. Assess the current conditions of the liner system.

2.6.2.2.2 Exceedance of an Alert Level Set for the Rapid and Large Leakage Rate in the SX PLS Pond or the Hardy LCP Pond

Additional response actions based on rapid and large leakage (RLL) rates in excess of 5,000 gpd for the SX PLS Pond and 4,000 gpd for the Hardy LCP Pond shall include:

1. Notify the ADEQ Water Quality Compliance Section within 24 hours of becoming aware of an exceedance.
2. Reduce hydraulic head on the liner including emptying of the impoundment.
3. Visual inspections to identify areas of leakage.
4. Repairs of all identified areas of leakage.
5. Closure or partial closure of the impoundment if identified areas of leakage cannot be repaired.
6. After repairs have been made, monitor the leakage rate while the pond is being filled.

The permittee may be required to install additional groundwater monitoring wells if the above leakage rates are exceeded and/or there is a large, sudden release of material from the process ponds, solution process ditches, or process solution sumps.

Within 30 days of a confirmed RLL rate exceedance, the permittee shall submit a written report to ADEQ Water Quality Compliance Section, which includes the information specified in A.A.C. R18-9-113(C)(1) through (5). In addition to actions already taken, the report shall describe additional response actions to be taken for increased leakages rates.

2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring

2.6.2.3.1 Alert Levels for Indicator Parameters

1. If an Alert Level (AL) set in Section 4, Tables 1A through 1E and Tables 2A through 2E for total dissolved solids, sulfate, copper and zinc, has been exceeded, the permittee shall request that the laboratory verify the sample results within five (5) days. If the analysis does not confirm that an exceedance has occurred, the permittee may assume there has been no

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

2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4.2, Table 1A through 1E and Table 2A through 2E 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 an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL 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 thirty (30) days after confirmation of an AL being exceeded, the permittee shall submit the laboratory results to the Water Quality Compliance 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 sequential 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 six sequential sampling events, the permittee shall submit a second report documenting an investigation of the continued AL exceedance within thirty (30) days of the receipt of laboratory results of the sixth sampling event.

2.6.3 Discharge Limitations (DL) Violations

2.6.3.1 Water Level exceedance in the Gross Sump, Central Sump and Ithaca Sump

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

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

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

2.6.3.3 Liner Failure, Containment Structure Failure, or Unexpected Loss of Fluid

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

1. As soon as practicable, cease all non-gravity inflows to the surface impoundment as necessary to prevent any further releases to the environment.
2. Within 24-hours of discovery, notify ADEQ Water Quality Compliance Section.
3. Within five (5) 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, Table 4.2.3. Within thirty (30) days of the incident, submit a copy of the analytical results to ADEQ Water Quality Compliance Section.
4. Within fifteen (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 thirty (30) days of discovery of the incident, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and AL Status Reporting). Include a description of the actions performed in Subsections 1 through 5 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
7. Within sixty (60) days of discovery, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident. If soil or groundwater is impacted such that it could cause or contribute to an exceedance of an AQL at the applicable point of compliance, submit to ADEQ, for approval, a corrective action plan to address such impacts, including identification of remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
8. Within thirty (30) days of completion of corrective actions, submit to ADEQ, a written report as specified in Section 2.6.6 (Corrective Actions). Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions.

2.6.3.4 Overtopping of a Surface Impoundment

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

1. As soon as practicable, cease all non-gravity inflows to the surface impoundment to prevent any further releases to the environment.
2. Within 24-hours of discovery, notify ADEQ Water Quality Compliance Section.
3. Within five (5) days, collect representative samples of the fluid contained in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4, Table 4.2.3. Within thirty (30) days of the incident, submit a copy of the analytical results to ADEQ Water Quality Compliance 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 Table 4.1.1. 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 thirty (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 thirty (30) days of discovery of overtopping, 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, and based on sampling in Subsection 3 above, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident.
8. If soil or groundwater is impacted such that it could cause or contribute to an exceedance of an AQL at the applicable point of compliance, submit to ADEQ for approval, a corrective action plan to address such impacts, including identification of remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
9. Within thirty (30) days of completion of corrective actions, submit to ADEQ, a written report as specified in Section 2.6.6 (Corrective Actions). Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions.

2.6.3.5 Inflows of Unexpected Materials to a Surface Impoundment

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

1. As soon as practicable, cease all unexpected inflows to the surface impoundments.
2. Within 24-hours of discovery, notify ADEQ Water Quality Compliance Section.
3. Within five (5) days of the incident, identify the source of the material and determine the cause for the inflow. Characterize the unexpected material and contents of the affected impoundment, and evaluate the volume and concentration of the material to determine if it is compatible with the surface impoundment liner. Based on the evaluation of the incident, repair any systems or equipment and/or adjust operations, as necessary to prevent future occurrences of inflows of unexpected materials.
4. Within thirty (30) days of an inflow of unexpected materials, 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 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, or other actions.

2.6.4 Aquifer Quality Limit (AQL) Violation

1. If an AQL set in Section 4.2, Table 1A through 1E and Table 2A through 2E 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 unexpected discharge. If the results of verification sampling indicate that an AQL has not been exceeded, no further action is required unless otherwise instructed by ADEQ.

