

US EPA ARCHIVE DOCUMENT

FACT SHEET
Twin Arrows Navajo Casino and Resort
NPDES Permit No. NN0030344

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Facility Address: Navajo Tribal Utility Authority
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Twin Arrows, AZ 86004

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I. Summary

The Navajo Tribal Utility Authority (“NTUA”) applied for a National Pollutant Discharge Elimination System (“NPDES”) permit on February 8, 2012 for the Twin Arrows Navajo Casino and Resort wastewater treatment facility, pursuant to the EPA regulations set forth in Title 40, Code of Federal Regulations (“CFR”) Part 122.21. This fact sheet is based on information provided by the discharger through its application, along with the appropriate laws and regulations.

II. Description of Facility

The NTUA-Twin Arrows Navajo Casino and Resort wastewater treatment plant is located in Twin Arrows, Coconino County, Arizona, which is in the Southwestern portion of the Navajo Nation. The treatment plant will serve a population of about 14,800 per day, receive only domestic sewage and will have a design flow of 130,000 gallons or 0.13 million gallons per day (“MGD”).

The wastewater generated from the casino and resort will be conveyed by gravity through a 6-inch line to a Lift Station located south of the wastewater treatment plant. The design of the Lift Station duplex system includes two submersible pumps, a peak flow of 350 gallons per minute (“GPM”), a wetwell volume of 4,825 gallons, and a flow capacity of 480 GPM. From the Lift Station, wastewater will be pumped through an 8-inch forcemain into the Screening System.

The Screening System includes two drum screens sized for 240 GPM flow to accommodate peak flow. Each Screen System will consist of the drum screen located inside an enclosed stainless housing, and a washer/compactor/screw conveyor that will discharge screenings into a bagging device. Bagged screenings will be temporarily collected in a dumpster

and then hauled to a certified landfill. The washer/compactor/screw conveyor will have a utility water connection that will utilize 4.5 GPM at intermittent intervals for the washing of organics from the screened materials. The drum screen will have 2 micron perforations. The Screening System will be winterized to prevent wastewater and conveyed screenings from freezing inside the equipment. The winterizing will consist of an insulated and heated head box on the screen and screenings conveyor tube. The screen is contained. Each screen will have the capability to provide backup for the other screen unit for maintenance and to accommodate temporary screen malfunctions. Screened flow will then be discharged into an Equalization (“EQ”) Tank/Influent Pump Station. The wastewater treatment system is designed on the premise that grease interceptors will be installed at the casino/restaurants and will be maintained by the casino operation. If grease reaches the treatment plant, it will be intercepted in the EQ Tank which will have to be cleaned and pumped.

The EQ Tank is sized to temporarily store peak instantaneous flows from the casino complex so that the Membrane Bioreactor (“MBR”) package plant can be fed at a rate not to exceed 174 GPM. The design of the EQ Tank includes 0 to 350 GPM influent flow range, 0 to 174 GPM outflow range, and an active volume of 50,000 gallons. The EQ Tank will be a buried, reinforced concrete tank with a floor sloping to the Influent Pumps and will be coated with a protective coating for the concrete that will also facilitate cleaning operations. The Influent Pump Station wetwell is structurally integral to the EQ Tank.

The Influent Pump Station will draw wastewater from the EQ Tank and pump it to the wastewater treatment package plant through a 3-inch forcemain. The design of the Influent Pump Station includes 174 GPM maximum flow, 55.4 feet of total discharge head, two submersible pumps (one duty, one standby), and a wetwell active volume of 50,000 gallons (EQ Tank).

The average daily flow has been estimated at 125,000 GPD which necessitated two package plants in parallel with each having a capacity of 62,500 GPD. The entire Package Wastewater Treatment Plant will be provided by a single system supplier. All equipment necessary for operation of the MBR will be included in the package. The MBR package has been designed to treat wastewater from the casino and resort complex. Design loadings were estimated based on values documented for other casino complexes and correspondence with similar facilities.

The MBR will utilize the conventional activated sludge process with internal mixed liquor recycle for nitrification and denitrification. Each MBR tank will be partitioned into an aerobic zone with a submersible mixer, a pre-aeration zone with fine bubble diffusers, and two membrane tanks that will house the membrane modules and air scour equipment. Mixed liquor in the membrane tanks will be pumped back to the anoxic zone at approximately 4 times the influent rate, to provide denitrification and maintain stable mixed liquor suspended solids concentrations across the process zones.

