

US EPA ARCHIVE DOCUMENT

**August 2009**  
**FACT SHEET**  
**Authorization to Discharge under the**  
**National Pollutant Discharge Elimination System**  
**for the**  
**Bureau of Indian Affairs - Hopi Agency -- Keams Canyon Wastewater Treatment Lagoon**  
**NPDES Permit No. AZ0022560**

Applicant Address: Hopi Agency  
Bureau of Indians Affairs (BIA)  
U.S. Department of Interior  
Keams Canyon Wastewater Lagoon Facility  
P.O. Box 158  
Keams Canyon, Arizona 86034

Applicant Contact: Wendell Honanie, Superintendent  
(928) 738-2315

Facility Address: Mile Post 401.1  
West State Route 264  
Keams Canyon, Arizona 86034

Facility Contact: Melvin Todacheene, Facility Manager  
(928) 738-2207

**I. Summary**

The BIA Hopi Agency ("BIA") was issued a National Pollutant Discharge Elimination System (NPDES) Permit (No. AZ0022560) on March 28, 2001 for the Keams Canyon wastewater treatment lagoon facility, pursuant to EPA regulations set forth in Title 40, Code of Federal Regulations (CFR) Part 122.21. The permit became effective on March 31, 2001, through midnight, March 30, 2006. BIA applied to the U.S. Environmental Protection Agency (EPA) Region 9 for reissuance on February 23, 2006 and provided supplemental information on March 30, 2006. Pursuant to 40 CFR 122.6, the 2006 permit was administratively continued pending reissuance by EPA. All terms and conditions of the 2006 permit are in effect until the reissuance of a new permit. This fact sheet is based on the information provided by the discharger through its permit application and discharge data submitted, along with the appropriate laws and regulations.

Pursuant to Section 402 of the Clean Water Act (CWA), EPA is proposing issuance of the NPDES permit renewal to BIA (permittee) for the discharge of treated domestic wastewater to Keams Canyon Wash, a tributary to Polacca Wash, a tributary to Corn Creek Wash, an eventual tributary to the Little Colorado River, a water of the United States.

## **II. Description of Facility**

The BIA Keams Canyon Wastewater Lagoon (“Keams Canyon”) facility is located in the community of Keams Canyon, Navajo County, Arizona. The facility serves 300 connections for approximately 150 homes, and receives domestic wastewater with a design flow of 0.07 million gallons per day (MGD). The facility consists of two aerated lagoons and a facultative lagoon. Final treatment consists of chlorination and dechlorination using tablets prior to discharge. The facility discharge is characterized as seasonal flows, with little or no flow during the dry months and high flows during the wet weather months. Final treated effluent is discharged from Outfall No.001 to Keams Canyon Wash, which flows to Polacca Wash, a tributary to Corn Creek Wash, an eventual tributary to the Little Colorado River.

Although Keams Canyon is a federal facility and not a publicly-owned treatment works (POTW), EPA proposes federal discharge limits as those that are applicable to POTWs. Any sampling and monitoring under the proposed permit shall be performed at Outfall No. 001.

## **III. Compliance History**

The Keams Canyon facility has had a long and continuing history of noncompliance with its NPDES permit. EPA has issued several notices of violations for exceedances of permit limits, failure to submit discharge monitoring reports, and failure to respond to EPA's requests for information. The most recent notice was issued on March 14, 2006 to BIA, documenting violations of discharge limits, including BOD<sub>5</sub>, TSS, and fecal coliform bacteria, from 2004 to 2006. EPA conducted inspections at the Keams Canyon facility in September 2006 and June 2009. Chlorination and dechlorination appear to be inadequate. Although the operators have made some adjustments, chlorination and dechlorination tablets are being added manually several times each week rather than adding the tablets based on flow. In addition, the facility had problems addressing the high pH levels from the influent and algae growth in the lagoons contributing to elevated TSS concentrations. Since the inspections, operators from the facility are considering improvements, such as upgrades to the chlorine contact chamber, the addition of citric acid to control pH, and the application of products to control algae, but improvements have yet to be implemented. EPA continues to provide compliance assistance to address these issues.

## **IV. Basis of Proposed Permit Requirements**

Section 301 of the CWA established a required performance level, referred to as “secondary treatment,” that all POTWs were required to meet by July 1, 1977. Federal secondary treatment effluent standards for 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 BOD<sub>5</sub> and TSS. The requirements contained in the draft permit are necessary to prevent violations of applicable treatment standards.

In accordance with 40 CFR 122.44(d), the need 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.

EPA approved the 1997 Hopi Tribe water quality standards (“WQS”) on July 8, 2008. The approved 1997 Hopi Tribe WQS will be used on a best professional judgment (“BPJ”) basis for purposes of developing water quality-based effluent limitations. The requirements contained in the proposed permit are necessary to prevent violations of applicable water quality standards.

## V. Designated Uses of the Receiving Water

The designated uses of the receiving waters (Keams Canyon Wash, tributary to Polacca Wash, tributary to Corn Creek Wash, eventual tributary to the Little Colorado River), as defined by the Hopi Tribe water quality standards, are aquatic and wildlife (warm water habitat), partial body contact, agricultural livestock watering, agricultural irrigation, and groundwater recharge.

