STATE OF ARIZONA
AQUIFER PROTECTION PERMIT NO. P-100193
SIGNIFICANT AMENDMENT
PLACE ID 2512, LTF 74213

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, Freeport-McMoRan Morenci Inc. is hereby authorized to operate the discharging facilities located at the Morenci copper mine located near Morenci, Arizona, Greenlee County, over groundwater of the Gila River groundwater basin, in all or portions of Sections 21, 22, 23, 26, 27, 28, and 32 - 35 in Township 3 South, Range 29 East; Sections 1 - 36 in Township 4 South, Range 29 East, and Sections 1 - 12 and 14 - 17 in Township 5 South, Range 29 East of the Gila and Salt River Base Line and Meridian.

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

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

1.1 PERMITTEE INFORMATION

Facility Name:	Freeport-McMoRan Morenci Inc.
Facility Address:	4521 U.S. Highway 191, Morenci, Arizona 85540
Annual Registration Fee Flow Rate:	10,000,000 gallons per day (gpd) or more
Permittee:	Freeport-McMoRan Morenci Inc.
Permittee Address:	4521 U.S. Highway 191, Morenci, Arizona 85540
Facility Contact:	Martha Lujan; MLujan@FMI.com
Emergency Phone No.:	928-865-6669
Latitude/Longitude:	33° 05' 15" N/109° 22' 00" W
Legal Description:	Sections 21, 22, 23, 26, 27, 28, and 32 - 35 in Township 3 South, Range 29 East; Sections 1 - 36 in Township 4 South, Range 29 East, and Sections 1 - 12 and 14 - 17 in Township 5 South, Range 29 East 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 _____, 2018

THIS AMENDMENT SUPERSEDES ALL PREVIOUS PERMITS

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

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

The Morenci Mining District is located in Greenlee County, Arizona, near the towns of Clifton and Morenci. The active mining operation is owned and operated by Freeport-McMoRan Morenci, Inc. (FMMI), and encompasses an area of approximately 72 square miles. FMMI produces copper concentrate and cathode copper through mining, milling, concentrate leach process, and solution extraction/electrowinning (SX/EW). Molybdenum concentrate and minor amounts of gold and silver are produced as by-products. District facilities comprise existing and planned mining areas within the open pit, various development rock and leach stockpiles, numerous solution and stormwater impoundments, five tailing impoundments, two concentrators, several SX/EW facilities, and other ancillary facilities associated with copper mining.

The permittee is authorized to operate the facilities listed below subject to the applicable conditions of this permit.

Facility No.	Facility Name	Latitude	Longitude
1	Southwest 1 Tailing Dam	33º 00’ 30” N	109º 21’ 37” W
2	Southwest 2 Tailing Dam	33º 59’ 37” N	109º 22’ 02” W
3	Southwest 1 Tailing Dam Expansion	33º 00’ 45” N	109º 22’ 44” W
4	Silver Basin Tailing Dam Complex	33º 01’ 08” N	109º 21’ 19” W
5	Silver Basin Tailing Dam Expansion	33º 01’ 36” N	109º 21’ 49” W
6	West Tailing Dam Complex	33º 02’ 07” N	109º 20’ 17” W
7	East Tailing Dam Complex	33º 01’ 47” N	109º 19’ 22” W
8	West/East Tailing Dam Expansion	33º 01’ 42” N	109º 19’ 37” W
153	Tailing Stormwater Retention Dam 1X	33º 01’ 05” N	109º 18’ 54” W
10	DCRS 2 Tailing Stormwater Retention Dam 2	33º 01’ 01” N	109º 19’ 12” W
13	Tailing Stormwater Retention Dam 3	33º 01’ 00” N	109º 19’ 38” W
154	Tailing Stormwater Retention Dam 4X	33º 00’ 57” N	109º 20’ 03” W
21	Tailing Stormwater Retention Dam 5	33º 00’ 25” N	109º 20’ 21” W
27	Tailing Stormwater Retention Dam 5F	33º 00’ 30” N	109º 20’ 37” W
28	Tailing Stormwater Retention Dam 5G	33º 00’ 33” N	109º 20’ 41” W
29	Tailing Stormwater Retention Dam 6	33º 00’ 19” N	109º 20’ 50” W
30	Tailing Stormwater Retention Dam 7	33º 00’ 22” N	109º 21’ 11” W
31	Tailing Stormwater Retention Dam 7A	33º 00’ 11” N	109º 21’ 10” W
32	Tailing Stormwater Retention Dam 7B	33º 00’ 19” N	109º 21’ 14” W
120	Tailing Stormwater Retention Dam 7C	33º 00’ 21” N	109º 21’ 11” W
33	Tailing Stormwater Retention Dam 8	32º 59’ 58” N	109º 21’ 19” W
34	Tailing Stormwater Retention Dam 9	32º 59’ 57” N	109º 21’ 27” W
35	Tailing Stormwater Retention Dam 9A	33º 00’ 09” N	109º 21’ 43” W
36	Tailing Stormwater Retention Dam 10	32º 59’ 39” N	109º 21’ 33” W
37	Tailing Stormwater Retention Dam 10A	32º 59’ 59” N	109º 22’ 01” W
38	Tailing Stormwater Retention Dam 11	32º 59’ 38” N	109º 21’ 53” W
39	Industrial Drain Overflow Pond (Reed Lake)	33º 03’ 30” N	109º 20’ 15” W
40	Bat Canyon Safety Dam 1	33º 01’ 43” N	109º 23’ 13” W
41	Lower Chase Creek Dam	33º 04’ 11” N	109º 19’ 50” W

Facility No.	Facility Name	Latitude	Longitude
42	Rocky Gulch Dam	33º 06’ 30” N	109º 20’ 04” W
43	Gold Gulch Dam	33º 04’ 11” N	109º 23’ 14” W
44	Columbine Reservoir	33º 03’ 10” N	109º 20’ 07” W
45	Horseshoe Overflow Pond	33º 04’ 16” N	109º 19’ 57” W
46	Stargo Overflow Pond	33º 02’ 52” N	109º 20’ 56” W
47	Pond 800 Feet SW of 4500 Precipitation Plant	33º 03’ 41” N	109º 20’ 58” W
48	Central SX Plant PLS Pond	33º 03’ 40” N	109º 19’ 51” W
49	Central SX Plant Raffinate Pond	33º 03’ 46” N	109º 19’ 51”W
50	Modoc SX Plant PLS Pond	33º 04’ 28” N	109º 20’ 54” W
51	Modoc SX Plant Raffinate Pond	33º 04’ 26” N	109º 20’ 44” W
52	Dam BC-1	32º 02’ 10” N	109º 23’ 20” W
53	Dam BC-2	33º 02’ 07” N	109º 23’ 17” W
54	Dam BC-3	33º 02’ 07” N	109º 23’ 17” W
55	Dam BC-4	33º 02’ 05” N	109º 23’ 17” W
56	Dam BC-5	33º 01’ 45” N	109º 23’ 11” W
57	Horseshoe Sump	33º 04’ 21” N	109º 19’ 59” W
58	Stargo Sump	33º 02’ 52” N	109º 20’ 56” W
59	5X Sump	33º 02’ 33” N	109º 21’ 08” W
60	Dam BC-6	33º 01’ 35” N	109º 22’ 57” W
61	Dam BC-7	33º 01’ 36” N	109º 22’ 53” W
62	27 MM Sump	33º 01’ 43” N	109º 22’ 12” W
63	Dam BC-8	33º 01’ 43” N	109º 22’ 35” W
65	29 MM Sump	33º 01’ 41” N	109º 22’ 47” W
66	23/25 MM Sump	33º 02’ 08” N	109º 21’ 43” W
68	Metcalf SX Plant PLS Pond	33º 06’ 52” N	109º 22’ 07” W
69	Metcalf SX Plant Raffinate Pond	33º 06’ 49” N	109º 22’ 07” W
70	King/Placer Diversion	33º 06’ 57” N	109º 21’ 18” W
71	Northwest Coronado Diversion	33º 06’ 40” N	109º 23’ 41” W
72	Upper Chase Creek Diversion	33º 08’ 15” N	109º 22’ 09” W
73	Garfield Diversion	33º 08’ 19” N	109º 21’ 37” W
74	Coronado Diversion	33º 06’ 48” N	109º 22’ 01” W
75	Santa Rosa Diversion	33º 07’ 03” N	109º 23’ 00” W
76	In-pit Sumps	See Table 2	See Table 2
77	Rock House Canyon Stockpile	33º 05’ 11” N	109º 20’ 15” W
78	Rock House Canyon Stockpile Expansion	33º 04’ 41” N	109º 20’ 09” W
79	Lower Chase Creek Stockpile	33º 04’ 41” N	109º 20’ 42” W
80	Southwest Stockpile	33º 02’ 32” N	109º 21’ 55” W
81	Southwest Stockpile Expansion	33º 03’ 50” N	109º 21’ 34” W
82	Lone Star Stockpile	33º 04’ 07” N	109º 22’ 07” W
83	Medler Stockpile	33º 05’ 39” N	109º 21’ 42” W
84	Copper Mountain Stockpile	33º 04’ 60” N	109º 22’ 01” W

Facility No.	Facility Name	Latitude	Longitude
85	Santa Rosa Stockpile	33º 07’ 19” N	109º 23’ 08” W
86	American Mountain Stockpile	33º 05’ 17” N	109º 22’ 16” W
87	Placer Stockpile	33º 07’ 33” N	109º 20’ 26” W
88	King Stockpile	33º 07’ 47” N	109º 20’ 47” W
89	King/Placer Stockpile Expansion	33º 08’ 39” N	109º 20’ 27” W
90	Coronado Stockpile	33º 06’ 44” N	109º 22’ 30” W
91	Coronado Stockpile Expansion	33º 06’ 30” N	109º 23’ 05” W
92	Queen Hill Stockpile	33º 05’ 39” N	109º 22’ 05” W
93	Upper Chase Creek Stockpile	33º 07’ 19” N	109º 22’ 12” W
94	Upper Chase Creek Stockpile Expansion	33º 07’ 19” N	109º 22’ 12” W
95	Garfield Stockpile	33º 08’ 34” N	109º 21’ 43” W
96	Metcalf In-pit Stockpiles	33º 06’ 45” N	109º 21’ 20” W
97	Morenci In-pit Stockpile Expansion	33º 04’ 43” N	109º 22’ 22” W
98	Northwest Coronado Stockpile	33º 06’ 59” N	109º 23’ 52” W
99A	Morenci Wastewater Treatment Plant (WWTP)	33° 01’ 38” N	109° 18’ 40” W
101	New Vehicle Wash – ATV Shop Vehicle Wash	33º 04’ 36” N	109º 21’ 49” W
102	Metcalf Small Vehicle Wash	33º 06’ 24” N	109º 21’ 45” W
103	Heavy Duty Truck Wash	33º 06’ 20” N	109º 21’ 52” W
104	New Vehicle Washes – Within the Hydrologic Sink	To be provided	To be provided
105	RW Fuel Dock Small Vehicle Wash	33º 03’ 42” N	109º 20’ 08” W
106	Surface Dept. Vehicle Wash	33º 03’ 42” N	109º 20’ 22” W
107	Mine Gate Lube Shop Vehicle Wash	33º 04’ 51” N	109º 20’ 39” W
108	Concentrate Load-out Yard at the Bedding Plant	33º 04’ 02” N	109º 20’ 23” W
109	Pinkard Gulch Impoundment	33º 04’ 56” N	109º 23’ 46” W
110	West Gold Gulch Impoundment	33º 04’ 46” N	109º 23’ 43” W
111	East Gold Gulch Impoundment	33º 04’ 36” N	109º 23’ 11” W
112	Highway Relocation Stockpile Impoundment	33º 04’ 26” N	109º 23’ 03” W
113	Vehicle Wash – SX Pipe Yard	33º 04’ 35” N	109º 21’ 38” W
114	Central SX/EW Plant Vehicle Wash	33º 03’ 26” N	109º 19’ 30” W
115	Southwest SX/EW Plant Vehicle Wash	33º 03’ 26” N	109º 21’ 19”
116	Pond near Stargo WWTP	33º 03’ 30” N	109º 21’ 25” W
117	Former Metcalf Concentrate Overflow Ponds	33º 04’ 01” N	109º 20’ 24” W
118	4500 Precipitation Plant	33º 03’ 26” N	109º 20’ 51” W
119	Southwest Precipitation Plant	33º 02’ 11” N	109º 21’ 07” W
121	Tailing Stormwater Retention Dam 12X	33º 00’ 59” N	109º 19’ 27” W
122	Tailing Stormwater Retention Dam WFT 1	33º 00’ 58” N	109º 18’ 59” W
123	Tailing Stormwater Retention Dam WFT 10	32º 59’ 57” N	109º 21’ 51” W
150	Silver Basin Leach Stockpile	33º 03’ 30” N	109º 21’ 30” W
151	Silver Basin PLS Pond 1/2	33º 03’ 17” N	109º 22’ 19” W
152	Silver Basin NSI 1/2	33º 03’ 17” N	109º 22’ 27” W
155	SB PLS Pond	33° 02' 41" N	109° 21' 56" W

Facility No.	Facility Name	Latitude	Longitude
156	Morenci Canyon Stockpile	33° 04' 12" N	109° 21' 38" W
157	MRC PLS Pond	33° 04' 12" N	109° 21' 01" W
158	MRC Process Pond	33° 03' 47" N	109° 20' 55" W

Note: Facility Nos. 124 through 149, which previously represented the Tailing Stormwater Ponds (TSPs) and Seepage Collection Ponds (SCPs), have been removed from the list of facilities. Several TSPs and SCPs have been removed, those that remain are identified under the BADCT description for Tailings Impoundments in Table 2, and also in the log book maintained by FMMI.

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

The Annual Registration Fee for this permit is established by A.R.S. § 49-242 and is payable to ADEQ each year. The annual registration fee flow rate is established in permit Section 1.1.

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

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The Groundwater Protection Value Stream approved the closure costs of $179,276,856 and post-closure cost of $20,822,255 for a total of $200,099,111. The permittee provided financial capability for the estimated Net Present Value (NPV) of the closure and post-closure costs in the amount of $175,840,633, using two corporate guarantees through A.A.C. R18-9-A203(C)(8) as follows: a corporate guarantee in the amount of $166,984,291 to cover the financial assurance obligations prior to this amendment, and a corporate guarantee in the amount of $8,856,342 to cover the financial assurance as a result of this amendment.

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

The permittee is authorized to operate the facilities listed in Table 2. The Morenci District facilities shall rely on the demonstrated passive containment capture zone (PCCZ), operational, hydrologic, and engineering controls to demonstrate BADCT. The facilities that are located within, and rely in part, on the PCCZ for BADCT demonstration are noted in Table 2.

Facility design, construction, and operational details are contained in the APP application, dated March 28, 1996, and subsequent submittals and correspondence referenced in Section 5.0 of this APP.

All of the facilities listed in Table 2 employ BADCT requirements as set forth in A.R.S. § 49-243(B)(1). The primary discharge control technologies for each discharging facility are presented in Table 2. Operational requirements for operational aspects of BADCT are presented in Table 3. An additional and significant component of BADCT employed at the Morenci mine is the hydrologic capture of the groundwater in the general location of the Morenci open pit mining areas. A hydrologic "sink" has been created and shall be monitored in accordance with Tables 9 and 11.

2.2.1 Engineering Design

Facility design, construction, and operational details are contained in the APP application dated March 28, 1996, and subsequent submittals and correspondence referenced in Section 5.0 of this APP.

2.2.2 Site-specific Characteristics

Passive containment capture zone has been demonstrated as described in Section 2.5.1.

2.2.3 Pre-operational Requirements

Not applicable.

2.2.4 Operational Requirements

The operational requirements for the permitted facilities listed in Table 2 shall be performed at the frequencies indicated in Table 3, and recorded in a log as required by Section 2.7.2.

Operational monitoring for the Lower Chase Creek facilities is described in Table 3 and shall include periodic groundwater monitoring as described in Section 2.5.2.

If damage is identified during an inspection that could cause or contribute to a discharge, proper repairs shall be promptly performed.

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

The permittee shall operate and maintain all permitted facilities listed in Table 2 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[1], uncontrollable leakage, overtopping (e.g., exceeding the maximum storage capacity, defined as a fluid level exceeding the crest elevation of a permitted impoundment), berm breaches that result in an unexpected loss of fluid, accidental spills, or other unauthorized discharges. The discharge limitations in this section are not applicable to any discharge caused by precipitation in excess of a single 100-year/24 hour storm event or process overflow during a power outage exceeding 24 hours in duration.

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

Points of Compliance are listed in Table 4. Monitoring requirements for each POC are listed in Section 4, Table 6 (Quarterly Groundwater Compliance Monitoring), and Table 7.A, 7.B, and 7.C (Biennial Groundwater Compliance Monitoring). 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(K)(1), A.A.C. R18-9-A206(A)]

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

2.5.1 Passive Containment Monitoring

Based on supporting documentation provided in the Application, the permittee has satisfactorily predicted that the open-pit mine creates a "passive containment capture zone", as per A.R.S. § 49-243(G)(1). A recalibration of the approved groundwater flow model was conducted and submitted 5 years from the issuance date of this APP as well as a report summarizing the original passive containment demonstration and the revisions to the groundwater flow model. An amendment application was submitted to ADEQ on September 4, 2008 to demonstrate passive containment as BADCT within the PCCZ. The permittee is authorized to reconfigure stockpiles and leach collection within the PCCZ.