Permeate will flow by gravity through hollow-plate membrane panels into a small permeate tank. Permeate pumps will draw permeate from this tank and pressurize it for flow

through the UV reactor(s) to the plant discharge outfall. The permeate pumps will also have a direct connection to the membrane modules in case some negative pressure is required during peak flow events.

The MBR tank will be an aboveground steel tank with an insulation system rated R-5 to maintain mixed liquor temperatures that support nitrification. The tank will be covered with removable checkerplate covers and access hatches, and odor control will be provided for the anoxic zones. The design of the MBR package plant includes: anoxic zone volume of 12,000 gallons (total of two tanks), aeration zone volume of 41,000 gallons (total of two tanks), membrane tank volume of 20,000 gallons (partitioned into four MBR tanks), hydraulic residence time of 12.1 hours at average flow and 6.0 hours at peak flow, and solids retention time of 21 days (16 days aerobic).

The Ultraviolet (“UV”) Disinfection System will be used to disinfect the effluent prior to discharge. The design for the UV System includes low-pressure high-output inline UV, two UV reactors (18 lamps per reactor), a maximum design flow of 174 GPM, a goal of non-detect Fecal Coliform, 70 percent transmissivity, and automatic mechanical sleeve wiping. A UV transmissivity analyzer will be provided on the permeate piping upstream of the UV reactors to monitor and record UV transmissivity over time. Each reactor will have a UV intensity monitor to monitor and record UV intensity. The permittee would like the option to reuse treated effluent. Sodium hypochlorite will be injected downstream of the UV System when the reuse system is allowed to operate to prevent growth in the irrigation system.

The maximum design flow for the Dewatering System is 225 pounds per day at 1 percent solids concentration. Waste activated sludge (“WAS”) will be pumped from the MBR package plants to one of two 30-cubic yard filter roll-off steel containers lined with a filter cloth that retains solids but allows liquid to pass through to any of four drain ports per container for return back to the Influent Pump Station. A polymer will be injected into the WAS to improve and expedite dewatering. The dewatered solids will be disposed of in a certified landfill. The minimum residence time required to meet the paint filter test is approximately 20 days.

Odor Control will use dual media scrubbers with potassium permanganate impregnated with alumina and granular activated carbon. One scrubber will be positioned at each of the following: the Lift Station near the casino complex, the Influent Pump Station/EQ Tank, the two Screening System dumpsters, the two MBR anoxic zones, and the two Dewatering System filter roll-off containers. The scrubbers are 150-gallon HDPE drums with 1 horsepower blowers that provide 300 cubic feet per minute of odorous air treatment.

After the UV Disinfection System, the wastewater treatment facility will discharge effluent through a 3-inch pipe (Outfall No. 001) into an unnamed wash which is a tributary to Padre Canyon, a tributary to Canyon Diablo, a tributary to the Little Colorado River. It is approximately 0.6 miles from Outfall No. 001 to Padre Canyon. Any sampling and monitoring under the proposed permit shall be performed at Outfall No. 001.

According to a study conducted in 2011 entitled “**Floodplain Delineation of Padre Canyon Tributary within Coconino County, Arizona**” the estimated carrying capacity of the

Padre Canyon waterway after drainage improvements is about 283 cubic feet per second (cfs) which translates to over 182 million gallons per day (MGD). The discharge from Outfall No. 001 is designed to be 0.13 MGD, or less than 0.1% of the carrying capacity of Padre Canyon.

III. Basis of Proposed Permit Requirements

A. Applicable Technology-Based Effluent Limitations

Section 301 of the Clean Water Act (“CWA”) established a required performance level, referred to as “Secondary treatment,” that all publicly-owned treatment works (“POTWs”) are contained in 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. These technology-based effluent limits apply to all municipal wastewater treatment plants, and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day Biochemical Oxygen Demand (“BOD₅”) and Total Suspended Solids (“TSS”). The requirements contained in the draft permit are necessary to prevent violations of applicable treatment standards.

