

NPDES PERMIT NO. NM0020168

FACT SHEET

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

APPLICANT

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ISSUING OFFICE

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DATE PREPARED

July 1, 2015

PERMIT ACTION

Renewal of a permit previously issued on July 17, 2009 with an effective date of September 1, 2009 and an expiration date of August 31, 2014.

RECEIVING WATER – BASIN

Animas River – San Juan River Basin (Segment 20.6.4.403 NMAC)

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 July 17, 2009 with an effective date of September 1, 2009 and an expiration date of August 31, 2014, are as follow:

- Measurement frequency and sample type of pollutants have been changed.
- Removal percentage for BOD₅ and TSS has been established.
- TRC limit has been changed to 11 ug/l from 19 ug/l.
- Limits for BOD₅ has been changed to 25/30 from 30/45 along with the mass loadings.
- Monitoring of benzidine and hexachlorobenzene has been established.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility (Latitude 36° 49' 07" N and Longitude 108° 01' 24" W) is located at 900 S. Oliver Street, Aztec, San Juan County, New Mexico.

Under the SIC code 4952, the applicant operates City of Aztec WWTP, which has a design flow of 1.2 MGD (current average flow of 0.69 MGD) providing sanitary services for approximately 7,066-population with no significant industrial user. The secondary treatment process mainly consists of head works, two aeration basins, two clarifiers, two aerobic digester, sand filter, a UV disinfection system, a belt press and sludge storage area. Effluent is UV-disinfected before discharging to the Animas River. Sludge is digested, thickened and de-watered before hauled to a landfill. Since the last permit term, the permittee has added ferric chloride and methanol for nutrient removal process. A facility location map is attached.

III. EFFLUENT CHARACTERISTICS

Data submitted in Form 2A is as follows:

Parameter	Max	Avg
	(mg/l unless noted)	
Flow (MGD)	1.28	0.46
pH, minimum, standard units (su)	6.7	N/A
pH, maximum, standard units (su)	7.3	N/A
Temperature (C), winter	10.2	9.25
Temperature (C), summer	25.6	23.6
Biochemical Oxygen Demand, 5-day (BOD ₅)	21.55	8.49
E. coli (cfu/100 ml)	81	5.54
Total Suspended Solids (TSS)	6.0	5.6
Ammonia (as N)	< 1.0	< 1.0
TRC	N/A	N/A
DO	6.08	5.99
Total Kjeldahl Nitrogen (TKN)	4.88	2.43
Nitrate + Nitrite Nitrogen	16.5	6.81
Oil & Grease	< 5.3	< 5.3
Phosphorus (Total)	1.1	0.29
TDS	702	563

Attached violation results from 3/1/10 to 3/1/15 (when new attain operational level begins) obtained via ICIS database shows there were exceedances of total nitrogen, total phosphorus, pH and one E. coli on 12/31/14.

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 February 27, 2014. 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 percent removal for each. Water quality-based effluent limitations are established in the proposed draft permit for *E. coli* bacteria, BOD, pH, TDS, TRC and nutrients.

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). 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:

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

$$30\text{-day average BOD/TSS loading} = 30 \text{ mg/l} * 8.345 \text{ (lbs)(l)/(mg)(MG)} * 1.2 \text{ MGD} = 300 \text{ lbs/day}$$

$$7\text{-day average BOD/TSS loading} = 45 \text{ mg/l} * 8.345 \text{ (lbs)(l)/(mg)(MG)} * 1.2 \text{ MGD} = 450 \text{ lbs/day}$$

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	300	450	30	45
BOD, % removal ¹	≥ 85	---	---	---
TSS	300	450	30	45
TSS, % removal	≥ 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 criterion 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 San Juan River Basin (20.6.4.403 NMAC). The designated uses of the receiving water are public water supply, industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life.

