

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**  
**FACT SHEET**  
**MAY 2010**

Permittee Name: City of Phoenix 91<sup>st</sup> Avenue Wastewater Treatment Plant

Mailing Address: 200 West Washington Street  
Phoenix, AZ 85003

Facility Location: 5615 South 91<sup>st</sup> Avenue  
Tolleson, AZ 85353

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NPDES Permit No.: AZ0020524

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## I. STATUS OF PERMIT

The City of Phoenix (“COP” or the “permittee”) has applied for the renewal of its National Pollutant Discharge Elimination System (“NPDES”) permit to allow the discharge of treated effluent from COP 91<sup>st</sup> 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 December 22, 1999 and expired on December 31, 2003. Subsequent to the last issuance of the permit, EPA authorized the Arizona Department of Environmental Quality (“ADEQ”) to administer the NPDES program throughout the State except in areas of Indian country, which were excluded from the State’s program. EPA continues to be the appropriate permitting authority for discharges into Indian country waters.

The permittee submitted a complete renewal application to ADEQ on or about July 7, 2003. ADEQ indefinitely administratively extended the previous permit and proposed a renewal permit on March 17, 2004. During the comment period on ADEQ’s draft permit renewal, the Gila River Indian Community (“GRIC” or the “Tribe”) raised questions regarding the facility’s discharge locations in the Salt River and asserted that such locations were within the northern boundary of the Tribe’s Reservation. In response, ADEQ suspended permit reissuance. Following discussions with the Tribe, ADEQ, and the permittee, EPA Region IX agreed to issue the permit due to questions regarding the land status of the facility’s discharge point and whether ADEQ could issue the permit in light of the exclusion of Indian country from the State’s program. The COP submitted an updated application to EPA on March 13, 2009. EPA Region IX has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act, which establishes the program by which point source dischargers may obtain an NPDES permit authorizing the discharge of pollutants to waters of the United States.

In its comments to the proposed state permit, the Tribe explained that the northern boundary of the Gila River Indian Reservation was established by Executive Order in 1879 as follows: “Beginning at the northwest corner of the old Gila Reservation; thence by a direct line running northwesterly until it strikes Salt River 4 miles east from the intersection of said river with the Gila River; thence down and along the middle of said Salt River to the mouth of the Gila River...” The Tribe altogether submitted 21 pages of comments documenting its concerns regarding the boundary and past surveys. Among other things, the Tribe’s comments analyze several issues regarding the ambulatory nature of the Salt River and the effect of such movements on the current mid-channel of the relevant stretch of the River and, thus, on the boundary of the Tribe’s Reservation. Ultimately, the Tribe asserts that the COP facility’s discharges occur within the current northern boundary of the Reservation. EPA is aware that movement of the Salt River may have occurred since the formation of the Reservation and that an issue may exist regarding the specific current line of the River’s mid-channel and the relevance of prior movements of the River to the current Reservation boundary. EPA notes that it is not uncommon for geographic features such as rivers to shift slightly over time, and that, where such features form Indian reservation or other boundaries, such boundaries may (or may not) also shift, consistent with applicable legal principles regarding river boundaries. EPA believes that these issues raise sufficient questions regarding the COP facility’s discharge locations to make it appropriate for EPA to issue the current permit renewal pending resolution

of issues relating to the River mid-channel and the Reservation boundary. EPA has thus agreed to issue the COP NPDES permit at this time.

The permittee is currently discharging under NPDES permit AZ0020524 issued on December 22, 1999. Pursuant to 40 CFR 122.21, the terms of the existing permit are administratively extended until the issuance of a new permit.

The permittee is classified as a Major discharger.

## **II. GENERAL DESCRIPTION OF FACILITY**

The COP 91<sup>st</sup> Avenue WWTP is located on the north bank of the Salt River, at 5615 South 91<sup>st</sup> 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 over 2 million. The COP 91<sup>st</sup> Ave WWTP is presently operating at a capacity of 179.25 MGD, but expanding to a design flow of 204.5 million gallons per day (MGD) and subsequently to an ultimate capacity of 230 MGD. The final design flow of 230 MGD 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 (1 MGD) is discharged to constructed wetlands where further treatment occurs (as described below). The expansion of the plant during this permit term is 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.

Currently, the plant processes an average of 54 MGD that is sent to the Palo Verde Nuclear Generating Station (PVNGS) for reuse. The rest of the effluent flows to the Salt River, the Buckeye Irrigation District (BID) via the direct discharge to the Salt and Gila Rivers, the Hayfield demonstration wetland and the Tres Rios Flow Regulating Wetland (FRW) Facilities and Riparian Restoration Project. Discharge of wastewater will occur through four outfalls that discharge directly to the Salt River (001, 002, 004, and 005). In the case of outfalls 004 and 005, wastewater will flow through constructed wetlands before discharge. In these cases, monitoring stations have been established in the permit at the influent to the wetlands (FRW-1 and HDW-1).

In the case of the FRW, additional monitoring points within the wetland after the initial deep water cells (FRW-2) and within the flow regulating portion of the wetland (FRW-3) have been further established to better gauge treatment provided by the wetland. The demonstration wetlands were designed to evaluate treatment and nutrient removal. The demonstration wetlands consisted of two separate sites: the Cobble site, located within a bermed area within the Salt River bed, and the Hayfield site, located above the river channel on the north bank of the Salt River. The permittee has indicated that it plans to discontinue using the Cobble Site, though it applied for an outfall in the permit application (Outfall 003). The permittee has since rescinded the application for outfall 003.

Proposed discharge rates through these outfalls will be: Outfall 001 to the Salt River, 89 MGD; Outfall 002 to the Salt River, 89 MGD (alternate outfall, exclusively used as alternate to 001); Outfall 004 from the Hayfield site, 1.2 MGD, Outfall 005 from the FRW to the Salt River, up to 80 MGD. In addition to these outfalls, the WWTP delivers, via pipeline, 54 MGD of effluent to the Palo Verde Nuclear Generating Station in Tonopah, AZ, for reuse. Accordingly, the facility generates Class B+ reclaimed water in accordance with Arizona Administrative Code (A.A.C.) R18-11-305.

