

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT
FACT SHEET
August 2023**

Permittee Name: Navajo Tribal Utility Authority (“NTUA”)
and Address: P.O. Box 170
Fort Defiance, AZ 86504

NPDES Permit No.: NN0020621

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Facility Location: NTUA Shiprock Wastewater Treatment Facility
1 mile northwest of junction of US 64 and US 491
San Juan County, New Mexico 87420

I. STATUS OF PERMIT

NTUA (the “permittee”) applied for the renewal of its National Pollutant Discharge Elimination System (“NPDES”) permit to authorize the discharge of treated effluent from the Shiprock wastewater treatment plant (“WWTP”) in Shiprock, San Juan County, New Mexico, within the northern portion of the Navajo Nation. The WWTP is owned and operated by the NTUA. The permittee applied for a permit renewal on September 1, 2022.

The Navajo Nation is a federally recognized Indian tribe. As the Navajo Nation EPA (“NNEPA”) does not have primary regulatory responsibility for administering the NPDES permitting program, U.S. EPA Region 9 (“EPA”) has prepared the NPDES permit renewal and fact sheet pursuant to Section 402 of the Clean Water Act (“CWA”), which requires point source dischargers to control the amounts of pollutants that are discharged to waters of the United States. The permit incorporates both federal standards and applicable tribal water quality requirements.

The permittee is currently covered under NPDES Permit No. NN0020621, which became effective on March 1, 2018, through midnight February 28, 2023. The September 2022 application was deemed complete during the same month, and EPA issued an administrative continuance on January 18, 2023. Pursuant to 40 CFR § 122.6, the terms of the existing permit are administratively extended until the issuance of a new permit. This fact sheet is based on information provided by the discharger through its permit application, effluent discharge data, along with the applicable laws and regulations.

Pursuant to Section 402 of the CWA, the EPA is proposing issuance of the NPDES permit renewal to the permittee for the discharge of treated domestic wastewater to the San Juan River, a tributary to the Colorado River, waters of the United States.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Table 1. Significant Changes to Previous Permit

Permit Condition	Previous Permit (2018 – 2023)	Re-issued permit (2023-2028)	Reason for change
Arsenic, Copper, Nickel, Selenium, and Zinc monitoring and effluent limits	Monitoring required as part of priority pollutant scan.	Add effluent limits and annual monitoring requirements for these metals.	Reasonable potential to exceed WQS.
<i>E. coli</i> geometric mean calculation	3 samples per month	4 samples per month	To reflect NNEPA's requirement of geometric mean calculation using a minimum of four samples per month.
Chronic Whole Effluent Toxicity (WET) testing requirements and triggers	Results reported in Chronic Toxicity Units (TUc); Triggers of any one test result greater than 1.6 TUc or any calculated monthly median value greater than 1.0 TUc.	Add limits and report results in Pass "0" or Fail "1" of the Test of Significant Toxicity ("TST") null hypothesis (H ₀) and the percent effect.	Testing requirements in accordance with the TST statistical approach (EPA 2010a); Limits for established toxicity due to established toxicity.
Hardness (as CaCO ₃) monitoring	No effluent monitoring requirements.	Add quarterly monitoring requirement for hardness	To calculate hardness-dependent metals criteria and once per year to performed concurrently with metals monitoring.
Priority Pollutant Scan	Monitor once in the 5-year permit term.	Monitoring frequency is increased to annually.	To collect sufficient data to improve the analysis of reasonable potential.
BOD ₅ and TSS effluent mass limits	Report mass limits in kg/day.	Report mass limits in lbs/day.	To be consistent with recent EPA Region 9 permits.
Best Management Practices ("BMPs")	None	Incorporate standard BMPs language for small utilities.	Provision of 40 CFR § 122.44(k)(4)
Sanitary Sewer Overflow ("SSO")	None	Incorporate standard SSO language for utilities.	To be consistent with EPA Region 9 policy and recent permits.
WWTP Definition	None	Expand facility definition.	Clarifies that the facility includes the collection system.
DMR submittal	Hardcopy accepted for a portion of the permit period.	E-reporting (NetDMR) required	EPA e-reporting Rule
Biosolids report	Hardcopy accepted for a portion of the permit period.	E-reporting (NetDMR) required	EPA e-reporting Rule

III. GENERAL DESCRIPTION OF FACILITY

The NTUA Shiprock WWTP is located approximately one mile northwest of the junction of US 64 and US 491 in San Juan County, New Mexico, within the northwestern portion of the Navajo Nation. The facility, a publicly owned treatment works (“POTW”) and separate sanitary sewer, has a design flow capacity of 1.0 million gallons per day (“MGD”) and is considered a major discharger. The facility serves a population of approximately 8,295, receiving domestic sewage and flow from other sources that include an Indian Health Services hospital, dental offices, car washes, restaurants, a college, schools, and maintenance yards. Based on information from the 2022 permit application, the annual average flow rates were 0.48 MGD in 2020, 0.49 MGD in 2021 and 0.46 MGD in 2022. And the maximum daily flow rates were 0.69 MGD in 2020, 0.69 MGD in 2021, and 0.58 MGD in 2022. The design flow capacity basis of 1.0 MGD was used in determining the mass-based limits in this permit.

Permit Attachment B provides two figures: one is a satellite view of the facility and another illustrates the treatment processes. Treatment at the entrance includes a mechanical bar screen/comminutor, a grit chamber, and a Parshall flume with a flow meter at the influent and effluent stations of the plant. Treatment includes primary clarification, trickling filtration, secondary sedimentation, and disinfection. Primary clarification is achieved when wastewater flows by gravity to the primary clarifier where solids are separated and pumped to a digester and the liquid portion flows to a wet well. Secondary treatment is provided with wastewater flowing to a splitter box that directs to either of two (2) trickling filters then to a collection box before entering the aeration basin and secondary clarifier. The trickling filters are each equipped with a center column and distribution arms. The activated sludge is redirected back to the aeration basin. The top is skimmed and the sludge is pumped to the second (old) clarifier where it is then sent to the wet well and back to the trickling filter. The digester system consists of two anaerobic digesters with floating covers, mixing units, and a heating system. Once digested, the remaining material is placed into six sludge drying beds prior to disposal at a landfill when enough accumulates.

Disinfection is accomplished with ultraviolet (“UV”) lamps that produce radiation to destroy bacteria, viruses and other microorganisms within the wastewater. In the event that the UV system is inoperable, chlorination along with dechlorination will be employed as a backup disinfection system. During major maintenance events or when no discharge is required, a backup holding pond is used to store wastewater which can be pumped back to the headworks. After UV treatment, the liquid flows through a Parshall flume with a flow meter where effluent is sampled with an auto-sampler.

IV. DESCRIPTION OF RECEIVING WATER

Final treated effluent is discharged via a submerged sewer line from Outfall No. 001 into the San Juan River, which is a tributary to the Colorado River, all waters of the United States. The coordinates for discharge Outfall No. 1 are Latitude 36° 47’ 15.5” North and Longitude 108° 42’ 44.1” West.

V. DESCRIPTION OF DISCHARGE

The NTUA Shiprock WWTP discharges continuously from a single Outfall 001. Discharge flow rates range from 0.48 MGD to 0.62 MGD. The facility has achieved over 94% removal efficiencies in BOD₅ and TSS. BOD₅ effluent concentrations typically range about 2.4 mg/L to 8.5 mg/L while TSS effluent concentrations range from 2.2 mg/L to 34.9 mg/L. These values are below the permit effluent limitations. The effluent was found to be clear and free of objectionable odor during a September 2022 inspection conducted by the NNEPA. USEPA previously inspected the Shiprock collection system on June 14, 2021. More detailed discussions of the inspection findings are followed in Section VI.B.4.

