

ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a reverse osmosis desalination plant (Yuma Desalting Plant or YDP) and research facility (Water Quality Improvement Center or WQIC) with a combined permitted flow of 22.5 million gallons per day (mgd) and is considered to be a major facility under the NPDES program. The effluent 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 to be effective for a period of 5 years.

I. PERMITTEE INFORMATION	
Permittee's Name:	Yuma Area Office U.S. Department of the Interior – Bureau of Reclamation
Permittee's Mailing Address:	7301 South Calle Agua Salada Yuma, Arizona 85364
Facility Name:	Yuma Desalting Plant
Facility Address or Location:	7301 South Calle Agua Salada Yuma, Arizona 85364
County:	Yuma
Contact Person(s): Phone/e-mail address	Bryon Green (928) 343-8201, (928) 210-6257/bhgreen@usbr.gov
AZPDES Permit Number:	AZ0025348
Inventory Number:	100306
LTF Number:	86869

II. STATUS OF PERMIT(S)	
AZPDES permit applied for:	Renewal
Date application received:	November 30, 2020
Date application was determined administratively complete:	December 15, 2020
Previous permit number (if different):	N/A
Previous permit expiration date:	June 26, 2021

208 Consistency:

208 Plan consistency is not required for industrial facilities.

The U.S. Department of the Interior – Bureau of Reclamation has the following permits issued by ADEQ applicable to the Yuma Desalting Plant:

Type of Permit		
Aquifer Protection Program (APP) Permit	P-100180	Regulates discharges to the local aquifer
Reuse Permit	N/A	Regulates the practice of reusing treated wastewater for beneficial purposes
Multi-Sector General Permit (MSGP)	N/A	Regulates stormwater discharge

III. GENERAL FACILITY INFORMATION	
Type of Facility:	Desalination plant built to provide desalted water to the Colorado River to help maintain River salinity requirements in accordance with Minute 242 of the 1944 Treaty with Mexico.
Facility Location Description:	The facility is located approximately 3 miles west of Yuma, Arizona, in the southwest corner of the state near the borders with California and Mexico.
Discharge Flow:	22.5 MGD from the YDP 0.4 MGD from the WQIC
Applicable Treatment Processes :	<p>Irrigation return flows from the Yuma Main Outlet Drain Extension (MODE) undergo the following treatment processes:</p> <ul style="list-style-type: none"> • Travelling Screens • Chlorine Disinfection • Grit Sedimentation • Hydrated Lime (Softener) and Ferric Sulfate (Coagulant) Injection • Solids Contact Reactor (SCR) - Coagulation, Flocculation, and Sedimentation • Dual Media Gravity Filtration - Anthracite coal and sand used as media • Chloramination • Reverse Osmosis (RO) – Two RO skids operated in parallel • Sodium Bisulfite Injection (Dechlorination) • Discharge to either Facility’s Service Water System or MODE II <p>Overflow from the SCR and brine from the RO units are discharged back into the MODE</p> <p>Sludge from the SCR is pumped to the A-22 evaporation ponds (APP Permit P-100180)</p>
Nature of facility discharge:	Desalinated water
Average flow per discharge:	The applicant reported that the average daily discharge flow through the outfall is 0.194 MGD

Continuous or intermittent discharge:	<p>The YDP is not currently operating.</p> <p>Discharge from the WQIC is generally continuous. The WQIC may occasionally cease discharging while the RO membrane filters are being replaced.</p>
<p>The initial AZPDES permit for the YDP became effective February 8, 2010, when the desalting plant was brought online at an approximate 11 and 22 percent plant production capacity over a 1-month period and then at approximately one-third production capacity for 10 months. The permitted flow of one-third production capacity is an estimated 22.5 million gallons per day (MGD). The YDP suspended operations in May 2011. Although operation of the desalting plant is currently suspended, operation of the WQIC continues. The WQIC discharges approximately 0.4 MGD of desalinated product similar in quality to that from the desalting plant. A major modification of the permit was issued in February 2012, to allow for reduced monitoring frequencies of the effluent limitations when only the WQIC is in operation, and the permit was renewed in 2016. The maximum allowable discharge limits for this permit were calculated using a maximum discharge rate of 22.5 MGD when the YDP is operating and 0.4 MGD when only the WQIC is operating.</p>	

IV. RECEIVING WATER	
<p>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.</p>	
Receiving Water :	Colorado River
River Basin:	Colorado – Lower Gila Watershed
Outfall Location(s):	<p>Outfall 001 – MODE II: Township 16S, Range 21E, Section 36 Latitude 32° 43' 44.5" N, Longitude 114° 42' 51.62" W</p>
Designated uses for the receiving water listed above:	<p>Aquatic and Wildlife warm water (A&Ww) Full Body Contact (FBC) Fish Consumption (FC) Agricultural Irrigation (Agl) Agricultural Livestock watering (Agl) Domestic Water Supply (DWS)</p>
Is the receiving water on the 303(d) list?	<p>The outfall discharges to stream segment 15030107-001 in the Colorado River, approximately 1.8 miles upstream of Morelos Dam.</p> <p>Stream Segment 15030107-001: This segment of the Colorado River from Main Canal to the Mexico Border is listed on Arizona’s 2018 303(d) list as impaired for selenium (total) (2006). The dissolved oxygen impairment in this segment was removed from the 303(d) list in 2016. There are no TMDLs associated with this segment of the Colorado River.</p>
<p>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.</p>	

In addition to the above, the Colorado River does not have an Arizona Water Quality salinity standard downstream of this facility's outfall. However, Minute 242 contains salinity requirements for Colorado River waters delivered to Mexico under the Treaty of 1944.

