**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**
**PERMIT FACT SHEET**
**August 2021**

Permittee Name: Navajo Tribal Utility Authority ("NTUA")

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Facility Location: NTUA Window Rock Wastewater Treatment Facility
Lagoon Road, approximately 1.5 miles SW of the Navajo Fairground
Window Rock, Apache County, Arizona 86515

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NPDES Permit No.: NN0021555

## I. STATUS OF PERMIT

NTUA (the "permittee") has applied for the renewal of its National Pollutant Discharge Elimination System ("NPDES") permit to authorize the discharge of treated effluent from the Window Rock wastewater treatment facility ("WWTF") in Window Rock, Apache County, Arizona, within the central portion of the Navajo Nation. The WWTF is owned and operated by the NTUA. The permittee applied for a permit renewal on October 2, 2020.

The Navajo Nation ("Tribe") 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 ("USEPA") is preparing the draft NPDES permit renewal and fact sheet pursuant to Section 402 of the Clean Water Act ("CWA"), which requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States. The draft permit incorporates both federal standards and applicable tribal water quality requirements.

The permittee is currently covered under NPDES Permit No. NN0021555, which became effective on February 1, 2016, through midnight January 31, 2021. 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 40 CFR § 122.21, EPA issued an administrative continuance of the permit on January 28, 2021, and the terms of the existing permit are administratively extended until the issuance of a new permit.

Pursuant to Section 402 of the CWA, the USEPA is proposing issuance of the NPDES permit renewal to the permittee for the discharge of treated domestic wastewater to Black Creek, a tributary to Puerco River, an eventual tributary to the Little Colorado River, all waters of the United States.

## II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

**Table 1. Significant Changes to Previous Permit**

| Permit Condition | Previous Permit (2016 – 2021) | Re-issued permit | Reason for change |
|---|---|---|---|
| DMR submittal | Hardcopy accepted | Switch to e-reporting | EPA e-reporting Rule |
| Biosolids report | Hardcopy accepted | Switch to e-reporting | EPA e-reporting Rule |
| Units for mass effluent limits | The previous permit included mass limits for 5-day Biochemical Oxygen Demand ($BOD_5$) and total suspended solids (TSS) that were expressed in terms of kg/day. | The draft permit includes mass limits for $BOD_5$ and TSS, that are expressed in terms of lbs/day. | To be consistent with other recently issued EPA Region 9 permits. |
| *E. coli* limits | WQS-based limits for protection of Primary human contact | WQS-based limits for protection of Secondary human contact | Change in WQS |
| Total residual chlorine (TRC) monitoring and effluent limit | TRC limit of 11 µg/l | Remove effluent limit for TRC | No reasonable potential exists for TRC as chlorine is not being used for effluent disinfection. UV disinfection system is used instead. |
| Cyanide monitoring and effluent limit | The previous permit required cyanide monitoring as part of the priority pollutant scan. | Effluent limits and monitoring requirements for cyanide have been added. | Reasonable potential to exceed WQS. |
| Priority Pollutant Scan | Monitor once in the 5-year permit term | Monitor annually | Conducting more priority pollutant scans will allow for more accurate reasonable potential analysis for priority pollutants and toxicity |
| Zinc monitoring and effluent limits | The previous permit required monitoring for Zinc as part of priority pollutant scan. | Effluent limits and monitoring requirements have been added for zinc | Reasonable potential to exceed WQS |
| Hardness (as $CaCO_3$) monitoring | No effluent monitoring requirements for hardness were included in the previous permit. | The final permit requires effluent monitoring for hardness once per year. | To collect updated effluent hardness data in order to calculate hardness-dependent metals criteria. |