A list of required data that shall be used in the model recalibration is presented in Table 8. The list includes groundwater levels, meteorological data, dewatering rates, and parameters from the Santa Rosa Stockpile to be used for a water balance. Hourly meteorological data shall be collected at both the southern Morenci weather station located at Latitude North 33º 3' 9.67" and Longitude West 109º 19' 56.68" and the northern Morenci weather station Latitude North 33º 06' 07.42" and Longitude West 109º 22' 37.56".

[1] Liner failure in a single-lined impoundment is any condition that would result in a leakage exceeding 550 gallons per acre per day.

Every 5 years thereafter, the permittee shall compare the previous 5 years of data to the previous model predictions. The assumptions about mine development and infiltration shall be reviewed in terms of the actual changes in pit configuration, leaching areas, leach rates, sump locations, water balance, annual precipitation, and storm events. The resulting compilation shall be compared to predictions provided by the groundwater model for the same 5-year period. A report summarizing the original passive containment demonstration and the revisions made to the groundwater flow model shall be submitted to the APP Program for review. ADEQ shall determine whether a full model recalibration is required. If a recalibration of the groundwater flow model is necessary, a report summarizing the revisions and/or changes made to the model shall be submitted to the APP Program for review.

Groundwater level and groundwater quality monitoring requirements shall be conducted in support of the groundwater model are discussed below in Section 2.5.3.

2.5.1.1 Groundwater Monitoring of Hydrologic Sink

The permittee shall collect static groundwater levels and groundwater quality samples from the specified wells listed in Table 4 to evaluate the status of the hydrologic sink. The information shall be used to create a potentiometric map and report that shall be submitted to the APP Program for evaluation and approval. The first report and map was submitted March 31, 2003, as part of the biennial report required in Section 2.7.4. Subsequent reports shall be due by the end of the same month every 2 years thereafter.

2.5.1.1.1 Groundwater Level Monitoring of Hydrologic Sink

Static groundwater levels shall be collected quarterly from the 32 piezometers listed in Table 4. For each quarter, all water levels shall be collected within a 30-day time period. Quarterly groundwater levels shall be recorded in the log described in Section 2.7.2 of this permit. The water levels shall be used to create a potentiometric map and summary report that shall be submitted to the APP Program, as discussed in Section 2.5.1.

In the event that one or more of the designated monitoring piezometers in Table 4 should become inaccessible or be destroyed, a replacement monitoring piezometer shall be constructed and installed upon approval by ADEQ. The construction and installation of a replacement piezometer, or the decision by ADEQ to delete a piezometer from the monitoring list rather than replacing the piezometer, shall constitute a minor amendment to this permit.

2.5.1.1.2 Groundwater Quality Monitoring of Hydrologic Sink

Upon calculation and establishment of Action Levels, the permittee shall conduct groundwater quality sampling at piezometers GG-6 and GG-15 annually. A summary and discussion of the annual groundwater quality results from piezometers GG-6 and GG-15 shall be included in the required biennial report described in Section 2.5.1.1.

In the event of an exceedance of an Action Level, the permittee shall notify ADEQ within 30 days of becoming aware of the exceedance and shall discuss the exceedance and its effect on the status of the hydrologic sink in the required biennial report described in section 2.5.1.1. In the event that GG-6 and/or GG-15 should become unusable or inaccessible due to damage, a decrease in water levels, or any other event, a replacement well shall be constructed and installed upon approval by ADEQ. The Action Levels calculated for the original well shall apply to the replacement well. The construction and installation of a replacement well for GG-6 or GG-15 shall constitute a minor modification or amendment to this permit.

2.5.2 Operational Monitoring for Lower Chase Creek Facilities

For the purpose of monitoring the efficacy of interceptor wells in the Lower Chase Creek area, three POC monitor wells (CC-44, CC-46, and CC-53) shall be used as operational monitoring points in addition to their usage and requirements as POC wells. As designated POC wells, wells CC-44, CC-46, and CC-53 shall be monitored in accordance with Section 2.5.3 of this APP. The parameters to be used for monitoring the operational efficiency of the interceptor wells are field pH, total dissolved solids, and sulfate. These three parameters are included in the list of POC monitoring parameters; therefore, separate sampling and analyses from wells CC-44, CC-46, and CC-53 as required by this section is not necessary. The permittee may use the analytical results for field pH, total dissolved solids, and sulfate obtained from the required periodic monitoring of POC wells for the purposes of this section.

In the event of an exceedance of an Action Level (see Table 12), the permittee shall initiate the actions described in Section 2.6.2.4 of this permit.

2.5.3 Groundwater Monitoring and Sampling Protocols

Static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters (pH, temperature, 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 sampling using a low-flow purging method as described in the Arizona Water Resources Research Center Field Manual for Water Quality Sampling (March, 1995). The well must be purged until indicator parameters, which shall include dissolved oxygen, turbidity, pH, temperature, and conductivity stabilize.

2.5.3.1 POC Well Replacement

In the event that one or more of the designated POC wells should become unusable or inaccessible due to damage, insufficient water in the well for more than two sampling events, or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the replacement well is 50 feet (ft) or less from the original well, the ALs and/or AQLs calculated for the designated POC well shall apply to the replacement well. Otherwise, the ALs and/or AQLs shall be set following the provisions in Section 2.5.3.3 and 2.5.3.4.

2.5.3.2 Ambient Groundwater Quality Monitoring for POC Wells

The 20 monitor wells designated as POC wells are listed in Table 4. At the time of permit issuance, the permittee has collected 8 quarters of groundwater samples from all of the designated POC wells.

2.5.3.3 Alert Levels for POC Wells

Within 90 days of receipt of the laboratory analyses for the final quarter of the ambient groundwater monitoring period for each POC well referenced in Table 4, the permittee shall submit the ambient groundwater monitoring data in tabulated form to the ADEQ APP Program for review. Copies of all laboratory analytical reports, field notes, the Quality Assurance/Quality Control (QA/QC) procedures used in collection and analysis of the samples, and a report including the statistical calculation of the Alert Levels (ALs) and AQLs for all parameters to be established for each of the POC wells shall be included. The ALs and AQLs shall be established and calculated by the methods presented in the technical

memorandum referred to in Section 5, or another method approved by the APP Program. Currently, 20 POC wells have calculated ALs and AQLs as listed on Table 6.

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.

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

2.5.4 Routine Discharge Monitoring for the Wastewater Treatment Plant

Routine discharge monitoring of the WWTP shall be conducted in accordance with Section 4.0, Table 13.

2.5.5 Other Monitor Wells and Piezometers

Numerous groundwater monitoring wells and piezometers exist in the Morenci District, and are listed in the Application. To the extent practicable, these wells and piezometers should be maintained so that they are available for use for future analyses or measurements. The permittee shall notify the APP Program prior to abandonment of any of these wells that have been registered with the Arizona Department of Water Resources. This permit does not require that the wells be maintained in operable condition, nor does it require replacement of the well or equipment should it become inoperable. Failure of the Permittee to notify ADEQ prior to abandonment of the referenced wells shall not constitute a violation of this permit.

An updated table of all monitor wells and piezometers in the Morenci District shall be included in each biennial report (see Section 2.7.4).

2.5.6 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 17th Avenue
Phoenix, AZ 85007
Phone: (602) 364-0720

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

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

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

2.6.2 Exceeding of Alert Levels/Performance Levels

2.6.2.1 Exceeding of Performance Levels Set for Operational Conditions

1. Performance Levels Set for Freeboard

In the event that freeboard performance levels in a surface impoundment are not maintained, the permittee shall:

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

b. Within 5 days of discovery, evaluate the cause of the incident and adjust operational conditions as necessary to avoid future occurrences.

c. Record in the facility log, the amount of fluid removed, a description of the removal method, and the disposal arrangements. The facility log shall be maintained according to Section 2.7.2 (Operational Inspection / Log Book Recordkeeping).

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

2. Performance Levels, Other Than Freeboard

a. If an operational performance (PL) listed in Table 3 has been observed or noted during required inspection and operational monitoring, such that the result could cause or contribute to an unauthorized discharge, the permittee shall immediately investigate to determine the cause of the condition. The investigation shall include the following:

i. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the operational performance condition.
ii. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences.

b. The AL exceedance, results of the investigation, and any corrective action taken shall be reported to the 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.

c. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 3 and any specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6.

2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring

Not Applicable. There are no ALs set for discharge monitoring.

2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring

2.6.2.3.1 Alert Levels for Indicator Parameters

Not Applicable.

2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4.3, Table 6, Tables 7.A, 7.B, 7.C has 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 being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL exceedance or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring of the pollutant(s) that exceed their respective AL(s) to monthly. In addition, the permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Groundwater Protection Value Stream, that although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency of the 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 being exceeded, 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 being exceeded, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring for those pollutant(s) required as a result of ALs being exceeded may be reduced to the regularly scheduled frequency, if the results of three 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.

2.6.2.3.3 Alert Levels to Protect Downgradient Users from Pollutants without Numeric Aquifer Water Quality Standards
Not applicable.

2.6.2.3.4 Alert Level for Groundwater Level
Not applicable.

2.6.2.4 Action Level Exceedance Contingency for Operational Monitoring in Lower Chase Creek
Within 5 days of receiving laboratory analyses indicating an exceedance of an Action Level listed in Table 12 for wells CC-44, CC-46 and/or CC-53, the permittee shall notify ADEQ Groundwater Protection Value Stream. Verification sampling shall be conducted within 15 working days of becoming aware that an Action Level has been exceeded.

Within 5 days of receiving the laboratory results for the verification sampling, the permittee shall notify the ADEQ Groundwater Protection Value Stream of the results in writing. If the results of verification sampling indicate that an Action Level has been exceeded within 30 days of receiving the verification analyses, the permittee shall submit to the APP Program one of the following:

1. A written report that includes a summary of the groundwater quality data in wells CC-44, CC-46 and CC-53, with a description of the exceedance and its cause, and a proposal for mitigative or remedial actions, if necessary, which may include, but not limited to: increased pumping of the interceptor wells, or increased monitoring frequency.

2. A written report that includes a description of the exceedance and its potential causes, the period of exceedance and the anticipated time period during which the exceedance is expected to continue, and a description of any actions taken or planned to be taken to eliminate or prevent recurrence of the exceedance and to mitigate the impacts of the exceedance. Upon approval by the APP Program, the permittee shall initiate the actions necessary to mitigate the impacts of the exceedance. At a minimum, the permittee shall provide for more frequent sampling until the constituent concentration is below the Action Level for two consecutive sampling periods.

   Upon review of item 1 and 2 listed above, the APP Program may require the permittee to submit additional information and/or require the permittee to implement the proposed

action.

2.6.2.5 Exceedance of Action Leakage Rate for Process Solution Impoundments

At a minimum, the permittee shall initiate the following actions within 3 days of becoming aware of an exceedance of an action leakage rate for a facility listed in Table 2. All information shall be recorded in a log book as described in Section 2.7.2. The permittee shall:

1. Drain and/or pump out all fluid collected in the leak collection and recovery system (LCRS) to reduce head on the liner system;
2. Quantify and record the amount of fluid pumped from the leak collection and recovery system on a weekly basis until the leakage rate is no longer exceeded;
3. Assess the potential for migration of liquids out of the containment system; and,
4. Assess the current condition of the liner system.
5. Take appropriate corrective action to mitigate the cause(s) of the exceedance.

2.6.2.6 Rapid and Large Leakage Exceedance in the Process Solution Impoundments

Additional response actions based on rapid and large leakage rate (RLL) for a facility listed in Table 2 shall include the following:

1. Notify the Groundwater Protection Value Stream within 24 hours of becoming aware of the exceedance,
2. Reduce the hydraulic head on the liner including emptying of the portion of the impoundment over the affected liner,
3. Conduct visual inspection to identify areas of leakage,
4. Repair all identified areas of leakage within 90 days of discovery,
5. Initiate closure, temporary cessation, or partial closure of the impoundment if identified areas of leakage cannot be repaired within 90 days of discovery,
6. After repairs have been made, monitor the leakage rate on a weekly basis while the impoundment is being filled, and for a period of 3 months after filling.

Within 30 days of a confirmed RLL exceedance, the permittee shall submit a written report to the GWS-APP. The written report shall include a description of the exceedance and its potential causes, the period of exceedance and the anticipated time period during which the exceedance is expected to continue, and a description of any actions taken or planned to be taken to eliminate or prevent recurrence of the exceedance and to mitigate the impacts of the exceedance. Upon approval of the GWS-APP, the permittee shall initiate the actions necessary to mitigate the impacts of the exceedance.

2.6.3 Discharge Limitations (DL) Violations

Not applicable

2.6.4 Aquifer Quality Limit (AQL) Violation

1. If an AQL set in Tables 6, 7.A, 7.B or 7.C has been exceeded, the permittee may conduct verification sampling for those pollutant(s) that were above their respective AQL(s) within 5 days of becoming aware of the AQL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms that the AQL is violated for 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 were above 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 shall be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
4. The permittee shall notify any downstream or downgradient users who may be directly affected by the discharge.
5. The permittee shall continue monitoring at the increased frequency until the contaminant(s) is below the AQL and AL for three consecutive months.

2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. §49-201(12) and pursuant to A.R.S. § 49-241

2.6.5.1 Duty to Respond

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

2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(19)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the discharged material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ 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 ADEQ Groundwater Protection Value Stream 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 the ADEQ 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 ADEQ 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. When submitting hard copy, the permittee shall complete the SMRFs provided by ADEQ, and submit them to the Groundwater Protection Value Stream, 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.

    - Tables 6, 7.A, 7.B, and 7.C

    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 time inspection was conducted;
3. Condition of applicable facility components;

4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
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).

TSPs and SCPs are not listed as individual APP facilities in the permit; however, they are listed under the BADCT description for Tailings Impoundments in Table 2, and they shall also be listed in the log book. New SCPs and/or TSPs shall be added to the log book, and to Table 2 during subsequent permit amendments. Information in the log book shall include at the minimum the name of the facility and their latitude and longitude. Inspection and monitoring requirements for these ponds shall be documented in the log book.

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. The report shall document all of the following:
   a. Identification and description of the permit condition for which there has been a violation and a description of its cause.
   b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue.
   c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation.
   d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an Aquifer Water Quality Standard.
   e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
   f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

2.7.4 Operational, Other or Miscellaneous Reporting

All data required in 2.5.3.3 (calculation of alert levels), and 2.5.1 (passive containment evaluation reports), and 2.5.1.1 (hydraulic sink monitoring reports) shall be submitted to the APP Program for review and approval.

On a biennial basis the permittee shall submit a monitoring summary report including analytical data to the Groundwater Protection Value Stream as per the due date stablished in Section 2.7.6. The report shall include, but not be limited to the following:

1. A description of any deviations from standard sampling protocols during the reporting period.
2. A summary of all exceedances of ALs, AQLs, Action Levels, or operational limits that occurred during the reporting period.
3. The status of any Notice(s) of Violation issued or contingency actions invoked under this permit during the reporting period.
4. A site-wide potentiometric map of the groundwater table based on available data.
5. Graphical time versus concentration plots of field pH, sulfate, total dissolved solids, and any parameter which exceeded applicable ALs or AQLs in the past 8 quarters for each POC well. The graphs should include data from the 16 most recent quarterly analyses.
6. The biennial report on the status of the hydrologic sink as described in Section 2.5.1.1,
7. A summary of active efforts in Gold Gulch and Rocky Gulch for as long as those efforts are ongoing.

8. An updated table of all monitor wells and piezometers in the Morenci District including, but not limited to, location of well, depth of well, depth to water.
9. A summary of any groundwater monitoring wells replaced in the reporting period including, but not limited to, location of well, depth of well, depth to water and screened interval.
10. A list of any new sumps and vehicle washes constructed within the hydrologic sink, unless exempt or covered by a General APP.

2.7.5 Reporting Location

All SMRFs shall be submitted to:

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

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 report due dates:

Monitoring conducted during quarter:	Quarterly Report due by:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30 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, 2019, and every two years thereafter

The following table lists the due date for the biennial report per Sections 2.5.1.1 and 2.7.4:

Monitoring conducted during biennial period:	Biennial Monitoring Summary Report due by:
January-December of the following year	March 31, 2019, 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 10 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

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

The permittee shall give written notice to the Groundwater 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.
2. Throughout a temporary cessation, monitoring activities; pumping; and maintenance of the in-pit sumps, solution impoundments, reclaim systems, and Rocky Gulch interceptor system shall continue pursuant to this permit. Notification of a temporary cessation does not relieve the permittee of any permit responsibilities.

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 (for applicable facilities) until completion of clean closure. Report "closure in process" in the comment section of the SMRF.

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)(1)(a).

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

2.9.2 Closure Completion

Upon completion of closure activities, the permittee shall give written notice to the Groundwater Protection Value Stream indicating that the approved Closure Plan has been implemented fully and providing supporting documentation to demonstrate that clean closure has been achieved (soil sample

results, verification sampling results, groundwater data, as applicable). If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of post-closure stated in this permit:

1. Clean closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with aquifer water quality standards 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/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;

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 shall 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

All post-closure monitoring and maintenance shall be determined at the time of closure for each facility. The requirements for post-closure monitoring and/or maintenance shall be based on the specific closure methods for each facility, historic and current groundwater quality trends, compliance with permit conditions during operations, and all state requirements at the time of closure. Post-closure activities shall be reviewed and approved by the APP Program.

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

A compliance schedule is listed below. For each compliance schedule item listed in Table 1 below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Protection Value Stream.

