

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PROPOSED PERMIT
FACT SHEET

Facility/ Permittee: Colorado River Sewage System Joint Venture

Mailing Address: 12501 West Agency Rd.
Parker, AZ 85344

Type of Facility: Publicly Owned Treatment Works

Facility Location: 12501 West Agency Rd.
Parker, AZ 85344

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NPDES Permit No.: AZ0021415

I. STATUS OF PERMIT

On June 21, 2006, Colorado River Sewage System Joint Venture (CRSSJV) applied to the U.S. Environmental Protection Agency, Region 9 (US EPA) for renewal for its National Pollutant Discharge Elimination System (NPDES) permit for the discharge of the treated effluent from the existing CRSSJV wastewater treatment plant. The CRSSJV treatment facility is a publicly-owned treatment works (POTW) located in the Colorado River Indian Reservation. Pursuant to the EPA regulations set forth in Title 40, Code of Federal Regulations (CFR) Part 122.21, the effluent discharge was regulated under NPDES Permit No. AZ0021415, which became effective on October 30, 2001, and expired on October 30, 2006. All the terms and conditions of the 2001 permit are administratively extended until the reissuance of a new permit. This fact sheet is based on the facts presented by the applicant in both the application and any previous discharge data submitted, along with the appropriate laws and regulations. Pursuant to Section 402 of the Clean Water Act (CWA), the USEPA is proposing issuance of the NPDES permit renewal to CRSSJV (permittee) for the discharge of treated domestic wastewater to the Agency Road Irrigation Return Canal that flows to the Colorado River, a water of the U.S.

This permittee has been classified as a Major discharger.

II. GENERAL DESCRIPTION OF FACILITY

CRSSJV owns and operates the POTW servicing the Town of Parker, Arizona and the Colorado River Indian Tribes, with a total population of approximately 5,000. The POTW started operations in 1974 and has a design flow of 1.2 millions gallons per day (MGD). The treatment system consists of bar screens, contact stabilization tanks with secondary clarifiers, aerobic digestors, and ultraviolet disinfection with backup chlorination/dechlorination. Sludge is hauled off to a landfill.

CRSSJV does not have an approved pretreatment program but does maintain city codes and local limits to control the flow of industrial pollutants into the POTW. In the 2006 application, CRSSJV reported two significant industrial dischargers to the POTW – Siemens Water Technologies Inc. (formerly known as Westates Carbon-Arizona Inc.) and Custom Metal Finishing. Drum’s Plating was previously listed in the 2001 permit fact sheet but is not found in the current application. According to the permittee, Drum’s Plating ceased operations in 2005. Siemens Water Technologies’ average daily volume of process wastewater is 140,000 gallons per day (GPD), which represents approximately 19 percent of the POTW’s annual total flow of 750,000 GPD for the year of 2006. Custom Metal Finishing does not discharge any process wastewater.

III. DESCRIPTION OF RECEIVING WATER

The final treated effluent from the sewage treatment plant is discharged from Discharge Outfall No. 001 into the Agency Road Irrigation Return Canal, which flows about 10 miles before reaching the Colorado River. Any sampling and monitoring under the proposed permit shall be performed at Outfall No. 001.

Discharge Point No.	Latitude	Longitude	Description
001	34° 08’ 36” N	114° 18’ 31” W	Primary discharge point is the Agency Road Irrigation Return Canal which flows approximately 10 miles before reaching the Colorado River.

Agency Road Irrigation Return Canal is not specifically listed in Appendix B [*List of Surface Waters and Tributaries*] of the 2008 Arizona Water Quality Standards; however, section R18-11-105 [*Tributaries; Designated Uses*] of the Arizona WQS states:

“For a surface water that is not listed in Appendix B but is a tributary to a listed surface water, is perennial or intermittent and is below 5000 feet, the aquatic and wildlife (warm water fishery) and fish consumption standards apply as well as the water quality standards that have been established for the nearest downstream surface water listed in Appendix B that is not an ephemeral water or an effluent dependent water.”

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

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

The designated uses of the Colorado River from Topock Marsh to Morelos Dam are as follows:

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

IV. DESCRIPTION OF DISCHARGE

A. Application Discharge Data

As part of the application for permit renewal, the permittee provided data from an analysis of the facility’s treated wastewater discharge, shown in Table 1. This data, expressed only as maximum and average *daily* discharges, meets the existing permit maximum daily effluent limits shown in Table 2. However, as TDS was reported as the effluent gross value, it cannot be compared to the permit limit which is expressed as the incremental increase between the influent and effluent. Also, some of the parameters that were reported in the application are not limited in the existing permit (TKN, Nitrate+Nitrite as N, TP, Arsenic and Zinc).

Table 1. Application Discharge Data⁽¹⁾

Parameter	Units	Maximum Daily Discharge	Average Daily Discharge
pH	Standard Units	7.03-7.3 (min-max)	--
Flow	MGD	0.758	0.75
Biochemical Oxygen Demand (5-day)	mg/L	5	4.25
<i>E. Coli</i>	cfu/100mL	6	1.74
Total Suspended Solids (TSS)	mg/L	4	3.13
Total Residual Chlorine	µg/L	ND	ND
Total Kjeldahl Nitrogen (TKN)	mg/L as N	5.11	4.78
Nitrate and Nitrite N	mg/L as N	15	10.12
Oil and Grease	mg/L	1.1	0.83
Total Phosphorus (TP)	mg/L as P	2.85	2.52
Total Dissolved Solids (TDS) ⁽²⁾	mg/L	1432	1351
Arsenic	mg/L	0.004	0.004
Lead	mg/L	0.04	0.04

Parameter	Units	Maximum Daily Discharge	Average Daily Discharge
Selenium	mg/L	0.002	--
Zinc	mg/L	0.05	--

(1) All other data submitted on volatile organic compounds, acid-extractable compounds and base-neutral compounds were reported as below the detection limits used for each analysis.

(2) TDS reported as effluent gross value (not incremental increase as required in permit and DMRs).

B. Recent Discharge Monitoring Report (DMR) Data (2004-2008)

Table 2 provides a summary of effluent limitations and monitoring data based on the facility’s most recent 5 years of DMRs (2004 to 2008). The data shows elevated concentrations of total dissolved solids, oil and grease, lead and selenium. In addition, the highest maximum daily flow (1.38 MGD) exceeds the design capacity of the treatment system (1.2 MGD).

Table 2. Discharge Monitoring Report data for years 2004-2008.