## VI. Determination of Effluent Limitations, Monitoring, and Reporting Requirements

### A. Flow Rates

Under the proposed permit, there is no flow limit but flows must be monitored and reported. Because the facility experiences seasonal flows with high flows during wet weather months, the monitoring frequency has been changed to a weekly basis in order to determine the nature of the facility discharge and establish historical flow data.

### B. Five-Day Biochemical Oxygen Demand (BOD<sub>5</sub>)

In the previous permit, the Keams Canyon facility discharge was required to achieve federal secondary treatment levels of 45 mg/l BOD<sub>5</sub> as a weekly average and 30 mg/l as a monthly average with no less than a monthly average rate of 85% removal. However, EPA is now proposing changes to reflect the established effluent limitations for secondary treatment regulations at 40 CFR Section 133.103(c) applicable for waste stabilization ponds. EPA made this decision because EPA believes there is insufficient operational information to determine if the lagoon facility is able to meet effluent limitations more stringent than required by national equivalent to secondary treatment standards.

The permit limit for the discharge is proposed as not to exceed a weekly average of 65 mg/l and a monthly average of 45 mg/l BOD<sub>5</sub>, and no less than a monthly average rate of 65% removal. These limits are required under 40 CFR Section. 133.105.

Under 40 CFR Section 122.45(f), mass limits are required for BOD<sub>5</sub>. The 2001 permit limits were calculated based on a flow rate of 0.036 MGD provided in the application at that time. However, based on the *updated* design flow information of 0.07 MGD from the March 30, 2006 permit application, the mass limits for BOD<sub>5</sub> are recalculated as follows:

Monthly average

$$\frac{0.07 \text{ MG}}{\text{day}} \times \frac{45 \text{ mg}}{1} \times \frac{8.345 \text{ lb/MG}}{1 \text{ mg/l}} \times \frac{0.45 \text{ kg}}{\text{lb}} = 11.8 \text{ kg per day}$$

Weekly average

$$\frac{0.07 \text{ MG}}{\text{day}} \times \frac{65 \text{ mg}}{1} \times \frac{8.345 \text{ lb/MG}}{1 \text{ mg/l}} \times \frac{0.45 \text{ kg}}{\text{lb}} = 17.1 \text{ kg per day}$$

These limits are different from those of the previous permit due to the updated flow design information. The monitoring frequency is once/month, which is the same as the previous permit.

**C. Total Suspended Solids (TSS)**

Under the proposed permit, the discharge shall not exceed a weekly average of 135 mg/l and monthly average of 90 mg/l TSS, and shall achieve no less than a monthly average rate of 65% removal. These limitations (“Alternative State Requirements”) are Best Professional Judgment technology-based limits and consistent with 40 CFR Part 133 Sections 103(c), and 105(b)(3) and (d). Mass limit requirements in accordance with 40 CFR 122.45(f) have also been set in the proposed permit.

Under 40 CFR Section 122.45(f), mass limits are required for TSS. Again, based upon the updated 0.07 MGD flow information, the mass limits for TSS are based on the following calculations:

Monthly average

$$\frac{0.07 \text{ MG}}{\text{day}} \times \frac{90 \text{ mg}}{1} \times \frac{8.345 \text{ lb/MG}}{1 \text{ mg/l}} \times \frac{0.45 \text{ kg}}{\text{lb}} = 23.7 \text{ kg per day}$$

Weekly average

$$\frac{0.07 \text{ MG}}{\text{day}} \times \frac{135 \text{ mg}}{1} \times \frac{8.345 \text{ lb/MG}}{1 \text{ mg/l}} \times \frac{0.45 \text{ kg}}{\text{lb}} = 35.5 \text{ kg per day}$$

These limits are different from those of the previous permit due to the updated information. The monitoring frequency is once/month, consistent with the previous permit.

**D. Escherichia coli (E. coli)**

The previous 2001 permit included limits for fecal coliform bacteria (FCB) values. Those limits are being replaced with *E. coli* in the proposed permit, consistent with the EPA’s 2002 criteria guidance. The monthly geometric mean of *E. coli* shall not exceed 130/100 ml and 580/100 ml as a single sample maximum. These limits are based on the

draft Hopi WQS for partial body contact (Table A-1. Appendix A.) The monitoring frequency is once per month, consistent with the previous permit.

**E. Total Residual Chlorine (TRC)**

The permit requires chlorination of the effluent before discharge. The discharge shall not exceed 11.0 µg/l as a single sample maximum, based on the Hopi WQS for aquatic and wildlife (warm water habitat) for support and propagation of animals, plants, or other organisms (page 12.) The proposed permit will require dechlorination whenever chlorination is used. The monitoring frequency is once per month, consistent with the previous permit. Sampling is to begin after dechlorination.

**F. Dissolved Oxygen (DO)**

The proposed permit requires a minimum of 6 mg/l dissolved oxygen, the Hopi WQS for aquatic and wildlife (warm water habitat) for support and propagation of animals, plants, or other organisms. The monitoring frequency is once per month, consistent with the previous permit.