TABLE 1

COMPLIANCE SCHEDULE

No.	Description	Due by:	Permit Amendment Required?
1	The permittee shall submit a demonstration that the financial assurance mechanism listed in Section 2.1, Financial Capability, is being maintained as per A.R.S. 49-243.N.4 and A.A.C. R18-9-A203(H) for all estimated closure and post-closure costs including updated costs submitted under Section 3.0, No. 2 below. The demonstration shall include a statement that the closure and post-closure strategy has not changed, the discharging facilities listed in the permit have not been altered in a manner that would affect the closure and post-closure costs, and discharging facilities have not been added. **NOTE:** The financial assurance mechanism due on April 20, 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.	April 20, 2019 and every two years thereafter.	No
2	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.	April 20, 2025, and every 6 years thereafter for the duration of the permit.	Yes
3	The permittee shall submit an update to the passive containment demonstration, in accordance with Section 2.5.1.	April 8, 2020 and every five (5) years thereafter for the duration of the permit.	No
4	The permittee may add, or remove TSPs or SCPs that are located within the footprint of the approved tailings impoundment boundary. The APP will be updated with the added TSPs and SCPs during a future amendment. The permittee shall submit as-built drawings for new SCPs and TSPs constructed since the last permit amendment.	Within 6 months of completion of construction	No
5	Prior to increase in the height of the West/East Crest Elevation above 4150 ft above mean sea level (amsl), the permittee shall submit a slope stability analysis for height increase to the permitted height of 4280 ft amsl.	Prior to increase in the height of the West/East Crest Elevation above 4150 ft amsl	No
6	Existing tunnels including but not limited to the Pelican and Canyon Tunnels and any underground workings, shall be sealed using a concrete plug consisting of low slump concrete mix to form the end-walls of each plug, and a flowable, self-consolidating concrete mix to be poured against the end walls to build the monothilic core of the concrete plug. Contact grouting and consolidation grouting shall be completed in the surrounding rock mass for long-term stability of the plug and to reduce the potential for fluids to bypass the plug. As-built construction report shall be submitted upon completion of the above activities.	90 days prior to stacking ore in the Morenci Canyon Stockpile	No

4.0 LIST OF TABLES

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
Tailing Impoundments:				
1	DCTT 1	Southwest 1 Tailing Dam	33° 00' 30" N 109° 21' 37" W	**Individual BADCT:** Tailing, in the slurry form, is deposited on native ground using the cyclone method of tailing deposition. The slimes, a finer fraction of the tailing material, serve as an effective barrier to infiltration. A minimum of 4 feet of freeboard shall be maintained to contain the direct precipitation over the impoundments and runoff from tributary watersheds during a 100-year, 24-hour storm event. A minimum beach distance of 200 feet shall be maintained at each of the tailing impoundments (with the exception of the West/East Tailing Dam Expansion, as noted below), and the water level in the slope stability piezometers shall be measured to ensure that the phreatic surface is maintained within safe operating limits (see Operational Requirements in Table 3). The West/East Tailing Dam Expansion is permitted for minimum beach lengths varying with tailing dam crest elevation, as follows: **Crest Elevation (ft amsl) — Minimum Beach Length (ft)** 3875 — 50 4000 — 100 4100 — 200 4150 — 400 Note: Minimum beach length can be extrapolated linearly between elevations. Stormwater runoff from the side slopes is contained in the downstream Tailing Stormwater Retention Dams and Tailing Stormwater Ponds. The maximum rate of tailing deposition is 55,000,000 tons per year. The maximum permitted crest elevation for each of the tailing dam facilities is specified as follows: • Southwest 1 Tailing Dam – 4480 ft amsl • Southwest 2 Tailing Dam – 3850 ft amsl • Southwest 1 Tailing Dam Expansion – 4480 ft amsl • Silver Basin Tailing Dam Complex – 4445 ft amsl • Silver Basin Tailing Dam Expansion – 4445 ft amsl • West Tailing Dam Complex – 4280 ft amsl • East Tailing Dam Complex – 3940 ft amsl • West/East Tailing Dam Expansion – 4280 ft amsl The referenced tailing impoundments are further permitted for the deposition of concentrate

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
2	DCTT 1a	Southwest 2 Tailing Dam	32° 59' 40" N 109° 22' 02" W	leach residue from the concentrate leach process, as described in the October 10, 2006 submittal Application for Permit Amendment, Concentrate Leach Plant Project, WWTP effluent (APP Facility 99A) and plant run-off. **Tailing Stormwater Ponds** The Tailing Stormwater Ponds are integral components of the Tailing Dam Facilities. The impoundments are located at the northern perimeter of the tailing impoundments and designed to contain the 100-year, 24-hour storm event with a minimum of 2-feet of freeboard. The impoundments are formed as depressions at the toe of the Tailing Dams or with clay core dams. The Tailing Stormwater Ponds (TSPs) consist of the following: • TSP A – Excavated impoundment with crest elevation of 4,060 ft amsl; Storage capacity of 27.1 ac-ft. Located along the east slope of the West Tailing Dam and south of the former Columbine Reservoir. • TSP B – Clay core dam with a crest elevation of 4,000 ft amsl; Storage capacity of 61.8 ac-ft. Located downstream of TSP A along the north slope of the West Tailing Dam between the tailing and asbestos landfill. • TSP C – Clay core dam with crest elevation of 3,970 ft amsl; Storage capacity of 21.3 ac-ft. Located along the northeast slope of the West/East Tailing Dam Expansion. • TSP D – Excavated impoundment with crest elevation of 3,959 ft amsl; Storage capacity of 45.9 ac-ft. Located along the northeast slope of the West/East Tailing Dam Expansion. • TSP G – Excavated impoundment with a crest elevation of 4135 ft amsl; Storage capacity of 55.3 ac-ft. Located along the northwest slope of the Tailing Dam 4W. • TSP H – Excavated impoundment with a crest elevation of 4122 ft amsl; Storage capacity of 25.6 act-ft. Located along the west slope between Tailing Dams 3W and 4W. **Seepage Collection Ponds** The Seepage Collection Ponds (SCPs) are integral components of the Tailing Dam Facilities. The impoundments are located at the downstream toe of the West/East Tailing Dam Expansion Facility and designed to capture seepage from the tailing dam. The impoundments are designed to collect seepage water from the tailing impoundments through finger drains with a minimum of 2-feet of freeboard. A barge pump is used to convey
3	DCTT 1b	Southwest 1 Tailing Dam Expansion	33° 00' 45" N 109° 22' 44" W	
4	DCTT 2	Silver Basin Tailing Dam Complex	33° 01' 08" N 109° 21' 19" W	
5	DCTT 2a	Silver Basin Tailing Dam Expansion	33° 01' 36" N 109° 21' 49" W	
6	DCTT 3	West Tailing Dam Complex	33° 02' 07" N 109° 20' 17" W	
7	DCTT 4	East Tailing Dam Complex	33° 01' 47" N 109° 19' 22" W	