Parameter	Units	Existing Permit Effluent Limitations			Discharge Monitoring Data			Monitoring Requirements	
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	Monitoring Frequency	Sample Type
Flow Rate	MGD	Monitoring Only	Monitoring Only	Monitoring Only	0.87	--	1.38	Continuous	Continuous
Biochemical Oxygen Demand (5-day)	mg/L	30	45	Monitoring Only	8.0	8.0	10	2/Month	Composite
	kg/day	136	204	408	25	--	31		
	Percent Removal	Both the influent and the effluent shall be monitored. The arithmetic mean of the BOD values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period (85 percent BOD removal).			96-97 (min-max)				
Total Suspended Solids	mg/L	30	45	Monitoring Only	16	16	20	2/Month	Composite
	kg/day	136	204	408	50	--	61		

	Percent Removal	Both the influent and the effluent shall be monitored. The arithmetic mean of the TSS values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period (85 percent TSS removal).			90-99 (min-max)				
pH	Standard Units	Not < 6.5 SU, Not > 9.0 SU; discharge shall not change pH in receiving water by more than 0.5 SU			6.8 (minimum)	--	7.4	1/Week	Discrete
<i>E. coli</i>	cfu/ 100 mL	130	--	580	30.6	--	440	1/Week	Discrete
Total Dissolved Solids ⁽¹⁾	mg/L	Incremental increase not to exceed 400mg/L.			582	--	737	2/Month	Discrete
Total Residual Chlorine ⁽²⁾	µg/L	5	--	11	ND	--	ND	1/Day	Discrete
Oil and Grease	kg/day	45.4	68.1	--	83.5	83.5	--	1/Month	Discrete
	mg/L	10	15	--	22	22	--		
Beryllium	kg/day	0.95	--	18	ND	--	ND	1/Month	Composite
	µg/L	0.21	--	4	ND	--	ND		
Cadmium	kg/day	14	--	318	ND	--	ND	1/Month	Composite
	µg/L	3.0	--	70	ND	--	ND		
Lead	kg/day	68	--	1753	9.0	--	9.0	1/Month	Composite
	µg/L	15	--	386	40	--	40		
Mercury	kg/day	0.045	--	11	ND	--	ND	1/Month	Composite

	µg/L	0.01	--	2.4	ND	--	ND		
Selenium	kg/day	9.1	--	91	0.0069	--	0.0069	1/Month	Composite
	µg/L	2.0	--	20	3.0	--	3.0		
Cyanide	kg/day	44	--	186	ND	--	ND	1/Month	Composite
	µg/L	9.7	--	41	ND	--	ND		
Bis(2-ethylhexyl)phthalate	kg/day	27	--	454	ND	--	ND	2/Year	Composite
	µg/L	6	--	100	ND	--	ND		

(1) TDS reported as incremental increase values as required by permit limit. TDS effluent gross values also provided in monthly DMRs, but cannot be compared to permit limits.

(2) Total Residual Chlorine monitoring only required if UV system not operational. Over the permit term, monitoring was only required 4 times and resulted in non-detects.

Numeric receiving water limitations for **temperature** (no more than 3 degrees Celsius), **dissolved oxygen (DO)** (not lower than 6 mg/L or 90% saturation), and **turbidity** (not higher than 50 NTU) were included in the previous permit, but no receiving water data was reported.

C. Siemens Water Technologies Inc.'s Discharge Data

Siemens Water Technologies is a carbon reactivation facility that discharges process wastewater (140,000 GPD) and non-process wastewater (1,000 GPD) to the permittee's treatment system. The facility's process wastewater flow represents about 19 percent of the POTW's flow, thus discharge data from this industrial user is important for the purposes of developing this NPDES permit. Although the POTW is not required to implement a formal pretreatment program, Siemens Water Technologies is subject to the general pretreatment regulations found in 40 CFR Part 403, and also categorical pretreatment standards, specifically the centralized waste treatment point source category in 40 CFR Part 437.

Pursuant to the reporting requirements in 40 CFR § 403.12(e), Siemens Water Technologies provided effluent discharge data for December 2008, which included an analysis of a variety of metals, organics, and oil and grease. Specific effluent limitations for metals and organics applicable to this industrial user are found in Subpart D - *Multiple Wastestreams* of 40 CFR Part 437. All metals analyzed, including cadmium, lead, and mercury, which are parameters limited by the POTW's current permit, were below detection limits for the analysis. Results of the organics, including bis(2-ethylhexyl)phthalate, were also below the detection limits for the analysis. Of the four oil and grease samples, the highest result was 8.5 mg/L, which is below the effluent limits required by Subpart B - *Oils Treatment and Recovery* (40 CFR § 437.21).

Past reports (March 2004, June 2004, June 2005, and June 2006) indicate that measurable concentrations of arsenic were present in the effluent, typically around 0.012 mg/l, but as high as 0.02 mg/l. These concentrations of arsenic are below the effluent limits required by Subpart D – *Multiple Wastestreams* (40 CFR § 437.46(b)). Concentrations of vanadium (0.031 mg/l) and chromium (0.005 mg/l) were also detected in June 2006 and 2005, respectively, and both of these are below the limits required by this Subpart.

It should be noted that Siemens was cited for RCRA violations in 2006 for failure to close containers of hazardous waste, failure to provide adequate secondary containment, and failure to adequately record observations and repairs during facility inspections. The facility has since complied with all of the requirements of the Penalty Order. Due to the facility's history of violations and the potential for the facility to be increasing the concentrations of metals, such as arsenic, at the POTW, the proposed permit includes new pretreatment monitoring and reporting requirements.

V. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

The previous permit contained daily maximum mass-based limits for BOD and TSS. These limits are redundant as the average monthly and weekly effluent limits are more stringent, and therefore more protective of water quality standards. Thus, the daily maximum limits for BOD and TSS have been eliminated from the proposed permit.

Effluent limits for total chlorine residual, beryllium, cadmium, mercury, cyanide and bis (2-ethylhexyl) phthalate that were included in the previous permit have been eliminated in the proposed permit as *no* reasonable potential to exceed water quality standards for these pollutants was found based on 5 years of effluent data. Monitoring as part of the priority pollutants scans is still required.

New limits for arsenic, boron, fluoride, and nitrate/nitrite as N are being proposed as reasonable potential to exceed water quality standards for these pollutants *was* found based on application and priority pollutant scan data. Monitoring for these pollutants will be required monthly. Also, based on WET test data, new limits for chronic whole effluent toxicity have also been proposed with continued semi-annual monitoring.

The WQBELs for lead and selenium have been re-calculated according to the statistical permit limit derivation procedures in Section 5.4 of EPA's TSD in order to provide the most protective WQBELs with regard for the variation in the effluent data. This resulted in WQBELs that are more stringent than the WQBELs required in the previous permit.

Lastly, the proposed permit includes new pretreatment monitoring requirements.

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

The Clean Water Act (CWA) requires point source dischargers to control the amount of pollutants that are discharged to waters of the U.S. The control of pollutants is established through effluent limitations and other requirements in NPDES permits. When determining effluent limitations, EPA must consider limitations based on the technology used to treat the pollutant(s) (i.e., technology-based effluent limits) and limitations that are protective of water quality standards (i.e., water quality-based effluent limits).

