

**STATE OF ARIZONA  
AQUIFER PROTECTION PERMIT NO. P-103568  
PLACE ID 5060, LTF 68325**

**1.0 Authorization**

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, the Arizona Department of Environmental Quality (ADEQ) hereby authorizes Freeport Minerals Corporations to operate the Copper Queen Branch located in the Bisbee, Cochise County in Arizona in Township 23 S, Range 24 E and Sections 8, 9, 10, 14, 15, 16, 17, 20, 21, 22, 23, and 25 of the Gila and Salt River Base Line and Meridian.

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

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

**1.1 Permittee Information**

**Facility Name:** Copper Queen Branch  
**Facility Address:** 36 West Highway 92  
Bisbee, AZ 85603

**Annual Registration Fee Flow Rate:** 1,370,000 gallons per day (gpd)

**Permittee:** Freeport Minerals Corporation  
**Permittee Address:** 36 West Highway 92  
Bisbee, AZ 85603

**Facility Contact:** Robert Quintanar  
**Emergency Phone No.:** 520-432-6209

**Latitude/Longitude:** 31° 25' 37.66" N / 109° 53' 39.23" W  
**Legal Description:** Township 23S, Range 24E, and Sections 8, 9, 10, 14, 15, 16, 17, 20, 21, 22, 23, and 25 of the Gila and Salt River Base Line and Meridian

**1.2 Authorizing Signature**

\_\_\_\_\_  
**Trevor Baggiore, Director, Water Quality Division**  
**Arizona Department of Environmental Quality**  
Signed this \_\_\_\_ day of \_\_\_\_\_, 2019

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

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

The Warren Mining District, owned by Freeport Minerals Corporation, Copper Queen Branch (CQB), is an historical copper mining district located in the southern part of the Mule Mountains in Cochise County, approximately 90 miles southeast of Tucson, Arizona. The mine includes former underground and open pit mining operations in the vicinity of the City of Bisbee, which includes the original town of Bisbee in the upper part of Mule Gulch and the towns of Lowell, Saginaw, Galena, Bakerville, Briggs, and Warren.

Underground mining began in 1880 at the Copper Queen Mine. Copper ore was processed in a small furnace from 1880 to 1887, at the Copper Queen smelter in Bisbee from 1887 to 1904, and at the Douglas Smelter from 1904 to 1987. The Lavender Pit was opened in 1951 and open pit mining of the Lavender Pit ended in 1974. Underground mining ended in 1975, with the last ore extracted from the Campbell Shaft.

Leaching operations began in the mid-1950s with the construction of the Precipitation Plant and continued after underground mining ended in 1975. Active leaching ended before 1986 at several stockpiles but continued until after 1986 at the No. 7, Jones Canyon and Winwood Canyon stockpiles. The Precipitation Plant is inactive and the permitted discharging facilities are now used solely to manage stormwater and draindown from the stockpiles.

The mine facility consists of following 13 discharging facilities:

<b>Facility</b>	<b>Latitude</b>	<b>Longitude</b>
<b>No. 7 Stockpile Area</b>		
No. 7 Stockpile	31° 25' 20.0" N	109° 52' 37.0" W
North Dam	31° 25' 42.0" N	109° 52' 16.7" W
East Dam	31° 25' 23.0" N	109° 52' 10.0" W
Stormwater Containment Pond No. 1 (Pond 1)	31° 25' 40.5" N	109° 52' 03.0" W
Stormwater Pond 2A (Pond 2A)	31° 25' 33.5" N	109° 52' 02.8" W
Stormwater Pond 2B (Pond 2B)	31° 25' 38.0" N	109° 51' 58.5" W
<b>Cochise Area</b>		
Jones Canyon Stockpile	31° 26' 36.0" N	109° 54' 02.0" W
Jones Canyon Earth Dam Upper Catchment	31° 26' 28.8" N	109° 54' 11.0" W
Winwood Canyon Stockpile	31° 26' 37.8" N	109° 53' 52.2" W
Winwood Canyon Stockpile Collection System	31° 26' 33.5" N	109° 53' 46.9" W
<b>Lavender Pit Area</b>		
Lavender Pit Non-Stormwater Impoundment	31° 25' 52.0" N	109° 54' 00.0" W
<b>Campbell Yard Area</b>		
Campbell Yard Sump	31° 25' 26.2" N	109° 53' 26" W
Precipitation Plant	31° 25' 29.4" N	109° 53' 29.5" W

### 2.1.1 Permitted Facility Description

The permitted facilities include four major areas, No. 7 Stockpile Area; Cochise Area; Lavender Pit Area and Campbell Yard Area. The mine site consisting of 13 discharging facilities.

#### No.7 Stockpile Area

The No.7 Stockpile Area includes No.7 Stockpile, North Dam, East Dam, Stormwater Containment Pond No.1 and Stormwater Ponds 2A and 2B.

##### 2.1.1.1 No.7 Stockpile

The No.7 Stockpile straddles a bedrock ridge that formed the southern boundary of Mule Gulch before the channel was relocated to its current alignment along the south side of Highway 80. The stockpile covers an area of approximately 360 acres and consists of run-of-mine (ROM) waste rock and low-grade ore from the underground and open pit mining operations. The stockpile was actively leached beginning in the mid-1950s until 2000, and is currently used to manage stormwater and draindown from the stockpile. The stockpile receives flows from the Precipitation Plant, and the No. 7 Stockpile Sump Station, and these facilities in-turn receive flows from several APP and non-APP facilities.

Stormwater runoff from the No. 7 Stockpile is conveyed to three downgradient facilities: the western portion of the stockpile reports to the Campbell Yard Sump, the northern portion to North Dam, and the eastern portion to East Dam. All flows resulting from the 100-year, 24-hour design storm event from the western portion are contained in the Campbell Yard Sump. Excess flows reporting to North Dam are conveyed and contained in the Stormwater Containment Pond No. 1 (Pond 1). Excess flows reporting to East Dam are conveyed to Stormwater Pond 2A (Pond 2A) and Stormwater Pond 2B (Pond 2B). Together, these facilities have the capacity to store the runoff resulting from a 100-year, 24-hour design storm event. Flow in Mule Gulch is separated from the toe of the No. 7 Stockpile by a berm.

##### 2.1.1.2 North Dam

Stormwater that infiltrates on the north side of the No. 7 Stockpile bedrock ridge is collected as drainage on the north side of the stockpile and piped by gravity to the North Dam, a concrete structure. The North Dam also impounds drainage piped from the C-Canyon facility (APP exempt). Water from the North Dam is piped by gravity to the No. 7 Stockpile Pump Station. Seepage from beneath the dam is intercepted by the North Dam Collection Drain and Sump (exempted from APP in accordance with A.R.S. 49-250.B.18(d)). Overflows from the dam report to the Pond 1, a single-lined impoundment (an APP facility).

##### 2.1.1.3 East Dam

The East Dam is an existing concrete structure that forms an unlined draindown water storage impoundment (pond) east of the No. 7 Stockpile. The pond is fed by a headwall sluice gate located at the base of the stockpile. This facility is currently operated as a non-stormwater impoundment, is an elongated concrete structure that receives draindown from No. 7 Stockpile cells located south of the bedrock ridge. Additionally, stormwater runoff from the south side of the stockpile is directed by the natural topography into the stockpile, also reports to the East Dam. Water from the East Dam is piped by gravity to the No. 7 Stockpile Pump Station which is then in turn pumped to the cells on top of the stockpile. Overflows from the East Dam are directed through a lined channel to Ponds 2A and 2B.

##### 2.1.1.4 Stormwater Containment Pond No. 1 (Pond 1)

Pond 1 is designed to contain process water upsets and stormwater runoff from the No. 7 Stockpile area. The process water upsets consist of overflows from upgradient facilities due to excess stormwater runoff or unforeseen operating events. The process water

solution is contained for a relatively short period of time before being pumped to the No. 7 Stockpile Pump Station.

