

NPDES PERMIT NO. NM0027987

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

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PERMIT ACTION

Proposed re-issuance of the current permit issued on May 31, 2016, with an effective date of July 1, 2016, and an expiration date of June 30, 2021.

RECEIVING WATER – BASIN

Rio Grande River – Middle Rio Grande Basin (Segment 20.6.4.106)

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
NOEC	No observable effect concentration
NPDES	National Pollutant Discharge Elimination System
ML	Minimum quantification level
O&G	Oil and grease
POTW	Publicly owned treatment works
RP	Reasonable potential
SS	Settleable solids
SSM	Sufficiently Sensitive Method
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

The changes from the current permit issued on May 31, 2016, with an effective date of July 1, 2016, and an expiration date of June 30, 2021, include:

- Substitute unit (MPN) for E. coli bacteria has been added.
- Internal Outfall 101 has been removed.
- Virtual Outfall V01 has been added.
- 85% removal is calculated monthly instead of weekly.
- Interim and final limitations for total ammonia have been established with compliance schedule.
- Monitoring for DO and arsenic has been removed.
- Monitoring of mercury has been established.
- Monitoring for 9 toxic pollutants has been added in term of SSM requirement.
- Ambient upstream monitoring for total chlorides has been established.
- TDS limits have been revised.
- Monitoring frequency for TDS and O&G has been reduced to weekly from 5/week.
- 24-hour composite has been changed to 12-hour composite for WET testing.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility (Outfall 001: Latitude 35° 15' 23" North and Longitude 106° 35' 32" West; Outfall 601: Latitude 35° 13' 12.49" North and Longitude 106° 41' 7.41" West) is located at 100 Industrial Park Loop, Rio Rancho, Sandoval County, New Mexico 87124. The facility is located on State land; the discharge from Outfall 001 enters the Rio Grande from the west to New Mexico surface waters. The Pueblo of Sandia has jurisdiction over the east half of the Rio Grande, with the west half Rio Grande under the jurisdiction of the State of New Mexico.

Under the SIC code 4952, the applicant operates City of Rio Rancho WWTP #2, which has a total design flow of 8.2 MGD along with Rio Rancho WWTP #3 providing sanitary services for approximately 98,085-population in total. Discharges via Outfall 001 to Rio Grande River previously consists of effluents from the WWTP #2 (5.5 MGD), WWTP #1 (up to 1.5 MGD) and WRF #6 (1.2 MGD). As of April 2020, WWTP #1 has been permanently closed; all flow is pumped to WRF #6 and therefore, EPA removes the previous established Outfall 101. Ultra-violet and chlorination disinfection units are used in WWTP #2 and WRF #6, respectively. WRF #6 (2.7 MGD now) and WWTP #2 (5.5 MGD) effluents are comingled before discharging to the river (see attached block flow diagrams). Sample points for WWTP #2 and WRF #6 are stated in Part I.A of the permit. Part of the WRF #6 effluent is reused for irrigation under NMED DP-215 reclaimed water discharge permit. Sewage sludge is processed and disposed at Rio Rancho Landfill. 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)	5.25	4.12
pH, minimum, standard units (s.u.)	7.46	NA
pH, maximum, standard units (s.u.)	7.96	NA

Temperature (C), winter	19.4	17.1
Temperature (C), summer	28.9	25.6
Biochemical Oxygen Demand, 5-day (BOD ₅)	20.5	7.7
E. coli (cfu/100 ml)	416	21.2
Total Suspended Solids (TSS)	21.5	10.7
Ammonia (as N)	4.0	1.7
TRC	0.009	0.004
DO	7.8	6.1
Total Kjeldahl Nitrogen (TKN)	7.0	4.3
Nitrate + Nitrite Nitrogen	13.0	10.4
Oil & Grease	9.0	7.0
Phosphorus (Total)	4.5	2.8
TDS	901.0	775.2

Since July 1, 2015 there have been exceedances in DMR (available upon request) as follows:

Parameter	Date Report	Exceedance, 30-day average, mg/L	Exceedance, daily max., mg/L	Outfall
BOD ₅	1/21/20, 7/31/20, 1/31/21	3 exceedances		001
TSS	1/31/20, 1/31/21	2 exceedances		001
TSS, % removal	1/31/18	1 exceedance		101
E. coli	Many events		Many exceedances	001
TRC	Several events		Several exceedances	601
E. coli bacteria	Several events	1 exceedance	Several exceedances	601

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 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.