A. Applicable Technology-based Effluent Limitations

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 Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), and pH, as defined in 40 CFR 133.102, are:

- BOD: 30 mg/L as a 30-day ("monthly") average, 45 mg/L as a 7-day ("weekly") average, and 85% removal efficiency;
- TSS: 30 mg/L as a 30-day ("monthly") average, 45 mg/L as a 7-day ("weekly") average, and 85% removal efficiency;
- pH: Must range from 6.0 – 9.0 standard units as an instantaneous maximum.

In accordance with 40 CFR 133, technology-based effluent limitations are proposed for BOD, TSS, and pH based on secondary treatment requirements for municipal wastewater

treatment facilities. These requirements are performance-based and represent the degree of effluent reduction achievable using available wastewater treatment technology.

Currently, Colorado River Indian Tribes (CRIT) does not have EPA-approved surface water quality standards. As the discharge may eventually flow into the Colorado River, the discharge must meet those downstream standards established by the State of Arizona. In conjunction with federal requirements, Section R18-11-109 of the 2008 Arizona WQS provides applicable numeric water quality standards. Federal regulation requires that when establishing effluent limitations, the more stringent of the technology and water-quality based limitations applies. Table 3 provides a summary of proposed technology-based effluent limitations for Discharge Point No. 001.

Table 3. Summary of Proposed Technology-Based Effluent Limitations⁽¹⁾

Parameter	Units ¹	Proposed Technology-Based Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day)	mg/L	30	45	--	--	--
	kg/day	136	204	--	--	--
	The 30-day average percent removal shall not be less than 85 percent.					
Total Suspended Solids	mg/L	30	45	--	--	--
	kg/day	136	204	--	--	--
	The 30-day average percent removal shall not be less than 85 percent.					
<i>E. Coli</i>	CFU/100 mL	126	--	--	--	235
Oil and Grease	mg/L	10	15	--	--	--
	kg/day	45.4	68.1	--	--	--
pH	Standard Units	--	--	--	6.5	9.0
Total Chlorine Residual	µg/L	--	--	--	--	--
Total Dissolved Solids	mg/L	Incremental increase not to exceed 400mg/L.			--	--

⁽¹⁾ Mass-based limits derived given a design flow of 1.2 MGD.

- Biochemical Oxygen Demand.** Pursuant to 40 CFR 133.102, effluent limitations are proposed for BOD. Secondary treatment requirements provide that effluent concentrations of BOD shall not exceed 30 mg/L on a 30-day average and not exceed 45 mg/L based on a 7-day average. In addition, the 30-day average percent removal shall not be less than 85 percent. Based on the facility's design flow of 1.2 MGD per day, EPA also proposes a mass-based monthly average effluent limitation of 136 kg/day and a weekly average effluent limitation of 204 kg/day for BOD. A daily maximum mass-based

limit was included in the previous permit (408 kg/day), but it has been dropped in the proposed permit as it is redundant. The monthly and weekly average limits are more stringent and the DMRs show that the facility is capable of achieving those limits.

2. **Total Suspended Solids.** Pursuant to 40 CFR 133.102 and Arizona WQS Section R18-11-109D, effluent limitations are proposed for TSS. Secondary treatment requirements provide that effluent concentrations of TSS shall not exceed 30 mg/L on a 30-day average and 45 mg/L on 7-day average. In addition, the 30-day average percent removal shall not be less than 85 percent. Arizona WQS requires that the median value of suspended sediments of a minimum of four samples collected at least seven days apart shall be 80 mg/L for Aquatic & Wildlife, warm water. Federal regulation requires that when establishing effluent limitations, the more stringent of the technology and water-quality based limitations applies. Therefore, EPA proposes the average monthly effluent limitation of 30 mg/L and an average weekly effluent limitation of 45 mg/L. Based on the facility's design flow of 1.2 MGD per day, EPA also proposes a mass-based monthly average effluent limitation of 136 kg/day and a weekly average effluent limitation of 204 kg/day for TSS. Narrative water quality standards for suspended solids (Arizona WQS R18-11-108C) are also included in the proposed permit. A daily maximum mass-based limit (408 kg/day), was included in the previous permit, but it has been dropped in the proposed permit as it is redundant. The monthly and weekly average limits are more stringent and the DMRs show that the facility is capable of achieving those limits.
3. **E. Coli bacteria.** Section R18-11-109A of the Arizona WQS provides requirements for bacteria for Full Body Contact. Arizona WQS requires that the geometric mean of the E. Coli values for effluent samples collected (a minimum of 4 samples in 30 consecutive days) shall not exceed 126 colony forming units (CFU) per 100 mL of water, and that the single sample maximum shall not exceed 235 cfu/100mL of water. The 2001 permit required a 130 cfu/100mL 30-day geometric mean and a 580 cfu/100mL single sample maximum. The Arizona WQS have since been revised (2008) and the proposed permit has incorporated this change.
4. **pH.** 40 CFR 133.102(c) provides secondary treatment requirements for pH, which state effluent values for pH shall be maintained within the limits of 6.0 and 9.0 standard units. Section R18-11-109B of the Arizona WQS requires that pH be maintained within the limits of 6.5 and 9.0. Federal regulation requires that when establishing effluent limitations, the more stringent of the technology and water-quality based limitations applies. Based on effluent monitoring data, pH values ranged between 6.8 and 7.4 standard units. Therefore, since the facility has been performing at the required level established in the existing permit, EPA proposes to retain the existing pH limitation in the draft permit that the pH level of the effluent shall be not less than 6.5 or greater than 9.0 standard units in the draft permit.
5. **Oil & Grease.** Oil and grease are common components of domestic wastewater. Section R18-11-108B of the Arizona WQS provides narrative standards that state that a surface water shall not contain oil, grease, or other pollutant that floats as debris, foam, or scum; or that causes a film or iridescent appearance on the surface of the water; or that cause a deposit on a shore-line, bank, or aquatic vegetation. The discharge of lubricating oil or gasoline associated with the normal operation of a recreational watercraft is not a

violation of this narrative standard. However, Arizona WQS do not provide a numeric water quality standard for oil and grease. Therefore, EPA proposes effluent limitations for oil and grease based on EPA's Best Professional Judgment (BPJ) related to the development of technology-based effluent limits since (1) there are no applicable effluent limitation guidelines and performance standards for oil and grease, and (2) similar domestic wastewater treatment facilities have shown that an average weekly limit of 15 mg/l and an average monthly limit of 10 mg/l can be easily achieved. Section 402(a)(1) of the CWA provides for the establishment of BPJ-based effluent limits when effluent limitation guidelines and performance standards are not available for a pollutant of concern. As in the 2001 permit, EPA proposes an average weekly limitation of 15 mg/l and an average monthly limitation of 10 mg/L for oil and grease. These limits are consistent with similar facilities that treat domestic wastewater in EPA Region IX. Also, based on a design flow of 1.2 MGD, EPA proposes a mass-based AWL and AML of 45.4 and 68.1 kg/day. In addition to the technology-based effluent limits, the narrative standard (Arizona WQS R18-11-108), is included in the proposed permit. The DMRs have shown that the facility has exceeded the BPJ-based numeric limits on at least one occasion over the last five years.

