NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT FACT SHEET
January 2024

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

NPDES Permit No.: NN0020281

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Facility Location: NTUA Kayenta Wastewater Treatment Plant
Approximately 3 miles northeast of Junction US 160 and 163
Kayenta, Navajo County, Arizona 86033

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 NTUA Kayenta wastewater treatment plant ("WWTP" or "the facility") in the Navajo Nation. The WWTP is owned and operated by the NTUA. The permittee applied for a permit renewal on February 1, 2023.

The Navajo Nation is a federally recognized Indian tribe. U.S. EPA Region 9 ("EPA"), however, has not delegated primary regulatory responsibility for administering the NPDES permitting program to the Navajo Nation EPA ("NNEPA"). Consequently, EPA has prepared this draft NPDES permit renewal and fact sheet pursuant to Section 402 of the Clean Water Act ("CWA"), which prohibits the discharge of pollutants from point sources without CWA authorization, for example, a NPDES permit. The draft NPDES permit incorporates both federal standards and applicable tribal water quality requirements.

The permittee is currently covered under NPDES Permit No. NN0020281, which expired on July 31, 2023, which EPA administratively continued on July 19, 2023. EPA's NPDES regulations at 40 CFR § 122.6 extend the terms of administratively extended permits until the issuance of a new permit.

Under Section 402 of CWA, EPA is proposing to reissue the permittee's NPDES permit authorization to discharge treated domestic wastewater from the Facility to Laguna Creek, a tributary to Chinle Wash, a tributary to the San Juan River, all waters of the United States.

EPA developed this fact sheet based on information provided by the discharger's permit application, effluent discharge data, as well as applicable laws and regulations.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Table 1. Significant Changes to Previous Permit

Permit Condition	Previous Permit (2018 – 2023)	Current Permit (2023 – 2028)	Reason for change
Cadmium monitoring and effluent limits	Monitoring required as part of priority pollutant scan.	Add a maximum daily effluent limit and quarterly monitoring requirements for cadmium	Reasonable potential to exceed WQS.
E. coli geometric mean calculation	Once 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	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_o) 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 to be performed concurrently with cadmium monitoring.
Total Dissolved Solids (TDS) monitoring	Quarterly	Annually	Concurrently with hardness monitoring.
Priority Pollutant Scan	One time in the 5-year permit cycle.	Monitoring frequency is required in Years 2 and 4 of the permit cycle.	To collect sufficient data to improve the analysis of reasonable potential.
Biological Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) mass effluent 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 small 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 Kayenta WWTP is located in Kayenta, Navajo County, Arizona, within the northern portion of the Navajo Nation. The facility is located 3 miles northwest of the junction of highways US 160 and US 163. The WWTP has a design flow of 0.88 million gallons per day (MGD), serves a population of approximately 3,600 and receives domestic wastewater only. The February 2023 application stated a design flow of 0.90 MGD; however, as detailed previously in the 2018 permit factsheet, this figure was revised to 0.88 MGD following a Kayenta Capacity calculation prepared by Mr. Daniel Boivin P.E. on February 22, 2018, and submitted to EPA on March 6, 2018. The 0.88 MGD design flow was used as the basis for calculating the previous permit limits and is being used for this permit, for consistency purposes. This facility is a POTW and is regulated as a minor facility discharging less than 1 MGD, as previously determined.

The Kayenta WWTP is a six-cell lagoon system with only four cells currently in use. Permit Attachment B provides an aerial view and flow schematic of the WWTP. Influent enters the headworks with manual and mechanical bar screening and flows through Parshall flume with ultrasonic level sensor for influent flow measurements, and a wet well/lift station. Wastewater is then transported to Cell which is divided in half by a baffle to improve retention time. There are eight 25-horsepower aerators on one side and seven 15-horsepower aerators on the other side. After flowing through Cell 1, wastewater flows sequentially through into Cells 2, 3, and 6 for solids to settle. Cells 4 and 5 are offline. Once wastewater leaves Cell 6, it flows into the effluent flume then to the chlorine contact chamber where it is disinfected, dechlorinated and discharges into Laguna Creek at Outfall 001. Solids that are removed from the bar screen in the headworks are placed on a grate to dry out prior to being taken offsite for disposal.

The facility is under Administrative Orders on Consent with both U.S. EPA and Navajo Nation EPA to achieve compliance with the NPDES permit, as discussed in the following Section VI.B.4. (History of Compliance Problems and Toxic Impacts.) NTUA is planning to replace its facility and will need to submit a permit modification request upon completion of plant construction slated for 2027 or 2028. Based on information from the permittee, annual average flow rates were 0.313 MGD in all of 2021, 2022 and 2023. And maximum daily flow rates were 0.313 in both 2021 and 2022, and 0.478 MGD in 2023.

IV. DESCRIPTION OF RECEIVING WATER

Final treated effluent is discharged via Outfall No. 001 to Laguna Creek, a tributary to Chinle Wash, a tributary to the San Juan River. The coordinates for discharge Outfall No. 1 are Latitude 36º 43’ 59” North and Longitude 110º 13’ 50” West.

V. DESCRIPTION OF DISCHARGE

No solids were observed in the chlorine contact chamber during a NNEPA’s March 31, 2023, inspection. EPA’s review of DMRs from August 2018 through April 2023 showed that the facility had experienced exceedances of limits for BOD_5, ammonia impact ratio (AIR) and whole effluent toxicity (WET).

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
		Max Daily Discharge	Average Daily Discharge	
Flow	MGD	0.473	0.283	57
Biochemical oxygen demand, 5-day (BOD_5)	mg/L	74.1	62.68	57
pH	S.U.	7.74 to 9.97		n/a
Temperature (winter)	ºC	11.2	9.86	18
Temperature (summer)	ºC	25.3	22.1	18
Fecal Coliform	CFU	160.7	80.73	57
Total Suspended Solids (TSS)	mg/L	87.3	85.86	57
Ammonia (as N)	mg/L	2.71	1.88	57
Total Dissolved Solids (TDS)	mg/L	826.2	764.44	19
Chorine (total residual, TRC)	ug/L	<1.2	<1.2	57
Antimony, total recoverable	mg/L	0.0007	n/a	1
Arsenic, total recoverable	mg/L	0.0044	n/a	1
Cadmium, total recoverable	mg/L	0.0001	n/a	1

B. Recent Discharge Monitoring Report Data (2018-2023)

Table 3 shows data related to discharge from Outfall 001 based on permittee's discharge monitoring reports ("DMRs") from April 2018 through April 2023. Additional information is available on Enforcement and Compliance History Online ("ECHO") at https://echo.epa.gov/detailed-facility-report?fid=NN0020281. Pollutants believed to be absent or never detected in the effluent are not included in the table.

