

ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES)

This document gives pertinent information concerning the issuance of the AZPDES permit listed below. This facility is a wastewater treatment plant (WWTP) with a design capacity of 0.060 million gallons per day (MGD) and is considered to be a minor facility under the AZPDES program. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (A.A.C.) R18-11-101 *et seq.* This permit is proposed to be issued for a period of 5 years.

I. PERMITTEE INFORMATION	
Permittee's Name:	United States Department of Interior, National Park Service
Permittee's Mailing Address:	P.O. Box 129 Grand Canyon, AZ 86023
Facility Name:	North Rim Wastewater Treatment Plant (WWTP)
Facility Address or Location:	30 Helibase Rd North Rim, AZ 86052
County:	Coconino
Contact Person(s):	Adam Leavy
Phone/e-mail address:	928-638-7730 adam_leavy@nps.gov
AZPDES Permit Number:	AZ0110426
Inventory Number:	100749
LTF Number:	114614

II. STATUS OF PERMIT(s)	
AZPDES permit applied for:	Renewal
Date application received:	5/28/26
Date application was determined administratively complete:	6/4/26
Previous permit expiration date:	11/21/27
208 Consistency:	
In accordance with A.A.C. R18-9-A903(6), a permit cannot be issued for any discharge inconsistent with a plan or plan amendment approved under section 208(b) of the Clean Water Act.	

Based on review of the application, there are no changes to the facility that require a new determination of consistency with the Regional Water Quality Management Plan.		
United States Department of Interior, National Park Service has the following permits issued by ADEQ applicable to the North Rim Wastewater Treatment Plant:		
Type of Permit		
Aquifer Protection Program (APP) Permit	P100749	Regulates discharges to the local aquifer.

III. GENERAL FACILITY INFORMATION	
Type of Facility:	Federally owned treatment works
Facility Location Description:	Approximately ¼ mile west of Highway 67 and east of Transept Canyon on the north side of Grand Canyon National Park.
Permitted Design Flow:	0.060 MGD
Treatment Level (WWTP):	Tertiary (Advance Filtration)
Treatment Processes:	Wastewater is conveyed to the facility through the existing collection system and lift stations. The facility also periodically receives septage from hauled loads. The influent is screened and put into an equalization (EQ) tank before being treated in two membrane bioreactor (MBR) units. The MBRs provide biological treatment for removal of organic matter and ammonia, followed by membrane filtration. Membrane permeate is disinfected using ultraviolet (UV) light prior to discharge through Outfall 001.
Sludge Handling and Disposal:	Sludge is dried in beds on-site prior to transport to the South Rim WWTP for final composting, blending, and land application.
Nature of Facility Discharge:	Domestic wastewater from residential and commercial sources.
Total Number of Significant Industrial Users (SIUs):	None
Average Flow Per Discharge:	N/A
Service Area:	North Rim Grand Canyon
Service Population:	Approximately 35 year-round staff, 120 seasonal staff, and 180,000 annual overnight visitors, and 170,000 annual day use visitors.
Reuse / Irrigation or other disposal method(s):	None
Continuous or Intermittent Discharge:	Intermittent (seasonal)
Discharge Pattern Summary:	The North Rim WWTP will discharge continuously through Outfall 001 from April to November. The North Rim WWTP will be shut down seasonally from November to April of each calendar year when the Grand Canyon North Rim Park closes for winter.

The North Rim Wastewater Treatment Plant will operate seasonally and will utilize a temporary MBR treatment system that was installed following the 2025 Dragon Bravo Fire that damaged the secondary treatment system and control building. Treated effluent will be discharged through the existing Outfall 001 to Transept Canyon, tributary to Bright Angel Creek during the discharge season. During the winter season, wastewater will be routed to the existing septic tank and drainfield. Waste activated sludge generated by the MBR process will be dewatered in the existing sludge drying beds, with filtrate returned to the treatment process. Screenings, grit, and dried sludge will be hauled off site for disposal at the Grand Canyon South Rim WWTP. Sodium hydroxide will be used for alkalinity and pH control, and supplemental carbon may be added seasonally to support denitrification. No reuse of treated effluent is authorized under the AZPDES permit.

IV. RECEIVING WATER

The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by designated use depending on the level of protection required to maintain that use.

Receiving Water (Federal):	The Water of the U.S. Protected Surface Water (WOTUS PSW) for facility/outfall is Transept Canyon. This is a surface water listed in A.A.C. R18-11 Appendix B.
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River Basin:	Colorado Grand Canyon River Basin
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Outfall Location(s):	Outfall 001: Township 33 N, Range 3 E, Section 34 Latitude 36° 13' 0.83" N, Longitude 112° 4' 0.12" W (36.2169, -112.0667 in decimal degrees)
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Designated uses for the receiving water listed above	Aquatic and Wildlife effluent dependent water (A&Wedw) Partial Body Contact (PBC)
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Per A.A.C. R18-11-113(D), the water quality standards that apply to effluent-dependent waters (EDWs) will be applied to derive discharge limitations for any point source discharge of wastewater to an ephemeral water. The AZPDES permit includes discharge limitations and monitoring requirements designed to achieve compliance with A&Wedw standards.

