ADEQ Arizona Department of Environmental Quality

DRAFT FACT SHEET

ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the reissuance of the AZPDES permit listed below. This facility is a reclaimed water recharge facility with a design capacity of 2.81 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 proposed to be issued for a period of 5 years.

I. PERMITTEE INFORMATION	
Permittee's Name:	Tucson Water Department
Permittee's Mailing Address:	310 W. Alameda Street, Tucson, AZ 85701
Facility Name:	Santa Cruz River Heritage Project
Facility Address or Location:	1580 South Santa Cruz Lane, Tucson, AZ 85713
County:	Pima
Contact Person(s): Phone/e-mail address	Dee Korich, Chief Hydrologist (520) 837-2238 / Dee.Korich@tucsonaz.gov
AZPDES Permit Number:	AZ0026166
Inventory Number:	512733
LTF Number:	97125

II. STATUS OF PERMIT(s)	
AZPDES permit applied for:	Renewal
Date application received:	12/08/22
Date application was determined administratively complete:	12/20/22
Previous permit number (if different):	N/A
Previous permit expiration date:	06/19/2023

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. This is a permit renewal with no significant change, thus no new 208 plan consistency review is required.

Tucson Water Department has the following permits issued by ADEQ applicable to the Santa Cruz River Heritage Project:

Type of Permit		
Aquifer Protection Permit (APP)	P-512598	Regulates discharges to the local aquifer

III. GENERAL FACILITY INFORMATION	
Type of Facility:	Reclaimed Water Recharge Facility
Facility Location Description:	The facility is located approximately 1.5 miles southwest of downtown Tucson. The outfall discharges approximately 61 miles north of the Arizona-Mexico border. Discharge is not expected to cross the Arizona-Mexico border as the Santa Cruz River flows north.
Permitted Discharge Flow:	2.81 MGD
Applicable Treatment Processes:	Treated effluent from Pima County - Agua Nueva Water Reclamation Facility (WRF; APP number P-100655 & AZPDES Permit AZ0026107) is sent to Tucson Water Reclaimed Treatment Plant where it is blended with groundwater from recovery wells and water from the Silverbell Groundwater Extraction and Treatment System, filtered, and disinfected using chlorination before receiving flow contribution from the Tucson Airport Remediation Project (AZPDES Permit AZ0026417). Flow is then distributed to end users, one of which is the Heritage De-chlorination Facility. Reclaimed water received at the Heritage Project location is de-chlorinated using sodium bisulfite prior to being discharged at Outfall 001. The Heritage Project will annually use a maximum total of 4,000 acre-feet per year (AF/YR) of Class A reclaimed water from the Tucson Reclaimed Water System (APP number P-100147). All operations contributing flow to the Santa Cruz River Heritage Project include: 1) Agua Nueva WRF following primary, secondary, nitrification/denitrification, and advanced treatment with filtration 2) Recovery Wells EW-01 through EW-10 (minus EW-07) 3) Silverbell Groundwater Extraction and Treatment System following liquid phase granular activated carbon (GAC) filtration 4) Tucson Water Reclaimed Treatment Plant following advanced disinfection treatment 5) Tucson Airport Remediation Project following advanced oxidation, UV treatment, and GAC filtration 6) Heritage De-chlorination Facility following de-chlorination treatment
Nature of facility discharge:	Non-domestic wastewater; reclaimed water diluted with groundwater.

Average flow per discharge:	1.52 MGD
Continuous or intermittent discharge:	Continuous
The Heritage Project is an important planned reclaimed water recharge facility near downtown Tucson that allows Tucson Water to develop additional recharge capacity for the long-term storage of reclaimed water for future use while enhancing the downtown area with a perennial water feature.	

