

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**  
**DRAFT FACT SHEET**  
**May 2024**

Permittee Name            Moenkopi Utility Authority, Inc.  
and Address:            P.O. Box 1469  
                                 Tuba City, Arizona 86045

NPDES Permit No.: AZ0024619

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Facility Location:     MUA Wastewater Treatment Plant  
                                 Mile Post 321, Highway 160  
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                                 Keith Koruh – MUA Operator

**I. STATUS OF PERMIT**

Moenkopi Utility Authority (“MUA” or the “permittee”) applied for the renewal of its National Pollutant Discharge Elimination System (“NPDES”) permit to authorize the discharge of treated effluent from the Hopi Indian Nation’s MUA wastewater treatment plant (“WWTP”) in the Moenkopi District of the Hopi Indian Reservation near Tuba City, Coconino County, Arizona. The MUA WWTP (as previously known as Upper Village of Moenkopi WWTP) is owned by Hopi and operated by MUA. The permittee applied for a permit renewal on December 10, 2022.

The Hopi Nation is a federally recognized Indian Tribe. Currently, U.S. EPA Region 9 (“EPA”) retains the primary regulatory responsibility for administering the NPDES permitting program to the Hopi tribe. 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. The draft NPDES permit incorporates both federal and EPA-approved Tribal water quality requirements.

The permittee is currently covered under NPDES Permit No. AZ0024619, which expired on December 31, 2022, but which EPA administratively continued on December 14, 2022. Under EPA’s NPDES regulation at 40 CFR § 122.6, the term of an administratively extended permit continues until the issuance of a new permit.

This permittee has been classified as a minor facility. A major facility means any NPDES “facility or activity” classified as such by the Regional Administrator (40 CFR § 122.2). For POTWs, major facilities are those that have a design flow of one million gallons per day or greater or serve a population of 10,000 or more or cause significant water quality impacts. All

facilities that are not designated as majors are considered minor facilities. )

Under Section 402 of CWA, EPA is proposing to reissue the permittee’s NPDES permit authorization to discharge treated domestic wastewater from the WWTP to Moenkopi Wash, a tributary to the Little Colorado River, which is a water of the United States.

**II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT**

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

Permit Condition	Previous Permit (2018 – 2024)	Re-issued permit (2024-2029)	Reason for change
Zinc monitoring and effluent limit	Monitoring required as part of priority pollutant scan.	Add effluent limit and quarterly monitoring requirements	Reasonable potential to exceed water quality standards
Hardness (as CaCO <sub>3</sub> ) monitoring	No effluent monitoring requirements.	Add quarterly monitoring requirement for hardness	To calculate hardness-dependent metals criteria.
Priority Pollutant Scan	One time in first quarter of Year 1 of the 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 in next permit cycle.
Biological Oxygen Demand (BOD <sub>5</sub> ) 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 utilities.	To be consistent with EPA Region 9 policy.
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

As discussed in the previous permit fact sheet and permit issuance in 2017 and certification through Clean Water Act Section 401, and per stipulation of concurrence from Hopi’s Water Resources Program, the permit included additional requirements for meeting applicable water quality standards for both reclaimed water for crop irrigation and dust control in addition to the outfall discharge to receiving waters. Since the WWTP is no longer reclaiming treated effluent for crop irrigation but only reuses effluent for dust suppression, the draft permit retains only the applicable reclaimed water quality standards for dust control, as well as the limit and monitoring requirement for nitrogen to demonstrate compliance with advanced secondary and tertiary treatment for effluent reuse.

### **III. GENERAL DESCRIPTION OF FACILITY**

The Moenkopi WWTP is located near Highway 160, in the Moenkopi District of the Hopi Indian Reservation near Tuba City, Coconino County, Arizona. The facility serves a population of about 1,800 from Upper and Lower Moenkopi, receiving domestic sewage and from dump station with a design flow capacity of 0.185 million gallons per day (MGD). The plant was constructed in 2009 with financial aid provided by the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Agriculture (USDA) and began operation and discharge in October 2009.

The WWTP provides tertiary treatment, capable of achieving 96% removal efficiencies for BOD<sub>5</sub> and TSS. Treatment consists of a mechanical bar screen, a vortex grit removal chamber, two (2) parallel activated sludge sequencing batch reactor (SBR) basins, an aerobic sludge digester, an equalization basin, sand filters and an ultraviolet (UV) disinfection chamber. Influent enters through a lift station and goes through the bar screen and vortex grit removal chamber with two augers to remove grit and large solids. The vortex grit removal chamber is cleaned out monthly by flushing it and shoveling out the solids. Influent is sampled after the solids and grit removal process.