Therefore, the following uses are being applied to the receiving water:

- Aquatic and Wildlife effluent dependent water (A&Wedw)
- Partial Body Contact (PBC)

Is the receiving water on the 303(d) list?	No, and there is no Total Maximum Daily Load (TMDL) associated.
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Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108, and the applicable numeric water quality standards are listed in A.A.C. R18-11-109 and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. In developing AZPDES permits, the standards for all applicable designated uses are compared and limits that will protect for all applicable designated uses are developed based on the standards.

In addition to the above, the Colorado River has a salinity standard. A.A.C. R18-11-110 incorporates by reference the plan of implementation contained in the "2014 Review, Water Quality Standards for Salinity, Colorado River System," approved October 2014. The plan of implementation is a basin-wide approach to salinity control developed by the Colorado River Basin Salinity Control Forum. Dischargers to the Colorado River and its tributaries upstream of the Imperial Dam must meet the plan of implementation requirements.

V. DESCRIPTION OF DISCHARGE

Because this is a new facility and no discharges have yet occurred, effluent monitoring data are not available. The following is the effluent quality based on the treatment processes designed, as outlined in the application.

Parameters	Units	Maximum Daily Discharge Concentration
Biochemical Oxygen Demand (BOD)	mg/L	No Data
Total Suspended Solids (TSS)	mg/L	No Data
Total Kjeldahl Nitrogen (TKN)	mg/L	No Data
<i>E. coli</i>	cfu/100 mL	No Data
Facility Design Removal Rates:		BOD 97 % TSS 97 % N 98.5 %

VI. STATUS OF COMPLIANCE WITH THE EXISTING AZPDES PERMIT

This is an issuance of a permit for a facility that has not been built.

VII. PROPOSED PERMIT CHANGES

This is an issuance of a permit for a facility that has not been built.

VIII. DETERMINATION OF EFFLUENT LIMITATIONS, OTHER LIMITATIONS, and ASSESSMENT LEVELS

When determining what parameters need monitoring and/or limits included in the permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.

Technology-based Limitations: As outlined in 40 CFR Part 133:

The regulations found at 40 CFR §133 require that POTWs achieve specified treatment standards for BOD, TSS, and pH based on the type of treatment technology available. Therefore, technology-based effluent limitations (TBELs) have been established in the permit for these parameters. Additionally, oil & grease will be monitored with an assessment level based on best professional judgment (BPJ). The average monthly assessment level of 10 mg/L and daily maximum of 15 mg/L are commonly accepted values that can be achieved by properly operated and maintained WWTPs. This level is also considered protective of the narrative standard at A.A.C. R18-11-108(B).

Water Quality-Based Effluent Limitations:

Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), discharge limits must be included in the permit for parameters with “reasonable potential” (RP), that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. Numeric water quality standards are outlined in A.A.C. R18-11-109 and Appendix A. RP refers to an analysis, based on the statistical calculations using the data submitted or consideration of other factors, to determine whether the discharge may exceed the Water Quality Standards. The procedures used to determine RP are outlined in the *Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001). In most cases, the highest reported value for a parameter is multiplied by a factor (determined from the variability of the data and number of samples) to determine a “highest estimated value.” This value is then compared to the lowest applicable Water Quality Standard for the receiving water. If the value is greater than the standard, RP exists and a water quality-based effluent limitation (WQBEL) is required in the permit for that parameter. RP may also be determined from BPJ based on knowledge of the treatment facilities and other factors. The basis for the RP determination for each parameter with a WQBEL is shown in the table below.

It is assumed that RP exists for exceedance of water quality criteria for the pollutant *E. coli*, which has been shown through extensive monitoring of WWTPs to fluctuate greatly and thus are not conducive to exclusion from limitation due to a lack of RP. Therefore, the permit contains WQBELs for *E. coli*.

Since this is a new facility and effluent data are not yet available, RP could not be calculated for other potential pollutants that are subject to numeric water quality standards. Instead of WQBELs, assessment levels (ALs) were established for Trace Substances (Table 2 in the permit). ALs and relatively frequent monitoring are necessary for these parameters because they are commonly present in WWTP effluents at variable concentrations and at a level that could exceed the applicable water quality criteria for them. (See discussion under “Assessment Levels” below for further details.) For a number of other pollutants, Effluent Characterization (EC) monitoring is required at a lesser frequency and without established ALs or numeric limits (Tables 4.a. – 4.f in the permit). (See discussion under “Effluent Characterization” below for further details.)