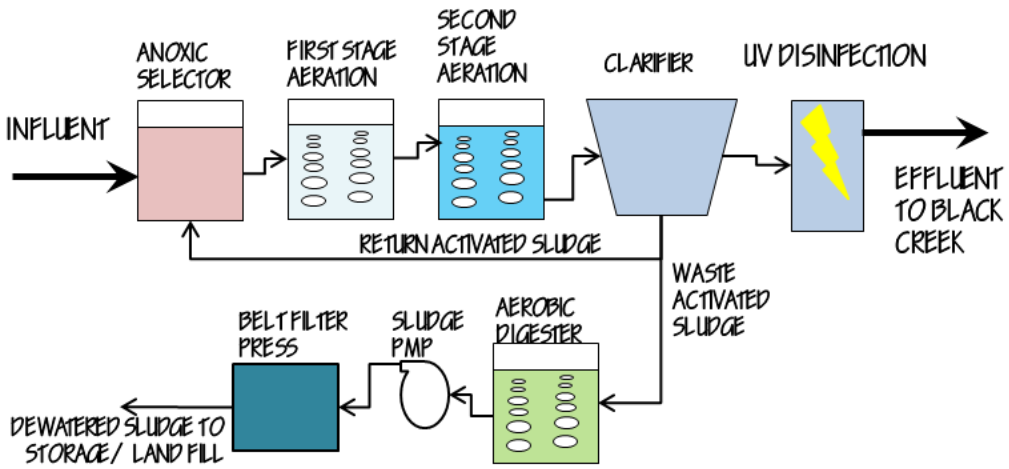
| | | | |
|---|---|---|---|
| Chronic WET testing requirements and triggers | The previous permit required the permittee to report results in Chronic Toxicity Units (TUc) and included triggers of any one test result greater than 1.6 TUc or any calculated monthly median value greater than 1.0 TUc. | The draft permit requires the permittee to report Pass "0" or Fail "1" of the Test of Significant Toxicity ("TST") null hypothesis ($H_o$) and the percent effect. | The requirements in the draft permit have been established in accordance with the TST statistical approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). |
| WET monitoring frequency | Monthly testing | Quarterly testing | WET testing frequency was reduced from monthly to quarterly following results showing no toxicity in effluent over 2 years. |
| Best Management Practices ("BMPs") | None | The new permit incorporates standard BMPs language for small utilities. | Provision of 40 CFR § 122.44(k)(4) |
| Sanitary Sewer Overflow ("SSO") | None | The new permit incorporates standard SSO language for small utilities. | To be consistent with EPA Region 9 policy and other recently issued permits. |
| Asset Management Program ("AMP") | None | The new permit incorporates standard asset management requirement for small utilities. | Provision of 40 CFR § 122.41(e) |

## III. GENERAL DESCRIPTION OF FACILITY

The NTUA Window Rock WWTF is an extended aeration biological nutrient removal ("BNR") activated sludge plant located approximately 1.5 miles southwest of the Window Rock Fairgrounds in Window Rock, Apache County, Arizona. The activated sludge plant was brought online on June 6, 2016, to replace the old aerated lagoon system. A new septage receiving facility was constructed as well. The facility has a maximum design flow of 1.2 million gallons per day ("MGD"). Wastewater enters the WWTF through a 24-inch influent reinforced concrete pipe.

Influent enters through the headworks which consist of two screw pumps, a mechanical bar screen, a Parshall flume with an ultrasonic flow meter, and a Pista grit chamber. The wastewater then flows into the anoxic selector, which then splits into parallel tracts of aeration process. Wastewater then flows into the clarifier and on to the UV disinfection system and discharge outfall. Lagoon #1 from the old lagoon treatment system will be retained and used for emergency purposes.

**Figure 1: Window Rock WWTP Process Diagram**




Solids are removed throughout the process. Solids removed by the mechanical bar screen are collected in a dumpster to be taken to a waste management transfer system. Solids removed in the tract portion of the system are sent to a digester and transported to the belt filter press to remove excess water. The remaining solids are then stored on site in beds that are adjacent to the facility and excess water (return activated sludge) is sent back to the headworks. During a 2018 inspection, NTUA staff estimated about 2 years left of remaining storage on site.

## IV. DESCRIPTION OF RECEIVING WATER

Final effluent discharges to Outfall 001 to Black Creek, which is a tributary to Puerco River, a tributary to the Little Colorado River, all waters of the United States. The coordinates for discharge Outfall No. 1 are: Latitude 35° 38' 13.64" North and Longitude 109° 5' 1.719" West.

## V. DESCRIPTION OF DISCHARGE

The new activated sludge facility discharges continuously from a single Outfall 001. Discharge flow rates range from 0.4 MGD to 0.8 MGD but sometimes go over 1.0 MGD during the monsoon season, according to NTUA operator. Except for an incident in April 2020, the facility has achieved over 90% removal efficiencies in $BOD_5$ and TSS. $BOD_5$ effluent concentrations typically range about 3 mg/L to 10 mg/L while TSS effluent concentrations range from 3mg/L to 15 mg/L. These values are well below the permit effluent limitations. The effluent was found to be clear and free of objectionable odor during a December 2018 inspection conducted by the USEPA and Navajo Nation EPA ("NNEPA"). 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 | 0.96 | 0.365 | 31 |
| Biochemical oxygen demand, 5-day ($BOD_5$) | mg/L | 44.4 | 6.25 | 31 |
| pH | S.U. | 4.1 to 22.2 | | n/a |
| Temperature | °C | 9.66 to 21 | | 9 |
| Fecal Coliform | CFU | 91.3 | 9.96 | 31 |
| Total Suspended Solids (TSS) | mg/L | 16 | 5.53 | 31 |
| Ammonia (as N) | mg/L | 4.61 | 0.761 | 31 |
| Chlorine, total residual (TRC) | µg/l | n/a | n/a | n/a |
| Total Dissolved Solids (TDS) | mg/L | 1052 | 866.32 | 10 |
| Hardness (as $CaCO_3$) | mg/L | n/a | n/a | n/a |
| Arsenic, total recoverable | mg/L | 0.0011 | n/a | 1 |
| Cadmium, total recoverable | mg/L | <0.0001 | n/a | 1 |
| Copper, total recoverable | mg/L | < 0.010* | n/a | 0 |
| Lead, total recoverable | mg/L | < 0.001* | n/a | 0 |
| Mercury, total recoverable | mg/L | < 0.0002 | n/a | 1 |
| Nickel, total recoverable | mg/L | < 0.020 | n/a | 1 |
| Silver, total recoverable | mg/L | < 0.0001 | n/a | 1 |
| Zinc, total recoverable | mg/L | 0.056 | n/a | 1 |
| Cyanide | mg/L | <0.010 | n/a | 1 |
| Total Phenolic Compounds | mg/L | <0.050 | 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 (2016-2021)

