.NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
FACT SHEET
FEBRUARY 2023
Modified July 2023

Permittee Name:	City of Phoenix 91st Avenue Wastewater Treatment Plant
Mailing Address:	2474 South 22nd Avenue – Building 31 Phoenix, AZ 85009
Facility Location:	5615 South 91st Avenue Tolleson, AZ 85353
Contact Person(s):	Jennifer Calles, Deputy Water Services Director (602) 256-5658
NPDES Permit No.:	AZ0020524

TABLE OF CONTENTS:

I. STATUS OF PERMIT

On April 3, 2023, the City of Phoenix ("COP" or the "permittee") indicated that monitoring for Hexachlorocyclohexane alpha (Alpha BHC) erroneously required monitoring only at Outfall 001 instead of both Outfall 001 and Outfall 005 in Table 1. Pursuant to 40 C.F.R. §122.63(a), in July 2023, EPA modified the permit to include monthly monitoring for Alpha BHC at Outfall 005. See bold text in revised Table 1. on page 12 of the modified permit.

The COP applied for the renewal of its National Pollutant Discharge Elimination System ("NPDES") permit to allow the discharge of treated effluent from COP 91st Avenue Wastewater Treatment Plant ("WWTP"), and associated Tres Rios Wetlands, in Tolleson, Arizona to the Salt River, located in Maricopa County, Arizona. The permit was last issued on October 4, 2016 and set to expire on November 30, 2021. COP timely submitted an application to renew the permit on June 2, 2021 and then followed up with updated information on July 8, 2021. Pursuant to 40 CFR 122.21, the terms of the existing permit were administratively extended by EPA on November 10, 2021 until the issuance of a renewed permit.

The permittee is classified as a Major discharger.

II. GENERAL DESCRIPTION OF FACILITY

The COP 91st Avenue WWTP is located on the north bank of the Salt River, at 5615 South 91st Avenue, in Tolleson, Arizona, in Township 1 N, Range 1 E, and Section 27 S ½, and Section 34 N ½. The associated Tres Rios Wetlands are located west of the existing facility as indicated on the map which shows the location of the facility and adjacent properties (Appendix A**).**

The facility provides wastewater treatment services for the Sub-Regional Operating Group (SROG) member cities of Glendale, Mesa, Phoenix, Scottsdale, and Tempe, in Maricopa County, Arizona. The facility is a municipal wastewater treatment facility that employs a nitrification/denitrification process to treat municipal and industrial wastewater generated in the metropolitan Phoenix area by the SROG communities, serving a population of about 2.6 million. The COP 91st Ave WWTP is authorized to operate at a design flow capacity of 230 million gallons per day (MGD) and is the basis for the permit. The present facility consists of seven individual activated sludge WWTPs operated in parallel that merge before dechlorination and discharge. Each plant includes the following unit processes: screening, grit removal, flow measurement/flow distribution, primary sedimentation (with enhanced sedimentation possible), activated sludge biological treatment, secondary clarification, chlorine disinfection, centrifuge thickening of primary sludge and waste activated sludge, anaerobic sludge digestion, sludge drying beds, and centrifuge dewatering of digested sludge. A portion of the effluent, about 73 MGD on average, is discharged to constructed wetlands where further treatment occurs (as described below). The expansion of the plant during the previous permit term was for the full expansion and unification of the plant processes under UP01 and UP05. This includes additions of: new headworks, new grit and screenings handling facility, 7 mechanical bar screens, one

manual bar screen, 2 primary sedimentation basins, 2 aeration basins, 2 secondary sedimentation basins and chlorine building and mixing structures.

The COP 91st Ave. WWTP has a design flow of 230 MGD. Currently, the plant processes an average of about 134 MGD of influent from its collection system. A portion of the treated effluent, approximately 61 MGD on average, is sent to the Palo Verde Nuclear Generating Station ("PVNGS") for reuse. The rest of the effluent flows to the Salt River from the Tres Rios Flow Regulating Wetland ("FRW"). The permittee has also indicated that it would like to continue to retain the option of discharging directly into the Salt River for plant maintenance purposes or emergency situations via Outfall 001. The renewed permit therefore is for the discharge of wastewater either through Outfall 005 for wastewater which will flow through the Tres Rios Flow Regulating Wetland before discharge or via Outfall 001 directly to the Salt River. Monitoring stations have also been established in the permit at the influent to the FRW wetlands at FRW-1, FRW-2 and FRW-3. The exact location of each is given below and also indicated on the FRW flow diagram attached as Appendix B.