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
8	DCTT 5	West/East Tailing Dam Expansion	33° 01' 42" N 109° 19' 37" W	accumulated fluids to the Expansion Tailing Pump Station. Stormwater exceeding the storage capacity of the SCPs is contained in a downstream Tailing Stormwater Retention Dam (TSRD) or in a combined SCP/TSRD. The SCPs include a concrete-lined impoundment, an upstream sediment basin, and upstream sediment berm. The impoundment is constructed above the existing grade with a 10-foot wide earthen embankment of compacted Gila conglomerate. The SCPs include the following: • SCP A2-1 – Storage capacity of 2.34 ac-ft at an elevation of 3,565 ft amsl. • SCP B2-1 (combined with TSRD 4X) – Storage capacity of 1.91 ac-ft at an elevation of 3,516.5 ft amsl. • SCP C2-1 (combined with TSRD 3) – Storage capacity of 2.60ac-ft at an elevation of 3,489 ft amsl. • SCP D2-1 (combined with TSRD 12X) – Storage capacity of 2.45 ac-ft at an elevation of 3,578 ft amsl. • SCP E2-1 (combined with TSRD 2) – Storage capacity of 1.80 ac-ft at an elevation of 3,567 ft amsl. • SCP F2-1 – Storage capacity of 2.30 ac-ft at an elevation of 3,593 ft amsl.
Non-Stormwater Impoundments:				
		Tailing Stormwater Retention Dam 1X	33° 01' 05" N 109° 18' 54" W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 49.9 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 standard units (SU), and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
10	DCRS 2	Tailing Stormwater Retention Dam 2	33° 01' 01" N 109° 19'12"W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 12 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
13	DCRS 5	Tailing Stormwater Retention Dam 3	33° 01' 00" N 109° 19' 38" W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 57 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
154		Tailing Stormwater Retention Dam 4X	33º 00' 57" N 109º 20' 03" W	**Individual BADCT:** Facility is a surface impoundment created by a clay core dam with a storage capacity of approximately 21.8 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.
21	DCRS 13	Tailing Stormwater Retention Dam 5	33° 00' 25" N 109° 20' 21" W	**Individual BADCT:** Facility is a surface impoundment created by a clay core dam with a storage capacity of approximately 21.6 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
27	DCRS 19	Tailing Stormwater Retention Dam 5F	33° 00' 30" N 109° 20' 37" W	**Individual BADCT:** Facility is a surface impoundment created by a compacted Gila conglomerate dam with a storage capacity of approximately 65 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff and upgradient dam overflow from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.
28	DCSR 20	Tailing Stormwater Retention Dam 5G	33° 00' 33" N 109° 20' 41" W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 5 acre-feet. The facility is dry under normal operating conditions. Stormwater overflow from this facility is captured and contained in downstream Tailing Stormwater Retention Dam 5F (Facility No. 27). The discharge shall be minimized by the presence of a layer of tailing at the bottom of the impoundment.
29	DCRS 21	Tailing Stormwater Retention Dam 6	33° 00' 19" N 109° 20' 50" W	**Individual BADCT:** Facility is a surface impoundment created by a clay core dam with a storage capacity of approximately 160 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.
30	DCRS 22	Tailing Stormwater Retention Dam 7	32° 59' 57" N 109° 21' 06" W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 30 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of freeboard. This facility receives non-stormwater. The face of the dam shall be clay lined. The pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 2).
31	DCRS 23	Tailing Stormwater Retention Dam 7A	33° 00' 11" N 109° 21' 10" W	**Individual BADCT:** Facility is a surface impoundment created by a clay core dam with a storage capacity of approximately 15 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
32	DCRS 23A	Tailing Stormwater Retention Dam 7B	33° 00' 19" N 109° 21' 14" W	**Individual BADCT:** Facility is a surface impoundment created by a compacted Gila conglomerate dam with a storage capacity of approximately 22 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of free board. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.
120	DCRS 23B	Tailing Stormwater Retention Dam 7C	33º 00' 22" N 109º 21' 11" W	**Individual BADCT:** Facility is a surface impoundment created by excavation into the native Gila Conglomerate soils, with a storage capacity of approximately 50 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event. Under extreme storm conditions, overflow from the facility shall be contained by the downstream impoundment. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.
33	DCRS 24	Tailing Stormwater Retention Dam 8	32° 59’ 58” N 109° 21’ 19”W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 16.9 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
34	DCRS 25	Tailing Stormwater Retention Dam 9	32° 59’ 57” N 109° 21’ 27”W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 22 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of free board. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
35	DCRS 25A	Tailing Stormwater Retention Dam 9A	33° 00' 09" N 109° 21' 43"W	**Individual BADCT:** Facility is a surface impoundment created by a compacted Gila conglomerate dam with a storage capacity of approximately 52 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
36	DCRS 26	Tailing Stormwater Retention Dam 10	33° 59' 39" N 109° 21'33"W	**Individual BADCT:** Facility is a surface impoundment created by a Gila conglomerate fill dam with a storage capacity of approximately 5 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of free board. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
37	DCRS 26A	Tailing Stormwater Retention Dam 10A	32° 59' 59" N 109° 22' 01"W	**Individual BADCT:** Facility is a surface impoundment created by a compacted Gila conglomerate dam with a storage capacity of approximately 138 acre-feet. The facility is dry under normal operating conditions and has sufficient capacity to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 SU, and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
38	DCRS 27	Tailing Stormwater Retention Dam 11	32° 59' 38" N 109° 21' 53" W	**Individual BADCT:** Facility is a surface impoundment created by a clay core dam with a storage capacity of approximately 9 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
121		Tailing Stormwater Retention Dam 12X	33° 00' 59" N 109° 19' 27" W	**Individual BADCT:** Facility is a surface impoundment created by a clay core dam with a storage capacity of approximately 10.3 acre-feet. The pH of the impounded water shall be maintained at or above 5 SU (see Operational Requirements in Table 3). The facility is dry under normal operating conditions and has sufficient capacity to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment.
122		Tailing Stormwater Retention Dam WFT-1	33° 00' 58" N 109° 18' 59" W	**Individual BADCT:** Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 standard units (SU), and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
123		Tailing Stormwater Retention Dam WFT-10	32º 59' 57" N 109º 21' 51" W	**Individual BADCT:** Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, then the face of the dam shall be clay lined, the pH of the impounded water shall be maintained at or above 5 standard units (SU), and the discharge shall be minimized by the presence of a minimum 12-inch layer of tailing at the bottom of the impoundment (see Operational Requirements in Table 3).
39	D-ECC 4	Industrial Drain Overflow Pond (Reed Lake)	33° 03' 30" N 109° 20' 15" W	**Individual BADCT:** Stormwater overflow from the Industrial Drain Pump Station enters Reed Lake and is pumped to the Industrial Drain Pump Station, which is then pumped to the tailing launder via a 500-gpm water-level activated pump. This facility is underlain by tailing with a hydraulic conductivity ranging from 4.9×10^{-5} to 7.1×10^{-5} cm/s. This facility has a storage capacity of approximately 2415 acre-feet, which is sufficient to contain the runoff generated during the 100-year, 24-hour storm event (approximately 27.4 acre-feet) with a minimum of 2 feet of freeboard.
40	DHRE 1	Bat Canyon Safety Dam 1	33° 01' 43" N 109° 23' 13" W	**Individual BADCT:** Facility is a surface impoundment that serves as the overflow impoundment for Dam BC-5 (Facility No. 56). The facility is dry under normal operating conditions and is capable of containing stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. Currently, this facility does not receive non-stormwater. If the facility receives non-stormwater, the facility shall be upgraded to meet Prescriptive BADCT including, at a minimum, a single liner using 60-mil HDPE over at least 6 inches of 3/8-inch minus native or natural materials compacted to 95% maximum dry density.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
41	DHRR 1	Lower Chase Creek Dam	33° 04' 11" N 109° 19' 50" W	**Individual BADCT:** Facility is a surface impoundment that receives impacted stormwater runoff from the upgradient Horseshoe Overflow Pond only under severe storm conditions. The facility is dry under normal operating conditions and is capable of containing stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The dam is keyed into bedrock.
42	DMRR 1	Rocky Gulch Dam	33° 6' 30" N 109° 20' 04" W	**Individual BADCT:** Facility is a surface impoundment underlain by Precambrian granite, a relatively low hydraulic conductivity (9.5×10^{-6} cm/s) geologic unit. A roller compacted concrete dam keyed into bedrock is designed to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of freeboard. A grout curtain minimizes seepage under the dam. Water level in the pump bay shall be kept at or below 3 feet during normal operation. Interceptor wells have been installed downgradient of the facility.
43	DMRR 2	Gold Gulch Dam	33° 04' 51" N 109° 23' 14" W	**Individual BADCT:** Facility is a surface impoundment created by a concrete dam designed to contain the 100-year, 24-hour storm event runoff. The dam is keyed into monzonite porphyry bedrock which has a relatively low hydraulic conductivity of 4.9×10^{-6} cm/s. The facility is equipped with a dedicated water-level activated pump.
44	DCIR 1	Columbine Reservoir	33° 03' 10" N 109° 20' 07" W	**Individual BADCT:** Facility was a single-lined surface impoundment that has been decommissioned.
45	DHIS 21	Horseshoe Overflow Pond	33° 04' 16" N 109° 19' 57" W	**Prescriptive BADCT:** The facility is a single-lined overflow impoundment that receives stormwater runoff and solution from Horseshoe Sump (Facility No. 57) and Central SX/EW. The facility was upgraded in 2003 in accordance with the Compliance Schedule with a 60-mil HDPE liner over 6 inches if 3/8-inch minus material. The upgraded facility has sufficient capacity to contain the runoff generated during the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard.
46	DHIS 8	Stargo Overflow Pond	33° 02' 52" N 109° 20' 56" W	**Prescriptive BADCT:** Facility is single-lined with an 80-mil HDPE liner underlain by geosynthetic clay liner (GCL) on the bottom and geotextile on the side slopes. The facility is designed to contain the 100-year, 24-hour storm event (approximately 30.1 acre-feet) with a minimum of 2 feet of freeboard. The storage capacity of the facility is approximately 35 acre-feet with a maximum depth of approximately 25 feet. The facility is dry under normal operating conditions and temporarily impounds stormwater runoff following storm events.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
47	DHIS 22	Pond 800 Feet SW of 4500 Precipitation Plant	33° 03' 41" N 109° 20' 58" W	**Individual BADCT:** The facility is a clay-lined impoundment. The facility has a storage volume of approximately 211, 800 gallons and is underlain by approximately 6 inches of low permeability bedding material. The facility receives stormwater runoff and stormwater seepage from the upgradient Southwest Stockpile. In 2003, the facility was upgraded with an automatic pump to minimize overflow and maintain a normal operating depth of less than 3 feet.
152		Silver Basin NSI 1/2	33º 03’ 17” N 109º 22’ 27” W	**Prescriptive BADCT:** The NSI shall be used to temporarily contain excess solution flows from the Stockpile that exceed the PLSI pump capacity, and flows that result from runoff due to large storm events. The maximum storage capacity of impoundment shall be approximately 75-acre feet at elevation 4,515 feet with 2 feet of dry freeboard below the emergency spillway. The bottom of the impoundment will slope at 1%, resulting in a maximum depth of 21 feet below the emergency spillway. The surface area of the impoundment will be approximately 6 acres. The NSI will be single-lined with a 100-mil HDPE liner underlain by 12 inches of underliner material. The maximum particle size of the underliner will be 3/8-inch minus and hydraulic conductivity no greater than 1x10-4 cm/s. The liner will be secured in an anchor trench that is designed to be 2 feet wide and 2 feet deep. The impoundment is sized to contain non-stormwater flows of up to 43,000 gallons per minute (gpm) from a 100-year, 24-hour storm event, and in addition, up to 4 hours of PLS base flows of 30,000 gpm during a pump down-time for a total peak flow of 73,000 gpm. Accounting for the total inflows and pumped outflows, the largest accumulated volume of solution in the NSI resulting from the described upset conditions is 58 acre-feet. Including a safety factor of 1.3, the resulting volume of the NSI was designed to be approximately 75 acre-feet. Solutions will be temporarily stored in the NSI until they are transferred to either the 23/25MM Sump at a nominal rate of 12,000 gpm, or the SX/EW Plant at the rate of 30,000 gpm depending upon the turbidity and suitability for processing. A channel will be constructed on the western side of the impoundment to divert unimpacted stormwater around the facility. An emergency spillway will be constructed to prevent uncontrolled overtopping of the embankment.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
Process Solution Impoundments outside the Passive Containment Capture Zone:				
48	DHIP 1	Central SX Plant PLS Pond	33° 03' 40" N 109° 19' 51" W	**Individual BADCT:** Facility is a double-lined impoundment using 80-mil HDPE liners underlain by a 4-inch-thick gunite layer overlying 6 inches of low permeability (10^{-6} cm/s) clayey material. An LCRS is installed on top of the gunite layer and drains via gravity through HDPE pipe to the Central SX Plant Raffinate Pond (Facility No. 49). The ALR and RLL rates for the LCRS are 294 and 1,070 gpd, respectively (see Operational Requirements in Table 3). The facility is equipped with a high-level overflow pipe that reports to the Central SX Plant Raffinate Pond. The storage capacity of the facility is approximately 1.7 acre-feet with a maximum depth of approximately 8 feet. The facility shall maintain a minimum of 15 inches of freeboard.
49	DHIP 2	Central SX Plant Raffinate Pond	33° 03' 46" N 109° 19' 51" W	**Individual BADCT:** Facility is a double-lined impoundment using 80-mil HDPE liners incorporating an LCRS. The bottom liner is underlain by 6 inches of bedding sand overlying bedrock with hydraulic conductivity of 1.8×10^{-3} cm/s. The storage capacity of the facility is approximately 4.7 acre-feet with a maximum depth of approximately 19 feet. The facility shall maintain a minimum of 2 feet of freeboard.
50	DHIP 3	Modoc SX Plant PLS Pond	33° 04' 28" N 109° 20' 54" W	**Individual BADCT:** Facility is a double-lined impoundment using 80-mil HDPE liners incorporating an LCRS. The bottom liner is underlain by 6 inches of bedding sand overlying bedrock with hydraulic conductivity of 2.3×10^{-6} cm/s. The LCRS drains via gravity through HDPE pipe to the Modoc SX Plant Raffinate Pond (Facility No. 51). The ALR and RLL rates for the LCRS are 415 and 1,513 gpd, respectively (see Operational Requirements in Table 3). The facility is equipped with a high-level overflow pipe that reports to the Modoc SX Plant Raffinate Pond. The storage capacity of the facility is approximately 5.5 acre-feet with a maximum depth of approximately 16.5 feet. The facility shall maintain a minimum of 15 inches of freeboard.
51	DHIP 4	Modoc SX Plant Raffinate Pond	33° 04' 26" N 109° 20' 44" W	**Individual BADCT:** Facility is a double-lined impoundment using 80-mil HDPE liners incorporating an LCRS. The bottom liner is underlain by 6 inches of bedding sand overlying bedrock with hydraulic conductivity of 2.3×10^{-6} cm/s. Overflow from the facility is conveyed through HDPE pipe to the Lower Chase Creek Stockpile (Facility No. 79). The storage capacity of the facility is approximately 11.5 acre-feet with a maximum depth of approximately 14 feet. The facility shall maintain a minimum of 15 inches of freeboard.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
52	DHIS 11	Dam BC-1	33° 02’ 10” N 109° 23’ 20” W	**Individual BADCT:** Facility is an impoundment consisting of a concrete headwall keyed into bedrock and a concrete lined channel. The facility is located at the toe of the Southwest Stockpile (facility NO. 80). The facility is approximately 10 feet wide by 38 feet long by 6 feet deep (or 2,280 cubic feet). The maximum solution depth above the outlet invert is 5 feet 8 inches. The facility collects and conveys solution, via gravity, through an HPDE pipe to Dam BC-5 (Facility No. 56). This facility is designed to convey the 100-year, 24-hour peak flow and PLS flow with a minimum of 2 feet of freeboard.
53	DHIS 12	Dam BC-2	33° 02’ 07” N 109° 23’ 17” W	**Individual BADCT:** Facilities are single-lined impoundments using a 100-mil HDPE liner over a 4-inch-thick layer of tailing material. The facilities are used to collect and convey solution to Dam BC-5 (Facility No. 56). The discharge pipe is located at the lowest point to ensure complete drainage of the impoundment.
54	DHIS 13	Dam BC-3	33° 02’ 07” N 109° 23’ 17” W	
55	DHIS 14	Dam BC-4	33° 02’ 05” N 109° 23’ 17” W	
56	DHIS 15	Dam BC-5	33° 01’ 45” N 109° 23’ 11” W	**Individual BADCT:** Facility is a single-lined impoundment using 100-mil HDPE liner over a 4-inch-thick layer of tailing material. The facility is used to collect and convey solution, using pumps, through HDPE pipe to 27 MM Sump (Facility No. 62). The maximum solution depth is approximately 35 feet. The facility is designed to control and convey the 100-year, 24-hour peak flow and PLS flow with a minimum freeboard of 2 feet.
57	DHIS 6	Horseshoe Sump	33° 04' 21" N 109° 19' 59" W	**Individual BADCT:** The facility was upgraded in 2003 in accordance with the Compliance Schedule by constructing a HDPE-lined diversion headwall and stainless steel PLS tank to contain solution formerly contained in the existing PLS sump. The existing PLS sump now collects all seepage that bypasses the new diversion headwall and is maintained in a drain-drawdown condition through pumping to reduce the static head on the liner, thereby minimizing discharge. Overflow from PLS sump is conveyed to the Horseshoe Overflow Pond (Facility No. 45).
58	DHIS 8	Stargo Sump	33° 02' 52" N 109° 20' 56" W	**Prescriptive BADCT:** Facility consists of an 80-mil HDPE single-lined cutoff wall keyed into bedrock and a concrete lined inlet structure with embedded HDPE. The primary function of this facility is to convey solution via gravity through HDPE pipelines to a stainless steel PLS tank. The storage capacity of the facility is approximately 0.36 acre-feet with a maximum depth of approximately 13.5 feet. The facility has a minimum of 2 feet of freeboard.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
60	DHIS 16	Dam BC-6	33° 01' 35" N 109° 22' 57" W	**Individual BADCT:** The facility was upgraded by constructing a headwall. A composite liner system, consisting of a 100-mil HDPE geomembrane over a geocomposite clay liner, will be constructed on the headwall slope and extended down to a concrete cutoff wall intended to limit seepage around the headwall. HDPE pipes are used to convey the collected solution to 29 MM Sump (Facility 65). The upgraded facility is designed to convey the 100-year, 24-hour peak flow and PLS flow with a minimum of 2 feet of freeboard.
61	DHIS 17	Dam BC-7	33° 01' 36" N 109° 22' 53" W	**Individual BADCT:** The facility was upgraded by constructing a headwall. A composite liner system, consisting of a 100-mil HDPE geomembrane over a geocomposite clay liner, will be constructed on the headwall slope and extended down to a concrete cutoff wall intended to limit seepage around the headwall. HDPE pipes shall be used to convey the collected solution to 29 MM Sump (Facility 65). The upgraded facility is designed to convey the 100-year, 24-hour peak flow and PLS flow with a minimum of 2 feet of freeboard.
62	DHIS 10	27 MM Sump	33° 01' 43" N 109° 22' 12" W	**Individual BADCT**. The facility is a process solution impoundment with a composite liner system, consisting of an 80-mil HDPE geomembrane over a geocomposite clay liner over a prepared subgrade. The storage capacity of the facility is approximately 157.1 acre-feet with a maximum depth of 47 feet. The impoundment is designed to convey the 100-year, 24-hour peak flow and PLS flow. The facility shall maintain a minimum of 2 feet of freeboard below the inlet spillways.
63	DHIS 18	Dam BC-8	33° 01' 43" N 109° 22' 35" W	**Individual BADCT:** The facility was upgraded by constructing a headwall. A composite liner system, consisting of a 100-mil HDPE geomembrane over a geocomposite clay liner, will be constructed on the headwall slope and extended down to a concrete cutoff wall intended to limit seepage around the headwall. HDPE pipes shall be used to convey the collected solution to 27 MM Sump (Facility No. 62). The upgraded facility is designed to convey the 100-year, 24-hour peak flow and PLS flow with a minimum of 2 foot of freeboard.
65	DHIS 20	29 MM Sump	33° 01' 41" N 109° 22' 47" W	**Individual BADCT:** The facility is a process solution impoundment with a composite liner system, consisting of an 80-mil HDPE geomembrane over a geocomposite clay liner over a prepared subgrade. The storage capacity of the facility is approximately 6.7 acre-feet with a maximum depth of 18 feet. The impoundment is designed to convey the 100-year, 24-hour peak flow and PLS flow. The facility shall maintain a minimum of 2 feet of freeboard below the inlet spillways.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
66	DHRR 2	23/25 MM Pond	33° 02' 08" N 109° 21' 43" W	**Individual BADCT:** The facility is a process solution impoundment with a composite liner system, consisting of an 80-mil HDPE geomembrane over a geocomposite clay liner over a prepared subgrade. The storage capacity of the facility is approximately 126.6 acre-feet with a maximum depth of 55.5 feet. The impoundment is designed to convey the 100-year, 24-hour peak flow and PLS flow. The facility shall maintain a minimum of 2 feet of freeboard below the inlet spillways.
151		Silver Basin PLS Pond 1/2	33° 03 15" N 109° 21' 45" W	**Prescriptive BADCT:** This facility is a double-lined pond that collects pregnant leach solution from the Phase 1 and 2 headwall of the Silver Basin Leach Stockpile. It has a maximum storage capacity of 22 acre-feet with a minimum of 2-feet of freeboard. Flows in excess of the normal operating capacity are routed through an overflow channel to the Silver Basin NSI 1/2. The liner system for Silver Basin PLS Pond 1/2 consists of two layers of 100-mil HDPE, separated by a geonet to allow any leakage to drain to an LCRS, underlain by a geosynthetic clay liner and prepared subgrade. The embankments forming the pond are constructed with 3:1(H:V) interior slopes, and 2:1(H:V) exterior slopes.
155		SB PLS Pond	33° 02' 41" N 109° 21' 56" W	**Prescriptive BADCT:** This facility is designed to contain PLS flows from all phases of the Silver Basin Leach Stockpile under normal operating conditions. This facility is a double-lined impoundment using 100-mil HDPE liners separated by a geonet, and incorporates an LCRS equipped with a gravel filled collection sump. The geonet has a saturated hydraulic conductivity of 10^{-2} cm/s. The liner is underlain by a geo-composite clay liner (GCL), which has been demonstrated to be the engineering equivalent to 6-inches of compacted minus 3/8-inch material with a maximum hydraulic conductivity of $1x10^{-6}$ cm/s. Discharge from the facility is further minimized by underlying bedrock with a hydraulic conductivity of $4.94x10^{-5}$ cm/s. The storage capacity of the facility is approximately 48 acre-feet with a maximum depth of approximately 30 feet. The facility shall maintain a minimum of 2 feet of freeboard.
157		MRC PLS Pond	33° 04' 12" N 109° 21' 01" W	**Prescriptive BADCT:** This facility will receive PLS from the Morenci Canyon Stockpile. This facility is a double-lined impoundment using 80-mil HDPE liners separated by a geonet, and incorporates an LCRS. The bottom liner is underlain by 1 foot of minus 3/8-inch material overlying bedrock with hydraulic conductivity of $1x10^{-6}$ cm/s. The storage capacity of the facility is approximately 30.1 acre-feet with a maximum depth of approximately 42 feet. The facility shall maintain a minimum of 2 feet of freeboard.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
158		MRC Process Pond	33° 03' 47" N 109° 20' 55" W	**Prescriptive BADCT:** This facility is designed to contain contact water that originates from precipitation events within the Morenci Canyon Stockpile and surrounding area, and to contain any PLS that is diverted from the MRC PLS Pond. This facility is a double-lined impoundment using 80-mil HDPE liners separated by a geonet, and incorporate an LCRS. The bottom liner is underlain by 1 foot of minus 3/8-inch material overlying bedrock with hydraulic conductivity of $1x10^{-6}$ cm/s. The storage capacity of the facility is approximately 22.1 acre-feet with a maximum depth of approximately 56 feet. The facility shall maintain a minimum of 2 feet of freeboard.
Process Solution Impoundments within the Passive Containment Capture Zone:				
68	DHIP 5	Metcalf SX Plant PLS Pond	33° 06' 52" N 109° 22' 07" W	**Individual BADCT:** Facility is a single-lined impoundment using 80-mil HDPE liner over relatively low permeability bedrock. The facility is equipped with a high-level overflow pipe that reports to the Metcalf SX Plant Raffinate Pond (Facility No. 69). The storage capacity of the facility is approximately 5 acre-feet with a maximum depth of approximately 23 feet. Facility is located within the PCCZ.
69	DHIP 6	Metcalf SX Plant Raffinate Pond	33° 06' 49" N 109° 22' 07" W	**Individual BADCT:** Facility is an unlined impoundment located over low permeability bedrock. The storage capacity of the facility is approximately 7 acre-feet with a maximum depth of approximately 28 feet. Facility is located within the PCCZ.
70	DHIS 1	King/Placer Diversion	33° 06' 57" N 109° 21' 18" W	**Individual BADCT:** The facility is an impoundment created by a concrete headwall keyed into a relatively low permeability bedrock. The facility collects and conveys PLS through HDPE pipelines to an SX plant or an in-pit sump. Facility is located within the PCCZ.
71	DHIS 26	Northwest Coronado Diversion	33° 06' 40" N 109° 23' 41" W	**Individual BADCT:** The facilities shall be impoundments created by a headwall keyed into relatively low permeability bedrock. The facilities shall collect and convey PLS through HDPE pipelines to an SX plant or an in-pit sump. Facilities shall be located within the PCCZ.
72	DHIS 27	Upper Chase Creek Diversion	33° 08' 15" N 109° 22' 09" W	
73	DHIS 28	Garfield Diversion	33° 08' 19" N 109° 21' 37" W	
74	DHIS 29	Coronado Diversion	33° 06' 48" N 109° 22' 01" W	
75	DHIS 30	Santa Rosa Diversion	33° 07' 03" N 109° 23' 00" W	**Individual BADCT:** The facility is an impoundment created by a concrete headwall keyed into relatively low permeability bedrock. The facility collects and conveys PLS through HDPE pipelines to an SX plant or an in-pit sump. Facility is located within the PCCZ.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
76	DHIS 50	In-pit Sumps	N/A	**Individual BADCT:** These facilities consist of existing and future sumps that are located over relatively low permeability bedrock within the Passive Containment Capture Zone. The sumps are equipped with pumps to convey the PLS solution through HPDE pipelines. Overflow from the sumps is conveyed to adjacent sumps. The solution levels in the sumps shall be maintained to sustain the capture zone of the hydrologic sink (see Operational Requirements in Table 3). The slope stability of pit walls and stockpiles shall be assessed for new in-pit sumps prior to installation.
Leach Stockpiles outside the Passive Containment Capture Zone:				
77	DHSL 4	Rock House Canyon Stockpile	33° 05' 11" N 109° 20' 15" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The natural channels, within the stockpile footprint, are underlain by low hydraulic conductivity (3.6×10^{-6} cm/s) Precambrian granite and granodiorite. Flow from the facility flows through the Rock House Canyon Stockpile Expansion (Facility No. 78) and reports to Horseshoe Sump and Overflow Pond (Facility Nos. 57 and 45). The Horseshoe Overflow Pond is designed to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The maximum crest elevation of the stockpile is 5,500-ft amsl.
78	DHSL 4A	Rock House Canyon Stockpile Expansion	33° 04' 41" N 109° 20' 09" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The natural channels, upstream of the headwall and within the stockpile footprint, are underlain by low hydraulic conductivity (3.6×10^{-6} cm/s) Precambrian granite and granodiorite. The facility is equipped with an HDPE-lined concrete headwall located upstream of the Gila conglomerate/Precambrian granite contact. PLS solution is conveyed via gravity through HDPE pipes from the headwall to Horseshoe Sump (Facility No. 57). The conveyance channel downstream of the headwall is lined with 100-mil HDPE liner and conveys solution to Horseshoe Sump. The Horseshoe Overflow Pond is designed to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The maximum crest elevation of the stockpile is 5,500-ft amsl.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
79	DHSL 6	Lower Chase Creek Stockpile	33° 04' 41" N 109°20' 42" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The facility is underlain primarily (95%) by low hydraulic conductivity (3.4×10^{-6} cm/s) Precambrian granite and granodiorite and partially (5%) at the southern end by Gila conglomerate. Flow from the facility reports to Horseshoe Sump and Overflow Pond (Facility Nos. 57 and 45). The Horseshoe Overflow Pond is designed to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The maximum crest elevation of the stockpile is 5,500-ft amsl.
80	DHSL 10	Southwest Stockpile	33° 02' 32" N 109° 21' 55" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. As the leach stockpile is developed, 535 million tons of run of mine (ROM) crushed ore shall be deposited onto the stockpile by a conveyance system. The facility is underlain primarily by low hydraulic conductivity (6.9×10^{-4} to 1.1×10^{-6} cm/s) bedrock. Flow from the facility reports to Dam BC-1 through Dam BC-8, 29 MM Sump, 27 MM Sump, 23/25 MM Sump, Stargo Sump and Stargo Overflow Pond (Facility Nos. 52-56, 58-63, 65, 66, and 46). Dam BC-5, 27 MM Sump, 23/25 MM Sump, 5X Sump, and Stargo Overflow Pond are designed to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The maximum crest elevation of the stockpile is 5,400 ft amsl.
81	DHSL 10A	Southwest Stockpile Expansion	33° 03' 50" N 109° 21' 34" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The discharge is further minimized by underlying bedrock with a hydraulic conductivity of 6.9×10^{-4} cm/s. Flow from the facility flows through the Southwest Stockpile and Southwest Stockpile Expansion (Facility Nos. 80 and 81) and reports to Stargo Sump (Facility No. 58). The Stargo Overflow Pond is designed to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The maximum crest elevation of the stockpile is 5,400 ft amsl.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
82	D-EAC 5	Lone Star Stockpile	33° 04' 07" N 109° 22' 07" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The discharge is further minimized by underlying bedrock with a hydraulic conductivity of 6.9×10^{-4} cm/s. Flow from the facility flows through the Southwest Stockpile and Southwest Stockpile Expansion (Facility No. 80 and 81) and reports to Stargo Sump (Facility No. 58). The Stargo Overflow Pond is designed to contain the stormwater runoff from the 100-year, 24-hour storm event with a minimum of 2 feet of freeboard. The maximum crest elevation of the stockpile is 5,400-ft amsl.
150		Silver Basin Leach Stockpile	33° 03' 30" N 109º 21' 45" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The discharge is further minimized by underlying bedrock with a hydraulic conductivities ranging between 3.6×10^{-5} to 8.79×10^{-6} cm/s. The Silver Basin Leach Stockpile will be located upstream of the existing Southwest Stockpile and between Eagle Creek (to the west) and Stargo Canyon (to the east) drainage basins. The leach stockpile will be constructed in multiple phases. Phases 1 and 2 have been constructed in the upper portion of the drainage basin and share common solution collection facilities. Phase 3 will be constructed in the lower portion of the Silver Basin drainage and will include separate solution collection facilities. The liner system constructed over gentle hillsides and select channels consists of, from bottom to top, a prepared sub-grade, 12-inches of under-liner consisting of crushed ore having an average hydraulic conductivity of approximately 1×10^{-6} cm/s; 80 mil LLDPE geomembrane; 24-inches of over-liner consisting of ore of varying grade for liner protection, and from 6 to 40 feet of either Select or General ROM. Phase 4 will be constructed directly on top of Phases 1 through 3, the Southwest Stockpile Expansion (Facility No. 81), and the Morenci Canyon Stockpile. Solution will drain directly to the solution collection systems beneath the stockpiles. The maximum permitted crest elevation for all phases of the stockpile is 6.600ft amsl.
Leach Stockpiles within the Passive Containment Capture Zone:				
83	DHSL 1	Medler Stockpile	33° 05' 39" N 109° 21' 42" W	**Individual BADCT:** These current and future facilities are (or shall be) leach stockpiles constructed using the end-dumping method. Flow from the facilities reports to in-pit sumps and/or diversion structures. They are underlain by moderate-to-steeply sloping topography