6. **Settleable Solids.** The minimum levels of effluent quality attainable by secondary treatment for Settleable Solids, as specified in the EPA Region IX Policy memo dated May 14, 1979, are listed as:

- Settleable Solids: 1 mL/L as a 30-day ("monthly") average,
2 mL/L daily maximum,

The 2001 permit did not contain limitations for settleable solids with the justification that "EPA Region 9 believes that settleable solids data do not generally provide information beyond that provided by the total suspended solids data." In addition, the DMR data for October 2000 through October 2001 included settleable solids monitoring, which resulted in no exceedances of the limits specified in the 1979 EPA Region IX Policy memo. Therefore, a limit for settleable solids is not included in the proposed permit.

7. **Total Chlorine Residual.** Chlorination for disinfection is used only as an emergency back-up system when the UV system is not operational. Thus, monitoring and reporting are only required when the chlorination/dechlorination system is operational. The 2008 Arizona WQS require that total chlorine residual concentrations do not exceed 11 µg/L for the protection of aquatic and wildlife warm water fisheries from chronic exposure and do not exceed 19 µg/L for acute exposure. The previous permit contained limits for total chlorine residual; however based on the reasonable potential analysis (see RP table below), which included 4 data points over 5 years, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for total chlorine residual. Therefore, EPA proposes to eliminate the limits imposed in the previous permit. However, monitoring will still be required at times when the chlorination/dechlorination system is being used.
8. **Total Dissolved Solids.** The facility reported both effluent gross values and incremental increase values for TDS. Because of the plant's influent having a high concentration of TDS, an incremental increase limit of 400 mg/L was required in the previous permit, to be calculated as the increase between the TDS levels in the community's water supply

and the levels in the plant effluent. The DMRs show that the facility was unable to meet the previous permit incremental increase limit and that the effluent gross values for TDS exceed water quality standards. This limit is retained in the proposed permit. Section R18-11-110 of the Arizona WQS provides Salinity Standards for the Colorado River. The flow-weighted average annual salinity in the lower main stem of the Colorado River shall not exceed 747 mg/L below Parker Dam. In addition and specifically for municipal dischargers, Appendix A of the 2005 Review, Water Quality Standards for Salinity, Colorado River System requires that the discharge not exceed an incremental increase of 400 mg/L TDS.

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

Currently, Colorado River Indian Tribes (CRIT) does not have EPA-approved surface water quality standards. As the discharge may eventually flow into the Colorado River, the discharge must meet those downstream standards established by the State of Arizona Water Quality Standards found in Title 18, Chapter 11 of the Arizona Administrative Code. **At this time, the proposed 2008 Arizona Water Quality Standards have been partially approved by EPA. For those parts, the proposed permit cites the 2008 standards and**

for those that have not been approved so far, the proposed permit cites the 2003 standards.

The receiving water is not listed as impaired according to the CWA Section 303(d) List of Water Quality Limited Segments. The designated uses are listed above in Section III.

Description of Receiving Water.

Applicable water quality standards establish water quality criteria for the protection of aquatic wildlife from acute and chronic exposure to certain metals that are hardness dependent, with a “cap” of 400 mg/l. Based on available hardness data for the discharge, the permit establishes water quality standards for these metals based on a hardness value of 338.8 mg/L. This value, used in the previous permit, is based on STORET data for the Colorado River Indian Tribe main drainage canal, and is consistent with more recent (2004) values found in STORET for the La Paz area.

2. Dilution in the receiving water

Arizona’s water quality standards require that water quality standards be achieved without mixing zones unless the Permittee applies and is approved for a mixing zone (R18-11-114). Thus, no dilution was applied in determining water quality-based effluent limits in the proposed permit.

3. Type of Industry

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

4. History of compliance problems and toxic impacts

The DMR data shows elevated concentrations of total dissolved solids (TDS), oil and grease, lead and selenium. In addition, the highest maximum daily flow (1.38 MGD), for the month of December 2004, exceeds the design capacity of the treatment system (1.2 MGD). Effluent limits for the above parameters will be included in the proposed permit, excluding flow. Monitoring of flow will still be required. This facility also has a history of oil and grease compliance issues, but in the last five years, only had one exceedance of the BPJ-based permit limits.

The facility continues to have difficulty in complying with the TDS water quality standard, including the incremental increase requirement. As the permittee already has an understanding of the potential source of high TDS in the facility’s influent, **EPA recommends the permittee do outreach in the local community regarding water softener systems in order to decrease this source of high TDS.**

5. Existing data on toxic pollutants

For pollutants with effluent data available, EPA has conducted a reasonable potential analysis based on statistical procedures outlined in EPA's *Technical Support Document for Water Quality-based Toxics Control* herein after referred to as EPA's TSD (EPA 1991). These statistical procedures result in the calculation of the projected maximum effluent concentration based on monitoring data to account for effluent variability and a limited data set. The projected maximum effluent concentrations were estimated assuming a coefficient of variation of 0.6 for $n < 10$, and the 99 percent confidence interval of the 99th percentile based on an assumed lognormal distribution of daily effluent values (sections 3.3.2 and 5.5.2 of EPA's TSD). For $n > 10$, the CV was calculated as the standard deviation/mean for each parameter. EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

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

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

Table 4. Summary of Reasonable Potential Statistical Analysis⁽¹⁾

Parameter	Maximum Observed Concentration (µg/L) or other	n	CV	RP Multiplier	Projected Maximum Effluent Concentration (µg/L) or other	Most Stringent Water Quality Criterion ⁽²⁾ (µg/L) or other	Statistical Reasonable Potential?
E. Coli	440 cfu/100mL	59	1.9	3.0	1320 cfu/100mL	126 cfu/100mL	Yes
Total Dissolved Solids	737 mg/L incremental increase	59	0.3	1.3	958 mg/L incremental increase	747 mg/L	Yes
Total Residual Chlorine	ND ⁽³⁾	4	--	--	--	11	No
Beryllium	ND ⁽³⁾	59	--	--	--	4	No
Cadmium	ND	59	--	--	--	1.31	No
Lead	40	59	1.22	2.3	92	9.23	Yes
Mercury	ND	59	--	--	--	0.01	No
Selenium	3	59	0.22	1.2	3.6	2.0	Yes
Cyanide	ND	59	--	--	--	9.7	No
Bis (2-ethylhexyl) phthalate	ND	11	--	--	--	6	No