V. DESCRIPTION OF DISCHARGE

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

Parameters	Units	Maximum Daily Discharge Concentration from WQIC
Boron	µg/L	580
Copper	µg/L	94
pH	Standard Units (S.U.)	Minimum 5.07 Maximum 9.33
Whole Effluent Toxicity (WET)	TUc	<1.0

VI. STATUS OF COMPLIANCE WITH THE PREVIOUS AZPDES PERMIT

Date of most recent inspection:	07/29/2020 – Virtual inspection; no potential violations were noted as a result of this inspection.
DMR files reviewed:	07/2016 through 02/2021
Lab reports reviewed:	07/2016 through 10/2020
DMR Exceedances:	Reported DMR limits exceedances: Boron (June 2018) Reported lab results above Assessment Levels (ALs) in previous permit: Cyanide (December 2018, December 2019, October 2020) Selenium (December 2017, July 2018, April 2020)
NOVs issued:	None
NOVs closed:	N/A
Compliance orders:	None

VII. PERMIT CHANGES

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

Unless specified otherwise, changes apply to both the YDP and the WQIC.

Parameter	Previous Permit	Current 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.

Limits Tables	A single table (Table 1) containing effluent limitations and monitoring requirements for both YDP and WQIC	Table 1a Effluent Limitations and Monitoring Requirements for YDP Table 1b Effluent Limitations and Monitoring Requirements for WQIC	Effluent Limitations and Monitoring Requirements were split into two separate tables to enhance readability
Mass Limits	Mass limits based on 22.5 MGD	Mass limits based on 22.5 MGD for the YDP and 0.4 MGD when only WQIC is in operation	For this renewal, it was deemed appropriate to include separate mass limits for when only the WQIC is in operation. Mass limits for the WQIC were calculated using a flow of 0.4 MGD.
Sample Types	Discrete sample type for all parameters	Composite sample type for all metals (except boron and copper in the receiving water, chromium VI, and mercury), hardness (effluent), BOD ₅ , TSS, total dissolved solids (TDS), whole effluent toxicity (WET) (effluent), nitrate-nitrite (as N), total Kjeldahl nitrogen (TKN), total phosphorous, and all parameters in Table 4d except styrene, total trihalomethanes, and xylenes	Composite samples were determined to be the appropriate sample type for these parameters based on the overall variability in the effluent data.
Boron	Daily Maximum Limits: 1214 µg/L 103,300 g/day	Daily Maximum Limits: 1350 µg/L 115,000 g/day	The calculated daily maximum limits for boron increased due to new statistical information developed from effluent data submitted during the previous permit term. The increases meet an exception to anti-backsliding as they are due to new information.
Copper	Monthly Average Limits 17.8 µg/L 1500 g/day Daily Maximum Limits 29.3 µg/L 2100 g/day	Monthly Average Limits 19 µg/L 1700 g/day Daily Maximum Limits 39 µg/L 3300 g/day	The calculated monthly average and daily maximum limits for copper increased due to new statistical information developed from effluent data submitted during the previous permit term. The increases meet an exception to anti-backsliding as they are due to new information.
Boron, Copper	Monitoring Frequency for the YDP: 1x/Quarter	Monitoring Frequency for the YDP: 1x/Month	Data submitted indicated reasonable potential of the discharge from the YDP to cause or contribute to an exceedance of surface water quality standards. Therefore, monitoring frequencies for boron and copper

			have been increased for the YDP to be consistent with other metals monitoring frequencies for discharges of similar size.
Cyanide, Selenium	Assessment Levels	Limits	Data submitted indicated reasonable potential to cause or contribute to an exceedance of surface water quality standards.
Chromium VI and total chromium	Effluent Characterization	Assessment Levels	Data submitted indicated there may be reasonable potential to cause or contribute to an exceedance of chromium VI surface water quality standards. Total chromium monitoring is required as a surrogate for chromium VI unless total chromium is greater than 8 µg/L.
Hydrogen sulfide and total sulfides	Effluent Characterization	Assessment Levels	Data submitted indicated there may be reasonable potential to cause or contribute to an exceedance of hydrogen sulfide surface water quality standards. Total sulfides monitoring is required as a surrogate for hydrogen sulfide unless sulfides are detected at any level in the effluent.
Iron	Assessment Levels	Effluent Characterization	Data submitted indicated reasonable potential to cause or contribute to an exceedance of surface water quality standards.
Mercury	Monthly Average Limits: 0.01 µg/L, 1 g/day Daily Maximum Limits: 2 g/day	Monthly Average Limits: 0.008 µg/L, 0.7 g/day (YDP) Daily Maximum Limits: 1 g/day (YDP)	Rounding errors corrected.
Mixing Zone Boundary Study	Submission of a Mixing Zone Boundary Study required within 3 years of permit effective date	Submission of plans for a Mixing Zone Boundary Study to be submitted for approval within 6 months of the permit effective date for the WQIC, and 6 months of re-start-up date for the YDP. Study to be completed and findings report submitted to ADEQ within 2 years of ADEQ approval of plans.	The previous permit required that a Mixing Zone Boundary Study be completed and submitted to ADEQ within 3 years of the permit effective date. The Permittee submitted a Mixing Zone Boundary Study report prior to this deadline. Upon reviewing the permit renewal application, it was determined that the submitted report did not contain the information necessary to define the mixing zone boundaries or calculate end-of-pipe WQBELs. Therefore, a new study is being