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 91<sup>st</sup> Avenue WWTP. The Mesa Northwest Water Reclamation Plant has anaerobic sludge digestion, but may, on occasion, divert undigested sludge to the 91<sup>st</sup> 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 91<sup>st</sup> Avenue WWTP commingled with the influent wastewater. Specific processes for sludge treatment at the 91<sup>st</sup> 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 (Synagro) 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 99 Significant Industrial Users (SIUs), including 43 non-categorical SIUs and 56 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 001 or is sent to the Palo Verde Nuclear Generating Station. For the period from January 2003 through September 2005, the volume of groundwater sent to the plant ranged from 917 million gallons in May 2005 to 56.5 million gallons in January 2003.

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 washwater/irrigation and does not discharge to the River.) Some stormwater 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. The GRIC does not have proposed or adopted water quality standards, and since the receiving water eventually flows into portions of the Salt River that are undisputedly Arizona 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. Reissuance of the permit is important as the State of Arizona, has adopted new water quality standards to protect the designated uses of its surface waters. This permit will reflect these new standards.

The receiving water for the COP 91<sup>st</sup> Avenue WWTP is the Salt River, in the segment between the 23<sup>rd</sup> 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' 12" W

Outfall 002 is located at:

Township 1 N Range 1 E Section 33  
Latitude 33° 23' 22" N, Longitude 112° 15' 15" W

Outfall 003 is:

No longer requested by the permittee. Not in permit.

Outfall 004 is located at:

Township 1 N Range 1 E Section 34  
Latitude 33° 23' 18.3" N, Longitude 112° 15' 22.3" W

Outfall 005 is located at:

Township 1 N Range 1 E Section 33  
Latitude 33° 23' 18.3" N, Longitude 112° 14' 52.9" 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

HDW-1 is located at:

Latitude 33° 23' 30" N, Longitude 112° 14' 45" W

The receiving segment of the Salt River is on the ADEQ 303(d) list of impaired waters for 2004, and is listed as impaired for DDT metabolites, toxaphene and chlordane in fish tissue. The Arizona Surface Water Quality Standards for these parameters have been incorporated directly into this permit as limits. A TMDL has not yet been developed for this segment of the Salt River.

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. R18-11-109, 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

The City of Phoenix has been monitoring the effluent at outfall 001 under two previous NPDES permits issued by EPA. Data has been submitted with the application and during the application process for multiple parameters, obtained during effluent monitoring from 1999 through March 2009. The following is the effluent quality based on the treatment processes designed, as reported by the applicant during the application process.

**Effluent Data from Outfall 001 (1999-2009)**

Parameters	Units	Effluent Avg	Effluent Max
BOD	mg/L	Not required	Not required
CBOD	mg/L	2.28	10
TSS	mg/L	16.28	5000
TKN	mg/L	3.5	8.9
Fecal Coliform	# / 100 mL	4.53	86.4
Ammonia (as N)	mg/L	2.35	7.5
Dissolved Oxygen	mg/L	5.6	8.3
Nitrate plus Nitrite Nitrogen	mg/L	3.5	6.9
Phosphorus (Total)	mg/L	2.6	3.5
Total Dissolved Solids	mg/L	995.0	1400

In addition to this, the application also included data for metals, organics (VOCs and SVOCs), pesticides, oil & grease, pH, temperature, hardness, cyanide, and total residual chlorine. Data was also submitted for whole effluent toxicity (WET) testing covering the years 1999 through 2009. A series of 76 monthly tests for chronic toxicity to *Ceriodaphnia dubia* resulted in five exceedances of the monthly median and one exceedance of the single test maximum. Twelve chronic tests for *Selenastrum capricornutum* were reviewed with one exceedance of the monthly median.

Further details regarding these data (from 2001 through 2009) are presented in sections that follow. Pollutants not listed above or in section VI below, were not detected.

The Flow Regulating Wetland (FRW), which is under construction as part of the Tres Rios Wetlands (TRW) project, is expected to be operational at the time of final permit issuance and will consist of multiple interconnected cells with a total surface area of approximately 280 acres. The wetland will provide additional treatment and polishing to the effluent as it moves through before being discharged to the Salt River. Although no data exists regarding the specific treatment to be provided by the TRW, EPA supports the creation and use of these wetlands as a supplementary treatment system.

As a biological system, the actual impacts to the effluent will be dependent on the establishment of a plant community as well as the organisms which will use the wetland. EPA acknowledges the variability and uncertainty created by the use of a wetland to polish the effluent. EPA further acknowledges that there will be an interim time period when peaks and ebbs in certain parameter may result from initial equilibrating of the system. Accordingly, EPA recognizes the potential of such a process to potentially increase concentrations of certain parameters in the actual discharge to the Salt River (at outfalls 004 and 005).

Upon completion of the FRW, and as required in this permit, data will be collected by the permittee characterizing flows into the wetlands at FRW-1 and HDW-1 as well as the final discharges into the Salt River. This data will allow EPA and the City of Phoenix to determine the effects of the TRW on effluent quality. The results will be used to inform EPA of the treatment effects of the wetlands.

Given the uncertainty of the impacts of the wetlands system on effluent quality, EPA believes that adaptive management approach is warranted. EPA intends to consider all of the above factors and exercise appropriate discretion if exceedances to permit conditions occur as a result of the TRW. EPA recognizes the many benefits of a constructed wetland, including the ability to polish secondary treated effluent, while ensuring downstream beneficial uses remain protected.

## **V. 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<sub>5</sub>) 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 <sub>5</sub>	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<sub>5</sub> 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 water quality criteria provided by Arizona.

The Arizona Administrative Code (Water Quality Standards) establishes water quality criteria for the following beneficial uses for the Salt River between the 23<sup>rd</sup> 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.

The Salt River is listed as impaired according to the CWA Section 303(d) List of Water Quality Limited Segments for DDT metabolites, toxaphene and chlordane in fish tissue (Arizona's 2004 303(d) List and Other Impaired Waters).

