

US EPA ARCHIVE DOCUMENT

May 2015
FACT SHEET
Authorization to Discharge under the
National Pollutant Discharge Elimination System
for the
Bureau of Indian Affairs – Crystal Boarding School Wastewater Treatment Lagoon
NPDES Permit No. NN0020869

Applicant Address: U.S. Department of the Interior
Bureau of Indian Affairs (BIA)
Navajo Regional Office
Division of Environmental, Cultural, and Safety Management
P.O. Box 1060
Gallup, New Mexico 87305

Applicant Contact: George Padilla, Environmental Protection Specialist
(505) 863-8330

Facility Address: BIA Crystal Boarding School
0.25 miles North of NM Highway 134
Crystal, New Mexico

Facility Address: BIA Crystal Boarding School
P.O. Box 748
Crystal, NM 87328

Facility Contact: Denny Ben, Facility Manager
(505) 777-2385

I. STATUS OF PERMIT

The U.S. Department of the Interior -- Bureau of Indian Affairs, Navajo Regional Office (“BIA”) was issued an National Pollutant Discharge Elimination System (“NPDES”) Permit (NN0020869) on December 10, 2009 for the discharge from its Crystal Boarding School wastewater treatment plant (“WWTP”), pursuant to the U.S. Environmental Protection Agency Region 9 (“USEPA”) regulations set forth in Title 40, Code of Federal Regulations (“CFR”) Part 122.21. The permit became effective on January 1, 2010 and expired at midnight, December 31, 2014. BIA applied to the EPA for reissuance on May 12, 2014. Pursuant to 40 CFR 122.6, the 2009 permit is administratively continued pending reissuance by EPA. All the terms and conditions of the 2009 permit are in effect until the reissuance of a new permit. This fact sheet is based on information provided by the applicant through its application and discharge data submittal, along with the appropriate laws and regulations.

Pursuant to Section 402 of the Clean Water Act (“CWA”), the U.S. EPA is proposing issuance of the NPDES permit renewal to BIA Crystal Boarding School for the discharge of treated domestic wastewater to Crystal Creek, a tributary to Whiskey Creek, a tributary to Wheatfields Creek, a tributary to Canyon de Chelly Wash, a tributary to Chinle Wash, and an eventual tributary

to the San Juan River which is a water of the United States.

II. GENERAL DESCRIPTION OF FACILITY

The BIA Crystal Boarding School wastewater treatment lagoon facility is located about 27.5 miles north of Window Rock, in Crystal, San Juan County, New Mexico within the central portion of the Navajo Nation. The boarding school serves a population of 200 students, faculty and staff, receives only domestic wastewater, and has a design flow of 0.015 million gallons per day (“MGD”).

The BIA Crystal Boarding School WWTP consists of a septic tank connected to a one-cell lagoon equipped with two aerators. The wastewater from the collection system flows by gravity to the septic tank where primary settling occurs. From the septic tank, the wastewater flows into the lagoon for aeration and further settling where the wastewater seeps through a rock bed filter into Outfall 001. Treated effluent is intermittently discharged from Outfall 001 into Crystal Creek, a tributary to Whiskey Creek, a tributary to Wheatfields Creek, a tributary to Canyon de Chelly Wash, a tributary to Chinle Wash, an eventual tributary to San Juan River. The septic tank is pumped annually by a commercial vender. Although BIA is a federal facility and not a publicly-owned treatment works (“POTW”), USEPA is proposing federal discharge limits that are applicable to POTWs. Any sampling and monitoring under the proposed permit shall be after the final treatment prior to discharge into Crystal Creek (Outfall No. 001). The facility has not discharged since 2000.

The facility is considered a minor discharger and, therefore, requires a compliance evaluation inspection (CEI) every five years. On December 8, 2014, the Navajo Nation Environmental Protection Agency (“NNEPA”) conducted a CEI at the facility and made the following observations: (1) The aerator had not worked in the lagoon since February 2013; (2) there was heavy vegetation in the lagoon; and, (3) the discharge pipe was covered by sediment and vegetation.

III. DESCRIPTION OF RECEIVING WATER

The discharge of treated domestic wastewater is to Crystal Creek, a tributary to Whiskey Creek, a tributary to Wheatfields Creek, a tributary to Canyon de Chelly Wash, a tributary to Chinle Wash, and an eventual tributary to the San Juan River which is a water of the United States.

IV. DESCRIPTION OF DISCHARGE

The facility has not discharged since 2000 and reported “No discharge” in discharge monitoring reports for the past 3 years.

V. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

The proposed permit contains a new permit limit and monitoring requirement for total ammonia in order to ensure adequate protection of beneficial uses of the receiving waters, pursuant

to revised water quality criteria and water quality standards discussed in the next section. In addition, measurements for temperature are required to be taken concurrently with ammonia and pH measurements.

