

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT FACT SHEET
November 2021

Permittee Name: Colorado River Sewage System Joint Venture

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NPDES Permit No.: AZ0021415

I. STATUS OF PERMIT

Colorado River Sewage System Joint Venture (the “permittee” or “CRSSJV”) applied for the renewal of their National Pollutant Discharge Elimination System (NPDES) permit to authorize the discharge of treated effluent from the CRSSJV publicly-owned wastewater treatment works (POTW) to an unnamed irrigation canal, tributary to the Colorado River, in Parker, Arizona. A complete application was submitted on July 23, 2020. EPA Region IX has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act (CWA), which requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States through obtaining a NPDES permit.

The permittee previously discharged under NPDES permit AZ0021415 issued on February 5, 2015, and modified on August 14, 2017.

This permittee has been classified as a major discharger.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Permit Condition	Previous Permit (2015 – 2020)	Re-issued permit (2021 – 2026)	Reason for change
Ammonia and temperature monitoring requirements	No monitoring requirements for ammonia or temperature.	Includes monthly monitoring requirements for ammonia and temperature.	Monitoring results will inform future reasonable potential analyses to determine whether the discharge has the potential to cause or contribute to exceedances of applicable water quality standards. See Part VI.B.

Water quality-based effluent limits	Included limits for boron, fluoride, nitrate + nitrite, and chronic Whole Effluent Toxicity	Limits were removed for boron, fluoride, nitrate + nitrite, and chronic Whole Effluent Toxicity. Annual monitoring for these parameters is retained. See Part VI.B and VIII.C.	Based on monitoring results over the previous permit term and changes to the designated uses of the receiving water based on the 2016 Arizona WQS, the discharger no longer has Reasonable Potential to exceed applicable WQS for boron, fluoride, nitrate + nitrite, and chronic Whole Effluent Toxicity.
Asset Management Plan	No requirements.	The permittee is required to develop an Asset Management Plan. See Part IX.D.	Asset management planning provides a framework for setting and operating quality assurance procedures and ensuring the permittee has sufficient financial and technical resources to continually maintain a targeted level of service. Requirements have been included in the permit to comply with 40 CFR § 122.41(e).

III. GENERAL DESCRIPTION OF FACILITY

CRSSJV owns and operates the separate sanitary sewer POTW servicing the Town of Parker, Arizona, and the Colorado River Indian Tribes (CRIT), with a total population of approximately 5,000. The POTW started operations in 1974 and has a design flow of 1.2 million gallons per day (MGD). The average daily flow rate for 2020 was 0.571 MGD and the maximum daily flow rate for 2020 was 0.676 MGD. The treatment system consists of solids grinder, contact stabilization tanks with secondary clarifiers, aerobic digesters, and ultraviolet disinfection with backup chlorination/dechlorination. Influent solids pass through comminutor grinder and then are removed by screw auger and deposited into 55-gallon drums. Effluent solids are dried on site and then sludge is hauled off to a landfill.

The permittee does not have an approved pretreatment program but does maintain city codes and local limits to control the flow of industrial pollutants into the POTW. In the permit renewal application, the permittee reported one significant industrial discharger: Evoqua Water Technologies. Evoqua Water Technologies' average daily volume of process wastewater is 0.120 MGD, which represents 21% of the POTW's average daily flow of 0.571 MGD. Pretreatment requirements are discussed further in Part IX.B.

IV. DESCRIPTION OF RECEIVING WATER

The final treated effluent from the sewage treatment plant is discharged from Discharge Outfall No. 001 into an underground transportation pipeline for 1.2 miles after which it is discharged into a treatment wetland. This wetland is the first mile of an unlined drainage canal,

which then flows approximately 12 miles until it reaches a confluence with the Colorado River. All sampling and monitoring under the permit is required to be performed at Outfall No. 001, except for nitrite + nitrate as N samples which are required to be collected at the end of wetland at the following lat/long: 34° 06' 55.5" N, 114° 19' 28.5" W.

Discharge Point No.	Latitude	Longitude	Description
001	34° 08' 36" N	114° 18' 31" W	Primary discharge point is on facility property at end of UV disinfection basin.

The drainage canal is not specifically listed in Arizona Department of Environmental Quality's (ADEQ's) 2018 303(d) List of Impaired Waters. However, the canal is tributary to the Colorado River from Main Canal to Mexico border, which is listed in ADEQ's 2018 303(d) List as being impaired for selenium.

V. DESCRIPTION OF DISCHARGE

The following table shows discharge data from Outfall 001 based on the permittee's NPDES renewal application as well as data reported on discharge monitoring reports over the past 5 years (2016 to 2021).

Non-detect sample results are not included. The data show elevated results for E. coli, nitrate + nitrite, boron, and selenium. These exceedances are discussed further in Part VI.B.4. More information is available on Enforcement and Compliance History Online (ECHO) at <https://echo.epa.gov/detailed-facility-report?fid=AZ0021415&sys=ICP>.

Application and Effluent Data for Outfall 001 from 2016 to 2021.