### **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.

#### 4. 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 TSD. 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 (“MEC”) were estimated by calculating a coefficient of variation and applying the 99 percent confidence interval based on an assumed log-normal 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<sub>e</sub>” is the reported maximum effluent value and the multiplier factor is obtained from Table 3-1 of EPA’s TSD.

#### Summary of Reasonable Potential Statistical Analysis:

Parameter	Maximum Observed Concentration	n	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Flow	---	---		---	---	---
Suspended Solids (TSS)	86.4 mg/L TSS	NA		NA	30 mg/L 30 day average 45 mg/L 7 day average/ Technology based limits 40 CFR 133.102	Limit for TSS is always included. Technology based limit exists in addition to the limit in A.A.C.R 18-11-109(B).
Carbonaceous Biochemical Oxygen Demand (5-day)	10 mg/L	NA		NA	25mg/L 30 day average 40 mg/L 7 day average/ Technology based limits 40 CFR 133.102	Limit is included as an alternative to the BOD limit. Technology based limit exists in addition to the limit in A.A.C.R 18-11-109(B)
Dissolved Oxygen	2.4 mg/L (minimum)	1388	1.0	2.4 mg/L	3.0 mg/L three hours after sunset. 1.0 mg/L three hours after sunrise. A&Wedw	RP exists.

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pH	7.0 to 8.0	NA		NA	Minimum: 6.5 Maximum: 9.0 Maximum change due to discharge: 0.5/ A&Wedw, and PBC A.A.C.R 18-11-109(B)	Limit is always included. Technology based limit exists in addition to the limit in A.A.C.R 18-11-109(B)
Temperature	31°C	Sampled daily		NA	No applicable standard	NA
Ammonia (Total)	7.5 mg/L	158	2.0	15 mg/L	2.13 mg/L. Based on pH of 7.3 and Temp of 28 C	RP Exists. Data has exceeded the standard
Antimony	3.4 ug/L	64	3.8	12.9 ug/L	Applicable standard of 560 ug/l/ PBC	No RP
Arsenic	3.2 ug/L	64	1.3	4.16 ug/L	80 ug/L/ FC	No RP
Beryllium	1.6 ug/L	64	2.0	3.2 ug/L	5.3 ug/L/ A&Wedw chronic	No RP
Bis (2-ethylhexyl) phthalate	9.0 ug/L	147	3.2	28.8 ug/L	7.4 ug/L FC	RP exists. Data has exceeded the standard.
Boron	512 ug/L	124	1.2	614 ug/L	1000 ug/L / DWS	No RP
Butylbenzyl phthalate	5.7 ug/L	126	2.9	16.5 ug/L	130 ug/L/ A&Wedw chronic	No RP
Cadmium	1.7 ug/L	64	2.0	3.4 ug/L	1.14 ug/L/ A&Wedw chronic	RP Exists. Data has exceeded the standard
Chlorodibromomethane	1.8 ug/L	62	2.9	5.2 ug/L	13 ug/L / Fed, HH: Org Only	No RP
Chloroethane	.38 ug/L	22	3.2	1.2 ug/L	None	No RP
Chloroform	5.5 ug/L	43	1.3	7.2 ug/L	900 ug/L/ A&Wedw chronic	No RP
Chromium (total)	2.8 ug/L	64	3.2	9.0 ug/L	100 ug/L/ PBC	No RP
Chromium VI	No Data	0	NA	NA	11 ug/L/ A&Wedw chronic	No RP based on total chromium data
Copper	1.4 ug/L	64	2.6	3.6 ug/L	21.52 ug/L/ A&Wedw chronic	No RP
Cyanide	9 ug/L	124	2.0	18 ug/L	9.7 ug/L/ A&Wedw	RP exists
Di-n-butyl phthalate	3.2 ug/L	126	2.6	8.3 ug/L	2000 ug/L / Fed HH: W+O	No RP
Diazinon	2.0 ug/L	125	3.2	6.4 ug/L	None	Indeterminate
1,4-Dichlorobenzene	1.6 ug/L	173	3.5	5.6 ug/L	780 ug/L/ A&Wedw	No RP
Dichlorobromomethane	5.5 ug/L	62	2.6	14.3 ug/L	17 ug/L / Fed, HH: Org Only	No RP

<i>E. Coli</i>	NA	NA	-	-	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 575 cfu /100 mL/ PBC	RP always expected for WWTPs.
Endosulfan (Total)	.084 ug/L	124	2.6	0.218 ug/L	.06 ug/L / A&Wedw	RP Exists. Data has exceeded the standard
Endrin	.046 ug/L	155	2.9	0.13 ug/L	.004 ug/L / Agl	RP Exists. Data has exceeded the standard
Fecal Coliform	5000 cfu	1869	1.0	5000 cfu	No Applicable Standard	NA
Fluoride	2.2 mg/l	125	1.2	2.6 mg/l	84 mg/L /PBC	No RP
Hardness	328 mg/L 279 mg/L average	156		NA	No Applicable Standard. Hardness is used to determine standards for specific metal parameters.	NA
Heptachlor epoxide	ND	154	3.2	ND	0.00004 ug/L /FC	No RP
Hexachlorocyclohexane gamma (Lindane)	ND	155	3.2	0.029	0.61 ug/L /A&W chronic	No RP
Hydrogen Sulfide	No data	0		NA	2 ug/L/ A&Wedw chronic	Indeterminate
Lead	7.8 ug/L	64	2.6	20.3 ug/L	9.53 <sup>(1)</sup> ug/L / A&Wedw chronic.	RP exists
Mercury	0.21 ug/L	64	3.5	0.73 ug/L	0.012 <sup>(1)</sup> ug/L/ A&W edw chronic	RP Exists. Data has exceeded the standard
Methylene chloride	4.2 ug/L	43	4.2	17.6 ug/L	590 ug/L/ Fed, HH: Org only	No RP
Nickel	15 ug/L	64	2.6	39 ug/L	123.89 ug/L/ A&Wedw chronic	No RP
Oil and grease	No data	0		NA	Indicator of possible narrative standard exceedances	Indeterminate
Selenium	3.3 ug/L	124	3.5	11.6 ug/L	2.0 ug/L/ A&Wedw chronic	RP Exists. Data has exceeded the standard
Silver	1.8 ug/L	124	2.3	4.1 ug/L	18.79 ug/L/ A&Wedw chronic	No RP
Styrene	4.6 ug/L	22	3.2	14.7 ug/L	370 ug/L / A&Wedw chronic	No RP
Thallium	1.1 ug/L	64	2.6	2.9 ug/L	7.2 ug/L/ FC	No RP