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 warmwater aquatic life and primary contact, criterion for pH is between 6.6 and 9.0 s.u. pursuant to 20.6.4.900.D and H(5) NMAC.

b. Bacteria

For primary contact, criterion for E. coli bacteria is at 126 cfu/100 ml monthly geometric mean and 410 cfu/100 ml daily maximum pursuant to 20.6.4.900.D NMAC.

c. TRC

For wildlife habitat, criterion for TRC is 11 ug/l pursuant to 20.6.4.900.G NMAC. 19 ug/l was limited previously. However, if a test result is less than the MQL specified in Part II.A of the permit it can be reported as zero for compliance purpose.

d. 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 criterion, 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 Federal Register.

The previous 4Q3 and harmonic mean flow are used in this permit draft. Available background data provided by NMED are utilized in the RP analysis. For applicable pollutants with numerical standards in 20.6.4.900.J NMAC, the submitted test results detected above the MQLs or the WQS are listed and analyzed for RP in the attached Appendix A. For RP calculation purpose, ML/MDL values are used for those results reported with less than the ML/MDL levels. Preliminary toxic analysis shows RPs exist for benzidine and hexachlorobenzene. Because the permittee has not met the sufficient sensitive test requirement per 40 CFR 122.21(e)(3), EPA proposes monitoring for these parameters at once/quarter in this permit draft. For those pollutants applicable to the WQS and not listed in submitted Part D, Form 2A, the permittee must submit them in the next permit renewal cycle. They are listed in the permit draft.

e. DO

For marginal coldwater aquatic life, the criterion for DO is at least 6 mg/L pursuant to 20.6.4.900.H(3) NMAC. EPA uses LA-QUAL version 9.30 to model DO along this receiving stream; some of the factors used are 4Q3, effluent and BOD₅ (30 mg/l for monthly average, 45 mg/l for 7-day maxima; “30/45 BOD”). The modeled output shows DO stays below 6 mg/L along this 16.8 mile long stream (see attached graph with 30/45 BOD; other detail information is available upon request). BOD factor is simulated to achieve the DO criterion; EPA believes the optimal levels of BOD are 25/30 (see attached graph with 25/30 BOD). The reported effluent BOD in form 2A are 8.49 mg/L (aveg.) and 21.55 mg/L (max.); which are well below the 25/30 levels. EPA establishes the water-based limits for BOD at 25 mg/L (aveg.) and 30 mg/L (max.) in the permit draft; mass loadings are calculated with the same method for TSS above. Compliance schedule is not needed because the effluent has met this newly-established limits. This BOD limitation may be re-evaluated against the WQS in the next permit renewal process.

f. TDS- Colorado River Salinity Control Program

20.6.4.54 NMAC states, ‘For the tributaries of the Colorado river system, the state of New Mexico will cooperate with the Colorado River Basin states and the federal government to support and implement the salinity policy and program outlined in the most current “review, water quality standards for salinity, Colorado river system” or equivalent report by the Colorado river salinity control forum.’ The most updated version found is 2014 Review. The incremental increase in salinity must be 400 mg/L or less, which is the same previous limit. Limit for TDS is retained in this permit draft.

D. MONITORING FREQUENCY FOR 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). EPA established the monitoring frequency based on Table 9 (page 34 of the NMIP) for design flow between 1.0 and 5.0 MGD and history compliance.

Parameter	Frequency	Sample Type
Flow	Daily	Totalized Meter
pH	Daily	Instantaneous Grab
BOD ₅	1/week	6-hr Composite

TSS	1/week	6-hr Composite
% Removal	1/week	Calculation
TRC*	Daily	Instantaneous Grab
E. coli Bacteria	1/week	Grab
TDS, incensement	1/month	6-hr Composite
Total Phosphorus	2/month (increased due to exceedances)	6-hr Composite
Total Nitrogen	2/month (increased due to exceedances)	6-hr Composite
Toxics	1/quarter	Grab

* When chlorine is used.