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 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 BOD₅, and percent removal for each. Water quality-based effluent limitations are established in the proposed draft permit for E. coli bacteria, pH, TRC, TDS, O&G and total ammonia.

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 BOD₅, 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 limits established at 40 CFR 133.102 for Secondary Treatment Regulation. Pollutants with limits established in this Chapter are BOD₅, TSS and pH. BOD₅ 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). The limit for pH is 6-9 s.u. based on 40 CFR §133.102(c). However, existing limits for BOD₅ and TSS are more stringent and retained in the permit draft to protect the designated critical habitat for the fish mentioned below. In a letter dated December 18, 2020, the permittee requests Outfall 601 at WRF #6 to be removed. EPA denies the request and retains the applicable limitations at this outfall because:

- Comingled with WWTP #2 effluent, part of the WRF #6 effluent is discharged to the receiving stream via Outfall 001.
- Individual sampling location/point of compliance for each effluent is before the comingling point.
- Discharge effluent must meet the secondary treatment requirement above. Dilution must not be used as a substitute for treatment pursuant to 40 CFR §122.45(f)(1)(iii).

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. Due to nature of the treatment process and configuration (i.e., separate treatment trains and sampling locations), EPA establishes a virtual outfall (“V01”) to account for any limited mass loadings (including those to protect Tribe/State WQS). 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-day average BOD₅ loading = 10 mg/l * 8.345 (lbs)(l)/(mg)(MG) * 8.2 MGD = 684 lbs/day
- 7-day average BOD₅ loading = 15 mg/l * 8.345 (lbs)(l)/(mg)(MG) * 8.2 MGD = 1,026 lbs/day
- 30-day average TSS loading = 15 mg/l * 8.345 (lbs)(l)/(mg)(MG) * 8.2 MGD = 1,026 lbs/day
- 7-day average TSS loading = 23 mg/l * 8.345 (lbs)(l)/(mg)(MG) * 8.2 MGD = 1,573 lbs/day

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

Parameter	30-day Avg, lbs/day, unless noted	7-day Max, lbs/day, unless noted	30-day Avg, mg/l, unless noted	7-day Max, mg/l, unless noted
BOD ₅	684 ²	1,026 ²	10	15
BOD ₅ , % removal ¹	≥ 85	---	---	---
TSS	1,026 ²	1,573 ²	15	23
TSS, % removal ¹	≥ 85	---	---	---
pH	N/A	N/A	6.0 to 9.0 s.u.	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.

² EPA establishes a virtual outfall (“Outfall V01”) for compliance purpose of any combined loading limitations (loading from Outfall 001 + loading from Outfall 601) applicable to the whole facility.

3. Pretreatment Regulation

The facility has one non-categorical significant industrial users (SIUs), Insight Lighting, which is subject to the local limits. The permittee is required to maintain and implement a full pretreatment program pursuant to 40 CFR 403.8. There haven’t been any updates to the program since the last permit went out, so the pretreatment language will remain the same.

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/Tribe WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State/Tribal WQS and applicable State/Tribe 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/Tribe 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 September 12, 2018). The receiving water is Rio Grande River (segment 20.6.4.106 NMAC of the Rio Grande River Basin). The stream designated uses are irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and primary contact and public water supply.

4. Pueblo of Sandia Water Quality Standards (Affected Downstream Tribe)

The Pueblo of Sandia has been approved to have treatment in the same manner as a state as contained in 40 CFR 131.8. The general and specific stream standards for the Pueblo of Sandia Water Quality Standards (PSWQS) are provided in “Pueblo of Sandia Water Quality Standards”, revised January 31, 2008, approved and adopted by Tribal Council Resolution 2009-118 on November 13, 2009, and approved by EPA March 9, 2010. This latest WQS was used in the previous permitting renewal. The designated uses of the Rio Grande, according to PSWQS, Section V.A.1, are warmwater and coolwater aquatic/fishery, primary contact ceremonial, primary and secondary contact recreational, agricultural and industrial water supply, domestic water supply and wildlife habitat. The critical low flow 4Q3 and harmonic mean (PSWQS, Section I.H) are the same as NMWQS.