The proposed permit limits were established using a methodology developed by EPA. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect all uses. This methodology is described in Chapter 5 of the *TSD*, and considers water quality criteria, effluent variability, and the number of observations taken to determine compliance with prescribed limits. Limits based on A&W criteria were developed using the “two-value steady state waste load allocation” described on page 99 of the *TSD*. When the limit is based on human health criteria, the monthly average was set at the level of the applicable standard and a daily maximum limit was determined as specified in Sections 5.4.4 and 5.5.3 of the *TSD*.

Mixing Zone

Arizona water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies and is approved for a mixing zone. Since the receiving stream for this discharge is ephemeral prior to the discharge, no water is available for a mixing zone and all water quality criteria are applied at end-of pipe. This means that the effluent concentration must meet stream standards.

Assessment Levels (ALs)

ALs are listed in Part I.B of the permit. An AL differs from a discharge limit in that an exceedance of an AL is not a permit violation. Instead, ALs serve as triggers, alerting the permitting authority when there is cause for re-evaluation of RP for exceeding a water quality standard, which may result in new permit limitations. The AL numeric values also serve to advise the permittee of the analytical sensitivity needed for meaningful data collection. Trace substance monitoring is required when there is uncertain RP (based on non-detect values or limited datasets) or a need to collect additional data or monitor treatment efficacy on some minimal basis. A reopener clause is included in the permit should future monitoring data indicate water quality standards are being exceeded.

The requirement to monitor for these parameters is included in the permit according to A.A.C. R18-11-104(C) and Appendix A. Except for oil and grease, ALs listed for each parameter were calculated in the same manner that a limit would have been calculated (see Water Quality-Based Effluent Limitations above). The ALs for oil and grease were determined based on BPJ as described above.

Ammonia water quality criteria vary based on the effluent pH and temperature at the time of effluent sampling. As a result, no single ammonia concentration can be included as an assessment level. To overcome this, an Ammonia Impact Ratio (AIR) of 1 for the monthly average and a value of 2 for the maximum daily limits has been established as the assessment level for ammonia. The AIR is calculated by dividing the ammonia concentration in the effluent by the applicable ammonia standard based on the effluent pH and temperature at the time of sampling. AIR values will be reported on DMRs and on the Ammonia Data Log which is included as Appendix B in the permit

Hardness

Since no actual effluent monitoring data are yet available, a protective default hardness value of 120 mg/L was used to calculate the applicable water quality standards and any assessment levels or limits for the hardness-dependent metals (cadmium, chromium III, copper, lead, nickel, silver, and zinc).

Whole Effluent Toxicity (WET)

WET testing is required in the permit (Parts I.C and IV) to evaluate the discharge according to the narrative toxic standard in A.A.C. R18-11-108(A)(5), as well as whether the discharge has RP for WET per 40 CFR 122.44(d)(iv). However, because this permit is for a new facility, the permittee may report the required WET test results up to two years after either submitting the initial AZPDES permit application for an existing facility or beginning operations for a facility that is not yet constructed.

WET testing for chronic toxicity is required. The requirement to conduct chronic toxicity testing is contingent upon the frequency or duration of discharges. Since completion of the chronic WET tests for *Ceriodaphnia dubia* and *Pimephales promelas* require the collection of three samples, preferably on days 1, 3, and 5 for daily solution renewal, these chronic tests are not required during any given monitoring period in which the discharge does not occur over seven consecutive calendar days during a monitoring period

WET testing for chronic toxicity shall be conducted using the following three surrogate species:

- *Ceriodaphnia dubia* (water flea) – for evaluating toxicity to invertebrates
- *Pimephales promelas* (fathead minnow) – for evaluating toxicity to vertebrates
- *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum* or *Raphidocelis subcapitata*) (a green alga) – for evaluating toxicity to plant life

ADEQ requires the permittee to analyze WET test data using the Test of Significant Toxicity (TST) statistical approach. This statistical approach is described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010; TST Implementation Document) and *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document* (EPA 833-R-10-004, 2010; TST Technical Document). This statistical approach supports important choices made within a toxicity laboratory which favor quality data and ADEQ's intended levels for statistical power when true toxicity is statistically determined to be unacceptably high or acceptably low. For both acute and chronic WET test methods, the low-risk Regulatory Management Decision (RMD) threshold is set at a 10 percent mean effect at the Instream-Waste Concentration (IWC). For mean effect levels greater than 10 percent but less than the unacceptable toxicity RMD threshold (20 percent for acute and 25 percent for chronic WET tests), the TST approach will declare the IWC non-toxic depending on within-test variability. The TST maintains ADEQ'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 (EPA 833-R-10-004, 2010).