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 (Federal):	The Water of the U.S. Protected Surface Water (WOTUS PSW) for Santa Cruz River Heritage Project Outfall 001 is Santa Cruz River from Tubac Bridge to Agua Nueva WRF outfall at 32° 17' 04" N, 111° 58' 45" W.
River Basin:	Santa Cruz – Rio Magdelena – Rio Sonoyta
Outfall Location(s):	Outfall 001: Township 14 S, Range 13 E, Section 23 Latitude 32° 12' 9.81" N, Longitude 110° 59' 20.46" W
Designated uses for the receiving water listed above:	Aquatic and Wildlife Ephemeral (A&We) Partial Body Contact (PBC) Agricultural Livestock Watering (AgL)

Per A.A.C. R18-11-113(D), the water quality standards that apply to effluent-dependent waters (EDWs) will be applied to derive discharge limitations for any point source discharge of wastewater to an ephemeral water. The AZPDES permit includes discharge limitations and monitoring requirements designed to achieve compliance with A&Wedw standards.

Therefore, the following uses are being applied to the receiving water:

- Aquatic and Wildlife effluent-dependent water (A&Wedw)
- Partial Body Contact (PBC)
- Agricultural Livestock Watering (AgL)

Is the receiving water on the 303(d) list?	No, and there are no TMDL issues 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, effluent monitoring data are available. The following is the measured effluent quality reported in the application.

Parameters	Units	Maximum Daily Discharge Concentration
Antimony	µg/L	<1
Arsenic	µg/L	7.3
Barium	µg/L	62.6
Beryllium	µg/L	<1
Boron	µg/L	283
Cadmium	µg/L	<1
Chlorine, Total Residual (TRC)	µg/L	2,030
Chloroform	µg/L	4.3
Chromium (Total)	µg/L	<1
Copper	µg/L	4.1
Cyanide	µg/L	250
Dissolved Oxygen	mg/L	8.6
E. Coli	MPN	<1
Fluoride	µg/L	884
Hardness (as $CaCO_3$)	mg/L	328
Iron	µg/L	91.8
Lead	µg/L	<1
Magnesium	µg/L	22,200
Mercury	µg/L	0.25
Nickel	µg/L	<1
Nitrate (as N)	µg/L	7,090
Nitrate + Nitrite (as N)	µg/L	7,250
Nitrogen	µg/L	2,300
pH	S.U.	7.6
Phosphorus	µg/L	1,800
Selenium	µg/L	4.3

Silver	µg/L	<1
Sulfate (as SO4)	mg/L	191
Temperature (Winter/Summer)	°C	23.8 / 29.0
Tetrachloroethylene	µg/L	1.2
Thallium	µg/L	<1
Zinc	µg/L	76.4

VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT	
Date of Most Recent Inspection:	11/08/2021: On-Site AZPDES Individual Permit Inspection/Comprehensive Environmental Inspection Potential deficiencies were noted during the inspection. No further action resulted from this inspection because adequate documentation was provided to ADEQ as requested on the Exit-Debriefing Form.
DMR Files Reviewed:	05/2018 through 11/2022
Lab Reports Reviewed:	05/2018 through 11/2022
DMR Exceedances:	Total Cyanide (Q3, Q4 – 2019; Q1, Q4 – 2020). No other exceedances were noted.
NOVs Issued:	N/A
NOVs Closed:	N/A
Compliance Orders:	N/A

VII. PROPOSED PERMIT CHANGES

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

Parameter	**Existing Permit**	**Proposed permit**	**Reason for change**
Noncompliance Reporting Hotline	(602) 771-2330	Noncompliance resulting in an imminent threat to human health or the environment must be reported to (602) 771-2330, while all other noncompliance must be reported to (602) 771-1440.	Routing emergency calls to the emergency hotline, but all other calls to a non-emergency number.