5. 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). Concentration limits are monitored at Outfalls 001 & 601; whereas, mass limits are monitored at Outfall 001. State or Tribal WQS that are more stringent than effluent limitation guidelines and the most stringent limitations are chosen as follows:

a. pH

State Water Designated Use(s)	State WQS	Tribe Water Designated Use(s)	Pueblo of Sandia (PS) WQS	Limitation Established
Primary contact and warmwater aquatic life	6.6 – 9.0 [20.6.4.900.D and H(6)]	Coolwater Aquatic Life/Fishery	6.6 – 9.0 [Section IV.A]	6.6 – 9.0

b. Bacteria

State Water Designated Use(s)	State WQS	Tribe Water Designated Use(s)	Pueblo of Sandia WQS	Limitation Established
Primary contact	126 cfu (or MPN)/100 ml monthly; 410 cfu (or MPN)/100 ml daily	Primary Contact Ceremonial Use	47 cfu/100 ml monthly; 88 cfu/100 ml daily maximum, [Section IV.D]	47 cfu (or MPN)/100 ml monthly; 88 cfu (or MPN)/100 ml daily

	maximum, [20.6.4.900.D]			MPN)/100 ml daily maximum
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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 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 FRL.

NMED provides a 4Q3 calculated from a critical flow at gage 08329928 and the design flow [202.96 cfs – 12.687 cfs (8.2 MGD) = 190.273 cfs]. The ambient upstream data is obtained from SWQB Monitoring Station 32RGrande499.2 from March 2014 to October 2014. Outfall 001 is evaluated with maximum flow of 8.2 MGD in case 100% flow from Outfall 601 is diverted to the UV unit at WWTP #2. Submitted data at Outfall 001 are scanned against the MQL, PSWQS and NMWQS (for those with no established MQL). Pollutants with levels above the MQL and Tribal/State WQS are analyzed for RP. Ambient data are inputted into the RP if available. For RP calculation purpose, ML values are used for those results reported with less than the MLs or non-detect (ND). Attached Appendix A shows no RPs exist, except for the following pollutants (reported with “ND”) that do not meet the SSM requirement. Summary of the tested methods are compared to the SSM requirement as follow:

Pollutants	Test Result (Method), ug/L	Applicable NMWQS, ug/L	Suggested Method with SSM Complied MDL, ug/L
Benzidine	0.5 to 10 (EPA 625)	0.002	0.08 (EPA Method 605)
Diazinon	0.5 (EPA 8270D and 614)	0.17	0.13 (EPA Method 507)
Hexachlorobenzene	0.5 to 1 (EPA 625)	0.0029	0.05 (EPA Method 612)
Mirex	0.5 (EPA 614 and 8270D); invalid test methods	0.001 (PSWQS)	0.002 (EPA Method 617)
Chlorpyrifos	0.5 (EPA 614 and 8270D); invalid test methods	0.041 (PSWQS)	0.004 (EPA Method 1657)
Guthion (or Azinphos methyl)	0.5 (EPA 614 and 8270D)	0.01 (PSWQS)	0.009 (EPA Method 1657)
Parathion	0.5 (EPA 614)	0.013 (PSWQS)	0.01 (EPA Method 1657)

Because the permittee has not demonstrated compliance with the SSM requirement per 40 CFR 122.21(e)(3) for all the parameters in the table above, EPA proposes monitoring for these parameters at once/six months for Outfall 001 in this permit draft. All the analytical tests must meet the SSM requirement. During the public comment period, the permittee optionally may submit additional test data

(one scan for each pollutant) meeting the SSM requirement for these monitored parameters; EPA would reconsider this monitoring requirement depending on the analyses results. Pollutants shown in Part I.F of the draft permit, applicable to the State WQS that are not listed in Table C of Form 2A, will be tested, if the permit will be reapplied, during the permit term pursuant to 40 CFR 122.21(j)(4)(iv).

There is no RP excursion for adjusted gross alpha at both outfalls in Appendix A. Previous monitoring requirement for this pollutant is retained in this permit draft for TMDLs purpose mentioned below.

To protect the Tribe and State WQS, effluent at Outfall 601 is supposed to go thru the RP analysis due to the discharge configuration and sampling point (i.e., similar to 2 separate treatment trains). However, effluent data at this outfall is not fully available to evaluate. For the next permit renewal application, the permittee must submit data required in the application (Tables A to E) for Outfalls 601 and 001.