Because this is a new facility and no discharges have yet occurred, WET monitoring data are not available.

Any failed test during a monitoring period where discharge occurred will trigger follow-up testing to determine if effluent toxicity is persistent. If toxicity above a limit or action level is found in a follow-up test, the permittee will be required to conduct a Toxicity Reduction Evaluation (TRE) based on a TRE Work Plan submitted within 90 days of the permit effective date and possibly a Toxicity Identification Evaluation (TIE) to identify the source of toxicity and decrease toxicity. The conditions described in this paragraph are required to identify and rectify sources of toxicity in discharges [A.A.C. R18-11-108(A)(5)]. A reopener clause is included in accordance with 40 CFR Parts 122 and 124 and AAC R18-9-B906.

The permit requires 8-hour composite samples be collected for WET testing. An 8-hour composite sample type was chosen over the suggested 24-hour composite for WET testing in order to have consistency with the type of sample required for other parameters requiring monitoring in this permit. WET sampling must coincide with testing for all the parameters in Parts I.A and B of the permit when testing of those parameters is required to aid in determining the cause of toxicity if it is detected. Additional procedural requirements for the WET test are included in the permit.

The required WET monitoring frequency for this facility is consistent with the WET testing frequency required for facilities with a similar design flow. The permit requires WET test results to be reported on discharge monitoring reports (DMRs). WET laboratory reports for all WET tests performed must be attached to the corresponding DMR. When a WET limit is exceeded and the facility discharged during the monitoring period when the limit exceedance occurred, the result is subject to the Twenty-four Hour Reporting of Noncompliance requirements, per Part II.C. All action level and limit exceedance results and lab reports shall be emailed to AZPDES@azdeq.gov within five days.

Effluent Characterization (EC)

In addition to monitoring for parameters assigned either a limit or an AL, sampling is required to assess the presence of pollutants in the discharge at certain minimum frequencies for additional suites of parameters, whether the facility is discharging or not. This monitoring is specified in Tables 4.a. through 4.b., *Effluent Characterization Testing*, as follows:

- Table 4.a.—General Chemistry and Microbiology: ammonia, BOD-5, *E. coli*, total residual chlorine (TRC), dissolved oxygen, total Kjeldahl nitrogen (TKN), nitrate/nitrite, oil and grease, pH, phosphorus, temperature, total dissolved solids (TDS), and total suspended solids (TSS)
- Table 4.b.—Selected Metals, Hardness, Cyanide, and WET

NOTE: Some parameters listed in Tables 4.a. and 4.b. are also listed in Tables 1 or 2. In this case, the data from monitoring under Tables 1 or 2 may be used to satisfy the requirements of Tables 4.a. and / or 4.b., provided the specified sample types are the same. In the event the facility does not discharge to a Protected Surface Water during the life of the permit, EC monitoring of representative samples of the effluent is still required.

The purpose of EC monitoring is to characterize the effluent and determine if the parameters of concern are present in the discharge and at what levels. This monitoring will be used to assess RP per 40 CFR 122.44(d)(1)(iii)). EC monitoring is required in accordance with 40 CFR 122.43(a), 40 CFR 122.44(i), and 40 CFR 122.48(b) as well as A.R.S. §49-203(A)(7). If pollutants are noted at levels of concern during the permit term, this permit may also be reopened to add related limits or conditions.

Permit Limitations and Monitoring Requirements

Table 1 summarizes the parameters that are limited in the permit and the rationale for that decision. Also included are the parameters that require monitoring without any limitations or that have not been included in the permit at all and the basis for those decisions. The corresponding monitoring requirements are shown for each parameter. In general, the regulatory basis for monitoring requirements is per 40 CFR §122.44(i) *Monitoring requirements*, and 40 CFR §122.48(b), *Required monitoring*; all of which have been adopted by reference in A.A.C. R18-9-A905, *AZPDES Program Standards*.