The next step to the treatment process occurs in the activated sludge SBR basins. There are two parallel tanks that the wastewater can be pumped to from the SBR lift station. Each tank has a capacity of 95,000 gallons. The tanks treat the wastewater through a sequenced process. The first part of this process is the addition of air to the wastewater in the tank. This addition stimulates the growth of microbial bugs that digest carbonaceous organic material. The second part is ceasing the aeration and allowing solids to settle and form sludge at the bottom of the tanks. Next the sludge and the liquid are separated. The liquid waste is decanted from the tanks to the equalization tank. An actuator arm opens a door that empties the liquid waste into the equalization tank. The sludge is pumped to the digester tank. The equalization tanks receive the treated wastewater from the SBR. From there, wastewater undergoes sand filtration and UV disinfection prior to being stored in a water reuse tank or being discharged. Solids from the SBR tanks are sent to the press room where additional water is removed from the solids and the water is then pumped back into the treatment process, whereas the solids are stored for disposal and then hauled off to a landfill in Joseph City, Arizona.

Final treated effluent that is not discharged to a local waterbody is retained in an effluent storage tank before being re-used and off-loaded to tanker trucks for dust control in the Village. To clarify information in the previous permit and factsheet, treated effluent is no longer being reused for crop irrigation by local farms in the community when the MUA resumed control of the WWTP from Moenkopi Development Corporation.

Up to 50,000 gallons of effluent in the reuse holding tank may be used daily for dust control or construction use, depending on the demand and work in the area, and the number and volumes of hauler trucks capable of collecting the reuse water. Approximately 12 to 13 loads take place per day, with individual water hauler truck volumes estimated at 4,000 gallons. This would be a year-round option. The coordinates of the holding tank (Outfall 003) are Latitude 36° 06' 30" North and Longitude 111° 14' 01" West.

MUA has an option to use a bypass valve to send influent wastewater to Navajo Tribal Utility Authority’s Tuba City wastewater facility. Prior to using the bypass, MUA must notify NTUA as stipulated in the 1998 agreement between MUA and NTUA.

**IV. DESCRIPTION OF RECEIVING WATER**

When not being stored for reuse purposes, the treated effluent is discharged via Discharge Outfall No. 001 to Moenkopi Wash, a tributary to the Little Colorado River. The coordinates for Outfall 001 are Latitude 36° 06’ 29.36” North and Longitude 111° 14’ 0.70” West.

**V. DESCRIPTION OF DISCHARGE**

No oily sheen, objectionable odor or floatable solids in the final effluent were observed during EPA’s compliance inspection performed on June 8, 2023.

**A. Application Discharge Data**

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

**Table 2. Application Discharge Data Reported in Form 2A**

Pollutant Parameter	Units	Discharge Data		Number of Samples
		Maximum Daily Discharge	Average Daily Discharge	
Flow	MGD	< 1	0.045563	n/a
Biochemical oxygen demand, 5-day (BOD <sub>5</sub> )	mg/L	15*	10*	n/a
pH	S.U.	6.5 - 9.0		n/a
Temperature	°C	< 32.2		n/a
<i>E. Coli</i>	CFU	23	130	n/a
Total Suspended Solids (TSS)	mg/L	15*	10*	n/a
Ammonia (as N)	mg/L	6	n/a	n/a
Dissolved Oxygen	mg/L	Not reported	--	n/a
Cyanide	µg/L	< 10**	--	1
Arsenic	µg/L	< 1.7**	--	1
Arsenic	µg/L	< 1.7**	--	1
Nickel	µg/L	< 20**	--	1
Zinc	µg/L	40**	--	1

\*These reported values appeared to be permit limits, not actual discharge data.

\*\* Due to insufficient discharge data provided in the 2022 NPDES permit application, these values are from the 2016 NPDES permit application and 2017 supplemental information.

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

Compliance review of discharge monitoring reports (“DMRs”) from 2018 to 2023 showed numerous incidents of non-reporting, reporting deficiencies and late reporting of up to 6 months. Table 3 includes available data. Additional information is available on Enforcement and Compliance History Online (“ECHO”) at <https://echo.epa.gov/detailed-facility-report?fid=AZ0024619>. 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 January 2018 through August 2023**  
 (Based on 0.185 MGD Design Flow)

