

NPDES PERMIT NO. NM0020231

FACT SHEET

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

APPLICANT

City of Bayard, New Mexico
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ISSUING OFFICE

U.S. Environmental Protection Agency
Region 6
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DATE PREPARED

March 30, 2015

PERMIT ACTION

Renewal of a permit previously issued on August 29, 2008, with an effective date of September 1, 2008, and an expiration date of August 31, 2013.

RECEIVING WATER – BASIN

Whitewater Creek (Mimbres River) - Southwestern Closed Basin (Segment 20.6.4.803)

DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

4Q3	Lowest four-day average flow rate expected to occur once every three-years
BAT	Best available technology economically achievable
BCT	Best conventional pollutant control technology
BPT	Best practicable control technology currently available
BMP	Best management plan
BOD	Biochemical oxygen demand (five-day unless noted otherwise)
BPJ	Best professional judgment
CBOD	Carbonaceous biochemical oxygen demand (five-day unless noted otherwise)
CD	Critical dilution
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COD	Chemical oxygen demand
COE	United States Corp of Engineers
CWA	Clean Water Act
DMR	Discharge monitoring report
DO	Dissolved oxygen
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FWS	United States Fish and Wildlife Service
mg/l	Milligrams per liter
ug/l	Micrograms per liter
lbs	Pounds
MG	Million gallons
MGD	Million gallons per day
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMIP	New Mexico NPDES Permit Implementation Procedures
NMWQS	New Mexico State Standards for Interstate and Intrastate Surface Waters
NPDES	National Pollutant Discharge Elimination System
ML	Minimum quantification level
O&G	Oil and grease
POTW	Publically owned treatment works
RP	Reasonable potential
SS	Settleable solids
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
USGS	United States Geological Service
WLA	Waste Load allocation
WET	Whole effluent toxicity
WQCC	New Mexico Water Quality Control Commission
WQMP	Water Quality Management Plan
WWTP	Wastewater treatment plant

I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued on August 29, 2008, with an effective date of September 1, 2008, and an expiration date of August 31, 2013, are as follow:

- Measurement frequency of pH has changed from 3/month to 5/week.
- Removal percentage for BOD₅ and TSS has been established.
- Daily maximum limit for E. coli has been changed to 235 cfu/100 ml from 410 cfu/100 ml.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility (Latitude 32° 44' 50" North and Longitude 108° 07' 48" West) is located off Highway 180 & Hurley Road approximately 1/2 mile south of the City of Bayard, in Grant County, New Mexico.

Under the SIC code 4952, the applicant operates City of Bayard WWTP, which has a design flow of 0.6 MGD providing sanitary services for approximately 4,435-population. The facility primarily consists of headworks, a lift station, grit tank, aerobic digesters, aeration basin, secondary clarifiers, and a UV/Parshall Flume effluent structure. Effluent is UV-disinfected before discharged to potential points: Chino Mine tailings ponds, facility storage ponds for reuse purpose and/or Whitewater Creek. The creek, an unclassified ephemeral tributary of the Mimbres River and Segment No.20.6.4.803 is for perennial reaches of the Mimbres River. Whitewater Creek reaches the Mimbres River approximately 26 miles downstream from the facility. Potential flow discharged to the creek is up to 0.54 MGD. Sewage sludge is digested and de-watered before hauled to a municipal landfill for disposal. A map of the facility is attached.

III. EFFLUENT CHARACTERISTICS

Data submitted in Form 2A is as follows:

Parameter	Max	Avg
	(mg/l unless noted)	
Flow (MGD)	0.37	0.31
pH, minimum, standard units (su)	7.5	N/A
pH, maximum, standard units (su)	7.7	N/A
Temperature (C), winter	16.6	16.2
Temperature (C), summer	23.4	22.97
Biochemical Oxygen Demand, 5-day (BOD ₅)	5.5	3.37
E. coli (cfu/100 ml)	15.6	12.73
Total Suspended Solids (TSS)	5.5	4.03
Ammonia (as N)	4.0	1.83
TRC	0.4	0.31
DO	3.87	3.08
Total Kjeldahl Nitrogen (TKN)	4.0	2.30
Nitrate + Nitrite Nitrogen	10.12	7.33
Oil & Grease	5.8	1.93
Phosphorus (Total)	3.8	2.33
TDS	681	447

There was no discharge in the previous permit term; no DMRs are available. Information provided in the application form was for effluent discharged to the Chino Mine tailings pond and not discharges to Whitewater Creek.

