ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a mine with a total of three outfalls and discharge volumes dependent on storm flows. The facility is considered to be a major facility under the NPDES program. The discharge limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 et. seq. This permit is proposed to be issued for a period of 5 years.

I. PERMITTEE INFORMATION	
Permittee's Name:	Freeport-McMoRan Bagdad, Inc.
Permittee's Mailing Address:	P.O. Box 245 Bagdad, AZ 86321
Facility Name:	Freeport-McMoRan Bagdad, Inc. (FMBI)
Facility Address or Location:	1 Main Street Bagdad, AZ 86321
County:	Yavapai
Contact Person(s): Phone/e-mail address	Trika Graham; Timothy Haynes (928) 633-6084 (928) 633-6080
AZPDES Permit Number:	AZ0022268
Inventory Number:	101763
LTF Number:	73677

II. STATUS OF PERMIT(s)	
AZPDES permit applied for:	Renewal
Date application received:	**September 26, 2018**
Date application was determined administratively complete:	October 3, 2018
Previous permit number (if different):	N/A
Previous permit expiration date:	March 25, 2019

208 Consistency:

In accordance with A.A.C. R18-9-A903(6), a permit cannot be issued for any discharge inconsistent with a plan or plan amendment approved under section 208(b) of the Clean Water Act.

208 Plan consistency is not required for industrial facilities.

Freeport-McMoRan Bagdad, Inc. (FMBI) has the following permits issued by ADEQ applicable to Freeport-McMoRan Bagdad Inc.:

II. STATUS OF PERMIT(s)		
Type of Permit		
Aquifer Protection Permit (APP)	P105258 P102896 P101740 50007300A	Regulates discharges to the local aquifer
Multi-Sector General Permit (MSGP)	AZMSGP-64654	Regulates stormwater discharge

III. GENERAL FACILITY INFORMATION	
Type of Facility:	Industrial facility; Copper Ore Extraction Mine
Facility Location Description:	Located at the terminus of Highway 96 in south-western Yavapai County. The facility encompasses most of Section 4 and the eastern portion of Section 5 of Township 14 N, and Range 9 W. Approximately 4 miles north-west of downtown Bagdad.
Discharge Flow:	No discharges occurred during the current permit term.
Treatment Processes:	Extracts and processes raw ore for beneficiation of copper and molybdenum. Extracting operations at the site include an open pit porphyry copper mine and dump leaching operations. Beneficiation processes include flotation, heap leach, concentrate leach, solution extraction, and electrowinning. Tailings from the concentrator operation are stored in the Upper Mammoth, Mammoth, and Mulholland tailings impoundments. Other ancillary facilities include waste rock dumps, truck and vehicle washes, petroleum storage, vehicle and truck maintenance shops, offices, and a railroad load-out at Hillside, Arizona. Copper Creek pregnant leach solution process area consists of a dump leaching operation, the Copper Creek leachate collection basin and the Copper Creek flood basin. The Mulholland tailings seepage reclaim pond is equipped with two vertical turbine pumps that re-circulate seepage back to the tailings impoundment. The Mammoth tailings seepage collection pond has a pump system to recirculate seepage back to the tailings impoundment.
Nature of facility discharge:	Outfall 001: Discharge stormwater mixed with mine process water, and mine drainage. Outfall 003: Discharge stormwater mixed with tailings reclaim water, mine process water, and mine drainage Outfall 006: Discharge stormwater mixed with tailings reclaim water, mine process water, and mine drainage
Average flow per discharge:	Based on the 2010 storm event; the applicant indicates that the average flow per discharge at Outfall 006 is 0.78 MGD.
Continuous or intermittent discharge:	Intermittent; no discharges have occurred during this current permit term. The most recent discharge occurred at Outfall 006 in 2010 in response to a 100-year, 2-hour rain event.

III. GENERAL FACILITY INFORMATION	
Discharge pattern summary:	Discharges only occur when pump back flows of reclaim water exceeds demand and when overflows of containment structures occur due to extreme and/or compounding storm events.
Outfall 001 and 003 have had no discharges since 2005. Outfall 006 has not discharged since July 29, 2010 in response to a 100-year, 2-hour rain event of 2.92 inches falling in one hour and 40 minutes.	