Parameters	Units	Permit Effluent Limitations			Effluent Data			Monitoring Frequency
		Monthly Average	Weekly Average	Max Daily	Highest Monthly Average	Highest Weekly Average	Highest Daily Maximum	
Flow Rate	MGD	Monitor <sup>(1)</sup>	n/a	Monitor <sup>(1)</sup>	0.207 (08/2021)	--	0.207 (08/2021)	Monthly
Biochemical Oxygen Demand 5-day (BOD <sub>5</sub> ) <sup>(2)</sup>	mg/L	10	15	n/a	6 (09/2021) 6 (04/2022)	--	6 (09/2021) 6 (04/2022)	Monthly
	kg/day	7	10	n/a	2.35 (08/2021) 1.15 (04/2022)	--	2.35 (08/2021) 1.15 (04/2022)	
	% removal	≥ 85% removal efficiency			Lowest = 97.8% removal efficiency			
Total Suspended Solids (TSS) <sup>(2)</sup>	mg/L	10	15	n/a	6 (02/2021)	--	6 (02/2021)	Monthly
	kg/day	7	10	n/a	1.69 (02/2020)	--	2.26 (02/2020)	
	% removal	≥ 85% removal efficiency			Lowest = 98% removal efficiency			
<i>E. coli</i>	CFU/100mL	130 <sup>(4)</sup>	n/a	580	12.8 (10/2018)	n/a	>2420 (10/2018) 613 (01/2021) 1553 (02/2021)	Weekly
Dissolved Oxygen	mg/L	n/a	n/a	≥ 5.0	n/a	n/a	0.95 (10/2018) 3.29 (05/2019) 3.62 (06/2019) 1.95 (05/2020) 3.54 (08/2020) 3.63 (10/2021) 3.22 (08/2022)	Monthly
Turbidity	NTU	n/a	n/a	25	n/a	n/a	8.32 (03/2021)	Monthly
Temperature	deg °C	n/a	n/a	32.2	n/a	n/a	39.3 (05/ 2020) 36.7 (07/ 2020) 40.5 (08/ 2020) 38.8 (08/ 2022)	Monthly
Ammonia, as N <sup>(5)</sup>	mg/L	n/a	n/a	Monitor <sup>(5)</sup>	n/a	n/a	2.7 (04/2022)	Monthly
Ammonia Impact Ratio (AIR) <sup>(5)</sup>	Ratio	1.0	n/a	n/a	0.22 (Apr 2022)	n/a	n/a	Monthly
Whole Effluent Toxicity, chronic ( <i>Ceriodaphnia</i> )	Pass (0) or Fail (1)	Pass (0) <sup>(6)</sup>	n/a	Pass (0) <sup>(6)</sup>	1 (12/2018) 1 (06/2019) Not reported in 2021-2023	n/a	1 (12/2018) 1 (06/2019) Not reported in 2021-2023	Semiannually
Whole Effluent Toxicity, chronic ( <i>Pimephales Promelas</i> )	Pass (0) or Fail (1)	Pass (0) <sup>(6)</sup>	n/a	Pass (0) <sup>(6)</sup>	1 (12/2018) 1 (06/2019) Not reported in 2021-2023	n/a	1 (12/2018) 1 (06/2019) Not reported in 2021-2023	Semiannually
Whole Effluent Toxicity, chronic ( <i>Selenastrum Capricornutum</i> )	Pass (0) or Fail (1)	Pass (0) <sup>(6)</sup>	n/a	Pass (0) <sup>(6)</sup>	1 (12/2018) Not reported in 2021-2023	n/a	1 (12/2018) Not reported in 2021-2023	Semiannually

'n/a' denotes not applicable

**Footnotes:**

- (1) No effluent limits were set but monitoring and reporting were required.  
Under 40 CFR Section 122.45(f), the discharge limits for BOD<sub>5</sub> and TSS shall not exceed a monthly average of 10 mg/l and a weekly average of 15 mg/l, based on advanced secondary and tertiary treatment capability.
- (2) The mass limits are calculated based upon the 0.185 MGD design flow.
- (3) Geometric mean of a minimum of not less than five samples collected over a period of not more than 30 days.
- (4) See the 2011 Hopi Water Quality Standards for ammonia (in mg N/liter), specify ammonia limitations for aquatic and wildlife (warm water habitat).

- (5) 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.
- (6) 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. Implementing regulations for Section 301(b)(1)(B) are found at 40 CFR Part 133. The CWA requires POTWs to meet performance-based requirements based on available wastewater treatment technology. Mass limits, as required by 40 CFR § 122.45(f), are included for BOD<sub>5</sub> and TSS.

The permittee operates an advanced secondary/tertiary treatment facility which includes chemically-assisted filtration. Standards associated with advanced secondary and tertiary treatment capability are as follows:

#### ***BOD<sub>5</sub> and TSS***

##### Concentration-based Limits

- 30-day average – 10 mg/L
- 7-day average – 15 mg/L
- Removal Efficiency – Minimum of 85%

##### Mass-based Limits for BOD<sub>5</sub> and TSS

- 30-day average – (10 mg/L)(0.185 MGD)(8.345 conversion factor) = 15.4 lbs/day
- 7-day average – (15 mg/L)(0.185 MGD)(8.345 conversion factor) = 23.2 lbs/day

For both BOD<sub>5</sub> and TSS, the arithmetic means of values, by weight, for effluent samples collected in a period of 30 consecutive calendar days cannot exceed 15 percent of the arithmetic mean of values, by weight, for influent samples collected at approximately the same times during the same period.

#### ***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 Hopi Tribe has developed Water Quality Standards (“WQS”) for different stream segments, depending on the designated uses and level of protection required. EPA approved the 1997 Hopi WQS on July 8, 2008. The Hopi revised WQS in November 2010 which was adopted by the Hopi Tribal Council on March 21, 2011, and approved by EPA on August 24, 2011. The Tribe does not currently have approved water quality standards for reclaimed water in place. In the interim, applicable Arizona Administrative Code (A.A.C) “Title 18, Chapter 11” reclaimed water quality standards for direct reuse will be used as a basis for applicable water quality-based limits until tribal standards are developed. Applicable minimum requirements are Class B reclaimed water quality requirement for dust control. The approved 1997 WQS and 2011 revision 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 designated uses of the receiving waters as defined by the 2011 Hopi WQS for Moenkopi Wash (a tributary to the Little Colorado River) are aquatic and wildlife (warm water habitat, A&Ww), full body contact (FBC), partial body contact (PBC), agricultural livestock watering (AgL), agricultural irrigation (AgI) and groundwater recharge (GWR). (Page 20)