Arsenic	4	3	0.6	13.2	22.4	10	Yes
Zinc	50	3	0.6	13.2	280	329.7	No
Barium	30	1	0.6	13.2	396	2,000	No
Boron	660	1	0.6	13.2	8,712	630	Yes
Iron	60	1	0.6	13.2	792	1,000	No
Magnesium	21,300	1	0.6	13.2	281,160	N/A ⁽⁴⁾	--
1-(2-Methoxypropoxy)-2-propanol	69	1	0.6	13.2	910.8	N/A	--
Fluoride	2,100	1	0.6	13.2	27,720	4,000	Yes
Nitrate + Nitrite N	15,000	1	0.6	13.2	198,000	10,000	Yes
Phosphorus, total	2,850	1	0.6	13.2	37,620	N/A	--
Sulfate	321,000	1	0.6	13.2	4,237,200	N/A	--
TKN	5,110	1	0.6	13.2	67,452	N/A	--
Whole Effluent Toxicity, chronic	1.0 TU _C	1	0.6	13.2	13.2 TU _C	1.0 TU _C	Yes

⁽¹⁾Parameters considered for RP analysis were parameters found in the previous permit, application for permit renewal, and the 2006 priority pollutant scan.

⁽²⁾Water Quality Standards are based on 2003 AWQS unless specific pollutant is part of proposed 2008 standards that have been so far approved by EPA.

⁽³⁾Non-Detects are considered zeroes for the purposes of the RP analysis.

⁽⁴⁾No water quality-based effluent limit or standard available for the RP analysis.

C. Rationale for Effluent Limits - Reasonable Potential Analysis

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 violations of water quality standards, EPA may establish monitoring requirements in the permit. Where monitoring is required, data will be re-evaluated and the permit may be re-opened to incorporate effluent limitations as necessary.

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

Beryllium. The previous permit contained limits for beryllium; however based on the reasonable potential analysis, which included 59 data points over 5 years, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for beryllium. In addition, the method detection limit (MDL) is low enough at

2µg/L (smaller than the most stringent water quality standard at 4µg/L for Domestic Water Supply designated use) to adequately detect exceedances. Therefore, EPA proposes to eliminate the limits imposed in the previous permit. Monitoring for beryllium is still required as part of the twice yearly priority pollutant scans.

Cadmium. The previous permit contained limits for cadmium; however based on the reasonable potential analysis, which included 59 data points over 5 years, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for cadmium. One thing to consider, though, is that the method detection limit (MDL) is *not* low enough at 2µg/L (which is larger than the most stringent WQS at 1.31µg/L for Aquatic and wildlife, warmwater, chronic designated use) to adequately detect exceedances. This WQS is based on a hardness of 339mg/L. Therefore, EPA proposes to eliminate the limits imposed in the previous permit, but monitoring is still required as part of the twice yearly priority pollutant scans. The EPA recommends the permittee search for a way to increase the sensitivity of the MDL for this parameter to below the most stringent WQS.

Lead. Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance for lead. Therefore, the proposed permit contains effluent limits for lead based on chronic and acute WQS for the protection of the Aquatic and wildlife, warmwater designated use with a hardness value of 339mg/L. The WQBEL calculations are shown in the following table, resulting in a maximum daily limit (MDL) of 27.83 µg/L and an average monthly limit (AML) of 10.29 µg/L. A coefficient of variation of 1.2 (based on the standard deviation divided by the mean of the lead effluent data) was used to determine each multiplier. Monitoring is required monthly.

Table 5. WQBEL Calculations for Lead.

	Acute	Chronic ¹
Freshwater Aquatic Life Criteria, µg/L	236.82	9.23
No Dilution Credit Authorized	0	0
Background Concentration, µg/L	0	0
WLA (Dissolved), µg/L	236.82	9.23
WLA (Total Recoverable) ² , µg/L	386.26	15.05
WLA Multiplier (99 th %)	0.174	0.321
LTA, µg/L	67.21	4.83
LTA _{MDL} Multiplier (99 th %)	--	5.76
MDL, µg/L	--	27.83
MDL, kg/day	--	0.13
LTA _{AML} Multiplier (95 th %) ³	--	2.13
AML, µg/L	--	10.29
AML, kg/day	--	0.05

¹Derivation of permit limit based on Section 5.4.1 of EPA's TSD

²Conversion factor for dissolved to total recoverable found in Appendix A of the National Recommended Water Quality Criteria.

³LTA multiplier based on sampling frequency of four times per month per section 5.5.3 of EPA's TSD

Mercury. The previous permit contained limits for mercury; however based on the reasonable potential analysis, which included 59 data points over 5 years, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for mercury. One thing to consider, though, is that the method detection limit (MDL) is not low enough at 0.5µg/L (which is larger than the most stringent WQS at 0.01µg/L for Aquatic and wildlife, warmwater, chronic designated use) to adequately detect exceedances. Therefore, EPA proposes to eliminate the limits imposed in the previous permit, but monitoring is still required as part of the twice yearly priority pollutant scans. The EPA recommends the permittee search for a way to increase the sensitivity of the MDL for this parameter to below the most stringent WQS.

Selenium. Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance for selenium. Therefore, the proposed permit contains effluent limits for selenium based on chronic and acute WQS for the protection of the Aquatic and wildlife, warmwater designated use. The WQBEL calculations are shown in the following table, resulting in a maximum daily limit (MDL) of 2.47 µg/L and an average monthly limit (AML) of 1.86 µg/L. A coefficient of variation of 0.2 (based on the standard deviation divided by the mean of the selenium effluent data) was used to determine each multiplier. Monitoring is required monthly.

Table 6. WQBEL Calculations for Selenium.

	Acute	Chronic ¹
Freshwater Aquatic Life Criteria, µg/L	20	2.0
No Dilution Credit Authorized	0	0
Background Concentration, µg/L	0	0
WLA (Dissolved), µg/L	n/a	n/a
WLA (Total Recoverable) ² , µg/L	20	2.0
WLA Multiplier (99 th %)	0.643	0.797
LTA, µg/L	12.86	1.59
LTA _{MDL} Multiplier (99 th %)	--	1.55
MDL, µg/L	--	2.47
MDL, kg/day	--	0.011
LTA _{AML} Multiplier (95 th %) ³	--	1.17
AML, µg/L	--	1.86
AML, kg/day	--	0.0084

¹Derivation of permit limit based on Section 5.4.1 of EPA's TSD

²Conversion factor for dissolved to total recoverable found in Appendix A of the National Recommended Water Quality Criteria.