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
85	DHSL 3	Santa Rosa Stockpile	33° 07' 19" N 109° 23' 08" W	and low hydraulic conductivity bedrock. These facilities are located within the PCCZ. Maximum crest elevations of the leach stockpiles are: • Medler Stockpile – 7,000 ft amsl • Santa Rosa Stockpile – 7,000 ft amsl • American Mountain Stockpile – 7,000 ft amsl • Placer Stockpile – 7,000 ft amsl • King Stockpile – 7,000 ft amsl The footprint of the King Stockpile (Facility 88) is amended by the Figure "Proposed King Stockpile Expansion," dated 6/24/04, received by ADEQ on 7/7/04.
86	DHSL 5	American Mountain Stockpile	33° 05' 17" N 109° 22' 16" W	
87	DHSL 7	Placer Stockpile	33° 07' 33" N 109° 20' 26" W	
88	DHSL 8	King Stockpile	33° 07' 57" N 109° 20' 47" W	
89	DHSL 8A	King/Placer Stockpile Expansion	33° 08' 39" N 109° 20' 27" W	**Individual BADCT:** These current and future facilities are (or shall be) leach stockpiles constructed using the end-dumping method. Flow from the facilities reports to in-pit sumps and/or diversion structures. The facilities are underlain by moderate-to-steeply sloping topography and low hydraulic conductivity bedrock. These facilities are located within the PCCZ. Maximum crest elevations of the leach stockpiles are: • King/Placer Stockpile Expansion – 7,000 ft amsl • Coronado Stockpile – 7,000 ft amsl • Coronado Stockpile Expansion – 7,000 ft amsl • Queen Hill Stockpile – 7,000 ft amsl • Upper Chase Creek Stockpile – 7,000 ft amsl • Upper Chase Creek Stockpile Expansion – 7,000 ft amsl • Garfield Stockpile – 7,000 ft amsl • Metcalf In-pit Stockpiles – 7,000 ft amsl • Northwest Coronado Stockpile – 7,000 ft amsl
90	DHSL 9	Coronado Stockpile	33° 06' 44" N 109° 22' 30" W	
91	DHSL 9A	Coronado Stockpile Expansion	33° 06' 30" N 109° 23' 05" W	
92	DHSL 11	Queen Hill Stockpile	33° 05' 39" N 109° 22' 05" W	
93	DHSL 12	Upper Chase Creek Stockpile	33° 07' 19" N 109° 22' 12" W	
94	DHSL 12A	Upper Chase Creek Stockpile Expansion	33° 07' 19" N 109° 22' 12" W	
95	DHSL 13	Garfield Stockpile	33° 08' 34" N 109° 21' 43" W	
96	DHSL 15	Metcalf In-pit Stockpiles	33° 06' 45" N 109° 21' 20" W	
98	DHSL 17	Northwest Coronado Stockpile	33° 06' 59" N 109° 23' 52" W	
Leach Stockpiles Partially within the Passive Containment Capture Zone:				
84	DHSL 2	Copper Mountain Stockpile	33° 04' 60" N 109° 22' 01" W	**Individual BADCT:** The facility is a leach stockpile constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
97	DHSL 16	Morenci In-pit Stockpile Expansion	33° 04' 43" N 109° 22' 22" W	discharge. The discharge is further minimized by underlying bedrock with a hydraulic conductivity ranging from 1.5 to 7.6 x 10^{-5} cm/s. Solution from Copper Mt stockpile and Morenci in-pit stockpile expansion flows into the in-pit solution collection system (flow through the stockpile) and into Dispatch sump by following historical geologic gradient into Chase Creek Canyon. The maximum crest elevations of the leach stockpiles are: • Copper Mountain Stockpile – 5,855 ft amsl • Morenci In-pit Stockpile Expansion- 5,855 ft amsl
156		Morenci Canyon Stockpile	33° 04' 12" N 109° 21' 38" W	**Individual BADCT:** The proposed leach stockpile is designed for the placement of approximately 600 million tons (about 363 million cubic yards) of ROM material. The facility will be constructed using the end-dumping method over moderate-to-steeply sloping topography which minimizes the potential for discharge. The discharge is further minimized by underlying bedrock with hydraulic conductivities ranging from 2.03x10^{-3} to 4.5x10^{-6} cm/s. This stockpile will be located in Morenci Canyon between the Morenci Pit and the Reduction Works area. The stockpile will fill most of Morenci Canyon and will cover the existing Morenci Canyon Development Rock Stockpile (exempt facility), part of the existing Modoc Development Rock Stockpile (exempt facility), the eastern part of the Lone Star Stockpile (Facility No. 82), and the northern part of the Southwest Stockpile Expansion (Facility No. 81). . The foundation of the stockpile will be partially lined with geomembrane and will have an internal solution collection system for the collection and transportation of PLS to the MRC PLS Pond, located downgradient of the stockpile. The lined sections of the stockpile will consist of (1) an underliner layer consisting of minus 3/8-inch soil in areas of fill or existing regraded ore within the Southwest Stockpile Expansion, (2) an 80 mil linear low density polyethylene (LLDPE) geomembrane liner, and (3) a minimum of 2 feet of overliner material consisting of clean drain rock material of varying grade for liner protection to protect the liner following installation. The maximum crest elevation of the stockpile is 5,900 ft amsl.
Wastewater Treatment Facilities:				

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
99A		Morenci WWTP	33° 01' 38" N 109° 18' 40" W	**Individual BADCT:** The WWTP has a total capacity to collect and treat maximum flow of 1.25 mgd. The WWTP treats residential, commercial, and mine-site domestic sewage from the towns of Morenci, Clifton , and FMMI Morenci Mine. The WWTP also accepts septic wastes from the mine site. The Morenci WWTP is a package plant producing class B+ effluent. The WWTP is composed of septage unloading station equipped with a grinder, headworks containing screening and grit removal, flow equalization basin, activated sludge system (extended aeration process, clarification, Return Activated Sludge/Waste Activated Sludge (RAS/WAS), and Internal Mixed Liquor Recycling (IMLR), Solid Handling (aerobic digester and sludge drying basins), tablet calcium hypochlorite disinfection, effluent pump station, odor control, electric, and instrumentation. A backup generator is provided to contain the effluent volume during a 4-hour pump downtime, if needed. The WWTP is designed to produce Class B+ effluent and the effluent is sent to the reclaim water system.
Vehicle Wash Facilities within the Passive Containment Capture Zone:				
101	D-NASY 11B	New Vehicle Wash – ATV Shop Vehicle Was	33º 04' 36" N 109º 21' 49" W	**Individual BADCT:** The facility shall be a vehicle wash constructed with a concrete slab. Wash water from the facility shall be collected in a concrete settling basin that shall be equipped with an oil/water separator. The facility shall use non-hazardous cleaning agents. Water from the oil/water separator shall report to the In-pit Sumps (Facility No. 76). The facility shall be located within the PCCZ.
102	DMMV 1	Metcalf Small Vehicle Wash	33° 06' 24" N 109° 21' 45" W	**Individual BADCT:** The facility is a vehicle wash constructed with a concrete slab. Wash water from the facility shall be collected in a concrete settling basin. The facility uses non-hazardous cleaning agents. The settling basin drains onto the underlying stockpile and reports to the 4250 Sump (Facility No. 76). The facility is located within the PCCZ.
103	DMMV 2	Heavy Duty Truck Wash	33° 06' 20" N 109° 21' 52" W	**Individual BADCT:** The facility is a vehicle wash constructed with a concrete slab. Wash water from the facility shall be collected in a concrete settling basin equipped with a grease trap. The facility uses non-hazardous cleaning agents. Water from the grease trap drains onto the underlying stockpile and reports to the 4250 Sump (Facility No. 76). The facility is located within the PCCZ.
104		New Vehicle Washes – within the Hydrologic Sink	To be provided	**Individual BADCT:** These facilities are vehicle washes that shall be constructed with a concrete slab. Wash water from these facilities shall be collected in a concrete settling basin. Water from the settling basins shall report to the In-pit Sumps (Facility No. 76). These facilities shall be located within the PCCZ.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
Vehicle Wash Facilities outside the Passive Containment Capture Zone:				
105	DMMV 4	RW Fuel Dock Small Vehicle Wash	33° 03' 42" N 109° 20' 08" W	**Individual BADCT:** The facilities are vehicle washes that are constructed with a concrete slab. The facilities use non-hazardous cleaning agents. Wash water flows overland to Reed Lake (Facility No. 39).
106	DMMV7	Surface Dept. Vehicle Wash	33° 03' 42" N 109° 20' 22" W	
107	D-NMBW 6A	Mine Gate Lube Shop Vehicle Wash	33° 04' 51" N 109° 20' 39" W	**Individual BADCT:** The facility is a vehicle wash that is constructed with a concrete slab. The facility uses non-hazardous cleaning agents. Wash water from the facility is collected in a concrete settling basin. The settling basin drains through the Lower Chase Creek Stockpile (Facility No. 79) and reports to Horseshoe Sump (Facility No. 57).
Miscellaneous Facilities outside the Passive Containment Capture Zone:				
108	DCOP 2	Concentrate Load-out Yard at the Bedding Plant	33° 04' 02" N 109° 20' 23" W	**Individual BADCT:** This facility is an unlined pad designated for loading concentrate into rail cars. The facility was upgraded in 2006. Regrading of the area north and west of the load-out yard was completed to divert stormwater run-on away from the facility. Undiverted stormwater run-on is ultimately diverted by a 3-foot-high earthen berm along the north side of the load-out yard. Non-impacted stormwater to the east of the facility is diverted into an unlined diversion channel through an existing catch box and into another unlined diversion channel that reports to the industrial drain. A tire wash area has been constructed on a concrete slab. Water from the tire wash reports to a settling basin and then to an HDPE-lined evaporation pond. All conveyances from the load-out area leading to the Industrial Drain have been blocked.
109	DMRR 3	Pinkard Gulch Impoundment	33° 04' 56" N 109° 23' 46" W	**Individual BADCT:** Currently, these facilities are stormwater impoundments. The impoundments are designed to contain the 100-year, 24-hour storm event runoff with a minimum of 2 feet of freeboard. The APP status of these facilities (i.e., subject to general or individual APP requirements) shall be determined following completion of stormwater sampling. See Compliance Schedule.
110	DMRR 4	West Gold Gulch Impoundment	33° 04' 46" N 109° 23' 43" W	
111	DMRR 5	East Gold Gulch Impoundment	33° 04' 36" N 109° 23' 11" W	
112	DMRR 6	Highway Relocation Stockpile Impoundment	33° 04' 26" N 109° 23' 03" W	
Facilities to be Closed or Addressed Per Section 2.9.2:				
9	DCRS 1	Tailing Stormwater Retention Dam 1	33° 03' 15" N 109° 18' 53" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
11	DCRS 3	Tailing Stormwater Retention Dam 2A	33° 01' 10" N 109° 19'17"W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
12	DCRS 4	Tailing Stormwater Retention Dam 2B	33° 01' 19" N 109° 19' 17"W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
14	DCRS 6	Tailing Stormwater Retention Dam 3A	33° 01' 11" N 109° 19' 49" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
15	DCRS 7	Tailing Stormwater Retention Dam 3B	33° 01' 15" N 109° 19' 54" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
16	DCRS 8	Tailing Stormwater Retention Dam 3C	33° 01' 17" N 109° 19' 53" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
17	DCRS 9	Tailing Stormwater Retention Dam 3D	33° 01' 20" N 109° 19' 46" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
18	DCRS 10	Tailing Stormwater Retention Dam 4	33° 00' 58" N 109° 20' 04" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
19	DCRS 11	Tailing Stormwater Retention Dam 4A	33° 01' 01" N 109° 20' 09" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
20	DCRS 12	Tailing Stormwater Retention Dam 4B	33° 01' 02" N 109° 20' 13" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
22	DCRS 14	Tailing Stormwater Retention Dam 5A	33° 00' 40" N 109° 20' 26" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
23	DCRS 15	Tailing Stormwater Retention Dam 5B	33° 00' 45" N 109° 20' 30" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
24	DCRS 16	Tailing Stormwater Retention Dam 5C	33° 00' 54" N 109° 20' 25" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
25	DCRS 17	Tailing Stormwater Retention Dam 5D	33° 00' 59" N 109° 20' 30" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
26	DCRS 18	Tailing Stormwater Retention Dam 5E	33° 01' 07" N 109° 20' 39" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
59	DHIS 9	5X Sump	33° 02' 33" N 109° 21' 08" W	Facility is in permanent cessation. Final closure for this facility will be completed during mine closure.
64	DHIS 19	Dam BC-9	33° 01' 44" N 109° 22' 16" W	Facility is in permanent cessation. Final closure for this facility will be completed during mine closure.
67		Three Former Ponds at 23/25MM Pond	33° 02' 08" N 109° 21' 43" W	Facility is in permanent cessation. Final closure for this facility will be completed during mine closure. (consumed by 23/25MM Pond, see Southwest MFL amendment application dated 4/14/08)

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
100	D-NMBW 5A	Morenci Machine Shop Vehicle Wash	33º 04’ 57” N 109º 21’ 04” W	Facility is in permanent cessation. Final closure for this facility will be completed during mine closure.
102	DMMV 1	Metcalf Small Vehicle Wash	33° 06' 24" N 109° 21' 45" W	This facility was demolished in April 2016. Final closure for this facility will be completed during mine closure.
113	D-NASY 11A	Vehicle Wash – SX Pipe Yard	33º 04’ 35” N 109º 21’ 38” W	Facility is in temporary cessation. Final closure for this facility will be completed during mine closure.
114	DMMV 6	Central SX/EW Plant Vehicle Wash	33º 03’ 26” N 109º 19’ 30” W	Facility is in temporary cessation. Final closure for this facility will be completed during mine closure.
118	D-NASY 16	4500 Precipitation Plant	33º 03’ 26” N 109º 20’ 51” W	Facility is in temporary cessation. Final closure for this facility will be completed during mine closure.
119	DHLS 1	Southwest Precipitation Plant	33º 02’ 11” N 109º 21’ 07” W	Facility is in temporary cessation. Final closure for this facility will be completed during mine closure.
124		Tailing Storm water Pond A	33° 02' 55" N 109° 19' 49" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
125		Tailing Storm water Pond B	33° 02' 11" N 109° 19' 38" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
126		Tailing Storm water Pond C	33° 02' 09" N 109° 19' 16" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
127		Tailing Storm water Pond G	33° 03' 03" N 109° 20' 30" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
128		Tailing Storm water Pond H	33° 02' 20" N 109° 21' 02" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.9.2 Closure Completion.
135		Seepage Collection Pond A1-1	33° 00' 46" N 109° 20' 35" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
136		Seepage Collection Pond A1-2	33° 00' 55" N 109° 20' 28" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
137		Seepage Collection Pond B1-1	33° 01' 04" N 109° 20' 15" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
138		Seepage Collection Pond C1-1	33° 01' 11" N 109° 19' 49" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
139		Seepage Collection Pond D1-1	33° 01' 09" N 109° 19' 25" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
140		Seepage Collection Pond E1-1	33° 01' 07" N 109° 19' 19" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.