#### **2.1.1.5 Stormwater Ponds 2A and 2B (Pond 2A and Pond 2B)**

These impoundments were constructed in 2000 and designed using prescriptive Best Available Demonstrated Control Technology (BADCT) design for non-stormwater impoundments to store stormwater runoff due to 100-year 24-hour storm, process water overflows from the No. 7 Stockpile area, and provide overflow capacity for the East Dam facility.

### **Cochise Area**

The Cochise Area includes the Jones Canyon Stockpile, Jones Canyon Earth Dam Upper Catchment, Winwood Canyon Stockpile and Winwood Canyon Stockpile Collection System.

#### **2.1.1.6 Jones Canyon Stockpile**

The Jones Canyon Stockpile is located on about 17 acres and consists of material excavated during the expansion of the Lavender Pit. This facility was actively leached until 1996.

The Jones Canyon Upper Catchment (Upper Catchment) is located at the toe of the stockpile and impounds seepage and stormwater runoff from the stockpile. Water from this catchment is routed to the Precipitation Plant via pipeline by gravity flow.

#### **2.1.1.7 Jones Canyon Earth Dam Upper Catchment (Upper Catchment)**

The Upper Catchment is located at the toe of the Jones Canyon Stockpile and collects stormwater, subsurface drainage and base flow from the stockpile. Fluid collected in the Upper Catchment is routed to the Precipitation Plant via an HDPE pipe. Overflow passes through a 14 inch diameter steel pipe placed approximately 5 feet below the pond crest and flows to the Jones Canyon Earth Dam Middle Catchment.

Two APP exempted facilities, the Jones Canyon Earth Dam Middle Catchment (Middle Catchment) and the Jones Canyon Pipeline/Headwall Lower Cutoff (Lower Cutoff) are located downgradient of the Upper Catchment and contain seepage and localized stormwater flows. The Middle Catchment is located about 250 feet downgradient (south) of the Upper Catchment and is formed by an earthen dam with a crest width of 40 feet and the upstream face lined with 100 mil HDPE. Storage capacity of the Middle Catchment is approximately 11 acre-feet. Water from the Middle Catchment is directed to the Lower Cutoff via an HDPE pipe located at the base of the dam. The Lower Cutoff headwall is located about 200 feet downgradient (south) of the Middle Catchment. The storage capacity of the Lower Cutoff is approximately 0.1 acre-feet. Two HDPE pipes installed through the lower part of the headwall deliver the impounded water to the Precipitation Plant by gravity flow. A third HDPE pipe, installed through upper part of the headwall, delivers excess water to the Lavender Pit during storm events.

#### **2.1.1.8 Winwood Canyon Stockpile**

The Winwood Canyon Stockpile extends beyond the drainage divide between Winwood Canyon and Jones Canyon. This stockpile, created using end dump methods, is located on about 11 acres and consists of material excavated during the expansion of the Lavender Pit. Seepage and impacted stormwater from the stockpile are collected in the Winwood Canyon Stockpile Collection System (WCS Collection System) and then transported by gravity via pipeline flow to the Precipitation Plant. Overflow from the WCS Collection System is piped by gravity to the Lavender Pit.

#### **2.1.1.9 Winwood Canyon Stockpile Collection System**

The Winwood Canyon Stockpile Collection System consists of a system of seepage cutoff

walls, drains and pipelines designed to collect seepage and impacted stormwater from the toe of the stockpile. The seepage and impacted stormwater are delivered in a pipeline by gravity flow to the Precipitation Plant. Overflow from the collection system is piped by gravity flow to the Lavender Pit. The system includes stormwater controls that divert unimpacted stormwater around the stockpile. The Winwood Canyon Stockpile Collection System was constructed in 1998.

### **Campbell Yard Area**

The Campbell Yard is constructed on the Campbell Yard Stockpile. The Campbell Yard Stockpile is exempt from APP requirements. The APP facilities located within this area include the Campbell Yard Sump and the Precipitation Plant. A third facility, the Campbell Interception Trench, serves as the BADCT for the Precipitation Plant and Campbell Yard Sump since it is used to control seepage migration from these facilities.

#### **2.1.1.10 Campbell Yard Sump**

The Campbell Yard Sump is a lined non-stormwater impoundment that collects stormwater from the Campbell Yard, access ramp to the No. 7 Stockpile, and overflow from the Precipitation Plant when the rate of inflow to the plant exceeds the pumping capacity. Water from the Campbell Yard Sump is pumped to the Lavender Pit via a 4-inch pipeline.

##### **2.1.1.10.1 Campbell Interception Trench**

The Campbell Interception Trench is an open structure designed to intercept seepage and serves as the BADCT for the Precipitation Plant and Campbell Yard Sump since it is used to control seepage migration from these facilities. The trench is approximately 200 feet long by 12 feet wide, and 10 feet deep located along the toe of the Campbell Yard Stockpile. Seepage collects in the low point in the center of the trench where a sump pump is installed to recover seepage and pump it to the Precipitation Plant.

The existing Campbell Interception Trench intercepts some, but not all, of the seepage. The existing trench will be removed and replaced by a new, longer trench as per Section 3.0 Compliance Schedule Item #6. Following upgrade, seepage will be collected along a longer front downstream between Bisbee Road and Warren Ditch to intercept seepage along the focal point of the pre-mining channels and the underlying bedrock surface.

A water tight vertical structure may include an HDPE manhole, a pump vault, or an extraction well in the trench and constructing a 200-foot long lateral drainage system to route seepage into the vertical structure. The drainage collection laterals would consist of two perforated HDPE drain pipes placed within an envelope of drain gravel. The trench shall be gravel-filled near the drain pipes and the remaining excavation backfilled with inert native fill material. Seepage recovery pump and controls shall be set to maintain the pump vault water level below the lateral drain inlet elevation inside the water tight vault, for effective removal and delivery of seepage to the Campbell Yard Sump.

#### **2.1.1.11 Precipitation Plant**

The Precipitation Plant was used a solution processing facility until November 2003. Since then, the plant has been used as part of the water handling circuit for the No. 7 Stockpile and interconnected facilities. It receives flows from the following APP facilities: Campbell Yard Sump, the Winwood Canyon Stockpile Collection System, the Jones Canyon seepage collection facilities, and several APP exempt facilities including: the Campbell Interception Trench, South Bisbee Stockpile Sump, and the Galena and Briggs silt trenches. Under normal conditions, three cells are in operation and the water is pumped to the No. 7 Stockpile, and under high flow conditions, the remaining cells are allowed to fill. Under

high flow conditions, when all the cells are filled and the inflow rate exceeds the plant's capacity to pump to the No. 7 Stockpile, the discharge is routed to the Campbell Yard Sump.

**Lavender Pit Area**

The Lavender Pit Area includes the Lavender Pit, Sacramento Pit, Holbrook Extension Pit, 15 stockpiles located in the drainages that report to the open pit from the north, west, southwest, and south, and four stockpiles in upper Mule Gulch. The stockpiles are all closed (pre-1986) facilities and are therefore exempt from APP requirements per A.R.S. §49-250(B)(11). The Lowell Collection Sump impounds stormwater and seepage from the closed Lowell Stockpile, and also is exempt from APP requirements.

**2.1.1.12 Lavender Pit Non-Stormwater Impoundment**

The Lavender Pit Stormwater Non-Stormwater Impoundment is an unlined impoundment located at the bottom of the Lavender Pit. The impoundment contains stormwater runoff from the pit walls, stockpiles, and drainages that report directly to the pit, stormwater overflow piped from Jones Canyon and Winwood Canyon, stormwater pumped from the Campbell Yard Sump, and several other exempt APP facilities.

**2.1.2 Annual Registration Fee [A.R.S. § 49-242 and A.A.C. R18-14-104]**

The annual registration fee for this permit is payable to ADEQ each year. The annual registration fee flow rate is established in permit Section 1.1. If the facility is not yet constructed or is incapable of discharge at this time, the permittee may be eligible for reduced fees under the rule. Send all correspondence requesting reduced fees to the Water Quality Division of ADEQ. Please reference the permit number, LTF number and why reduced fees are requested under the rule.