Use of Metal Translators to Calculate Total Recoverable Permit Limits from Dissolved Criteria (Applicable to Cadmium, Chromium VI, Copper, Lead, Mercury, Nickel, Silver, and Zinc).	No metal translators were used. Assumed the ratio of dissolved to total recoverable is 1 to 1 for all metals with water quality criteria expressed as dissolved.	WQBELs and ALs were converted from dissolved to total recoverable using the default metal translators from the EPA's *The Metals Translator: Guidance for Calculating A Total Recoverable Permit Limit from A Dissolved Criterion.*	New procedure for ADEQ to incorporate default metal translators when calculating total recoverable WQBELs and ALs from dissolved criteria.
Chromium VI, Copper, and Silver	Assessment level	Monitoring for effluent characterization	Data submitted indicates no reasonable potential (RP) for exceedance of a standard.
Iron and Lead	Limited	Monitoring for effluent characterization	Data submitted indicates no reasonable potential (RP) for exceedance of a standard.
Mercury	Assessment level	Limited	Data submitted indicates uncertain reasonable potential (RP) due to high detection limits.
Nitrate/Nitrite (as N), Total Kjeldahl Nitrogen, Phosphorus, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Iron, Lead, Nickel, Selenium, Silver, Thallium, Zinc, and Hardness	Effluent Sample Type: Discrete	Effluent Sample Type: 24-hr Composite	Appropriate monitoring requirements for facilities of this size to have enough representative data that can be used in developing discharge limitations.
Cyanide, Mercury, and Selenium	Monitoring Frequency: 1x/quarter	Monitoring Frequency: 1x/month	Appropriate monitoring requirements for facilities of this size to have enough representative data that can be used in developing discharge limitations.

Whole Effluent Toxicity	Monitoring Frequency: 1x in 2022 Effluent Sample Type: Discrete	Monitoring Frequency: Annually Effluent Sample Type: 24-hr Composite	Appropriate monitoring requirements for facilities of this size to have enough representative data that can be used in developing discharge limitations.

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.

Limits for the following parameter have been removed from the permit because evaluation of current data allows the conclusion that no reasonable potential (RP) for an exceedance of a standard exists:

- Lead (Outfall 001)
- Iron (Outfall 001)

This is considered allowable backsliding under 303(d)(4). The effluent limitations in the current permit for these two parameters were based on state standards, the respective receiving waters are in attainment for these parameters, and the revisions are consistent with antidegradation requirements. See Section XII for information regarding antidegradation requirements.

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 were applied.

Technology-based Limitations: As outlined in 40 CFR Part 133: There are no promulgated technology-based limits for a groundwater recharge facility such as the Santa Cruz River Heritage Project. Therefore, no technology-based standards were applied.

Water Quality-Based Effluent Limitations:

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. Numeric water quality standards are outlined in A.A.C. R18-11-109 and Appendix A. RP refers to an analysis, 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.

Ammonia water quality criteria vary based on the effluent pH and temperature at the time of effluent sampling. As a result, no single ammonia concentration can be included as a permit limit. To overcome this, an Ammonia Impact Ratio (AIR) of 1 for the monthly average and a value of 2 for the maximum daily limits have been established as the permit limits for ammonia. The AIR is calculated by dividing the ammonia concentration in the effluent by the applicable ammonia standard based on the effluent 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 C in the permit.

Because the discharge will consist of reclaimed wastewater effluent, it is assumed that RP exists for exceedance of water quality criteria for the pollutants *E. coli* and, if chlorine or bromine is used in the treatment process, total residual chlorine (TRC). These parameters have been shown through extensive monitoring of WWTPs to fluctuate greatly and thus are not conducive to exclusion from limitation due to a lack of RP. Therefore, the permit contains WQBELs for *E. coli* and TRC.

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

Mixing Zone

Arizona water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies and is approved for a mixing zone. Since the receiving stream for this discharge is ephemeral prior to the discharge, no water is available for a mixing zone and all water quality criteria are applied at end-of pipe. This means that the effluent concentration must meet stream standards.

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 304 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.B 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. 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 Toxic Unit-Chronic (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 or action level will trigger follow-up testing to determine if effluent toxicity is persistent. If toxicity above a limit or 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 permit requires 24-hour composite samples to be collected for WET testing. A 24-hour composite sample type was chosen over the suggested 8-hour composite for WET testing in order to have consistency with the type of sample required for other parameters requiring monitoring in this permit. 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 proposed 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 3.a. through 3.b., *Effluent Characterization Testing,* as follows:

• Table 3.a.—General Chemistry and Microbiology: ammonia, BOD_5, *E. coli*, total residual chlorine (TRC), dissolved oxygen, total Kjeldahl nitrogen (TKN), nitrate/nitrite, pH, phosphorus, temperature, total dissolved solids (TDS), and total suspended solids (TSS)

• Table 3.b. —Selected Metals, Hardness, Cyanide, and WET

NOTE: Some parameters listed in Tables 3.a. and 3.b. are also listed in Tables 1 or 2. In this case, the data from monitoring under Tables 1 or 2 may be used to satisfy the requirements of Tables 3.a. and/or 3.b., provided the specified sample types are the same. In the event the facility does not discharge to a Protected Surface Water 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.

