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 considered to be a major industrial facility under the NPDES program. The permit reflects Asarco's stipulation, for purposes of the permit, that the Gila River immediately below its confluence with Mineral Creek constitutes waters of the United States under either the Navigable Waters Protection Rule or *Rapanos v. United States*, 547 U.S. 715 (2006). Accordingly, the permit authorizes stormwater that is conveyed in Mineral Creek including the diversion tunnel and lined and unlined channels to be discharged into the Gila River, provided that the discharge complies with the pollution control requirements, monitoring requirements, numeric limits and other conditions applicable to the discharge under the permit. The discharge authorized under the permit includes the potential that stormwater commingled with Mineral Creek tunnel seepage containing pollutants attributable to Ray Operations flowing into the Gila River constitutes a discharge to waters of the United States. The applicability of *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (April 23, 2020) to any discharges covered by this permit has not yet been determined.

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:	ASARCO LLC (Asarco)
Permittee's Mailing Address:	P.O. Box 640 Kearny, AZ 85137
Facility Name:	Asarco Ray Operations
Facility Address or Location:	Intersection of Mineral Creek Road and State Highway 177 Kearny, AZ 85137
County:	Pinal
Contact Person(s): Phone/e-mail address	Jeremiah Armstrong; Environmental Manager 520-356-2311 / jeremiah.armstrong@asarco.com
AZPDES Permit Number:	AZ0000035
Inventory Number:	100525
LTF Number:	79425

II. STATUS OF PERMIT(s)	
AZPDES permit applied for:	Renewal
Date application received:	November 27, 2019

II. STATUS OF PERMIT(s)	
Date application was determined administratively complete:	December 10, 2019
Previous permit number (if different):	N/A
Previous permit expiration date:	May 26, 2020

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.

Asarco has the following permits issued by ADEQ applicable to the Ray Operations:

Type of Permit		
Aquifer Protection Permit (APP)	P-100525	Regulates discharges to the local aquifer from existing Ray Operations
Aquifer Protection Permit	P-511395	Regulates discharge to the local aquifer from new tailings facility (not yet constructed)

III. GENERAL FACILITY INFORMATION	
Type of Facility:	Industrial facility; open pit copper mine
Facility Location Description:	The facility is located approximately eight (8) miles north of Kearny adjacent to State Highway 177 in the Mineral Creek drainage basin, north of its confluence with the Gila River.
Facility Operations:	The Asarco Ray Operations consist of an open pit copper mine; milling operations, including a concentrator; a tailings storage facility (Elder Gulch); dump leach operations; and a solvent extraction/electrowinning (SX-EW) plant. Part of the primary crushed ore is sent to the Hayden site by rail for milling and smelting, while the remaining ore is milled on site in the Ray Concentrator (with the resulting concentrate sent to Hayden for smelting and the tailings slurry produced by the milling process sent to the Elder Gulch tailings impoundment). No treatment is provided for the seepage entering the Mineral Creek diversion tunnel from the subsurface exterior of the tunnel. Asarco has implemented control measures within and outside the tunnel to reduce seepage including installation of curbing, application of sealant and installation of groundwater pumping wells. Except when stormwater is released from Big Box Dam, Asarco now captures seepage entering the tunnel and conveys it to a surface impoundment regulated under the facility's Aquifer Protection Permit (Dalton's Pond). Asarco constructed a concrete-lined channel and additional side channels below the outlet of the