Table 3 shows data related to discharge from Outfall 001 based on permittee's discharge monitoring reports ("DMRs") from June 2016 (when the new activated sludge plant was brought online) to February 2021. More information is available on Enforcement and Compliance History Online ("ECHO") at https://echo.epa.gov/detailed-facility-report?fid=NN0021555. Pollutants believed to be absent or never detected in the effluent are not included in Table 3. Data showed the facility had experienced exceedances of limits for 5-day biochemical oxygen demand ("$BOD_5$"), total suspended solids ("TSS"), *E. coli*, $BOD_5$ percent removal, and TSS percent removal, as detailed in Section VI.B.4.

**Table 3. Effluent Data for [Outfall 001] from June 2016-April 2021 based on 1.2 MGD design flow**

| Parameters | Units | Permit Effluent Limitations | | | Effluent Data | | | |
|---|---|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Highest Average Monthly | Highest Average Weekly | Highest Maximum Daily | Monitoring Frequency |
| Flow Rate | MGD | -- (1) | -- | -- (1) | 0.79 (02/2017) | -- | 1.2 (02/2017) | Monthly |
| Ammonia (as N) | mg/L | -- (1) | -- | -- (1) | 1.41 (02/2018) | -- | 1.41 (02/2018) | Monthly |

| Parameters | Units | Permit Effluent Limitations | | | Effluent Data | | | |
|---|---|---|---|---|---|---|---|---|
| | | Average Monthly | Average Weekly | Maximum Daily | Highest Average Monthly | Highest Average Weekly | Highest Maximum Daily | Monitoring Frequency |
| Ammonia Impact Ratio (AIR) | Ratio | 1.0 (2) | -- | 1.0 (2) | 0.3 (02/2018) | -- | 0.3 (02/2018) | Monthly |
| Biochemical Oxygen Demand 5-day ($BOD_5$) | mg/L | 30 | 45 | -- | 44.4 (04/2020) | 44.4 (04/2020) | -- | Monthly |
| | kg/day | 135(3) | 203(3) | -- | 93.9 (04/2020) | 48.7 (04/2020) | -- | |
| | % Removal | >85 % minimum (4) | | | lowest = 74.7 % (04/2020) | | | Monthly |
| Total Suspended Solids (TSS) | mg/L | 30 | 45 | -- | 21.9 (10/2020) | 21.9 (10/2020) | -- | Monthly |
| | kg/day | 135(3) | 203(3) | -- | 34.8 (10/2020) | 56.9 (11/2019) | -- | |
| | % Removal | >85 % minimum (4) | | | lowest = 80.2 % (04/2020) | | | Monthly |
| Chlorine, total residual (TRC) | µg/l | -- | -- | 11.0 | -- | -- | 1.2 | Monthly |
| TDS | mg/L | -- | -- | -- | -- | -- | 1,158 | Quarterly |
| *E. coli* | CFU/ 100mL | 126 | -- | 235 | 91.3 (04/2020) 447.8 (11/2020) | -- | 2419.6 (04/2020) 488.4 (11/2020) | Monthly |
| pH | S.U. | 6.5 to 9.0 (min-max) | | | 6.6 (09/2016) - 8.46 (07/2017) | | | Monthly |
| Temperature | °C | -- (1) | -- | -- (1) | 3 to 12.9 | -- | 3 to 14 | Monthly |
| Whole Effluent Toxicity, chronic | Pass (0) or Fail (1) | -- | -- | Pass (0) (5) | -- | -- | Pass (0) | Monthly |

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 1.2 MGD flow.

(4) Both the influent and the effluent shall be monitored. The arithmetic means of the $BOD_5$ 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% $BOD_5$ removal; minimum of 85% TSS removal).

(5) 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 draft permit, as described below.