A. Application Discharge Data

As part of the application for permit renewal, the permittee is required to provide data from an analysis of the facility’s treated wastewater discharge.

Table 2. Application Discharge Data Reported in Form 2A

Pollutant Parameter	Units	Discharge Data		Number of Samples
		Maximum Daily Discharge	Average Daily Discharge	
Flow	MGD	1.52	1.10	49
Biochemical oxygen demand, 5-day (BOD ₅)	mg/L	8.2	6.82	144
pH	S.U.	7.12 to 8.66		n/a
Temperature	°C	4 to 22		49
<i>E. Coli</i>	CFU/100mL	897.7	238.6	144
Total Suspended Solids (TSS)	mg/L	34.9	13.9	144
Ammonia (as N)	mg/L	3.14	0.978	52
Chlorine, total residual (TRC)	µg/l	n/a	n/a	0
Total Dissolved Solids (TDS)	mg/L	932	874	52
Dissolved Oxygen	mg/L	8.2	6.3	12
Hardness (as CaCO ₃)	mg/L	n/a	n/a	n/a
Antimony, total recoverable	µg/l	0.8	n/a	1
Arsenic, total recoverable	µg/L	11	n/a	1
Cadmium, total recoverable	µg/L	0.1	n/a	1
Copper, total recoverable	µg/L	100*	n/a	1
Lead, total recoverable	µg/L	1*	n/a	1
Nickel, total recoverable	µg/L	200	n/a	1
Selenium, total recoverable	µg/L	2	n/a	1
Silver, total recoverable	µg/L	0.1	n/a	1
Zinc, total recoverable	µg/L	410	n/a	1

*From the permittee’s NPDES permit application, priority toxic pollutant scan, discharge monitoring reports and/or supplemental information

B. Recent Discharge Monitoring Report Data (2018-2022)

Table 3 shows data related to effluent discharged from Outfall 001 based on permittee’s discharge monitoring reports (“DMRs”) from March 2018 to September 2022. More information is available on Enforcement and Compliance History Online (“ECHO”) at <https://echo.epa.gov/detailed-facility-report?fid=NN0020621>. Pollutants believed to be absent or

never detected in the effluent are not included in Table 3. The data showed elevated concentrations of *E. coli*, AIR, and WET above the permit limits.

**Table 3. Effluent Data for Outfall 001 from March 2018-September 2022
 Based on 1.0 MGD design flow**

Parameters	Units	Permit Effluent Limitations			Effluent Data (and Dates)			Monitoring Frequency
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly	Highest Average Weekly	Highest Maximum Daily	
Flow Rate	MGD	-- ⁽¹⁾	--	-- ⁽¹⁾	0.43 (09/2018, 10/2018)	--	1.52 (09/2018)	Continuous
Ammonia (as N)	mg/L	-- ⁽¹⁾	--	-- ⁽¹⁾	2.97 (02/2019)	--	3.14 (02/2019)	Monthly
Ammonia Impact Ratio (AIR)	Ratio	1.0 ⁽²⁾	--	1.0 ⁽²⁾	1.08 (02/2019)	--	1.08 (02/2019)	Monthly
Biochemical Oxygen Demand 5-day (BOD ₅)	mg/L	30	45	--	7.2 (10/2020)	8.5 (08/2022)	--	3/Month
	kg/day	144 ⁽³⁾	170 ⁽³⁾	--	9.7 (08/2020)	30.9 (01/2019)	--	
	% Removal	>85 % minimum ⁽⁴⁾			lowest = 97.7 % (07/2020, 08/2020)			
Total Suspended Solids (TSS)	mg/L	30	45	--	16.1 (11/2020)	34.9 (05/2020)	--	3/Month
	kg/day	144 ⁽³⁾	170 ⁽³⁾	--	21.3 (11/2020)	104.2 (05/2020)	--	
	% Removal	>85 % minimum ⁽⁴⁾			lowest = 93.9 % (10/2019)			
Chlorine, total residual (TRC)	µg/l	--	--	11.0	--	--	n/a ⁽⁵⁾	3/Month
TDS	mg/L	--	--	--	--	--	552	Quarterly
<i>E. coli</i>	CFU/100mL	126	--	235	897.77 (07/2019)	--	2419.6 (09/2019, 09/2021)	3/Month
pH	S.U.	6.5 to 9.0 (min-max)			7.12 (12/2018) – 8.66 (02/2021)			Monthly
Temperature	°C	-- ⁽¹⁾	--	-- ⁽¹⁾	11.7 (06/2018)	--	24 (08/2018)	Monthly
Whole Effluent Toxicity (WET), chronic	Pass (0) or Fail (1)	Pass (0) ⁽⁶⁾	--	Pass (0) ⁽⁶⁾	Fail (1) (03/2019)	--	Fail (1) (03/2019)	Quarterly

FOOTNOTES:

- (1) No effluent limits were set, but monitoring and reporting were required.
- (2) When monitoring for total Ammonia (as Nitrogen), pH monitoring must be concurrent. The Ammonia Impact Ratio (AIR) is calculated as the ratio of the Ammonia value in the effluent and the applicable ammonia standard from the chronic equation in the Tribal Water Quality Standards. See Attachment E for a sample log to help calculate and record the AIR values. The AIR is the ammonia effluent limit and must be reported in the DMRs in addition to the Ammonia-N and pH effluent values.
- (3) Mass based limits calculated using 1.0 MGD flow.
- (4) Both the influent and the effluent shall be monitored. The arithmetic means of the BOD₅ and 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 (i.e. minimum of 85% BOD₅ removal; minimum of 85% TSS removal).
- (5) Chlorine was not used for disinfection as a substitute for UV disinfection.

- (6) See Section F– Chronic WET Requirements of the previous permit for details of the chronic WET test requirement. All chronic WET tests must be “Pass,” and no test may be “Fail.” “Pass” constitutes a rejection of the null hypothesis. Testing shall be conducted concurrent with testing for all other parameters.

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

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

A. Applicable Technology-Based Effluent Limitations (TBELs)

Publicly Owned Wastewater Treatment Systems (“POTWs”)

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

BOD₅ and TSS

Concentration-based Limits

30-day average: 30 mg/L

7-day average: 45 mg/L

Minimum of 85% Removal Efficiency

Mass-based Limits

30-day average:

$$\frac{1 \text{ MG}}{\text{day}} \times \frac{30 \text{ mg}}{1} \times \frac{8.345 \text{ lb/MG}}{\text{mg/l}} = 250.4 \text{ lbs per day}$$

7-day average:

$$\frac{1 \text{ MG}}{\text{day}} \times \frac{45 \text{ mg}}{1} \times \frac{8.345 \text{ lb/MG}}{\text{mg/l}} = 375.5 \text{ lbs per day}$$

pH

Instantaneous Measurement: 6.5 – 9.0 standard units (S.U.)

Technology-based treatment requirements may be imposed on a case-by-case basis under Section 402(a)(1) of the CWA, 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 of class of point sources and any unique factors relating to the discharger.) (40 CFR §125.3(c)(2)).