If the analytical results from the verification sampling confirm that an AQL has been exceeded, the permittee shall, within 14 days of receiving the laboratory results from the verification sampling, collect an additional water sample from the POC well. The water sample shall be submitted to a laboratory for analyses of the applicable parameters listed in Tables 1A through 1E and Tables 2A through 2E. The results from this second verification sampling shall be reported in writing to the ADEQ Water Quality Compliance Section within five days of receiving the laboratory results. If the results from the second verification sampling confirm that an AQL has been exceeded, the permittee shall within 30 days of receiving the laboratory results, submit to the ADEQ Water Quality Compliance Section, one of the following:

- a. A written report that includes all of the information as specified in A.A.C. R18-9-113(C)(1) through (5). Upon approval by the ADEQ the permittee shall initiate the actions necessary to mitigate or remediate the impacts of the discharge.
- b. A demonstration that the AQL exceedance resulted from error(s) in sampling, analysis, or statistical evaluation.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

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

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(19)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the discharged material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ Northern Regional Office at 928-779-0313 and the ADEQ Water Quality Compliance Section at 602-771-4497 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 ADEQ Northern Regional Office at 928-779-0313 and the ADEQ Water Quality Compliance Section at 602-771-4497 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 ADEQ Northern Regional Office at 928-779-0313 and the ADEQ Water Quality Compliance Section at 602-771-4497 within thirty 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.

2.6.5.5 Emergency Response

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

1. A plan to provide emergency response on a 24-hour basis in the event that a condition arises, which results in an imminent and substantial endangerment to the public health or the environment.
2. The designation of an emergency response coordinator to be responsible for activation of the contingency plan and emergency response measures.
3. A requirement that the emergency response coordinator notify the Department immediately in the event that emergency response measures are taken or those portions of a contingency plan that address an imminent and substantial endangerment are activated.
4. A list of names, addresses and telephone numbers of persons to be contacted in the event that an imminent and substantial endangerment to the public health or the environment arises.
5. A general description of the procedures, personnel and equipment to be used to assure appropriate mitigation of unauthorized discharges.

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

2.6.5.6 Power Outage

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

2.6.6 Corrective Actions

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

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Groundwater 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 operator shall submit to the ADEQ Water Quality Compliance 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 Water Quality Compliance Section, Data Unit.
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 tables contained in Sections 4.0 list the parameters to be monitored and the frequency for reporting results for groundwater compliance monitoring. Analytical methods shall be recorded on the SMRFs.
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 Water Quality Compliance Section in writing within five days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an Alert Level being exceeded.

2. The permittee shall submit a written report to the Water Quality Compliance Section within 30 days of becoming aware of the violation of any permit condition or discharge limitation. The report shall document all of the following:
 - a. Identification and description of the permit condition for which there has been a violation and a description of 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 annual groundwater sampling described in Section 4.2, Tables 2A-2E, submit a monitoring summary report to ADEQ. This report shall be due at the same time as the SMRF form for the annual 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, DLs, 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, and water level elevation.
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, water level elevation, and screened interval.
6. A summary of any actions taken under the approved Remedial Action Plan (RAP) and a description of any impact to APP permitted facilities or permit conditions shall be discussed.

2.7.5 Reporting Location

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality
Water Quality Compliance Section, Data Unit
Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4513

All documents required by this permit to be submitted to the Water Quality Compliance Section shall be directed to:

Arizona Department of Environmental Quality
Water Quality Compliance Section

Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4497

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) 771-4428

2.7.6 Reporting Deadline

The following table lists the quarterly report due dates:

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

Monitoring conducted during the year:	Annual/Biennial Report due by:
January-December	January 30

2.7.7 Changes to Facility Information in Section 1.0

The Groundwater Section and Water Quality Compliance 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 Water Quality Compliance 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 Water Quality Compliance 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 Water Quality Compliance 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)(1)(a). Furthermore, the plan shall include the following specific activities:

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

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

2.9.2 Closure Completion

Upon completion of closure activities, the permittee shall give written notice to the Groundwater 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

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

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

2.10.2 Post-Closure Completion

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

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

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. A copy of the cover letter must also be submitted to the Water Quality Compliance Section.

Discharge Control Technology Action Item	Begin Construction By	Complete By
Bismark Pond spillway retrofit and 28" conveyance pipeline upgrade.	April 2000	Completed
Turquoise Dump runoff channel construction	August 2000	Completed
Duval Dump/Turquoise Wash DCT upgrade	April 2001	Completed
No Name Wash upgrade	April 1, 2003	December 31, 2008

TABLE 3.1.1 Compliance Schedule		
Item Description	Time To Complete	Remarks
Setting Alert Levels and Aquifer Quality Limits for reserved constituents at MW-2a, MW-5, MW-6 and MW-20.		
Permit Amendment to set ALs and AQLs	Within twelve (12) months of the permit amendment issuance	Submit an amendment application and copies of all laboratory analytical reports, field notes, the QA/QC procedures used in collection and analysis of the samples, and a report including statistical calculation of the ALs and AQLs to the ADEQ for those constituents listed as reserved at groundwater wells MW-2a, MW-5, MW-6 and MW-20.
Setting Alert Levels and Aquifer Quality Limits for MW-19		
Permit Amendment to set ALs and AQLs	Within twelve (12) months after final upgrade to No Name Wash	The well shall be sampled for ambient water quality for at least eight monthly sampling events. The wells shall be sampled for all of the parameters listed in Table 1E and Table 3E. The copies of all laboratory analytical reports, field notes, the QA/QC procedures used in collection and analysis of the samples, and a report including statistical calculation of the ALs and AQLs to the ADEQ for those constituents listed as reserved at MW-19.
Passive Containment Demonstration		
Passive Containment Demonstration Investigation	Within 5 years of the permit amendment issuance	The permittee shall submit a report to the APP Program containing the demonstration showing that the expanded open pit, meets the requirement for passive containment in accordance with ARS §49-243.G.1. The criteria set forth in Section 2.5.3.6 must be met in this demonstration, in addition to