TABLE 2
PERMITTED FACILITIES AND BADCT

Facility No.	FMMI No.	Facility Name	Latitude/ Longitude	Facility BADCT [A,B,C]
141		Seepage Collection Pond F1-1	33° 01' 14" N 109° 18' 57" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
142		Seepage Collection Pond G1-1	33° 01' 27" N 109° 19' 02" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.
143		Seepage Collection Pond G1-2	33° 01' 49" N 109° 19' 00" W	Facility will be closed through burial under the Tailings Impoundment. Morenci will notify ADEQ when the facility has been buried per section 2.92 Closure Completion.

Notes:

A The primary discharge control technologies for each discharging facility are presented; however, additional discharge controls are discussed in the APP application and subsequent submittals and correspondence referenced in Section 4 of this APP.

B Individual and Prescriptive BADCT requirements are defined in the ADEQ Arizona Mining BADCT Guidance Manual, dated September 1998.

C Definitions:

BADCT – best available demonstrated control technology
HDPE – high-density polyethylene
bgs – below ground surface
LCRS – leak collection and removal system
GCL – geosynthetic clay liner
amsl – above mean sea level
RLL – rapid and large leakage
ALR – action leakage rate

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
Tailing Impoundments:			
1	DCTT 1	Southwest 1 Tailing Dam	**GENERAL REQUIREMENTS** **Daily:** Facility Nos. 1 through 7: • During periods of operation, maintain a beach distance of at least 200 feet and minimum freeboard of 4 feet. Facility No. 8 (West/East Tailing Dam Expansion): • During periods of operation, maintain a beach distance corresponding to dam crest elevation as noted below and minimum freeboard of 4 feet. **Crest Elevation (ft amsl) — Minimum Beach Length (ft)** 3875 — 50 4000 — 100 4100 — 200 4150 — 400 Note: Minimum beach distance can be extrapolated linearly between elevations. For all Tailing Impoundments: • Insure that cyclone underflow pipelines are properly positioned to maintain flow into the tailing impoundment. • Maintain access to tailing impoundments. • For East Tailing Complex, visually inspect overflow pipe for blockage. **Following precipitation events measuring at least 1-inch in a 24-hour period[A]:** Facility Nos. 1 through 7: • During periods of operation, maintain a beach distance of at least 200 feet and minimum freeboard of 4 feet. Facility No. 8 (West/East Tailing Dam Expansion): • During periods of operation, maintain a beach distance corresponding to dam crest elevation as noted below and minimum freeboard of 4 feet. **Crest Elevation (ft amsl) — Minimum Beach Length (ft)** 3875 — 50
2	DCTT 1a	Southwest 2 Tailing Dam	
3	DCTT 1b	Southwest 1 Tailing Dam Expansion	
4	DCTT 2	Silver Basin Tailing Dam Complex	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
5	DCTT 2a	Silver Basin Tailing Dam Expansion	4000 100 4100 200 4150 400 Note: Minimum beach distance can be extrapolated linearly between elevations. **Quarterly:** • Inspect for crest failure, translation of toe or sloughing. • Note visible cracks or erosion features and perform maintenance. • Check for seepage from toe and face of tailing dam.
6	DCTT 3	West Tailing Dam Complex	**REQUIREMENTS SPECIFIC TO MONITORING SLOPE STABILITY PIEZOMETERS** **Quarterly:** • During periods of operation and the first year following temporary cessation of tailing impoundments, measure water levels in slope stability piezometers to ensure phreatic surface is maintained within safe operating limits. **Annually:** • During the second and subsequent years following temporary cessation of tailing impoundments, measure water levels in slope stability piezometers to ensure phreatic surface is maintained within safe operating limits. **REQUIREMENTS SPECIFIC TO MONITORING TAILING STORMWATER PONDS** **Following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Maintain sufficient capacity within each dam system to contain the 100-year, 24-hour runoff volume. • Visually inspect upgradient channels for blockages. **Monthly and following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Measure pH in impoundments that receive impacted stormwater runoff. If pH is less than 5.0 SU, raise the pH to 5.0 within 30 days of initial pH measurement.
7	DCTT 4	East Tailing Dam Complex	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
8	DCTT 5	West/East Tailing Dam Expansion	**Quarterly:** • Inspect pumps, pump structures, and access. **Annually:** • Remove excess tailing from stormwater retention dams as needed to maintain 100-year, 24-hour runoff volume storage capacity. **<u>REQUIREMENTS SPECIFIC TO MONITORING SEEPAGE COLLECTION PONDS</u>** **Daily:** • Visually inspect and maintain 2 feet of freeboard, as applicable. **Weekly and following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Visually check freeboard in the impoundment. If water is present, inspect facility daily until stormwater inflow to the impoundment ceases. • Visually inspect the dams for erosion features, surface cracks and seeps. **Quarterly:** • Visually inspect concrete integrity, such as cracks and other damage. • Visually inspect embankment integrity, as applicable. • Inspect pumps, pump structures, and access, as applicable.
Non-Stormwater Impoundments - Unlined Tailing Stormwater Retention Dams:			
153		Tailing Stormwater Retention Dam 1X	**Following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Maintain sufficient capacity within each dam system to contain the 100-year, 24-hour runoff volume. • Visually inspect upgradient channels for blockages. • Visually inspect the dams for erosion features, surface cracks and seeps. **Monthly and following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Measure pH in impoundments formed by compacted Gila conglomerate, clay core and concrete dams that receive impacted stormwater runoff. This includes Dams 1X, 5F, 6, 7A, 7B, 7C, and 11. If pH is less than 5.0 SU, raise the pH to 5.0 within 30 days of initial pH measurement. **Quarterly:** • Inspect pumps, pump structures, and access.
10	DCRS2	Tailing Stormwater Retention Dam 2	
13	DCRS5	Tailing Stormwater Retention Dam 3	
154		Tailing Stormwater Retention Dam 4X	
21	DCRS 13	Dam 5	
27	DCRS 19	Tailing Stormwater Retention Dam 5F	
28	DCRS 20	Tailing Stormwater Retention Dam 5G	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
29	DCRS 21	Tailing Stormwater Retention Dam 6	**Annually:** • Remove excess tailing from stormwater retention dams as needed to maintain 100-year, 24-hour runoff volume storage capacity.
30	DCRS 22	Tailing Stormwater Retention Dam 7	
31	DCRS 23	Tailing Stormwater Retention Dam 7A	
32	DCRS 23A	Tailing Stormwater Retention Dam 7B	
109	DCRS 23B	Tailing Stormwater Retention Dam 7C	
33	DCRS 24	Tailing Stormwater Retention Dam 8	
34	DCRS 25	Tailing Stormwater Retention Dam 9	
35	DCRS 25A	Tailing Stormwater Retention Dam 9A	
36	DCRS 26	Tailing Stormwater Retention Dam 10	
37	DCRS 26A	Tailing Stormwater Retention Dam 10A	
38	DCRS 27	Tailing Stormwater Retention Dam 11	
121		Tailing Stormwater Retention Dam 12X	
122		Tailing Stormwater Retention Dam WFT-1	
123		Tailing Stormwater Retention Dam WFT-10	
Non-Stormwater Impoundments – Unlined:			
39	D - EEC 4	Industrial Drain Overflow Pond (Reed Lake)	**Daily:** • Visually inspect and maintain appropriate freeboard in Rocky Gulch Dam and Gold Gulch Dam (See BADCT – Table 2).
40	DHRE 1	Bat Canyon Safety Dam 1	
41	DHRR 1	Lower Chase Creek Dam	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
42	DMRR 1	Rocky Gulch Dam	**Weekly and following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • For the Industrial Drain Overflow Pond, Bat Canyon Safety Dam 1, and Lower Chase Creek Dam, visually check freeboard in the impoundments (See BADCT – Table 2). If water is present, inspect facility daily until inflow to the impoundment ceases. **Quarterly:** • Inspect embankment integrity, pumps, pump structures, and access.
43	DMRR 2	Gold Gulch Dam	
Non-Stormwater Impoundments – Lined:			
44	DCIR 1	Columbine Reservoir	**Daily:** • Visually inspect and maintain 2 feet of freeboard, as applicable. **Weekly and following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Visually check freeboard in the impoundment. If water is present, inspect facility daily until inflow to the impoundment ceases. • Evacuate solution as soon as practicable. • For Horseshoe Overflow Pond and Stargo Overflow Pond, visually check freeboard in the impoundments (See BADCT – Table 2). If water is present, inspect facility daily until inflow to the impoundment ceases. • For Horseshoe and Stargo Overflow Ponds, solution must be evacuated as soon as practicable. **Quarterly:** • Visually inspect liners for holes and tears, and anchor trench integrity (clay or HDPE liners, as applicable). • Visually inspect embankment integrity, as applicable. • Inspect pumps, pump structures, and access, as applicable. • For Horseshoe Overflow Pond, collect one groundwater sample from wells CC-44, CC-46, and CC-53, analyze for field pH, and submit samples for laboratory analysis of total dissolved solids and sulfate (refer to Section 2.5.4). Evaluate and compare analytical results with calculated and established Action Levels. If results exceed an established Action Level, initiate actions stated in Contingency Plan, Section 2.7.3.
45	DHIS 21	Horseshoe Overflow Pond	
46	DHIS 8	Stargo Overflow Pond	
47	DHIS 22	Pond 800 feet SW of 4500 Precipitation Plant	
152		Silver Basin NSI	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
Process Solution Impoundments - Double-Lined; Outside the PCCZ:			
48	DHIP 1	Central SX Plant PLS Pond	**Daily:** • Check overflow pipes for blockages. • Visually inspect and maintain appropriate freeboard in impoundments (See BADCT –Table 2). **Weekly:** • Monitor the flow rate in the leak collection and removal systems. For Central SX Plant and Modoc SX Plant PLS ponds, compare flow rate with Action Leakage Rate (see BADCT – Table 2). **Quarterly:** • Visually inspect liners for holes and tears, and anchor trench integrity. • Inspect pumps, pump structures, and access. • Inspect upgradient stormwater diversion ditches for blockage and erosion.
49	DHIP 2	Central SX Plant PLS Raffinate Pond	
50	DHIP 3	Modoc SX Plant PLS Pond	
51	DHIP 4	Modoc SX Plant Raffinate Pond	
151		Silver Basin PLS Pond	
155		SB PLS Pond	
157		MRC PLS Pond	
158		MRC Process Pond	
Process Solution Impoundments – Single-Lined; Outside the PCCZ:			
52	DHIS 11	Dam BC-1	**Daily:** • Visually inspect and maintain appropriate freeboard in impoundments (See BADCT –Table 2). **Quarterly:** • Visually inspect liners for holes and tears, and anchor trench integrity. • Inspect pumps, pump structures, and access. • Visually inspect embankment integrity (at applicable facilities).
53	DHIS 12	Dam BC-2	
54	DHIS 13	Dam BC-3	
55	DHIS 14	Dam BC-4	
56	DHIS 15	Dam BC-5	
57	DHIS 6	Horseshoe Sump	
58	DHIS 8	Stargo Sump	
62	DHIS 10	27MM Sump	
65	DHIS 20	29 MM Sump	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
66	DHRR 2	23/25 MM Pond	
Process Solution Impoundments – Unlined; Outside the PCCZ:			
60	DHIS 16	Dam BC-6	**Daily:** • Visually inspect and maintain appropriate freeboard in impoundments (See BADCT – Table 2). **Quarterly:** • Inspect pumps, pump structures, and access. • Visually inspect embankment integrity, as applicable.
61	DHIS 17	Dam BC-7	
63	DHIS 18	Dam BC-8	
Process Solution Impoundments - Single Lined; Within the PCCZ:			
68	DHIP 5	Metcalf SX Plant PLS Pond	**Quarterly:** • Visually inspect liners for holes and tears, and anchor trench integrity. • Inspect pumps, pump structures, and access.
Process Solution Impoundments and Solution Conveyance Facilities – Unlined; Within the PCCZ:			
69	DHIP 6	Metcalf SX Plant Raffinate Pond	**Daily:** • For In-pit Sumps, check solution level in Dispatch Hill Sump, or its future equivalent Maximum operating level is 3,800 ft above mean sea level elevation • For Diversion Structures, check screens for blockage, as applicable. **Quarterly:** • Inspect pumps, pump structures, and access, as applicable. • Visually inspect embankment integrity, as applicable.
70	DHIS 1	King/Placer Diversion	
71	DHIS 26	Northwest Coronado Diversion	
72	DHIS 27	Upper Chase Creek Diversion	
73	DHIS 28	Garfield Diversion	
74	DHIS 29	Coronado Diversion	
75	DHIS 30	Santa Rosa Diversion	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
76	DHIS 50	In-pit Sumps	
Leach Stockpiles:			
77	DHSL 4	Rock House Canyon Stockpile	**Monthly:** • Visually observe deformations, including surface cracks, slides, sloughs, or unusual settlement, for slope stability.
78	DHSL 4A	Rock House Canyon Stockpile Expansion	
79	DHSL 6	Lower Chase Creek Stockpile	
80	DHSL 10	Southwest Stockpile	
81	DHSL 10A	Southwest Stockpile Expansion	
82	D–EAC 5	Lone Star Stockpile	
83	DHSL 1	Medler Stockpile	
84	DHSL 2	Copper Mountain Stockpile	
85	DHSL 3	Santa Rosa Stockpile	
86	DHSL 5	American Mountain Stockpile	
87	DHSL 7	Placer Stockpile	
88	DHSL 8	King Stockpile	
89	DHSL 8A	King/Placer Stockpile Expansion	
90	DHSL 9	Coronado Stockpile	
91	DHSL 9A	Coronado Stockpile Expansion	
92	DHSL 11	Queen Hill Stockpile	
93	DHSL 12	Upper Chase Creek Stockpile	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
94	DHSL 12A	Upper Chase Creek Stockpile Expansion	
95	DHSL 13	Garfield Stockpile	
96	DHSL 15	Metcalf In-pit Stockpiles	
97	DHSL 16	Morenci In-pit Stockpile Expansion	
98	DHSL 17	Northwest Coronado Stockpile	
150		Silver Basin Leach Stockpile	
156		Morenci Canyon Stockpile	
Wastewater Treatment Facilities:			
99A		Morenci WWTP	**Daily:** • Clean filters and screens. • Check if the treatment plant system is in operating condition. **Quarterly:** • Inspect pumps and pump structures, and tanks for integrity.
Vehicle Wash Facilities:			
101	D - NASY 11B	New Vehicle Wash - ATV Shop Vehicle Wash (within the PCCZ)	**Quarterly:** • Maintain oil water separators, grease traps, and sediment basins in operational condition, as applicable. • Inspect concrete structures for integrity, as applicable. • Visually inspect liners of evaporation ponds for holes and tears, as applicable.
102	DMMV 1	Metcalf Small Vehicle Wash (within the PCCZ)	
103	DMMV 2	Heavy Duty Truck Wash (within the PCCZ)	
104	DMMV 8	New Vehicle Washes - within the PCCZ	

TABLE 3
REQUIRED INSPECTIONS AND OPERATIONAL MONITORING

Facility No.	FMMI No.	Facility Name	Operational Requirements
105	DMMV 4	RW Fuel Dock Small Vehicle Wash	
106	DMMV 7	Surface Dept. Vehicle Wash	
107	D - NMBW 6A	Mine Gate Lube Shop Vehicle Wash	
Miscellaneous Facilities:			
108	DCOP 2	Concentrate Load-out Yard at the Bedding Plant	**Monthly:** • Perform scraping of concentrate from ground surface in Load-out Yard. **Quarterly:** • Inspect upgradient stormwater diversion structures for blockage and erosion. •
109	DMRR 3	Pinkard Gulch Impoundment	**Monthly and following precipitation events measuring at least 1-inch in a 24-hour period[A]:** • Visually inspect and maintain appropriate freeboard in impoundments (See BADCT – Table 2). **Quarterly:** • Inspect dam integrity, pumps, pump structures, and access.
110	DMRR 4	West Gold Gulch Impoundment	
111	DMRR 5	East Gold Gulch Impoundment	
112	DMRR 6	Highway Relocation Stockpile Impoundment	
59	DHIS 9	5X Sump	**Daily:** • Visually inspect and maintain appropriate freeboard in impoundment (see BADCT – Table 2). **Weekly:** • Monitor the flow rate in the leak collection and removal system (LCRS), and compare with the Action Leakage Rate (if applicable). **Quarterly:** • Visually inspect liner for holes and tears, and anchor trench integrity. • Inspect pumps, pump structures, and access. • Inspect upgradient stormwater diversion ditches for blockage and erosion. Visually inspect embankment integrity.