B. Water Quality-Based Effluent Limitations (WQBELs)

Water quality-based effluent limitations, or WQBELs, are required in NPDES permits when the permitting authority determines 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, EPA, March 1991) and the *EPA NPDES Permit Writers Manual* (Office of Water, EPA, September 2010). These factors include:

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

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

In order to protect the designated uses of surface waters, the Tribe has developed [Navajo Nation Surface Water Quality Standards](#) (“NNSWQS”) for different stream segments, depending on the level of protection required. EPA approved the 1999 NNSWQS on March 23, 2006. The NNSWQS were later revised in 2007 and approved by EPA on March 26, 2009. The NNSWQS were again revised in 2015/2017 and EPA partially approved the [2015 NNSWQS revisions](#) on October 5, 2020, to be effective March 17, 2021. The approved 1999 NNSWQS and 2007 revisions, and the approved 2015 NNSWQS revisions were used for purposes of developing water quality based effluent limitations. The requirements contained in the permit are necessary to prevent violations of applicable water quality standards.

The following beneficial uses are designated for the San Juan River, tributary to the Colorado River, as listed in Table 206.1 in the NNSWQS:

- **Dom** – Domestic Water Supply
- **FC** – Fish Consumption
- **PrHC** – Primary Human Contact
- **ScHC** - Secondary Human Contact,
- **A&W** – Aquatic & Wildlife
- **AgWS** – Agriculture Water Supply,
- **LW** - Livestock Watering

The following water quality criteria from the NNSWQS are applied as effluent limitations:

<i>E. coli:</i>	126 MPN/100 mL (geometric mean, minimum four samples in 30 days) 235 MPN/100 mL (single sample maximum)
pH:	6.5-9.0 (2015 NNSWQS PrHC beneficial use)
Ammonia:	Based on Attachment D of the permit (Table 207.20 from the 2015 NNSWQS)
AIR:	AIR (Ammonia Impact Ratio) ≤ 1 . NNSWQS do not have AIR criteria, but the ammonia limit is expressed as AIR. An AIR of less than or equal to 1 meets the NNSWQS Ammonia criteria.

No waterbodies receiving discharges from this facility have been identified as impaired and therefore have not been listed on the CWA Section 303(d) List of Water Quality Limited Segments. Therefore, no TMDLs are applicable to permittee's discharge.

2. Dilution in the Receiving Water

Discharge from Outfall 001 flows to the San Juan River, which has perennial natural flow. However, given the applicable designated uses of the river listed in Section VI.B.1 above, no dilution of the effluent has been considered in the development of WQBELs applicable to the discharge.

3. Type of Industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. Chlorine is not a concern since the treatment plant uses UV disinfection. The SIC code for this facility is 4952 (Sewerage Systems).

4. History of Compliance Problems and Toxic Impacts

Review of DMRs from March 2018 to October 2022 showed the facility had experienced a number of effluent violations over the 56 months, as follows:

- Fourteen (14) exceedances of *E. coli* daily maximum concentration,
- Four (4) exceedances of *E. coli* monthly average concentration, and
- One (1) exceedance of Ammonia Impact Ratio.

The facility is not currently under any tribal or federal enforcement action. However, a Findings of Violation and Order for Compliance (Docket No. CWA-309(a)-17-002) was issued by the USEPA on December 22, 2016, for an unauthorized sewage spill from a force main, which went under the San Juan River, feeding the NTUA Shiprock WWTP. The spill resulted in a discharge of raw sewage into the San Juan River. NTUA successfully replaced the faulty section of the force main.

USEPA conducted a compliance inspection of the Shiprock facility and collection system on June 14 and August 19, 2021, and identified the following areas of concern including: (1) Exceedances of *E. Coli* daily permit limit could be resulting from improper UV disinfection as displayed by several UV bulbs that were out; (2) NTUA is not reporting sanitary sewer overflows as required by its NPDES permit; (3) NTUA does not have a spill response plan; and, (4) NTUA does not perform regular inspections, assessments nor maintenance of its collection system.

NNEPA conducted a compliance evaluation inspection on September 21, 2022, and made the following observations: (1) Three exceedances of *E. Coli* daily maximum limit in August and September 2021 and June 2022; (2) An Asset Management Plan was being worked on; (3) There was backup power supply for the UV disinfection system but not for the aeration basin and the secondary clarifier; (4) Flow readings were obtained from the Parshall flume gauge, not from the flow meter; (5) Biosolids were scheduled to be hauled off in October 2022; and, (6) A new activated sludge facility had been in operation since June 2016 to replace the existing plant.

5. Existing Data on Toxic Pollutants - Reasonable Potential Analysis

For pollutants with effluent data available, EPA conducted a reasonable potential analysis based on statistical procedures outlined in EPA’s TSD (EPA 1991). These statistical procedures calculate the projected maximum effluent concentration based on available monitoring data to account for effluent variability and a limited data set. EPA estimated the projected maximum effluent concentrations assuming a coefficient of variation (“CV”) of 0.6 and the 99% 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). Because of data variability and of small sample sizes (i.e. $n = 1$), EPA used a CV of 0.6 for all parameters. 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. (EPA 1991).

Table 4. Summary of Reasonable Potential Statistical Analysis Parameter

Pollutant Parameter ⁽¹⁾	Maximum Observed Concentration	<i>n</i>	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential? ⁽²⁾
AIR	1.08 mg/L	55	2.3	2.5 mg/L	1.0	Yes
Ammonia (as N)	3.14 mg/L	55	2.3	7.2 mg/L	0.3 to 4.9 mg/L for chronic ⁽³⁾⁽⁴⁾	Yes
Total Suspended Solids (TSS)	34.9 mg/L	55	2.3	80.3 mg/L	45 mg/L	Yes
<i>E. Coli</i>	2419.6 CFU/100ml	55	2.3	5565.1	235 ⁽⁵⁾	Yes
Antimony, total recoverable ⁽⁶⁾	0.8 µg/L	1	13.2	10.6 µg/L	5.6 µg/L	No
Arsenic, total recoverable ⁽⁶⁾	11.0 µg/L	1	13.2	145.2 µg/L	10 µg/L	Yes
Beryllium, total recoverable ⁽⁶⁾	< 2.0 µg/L	1	13.2	26.4 µg/L	4 µg/L	No
Cadmium, total recoverable ⁽⁶⁾	< 0.1 µg/L	1	13.2	1.32 µg/L	0.43 µg/L	No

Pollutant Parameter ⁽¹⁾	Maximum Observed Concentration	<i>n</i>	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential? ⁽²⁾
Copper, total recoverable ⁽⁶⁾	100 µg/L	1	13.2	1320 µg/L	17.6 µg/L	Yes
Lead, total recoverable ⁽⁶⁾	200.0 µg/L	1	13.2	13.2 µg/L	5.9 µg/L	No
Nickel, total recoverable ⁽⁶⁾	< 20 µg/L	1	13.2	2640 µg/L	101 µg/L	Yes
Selenium, total recoverable ⁽⁶⁾	2.0 µg/l	1	13.2	26.43 µg/L	2.0 µg/L	Yes
Thallium, total recoverable ⁽⁶⁾	<0.5 µg/L	1	13.2	6.6 µg/L	1.0 µg/L	No
Zinc, total recoverable ⁽⁶⁾	410 µg/L	1	13.2	5412 µg/L	229 µg/L	Yes
Whole Effluent Toxicity	1 (Fail)	10	3.0	1 (Fail)	0 (Pass)	Yes

FOOTNOTES:

- (1) For purposes of RP analysis, parameters measured as Non-Detect are considered to be zeroes. Only pollutants detected are included in this analysis.
- (2) See Section VI.C. below for discussion of the reasonable potential analysis results and rationale for establishing numeric effluent limits and monitoring requirements in the permit.
- (3) Based on Attachment C of the permit (Table 207.20 from the 2015 NNSWQS).
- (4) EPA's 1999 Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life recommends acute criteria for ammonia that are pH-dependent and chronic criteria for ammonia that are pH- and temperature dependent.
- (5) Geometric mean of samples collected for *E. Coli*.
- (6) The applicable NNSWQS for hardness-dependent metals are based on a hardness value of 220 mg/L.