VI. BASIS OF PROPOSED PERMIT REQUIREMENTS

Section 301(a) of the Clean Water Act (“CWA”) provides that the discharge of any pollutant to waters of the United States is unlawful except in accordance with a National Pollutant Discharge Elimination System (“NPDES”) permit. Section 402 of the Act establishes the NPDES program. The program is designed to limit the discharge of pollutants into waters of the United States from point sources [40 CFR 122.1(b)(1)] through a combination of various requirements including technology-based and water quality-based effluent limitations.

Sections 402 and 301(b)(1)(C) of the CWA require that the permit contain effluent limitations to meet water quality standards. Specifically, the regulation under 40 CFR 122.44(d) states that an NPDES permit must contain:

“Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under Sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:

(1) *Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”*

Section 40 CFR 122.44(d)(i) states the following:

“Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

A. Navajo Nation Surface Water Quality 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. 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 USEPA on March 26, 2009. A 2010 *draft* NNSWQS revision has been under review by USEPA. The approved 1999 NNSWQS, the 2007 revision and the 2010 *draft* revisions will be used on a best professional judgment (“BPJ”) basis for purposes of developing water quality based effluent limitations.

B. Applicable Technology-Based Effluent Limitations, Water Quality-Based Effluent Limitations (“WQBELs”) and BPJ

Technology-based effluent limitations require minimum levels of treatment based on currently available treatment technologies. 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 Five-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.

VII. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. US EPA proposes the following provisions and effluent discharge limitations for flow, BOD₅, TSS, *E. coli*, total dissolved solids (“TDS”), total residual chlorine (“TRC”) and ammonia taken concurrent with temperature and pH measurements. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge by prior to entry into the receiving water.

A. Federal Secondary Treatment Effluent Discharge Limitations

1. Flow Rates

Due to the episodic nature of the discharge, EPA believes it is prudent to set a maximum discharge rate of no more than 0.015 MGD in order to restrict pollutant loadings that may cause or contribute impact on water quality and minimize erosion near the discharge point. The monthly and daily maximum flows of the influent and effluent must be monitored and reported in the event of a discharge. The monitoring frequency is being proposed as once per discharge, consistent with the previous permit.

2. Five-Day Biochemical Oxygen Demand (BOD₅):

Under the proposed permit, the discharge shall not exceed a weekly average of 65 mg/l and a monthly average of 45 mg/l BOD₅, and shall achieve no less than a monthly average rate of 65% removal. These limits are required under 40 CFR Section 122.45(d).

Under 40 CFR Section 122.45(f), mass limits are required for BOD₅. Based upon the 0.015 MGD maximum flow rate, the mass limits for BOD₅ are based on the following calculations:

Monthly average

$$\frac{0.015 \text{ MG}}{\text{day}} \times \frac{45 \text{ mg}}{\text{l}} \times \frac{8.345 \text{ lb/MG}}{1 \text{ mg/l}} \times \frac{0.45 \text{ kg}}{\text{lb}} = 2.5 \text{ kg/day}$$

Weekly average

$$\frac{0.015 \text{ MG}}{\text{day}} \times \frac{65 \text{ mg}}{\text{l}} \times \frac{8.345 \text{ lb/MG}}{1 \text{ mg/l}} \times \frac{0.45 \text{ kg}}{\text{lb}} = 3.7 \text{ kg/day}$$

The daily maximum will also be monitored and reported. The monitoring frequency is once per discharge, consistent with the previous permit. Should the event of a continuous discharge occur over several days or more than one discrete or separate discharge in a month, the monitoring frequency should be no more than once per discharge. If no discharge occurs, no monitoring is required.

3. Total Suspended Solids (TSS):

Under the proposed permit, the discharge shall not exceed a weekly average of 135 mg/l and a monthly average of 90 mg/l TSS, and shall achieve no less than a monthly average rate of 65% removal. These limits are consistent with 40 CFR 133.102(b). Mass limit requirements in accordance with 40 CFR 122.45(f) have also been set in the proposed permit. Mass loadings shall not exceed a 7-day average of 7.7 kg per day and a 30-day average of 5.1 kg per day based upon the 0.015 MGD maximum flow rate. Similar to BOD₅ requirements above, the monitoring frequency is proposed as once per discharge, consistent with the previous permit. Should the event of a continuous discharge occur over several days or more than one discrete or separate discharge in a month, the monitoring frequency should be no more than once per discharge. If no discharge occurs, no monitoring is required.

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

A requirement for monitoring discharge volume is proposed in the proposed permit to ensure that the discharge will not cause severe erosion at any discharge location(s). In accordance with the requirements set forth at 40 CFR Parts 122.45(e), specific discharge flow rate will be authorized for the outfall. The discharge shall not exceed 0.008 million gallons per day at Outfall No. 001.