B. Navajo Nation Surface Water Quality Standards

In accordance with 40CFR 122.44(d), the feed for discharge limitations for all pollutants that may impact applicable water quality criteria and water quality standards must be evaluated. As part of this evaluation, discharge limitations are based on application of the water quality standards. USEPA approved the 1999 Navajo Nation Surface Water Quality Standards (“NNSWQS”), on March 23, 2006. The NNSWQS were revised in 2007 and approved by the EPA on March 26, 2009. The approved 1999 Navajo Nation water quality standards and 2007 revisions will be used on a best professional judgment (“BPJ”) basis 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.

IV. Determination of Effluent Limitations, Monitoring, and Reporting Requirements

A. Federal Secondary Treatment Effluent Discharge Limitations

The proposed permit contains discharge limitations for BOD₅, TSS, and priority pollutants. For BOD₅, the arithmetic means of values, by weight, for effluent samples collected in a period of 30 consecutive calendar days shall not exceed 15 percent of the arithmetic mean of values, by weight, for influent samples collected at approximately the same times during the same period. For 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.

Discharge Limitations					
Discharge Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency
Flow ¹	MGD	-- ²	n/a	-- ²	Instantaneous
BOD ₅ ³	mg/l	30	45	--	Monthly
	kg/day	14.7	22.0	--	
TSS ⁴	mg/l	30	45	--	Monthly
	kg/day	14.7	22.1	--	
Priority Pollutants ⁵	µg/l	n/a	n/a	-- ²	Once/within 90 days of commencement of operation in Year 1.

Notes:

1. No flow limit is set at this time but influent and effluent flows must be monitored and reported. The monitoring frequency is once/month.
2. Monitoring and reporting required. No limitation is set at this time.
3. The discharge limits for BOD₅ shall not exceed a monthly average of 30 mg/l and a weekly average of 45 mg/l. The mass limits are calculated based upon the 0.13 MGD design flow.
4. Under 40 CFR Section, 122.45(f), the discharge limits for TSS shall not exceed a monthly average of 30 mg/l and a weekly average of 45 mg/l. The mass limits are calculated based upon the 0.13 MGD design flow.
5. Priority Pollutants: During Year 1 of the permit, the permittee shall monitor for the full list of priority pollutants at 40 CFR Part 423, Appendix A. No limit is set at this time. Should the results reveal levels below the Navajo Nation Surface Water Quality Standards and EPA's National Water Quality Criteria for priority pollutants, monitoring will no longer be required for the remainder of the permit cycle.

B. Water Quality Based Effluent Limitations (“WQBELs”)

Water quality-based effluent limitations, or WQBELS, are 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 the pollutant parameter

in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water [40 CFR 122.44 (d)(1)(ii)]

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water Enforcement and Permits, U.S. EPA, March 1991) and the U.S. EPA NPDES Permit Writers Manual (Office of Water, U.S. EPA, December 1996). 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 - Reasonable Potential analysis

1. Applicable standards, designated uses and impairments of receiving water

The 2007 NNSWQS established water quality criteria for the following beneficial uses (Padre Canyon, mouth to Navajo Nation boundary) are defined by the NNSWQS as secondary human contact, fish consumption, aquatic & wildlife habitat, and livestock watering (Table 205.1)

2. Dilution in the receiving water

Discharge from Outfall No. 001 is to an unnamed wash which is a tributary to Padre Canyon. This unnamed wash may have no natural flow most times of the year. Therefore, no dilution of the effluent has been considered in the development of WQBELs applicable to the discharge.

3. Type of Industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia, nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids.

4. History of compliance problems and toxic impacts

The Twin Arrows Navajo Casino and Resort is a new facility and therefore has no compliance history.

5. Existing data on toxic pollutants

No existing data is available on toxic pollutants.

C. Rationale for WQBELs

Discharge Limitations					
Discharge Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency
Total Residual Chlorine	µg/l	--	--	11	Once/month
<i>E. Coli</i>	CFU/100ml	126	--	575	Once/month
Total Ammonia (as N)	mg/l	--	--	--	Once/month
TDS	mg/l	--	--	--	Once/quarter
pH	std unit	between 6.5 to 9.0			Once/month
Temperature	deg F	--	--	--	Once/month
Whole Effluent Toxicity Testing	--	--	--	--	Once/month

Total Residual Chlorine. If chlorination is used, the discharge shall not exceed 11.0 µg/l as a single sample maximum, based on the NNSWQS for the protection of chronic aquatic habitat and livestock watering. (page 32 of 2007 NNSWQS).