C. Rationale for Effluent Limitations and Monitoring

EPA evaluated the typical pollutants expected to be in WWTP discharge 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 standards, EPA has established monitoring requirements in the permit. This data will be re-evaluated and the permit re-opened to incorporate effluent limitations if necessary. Effluent limits are explained below and summarized in Table 5.

Flow:

No limits have been established for flow, but flow rates must be monitored and reported. Continuous monitoring is required for flow when discharging at Outfall 001.

BOD₅ and TSS:

EPA retains the more stringent effluent limits for BOD₅ and TSS, which are based on the technical capability of the secondary treatment process as defined by 40 CFR § 133.105(a) and (b). Mass limits are also required for BOD₅ and TSS under 40 CFR § 122.45(f). Based on the 1.0 MGD design flow, the mass-based limits are included in the permit. Monitoring is required 3 times per month, consistent with the previous permit.

E. coli:

Limits are carried over from the previous permit. Presence of pathogens in untreated and treated domestic wastewater indicates that there is a reasonable potential for *E. coli* bacteria levels in the effluent to cause or contribute to an excursion above the NNSWQS. As required by the permit, the monthly geometric mean of *E. coli* bacteria must not exceed 126/100 CFU/ml as a monthly average and 235 CFU/100 ml as a single sample maximum. These limits are based on the NNSWQS for protection of **Dom** and **PrHC** (p. 14). The monitoring frequency is 4 times per month, which is the minimum number of samples to be used to calculate the geometric mean. This is a revision from the previous permit.

Total Residual Chlorine (TRC):

The facility operates a UV disinfection system and chlorine is used as a backup disinfection system. When chlorination is used for disinfection purposes, there is reasonable potential for TRC levels in the effluent to cause or contribute to an excursion above the WQS. Therefore, a TRC limit of 11 ug/L has been established in the permit to protect beneficial uses of the receiving waters. The monitoring frequency is three times per month, consistent with the previous permit.

Arsenic, Copper, Nickel, Selenium, and Zinc:

To conduct the reasonable potential analysis, EPA compared the most stringent, applicable water quality standard to the projected maximum expected value in the discharge in accordance with EPA's TSD. As shown in Table 4 above, the discharge demonstrates reasonable potential for arsenic, copper, nickel, selenium, and zinc in the effluent to cause or contribute to exceedances above the applicable water quality criteria. The permit establishes effluent limits and annual monitoring requirements for arsenic, copper, nickel, selenium, and zinc.

Hardness (as CaCO₃):

EPA's National Toxics Rule includes hardness-dependent criteria for the protection of freshwater aquatic life for metals. In order to have sufficient effluent hardness data to calculate hardness-dependent metals criteria, this permit includes a requirement for quarterly monitoring for total (unfiltered) hardness, and once per year, it should be conducted concurrently with metals monitoring.

Whole Effluent Toxicity (WET) Testing:

The NNSWQS includes a narrative objective for toxicity that requires that "All waters of the Navajo Nation shall be free of toxic pollutants from other than natural sources in amounts, concentrations, or combinations which affect the propagation of fish or which of toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food..." EPA's *Technical Support Document for Water Quality-Based Toxics Control* (TSD) recommends a chronic toxicity monthly median limit of 1.0 TUc and a maximum daily limit of 1.6 TUc. The previous permit established a WET limit based on a measurement of 1.6 TUs measured in February 2016. The Shiprock facility monitoring results show exceedances of WET limit during the January-March 2019 quarter.

To evaluate the secondary effects of discharged nutrients, and to comply with the

NNSWQS for a designated use of **A&WHbt**, a minimum standard for chronic toxicity (a value of 0, “Pass” of the Test of Significant Toxicity (TST) null hypothesis (H_0) for the WET test) has been incorporated into the permit. Due to past toxicity and the detection of toxic pollutants, EPA finds that there is reasonable potential to exceed the narrative toxicity standard and is retaining the WET requirement.

To ensure continued compliance with the narrative objective for toxicity, the permit includes effluent limit and monitoring requirements for chronic WET to be conducted **quarterly** using a 24-hour composite sample of the treated effluent for Fathead minnow (*Pimephales promelas*). Testing for chronic WET must be completed in accordance with Part II, Section C of the permit. WET testing was required in the previous permit, but the current permit incorporates changes to testing and reporting consistent with the EPA TST (EPA 2010a). Testing must also be conducted concurrently with the priority pollutant scan.

Ammonia and Ammonia Impact Ratio (“AIR”):

Treated and untreated domestic wastewater may contain levels of ammonia that are toxic to aquatic organisms. Ammonia is converted to nitrate during biological nitrification process, and then nitrate is converted to nitrogen gas through the biological denitrification process. Due to the potential for ammonia to be present in sanitary wastewater at toxic levels, the establishment of reasonable potential for ammonia levels to cause an excursion above water quality standards, and due to the conversion of ammonia to nitrate, effluent limitations are established using the AIR are carried over from the previous permit.

AIR is determined by the concurrent measurement of ammonia concentration, pH and temperature. AIR is calculated by dividing the ammonia concentration in the effluent by the applicable ammonia criteria as described in Attachment D in the permit. The NNSWQS for Ammonia in freshwater for protection of **A&W** are listed in Table 207.21 (page 68) of the 2015 NNSWQS. The ammonia criteria are pH and temperature dependent. Therefore, pH, temperature, and ammonia sampling must be concurrent. See Attachment D of the permit for a sample log to help calculate and record the AIR values. The AIR effluent limitation value is 1.0, carried over from the previous permit.

The permittee also must monitor and report ammonia effluent values in addition to the AIR value. AIR provides more flexibility than a specific, fixed effluent concentration and is protective of water quality standards since the value is set relative to the water quality standard, with consideration of dilution. If the reported value exceeds the AIR limitation, then the effluent ammonia-N concentration exceeded the ammonia water quality criterion. Any AIR value in excess of 1.0 will indicate an exceedance of the permit limit.

pH:

Untreated and treated domestic wastewater could be contaminated with substances that affect the pH, which indicates reasonable potential for pH levels in the effluent to cause or contribute to an excursion above the WQS. To ensure adequate protection of beneficial uses of the receiving water, a minimum pH limit of 6.5 and a maximum limit of 9.0 S.U. are established in Section 207.C. of 2015 NNSWQS (page 20). The permit limit is carried over from the previous permit, and the monitoring frequency is once per month. Measurements for pH are required to be taken concurrently with ammonia and temperature measurements.

Temperature:

To support the Navajo Nation's established Ammonia standards and their dependence on temperature, monthly temperature monitoring is to be performed concurrently with ammonia and pH measurements.