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

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The Groundwater Protection Value Stream approved the closure costs of \$47,093,111 and post-closure cost of \$37,194,590 for a total of \$84,287,701. The permittee provided financial capability for the estimated Net Present Value (NPV) of the closure and post-closure costs in the amount of \$69,182,193. The financial capability was demonstrated through a corporate guarantee per A.A.C. R18-9-A203(C)(8).

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

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

**2.2.1 Engineering Design**

BADCT description for the permitted facilities is presented in Section 4.1, Table 4.1.1.

**2.2.2 Site-specific Characteristics**

Not applicable.

**2.2.3 Pre-operational Requirements**

Not applicable

**2.2.4 Operational Requirements**

The discharging facilities shall be operated according to and inspected for compliance with the requirements in Section 4.2, Table 4.2.4, and recorded in a log as required by Section 2.7.2. If damage is identified during an inspection that could cause or contribute to a discharge, proper repairs shall be promptly performed in accordance with Section 2.6 of this permit and recorded in a log.

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

The permitted discharging facilities shall be used solely to manage stormwater and draindown from the stockpiles. No application of leach solutions is permitted under this permit.

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

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

The POCs are established by the following monitoring location(s):

<b>POC #</b>	<b>POC Locations</b>	<b>Latitude</b>	<b>Longitude</b>	<b>ADWR Well #</b>
POC #1	East of Stormwater Impoundment 2B	31° 25' 35" N	109° 51' 50" W	TBD
POC #2	East of East Dam	31° 25' 20" N	109° 52' 03" W	TBD
POC #3	Southeast of No. 7 Stockpile	31° 25' 05" N	109° 52' 17" W	TBD

Groundwater monitoring is required for POC wells #1 through #3. Monitoring requirements for POCs are listed in Section 4.2, Tables 4.2.3A and 4.2.3B

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

**2.5 Monitoring Requirements [A.R.S. § 49-243(B) and (K)(1), A.A.C. R18-9-A206(A)]**

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

**2.5.2 Facility / Operational Monitoring**

At a minimum, permitted facilities shall be inspected for performance levels listed in Section 4.2, Table 4.2.4. If damage is identified during an inspection that could cause or contribute to an unauthorized discharge pursuant to A.R.S. § 49-201(12), proper repairs shall be promptly performed. Results of these inspections and monitoring activities shall be documented and maintained at the facility location for at least 10 years, and as required by Section 2.7.2 of this permit.

**2.5.3 Groundwater Monitoring and Sampling Protocols**

Compliance groundwater monitoring is required under the terms of this permit. For all sampling methods, static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters

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

As an alternative method for sampling, the permittee may conduct the sampling using the low-flow purging method as described in the Arizona Water Resources Research Center, March 1995 *Field Manual for Water Quality Sampling*. The well must be purged until indicator parameters stabilize. Indicator parameters shall include dissolved oxygen, turbidity, pH, temperature, and conductivity.

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

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

#### **2.5.3.2 Ambient Groundwater Quality Monitoring for Point of Compliance Wells**

In accordance with Compliance Schedule Item #20 in Section 3.0, the permittee shall complete eight rounds of ambient groundwater monitoring for POC wells #1, #2 and #3 for all constituents listed as “reserved” in Section 4.2, Tables 4.2.2.

#### **2.5.3.3 Alert Levels for Point of Compliance Wells**

ALs shall be calculated for all contaminants with an established numeric AWQS for each of the POC wells listed on Table 4.2.2. For any new or replacement POC wells, ALs shall be calculated for all contaminants with an established numeric AWQS, as described below.

As per the Compliance Schedule Item #21, following receipt of the laboratory analyses for the final month of the ambient groundwater monitoring period for each POC well referenced in Section 4.0, Table 4.2.2, the permittee shall submit the ambient groundwater data in tabulated form to the Groundwater Protection Value Stream for review. Copies of all laboratory analytical reports, field notes, and the Quality Assurance/Quality Control (QA/QC) procedures used in collection and analyses of the samples for all parameters listed in Section 4.2, Tables 4.2.2 to be established for each POC well, shall be submitted to the Groundwater Protection Value Stream. The permittee may submit a report with the calculations for each AL and AQL included in the permit for review and approval by ADEQ, or the permittee may defer calculation of the ALs and AQLs by the Groundwater Protection Value Stream. The ALs shall be established and calculated by the following formula, or another valid statistical method submitted to Groundwater Protection Value Stream in writing and approved for this permit by the Groundwater Protection Value Stream:

$$AL = M + KS$$

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

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

1. The AL shall be calculated for a parameter using the analyses from a minimum of eight (8) sample events.
2. Any data where the laboratory Practical Quantitation Limit (PQL) exceeds 80% of the AWQS shall not be included in the AL calculation.
3. If a parameter is below the detection limit, the permittee must report the value as “less than” the numeric value for the PQL or detection limit for the parameter, not just as “non-detect”. For those parameters, the permittee shall use a value of one-half the reported detection limit for the AL calculation.
4. If the analytical results from more than 50% of the samples for a specific parameter are non-detect, then the AL shall be set at 80% of the AWQS.
5. If the calculated AL for a specific constituent and well is less than 80% of the AWQS, the AL shall be set at 80% of the AWQS for that constituent in that well.

#### **2.5.3.4 Aquifer Quality Limits for POC Wells**

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

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

#### **2.5.3.5 Compliance Groundwater Quality Monitoring for POC Wells**

Quarterly compliance groundwater monitoring in each POC well shall commence within the first calendar quarter after completion of the ambient groundwater sampling period. For quarterly compliance monitoring, the permittee shall analyze groundwater samples for the parameters listed in Section 4.2, Table 4.2.3A. In addition to quarterly compliance groundwater monitoring, every two years (biennial) the permittee shall analyze samples from the POC wells for an expanded list of parameters. For the biennial monitoring events in POC wells, the parameters listed in Section 4.2, Table 4.2.2B shall be analyzed. The first biennial sampling event shall commence with the eighth month after completion of the ambient monitoring. Biennial sampling shall occur every two years thereafter.

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

Surface water monitoring is not required by this permit.

#### **2.5.5 Analytical Methodology**

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

Arizona Department of Health Services  
Office of Laboratory Licensure and Certification  
250 North 17<sup>th</sup> Avenue

Phoenix, AZ 85007  
Phone: (602) 364-0720

### **2.5.6 Installation and Maintenance of Monitoring Equipment**

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells are determined to be necessary, the construction details shall be submitted to the ADEQ Groundwater Protection Value Stream 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 this permit and the approved contingency and emergency response plan submitted in the application shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plan.

Any AL that is exceeded or any violation of an AQL, discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3, unless more specific reporting requirements are set forth in Section 2.6.2 through 2.6.5.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling has been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit.

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

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

##### **2.6.2.1.1 Performance Levels Set for Freeboard**

In the event that freeboard performance levels required by Section 4.2 Table 4.2.4 in a surface impoundment are not maintained, the permittee shall:

1. As soon as practicable, cease or reduce discharging to the impoundment to prevent overtopping. Remove and properly dispose or recycle to other operations the excess fluid in the reservoir until the water level is restored at or below the permitted freeboard limit.
2. Within 5 days of discovery, evaluate the cause of the incident and adjust operational conditions or identify design improvements to the affected system as necessary to avoid future occurrences.
3. Within 30 days of discovery, initiate repairs to the affected system, structure, or other component as necessary to return the system to compliance with this permit, or remove the affected system(s) from service as specified in Section 2.8 (Temporary Cessation) and Section 2.9 (Closure) of this permit. Record any repair procedures, methods, and materials used to restore the facility to operating condition in the facility log/recordkeeping file.
4. If design improvements are necessary, submit an amendment application

within 90 days of discovery.