Table 3. Effluent Data for Outfall 001 from March 2018 through April 2023
(Based on 0.88 MGD Design Flow)

Parameters	Units	Permit Effluent Limitations			Effluent Data			
		Monthly Average	Weekly Average	Max Daily	Highest Monthly Average	Highest Weekly Average	Highest Daily Maximum	Monitoring Frequency
Flow Rate	MGD	-- (1)	--	-- (1)	0.231 (Six different months)	--	0.431 (12/2018)	Monthly
Ammonia (as N)	mg/L	-- (1)	--	-- (1)	2.38 (04/2023)	--	2.38 (04/2023)	Monthly
Ammonia Impact Ratio (AIR)	Ratio	1.0 (2)	--	1.0 (2)	7.13 (04/2021) 5.45 (09/2018)	--	--	Monthly

Parameters	Units	Permit Effluent Limitations			Effluent Data			
		Monthly Average	Weekly Average	Max Daily	Highest Monthly Average	Highest Weekly Average	Highest Daily Maximum	Monitoring Frequency
Biochemical Oxygen Demand 5-day (BOD_5) [3]	mg/L	45	65	--	64.7 (05/2018) 74.1 (07/2018) 63.9 (08/2018)	74.1 (07/2018)	74.1 (07/2018)	Monthly
	kg/day	149	215	--	39.12 (08/2018)	61.59 (08/2018) (01/2020)	--	
Total Suspended Solids (TSS) [4]	mg/L	90	135	--	87 (08/2018)	87 (08/2018)	--	Monthly
	kg/day	297	446	--	53.27 (08/2018)	83.85 (08/2018)	--	
Chlorine, total residual (TRC)	µg/L	--	--	11.0	--	--	< 1.2	Monthly
TDS	mg/L	--	--	--	--	--	822 (12/2018)	Quarterly
E. coli	CFU/ 100mL	126	--	235	160.7 (10/2018)	--	160.7 (10/2018)	Monthly
pH	S.U.	6.5 to 9.0 (min-max)			7.74 (06/2020) – 9.88 (05/2021)			Monthly
Temperature	°C	-- [1]	--	-- [1]	--	--	25.3 (07/2020)	Monthly
Whole Effluent Toxicity, chronic (Ceriodaphnia)	Pass (0) or Fail (1)	Pass (0) [5]	--	Pass (0) [5]	Fail (1) (10/2019) (01/2021) (05/2021) (01/2022)	--	Fail (1) (10/2019) (01/2021) (05/2021) (01/2022)	Monthly (quarterly if no monthly toxicity for 12 months)
Whole Effluent Toxicity, chronic (Pimephales Promelas)	Pass (0) or Fail (1)	Pass (0) [5]	--	Pass (0) [5]	Fail (1) (12/2020) (01/2021) (03/2021) (01/2022) (04/2022)	--	Fail (1) (12/2020) (01/2021) (03/2021) (01/2022) (04/2022)	Monthly (quarterly if no monthly toxicity for 12 months)

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) Under 40 CFR Section 133.105, the discharge limits for BOD_5 shall not exceed a monthly average of 45 mg/l and a weekly average of 65 mg/l. The mass limits are calculated based upon the 0.88 MGD design flow.

(4) Under 40 CFR Section, 122.45(f), the discharge limits for TSS shall not exceed a monthly average of 90 mg/l and a weekly average of 135 mg/l. These limitations (Alternative State Requirements) are consistent with 40 CFR 133.101(f), 133.103(c), 133.105(b) and (d). The mass limits are calculated based upon the 0.88 MGD design flow.

(5) See Section C– 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 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 downstream receiving water (e.g., "water quality-based effluent limits"). EPA has established the most stringent of applicable technology-based or water quality-based effluent limitations in the permit, as described below.

A. Applicable Technology-Based Effluent Limitations

Publicly Owned Wastewater Treatment Systems ("POTWs")

EPA developed technology-based treatment standards for municipal wastewater treatment plants in accordance with Section 301(b)(1)(B) of the CWA. The minimum levels of effluent quality attainable by secondary treatment for BOD_5, 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 BOD_5 and TSS.

BOD_5

Concentration-based Limits

30-day average: 45 mg/L
7-day average: 65 mg/L

Mass-based Limits

30-day average:

$$\frac{0.88\ MG}{day} \times \frac{45\ mg}{l} \times \frac{3.785\ kg/MG}{mg/l} = 149\ kg\ per\ day = 328\ lb\ per\ day$$

7-day average:

$$\frac{0.88\ MG}{day} \times \frac{65\ mg}{l} \times \frac{3.785\ kg/MG}{mg/l} = 216.5\ kg\ per\ day = 477\ lb\ per\ day$$

TSS:

Concentration-based Limits

30-day average: 90 mg/L
7-day average: 135 mg/L

Mass-based Limits

30-day average:

$$\frac{0.88\ MG}{day} \times \frac{90\ mg}{l} \times \frac{3.785\ kg/MG}{mg/l} = 299.8\ kg\ per\ day = 661\ lb\ per\ day$$

7-day average:

$$\frac{0.88\ MG}{day} \times \frac{135\ mg}{l} \times \frac{3.785\ kg/MG}{mg/l} = 449.7\ kg\ per\ day = 991\ lb\ per\ day$$

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 or class of point sources and any unique factors relating to the discharger) (40 CFR § 125.3(c)(2)).

B. Water Quality-Based Effluent Limitations

Water quality-based effluent limitations (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, U.S. EPA, March 1991) and the *U.S. EPA NPDES Permit Writers' Manual* (Office of Water, U.S. EPA, September 2010). These factors include:

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

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

The Navajo Nation has developed Surface Water Quality Standards ("NNSWQS") for different stream segments, depending on the designated uses and 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 revision, and the approved 2015 NNSWQS revisions will be 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 Laguna Creek, Chinle Wash, San Juan River in Segment 2401 of the San Juan River basin, as listed in Table 206.1 (page 41) of the 2015 NNSWQS:

- **PrHC** - Primary Human Contact
- **ScHC** - Secondary Human Contact
- **AgWS** - Agriculture Water Supply
- **A&W** - Aquatic & Wildlife
- **LW** - Livestock Watering

The following water quality criteria from the 2015 NNSWQS are applied as effluent limitations:

E. coli: 126 CFU/100 mL (geometric mean, minimum four samples in 30 days)
235 CFU/100 mL (single sample maximum)

pH: 6.5 to 9.0

Ammonia: Based on Attachment C of the permit (2015 NNSWQS Table 207.20)

AIR: AIR (Ammonia Impact Ratio) $\leq$ 1
2015 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 2015 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. Also, no EPA approved TMDLs are applicable to permittee's discharge.