Total Dissolved Solids:

Total dissolved solids ("TDS") is an indicator parameter for salinity. Presence of solids in untreated and treated domestic wastewater indicates that reasonable potential for TDS level in the effluent to cause or contribute to an excursion above narrative water quality standards. While NNSWQS do not include criteria for TDS, the regulations at 40 CFR § 122.44(i) allow requirements for monitoring as determined to be necessary. No limits are set at this time. The monitoring frequency is annual.

Priority Pollutant Scan:

The permit includes an annual monitoring requirement for the full list of priority pollutants as listed in 40 CFR Part 423, Appendix A. No limit is set at this time. Monitoring must be conducted concurrently with WET testing.

D. Anti-Backsliding

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

E. Antidegradation Policy

EPA's antidegradation policy under CWA Section 303(d)(4) and 40 CFR § 131.12 and the NNSWQS require that existing water uses and the level of water quality necessary to protect the existing uses be maintained. The receiving water is not listed as an impaired waterbody for BOD₅, TSS, coliform, temperature or total ammonia under section 303(d) of the CWA.

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.

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. A priority pollutant scan has been conducted of the effluent, demonstrating that most pollutants will be discharged below detection levels. Therefore, due to the low (non-detected) levels of toxic pollutants present in the effluent, and inclusion of water quality-based effluent limitations, the discharge is not expected to adversely affect receiving water bodies or result in any degradation of water quality.

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 are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Effluent Monitoring and Reporting

The permittee must conduct effluent monitoring to evaluate compliance with the permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR Part 136, unless otherwise specified in the permit. All monitoring data shall be electronically reported via EPA's CDX database on monthly DMR forms and submitted monthly as specified in the permit.

B. Priority Toxic Pollutants Scan

A priority toxic pollutants scan must be conducted annually to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee must 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 Part 136, unless otherwise specified in the permit or by EPA. 40 CFR § 131.36 provides a complete list of Priority Toxic Pollutants.

C. Whole Effluent Toxicity ("WET") Requirements

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

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed organism can show a difference in biological response. Undesirable biological responses include eggs not fertilized, early life stages that grow too slowly or abnormally, death, etc. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) specified in the NPDES permit. The chosen statistical approach shall be compatible with both the experimental design of the EPA's WET method and the

applicable toxicity water quality standard. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic. EPA's WET methods are specified under 40 CFR Part 136 and/or in applicable water quality standards.

EPA recommends inferential statistical approaches that a permitting authority chooses from to set a protective level for toxicity in an NPDES discharge. The statistical approach chosen for this permit is based on bioequivalence hypothesis testing and is called the Test of Significant Toxicity ("TST") statistical approach. It is described in EPA's *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (EPA 833-R-10-004, 2010; "TST Technical Document") and Denton DL, Diamond J, and Zheng L. 2011.

Test of significant toxicity: A statistical application for assessing whether an effluent or site water is truly toxic. *Environ Toxicol Chem* 30:1117-1126. This statistical approach supports important choices made within a toxicity laboratory which favor quality data and EPA's intended levels for statistical power when true toxicity is statistically determined to be unacceptably high (≥ 25 PE, Percent (%) Effect), or acceptably low (< 10 PE). Example choices are practices supporting healthy test organisms, increasing the minimum recommended replication component of the WET method's experimental design (if needed), technician training, etc.

TST results do not often differ from other EPA-recommended statistical approaches using hypothesis testing (Diamond D, Denton D, Roberts J, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples. *Environ Toxicol Chem* 32:1101-1108.) The TST maintains EPA's desired low false positive rate for WET methods—the probability of declaring toxicity when true toxicity is acceptably low $\leq 5\%$ — when quality toxicity laboratories conduct toxicity tests (TST Technical Document); Fox JF, Denton DL, Diamond J, and Stuber R. 2019.

Comparison of false-positive rates of 2 hypothesis-test approaches in relation to laboratory toxicity test performance. *Environ Toxicol Chem* 38:511-523.) Note: The false positive rate is a long-run property for the toxicity laboratory conducting a WET method. A low false positive rate is indicated by a low long-run toxicity laboratory control coefficient of variation for the test species/WET method, using a minimum of 30 to 50 toxicity tests.

Following 40 CFR § 122.44(d)(1) and guidance for determining reasonable potential in Chapter 3 of Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, 1991), Chapter 2 in EPA Regions 8, 9 and 10 Toxicity Training Tool (January 2010), and Appendix E in the TST Technical Document, reasonable potential for chronic toxicity has been established. See, also, Toxicity Reduction and Toxicity Identification Evaluations for Effluents, Ambient Waters, and Other Aqueous Media (SETAC 2005). Based on the concentration levels of cyanide, cadmium, copper, lead, nickel, and zinc during the last priority pollutant scan, a chronic toxicity WQBEL (i.e., WET limit) is required for the permitted discharge. As a result, monitoring and reporting for compliance with median monthly and maximum daily effluent limits for the parameter of chronic toxicity are required, so that effluent toxicity can be assessed in relation to these WQBELs for the permitted discharge (see Part I, Table 1 in NPDES permit). See VI.C. for more information.

In accordance with 40 CFR § 122.44(d)(1)(ii), in setting the permit's levels for chronic toxicity and conditions for discharge, EPA is using a test species/chronic short-term WET method and a discharge Instream Waste Concentration ("IWC") representing conservative assumptions for effluent dilution necessary to protect receiving water quality. The IWC is a discharge-specific term based on the permit's authorized mixing zone or initial dilution. Generally, the dilution model result "S" from Visual Plumes/Cormix is used. S is the volumetric dilution factor, i.e. 1 volume effluent is diluted with S - 1 volumes surface water) = $[(V_e + V_a) / V_e]$. Following the mass balance equation, if the dilution ratio $D = Q_s / Q_e$, then $[(Q_e + Q_s) / Q_e] = 1 + D = S$.

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

The TST's null hypothesis for chronic toxicity (H_o) is:

$$\text{IWC mean response (\% effluent)} \leq 0.75 \times \text{Control mean response}$$

The TST's alternative hypothesis (H_a) is:

$$\text{IWC mean response (\% effluent)} > 0.75 \times \text{Control mean response}$$

For this permit, results obtained from a single chronic toxicity test are analyzed using the TST statistical approach, where the required chronic toxicity IWC for Discharge Outfall Number 001 is 100% effluent.

For NPDES samples for toxicity testing, the sample hold time begins when the 24-hour composite sampling period is completed (or the last grab sample in a series of grab samples is taken) and ends at the first time of sample use (initiation of toxicity test). 40 CFR § 136.3(e) states that the WET method's 36-hour hold time cannot be exceeded unless a variance of up to 72-hours is authorized by EPA.

For this discharge, EPA has set a median monthly effluent limit and a maximum daily effluent limit (40 CFR § 122.45(d)) for chronic toxicity. These limits are set to restrict the discharge of toxic pollutants in toxic amounts and protect both applicable aquatic life water quality standards, including standards downstream of the discharge, and existing aquatic life designated uses in receiving waters (CWA §§ 101(a)(3), 301(b)(1)(C)). The median monthly WQBEL, of no more than 1 of a maximum of 3 chronic toxicity tests with unacceptably high toxicity declared by the TST statistical approach, ensures a high probability of declaring such discharges toxic. The maximum daily WQBEL, of 1 toxicity test rejecting the TST null hypothesis and an associated chronic biological endpoint $PE < 50$ (2x the TST's chronic toxicity Regulatory Management Decision ("RMD") of 25 PE), ensures the restriction of highly toxic (chronic, acute) discharges. Both effluent limits take into account that, on occasion, quality toxicity laboratories conducting effluent toxicity tests can incorrectly declare a sample with acceptable toxicity "toxic" ($\leq 5\%$ of the time when the true toxicity of the discharge is < 10 PE).