Toluene	1.6 ug/L	43	2.0	3.2 ug/L	180 ug/L / A&Wedw chronic	No RP
Total Residual Chlorine (TRC)	NA	NA		NA	11ug/L /A&Wedw chronic	RP exists. RP for TRC is assumed when chlorine is used for disinfection.
Trihalomethanes (Total)	7.3 ug/L	18	1.6	11.7 ug/L	-	No RP
Zinc	36 ug/L	64	1.3	47 ug/L	279.5 ug/L/ A&W edw acute	No RP
<b>Whole Effluent Toxicity (WET)</b>						
<i>Selenastrum capricornutum</i>	2.0	16		N/A	No toxicity (A.A.C. R18-11-108.A.6 )	Indeterminate The 11/20/04 test results are questionable.
<i>Pimephales promelas</i>	1	16		N/A	See above	No reasonable potential
<i>Ceriodaphnia dubia</i>	1.7	91		N/A	See above	Five exceedences of the monthly median and one exceedence of the single test maximum (based on new action level of 1.6 TUc

<sup>(1)</sup>Arizona SWQS for lead and mercury are expressed in terms of dissolved metals. In order to convert to total recoverable, a conversion factor of .791 and .85 were applied for lead and mercury, respectively, as described in EPA 823-B-96-007.

### C. Rationale for Effluent Limits

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.

#### *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 based on historical temperature and pH effluent values and are different values for each individual month.

Because ammonia is a new water quality standard, the permittee has been granted a schedule to attain compliance. The permittee must meet limits in the permit by January 1, 2013. In the interim, a maximum daily limit of 29.5 mg/L and an average monthly limit of 18.9 mg/L have

been established in order to assure acute criteria are met for ammonia. The interim period is designed to allow the permittee to complete construction of pump stations that will divert effluent to tertiary treatment before being discharged.

*CBOD<sub>5</sub> and TSS.*

Limits for CBOD<sub>5</sub> 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<sub>5</sub> 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	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	45 mg/l	8.345	86,400 lbs/day

The extent of removal of TSS by natural processes in the constructed wetlands is unclear at this time. However, it is possible that natural sources will introduce additional suspended solids into the waters. Therefore, the permit requires that compliance with the TSS effluent limit be achieved at outfalls 004 and 005, and that monitoring for TSS occur at HFD-1 and FRW-1, after disinfection of the treated effluent but prior to the introduction of TSS from natural sources. After collecting data from the wetland, the permittee may request that EPA establish alternate compliance points. At the discretion of EPA, the compliance location for TSS may then be relocated.

*Chlordane, Toxaphene and DDT Metabolites*

The Salt River is listed as impaired for chlordane, toxaphene and DDT metabolites. Therefore permit limits have been set for all three parameters as instantaneous maximums at the level of the water quality standard.

*Dissolved Oxygen.*

The criteria for dissolved oxygen set forth in A.A.C.R 18-11-109(E) for A&Wedw requires the DO three hours after sunrise to sunset to be a minimum of 3.0 mg/L and 1.0 mg/L 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 extent of removal of bacteria including *E.coli* by natural processes in the constructed wetlands is unclear at this time. However, it is very likely that natural sources, primarily avian and mammalian wildlife expected to use these wetlands, will introduce additional bacteria into the waters. Therefore, compliance with effluent limits at outfalls 004 and 005 for *E.coli* will be monitored after disinfection of the treated effluent but prior to the introduction of bacteria from natural sources, i.e. at HFD-1 and FRW-1, respectively.

Additionally, The Wetland Treatment Assessment, described in section VIII, is designed to characterize the effect of the wetland on *E.coli* concentration. After interpreting results from the assessment, EPA may consider reopening and reissuing the permit with applicable limits and monitoring accordingly.

*Flow.*

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

*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.

#### **D. Water Quality Based Limit Calculations**

The following calculations are outlined in EPA's TSD Section 5.4.1.

*Coefficient of Variation (CV)*

The CV is calculated based on discharge data collected from July 2003 to September 2008 and supplied by the permittee. The CV is defined as the standard deviation divided by the mean of the dataset.

*Waste Load Allocation (WLA)*

The WLAs (chronic and acute) are determined by the applicable chronic and acute water quality standards.

*Waste Load Allocation Multiplier (WLA X)*

The WLA Multipliers (chronic and acute) are calculated based on the following formulas for the 99<sup>th</sup> percentile (*EPA's TSD*, Table 5-1):

**Chronic**  
(4-day average)

$$LTA_c = WLA_c \cdot e^{[0.5 \sigma_4^2 - z \sigma_4]}$$

where  $\sigma_4^2 = \ln [CV^2 / 4 + 1]$ ,  
 $z = 1.645$  for 95th percentile occurrence probability, and  
 $z = 2.326$  for 99th percentile occurrence probability

**Acute**

$$LTA_{a,c} = WLA_{a,c} \cdot e^{[0.5 \sigma^2 - z \sigma]}$$

where  $\sigma^2 = \ln [CV^2 + 1]$ ,  
 $z = 1.645$  for 95th percentile occurrence probability, and  
 $z = 2.326$  for 99th percentile occurrence probability

*Long Term Average (LTA)*

The LTA (chronic and acute) is calculated by multiplying the acute or chronic WLA to its corresponding WLA multiplier (as illustrated above). Other LTAs come from WLAs that pertain to human health and are neither acute, nor chronic. These WLAs are applied directly as LTAs. The final LTA is selected as the most stringent of the three possible LTAs (chronic, acute and other).