The following water quality criteria from the 2011 Hopi WQS are applied as effluent limitations:

***E. coli:*** 120 CFU/100 mL (geometric mean, minimum four samples in 30 days)  
580 CFU/100 mL (single sample maximum)  
(Section 4.102 and Table A-1 for FBC, PBC, GWR)

**Dissolved Oxygen:**  $\geq 5.0$  (Section 4.102 and Table A-1 for A&Ww)

**pH:** 6.5 to 9.0 (Section 4.102 and Table A-1 for FBC, PBC, AgL)

**Turbidity:** 25 (Section 4.102 and Table A-1 for FBC, GWR)

**Ammonia:** Attachment C of the permit (Section 4.102 and Table A-3 for A&Ww)

**AIR:** AIR (Ammonia Impact Ratio)  $\leq 1$   
Hopi WQS do not have AIR criteria, but the ammonia limit is expressed as AIR. An AIR of less than or equal to 1 meets the WQS Ammonia criteria.

**Zinc:** (Section 4.102 and Table A-3 for A&Ww)  
The Hopi WQS includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. Assuming an effluent hardness reading of 400 mg/L and default dissolved-to-total metal translators, EPA calculated the Criterion Maximum Concentration (CMC, acute) and Criterion Continuous Concentration (CCC, chronic) as shown below:

$$\begin{aligned} \text{CMC} &= e^{(0.8473[\ln(400)] + 0.884)} \times 0.978 = 15.846 \mu\text{g/L} \text{ -- acute} \\ \text{CCC} &= e^{(0.8473[\ln(400)] + 0.884)} \times 0.986 = 15.976 \mu\text{g/L} \text{ -- chronic} \end{aligned}$$

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 001 flows to Moenkopi Wash, 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 treated and untreated domestic wastewater include ammonia, nitrate, biological oxygen demand, total suspended solids, pathogens, temperature, pH, oil & grease, turbidity and solids. Chlorine and turbidity may also be of concern due to treatment plant operations; however, since UV is used for effluent disinfection instead of chlorination, chlorine is not a concern.



#### 4. History of compliance problems and toxic impacts

As discussed earlier in Part V.B, DMRs were found to be late for up to 6 months. An earlier EPA’s review of DMRs from September 2018 to June 2023 showed that reports were submitted late for 28 out of the 60 months. *E. coli*, pH, Temperature, and Total Ammonia Nitrogen results were above the Daily Max limit in October 2018 and January to February 2021. And no results for Dissolved Oxygen (“DO”), pH, total ammonia nitrogen, turbidity, and temperature were reported during February to March 2020 and January 2021. In addition, the facility had experienced low DO levels on at least 8 occasions and temperature over 32.2°C on 4 occasions. Additional information is available on Enforcement and Compliance History Online (“ECHO”) at <https://echo.epa.gov/detailed-facility-report?fid=AZ0024619>.

EPA conducted a compliance evaluation inspection on June 8, 2023, and observed that the WWTP appeared to be in good condition. However, it was noted that algae in the decant tank could be causing unnecessary “wear and tear” on the sand filter media, and that a cover over the tank could reduce algae growth, reduce the frequency of required filter backwash cycles, and increase the useful lifespan of filter media. The inspection report listed several areas of concern: (1) Late and deficient DMR submittals in the past 5 years, (2) No Whole Effluent Toxicity (WET) test results submitted since June 2019, (3) No Initial Investigation Toxicity Reduction Evaluation (TRE) work plan submitted, and (4) No priority pollutant scan submitted. These reports are all required by the current NPDES permit.

#### 5. Existing Data on Toxic Pollutants for a Reasonable Potential Analysis

Given the insufficient data collection, the lack of toxic discharge data provided in the 2022 application, and no priority pollutant scan available for review for this permit renewal cycle, this analysis includes toxic discharge data that were reported in the previous March 2016 permit application and February 2017 supplemental information. 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 99<sup>th</sup> percentile based on an assumed lognormal distribution of daily effluent values (sections 3.3.2 and 5.5.2 of EPA’s TSD). Because of data variability and of small sample sizes (i.e.,  $n = 1$ ), EPA used a CV of 0.6 for all parameters. EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

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

where “ $C_e$ ” is the reported maximum effluent value, and the multiplier factor is obtained from Table 3-1 of the TSD.