Species sensitivity screening for chronic toxicity is not an automatic requirement in this permit. However, the permit retains a species sensitivity screening condition as an option for the authority to exercise, particularly when the quality of the permitted discharge has changed, or is expected to change, during the permit term.

VIII. SPECIAL CONDITIONS

A. Biosolids Requirements

Standard requirements for the monitoring, reporting, recordkeeping, and handling of biosolids, in accordance with 40 CFR Part 503, are contained in the permit. If the permittee changes the management of its biosolids, the permittee must notify EPA of any changes. The permit also includes biosolids annual reports and electronic reporting requirements. Permittees must submit biosolids annual reports using EPA's NPDES Electronic Reporting Tool ("NeT") by February 19th of the following year.

B. Development and Implementation of Best Management Practices and Pollution Prevention

40 CFR § 122.44(k)(4) requires permittees to develop (or update) and implement Best Management Practices ("BMPs") for pollution prevention. A Pollution Prevention Plan must be developed (updated) and implemented with appropriate pollution prevention measures or BMPs designed to prevent pollutants from entering the unnamed wash that discharges into the San Juan River while performing normal processing operations at the facility.

The permittee must develop and implement BMPs that are necessary to control the high BOD₅ and TSS concentrations and reduce the AIR.

C. Sanitary Sewer Overflows

The permit prohibits sanitary sewer overflows and requires the permittee to identify and describe all sanitary sewer overflows that occur over the permit term.

D. Asset Management Plan

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

IX. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

EPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted Shiprock wastewater treatment facility using EPA's EJSCREEN tool (<https://www.epa.gov/ejscreen>). The purpose of the screening is to identify areas disproportionately burdened by pollutant loadings and to consider demographic

characteristics of the population living in the vicinity of the discharge when drafting permit conditions.

On January 17, 2023, EPA conducted an EJSCREEN analysis of the community in a 3-mile radius of the vicinity of the outfall. Of the 12 environmental indicators screened through EJSCREEN, the evaluation determined elevated risk for the following factors:

Table 5. EJSCREEN Analysis – Shiprock WWTP

1-mile Ring Centered at NEW MEXICO, EPA Region 6
 Approximate Population: 1,118
 Input Area (sq. miles): 3.14

Selected Variables	Percentile in State	Percentile in USA
EJ Index for Particulate Matter 2.5	76	12
EJ Index for Ozone	73	98
EJ Index for Diesel Particulate Matter*	59	36
EJ Index for Air Toxics Cancer Risk*	0	3
EJ Index for Air Toxics Respiratory HI*	75	37
EJ Index for Traffic Proximity	46	64
EJ Index for Lead Paint	66	75
EJ Index for Superfund Proximity	46	50
EJ Index for RMP Facility Proximity	40	10
EJ Index for Hazardous Waste Proximity	31	14
EJ Index for Underground Storage Tanks	0	24
EJ Index for Wastewater Discharge	76	92

The results, summarized in Table 7 5, suggest that the area around the facility are at high risk for EJ factors. The EJSCREEN analysis of demographic characteristics of the community living near the facility indicates the local population may be at relatively higher risk if exposed to environmental contaminants than the national population. For example, the population within a wide range of the Shiprock facility is at greater risk for hazardous wastewater discharge than 76% of the population in the state and 92% of people in the nation. Wastewater facilities don't generate ozone. Demographic characteristics that showed potentially sensitive scores were a high proportion of minority and low-income population.

EPA also considers the characteristics of the wastewater treatment facility operation and discharges, and whether those discharges pose exposure risks that the NPDES permit needs to further address. EPA found no evidence to indicate the treatment facility discharge poses a significant risk to residents. However, EPA has conducted outreach by public noticing the permit as well as reaching out to the Navajo Nation by offering consultation on the issuance of this permit. EPA in this action is renewing an existing wastewater discharge permit with no backsliding of effluent limits and no anticipated degradation of surface water quality in San Juan River. EPA concludes that the facility is unlikely to contribute to any EJ issues. Furthermore, EPA is aware of the potential for cumulative burden of the permitted discharge on the impacted community and is issuing this permit to be consistent with Navajo Nation Water Quality Standards and the CWA. EPA believes that by implementing and requiring compliance with the provisions of the CWA, which are designed to ensure full protection of human and aquatic health, the permit is sufficient to ensure the effluent discharges do not cause or contribute to human health risk in the vicinity of the facility.

B. Impact to Threatened and Endangered Species

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

On March 24, 2023, EPA generated official species listings from the U.S. Fish and Wildlife Service’s (“USFWS”) New Mexico Ecological Services Field Office website, which identified the threatened and endangered species and their critical habitat that may occur in the vicinity of the NTUA Shiprock facility and its effluent discharge to the San Juan River. This [Information for Planning and Conservation \(“IPaC”\)](#) report provides an up-to-date listing of all proposed (P), candidate (C), threatened (T) and endangered (E) species that occur in area neighboring the facility in San Juan County, as provided in Table 6 below, and should be considered as part of an effect analysis for this permit.

Table 6. Listed species, designated under the U.S. Endangered Species Act

Type	Common Name	Scientific Name	Status	Critical Habitat
Fish	Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E	Yes
	Razorback Sucker	<i>Xyrauchen texanus</i>	E	Yes
Insect	Monarch Butterfly	<i>Danaus plexippus</i>	C	No
Birds	Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E	No*
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	T	No*
Plants	Knowlton’s Cactus	<i>Pediocactus knowltonii</i>	E	No
	Mancos Milk-vetch	<i>Astragalus humillimus</i>	E	No
	Mesa Verde Cactus	<i>Sclerocactus mesae-verdae</i>	T	No

*These species have designated critical habitat outside of the Action Area.

Action Area

The “Action Area” is defined by the “effects of the Action.” The Action Area includes all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. To identify the areas that will be affected by the Action, EPA has considered all consequences to listed species or critical habitat that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. The action area is defined as the wastewater treatment plant, the area surrounding that facility, and the waters receiving discharges from the facility and discharge outfall to the San Juan River, and the San Juan River itself a tributary to the Colorado River. The permit contains limits to protect the designated uses of the receiving water, including warmwater habitat and wildlife, and does not involve physical habitat alteration or change in flow.

EPA has developed a “Biological Evaluation” (BE) for all the listed species and critical habitat, determining that reissuance of this NPDES permit action will have no effect on federally listed bird and plant species in the action area. EPA also determined the permitting action may affect, but is not likely to adversely affect, the Colorado Pikeminnow and Razorback Sucker in the action area. Designated critical habitats for these two listed fish species are identified wholly or partially within the action area. EPA has provided the USFWS with copies of the fact sheet,

draft permit, and BE during the public notice period and is initiating informal consultation and requesting concurrence prior to permit issuance.