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

#### **2.6.2.1.2 Performance Levels, Other Than Freeboard**

1. If an operational performance level (PL) listed in Section 4.2, Table 4.2.4 has been observed or noted during required inspection and operational monitoring, such that the result could cause or contribute to an unauthorized discharge, the permittee shall immediately investigate to determine the cause of the condition. The investigation shall include the following:
  - a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the operational performance condition.
  - b. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences.
2. The PL exceedance, results of the investigation, and any corrective action taken shall be reported to the Groundwater Protection Value Stream, within 30 days of the discovery of the condition. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 2.6.1 and any necessary contingency measures to resolve problems identified by the investigation which may have led to a PL being exceeded. To implement any other corrective action the permittee may choose to obtain prior approval from ADEQ according to Section 2.6.6.

#### **2.6.2.2 Exceeding of Alert Levels in Groundwater Monitoring**

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

1. If an AL for a pollutant set in Section 4.2, Tables 4.2.3A and 4.2.3B have been exceeded, the permittee may conduct verification sampling of the pollutant(s) that exceed their respective AL(s) within 5 days of becoming aware of an AL exceedance. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL exceedance or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring for the pollutant(s) exceeding their respective AL(s) to monthly. In addition, the permittee shall immediately initiate an investigation of the cause of the AL exceedance, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 2.6.1 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL exceedance. To implement

any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Groundwater Protection Value Stream, that although an AL is exceeded, the pollutant(s) that exceed their respective AL(s) are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency, for those pollutant(s) that exceed their respective AL(s), for approval in writing by the Groundwater Protection Value Stream.

4. Within 30 days after confirmation of an AL exceedance for those pollutant(s), the permittee shall submit the laboratory results to the Groundwater Protection Value Stream along with a summary of the findings of the investigation, the cause of the AL exceedance, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring for those pollutant(s) required as a result of an AL exceedance may be reduced to the frequency shown for groundwater monitoring in Section 4. 2, Tables 4.2.3A and 4.2.3B, if the results of four sequential sampling events demonstrate that the parameter(s) does not exceed their respective AL(s).
7. If the increased monitoring required as a result of an AL exceedance for those pollutant(s) continues for more than six sequential sampling events, the permittee shall submit a second report documenting an investigation of the continued AL exceedance within 30 days of the receipt of laboratory results of the sixth sampling event.

#### **2.6.2.2.2 Alert Level for Groundwater Level**

Not applicable.

### **2.6.3 Discharge Limitations Violations**

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

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

1. As soon as practicable, cease all discharges as necessary to prevent any further releases to the environment, including removal of any fluid remaining in the impoundment as necessary, and capture and containment of all escaped fluids.
2. Within 24 hours of discovery, notify Groundwater Protection Value Stream,
3. Within 24 hours of discovery of a failure estimate the quantity released, collect representative samples of the fluid remaining in affected impoundments and drainage structures, analyze sample(s) according to Section 4.2, Table 4.2.1 and report in accordance with Section 2.7.3 (Permit Violation and AL Status Reporting). In the 30-day report required under Section 2.7.3, include a copy of the analytical results and forward the report to Groundwater Protection Value Stream.
4. Within 15 days of discovery, initiate an evaluation to determine the cause for the incident. Identify the circumstances that resulted in the failure and assess the condition of the discharging facility and liner system. Implement corrective actions as necessary

to resolve the problems identified in the evaluation. Initiate repairs to any failed liner, system, structure, or other component as needed to restore proper functioning of the discharging facility. The permittee shall not resume discharge to the facility until repairs of any failed liner or structure are performed.

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

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

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

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

1. As soon as practicable, cease all discharges to the surface impoundment to prevent any further releases to the environment.
2. Within 24 hours of discovery, notify Groundwater Protection Value Stream.
3. Within 24 hours, collect representative samples of the fluid contained in the surface impoundment. Samples shall be analyzed for the parameters specified in Section 4.2, Table 4.2.1 Within 30 days of the incident, submit a copy of the analytical results to Groundwater Protection Value Stream.
4. As soon as practicable, remove and properly dispose of excess water in the impoundment until the water level is restored at or below the appropriate freeboard as described in Section 4.2, Table 4.2.1. Record in the facility log/recordkeeping file the amount of fluid released, a description of the removal method and volume of any fluid removed from the impoundment and/or captured from the release area. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 (Operation Inspection/LogBook/Recordkeeping File).
5. Within 30 days of discovery, evaluate the cause of the overtopping and identify the circumstances that resulted in the incident. Implement corrective actions and adjust operational conditions as necessary to resolve the problems identified in the evaluation. Repair any systems as necessary to prevent future occurrences of overtopping.
6. Within 30 days of discovery of overtopping, submit a report to ADEQ as specified in

Section 2.7.3(2) (Permit Violation and Alert Level Status Reporting). Include a description of the actions performed in Subsections 1 through 5 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.

7. Within 60 days of discovery, and based on sampling in Item No. 3 above, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident.
8. If soil or groundwater is impacted such that it could cause or contribute to an exceedance of an AQL at the applicable point of compliance, submit to ADEQ for approval, a corrective action plan to address such impacts, including identification of remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
9. Within 30 days of completion of corrective actions, submit to ADEQ, a written report as specified in Section 2.6.6 (Corrective Actions). Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions.

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

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

1. As soon as practicable, cease all unexpected inflows to the surface impoundment(s).
2. Within 24-hours of discovery, notify Groundwater Protection Value Stream.
3. Within five (5) days of the incident, identify the source of the material and determine the cause for the inflow. Characterize the unexpected material and contents of the affected impoundment, and evaluate the volume and concentration of the material to determine if it is compatible with the surface impoundment liner. Based on the evaluation of the incident, repair any systems or equipment and/or adjust operations, as necessary to prevent future occurrences of inflows of unexpected materials.
4. Within 30 days of an inflow of unexpected materials, submit a report to ADEQ as specified in Section 2.7.3(2) (Permit Violation and Alert Level Status Reporting). Include a description of the actions performed in Subsections 1 through 3 listed above.
5. Upon review of the report, ADEQ may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions including remediation.

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

If slope or berm failure involving Jones Canyon, Winwood Canyon, and No. 7 stockpiles occur which affects the ability of the facility to operate in accordance with this permit or results in an unauthorized discharge, the permittee shall promptly close the active area in the vicinity of the failure, and conduct a field investigation of the failure to analyze its origin and extent, its impact on the facility operations, temporary and permanent repairs and changes in operational plans considered necessary. Within 30 days of a slope or berm failure, the permittee shall submit a written report, which includes the documentation specified in Section 2.7.3 of this permit. The permittee shall initiate the actions necessary to mitigate the impacts of the failure, consistent with Department approval.

#### **2.6.4 Aquifer Quality Limit Violation**

1. If an AQL set in Section 4.2, Tables 4.2.3A and 4.2.2B have been exceeded, the permittee may conduct verification sampling for those pollutant(s) that were above their respective AQL(s) within 5 days of becoming aware of the AQL exceedance. The permittee may use the results of

another sample taken between the date of the last sampling event and the date of receiving the result as verification.