2. Dilution in the Receiving Water

Discharge from Outfall No. 001 flows to Laguna Creek, a tributary to Chinle Wash, a tributary to the San Juan River. No dilution of the effluent has been considered in the development of water quality-based effluent limits applicable to the discharge.

3. Type of Industry

Typical pollutants of concern in treated and untreated domestic wastewater include ammonia, nitrate, biological oxygen demand, total suspended solids, pathogens, temperature, pH, oil & grease, turbidity and solids. Chlorine is of concern when using for disinfection, and therefore dechlorination is necessary to minimize impact on WQBELs. The SIC code for this facility is 4952 (Sewerage Systems).

4. History of Compliance Problems and Toxic Impacts

DMR values covering the last 5 years can be found in ECHO (https://echo.epa.gov/detailed-facility-report?fid=110010062699&ej_type=sup&ej_compare=US) and showed the facility had experienced effluent violations as follows:

Month	Parameter	Result	Limit	Unit
March 2018	BOD_5 Monthly Avg. concentration	58.2	45	mg/l
	Ammonia Impact Ratio	1.4	1.0	
April 2018	BOD_5 Monthly Avg. concentration	50.5	45	mg/l
	Ammonia Impact Ratio	4.47	1.0	
May 2018	BOD_5 Monthly Avg. concentration	64.7	45	mg/l
	Ammonia Impact Ratio	2.26	1.0	
June 2018	BOD_5 Monthly Avg. concentration	52.9	45	mg/l
July 2018	BOD_5 Monthly Avg. concentration	74.1	45	mg/l
August 2018	BOD_5 Monthly Avg. concentration	63.9	45	mg/l
	Ammonia Impact Ratio	3.88	1.0	
September 2018	BOD_5 Monthly Avg. concentration	54.7	45	mg/l
	Ammonia Impact Ratio	5.44	1.0	

Month	Parameter	Result	Limit	Unit
October 2018	BOD_5 Monthly Avg. concentration	48.3	45	mg/l
	E. coli Monthly Avg.	160.7	126	CFU/100ml
	Ammonia Impact Ratio	2.76	1.0	
November 2018	pH Maximum	9.19	9.0	S.U.
December 2018	BOD_5 Monthly Avg. concentration	47	45	mg/l
January 2019	Ammonia Impact Ratio	1.94	1.0	
February 2019	Ammonia Impact Ratio	2.8	1.0	
March 2019	Ammonia Impact Ratio	4.6	1.0	
April 2019	Ammonia Impact Ratio	5.4	1.0	
May 2019	BOD_5 Monthly Avg. concentration	65	45	mg/l
	pH Maximum	9.76	9.0	S.U.
June 2019	BOD_5 Monthly Avg. concentration	56.9	45	mg/l
July 2019	BOD_5 Monthly Avg. concentration	56.15	45	mg/l
August 2019	pH Maximum	9.7	9.0	S.U.
September 2019	BOD_5 Monthly Avg. concentration	48.5	45	mg/l
October 2019	BOD_5 Monthly Avg. concentration	53.1	45	mg/l
November 2019	BOD_5 Monthly Avg. concentration	51.5	45	mg/l
	Ammonia Impact Ratio	1.03	1.0	
December 2019	Ammonia Impact Ratio	2.13	1.0	
January 2020	Ammonia Impact Ratio	1.91	1.0	
February 2020	Ammonia Impact Ratio	2.07	1.0	
March 2020	BOD_5 Monthly Avg. concentration	50.2	45	mg/l
	pH Maximum	9.25	9.0	S.U.
	Ammonia Impact Ratio	3.86	1.0	
April 2020	pH Maximum	9.79	9.0	S.U.
	Ammonia Impact Ratio	6.54	1.0	
May 2020	Ammonia Impact Ratio	2.05	1.0	
June 2020	BOD_5 Monthly Avg. concentration	50.7	45	mg/l
July 2020	BOD_5 Monthly Avg. concentration	62.9	45	mg/l
	pH Maximum	9.65	9.0	S.U.
	Ammonia Impact Ratio	1.27	1.0	
August 2020	BOD_5 Monthly. Avg. concentration	63.5	45	mg/l
	Ammonia Impact Ratio	1.21	1.0	
September 2020	Ammonia Impact Ratio	2.16	1.0	
November 2020	BOD_5 Monthly Avg. concentration	46.6	45	mg/l
	pH Maximum	9.36	9.0	S.U.
December 2020	pH Maximum	9.57	9.0	S.U.
	Ammonia Impact Ratio	1.38	1.0	
January 2021	pH Maximum	9.65	9.0	S.U.
	Ammonia Impact Ratio	1.89	1.0	
February 2021	pH Maximum	9.52	9.0	S.U.
	Ammonia Impact Ratio	5.16	1.0	
March 2021	pH Maximum	9.27	9.0	S.U.
	Ammonia Impact Ratio	5.53	1.0	
April 2021	Ammonia Impact Ratio	7.13	1.0	
May 2021	BOD_5 Monthly Avg. concentration	50.2	45	mg/l
	pH Maximum	9.88	9.0	S.U.

Month	Parameter	Result	Limit	Unit
	Ammonia Impact Ratio	9.5	1.0	
June 2021	BOD_5 Monthly Avg. concentration	48.6	45	mg/l
	pH Maximum	9.47	9.0	S.U.
July 2021	BOD_5 Monthly Avg. concentration	56.5	45	mg/l
	pH Maximum	9.61	9.0	S.U.
	Ammonia Impact Ratio	2.77	1.0	
August 2021	pH Maximum	9.37	9.0	S.U.
September 2021	pH Maximum	9.82	9.0	S.U.
October 2021	pH Maximum	9.57	9.0	S.U.
November 2021	pH Maximum	9.69	9.0	S.U.
December 2021	pH Maximum	9.58	9.0	S.U.
	Ammonia Impact Ratio	1.33	1.0	
January 2022	pH Maximum	9.35	9.0	S.U.
	Ammonia Impact Ratio	1.12	1.0	
February 2022	pH Maximum	9.41	9.0	S.U.
	Ammonia Impact Ratio	1.75	1.0	
March 2022	pH Maximum	9.27	9.0	S.U.
	Ammonia Impact Ratio	4.77	1.0	
April 2022	Ammonia Impact Ratio	9.3	1.0	
May 2022	BOD_5 Monthly Avg. concentration	54.6	45	mg/l
	pH Maximum	9.65	9.0	S.U.
August 2022	pH Maximum	9.15	9.0	S.U.
September 2022	pH Maximum	9.35	9.0	S.U.
October 2022	pH Maximum	9.48	9.0	S.U.
November 2022	pH Maximum	9.74	9.0	S.U.
	Ammonia Impact Ratio	1.4	1.0	
December 2022	Ammonia Impact Ratio	1.93	1.0	
January 2023	Ammonia Impact Ratio	1.2	1.0	
February 2023	pH Maximum	9.41	9.0	S.U.
	Ammonia Impact Ratio	2.95	1.0	