Permit Limitations and Monitoring Requirements

Table 1 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*.

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Flow	---	2.8 MGD	Continuous	N/A	---	Discharge flow is to be monitored on a continual basis using a flow meter.
Ammonia	Standard varies with temperature and pH	2.6 mg/L	71	N/A	RP exists	Ammonia is to be monitored by discrete sample and a WQBEL in the form of an ammonia impact ratio (AIR) of 1 is set in the permit (4). An ammonia data log with concurrent pH and temperature monitoring is also required. One sample must coincide with WET sampling to aid in the determination of the cause of toxicity if toxicity is detected.
Chlorine, Total Residual (TRC)	11 µg/L A&Wedw chronic	2,030 µg/L	74	5,161 µg/L	RP is always expected when chlorine or bromine is used for disinfection.	TRC is to be monitored as a discrete sample and a WQBEL remains 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.
Dissolved Oxygen	R18-11-109(E) The single sample minimum concentration for the designated use is. A&Wedw: 3.0 mg/L for a sample taken from 3 hours after sunrise to sunset or 1.0 mg/L for a sample taken from sunset to 3 hours after sunrise	8.61 mg/L	23	N/A	N/A	Monitoring is required for effluent characterization.
Dissolved Solids, Total	No applicable standard.	779 mg/L	23	N/A	N/A	Monitoring is required for effluent characterization.
E. coli	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 575 cfu /100 mL/ PBC	1	78	N/A	RP always expected for WWTPs. See explanation above.	*E. coli* is to be monitored as a discrete sample and a WQBEL remains in the permit.
pH	Minimum: 6.5 Maximum: 9.0 A&Wedw and PBC A.A.C. R18-11-109(B)	7.64 S.U.	22	N/A	WQBEL	pH is to be monitored using a discrete sample of the effluent and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected. pH sampling must also coincide with ammonia sampling when required.

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use	Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Temperature	R18-11-109(C) the discharge shall not cause an increase in the ambient water temperature. A&Wedw: no more than 3.0°C	Winter – 23.8ºC Summer-29.0ºC	5 8	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 must also coincide with ammonia sampling when required.
Total Nitrogen	No applicable standards	2.3 mg/L	13	N/A	N/A	Monitoring required for effluent characterization.
Total Phosphorus	No applicable standards	1.8 mg/L	13	N/A	N/A	Monitoring required for effluent characterization.
Total Suspended Solids (TSS)	No applicable numeric standard	3.5 mg/L	10	N/A	N/A	TSS monitoring is required for effluent characterization.
Antimony	600 µg/L A&Wedw chronic	<1.0 µg/L	8	N/A	No RP	Monitoring required for effluent characterization.
Arsenic	150 µg/L A&Wedw chronic	7.3 µg/L	9	23 µg/L	No RP	Monitoring required for effluent characterization.
Barium	98,000 µg/L PBC	63 µg/L	8	208 µg/L	No RP	Monitoring required for effluent characterization.
Beryllium	5.3 µg/L A&Wedw chronic	<1.0 µg/L	8	N/A	No RP	Monitoring required for effluent characterization.
Boron	186,667 µg/L PBC	283 µg/L	8	942 µg/L	No RP	Monitoring required for effluent characterization.
Cadmium (2)	5.09 µg/L A&Wedw chronic	<1.0 µg/L	8	N/A	No RP	Monitoring required for effluent characterization.
Chromium (Total)	1,000 µg/L AgL	<20.0 µg/L	9	N/A	No RP	Monitoring required for effluent characterization.
Chromium VI	11 µg/L A&Wedw chronic	0.1 µg/L	1	0.8 µg/L	No RP	Monitoring required for effluent characterization.
Copper (2)	23.17 µg/L A&Wedw chronic	4.1 µg/L	9	12.95 µg/L	No RP	Monitoring required for effluent characterization.
Cyanide	9.7 µg/L A&Wedw chronic	250 µg/L	44	N/A	RP Exists	Monitoring is required and a WQBEL remains in the permit.
Hardness	No applicable standard. Hardness is used to determine standards for specific metal parameters.	328 mg/L	10	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 effluent 304 mg/L. Monitoring for hardness is required whenever monitoring for hardness dependent metals is required.
Iron	1,000 µg/L A&Wedw chronic	92 µg/L	9	290 µg/L	No RP	Monitoring required for effluent characterization.
Lead (2)	8.24 µg/L A&Wedw chronic	<1.0 µg/L	8	N/A	No RP	Monitoring required for effluent characterization.
Mercury	0.01 µg/L A&Wedw chronic	0.25 µg/L	13	N/A	RP Exists	Monitoring required and a WQBEL remains in the permit.
Nickel (2)	133.3 µg/L A&Wedw chronic	<20.0 µg/L	8	N/A	No RP	Monitoring required for effluent characterization.
Selenium	2 µg/L A&Wedw chronic	4 µg/L	8	14 µg/L	RP Exists	Monitoring required and a WQBEL remains in the permit.