## A. Applicable Technology-Based Effluent Limitations

EPA developed technology-based treatment standards for wastewater treatment plants in accordance with Section 301(b)(1)(B) of the Clean Water Act. The minimum levels of effluent quality attainable by secondary treatment for $BOD_5$, TSS, and pH, as defined in 40 CFR § 133.102(a) are listed below. Mass limits, as required by 40 CFR § 122.45(f), are included for $BOD_5$ and TSS in the permit.

***$BOD_5$ 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:

$$\frac{1.2\ MG}{day} \times \frac{30\ mg}{l} \times \frac{8.345\ lb/MG}{mg/l} = 300.4\ lbs\ per\ day$$

7-day average:

$$\frac{1.2\ MG}{day} \times \frac{45\ mg}{l} \times \frac{8.345\ lb/MG}{mg/l} = 450.6\ lbs\ per\ day$$

***pH:***

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

***Priority Pollutant Scan:***

The draft 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.

## 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 that account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water (40 CFR § 122.44(d)(1)(ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water Enforcement and Permits, U.S. EPA, March 1991) and the *U.S. EPA*

*NPDES Permit Writers Manual* (Office of Water, U.S. EPA, 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. USEPA approved the 1999 NNSWQS on March 23, 2006. The NNSWQS were revised in 2007 and approved by the USEPA on March 26, 2009. The 2015 NNSWQS were revised in 2017 and approved by USEPA on October 5, 2020. The approved 1999 NNSWQS and 2007 revision, and the approved 2015/2017 revisions will be used on a best professional judgment ("BPJ") basis for purposes of developing water quality based effluent limitations.

The following beneficial uses are designated for Black Creek (ephemeral reaches), tributary to Puerco River, tributary to the Little Colorado River, as listed in Table 206.1 in the 2015/2017 NNSWQS revision:

- **ScHC** - Secondary Human Contact,
- **A&W** - Aquatic & Wildlife
- **LW** - Livestock Watering, and
- **AgWS** – Agricultural Water Supply

Note that **AgWS** was added while Primary Human Contact (**PrHC**) and Fish Consumption (**FC**) uses were removed in the approved 2017 NNSWQS revision.

No waterbodies receiving discharges from the facility have been identified as impaired and therefore have not been listed on the Clean Water Act Section 303(d) List of Water Quality Limited Segments. No TMDLs have been developed or approved for these waters.

### 2. Dilution in the Receiving Water

Discharge from Outfall 001 flows to Black Creek, which may have no natural flow during certain times of the year. Therefore, 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 June 2016 to April 2021 showed occasional exceedances of limits for $BOD_5$, TSS, *E coli*, $BOD_5$ percent removal, and TSS percent removal. Some reports for Whole Effluent Toxicity testing (October-December 2019, January-March 2020, April-June 2020, and June September 2020) and TDS monitoring (January-March 2021) were submitted late or not submitted at all.

**Table 4. DMR Violations from June 2016 to April 2021**

| Month | Parameter | Value | Limit | Units |
|---|---|---|---|---|
| July 2019 | TSS Percent Removal | 82.3 | 85 | % |
| April 2020 | $BOD_5$ Monthly Average Conc. | 44.4 | 30 | mg//l |
| | $BOD_5$ Percent Removal | 74.7 | 85 | % |
| | TSS Percent Removal | 80.2 | 85 | % |
| | *E coli* Daily Maximum | 2419.6 | 235 | CFU/100 ml |
| Nov. 2020 | *E coli* Daily Maximum | 488.4 | 235 | CFU/100 ml |
| | *E coli* Monthly Average | 447.8 | 126 | CFU/100 ml |
| March 2021 | TSS Monthly Average Conc. | 36 | 30 | mg/l |

NTUA was under an Administration Order on Consent ("AOC") Docket No. CWA-309(a)-15-008 issued by the USEPA on July 6, 2015, for violations of the NPDES permit and Clean Water Act. The facility was also under an AOC Docket No. NNCWA-AOC-2015-001 issued by the NNEPA on May 12, 2015, for violations of the NPDES permit. As required by these AOCs, NTUA devised a long-term compliance plan that included construction and operation of the activated sludge facility to replace its old lagoon system. Both AOCs were terminated on February 20, 2018 after all other requirements of the AOCs were met.

USEPA and its contractor, PG Environmental, and NNEPA conducted a compliance evaluation inspection on December 3, 2018, and made the following findings: (1) Influent sampling is pulled from a height that may put additional strain on the pump in the automatic sampler. (2) Operation and maintenance (O&M) manuals need to be updated to reflect the current operations of the plant. (3) The SCADA system do not send alarm notifications to the operators when operators are not onsite. (4) Uncertainty on how wastewater flows through the tract portion of the facility. Flows ranged from 0.4 MGD to 0.8 MGD but would sometimes be over 1.0 MGD during the monsoon season, according to NTUA operator. (5) No Biosolids plan was available for this facility as required by the permit. USEPA has not received a Biosolids plan for this facility. While the facility has not removed and disposed of biosolids (eg. sewage sludge) from the site, Section D of the NPDES permits requires the facility to submit a Biosolids

plan about the estimate of sewage sludge currently on-site within lagoons to USEPA and NNEPA within 120 days of the permit issuance. The permit was effective on February 1, 2016.