USEPA and NNEPA conducted a joint compliance evaluation inspection (CEI) on December 6, 2018, and found valve gates to be in poor condition and needed repairs and proper operations and maintenance. NNEPA conducted a CEI on March 31, 2023, and identified the following areas of concern: (1) NTUA needs to fix the operating problem with the influent ultrasonic flow meter, (2) NTUA needs to repair the non-functioning aerators so all 15 are working, (3) NTUA needs to investigate pH levels increasing during the wastewater treatment process. If extensive algae growth is the root cause, algae control measures should be looked into, and (4) NTUA needs to clear up the issue of the H_2 reference point for both Parshall flumes.

The facility is under both federal and tribal Administrative Orders of Consent ("AOCs") with EPA [Docket No. CWA-309(a)-16-001] issued September 29, 2016, and with NNEPA [Docket No. NNCWA-AOC-2014-001] issued October 28, 2014. These AOCs address the shortcomings and compliance failures with the operation, maintenance, and overall implementation of the NPDES permit. Under the AOCs, NTUA committed to submit a Compliance Plan and develop an Operation and Maintenance Plan to ensure compliance with the NPDES permit. The facility's short-term plan to

comply with permit requirements is implement a continuous-flow intermittent-discharge ("CFID") system. EPA's 2016 AOC will terminate upon entry of a Partial Consent Decree that the federal government has entered into with NTUA to, among other things, bring the facility into compliance with its NPDES permit.

The U.S. Department of Justice lodged the Partial Consent Decree with the federal district court for the District of Arizona on January 9, 2024, and the Partial Consent Decree is currently within a 45-day public notice and comment period. Despite the termination of EPA's 2016 AOC upon entry and approval of the Partial Consent Decree by the federal district court, the Partial Consent Decree maintains the requirement that NTUA implement a CFID system at the facility as a short-term NPDES permit compliance measure. EPA notes that the entry of the federal Partial Consent Decree does not affect the NNEPA's 2014 AOC, which will continue to remain in effect.

5. Existing Data on Toxic Pollutants for a 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 result in the calculation of the projected maximum effluent concentrations based on 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:

Projected maximum concentration = C_e × *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)

Pollutant Parameter (1)	Maximum Observed Effluent Concentration	*n*	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
AIR	1.485	57	2.3	3.42	1	Yes
Antimony, total recoverable	0.7 µg/L	1	13.2	9.24 µg/L	88.0 µg/L	No
Arsenic, total recoverable	4.4 µg/L	1	13.2	58.08 µg/L	340.0 µg/L	No
Cadmium, total recoverable	0.1 µg/L	1	13.2	1.32 µg/L	0.43 µg/L (2)	Yes
Whole Effluent Toxicity, (chronic *Ceriodaphnia*)	1 (Fail)	57	2.3	1 (Fail)	0 (Pass)	Yes

Pollutant Parameter (1)	Maximum Observed Effluent Concentration	*n*	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Whole Effluent Toxicity (chronic *Pimephales Promelas*)	1 (Fail)	57	2.3	1 (Fail)	0 (Pass)	Yes

(1) For purposes of RP analysis, parameters measured as Non-Detect are considered to be zero. Only detected pollutants are included in this analysis.
(2) The applicable criterion is based on the 2009 approved NNSWQS since the revised 2015 cadmium NNSWQS were not approved in 2020. The hardness-dependent value is calculated based on an assumed hardness value of 220 mg/L.

C. Rationale for Numeric Effluent Limits and Monitoring

EPA evaluated the typical pollutants expected to be present in the effluent and selected the most stringent of applicable technology-based effluent limits 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 may establish 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:

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 No. 001.

BOD_5 and TSS:

EPA retains the effluent limits for BOD_5 and TSS, which are based on the technical capability of the treatment process equivalent to secondary as defined by 40 CFR § 133.105. Mass limits are also required for BOD_5 and TSS under 40 CFR § 122.45(f) and are included in the permit, based on the 0.88 MGD design flow. The monitoring frequency is monthly.

E. coli:

Presence of pathogens in untreated and treated domestic wastewater indicates a reasonable potential for *E. coli* bacteria levels in the effluent to cause or contribute to an excursion above the 2015 NNSWQS. The limits will continue to maintain protection of water quality and are based on the 2015 NNSWQS Section 207.B for protection of **PrHC**. As required by the draft permit, the monthly geometric mean of *E. coli* bacteria must not exceed 126/100 ml as a monthly average and 235/100 ml as a single sample maximum. 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 Chorine ("TRC"):

Chlorination for disinfection purposes indicates that 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 µg/l has been established in the permit to protect the beneficial uses of the receiving waters. The monitoring frequency is once per month, consistent with the previous permit.

Total Dissolved Solids ("TDS"):

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 the 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 annually to be conducted concurrently with hardness monitoring.

Cadmium:

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 cadmium in the effluent to cause or contribute to exceedances above the applicable water quality criteria using an assumed effluent hardness reading of 220 mg/L and the 2007 NNSWQS approved in 2009. (Note: the cadmium criteria included in the 2015 NNSWQS for cadmium were not approved by EPA.) Monitoring of cadmium is included in the priority pollutant scan. However, because monitoring for cadmium was conducted by the permittee only once during the previous permit cycle, there was not sufficient data to calculate representative geometric means from multiple data points to evaluate compliance with the applicable water quality standards. Therefore, the permit establishes effluent limits and quarterly monitoring requirements for cadmium.

Hardness (as $CaCO_3$):

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 draft permit includes a new requirement for quarterly monitoring for total (unfiltered) hardness to be conducted concurrently with metals monitoring.

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 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 water quality standards 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 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 the 2015 NNSWQS. 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.