IV. RECEIVING WATER	
The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by designated use depending on the level of protection required to maintain that use.	
Receiving Water :	FMBI Mine Outfall 001: Copper Creek, tributary to Boulder Creek (below confluence with unnamed tributary to confluence with Burro Creek), tributary to Burro Creek FMBI Mine Outfall 003: Mulholland Wash, tributary to Boulder Creek (below confluence with unnamed tributary to confluence with Burro Creek), tributary to Burro Creek FMBI Mine Outfall 006: Mammoth Wash, tributary to Burro Creek Below confluence with Boulder Creek to confluence with Big Sandy River
River Basin:	FMBI Mine Outfall 001: Bill Williams River Basin FMBI Mine Outfall 003: Bill Williams River Basin FMBI Mine Outfall 006: Bill Williams River Basin
Outfall Location(s):	Outfall 001: Township 14N, Range 9W, Section 29 Latitude 34° 36’ 25”N, Longitude 113° 13’ 51”W Outfall 003: Township 14N, Range 10W, Section 36 Latitude 34° 35’ 52”N, Longitude 113° 15’ 23”W Outfall 006: Township 15N, Range 10W, Section 3 Latitude 34° 35’ 17”N, Longitude 113° 17’ 22”W
The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.	
Designated uses for the receiving water listed above:	Copper Creek (Outfall 001), Mulholland Wash (Outfall 003), and Mammoth Wash (Outfall 006) are unlisted perennial or intermittent tributaries which, per A.A.C. 18-11-105.3, have designated uses: Aquatic and Wildlife warm water (A&Ww) Full Body Contact (FBC) Fish Consumption (FC) Copper Creek (Outfall 001) and Mulholland Wash (Outfall 003) are tributaries to Boulder Creek, which has the following designated uses: Aquatic and Wildlife warm water (A&Ww)

IV. RECEIVING WATER	
	Full Body Contact (FBC) Fish Consumption (FC) Agricultural Livestock watering (AgL) Mammoth Wash (Outfall 006) is tributary to Burro Creek, which has the following designated uses: Aquatic and Wildlife warm water (A&Ww) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Livestock watering (AgL)
Because the discharges from Outfalls 001 and 003 may reach Boulder Creek, the Boulder Creek designated uses are applied to these outfalls. Therefore, the following uses are being applied to the receiving water (Outfalls 001 & 003): Aquatic and Wildlife warm water (A&Ww) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Livestock watering (AgL) Because the discharge from Outfall 006 may reach Burro Creek, the Burro Creek designated uses are applied to this outfall. Therefore, the following uses are being applied to the receiving water (Outfall 006): Aquatic and Wildlife warm water (A&Ww) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Livestock watering (AgL)	
Is the receiving water on the 303(d) list?	No, and there are no TMDL issues associated, however, it is noted that Boulder Creek upstream of Copper Creek is impaired for Arsenic, but does not affect the point source discharge from Copper Creek, a lower tributary below Boulder Creek.
Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108, and the applicable numeric water quality standards are listed in A.A.C. R18-11-109 and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. In developing AZPDES permits, the standards for all applicable designated uses are compared and limits that will protect for all applicable designated uses are developed based on the standards.	
In addition to the above, the Colorado River has a salinity standard. Per A.A.C. R18-11-110, the flow-weighted average annual concentration of total dissolved solids shall not exceed 747 milligrams per liter (mg/L) in the river below Parker Dam and above Imperial Dam. In order to meet this standard, discharges must meet the plan of implementation requirements developed by the Colorado River Basin Salinity Control Forum.	

V. DESCRIPTION OF DISCHARGE

Because the facility is in operation and discharges have occurred, discharge monitoring data are available. The following is the measured discharge quality reported in the application at Outfall 006 which occurred in July 2010. No data for Outfalls 001 and 003 were submitted as there were no discharges during the existing permit term.

Parameters	Units	Maximum Daily Discharge Concentration
Total Suspended Solids (TSS)	mg/L	597

V. DESCRIPTION OF DISCHARGE

Because the facility is in operation and discharges have occurred, discharge monitoring data are available. The following is the measured discharge quality reported in the application at Outfall 006 which occurred in July 2010. No data for Outfalls 001 and 003 were submitted as there were no discharges during the existing permit term.

Parameters	Units	Maximum Daily Discharge Concentration
pH	S.U.	7.9
Flow	MGD	0.78
Antimony	µg/L	4.1
Arsenic	µg/L	7.4
Cadmium	µg/L	0.6
Copper	µg/L	208.4
Cyanide	µg/L	< 3
Lead	µg/L	5.6
Magnesium	µg/L	61,000
Mercury	µg/L	< 0.2
Nickel	µg/L	19.6
Selenium	µg/L	8.6
Silver	µg/L	0.58
Sulfides	µg/L	< 200
Thallium	µg/L	0.1
Zinc	µg/L	32
Hardness	mg/L	1460

VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT

Date of most recent inspection:	11/24/2015; no potential violations were noted as a result of this inspection.
DMR files reviewed:	No discharge occurred during the current permit term.
Lab reports reviewed:	No discharge occurred during the current permit term.
DMR Exceedances:	No exceedances were noted.
NOVs issued:	None
NOVs closed:	N/A
Compliance orders:	None

VII. PROPOSED PERMIT CHANGES

The following table lists the major changes from the previous permit in this draft permit.