Data submitted by COP with the permit renewal application indicate that discharge rates through Outfall 005 to the Salt River have ranged between about 40 and 143 MGD, with an average flow of about 73 MGD. The application also states that as of December 2012 Outfall 001 is no longer used to discharge effluent to the Salt River. However, COP is requesting that Outfall 001 be retained as an emergency discharge location. In addition to these outfalls, the WWTP delivers, via pipeline, on average, about 61 MGD of treated effluent to the Palo Verde Nuclear Generating Station in Tonopah, AZ, for reuse as cooling water for the power plant. COP also reuses a very small volume of about 0.02 million gallons per month of treated effluent for flood and drip irrigation for landscaping at the facility.

Solids handling facilities (sludge) are designed to achieve reduction in volatile solids, pathogens, and moisture content in solids removed by primary and secondary sedimentation (i.e., primary and waste activated sludge). Residual sludge from various WWTPs in the cities of Gilbert, Glendale, Mesa, Phoenix, Scottsdale and Tempe is received by the COP 91st Avenue WWTP. The Mesa Northwest Water Reclamation Plant has anaerobic sludge digestion, but may, on occasion, divert undigested sludge to the 91st Ave WWTP. The sludge from these other facilities is discharged by the individual facilities into the wastewater interceptors system through which it flows to the 91st Avenue WWTP commingled with the influent wastewater. Specific processes for sludge treatment at the 91st Avenue WWTP include primary sedimentation (with enhanced sedimentation possible), activated sludge treatment, centrifuge thickening of both primary and waste activated sludge, anaerobic digestion, sludge drying beds, and centrifuge dewatering of digested sludge. The digested sludge, also known as biosolids, are stabilized and dewatered, and then are removed by a contract hauler to local farms for agricultural land application. COP plans to continue this method of solids management through this permit term.

This facility currently accepts waste from a total of 142 Significant Industrial Users (SIUs), including 50 non-categorical SIUs and 92 categorical SIUs.

In addition to wastewater the plant receives groundwater and stormwater discharges. The City pumps groundwater from on-site dewatering wells to prevent floating below-ground facilities.

Additional wells are also used during construction of phase 1 of the Unified Plant. Most groundwater is sent to the plant and either discharged through Outfall 005 or is sent to the Palo Verde Nuclear Generating Station.

On-site storm water is collected in retention basins and secondary retention structures. The applicant indicates there is no run-on of stormwater to the site. For small rainfall events the water evaporates in the basin. After larger rainfall events the stormwater is pumped to the headworks or Plant 3 reuse channel. (The Plant 3 reuse channel provides treated wastewater for on-site wash water/irrigation and does not discharge to the River.) Some storm water may also enter the plant through engineered holes in the primary tank walls at grade level.

III. DESCRIPTION OF RECEIVING WATER

The receiving water is the Salt River. Currently the Gila River Indian Community (GRIC) does not have EPA-approved water quality standards, and since the receiving water eventually flows into portions of the Salt River which are Arizona state waters, the EPA will use the EPA-approved Arizona Surface Water Quality Standards (A.A.C. R18-11) to develop the limits in this permit. However, EPA under its best professional judgment (BPJ) authority under the Clean Water Act (CWA) may also use EPA's recommend criteria, if it deems them more protective.

The receiving water for the COP 91st Avenue WWTP is the Salt River, in the segment between the 23rd Avenue WWTP and the confluence with the Gila River, in the Salt River Basin.

Outfall 001 is located at:
Township 1 N Range 1 E Section 34
Latitude 33˚ 23' 21" N, Longitude 112˚ 15' 15" W

Outfall 005 is located at:
Township 1 N Range 1 E Section 33 Latitude
33˚ 23' 18" N, Longitude 112˚ 15' 53" W

FRW-1 is located at:
Latitude 33˚ 23' 50" N, Longitude 112˚ 15' 26" W

FRW-2 is located at:
Latitude 33˚ 23' 48.37" N, Longitude 112˚ 15' 42.71" W

FRW-3 is located at:
Latitude 33˚ 23' 44.74" N, Longitude 112˚ 15' 54.52" W

The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.

The receiving water has the following designated uses:

Aquatic and Wildlife effluent dependent water (A&Wedw)
Partial Body Contact (PBC)
Fish Consumption (FC)
Agricultural Irrigation (AgI)
Agricultural Livestock watering (AgL)

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. R1811-109, and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. The standards for all applicable designated uses are compared and the limits are developed to protect for all applicable designated uses.