Parameter	Units	Current Permit Effluent Limitations ⁽¹⁾			Discharge Monitoring Data			
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Number of Samples
Flow Rate	MGD	Monitoring Only	Monitoring Only	Monitoring Only	0.65	1.213	7.31	55
Phosphorus	mg/L	Monitoring Only	Monitoring Only	Monitoring Only	--	--	2.85	app
Temperature	° Celsius	Monitoring Only	Monitoring Only	Monitoring Only	21 (winter max) 25 (summer max)			app
Biochemical Oxygen Demand (5-day)	mg/L	30	45	Monitoring Only	30	45	121	59
	kg/day	136	204	Monitoring Only	136	204	--	
	Percent Removal	Average monthly percent removal shall not be less than 85 percent.			95-98 (min-max)			
Total Suspended Solids	mg/L	30	45	Monitoring Only	30	45	158	58
	kg/day	136	204	Monitoring Only	136	204	--	
	Percent Removal	Average monthly percent removal shall not be less than 85 percent.			89-99 (min-max)			

pH	Standard Units	Within 6.5 and 9.0 at all times			6.73-8.15 (min-max)			59
<i>E. coli</i>	CFU/ 100 mL	126	--	235	126	--	2420	58
Arsenic	µg/L	10	--	20.10	7.4	--	20.1	22
	kg/day	0.045	--	0.091	NR	--	NR	
Boron	µg/L	630	--	1270	690	--	1270	59
	kg/day	2.86	--	5.77	2.86	--	5.77	
Fluoride	µg/L	4000	--	8040	4000	--	8040	59
	kg/day	18.17	--	36.52	18.17	--	36.52	
Nitrate + Nitrite	mg/L	10 ⁽²⁾			18.2 ⁽³⁾	33.65	--	34
Selenium	µg/L	1.86	--	2.47	5.6	--	5.6	48
	kg/day	0.0084	--	0.011	0.015	--	0.015	
Whole Effluent Toxicity – Chronic ⁽³⁾	TUC	1.0	--	1.6	1.0		1.6	15
		All chronic WET tests must be “Pass”, and no test may be “Fail”. “Pass” constitutes a rejection of the null hypothesis using the Test of Significant Toxicity (TST) statistical approach.			All results were “Pass”			
Solids, total dissolved	mg/L	Incremental increase not to exceed 400 mg/L			Highest effluent concentration=1340 Highest increase=391			58
Hardness, total (CaCO ₃)	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	352	--	59
Lead	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	0.001	--	33
Oil & Grease	µg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	3900	--	35
Mercury	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--	(5)	1
Antimony	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--	0.0012	2
Nickel	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--	0.0037	4
Zinc	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--	0.066	4
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--		
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--		
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--		
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--		
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--		
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾			--	--		

	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾	--	--		
	mg/L	Monitoring only (no effluent limits) ⁽⁴⁾	--	--		

(1) Mass limits based on a design flow of 1.2 MGD

(2) Nitrate + nitrite effluent limit (10 mg/L) is a 12-month average. Results reported as a 12-month average consisting of not less than 1 sample collected each month, for a total of not less than 12 samples.

(3) All chronic WET tests were required to be reported in TU_C and as “Pass” or “Fail” using the TST statistical approach.

(4) Monitoring and reporting required for these parameters only, no current effluent limits apply.

(5) The DMR result for mercury reported in December 2018 was 3.23 mg/L; however, the lab report for this 2018 sampling event listed the result for mercury as “Lab Error #”. This monitoring result was therefore not included in the summary here or in the Reasonable Potential Analysis.

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (i.e., “technology-based effluent limits”) and the water quality standards applicable to the receiving water (i.e., “water quality-based effluent limits”). EPA has established the most stringent of applicable technology-based or water quality-based standards in the permit, as described below.

A. Applicable Technology-Based Effluent Limitations

Publicly Owned Wastewater Treatment Systems (POTWs)

EPA developed technology-based treatment standards for municipal wastewater treatment plants in accordance with Section 301(b)(1)(B) of the CWA. The minimum levels of effluent quality attainable by secondary treatment for Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), and pH, as defined in 40 CFR § 133.102, are listed below. Mass limits, as required by 40 CFR § 122.45(f), are included for BOD₅ and TSS.

BOD₅

Concentration-based Limits

30-day average – 30 mg/L

7-day average – 45 mg/L

Removal Efficiency – minimum of 85%

Mass-based Limits

30-day average – (30 mg/L)(1.2 MGD)(3.785 conversion factor) = 136 kg/day

7-day average – (45 mg/L)(1.2 MGD)(3.785 conversion factor) = 204 kg/day

TSS

Concentration-based Limits

30-day average – 30 mg/L

7-day average – 45 mg/L

Removal efficiency – Minimum of 85%

Mass-based Limits

30-day average – (30 mg/L)(1.2 MGD)(3.785 conversion factor) = 136 kg/day

7-day average – (45 mg/L)(1.2 MGD)(3.785 conversion factor) = 204 kg/day

pH

Instantaneous Measurement: 6.0 – 9.0 standard units (S.U.)