Parameter	Existing Permit	Proposed permit	Reason for change
Reporting Location	Mail in hard copies of DMRs and other attachments	DMRs and other reports to be submitted electronically through myDEQ portal	Language added to support the NPDES electronic DMR reporting rule that became effective on December 21, 2015.
Storm Water Exemption (Outfall 001)	Storm Water Exemption for discharge described in the Fact Sheet	Storm Water Exemption added into the Special Conditions Part IV of the permit	Language added to clarify when the facility can discharge in result of a storm event and not be subject to the technology-based limitations if the conditions pursuant to 40 CFR 440.131(c) are met.
Storm Water Exemption (Outfalls 003 & 006)	Storm Water Exemption for discharge described in the Fact Sheet	Storm Water Exemption added into the Special Conditions Part IV of the permit	Language added to clarify when the facility can discharge in result of a storm event and not be subject to the technology-based limitations if the conditions pursuant to 40 CFR 440.131(b) are met.
Discharge Limitation (Outfalls 003 & 006)	Limited to 10-year, 24-hour storm event	No storm event limitation	New information is available that was not available at the time the 2007 permit was issued.
Whole Effluent Toxicity (WET) Testing – Species Outfalls 001, 003 & 006	*Ceriodaphnia dubia*	*Daphnia magna*	*Daphnia magna* is more suitable for testing discharges because it naturally occurs in hard to very hard waters representative of conditions in Boulder and Burro Creeks.

Anti-backsliding considerations – "Anti-backsliding" refers to statutory (Section 402(o) of the Clean Water Act) and regulatory (40 CFR 122.44(l)) requirements that prohibit the renewal, reissuance, or modification of an existing NPDES permit that contains effluent limits, permit conditions, or standards that are less stringent than those established in the previous permit. The rules and statutes do identify exceptions to these circumstances where backsliding is acceptable. This permit has been reviewed and drafted with consideration of anti-backsliding concerns.

ADEQ received a letter dated March 1st 2019 from Freeport-McMoRan Bagdad Inc. that requested ADEQ remove the 10-year, 24-hour storm event limitation on Outfalls 003 and 006. The 10-year, 24-hour storm event limitation was implemented for discharges from Outfalls 003 and 006 in the permit issued in 2007. ADEQ's rationale used in setting the 10-year, 24-hour storm event limitation was based on TDS sample data of the tailings ponds taken by an ADEQ inspector. At that time, ADEQ concluded a discharge of undiluted tailings reclaim water could be toxic to sensitive aquatic species including those used in WET testing.

In urging the removal of the discharge prohibition, FMBI points to additional factual information available that was not available at the time of the 2007 permit issuance. Two facts stand out among this evidence: (1) the fact that the

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tailings impoundments associated with Outfalls 003 and 006 are no longer actively being used and (2) the passing WET test results from the discharge at Outfall 006 that occurred in July 2010.

If these two facts had been known at the time of the previous permit, the storm event limitation would not have been imposed. Therefore, ADEQ concludes that this additional information that was not available in 2007 both supports the removal of the 10-year, 24-hour storm event limitation on Outfalls 003 and 006, and qualifies for the exception to anti-backsliding found at 40 CFR §122.44(l)(2)(i)(B)(1) (Backsliding allowed when "information is available which was not available at the time of permit issuance… and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.")

VIII. DETERMINATION OF DISCHARGE LIMITATIONS and ASSESSMENT LEVELS

When determining what parameters need monitoring and/or limits included in the draft permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.

Technology-based Limitations: As outlined in 40 CFR Part 440:
The discharge from FMBI Mine is subject to the requirements specified under 40 CFR Part 440, Ore Mining and Dressing Point Source Category. Subpart J, Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ore Subcategory, applies to mines that produce copper, lead, zinc, gold, silver, or molybdenum ores, singly or in combination, from open-pit or underground operations.

40 CFR 440.103(a) establishes discharge limitations applicable to mine drainage. The following limitations represent the degree of discharge reduction attainable by the application of the best available technology economically achievable (BAT):

Parameter	30-day Average	Daily Maximum
Cu	0.15 mg/L	0.30 mg/L
Zn	0.75 mg/L	1.5 mg/L
Pb	0.3 mg/L	0.6 mg/L
Hg	0.001 mg/L	0.002 mg/L
Cd	0.05 mg/L	0.10 mg/L

40 CFR 440.103(b) establishes discharge limitation applicable to mills that employ the froth-flotation process alone or in conjunction with other processes (applicable to concentrator discharges, i.e., tailings). The following limitations represent the degree of discharge reduction attainable by the application of the best available technology economically achievable (BAT):

Parameter	30-day Average	Daily Maximum
Cu	0.15 mg/L	0.30 mg/L
Zn	0.5 mg/L	1.0 mg/L
Pb	0.3 mg/L	0.6 mg/L
Hg	0.001 mg/L	0.002 mg/L
Cd	0.05 mg/L	0.10 mg/L

40 CFR 440.102(a) establishes the following limitation that represents the degree of discharge reduction attainable for mine drainage by the application of the best practicable control technology currently available (BPT):

Parameter	30-day Average	Daily Maximum
Total suspended solids (TSS)	20 mg/L	30 mg/L
pH	Within the range of 6.0 to 9.0	

VIII. DETERMINATION OF DISCHARGE LIMITATIONS and ASSESSMENT LEVELS

40 CFR 440.102(b) establishes discharge limitation applicable to mills that employ the froth-flotation process alone or in conjunction with other processes (applicable to concentrator discharges, i.e., tailings). The following limitations represent the degree of discharge reduction attainable by the application of the best practicable control technology currently available (BPT):

Parameter	30-day Average	Daily Maximum
Total suspended solids (TSS)	20 mg/L	30 mg/L
pH	Within the range of 6.0 to 9.0	

The technology based limitations stated above apply to all permitted discharges from the facility under this permit.