Arsenic is re-evaluated against the PSWQS for RP using data in the Appendix A. To determine if a pollutant has a reasonable potential to exceed a water quality criterion the following calculation is performed with a steady-state mass balance model in the NMIP:

$$\text{Instream concentration} = ((FQ_a \times C_a) + (Q_e \times C_e \times 2.13)) \div (FQ_a + Q_e) = \text{ug/L}$$

Where:

- C_e is the geometric mean effluent concentration, 3.23 ug/l (dissolved)
- C_a is the ambient concentration upstream of discharger, 2.7 ug/l (dissolved),
- Q_e is the effluent flow rate, 12.71 cfs (8.2 MGD)
- Q_a is the 4Q3 flow rate, 190.27 cfs (chronic) and 581.89 cfs (human health)
- F is the fraction of stream allowed for mixing, 1.0.

The criterion for arsenic is as below pursuant PSWQS Appendix B:

Arsenic	Fish Consumption (dissolved)	Acute (dissolved)	Chronic (dissolved)
Criterion, ug/L	3.6, more stringent than NMWQS	340, same as NMWQS	150, same as NMWQS
Effluent, ug/L (Average value)	3.23 (2.81 at Outfall 601 per DMR)	3.23 (2.81 at Outfall 601 per DMR)	3.23 (2.81 at Outfall 601 per DMR)
Calculated Instream Concentration, ug/L	2.79 using Q _a = 581.89 cfs (2.72 at Outfall 601)	RP level = effluent x 2.13 = 6.88 (<5.99 at Outfall 601)	2.96 using Q _a = 237.24 cfs (<2.77 at Outfall 601)

RP does not exist for any criterion at either outfall because the calculated instream concentration is less than its respective criterion for fish consumption and chronic conditions, and the RP level is less than the acute criterion. Previous monitoring requirement for arsenic is removed in this permit draft. This monitoring removal does not violate the Antidegradation because the current data were not available previously pursuant to 40 CFR 122.44(1)(2)(i).

d. TRC

The facility uses UV unit at WWTP #2 and chlorination at WRF #6 to disinfect the effluents. TRC of 11 ug/l (for wildlife habitat; 20.6.4.900.J NMAC and for Coolwater Aquatic Life/Fishery) is established at Outfall 601 (at all times) and Outfall 001 (in case chlorine based-product is contributed in the treatment process at WWTP #2 or effluent from WRF #6 is diverted to the UV unit).

e. DO

According to a letter from Pueblo of Sandia dated February 11, 2021, the DO criterion should be 5 mg/L or greater, which was previously interpreted at 6 mg/L or greater. This criterion, 5 mg/L or greater, is the same as for marginal warmwater aquatic life in NMWQS [20.6.4.900.H(6)].

The State of New Mexico WQS criterion applicable to the marginal warm-water aquatic life designated use is at least 5 mg/L for dissolved oxygen. As a part of the permitting process, EPA used the LA-QUAL water quality model, which is a steady-state one-dimensional model which assumes complete mixing within each modeled element, to develop permit parameters for the protection of the State of New Mexico surface water WQS for DO (i.e., 5 mg/L). Primarily based on the City of Rio Rancho Wastewater Treatment Plant's design flow (8.2 MGD) and the critical flow of the receiving water (67.34 cfs), various BOD₅ factors including BOD₅ Secondary Treatment Standards were considered and simulated to achieve the DO criterion. A complete characterization of Rio Grande River (i.e., water quality and hydrodynamic data) was not available. Where data were not available, estimates and assumptions are made. The following is a summary of model inputs.

The City of Rio Rancho Wastewater Treatment Plant's design flow is 0.359 m³/sec (8.2 MGD). The discharge location provided in the permit application is located at Latitude 35° 15' 23" N (35.2563), and Longitude 106° 35' 32" W (-106.5922). Other effluent parameters provided in the permittee's application and applied in the model include Ammonia (Avg: 1.7 mg/L), DO (Avg: 6.1 mg/L), and effluent temperature (25 C). Effluent Nitrate plus Nitrite Nitrogen (Avg: 1.0 mg/L), and E. Coli (Avg: 5 CFU/100ml) were assumed since no data available.

NMED provided the following information. The critical low flow of Rio Grande River receiving stream is approximately 1.907 m³/sec (67.34 ft³/sec). Other parameters applied in the model include ambient temperature (17.4 C). Ammonia (Avg: 0.14 mg/L), DO (Avg: 6.25 mg/L), Nitrate plus Nitrite Nitrogen (Avg: 1 mg/L) and Ambient E. Coli of 18 CFU/100ml, and the receiving stream average depth of 4.5 feet (1.5 meters) were assumed since no data available.