III. GENERAL FACILITY INFORMATION	
	tunnel as a best management practice. The concrete-lined channel and side channels were added to isolate Mineral Creek from other mining activities downstream of the tunnel outlet.
Nature of facility discharge:	The mine is located in and around the natural channel of Mineral Creek. The mine has been in operation since the early 1900s. Asarco acquired the mine from Kennecott Copper Corporation in 1986. The Big Box Dam was constructed upstream of all mining activities in 1970 to reduce flooding, and a diversion tunnel was constructed shortly thereafter to route Mineral Creek to the southeast around the open pit. In 2002, with the approval of EPA and ADEQ, the tunnel was extended further upstream to completely isolate Mineral Creek from mining activities and the upstream rock deposition areas (RDAs), and protective "no leach zones" were established for RDAs overlying the tunnel extension. Mineral Creek exits the tunnel on the south end into a concrete-lined channel that isolates the creek flow from downstream mining operations, and side channels adjacent to the concrete-lined channel convey stormwater runoff to a retention basin, where it is pumped to the pit or reused in operations. After the diversion tunnel extension was completed in 2002, EPA and ADEQ requested that Asarco investigate the source of periodic selenium exceedances in Mineral Creek at the tunnel outlet and the downstream sampling locations. The results of Asarco's subsequent investigations indicate that groundwater is infiltrating into the tunnel through the seeps along the entire length of the approximately 24,000-foot tunnel, but concentrations of selenium in the seepage exceed the currently promulgated surface water quality standard for selenium at only a few seep locations along the final 3,000 feet at the south downstream end of the tunnel. Asarco provided evidence (including a speciation analysis) that the selenium is naturally occurring and not the result of mining operations. Based on these investigations and an evaluation of the Mineral Creek ambient monitoring data, ADEQ determined that the seepage and the resulting high selenium concentrations in Mineral Creek have resulted from the construction of the diversion tunnel, and in the 2009 permit ADEQ identified the combined seepage as an Outfall (Outfall 011) at the Mineral Creek Tunnel Outlet (MCTO). This permit will have MIN-1 be the point of compliance, approximately 1 ½ miles north of the confluence with the Gila River and representative of discharges from Asarco to the Gila River. MIN-1 is located just below Ray Operations, upgradient of other potential contributing sources.
Average flow per discharge:	During the existing permit term the average flow per discharge ranged from 0.001 to 504 mgd.
Continuous or intermittent discharge:	Intermittent; discharges occur only when there is a release of upgradient stormwater from Big Box Dam.

III. GENERAL FACILITY INFORMATION	
Discharge pattern summary:	During the existing permit term, in 2019, seven (7) discharges were reported to ADEQ from Outfall 011 to Mineral Creek. Asarco began implementing in 2019 a water management plan whereby water is released from Big Box Dam only when necessary to convey upgradient stormwater. Except when those releases are occurring, all seepage into Mineral Creek diversion tunnel is captured and diverted to Dalton's Pond, an APP-regulated facility.

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 :	Gila River (San Carlos Indian Reservation boundary to the Ashurst-Hayden Dam) The Mineral Creek diversion tunnel and the lined and unlined portions of Mineral Creek constitute a continuous channelized conveyance to the Gila River segment (San Carlos Indian Reservation boundary to the Ashurst-Hayden Dam), which is a Water of the United States (WOTUS).
River Basin:	Middle Gila River Basin
Outfall Location(s):	Outfall 010: Township 3S, Range 13E, Section 24 Latitude 33^{o} 06' 11" N, Longitude 110^{o} 58' 32" 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:	Aquatic and Wildlife warm water (A&Ww) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Livestock watering (AgL) Agricultural Irrigation (AgI)
Is the receiving water on the 303(d) list?	No, and there are no TMDLs associated.
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.	

V. DESCRIPTION OF DISCHARGE

Because the facility is in operation and discharges have occurred, discharge monitoring data is available. The following is the measured discharge quality reported in the application and ambient monitoring reports.

Maximum Copper Concentrations Detected [(1)]

Date	Units	**Indian Gardens (IG)** upstream of tunnel	**Outfall 011** End of concrete-lined channel	**Surf 8** Mineral Creek downstream of concrete-lined channel	**Min – 1** Mineral Creek at Highway 177
2016	µg/L	18	1800	66	23
2017	µg/L	15	88	28	24
2018	µg/L	13	71	22	21
2019	µg/L	36	47	52	85

Footnote:

1. All concentrations are for total recoverable metals and are expressed in µg/L (micrograms per liter).

Maximum Selenium Concentrations Detected

Date	Units	**Indian Gardens (IG)** upstream of tunnel	**Outfall 011** End of concrete-lined channel	**Surf 8** Mineral Creek at end of concrete-lined channel	**Min – 1** Mineral Creek at Highway 177
2016	µg/L	0.3	18	1.6	1.9
2017	µg/L	Non-detect	8.9	0.78	0.76
2018	µg/L	0.4	6.3	0.76	0.78
2019	µg/L	0.54	2.5	0.8	0.64

Footnote:

1. All concentrations are for total recoverable metals and are expressed in µg/L (micrograms per liter).

VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT

Date of most recent inspection:	November 7, 2019, operational and maintenance deficiencies were observed.
DMR files reviewed:	May 2015 through December 2019
Lab reports reviewed:	May 2016 through December 2019

VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT		
DMR Exceedances:	Copper	July, and November 2019
	Selenium	June and December 2015 June, August through December 2016 July, September, November, and December 2017 January, February and March 2018 April 2019
NOVs issued:	NOV issued August 16, 2019	
NOVs closed:	NOV from August 16, 2019 was closed on September 24, 2020	
Compliance orders:	Asarco entered into a Consent Order (APP-01-07) which became effective on March 22, 2017. The Order required Asarco to address the on-going exceedances of selenium, which included improvements to the Mineral Creek diversion tunnel to reduce the amount of seepage entering into Mineral Creek. The Consent Order was terminated on July 27, 2020 after Asarco collected 12 consecutive samples at Outfall 011 that were in compliance with the selenium limits.	
Compliance schedule:	The 2016 permit provided Asarco with a compliance schedule to achieve compliance with the copper limit. The compliance schedule provided 48 months from the effective date of the permit to complete an investigation into the source(s) of copper-rich seepage into the Mineral Creek diversion tunnel, to mitigate the sources of copper, and to achieve compliance with the permit limit. Asarco's mitigation activities included installation of curbing, application of sealant, and installation of groundwater pumping wells to capture and prevent seepage from entering Mineral Creek. Asarco also began implementing in 2019 a water management plan whereby water is released from Big Box Dam only when necessary to convey upgradient stormwater. Except when those releases are occurring, all seepage into the Mineral Creek diversion tunnel is captured and diverted to Dalton's Pond, an APP-regulated facility. Below are additional copper exceedances from the current permit term that occurred during the 48 month period of the compliance schedule when Asarco was investigating the source(s) of copper-rich seepage: June, September, and December 2015 March, June, August, September, October, November, and December 2016 January, February, April through December 2017 January, February, March, and December 2018 February, March, April 2019 The permit limit for copper became effective on May 27, 2019.	

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.
Receiving Water	Mineral Creek (End of diversion channel to confluence with Gila River)	Gila River (San Carlos Indian Reservation boundary to the Ashurst-Hayden Dam)	Applied the receiving water that is regulated post Navigable Waters Protection Rule.
Authorized Discharges	Groundwater seepage	Stormwater with potential to commingle with Mineral Creek tunnel seepage	More accurate characterization of the discharge.
Outfall 011 (Point of compliance)	Outfall 011 (end of concrete-lined channel)	Outfall 010 (confluence of Mineral Creek and the Gila River) MIN-1, to be the point of compliance where sampling will take place (approximately 1 ½ miles north of Outfall 010)	Moved outfall and point of compliance location downstream closer to the confluence to be representative of discharges from Ray Operations to the Gila River, after accounting for water quality at Big Box Dam, as indicated in the permit.
Priority Pollutants	No monitoring	Discharge characterization monitoring required during every sampling events during the 1st year of the permit term	An initial monitor screening during the first year of the permit's effective date will provide data for ADEQ to analyze potential impacts from the discharges to applicable surface water quality standards. The first year screen will require reporting for priority pollutants that could be present in discharges from this type of facility. ADEQ will assess this data for reasonable potential to exceed the applicable surface water quality standard.

VII. PROPOSED PERMIT CHANGES			
Whole Effluent Toxicity (WET) testing	No monitoring	Action levels	The basis for WET testing is to determine compliance with 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). WET monitoring requirements are included in this permit to generate valid WET data used to determine whether RP for WET has been demonstrated. An exceedance of an action level does not result in noncompliance but requires follow-up testing to identify the source when unknown.
AZPDES Discharge Flow Records	No flow records	Discharge Flow Records required for BBD-1	Discharge flow records are used for facilities with intermittent discharges to document the characteristics of discharge events (frequency, duration, and intensity).
Best Management Practices (BMPs)	No BMPs required for the diversion tunnel	Specific BMPs identified in Part III.B.1	BMPs required to minimize seepage into the tunnel from the subsurface exterior of the tunnel.
Upstream monitoring	Required quarterly at Indian Gardens (IG) as part of ambient monitoring requirement	Required at Big Box Dam when compliance monitoring is conducted at MIN-1	Require sampling at Big Box Dam (BBD-1) as part of assessment of compliance with discharge limitations in Table 1.a and action levels in Table 2.a of the permit.
Ambient Monitoring	Required quarterly at three (3) locations in Mineral Creek	Not required	The flow regime of Mineral Creek from the end of diversion channel to confluence with Gila River is undetermined. There is insufficient data to support the creek being considered a tributary, as that term is defined in the Navigable Waters Protection Rule. Therefore, Mineral Creek is not a Water of the U.S. under the Navigable Water Protection Rule. Therefore, ambient monitoring to assess water quality of Mineral Creek is no longer necessary.
Antidegradation	Tier 1 Protection (Mineral Creek)	Tier 2 Protection (Gila River)	Tier 2 antidegradation protection criteria are applied to ensure the existing water quality of the Gila River is maintained and protected.

VII. PROPOSED PERMIT CHANGES

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.