2. If verification sampling confirms that the AQL is violated for those pollutant(s) that were above their respective AQL(s) or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to monthly for those pollutant(s) that exceeded their respective AQL(s). In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 90 days or a longer time period if agreed to by ADEQ that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

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

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

### **2.6.5.1 Duty to Respond**

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

### **2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants**

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

### **2.6.5.3 Discharge of Non-hazardous Materials**

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

#### **2.6.5.4 Reporting Requirements**

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

#### **2.6.6 Corrective Actions**

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

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Groundwater Protection Value Stream prior to implementing a corrective action to accomplish any of the following goals in response to 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; and/or
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

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

### **2.7 Reporting and Recordkeeping Requirements**

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

#### **2.7.1 Self-monitoring Report Form**

1. The permittee shall complete the Self-Monitoring Reporting Forms (SMRFs) provided by ADEQ, and submit the completed report through the myDEQ online reporting system. The permittee shall use the format devised by ADEQ.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the form. If no information is required during a reporting period, the permittee shall enter “not required” on the SMRF and include an explanation, and submit the report to the Groundwater Protection Value Stream.
3. The following tables contained in Section 4.0 list the parameters to be monitored and the frequency for reporting results on the SMRFs.
  - Table 4.2.3A - Compliance Groundwater Monitoring – Quarterly
  - Table 4.2.3B - Compliance Groundwater Monitoring – Biennial

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

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

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

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

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

1. The permittee shall notify the Groundwater Protection Value Stream in writing within 5 days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an AL exceedance for which notification requirements are not specified in Sections 2.6.2 through 2.6.5.
2. The permittee shall submit a written report to the Groundwater Protection Value Stream within 30 days of becoming aware of the violation of any permit condition or discharge limitation (NOTE: This reporting requirement is not applicable to Sections 2.6.2.2 and 2.6.2.3 related to alert level exceedance for liner leakage). 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 AWQS;
  - e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring; and
  - f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

### **2.7.4 Operational, Other or Miscellaneous Reporting**

#### **2.7.4.1 Well Installation Reports**

A well installation report shall be submitted to the Groundwater Protection Value Stream within 45 days after the completion of wells installation in accordance with Compliance Schedule Item #19 in Section 3.0. Each well installation report shall be completed in accordance with A.A.C. R12-15-801 et seq. and consist of the following:

- Copies of Arizona Dept. of Water Resources (ADWR) Notice of Intent and all related submittals to ADWR;
- Boring log and well as-built diagram;
- Total depth of well measured after installation;
- Top of well casing or sounding tube (whichever is used as the fixed reference measuring point) and ground surface elevation;
- Depth to groundwater;

- Geophysical logging reports and subsurface sampling results, if any;
- Description of well drilling method;
- Description of well development method;
- If dedicated sampling equipment installed, details on the equipment and at what depth the equipment was installed;
- Summary of analytical results for initial groundwater sample collected after installation;
- Corresponding analytical data sheets; and
- GPS coordinates for each new well.

#### **2.7.4.2 Ambient Groundwater Quality Report**

The permittee shall submit an APP amendment application along with ambient groundwater monitoring report as required in accordance with the Section 3.0, Compliance Schedule Item #21. The Ambient Groundwater Monitoring Report shall be submitted for POC wells installed that are incorporated into the monitoring program of this permit. The report shall include summary tables of all groundwater quality data collected during the ambient groundwater monitoring period.

Ambient Groundwater Monitoring Report shall include the following:

- Laboratory analytical reports
- Field notes, data sheets and an assessment of groundwater flow
- QA/QC limits used in collection and analysis of the samples
- statistical calculations of ALs and AQLs for the POC wells,

#### **2.7.5 Reporting Location**

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality  
Groundwater Protection Value Stream  
Mail Code: 5415B-3  
1110 W. Washington Street  
Phoenix, AZ 85007  
Phone (602) 771-4681

Or

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

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

Arizona Department of Environmental Quality  
Groundwater Protection Value Stream  
Mail Code: 5415B-3  
1110 W. Washington Street  
Phoenix, AZ 85007  
Phone (602) 771-4999

#### **2.7.6 Reporting Deadline**

The following table lists the quarterly SMRF 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 of the following year

The following table lists the biennial SMRF due date:

Monitoring conducted during biennial period:	Biennial Report due by:
January-December of the following year	January 30 <sup>th</sup> following the first biennial event , and every two years thereafter

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

The Groundwater Protection Value Stream shall be notified within 15 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

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

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

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

At the time of notification the permittee shall submit for ADEQ approval a plan for maintenance of discharge control systems and for monitoring during the period of temporary cessation. Immediately following ADEQ’s approval, the permittee shall implement the approved plan. If necessary, ADEQ shall amend permit conditions to incorporate conditions to address temporary cessation. During the period of temporary cessation, the permittee shall provide written notice to the Groundwater Protection Value Stream of the operational status of the facility every three years. If the permittee intends to permanently cease operation of any facility, the permittee shall submit closure notification, as set forth in Section 2.9 below.

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

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

**2.9.1 Closure Plan**

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

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

### **2.9.2 Closure Completion**

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

1. Clean closure cannot be achieved at the time of closure notification or within 1 year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with AWQS at the applicable POC or, for any pollutant for which the AWQS was exceeded at the time this permit was issued, further action is necessary to prevent the facility from further degrading the aquifer at the applicable POC with respect to that pollutant;
3. Remedial, mitigative or corrective actions or controls are necessary to comply with A.R.S. § 49-201(30) and Title 49, Chapter 2, Article 3;
4. Further action is necessary to meet property use restrictions.
5. SMRF submittals are still required until Clean Closure is issued.

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

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

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Groundwater Protection Value Stream a Post-closure Plan that addresses post-closure maintenance and monitoring actions at the facility. The Post-closure Plan shall meet all requirements of A.R.S. §§ 49-201(30) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the Post-closure Plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the Post-closure Plan.

#### **2.10.1 Post-closure Plan**

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

#### **2.10.2 Post-closure Completion**

Not required at the time of permit issuance.

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

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 Protection Value Stream.

No.	Description	Due by:	Permit Amendment Required?
<b>Engineering Compliance Schedule Items:</b>			
1	Construct the North Dam Slurry Cutoff Wall and Collection Trench as proposed in the APP application.	12/31/2020	No
2	Submit a construction report including as-built drawings for the North Dam Slurry Cutoff Wall and Collection Trench.	3/31/2021	No
3	Complete widening of the Mule Gulch as proposed in the APP application.	3/31/2021	No
4	Submit a construction report including as-built drawings for the widening of the Mule Gulch.	6/30/2021	No
5	Complete repair of the Campbell Sump and reconstruction of the Campbell Interception Trench as proposed in the APP application.	5/31/2020	No
6	Submit a construction report including as-built drawings for Campbell Sump and Campbell Interception Trench upgrade.	8/31/2020	No
7	Complete East Dam upgrade as proposed in the APP application.	8/31/2021	No
8	Submit a construction report including as-built drawings for East Dam upgrade and propose LCRS alert levels for this double-lined pond.	11/30/2021	Yes
9	Complete the upgrades per Alternative 5 as discussed in the APP application Appendix K for the Jones Canyon facilities including removal of the Upper Catchment and upgrade of the Middle Catchment.	12/31/2022	Yes
10	Submit a construction report including as-built drawings for the Jones Canyon facilities upgrade.	3/31/2023	No
11	Complete installation of the Stainless Steel Tank and Piping that replaces the Precipitation Plant	12/31/2022	No
12	Submit a construction report including as-built drawings for the Stainless Steel Tank and Piping.	3/31/2023	No
13	Complete demolition of the Precipitation Plant	12/31/2023	No
14	Submit a closure report for the Precipitation Plant.	3/31/2024	Yes
15	Regrade the southern portion of the No. 7 Stockpile Upper South Slope to improve the slope stability	12/31/2021	No

No.	Description	Due by:	Permit Amendment Required?
16	Submit a construction report including as-built drawings for the No. 7 Stockpile regrade activities.	3/31/2022	No
<b>POC Wells and Groundwater Monitoring:</b>			
17	The permittee shall provide a work plan for the installation of all POC wells for ADEQ approval. The wells shall be appropriately screened (within 10 feet above the water table and 50 feet below the water table for an unconfined aquifer, or no more than 60 feet in length within a confined aquifer) within the uppermost aquifer.	Within 90 days of issuance of the APP by ADEQ	No
18	The permittee shall install the POC wells in accordance with all Arizona Department of Water Resources (ADWR) requirements.	Within 12 months of work plan approval by ADEQ	No
19	The permittee shall submit a well-completion report as required in Sections 2.7.4.1 for ADEQ approval.	Within 60 days of installation of all POC wells	No
20	The permittee shall initiate eight (8) rounds of monthly ambient groundwater quality monitoring for POC wells per Section 4.2, Table 4.2.2.	Within 30 days of installation of all POC wells	No
21	The permittee shall submit an APP amendment application along with Ambient Groundwater Monitoring Report to establish ALs and AQLs for POC wells. The Ambient Groundwater Monitoring Report shall include information described in Section 2.7.4.2.	Within 90 days of receipt of all ambient groundwater monitoring laboratory data	Yes
22	The permittee shall begin compliance groundwater monitoring for POC wells under Section 4.2, Table 4.2.3A and 4.2.2B.	The first compliance groundwater sample shall be collected within 90 days after the eighth ambient groundwater sampling round has been completed	No
<b>Financial Assurance Mechanism:</b>			
23	The permittee shall submit a demonstration that the financial assurance mechanism listed in Section 2.1, Financial Capability, is being maintained as per A.R.S. 49-243.N.4 and A.A.C. R18-9-A203(H) for all estimated closure and post-closure costs including updated costs submitted under Section 3.0, No. 27 below. The demonstration shall include a statement that the closure and post-closure strategy has not changed, the discharging facilities listed in the permit have not been altered in a manner that would affect the closure and post-closure costs, and discharging facilities have not been added.  The demonstration shall also include information in support	August 31, 2021 and every 2 years thereafter	No