TABLE 3.1.1 Compliance Schedule		
Item Description	Time To Complete	Remarks
		defining the boundaries (vertical and horizontal) where the hydrologic sink ceases to exist, using site specific geologic and hydrologic data. If the model fails to demonstrate that the passive containment will be met, the permittee shall submit a contaminant transport model that demonstrates that the discharge from the mine will not exceed an AWQS or result in further degradation of an aquifer at a point of compliance well down gradient of the open pit.
Passive Containment Post Audit Report	Every 5 years after initial demonstration	The permittee shall submit a post audit report to the APP Program updating the passive containment demonstration, including any revisions resulting from hydrologic or operational changes observed during the re-evaluation every five (5) years, after the initial demonstration. The collection, analysis and interpretation of groundwater elevation, gradient information and or groundwater quality collected from the hydrologic sink demonstration wells will be required throughout the life of the facility. The data from the hydrologic sink demonstration wells shall be used to update the initial passive containment demonstration.
Engineering Requirements		
Phreatic Surface and Slope Movement Monitoring Plan	Within 90 days	The permittee shall submit an instrumentation equipment plan for monitoring the phreatic surface and slope movement along the Terminal Storage Facility dam embankment, including installation schedule for the approved equipment.
No Name Wash Non-Stormwater Impoundment	Within 30 days after completion of the No Name Wash Non-Stormwater Impoundment	The permittee shall submit a copy of the as-built drawings (plan and section) of the facility construction.

4.0 TABLES OF BADCT AND MONITORING REQUIREMENTS
4.1 FACILITY TABLES

Table 4.1.1 Regulated Facilities BADCT		
Facility (#)	Lat./Long.	Facility BADCT
Raffinate Pond (1)	35° 22' 18" N 114° 09' 06" W	The pond is double-lined with a 60-mil High Density Polyethylene (HDPE) liner incorporating a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Overflow reports to the Flood Control Basin via HDPE pipeline. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond is approximately 3 x 10 ⁶ gallons which corresponds to fluid static head of 16 feet. Maximum depth of the pond is 18 feet, including a minimum of 2 feet of freeboard.
SX PLS Pond (15)	35° 22' 17" N 114° 09' 02" W	The pond is double-lined with 60-mil HDPE liners incorporating a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Solution from the PLS pond transfers to the solvent extraction (SX) plant via gravity flow. Overflow drains into the raffinate pond. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond is approximately 3 x 10 ⁶ gallons which corresponds to fluid static head of 6.5 feet. The maximum depth of the pond is 8.5 feet, including a minimum of 2 feet of freeboard.
Hardy LCP Pond (24)	35° 22' 20" N 114° 08' 05" W	The pond is double-lined with HDPE liner (primary 80-mil, secondary 40-mil) and incorporates a leak collection and recovery system. The bottom liner is a composite liner overlying a prepared subgrade. Overflow reports to the Flood Control Basin. Above grade construction allows for a natural diversion of potential run-on around the impoundment. The maximum storage capacity of the pond is approximately 2.0 x 10 ⁶ gallons which corresponds to fluid static head of 16.5 feet. The maximum depth of the pond is 18.5 feet, including a minimum of 2 feet of freeboard. The existing unlined Hardy pond area is upgraded using a french drain and interceptor trench to collect leachate and minimize discharge.
Bismark LCP Pond (61)	35° 21' 24" N 114° 09' 38" W	A core dam is keyed into bedrock and constructed with a core of screened 6-inch minus materials compacted to 95% maximum dry density in 6-inch lifts. Fine sediments accumulating at the bottom provide low permeability conditions which along with natural site-specific conditions will minimize the potential for discharge of PLS solution. Discharge is further minimized using static head reduction. The construction of surface water control for run-on and run-off from 100-year, 24-hour storm event and/or operational upset conditions shall be completed according to Section 3.0 of this permit. The facility design plans shall be approved by ADEQ prior to construction. The maximum storage capacity of the pond is approx. 2.5 x 10 ⁶ gallons which corresponds to fluid static head of 8.5 feet. The maximum depth of the pond is 10.5 feet, including a minimum of 2 feet of freeboard. The maximum operating static head shall not exceed 8.5 feet.
Hardy Dump (50)	36° 22' 20" N 114° 08' 23" W	The leach dump is located on gently-to-steeply sloping topography which minimizes the potential for discharge and accumulation of acid rock drainage. The hydraulic conductivity of the underlying alluvial and bedrock materials in the expansion area ranges between 1 x 10 ⁻⁴ cm/sec and 1 x 10 ⁻⁷ cm/sec. The existing discharge control technologies (DCTs) include leachate collection pond, interceptor drain system, seepage cutoff wall and a flood control basin. Stormwater diversion ditches are designed to divert surface water run-off away from the Hardy Dump area. Specific conditions that pertain to facility expansion are: <ol style="list-style-type: none"> 1. The maximum crest elevation of the dump shall not exceed 4,800 feet amsl. 2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated April 16, 2007.