1. **Biochemical Oxygen Demand (5-day).** Pursuant to 40 CFR 133.102, effluent limitations are for BOD₅. Secondary treatment requirements provide that effluent concentrations of BOD₅ shall not exceed 30 mg/L on a 30-day average and not exceed 45 mg/L based on a 7-day average. In addition, the 30-day average percent removal shall not be less than 85 percent. Based on the facility's design flow of 1.2 MGD per day, this permit includes mass-based monthly average effluent limitation of 136 kg/day and a weekly average effluent limitation of 204 kg/day for BOD₅. Monitoring frequency has been reduced from

twice per month to monthly, based on the facility's consistent compliance within permit limits.

2. **Total Suspended Solids.** Pursuant to 40 CFR 133.102 effluent limitations for TSS are based on secondary treatment standards. Secondary treatment requirements provide that effluent concentrations of TSS shall not exceed 30 mg/L on a 30-day average and 45 mg/L on 7-day average. In addition, the 30-day average percent removal shall not be less than 85 percent. Based on the facility's design flow of 1.2 MGD per day, this permit also includes a mass-based monthly average effluent limitation of 136 kg/day and a weekly average effluent limitation of 204 kg/day for TSS. Monitoring frequency has been reduced from twice per month to monthly, based on the facility's consistent compliance within permit limits.

Arizona WQS Section R18-11-109D requires that the median value of suspended sediments of a minimum of four samples collected at least seven days apart shall be no greater than 80 mg/L for Aquatic & Wildlife, warm water, and a narrative limit reflecting this standard is included in the permit.

3. **pH.** 40 CFR 133.102(c) provides secondary treatment requirements for pH, which state effluent values for pH shall be maintained within the limits of 6.0 and 9.0 standard units. However, Section R18-11-109B of the Arizona WQS requires that pH for Full Body Contact be maintained within the limits of 6.5 and 9.0. Federal regulation requires that when establishing effluent limitations, the more stringent of the technology and water-quality based limitations applies. Therefore, the pH limits in this permit reflect the more stringent WQS.
5. **Total Dissolved Solids.** The facility reported both effluent gross values and incremental increase values for TDS. Because of the plant's influent having a high concentration of TDS, an incremental increase limit of 400 mg/L was required in the previous permit, to be calculated as the increase between the TDS levels in the community's water supply and the levels in the plant effluent. Section R18-11-110 of the Arizona WQS provides Salinity Standards for the Colorado River. The flow-weighted average annual salinity in the lower main stem of the Colorado River shall not exceed 747 mg/L below Parker Dam. In addition and specifically for municipal dischargers, Appendix B of the 2020 Review, Water Quality Standards for Salinity, Colorado River System requires that the discharge not exceed an incremental increase of 400 mg/L TDS, unless the permitting authority authorizes a discharge in excess of the 400 mg/L incremental increase at the time of issuance or reissuance of a NPDES discharge permit, upon satisfactory demonstration by the permittee that it is not practicable to attain the 400 mg/L limit.

The DMRs show that the facility was able to meet the previous permit incremental increase limit of 400 mg/L. Therefore, this limit is retained.

B. Water Quality-Based Effluent Limitations

Water quality-based effluent limitations are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard (40 CFR § 122.44(d)(1)).

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and non-point sources of

pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water (40 CFR § 122.44(d)(1)(ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers' Manual* (Office of Water, U.S. EPA, September 2010). These factors include:

1. Applicable standards, designated uses and impairments of receiving water
2. Dilution in the receiving water
3. Type of industry
4. History of compliance problems and toxic impacts
5. Existing data on toxic pollutants - Reasonable Potential Analysis

1. Applicable Standards, Designated Uses and Impairments of Receiving Water

CRIT does not have EPA-approved surface water quality standards. As the discharge may eventually flow into the Colorado River, the discharge must meet those downstream standards established by the State of Arizona Water Quality Standards (WQS) found in Title 18, Chapter 11 of the Arizona Administrative Code. EPA partially approved the 2016 Arizona WQS, including all standards applicable to the Colorado River at and downstream of the confluence with the drainage canal. Therefore, the permit cites the 2016 Arizona WQS.

The drainage canal into which the outfall discharges is not specifically listed in Appendix B [*Surface Waters and Designated Uses*] of the 2016 Arizona WQS. However, section R18-11-105 [*Tributaries; Designated Uses*] of the Arizona WQS states:

"The following water quality standards apply to a surface water that is not listed in Appendix B but that is a tributary to a listed surface water. ...The aquatic and wildlife (warm water), full-body contact, and fish consumption standards apply to an unlisted tributary that is a perennial or intermittent surface water and is below 5000 feet in elevation."

And, section R18-11-104D [*Designated Uses*] states:

"If a surface water has more than one designated use listed in Appendix B, the most stringent water quality criterion applies."

The designated uses of the Colorado River from Topock Marsh to Morelos Dam, which includes the point of confluence between the drainage canal and the Colorado River, are as follows:

A&Ww	Aquatic & Wildlife, warm water
FBC	Full Body Contact
DWS	Domestic Water Supply
FC	Fish Consumption
AgI	Agricultural Irrigation
AgL	Agricultural Livestock Watering

As described in Arizona WQS R18-11-05, since the drainage canal is a tributary below 5000 feet in elevation, the applicable designated uses are indicated in bold above.