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..." The effluent results show exceedances of the WET limit during the previous 5 years.

To evaluate the secondary effects of discharged nutrients, and to comply with the NNSWQS for the **A&W** designated use, a minimum standard for chronic toxicity (a value of 0, "Pass" of the Test of Significant Toxicity (TST) null hypothesis (H_o) 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 limits** and monitoring requirements for chronic WET to be conducted monthly using a 24-hour composite sample of the treated effluent for the water flea Daphnid (*Ceriodaphnia dubia*), fathead minnow *(Pimephales promelas)* and an algae species (*Selenastrum capricornutum*). Chronic WET testing 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.

Priority Pollutant Scan:

The permit includes a 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 performed at least once during the **second and fourth years** of the permit cycle and 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. Here, the permit limits are equal to or more stringent than those in the previous permit.

E. Antidegradation Policy

EPA's antidegradation policy under CWA § 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 at issue here is not listed as an impaired waterbody for BOD_5, TSS, coliform, temperature, or total ammonia under CWA § 303(d).

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 continue to be discharged below detection levels. Therefore, due to the low (non-detect) levels of toxic pollutants present in the effluent, and inclusion of water quality-based effluent limitations where needed, the discharge is not expected to adversely affect receiving water bodies or result in any degradation of water quality.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

The approved 2015 NNSWQS revisions contain narrative water quality standards for pollutants applicable to the receiving water. Thus, the permit incorporates applicable narrative water quality standards. Pursuant to the narrative surface water quality standards (Section 203 of the 2015 NNSWQS), the discharge shall be free from pollutants in amounts or combinations that cause solids, oil, grease, foam, scum, or any other form of objectionable floating debris on the surface of the water body; may cause a film or iridescent appearance on the surface of the water body; or that may cause a deposit on a shoreline, on a bank, or on aquatic vegetation.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters in Table 5, at the minimum frequencies specified. Additionally, where effluent concentrations of pollutant parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutant 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 Central Data Exchange (CDX) 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 at least once during Years 2 and 4 of the permit cycle to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee must conduct the priority pollutants scan concurrently with a whole effluent toxicity testing. Permit Attachment E provides a complete list of Priority Toxic Pollutants, including identifying the volatile compounds that should be collected via grab sample procedures. 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 aquatic toxicity test results are used to determine if the NPDES effluent causes toxicity to aquatic organisms. Toxicity testing is important because for scores of individual chemicals and compounds, chemical-specific environmentally protective levels for toxicity to aquatic life have not been developed or set as water quality standards. These chemicals and compounds can eventually make their way into effluents and their receiving surface waters. When this happens, toxicity tests of effluents can demonstrate toxicity due to present, but unknown, toxicants (including possible synergistic and additive effects), signaling a water quality problem for aquatic life.

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed test organism can show a difference in biological response; some will be undesirable differences. Examples of undesirable biological responses include, but are not limited to, eggs not fertilized, early life stages that grow too slowly or abnormally, or death. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) chosen by the permitting authority and specified in the NPDES permit. The chosen statistical approach is compatible with both the experimental design of the WET method and the applicable toxicity water quality standard. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic, in relation to the permit's toxicity level for the effluent, which is set to protect the quality of surface waters receiving the NPDES discharge. EPA's WET methods are specified under 40 CFR 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 *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 ≤ 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 indicted by a low long-run toxicity laboratory control coefficent of variation for the test species/WET method, using a minimum of 30 to 50 toxicity tests.

In accordance with 40 CFR § 122.44(d)(1), reasonable potential for chronic toxicity has been established. This is because at least one chronic toxicity test result was Fail (1), indicating unacceptable toxicity is present in the effluent, or at least one associated PE (Percent (%) Effect) value is ≥ 10, indicating toxicity at a level higher than acceptable is present in the effluent (see Section 1.4 in TST Technical Document). Thus, chronic toxicity WQBELs are required for the permitted discharge (40 CFR § 122.44(d)(1)). 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 2 in NPDES permit).

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

$$[(Qe + Qs) / Qe] = 1 + D = S$$

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 beneficial uses in receiving waters (CWA §§ 101(a)(3), 301(b)(1)(C)). The median monthly WQBEL—no more than one of a maximum of three 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—one 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 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" (≤ 5% of the time when the true toxicity of the discharge is < 10 PE).

For POTWs, it is not practicable (40 CFR § 122.45(d)) for EPA to set an average (median) weekly effluent limit, in lieu of a maximum daily effluent limit. This is because discharges of unacceptable toxicity—true chronic toxicity ≥ 25 PE, the TST's chronic toxicity RMD—are not adequately restricted by two effluent limits (median weekly and median monthly) each using a median of up to three toxicity test results. Under such limits, a highly toxic discharge could occur with no restriction. Using two such median limits further decrease the probability that an effluent with

unacceptable toxicity will be caught, resulting in a permitted discharge which under-protects the aquatic life from unacceptable chronic toxicity.

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

IX. SPECIAL CONDITIONS

A. Biosolids 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 Laguna Creek 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 BOD_5 and TSS concentrations and reduce the AIR.

C. Sanitary Sewer Overflows

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

D. Asset Management Plan and Climate Change

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. USEPA published a guide entitled Incorporating Asset Management Planning Provisions into NPDES Permits (December 2014) that directs Municipalities "to manage their aging sewer and stormwater systems at a time of urban population growth, more stringent water quality protection requirements, and increased exposure to climate change-related risks." Executive Order 13990 directs federal agencies "to bolster resilience to the impacts of climate change." 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. The permittee shall develop an Asset Management Plan that considers short-and long-term vulnerabilities (including due to climate change) of collection systems, facilities, treatment systems, and outfalls. Intent is to ensure facility operations are not disrupted and compliance with permit conditions is achieved. Asset management and climate change requirements have been established in the

permit to ensure compliance with the provisions of 40 CFR § 122.41(e).

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

EPA conducted a screening level evaluation of environmental justice ("EJ") vulnerabilities in the community posed to residents in the vicinity of the permitted 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 near the discharge when drafting permit conditions.