Fish

Colorado Pikeminnow (*Ptychocheilus lucius*) is endemic to the Colorado River basin and historically found in major tributaries such as the San Juan River. Such species spawn in groups over the summer where cobble and gravel streambeds are recently cleaned by spring peak flows (<https://ecos.fws.gov/ecp/species/3531#crithab>), and they mature where snowmelt flows decrease to stable summer flows with periodic flash floods (USFWS 2020c). The San Juan River subbasin consists of adult fish resulting from augmentation efforts after the wild population of Colorado pikeminnow was nearly extirpated in the late 1990s. Adult abundance has only recently been estimated; estimates indicate a relatively small adult population comprised of stocked individuals, which appears to be increasing in the last few years. Reproduction has been documented annually since 2013, with increasing catch rates of larval fish, but recruitment of wild fish beyond their first year appears to be limited. Currently, the available data suggest persistence of Colorado pikeminnow in the San Juan River is reliant on stocking. And long-term resiliency of the San Juan River subbasin has been low based on a continued reliance on stocking to maintain that population. (Source: Colorado Pikeminnow 5-Year Status Review: Summary and Evaluation, USFWS, August 2020). With annual restocking occurring in the San Juan River, suitable habitat likely occurs in the vicinity of the action area covered by the permit. Therefore, EPA has determined that reissuance of the NPDES permit for Shiprock facility may affect, but is not likely to adversely affect, the listed Colorado Pikeminnow, or its critical habitat.

Razorback Sucker (*Xyrauchen texanus*) <https://ecos.fws.gov/ecp/species/530#crithab> are endemic to the warm-water portions of the Colorado River basin of the southwestern United States and in San Juan River subbasin. They are found throughout the basin in both lotic and lentic habitats but are most common in low-velocity habitats such as backwaters, floodplains, flatwater river reaches and reservoirs. Razorback suckers prefer cobble or rocky substrate for spawning but have been documented to clear sediment away from cobble when conditions are unacceptable and even spawn successfully over clay beds. Depending on the subbasin, juveniles and adults frequently have access to appropriate habitat throughout the system ranging from backwaters and floodplains to deep and slow-moving pools, however nonnative fishes are frequently found in such habitats as well. (<https://ecos.fws.gov/ServCat/DownloadFile/166375>) Stocking and reintroduction programs have allowed the species to persist despite a chronic lack of wild recruitment to the adult life stage in most populations. Stocking programs have succeeded in reintroducing adults that survive current ecological conditions and fulfill their ecological role. With annual restocking occurring in the San Juan River, suitable habitat likely occurs in the vicinity of the action area covered by the permit. Therefore, EPA has determined that reissuance of the NPDES permit for Shiprock may affect, but is not likely to adversely affect, the listed Razorback Sucker, or its critical habitat.

Insect

Monarch Butterfly (*Danaus plexippus*) (<https://ecos.fws.gov/ecp/species/9743>) is a candidate species and not yet listed or proposed for listing, (Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly, December 17, 2020). Candidate species do not have statutory protection under the ESA, although USFWS encourages

cooperative conservation efforts for these species. No critical habitat has been designated for this species by the USFWS.

Birds

Southwestern Willow Flycatcher (*Empidonax traillii extimus*) is a small insectivorous bird species (<https://ecos.fws.gov/ecp/species/6749>) found in the Southwestern United States, including New Mexico, that requires dense riparian habitats often consisting of willow, buttonbush, cottonwood, box elder, Russian olive etc. as well as saturated soils, standing water, streams, pools, for nesting. Such habitat is not found in the action area. Based on best available information provided by the USFWS, this species does not occur within the action area. And due to the fact that saturated soils and standing water are not found near the discharge, it is very unlikely for there to be any contact between the discharge authorized by this permit and the species. Therefore, EPA has determined that its action will not affect the Southwestern Willow Flycatcher, nor would it create conditions for establishment of conditions for typical flycatcher habitat. While the Southwestern Willow Flycatcher is present in San Juan County in New Mexico, in which the action area for this permit is located, there is no critical habitat located in the action area.

Yellow-billed Cuckoo (*Coccyzus americanus*) is a highly mobile as well as a migratory bird species, traveling between its wintering grounds in Central and South America and its breeding grounds in North America (Continental U.S. and Mexico) each spring and fall often using river corridors as travel routes. Habitat conditions through most of the western Yellow-billed Cuckoo's range are often dynamic and may change location within or between years depending on vegetation growth, tree regeneration, plant maturity, stream dynamics, and sediment movement and deposition. The Yellow-billed Cuckoo is known or believed to occur throughout most of Arizona and Utah, and in parts of New Mexico, Colorado, Idaho, Montana, Nevada, Texas, Wyoming, Oregon, and Washington. They are found in dense cover with water nearby, such as woodlands with low vegetation, overgrown orchards, and dense thickets along streams or marshes and riparian vegetation. Caterpillars are their primary food source, along with cicadas, katydids and crickets. They also forage on wild fruits in the summer, with seeds becoming a larger portion of their winter diet. (<https://ecos.fws.gov/ecp/species/3911>). Due to the highly mobile nature of the yellow-billed cuckoo and the fact that the action area does not provide dense cover, it is very unlikely for there to be any contact between the discharge authorized by this permit and the Yellow-billed Cuckoo. Therefore, EPA has determined that its action will not affect the Yellow-billed Cuckoo.

In February 2020, USFWS proposed 72 units as critical habitat for the western yellow-billed cuckoo in the arid southwest. See page 11477 of the following Federal Register notice: (<https://www.govinfo.gov/content/pkg/FR-2020-02-27/pdf/2020-02642.pdf>). The USFWS has not yet finalized this proposed critical habitat designation. However, the action area does not fall into any of the 72 identified units proposed to be designated as critical habitat by the USFWS. Therefore, EPA has determined that its action will not affect proposed critical habitat for the Yellow-billed Cuckoo.

Plants

Knowlton's Cactus (*Pediocactus knowltoni*) (<https://ecos.fws.gov/ecp/species/1590>) is listed as endangered. It is a rare, endemic cactus that is presently known to occur on a single 10-

hectare hill in San Juan County, New Mexico just south of the Colorado/New Mexico border above Navajo Lake. According to USFWS's 2012 Summary Report on the species, Knowlton's cactus habitat occurs on Tertiary alluvial deposits overlying the San Jose Formation. These deposits form rolling, gravelly hills covered with piñon pine (*Pinus edulis*), Rocky Mountain juniper (*Juniperus scopulorum*) and black sagebrush (*Artemisia nova*). A relatively dense soil cover of foliose lichen (*Parmelia* sp.) is an unusual aspect of the habitat. This cactus grows in full sun or partial shade between cobbles in the understory of sagebrush and conifers. The only known natural habitat is the top and slopes of a single small hill within the TNC Sabo Preserve. Knowlton's cactus density is variable at this location, but can be surprisingly high in some areas with up to 13 cacti per square meter. The total population in 1992 was estimated to be 12,000 plants by using a series of belt transects across the hill where this species occurs. These habitats are not found in the vicinity of the action area and would not be affected by discharge of the facility. Accordingly, EPA has determined that the action will not affect the Knowlton's cactus. No critical habitat has been designated for this species by the USFWS.