Water quality-based effluent limitations, or WQBELs, are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard. [40 CFR 122.44(d)(1)].

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and non-point sources

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

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* (TSD) (Office of Water 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

The 2007 NNSWQS and 2010 *draft* NNSWQS revisions established water quality criteria for the following beneficial uses (Torreon Wash) are secondary human contact, fish consumption, aquatic and wildlife habitat, and livestock watering.

2. Dilution in the receiving water

Discharge from Outfall 001 flows to Crystal Creek, which may have no natural flow during certain times of the year. Therefore, no dilution of the effluent has been considered in the development of water quality based effluent limits applicable to the discharge.

3. Type of industry

Typical pollutants of concern in untreated and treated domestic wastewater include ammonia, nitrate, oxygen demand, pathogens, temperature, pH, oil and grease, and solids. Chlorine is of concern due to treatment plant disinfection operations and therefore, dechlorination is necessary to minimize impact on water quality based effluent limits.

4. History of compliance problems and toxic impacts

No discharge was reported in the past 3 years. The last discharge occurred in 2000.

5. Existing data on toxic pollutants

No existing data is available on toxic pollutants.

C. Rationale for WQBELs

Pursuant to the narrative surface water quality standards (Section 202 of 2007 NNSWQS and *draft* 2010 NNSWQS revisions), the discharge shall be free from pollutants in amounts or combinations that cause solids, oil, grease, foam, scum, or any other form of objectionable floating debris on the surface of the water body; may cause a film or iridescent appearance on the surface of the water body; or that may cause a deposit on a shoreline, on a bank, or on aquatic vegetation.

1. Determination of Effluent Limitation for *E. coli*

Presence of pathogens in untreated and treated domestic wastewater indicates that there is a reasonable potential for *E. coli* bacteria levels in the effluent to cause or contribute to an excursion above the WQS. In the proposed permit, the monthly geometric mean of *E. coli* bacteria shall not exceed 126/100 ml as a monthly average and 575/100 ml as a single sample maximum. These limits are based on the NNSWQS for secondary human contact (p. 14). The monitoring frequency is once per discharge, consistent with the previous permit.

2. Total Dissolved Solids (TDS)

Presence of solids in untreated and treated domestic wastewater indicates that there is a reasonable potential for TDS levels in the effluent to cause or contribute to an excursion above the WQS. The regulations at 40 CFR 122.44(i) allow requirements for monitoring as determined to be necessary. The monitoring frequency is once per discharge, consistent with the previous permit.

3. Total Residual Chlorine (TRC)

This applies only if BIA opts to chlorinate wastewater prior to discharge. Chlorination for disinfection purposes indicates that there is reasonable potential for TRC levels in the effluent to cause or contribute to an excursion above the WQS. Therefore, a TRC limit of 11 µg/l has been established in the proposed permit to protect the beneficial uses of the receiving waters (Crystal Creek). The monitoring frequency is once per discharge, consistent with the previous permit.

4. Total Ammonia Nitrogen (NH₃-N)

Presence of ammonia in untreated and treated domestic wastewater indicates that there is a reasonable potential for levels in the effluent to cause or contribute to an excursion above the WQS. In accordance with the NNSWQS for protection of aquatic and wildlife habitat, the proposed permit contains effluent limitations for total ammonia, which are a new requirement for this facility. The ammonia limits are temperature and pH dependent and are listed in Table 206.2 and Table 206.3 (pages 36-37) of 2007 NNSWQS and *draft* 2010 NNSWQS revisions. The monitoring frequency is once per discharge. Measurements for ammonia are required to be taken concurrently with temperature and pH measurements.

5. pH

Untreated and treated domestic wastewater could be contaminated with substance that affects the pH. Therefore, there is a reasonable potential for pH levels in the effluent to cause or contribute to an excursion above the WQS. In order to ensure adequate protection of beneficial uses of the receiving water, a maximum pH limit of 9.0 and a minimum limit of 6.5 S.U. are established in Section 206.C. of 2007 NNSWQS and *draft* 2010 NNSWQS revisions. The monitoring frequency is once per discharge, consistent with the previous permit. Measurements

for pH are required to be taken concurrently with ammonia and temperature measurements.

6. Temperature

Measurements for temperature are required to be taken concurrently with ammonia and pH measurements.

VIII. 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 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 USEPA and the Navajo Nation EPA.