Notes:

A - Precipitation depths shall be based on readings obtained from the Southern Weather Station (PDM I coordinate location 2,250-W; 2,250-S)

TABLE 4
MONITORING POINTS

No.	Monitoring Point	Designation	Cadastral	Latitude/Longitude	ADWR Number
Point of Compliance (POC) Monitoring Wells					
1	Groundwater well GG-18	Hazardous/ non-hazardous POC	(D-04-29) 17CAD	33° 04' 48" N / 109° 23' 13" W	55-549326
3	Groundwater well SW-105	Hazardous/ non-hazardous POC	(D-05-29) 05ACB	33° 01' 39" N / 109° 23' 18" W	55-579560
4	Groundwater well SW-33	Hazardous/ non-hazardous POC	(D-05-29) 11ADA	33° 00' 53" N / 109° 19' 58" W	55-517293
5	Groundwater well SW-34	Hazardous/ non-hazardous POC	(D-05-29) 11DCC	33° 00' 22" N / 109° 20' 19" W	55-517294
6	Groundwater well SW-35	Hazardous/ non-hazardous POC	(D-05-29) 14BBB	33° 00' 13" N / 109° 20' 53" W	55-517295
7	Groundwater well SW-36	Hazardous/ non-hazardous POC	(D-05-29) 15ADD	32° 59' 56" N / 109° 21' 01" W	55-517296
8	Groundwater well SW-37	Hazardous/ non-hazardous POC	(D-05-29) 15ACC	32° 59' 52" N / 109° 21' 16" W	55-517297
9	Groundwater well SW-39	Hazardous/ non-hazardous POC	(D-05-29) 15CAA	32° 59' 34" N / 109° 21' 46" W	55-517299
10	Groundwater well SW-41	Hazardous/ non-hazardous POC	(D-05-29) 12BCA	33° 00' 55" N / 109° 19' 13" W	55-519765
11	Groundwater well SW-42	Hazardous/ non-hazardous POC	(D-05-29) 12B	33° 00' 58" N / 109° 19' 44" W	55-519763
12	Groundwater well SW-87	Hazardous/ non-hazardous POC	(D-04-29) 26DCA	33° 02' 55" N / 109° 19' 38" W	55-556712
13	Groundwater well SW-88	Hazardous/ non-hazardous POC	(D-04-29) 35DAD	33° 02' 24" N / 109° 19' 34" W	55-556713
14	Groundwater well CC-5	Hazardous/ non-hazardous POC	(D-04-29) 26ABD	33° 03' 26" N / 109° 19' 37" W	55-524794
15	Groundwater well CC-44	Hazardous/ non-hazardous POC	(D-04-29) 23DDD	33° 33' 51" N / 109° 19' 38" W	55-545539
16	Groundwater well CC-46	Hazardous/ non-hazardous POC	(D-04-29) 23ADA	33° 04' 24" N / 109° 19' 28" W	55-549320
17	Groundwater well CC-51	Hazardous/ non-hazardous POC	(D-04-29) 26ACA	33° 03' 45" N / 109° 19' 46" W	55-553440
18	Groundwater well CC-53	Hazardous/ non-hazardous POC	(D-04-29) 23DAB	33° 04' 51" N / 109° 19' 47" W	55-579554
19	Groundwater well CC-54	Hazardous/ non-hazardous POC	(D-04-29) 14DAC	33° 04' 07" N / 109° 19' 29" W	55-579555

TABLE 4
MONITORING POINTS

No.	Monitoring Point	Designation	Cadastral	Latitude/Longitude	ADWR Number
20	Groundwater well RG-7	Hazardous/ non-hazardous POC	(D-04-29) 02DDC	33° 06' 26" N / 109° 19' 59" W	55-579553
Conceptual POC Wells					
1	New Morenci WWTP	Hazardous/ non-hazardous POC	N/A	33° 01' 08" N / 109° 18' 29" W	N/A
2	Los Taos	Hazardous/ non-hazardous POC	N/A	33° 05’ 56.19” N / 109° 23’ 41.23” W	N/A
POC Wells To Be Constructed – On Contingency for Southwest 1 Tailing Dam (As per Section 2.8.8)					
	Groundwater well	Hazardous/non-hazardous POC	(D-05-29) 16BC or CB	32° 59' 45" N / 33° 00' 05" N 109° 22' 50" W / 109° 23' 03" W	
	Groundwater well	Hazardous/non-hazardous POC	(D-05-29) 08DB or DC	33° 00' 30" – 40” N / 109° 23' 10" – 20” W	
POC Well To Be Constructed – On Contingency for Western Portion of Lone Star Stockpile					
	Groundwater well	Hazardous/non-hazardous POC	(D-04-29) 21 CB or CC	33° 33' 40" – 60” N / 109° 22' 15" – 28” W	
Groundwater Level Monitoring Points for Hydrologic Sink Verification					
1	Groundwater well CC-42	Groundwater Level Monitoring Point	(D-04-29) 15DBC	33° 04' 50" N / 109° 20' 54" W	55-546230
2	Groundwater well CC-50	Groundwater Level Monitoring Point	(D-04-29) 11CCD	33° 05' 34" N / 109° 20' 13" W	55-549332
3	Groundwater well GG-2	Groundwater Level Monitoring Point	(D-04-29) 17DBA	33° 05' 21" N / 109° 22' 54" W	55-534752
4	Groundwater well GG-20	Groundwater Level Monitoring Point	(D-04-29) 21BDB	33° 04' 20" N / 109° 22' 14" W	55-579559
5	Groundwater well GG-6	Groundwater Level Monitoring Point	(D-04-29) 20DAB	33° 04' 11" N / 109° 22' 39" W	55-539385
6	Groundwater well GG-12	Groundwater Level Monitoring Point	(D-04-29) 17BBD	33° 05' 22" N / 109° 23' 21" W	55-539326
7	Groundwater well GG-13	Groundwater Level Monitoring Point	(D-04-29) 17DAC	33° 04' 51" N / 109° 16' 28" W	55-549325
8	Groundwater well GG-14	Groundwater Level Monitoring Point	(D-04-29) 20ABB	33° 04' 31" N / 109° 22' 52" W	55-549324
9	Groundwater well GG-15	Groundwater Level Monitoring Point	(D-04-29) 20ADB	33° 04' 19" N / 109° 22' 41" W	55-549321

TABLE 4
MONITORING POINTS

No.	Monitoring Point	Designation	Cadastral	Latitude/Longitude	ADWR Number
10	Groundwater well GG-18	Groundwater Level Monitoring Point	(D-04-29) 17CAD	33° 04' 48" N / 109° 23' 13" W	55-550449
11	Groundwater well GG-19	Groundwater Level Monitoring Point	(D-04-29) 08CCA	33° 05' 38" N / 109° 23' 20" W	55-549333
12	Groundwater well DW-27	Groundwater Level Monitoring Point	(D-04-29) 06DDD	33° 06' 21." N / 109° 23' 35" W	55-564435
13	Groundwater well DW-36	Groundwater Level Monitoring Point	(D-04-29) 06DAC	33° 06' 35" N / 109° 23' 48" W	55-566429
14	Groundwater well DW-12	Groundwater Level Monitoring Point	(D-03-29) 33CBC	33°07' 34" N / 109° 22' 27" W	55-549343
15	Groundwater well DW-19	Groundwater Level Monitoring Point	(D-03-29) 27ACA	33° 06' 56" N / 109° 20' 40" W	55-549350
16	Groundwater well DW-20	Groundwater Level Monitoring Point	(D-03-29) 23CDD	33° 09' 03" N / 109° 19' 58" W	55-549352
17	Groundwater well DW-14	Groundwater Level Monitoring Point	(D-03-29) 29DAD	33° 08' 26" N / 109° 22' 29" W	55-549345
18	Groundwater well DW-22	Groundwater Level Monitoring Point	(D-03-29) 26DDB	33° 08' 19" N / 109° 19' 31" W	55-549351
19	Groundwater well DW-23	Groundwater Level Monitoring Point	(D-03-29) 35ADC	33° 07’ 45" N / 109° 19' 33" W	55-549340
20	Groundwater well DW-24U	Groundwater Level Monitoring Point	(D-03-29) 35DCD	33° 07' 18" N / 109° 19' 43" W	55-549339
21	Groundwater well DW-30	Groundwater Level Monitoring Point	(D-04-29) 06DCB	33° 06' 31" N / 109° 24' 05" W	55-564433
22	Groundwater well DW-31	Groundwater Level Monitoring Point	(D-04-29) 06DDC	33° 06' 19" N / 109° 23' 48" W	55-564434
23	Groundwater well DW-32	Groundwater Level Monitoring Point	(D-04-29) 07ADD	33° 06' 02" N / 109° 23' 39" W	55-564436
24	Groundwater well DW-16	Groundwater Level Monitoring Point	(D-03-29) 27CBB	33° 08' 54" N / 109° 21' 31" W	55-549346
25	Groundwater well DW-39	Groundwater Level Monitoring Point	(D-04-29) 06ACD	33° 06' 53" N / 109° 24' 02" W	55-566432
26	Groundwater well DW-38	Groundwater Level Monitoring Point	(D-04-29) 06DBA	33° 06' 43" N / 109° 24' 05" W	55-566431
27	Groundwater well DW-43	Groundwater Level Monitoring Point	(D-04-29) 06CBA	33° 07' 06" N / 109° 24' 10" W	55-915474
28	Groundwater well MP-1	Groundwater Level Monitoring Point	(D-04-29) 15BBA	33° 05’ 25" N / 109° 21' 12" W	Not registered [1]

TABLE 4
MONITORING POINTS

No.	Monitoring Point	Designation	Cadastral	Latitude/Longitude	ADWR Number
29	Groundwater well SW-104A	Groundwater Level Monitoring Point	(D-04-29) 22BBC	33° 04' 28" N / 109° 21' 34" W	55-559316
31	Groundwater well MP-9	Groundwater Level Monitoring Point	(D-04-29) 15BBD	33° 06’ 08” N / 109° 21’ 03” W	55-559822
32	Groundwater well RG-1	Groundwater Level Monitoring Point	(D-04-29) 02CDC	33° 06’ 26” N / 109° 20’ 01” W	55-545314
33	Groundwater well RG-3	Groundwater Level Monitoring Point	(D-04-29) 02BCA	33° 06’ 29” N / 109° 20’ 06” W	55-545312
Groundwater Quality Monitoring for Hydrologic Sink Verification					
1	Piezometer GG-6	Groundwater Quality Monitoring Point	(D-04-29) 20DAB	33° 04’ 11” N / 109° 22’ 39” W	55-539325
2	Piezometer GG-15	Groundwater Quality Monitoring Point	(D-04-29) 20ADB	33° 04’ 19” N / 109° 22’ 41” W	55-549321
Operational Monitoring Points for Lower Chase Creek Facilities					
1	Groundwater well CC-44	Operational Monitoring Point	(D-04-29) 23DDD	33° 33’ 51” N / 109° 19’ 38” W	55-545539
2	Groundwater well CC-46	Operational Monitoring Point	(D-04-29) 23ADA	33° 04' 24" N / 109° 19' 28" W	55-549320
3	Groundwater well CC-53	Operational Monitoring Point	(D-04-29) 23DAB	33° 04’ 07” N / 109° 19’ 27” W	55-579554

[1] **Registration of these wells is not required by ADWR based on their location in the bottom of the mine pit.**

TABLE 5 QUARTERLY AMBIENT GROUNDWATER MONITORING PARAMETERS FOR ALL POC WELLS		
pH - field and lab	Calcium	Nickel [1]
Specific conductivity - field and lab	Magnesium	Selenium[1]
Total dissolved solids	Potassium	Silicate[1]
Sulfate	Sodium	Thallium[1]
Chloride	Antimony[1]	Total cyanide
Fluoride	Arsenic[1]	Gross alpha particle activity
Carbonate	Beryllium[1]	Radium 226
Bicarbonate	Cadmium[1]	Radium 228
Hydroxide	Chromium[1]	Total uranium
Nitrate (as N)	Lead [1]	Benzene
Toluene	Ethylbenzene	Total Xylenes

1 Metals analyzed as Totals Metals

TABLE 6
QUARTERLY GROUNDWATER COMPLIANCE MONITORING FOR POC WELLS

Parameter	SW-33		SW-34		SW-35		SW-36	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Depth to groundwater (ft)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Groundwater elevation (ft above mean sea level)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH	Monitor	5.5	Monitor	5.5	Monitor	5.5	Monitor	5.5
Field specific conductance	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field temperature	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total dissolved solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Silicate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate and Nitrite (mg/l)	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0
Fluoride (mg/l)	4.0	3.2	4.0	3.2	4.0	3.2	4.0	3.2
Beryllium[1] (mg/l)	0.004	0.003	0.004	0.003	0.004	0.003	0.004	0.003
Cadmium [1] (mg/l)	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004
Chromium[1] (mg/l)	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08
Nickel[1] (mg/l)	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08
Gross alpha particle Activity [2] (pCi/l)	15.0	12.0	15.0	12.0	15.0	12.0	15.0	12.0

1 Metals shall be analyzed as Total Metals
2 If Gross alpha particle activity concentration exceeds 15 pCi/L for any well, total uranium analysis shall be conducted on the same groundwater sample

TABLE 6 (Continued)
QUARTERLY GROUNDWATER COMPLIANCE MONITORING FOR POC WELLS

Parameter	SW-37		SW-39		SW-41		SW-42	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Depth to groundwater (ft)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Groundwater elevation (ft above mean sea level)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH	Monitor	5.5	Monitor	5.5	Monitor	5.5	Monitor	5.5
Field specific conductance	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field temperature	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total dissolved solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Silicate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Coliform (mpn/100ml)[3]	NR	NR	NR	NR	2	Monitor	NR	NR
Total Kjeldahl Nitrogen (mg/l)	NR	NR	NR	NR	Monitor	1.2	NR	NR
Nitrite (mg/l)	NR	NR	NR	NR	1.0	0.8	NR	NR
Nitrate and Nitrite (mg/l)	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0
Fluoride (mg/l)	4.0	3.2	4.0	3.2	4.0	3.2	4.0	3.2
Beryllium[1] (mg/l)	0.004	0.003	0.004	0.003	0.004	0.003	0.004	0.003
Cadmium [1] (mg/l)	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004
Chromium[1] (mg/l)	0.10	0.08	0.10	0.08	0.10	0.08	0.1	0.08
Nickel[1] (mg/l)	0.10	0.08	0.10	0.08	0.10	0.08	0.1	0.08
Gross alpha particle Activity [2] (pCi/l)	15.0	12.0	15.0	12.0	15.0	12.0	15.0	12.0

1 Metals shall be analyzed as Total Metals
2 If Gross alpha particle activity concentration exceeds 15 pCi/L for any well, total uranium analysis shall be conducted on the same groundwater sample
3 Most probable number per 100 milliliters
NR = Analysis not required; total coliform, total Kjeldahl nitrogen and nitrite analysis is only required at POC well SW-41, which is the downgradient well for the WWTP.

TABLE 6 (Continued)
QUARTERLY GROUNDWATER COMPLIANCE MONITORING FOR POC WELLS

Parameter	SW-105		SW-87		SW-88	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Depth to groundwater (ft)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Groundwater elevation (ft above mean sea level)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field specific conductance	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field temperature	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total dissolved solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Silicate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate and Nitrite (mg/l)	10.0	8.0	10.0	8.0	10.0	8.0
Fluoride (mg/l)	4.0	3.2	4.0	3.2	4.0	3.2
Beryllium[1] (mg/l)	0.004	0.0032	0.004	0.003	0.004	0.003
Cadmium [1] (mg/l)	0.005	0.0040	0.005	0.004	0.005	0.004
Chromium[1] (mg/l)	0.1	0.080	0.10	0.09	0.19	Monitor
Nickel[1] (mg/l)	0.1	0.080	0.10	0.08	0.10	0.08
Gross alpha particle Activity [2] (pCi/l)	15.0	12.0	15.0	12.0	15.0	12.0

TABLE 6 (Continued)
QUARTERLY GROUNDWATER COMPLIANCE MONITORING FOR POC WELLS

Parameter	CC-5		CC-44		CC-46		CC-51	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Depth to groundwater (ft)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Groundwater elevation (ft above mean sea level)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field specific conductance	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field temperature	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total dissolved solids (mg/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate (mg/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Silicate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate and Nitrite (mg/l)	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0
Fluoride (mg/l)	4.0	3.2	4.0	3.2	4.0	3.2	4.0	3.2
Beryllium[1] (mg/l)	0.004	0.0032	0.004	0.0032	0.004	0.003	0.004	0.003
Cadmium [1] (mg/l)	0.005	0.0040	0.005	0.0040	0.005	0.004	0.005	0.004
Chromium[1] (mg/l)	0.57	Monitor	0.1	0.080	Monitor	Monitor	0.1	0.08
Nickel[1] (mg/l)	0.1	0.080	0.1	0.080	Monitor	Monitor	0.1	0.08
Gross alpha particle Activity [2] (pCi/l)	15.0	12.0	15.0	12.0	15.0	12.0	15.0	12.3

1 Metals shall be analyzed as Total Metals
2 If Gross alpha particle activity concentration exceeds 15 pCi/L for any well, total uranium analysis shall be conducted on the same groundwater sample

TABLE 6 (Continued)
QUARTERLY GROUNDWATER COMPLIANCE MONITORING FOR POC WELLS

Parameter	CC-53		CC-54		RG-7		GG-18	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Depth to groundwater (ft)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Groundwater elevation (ft above mean sea level)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field pH	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field specific conductance	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Field temperature	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total dissolved solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Carbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Bicarbonate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Hydroxide	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Silicate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Nitrate and Nitrite (mg/l)	10.0	8.0	10.0	8.0	10.0	8.0	10.0	8.0
Fluoride (mg/l)	4.0	3.2	4.0	3.2	4.2	Monitor	4.0	3.2
Beryllium[1] (mg/l)	0.004	0.0032	0.004	0.0032	0.028	Monitor	0.004	0.003
Cadmium[1] (mg/l)	0.005	0.0040	0.005	0.0040	0.005	0.004	0.005	0.004
Chromium[1] (mg/l)	0.1	0.080	0.1	0.080	0.10	.08	0.10	0.08
Lead (mg/l)	NR	NR	NR	NR	NR	NR	0.22	Monitor
Nickel[1] (mg/l)	0.1	0.080	0.1	0.080	0.10	0.08	0.10	0.08
Gross alpha particle Activity [2] (pCi/l)	15.0	12.0	15.0	12.0	15.0	12.0	15.0	14.4

1 Metals shall be analyzed as Total Metals
2 Gross alpha particle activity concentration exceeds 15 pCi/L for any well, total uranium analysis shall be conducted on the same groundwater sample
NR = Analysis not required; lead analyses is only required quarterly at POC well GG-18.