Any discharge of mine drainage subject to Part 440 Subpart J may qualify for the *Storm exemption for facilities permitted to discharge* as provided in 40 CFR Part 440.131 (b) allows a source with a discharge from mills that employ froth flotation processes alone or in conjunction with other processes is subject to 40 CFR Part 440 to have an overflow as a result of a storm event that does not meet the limitations established in 40 CFR Part 440 if that facility (1) is designed, constructed and maintained to contain the maximum volume of wastewater which would be generated by the 10-year, 24-hour storm event and (2) has taken all reasonable steps to maintain treatment and minimize overflow and (3) provides notification of such discharges.

The *Storm exemption for facilities not permitted to discharge* as provided in 40 CFR Part 440.131(c) allows a source which is not permitted to discharge process wastewater from mine areas and mill processes and areas that use dump, heap, in situ, or vat leach processes is subject to 40 CFR Part 440 to have an overflow as a result of a storm event that does not meet limitations established in 40 CFR Part 440 if that facility (1) is designed, constructed, and maintained to contain the maximum volume of wastewater stored and contained by the facility during normal operating conditions without an increase in volume from precipitation and the maximum volume of wastewater that would be generated by a 10-year, 24-hour storm event and (2) has taken all reasonable steps to minimize overflow or excess discharge and (3) provides notification of such discharges.

The FMBI Mine will control all areas of mine drainage and areas of potential mine drainage at the mine site within containment designed to contain the 24-hour, 100-year storm event or the 24-hour, 10-year storm event. Because discharges from the FMBI Outfalls 001, 003, and 006 are expected to qualify for the stormwater exemption, the technology-based limitations have been noted in the discharge limitations specified in Part I, Tables 1, 2, and 3. Additional monitoring and reporting of all parameters are required in Table 4.a and 4.b. Requirements for containment, maintenance, and sampling of runoff are detailed in Part IV of the permit and include requirements that the FMBI Mine establish and maintain Best Management Practices.

Numeric Water Quality Standards: As outlined in A.A.C. R18-11-109 and Appendix A:
Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), discharge limits must be included in the permit for parameters with "reasonable potential" (RP), that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. RP refers to the possibility, based on the statistical calculations using the data submitted, or consideration of other factors to determine whether the discharge may exceed the Water Quality Standards. The procedures used to determine RP are outlined in the *Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001). In most cases, the highest reported value for a parameter is multiplied by a factor (determined from the variability of the data and number of samples) to determine a "highest estimated value". This value is then compared to the lowest applicable Water Quality Standard for the receiving water. If the value is greater than the standard, RP exists and a water quality-based effluent limitation (WQBEL) is required in the permit for that parameter. RP may also be determined

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from BPJ based on knowledge of the treatment facilities and other factors. The basis for the RP determination for each parameter with a WQBEL is shown in the table below.

The proposed permit limits were established using a methodology developed by EPA. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect all uses. This methodology takes into account criteria, effluent variability, and the number of observations taken to determine compliance with the limit and is described in Chapter 5 of the TSD. Limits based on A&W criteria were developed using the "two-value steady state wasteload allocation" described on page 99 of the TSD. When the limit is based on human health criteria, the monthly average was set at the level of the applicable standard and a daily maximum limit was determined as specified in Section 5.4.4 of the TSD.

Mixing Zone

The limits in this permit were determined without the use of a mixing zone. Arizona state water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies for and is approved for a mixing zone. Since a mixing zone was not applied for or granted, all water quality criteria are applied at end-of-pipe.

Assessment Levels (ALs)

ALs are listed in Part I.D of the permit. An AL differs from a discharge limit in that an exceedance of an AL is not a permit violation. Instead, ALs serve as triggers, alerting the permitting authority when there is cause for re-evaluation of RP for exceeding a water quality standard, which may result in new permit limitations. The AL numeric values also serve to advise the permittee of the analytical sensitivity needed for meaningful data collection. Trace substance monitoring is required when there is uncertain RP (based on non-detect values or limited datasets) or a need to collect additional data or monitor treatment efficacy on some minimal basis. A reopener clause is included in the draft permit should future monitoring data indicate water quality standards are being exceeded.

The requirement to monitor for these parameters is included in the draft permit according to A.A.C. R18-11-104(C) and Appendix A. ALs listed for each parameter were calculated in the same manner that a limit would have been calculated (see Numeric Water Quality Standards Section above).