### 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 99$^{th}$ 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:

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

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 5. Summary of Reasonable Potential Statistical Analysis Parameter**

| Pollutant Parameter (1) | Maximum Observed Concentration | *n* | RP Multiplier | Projected Maximum Effluent Concentration | Most Stringent Water Quality Criterion | Statistical Reasonable Potential? |
|---|---|---|---|---|---|---|
| Ammonia (as N) | 4.61 mg/L | 31 | 1.6 | 7.4 mg/L | 1.3 to 1.7 (depending on temp and pH) (2) | Yes (3) |
| Arsenic | 1.1 µg/L | 1 | 13.2 | 14.5 µg/L | 30 µg/L | No |
| Beryllium | < 2 µg/L | 1 | -- | -- | 85 µg/L | No |
| Cadmium | < 0.1 µg/L | 1 | -- | -- | 8 µg/L | No |
| Copper, total recoverable | < 10 µg/L | 1 | -- | -- | 17.6 µg/L (4) | No |
| Lead, total recoverable | < 1 µg/L | 1 | -- | -- | 15 µg/L (4) | No |
| Nickel, total recoverable | < 20 µg/L | 1 | -- | -- | 101 µg/L (4) | No |
| Silver, total recoverable | < 0.1 µg/L | 1 | -- | -- | 12.5 µg/L (4) | No |
| Zinc, total recoverable | 56 µg/L | 1 | 13.2 | 739 µg/L | 229 µg/L (4) | Yes |
| Cyanide | 10 µg/L | 1 | 13.2 | 132 µg/L | 5.2 µg/L | 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) 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.
(3) See Section VI.C, below, for a discussion of the reasonable potential statistical analysis results and rationale for establishing numeric effluent limits and monitoring requirements in the permit.
(4) 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.

***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.

***$BOD_5$ and TSS:***

The $BOD_5$ and TSS technology-based limits are described above, and the permit retains these limits. Under 40 CFR § 122.45(f), mass limits are required for $BOD_5$ and TSS. The mass-based limits included in the permit are calculated based on the 1.2 MGD design flow.

***E. coli***

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 draft permit, the monthly geometric mean of *E. coli* bacteria must not exceed 126/100 ml as a monthly average and 576/100 ml as a single sample maximum. These limits are based on the 2015 NNSWQS for protection of **ScHC** (p. 20). The single sample maximum is different than the previous permit limits which were based on **PrHC** beneficial use designated for Black Creek (ephemeral reaches). The **PrHC** designated use for this creek has been deleted in the 2017 NNSWQS amendments approved by USEPA in October 2020. The monitoring frequency is once per month, consistent with the previous permit.

***Total Residual Chorine ("TRC")***

No reasonable potential exists for TRC as chlorine/chlorination is no longer being used for effluent disinfection purposes. Therefore, regulating TRC is superfluous, and EPA is removing the previous TRC effluent limit consistent with the anti-backsliding exception related to material and substantial alternations or additions to the permitted facility. See section D below.

***Cyanide:***

To conduct a reasonable potential analysis, EPA compared the most stringent water quality standard to the projected maximum expected value for cyanide in the discharge in accordance with EPA's TSD. As shown in Table 4 above, there is reasonable potential for

cyanide in the effluent to cause or contribute to an exceedance above the most stringent water quality criterion, i.e. freshwater chronic water quality standards for the protection of aquatic life from the NNSWQS. Therefore, the draft permit establishes an effluent limit and an annual monitoring requirement for cyanide.

***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, there is reasonable potential for zinc in the effluent to cause or contribute to exceedances above the applicable water quality criteria.

For example, the NNSWQS includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. Using an effluent hardness reading of 220 mg/L and default dissolved-to-total metal translators, EPA calculated the Criterion Maximum Concentration ("CMC") and Criterion Continuous Concentration ("CCC") for zinc as shown below:

$$CMC = [e^{(0.8473\ [\ln(220)] + 0.884)}] \times 0.978 = 229\ \mu g/L$$

$$CCC = [e^{(0.8473\ [\ln(220)] + 0.884)}] \times 0.986 = 230\ \mu g/L$$

Monitoring of zinc has been included in the priority pollutant scan. However, because the priority pollutant scan 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 draft permit establishes effluent limits and annual monitoring requirements for zinc.

***Hardness (as $CaCO_3$)***

The CTR 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 requirement for annual monitoring for hardness.