Table 4.1.1 Regulated Facilities BADCT		
Facility (#)	Lat./Long.	Facility BADCT
Bismark Dump (54)	35° 21' 33" N 114° 09' 30" W	The leach dump is located on relatively steeply sloping (2H:1V) canyon walls, with surface drainage sloping approximately 7 percent. The hydraulic conductivity of the underlying alluvial and bedrock (granite, gneisses, and schists) materials ranges between 3×10^{-4} cm/sec and 5×10^{-7} cm/sec. The existing DCTs comprise low hydraulic conductivity bedrock and leachate collection pond that intercepts majority of subsurface flows from the Bismark Dump area. The topographic conditions limit surface water run-on. The stormwater run-off from the side slopes of the dump will discharge in the Terminal Storage Facility (TSF) and subsequently in the Non-stormwater Impoundment. Specific conditions that pertain to facility expansion are: 1. The maximum crest elevation of the dump shall not exceed 4,400 amsl. 2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated April 16, 2007.
Back Dump (51) Duval Dump (52) Turquoise Dump (53) Gross Dump (55)	35° 21' 36" N 114° 08' 10" W 35° 21' 11" N 114° 08' 31" W 35° 21' 05" N 114° 09' 20" W 35° 21' 47" N 114° 09' 26" W	Operation of the waste rock dumps relies on gentle-to-steeply dipping subsurface conditions beneath the dumps, which minimize the potential for acid rock drainage production or accumulation. Impacted storm water run-off is either captured in pit sumps or channeled to the TSF through low permeability conveyance ditches with sufficient capacity to contain 100-year, 24-hour storm event. Impacted storm water run-off is reclaimed and recycled to the process water control system. Run-off from the eastern slope of Back Dump is contained within a closed drainage basin lying on the eastern toe of the Back Dump . The construction of surface water control for run-on and run-off from a 100-year, 24-hour storm event and/or operational upset conditions shall be completed according to Section 3.0 of this permit. The facility design plans must be approved by ADEQ prior to construction.
Shop Dump (56)	35° 21' 59" N 114° 09' 14" W	The waste rock dump is located on relatively steeply sloping (2H:1V) canyon walls, with surface drainage sloping approximately 10 percent. The hydraulic conductivity of the underlying alluvial (gravely and clayey sand) and bedrock materials ranges between 1×10^{-3} cm/sec and 1×10^{-6} cm/sec. The existing DCTs comprise low hydraulic conductivity bedrock. The topographic conditions limit surface water run-on. The stormwater run-off from the side slopes of the dump will be captured in the Gross Sump or channeled to the No Name Wash Headwall and the TSF. Specific conditions that pertain to facility expansion are: 1. The maximum crest elevation of the dump shall not exceed 4,450 amsl. 2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated April 16, 2007.
Central Sump (58) Ithaca Sump (59) Gross Sump (60)	35° 21' 58" N 114° 08' 43" W 35° 21' 36" N 114° 08' 28" W 35° 21' 37" N 114° 09' 06" W	A rubblized in situ leaching method, using sulfuric acid, relies on engineered controls and operational procedures to demonstrate BADCT. Ithaca Sump acts as an operational hydrologic sink and low permeability conditions minimize the potential for discharge. Discharge is further minimized by using static head reduction as follows: Central Sump - Maximum operating static head shall not exceed elevation 4,365 feet AMSL. Ithaca Sump - Maximum operating static head shall not exceed elevation 4,150 feet AMSL. Gross Sump - Maximum operating static head shall not exceed elevation 4,310 feet AMSL.

Table 4.1.1 Regulated Facilities BADCT		
Facility (#)	Lat./Long.	Facility BADCT
Flood Control Basin (27)	35° 22' 17" N 114° 09' 18" W	Upstream embankment of the Flood Control Basin (FCB) is lined with a geosynthetic clay liner, overlain by a single 80-mil HDPE geomembrane. The remainder of the FCB liner system includes 12 inches of prepared subgrade, overlain by a single 80-mil HDPE geomembrane. The facility is constructed with a concrete overflow spillway, energy dissipators, and a splash basin. Several underdrains are installed within the embankment and basin foundation. The collection sump is equipped with 3 pumps, 3 h.p. each, for the pump-back system (Construction Report - Final Stormwater Control Plan Project, June 27, 1995). Construction was approved by the Arizona Department of Water Resources.
Terminal Storage Facility (TSF) (62)	35° 20' 33" N 114° 09' 24" W	Facility expansion relies on engineered controls and operational procedures to demonstrate BADCT. Fine sediments accumulating at the bottom of the impoundment provide low permeability (approximately 1×10^{-5} cm/sec) conditions which minimize the potential for discharge of impacted stormwater and process water during process upsets. Surface seepage along the dam embankment, if present, shall be contained using seepage collector drain and pumpback system or eliminated using alternative DCTs as approved by the ADEQ. The impoundment has more than adequate storage capacity for containment of the stormwater run-on from the 100-year, 24-hour storm event. Specific conditions that pertain to facility expansion are: <ol style="list-style-type: none"> 1. The maximum crest elevation of the tailings dam shall not exceed 4,020 feet amsl. 2. The facility footprint shall not exceed the footprint shown in the permit amendment application, dated April 16, 2007. 3. To ensure dam safety, the free water pond on top of the impoundment shall not encroach and remain within 500 feet of the dam crest.
No-Name Wash Non-Stormwater Impoundment	35° 21' 54" N 114° 09' 47" W	The proposed No-Name Wash Non-Stormwater Impoundment is designed to temporarily store and convey impacted stormwater runoff from the waste rock dumps to the Tailings Storage Facility (TSF) located downstream. The lower section of the 12-inch thick headwall will be constructed using concrete (compressive strength of 4,000 psi) and the upper section shall be a lined earthfill embankment. The embankment liner will comprise 80-mil HDPE geomembrane over 6 inches of 2-inch minus compacted bedding. The structural fill and bedding material will be compacted to 95 percent maximum dry density of standard Proctor (ASTM D698), within 3 percent of the optimum moisture content. A concrete pad will be constructed in the basin to facilitate removal of sediments using rubber-tired equipment. Any subsurface flows will be captured by an under-drain system and conveyed to the TSF via 6-inch HDPE pipeline. The facility is designed to capture run-off from a 100-year, 24-hour storm event and convey the fluid, via gravity, through an HDPE pipeline to the TSF. A diversion ditch will be constructed to intercept run-off from the north side of the No Name Wash, thus reducing the amount of stormwater entering the headwall basin. The main features of the proposed Headwall/Pipeline System Design are summarized below. <p>Embankment crest elevation 4,038 feet above mean sea level (amsl) Spillway elevation 4,035 feet amsl Total volume of run-off due to a 100-year, 24-hour storm event = 8.1 acre feet 12-inch diameter HDPE Outlet pipe Maximum pipe discharge rate = 6.9 cubic feet per second Time to drain the impoundment behind headwall = Approximately 26.5 hours</p>