IV. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water”; more commonly known as the “swimmable, fishable” goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry and established the basic structure for regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered the NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

The application was dated May 21, 2013. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a).

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW of TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations contained in 40 CFR §122.44 NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

Technology-based effluent limitations are established in the proposed draft permit for TSS and BOD, and percent removal for each. Water quality-based effluent limitations are established in the proposed draft permit for *E. coli* bacteria, pH and TRC.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. General Comments

Regulations promulgated at 40 CFR §122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures. EPA establishes limitations based on the following technology-based controls: BPT, BCT, and BAT. These levels of treatment are:

BPT - The first level of technology-based standards generally based on the average of the best existing performance facilities within an industrial category or subcategory.

BCT - Technology-based standard for the discharge from existing industrial point sources of conventional pollutants, including BOD, TSS, *E. coli* bacteria, pH, and O&G.

BAT - The most appropriate means available on a national basis for controlling the direct discharge of toxic and non-conventional pollutants to navigable waters. BAT effluent limits represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

2. Effluent Limitation Guidelines

The facility is a POTW/POTW-like that has technology-based ELG’s established at 40 CFR Part 133, Secondary Treatment Regulation. Pollutants with ELG’s established in this Chapter are BOD, TSS and pH. BOD limits of 30 mg/l for the 30-day average and 45 mg/l for the 7-day average and 85% percent (minimum) removal are found at 40 CFR §133.102(a). TSS limits; also 30 mg/l for the 30-day average and 45 mg/l for the 7-day average, average and 85% percent (minimum) removal are found at 40 CFR §133.102(b). ELG’s for pH are between 6-9 s.u. and are found at 40 CFR §133.102(c). The draft permit establishes new limits for percent removal for both BOD and TSS. Since these are technology-based there is no compliance schedule provided to meet these limits. Compliance is required on the permit effective date.

Regulations at 40 CFR §122.45(f)(1) require all pollutants limited in permits to have limits expressed in terms of mass such as pounds per day. When determining mass limits for POTWs or similar, the plant’s design flow is used to establish the mass load. Mass limits are determined by the following mathematical relationship:

$$\text{Loading in lbs/day} = \text{pollutant concentration in mg/l} * 8.345 \text{ (lbs)(l)/(mg)(MG)} * \text{design flow in MGD}$$

$$30\text{-day average BOD/TSS loading} = 30 \text{ mg/l} * 8.345 \text{ (lbs)(l)/(mg)(MG)} * 0.6 \text{ MGD} = 150 \text{ lbs/day}$$

$$7\text{-day average BOD/TSS loading} = 45 \text{ mg/l} * 8.345 \text{ (lbs)(l)/(mg)(MG)} * 0.6 \text{ MGD} = 225 \text{ lbs/day}$$

A summary of the technology-based limits for the facility is:

Effluent Characteristic	Discharge Limitation			
	lbs/day, unless noted		mg/l, unless noted	
Parameter	30-day Avg	7-day Max	30-day Avg	7-day Max
BOD	150	225	30	45
BOD, % removal ¹	≥ 85	---	---	---
TSS	150	225	30	45
TSS, % removal ¹	≥ 85	---	---	---
pH	N/A	N/A	6.0 to 9.0 s.u.	

¹ % removal is calculated using the following equation: [(average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration] * 100.

C. WATER QUALITY BASED LIMITATIONS

1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section

301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

2. Implementation

The NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State narrative and numerical water quality standards are used in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

3. State Water Quality Standards

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC approved on June 5, 2013). The discharge is to Southwestern Closed Basin (20.6.4.308 NMAC). The designated uses are coldwater aquatic life, irrigation, livestock watering, wildlife habitat and primary contact.