***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 draft permit requires to report Pass "0" or Fail "1" of the Test of Significant Toxicity ("TST") null hypothesis ($H_o$) and the percent effect. The previous permit established a chronic WET monthly median limit of 1.0 TUc and a maximum daily limit of 1.6 TUc. There have been no exceedances of the WET limit since June of 2016 when the new activated sludge facility was put in place, and the monitoring frequency for WET was reduced by EPA in October 2018 from monthly to quarterly.

Because of 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 draft

permit includes 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.

***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.

The AIR is calculated as the ratio of the ammonia value in the effluent to the applicable ammonia water quality standard. The NNSWQS for Ammonia in freshwater for protection of **A&W** listed in Table 207.21(page 68) of the 2015 revision contain ammonia criteria that are pH and temperature dependent. Therefore, pH, temperature, and ammonia sampling must be concurrent. See Attachment C of the permit for applicable Water Quality Standards for ammonia and Attachment D for a sample log to help calculate and record the AIR values. The AIR effluent limitation value is 1.0.

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. If the reported value exceeds the AIR limitation, then the effluent ammonia-N concentration exceeded the ammonia water quality criterion. With an AIR value exceeding 1.0, the permittee would be in violation of the permit.

***pH:***

Untreated and treated domestic wastewater could be contaminated with substance that affects the pH. Therefore, there is a reasonable potential for pH levels in the effluent to cause or contribute to an excursion above the WQS. In order to ensure adequate protection of beneficial uses of the receiving water, a maximum pH limit of 9.0 and a minimum limit of 6.5 S.U. are established in Section 207.C. of 2015 NNSWQS revision. The monitoring frequency is once per month, consistent with the previous permit. Measurements for pH are required to be taken concurrently with ammonia and temperature measurements.

***Temperature:***

There are no numeric water quality standards for temperature, only narrative standards, which have been incorporated into the permit. Effluent monitoring requirements for temperature have been incorporated in the draft permit to ensure that the applicable narrative standards are not exceeded and to calculate temperature-specific ammonia criteria, as described above. Measurements for temperature are required to be taken 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 once per discharge.

**D. Anti-Backsliding**

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l) 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 does not establish any effluent limits less stringent than those in the previous permit and does not allow backsliding, except for effluent limitations for TRC and *E. coli*. The daily maximum limit for *E. coli* is less stringent than that in the previous permit. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

The statute identifies six exceptions in CWA Section 402(o)(2) where effluent limitations may be relaxed and includes exceptions for material and substantial alternations or additions to the permitted facility that justify the relaxation. See 40 CFR § 122.44(l)(2)(i)(A). The previous permit required a TRC effluent limit because chlorination was used for disinfection purposes. Chlorine is no longer a concern since the new activated sludge facility uses UV disinfection system instead. EPA can use this exception to justify the removal of the TRC effluent limit.

CWA Section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limitations "except in compliance with Section 303(d)(4)." CWA Section 303(d)(4) has two parts: paragraph (A) which applies to non-attainment waters and paragraph (B) which applies to attainment waters.

For waters where standards are not attained, CWA Section 303(d)(4)(A) specifies that any effluent limit based on a TMDL or other waste load allocation (WLA) may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLA's will assure the attainment of such water quality standards.

For attainment waters, CWA Section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

The receiving water is considered an attainment water for *E. coli* because the receiving water is not listed as impaired on the CWA Section 303(d) list for this constituent. As discussed in Section VI.E, below, relaxation of the effluent limits complies with the applicable

antidegradation requirements. Thus, the relaxation of the effluent limitations for *E. coli* meets the exception in CWA Section 303(d)(4)(B).

### 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 $BOD_5$, 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. While no limits are set at this time, the permittee is required to monitor for the full list of priority pollutants as listed at 40 CFR Part 423 Appendix A. Therefore, due to the low 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 reported on monthly DMR forms and submitted monthly as specified in the permit.

### B. Priority Toxic Pollutants Scan

To allow for sufficient data collection and a more accurate reasonable potential analysis, 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 ≤ 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.

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) = [(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:

| IWC mean response (% effluent) ≤ 0.75 × Control mean response |
|---|

The TST's alternative hypothesis ($H_a$) is:

| IWC mean response (% effluent) > 0.75 × 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" (≤ 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 Black Creek 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 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

USEPA conducted a screening level evaluation of vulnerabilities in the community posed to local residents near the vicinity of the permitted Window Rock wastewater treatment facility using USEPA'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.