*Maximum Daily Limit (MDL) and Average Monthly Limit (AML)*

The MDL and AML are calculated by multiplying the LTA multipliers (MDL X and AML X) to the LTA. The LTA multipliers are determined using the following formulas for 99<sup>th</sup> percentile (EPA's TSD, Table 5-2):

$$MDL = LTA \cdot e^{[z \sigma - 0.5 \sigma^2]}$$

where  $\sigma^2 = \ln [CV^2 + 1]$ ,  
 $z = 1.645$  for 95th percentile occurrence probability, and  
 $z = 2.326$  for 99th percentile occurrence probability

$$AML = LTA \cdot e^{[z \sigma_n - 0.5 \sigma_n^2]}$$

where  $\sigma_n^2 = \ln [CV^2 / n + 1]$ ,  
 $z = 1.645$  for 95th percentile,  
 $z = 2.326$  for 99th percentile, and  
 $n =$  number of samples/month

**Note:** For AML calculation, the value of  $n$  may be no less than 4. If the value of  $n$  is less than 4, 4 is used in the calculation as the value for  $n$ .

*Ratio between Maximum Daily and Average Monthly (MDL/AML)*

WLAs that pertain to human health are neither acute, nor chronic. These standards are set such that  $WLA=AML$  directly. In order to convert this to an MDL, an MDL/AML ratio is determined based on CV and  $n$  in accordance with Table 5-3 of EPA's TSD.

**Water Quality Based Limits Calculations**

<b>Parameter</b>	CV	WLA <sub>c</sub>	WLA <sub>cX</sub>	LTA <sub>c</sub>	WLA <sub>a</sub>	WLA <sub>aX</sub>	LTA <sub>a</sub>	LTA <sub>final</sub>	MDL X	MDL/AML	MDL	AML X	AML
Bis (2-ethylhexyl) phthalate	.943	-	-	-	-	-	-	-	-	1.8	13.3	-	7.4
Cadmium	.557	1.14	.550	.627	21.32	.342	7.28	.627	2.93	-	1.83	1.82	1.14
Cyanide	.524	9.7	.568	5.507	41	.359	14.72	5.51	2.79	-	15.3	1.76	9.7
Endosulfan	.707	.06	.477	.029	.2	.278	.06	.0286	3.59	-	.103	2.09	.06
Endrin	.859	-	-	-	-	-	-	-	-	1.8	.0072	-	.004
Lead	.698	9.53	.481	4.59	244	.282	68.73	4.59	3.55	-	16.3	2.08	9.53
Mercury	.994	.012	.374	.004	2.88	.205	.59	.00449	4.88	-	.0219	2.67	.012
Selenium	1.06	2	.356	.713	-	-	-	.713	5.16	-	3.67	2.81	2
Total Residual Chlorine (TRC)	.6	11	.527	5.80	19	.321	6.10	5.80	3.11	-	18.1	1.90	11

### **E. Anti-Backsliding**

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit which contains effluent limits less stringent than those established in the previous permit, except as provided in the statute.

The permit establishes less stringent effluent limitations for total residual chlorine, copper, silver, and zinc. 40 CFR 122.44(l) allows for backsliding when new information becomes available which was not available at the time of the previous permit issuance. For total residual chlorine, EPA-approved revisions to Arizona's SWQS allow for less stringent permit limitations. For copper, silver, and zinc, new discharge information submitted by the permittee demonstrated no reasonable potential to exceed the most stringent SWQS and are the basis for removal of the limits; however monitoring for these parameters was retained.

### **F. 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.

Since the issuance of the 1999 NPDES permit, the capacity of the 91<sup>st</sup> Ave capacity is increasing from 179 MGD to 230 MGD. The impact of such a flow increase has the potential to degrade the surrounding environment. Accordingly, EPA has conducted an antidegradation review below:

The 91<sup>st</sup> Ave WWTP treats domestic wastewater from the cities of Phoenix, Glendale, Mesa, Scottsdale, and Tempe, Arizona. As described in this permit and fact sheet, the permittee is permitted to discharge wastewater that meets effluent limits and is required to comply with monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone; therefore, these limits will apply at the end of pipe without consideration of dilution in the receiving water. Water quality standards are written to protect all designated uses of a waterbody, in this case the Salt River. Since the permittee is expected to comply with all limits in the permit, the effluent should not have a negative, degrading effect on the receiving waterbody. Priority pollutant scans have and will continue to be conducted of the effluent on a quarterly basis, demonstrating and ensuring that most pollutants will be discharged below detection levels.

The receiving Salt River is an effluent dependant waterbody which, at the 91<sup>st</sup> Ave WWTP, is almost entirely dependant 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. Because the increase in flow from the last permit to this current permit has been accompanied by major facility renovations and improvements which allow the plant to treat its effluent to a higher and more consistent caliber, it is expect that the quality of the effluent will match or exceed the current water 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 will also be providing habitat for fauna and flora, protecting all species in the area. The newly constructed Tres Rios Flow Regulating Wetland Facilities and Riparian Restoration Project is designed to provide supplemental wetland habitat as well as stabilize the flow in the Salt River to increase the river's viability.

The discharge also meets Arizona's B+ reclaimed water quality standard, furthermore ensuring water cleanliness including 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 low levels of toxic pollutants present in the effluent, 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 have a negligible or *de minimis* negative effect on the receiving waterbody.

## **VI. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS**

Since 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.

## **VII. 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 is 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 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 quarterly as specified in the proposed permit.

### **B. Whole Effluent Toxicity Testing**

The previous permit did not establish Permit Limits for chronic toxicity. Instead the permit included monitoring and reporting requirements, and required accelerated testing, should the monitoring and reporting indicate the presence of chronic toxicity which was defined as: 1) greater than 1.0 TUC based on any monthly median of test results, and 2) any one test result greater than 2.0 TUC. Since that time, new EPA guidance suggests that the presence of chronic

toxicity be inferred when the monthly median of test results exceeds 1.0 TUc or any one test result is greater than 1.6 TUc.