**Table 4. Summary of Reasonable Potential Statistical Analysis <sup>(1)</sup>**

Pollutant Parameter	Maximum Observed Effluent Concentration	<i>n</i>	RP Multiplier	Projected Maximum Effluent Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Ammonia (as N)	2.7 mg/L	44	2.3	6.21 mg/L	1.17 to 2.46 mg/L for chronic <sup>(2)(3)</sup>	Yes
<i>E. coli</i>	1553 CFU/100 mL	44	2.3	3572 CFU/100 mL	130 <sup>(4)</sup> CFU/100 mL	Yes
Zinc	40 µg/L	1	13.2	528 µg/L	15.846 µg/L	Yes
Whole Effluent Toxicity, chronic ( <i>Selenastrum Capricornutum</i> )	1 (Fail)	1	13.2	1 (Fail)	0 (Pass)	Yes
Whole Effluent Toxicity chronic ( <i>Ceriodaphnia</i> )	1 (Fail)	1	13.2	1 (Fail)	0 (Pass)	Yes
Whole Effluent Toxicity, chronic ( <i>Selenastrum Capricornutum</i> )	1 (Fail)	1	13.2	1 (Fail)	0 (Pass)	Yes

**Footnotes:**

- (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) Based on Attachment C of the permit (Table 207.20 from the 2015 NNSWQS).
- (3) 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.
- (4) Geometric mean of samples collected for *E. coli*.

**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 levels 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:

**Table 5. Effluent Limits and WQBELs for Outfall 001**

Effluent Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	2011 Hopi Water Quality Standards
Flow	MGD	Monitor	n/a	Monitor	Monthly	
BOD <sub>5</sub>	mg/L	10	15	n/a	Monthly	40 CFR § 133.105
	lbs/day	15.4	23.2	n/a		40 CFR § 122.45(f)
	%	≥ 85% removal efficiency				

Effluent Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	2011 Hopi Water Quality Standards
TSS	mg/L	10	15	n/a	Monthly	40 CFR § 133.105
	lbs/day	15.4	23.2	n/a		40 CFR § 122.45(f)
	%	≥ 85% removal efficiency				
<i>E. coli</i>	CFU/100 mL	130	n/a	580	Weekly (4/month)	Section 4.102 and Table A-1 for FBC, PBC, GWR
Dissolved Oxygen (DO)	mg/L	n/a	n/a	≥ 5.0	Monthly	Section 4.102 and Table A-1 for A&W <sub>w</sub>
Total Ammonia <sup>(1)</sup> (as N)	mg/L	Monitor <sup>(1)</sup>	n/a	Monitor <sup>(1)</sup>	Monthly	Section 4.102 and Table A-1 for A&W <sub>w</sub>
Ammonia Impact Ratio <sup>(2)</sup>	--	1.0	n/a	n/a	Monthly	EPA Region 9's policy
pH <sup>3</sup>	std unit	between 6.5 to 9.0			Monthly	Section 4.102 and Table A-1 for FBC, PBC, AgL
Temperature <sup>(3)</sup>	deg °C	n/a	n/a	≤ 32.2°C (or 90°F)	Monthly	Section 4.102 and Table A-1 for A&W <sub>w</sub>
Turbidity	NTU <sup>(4)</sup>	n/a	n/a	25	Monthly	Section 4.102 and Table A-1 for FBC, GWR
Zinc	µg/L	n/a	n/a	40	Quarterly	Section 4.102 and Table A-3 for A&W <sub>w</sub>
Hardness (as CaCO <sub>3</sub> )	µg/L	n/a	n/a	Monitor	Quarterly	
Whole Effluent Toxicity Testing <sup>(5)</sup>	Pass (0) or Fail (1), PE in % effluent	Pass (0)	n/a	Pass (0) or PE < 50	Semiannual January, July	EPA Region 9's policy
Priority Pollutant Scan	µg/L	n/a	n/a	Monitor	Years 2 and 4	EPA Region 9's policy

Footnotes:

- Total Ammonia (as N) - Consistent with the previous permit and with EPA's 2004 criteria guidance, the proposed permit establishes monitoring and reporting requirements for total ammonia (as N). The 2011 Hopi WQS for total ammonia are included in the permit attachment A. The criteria for ammonia are pH and temperature dependent, and pH and temperature field measurements must be taken at the same time and location as the water samples destined for the laboratory analysis of ammonia. Composite samples will be required for total ammonia and the monitoring frequency in this permit has been changed to monthly to allow for proper characterization of the plant's effluent.
- Ammonia Impact Ratio ("AIR") - Because ammonia criteria are pH and temperature-dependent, the permittee is required to calculate an AIR. The AIR is calculated as the ratio of the ammonia value in the effluent and the applicable ammonia standards as determined by using pH data to derive an appropriate value from the ammonia criteria table in Appendix C of the permit. The AIR limitation has been established as a monthly average of 1.0, equivalent to the standard. The permittee is required to report maximum daily and average monthly ammonia (as N) concentrations in addition to an average monthly AIR
- pH and Temperature - In order to support the 2011 Hopi's established ammonia standards, which vary with the pH and temperature of the effluent, pH and temperature monitoring is to be performed concurrently with ammonia monitoring.
- NTU - Nephelometric Turbidity Units
- Whole Effluent Toxicity (WET) - It is U.S. EPA Region 9's policy that all continuous dischargers be required

to perform WET testing. WET testing is intended to demonstrate that there are no unexpected toxic components of the discharge escaping to the receiving water undetected, and to prompt a response if they are present. The proposed permit therefore requires chronic toxicity testing to be conducted **semiannually**, in January and July, using a 24-hour composite sample of the treated effluent for fathead minnow (*Pimephales promela*), daphnid (*Ceriodaphnia dubia*) and an alga species (*Selenastrum capricornutum*).