Table 1. Permit limitations and monitoring requirements.

Parameter	Lowest Standard/Designated Use		Maximum Reported Daily Value	No. of Samples	Estimated Maximum Value	RP Determination	Proposed Monitoring Requirement/Rationale (1)
Silver (2)	21.79 µg/L A&Wedw acute		<1.0 µg/L	7	N/A	No RP	Monitoring required for effluent characterization.
Thallium	75 µg/L PBC		<1.0 µg/L	8	N/A	No RP	Monitoring required for effluent characterization.
Zinc (2)	301 µg/L A&Wedw acute chronic		76.4 µg/L	9	241.35 µg/L	No RP	Monitoring required for effluent characterization.
Whole Effluent Toxicity (WET)	No toxicity (A.A.C. R18-11-108(A) (6)	*Pseudo-kirchneriella subcapitata (3)*	1.0 TUc	1	N/A	RP Indeterminate	Monitoring required and an action level is set.
		Pimephales promelas	1.0 TUc	1	N/A	RP Indeterminate	Monitoring required and an action level is set.
		Ceriodaphnia dubia	1.0 TUc	1	N/A	RP Indeterminate	Monitoring required and an action level is set.

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 effluent or receiving water as indicated above.
3 Formerly known as *Selenastrum capricornutum or Raphidocelis subcapitata.*
4 An AIR will be calculated by dividing effluent ammonia concentration by the applicable standard using the receiving water pH and temperature.

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 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. 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 I.A and Part II.A.1) in order to ensure that representative samples of the effluent 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), Ammonia Data Logs, 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.

The permit also requires annual submittal of an Ammonia Data Log that records the results for temperature, pH, and 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(s) 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.C.3 of the permit.

X. BIOSOLIDS REQUIREMENTS (Part III in Permit)

Not applicable.

XI. SPECIAL CONDITIONS (Part V in Permit)

Permit Reopener

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

XII. ANTIDEGRADATION

Antidegradation rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected. The discharge from the Santa Cruz Heritage Project will be to an ephemeral stream which will become (for purposes of this permit) an effluent-dependent water. Except for flows resulting from rain events, the only water in the stream will be the effluent. Therefore, the discharge and the receiving water will normally be one and the same. Effluent quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable water quality standards. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107.

XIII. STANDARD CONDITIONS

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

XIV. ADMINISTRATIVE INFORMATION

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

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

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

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

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

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

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

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

XV. ADDITIONAL INFORMATION

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

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

Or by contacting Lesley Davidson at (520) 628 – 5018 or by e-mail at davidson.lesley@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, 2C, and 2C addendum, received December 8, 2022, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. ADEQ files on Santa Cruz River Heritage Project.
3. ADEQ Geographic Information System (GIS) Web site
4. Information provided to ADEQ staff during a facility inspection on November 8, 2021.

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. The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion, US EPA, June 1996.