The permittee is required to sample hardness as CaCO3 at the same time the trace metals are sampled because the water quality standards for some metals are calculated using the water hardness values. The hardness value of 241 mg/L from Boulder Creek for Outfalls 001 and 003, and 276 mg/L from Burro Creek for Outfall 006 as provided in the submitted annual reports, were used to calculate the discharge limits/assessment levels for cadmium, copper, lead, selenium, silver, and zinc.

Hardness

The permittee is required to sample hardness as $CaCO_3$ at the same time the trace metals are sampled because the water quality standards for some metals are calculated using the water hardness values. The hardness value of 241 mg/L from Boulder Creek for Outfalls 001 and 003, and 276 mg/L from Burro Creek for Outfall 006 as provided in the submitted annual reports, were used to calculate the discharge the applicable water quality standards and any assessment levels or limits for the hardness dependent metals (cadmium, chromium III, copper, lead, nickel, silver and zinc).

Whole Effluent Toxicity (WET)

WET testing is required in the draft permit (Parts I.E and III) to evaluate the discharge according to the narrative toxic standard in A.A.C. R18-11-108(A)(5), as well as whether the discharge has RP for WET per 40 CFR 122.44(d)(iv).

The draft permit requires one time per discharge monitoring for acute toxicity test for two surrogate species [*Daphnia magna* (water flea) representing the invertebrate phyla; and *Pimephales promelas* (fathead minnow), a vertebrate species]. An exceedance of an action level will trigger follow-up testing to determine if discharge toxicity is

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persistent where possible. If toxicity above an action level is found in a follow-up test as applicable, the permittee will be required to conduct a Toxicity Reduction Evaluation (TRE) and possibly a Toxicity Identification Evaluation (TIE) to identify the source of toxicity and reduce toxicity. These conditions are required to ensure that toxicants are not discharged in amounts that are toxic to organisms [A.A.C. R18-11-108(A)(5)]. A reopener clause is included in accordance with 40 CFR Parts 122 and 124 and A.A.C. R18-9-B906.

WET testing for acute toxicity shall be conducted using the following two surrogate species:

- *Daphnia magna* (water flea) – for evaluating toxicity to invertebrates
- *Pimephales promelas* (fathead minnow) – for evaluating toxicity to vertebrates

The draft permit requires WET test results to be reported on discharge monitoring reports and submittal of the full WET lab report to ADEQ.

Discharge Characterization (DC)

In addition to monitoring for parameters assigned either a limit or an AL, sampling is required to assess the presence of pollutants in the discharge at certain minimum frequencies for additional suites of parameters, whether the facility is discharging or not. This monitoring is specified in Table 6, *Discharge Characterization Testing,* as follows:

• Table 6 - Discharge Characterization Testing – Selected Metals for Outfalls 003 and 006.

NOTE: Some parameters listed in Table 6 are also listed in Tables 1, 2, 3, 4a, or 4b. In this case, the data from monitoring under Tables 1, 2, 3, 4a, or 4b may be used to satisfy the requirements of Table 6, provided the specified sample types are the same.

The purpose of Discharge Characterization (DC) monitoring is to characterize the discharge and determine if the parameters of concern are present in the discharge and at what levels. This monitoring will be used to assess RP per 40 CFR 122.44(d)(1)(iii)). DC monitoring is required in accordance with 40 CFR 122.43(a), 40 CFR 122.44(i), and 40 CFR 122.48(b) as well as A.R.S. §49-203(A)(7). If pollutants are noted at levels of concern during the permit term, this permit may also be reopened to add related limits or conditions.