The drainage canal is not specifically listed in ADEQ's 2018 303(d) List of Impaired Waters. However, the canal is tributary to the Colorado River from Main Canal to Mexico border, which is listed in ADEQ's 2018 303(d) List as being impaired for selenium. An applicable Total Maximum Daily Load (TMDL) has not been established for this receiving water. Existing water quality-based effluent limits for selenium have been retained based on chronic and acute water quality standards for protection of Aquatic & Wildlife, warm water.

Applicable water quality standards establish water quality criteria for the protection of aquatic wildlife from acute and chronic exposure to certain metals that are hardness dependent, with a "cap" of 400 mg/l. Based on available hardness data for the discharge, the permit establishes water quality standards for these metals based on a hardness value of 338.8 mg/L. This value, used in the previous permit, was based on historical STORET data for the CRIT main drainage canal, and is retained to prevent backsliding and degradation.

2. Dilution in the Receiving Water

Arizona's water quality standards require that water quality standards be achieved without mixing zones unless the Permittee applies and is approved for a mixing zone (R18-11-114). Therefore, no dilution of the effluent has been considered in the development of the water quality-based effluent limits applicable to the discharge.

3. Type of Industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia, nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. Chlorine and turbidity may also be of concern due to treatment plant operations.

4. History of Compliance Problems and Toxic Impacts

Prior to the previous permit issuance in 2015, CRSSJV had numerous permit violations for exceedances of E. coli, nitrate + nitrite, and arsenic limits. In March 2015, EPA finalized an Administrative Order on Consent establishing timeframes for CRSSJV to construct an aquatic macrophyte wetlands treatment system to bring the facility into compliance with limits for E. coli, nitrate + nitrite, and arsenic. This wetlands treatment system was constructed before the AOC deadline of July 2017, and the permit was modified in August 2017 to move the sampling location for nitrate + nitrite to the end of the treatment wetlands.

The final compliance deadline in the AOC for the permittee to meet E. coli, nitrate + nitrite, and arsenic limits was December 1, 2017. Since that date, there have been no exceedances of E. coli, nitrate + nitrite, or arsenic limits, nor have there been any other exceedances of permit limits.

5. Existing Data on Toxic Pollutants

For pollutants with effluent data available, EPA has conducted a reasonable potential analysis based on statistical procedures outlined in EPA's *Technical Support Document for Water Quality-based Toxics Control* herein after referred to as EPA's TSD (EPA 1991). These statistical procedures result in the calculation of the projected maximum effluent concentration based on monitoring data to account for effluent variability and a limited data set. The projected

maximum effluent concentrations were estimated assuming a coefficient of variation of 0.6 and the 99 percent confidence interval of the 99th percentile based on an assumed lognormal distribution of daily effluent values (sections 3.3.2 and 5.5.2 of EPA's TSD). EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

$$\text{Projected maximum concentration} = C_e \times \text{reasonable potential multiplier factor.}$$

Where, "C_e" is the reported maximum effluent value and the multiplier factor is obtained from Table 3-1 of the TSD.

Summary of Reasonable Potential Statistical Analysis:

Parameter ⁽¹⁾	Maximum Observed Concentration (mg/L, unless otherwise specified)	n	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
<i>E. Coli</i>	2420 CFU/100 mL	58	1.0	2420 CFU/100 mL	126 CFU/100 mL (FBC)	Y
Arsenic	20.1 µg/L	22	2.2	44.22 µg/L	30 µg/L (FBC)	Y
Boron	1270 µg/L	59	1.0	1270 µg/L	186,667 µg/L (FBC)	N
Fluoride	8040 µg/L	59	1.0	8040 µg/L	140,000 µg/L (FBC)	N
Nitrate + Nitrite	33.65	34	1.8	60.57	Nitrate: 3733 Nitrite: 233 Nitrate + Nitrite: none (FBC)	N
Selenium	5.6 µg/L	48	1.3	7.28 µg/L	2 µg/L (A&Ww)	Y
Lead	0.001 µg/L	33	1.8	0.0018 µg/L	10 µg/L (A&Ww)	N
Oil and grease	3900 µg/L	35	1.7	6630 µg/L	No numeric criterion	N
Antimony	0.0012	2	7.4	0.00888	0.030 (A&Ww)	N

Nickel	0.0037	4	4.7	0.01739	0.146 (A&Ww)	N
Zinc	0.066	4	4.7	0.3102	0.3295 (A&Ww)	N

⁽¹⁾ For purposes of RP analysis, parameters measured as Non-Detect are considered to be zeroes. Only pollutants detected are included in this analysis.

C. Rationale for Numeric Effluent Limits and Monitoring

EPA evaluated the typical pollutants expected to be present in the effluent and selected the most stringent of applicable technology-based standards or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentration that have the reasonable potential to cause or contribute to water quality violations, EPA may establish monitoring requirements in the permit. Where monitoring is required, data will be re-evaluated and the permit may be re-opened to incorporate effluent limitations as necessary.