Table 4.1.1 Regulated Facilities BADCT		
Facility (#)	Lat./Long.	Facility BADCT
Runoff Conveyance Channels	Various	The stormwater runoff channels below the rock dumps shall be designed for the peak runoff from the 100-year, 24-hour storm event. The channels shall be constructed and maintained to provide a continuous, low permeability conveyance from the nearest practicable collection point below the dumps to the TSF. The channels shall be excavated or constructed in native bedrock. Segments of channels not underlain by competent bedrock material shall be lined with shotcrete or similar low permeability material. The construction of the channels shall be completed according to Section 3.0 of this permit. The facility design plans shall be approved by ADEQ prior to construction.
Non-Stormwater Impoundment (New Facility)	35° 21' 08" N 114° 09' 56" W	The facility is a single-lined impoundment that shall be constructed using 80-mil HDPE geomembrane, underlain with 12 inches minimum native material compacted to 95 percent maximum dry density. The geomembrane shall be anchored in an engineered trench around the impoundment perimeter. The design capacity of the impoundment is approximately 40 acre-feet of fluid, with a depth of 7 feet. The impoundment shall contain stormwater run-on and direct precipitation from a 100-year, 24-hour storm event, with a minimum of 2 feet of freeboard. The facility shall be designed, constructed and operated to meet prescriptive BADCT in accordance with the Arizona Mining BADCT Guidance Manual.

4.2 COMPLIANCE and OPERATIONAL MONITORING

Table 1 – Compliance and Groundwater Monitoring Points

Table 1A - Quarterly Groundwater Monitoring Compliance Parameters MW-2a

Table 1B - Quarterly Groundwater Monitoring Compliance Parameters MW-5

Table 1C - Quarterly Groundwater Monitoring Compliance Parameters MW-6

Table 1D - Quarterly Groundwater Monitoring Compliance Parameters MW-20

Table 1E - Quarterly Groundwater Monitoring Compliance Parameters MW-19

Table 2A - Annual Groundwater Monitoring Compliance Parameters MW-2a

Table 2B - Annual Groundwater Monitoring Compliance Parameters MW-5

Table 2C - Annual Groundwater Monitoring Compliance Parameters MW-6

Table 2D - Annual Groundwater Monitoring Compliance Parameters MW-20

Table 2E - Annual Groundwater Monitoring Compliance Parameters MW-19

Table 3 - Operational Monitoring and Alert Levels for the Leak Detection/Collection System

Table 4 - Facility Pre-Operation Requirements

Table 5 - Facility Operation Monitoring Requirements

TABLE 1- Compliance Groundwater Monitoring Points

Monitoring Point	Designation	Latitude	Longitude	ADWR Number
Groundwater Well Number MW-19	Hazardous and non-hazardous POC	35° 21' 56" N	114° 09' 45" W	55-565213
Groundwater Well Number MW-20	Hazardous and non-hazardous POC	35° 22' 20" N	114° 09' 31" W	55-565214
Groundwater Well Number MW-2a	Hazardous and non-hazardous POC	35° 21' 00" N	114° 10' 30" W	55-551147
Groundwater Well Number MW-5	Hazardous and non-hazardous POC	35° 19' 39" N	114° 50' 30" W	55-623090
Groundwater Well Number MW-6	Hazardous and non-hazardous POC	35° 21' 51" N	114° 50' 27" W	55-542766

Table 1A Quarterly Groundwater Monitoring Compliance Parameters MW-2a

Parameter	Units	AQL ²	AL ³
Depth to Water Level	Feet	Monitor ⁴	Monitor
Water Level Elevation	Feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	4,457
Fluoride	mg/L	4.0	3.2
Sulfate	mg/L	None	2,684
Beryllium	mg/L	0.004	0.0032
Cadmium	mg/L	0.005	0.004
Copper	mg/L	Monitor	Monitor
Nickel	mg/L	0.1	0.08

1. Metals shall be analyzed for dissolved metal concentrations
2. AQL=Aquifer Quality Limit.
3. AL=Alert Level.
4. Monitor =Analysis is required but an AQL or AL is not established in the permit, at this time.

Table 1B Quarterly Groundwater Monitoring Compliance Parameters MW-5

Parameter ¹	Units	AQL ²	AL ³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	4,500
Fluoride	mg/L	4.0	3.2
Sulfate	mg/L	None	2,637
Beryllium	mg/L	0.004	0.0032
Cadmium	mg/L	0.005	0.004
Copper	mg/L	Monitor	Monitor
Nickel	mg/L	0.1	0.08

Table 1C Quarterly Groundwater Monitoring Compliance Parameters MW-6

Parameter ¹	Units	AQL ²	AL ³
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Parameter¹	Units	AQL²	AL³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	19,437
Fluoride	mg/L	223	None
Sulfate	mg/L	None	13,411
Beryllium	mg/L	1.29	None
Cadmium	mg/L	1.78	None
Copper	mg/L	None	277
Nickel	mg/L	8.86	None

Parameter¹	Units	AQL²	AL³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	6,080
Fluoride	mg/L	13.5	None
Sulfate	mg/L	None	4,509
Beryllium	mg/L	0.061	None
Cadmium	mg/L	0.480	None
Copper	mg/L	Monitor	Monitor
Nickel	mg/L	1.84	None

Parameter¹	Units	AQL²	AL³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	None	Reserved
Total Dissolved Solids (TDS)	mg/L	None	Reserved
Fluoride	mg/L	Reserved	Reserved
Magnesium	mg/L	Monitor	Monitor
Sulfate	mg/L	None	Reserved
Beryllium	mg/L	Reserved	Reserved
Cadmium	mg/L	Reserved	Reserved
Copper	mg/L	None	Reserved
Nickel	mg/L	Reserved	Reserved