The permit establishes Permit Limits and Action Levels for toxicity based on a review of data from WET testing during the previous permit cycle. A series of 76 monthly tests for chronic toxicity to *Ceriodaphnia dubia* conducted over the period from 1999 to 2009 resulted in five exceedances of the monthly median and two exceedances of the single test maximum, including an analytical result of 1.7 TUc for a sample collected on 11/2/2004 as well as an analytical result of 8.0 TUc was reported on 1/14/2009, for a sample taken on 12/10/2008. The result triggered accelerated testing with 6 additional tests approximately 2 weeks apart (sample dates 1/26/2009, 2/9/2009, 2/23/2009, 3/9/2009, 3/32/2009 and 4/6/2009). All of these results were 1.0 TUc allowing the discharger to return to normal permit monitoring frequency. There is reasonable potential for *Ceriodaphnia dubia* chronic toxicity based on the reported values. Therefore, pursuant to EPA regulations at 40 CFR Section 122.44 this permit establishes permit limits for *Ceriodaphnia dubia*. Monthly monitoring is required for *Ceriodaphnia dubia*.

Twelve chronic tests for *Selenastrum Capricornutum* were reviewed with one exceedance of the monthly median of 2.0 TUc from Sample date of 11/2/2004. The Permittee indicated that the *Selenastrum capricornutum* result from 11/2/2004 may have been the result of an interrupted concentration response curve, and thus the result may not be accurate. The data from twelve chronic tests on *Pimephales promelas* submitted by the permittee does not indicate exceedances. Therefore, only action levels for *Selenastrum capricornutum* and *Pimephales promelas* are established in the permit. Quarterly monitoring is required for *Selenastrum capricornutum* and *Pimephales promelas*.

If a WET permit limit or action level is exceeded follow-up testing as described in the permit shall be conducted. Please see Section III B. 7 of the permit for details about the accelerated toxicity testing and TIE/TRE process.

## **VIII. 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.

### **B. Wetland Treatment Assessment**

The permittee is required to complete an assessment study to characterize the treatment of the Tres Rios Flow Regulating Wetland. The study will characterize all parameters monitored for at outfall 005 with a special focus on parameters that do not consistently meet water quality standards at FRW-1 (assumed to be total residual chlorine and ammonia) and outfall 005 (potentially *E.coli*).

For all parameters that do consistently meet WQS at FRW-1, the permittee shall ensure bioaccumulation does not occur in the wetland to the extent that WQS would not be met.

For all parameters that do not consistently meet WQS at FRW-1, the permittee shall characterize the dissipation of the parameters at a minimum of five points within the wetland. The permittee shall make the assessment of where within the FRW the parameter first regularly meets WQS.

The assessment shall be made twice: once during the winter and once during the summer. The permittee shall then submit to EPA their assessment within one year of permit issuance or wetland treatment, whichever is later.

### **C. In-Stream Monitoring**

The permittee is required to monitor in-stream for select parameters.

The permittee is required to monitor at two locations in the Salt River: one immediately upstream of the outfall from the FRW, but downstream of outfall 001 and one downstream of all discharges. The purpose of the monitoring is to compare water quality in the Salt River before and after the FRW.

A report will be compiled annually and reported to EPA, ADEQ and GRIC DEQ.

### **D. Pretreatment**

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 91<sup>st</sup> Avenue WWTP. These cities include Phoenix, Glendale, Mesa, Scottsdale, and Tempe.

### **E. Sanitary Sewer Overflows**

Standard requirements for implementing and enforcing sanitary sewer overflow reporting are included in the permit.

### **F. 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.

### **G. Development and Implementation of Best Management Practices and Stormwater Pollution Prevention Plan**

Pursuant to 40 CFR 122.44(k)(4), EPA may impose Best Management Practices (“BMPs”) which are “reasonably necessary...to carry out the purposes of the Act.” The pollution prevention requirements or BMPs proposed in the permit operate as technology-based limitations

on effluent discharges that reflect the application of Best Available Technology and Best Control Technology.

The permittee is currently covered under the MSGP; however, EPA has determined it is best to incorporate Stormwater Pollution Prevention Plant (SWPPP) and BMP requirements directly into this permit. SWPPP requirements are adapted from the 2008 U.S. EPA Multi-Sector General Permit (MSGP).

## IX. OTHER CONSIDERATIONS UNDER FEDERAL LAW

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 increased flows, from 170 million gallons a day (MGD) up to 230 MGD, of secondary treated effluent discharge from the facility. No other action by the discharger or other parties is within the scope of this review.

According to the U.S. Fish & Wildlife Service, Arizona Ecological Services, the following species are listed as threatened or endangered in Maricopa County:

### Plants:

- Arizona cliffrose (*Purshia subintegra*)

### Birds:

- Bald eagle (*Haliaeetus leucocephalus*)
- California brown pelican (*Pelecanus occidentalis californicus*)
- California least tern (*Sterna antillarum browni*)
- Mexican spotted owl (*Strix occidentalis lucida*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Yuma clapper rail (*Rallus longirostris yumanensis*)

### Fish:

- Desert pupfish (*Cyprinodon macularius*)
- Gila topminnow (*Poeciliopsis occidentalis occidentalis*)
- Razorback sucker (*Xyrauchen texanus*)
- Woundfin (*Plagopeterus argentissimus*)

### Mammals:

- Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)
- Sonoran pronghorn (*Antilocapra americana sonoriensis*)

Of all 12 species listed above, none currently has a potential nexus with the effluent, beyond speculative incidental contact, prior to the construction of the FRW. Once the FRW is constructed and receives secondary treated effluent from the discharger, creating a wetland and

riparian habitat, 4 bird (the Yuma clapper rail, southwestern willow flycatcher, bald eagle and brown pelican) and 2 fish species (the Gila topminnow and desert pupfish) have a potential nexus with the effluent, beyond speculative incidental contact.

The specific impact of the Tres Rios Project Area and the construction of the FRW on federally listed species was collectively considered by the United States Army Corps of Engineers (hereinafter USACE) and the U.S. Fish & Wildlife Service (hereinafter USFWS or the Service). Their findings and agreement can be read in the Biological Assessment prepared by the USACE in March 2000 and the concurrence letter prepared by the USFWS on March 22, 2000 which concluded that “Based on the implementation of the mitigation, conservation, monitoring, and adaptive management measures...we [USFWS] concur that the Tres Rios Restoration Project including initial construction and O&M, may affect but is not likely to adversely affect Yuma clapper rail, southwestern willow flycatcher, cactus ferruginous pygmy-owl, and bald eagle”

In constructing the FRW the USACE has implemented the measures required in the March 22, 2000 concurrence letter from USFWS. As the letter was written in 2000, over nine years ago, EPA recognizes that several species of fish and birds have since been added to the list of federally listed threatened and endangered species found in Maricopa county. In its analysis of the impacts of this proposed action EPA has reviewed the potential for impacts to all species currently listed, including those added to the list after March 2000.