IV. DESCRIPTION OF DISCHARGE

A. Recent DMR Data

The City of Phoenix has been monitoring the effluent at outfall 005 and FRW1/001 under the previous NPDES permits issued by EPA. Data has been submitted with the application and during the application process for multiple parameters. A summary of the monitoring data was submitted for the past 1 year prior to the submittal of the DMR data. EPA also reviewed data submitted as part of routine DMR data submittal by the permittee since the effective date of the of the previous permit of December 1, 2016.

In addition to this, the application also included data for metals, organics (VOCs and SVOCs), pesticides, oil & grease, pH, temperature, hardness, cyanide, and whole effluent toxicity (WET) testing for outfalls 001 and 005, as well as internal monitoring locations FRW-1, FRW-2, and FRW-3.

EPA also reviewed the latest inspection report based on a virtual inspection (due to Covid restrictions) conducted by ADEQ on behalf of EPA on April 6, 2021. No deficiencies or violations were noted during the inspection. The COP was found to have been in compliance with the permit limits except for one exceedance of the Ammonia Nitrogen (AIR) parameter in August 2020 and missing Annual 2020 DMR report for total residual chlorine. Even though nearly all cyanide results for at Outfall 005 were non-detect, exceedances of cyanide levels at FRW-1, a monitoring station, have commonly occurred. This site serves as the sampling point for effluent characterization of Outfall 001. Since there has been no discharge to Outfall 001 since 2012 these results are not considered permit violations. COP believes that Monitoring Station FRW-1 is particularly susceptible to cyanide false positives due to the direct flow from the chlorination point. Even though FRW-1 cyanide sample are dechlorinated, the cyanide precursor compounds may already be present before dechlorination.

Data from the COP study (which was suspended at the onset of the Covid pandemic) showed that cyanide levels at two sampling points upstream of both FRW-1 and the chlorination point do not show the presence of cyanide. These upstream sampling points further help to evaluate the effect of chlorination on cyanide formation. Section V. below describes permit changes in detail.

V. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Permit Condition	**Previous Permit (2016 – 2021 + admin extended)**	**Re-issued Permit 2022 -2027)**	**Reason for change**
Asset Management Program (AMP)	None	Permit incorporates asset management requirement for large dischargers	Provision of 40 CFR § 122.41 (e)
Permit limit for delta-BHC included	No permit limit for delta-BHC. Monitoring required 1X/ 6 Months	Permit limit for delta-BHC and monitoring required 1X/Month.	DMR data submitted shows levels observed have the reasonable potential to cause, or contribute, to an excursion of applicable criteria.
Permit limit for Endosulfan removed and monitoring frequency reduced.	Permit limit for Endosulfan and monitoring required 1X/Month.	No permit limit for Endosulfan and monitoring required 1X/ 6 Months.	DMR data submitted shows that levels observed do not have the reasonable potential to cause, or contribute, to an excursion of applicable criteria.
Permit limit for Endrin removed and monitoring frequency reduced.	Permit limit for Endrin and monitoring required 1X/Month.	No permit limit for Endrin and monitoring required 1X/ 6 Months.	DMR data submitted shows that levels observed do not have the reasonable potential to cause, or contribute, to an excursion of applicable criteria.

Monitoring frequency for Cadmium, Lead, and Selenium reduced.	Permit limits and monitoring required 2X/Month.	Permit limits retained but monitoring reduced to Quarterly.	DMR data submitted shows that levels observed are generally below permit limits. However, limits are retained but frequency of monitoring reduced to Quarterly
Cyanide monitoring at FRW-1 eliminated and required at 001 only during times of flow at Outfall 001	Monitoring required 2X/ Month at FRW-1	Monitoring required 2X/Month at 001 only when there is discharge from 001. Minimum of 1 sample must be taken per discharge event from 001.	Elevated cyanide levels observed in previous permit cycle at FRW-1 which are likely due to false positives based on study conducted and reviewed by EPA. Also, FRW-1 is not a compliance location and therefore elevated levels are not Permit violations.
Reduced monitoring frequency for cyanide at 005	Monitoring required 2X/ Month	Monitoring required Quarterly	DMR data submitted shows that level observed at 005 is generally below permit limits. However, limit is retained but frequency of monitoring reduced to Quarterly
Monitoring frequency for Iron, Phosphorous, Hydrogen sulfide/total sulfides and Oil and grease reduced.	Monitoring required 1X/ Month.	Monitoring required Quarterly.	These parameters do not have permit limits. Monitoring data have been consistent over time, and Quarterly monitoring should be sufficient for effluent characterization.