No.	Description	Due by:	Permit Amendment Required?
	<p>of a corporate guarantee as required in A.A.C. R18-9-A203(C)(8).</p> <p><b>NOTE:</b> The financial assurance mechanism due on August 31, 2025, may be provided following ADEQ's approval of the closure and post-closure costs due on that same date. When submitting the closure and post-closure costs, FMI may provide a statement for the type of mechanism intended to be provided.</p>		
24	<p>The permittee shall submit updated cost estimates for facility closure and post-closure, as per A.A.C. R18-9-A201(B)(5) and A.R.S. 49-243.N.2.a.</p>	<p>August 31, 2025 and every 6 years thereafter for the duration of the permit</p>	<p>Yes</p>

#### **4.0 TABLES**

##### **4.1 BADCT TABLE**

TABLE 4.1.1 Permitted Facilities and BADCT

##### **4.2 MONITORING TABLE**

TABLE 4.2.1 Discharge Monitoring

TABLE 4.2.2 Ambient Groundwater Monitoring

TABLE 4.2.3A Compliance Groundwater Monitoring - Quarterly

TABLE 4.2.3B Compliance Groundwater Monitoring – Biennial

TABLE 4.2.4 Operational Monitoring

**Table 4.1.1**  
**PERMITTED FACILITIES AND BADCT**

**No. 7 Stockpile Area**

**No. 7 Stockpile:**

The stockpile was reportedly placed in 50-foot thick lifts, and has a current elevation at approximately 5,225 feet above mean seal level (amsl). The maximum toe to crest height is approximately 320 feet. An east-to-west trending bedrock ridge on the stockpile foundation forms two drainage basins beneath the stockpile. North of the foundation ridge, the stockpile drains to Mule Gulch, and south of the ridge, the stockpile drains to the East Dam. Ore leaching was limited to the south of the foundation ridge. No leaching has been performed north of the ridge where unmineralized Glance Conglomerate overburden was placed.

Seven paired piezometers are installed to measure water levels and evaluate the potential for saturation of stockpile materials. In each installation, the lower (deep) piezometer was positioned to monitor water levels at or near the stockpile foundation. The upper (shallow) piezometers were positioned to evaluate the potential for local saturation due to perched water overlying compacted zones within the stockpile.

A slope stability analysis of the stockpile was conducted and the results indicated that the factor of safety is low along two sections of the southern slopes of the stockpile. Two sections of the stockpile shall be regraded to improve the factor of safety and meet individual BADCT requirements as per Section 3.0 Compliance Schedule Item #16.

**North Dam:**

The North Dam consists of a reinforced concrete headwall with discharge pipes that convey the fluids to the No. 7 Stockpile Pump Station. Drawings from 1964 suggest that the concrete dam and wing walls were to be founded on "solid rock". A collection trench originally constructed in 1985 that was deepened and laterally extended in 1998, is present to capture seepage. The seepage is routed to a sump and then pumped back to the North Dam. This facility is capable of containing and passing inflows associated with a 100-year, 24-hour storm event.

Based on the field investigation results and an analysis of four BADCT alternatives, a slurry cutoff wall and trench drain shall be constructed as per Section 3.0 Compliance Schedule Item #1, to mitigate seepage from the former Mule Gulch channel into the alluvium of Mule Gulch downgradient of North Dam and upgradient of the existing collection trench. The upgradient collection trench shall be located upstream of the slurry cutoff wall, shall be approximately 500 feet in length, and excavated to a depth of 10 feet. The bottom 5 feet of the trench shall contain perforated and corrugated pipe to convey seepage to a central sump. The pipe shall be covered by 5 feet of drain gravel and 5 feet of native alluvium. The sump shall consist of an 8-inch diameter corrugated HDPE pipe with the perforated pipe directly connected to the sump pipe. A dedicated pump shall be installed in the pipe to pump flows from the sump to the North Dam.

**Table 4.1.1  
PERMITTED FACILITIES AND BADCT**

**East Dam:**

The foundation of East Dam and the impoundment behind the dam is composed primarily of marine limestone of Paleozoic age, having hydraulic conductivity (K) values (from permeability testing) ranging from  $10^{-3}$  to  $10^{-6}$  centimeters per second (cm/sec). The current capacity of the East Dam is 1.13 acre-feet. As per Section 3.0 Compliance Schedule Item #7, East Dam shall be upgraded to meet prescriptive BADCT design requirements for process solution impoundments. The East Dam impoundment shall be retrofitted with 80-mil double geomembrane liner separated by a geonet, with a leak collection and recovery system (LCRS). The East Dam headwall shall be modified by saw cutting and lowering a portion of the headwall to accommodate peak flows. Fill shall be placed within the existing depression to prepare the ground surface for liner installation. The inboard slopes shall be lined with 100-mil HDPE rubsheet to prevent seepage into the foundation and embankment adjacent to the existing concrete dam. The impoundment shall have inboard slopes of 3.5 horizontal to 1 vertical (3.5H:1V) maximum, and 2H:1V fill slope at the existing concrete dam. The capacity of the East Dam, following the modification, shall be approximately 5.48 acre-feet. Modification of the headwall shall be implemented to prevent overtopping Warren Cutoff Road during high flow conditions associated with short duration, high intensity storm events. The required headwall cut dimensions consist of two sections to maintain the existing sluice gate. The lower section shall be 2 feet deep by 12 feet wide and the upper section shall be 2 feet deep by 14.5 feet wide.

The reduced storage capacity of the East Dam impoundment was demonstrated to have no impact on the ability of Ponds 2A and 2B to contain stormwater associated with the 100-year, 24-hour design storm event.

**Stormwater Containment Pond No. 1 (Pond 1):**

The pond is lined with an 80-mil HDPE liner over 10-ounce geotextile placed on a subgrade layer. The subgrade layer consists of 2 feet of select fill on the pond slopes and 6 inches of scarified and compacted material on the pond floor. The subgrade was finished with 2 inches of sand to smooth out sharp objects and other irregularities in the surface.

**Stormwater Ponds 2A and 2B (Pond 2A and Pond 2B):**

These impoundments were constructed in 2000 and designed using prescriptive BADCT design for non-stormwater impoundments to store stormwater runoff due to 100-year 24-hour storm, process water overflows from the No. 7 Stockpile area, and provide overflow capacity for the East Dam facility. Each impoundment is approximately 25 feet deep and the embankments are a maximum of 20 feet above natural ground surface. Each impoundment is constructed with a liner system that includes an upper 80-mil HDPE liner and a lower 6-inch thick compacted clay liner on prepared subgrade separated by a leak detection layer (LDL). The LDL consists of geotextile on pond side slopes and geotextile with geonet on pond floors. The LDL connects to drain outlet (6" diameter) at the base of each pond, and the drain outlets lead to a common sump (18" diameter HDPE pipe) between the ponds. Each pond has a 12" diameter outlet pipe which leads to a common sump, consisting of a 54" diameter HDPE pipe, located between the ponds. Any water that collects in the sumps will be pumped to the No. 7 Stockpile Pump Station.