Table 1. Permit Limitations and Monitoring Requirements

Parameter	No. of Samples	Maximum Reported Concentration (1)	RP Multiplier (2)	Critical Concentration (Calculated)	Most Stringent Criterion	Most Stringent Criterion Basis (3)	Does Reasonable Potential Exist?	Proposed Monitoring Requirement/Rationale (4)
Flow	---	---		---	---		---	Discharge flow is to be monitored on a continual basis using a flow meter.
Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS)	BOD: N/A TSS: N/A	BOD: No Data TSS: No Data		N/A	30 mg/L 30-day average 45 mg/L 7-day average	Technology-based limits 40 CFR 133.102	TBELs for BOD and TSS are always applicable to WWTPs.	Monitoring for influent and effluent BOD and TSS to be conducted using composite samples of the influent and the effluent. The sample type required was chosen to be representative of the discharge. The requirement to monitor influent BOD and suspended solids is included to assess compliance with the 85% removal requirement in this permit. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
Chlorine, Total Residual (TRC)	N/A	No Data	N/A	N/A	5 µg/L	A&Wedw chronic	RP always expected when chlorine or bromine is used for disinfection.	TRC is to be monitored as a discrete sample and a WQBEL remains in the permit. 40 CFR Part 136 specifies that discrete samples must be collected for chlorine. At least one sample per month must coincide with WET testing to aid in the determination of the cause of toxicity, if toxicity is detected.
Dissolved Oxygen	N/A	No Data	N/A	N/A	The percent saturation of dissolved oxygen is equal to or greater than 90 percent, or single sample minimum concentration of 3 mg/L from 3 hours after sunrise to sunset and 1 mg/L from sunset to 3 hours after sunrise	A&Wedw	RP Indeterminate (No Data) (6)	Monitoring is required as a discrete sample for effluent characterization.
<i>E. coli</i>	N/A	No Data		N/A	30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 576 cfu /100 mL	PBC	RP always expected for WWTPs. See explanation above.	<i>E. coli</i> is to be monitored as a discrete sample and a WQBEL remains in the permit.

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Parameter	No. of Samples	Maximum Reported Concentration (1)	RP Multiplier (2)	Critical Concentration (Calculated)	Most Stringent Criterion	Most Stringent Criterion Basis (3)	Does Reasonable Potential Exist?	Proposed Monitoring Requirement/Rationale (4)
pH	N/A	No Data		N/A	Minimum: 6.5 Maximum: 9.0 A.A.C. R18-11-109(B) Minimum: 6.0 Maximum: 9.0	A&Wedw and PBC Technology-based limits 40 CFR 133.102	WQBEL or TBEL is always applicable to WWTPs.	pH is to be monitored using a discrete sample of the effluent and a WQBEL is set. 40 CFR Part 136 specifies that grab samples must be collected for pH. At least one sample must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected. pH sampling must also coincide with ammonia sampling when required (4).
Temperature	N/A	No Data		N/A	R18-11-109C the discharge shall not cause an increase in the ambient water temperature no more than 3.0°C	A&Wedw:	N/A	Temperature of the effluent and the receiving water, both upstream and downstream of the discharge, is to be monitored for effluent characterization by discrete sample. 40 CFR Part 136 specifies that discrete samples must be collected for temperature. Temperature sampling must also coincide with ammonia sampling when required (5).
Suspended Sediment Concentration	N/A	No Data			No Criteria	N/A	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Total Dissolved Solids (TDS)	N/A	No Data		N/A	No applicable standard	Colorado River Basin Salinity Control Forum requirements applies to dischargers to the Colorado River and its tributaries above Imperial Dam	N/A	Monitoring required and a limit is set; both the source water and the effluent shall be monitored for TDS to determine compliance with Colorado River Basin Salinity Control Forum requirement of a 400 mg/L incremental increase above source water.
Ammonia	N/A	No Data AIR (5)		N/A	Standard varies with temperature and pH	A&Wedw	RP Indeterminate (No Data) (6)	Ammonia is to be monitored by discrete sample and a WQBEL in the form of an ammonia impact ratio (AIR) of 1 is set in the permit (4). An ammonia data log with concurrent pH and temperature monitoring is also required. One sample must coincide with WET sampling to aid in the determination of the cause of toxicity, if toxicity is detected.

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Parameter	No. of Samples	Maximum Reported Concentration (1)	RP Multiplier (2)	Critical Concentration (Calculated)	Most Stringent Criterion	Most Stringent Criterion Basis (3)	Does Reasonable Potential Exist?	Proposed Monitoring Requirement/Rationale (4)
Nutrients: Total Nitrogen Total Phosphorus	N: N/A P: N/A	N: No Data P: No Data	N/A	N/A	No applicable standards	N/A	N/A	Monitoring required for effluent characterization.
Oil & Grease	N/A	No Data		N/A	BPJ Technology-Based Level of 10 mg/L monthly average and 15 mg/L daily maximum	N/A	RP Indeterminate (No Data) (6)	Monitoring required and an assessment level is set.
Hardness	N/A	No Data		N/A	No applicable standard. Hardness is used to determine standards for specific metal parameters.	N/A	N/A	A&W standards for cadmium, chromium III, copper, lead, nickel, silver and zinc used for RP determinations were based on a protective default hardness value of 120 mg/L since no actual effluent monitoring data are available. Monitoring for hardness is required whenever monitoring for hardness dependent metals is required.
Antimony	N/A	No Data	N/A	N/A	600 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Arsenic	N/A	No Data	N/A	N/A	150 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Barium	N/A	No Data	N/A	N/A	98,000 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Boron	N/A	No Data	N/A	N/A	186,667 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Beryllium	N/A	No Data	N/A	N/A	5.3 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Cadmium (8)	N/A	No Data	N/A	N/A	2.6 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Chromium VI	N/A	No Data	N/A	N/A	11 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.