Permit Limitations and Monitoring Requirements

The table that follows summarizes the parameters that are limited in the permit and the rationale for that decision. Also included are the parameters that require monitoring without any limitations or that have not been included in the permit at all and the basis for those decisions. The corresponding monitoring requirements are shown for each parameter. In general, the regulatory basis for monitoring requirements is per 40 CFR §122.44(i) *Monitoring requirements,* and 40 CFR §122.48(b), *Required monitoring*; all of which have been adopted by reference in A.A.C. R18-9-A905, *AZPDES Program Standards*.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Flow	- - -	- - -	- - -	- - -	- - -	Discharge flow is to be calculated for discharges from Outfall 001 and monitored for discharges from Outfalls 003 and 006 using accepted practices.
Total Suspended Solids (TSS)	20 mg/L 30-day average 30 mg/L 7-day average/ Technology-based limits 40 CFR 440.102(a)	597 mg/L (Outfall 006)	1	N/A	TBELs are always included.	Monitoring for discharge TSS to be conducted 1x/discharge using discrete samples of the discharge. The sample type required was chosen to be representative of the discharge. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected. Limit retained from previous permit.
pH	Minimum: 6.5 Maximum: 9.0 Maximum change due to discharge: 0.5 / A&Ww, FBC, and AgL A.A.C. R18-11-109(B)	7.9 (Outfall 006)	1	N/A	Limit is always included. TBEL exists in addition to the limit in A.A.C.R18-11-109(B)	pH is to be monitored 1x/discharge using a discrete sample of the discharge. 40 CFR Part 136 specifies that grab samples must be collected for pH. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected.
Outfall 001						
Antimony	30 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Arsenic	30 µg/L/ FBC	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Beryllium	5.3 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Cadmium (2)	4.28 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Chromium (Total)	1,000 µg/L/ AgI and AgL	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Chromium VI	11 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Copper (2)	19 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Cyanide	9.7 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	No Data	N/A	N/A	N/A	A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on the average hardness value of 241 mg/L (Boulder Creek). Monitoring for hardness in the discharge and receiving water (See Ambient Surface Water Monitoring in Part IV.B) is required whenever monitoring for hardness dependent metals is required.
Hydrogen Sulfide	2 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring is required 1x/discharge for sulfides as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Iron	1,000 ug/L / A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Lead (2)	6.46 µg/L / A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Mercury	0.01 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Nickel (2)	109 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Selenium	2 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Silver (2)	15 µg/L/ A&Ww acute	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Sulfides	No applicable standard.	No Data	N/A	N/A	N/A	Indicator parameter for hydrogen sulfide. Monitoring is required 1x/discharge. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Thallium	7.2 µg/L/ FC	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Zinc (2)	247 µg/L/ A&Ww acute and chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Outfall 003						
Antimony	30 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Arsenic	30 µg/L/ FBC	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge for discharge characterization.
Beryllium	5.3 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Cadmium (2)	4.28 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge for discharge characterization.
Chromium (Total)	1,000 µg/L/ AgI and AgL	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge as an indicator parameter for Chromium VI.
Chromium VI	11 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (Based on total chromium data)	Monitoring required 1x/discharge and an assessment level remains.
Copper (2)	19 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Cyanide	9.7 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	No Data	N/A	N/A	N/A	A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on the average receiving water hardness value of 241 mg/L (Boulder Creek). Monitoring for hardness in the discharge and receiving water (see Ambient Surface Water Monitoring in Part IV.B) is required whenever monitoring for hardness dependent metals is required.
Hydrogen Sulfide	2 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring is required 1x/discharge for sulfides as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Iron	1,000 ug/L / A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Lead (2)	6.46 µg/L / A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Mercury	0.01 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Nickel (2)	109 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge for discharge characterization.
Selenium	2 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Silver (2)	15 µg/L/ A&Ww acute	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Sulfides	No applicable standard.	No Data	N/A	N/A	N/A	Indicator parameter for hydrogen sulfide. Monitoring is required 1x/day. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Thallium	7.2 µg/L/ FC	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Zinc (2)	247 µg/L/ A&Ww acute and chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge for discharge characterization.
Outfall 006						
Antimony	30 µg/L/ A&Ww chronic	4.1 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and an assessment level remains.
Arsenic	30 µg/L/ FBC	7.4 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge for discharge characterization.
Beryllium	5.3 µg/L/ A&Ww chronic	0.6 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and an assessment level remains.
Cadmium (2)	4.73 µg/L/ A&Ww chronic	0.6 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and a limit remains in the permit.
Chromium (Total)	1,000 µg/L/ AgL	< 10 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge as an indicator parameter for Chromium VI.
Chromium VI	11 µg/L/ A&Ww chronic	No Data	N/A	N/A	Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Copper (2)	21 µg/L/ A&Ww chronic	208.4 µg/L	1	N/A	RP Exists	Monitoring required 1x/discharge and a limit remains in the permit.
Cyanide	9.7 µg/L/ A&Ww chronic	< 3.0 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and an assessment level remains.
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	1460 mg/L	1	N/A	N/A	A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on the average receiving water hardness value of 276 mg/L (Burro Creek). Monitoring for hardness in the discharge and receiving water (see Ambient Surface Water Monitoring in Part IV.B) is required whenever monitoring for hardness dependent metals is required.
Hydrogen Sulfide	2 µg/L/ A&Ww chronic	No Data	N/A	N/A	RP Indeterminate (No Data)	Monitoring is required 1x/discharge for sulfides as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Iron	1,000 ug/L / A&Ww chronic	No Data	N/A	N/A	RP Indeterminate (No Data)	Monitoring required 1x/discharge and an assessment level remains.
Lead (2)	7.45 µg/L / A&Ww chronic	5.6 µg/L	1	N/A	RP Exists based on previous permit	Monitoring required 1x/discharge and a limit remains in the permit.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Mercury	0.01 µg/L/ A&Ww chronic	< 0.2 µg/L	1	N/A	RP Exists based on previous permit (high LOQ)	Monitoring required 1x/discharge and a limit remains in the permit.
Nickel (2)	123 µg/L/ A&Ww chronic	19.6 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge for discharge characterization.
Selenium	2 µg/L/ A&Ww chronic	8.6 µg/L (4)	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and an assessment level remains.
Silver (2)	18 µg/L/ A&Ww acute	0.6 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and an assessment level remains.
Sulfides	No applicable standard.	< 2.0 µg/L	1	N/A	N/A	Indicator parameter for hydrogen sulfide. Monitoring is required 1x/discharge. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Thallium	7.2 µg/L/ FC	0.1 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge and an assessment level remains.
Zinc (2)	277 µg/L/ A&Ww acute and chronic	32 µg/L	1	N/A	Indeterminate (Insufficient Data)	Monitoring required 1x/discharge for discharge characterization.
Outfalls 001, 003, & 006						
Whole Effluent Toxicity (WET)	No Toxicity (A.A.C. R18-11-108(A)(6))	Pimephales promelas	No data (Outfalls 001, & 003) 1 TUc (Outfall 006)	1 (Outfall 006)	N/A 1 TUc (Outfall 006)	Indeterminate (Insufficient data)	Monitoring is required 1x/discharge and an action level is set in the permit.
		Ceriodaphnia dubia	No data (Outfalls 001, 003, & 006)	N/A	N/A	Indeterminate (No data)	Monitoring is required 1x/discharge and an action level is set in the permit.
		Pseudo-kirchneriella subcapitata (3)	No data (Outfalls 001, 003, & 006)	N/A	N/A	N/A	Monitoring not required for acute testing.