**Table 4.1.1  
PERMITTED FACILITIES AND BADCT**

**Cochise Area**

**Jones Canyon Stockpile:**

The Jones Canyon Stockpile is located in a canyon whose slopes are approximately 2:1, and the slopes drain to a single main channel. The stockpile was constructed using end dump methods over approximately 14 acres. The stockpile contains approximately 1.5 million tons of material and has a maximum elevation of 5,480 feet. A high permeability layer of rocks and boulders forms a preferential flow path for solutions percolating to the base of the stockpile.

**Jones Canyon Earth Dam Upper Catchment (Upper Catchment):**

The Upper Catchment is formed by a 10 foot high earth embankment, which has a crest elevation of 5,275 feet. This pond is unlined and has a capacity of approximately 0.6 acre feet. The net subsurface discharge from the stockpile to the downgradient catchment facility is approximately 5.1 gallons per minute (gpm). Fluid collected in the Upper Catchment is routed to the Precipitation Plant via an HDPE pipe. Overflow passes through a 14 inch diameter steel pipe placed approximately 5 feet below the pond crest and flows to the Jones Canyon Earth Dam Middle Catchment.

**Winwood Canyon Stockpile:**

The stockpile contains approximately 1.8 million tons of material and has a maximum elevation of 5,525 feet. A high permeability layer of rocks and boulders forms a preferential flow path for solutions percolating to the base of the stockpile. An annual average discharge of 4.2 gpm was estimated from beneath the stockpile. Seepage and impacted stormwater from the stockpile is collected in the Winwood Canyon Stockpile Collection System (WCS Collection System) and then transported by gravity via pipeline flow to the Precipitation Plant. Overflow from the WCS Collection System is piped by gravity to the Lavender Pit.

**Winwood Canyon Stockpile Collection System:**

The Winwood Canyon Stockpile Collection System includes an upper concrete wall located in a wash that functions as the initial subsurface drainage cutoff. Drains at the toe of the stockpile and upper part of the wash transition to a solid pipe at the wall. Additional subsurface drainage interception and cutoff are provided by drains and a second concrete wall that is located further downgradient. Both walls are founded on bedrock that has an estimated low permeability of about  $1 \times 10^{-6}$  feet/minute. A discharge reduction of 99% is expected, and the average annual discharge is expected to be 0.05 gpm. The as-built crest elevation of the upper concrete wall is 5,315.6 feet, which results in 1.9 feet of freeboard above the maximum water surface elevation. The as-built elevations of the wall spillway and the outlet pipe are 5,312.5 and 5,304.3 feet respectively.

**Table 4.1.1  
PERMITTED FACILITIES AND BADCT**

**Campbell Yard Area**

**Campbell Yard Sump:**

This facility was designed using prescriptive BADCT for a non-stormwater impoundment. The pond is constructed with a single HDPE liner over prepared subgrade. The pond has a total capacity 10.4 acre-feet at the pond crest, and 7.8 acre-feet with 2 feet of freeboard. Due to settlement of foundation, there is a depression in the impoundment floor that does not drain to the outlet works.

A field investigation was conducted to evaluate seepage, characterize subsurface soils, and delineate depth to bedrock by excavating and logging ten test pits along the perimeter of the stockpile. A hydrologic evaluation was also conducted to evaluate the capacity of the impoundment to contain flows from a 100-year/24-hour storm event.

As per Section 3.0 Compliance Schedule #5, the Campbell Yard Sump shall be upgraded and repaired so that all of the water in the impoundment drains to the outlet works. The proposed repair shall include removing 2 to 3 feet of fill below the existing liner. The foundation shall then be compacted and replaced with approximately 2.5 feet of structural fill and 6 inches of liner bedding fill, followed by reinstalling the existing liner or installing new liner if condition of the existing liner is compromised.

**Precipitation Plant:**

The Precipitation Plant consists of 16 interconnected concrete cells, a central concrete launder trough, a concrete drying pad, and a pump sump. It measures approximately 400 feet long and 100 feet wide. This facility was used as a solution processing facility until November 2003. Since then, the plant has been used as part of the water handling circuit for the No. 7 Stockpile and interconnected facilities.

As per Section 3.0 Compliance Schedule Item #14, the Precipitation Plant shall be demolished and in its place a tank shall be installed at the north end of the Campbell Yard.

**Lavender Pit Area**

**Lavender Pit Non-Stormwater Impoundment:**

This facility is inaccessible and cannot be upgraded or closed to reduce discharge. Discharge reduction shall be achieved by reducing the volume and improving the quality of discharge from facilities that discharge to the Lavender Pit, through facility upgrades or closure required by this permit.

TABLE 4.2.1 <sup>1</sup> CONTINGENCY MONITORING		
Parameters for Contingency Monitoring (in mg/L unless otherwise noted)		
pH – field & lab (SU)	Potassium	Molybdenum
Specific Conductance - field and lab (µmhos/cm)	Sodium	Nickel
Total Dissolved Solids	Iron	Selenium
Total Alkalinity	Aluminum	Thallium
Carbonate	Antimony	Zinc
Bicarbonate	Arsenic	Gross Alpha Particle Activity (pCi/L) <sup>2</sup>
Nitrate	Barium	Radium 226 + Radium 228 (pCi/L)
Nitrite	Beryllium	Uranium-Isotopes (pCi/L) <sup>3</sup>
Nitrate-Nitrite as N	Cadmium	Total Petroleum Hydrocarbons
Sulfate	Chromium	Benzene
Chloride	Cobalt	Toluene
Fluoride	Copper	Ethylbenzene
Calcium	Lead	Total Xylenes
Ammonia	Manganese	Uranium, Total (µg/L)
Magnesium	Mercury	

NOTE: Metals shall be analyzed as dissolved metals.

<sup>1</sup> One time discharge monitoring is required per Section 2.5.1, Section 2.7.4.1 and Compliance Item #1.

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

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

<b>TABLE 4.2.2<sup>4</sup></b>	
<b>AMBIENT GROUNDWATER MONITORING</b>	
<b>Parameters for Ambient Groundwater Monitoring<sup>5</sup></b> <b>(in mg/L unless otherwise noted)</b>	
Depth to Water Level (ft.)	<b>Metals<sup>6</sup></b>
Water Level Elevation (ft amsl)	Aluminum (Al)
Temperature – field (°F)	Antimony (Sb)
Total Dissolved Solids (TDS)	Arsenic (As)
Specific Conductance (µmhos/cm)	Barium (Ba)
pH	Beryllium (Be)
<b>Major Cations</b>	Cadmium (Cd)
Calcium (Ca)	Chromium (Cr)
Magnesium (Mg)	Cobalt (Co)
Potassium (K)	Copper (Cu)
Sodium (Na)	Iron (Fe)
Total Organic Carbon (TOC)	Lead (Pb)
<b>Major Ions</b>	Manganese (Mn)
Alkalinity, Total	Mercury (Hg)
Alkalinity, Bicarbonate (HCO <sub>3</sub> )	Molybdenum (Mo)
Alkalinity, Carbonate (CO <sub>3</sub> )	Nickel (Ni)
Alkalinity, Hydroxide (OH <sup>-</sup> )	Selenium (Se)
Chloride (Cl)	Silica (Si)
Fluoride (F)	Silver (Ag)
Sulfate (SO <sub>4</sub> )	Thallium (Tl)
<b>Nitrogen</b>	Zinc (Zn)
Ammonia (NH <sub>3</sub> as N)	<b>Radiochemicals</b>
Nitrate (NO <sub>3</sub> as N)	Gross Alpha
Nitrite (NO <sub>2</sub> as N)	Gross Beta
Nitrate-Nitrite (as N)	Adjusted Gross Alpha
Phosphorus, Total	Radium 226 + 228
Total Kjeldahl Nitrogen (TKN)	Uranium (total)
<b>Cyanide</b>	
Cyanide (free)	
Cyanide (total)	

<sup>4</sup>The permittee shall initiate ambient groundwater monitoring under this table (Table 4.2.2) and collect eight consecutive monthly samples of ambient groundwater, as per Section 3.0, Compliance Schedule Item #21.