³LTA multiplier based on sampling frequency of four times per month per section 5.5.3 of EPA's TSD

Cyanide. The previous permit contained limits for cyanide; however based on the reasonable potential analysis, which included 59 data points over 5 years, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for cyanide. One thing to consider, though, is that the method detection limit (MDL) is not low enough at 10µg/L (which is larger than the most stringent WQS at 9.7µg/L for Aquatic and wildlife, warmwater, chronic designated use) to adequately detect exceedances. Therefore, EPA proposes to eliminate the limits imposed in the previous permit, but monitoring is still

required as part of the twice yearly priority pollutant scans. The EPA recommends the permittee search for a way to increase the sensitivity of the MDL for this parameter to below the most stringent WQS.

Bis(2-ethylhexyl)phthalate [a.k.a Di(2-ethylhexyl phthalate)]. The previous permit contained limits for bis(2-ethylhexyl)phthalate; however based on the reasonable potential analysis, which included 11 data points over 5 years, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for bis(2-ethylhexyl)phthalate. One thing to consider, though, is that the method detection limit (MDL) is not low enough at 10µg/L (which is larger than the most stringent WQS at 6µg/L for Domestic Water Supply designated use) to adequately detect exceedances. Therefore, EPA proposes to eliminate the limits imposed in the previous permit, but monitoring is still required as part of the twice yearly priority pollutant scans. The EPA recommends the permittee search for a way to increase the sensitivity of the MDL for this parameter to below the most stringent WQS.

Arsenic. Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance for arsenic. Therefore, the proposed permit contains effluent limits for arsenic based on the human health WQS for the Domestic Water Supply designated use. The WQBEL calculations are shown in the following table, resulting in a maximum daily limit (MDL) of 20.10 µg/L and an average monthly limit (AML) of 10 µg/L. A coefficient of variation of 0.6 was used to determine each multiplier. Monitoring is required monthly.

Table 7. WQBEL Calculations for Arsenic.

	Acute	Chronic	Human Health ¹
Freshwater Aquatic Life Criteria, µg/L	340	150	10
No Dilution Credit Authorized	0	0	0
Background Concentration, µg/L	0	0	0
WLA (Dissolved), µg/L	340	150	n/a
WLA (Total Recoverable) ² , µg/L	340	150	10
WLA Multiplier (99 th %)	0.321	0.527	n/a
LTA, µg/L	109.14	79.05	10
LTA _{MDL} Multiplier (99 th %)	--	--	2.01
MDL, µg/L	--	--	20.10
MDL, kg/day	--	--	0.091
LTA _{AML} Multiplier (95 th %) ³	--	--	n/a
AML, µg/L	--	--	10
AML, kg/day	--	--	0.045

¹Derivation of permit limit based on Section 5.4.4 of EPA's TSD

²Conversion factor for dissolved to total recoverable found in Appendix A of the National Recommended Water Quality Criteria.

³LTA multiplier based on sampling frequency of four times per month per section 5.5.3 of EPA's TSD

Boron. Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance for boron. Therefore, the proposed permit contains effluent limits for boron based on the human health WQS for the Domestic Water Supply designated use. The WQBEL calculations are shown in the following table, resulting in a maximum daily limit (MDL) of 1270 µg/L and an average monthly limit (AML) of 630 µg/L. A coefficient of variation of 0.6 was used to determine each multiplier. Monitoring is required monthly.

Table 8. WQBEL Calculations for Boron.

	Human Health ¹
Freshwater Aquatic Life Criteria, µg/L	630
No Dilution Credit Authorized	0
Background Concentration, µg/L	0
WLA (Dissolved), µg/L	n/a
WLA (Total Recoverable), µg/L	630
WLA Multiplier (99 th %)	n/a
LTA, µg/L	630
LTA _{MDL} Multiplier (99 th %)	2.01
MDL, µg/L	1270
MDL, kg/day	5.77
LTA _{AML} Multiplier (95 th %)	n/a
AML, µg/L	630
AML, kg/day	2.86

¹Derivation of permit limit based on Section 5.4.4 of EPA's TSD

Fluoride. Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance for fluoride. Therefore, the proposed permit contains effluent limits for fluoride based on the human health WQS for the Domestic Water Supply designated use. The WQBEL calculations are shown in the following table, resulting in a maximum daily limit (MDL) of 8,040 µg/L and an average monthly limit (AML) of 4,000 µg/L. A coefficient of variation of 0.6 was used to determine each multiplier. Monitoring is required monthly.

Table 9. WQBEL Calculations for Fluoride.

	Human Health ¹
Freshwater Aquatic Life Criteria, µg/L	4,000
No Dilution Credit Authorized	0
Background Concentration, µg/L	0
WLA (Dissolved), µg/L	n/a
WLA (Total Recoverable), µg/L	4,000
WLA Multiplier (99 th %)	n/a
LTA, µg/L	4,000
LTA _{MDL} Multiplier (99 th %)	2.01
MDL, µg/L	8,040
MDL, kg/day	36.52

LTA _{AML} Multiplier (95 th %)	n/a
AML, µg/L	4,000
AML, kg/day	18.17

¹Derivation of permit limit based on Section 5.4.4 of EPA's TSD

Nitrate + Nitrite as N. Based on the reasonable potential analysis, EPA has determined that the discharge has a reasonable potential to cause or contribute to an exceedance for nitrate + nitrite as N. Therefore, the proposed permit contains effluent limits for nitrate + nitrite as N based on the WQS for the Domestic Water Supply designated use. The QBEL calculations are shown in the following table, resulting in a maximum daily limit (MDL) of 20,100 µg/L and an average monthly limit (AML) of 10,000 µg/L. A coefficient of variation of 0.6 was used to determine each multiplier. Monitoring is required monthly.

Table 10. QBEL Calculations for Nitrate + Nitrite as N.

	Human Health ¹
Freshwater Aquatic Life Criteria, µg/L	10,000
No Dilution Credit Authorized	0
Background Concentration, µg/L	0
WLA (Dissolved), µg/L	n/a
WLA (Total Recoverable), µg/L	10,000
WLA Multiplier (99 th %)	n/a
LTA, µg/L	10,000
LTA _{MDL} Multiplier (99 th %)	2.01
MDL, µg/L	20,100
MDL, kg/day	91.29
LTA _{AML} Multiplier (95 th %)	n/a
AML, µg/L	10,000
AML, kg/day	45.42

¹Derivation of permit limit based on Section 5.4.4 of EPA's TSD

Zinc, barium, and iron. Based on the reasonable potential analysis, EPA has determined that the discharge does not have reasonable potential to cause or contribute to an exceedance for zinc, barium, or iron.