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Chromium (Total)	N/A	No Data	N/A	N/A	100 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Copper (8)	N/A	No Data	N/A	N/A	10 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Cyanide	N/A	No Data	N/A	N/A	9.7 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Hydrogen sulfide	N/A	No Data	N/A	N/A	2 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring is required for sulfides as an indicator parameter for hydrogen sulfide. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.
Iron	N/A	No Data	N/A	N/A	1,000 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Lead (8)	N/A	No Data	N/A	N/A	3.1 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Manganese	N/A	No Data	N/A	N/A	130,667 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Mercury	N/A	No Data	N/A	N/A	0.01 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Nickel (8)	N/A	No Data	N/A	N/A	61 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Selenium	N/A	No Data	N/A	N/A	2 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Silver (8)	N/A	No Data	N/A	N/A	4 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Sulfides	N/A	No Data	N/A	N/A	No applicable standard	No Criteria	N/A	Indicator parameter for hydrogen sulfide. Monitoring required. If sulfides are detected, monitoring for hydrogen sulfide is required for the remainder of the permit term.

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Thallium	N/A	No Data	N/A	N/A	75 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Uranium	N/A	No Data	N/A	N/A	2,800 µg/L	PBC	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Zinc (7)	N/A	No Data	N/A	N/A	140 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Hardness	N/A	No Data	N/A	N/A	No Criteria	N/A	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Cyanide (as free cyanide)	N/A	No Data	N/A	N/A	9.7 µg/L	A&Wedw chronic	RP Indeterminate (No Data) (6)	Monitoring required for effluent characterization.
Whole Effluent Toxicity (WET):								
<i>Ceriodaphnia dubia</i> (Water flea)	N/A	No Data	N/A	N/A	No toxicity (A.A.C. R18-11-108(A) (6)	A&Wedw	RP Indeterminate (No Data) (6)	Monitoring required and an action level is set.
<i>Pimephales promelas</i> (Fathead minnow)	N/A	No Data	N/A	N/A	No toxicity (A.A.C. R18-11-108(A) (6)	A&Wedw	RP Indeterminate (No Data) (6)	Monitoring required and an action level is set.
<i>Pseudo-kirchneriella subcapitata</i> (Green Alga) (8)	N/A	No Data	N/A	N/A	No toxicity (A.A.C. R18-11-108(A) (6)	A&Wedw	RP Indeterminate (No Data) (6)	Monitoring required and an action level is set.

Footnotes:

- Maximum quantified result or maximum reporting limit, whichever is highest. A maximum reporting limit is indicated with less than "<" sign.
- Reasonable potential (RP) multiplier is a factor applied to the limited dataset reported to ADEQ by the permittee over the current permit term. This factor is a function of the sample count and coefficient of variation for the dataset that is used to approximate the 99th percentile value at a 99% confidence level based on a lognormal distribution.
- This refers to the applicable designated use that determines the lowest (most protective) water quality standard for each pollutant. Designated use abbreviations are defined in A.A.C. R18-11-101.
- The monitoring frequencies are as specified in the permit.
- An AIR will be calculated by dividing effluent ammonia concentration by the applicable standard using the receiving water pH and temperature.
- Monitoring with ALs or Action Levels always required for WWTPs for these parameters unless RP exists and limits are set.
- Hardness-dependent metal - the standard for this parameter is based on the average hardness value of the effluent or receiving water as indicated above.
- Formerly known as *Selenastrum capricornutum* or *Raphidocelis subcapitata*

VIII. NARRATIVE WATER QUALITY STANDARDS

Narrative standards applicable to the receiving water are listed in A.A.C. R18-11-108. Part I of the permit contains effluent limitations, other limitations, and monitoring requirements to ensure the discharge is protective of the receiving water, including the narrative standards.

The applicable narrative standards follow below in italics. How ADEQ implements the standard in the permit follows the standard.

A surface water shall not contain pollutants in amounts or combinations that:

Settle to form bottom deposits that inhibit or prohibit the habitation, growth, or propagation of aquatic life;

- The permit requires monitoring for Suspended Sediment Concentration (SSC) and monitoring with an effluent limitation for Total Suspended Solids (TSS). The effluent limit for TSS ensures the discharge does not cause bottom deposits. ADEQ will continue to analyze SSC results and include an effluent limitation for SSC where reasonable potential exists.