Flow

No limits established for flow, but flow rates must be monitored and reported. Monitoring is required weekly.

BOD₅ and TSS

Limits for BOD₅ and TSS are established for POTWs as described above and are incorporated into the permit. Under 40 CFR § 122.45(f), mass limits are also required for BOD₅ and TSS. Based on the design flow, the mass-based limits are included in the permit.

E. coli

Section R18-11-109A of the Arizona WQS provides requirements for bacteria for the FBC designated use. Arizona WQS requires that the geometric mean of the E. Coli values for effluent samples collected (a minimum of 4 samples in 30 consecutive days) shall not exceed 126 colony forming units (CFU) per 100 mL of water, and that the single sample maximum shall not exceed 235 CFU/100mL of water. The permit retains the existing effluent limits reflecting these WQS.

Arsenic

Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance of applicable water quality standards for arsenic. The previous permit contained arsenic limits that are more stringent than what is required to protect the most stringent WQS (based on FBC), and these limits are retained to satisfy anti-backsliding and anti-degradation requirements. Monitoring is required monthly.

Boron, Fluoride, Nitrate + Nitrite

In 2016, EPA approved updates to the Arizona WQS, which removed the DWS, AgI, and AgL designated uses for the receiving water, pursuant to section R18-11-105 [*Tributaries; Designated Uses*]. Based on the reasonable potential analysis using the most stringent criterion for the remaining applicable designated uses of A&Ww, FBC, and FC, EPA has determined that the discharge no longer has reasonable potential to cause or contribute to an exceedance of applicable water quality standards for boron, fluoride, or nitrate + nitrite. Therefore, the permit

limits for these parameters have been removed. Annual monitoring has been retained for these parameters.

Selenium

Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance of applicable water quality standards for selenium. Therefore, the permit retains existing effluent limits for selenium based on chronic and acute water quality standards for protection of Aquatic & Wildlife, warm water. Monitoring is required monthly.

Ammonia

Treated and untreated domestic wastewater may contain levels of ammonia that are toxic to aquatic organisms. The facility was not required to sample for ammonia during the previous permit term, and therefore did not submit monitoring results for ammonia. Ammonia monitoring requirements have been added to the permit to inform a future reasonable potential analysis.

Tables 11 and 12 of the Arizona WQS contain ammonia criteria which are pH- and temperature-dependent. Therefore, ammonia monitoring is required to be conducted concurrent with pH and temperature monitoring, and temperature monitoring has been added to the permit.

D. Anti-Backsliding

Section 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l)(1) prohibits the renewal or reissuance of an NPDES permit that contains effluent limits and permit conditions less stringent than those established in the previous permit, except as provided in the statute and regulation.

The permit removes limits for boron, fluoride, nitrate + nitrite, and chronic Whole Effluent Toxicity. Section 402(o)(2)(B)(i) of the CWA allows a reissued permit to contain a less stringent effluent limit if "...information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance..." The reasonable potential analysis conducted using monitoring results over the previous permit term, described in Parts VI.B.5. and VIII.C of this fact sheet, demonstrates that the discharger no longer has the reasonable potential to cause or contribute to an exceedance of applicable water quality standards for these parameters. Based on this updated monitoring data, the permit would not be required to contain effluent limits for these parameters based on 40 CFR § 122.44(d)(1)(i), and this exception to backsliding is therefore satisfied.

E. Antidegradation Policy

EPA's antidegradation policy under CWA § 303(d)(4) and 40 CFR § 131.12 and Section R18-11-107 of the Arizona WQS require that existing water uses and the level of water quality necessary to protect the existing uses be maintained. Where existing surface water quality is better than the applicable WQS the existing water quality shall be maintained and protected unless degradation is authorized in accordance with the applicable antidegradation policies.

Because this permit does not allow increased discharge rate or levels of pollutants from what was authorized under the previous permit, and the permit establishes effluent limits and monitoring

requirements to ensure that all applicable water quality standards are met, degradation is not authorized and these antidegradation requirements are therefore satisfied.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

Section R18-11-108 of the 2016 Arizona WQS contains narrative water quality standards applicable to the downstream receiving water. In addition to the numeric WQBELs summarized in Part VI.B, the permit also incorporates narrative effluent limits to implement these standards.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Effluent Monitoring and Reporting

The permittee shall conduct effluent monitoring to evaluate compliance with the permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR § 136, unless otherwise specified in the permit. All monitoring data shall be reported on monthly DMRs and submitted quarterly as specified in the permit. All DMRs are to be submitted electronically to EPA using NetDMR.

B. Priority Toxic Pollutants Scan

Priority Toxic Pollutants scans shall be conducted annually to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee shall perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR § 136, unless otherwise specified in the permit or by EPA. 40 CFR § 131.36 and Attachment D of the permit provide a complete list of Priority Toxic Pollutants.