Monitoring frequency for Bis (2-ethylhexyl) phthalate, Boron, Heptachlor and alpha-BHC reduced.	Monitoring required 1/X Month at FRW-1	Monitoring reduced to 1/X 6 Months at FRW-1 or 1X/Month if discharging to Outfall 001.	Outfall 001 is maintained as an emergency outfall only and has not been used since 2012 and COP does not intend to use it except in emergency or to conduct required maintenance. Therefore, there is no benefit to monitor monthly for these parameters when there is no flow to Outfall 001. Monthly Monitoring will be required for these parameters if COP does discharge via Outfall 001.

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 (e.g., "technology-based effluent limits") and the water quality standards applicable to the receiving water (e.g., "water quality-based effluent limits"). EPA has established the most stringent of applicable technology based or water quality based standards in the proposed 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 Clean Water Act. The minimum levels of effluent quality attainable by secondary treatment for Carbonaceous Biochemical Oxygen Demand ($CBOD_5$) and Total Suspended Solids (TSS), as defined in 40 CFR 133.102, are listed below and are incorporated into the permit. CBOD will be monitored and reported in lieu of BOD due to concerns over complete denitrification in effluent.

Concentration Based Effluent Limits			
	30-day Average	7-day Average	Removal Efficiency
$CBOD_5$	25 mg/l	40 mg/l	85 % minimum
TSS	30 mg/l	45 mg/l	85 % minimum

Additionally, technology based treatment requirements may be imposed on a case-by-case basis under Section 402(a)(1) of the Act, to the extent that EPA promulgated effluent limitations are inapplicable (i.e., the regulation allows the permit writer to consider the appropriate technology for the category or class of point sources and any unique factors relating to the applicant). (40 CFR Part 125.3(c)(2))

Therefore, effluent limits for $CBOD_5$ and TSS are established in the permit as stated above.

B. Water Quality-Based Effluent Limitations ("WQBELs")

Water quality-based effluent limitations, or WQBELS, 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 Enforcement and Permits, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers Manual* (Office of Water, U.S. EPA, December 1996). 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

Jurisdiction over the receiving water is currently in dispute between GRIC and Arizona. Because GRIC does not have EPA-approved water quality standards, EPA is applying Arizona's approved water quality criteria.

The Arizona Administrative Code (Water Quality Standards) establishes water quality criteria for the following beneficial uses for the Salt River between the 23rd Ave WWTP to the Salt River's confluence with the Gila River:

-Aquatic and Wildlife, effluent dependent waters (A&Wedw)
-Partial Body Contact (PBC). -Fish Consumption (FC).
-Agricultural Irrigation (AgI).
-Agricultural Livestock Watering (AgL).

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 279 mg/L.

2. Dilution in the receiving water

During certain times of the year, discharges from one or more of the outfalls might occur when there is no natural flow. Therefore, no dilution of the effluent has been considered in the development of water quality based effluent limits applicable to the discharge.

3. Type of industry or discharger

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.

C. Rationale for Effluent Limits

1. Secondary Treatment Standards and other common Wastewater Treatment Plant limits

Ammonia.

The Arizona Administrative Code, Title 18, Chapter 11 contains acute and chronic ammonia standards that are contingent upon temperature and pH values. The chronic criteria are more stringent than the acute ammonia criteria, so the effluent ammonia shall be compared to the chronic ammonia standards. Ammonia limits have been incorporated into this permit. Additionally, ammonia monitoring is required to be concurrent with pH and temperature measurements so that the permittee not only reports the actual ammonia concentration in mg/L but also calculates the Ammonia Impact Ratio (AIR) calculated as the ratio of the ammonia value in the effluent and the applicable ammonia standard in the Arizona Water Quality Standards. The AIR is the ammonia effluent limit and must be reported in the DMRs in addition to the ammonia, pH, and temperature value. During the pervious permit term, a modification to the AIR ratio of 2.0 for daily maximum and 1.0 monthly average to be consistent with the ADEQ permit for the City of Phoenix 23rd Avenue WWTP was approved and has been retained.

Data gathered over six years during the previous permit term indicate that Ammonia levels are generally reduced by natural processes in the constructed wetlands. However, on rare occasions the naturally occurring nitrification process in the wetland could result in an increase in the Ammonia level. Therefore, the City has requested and the permit allows that compliance with the Ammonia effluent limit be achieved at FRW-1 after disinfection of the treated effluent but prior to the potential introduction of Ammonia from natural processes.