TABLE 7.A
BIENNIAL GROUNDWATER COMPLIANCE MONITORING FOR TAILING IMPOUNDMENT POC WELLS

Parameter	SW-33		SW-34		SW-35		SW-36	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Antimony[1] (mg/l)	0.006	0.005	0.006	0.005	0.006	0.005	0.006	0.005
Arsenic[1] (mg/l)	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Lead[1] (mg/l)	0.05	0.05	0.05	0.04	0.05	0.04	0.05	0.04
Selenium[1] (mg/l)	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Thallium[1] (mg/l)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Radium 226 + Radium 228 (pCi/l)	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Cyanide, total (mg/l)	0.20	Monitor	0.20	Monitor	0.20	Monitor	0.20	Monitor
Carbon disulfide (ug/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Benzene (mg/l)	.005	Monitor	.005	Monitor	.005	Monitor	.005	Monitor
Toluene (mg/l)	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor
Ethylbenzene (mg/l)	0.7	Monitor	.07	Monitor	.07	Monitor	.07	Monitor
Total Xylenes (mg/l)	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor
Methyl isobutyl carbinol (ug/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Methyl isobutyl ketone (ug/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

1 Metals shall be analyzed as Total Metals

TABLE 7.A (Continued)
BIENNIAL GROUNDWATER COMPLIANCE MONITORING FOR TAILING IMPOUNDMENT POC WELLS

Parameter	SW-37		SW-39		SW-41		SW-42		SW-87		SW-88	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Antimony[1] (mg/l)	0.006	0.005	0.006	0.005	0.006	0.005	0.006	0.005	0.006	0.005	0.006	0.005
Arsenic[1] (mg/l)	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Lead[1] (mg/l)	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Selenium[1] (mg/l)	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Thallium[1] (mg/l)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.0016	0.002	0.002	0.002	0.002
Radium 226 + Radium 228 (pCi/l)	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Cyanide, total (mg/l)	0.20	Monitor	0.20	Monitor	0.20	Monitor	0.20	Monitor	0.20	Monitor	0.20	Monitor
Carbon disulfide (ug/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Benzene (mg/l)	.005	Monitor	.005	Monitor	.005	Monitor	.005	Monitor	.005	Monitor	.005	Monitor
Toluene (mg/l)	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor
Ethylbenzene (mg/l)	0.7	Monitor	0.7	Monitor	0.7	Monitor	0.7	Monitor	0.7	Monitor	0.7	Monitor
Total Xylenes (mg/l)	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor
Methyl isobutyl carbinol (ug/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Methyl isobutyl ketone (ug/l)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Kjeldahl Nitrogen (mg/l)	NR	NR	NR	NR	Monitor	1.2	NR	NR	NR	NR	NR	NR

1 Metals shall be analyzed as Total Metals
NR = Analysis not required; lead analyses is only required quarterly at POC well GG-18.

TABLE 7.B
BIENNIAL GROUNDWATER COMPLIANCE MONITORING FOR CHASE CREEK POC WELLS

Parameter	CC-5		CC-44		CC-46		CC-51		CC-53		CC-54	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Antimony[1] (mg/l)	0.006	0.0048	0.006	0.0048	0.006	0.005	0.006	0.005	0.006	0.0048	0.006	0.0048
Arsenic[1] (mg/l)	0.05	0.040	0.05	0.040	0.05	0.04	0.05	0.04	0.05	0.040	0.05	0.040
Lead[1] (mg/l)	0.05	0.040	0.05	0.040	0.05	0.04	0.05	0.04	0.05	0.040	0.05	0.040
Selenium[1] (mg/l)	0.05	0.040	0.05	0.040	0.05	0.04	0.05	0.04	0.05	0.040	0.05	0.040
Thallium[1] (mg/l)	0.002	0.0016	0.002	0.0016	0.002	0.002	0.002	0.0016	0.002	0.0016	0.002	0.0016
Radium 226 + Radium 228 (pCi/l)	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0
Benzene (mg/l)	0.005	Monitor	0.005	Monitor	0.005	Monitor	0.005	Monitor	0.005	Monitor	0.005	Monitor
Toluene (mg/l)	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor	1.0	Monitor
Ethylbenzene (mg/l)	0.7	Monitor	0.7	Monitor	0.7	Monitor	0.7	Monitor	0.7	Monitor	0.7	Monitor
Total Xylenes (mg/l)	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor	10.0	Monitor

1 Metals shall be analyzed as Total Metals

TABLE 7.C
BIENNIAL GROUNDWATER COMPLIANCE MONITORING FOR ALL OTHER POC WELLS

Parameters	GG-18		SW-105		RG-7	
	AQL	Alert Level	AQL	Alert Level	AQL	Alert Level
Antimony[1] (mg/l)	0.006	0.005	0.006	0.0048	0.006	0.005
Arsenic[1] (mg/l)	0.05	0.04	0.05	0.040	0.05	0.04
Lead[1] (mg/l)	0.22	Monitor	0.05	0.040	0.05	0.047
Selenium[1] (mg/l)	0.05	0.04	0.05	0.040	0.05	0.04
Thallium[1] (mg/l)	0.002	0.002	0.002	0.0016	0.002	0.0016
Radium 226 + Radium 228 (pCi/l)	5.0	4.0	5.0	4.0	5	4

1 Metals shall be analyzed as Total Metals

TABLE 8
LIST OF MONITORING DATA FOR PASSIVE CONTAINMENT DEMONSTRATION

Description	Sample	Comments
Groundwater Levels:		
As per Section 2.7.4 of this permit	Quarterly	Biennial potentiometric map and report to be submitted starting March 31, 2003, and then every 2 years thereafter.
Drop-cut blast holes (in-pit drop cuts)	Annually	Obtain water level measurements in active drop-cuts
Drop-cut piezometers (in-pit drop cuts)	5 years	Temporary in nature; attempt to install and obtain data in each drop-cut, if possible
Meteorological:		
Precipitation	Hourly	Obtain data from southern and northern weather station
Air temperature	Hourly	Obtain data from southern and northern weather station
Relative humidity	Hourly	Obtain data from southern and northern weather station
Wind speed & direction	Hourly	Obtain data from southern and northern weather station
Soil moisture and/or temperature	Hourly	Obtain data from southern and northern weather station
Solar radiation	Hourly	Obtain data from southern and northern weather station
Pan evaporation	Hourly	Obtain data from southern and northern weather station
Barometric pressure	Hourly	Obtain data from southern and northern weather station
Pit evaporation		May include humidity levels, visual inspections for springs or wet bedrock surfaces, or other
Dewatering rate from pit sumps	Annually	Bottom of open-pit
Representative fluid balance:		
Precipitation and runoff	Frequency at the discretion of permittee	For Santa Rosa Stockpile only
Raffinate applied		For Santa Rosa Stockpile only
PLS recovered		For Santa Rosa Stockpile only
Ore placement volume		For Santa Rosa Stockpile only
Initial ore moisture content		For Santa Rosa Stockpile only
Downgradient monitor well		For Santa Rosa Stockpile only (to be installed if practicable)

TABLE 9
HYDROLOGIC SINK VERIFICATION MONITORING PARAMETERS

Parameter	Action Level		Frequency
	GG-6	GG-15	
Field pH (standard units)	5.2	5.9	Annually
Total dissolved solids (milligrams per liter [mg/l])	1,600	610	Annually
Sulfate (mg/l)	820	170	Annually

TABLE 10
LEAKAGE RATES

Facility	Action Leakage Rate	Rapid and Large Leakage Rate	Monitoring Method	Monitoring Frequency
Central SX Plant PLS Pond	294 gallons per day	1,070 gallons per day	Manual Measurement	Weekly
Modoc SX Plant PLS Pond	415 gallons per day	1,513 gallons per day	Manual Measurement	Weekly
Silver Basin PLS Pond 1/2	813 gallons per day	25,892 gallons per day	Automated	Continuous
MRC PLS Pond	1,478 gallons per day	47,030 gallons per day	Automated	Continuous
MRC Process Pond	6,197 gallons per day	197,159 gallons per day	Automated	Continuous
SB PLS Pond	1,728 gallons per day	55,029 gallons per day	Automated	Continuous
Central SX Raffinate Pond[1]	N/A	N/A	N/A	N/A
Modoc SX Raffinate Pond[1]	N/A	N/A	N/A	N/A

Note: The volume of liquid pumped from the LCRS shall be entered in a facility log book on a weekly basis. The Alert Level 1 (AL1) or Alert Level 2 (AL2) shall be exceeded when the amount of leakage pumped from the sump for the above ponds is greater than the applicable quantity. Contingency requirements of Sections 2.6.2.5 and 2.6.2.6 shall be followed for AL1 and AL2 exceedances, respectively. An exceedance of AL 1 or AL2 is not a violation of the permit unless the permittee fails to perform actions as required under the Sections referenced above.

1 Central SX Raffinate Pond and Modoc SX Raffinate Pond do not allow for a flowmeter to be installed (gravitational flow); therefore, leakage is inspected via their overflow pipe.

TABLE 11 **IN-PIT SUMP EXCEEDANCE LEVELS**			
Facility	**Latitude/Longitude**	**Action Level**	**Violation Level**
In-Pit Sump	33º05'27.68"N / 109º21'32.01"W	3,800 ft above mean sea level	3,980 ft above mean sea level

TABLE 12 **ACTION LEVELS FOR OPERATIONAL MONITORING** **LOWER CHASE CREEK FACILITIES – POC WELLS CC-44, CC-46, AND CC-53**	
Parameter	**Action Level**
Field Ph (standard units)	6.0
Total dissolved solids (mg/L)	2,100
Sulfate (mg/L)	1,000

TABLE 13 – MORENCI WWTP – ROUTINE DISCHARGE MONITORING[2]					
Sampling Point Number	**Sampling Point Identification**			**Latitude**	**Longitude**
1	Effluent Lift Station			33° 01' 38" N	109° 18' 38" W
Parameter	**AL**[3]	**DL**[4]	**Units**	**Sampling Frequency**	**Reporting Frequency**
Total Flow[5]: Daily[6]	Not Established[7]	Not established	mgd[8]	Daily	Quarterly
Total Flow: Monthly Average[9]	1.19	1.25	mgd	Monthly Calculation	Quarterly
Fecal Coliform: Single sample maximum	Not established	800	CFU[10]	Daily[11]	Quarterly
Fecal Coliform: four (4) of seven (7) samples in a week[12]	Not established	200[13]	CFU	Weekly Evaluation	Quarterly
Total Nitrogen[14]: Five-sample rolling geometric mean[15]	Not established	Not established	mg/l[16]	Monthly Calculation	Quarterly

[2]The permittee shall initiate monitoring under this table (Section 4.2, TABLE IA) upon starting operation of the new facilities.

[3]AL = Alert Level

[4]DL = Discharge Limit

[5]Total flow for all methods of disposal.

[6]Flow shall be measured using a continuous recording flow meter which totals the flow daily.

[7]Not Established means monitoring is required but no limits are specified.

[8]mgd = million gallons per day

[9]Monthly average of daily flow values.

[10]CFU = Colony Forming Units / 100 ml sample. For CFU, a value of <1.0 shall be considered to be non-detect.

[11]For fecal coliform **only**, "daily" sampling means every day in which a sample can practicably be obtained and delivered in sufficient time for proper analysis, provided that no less than four (4) samples in each week are obtained and analyzed.

[12]**Week** means the seven-day period starting on Sunday and ending on the following Saturday. The reporting form for this parameter consists of 13 weeks per quarter.

[13]Fecal coliform four (4) of seven (7) samples requires entering "Compliance" or "Non-compliance" on the SMRF for each week of the reporting period. Evaluate the daily fecal coliform results for that week (Sunday through Saturday). If, of these seven (7) days, four (4) or more of the daily fecal coliform results are non-detect, report "Compliance" for that week's entry on the SMRF. If three (3) or fewer of the daily fecal coliform results are non-detect, report "Non-compliance for that week's entry on the SMRF.

[14]Total Nitrogen = Nitrate as N + Nitrite as N + Total Kjeldahl Nitrogen

[15]The five-sample rolling geometric mean is determined by multiplying the five (5) most recent monthly sample values together then taking the fifth root of the product. *Example:* $GM_5 = \sqrt[5]{(m_1)(m_2)(m_3)(m_4)(m_5)}$ "For the first four samples, enter "Not Required" on the SMRF."

[16]mg/l = milligrams per liter

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 for Phelps Dodge Morenci, Inc., Volumes 1-10, dated March 28, 1996.

2. Hydrology Addendum for Phelps Dodge Morenci District Aquifer Protection Permit Application, prepared by Dames and Moore, dated December 22, 1998.

3. Demonstration of Compliance with Aquifer Water Quality Standards for Facilities Located Outside of the Hydrologic Sink, prepared by Dames and Moore, dated November 29, 1999.

4. Field Investigation of Vertical Hydraulic Gradients Within the Morenci Open Pit Mining Area, Phelps Dodge Morenci District, prepared by Dames and Moore, dated February 24, 2000.

5. Proposed Approach for Calculation of Alert Levels, prepared by Dames and Moore, dated March 15, 2000.

6. Proposed Point of Compliance Monitor Wells, prepared by Dames and Moore, dated May 5, 2000.

7. Two Combined "other" amendments, effective January 23, 2007, that modified the footprint of the King Stockpile (Facility 88), to incorporate an area (Garfield Test Leach Area) to be used as a temporary location for leach testing of selected ores (Shannon Stockpile run-of-mine ore); modified Section 2.6.2 to no longer require the submission of sampling logs and records, lab analytical reports, field notes, and QA/QC procedures with the SMRF forms; clarified Section 2.6.1(5), which requires graphs of groundwater monitoring data to be submitted in biennial reports; changed the Compliance Schedule submission date and completion date of a closure plan for the Former Metcalf Concentrate Overflow Ponds; replaced Sections 1, 4, 5, 6, and 7 to conform to the current APP framework; revised the Groundwater Section and subordinate Unit names throughout the permit to conform to the current organizational structure; corrected rules citations to conform to the current APP Rules in Section 2.6.5 and Section 2.9.

8. Application for Permit Amendment, PCCZ Stockpile, Morenci Mining District, prepared by URS, dated July 29, 2008.

9. An "other" amendment, effective October 8, 2009, that added to the permit a revised footprint and pollutant management area (PMA) for the Southwest (Leach) Stockpile, and modified the configuration of eight leach collection facilities in the Southwest Stockpile Collection System.

10. A "significant" amendment, dated April 8, 2010, for which a demonstration that the Hydrologic sink created by the open-pit and other controls has created a passive containment capture zone (PCCZ) within the mine site.

11. An "other" amendment, effective March 30, 2011, which satisfied the compliance schedule requirement to submit an updated financial assurance mechanism for APP P-100193.

12. An "other" amendment, effective February 27, 2012, which included expansion of the Pollutant Management Area (PMA) to include newly acquired property to the west of the Garfield Pit, and replacement of groundwater level monitor well DW-17 with DW-16, due to expansion of the Garfield Pit.

13. An "other" amendment, effective July 5, 2012, which included expansion of the Pollutant Management Area (PMA) to include newly acquired property to the west of the Garfield Pit and replacement of groundwater level monitor well DW-40 with DW-38, due to expansion of the Garfield Pit.

14. Application for Permit Amendment, Freeport-McMoRan Morenci, Tailings Dam Reconstruction, prepared by URS, dated May 30, 2012; and Tailing Dam Reconstruction APP Amendment Response to ADEQ

Request for Additional Information with Suspension, dated August 20, 2012.

15. Inventory No. 100193, including all correspondence, engineering reviews and hydrological reviews.

16. Public Notice dated: July 26, 2000

17. Public comments, correspondence and any additional supplemental information contained in the permit file: Inventory Number 100193.

18. Original permit effective 10/26/00

19. Previous amendments effective 3/12/01, 5/9/01, 1/31/02, 8/1/02, 7/26/03, 9/26/03, 1/23/07, 10/8/09, 4/8/10, and 3/30/2011.

20. Minor Amendment application received 5/26/15 (Effective 6/30/15)
    Silver Basin Stockpile Pond

21. Significant Amendment application received 8/31/2016 (Effective 8/9/17)
    WWTP

22. Significant Amendment application received 4/7/2017 (Effective 9/8/17)
    Change permit pages 17 & 18

22. Significant Amendment application received 5/23/2018 (Effective 11/26/18)
    East West Tailings Impoundment

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 5 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).