C. Whole Effluent Toxicity (WET) Requirements

Aquatic life is a public resource protected in surface waters covered by the CWA. As evidence that CWA requirements protecting aquatic life from chronic and acute toxicity are met in surface waters receiving the NPDES discharge, samples are collected from the effluent and tested for toxicity in a laboratory using EPA's WET methods. These aquatic toxicity test results are used to determine if the NPDES effluent causes toxicity to aquatic organisms. Toxicity testing is important because for scores of individual chemicals and compounds, chemical-specific environmentally protective levels for toxicity to aquatic life have not been developed, or set as water quality standards. In due course, some such chemicals and compounds can eventually make their way into effluents and their receiving surface waters. When this happens, toxicity tests of effluents can demonstrate toxicity due to present, but unknown, toxicants (including possible synergistic and additive effects), signaling a water quality problem for aquatic life.

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed test organism can show a difference in biological response; some will be undesirable differences. Examples of undesirable biological responses include, but are not limited to, eggs not fertilized, early life stages that grow too slowly or abnormally, or death. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) chosen by the permitting authority and specified in the NPDES permit. The chosen statistical approach is compatible with both the experimental design of the WET method and the applicable toxicity water quality standard. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic, in relation to the permit's toxicity level for the effluent, which is set to protect the quality of surface waters receiving the NPDES discharge. EPA's WET methods are specified under 40 CFR § 136 and/or in applicable water quality standards.

EPA recommends inferential statistical approaches that a permitting authority chooses from to set a protective level for toxicity in an NPDES discharge. The statistical approach chosen for this permit is based on bioequivalence hypothesis testing and is called the Test of Significant Toxicity (TST) statistical approach. It is described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (EPA 833-R-10-004, 2010; TST Technical Document) and Denton DL, Diamond J, and Zheng L. 2011. Test of significant toxicity: A statistical application for assessing whether an effluent or site water is truly toxic. *Environ Toxicol Chem* 30:1117-1126. This statistical approach supports important choices made within a toxicity laboratory which favor quality data and EPA's intended levels for statistical power when true toxicity is statistically determined to be unacceptably high (≥ 25 PE, Percent (%) Effect), or acceptably low (< 10 PE). Example choices are practices supporting healthy test organisms, increasing the minimum recommended replication component of the WET method's experimental design (if needed), technician training, etc. TST results do not often differ from other EPA-recommended statistical approaches using hypothesis testing (Diamond D, Denton D, Roberts J, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples. *Environ Toxicol Chem* 32:1101-1108.). The TST maintains EPA's desired low false positive rate for WET methods—the probability of declaring toxicity when true toxicity is acceptably low $\leq 5\%$ —when quality toxicity laboratories conduct toxicity tests (TST Technical Document; Fox JF, Denton DL, Diamond J, and Stuber R. 2019. Comparison of false-positive rates of 2 hypothesis-test approaches in relation to laboratory toxicity test performance. *Environ Toxicol Chem* 38:511-523.). Note: The false positive rate is a long-run property for the toxicity laboratory conducting a WET method. A low false positive rate is indicated by a low long-run toxicity laboratory control coefficient of variation for the test species/WET method, using a minimum of 30 to 50 toxicity tests.

The following chronic toxicity test results are DMR submissions representative of the effluent discharge monitored during the previous permit term, where laboratory data were provided and could be analyzed using the TST statistical approach described in Appendix B of the TST Technical Document.

Chronic Toxicity Data Summary and Reasonable Potential Determination.

Toxicity test initiation & completion dates	Test species/WE T method	Chronic toxicity test did not reject (Fail “1”), or rejected (Pass “0”), TST null hypothesis	Associated PE	Number of replicates (n)	Control coefficient of variation (cK)	Reasonable potential if Fail (1) and/or associated PE ≥ 10
6/25/19-7/2/19	C. dubia 7-d Survival and Reproduction	0	Survival: 0% Reproduction : -9.45%	10	10.61%	No
6/25/19-7/2/19	P. promelas 7-d Larval Survival and Growth Test	0	Survival: 0% Growth: -2.5%	4	4.52%	No
6/29/19	Selenastrum Growth Test	0	-11.3%	4	1.24%	No
4/24/18-5/1/18	C. dubia 7-d Survival and Reproduction	0	Survival: 0% Reproduction : -32.75%	10	9.73%	No
4/24/18-5/1/18	P. promelas 7-d Larval Survival and Growth Test	0	Survival: 0% Growth: -9.68%	4	4.92%	No
4/23/18-4/27/18	Selenastrum Growth Test	0	-9.18%	4	2.01%	No

In accordance with 40 CFR § 122.44(d)(1), reasonable potential for chronic toxicity has not been established. This is because no chronic toxicity test result is Fail (1) indicating unacceptable toxicity is not present in the effluent and/or no associated PE (Percent (%) Effect) value is ≥ 10 indicating toxicity at a level higher than acceptable is not present in the effluent (see Chronic Toxicity Data Summary above and section 1.4 in TST Technical Document). Thus, no chronic toxicity WQBELs are required for the permitted discharge (40 CFR § 122.44(d)(1)). However, monitoring and reporting for both the median monthly and maximum daily effluent results for the parameter of chronic toxicity are required, so that effluent toxicity can be assessed in relation to CWA requirements for the permitted discharge (see Part I, Table 2 in NPDES permit).