4. Permit Action - Water Quality-Based Limits

Regulations promulgated at 40 CFR §122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). State WQS that are more stringent than effluent limitation guidelines are as follows:

a. pH

For coldwater aquatic life, criteria for pH is between 6.6 and 8.8 s.u. pursuant to 20.6.4.900.H(2) NMAC.

b. Bacteria

For primary contact, criteria for E. coli bacteria is at 126 cfu/100 ml monthly geometric mean and 235 cfu/100 ml daily maximum pursuant to 20.6.4.803.B NMAC.

c. Toxics

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR §122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criteria, the permit must contain an effluent limit for that pollutant.

All applicable facilities are required to fill out appropriate sections of the Form 2A and 2S, to apply for an NPDES permit or reissuance of an NPDES permit. The new form is applicable not only to POTWs, but also to facilities that are similar to POTWs, but which do not meet the regulatory definition of “publicly owned treatment works” (like private domestics, or similar facilities on Federal property). The forms were designed and promulgated to “make it easier for permit applicants to provide the necessary information with their applications and minimize the need for additional follow-up requests from

permitting authorities,” per the summary statement in the preamble to the Rule. These forms became effective December 1, 1999, after publication of the final rule on August 4, 1999, Volume 64, Number 149, pages 42433 through 42527 of the FRL.

The facility is designated as a minor, and does not need to fill out the expanded pollutant testing section Part D of Form 2A. There are no toxics that need to be placed in the draft permit except for TRC described below.

d. TRC

The facility uses UV to disinfect the effluent. However, TRC of 11 µg/l (for wildlife habitat; 20.6.4.900.G NMAC) is retained in the draft permit in case chlorine based-product is used in the treatment process.

e. DO

For coldwater aquatic life, criteria for DO is 6.0 mg/L or more pursuant to 20.6.4.900.H(2) NMAC. EPA uses LA-QUAL version 9.3 to model DO along this receiving stream; some of the factors used are 4Q3 (zero), BOD5 (30 mg/l for monthly average, 45 mg/l for 7-day maxima) and ambient stream DO of 6 mg/L (same as the criteria since there is no specific data). The modeled output shows DO stays below 6 mg/l along 1.6 mile downstream from the discharge outfall (see attached graph; other detail information is available upon request). The effluent DO of 3.08 mg/L on average is part of the causes. Site specific data for the ambient DO is needed for further evaluation. EPA proposes monitoring reports of the ambient DO (upstream just right above the discharge outfall) and the effluent DO once per quarter during the permit term. The requested data will be evaluated in the next permit renewal.

D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). Sample frequency is based on Table 9 (page 34 of the NMIP) for design flow between 0.5 and 1.0 MGD and based on compliance history.

Parameter	Frequency	Sample Type
Flow	Daily	Totalized
pH	5/week	Instantaneous Grab
BOD ₅ /TSS	3/month	3-hr Composite
% Removal	1/month	Calculation
TRC	Daily*	Instantaneous Grab
E. coli Bacteria	3/month	Grab
DO (ambient)**	1/quarter	Instantaneous Grab
DO (effluent)**	1/quarter	Instantaneous Grab

* TRC shall be measured during periods when chlorine is used as either backup bacteria control or when disinfection of plant treatment equipment is required.

** Field kit (probe) can be used to measure.

E. WHOLE EFFLUENT TOXICITY

Since there was no discharge in the last permit term, no WET testing data is available to evaluate RP. Because of the distance (about 26 miles) to the nearest perennial waterbody, the discharge would only reach the Mimbres River during direct response to precipitation runoff as stated in the previous permit.

Monitoring for WET (48-hour acute test using *Daphnia pulex* and *Pimephales promelas*) is retained in this draft permit. The test is preferably completed at the 5th year of the permit term and the result should be sent along with an application for another NPDES permit renewal.