E. Coli. The amended NNSWQS replaced fecal coliform bacteria (FCB) with *E. Coli*. The limits reflect the more stringent standards for protection of secondary human contact (page 14 of 2007 NNSWQS).

Total Ammonia. In accordance with the 2007 NNSWQS for chronic ammonia, for the protection of aquatic and wildlife habitat, the proposed permit establishes a monitoring and reporting requirement for total ammonia nitrogen, which includes the ammonia ion (NH₄⁺) and free ammonia (NH₃). If analytical results for the first four quarters reveal ammonia levels are below EPA’s National Water Quality Criteria for ammonia, the monitoring frequency will decrease to once per year. The regulations at 40 CFR Part 122.44(i) allow requirements for monitoring as determined to be necessary. The ammonia criteria are temperature and pH dependent and are listed in Table 206.2 and Table 206.3, pages 36-37 of 2007 NNSWQS.

Total Dissolved Solids. No limit is proposed but the regulations at 40 CFR 122.44(i) set forth requirements for monitoring as determined to be necessary.

pH. To ensure adherence to the minimum and maximum pH levels designated by the Navajo Nation for the receiving water, monthly pH monitoring is required in the permit for protection secondary human contact and livestock watering (page 14 of 2007 NNSWQS). In order to support the Navajo Nation’s established ammonia standards, which vary with the pH of the effluent, pH monitoring is to be performed concurrently with ammonia monitoring.

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

Whole Effluent Toxicity (“WET”). It is U.S. EPA Region 9's policy that all continuous discharges 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 monthly using a 24-hour composite sample of the treated effluent for fathead minnow (*Pimephales peomela*), daphnid (*Ceriodaphnia dubia*) and an alga species (*Selenastrum capricornutum*). This is a new requirement for this permit. If no toxicity is found in the test results during the first 12 monthly test results, the testing frequency is reduced to a quarterly basis thereafter.

V. Reporting

The proposed permit requires discharge data obtained during the previous three months to be summarized on monthly discharge monitoring report (“DMR”) forms and reported quarterly. If there is no discharge for the month, report “C” in the No Discharge box on the DMR form for that month. These reports are due January 28, April 28, July 28, and October 28 of each year. Duplicate signed copies of these, and all other reports required herein, shall be submitted to the U.S. EPA and the Navajo Nation EPA.

VI. General Standards

The proposed permit sets general standards that are narrative water quality standards contained in the NNSWQS, Section 203. These general standards are set forth in Section B. General Discharge Specifications of the permit.

VII. Permit Reopeners

- A.** At this time, there is no reasonable potential to establish any other water quality-based limits. Should any monitoring indicate that the discharge cause, has the reasonable potential to cause, or contributes to excursion above a water quality criterion, the permit may be reopened for the imposition of water quality-based limits and/or whole effluent toxicity limits. The proposed permit may be modified, in accordance with 40 CFR 122 and 124, to include appropriate conditions of effluent limits, monitoring, or other conditions to implement new regulations, including U.S. EPA-approved new tribal water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedences of water quality standards.

- B. In accordance with 40CFR 122.44 (c), EPA may promptly modify or revoke and reissue any limit to a treatment works treating domestic sewage (including “sludge only facilities”) to incorporate any applicable standard for sewage sludge use or disposal promulgated under section 405(d) of the CWA, if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or controls a pollutant or practice not limited in the permit.

VIII. Biosolids Requirements

The permittee shall submit a report 60 days prior to disposal of biosolids. The report shall discuss the quantity of biosolids produced, the treatment applied to biosolids including process parameters, disposal methods, and, if land applied, analysis for Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Zinc, and Selenium, and organic-N, ammonium-N, and nitrate-N, all expressed in mg/kg biosolids on a 100% dry weight basis. The permittee shall comply with all standards for biosolids use and disposal at Section 405(d) of the CWA, and 40 CFR Parts 257, 258 and 503.