Footnotes:

(1) The monitoring frequencies above are required when the facility is discharging through Outfall 001, 003, & 006.

(2) Hardness-dependent metal - the standard for this parameter is based on the average hardness value of the receiving water (241 mg/L for Boulder Creek (Outfall 001 & 003) and 276 mg/L for Burro Creek (Outfall 006)).

(3) Formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata.*

(4) Unusual event caused discharge which is not expected to represent the discharges authorized by this permit.

IX. NARRATIVE WATER QUALITY STANDARDS
All narrative limitations in A.A.C. R18-11-108 that are applicable to the receiving water are included in Part I, Sections G and H of the draft permit.

X. MONITORING AND REPORTING REQUIREMENTS (Part II of Permit)
Section 308 of the Clean Water Act and 40 CFR Part 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.
Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Monitoring frequencies for some parameters may be reduced in subsequent permits if all monitoring requirements have been met and the limits or ALs for those parameters have not been exceeded during the first permit term.
Discrete (i.e., grab) samples are specified in the permit for all parameters. The quality of the discharge is not expected to be highly variable.
Monitoring locations are specified in the permit (Part I.A, B, C and L) in order to ensure that representative samples of the influent and effluent are consistently obtained. In-stream discharge monitoring locations are specified in the permit (Part IV) in order to ensure that representative samples of the nearest upstream and downstream monitoring points are consistently obtained.
The requirements in the permit pertaining to Part II, Monitoring and Reporting, are included to ensure that the monitoring data submitted under this permit is accurate in accordance with 40 CFR 122.41(e). The permittee has the responsibility to determine that all data collected for purposes of this permit meet the requirements specified in this permit and is collected, analyzed, and properly reported to ADEQ.
The permit (Part II.A.2) requires the permittee to keep a Quality Assurance (QA) manual at the facility, describing sample collection and analysis processes; the required elements of the QA manual are outlined.
Reporting requirements for monitoring results are detailed in Part II, Sections B.1 and 2 of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs), and AZPDES Flow Record forms. The permittee is responsible for conducting all required monitoring and reporting the results to ADEQ on DMRs or as otherwise specified in the permit.
Electronic reporting The US EPA has published a final regulation that requires electronic reporting and sharing of Clean Water Act National Pollutant Discharge Elimination System (NPDES) program information instead of the current paper-based reporting (Federal Register, Vol. 80, No. 204, October 22, 2015). Beginning December 21, 2016 (one year after the effective date of the regulation), the Federal rule required permittees to make electronic submittals of any monitoring reports and forms called for in their permits. ADEQ has created an online portal called myDEQ that allows users to submit their discharge monitoring reports and other applicable reports required in the permit.
Requirements for retention of monitoring records are detailed in Part II.D of the permit.

XI. SPECIAL CONDITIONS (Part IV in Permit)

Storm Water Exemption

The permittee discharges mine drainage subject to Part 440 Subpart L and qualifies for the *Storm exemption for facilities permitted to discharge* as provided in 40 CFR Part 440.131 (b) allows a source with a discharge from mills that employ froth flotation processes alone or in conjunction with other processes is subject to 40 CFR Part 440 to have an overflow as a result of a storm event that does not meet the limitations established in 40 CFR Part 440 if that facility (1) is designed, constructed and maintained to contain the maximum volume of wastewater which would be generated by the 10-year, 24-hour storm event and (2) has taken all reasonable steps to maintain treatment and minimize overflow and (3) provides notification of such discharges.