In June 2021, USEPA conducted an EJSCREEN analysis of the community in a 5-mile radius of the vicinity of the outfall. Of the 11 environmental indicators screened through EJSCREEN, the evaluation determined elevated risk for the following factors:

**Table 6. EJSCREEN Analysis – Window Rock WWTP**

| Selected Variables | Percentile in State | Percentile in EPA Region | Percentile in USA |
|---|---|---|---|
| **EJ Indexes** | | | |
| EJ Index for Particulate Matter (PM 2.5) | 73 | 57 | 77 |
| EJ Index for Ozone | 81 | 75 | 90 |
| EJ Index for NATA* Diesel PM | 59 | 43 | 64 |
| EJ Index for NATA* Air Toxics Cancer Risk | 67 | 55 | 74 |
| EJ Index for NATA* Respiratory Hazard Index | 65 | 52 | 73 |
| EJ Index for Traffic Proximity and Volume | 60 | 40 | 64 |
| EJ Index for Lead Paint Indicator | 79 | 61 | 75 |
| EJ Index for Superfund Proximity | 69 | 53 | 73 |
| EJ Index for RMP Proximity | 63 | 43 | 65 |
| EJ Index for Hazardous Waste Proximity | 55 | 37 | 61 |
| EJ Index for Wastewater Discharge Indicator | 80 | 75 | 81 |

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US

The results, summarized in Table 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 Window Rock facility is at greater risk for hazardous wastewater discharge than 80% of the population in the state and 81% 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.

USEPA 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. USEPA found no evidence to indicate the treatment facility discharge poses a significant risk to residents. However, USEPA 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. USEPA in this action is simply renewing an existing wastewater discharge permit with no backsliding and concludes that the facility is unlikely to contribute to any EJ issues. Furthermore, USEPA is aware of the potential for cumulative burden of the permitted discharge on the impacted community and will issue this permit in consideration of Navajo Nation Water Quality Standards and consistent with the CWA. USEPA believes that by implementing and requiring compliance with the provisions of the Clean Water Act, 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.

The website for the U.S. Fish and Wildlife Service's ("USFWS") Arizona office generated an Official Species list on December 12, 2020, which identified the threatened and endangered species and their critical habitat that may occur in the vicinity of the Window Rock facility and Black Wash. 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 NTUA Window Rock Wastewater Treatment Facility in Apache County and should be considered as part of an effect analysis for this permit. (See https://ecos.fws.gov/ipac/gettingStarted/map). The listed species are provided in Table 6 below.

**Table 7. Listed species, designated under the U.S. Endangered Species Act**

| Type | Common Name | Scientific Name | Status | Critical Habitat |
|---|---|---|---|---|
| Fish | Zuni Bluehead Sucker | *Catostomus discobolus yarrowi* | E | No* |
| Reptile | Northern Mexican Gartersnake | *Thamnophis eques megalops* | T | No* |
| Birds | Mexican Spotted Owl | *Strix occidentalis lucida* | T | No* |
| | Yellow-billed Cuckoo | *Coccyzus americanus* | T | No* |
| Mammal | Gray Wolf (Mexican gray wolf subspecies) | *Canis lupus* (Mexican gray wolf = *Canis lupus baileyi*) | Proposed, Experimental, non-essential population | No |
| Plant | Zuni Fleabane | *Erigeron rhizomatus* | T | No |

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

The action area is defined as the wastewater treatment facility and discharge outfall to Black Creek, and Black Creek itself, which is a tributary to Puerco River, a tributary to the Little Colorado River. As the discharge from the facility is limited, Black Creek may have no natural flow during certain times of the year and does not reach Puerco River. The action area does not include Puerco River nor the Little Colorado River, as effluent discharge from the facility is limited and would only reach these waters during times of high flow when it would become so diluted as to have no effect. There are no designated critical habitats for any of the listed species in the action area.

***Fish***

Zuni Bluehead sucker (*Catostomus discobolus yarrowi*) is found most commonly in shaded pools and pool-runs (0.3 to 0.5 m deep) with water velocity < 10 cm/sec where the substrate varies from gravel, cobble, and boulders to bedrock. (USFWS ECOS https://ecos.fws.gov/ecp/species/3536). The action area does not provide suitable habitat for the Zuni Bluehead Sucker because it is dry for part of the year with no fast flowing water. Therefore, EPA has determined that the action will not affect the Zuni bluehead sucker.

***Reptile***

Northern Mexican Gartersnake (*Thamnophis eques megalops*) is considered a riparian obligate (restricted to riparian areas when not engaged in dispersal behavior) and occurs chiefly in the following general habitat types: (1) Source-area wetlands [e.g., cienegas (mid-elevation wetlands with highly organic, reducing (basic, or alkaline) soils), stock tanks (small earthen

impoundment), etc.]; (2) large river riparian woodlands and forests; and (3) streamside gallery forests (as defined by well-developed broadleaf deciduous riparian forests with limited, if any, herbaceous ground cover or dense grass). (https://ecos.fws.gov/ecp/species/7655) The Northern Mexican Gartersnake occurs only in or adjacent to the lower reaches of the Little Colorado River. The action area is not adjacent to the little Colorado River and contains no suitable wetland or riparian habitat for the Northern Mexican Gartersnake. Therefore, EPA has determined that the action will not affect the Northern Mexican Garter Snake.