The proposed permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests based on a 0.75 dilution series. These additional effluent concentrations must be 32%, 42%, 56%, 75% and 100%. The low-flow effluent concentration (critical low-flow dilution) is defined as 100% effluent. The permittee shall limit and monitor discharge(s) as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	30-day Avg Min.	48-hr Min.	Frequency ²	Type
WET Testing (48-hr Static Renewal) ¹				
<i>Daphnia pulex</i>	Report	Report	Once/5 year	Grab
<i>Pimephales promelas</i>	Report	Report	Once/5 year	Grab

¹ Monitoring and reporting requirements begin on the effective date of this permit. See Part II of the permit, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

² The test shall take place between November 1 and April 30 if possible. This permit does not establish requirements to automatically increase the WET testing frequency after a test failure, or to begin a toxicity reduction evaluation (TRE) in the event of multiple failures. However, upon failure of any WET test, the permittee must report the results to EPA and NMED, Surface Water Quality Bureau, in writing, within 5 business days of notification of the test failure. EPA and NMED will review the test results and determine the appropriate action necessary, if any.

VI. TMDL REQUIREMENTS

The receiving water segment 20.6.4.803 NMAC Whitewater Creek (Mimbres River to headwaters) has not been listed in 303(d) list. Therefore, no additional requirement is established in the draft permit. The permit has a standard reopener clause that would allow the permit to be changed if at a later date additional requirements on new or revised TMDLs are completed.

VII. ANTIDegradation

The NMAC, Section 20.6.4.8 “Antidegradation Policy and Implementation Plan” sets forth the requirements to protect designated uses through implementation of the State water quality standards. The limitations and monitoring requirements set forth in the proposed permit are developed from the State water quality standards and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements and the limits are protective of the assimilative capacity of the receiving water, which is protective of the designated uses of that water, NMAC Section 20.6.4.8.A.2.

VIII. ENDANGERED SPECIES CONSIDERATIONS

According to the list updated on February 26, 2015 for Grant County, NM obtained from <http://ecos.fws.gov>, there are endangered/threatened species that were listed in the previous permit: Chiricahua leopard frog, Mexican spotted owl, Southwestern willow flycatcher, Gila topminnow, Gila trout, Chihuahua chub, Loach minnow, Beautiful shiner, Spikedace and Gray wolf. These species were determined with “no effect”. Since then, there have been addition threatened/endangered species: Yellow-billed Cuckoo, Gila chub, Mexican long-nosed bat, Northern Mexican garter snake and Narrow-headed garter snake. There has been no recovery plan for all these additional species, except Mexican long-nosed bat. According to Mexican Long-Nosed Bat Recovery Plan, the bats mainly habitat in southwest of New Mexico and usually roost in caves, possibly in mine, culverts and hollow trees. Reasons for the specie declining are not clear, but probably associate with disruption and destruction of root sites and food sources (certain kind of plants). The use of pesticides may negatively affect the

specie. The recovery strategy is for protecting the roosting habitat rather than the food sources. It's because "locations and densities of food resources are not well known, this step will be more difficult to accomplish."

In accordance with requirements under section 7(a)(2) of the Endangered Species Act, EPA has reviewed this permit for its effect on listed threatened and endangered species and designated critical habitat. After review, EPA has no information determining that the reissuance of this permit will have "effect" on the listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.
2. The draft permit is consistent with the States WQS and does not increase pollutant loadings.
3. There is currently no information determining that the reissuance of this permit will have "effect" on the additional listed threatened and endangered species.

IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of the permit should have no impact on historical and/or archeological sites since no construction activities are planned in the reissuance.

X. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if NMWQS are promulgated or revised. In addition, if the State develops a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that TMDL. Modification of the permit is subject to the provisions of 40 CFR §124.5.

XI. VARIANCE REQUESTS

None

XII. CERTIFICATION

The permit is in the process of certification by the State Agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer of COE, to the Regional Director of FWS and to the National Marine Fisheries Service prior to the publication of that notice.

XIII. FINAL DETERMINATION

The public notice describes the procedures for the formulation of final determinations.

XIV. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Forms 2A and 2S dated May 21, 2013

B. 40 CFR CITATIONS

Sections 122, 124, 125, 133, 136

C. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC June 5, 2013

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico, March 15, 2012

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2014-2016

D. MISCELLANEOUS

Permittee's emails dated 3/4/15, 3/10/15

Mexican Long-Nosed Bat (*Leptonycteris nivalis*) Recovery Plan, September 1994