Parameter ¹	Units	AQL ²	AL ³
Depth to Water Level	Feet	Monitor ⁴	Monitor
Water Level Elevation	Feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Temperature-field	F	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Alkalinity	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	4,457
Calcium	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Fluoride	mg/L	4.0	3.2
Magnesium	mg/L	Monitor	Monitor
Nitrate	mg/L	10	8.0
Nitrite	mg/L	1.0	0.8
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Sulfate	mg/L	None	2,684
Antimony	mg/L	0.006	0.0048
Arsenic	mg/L	0.05	0.04
Barium	mg/L	2.0	1.6
Beryllium	mg/L	0.004	0.0032
Cadmium	mg/L	0.005	0.004
Chromium	mg/L	0.1	0.08
Copper	mg/L	Monitor	Monitor
Lead	mg/L	0.05	0.04
Mercury	mg/L	0.002	0.0016
Molybdenum	mg/L	Monitor	Monitor
Nickel	mg/L	0.1	0.08
Selenium	mg/L	0.05	0.04
Thallium	mg/L	0.002	0.016
Zinc	mg/L	Monitor	Monitor
Gross Alpha ⁵	pCi/L	15	12
Radium 226+ Radium 228	pCi/L	5.0	4.0
Uranium	mg/L	Monitor	Monitor
Benzene	mg/L	0.005	0.004
Toluene	mg/L	1.000	0.800
Ethylbenzene	mg/L	0.700	0.560
Total Xylenes	mg/L	10	8

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

Table 2B Annual Groundwater Monitoring Compliance Parameters MW-5			
Parameter ¹	Units	AQL ²	AL ³

Parameter¹	Units	AQL²	AL³
Depth to Water Level	Feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Temperature-field	F	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Alkalinity	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	4,500
Calcium	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Fluoride	mg/L	4.0	3.2
Magnesium	mg/L	Monitor	Monitor
Nitrate	mg/L	10	8.0
Nitrite	mg/L	1.0	0.8
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Sulfate	mg/L	None	2,637
Antimony	mg/L	Reserved ⁶	Reserved
Arsenic	mg/L	0.05	0.04
Barium	mg/L	2.0	1.6
Beryllium	mg/L	0.004	0.0032
Cadmium	mg/L	0.005	0.004
Chromium	mg/L	0.1	0.08
Copper	mg/L	Monitor	Monitor
Lead	mg/L	0.05	0.04
Mercury	mg/L	0.002	0.0016
Molybdenum	mg/L	Monitor	Monitor
Nickel	mg/L	0.1	0.08
Selenium	mg/L	0.05	0.04
Thallium	mg/L	0.002	0.016
Zinc	mg/L	Monitor	Monitor
Gross Alpha ⁵	pCi/L	Reserved	Reserved
Radium 226+ Radium 228	pCi/L	Reserved	Reserved
Radium 226+ Radium 228	pCi/L	Reserved	Reserved
Uranium	mg/L	Monitor	Monitor
Benzene	mg/L	0.005	0.004
Toluene	mg/L	1.000	0.800
Ethylbenzene	mg/L	0.700	0.560
Total Xylenes	mg/L	10	8

6. Reserved=The permittee shall submit a request for a permit amendment with the applicable fees, to propose the AQLs and ALs for parameters listed as reserved after completion of ambient groundwater monitoring at each applicable POC. The AQL and AL shall be set according to the conditions specified in the permit. Information required from the permitted shall be submitted in accordance with the Compliance Schedule requirements in Section 3.1.

Table 2C Annual Groundwater Monitoring Compliance Parameters MW-6
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Parameter ¹	Units	AQL ²	AL ³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Temperature-field	F	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Alkalinity	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	19,437
Calcium	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Fluoride	mg/L	223	None
Magnesium	mg/L	Monitor	Monitor
Nitrate	mg/L	10	8.0
Nitrite	mg/L	1.0	0.8
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Sulfate	mg/L	None	13,411
Antimony	mg/L	Reserved	Reserved
Arsenic	mg/L	0.05	0.04
Barium	mg/L	2.0	1.6
Beryllium	mg/L	1.29	None
Cadmium	mg/L	1.78	None
Chromium	mg/L	Reserved	Reserved
Copper	mg/L	None	277
Lead	mg/L	Reserved	Reserved
Mercury	mg/L	0.002	0.0016
Molybdenum	mg/L	Monitor	Monitor
Nickel	mg/L	8.86	None
Selenium	mg/L	0.05	0.04
Thallium	mg/L	Reserved	Reserved
Zinc	mg/L	None	295
Gross Alpha ⁵	pCi/L	Reserved	Reserved
Radium 226+ Radium 228	pCi/L	5.0	4.0
Radium 226+ Radium 228	pCi/L	5.0	4.0
Uranium	mg/L	Monitor	Monitor
Benzene	mg/L	0.005	0.004
Toluene	mg/L	1.000	0.800
Ethylbenzene	mg/L	0.700	0.560
Total Xylenes	mg/L	10	8