			requested, with an interim step that requires ADEQ approval of the study plan prior to the study being conducted.
Ambient Monitoring	Required	None required	Ambient monitoring was required during the previous permit term to collect data for the purposes of antidegradation. Additional data collection is not needed at this time.
Effluent Characterization Monitoring – Table 4a	<p><u>Monitoring Frequencies</u> YDP 1x/6 months, WQIC 1x/Year: Ammonia as N, biochemical oxygen demands (5-day) (BOD₅), dissolved oxygen, <i>E. coli</i>, oil & grease, temperature (effluent), total dissolved solids (TDS), total suspended solids (TSS)</p>	<p><u>Monitoring Frequencies</u> YDP 1x/Year, WQIC 3x/Permit term: All parameters in left column</p> <p><u>Additional Parameters</u> Ammonia impact ratio (AIR), pH (receiving water), temperature (receiving water)</p>	<p>Monitoring frequencies were decreased for these parameters based on findings of no reasonable potential to cause or contribute to an exceedance of surface water quality standards.</p> <p>pH and temperature in the receiving water and AIR were added as parameters to assess reasonable potential to cause or contribute to an exceedance of ammonia water quality standards.</p>
Effluent Characterization Monitoring – Table 4b	<p><u>Monitoring Frequencies</u> WQIC 1x/Year Antimony, arsenic, cadmium, iron, lead, nickel, silver, thallium, zinc</p>	<p><u>Monitoring Frequencies</u> WQIC 3x/Permit term All parameters in left column</p> <p><u>Additional Parameters</u> Hardness (receiving water)</p>	<p>Monitoring frequencies were decreased for these parameters based on findings of no reasonable potential to cause or contribute to an exceedance of surface water quality standards.</p> <p>Hardness in the receiving water was added as a parameter to assess reasonable potential to cause or contribute to an exceedance of hardness-based metals water quality standards.</p>
Effluent Characterization Monitoring – Table 4d	<p><u>Monitoring Frequencies</u> YDP 1x/Year, WQIC 3x/Permit term: Alachor, atrazine, carbofuran (furan), dalapon, 2,4-Dichlorophenoxyacetic acid (2,4-D), dinoseb, diquat, glyphosate, oxamyl, pichloram, simazine, 2-(2,4,5-Trichlorophenoxy) proprionic acid</p>	<p><u>Monitoring Frequencies</u> YDP and WQIC 2x/Permit term: All parameters in left column</p> <p><u>Parameter Removed</u> Hydrogen sulfide (Now only in Table 4a)</p>	<p>Monitoring frequencies were decreased for these parameters to be consistent with monitoring requirements for other discharges of this size and based on findings of no reasonable potential to cause or contribute to an exceedance of surface water quality standards</p> <p>In the previous permit, hydrogen sulfide was repeated in Table 4a and Table 4d. It has been removed from Table 4d to prevent unnecessary repetition.</p>

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.

Limits for the following parameters are less stringent new statistical information developed from effluent data submitted during the previous permit term. This is considered an exception to anti-backsliding requirements under Section 402(o)(2)(B)(i).

- Boron
- Copper

VIII. DETERMINATION OF EFFLUENT LIMITATIONS and ASSESSMENT LEVELS

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

Technology-based Limitations:

This facility is not subject to any technology-based effluent limits (TBELs)

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.

It is assumed that RP exists for exceedance of water quality criteria for total residual chlorine (TRC) if chlorine or bromine is used in the treatment process. TRC has been shown through extensive monitoring of WWTPs to fluctuate greatly and thus is not conducive to exclusion from limitation due to a lack of RP. Therefore, the permit contains WQBELs for TRC.

The 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

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. The Permittee has applied for and been granted mixing zones for boron, copper, pH, and WET. (For all other parameters, water quality criteria are applied at end-of-pipe.)

At this time, the Permittee has been granted the full 500 meter-long mixing zones as allowed under Arizona mixing zone rules at A.A.C. R18-9-114.H. The permit requires the Permittee to submit plans for a Mixing Zone Boundary Study to further define the mixing zone boundaries for boron, copper, pH, and WET. Separate studies are required for the YDP and WQIC due to the possibility of significant differences in mixing that may occur depending on whether or not the YDP is operating. The study plans are to be submitted within 6 months of the permit effective date for the WQIC, and within 6 months of the re-start-up date for the YDP. For both the WQIC and YDP, the Permittee is required to complete the study and submit a findings report within 2 years of ADEQ’s approval of the plans.

The Permittee is currently required to meet limits that are based on water quality standards for boron, copper, and pH at a downstream compliance point in the Colorado River defined as being no further than 500 meters downstream of the outfall. Upon review of the findings report, ADEQ will re-calculate limits for these parameters to be applied end-of-pipe to replace the downstream limits. ADEQ may also reopen the permit to modify the mixing zone requirements.

If upon review of the findings report it is found that any of the mixing zones cannot meet the requirements set forth in A.A.C. R18-9-114, ADEQ may revoke its approval of any of the existing mixing zones.

Assessment Levels (ALs)

ALs are listed in Part I.B 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 permit should future monitoring data indicate water quality standards are being exceeded.

The requirement to monitor for these parameters is included in the permit according to A.A.C. R18-11-104(C) and Appendix A.

Hardness

The permittee is required to sample receiving stream 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 314 mg/L (the average hardness of the effluent as supplied in the application) was used to calculate 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 permit (Parts I.C and IV) 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 toxicity is required. 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 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 a limit will trigger follow-up testing to determine if effluent toxicity is persistent. If toxicity above a limit 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.

A mixing zone for WET remains in the permit. Mixing zone requirements are located in Part V.A of the permit, and are discussed further above in the Mixing Zone section of the Fact Sheet.