IX. Antidegradation Policy

EPA's antidegradation policy at 40 CFR 131.12 and the Navajo Nation SWQS require that existing water uses and the level of water quality necessary to protect the existing uses be maintained. As described in Paragraph IV above, the permit establishes effluent limits and/or 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. Due to the low levels of toxic pollutants present in the discharge, high level of treatment being obtained, and water quality based effluent limitations, it is not expected that the discharge will adversely affect receiving water bodies.

X. Threatened and Endangered Species and Critical Habitat

A. Background:

Section 7 of the Endangered Species Act of 1973 requires Federal agencies such as EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (“FWS”), that any actions authorized, funded or carried out by the Agency are not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species.

Since the issuance of NPDES permits by EPA is a Federal action, consideration of a permitted discharge and its effect on any federally listed species is appropriate. The proposed NPDES permit authorizes the discharge of treated domestic wastewater to an unnamed wash which is a tributary to Padre Canyon which is a tributary to the Little Colorado River, a water of the United States.

The information below is listed in the Navajo Nation's Department of Fish & Wildlife Navajo Natural Heritage Program (NNHP) database. The USFWS has deferred its survey and information collection in the Navajo Nation to the NNHP. All federally listed threatened and endangered species potentially present in the area were considered during an Environmental Assessment prepared for the Navajo Nation Gaming Enterprise (NNGE). Based on this information, The NNHP in two April 29, 2010 letters to the NNGE identified no adverse affect to federally listed threatened or endangered species in the area associated with the construction of the casino, resort, and access road. As part of the impacts of construction of the casino, impacts of constructing and operating the wastewater treatment plant for the casino was covered in the Environmental Assessment by the NNHP. EPA is relying on the findings of the NNHP in that Assessment as part of its consideration of effects on federally listed species for this permit issuance.

B. EPA's Findings:

This permit authorizes the discharge of treated wastewater in conformance with the federal secondary treatment regulations and the NNSWQS. These standards are applied in the permit both as numeric and narrative limits. The standards are designed to protect aquatic species, including threatened and endangered species, and any discharge in compliance with these standards should not adversely impact any threatened and endangered species.

EPA believes that effluent released in compliance with this permit will have no effect on any federally-listed threatened or endangered species or its critical habitat that may be present in the vicinity of the discharge. Therefore, no requirements specific to the protection of endangered species are proposed in the permit. EPA may decide that changes to the permit may be warranted based on receipt of new information. A re-opener clause has been included should new information become available to indicate that the requirements of the permit need to be changed.

XI. 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. In a December 15, 2010 finding, the Navajo Nation Historic Preservation Department (NHP) reviewed the project, which included not only the construction of the casino and hotel, but also the wastewater treatment plant, waterlines, etc., and found that the proposed undertaking will have no adverse effect on identified cultural resources. EPA is relying on this finding and pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this proposed 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 issuance.

XII. Administrative Information – Public Notice, Public Comments, and Requests for Public Hearings

In accordance with 40 CFR 124.10, public notice shall be given by the U.S. EPA Director that a draft permit has been prepared by mailing a copy of the notice to the permit applicant and other Federal and State agencies, and through publication of a notice in a daily or weekly newspaper within the area affected by the facility. The public notice shall allow at least 30 days for public comment on the draft permit.

In accordance with 40 CFR 124.11 and 12, during the public comment period, any interested person may submit written comments on the draft permit, and may request a public hearing if no hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. In accordance with 40 CFR 124.13, all persons must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position within thirty (30) days from the date of the public notice. Comments may be received either in person or mailed to:

U.S. Environmental Protection Agency, Region 9
NPDES Permits Office (WTR-5)
Attn: Gary Sheth
75 Hawthorne Street
San Francisco, CA 94105
Telephone: (415) 972-3516

Interested persons may obtain further information, including copies of the draft permit, fact sheet/ statement of basis, and the permit application, by contacting Gary Sheth (WTR-5) at the U.S. EPA address, above. Copies of the administrative record (other than those which U.S. EPA maintains as confidential) are available for public inspection between 8:00 am and 4:30 pm, Monday through Friday (excluding federal holidays).

In accordance with 40 CFR 124.12, the U.S. EPA Director shall hold a public hearing when, on the basis of requests, a significant degree of public interest in the draft permit exists. The Director may also hold a public hearing when, for instance, such a hearing might clarify one or more issues involved in the permit decision. Public notice of such hearing shall be given as specified in 40 CFR 124.10.