Mancos Milk-vetch (*Astragalus humillimus*) (<https://ecos.fws.gov/ecp/species/7483>) is listed as endangered. It is a perennial that grows in scattered populations on remote rimrock ledges and mesa tops in the Four Corners area of Colorado and New Mexico. Its habitat is very specific. It only occurs in shallow pockets of soil in the tan-colored units of Point Lookout sandstone, particularly at the bases of gentle inclines of slickrock, in cracks, and along the margins of bowl-like depressions in the otherwise flat rock. Mancos Milk-vetch grows in tufted mats close to the ground. Twelve to eighteen inches across, the mats are crowned with spiny leaf stalks. The stems, which are crowded with leaves, are up to 1 cm long. The leaves are composed of seven to eleven oval, light green, and softly hairy leaflets. After the leaves wither, the spiny leaf stalks persist on the plant. (Source: <https://www.nps.gov/articles/mancos-milkvetch.htm>) Suitable habitat does not occur in the vicinity of the action area nor in any of the washes leading to the San Juan River. Therefore, EPA has determined that the action will have no effect on the Mancos Milk-vetch. No critical habitat has been designated for this species by the USFWS.

Mesa Verde Cactus (*Sclerocactus mesae-verdae*) (<https://ecos.fws.gov/ecp/species/6005>) is listed as threatened. Mesa Verde cactus is a species of cactus native to northwestern New Mexico and southwestern Colorado. It is known only from Montezuma County and San Juan County, and much of the New Mexico part of the range lies inside land controlled by the Navajo Nation. (Source: <https://www.nps.gov/articles/mesa-verde-cactus.htm>) It usually grows on the tops or the slopes of these sparsely vegetated badlands. These habitats are at 1980 to 1600 meters (5250 to 6500 ft) in elevation and receive 8 to 20 cm (3 to 8 in) of annual precipitation. Biologists estimate that a total of 5,000-10,000 plants exist. Mesa Verde cactus usually has one spherical stem that is pale green in color, but it can form clusters of up to 15 stems. The stems are only 3.8 to 7.6 cm (1.5 to 3 in) tall, and they retract into the soil during drought. The stems have eight to eleven radial spines that are straw-colored and a quarter-inch to a half-inch long. Usually, there is no central spine.

The known populations are restricted to the Mancos and Fruitland Shale formations at the eastern edge of the Navajoan Desert. These formations erode to form badlands with soils that are highly alkaline, gypsum-rich, and prone to swelling upon exposure to water. The action area is not located at an elevation where the Mesa Verde cactus is found. The action area is comprised of gently sloping topography with soil that is not suitable for this species. Therefore, EPA has

determined that the action will not affect the Mesa Verde cactus. No critical habitat has been designated for the Mesa Verde cactus by the USFWS.

Conclusion

Considering all the information available, EPA concluded that the reissuance of this permit may affect but not likely to adversely affect two listed fish species and their critical habitat. EPA concluded there will be no effect to all other species (insects, birds and plants) discussed above. On March 24, 2023, EPA requested informal consultation and concurrence from the New Mexico Ecological Services Field Office of USFWS and provided copies of the draft fact sheet, BE, and draft permit for review prior to the public notice period. USFWS provided concurrence on May 12, 2023. If, in the future, EPA obtains information or is provided information that indicates that there could be adverse impacts to federally listed species, EPA will contact the appropriate agency or agencies and initiate consultation, to ensure that such impacts are minimized or mitigated. In addition, re-opener clauses have been included should new information become available to indicate that the requirements of the permit need to be changed.

C. Impact to Coastal Zones

The Coastal Zone Management Act (“CZMA”) requires that federal activities and licenses, including federally permitted activities, must be consistent with an approved state Coastal Management Plan (CZMA Sections 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR Part 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 (Tribe or Territory) Coastal Zone Management program, and the State (Tribe or Territory) or its designated agency concurs with the certification.

The permit does not affect land or water use in the coastal zone; therefore, CZMA does not apply to this permit.

D. Impact to Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (“MSA”) set forth 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 permit does not directly discharge to areas of essential fish habitat (marine waters). Therefore, EPA has determined that essential fish habitat does not apply to this permit.

E. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act (“NHPA”) requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA has determined that re-issuing this NPDES permit does not have the

potential to affect any historic properties or cultural properties. As a result, Section 106 does not require EPA to undertake additional consulting on this permit reissuance.

The permit does not allow the disturbance of any historic properties.

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

For this permit, the Permittee is required to seek water quality certification that this Permit will meet applicable water quality standards (including paying applicable fees) from NNEPA. Certification under section 401 of the CWA must be in writing and include the conditions necessary to assure compliance with referenced applicable provisions of sections 208(e), 301, 302, 303, 306, and 307 of the CWA and appropriate requirements of Tribal law. EPA cannot issue the Permit until the certifying Tribes have granted certification under 40 CFR § 124.55 or waived its right to certify. NNEPA issued certification under CWA section 401 on June 23, 2023.

XI. STANDARD CONDITIONS

A. Reopener Provisions

In accordance with 40 CFR Parts 122 and 124, the permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved Tribal water quality standards; 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; or new permit conditions for species pursuant to ESA requirements.

B. Standard Provisions

The permit requires the permittee to comply with EPA Region 9's *Standard Federal NPDES Permit Conditions* found at Part III of the permit.

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 NPDES permit or other significant action with respect to an NPDES permit or application.

B. Public Comment Period (40 CFR § 124.10)

Notice of the draft permit was posted on EPA Region 9's website for a 30-day comment period from April 17, 2023, to May 17, 2023. No comments were received.

C. Public Hearing (40 CFR § 124.12(c))

A public hearing may be requested in writing by any interested party during the public comment period. No comments were received during the 30-day public comment period, so EPA did not schedule a hearing.

XIII. CONTACT INFORMATION

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

Linh Tran, NPDES Permits Office, U.S. EPA Region 9

Tran.Linh@epa.gov
(415) 972-3511

XIV. REFERENCES

- EPA. 1989. *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations*. Office of Water, EPA. EPA/600/2-88/070.
- EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001.
- EPA. 1996. *Regions IX & X Guidance for Implementing Whole Effluent Toxicity Testing Programs*, Interim Final, May 31, 1996.
- EPA. 1999. *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants*. Office of Water, EPA. EPA/833/B-99/002, 1999.
- EPA. 2002. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. Fourth Edition. (EPA/821/R-02/013, 2002; Table IA, 40 CFR 136.)
- EPA. 2004. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. Office of Water, EPA. EPA-821-R-04-014.
- EPA. 2010. *U.S. EPA NPDES Permit Writers' Manual*. Office of Water, EPA. EPA-833-K-10-001.
- EPA. 2013. *National Recommended Water Quality Criteria*. Office of Water, EPA. Aquatic Life Criteria Table. <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table#table>
- EPA. 2015. *National Recommended Water Quality Criteria*. Office of Water, EPA. Human Health Criteria Table. <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table>
- EPA. 2021. [June 14 Compliance Inspection of Shiprock Collection System; Report prepared by EPA Wastewater Section dated November 20, 2021](#)
- NNEPA Water Quality Program. 2017. [Navajo Nation Surface Water Quality Standards 2015](#)

NNEPA Water Quality Program 2023. Clean Water Act Section 401 Certification for NPDES permit for Shiprock WWTP. Dated June 23, 2023.

USFWS 2022. November [IPaC report for Endangered and Threatened species list within NTUA Shiprock WWTP discharge area](#) of San Juan County, New Mexico (provided by U.S. Fish and Wildlife Service dated November 3, 2022)

USFWS 2023. March [IPaC report for Endangered and Threatened species list within NTUA Shiprock WWTP discharge area](#) of San Juan County, New Mexico (provided by U.S. Fish and Wildlife Service dated March 24, 2023)

USWFS 2023. Letter to USEPA re: Informal concurrence on reissuance of NPDES permit for Shiprock WWTP. Dated May 12, 2023.