<sup>5</sup>List of parameters for ambient monitoring for POC #1, #2 and #3.

<sup>6</sup>Metals will be analyzed as dissolved metals.

**TABLE 4.2.3A<sup>7</sup>**  
**COMPLIANCE GROUNDWATER MONITORING – QUARTERLY**  
**(All units are in mg/L unless otherwise noted)**

Parameter <sup>8</sup>	POC Well # 1		POC Well # 2		POC Well # 3	
	AL <sup>9</sup>	AQL <sup>10</sup>	AL	AQL	AL	AQL
Depth to Water (in feet)	Monitor <sup>11</sup>	Monitor	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (in ft amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature – field (°F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate + Nitrite as N	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Fluoride	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Aluminum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Antimony	Reserved <sup>12</sup>	Reserved	Reserved	Reserved	Reserved	Reserved
Arsenic	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Barium	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Beryllium	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Cadmium	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Chromium	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Cobalt	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Lead	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Molybdenum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nickel	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

<sup>7</sup>The permittee shall commence compliance groundwater monitoring under this table after completion of the ambient groundwater monitoring under Table 4.2.2 and per Section 3.0, Compliance Schedule #22.

<sup>8</sup>All units are in mg/L unless otherwise noted. Metals will be analyzed as dissolved metals.

<sup>9</sup>AL = Alert Level

<sup>10</sup>AQL = Aquifer Quality Limit

<sup>11</sup>Monitor = Monitoring required, but no AQL or AL will be established in the permit.

<sup>12</sup>Reserved = Monitoring is required, the limits will be set per Section 3.0, Compliance Schedule Item #21 and Section 2.7.4.2 upon conclusion of eight (8) rounds of groundwater sampling. The permittee is required to submit an Ambient Groundwater Monitoring Report and permit amendment to set ALs and AQLs which will be calculated based on the criteria in 2.5.3.3 and 2.5.3.4.



<b>TABLE 4.2.3B<sup>13</sup></b>						
<b>COMPLIANCE GROUNDWATER MONITORING - BIENNIAL</b>						
<b>(All units are in mg/l unless otherwise noted)</b>						
<b>Parameter<sup>14</sup></b>	<b>POC Well # 1</b>		<b>POC Well # 2</b>		<b>POC Well # 3</b>	
	<b>AL (mg/l)</b>	<b>AQL (mg/l)</b>	<b>AL (mg/l)</b>	<b>AQL (mg/l)</b>	<b>AL (mg/l)</b>	<b>AQL (mg/l)</b>
<b>Major Cations</b>						
Calcium	Monitor <sup>15</sup>	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Organic Carbon	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
<b>Major Anions</b>						
Alkalinity, Total	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Alkalinity, Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Alkalinity, Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Alkalinity, Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
<b>Nitrogen</b>						
Ammonia (NH <sub>3</sub> as N )	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate (NO <sub>3</sub> as N)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Nitrite (NO <sub>2</sub> as N)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Phosphorus, Total	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Kjeldahl Nitrogen (TKN)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
<b>Cyanide</b>						
Cyanide (free)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Cyanide (total)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
<b>Radiochemicals</b>						
Gross Beta	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Adjusted Gross Alpha	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Radium 226 + 228	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved
Uranium (total)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

<sup>13</sup>The permittee shall commence compliance groundwater monitoring under this table after completion of the ambient groundwater monitoring under Table 4.2.2 and per Section 3.0, Compliance Schedule #22.

<sup>14</sup>All units are in mg/l unless otherwise noted. Metals will be analyzed as dissolved metals.

<sup>15</sup>Monitor = Monitoring required, but no AQL or AL will be established in the permit.

<b>TABLE 4.2.4 FACILITY INSPECTION (OPERATIONAL MONITORING) - LOG BOOK<sup>16</sup></b>			
<b>Facility Name</b>	<b>Operational Requirement</b>	<b>Inspection Frequency</b>	<b>Reporting Frequency</b>
<b>Stockpiles</b>			
<ul style="list-style-type: none"> <li>▪ No. 7 Stockpile</li> <li>▪ Jones Canyon Stockpile</li> <li>▪ Winwood Canyon Stockpile</li> </ul>	Visually inspect and take action if any evidence of : <ul style="list-style-type: none"> <li>- Deformation, including surface cracks, slides, and sloughing which can result in slope instability</li> <li>- Differential settlement, which can result in pipeline impairment or failure</li> <li>- Excessive erosion around pipelines</li> </ul>	Quarterly and during/following a storm event of 1 inch or more of precipitation in a 24-hour period	See Section 2.7.3
<b>Impoundments</b>			
<ul style="list-style-type: none"> <li>▪ North Dam</li> <li>▪ East Dam</li> <li>▪ Stormwater Containment Pond No. 1</li> <li>▪ Stormwater Impoundment 2A</li> <li>▪ Stormwater Impoundment 2B</li> <li>▪ Jones Canyon Earth Dam Upper Catchment</li> <li>▪ Winwood Canyon Stockpile Collection System</li> <li>▪ Campbell Yard Sump</li> </ul>	1) Visually inspect and take appropriate action if any evidence of : <ul style="list-style-type: none"> <li>- Solution level in relation to the spillway at least 2 feet to ensure freeboard is maintained</li> <li>- Solution level in non-stormwater impoundments to ensure that the impoundment is evacuated within 30 days of receiving g any overflow</li> <li>- Integrity of embankment and anchor trench</li> <li>- Proper operation of pumps and pump structures</li> <li>- Evidence of erosion and accumulation of debris</li> <li>- Impoundment liner for holes and tears, punctures, cracks, deformities, or other damage due to sunlight, wind, weather, debris, vegetation, animals or other adverse conditions affecting liner stability</li> <li>- Spillway for evidence of instability or impairment</li> <li>- Ditches for blockages and erosion</li> <li>- Overflow pipes for blockages</li> </ul>	Quarterly and during/following a storm event of one (1) inch or more of precipitation in a 24-hour period.	See Section 2.7.3

<sup>16</sup>The permittee shall record the inspection performance levels in a log book as per Section 2.7.2 and report any violations or exceedances as per Section 2.7.3. In the case of an exceedance, identify which structure exceeds the performance level in the log book.

<b>TABLE 4.2.4 FACILITY INSPECTION (OPERATIONAL MONITORING) - LOG BOOK<sup>16</sup></b>			
<b>Facility Name</b>	<b>Operational Requirement</b>	<b>Inspection Frequency</b>	<b>Reporting Frequency</b>
	2) Remove excess sediment/sludge from the conveyances and diversions as needed to maintain at least 80 percent of designed capacity	Annually	See Section 2.7.3
<b>Other Facilities</b>			
<ul style="list-style-type: none"> <li>▪ Precipitation Plant</li> <li>▪ Campbell Interception Trench</li> </ul>	Visually inspect and take appropriate action if any evidence of the following: <ul style="list-style-type: none"> <li>- Excessive cracking of concrete</li> <li>- Visually inspect and take appropriate action, to ensure for the following, as applicable</li> <li>- Proper access to man holes and sumps for inspection</li> <li>- Proper operation of pumps and pump structures</li> </ul>	Quarterly	See Section 2.7.3

**5.0 REFERENCES AND PERTINENT INFORMATION**

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

1. APP Application, dated: December 21, 2017
2. Final Hydrologist Report, dated: May 17, 2019
3. Final Engineering Report, dated: April 15, 2019
4. Public Notice, dated: XXXX
5. Public Hearing, dated: XXXX

## 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 Protection Value Stream in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

## 7.0 ADDITIONAL PERMIT CONDITIONS

### 7.1 Other Information[A.R.S. § 49-243(K)(8)]

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

### 7.2 Severability

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

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

### 7.3 Permit Transfer

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