**Table 6. Effluent Limits and Monitoring Requirements for Reclaimed Water  
 Dust control (Class B)**

Effluent Parameter	Units	7-day Mean	Daily Maximum	Monitoring Frequency	Sample Type
Fecal coliform <sup>(1)</sup>	CFU/100 ml	200	800	Daily <sup>(2)</sup>	Discrete

**Footnotes:**

1. Fecal coliform (in CFU/100ml) based on Arizona Administrative Code Title 18, Chapter 11 for Class B reclaimed water. The concentration shall be less than 200/100ml in four of the last seven daily samples of reclaimed water. Monitoring is required daily for this reclaimed use category.
2. If the daily samples show no exceedances of 200 CFU/100ml in four of the last seven daily samples, this requirement can be reduced from daily to weekly basis.

**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<sub>5</sub>, 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 2011 Hopi WQS 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, 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 ( $\geq 25$  PE, Percent (%) Effect), or acceptably low ( $< 10$  PE). Example choices are practices supporting healthy test organisms, increasing the minimum recommended replication component of the WET method's experimental design (if needed), technician training, etc.

TST results do not often differ from other EPA-recommended statistical approaches using hypothesis testing (Diamond D, Denton D, Roberts J, Zheng L. 2013. *Evaluation of the Test of Significant Toxicity for determining the toxicity of effluents and ambient water samples-- Environ Toxicol Chem* 32:1101-1108). The TST maintains EPA's desired low false positive rate for WET methods—the probability of declaring toxicity when true toxicity is acceptably low  $\leq 5\%$ —when quality toxicity laboratories conduct toxicity tests (TST Technical Document; Fox JF, Denton DL, Diamond J, and Stuber R. 2019. *Comparison of false-positive rates of 2 hypothesis-test approaches in relation to laboratory toxicity test performance. Environ Toxicol Chem* 38:511-523). **Note:** The false positive rate is a long-run property for the toxicity laboratory conducting a WET method. A low false positive rate is indicated by a low long-run toxicity laboratory control coefficient of variation for the test species/WET method, using a minimum of 30 to 50 toxicity tests.

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  $\geq 10$ , 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) =  $[(V_e + V_a) / V_e]$ . Following the mass balance equation, if the dilution ratio  $D = Q_s / Q_e$ , then

$$[(Q_e + Q_s) / Q_e] = 1 + D = S$$

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

The TST's null hypothesis for chronic toxicity ( $H_0$ ) 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” ( $\leq 5\%$  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  $\geq 25$  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<sub>5</sub> 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).

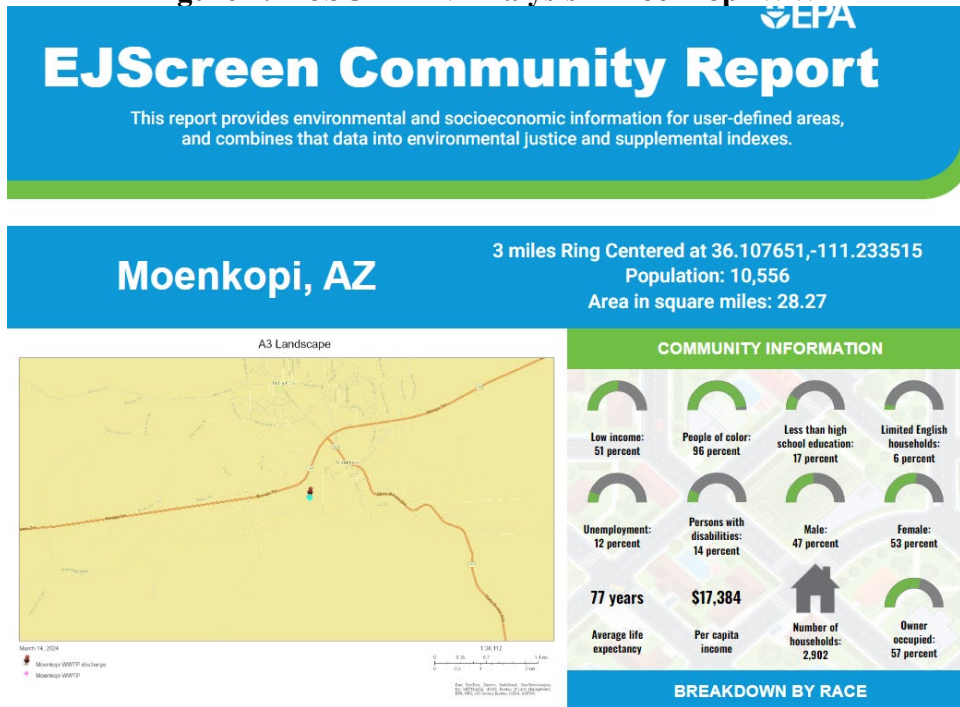
### **X. OTHER CONSIDERATIONS UNDER FEDERAL LAW**

#### **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.

In March 2024, EPA conducted an EJSCREEN analysis of the community near the vicinity of the outfall. EPA added a 3-mile buffer around the discharge point and reviewed the state percentiles for the EJ Indexes, Environmental Indicators, Socioeconomic Indicators, and Supplemental Indexes.