$CBOD_5$ and TSS.

Limits for $CBOD_5$ and TSS are established for POTWs as described above and are incorporated into the permit. Under 40 CFR 133.102, mass limits are also required for $CBOD_5$ and TSS. Based on the design flow, the mass based limits are based on the following calculations:

Average Monthly Mass Limits:

Design Flow (daily average)	Average Monthly Concentration Limit	Conversion factor	Monthly Average Mass Limit
230 MGD	25 mg/L	8.345	48,000 lbs/day
230 MGD	30 mg/L	8.345	57,600 lbs/day

Average Weekly Mass Limits:

Design Flow (daily maximum)	Average Weekly Concentration Limit	Conversion factor	Weekly Average Mass Limit
230 MGD	40 mg/L	8.345	76,800 lbs/day
230 MGD	45 mg/l	8.345	86,400 lbs/day

The Wetland Treatment Assessment, required in the previous permit was designed to characterize the effect of the wetland on TSS concentration. It is observed that natural processes in the constructed wetlands introduces additional suspended solids into the waters. Therefore the permit allows that compliance with the TSS effluent limit be achieved at FRW-1 after disinfection of the treated effluent but prior to the introduction of TSS from natural sources.

Chlordane, Toxaphene and DDT Metabolites

The Salt River is no longer listed as impaired for chlordane, toxaphene and DDT metabolites. Therefore permit limits have been removed for all three parameters. However, monitoring and reporting for all three parameters has been retained.

Dissolved Oxygen.

The criteria for dissolved oxygen set forth in A.A.C.R 18-11-109(E) for A&Wedw requires the DO level to be a minimum of 3.0 mg/L starting three hours after sunrise to sunset

and a minimum of 1.0 mg/L from sunset to three hours after sunrise. Effluent limitations for DO are established in this permit accordingly.

E.coli.

The criteria for *E.coli* set forth in A.A.C.R 18-11-109(A) for PBC describe a geometric mean of 126 cfu/100ml and single sample maximum of 575 cfu/100ml. Effluent limitations for *E.coli* are established in this permit accordingly.

The Wetland Treatment Assessment, required in the previous permit was designed to characterize the effect of the wetland on E.coli concentration. It is observed that natural sources, primarily avian and mammalian wildlife that extensively use these wetlands, introduce additional bacteria into the waters. Therefore the permit allows compliance with *E.coli* effluent limit be achieved at FRW-1 after disinfection of the treated effluent but prior to introduction of *E.coli* from natural sources.

Flow.

No limits established for flow, but flow rates must be monitored and reported at the frequencies indicated in Table 1. and Table 2. in the permit.

pH.

As described in A.A.C.R 18-11-109(B), the criteria for PBC, A&W, and AgL require pH to not exceed a water quality standard of 9.0 and not subcede an SWQS of 6.5 standard units. Effluent limitations for pH are established in this permit accordingly.

Whole Effluent Toxicity (WET)

WET monitoring is required at Outfall 005 as well as 001 when there is flow through 001. During the previous permit cycle there was no discharge from Outfall 001. Additionally, there were no WET exceedances of the Action levels at Outfall 005. Therefore, a WET permit limit has not been established. However, monitoring with action levels has been retained.

2. Summary of Reasonable Potential Analysis for other parameters with Permit Limits :

Parameter	Maximum Observed Concentration	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Bis (2-ethylhexyl) phthalate	2.8	3.2	9.0	7.4 ug/L FC	RP exists. Max. projected above standard
Boron	380	3.2	1,216	1000ug/L	RP exists. Max. projected above standard
Cadmium	Non-detect	3.2	NA	1.14 ug/L A&W edw chronic	Indeterminate. Limit will be retained to be protective of

					receiving water beneficial uses.
Cyanide[2]	42	2.0	84	9.7 ug/L/ A&W edw chronic	RP exists. Max. projected above standard
Heptachlor	0.094	3.2	0.30	0.00008 ug/L FC	RP exists. Max. projected above standard
Hexachlorocyclohexane alpha	0.062	3.2	0.20	0.005 ug/L /FC	RP exists. Max. projected above standard
Hexachlorocyclohexane delta	0.069	3.2	0.22	0.005 ug/L /FC	RP exists. Max. projected above standard
Lead	1.8	2.6	4.68	9.53[1] ug/L A&W edw chronic	Indeterminate. Limit will be retained to be protective of receiving water beneficial uses.
Mercury	.0032 ug/L	3.5	.011	0.012[1] ug/L/ A&W edw chronic	Indeterminate. Limit will be retained to be protective of receiving water beneficial uses.
Selenium[2]	0.6	3.5	2.1	2.0 ug/L A&W edw chronic	Indeterminate. Limit will be retained to be protective of receiving water beneficial uses.
Total Residual Chlorine	ND	N/A	ND	11 ug/L/ A&Wedw chronic	RP Exists. RP for TRC is assumed when chlorine is used for disinfection.