On October 6, 2023, EPA conducted an EJSCREEN analysis of the community in a 10-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:

Figure 1. EJSCREEN Analysis – Kayenta WWTP

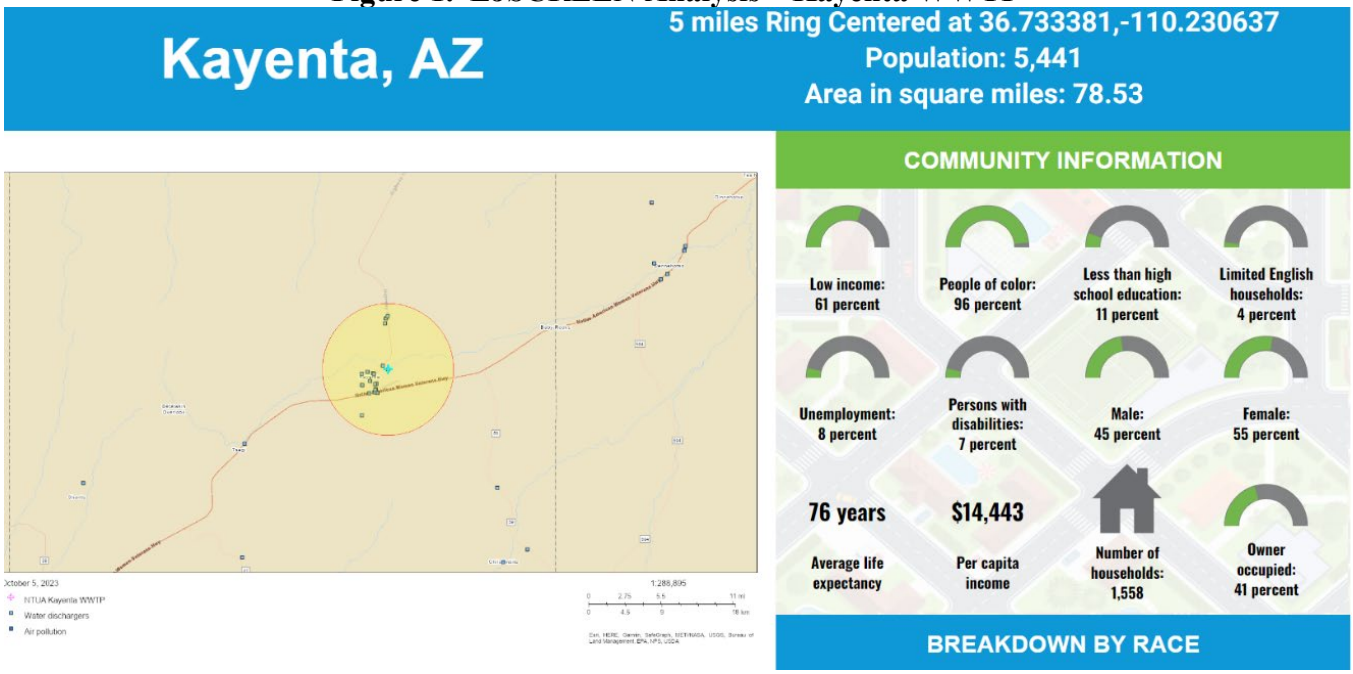
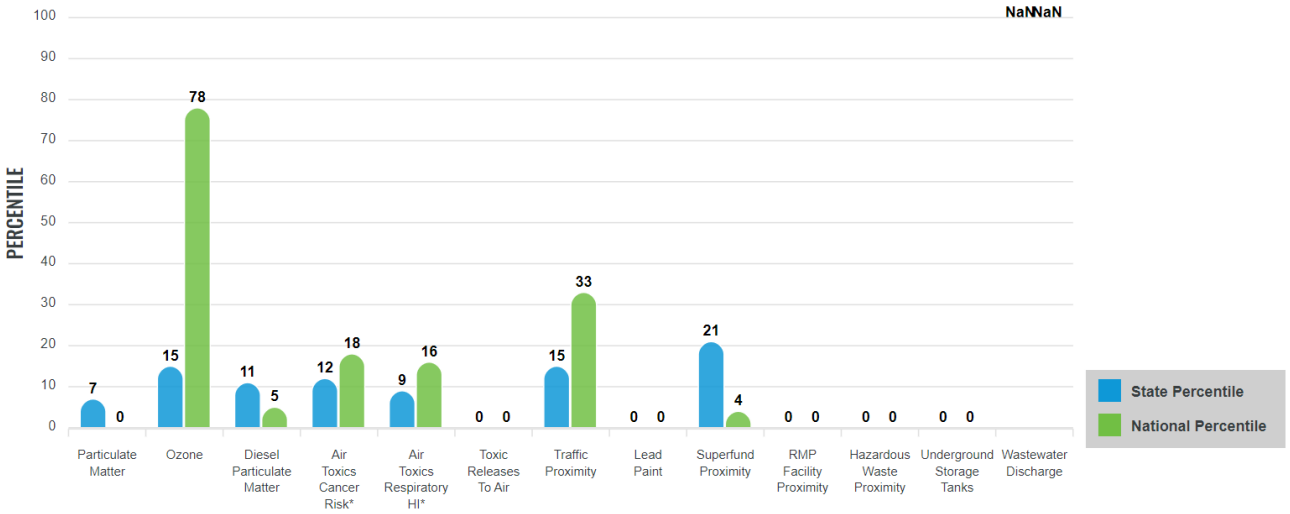