E. WHOLE EFFLUENT TOXICITY

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. Table 11 (page 42) of the NMIP outlines the type of WET testing for different types of discharges. The receiving water (Animas River), a perennial stream has a 4Q3 of 184 cfs (NMED suggests the same value in the previous permit). With the facility design flow rate of 1.2 MGD and mixing fraction of 100%, a CD is calculated as the same previously, 0.84%. Because the critical dilution is below 10%, an acute-to-chronic ratio of 10:1 is used to allow acute WET testing with the same set of dilutions as previously. Submitted WET data show no RPs exist for both vertebrate and invertebrate species at the CD (see attached Reasonable Potential Analyzer); WET requirements are retained from the previous permit.

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 3.5%, 4.7%, 6.3%, 8.4%, 11.2%. The low-flow effluent concentration (critical low-flow dilution) is defined as 8.4% 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	Report	Report	Once/Quarter*	24-hr Composite
Daphnia pulex	Report	Report	Once/Quarter**	24-hr Composite
Pimephales promelas	Report	Report	Once/Quarter**	24-hr Composite

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 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.

* If all pass in the 1st year, frequency is reduced to once/6 months for 2nd – 5th year. If any test fails, frequency is returned to once/quarter for remainder of permit term. Once/quarter is reverted on last day of permit.

** If all pass in the 1st year, frequency is reduced to once/year for 2nd – 5th year. If any test fails, frequency is returned to once/quarter for remainder of permit term. Once/quarter is reverted on last day of permit.

VI. TMDL REQUIREMENTS

The receiving water segment 20.6.4.403 NMAC (San Juan River) has been listed in the 303(d) list of impaired waters. Designated uses of warmwater and marginal coldwater aquatic life, and primary contact are not supporting. This facility is subject to the 2013 EPA-approved TMDL for E. coli and 2006 EPA-approved TMDL for nutrient. Limits for E. coli in this TMDL are 126 cfu/100 ml and 4.8x10⁹ cfu/day. Limits for nutrients are retained in this permit draft since the same TMDL was used to establish the limits previously. 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 San Juan County, NM obtained from <http://ecos.fws.gov>, there are endangered/threatened species that were listed in the previous permit: Southwestern willow flycatcher, Colorado pikeminnow, Razorback sucker, Mancos milk-vetch, Knowlton’s cactus and Mesa Verde cactus. These species were determined with “no effect”. Since then, there have been addition threatened/endangered species: Yellow-billed Cuckoo, Zuni bluehead sucker and Canada Lynx. There has been no recovery plan for all these additional species, except Canada Lynx. “Recovery Outline for the Contiguous United States Distinct Population Segment of Canada Lynx” dated September 14, 2005 is an interim strategy to guide recovery efforts until a final plan is available. The lynx habitats include “core areas, secondary areas and peripheral areas”; the facility location is not listed in these specific areas. Factors threatening the species include destruction, modification or curtailment of habitat, capture or shooting of lynx, inadequate regulation, high volume of traffic on roads and global warming. No information is found on Zuni bluehead sucker’s habitats along Animas River according to 79 FR 43132 on July 24, 2014. “The primary threats to this subspecies are road construction, logging, over-grazing, reservoir construction, irrigation withdrawals, and stocking of exotic fishes.” EPA believes discharge would not effect on terrestrial species; Yellow-billed Cuckoo habitat needs similar to southwestern willow flycatcher determined to be “no effect” in previous permit and would also be “no effect” in this permit draft.

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 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.

IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

Process improvements have been made within the facility during the previous permit term. The reissuance of the permit should have no impact on historical and/or archeological sites since no expansion of 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 dated on February 27, 2014 and 2S dated June 15, 2015. Additional data provided on February 13, 2015.

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

TMDL For the San Juan River Watershed (Part II), January 17, 2006

TMDL For the Animas River Watershed [San Juan River to Southern Ute Indian Tribe Boundary], September 30, 2013

D. MISCELLANEOUS

2014 Review Water Quality Standards for Salinity Colorado River System, October 2014

Recovery Outline for the Contiguous United States Distinct Population Segment of Canada Lynx,
September 14, 2005

Permittee's email dated 2/13/15, 4/28/15, 5/7/15

NMED email dated 4/16/15, 3/17/15