Table 2D Annual Groundwater Monitoring Compliance Parameters MW-20

Parameter ¹	Units	AQL ²	AL ³
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Table 2D Annual Groundwater Monitoring Compliance Parameters MW-20			
Parameter¹	Units	AQL²	AL³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Temperature-field	F	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	Monitor	Monitor
Alkalinity	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	6,080
Calcium	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Fluoride	mg/L	13.5	None
Magnesium	mg/L	Monitor	Monitor
Nitrate	mg/L	10	8.0
Nitrite	mg/L	1.0	0.8
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Sulfate	mg/L	None	4,509
Antimony	mg/L	0.006	0.0048
Arsenic	mg/L	0.05	0.04
Barium	mg/L	2.0	1.6
Beryllium	mg/L	0.061	None
Cadmium	mg/L	0.480	None
Chromium	mg/L	0.1	0.08
Copper	mg/L	Monitor	Monitor
Lead	mg/L	0.05	0.04
Mercury	mg/L	0.002	0.0016
Molybdenum	mg/L	Monitor	Monitor
Nickel	mg/L	1.84	None
Selenium	mg/L	0.05	0.04
Thallium	mg/L	0.002	0.016
Zinc	mg/L	None	32.4
Gross Alpha ⁵	pCi/L	Reserved	Reserved
Radium 226+ Radium 228	pCi/L	5.0	4.0
Uranium	mg/L	Monitor	Monitor
Benzene	mg/L	0.005	0.004
Toluene	mg/L	1.000	0.800
Ethylbenzene	mg/L	0.700	0.560
Total Xylenes	mg/L	10	8

Table 2E Annual Groundwater Monitoring Compliance Parameters MW-19

Parameter ¹	Units	AQL ²	AL ³
Depth to Water Level	feet	Monitor ⁴	Monitor
Water Level Elevation	feet amsl	Monitor	Monitor
pH-field and lab	SU	Monitor	Monitor
Temperature-field	F	Monitor	Monitor
Specific Conductance-lab	(µmhos/cm)	None	Reserved
Alkalinity	mg/L	Monitor	Monitor
Carbonate	mg/L	Monitor	Monitor
Bicarbonate	mg/L	Monitor	Monitor
Total Dissolved Solids (TDS)	mg/L	None	Reserved
Calcium	mg/L	Monitor	Monitor
Chloride	mg/L	Monitor	Monitor
Fluoride	mg/L	Reserved	Reserved
Magnesium	mg/L	Monitor	Monitor
Nitrate	mg/L	Reserved	Reserved
Nitrite	mg/L	Reserved	Reserved
Potassium	mg/L	Monitor	Monitor
Sodium	mg/L	Monitor	Monitor
Sulfate	mg/L	None	Reserved
Antimony	mg/L	Reserved	Reserved
Arsenic	mg/L	Reserved	Reserved
Barium	mg/L	Reserved	Reserved
Beryllium	mg/L	Reserved	Reserved
Cadmium	mg/L	Reserved	Reserved
Chromium	mg/L	Reserved	Reserved
Copper	mg/L	None	Reserved
Lead	mg/L	Reserved	Reserved
Mercury	mg/L	Reserved	Reserved
Molybdenum	mg/L	Monitor	Monitor
Nickel	mg/L	Reserved	Reserved
Selenium	mg/L	Reserved	Reserved
Thallium	mg/L	Reserved	Reserved
Zinc	mg/L	None	Reserved
Gross Alpha ⁵	pCi/L	Reserved	Reserved
Radium 226+ Radium 228	pCi/L	Reserved	Reserved
Uranium	mg/L	Monitor	Monitor
Benzene	mg/L	0.005	0.004
Toluene	mg/L	1.000	0.800
Ethylbenzene	mg/L	0.700	0.560
Total Xylenes	mg/L	10	8

Table 3 Operational Monitoring and Alert Levels for the Leak Detection/Collection System

LCRS Sump	Parameter	ALR gallons per day (gpd)	LLR gallons per day (gpd) ¹	Monitoring Method	Monitoring Frequency ²	Reporting Frequency
SX PLS Pond (15)	Liquid Pumped ³	500	5,000		Daily	Annually
Hardy LCP Pond (24)	Liquid Pumped	400	4,000		Daily	Annually

Note: The Action Leakage Rate (ALR) or Large Leakage Rate (LLR) shall be exceeded when the amount of leakage pumped from the sump for the impoundment is greater than the applicable quantity below. For reporting purposes on the SMRF, the ALR is equivalent to the Alert Level and LLR is equivalent to the DL. An exceedance of the DL is not a violation of the permit unless the permittee fails to perform as required under Section 2.6.4.

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Table 4 Pre-Operational Requirements		
ITEM	TEST METHOD	MINIMUM TESTING FREQUENCY

¹ LLR is the daily threshold value at which the permittee shall place into action the appropriate requirements specified in Section 2.6.4.

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

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

Earthworks		
Drainage Material	Particle Size Analysis: ASTM D 422	1/2,500 cubic yards
	Permeability: ASTM D 2434	1/4,000 cubic yards
	Observation of placement	As needed
Foundation Grading Fill and Embankments	Observation of compaction equipment and methods, lift thickness per method specification	Test Fill: 1 per major rock type, and 1 per 10,000 cubic yards
Structural Soil Fill (subgrade, Berms, Diversions, etc.)	Observation	As needed
	Nuclear Density: ASTM D 2922 ASTM D 3017	1/5,000 cubic yards
	Moisture Content: ASTM D 2216	1/5,000 cubic yards
	Compaction: ASTM D 1557	1/5,000 compacted cubic yards with a minimum of 1 test per material type
Foundation Bedding Layer	Observation	As needed
Geosynthetics		
Geomembrane - Destructive	Peal and Shear: ASTM D 638	1/500 linear feet of seam
Geomembrane - Conformance	Thickness: ASTM D 5199	1/20,000 square feet or 1/lot whichever is less
	Tensile Properties: ASTM D 638	1/20,000 square feet or 1/lot whichever is less
	Carbon Black Content ASTM D 1603	1/200,000 square feet or 1/lot whichever is less