Whole Effluent Toxicity (Chronic). Section R18-11-108 of the Arizona WQS provides narrative toxicity requirements that limit the adverse effects of toxic substances in effluents. The existing permit requires semi-annual chronic whole effluent toxicity testing using cladoceran (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promela*). Although the laboratory results from the July 2006 tests indicates a “pass” with results of 1.0 TUC for each species, EPA has determined that the effluent has reasonable potential to exceed water quality criteria and proposes semi-annual chronic toxicity monitoring with numeric chronic whole effluent toxicity limitations. For this discharge, the chronic WET permit limits are 1.6 TU_c (MDL: the highest allowable value for the discharge measured during a calendar day or 24-hour period representing a calendar day), and 1.0 TU_c (Median Monthly Limit or MML: highest allowable value for the median of daily discharges obtained over a calendar month). Monitoring is required semi-annually.

Special Note: The MDL exceeds the most stringent WQS for a few of the other toxics tested in the 2006 priority pollutant scan, including pesticides (such as chlordane and aldrin) and acid & base/ neutrals (such as benzo(a)pyrene). Although these were non-detects, EPA recommends the permittee search for a way to increase the sensitivity of the MDL for these parameters to below the most stringent WQS.

Table 11. Summary Table of Proposed Effluent Limitations and Monitoring Requirements.

Parameter	Units	Existing Permit Effluent Limits			Proposed Permit Effluent Limits			Monitoring Frequency	Sample Type
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily		
Flow	MGD	N/A	N/A	N/A	N/A	N/A	N/A	Continuous	N/A
Biochemical Oxygen Demand (5-day)	mg/L	30	45	Monitoring Only	30	45	Monitoring Only	Two/Month	24-hr Composite
	kg/day	136	204	408	136	204	Monitoring Only		
	% Removal	Both the influent and the effluent shall be monitored. The arithmetic mean of the BOD values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period (85 percent BOD removal).							
Total Suspended Solids	mg/L	30	45	Monitoring Only	30	45	Monitoring Only	Two/Month	24-hr Composite
	kg/day	136	204	408	136	204	Monitoring Only		
	% Removal	Both the influent and the effluent shall be monitored. The arithmetic mean of the TSS values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period (85 percent TSS removal).							
E. Coli	CFU/100 mL	130	--	580	126	--	235	Weekly	Discrete
Oil & Grease	mg/L	10	15	--	10	15	--	Monthly	Discrete
	kg/day	45.4	68.1	--	45.4	68.1	--		
pH	Standard Units	Not < 6.5 SU, Not > 9.0 SU			Not < 6.5 SU, Not > 9.0 SU			Weekly	Discrete
Total Dissolved Solids ¹	mg/L	Incremental increase not to exceed 400mg/L.			Incremental increase not to exceed 400mg/L.			Two/Month	Discrete
Total Residual Chlorine	µg/L	5	--	11	--	--	--	Once/Day	Discrete
Beryllium	kg/day	0.95	--	18	--	--	--	Two/Year as part of Priority Pollutant Scans	
	µg/L	0.21	--	4	--	--	--		
Cadmium	kg/day	14	--	318	--	--	--	Two/Year as part of	

	µg/L	3.0	--	70	--	--	--		
Lead	kg/day	68	--	1753	0.05	--	0.13	Monthly	Composite
	µg/L	15	--	386	10.29	--	27.83		
Mercury	kg/day	0.045	--	11	--	--	--	Two/Year as part of Priority Pollutant Scans	
	µg/L	0.01	--	2.4	--	--	--		
Selenium	kg/day	9.1	--	91	0.0084	--	0.011	Monthly	Composite
	µg/L	2.0	--	20	1.86	--	2.47		
Cyanide	kg/day	44	--	186	--	--	--	Two/Year as part of Priority Pollutant Scans	
	µg/L	9.7	--	41	--	--	--		
Bis(2-ethylhexyl)phthalate	kg/day	27	--	454	--	--	--	Two/Year as part of Priority Pollutant Scans	
	µg/L	6	--	100	--	--	--		
Arsenic	kg/day	--	--	--	0.045	--	0.091	Monthly	Composite
	µg/L	--	--	--	10	--	20.10		
Boron	kg/day	--	--	--	2.86	--	5.77	Monthly	Composite
	µg/L	--	--	--	630	--	1270		
Fluoride	kg/day	--	--	--	18.17	--	36.52	Monthly	Composite
	µg/L	--	--	--	4,000	--	8,040		
Nitrate + Nitrite as N	kg/day	--	--	--	45.42	--	91.29	Monthly	Composite
	µg/L	--	--	--	10,000	--	20,100		
Whole Effluent Toxicity, chronic	TU _C	Monitoring Only			1.0*	--	1.6	Two/Year	Composite

¹Both incremental increase and total effluent TDS values shall be reported.

*Monthly **median**.

D. Anti-Backsliding

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit that contains effluent limits less stringent than those established in the previous permit, except as provided in the statute. The effluent limitations in the proposed permit are at least as stringent as the effluent limitations in the previous permit, with the exception of the following parameters.

Although the previous permit included WQBELs for total chlorine residual, beryllium, cadmium, mercury, cyanide and bis (2-ethylhexyl) phthalate, the proposed permit only includes WQBELs for those parameters found to cause, have the reasonable potential to cause, or contribute to an excursion above water quality standards, in accordance with 40 CFR 122.44(d) and RPA procedures in EPA's TSD. Five years of monthly effluent data has shown that the above-mentioned parameters do not have the reasonable potential to cause exceedances of water quality standards. For parameters without WQBELs, this permit includes continued monitoring requirements. The removal of WQBELs is not expected to cause a change in the chemical nature of the effluent discharge, impact designated uses, or lower existing receiving water quality.

The previous permit also contained daily maximum mass-based limits for BOD and TSS. These limits are redundant as the average monthly and weekly effluent limits are more stringent, and therefore more protective of water quality standards. Thus, the daily maximum limits for BOD and TSS have been eliminated from the proposed permit.

E. Antidegradation Policy

EPA's antidegradation policy at 40 CFR 131.12 and Section R18-11-107 of the 2008 Arizona Water Quality Standards require that existing water uses and the level of water quality necessary to protect the existing uses be maintained.

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 these limits will apply at the end of pipe without consideration of dilution in the receiving water. A priority pollutant scan has been conducted of the effluent, demonstrating that most pollutants will be discharged below detection levels. Furthermore, the waterbody is not listed as an impaired waterbody for total suspended solids, turbidity or oil and grease under section 303(d) of the CWA.