[1]Arizona SWQS for lead and mercury is expressed in terms of dissolved metals. In order to convert to total recoverable, a conversion factor of .791 and .85 was applied for lead and mercury, respectively, as described in EPA 823-B-96-007

[2] Maximum observed concentrations noted were attributed to interference during sample analysis from Chlorine. Thus despite exceedance of criteria RP is considered indeterminate.

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 regulations.

CWA section 303(d)(4)(B) applies to waters where the water quality equals or exceeds levels necessary to protect the designated use, or to otherwise meet applicable water quality standards (i.e., an attainment water). Under CWA section 303(d)(4)(B), a limitation based on a TMDL, WLA, other water quality standard, or any other permitting standard may only be relaxed where the action is consistent with state's antidegradation policy.

The receiving water is a Tier 2 segment of the Salt River and removing the limitations for Endrin and Endosulfan which no longer demonstrate reasonable potential to cause or contribute to an excursion above the State water quality standard, is consistent with the Arizona's antidegradation regulation at R18-11-107.C.1. and its antidegradation policy.

E. Antidegradation Policy

EPA's antidegradation policy at 40 CFR 131.12 and Arizona's regulations at A.A.C.R 18-11-107 require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

The capacity of the 91st Avenue WWTP is the same as in the previous permit, i.e. 230 MGD. As described in this document, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone, therefore all limits apply at the end of pipe without consideration of dilution in the receiving water. During the previous permit cycle the receiving waterbody was delisted for dioxin under section 303(d) of the CWA by ADEQ and this delisting was approved by USEPA. Furthermore, the receiving waterbody is not listed as an impaired waterbody for any other pollutants. Additionally, the Reasonable Potential Analysis outlined in section VI.C.2. above establishes limits for any pollutant which has exceeded or has the potential to exceed established water quality standards for that pollutant.

The receiving Salt River is an effluent dependent waterbody which, at the 91st Avenue WWTP, is almost entirely dependent and indicative of the flow from the permittee. Therefore, the quality of the water in the receiving body is a direct result of the quality of the effluent from the permittee. As the flow has not increased from the last permit cycle and because several facility renovations and improvements have occurred, and because the Tres Rios constructed wetland was established and has reached maturation over the last five years, the 91st Avenue WWTP is able to treat its effluent to a higher and more consistent level, it is expected that the quality of the effluent will match or exceed the current effluent quality.

As discussed in Section IX.A., Impact to Threatened and Endangered Species, below, the effluent is not only unlikely to adversely affect threatened and endangered species, but also provides habitat for fauna and flora, protecting species in the area. The Tres Rios Wetlands are designed to provide supplemental wetland habitat as well as stabilize the flow in the Salt River to increase the river's viability while further "polishing" the discharge for improved quality.

The discharge also meets Arizona's B+ reclaimed water quality standard and furthers water quality due to an absence of putrescible solids, floating solids or oils, objectionable odor or color, or any other nuisance-causing or toxic compounds.

Therefore, due to the high level of treatment being obtained, a net environmental improvement to the surrounding area, and the permit's water quality based effluent limitations, it is expected that the discharge will not adversely affect receiving water bodies or result in any degradation of water quality.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

As the receiving water eventually flows into waters regulated by Arizona, the permit incorporates the requirement that the discharge not cause conditions prohibited by Arizona's narrative water quality standards, A.A.C.R. 18-11-108.

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 frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where the reasonable potential for pollutant levels to exceed standard is indeterminate, monitoring is 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 proposed 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 proposed permit. All monitoring data shall be reported on monthly DMR forms and submitted as specified in the proposed permit. All DMRs are to be submitted electronically to EPA using NetDMR.

B. Priority Toxic Pollutants Scan

The permittee is required to conduct extensive monitoring at a frequency of no less than semi-annually of toxic parameters pursuant to 40 CFR § 131.36. All effluent sampling and analysis shall be done in accordance with the methods described in the most recent edition of 40 CFR § 136 using sufficiently sensitive methods as described therein.