Cause objectionable odor in the area in which the surface water is located

- The permit contains a narrative requirement that the discharge must not contain objectionable odor.

Cause off-flavor in aquatic organisms; and Are toxic to humans, animals, plants, or other organisms;

- This permit contains requirements for Whole Effluent Toxicity (WET) Testing to ensure the discharge is free from toxicity. The permit also contains effluent characterization monitoring to assess the quality of the effluent and determine what parameters of concern are present in the discharge and at what levels. The permit includes applicable technology-based limitations (TBELs) and water quality based effluent limitations (WQBELs), where reasonable potential exists, to ensure the discharge is non-toxic and safe for aquatic organisms, wildlife, and human health.

Cause the growth of algae or aquatic plants that inhibit or prohibit the habitation, growth, or propagation of other aquatic life or that impair recreational uses;

- The permit contains monitoring requirements for ammonia, nitrate-nitrite, Total Kjeldahl Nitrogen (TKN), total nitrogen, and total phosphorus to assess the amount of nutrients present in the discharge. Where reasonable potential exists for these parameters, ADEQ includes effluent limitations for these parameters to prevent the growth of algae and other aquatic plants that may inhibit or prohibit the habitation, growth, or propagation of other aquatic life or impair recreational uses.

Change the color of the surface water from natural background levels of color.

- The permit contains a narrative requirement that the discharge must not contain unnatural color.

A surface water shall not contain oil, grease, or any other pollutant that floats as debris, foam, or scum; or that causes a film or iridescent appearance on the surface of the water; or that causes a deposit on a shoreline, bank, or aquatic vegetation.

- The permit contains a narrative requirement that the discharge shall be free from oil, grease and other pollutants that float as debris, foam, or scum; and a film or iridescent appearance.

A surface water shall not contain a discharge of suspended solids in quantities or concentrations that interfere with the treatment processes at the nearest downstream potable water treatment plant or substantially increase the cost of handling solids produced at the nearest downstream potable water treatment plan.

- The permit contains a monitoring with an effluent limitation for Total Suspended Solids (TSS). The effluent limit for TSS will ensure the discharge does not contain suspended solids in quantities or concentrations that would interfere with or increase the cost to the nearest downstream potable water treatment plant.

A surface water shall not contain solid waste such as refuse, rubbish, demolition or construction debris, trash, garbage, motor vehicles, appliances, or tires.

- The permit contains a narrative requirement that the discharge must not contain refuse, rubbish, demolition or construction debris, trash, or garbage. Motor vehicles, appliances, or tires are not expected to be present in the discharge.

IX. MONITORING AND REPORTING REQUIREMENTS (Part II of Permit)

Section 308 of the Clean Water Act and 40 CFR Part 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Monitoring frequencies for some parameters may be reduced in subsequent permits if all monitoring requirements have been met and the limits or ALs for those parameters have not been exceeded during the first permit term.

For the purposes of this permit, an "8-hour composite" sample has been defined as a flow-proportioned mixture of two or more discrete samples (aliquots) obtained at equal time intervals over an 8-hour period (if only two samples are collected, they should be taken approximately 8 hours apart). The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling.

These criteria for composite sampling are included in order to obtain samples that are representative of the discharge given the potential variability in the duration, frequency and magnitude of discharges from this facility.

Discrete (i.e., grab) samples are specified in the permit for parameters that for varying reasons are not amenable to compositing.

Monitoring locations are specified in the permit (Part I.A and Part II.A) in order to ensure that representative samples of the influent and effluent are consistently obtained.

The requirements in the permit pertaining to Part II, Monitoring and Reporting, are included to ensure that the monitoring data submitted under this permit is accurate in accordance with 40 CFR 122.41(j). The permittee has the responsibility to determine that all data collected for purposes of this permit meet the requirements specified in this permit and is collected, analyzed, and properly reported to ADEQ.

The permit (Part II.A.3) requires the permittee to keep a Quality Assurance (QA) manual at the facility, describing sample collection and analysis processes; the required elements of the QA manual are outlined.

Reporting requirements for monitoring results are detailed in Part II, Section B of the permit, including completion and submittal of Discharge Monitoring Reports (DMRs), Ammonia Data Logs, and AZPDES Flow Record forms.

The permittee is responsible for conducting all required monitoring and reporting the results to ADEQ on DMRs or as otherwise specified in the permit.

Electronic reporting

The US EPA has published a final regulation that requires electronic reporting and sharing of Clean Water Act National Pollutant Discharge Elimination System (NPDES) program information instead of the current paper-based reporting (Federal Register, Vol. 80, No. 204, October 22, 2015). Beginning December 21, 2016 (one year after the effective date

of the regulation), the Federal rule required permittees to make electronic submittals of any monitoring reports and forms called for in their permits. ADEQ has created an online portal called myDEQ that allows users to submit their discharge monitoring reports and other applicable reports required in the permit.