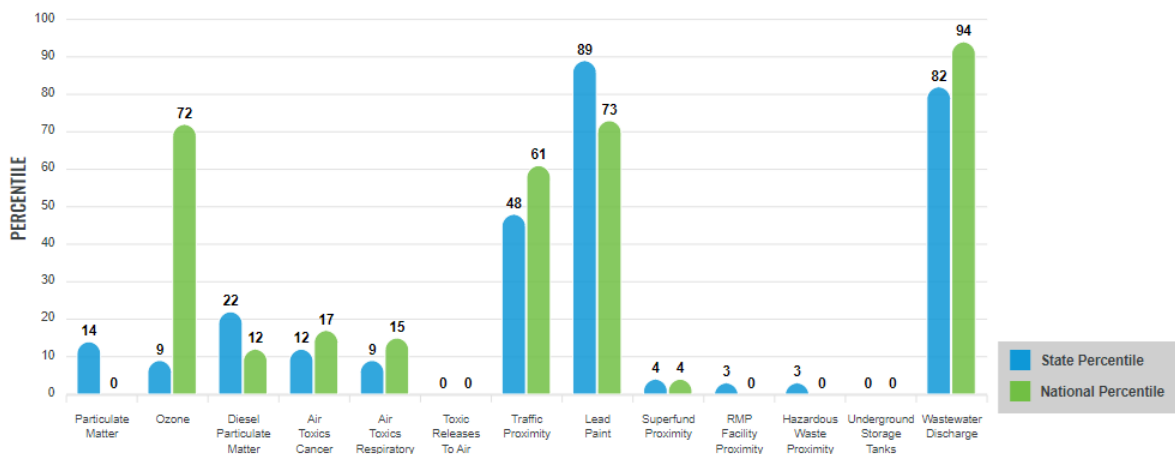
**Figure 1. EJSCREEN Analysis – Moenkopi WWTP**



**Figure 2. EJ & Supplemental Indexes – Moenkopi WWTP**

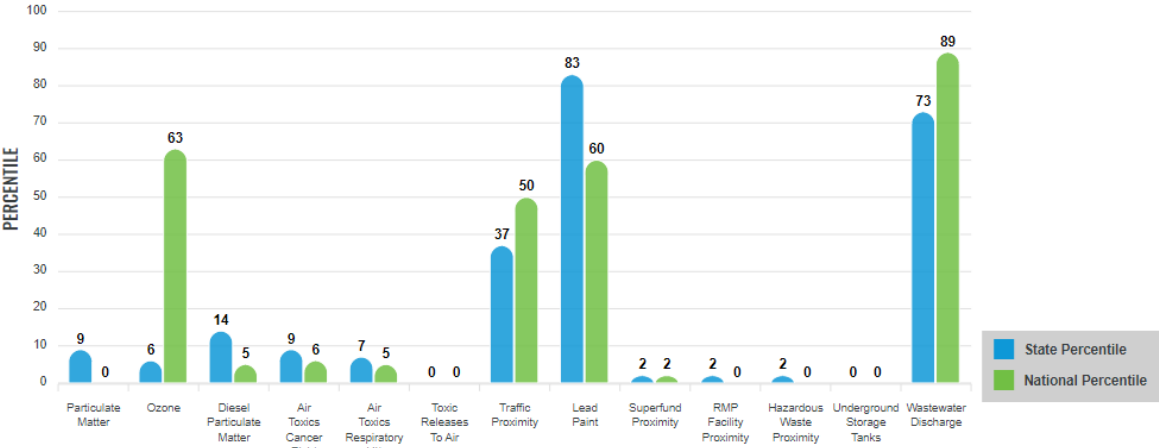


**EJ INDEXES FOR THE SELECTED LOCATION**



**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.

**SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION**



**Figure 3. EJScreen Environmental and Socioeconomic Indicators – Moenkopi WWTP**

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
<b>POLLUTION AND SOURCES</b>					
Particulate Matter ( $\mu\text{g}/\text{m}^3$ )	3.93	5.87	4	8.08	0
Ozone (ppb)	59.3	66.1	3	61.6	34
Diesel Particulate Matter ( $\mu\text{g}/\text{m}^3$ )	0.0414	0.278	7	0.261	3
Air Toxics Cancer Risk* (lifetime risk per million)	10	25	1	25	1
Air Toxics Respiratory HI*	0.1	0.31	1	0.31	1
Toxic Releases to Air	0	2,800	0	4,600	0
Traffic Proximity (daily traffic count/distance to road)	26	190	19	210	28
Lead Paint (% Pre-1960 Housing)	0.1	0.089	77	0.3	35
Superfund Proximity (site count/km distance)	0.0049	0.077	1	0.13	1
RMP Facility Proximity (facility count/km distance)	0.0097	0.38	1	0.43	0
Hazardous Waste Proximity (facility count/km distance)	0.0092	0.71	1	1.9	0
Underground Storage Tanks (count/km <sup>2</sup> )	0	1.7	0	3.9	0
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.024	5.8	44	22	74
<b>SOCIOECONOMIC INDICATORS</b>					
Demographic Index	73%	38%	90	35%	92
Supplemental Demographic Index	21%	14%	79	14%	82
People of Color	96%	44%	95	39%	93
Low Income	51%	32%	78	31%	81
Unemployment Rate	12%	6%	87	6%	87
Limited English Speaking Households	6%	4%	79	5%	79
Less Than High School Education	17%	12%	74	12%	76
Under Age 5	7%	5%	68	6%	68
Over Age 64	11%	20%	39	17%	31
Low Life Expectancy	21%	19%	67	20%	66