The permit requires 24-hour (for YDP) or 8-hour (for WQIC) composite samples be collected for WET testing. WET sampling must coincide with testing for all the parameters in Parts I.A and B of the 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 permit.

The required WET monitoring frequency for this facility is consistent with the WET testing frequency required for facilities with a similar design flow. The permit requires WET test results to be reported on discharge monitoring reports and submittal of the full WET lab report to ADEQ.

Effluent Characterization (EC)

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 Tables 4a through 4d, *Effluent Characterization Testing*, as follows:

- Table 4a – General Chemistry and Microbiology: ammonia, BOD₅, *E. coli*, total residual chlorine (TRC), dissolved oxygen, hydrogen sulfide, total Kjeldahl nitrogen (TKN), nitrate/nitrite, oil and grease, pH, phosphorus, temperature, sulfides, total dissolved solids (TDS), and total suspended solids (TSS)
- Table 4b – Selected Metals, Hardness, Cyanide, and WET
- Table 4c – Selected Volatile Organic Compounds
- Table 4d – Additional Parameters Based on Designated Uses (from Arizona Surface Water Quality Standards, Appendix A, Table 1)

NOTE: Some parameters listed in Tables 4a and 4b are also listed in Tables 1a, 1b, or 2. In this case, the data from monitoring under Tables 1a, 1b, or 2 may be used to satisfy the requirements of Tables 4a and/or 4b, provided the specified sample types are the same. In the event the facility does not discharge to a water of the U.S. during the life of the permit, EC monitoring of representative samples of the effluent is still required.

The purpose of EC monitoring is to characterize the effluent 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)). EC 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.

Ammonia water quality criteria vary based on the receiving water pH and temperature at the time of effluent sampling. To overcome this, ADEQ uses an Ammonia Impact Ratio (AIR) to determine if the effluent ammonia concentration may exceed the ammonia water quality criteria. The AIR is calculated by dividing the ammonia concentration in the effluent by the applicable ammonia standard based on the receiving water pH and temperature at the time of sampling. AIR values will be reported on DMRs and on the Ammonia Data Log which is included as Appendix B in the permit. Submittal of the Ammonia Data Log is required annually each for each year ammonia monitoring was required to be conducted.