The *Storm exemption for facilities not permitted to discharge* as provided in 40 CFR Part 440.131(c) allows a source which is not permitted to discharge process wastewater from mine areas and mill processes and areas that use dump, heap, in situ, or vat leach processes is subject to 40 CFR Part 440 to have an overflow as a result of a storm event that does not meet limitations established in 40 CFR Part 440 if that facility (1) is designed, constructed, and maintained to contain the maximum volume of wastewater stored and contained by the facility during normal operating conditions without an increase in volume from precipitation and the maximum volume of wastewater that would be generated by a 10-year, 24-hour storm event and (2) has taken all reasonable steps to minimize overflow or excess discharge and (3) provides notification of such discharges.

The permittee will control all areas of mine drainage and areas of potential mine drainage at the mine site within containment designed to contain the 24-hour, 100-year storm event or the 24-hour, 10-year storm event. Because discharges from the FMBI Outfalls 001, 003, and 006 are expected to qualify for the stormwater exemption, the technology-based limitations have been noted in the discharge limitations specified in Part I, Tables 1, 2, and 3. Additional monitoring and reporting of all parameters are required in Table 4.a and 4.b. Requirements for containment, maintenance, and sampling of runoff are detailed in Part IV of the permit and include requirements that the FMBI Mine establish and maintain Best Management Practices.

Ambient Surface Water (Instream Discharge) Monitoring

The permittee must conduct ambient surface water monitoring as specified in the permit in Part IV.B. The permittee must take discrete samples at the nearest upstream and all downstream receiving water monitoring points and at the point of discharge in the event of any discharge of mine process water to a surface water.

Seep Discharge Monitoring

The permittee must identify process related seeps located on mine property as defined in the Permit Part IV.E.4.a, and conduct initial monitoring of seep discharges as specified in Part IV.E.4.c. The permittee must report seepage monitoring via as defined in the Permit Part IV.E.

Receiving Water Bioassessment

If a discharge occurs, the permittee must perform an annual bioassessment in Burro Creek for a minimum of two consecutive years as specified in the Permit in Part IV.D in order to assess the ambient stream conditions and the effectiveness of best management practices implemented by the permittee. If no discharges occur during the permit term, bioassessments are not required.

Best Management Practice

The permittee must continue to maintain and update, when necessary, the existing best management practices (BMPs) plan as specified in the permit in Part IV.E which covers activities in the drainage basins tributary to the permitted outfalls.

XI. SPECIAL CONDITIONS (Part IV in Permit)

Permit Reopener

This permit may be modified based on newly available information; to add conditions or limits to address demonstrated effluent toxicity; to implement any EPA-approved new Arizona water quality standard; or to re-evaluate reasonable potential (RP), if assessment levels in this permit are exceeded [A.A.C. R18-9-B906 and 40 CFR Part 122.62 (a) and (b)].

XII. ANTIDEGRADATION

Antidegradation rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected. The discharges from the FMBI Mine Outfalls 001, 003, and 006 will be to tributaries to perennial waters with Tier 2 (Boulder Creek) or Tier 3 (Burro Creek) antidegradation protection. ADEQ does not consider the removal of the 10-year, 24-hour storm event limitation on Outfalls 003 and 006 to be an expanded discharge. This is a renewal permit for an existing facility with no new or expanded discharges, and the existing uses have been maintained. Therefore, an antidegradation review is not required at this time. Discharge quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable water quality standards. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107.

XIII. STANDARD CONDITIONS

Conditions applicable to all NPDES permits in accordance with 40 CFR, Part 122 are attached as an appendix to this permit.

XIV. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)

Rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-A908(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

EPA Review (A.A.C. R18-9-A908(C)

A copy of this draft permit and any revisions made to this draft as a result of public comments received will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.

XV. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – Surface Water Permits Unit
Attn: Devin McAllister
1110 West Washington Street
Phoenix, Arizona 85007

Or by contacting Devin McAllister at (602) 771 – 4374 or by e-mail at mcallister.devin@azdeq.gov.

XVI. INFORMATION SOURCES

While developing effluent limitations, monitoring requirements, and special conditions for the draft permit, the following information sources were used:

1. AZPDES Permit Application Form(s) 1 and 2C, received September 26, 2018, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.

2. ADEQ files on Freeport-McMoRan Bagdad, Inc.

3. Facility Information received February 8, 2019, discussed during in-person meeting with Freeport-McMoRan Bagdad, Inc.

4. ADEQ Geographic Information System (GIS) Web site

5. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters,* adopted December 31, 2016.

6. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.

7. Code of Federal Regulations (CFR) Title 40:
   Part 122, *EPA Administered Permit Programs: The National Pollutant Discharge Elimination System.*
   Part 124, *Procedures for Decision Making*.

8. EPA Technical Support Document for Water Quality-based Toxics Control dated March 1991.

9. *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*, US EPA, May 31, 1996.

10. U.S. EPA NPDES Permit Writers' Manual, September 2010.

11. FMBI Site Map provided by Freeport-McMoRan Bagdad Inc.