\*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

The results above suggest that the areas around the Moenkopi WWTP facility may be at elevated risk for EJ factor. 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. Air quality indexes 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. The Moenkopi facility discharge is unlikely to pose a significant risk to local residents. In addition, EPA has conducted outreach by public noticing the permit as well as reaching out to the Hopi Tribe 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 Moenkopi Wash and the Little Colorado River. EPA concludes that the facility is unlikely to contribute to any EJ issues.

As a result of the analysis, EPA is aware of existing environmental impacts on the communities near the discharge and has determined issuing this permit will not contribute to disproportionate environmental burden on the surrounding communities. Additionally, the permit is being issued consistent with the CWA, which is protective of all beneficial uses of the receiving water, including human health.

## **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. EPA has determined that the reissuance of the NPDES permit is a federal action, subject to ESA Section 7 requirements.

### ***Action Area***

Under Section 7 of the ESA regulations, the “Action Area” means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR § 402.02). 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. The proposed action includes the facility footprint, operation of the Moenkopi WWTP itself and effluent discharge. 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 WWTP and 5-mile radius surrounding the WWTP, the waters receiving discharges from the WWTP and discharge outfall to Moenkopi Wash, and Moenkopi Wash itself, which is a tributary to the Little Colorado River. Based on information available from [USGS](#) website, Moenkopi Wash winds about 95 miles through the Navajo and Hopi Reservations in northern Arizona on the Colorado Plateau, originating northeast of Tuba City and flowing south to Cameron, draining into the Little Colorado River. The action area does not include the Little Colorado River, as the discharge from the WWTP is limited and the treated effluent is heavily diluted when Moenkopi Wash eventually drains into the Little Colorado River and will have no discernible effect on the Little Colorado River. 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.

### ***Species and Critical Habitat Considered***

On March 14, 2024, EPA generated an official species listing from the U.S. Fish and Wildlife Service’s (“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 Moenkopi wastewater treatment facility and its effluent discharge to Moenkopi Wash, a tributary to the Little Colorado River. This [Information for Planning and Consultation \(“IPaC”\)](#) 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 Coconino County, as provided in Table 7 below, and should be considered as part of an effect analysis for this permit.

EPA has analyzed all the listed species and critical habitats and determined that reissuance of the NPDES permit for Moenkopi facility will have no effect on any federally listed

species in the action area. There are no designated critical habitats for any of the listed species in the action area.

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

Type	Common Name	Scientific Name	Status	Critical Habitat
Birds	Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E	No*
	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	T	No*
Insect	Monarch Butterfly	<i>Danaus plexippus</i>	C	No
Plants	Navajo Sedge	<i>Carex specuicola</i>	T	No*
	Welsh's Milkweed	<i>Asclepias welshii</i>	T	No*

\*These species have final critical habitats but outside of the Action Area and the Action Area does not overlap any of these critical habitats.

**Birds**

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

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 have No Effect on the Yellow-billed Cuckoo. There is also no proposed critical habitat for the Yellow-billed Cuckoo located in the action area.

**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.

### **Plants**

**Navajo Sedge** (*Carex specuicola*) occurs in hanging gardens associated with moist seeps alongside sheer cliffs (<https://ecos.fws.gov/ecp/species/8579>), none of which occur within the more arid vicinity of the action area. Therefore, EPA has determined that the action will have No Effect on the Navajo Sedge.

**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 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 Moenkopi facility and would not be affected by discharge or drainage of the lagoons. Accordingly, EPA has determined that its action will have No Effect on 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 have No Effect on critical habitat for Welsh's milkweed.

### **Conclusion**

Considering the information available, EPA determines the reissuance of this NPDES permit will have no effect on any of the above-listed species. There is no designated critical habitat for the listed species within the action area. 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, reopener conditions 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 habitat 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 from Hopi Tribe Water Resources Program. 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 Tribal law. EPA cannot issue the permit until the certifying Tribe has granted certification under 40 CFR § 124.55 or waived its right to certify.

### **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 [DATE], for a 30-day comment period for interested parties to respond in writing to EPA.

**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](mailto: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.

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USFWS. 2024. March [IPaC report for Endangered and Threatened species list within Moenkopi WWTP discharge area](#) in Hopi Indian Reservation near Tuba City, Coconino County, Arizona (provided by U.S. Fish and Wildlife Service dated March 14, 2024)

USGS. 2024 [Moenkopi Wash transformation](#)