No limits have been removed from the permit. Limits are retained in the draft permit for parameters where reasonable potential (RP) for an exceedance of a standard continues to exist or is indeterminate. In these cases, limits will be recalculated using the most current Arizona Water Quality Standards (WQS). If less stringent limits result due to a change in the WQS then backsliding is allowed in accordance with 303(d)(4) if the new limits are consistent with antidegradation requirements and the receiving water is in attainment of the new standard; see Section XII for information regarding antidegradation requirements. No limits are less stringent due to a change in the WQS in this permit.

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: Discharges at the Asarco Ray Operations do not include mine drainage or process fluids, and the technology-based limitations specified in 40 CFR Part 440 do not apply.

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 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.

Due to the nature of the discharges, the statistical TSD procedures for setting Maximum Daily Limits and Average Monthly Limits were not used for this permit. Instead, only Maximum Daily Limits are set for discharges and are set at the lowest applicable standard.

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 surface water quality criteria are applied at Outfall 010.

Assessment Levels (ALs)

No Assessment Levels are included in the permit.

VIII. DETERMINATION OF DISCHARGE LIMITATIONS and ASSESSMENT LEVELS

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 400 mg/L (the average hardness of the receiving water (Gila River)) was used to calculate the applicable water quality standards and any 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.B 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).

WET testing for chronic and/or acute toxicity is required. The requirement to conduct chronic toxicity testing is contingent upon the frequency or duration of discharges. Since completion of the chronic WET test requires a minimum of three samples be taken for renewals, the chronic WET test is not required during any given monitoring period in which the discharge does not occur over seven consecutive calendar days and is not repeated more frequently than every thirty days.

WET testing for chronic toxicity shall be conducted using the following three surrogate species:

- *Ceriodaphnia dubia* (water flea) – for evaluating toxicity to invertebrates
- *Pimephales promelas* (fathead minnow) – for evaluating toxicity to vertebrates
- *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata)* (a green alga) – for evaluating toxicity to plant life

ADEQ does not have a numeric standard for Whole Effluent Toxicity. However, ADEQ adopted the EPA recommended chronic toxicity benchmark of 1.0 TUc for a four day exposure period. Using this benchmark, the limitations and/or action levels for WET included in the draft permit were calculated in accordance with the methods specified in the *TSD*. The species chosen for WET testing are as recommended in the *TSD* and in *Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs*.

An exceedance of an action level will trigger follow-up actions to determine if discharge toxicity is persistent. If toxicity above an action level is found in a follow-up test, 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 AAC R18-9-B906.

The draft permit requires discrete samples be collected for WET testing. WET sampling must coincide with testing for all the parameters in Parts I.A of the draft permit, when testing of those parameters is required, to aid in the determination of the cause of toxicity if toxicity is detected. Additional procedural requirements for the WET test are included in the proposed permit.

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

VIII. DETERMINATION OF DISCHARGE LIMITATIONS and ASSESSMENT LEVELS

Discharge Characterization (DC)

In addition to monitoring for the parameters assigned a limit, sampling is required to assess the potential presence of other pollutants in the discharge. This monitoring will be required in conjunction with compliance sampling required under the permit in Table 1.a during the first year following the permit effective date. The discharge characterization monitoring is specified in Table 3 of the permit.

The purpose of discharge characterization monitoring is to characterize the discharge and determine if the parameters of concern are present in the discharge and at what levels. 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 monitored on a continual basis using a flow meter.
pH	Minimum: 6.5 Maximum: 9.0 A&Ww and FBC A.A.C. R18-11-109(B)	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Dissolved Oxygen	Minimum: 6.0 mg/L A&Ww A.A.C. R18-11-109(E)	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Arsenic	30 µg/L/ FBC	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Cadmium (2)	6.22 µg/L/ A&Ww chronic	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Chromium (total)	1,000 µg/L/ AgL	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Copper (2)	29 µg/L/ A&Ww chronic	1800 µg/L	34	3420 µg/L	RP Exists	Monitoring required and a WQBEL remains in the permit.
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	322 mg/L		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 (Gila River) hardness value of 400 mg/L. Monitoring for hardness is required whenever monitoring for hardness dependent metals is required.
Lead (2)	10.9 µg/L/ A&Ww chronic	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Mercury	0.01 µg/L/ A&Ww chronic	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.
Selenium	2 µg/L/ A&Ww chronic	18 µg/L	34	34 µg/L	RP Exists	Monitoring required and a WQBEL remains in the permit.
Zinc (2)	379 µg/L/ A&Ww acute and chronic	N/A	No Data	N/A	RP Indeterminate	Monitoring required for discharge characterization.