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	Monitoring Requirement/ Rationale (1)
Flow	N/A	0.194 MGD	Continuous Monitoring	N/A	N/A	Discharge flow is to be monitored on a continual basis using a flow meter.
Biological Oxygen Demand (5-day) (BOD ₅), Dissolved Oxygen (DO)	A surface water meets the water quality standard for dissolved oxygen when either: 1. The percent saturation of dissolved oxygen is equal to or greater than 90 percent, or, 2. A single sample minimum concentration of 6.0 mg/L /A&Ww A.A.C. R18-11-109(E)	Maximum BOD ₅ : <5.0 mg/L Minimum DO: 5.92 mg/L	BOD ₅ : 8 DO: 3	N/A	No RP	Monitoring required for BOD ₅ and DO for effluent characterization
Chlorine, Total Residual (TRC)	11 µg/L/ A&Ww chronic	<1.2 µg/L	80	N/A	RP always expected when chlorine or bromine is used for disinfection.	TRC is to be monitored as a discrete sample and WQBELs remain in the permit. 40 CFR Part 136 specifies that discrete samples must be collected for chlorine. At least one sample per month must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
<i>E. coli</i>	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 235 cfu /100 mL/ FBC	No Data	N/A	N/A	N/A	Parameter not previously monitored. Monitoring required for effluent characterization.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
pH	Minimum: 6.5 S.U. Maximum: 9.0 S.U. FBC and A&Ww A.A.C. R18-11-109(B)	Effluent – Max. Value: 9.33 S.U. Min. Value: 5.07 S.U. Colorado River downstream from outfall (Point of compliance) – Max. Value: 8.26 S.U. Min. Value: 7.61	Effluent: 80 Colorado River downstrea m from outfall (Point of compliance): 16	N/A	RP exists	WQBELs and a mixing zone for pH have been maintained in the permit. pH is to be monitored in the Colorado River 100 m upstream of the outfall, in the effluent, and in the Colorado River no more than 500 m downstream from the outfall. Compliance with permit limits will be assessed in the downstream sample. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected. YDP and WQIC Limits: Not less than 6.5 standard units (S.U.) nor greater than 9.0 S.U. Monitoring frequency: 1x/Month (YDP); 1x/Quarter (WQIC) pH sampling in the receiving water has been added to the permit for effluent characterization and must coincide with ammonia sampling when required.
Temperature	The maximum allowable increase in ambient water temperature due to a thermal discharge is 3.0°C / A&Ww R18-11-109(C)	Maximum Value: 34.9°C	80	N/A	N/A	Effluent temperature is to be monitored for effluent characterization by discrete sample. 40 CFR Part 136 specifies that discrete samples must be collected for temperature. Temperature sampling in the receiving water has been added to the permit for effluent characterization and must also coincide with ammonia sampling when required.
Total Dissolved Solids (TDS)	No applicable standard Minute 242 contains salinity requirements for Colorado River waters delivered to Mexico under the Treaty of 1944	1100 mg/L	10	N/A	N/A	Assessment level monitoring and reporting is required. Monitoring Frequency: 1x/Quarter (YDP); 1x/6 months (WQIC)
Total Suspended Solids (TSS)	No applicable standard	14 mg/L	8	N/A	N/A	Monitoring required for effluent characterization.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Ammonia and Ammonia Impact Ratio (AIR)	Ammonia water quality standard varies with temperature and pH	Ammonia: 1.6 mg/L AIR: No data	Ammonia: 10 AIR: N/A	N/A	RP indeterminate	Ammonia is to be monitored by discrete sample for effluent characterization. An ammonia impact ratio (AIR) is to be calculated based on effluent ammonia and concurrent samples of receiving water pH and temperature. This information is to be reported on the Ammonia Data Log in Appendix B of the permit and submitted annually each year monitoring is required. One sample must coincide with WET sampling to aid in the determination of the cause of toxicity, if toxicity is detected.
Nutrients (Total Nitrogen (TN) and Total Phosphorus (TP))	Colorado River at the Northern International Boundary near Morelos Dam TN: 2.50 mg/L 90 th percentile TP: 0.33 mg/L 90 th percentile	TN: 1.93 mg/L TP: 0.099 mg/L	TN: 6 TP: 7	N/A	No RP	Monitoring required for effluent characterization. Total nitrogen is monitored as the individual parameters nitrate/nitrite and total Kjeldahl nitrogen (TKN). Therefore, nitrate/nitrite and TKN must be sampled concurrently.
Oil & Grease	The discharge shall be free from oil, grease and other pollutants that float as debris, foam, or scum; or that cause a film or iridescent appearance on the surface of the water; or that cause a deposit on a shoreline, bank or aquatic vegetation R18-11-108(B)	<5.8 mg/L	6	N/A	No RP	Monitoring required for effluent characterization.
Antimony	6 µg/L/ DWS	<1.0 µg/L	10	1.5 µg/L	No RP	Monitoring required for effluent characterization.
Arsenic	10 µg/L/ DWS	3.4 µg/L	10	8.8 µg/L	No RP	Monitoring required for effluent characterization.
Beryllium	4 µg/L/ DWS	<5.0 µg/L	10	7.5 µg/L	RP Indeterminate (High LOQ)	All data points were below the reporting limits for beryllium. One sample had a reporting limit that was above the 4 µg/L water quality standard and led to the "RP Indeterminate" finding. Based on the data, beryllium is not expected to be a pollutant of concern at this facility. Therefore, monitoring required for effluent characterization only remains in the permit.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Boron	1,000 µg/L/ AgI	Effluent: 580 µg/L Colorado River downstream from outfall (Point of compliance): 250 µg/L	Effluent: 11 Colorado River downstream from outfall (Point of compliance): 9	Effluent: 1450 µg/L	RP Exists	WQBELs and a mixing zone for boron have been maintained in the permit. Boron is to be monitored in the Colorado River 100 m upstream of the outfall, in the effluent, and in the Colorado River no more than 500 m downstream from the outfall. Compliance with permit limits will be assessed in the downstream sample. <u>YDP Limits</u> Monthly Average: 1,000 µg/L; 85,160 g/day Daily Maximum: 1,350 µg/L; 115,000 g/day Monitoring Frequency: 1x/Month <u>WQIC Limits</u> Monthly Average: 1000 µg/L; 1514 g/day Daily Maximum: 1350 µg/L; 2045 g/day Monitoring Frequency: 1x/6 months
Cadmium (2)	5 µg/L/ DWS	1.0 µg/L	10	3.0 µg/L	No RP	Monitoring required for effluent characterization.
Chromium (Total)	100 µg/L/ DWS	<20 µg/L	10	30 µg/L	No RP	Assessment level monitoring for total chromium is required as an indicator parameter for chromium VI. If total chromium exceeds 8 µg/L, then monitoring for chromium VI is required for the remainder of the permit term. Otherwise, monitoring for chromium VI is not required. Monitoring Frequency: 1x/Month (YDP); 1x/6 months (WQIC)
Chromium VI	11 µg/L/ A&Ww chronic	<20 µg/L	4	47 µg/L	RP Indeterminate (based on Total Chromium data and Limited data)	Monitoring required and assessment levels for chromium VI have been added to the permit. Monitoring for chromium VI is not required unless total chromium exceeds 8 µg/L. <u>Assessment Levels</u> Monthly Average: 8.0 µg/L Daily Maximum: 16 µg/L Monitoring Frequency: 1x/Month (YDP); 1x/6 months (WQIC)

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Copper (2)	24 µg/L/ A&Ww chronic	Effluent: 94 µg/L Colorado River downstream from outfall (Point of compliance): 2 µg/L	Effluent: 11 Colorado River downstream from outfall (Point of compliance): 7	Effluent: 270 µg/L	RP Exists	<p>WQBELs and a mixing zone for copper have been maintained in the permit. WQBELs were based on an average effluent hardness of 314 mg/L. Copper is to be monitored in the Colorado River 100 m upstream of the outfall, in the effluent, and in the Colorado River no more than 500 m downstream from the outfall. Compliance with permit limits will be assessed in the downstream sample.</p> <p><u>YDP Limits</u> Monthly Average: 19 µg/L; 1,700 g/day Daily Maximum: 39 µg/L; 3,300 g/day Monitoring Frequency: 1x/Month</p> <p><u>WQIC Limits</u> Monthly Average: 19 µg/L; 29 g/day Daily Maximum: 39 µg/L; 59 g/day Monitoring Frequency: 1x/6 months</p>
Cyanide	9.7 µg/L/ A&Ww chronic	<50 µg/L	11	N/A	RP Exists	<p>WQBELs for cyanide have been added to the permit.</p> <p><u>YDP Limits</u> Monthly Average: 7.9 µg/L; 680 g/day Daily Maximum: 16 µg/L; 1,400 g/day Monitoring Frequency: 1x/Month</p> <p><u>WQIC Limits</u> Monthly Average: 7.9 µg/L; 12 g/day Daily Maximum: 16 µg/L; 24 g/day Monitoring Frequency: 1x/6 months</p>
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	Effluent – Average: 314 mg/L Maximum: 450 mg/L	10	N/A	N/A	<p>A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on the average effluent hardness value of 314 mg/L. Going forward, monitoring for receiving water hardness is required whenever monitoring for hardness dependent metals is required. Monitoring for effluent hardness is required for effluent characterization only.</p>