The permit also requires annual submittal of an Ammonia Data Log that records the results for temperature, pH, and ammonia samples and date of sampling (Part II.B.5). Because the ammonia standards in 18 A.A.C. 11, Article 1, Appendix A are contingent upon the pH and temperature at the time of sampling for ammonia, the permittee must determine the applicable ammonia standard using the ammonia criteria table(s) and calculate the Ammonia Impact Ratio for that ammonia sample result. The AIR is recorded on the DMR.

Requirements for retention of monitoring records are detailed in Part II.D.1 of the permit.

X. BIOSOLIDS REQUIREMENTS (Part III in Permit)

Standard requirements for the monitoring, reporting, record keeping, and handling of biosolids, as well as minimum treatment requirements for biosolids according to 40 CFR Part 503 are incorporated in the permit.

XI. SPECIAL CONDITIONS (Part V in Permit)

Operation

This permit condition requires the permittee to ensure that the WWTP has an operator who is certified at the appropriate level for the facility, in accordance with A.A.C. R18-5-104 through -114. The required certification level for the WWTP operator is based on the class (Wastewater Treatment Plant) and grade of the facility, which is determined by population served, level of treatment, and other factors.

Permit Reopener

This permit may be modified based on newly available information; to add conditions or limits to address demonstrated effluent toxicity; to implement any EPA-approved new Arizona water quality standard; or to re-evaluate reasonable potential (RP), if assessment levels in this permit are exceeded [A.A.C. R18-9-B906 and 40 CFR Part 122.62 (a) and (b)].

XII. ANTIDEGRADATION

rules have been established under A.A.C. R18-11-107 to ensure that existing surface water quality is maintained and protected. The discharge from the North Rim WWTP will be to an ephemeral wash which will become (for purposes of this permit) an effluent-dependent water. Effluent quality limitations and monitoring requirements have been established under the proposed permit to ensure that the discharge will meet the applicable water quality standards. As long as the permittee maintains consistent compliance with these provisions, the designated uses of the receiving water will be presumed protected, and the facility will be deemed to meet currently applicable antidegradation requirements under A.A.C. R18-11-107.

XIII. STANDARD CONDITIONS

Conditions applicable to all NPDES permits in accordance with 40 CFR, Part 122 are attached as an appendix to this permit.

XIV. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed on ADEQ's website or in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)

Rules require that permits be public noticed on ADEQ's website or in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-A908(B))

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 the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

EPA Review (A.A.C. R18-9-A908(C))

A copy of this permit and any revisions made to this draft as a result of public comments received will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.

XV. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – Surface Water Permits Unit
Attn: Lora Walsh
1110 West Washington Street
Phoenix, Arizona 85007

Or by contacting Lora Walsh at (602) 771-4539 or by e-mail at walsh.lora@azdeq.gov.

XVI. INFORMATION SOURCES

While developing effluent limitations, monitoring requirements, and special conditions for the permit, the following information sources were used:

1. AZPDES Permit Application Form(s) 2A and 2S (or insert other forms submitted), received May 28, 2026, along with supporting data, facility diagram, and maps submitted by the applicant with the application forms.
2. Supplemental information to the application received by ADEQ on May 28, 2026.
3. ADEQ files on North Rim WWTP.

4. ADEQ Geographic Information System (GIS) Website
5. Arizona Administrative Code (AAC) Title 18, Chapter 11, Article 1, *Water Quality Standards for Surface Waters*, adopted December 31, 2016.
6. A.A.C. Title 18, Chapter 9, Article 9. *Arizona Pollutant Discharge Elimination System* rules.
7. Code of Federal Regulations (CFR) Title 40:
 - Part 122, *EPA Administered Permit Programs: The National Pollutant Discharge Elimination System*.
 - Part 124, *Procedures for Decision Making*.
 - Part 133. *Secondary Treatment Regulation*.
 - Part 503. *Standards for the Use or Disposal of Sewage Sludge*.
8. EPA Technical Support Document for Water Quality-based Toxics Control (EPA-505-2-90-001, 1991).
9. U.S. EPA NPDES Permit Writers' Manual, September 2010.
10. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion, US EPA (EPA-823-B-96-007, 1996).
11. National Pollutant Discharge Elimination System Whole Effluent Toxicity Permit Writers' Manual, U.S. EPA (EPA-833-B-24-001).
12. *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA-821-R-02-012, 2002).
13. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA-821-R-02-013, 2002).
14. National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, U.S. EPA (EPA-833-R-10-003, 2010).
15. *Method Guidance and recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)* (EPA-821-B-00-004, 2000).
16. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, U.S. EPA (EPA-833-R-10-004, 2010).