In accordance with 40 CFR § 122.44(d)(1)(ii), in setting the permit's levels for chronic toxicity and conditions for discharge, EPA is using a test species/chronic short-term WET method and a discharge Instream Waste Concentration (IWC) representing conservative

assumptions for effluent dilution necessary to protect receiving water quality. The IWC is a discharge-specific term based on the permit's authorized mixing zone or initial dilution. Generally, the dilution model result "S" from Visual Plumes/Cormix is used. S is the volumetric dilution factor, i.e. 1 volume effluent is diluted with $S - 1$ volumes surface water) = $[(V_e + V_a) / V_e]$. Following the mass balance equation, if the dilution ratio $D = Q_s / Q_e$, then $[(Q_e + Q_s) / Q_e] = 1 + D = S$.

For this discharge, $S = 1$ (i.e., no authorized dilution). The discharge-specific IWC = 1 to 1 dilution (1:1, 1/1) = 100% effluent. The IWC made by the toxicity laboratory is mixed as 1 part solute (i.e., effluent) to 0 parts dilutant (1: (1 - 1)) for a total of 1 part.

The TST's null hypothesis for chronic toxicity (H_0) is: In-stream Waste Concentration (IWC) mean response (% effluent) ≤ 0.75 Control mean response. The TST's alternative hypothesis is (H_a): IWC mean response (% effluent) > 0.75 Control mean response. For this permit, results obtained from a single chronic toxicity test are analyzed using the TST statistical approach, where the required chronic toxicity IWC for Discharge Point Number 001 is 100% effluent.

For NPDES samples for toxicity testing, the sample hold time begins when the 24-hour composite sampling period is completed (or the last grab sample in a series of grab samples is taken) and ends at the first time of sample use (initiation of toxicity test). 40 CFR § 136.3(e) states that the WET method's 36-hour hold time cannot be exceeded unless a variance of up to 72-hours is authorized by EPA. In a June 29, 2015 inter-office memorandum, EPA Region 9 authorized a hold time variance of up to 72-hours applicable only to Pacific Island Territory permittees **which ship the NPDES sample to the continental U.S. for toxicity testing**, with conditions (see NPDES permit).

Pimephales promelas (the fathead minnow) was the most sensitive test species, with the highest reported PE. Therefore, chronic toxicity monitoring is required to use this test species and method. Further species sensitivity screening for chronic toxicity is not an automatic requirement in this permit. However, the permit retains a species sensitivity screening condition as an option for the permitting authority to exercise, particularly when the quality of the permitted discharge has changed, or is expected to change, during the permit term.

IX. SPECIAL CONDITIONS

A. Biosolids

Standard requirements for the monitoring, reporting, recordkeeping, and handling of biosolids in accordance with 40 CFR § 503 are incorporated into the permit. The permit also includes, for dischargers who are required to submit biosolids annual reports, which include major POTWs that prepare sewage sludge and other facilities designated as "Class 1 sludge management facilities", electronic reporting requirements. Permittees shall submit biosolids annual reports using EPA's NPDES Electronic Reporting Tool ("NeT") by February 19th of the following year.

B. Pretreatment

EPA has established pretreatment standards to prevent the introduction of pollutants into POTWs which will interfere with or pass through the treatment works, and to improve

opportunities to recycle and reclaim municipal and industrial wastewaters and sludges (Section 307 of the CWA). EPA requires any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 MGD and receiving from nondomestic sources pollutants which pass through or interfere with the operations of the POTW or are otherwise subject to pretreatment standards to establish a pretreatment program.

The permittee receives process wastewater from one Significant Industrial User: Evoqua Water Technologies. Evoqua is described as a Carbon Wash Plant subject to categorical pretreatment standards for existing sources under 40 CFR 437.46(b).

The permittee reported in their renewal application that discharges from Evoqua did not cause upsets, pass through, or interference at the POTW during the previous permit term. While CRSSJV receives pollutants from nondomestic sources which are subject to national pretreatment standards, the POTW has a total design flow of 1.2 MGD, and the nondomestic discharges do not warrant a pretreatment program to prevent pass through or interference with the POTW in accordance with 40 CFR 403.8(a). However, the permittee is required to perform oversight of the nondomestic discharger subject to national pretreatment standards, including sampling, inspections, and enforcement.

C. Capacity Attainment and Planning

The permit requires that a written report be filed within ninety (90) days if the average dry-weather wastewater treatment flow for any month exceeds 90 percent of the annual dry weather design capacity of the waste treatment and/or disposal facilities.

D. Asset Management

40 CFR § 122.41(e) requires permittees to properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Asset management planning provides a framework for setting and operating quality assurance procedures and ensuring the permittee has sufficient financial and technical resources to continually maintain a targeted level of service. Asset management requirements have been established in the permit to ensure compliance with the provisions of 40 CFR § 122.41(e).

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

EPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted POTW using EPA's EJSCREEN tool. The purpose of the screening is to identify areas disproportionately burdened by pollutant loadings and to consider demographic characteristics of the population living in the vicinity of the discharge when drafting permit conditions.