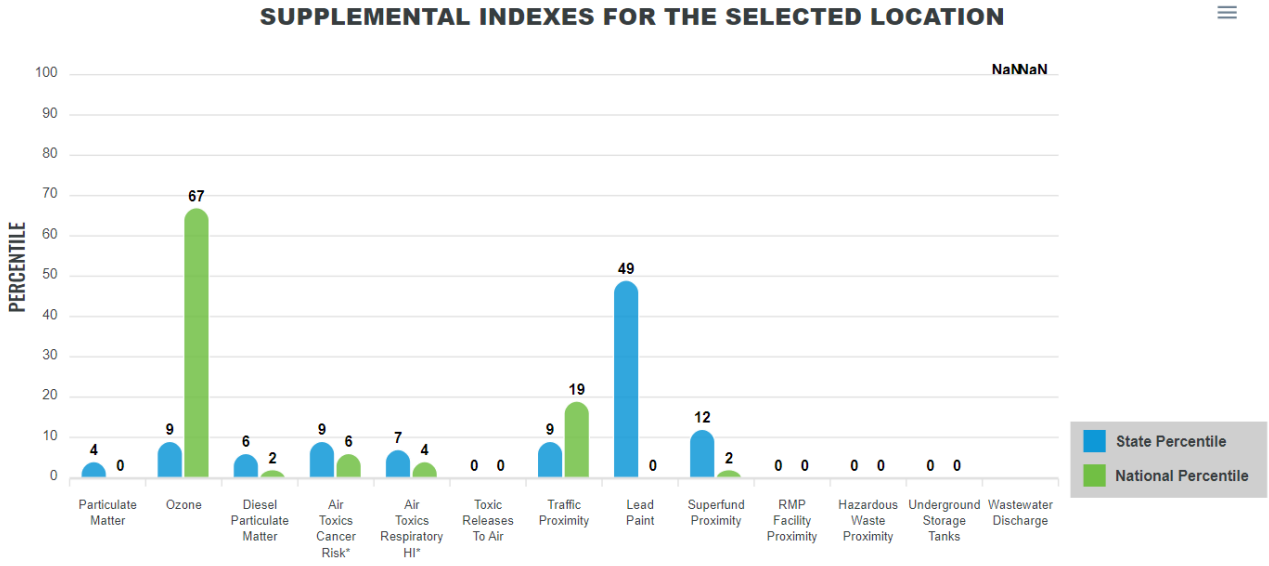
Figure 2. EJ Indexes – Kayenta WWTP

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 5 miles Ring Centered at 36.733381,-110.230637

Figure 3. EJScreen Environmental and Socioeconomic Indicators – Kayenta WWTP

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	3.82	5.87	2	8.08	0
Ozone (ppb)	59.7	66.1	5	61.6	38
Diesel Particulate Matter ($\mu g/m^3$)	0.0249	0.278	2	0.261	1
Air Toxics Cancer Risk* (lifetime risk per million)	10	25	1	25	1
Air Toxics Respiratory HI*	0.1	0.31	0	0.31	0
Toxic Releases to Air	0	2,800	0	4,600	0
Traffic Proximity (daily traffic count/distance to road)	3.6	190	5	210	9
Lead Paint (% Pre-1960 Housing)	0.00064	0.089	0	0.3	0
Superfund Proximity (site count/km distance)	0.0066	0.077	6	0.13	1
RMP Facility Proximity (facility count/km distance)	0.0092	0.38	0	0.43	0
Hazardous Waste Proximity (facility count/km distance)	0.0056	0.71	0	1.9	0
Underground Storage Tanks (count/km^2)	0	1.7	0	3.9	0
Wastewater Discharge (toxicity-weighted concentration/m distance)	N/A	5.8	N/A	22	N/A
SOCIOECONOMIC INDICATORS					
Demographic Index	79%	38%	94	35%	95
Supplemental Demographic Index	21%	14%	78	14%	81
People of Color	96%	44%	95	39%	93
Low Income	61%	32%	88	31%	89
Unemployment Rate	8%	6%	72	6%	73
Limited English Speaking Households	4%	4%	71	5%	72
Less Than High School Education	11%	12%	62	12%	62
Under Age 5	8%	5%	72	6%	72
Over Age 64	10%	20%	34	17%	26
Low Life Expectancy	22%	19%	73	20%	71

The results above suggest that the areas around the Kayenta WWTP 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. No data is available in the above table for wastewater discharge proximity; however, it is possible that the population within a wide range of the Kayenta WWTP is at greater risk for hazardous wastewater discharge than other population in the state and in the nation. Air quality indices may be influenced by the presence of both state and federal highways near or adjacent to the facility as wastewater facilities don't generate ozone or lead paint. It is also possible that the presence of a former uranium mine outside of the community influences the indices. 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 Laguna Creek. 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 the 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 September 18, 2023, EPA generated official species listing from the U.S. Fish and Wildlife Service ("USFWS") Arizona Ecological Services Field Office website, which identifies the threatened and endangered species and their critical habitat that may occur in the vicinity of the Kayenta wastewater treatment facility and its effluent discharge to Laguna Creek, a tributary to Chinle Wash, a tributary 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 Navajo County, as provided in Table 5 below, and should be considered as part of an effect analysis for this permit.

Table 5. Listed Species, Designated under the U.S. Endangered Species Act

Type	Common Name	Scientific Name	Status	Critical Habitat
Birds	Mexican Spotted Owl	*Strix occidentalis lucida*	T	No*
	Yellow-billed Cuckoo	*Coccyzus americanus*	T	No*
Fish	Colorado Pikeminnow	*Ptychocheilus lucius*	E	No*
	Razorback Sucker	*Xyrauchen texanus*	E	No*
Insect	Monarch Butterfly	*Danaus plexippus*	C	No
Plant	Welsh's Milkweed	*Asclepias welshii*	T	No*

*These species have final critical habitats but 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. The permit contains limits to protect the designated uses of the receiving waters, 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 the NPDES permit for Kayenta facility will have no effect on any

federally listed species in the action area. EPA has provided the USFWS with copies of the fact sheet and permit for review and comment during the 30-day public review period. There are no designated critical habitats for any of the listed species in the action area.

Birds

The **Mexican Spotted Owl** *(Strix occidentalis lucida)* is a resident of old-growth or mature forests that possess complex structural components (uneven aged stands, high canopy closure, multi-storied levels, high tree density) (https://ecos.fws.gov/ecp/species/8196). Canyons with riparian or conifer communities are also important components. In southern Arizona and New Mexico, the mixed conifer, Madrean pine-oak, Arizona cypress, encinal oak woodlands, and associated riparian forests provide habitat in the small mountain ranges (Sky Islands) distributed across the landscape. Owls are also found in canyon habitat dominated by vertical-walled rocky cliffs within complex watersheds, including tributary side canyons. Rock walls with caves, ledges, and other areas provide protected nest and roost sites. Canyon habitat may include small, isolated patches or stringers of forested vegetation including stands of mixed-conifer, ponderosa pine, pine-oak, pinyon-juniper, and/or riparian vegetation in which owls regularly roost and forage. Roosting and nesting habitats exhibit certain identifiable features, including large trees (those with a trunk diameter of 12 inches (in) (30.5 centimeters (cm)) or more (i.e., high tree basal area)), uneven aged tree stands, multi-storied canopy, a tree canopy creating shade over 40 percent or more of the ground (i.e., moderate to high canopy closure), and decadence in the form of downed logs and snags (standing dead trees). Canopy closure is typically greater than 40 percent. Owl foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas. The listed typical habitats of old-growth or mature forests, canyons with rock ledges, or large trees with a multi-storied canopy creating 40 percent shade are not present in the action area. Because the action area does not contain suitable habitat for the Mexican Spotted Owl and discharges would not affect owls merely flying over, EPA has determined that the action will not affect the Mexican Spotted Owl. Critical habitat for the Mexican Spotted Owl was finalized on August 31, 2004 (69 FR 53182) in Arizona in Apache, Cochise, Coconino, Gila, Graham, Greenlee, Maricopa, Navajo, Pima, Pinal, Santa Cruz, and Yavapai counties. There is final critical habitat for this species but not near or within the action area. EPA has thus determined that reissuance of this NPDES permit will not affect final critical habitat for Mexican Spotted Owl.