Table 5 Facility Operational Monitoring Requirements	
Facility Name (#)	Operational Requirements
Raffinate Pond (1)	<p>Daily: Visually inspect and maintain 2 feet of freeboard.</p>
Bismark LCP Pond (61)	<p>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: impairment of embankment integrity; excessive erosion in conveyances and diversions; excess accumulation of debris in conveyances and diversions; and impairment of access.</p> <p>At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</p>
SX PLS Pond (15)	<p>Daily: Visually inspect and maintain 2 feet of freeboard. Measure flow rate in the LCRS; confirm that it is less than Action Leakage Rate (ALR) of 500 gallons per day and less than Rapid and Large Leakage (RLL) rate of 5,000 gallons per day; and take appropriate action if exceedance is observed in the ALR or RLL.</p> <p>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: perforated, cut, tear or damaged liner and impairment of anchor trench integrity; impairment of embankment integrity as applicable; excessive erosion in conveyances and diversions; excess accumulation of debris in conveyances and diversions; and impairment of access.</p> <p>At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</p>
Hardy LCP Pond	<p>Daily:</p>

Table 5 Facility Operational Monitoring Requirements	
Facility Name (#)	Operational Requirements
(24)	<p>Visually inspect and maintain 2 feet of freeboard.</p> <p>Measure flow rate in the LCRS; confirm that it is less than Action Leakage Rate (ALR) of 400 gallons per day and less than Rapid and Large Leakage (RLL) rate of 4,000 gallons per day; and take appropriate action if exceedance is observed in the ALR or RLL.</p> <p>Monthly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: perforated, cut, tear or damaged liner and impairment of anchor trench integrity; impairment of embankment integrity as applicable; excessive erosion in conveyances and diversions; excess accumulation of debris in conveyances and diversions; and impairment of access.</p> <p>At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</p>
Hardy Dump (50) Bismark Dump (54) Back Dump (51) Duval Dump (52) Turquoise Dump (53) Gross Dump (55) Shop Dump (56) Central Sump (58) Ithaca Sump (59) Gross Sump (60)	<p>Monthly: Visually inspect and take appropriate action if any evidence of: dump or stockpile deformations, including surface cracks, slides, sloughs, or differential settlement affecting slope stability.</p>
Flood Control Basin	Monthly and following precipitation events measuring at least 1-inch in a 24-hour period:

Table 5 Facility Operational Monitoring Requirements	
Facility Name (#)	Operational Requirements
(27)	<p>(Precipitation to be measured based on readings obtained from the mine weather station used for such measurements)</p> <p>Visually inspect and take appropriate action if any evidence of: impairment of embankment integrity; excessive erosion in conveyances and diversions; excess accumulation of debris in conveyances and diversions; and impairment of access.</p> <p>At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity. Inspect structures, pumps, and impairment of access.</p>
Terminal Storage Facility (62)	<p>Daily: Visually inspect and maintain a minimum of 4 feet of freeboard Visually inspect and take appropriate action if the free water pond on top of the impoundment encroaches and remains within 500 feet (beach width) of the dam crest.</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: tailings dam deformation, including surface cracks, slides, sloughs, seeps, erosion features or differential settlement affecting dam stability.</p> <p>At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</p> <p>Monitor instrumentation equipment along the tailings dam to maintain phreatic surface within safe operating limits and to ensure dam safety.</p>

Table 5 Facility Operational Monitoring Requirements	
Facility Name (#)	Operational Requirements
Non-stormwater Impoundment (New Facility)	<p>Monthly: Visually inspect and maintain a minimum of 2 feet of freeboard.</p> <p>Quarterly and following precipitation events measuring at least 1-inch in a 24-hour period: (Precipitation to be measured based on readings obtained from the mine weather station used for such measurements) Visually inspect and take appropriate action if any evidence of: perforated, cut, tear or damaged liner and impairment of anchor trench integrity; impairment of embankment integrity; excessive erosion in conveyances and diversions; excess accumulation of debris in conveyances and diversions; and impairment of access.</p> <p>At pump locations, inspect pumps, valves and structures for pump operation and structural integrity.</p> <p>Annually: Remove excess sediments/sludge from the impoundments, conveyances and diversions as needed to maintain at least 80 percent of designed capacity.</p> <p><u>Specific Requirement</u> Remove accumulated fluid - the process solution or impacted stormwater due to process upsets and/or storm event, from the impoundment as soon as practical, but no later than 60 days after cessation of the upset or storm event.</p>

4.3 CONTINGENCY MONITORING
Not Required.

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. Terramatrix, Inc., Engineering & Environmental Services, Steamboat Springs, Colorado, 80477, *Application for Aquifer Protection Permit*, Vol. 1-5, November, 1995.
2. Terramatrix, Inc., Engineering & Environmental Services, Steamboat Springs, Colorado, 80477, *APP Application Supplement*, Vol. 1-2, May 1996.
3. Terramatrix, Inc., Montgomery Watson, Mining Group, Steamboat Springs, Colorado, 80477, *Vadose Zone Characterization Report*, February, 1997.
4. Terramatrix, Inc., Montgomery Watson, Mining Group, Steamboat Springs, Colorado, 80477, *Water Quality Analysis and Hydrologic Review*, May, 1997.
5. Montgomery Watson, Engineering & Environmental Services, Steamboat Springs, Colorado, 80477, *Supplement to Aquifer Protection Permit, Groundwater Impact Evaluation*, May, 1998.
6. Inventory File No. 100517 including all correspondence, maps, drawings, engineering reviews and hydrological review.
7. Public Notice, August 17, 1998.
8. Permit issued, December 3, 1998.
9. Application for an Other Amendment to establish a new compliance date, October 29, 2002.
10. Other Amendment issued, March 27, 2003.
11. Application for a Significant Amendment to expand the mining/extraction operation at the Mineral Park Mine, April 18, 2007.

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 or permit amendment, suspension, or revocation.

6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

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

6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an aquifer water quality standard 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).