C. Whole Effluent Toxicity Testing

The permit establishes monitoring and action levels but no permit limits for Chronic Toxicity.

Chronic toxicity testing evaluates reduced growth/reproduction at 100 percent effluent. Chronic toxicity is to be reported based on the No Observed Effect Concentration (NOEC). The permittee shall conduct short-term tests with the water flea, *Ceriodaphnia dubia* (survival and

reproduction test), the fathead minnow, *Pimpephales promelas* (larval survival and growth test), and green algae, *Selenastrum capricornutum* (growth test). The presence of chronic toxicity shall be estimated as specified by the methods in 40 CFR Part 136 as amended on November 19, 2002.

If a WET permit action level is exceeded follow-up testing as described in the permit shall be conducted. Please see Section II B. 6 of the permit for details about the accelerated toxicity testing and TIE/TRE process.

IX. SPECIAL CONDITIONS

A. Biosolids

Standard requirements for the monitoring, reporting, recordkeeping, and handling of biosolids in accordance with 40 CFR Part 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 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 otherwise subject to pretreatment standards to establish a pretreatment program. Standard requirements for implementing and enforcing an approved pretreatment plan are included in the permit. The requirements apply to all cities that send effluent to the 91st Avenue WWTP. These cities include Phoenix, Glendale, Mesa, Scottsdale, and Tempe.

C. Sanitary Sewer Overflows

The permittee shall follow Standard requirements for implementing and enforcing sanitary sewer overflow reporting according to the State-issued General Permit for CMOM. 24-Hour reporting and 5- Day reporting to EPA is included in the permit.

D. Capacity Attainment and Planning

The permit requires that a written report be filed with EPA and ADEQ 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.

E. 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. Threatened and Endangered Species and Critical Habitat

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. The scope of the action authorized by the EPA pursuant to this proposed NPDES permit renewal is to allow flow of secondary treated wastewater from the facility. The treated wastewater enters the Tres Rios Flow Regulating Wetland ("FRW") and is further polished prior to discharge into the Salt River which is the receiving water. No other action by the discharger or other parties is within the scope of this review.

EPA obtained an official list of Threatened and Endangered Species from the U.S. Fish & Wildlife Service ("USFWS" or "the Service") on April 18, 2022. The list was generated by the USFWS's IPaC online tool with Project Code: 2022-0033079. The document identified threatened, endangered, proposed and candidate species, and designated and proposed critical habitat that may occur within the Action Area identified for the proposed permitting action as follows:.

Status	**Species/Listing Name**
E	California Least Tern (*Sterna antillarum brownii*)
E	Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
T	Yellow-billed Cuckoo (*Coccyzus americanus*)
E	Yuma Ridgway's Rail (*Rallus obsoletus yumanensis*)
C	Monarch Butterfly (*Danaus plexippus*)
EX	Sonoran Pronghorn (*Antilocapra americana sonoriensis*)

EPA developed a Biological Evaluation (BE) for all the listed species and critical habitat, determining that the reissuance of this NPDES permit will have no effect on the Sonoran Pronghorn, and may affect, but is not likely to adversely affect, the California Least Tern, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, Yuma Ridgway's Rail and Monarch Butterfly. No critical habitat for any listed species was identified within the Project Area. EPA provided 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 determination on October 3, 2022.

B. 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 Sections 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 proposed 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 proposed permit does not affect land or water use in the coastal zone.

C. 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 proposed permit contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The proposed permit does not directly discharge to important marine and/or anadromous fish habitat or impact such species. Therefore, EPA has determined that the proposed permit will not adversely impact any EFH.

D. 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.

This permit does not authorize any new construction or disturbance of new areas. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this proposed 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.

E. Consideration of Environmental Justice ("EJ") Impact

EPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted wastewater treatment facility using EPA's EJSCREEN tool. The purpose of the screening is to identify areas of 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 the April 2022, EPA conducted an EJSCREEN analysis of the community near the vicinity of the outfall. Of the 12 environmental indicators screened through EJSCREEN, the evaluation determined elevated indicator scores for the following factors:

- Ozone
- NATA Diesel PM
- NATA Cancer Risk
- NATA Respiratory HI
- RMP (Risk Management Plan) Proximity
- Wastewater Discharge Indicator

Of these factors, the proposed NPDES permit likely would have impacts on the RMP and Wastewater Discharge Indicator. The demographic characteristics that showed potentially sensitive scores were a high proportion of people of color children under age 5, as well as significant proportion of linguistically isolated and population with less than high school education.