***Birds***

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). Canyons with riparian or conifer communities are also important components. (https://ecos.fws.gov/ecp/species/8196) 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. These types of habitats are not found in the action area. Therefore, EPA has determined that the action will not affect the Mexican Spotted Owl.

The 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 as the wash may have no natural flow during certain times of the year, 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.

***Mammal***

The Mexican gray wolf (*Canis lupus baileyi*) is an endangered species. An experimental non-essential population of Mexican gray wolves has been *proposed* in the action area. Generally, an experimental population of a listed species shall be treated as a species proposed for listing under the ESA as a threatened species. 50 CFR § 17.83(a). Federal agencies are required to confer with FWS on any action which is likely to jeopardize the continued existence of any species proposed for listing as threatened or endangered. 50 CFR § 402.10(a). Here, since the experimental population is proposed, and is not yet in existence, the applicable standard is whether the action *may affect* the existing listed species. 50 CFR § 402.14(a).

Experimental populations may only be established outside of a species' current natural range. 50 CFR § 17.81(a). The best available information on the Mexican gray wolf, including the proposal to establish an experimental population, indicates that the species is not present in the action area and therefore EPA has determined that the action will not affect the Mexican gray wolf.

***Plant***

Zuni Fleabane *(Erigeron rhizomatous)* grows in selenium-rich red or gray detrital clay soils derived from the Chinle and Baca formations. These plants are found at elevations from 7,300-8,000 ft (2,230-2,440 m) in pinyon-juniper woodland. (https://ecos.fws.gov/ecp/species/5700) Zuni fleabane prefers slopes of up to 40 degrees, usually with a north-facing aspect. Although the overall vegetative cover is usually high, there are few other competing plants on the steep easily erodible slopes that are Zuni fleabane's primary habitat. Zuni fleabane is found only in areas of suitable soils. These soils occur most extensively in the Sawtooth Mountains and in the northwestern part of the Datil Mountains in Catron County, New Mexico. The action area is located at an elevation below that where the Zuni fleabane is found and is comprised of gently sloping topography with soil that is not suitable for the Zuni fleabane. Therefore, EPA has determined that the action will not affect the Zuni fleabane.

**Conclusion**

Considering all the information available, EPA concludes that the reissuance of this permit will not affect any of the above listed species. There is no designated critical habitat for any of the listed species within the action area. A copy of the draft fact sheet and permit will be forwarded to the Arizona Field Office of the USFWS for review and comment prior to and 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. 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 draft 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 contains technology-based effluent limits and numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. The permit does not directly discharge to areas of essential fish habitat (i.e., not in marine waters). Therefore, EPA has determined that essential fish habit 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 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.

### F. Water Quality Certification Requirements (40 CFR § 124.53 and § 124.54) to National Historic Properties

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 the Navajo Nation EPA. 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.

The Navajo Nation EPA has issued certification under CWA section 401 on January 29, 2021.

## XI. STANDARD CONDITIONS

### A. Reopener Provisions

In accordance with 40 CFR Parts 122 and 124, the draft 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 USEPA 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 placed on EPA Region 9's website on July 23, 2021 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. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision.

## XIII. CONTACT INFORMATION

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

Linh Tran, NPDES Permits Office, U.S. EPA Region 9
Tran.Linh@epa.gov
(415) 972-3511

## XIV. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001

EPA. 1996. EPA Region 9 and 10 Guidance for Implementing Whole Effluent Toxicity Testing - May 31, 1996 - Interim Final (PDF)

EPA. 2004. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. Office of Water, EPA. EPA-821-R-04-014. https://www.epa.gov/sites/default/files/2015-11/documents/2004_effluent-guidelines-plan_tsd.pdf

EPA. 2010. *U.S. EPA NPDES Permit Writers' Manual*. Office of Water, EPA. EPA-833-K-10-001

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EPA. 2015. December 7 compliance evaluation inspection; Report prepared by PG Environmental LLC on January 7, 2016

EPA. 2018. December 4 compliance evaluation inspection; Report prepared by EPA Wastewater Section on March 5, 2019

Navajo Nation Surface Water Quality Standards 2015, and 2017 Revisions, approved by USEPA on October 5, 2020. Effective March 17, 2021

- https://www.epa.gov/wqs-tech/water-quality-standards-regulations-navajo-nation
- Navajo Nation Water Quality Standards (pdf)

USFWS 2020. IPaC report for Endangered and Threatened species list within NTUA Window Rock WWTP discharge area of Apache County, Arizona (provided by U.S. Fish and Wildlife Service dated December 2020)