In June 2021, EPA conducted an EJSCREEN analysis of the community near the vicinity of the outfall. Of the 11 environmental indicators screened through EJSCREEN, the evaluation determined elevated indicator scores for the following factors:

- Ozone

- NATA Air Toxics Cancer Risk
- NATA Respiratory Hazard Index
- Wastewater Discharge Indicator

EPA is conducting outreach to the community as part of the public notice for development of this permit. As a result of this analysis, EPA is aware of the potential for cumulative burden of the permitted discharge on the impacted community and will issue this permit in consideration of CRIT and consistent with the CWA, which is protective of all designated uses of the receiving water.

B. Impact to Threatened and Endangered Species

Section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

On June 24, 2021, EPA used U.S. Fish and Wildlife's (USFWS) ECOS-IPaC system to request updated lists of threatened and endangered species in the vicinity of Outfall 001 and the confluence with the Colorado River. USFWS responded to EPA with two lists (one from the Arizona Ecological Services Field Office and one from the Carlsbad Fish and Wildlife Office, since each office's jurisdiction may be affected by the proposed discharge), which included following species (E = endangered, T = threatened, C = candidate):

Status	Species/Listing Name
E	Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>)
E	Yuma Ridgways (clapper) Rail (<i>Rallus obsoletus [=longirostris] yumanensis</i>)
E	Bonytail (<i>Gila elegans</i>)
E	Razorback Sucker (<i>Xyrauchen texanus</i>)
T	Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)
T	Desert Tortoise (<i>Gopherus agassizi</i>)
T	Northern Mexican Gartersnake (<i>Thamnophis eques megalops</i>)
C	Sonoran Desert Tortoise (<i>Gopherus morafkai</i>)
C	Roundtail Chub (<i>Gila robusta</i>)
C	Monarch Butterfly (<i>Danaus plexippus</i>)

EPA developed a Biological Evaluation (BE) for all the listed species and critical habitat, determining that reissuance of this NPDES permit will have no effect on the Northern Mexican Gartersnake or Roundtail Chub, and may affect, but is not likely to adversely affect, the Southwestern Willow Flycatcher, Yuma Ridgways (clapper) Rail, Yellow-billed Cuckoo, Desert Tortoise, Sonoran Desert Tortoise, Bonytail, Razorback Sucker (including associated critical habitat), and Monarch Butterfly. EPA provided the USFWS with copies of the draft fact sheet, draft permit, and BE during the public notice period and initiated informal consultation. USFWS provided concurrence with EPA's determinations on October 28, 2021.

C. Impact to Coastal Zones

The Coastal Zone Management Act (CZMA) requires that Federal activities and licenses, including Federally permitted activities, must be consistent with an approved state Coastal Management Plan (CZMA §§ 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR § 930 prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the activity complies with the State (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification.

The permit does not affect land or water use in the coastal zone.

D. Impact to Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (MSA) set forth a number of new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires Federal agencies to make a determination on Federal actions that may adversely impact Essential Fish Habitat (EFH).

The permittee does not directly discharge to areas of essential fish habitat. Therefore, EPA has determined that the permit will not adversely affect essential fish habitat.

E. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 does not require EPA to undertake additional consulting on this permit issuance.

F. Water Quality Certification Requirements (40 CFR §§ 124.53 and 124.54)

EPA is the Clean Water Act (CWA) Section 401 certifying authority for this permit, because CRIT has not received authorization to implement section 303(c) of the CWA. As stated in the public notice for this permit, EPA is also seeking public comment on Section 401 certification requirements.

Generally, the permit contains conditions and requirements for the discharge to meet and maintain downstream Arizona water quality standards at the point of discharge into the canal. The term water quality standards include numeric and narrative water quality criteria as well as the designated uses of the receiving water.

XI. STANDARD CONDITIONS

A. Reopener Provision

In accordance with 40 CFR §§ 122 and 124, this permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.

B. Standard Provisions

The permit requires the permittee to comply with EPA Region 9 Standard Federal NPDES Permit Conditions.

XII. ADMINISTRATIVE INFORMATION

A. Public Notice (40 CFR § 124.10)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application.

B. Public Comment Period (40 CFR § 124.10)

Notice of the draft permit was placed on the EPA website, with a minimum of 30 days provided for interested parties to respond in writing to EPA (from August 20, 2021 until September 20, 2021). The draft permit and fact sheet were posted on the EPA website for the duration of the public comment period. EPA did not receive any comments during this public comment period.

C. Public Hearing (40 CFR § 124.12)

A public hearing may be requested in writing by any interested party. No public hearing related to this permit was requested.

XIII. CONTACT INFORMATION

Comments, submittals, and additional information relating to this permit may be directed to:

Amelia Whitson, (415) 972-3216
Whitson.Amelia@epa.gov

XIV. REFERENCES

ADEQ. 2018. *303(d) List of Impaired Waters*. https://static.azdeq.gov/pn/pn_303d_2018draft.pdf

ADEQ. 2016. *Arizona Administrative Code, Title 18, Chapter 11. Department of Environmental Quality – Water Quality Standards*. <https://www.epa.gov/sites/production/files/2014-12/documents/az-chapter11.pdf>

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EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001.

EPA. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.