**G. Total Ammonia (as N)**

The previous 2001 permit contained a monthly un-ionized NH<sub>3</sub> limit of 0.04 mg/l consistent with the Hopi WQS for aquatic and wildlife (warm water habitat) for support and propagation of animals, plants, or other organisms. The Hopi WQS also adopted and incorporated, by reference, the criteria for toxics including total ammonia from the Arizona WQS for navigable waters, as included in the permit attachment. Consistent with EPA's 2004 criteria guidance, the proposed permit establishes monitoring and reporting requirements for total ammonia. 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 once per month to allow for proper characterization of the plant's effluent.

**H. pH**

The Keams Canyon facility experienced high pH levels from the influent and algae growth in the lagoons contributing to elevated TSS concentrations. The proposed permit requires that effluent pH not fall below 6.5 or above 9.0 standard pH units, consistent with the Hopi WQS. The monitoring frequency is once per week, consistent with the previous permit, and measurements for pH are to be taken concurrently with the monthly monitoring for ammonia.

**I. Temperature**

The proposed permit establishes a monitoring requirement for temperature, consistent with the Hopi WQS for aquatic and wildlife (warm water habitat use) for support and

propagation of animals, plants, or other organisms. In addition, temperature and pH measurements must be conducted concurrently with measurements for ammonia. The monitoring frequency for temperature has been changed to a monthly basis to be conducted concurrently with the monthly monitoring for ammonia.

**J. Priority Pollutant Scan**

The proposed permit establishes a monitoring requirement for the full list of priority pollutants as listed in the Code of Federal Regulations (CFR) at 40 CFR Part 423, Appendix A. Should the results of the first test reveal levels below EPA's National Water Quality Criteria for priority pollutants, monitoring will no longer be required of the permittee.

**VII. Reporting**

The proposed permit requires discharge data obtained during the previous three months to be summarized on monthly 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. Signed copies of these, and all other reports required herein, shall be submitted to the US EPA.

**VIII. General Standards**

The proposed permit sets general standards that are narrative water quality standards contained in the Hopi Water Quality Standards. These general standards are set forth in Section B. General Discharge Specifications of the permit.

**IX. Permit Reopener**

At this time, we have no reason to establish any other water quality-based limits. Should any monitoring indicate that the discharge causes, has the reasonable potential to cause, or contributes to excursion above a water quality criteria, 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 the requirements set forth at 40 CFR 122.44 and 124.14, to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information, or to implement any EPA-approved new Tribal water quality standards.

**X. 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, analyses for Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Zinc, and Selenium, and for organic-N, ammonium-N, and nitrate-N, all expressed in mg/kg biosolids on a 100% dry weight basis. The proposed permit also contains updated language to expand on the general requirements for notification, inspection and entry, monitoring and reporting. 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.

## **XI. Threatened and Endangered Species and Critical Habitat**

### **A. Background:**

Section 7 of the Endangered Species Act (ESA) 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 threatened or endangered (“T or E”) 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 listed species is appropriate. The proposed NPDES permit authorizes the discharge of treated domestic wastewater into Keams Canyon Wash, a tributary to Polacca Wash, a tributary to Corn Creek Wash, an eventual tributary to the Little Colorado River, a water of the United States.

EPA sent a formal request for information to the Services on March 14, 2008. Through a telephone conversation in June 2008, Carrie Marr of the Services provided a link of the agency’s database. To date, EPA had not received any formal response from the FWS.

EPA compiled a listing of species that may be present in the vicinity of the Keams Canyon facility using the FWS database in conjunction with information available from nearby Navajo Nation’s Department of Fish & Wildlife’s Natural Heritage Program for Navajo County, Arizona, as follows:

Names (common and scientific)	Status
Black-footed Ferret ( <i>Mustela nigripes</i> )	E
Mexican Spotted Owl ( <i>Strix occidentalis</i> )	T
Navajo Sedge ( <i>Carex specuicola</i> )	T
Razorback Sucker ( <i>Xyrauchen texanus</i> )	E
Southwestern Willow Flycatcher ( <i>Empidonax traillii extimus</i> )	E

### **B. EPA’s Finding:**

This permit authorizes the discharge of treated wastewater in conformance with the federal secondary treatment regulations and the Hopi Tribe’s Water Quality Standards. 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 effluent released in compliance with this permit will have no effect on any federally-listed T or E species or its critical habitat that may be present in the vicinity of the discharge. The treatment facility has been in existence for some time, and no new construction or modifications will be made to it due to the proposed NPDES permit.

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.

## **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 that a draft NPDES 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 IX  
NPDES Permits Office (WTR-5)  
Attn: Linh Tran  
75 Hawthorne Street  
San Francisco, CA 94105  
Telephone: (415) 972-3511

Interested persons may obtain further information, including copies of the draft permit, fact sheet/statement of basis, and the permit application, by contacting Linh Tran (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 a.m. and 4:30 p.m., Monday through Friday (excluding federal holidays).

In accordance with 40 CFR 124.12, the U.S. EPA 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.