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Hydrogen Sulfide	2 µg/L/ A&Ww chronic	<100 µg/L	2	87 µg/L	RP Indeterminate (Limited Data, High LOQ)	Monitoring required and assessment levels for hydrogen sulfide have been added to the permit. Monitoring is required 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. <u>Assessment Levels</u> Monthly Average: 2 µg/L Daily Maximum: 3 µg/L Monitoring Frequency: 1x/Month (YDP); 1x/6 months (WQIC)
Iron	1,000 ug/L / A&Ww chronic	200 µg/L	7	700 µg/L	No RP	Assessment levels for iron have been removed from the permit. Monitoring required for effluent characterization only.
Lead (2)	8.52 µg/L / A&Ww chronic	<2.0 µg/L	10	3 µg/L	No RP	Monitoring required for effluent characterization.
Mercury	0.01 µg/L/ A&Ww chronic	<0.20 µg/L	11	0.29 µg/L	RP Indeterminate (High LOQ)	WQBELs for mercury remain in the permit with rounding errors from previous permit corrected. <u>YDP Limits</u> Monthly Average: 0.008 µg/L; 0.7 g/day Daily Maximum: 0.02 µg/L; 1 g/day Monitoring Frequency: 1x/Month <u>WQIC Limits</u> Monthly Average: 0.008 µg/L; 0.01 g/day Daily Maximum: 0.02 µg/L; 0.02 g/day Monitoring Frequency: 1x/6 months
Nickel (2)	137 µg/L/ A&Ww chronic	4.7 µg/L	10	14 µg/L	No RP	Monitoring required for effluent characterization.
Selenium	2 µg/L/ A&Ww chronic	<10 µg/L	11	14.5 µg/L	RP Exists	WQBELs for selenium have been added to the permit. <u>YDP Limits</u> Monthly Average: 2 µg/L; 100 g/day Daily Maximum: 3 µg/L; 300 g/day Monitoring Frequency: 1x/Month <u>WQIC Limits</u> Monthly Average: 2 µg/L; 2 g/day Daily Maximum: 3 µg/L; 5 g/day Monitoring Frequency: 1x/6 months
Silver (2)	23.0 µg/L/ A&Ww acute	<3.0 µg/L	10	4.5 µg/L	No RP	Monitoring required for effluent characterization.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Sulfides	No applicable surface water quality standard	<200 µg/L	10	N/A	N/A	Assessment level monitoring for total sulfides is required as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term. Monitoring Frequency: 1x/Month (YDP); 1x/6 months (WQIC)
Thallium	2 µg/L/ DWS	0.13 µg/L	10	0.39 µg/L	No RP	Monitoring required for effluent characterization.
Zinc (2)	309 µg/L/ A&Wedw acute and chronic	15 µg/L	10	45 µg/L	No RP	Monitoring required for effluent characterization.
Acrolein	1.9 µg/L/ FC	<10 µg/L	3	28 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Acrylonitrile	0.06 µg/L/ DWS	<10 µg/L	3	28 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Benzene	5 µg/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Bromoform	80 µg/L as total trihalomethanes/ DWS (4)	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Bromomethane (Methyl bromide)	9.8 µg/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Carbon tetrachloride	2 µg/L/ FC	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Chlorobenzene	100 µg/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Chlorodibromo-methane	13 µg/L/ FC (4)	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Chloroethane	No WQS	<0.50 µg/L	3	1.4 µg/L	N/A	Monitoring required for effluent characterization.
Chloromethane (Methyl chloride)	15,000 µg/L/ A&Ww chronic	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
2-Chloroethylvinyl ether	9,800 µg/L/ A&Ww chronic	<5.0 µg/L	3	14 µg/L	No RP	Monitoring required for effluent characterization.
Chloroform	80 µg/L as total trihalomethanes/ DWS (4)	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Dichlorobromo-methane	17 µg/L/ FC (4)	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,1-Dichloroethane	No WQS	<0.50 µg/L	3	1.4 µg/L	N/A	Monitoring required for effluent characterization.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
1,2-Dichloroethane	5 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,2- <i>trans</i> -dichloroethylene	100 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,1-Dichloroethylene	7 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,2-Dichloropropane	5 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,3-Dichloropropene	0.7 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	RP Indeterminate (Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Ethylbenzene	700 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Methylene chloride	5 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,1,1,2-Tetrachloroethane	0.2 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Tetrachloroethylene	5 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Toluene	180 ug/L/ A&Ww chronic	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,1,1-Trichloroethane	200 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
1,1,2-Trichloroethane	5 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Trichloroethylene	5 ug/L/ DWS	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Vinyl chloride	2 ug/L/ DWS and FBC	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Alachor	2 ug/L/ DWS	<0.22 µg/L	3	0.62 µg/L	No RP	Monitoring required for effluent characterization.
Aldrin	0.00005 ug/L/ FC	<0.22 µg/L	3	0.62 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Asbestos	7 million fibers longer than 10 micrometers/L/ DWS	<0.2 million fibers longer than 10 micrometers/L	3	0.6 million fibers longer than 10 micrometers/L	No RP	Monitoring required for effluent characterization.
Atrazine	3 ug/L/ DWS	<0.11 µg/L	3	0.31 µg/L	No RP	Monitoring required for effluent characterization.
Barium	2000 ug/L/ DWS	0.11 µg/L	3	0.62 µg/L	No RP	Monitoring required for effluent characterization.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Carbofuran (Furadan)	40 ug/L/ DWS	<1.0 µg/L	3	5.6 µg/L	No RP	Monitoring required for effluent characterization.
Chlordane	0.0008 ug/L/ FC	<0.22 µg/L	3	0.62 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
1,2- <i>cis</i> -dichloroethylene	70 ug/L/ DWS and FBC	<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Chlorpyrifos	0.04 ug/L/ A&Ww chronic	<0.54 µg/L	3	1.5 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Dalapon	200 ug/L/ DWS	<1.0 µg/L	3	2.8 µg/L	No RP	Monitoring required for effluent characterization.
1,2-Dibromo-3-chloropropane (DBCP)	0.2 ug/L/ DWS	<0.010 µg/L	3	0.028 µg/L	No RP	Monitoring required for effluent characterization.
1,2-Dibromoethane (EDB)	0.05 ug/L/ DWS	<0.020 µg/L	3	0.056 µg/L	RP Indeterminate (Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
4,4-DDD (p,p,-Dichlorodiphenyl-dichloroethane)	0.0002 ug/L/ FC	<0.027 µg/L	3	0.079 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
4,4-DDE (p,p,-Dichlorodiphenyl-dichloroethylene)	0.0002 ug/L/ FC	<0.027 µg/L	3	0.079 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
4,4-DDT (p,p,-Dichlorodiphenyl-trichloroethane)	0.0002 ug/L/ FC	<0.027 µg/L	3	0.079 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
2,4-Dichlorophenoxy-acetic acid (2,4-D)	70 ug/L/ DWS	<0.40 µg/L	3	1.1 µg/L	No RP	Monitoring required for effluent characterization.
Dieldrin	0.00005 ug/L/ FC	<0.54 µg/L	3	1.5 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Di (2-ethylhexyl) adipate	400 ug/L/ DWS	<5.0 µg/L	3	14 µg/L	No RP	Monitoring required for effluent characterization.
Dinoseb	7 ug/L/ DWS	<0.40 µg/L	3	1.1 µg/L	No RP	Monitoring required for effluent characterization.
Diquat	20 ug/L/ DWS	<4.0 µg/L	3	11 µg/L	No RP	Monitoring required for effluent characterization.
Endosulfan sulfate	0.06 ug/L/ A&Ww chronic	<0.54 µg/L	3	1.5 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Endosulfan (Total)	0.06 ug/L/ A&Ww chronic	<0.54 µg/L	3	1.5 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Endothall	100 ug/L/ DWS	<45 µg/L	3	130 µg/L	RP Indeterminate (Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Endrin	0.004 ug/L/ AgI and AgL	<0.011 µg/L	3	0.031 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Endrin aldehyde	0.04 ug/L/ A&Ww chronic	<1.1 µg/L	3	3.1 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Fluoride	4000 ug/L/ DWS	570 µg/L	5	2400 µg/L	No RP	Monitoring required for effluent characterization.
Glyphosate	700 ug/L/ DWS	<25 µg/L	3	73 µg/L	No RP	Monitoring required for effluent characterization.
Guthion	0.01 ug/L/ A&Ww chronic	<2.9 µg/L	3	8.4 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Heptachlor	0.00008 ug/L/ FC	<0.027 µg/L	3	0.078 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Heptachlor epoxide	0.00004 ug/L/ FC	<0.022 µg/L	3	0.062 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.