Additionally, the Permittee and the USFWS have also considered the specific impact of the Tres Rios Project Area and its continued operation and maintenance. Their findings and agreement can be read in the “Safe Harbor Agreement with the City of Phoenix for Voluntary Enhancement /Restoration Activities Benefiting the Yuma Clapper Rail, Southwestern Willow Flycatcher, Bald Eagle, Brown Pelican, Gila Topminnow, and Desert Pupfish at the Tres Rios Project Area, Maricopa County, Arizona.” EPA reviewed this document as well in its analysis of the impacts of this proposed action.

The following factors have been considered in the determination of potential effect on local federally listed threatened and endangered species from EPA’s proposed action:

- This permit has been written such that all downstream uses of the water into which discharge is permitted are protected. EPA applied Arizona Surface Water Quality Standards (SWQS) to the discharge and all such standards must be met before effluent flows to any waters of the U.S. Arizona SWQS are written to protect designated uses of the receiving water including aquatic & wildlife usage in effluent dependant water.
- The Lower Salt River at the 91<sup>st</sup> Ave WWTP is an effluent dependant water. Without the discharge from the current facility, no or nominal flow would exist in the river bed providing poor habitat for threatened and endangered species. The FRW will provide a large surface area of water and wetland and riparian habitat for many species of plants, birds and animals including federally listed threatened and endangered species.

- The current flow in the river is diurnal based on the diurnal pattern of effluent generation and is not conducive to substantive fish and wildlife habitat. .
- The Tres Rios Flow Regulating Wetland Facilities and Riparian Restoration Project is designed to be a net environmental improvement providing supplemental wetland habitat for threatened and endangered species in addition to stabilizing the flow in the Salt River to increase the viability of downstream in-stream and riparian habitat.

Considering the above factors, EPA has determined that any effects on endangered species in the vicinity of the Tres Rios wetland have already been reviewed previously and discharge of secondary treated effluent from the 91<sup>st</sup> Ave WWTP have no effect on the Yuma Clapper Rail, Southwestern Willow Flycatcher, Bald Eagle, Brown Pelican, Gila Topminnow, and Desert Pupfish.

### **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.

Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA consulted with the appropriate State and Tribal agencies or authorities. No historic properties were affected.

## **X. 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 IX Standard Federal NPDES Permit Conditions, dated July 1, 2001.

## **XI. 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, with a minimum of 30 days provided for interested parties to respond in writing to EPA. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

### **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, EPA is requesting certification from the affected State, Territory, or Tribe that the proposed permit will meet all applicable water quality standards. Because jurisdiction is in dispute for this permit, certification under section 401(h) will not be sought.

## **XII. CONTACT INFORMATION**

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

Gary Sheth  
NPDES Permits Office WTR-5  
EPA Region IX  
75 Hawthorne Street  
San Francisco, California 94105  
(415) 972-3516  
sheth.gary@epa.gov