Therefore, due to the low levels of toxic pollutants present in the effluent, high level of treatment being obtained, and water quality based effluent limitations, it is not expected that the discharge will adversely affect receiving water bodies.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

Section R18-11-108 of the 2008 Arizona WQS contains narrative water quality standards applicable to the receiving water. Therefore, the permit incorporates the following applicable narrative water quality standards:

- A. The discharge shall be free from pollutants in amounts or combinations that:
 - 1. Settle to form bottom deposits that inhibit or prohibit the habitation, growth, or propagation of aquatic life;
 - 2. Cause objectionable odor in the area in which the surface water is located;
 - 3. Cause off-taste or odor in drinking water;
 - 4. Cause off-flavor in aquatic organisms;
 - 5. Are toxic to humans, animals, plants, or other organisms;
 - 6. Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses;
 - 7. Cause or contribute to a violation of an aquifer water quality standard prescribed in R18-11-405 or R18-11-406; or
 - 8. Change the color of the surface water from natural background levels of color.
- B. The discharge shall be free from oil, grease or other pollutant that floats as debris, foam, or scum; or that causes a film or iridescent appearance on the surface of the water; or that cause a deposit on a shoreline, bank, or aquatic vegetation. The discharge of lubricating oil or gasoline associated with the normal operation of a recreational watercraft is not a violation of this narrative standard.
- C. The discharge shall be free from suspended solids in quantities or concentrations that interfere with the treatment processes at the nearest downstream potable water treatment plant or substantially increase the cost of handling solids produced at the nearest downstream potable water treatment plant.
- D. The discharge shall be free from refuse, rubbish, demolition or construction debris, trash, garbage, motor vehicles, appliances, tires, or other solid waste into a surface water or onto its banks.
- E. The discharge shall not cause degradation so that a wadeable, perennial stream cannot support and maintain a community of organisms having taxa richness, species composition, tolerance, and functional organization comparable to that of a reference stream in Arizona.
- F. In addition, the discharge shall not:
 - a) raise the natural ambient water **temperature** of the receiving water more than three (3) degrees Celsius;
 - b) cause the **turbidity** of the receiving water to exceed 50 nephelometric turbidity units; or
 - c) lower the **dissolved oxygen** concentration of the receiving water to less than six (6) mg/L or 90% saturation, whichever is less.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally,

where effluent concentrations of toxic parameters are unknown or where data is insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Influent Monitoring and Reporting

The permittee shall conduct influent monitoring of BOD and TSS 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 draft permit. All influent monitoring data shall be reported on monthly DMR forms and submitted quarterly to EPA, as specified in the draft permit.

B. Effluent Monitoring and Reporting

The permittee shall conduct effluent monitoring as specified in the proposed permit 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.

C. Priority Toxic Pollutants Scan

The proposed permit retains the existing requirement that monitoring for Priority Pollutants be conducted **twice-yearly** in July and January using a 24-hour composite sample (use grab samples where appropriate) of the final effluent concurrent with Whole Effluent Toxicity testing. The permittee shall perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR 136, unless otherwise specified in the proposed permit or by EPA. 40 CFR 131.36 provides a complete list of Priority Toxic Pollutants.

D. Whole Effluent Toxicity Testing

The previous permit contained a requirement for chronic whole effluent toxicity testing for both cladoceran, *Ceriodaphnia dubia* and the fathead minnow, *Pimephales promela*. From results of the facility's July 2006 tests, EPA has determined that there is reasonable potential for the effluent to exceed water quality standards. Therefore, new permit limits (1.0 TU_C monthly median, and 1.6 TU_C daily maximum) have been included in the proposed permit. In addition, the monitoring requirements have been updated to reflect the most recent WET monitoring requirements. These include a screen test, using three species, (the above-mentioned and an algal species), and from then on, testing with only the most sensitive species. Chronic WET testing shall be conducted semi-annually, in January and July, using a 24-hour composite sample (use grab samples where appropriate) of the final effluent

concurrent with a Priority Pollutants scan. Additional requirements are included in the proposed permit.

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.

B. Pretreatment

The permittee is not required to have a formal pretreatment program; however, one of the industrial users that discharges process wastewater to the POTW has a history of violations and may be contributing to the concentration of metals, such as arsenic, in the POTW's effluent. Therefore, quarterly monitoring of the industrial user's effluent, to determine compliance with categorical pretreatment standards, and annual inspections and reporting are required in the proposed permit.

C. Development of an Initial Investigation TRE Workplan for Whole Effluent Toxicity

In the event effluent toxicity is triggered from WET test results, the permit requires the permittee to develop and implement a Toxics Reduction Evaluation ("TRE") Workplan. For acute toxicity, unacceptable effluent toxicity is found when "Fail" is determined, as indicated by a statistically significant difference between a test sample of 100 percent effluent and a control using a t-test. For chronic toxicity, unacceptable effluent toxicity is found in a single test result greater than 1.6 TU_c, or when any one or more monthly test results in a calculated median value greater than 1.0 TU_c. The draft permit also requires additional toxicity testing if a chronic toxicity monitoring trigger is exceeded. Within 90 days of the permit effective date, the permittee shall prepare and submit a copy of their Initial Investigation TRE Workplan (1-2 pages) for acute and chronic toxicity to EPA for review.

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Impact to Threatened and Endangered Species

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

EPA sent a letter to the US Fish and Wildlife Service (USFWS) on April 9, 2008 to request updated species information. EPA did not receive a response; however EPA found updated species information on USFWS's website. EPA prepared a biological evaluation of the listed species that may be potentially affected by the discharge. This biological evaluation

will be sent to the USFWS for review. In addition, a copy of the proposed permit and fact sheet will be sent to the USFWS for review during the public comment period.

From the USFWS Southwest Region’s Threatened and Endangered Species Online Database, EPA found there are currently 7 Federally-listed endangered (E) species and 1 Federally-listed threatened (T) species in La Paz and Yuma Counties.

Table 12. ESA Species List for La Paz and Yuma Counties, Arizona

Status	Species (Common Name/ <i>Scientific Name</i>)
E	Bonytail chub/ <i>Gila elegans</i>
E	Razorback sucker/ <i>Xyrauchen texanus</i>
E	Southwestern willow flycatcher/ <i>Empidonax traillii extimus</i>
E	Yuma clapper rail/ <i>Rallus longirostris yumanensis</i>
E	Lesser long-nosed bat/ <i>Leptonycteris curasoae yerbabuenae</i>
E	Sonoran pronghorn/ <i>Antilocapra Americana sonoriensis</i>
T	Bald eagle/ <i>Haliaeetus leucocephalus</i>

EPA’s biological evaluation for these eight species found that the discharge “may affect, but is not likely to adversely affect” the bonytail chub, razorback sucker, and Yuma clapper rail and will have “no effect” on the southwestern willow flycatcher, lesser long-nosed bat, sonoran pronghorn, and bald eagle.

B. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this 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 issuance.

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

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, 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.

XIII. CONTACT INFORMATION

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

U.S. Environmental Protection Agency, Region IX
NPDES Permits Office (WTR-5)
75 Hawthorne Street
San Francisco, California 94105
ATTN: Elizabeth Sablad
sablاد.elizabeth@epa.gov

XIV. REFERENCES

EPA. 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.

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

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EPA. 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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