The **Yellow-billed Cuckoo** *(Coccyzus americanus*) is 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 (https://ecos.fws.gov/ecp/species/3911). Habitat conditions through most of the Yellow-billed Cuckoo's range are dynamic and may change 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). There is no dense cover or overgrown orchards in the action area. Because the action area contains no suitable habitat for Yellow-billed Cuckoo, EPA has determined that reissuance of this NPDES permit will not affect this species.

In February 2020, USFWS proposed 72 units of 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 action area does not fall into any of the 72 identified units proposed to be designated as critical habitat by the USFWS. EPA has thus determined that its action will not affect proposed critical habitat for the Yellow-billed Cuckoo.

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)

Although annual restocking occurs in the San Juan River, suitable habitat does not occur in the vicinity of the action area nor in any of the washes leading to the San Juan River. Streamflow in Laguna Creek is ephemeral and does not reach San Juan River, so the action area does not include San Juan River. No standing ponds or water exist at the facility or nearby property and thus the species is not believed to be present in Laguna Creek tributary, beyond speculative incidental contact. EPA has determined that the action will have no effect on the Colorado pikeminnow. And although final critical habitat for the Colorado pikeminnow includes portions of the San Juan River, the action area is dry for part of the year and does not reach these sections of San Juan River. EPA has therefore determined that its action will not affect critical habitat for Colorado pikeminnow.

Razorback suckers *(Xyrauchen texanus)* (https://ecos.fws.gov/ecp/species/530) 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. Although

restocking occurs in San Juan River, suitable habitat does not occur in the vicinity of the action area nor in any of the creeks leading to the San Juan River, so the action area does not include San Juan River. EPA has therefore determined that the action will not affect Razorback suckers. The action area does not fall into any designated final critical habitat by the USFWS thus EPA has determined that its action will not affect critical habitat for Razorback suckers.

Insects

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.

Flowering Plant

Welsh's Milkweed *(Asclepias welshii)* (https://ecos.fws.gov/ecp/species/8400) is a rhizomatous, herbaceous perennial, 10 to 40 inches tall, with large oval leaves and cream-colored flowers that are rose-tinged in the center. The 2015 Five-Year Review noted no information to determine whether any of the populations were at viable levels. The species is clonal, with extensive and deep root systems, so it was not possible to determine whether surveys were for individual plants.

The species is known to occur within unconsolidated, aeolian sand dunes in southern Utah and northern Arizona (Kneller 2003; Welsh et al. 2008, in USFWS 2015). It grows only on active sand dunes ranging from 4700 to 6200 ft in elevation, associated with plant communities dominated by pinyon pine, Utah juniper, sagebrush, and ponderosa pine (Palmer 2001, in USFWS 2015). It is considered a pioneer species, thriving in disturbed conditions with little or no competing vegetation; as sand dunes stabilize and other plant species move in, Welsh's milkweed may decline or spread via rhizomes into unoccupied, more active dunes (Palmer 2001, in USFWS 2015). These habitats are not found in the action area of the Kayenta facility and would not be affected by discharge or drainage of the lagoons. Accordingly, EPA has determined that its action will not affect the Welsh's milkweed. The action area does not fall into any designated final critical habitat by the USFWS thus EPA has determined that its action will not affect critical habitat for Welsh's milkweed.

Conclusion

Considering the information available, EPA concludes that the reissuance of this NPDES permit will not affect any of the above listed species. There is no designated critical habitat for the listed species within the action area. A copy of the draft fact sheet and permit will be forwarded to the Arizona Ecological Field Office of the USFWS for review and comment during the 30-day public review period. 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. Migratory Bird Treaty Act and Bald Eagle Protection Act

The Migratory Bird Treaty Act ("MBT") (16 USC 703-712) protects migratory birds. Bald Eagle nests would be protected under the Bald Eagle Protection Act (Eagle Act) (16 USC 668 et seq.),

which are not expected to be found near the facility.

D. 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 (Tribe or Territory) Coastal Management Plan (CZMA §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.

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

E. 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 whether Federal actions may adversely impact Essential Fish Habitat ("EFH").

The permit does not authorize direct discharges to areas of essential fish habitat. Therefore, EPA has determined that essential fish habit does not apply to this permit.

F. 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 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.

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

For this permit, the permittee is required to seek water quality certification (including paying applicable fees) that this permit will meet applicable water quality standards obtained water quality certification from the Navajo Nation EPA that this Permit will meet applicable water quality standards. Certification under section 401 of the CWA must be in writing and include 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 Navajo Nation law. EPA cannot issue the permit until the NNEPA has granted certification under 40 CFR § 124.55 or waived its right to certify. NNEPA issued certification under CWA section 401 on July 26, 2023.

XI. STANDARD CONDITIONS

A. Reopener Provision

In accordance with 40 CFR Parts 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 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 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 appear on EPA Region 9's website from December 14, 2023, to January 16, 2024, for a 30-day comment period for interested parties to respond in writing to EPA. No comments were received on the draft permit during this period.

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. 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 and additional information relating to this proposal may be directed to:
Linh Tran, NPDES Permit 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.

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EPA. 2004. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. Office of Water, EPA. EPA-821-R-04-014.

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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

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EPA. 2018. December NPDES Compliance Evaluation Inspection of Kayenta WWTP; Report prepared by EPA Wastewater Section, Enforcement Division, dated February 20, 2019.

NNEPA. 2023. March 31 NPDES Compliance Evaluation Inspection of Kayenta WWTP; Report prepared by Navajo Nation EPA, dated March 31, 2023.

USFWS. 2023. IPaC Report for Endangered and Threatened Species List in the Vicinity/Action Area of NTUA Kayenta WWTP and Discharge

NNEPA. 1999. Water Quality Program. Navajo Nation Surface Water Quality Standards, approved 2006.

NNEPA. 2007. Water Quality Program. Navajo Nation Surface Water Quality Standards revisions, approved 2009.

NNEPA. 2015/2017. Water Quality Program. Navajo Nation Surface Water Quality Standards 2015, partially approved 2021.

NNEPA. 2023. Water Quality Program. Clean Water Act Section 401 Certification for NPDES permit for Kayenta WWTP. Dated July 26, 2023.