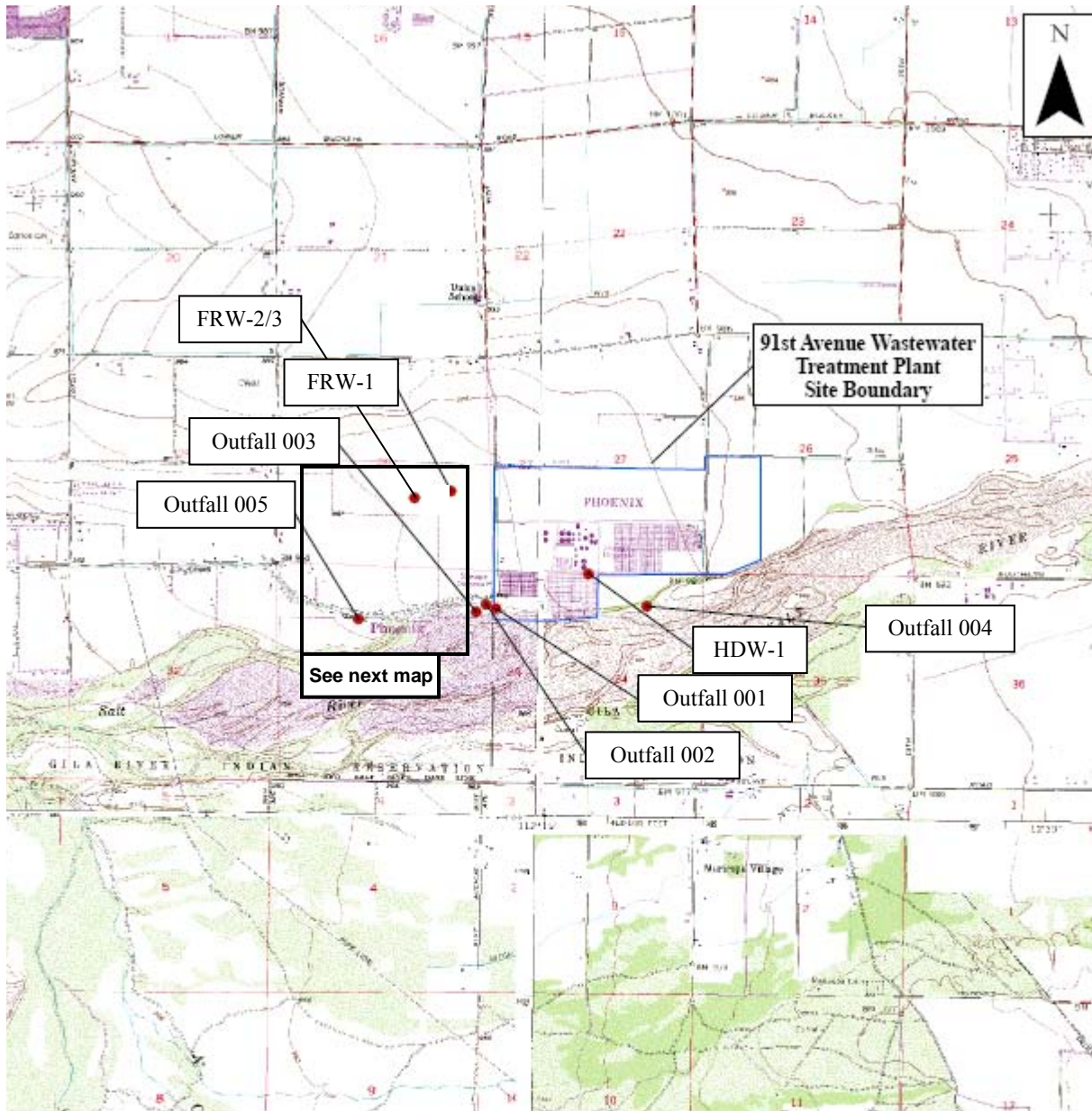
## **XIII. REFERENCES**

- Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted January 31, 2009. Note: As of June 26, 2009, only some of these have been adopted as Clean Water Act standards.
- 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. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.
- USEPA. 2002a. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms - Fifth Edition*. Office of Water, EPA. EPA-821-R-02-012.
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- USEPA. 1996. *U.S. EPA NPDES Basic Permit Writers Manual*. EPA. EPA-833-B-96-003.
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**XIV. APPENDIX A: SITE MAPS**



Map Source: Avondale SE, Fowler, Laveen and Tolleson 7.5-minute USGS Quadrangles

**Legend**

- 91st Avenue WWTP Outfall
- Approximate City of Phoenix Property Lines



Edited by EPA: 9/11/09

**MALCOLM  
 PIRNIE**

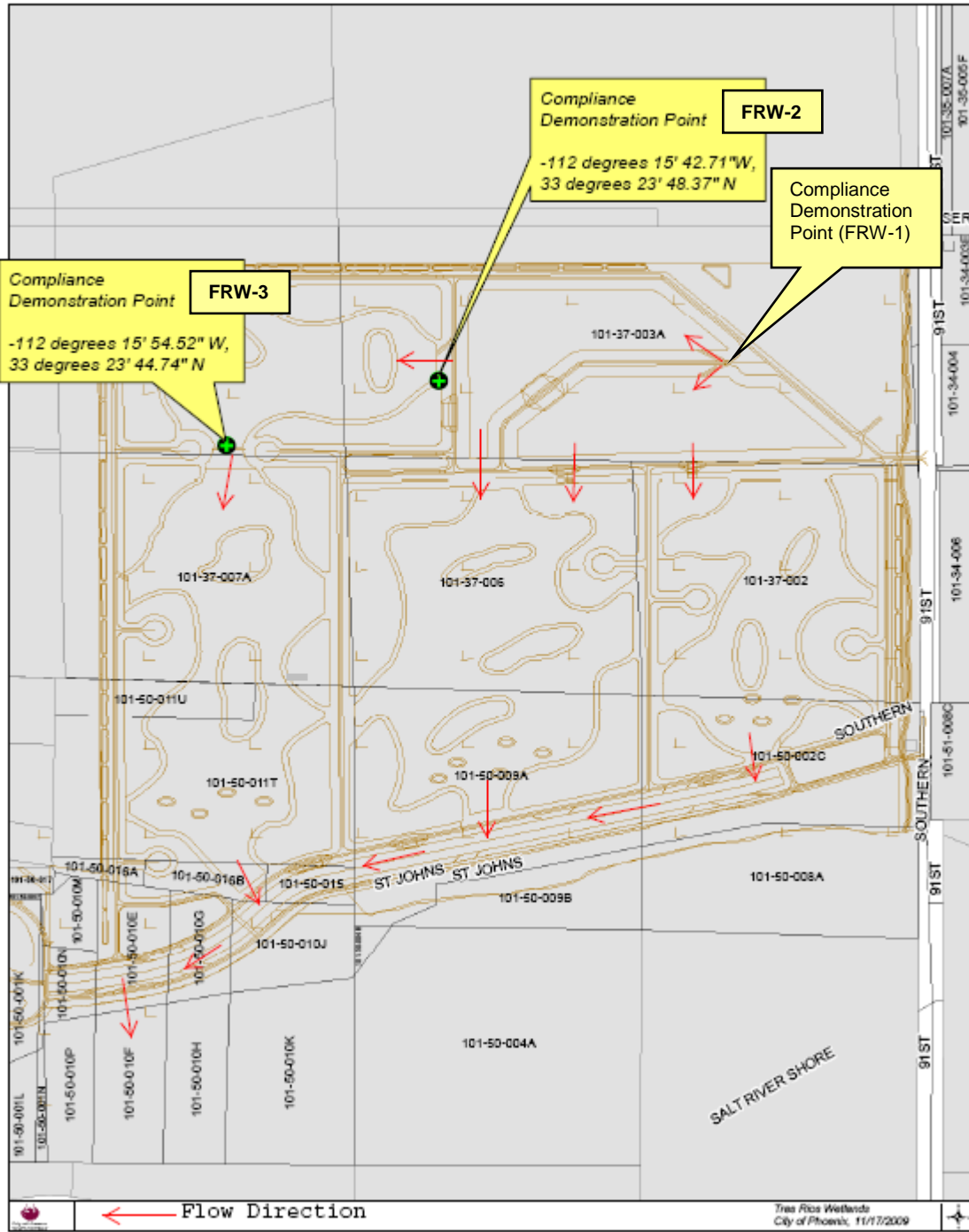
4646 E. Van Buren St.  
 Suite 400  
 Phoenix, AZ 85008

City of Phoenix  
 NPDES Permit Renewal  
 91st Avenue WWTP  
 Site Location Map

**Figure 1**

**Sep 2009**

### Tres Rios Flow Regulating Wetlands



Modified by EPA  
12/11/2009

### XV. APPENDIX B: FLOW DIAGRAM