IX. GENERAL STANDARDS

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

X. 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 USEPA-approved new Tribal water quality standards.

XI. SEWAGE SLUDGE REQUIREMENTS

The proposed permit requires a report to USEPA and NNEPA within 90 days of permit issuance with an estimate of the quantity of sewage sludge currently on site, and a projection of when sewage sludge will next be removed. At least 120 days prior to removing sewage sludge for use or disposal, the permittee is required to submit a plan describing the quantity of sewage sludge to be removed, mechanisms for removing, and a proposed sampling plan for pollutants regulated under the use or disposal option being selected. Upon approval of this plan by USEPA and NNEPA, the permittee will have the sewage sludge removed as described. The permit also requires compliance with all applicable requirements of Section 405(d) of the CWA, and 40 CFR Sections 258 (for sewage sludge sent to a municipal landfill) and 503 (for sewage sludge placed in a sludge-only surface disposal site, land applied as fertilizer, used in land reclamation, or incinerated).

XII. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Anti-Degradation

USEPA's antidegradation policy at 40 CFR Section 131.12 and the NNSWQS require that existing water uses and level of water quality necessary to protect the existing uses be maintained. As described in this fact sheet, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit does not include a mixing zone; therefore, these limits will apply at the end of the pipe without consideration of dilution in the receiving water. Therefore, due to the low levels of toxic pollutants present in the effluent, the 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.

B. Anti-Backsliding

Section 402(o) of the CWA prohibits the renewal or reissuance of an NPDES permit that contains effluent limits less stringent than those established in the previous permit, except as provided in the statute. The proposed permit is a renewal and therefore does not allow backsliding.

C. Threatened and Endangered Species and Critical Habitat

1. Background

Section 7 of the Endangered Species Act (ESA) of 1973 requires Federal agencies such as USEPA 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 USEPA is a Federal action, consideration of a permitted discharge and its effect on any listed species is appropriate. The proposed NPDES permit renewal authorizes the discharge of treated domestic wastewater into Crystal Creek, a tributary to Whiskey Creek, a tributary to Wheatfields Creek, a tributary to Canyon de Chelly, a tributary to Chinle Wash, a tributary to the San Juan River, all waters of the United States.

The information below is listed in the Navajo Nation's Department of Fish & Wildlife Natural Heritage Program (NHP) database. <http://www.nndfw.org/> The FWS has deferred all of its survey and information collection in the Navajo Nation to the Navajo Nation NHP. To date, USEPA has not received a response to our August 6, 2014 request for new species information from NHP. Based on review of the NHP database, NHP identified no listed species of concern known to occur on the facility boundary or on the 7.5 minute quadrangle(s) within one to 3 mile of the facility boundary. The NHP identified "potential species" that may potentially be within proximity to the facility to be Black-footed ferret (*Mustela nigripes*) and Southwestern willow flycatcher (*Empidonax traillii extimus*).

2. USEPA's Finding:

The NPDES permit authorizes the discharge of treated wastewater in conformance with the more stringent of federal secondary treatment regulations and the Navajo Nation Surface Water Quality Standards. These standards are applied in the permit as both numeric and narrative limits. The standards are themselves designed to protect aquatic species, including threatened and endangered species; and therefore, any discharge in compliance with these standards should not adversely impact any threatened and endangered species.

USEPA believes 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. The treatment facility has been in existence for some time, and no new construction or modifications had been made to it due to the proposed NPDES permit. Therefore, no requirements specific to the protection of endangered species are proposed in the permit. USEPA 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.

D. Consideration of Environmental Justice (EJ) Impact

USEPA has conducted a screening level evaluation of the potential impact of this facility and other permitted facilities within the immediate area on local residents through use of USEPA's EJSCREEN tool. Specifically, USEPA used EJSCREEN to identify facilities near the BIA Ojo Encino facility that could pose risk to local residents through discharge of environmental contaminants. USEPA has also evaluated whether demographic characteristics of the population living in the vicinity of the BIA facility indicate that the local population might be particularly susceptible to such environmental risks. The results show that, at the time of this analysis, conducted in April 2015, the area in which the BIA facility is located was above the 92nd percentile nationally for ozone. The EJSCREEN analysis of demographic characteristics of the community living near the facility indicates the local population may be at relatively higher risk if exposed to environmental contaminants than the national population. Demographic characteristics that showed potentially sensitive scores were a high proportion of minority and low income population and population with less than high school education.

USEPA also considers the characteristics of the wastewater treatment facility operation and discharges, and whether those discharges, in combination with discharges from local ozone sources, pose exposure risks that the NPDES permit needs to further address. The BIA facility is unlikely to discharge any noticeable ozone. USEPA finds no evidence to indicate the wastewater facility discharge poses a significant risk to local residents. USEPA concludes that the facility is unlikely to contribute to any EJ issues. Furthermore, USEPA believes that by implementing and requiring compliance with the provisions of the Clean Water Act, which are designed to ensure full protection of human health, the permit is sufficient to ensure the facility discharges do not cause or contribute to human health risk in the vicinity of the wastewater facility.

**XIII. 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-2-3)
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-2-3) at the USEPA address, above. Copies of the administrative record (other than those which USEPA 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 USEPA 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.