Parameter	Lowest Standard / Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/ Rationale (1)
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A)(6)	*Pseudo-kirchneriella subcapitata (3)*	N/A	No Data	N/A	RP Indeterminate	Monitoring required and an action level is set in the permit.
		Pimephales promelas	N/A	No Data	N/A	RP Indeterminate	Monitoring required and an action level is set in the permit.
		Ceriodaphnia dubia	N/A	No Data	N/A	RP Indeterminate	Monitoring required and an action level is set in the permit.

Footnotes:
(1) The monitoring frequencies are as specified in the permit.
(2) Hardness-dependent metal - the standard for this parameter is based on the average hardness value of the receiving water as indicated above.
(3) Formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata*.

VIII. 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, Section D of the draft permit.

IX. 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 discharge limitations. Additionally, monitoring may be required to gather data for future discharge limitations or to monitor discharge 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.

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 (although there may be variation in the quality of water being released from Big Box Dam).

Monitoring locations are specified in the permit (Part I.A and Part II.A) in order to ensure that representative samples of the discharge and upstream (background) surface water quality 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.4) 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, Section B 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 the permit.

X. SPECIAL CONDITIONS (Part IV in Permit)

Best Management Practices (BMPs)

This permit includes conditions for development of Best Management Practices (BMPs) and a Stormwater Pollution Prevention Plan (SWPPP). The permit requires ASARCO to continue to implement and maintain best management practices as necessary to prevent violations of Arizona water quality standards. The BMPs may consist of diversion, containment, pumping or other alternatives. The submittal of an annual report is required in the draft permit.

The permit contains specific requirements for the SWPPP based on the required components of the MSGP and on ASARCO's existing SWPPP. Due to the isolation of Mineral Creek resulting from the diversion tunnel extension and the concrete-lined portion of Mineral Creek below the tunnel outlet, these requirements will be limited to those areas of the mine that still have the potential to discharge to Mineral Creek (some areas in the southern portion of the mine). Zero-discharge areas include all disturbed areas north of the pit, all areas surrounding the pit, and some areas south of the pit where the surface is graded back to the pit (including the 8 Series RDAs, Upper Slimes, and the eastern portions of the 7 Series RDAs), as well as areas where stormwater is intercepted by the side channels along the

X. SPECIAL CONDITIONS (Part IV in Permit)

Mineral Creek lined channel and diverted to an on-site retention basin. Areas to be included in the SWPPP are those areas not delineated as zero-discharge areas. Measures to inspect and maintain the concrete-lined channel and side channel are to be included in the SWPPP, as these features are important to control stormwater runoff in some areas.

Due to the potential for runoff generated from the mine site to cause or contribute to a violation of water quality standards, the SWPPP will include provisions for stormwater management. Asarco's APP contains extensive inspection and maintenance requirements for individual facilities including surface impoundments and secondary containment features; therefore the SWPPP will not impose additional or different requirements where the APP requirements are fully implemented and sufficient to control stormwater runoff, but these inspection and maintenance requirements are to be incorporated into the SWPPP by reference, where applicable.

The permit also includes new provisions under IV.B.1 related to measures to control seeps into the tunnel from the subsurface exterior of the tunnel.

Translator Study

The Permittee did not submit a metal translator study during this permit renewal. If the Permittee intends to use a metal translator in the future, the metal translator study shall be submitted to ADEQ during the permit term to demonstrate the consistency and appropriateness of translators being used.

Permit Reopener

This permit may be modified based on newly available information; to add conditions or limits to address demonstrated discharge toxicity; or to implement any EPA-approved new Arizona water quality standard [A.A.C. R18-9-B906 and 40 CFR Part 122.62 (a) and (b)].

XI. 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 discharge from the Asarco Ray Operations will be to a perennial water with Tier 2 antidegradation protection (Gila River). This is a renewal permit for an existing facility with no new or expanded discharge, and the existing uses have been maintained. 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. Furthermore, under the water management plan being implemented by the Permittee, the majority of water that may reach the Gila River consists of upgradient stormwater flow released from Big Box Dam.

XII. STANDARD CONDITIONS

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

XIII. 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.

XIII. ADMINISTRATIVE INFORMATION

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))v

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.

XIV. 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.

XV. INFORMATION SOURCES

While developing discharge 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 November 27, 2019, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms, and subsequent correspondence and communications from the applicant.

2. ADEQ files on ASARCO Ray Mining Operations.

3. ADEQ Geographic Information System (GIS) Web site.

4. Information provided to ADEQ staff during a site visit to the facility location on November 6 and 7, 2019.

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.*

XV. INFORMATION SOURCES

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. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA /821-R-02-013).

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