Parameter	Lowest Standard / Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Hexachlorocyclohexane alpha (Alpha-BHC)	0.005 ug/L/ FC	<0.027 µg/L	3	0.078 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Hexachlorocyclohexane beta	0.02 ug/L/ DWS and FC	<0.027 µg/L	3	0.078 µg/L	RP Indeterminate (Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Hexachlorocyclohexane delta	130 ug/L/ A&Ww chronic	<0.027 µg/L	3	0.078 µg/L	No RP	Monitoring required for effluent characterization.
Hexachlorocyclohexane gamma (lindane)	0.2 ug/L/ DWS	<0.022 µg/L	3	0.062 µg/L	No RP	Monitoring required for effluent characterization.
Malathion	0.1 ug/L/ A&Ww chronic	<2.3 µg/L	3	6.7 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Manganese	980 ug/L/ DWS	80 µg/L	3	450 µg/L	No RP	Monitoring required for effluent characterization.
Methoxychlor	0.03 ug/L/ A&Ww chronic	<0.027 µg/L	3	0.078 µg/L	RP Indeterminate (Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Mirex	0.001 ug/L/ A&Ww chronic	<0.27 µg/L	3	0.78 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Oxamyl	200 ug/L/ DWS	<2.0 µg/L	3	5.6 µg/L	No RP	Monitoring required for effluent characterization.
Parathion	0.01 ug/L/ A&Ww chronic	<1.2 µg/L	3	3.4 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Paraquat	32 ug/L/ DWS	<5.0 µg/L	3	14 µg/L	No RP	Monitoring required for effluent characterization.
Permethrin	0.2 ug/L/ A&Ww chronic	<0.54 µg/L	3	1.5 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Pichloram	500 ug/L/ DWS	<0.60 µg/L	3	1.7 µg/L	No RP	Monitoring required for effluent characterization.