EPA considered all these factors, and specifically offered government-to-government consultation with the Gila River Indian Community ("GRIC") concerning the renewal of the City of Phoenix 91st Avenue WWTP's NPDES permit.

As a result of the analysis, EPA is aware of the potential for cumulative burden of the permitted discharge on the impacted community and will issue the permit in consideration of Gila River Indian Community and consistent with the CWA, which is protective all beneficial uses of the receiving water, including human health.

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

Where the discharge occurs within a jurisdiction without Clean Water Act (CWA) Section 401 authority, EPA is the certifying agency. In the case of this proposed permit the discharge is in an area where the jurisdiction is disputed between the Gila River Indian Community (GRIC) and Arizona, and therefore EPA is issuing the permit. The GRIC does not currently have approved water quality standards or 401 certification authority. Therefore, as stated in the public notice for this permit, EPA is seeking public comment on Section 401 certification requirements.

Generally, the permit contains conditions and requirements for the facility dischargers to meet water quality standards in the receiving waters. The effluent limitations are set at levels such that the discharge will maintain water quality standards. The term water quality standards includes 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 will be placed in a daily or weekly newspaper within the area affected by the facility or activity, and on the EPA website, with a minimum of 30 days provided for interested parties to respond in writing to EPA. The draft permit and fact sheet will be posted on the EPA website for the duration of the public comment period. After the public comment period closes, EPA will respond to all significant comments when a final permit decision is reached, or a final permit is issued.

C. Public Hearing (40 CFR§ 124.12(c))

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 EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision.

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

For States, Territories, or Tribes with EPA approved water quality standards, and/or 401 certification authority, EPA requests certification from the affected State, Territory, or Tribe that the proposed permit will meet all applicable water quality standards.

Where the discharge originates within a jurisdiction without Clean Water Act (CWA) Section 401 authority, EPA is the certifying agency. Here the jurisdiction at the discharge location is disputed between the State and the Gila River Indian Community (GRIC) and EPA is issuing this permit. Additionally, the GRIC does not have approved water quality standards and/or 401 certification authority and EPA is the certifying agency. Therefore, 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 facility discharges to meet water quality standards in the receiving waters. The effluent limitations are set at levels such that the discharge will maintain water quality standards in the receiving water. The term water quality standards includes numeric and narrative water quality criteria as well as the designated uses of the receiving water.

XIII. CONTACT INFORMATION

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

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NPDES Permits Office WTR-2-3
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XIV. REFERENCES

Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted January 31, 2009.

USEPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Prepared by EPA, Office of Water Enforcement and Permits, in March 1991. EPA/505/2-90-001.

USEPA. 2010. *U.S. EPA NPDES Permit Writers' Manual*. EPA. EPA-833-K-10-001.

ADEQ. *City of Phoenix 23rd Avenue WWTP Permit*. AZ0020559. Effective August 5, 2019.

US Fish & Wildlife Service, Arizona Ecological Services Field Office, Phoenix, Arizona. *List of threatened and endangered species that may occur in your proposed location or may be affected by your proposed project*. Consultation Code: 2022-0033079. April 18, 2022.

Audobon Society. *Audubon Guide to North American Birds. Least Tern*. https://www.audubon.org/field-guide/bird/least-tern

City of Phoenix. *Tres Rios Project Area Maricopa County, Arizona Safe Harbor Agreement (TE-75475A-1) 2021 Annual Report*. February 16, 2022.

ADEQ. *Surface Water Protection (SWP) Inspection Report for 91st Ave. Wastewater Treatment Plant (WWTP)*. April 30, 2021.

APPENDIX A. Map of City of Phoenix 91st Avenue WWTP and Tres Rios Wetlands

APPENDIX B: Location Map of External Outfalls and Internal Monitoring Locations

Outfalls and Monitoring Stations for the 91st Ave WWTP NPDES Permit

001- Outfall a monitoring station to the Salt River from the 91st Ave Plant, used only for maintenance activities and emergency discharge only
005- Outfall (effluent) to the Salt River from the Tres Rios Flow Regulating Wetlands (FRW)

FRW 1- Monitoring station at the influent to the Tres Rios FRW
FRW 2- Monitoring station after the deep water but before the flow regulating portions of the wetland
FRW 3- Monitoring station within flow regulating portion of the wetland