Parameter	Lowest Standard / Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
Polychlorinated biphenyls (PCBs)	0.00006 ug/L/ FC		<0.55 µg/L	3	1.6 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Simazine	4 ug/L/ DWS		<0.10 µg/L	3	0.28 µg/L	No RP	Monitoring required for effluent characterization.
Styrene	100 ug/L/ DWS		<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
2,3,7,8-Tetrachlorodibenzo-p-dioxin	5 x 10 ⁻⁹ ug/L/ FC		<10 x 10 ⁻⁶ µg/L	3	2.8 x 10 ⁻⁵ µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Toxaphene	0.0002 ug/L/ A&Ww chronic		<1.1 µg/L	3	3.1 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
2-(2,4,5,-Trichlorophenoxy) Propionic Acid	50 ug/L/ DWS		<0.21 µg/L	3	0.62 µg/L	No RP	Monitoring required for effluent characterization.
Total Trihalomethanes	80 ug/L/ DWS		<0.50 µg/L	3	1.4 µg/L	No RP	Monitoring required for effluent characterization.
Tributyltin	0.07 ug/L/ A&Ww chronic		<0.34 µg/L	3	0.95 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Uranium	30 ug/L/ DWS		<50 µg/L	3	200 µg/L	RP Indeterminate (High LOQ, Limited data)	This parameter is not expected to be in the discharge at levels greater than water quality standards. Therefore, monitoring for effluent characterization remains in the permit.
Xylenes	10000 ug/L/ DWS		<1.5 µg/L	3	4.2 µg/L	No RP	Monitoring required for effluent characterization
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A)(6))	<i>Pseudo-kirchneriella subcapitata</i> (3)	<1.0 TUc	2	N/A	RP Indeterminate	WQBELs and a mixing zone for WET have been maintained in the permit. WET is to be monitored in the Colorado River 100 m upstream of the outfall, in the effluent, and in the Colorado River no more than 500 m downstream from the outfall. Compliance with permit limits will be assessed in the downstream sample.
		<i>Pimephales promelas</i>	<1.0 TUc	2	N/A	RP Indeterminate	

Parameter	Lowest Standard / Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Monitoring Requirement/ Rationale (1)
		<i>Ceriodaphnia dubia</i>	<1.0 TUc	2	N/A	RP Indeterminate	<u>YDP Limits</u> Monthly Average: 1.0 TUc Daily Maximum: 1.6 TUc Monitoring Frequency: 1x/Year (YDP); 1x/Year in 2022 and 2024 (WQIC)

Footnotes:

- (1) The monitoring frequencies are as specified in the permit.
- (2) Hardness-dependent metal – A&Ww standard for this parameter is based on the average hardness value of the effluent or receiving water as indicated above.
- (3) Formerly known as *Selenastrum capricornutum* or *Raphidocelis subcapitata*.
- (4) Total trihalomethanes water quality standard is exceeded when the combination of bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane exceeds 80 ug/L as a rolling annual average

DRAFT

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 E of the 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 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.

For the purposes of this permit, a "24-hour composite" sample has been defined as a flow-proportioned mixture of not less than three discrete samples (aliquots) obtained at equal time intervals over a 24-hour period and an "8-hour composite" sample has been defined as a flow-proportioned mixture of two or more discrete samples (aliquots) obtained at equal time intervals over an 8-hour period (if only two samples are collected, they should be taken approximately 8 hours apart). The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling.

These criteria for composite sampling are included in order to obtain samples that are representative of the discharge given the potential variability in the duration, frequency and magnitude of discharges from this facility.

Discrete (i.e., grab) samples are specified in the permit for parameters that for varying reasons are not amenable to compositing.

Monitoring locations are specified in the permit (Part II.A.1 and Part V.A) in order to ensure that representative samples of the influent, effluent, and receiving water 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.3) 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 Ammonia Data Logs. 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.

The permit also requires annual submittal of an Ammonia Data Log that records the results for receiving water temperature and pH, and effluent ammonia samples and date of sampling (Part II.B.3). Because the ammonia standards in 18 A.A.C. 11, Article 1, Appendix A are contingent upon the pH and temperature at the time of sampling for ammonia, the permittee must determine the applicable ammonia standard using the ammonia criteria table and calculate the Ammonia Impact Ratio for that ammonia sample result. The AIR is recorded on the DMR.

Requirements for retention of monitoring records are detailed in Part II.D of the permit.

X. BIOSOLIDS REQUIREMENTS (Part III in Permit)

This facility is not subject to any biosolids or sewage sludge requirements.

XI. SPECIAL CONDITIONS (Part V in Permit)

Mixing Zone Requirements

Mixing Zone Requirements have been included in Part V.A of the permit. See Section VIII of Fact Sheet for more information on Mixing Zone Requirements.

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 discharge from the Yuma Desalting Plant will be to a perennial water with Tier 1 antidegradation protection. This is a renewal permit for an existing facility with no new or expanded discharge, and the existing uses have been maintained. Therefore, an antidegradation review is not required at this time. Effluent quality limitations and monitoring requirements have been established under the 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 the draft permit and any revisions made to the 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 permit may be obtained from:

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

Or by contacting Angela Athey at (602) 771 – 2323 or by e-mail at athey.angela@azdeq.gov.

XVI. INFORMATION SOURCES

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

1. AZPDES Permit Application Forms 1 and 2C received November 30, 2020, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. Supplemental information to the application received by ADEQ on March 18, March 22, March 24, March 25, March 26, March 29, March 30, March 31, April 1, and April 5, 2021.
3. ADEQ files on the Yuma Desalting Plant and Water Quality Improvement Center.
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.*
 - Part 133. *Secondary Treatment Regulation.*
 - Part 503. *Standards for the Use or Disposal of Sewage Sludge.*
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.
12. Compilation of EPA Mixing Zone Documents, US EPA, July 2006 (EPA /823-R-06-003).