EPA used the EPA's Environmental Justice Screening and Mapping Tool (Version 2019) to estimate the average elevation of the study area and average width of Rio Grande River. The average elevation is approximately 1530 meter (5020 feet). The average width of Rio Grande River is approximately 32.84 meters. And, the studied Rio Grande River segment length is approximately 19.5 kilometers (12.12 miles), which was obtained from the State of New Mexico's OpenEnviroMap.

The model results show no excursion of the receiving stream DO standard of 5 mg/L when the BOD₅ limits of 10 mg/l for monthly average and 15 mg/l for 7-day maxima were applied (see attached graph with 10/15 mg/L BOD₅; other detail information is available upon request). Therefore, no additional requirement for DO.

The model results are based on the assumptions and default values as explained and presented above. Should these conditions change, the model should be updated to provide a more accurate assessment of the water quality within the receiving water body.

f. Salinity/Mineral Quality (Total Dissolved Solids, Chlorides, and Sulfates)

There are criteria for TDS (500 mg/L and no more than 1/3 increase of the background concentration, which are more stringent than the NMWQS), chlorides and sulfates (250 mg/L and no more than 1/3 increase of the background concentration) applicable to the designated uses pursuant to PSWQS Section III.K and 20.6.4.106.B(2) NMAC. TDS is reevaluated with the same method as for arsenic above using new available data for 4Q3, effluent and ambient concentrations. Ambient concentration (Ca) for TDS, measured at the same locations as for arsenic, was 208.8 mg/L on geometric mean during a period of March to Oct. 2014. Effluent data (Ce) for TDS at Plant #2, most representative, was detected at 749 mg/L on monthly average from July 2015 to January 2021. Instream concentration for TDS was calculated at 295.4 mg/L, which exceeds the allowable increase limit $[208.8 \times (1 + \frac{1}{3}) = 278.4 \text{ mg/L}]$. Thus, RP exist; the 30-day and daily maximum TDS limits are calculated as follows:

$$30\text{-day Average Limit} = C_s[(FQ_a + Q_e) \div Q_e] - C_a(FQ_a \div Q_e) = 1322 \text{ mg/L}$$

$$\text{Daily max. Limit} = 30\text{-day average limit} \times 1.5 = 1983 \text{ mg/L}$$

Where:

- C_s is the applicable water quality criterion, $208.8 \times (1 + \frac{1}{3}) = 278.4 \text{ mg/L}$
- C_a is the ambient concentration upstream of discharger, 208.8 mg/L
- Q_e is the effluent flow rate, 12.71 cfs (8.2 MGD)
- Q_a is the 4Q3 flow rate, 190.27 cfs (123 MGD)
- F is the fraction of stream allowed for mixing, 1.0

EPA revises limitations in terms of concentrations and loadings for TDS in the draft permit with no compliance schedule because these limitations have been met according to DMR. EPA grants the permittee’s request for reduced monitoring of TDS to weekly from 5 times/week due to the compliance. Mass limits are calculated in the same method as for BOD/TSS.

In the same approach, total chlorides and sulfates are evaluated against PSWQS as follows:

	Effluent (C _e), mg/L	Ambient (C _a), mg/L	Criterion 1/3 increase (C _s), mg/L	Calculated instream, mg/L	Calculated limit, mg/L 30-day average	Calculated limit, mg/L daily max
Chlorides, total	176.7	10	13	32.9	58	87
Sulfates, total	126.7	47.4	63	61.6	NA	NA

There is RP excursion for total chlorides, limitations are supposed to be in place as a result. Instead, EPA proposes the permittee to collect ambient upstream data for the chlorides nearby NMED monitoring station (Latitude: 35.2602° N, Longitude: 106.596° E) at Rio Grande River. The permittee must collect samples monthly at this location approximately and upstream from the discharge. Test results for total chlorides will be sent to EPA and Pueblo of Sandia quarterly. Total chlorides in the effluents at both outfalls are monitored monthly as well. EPA will re-evaluate this pollutant in the next permit renewal.

g. Oil & Grease, Ammonia and Total Phosphorus (TP)

DMRs show O&G limitations are in compliance with the limitations. As the permittee’s request, EPA reduces the monitoring frequency for O&G to weekly from 5 times/week.

Ammonia is re-evaluated with the same method as for arsenic above using the same 4Q3. Ambient data for temperature and pH, measured at the same locations as for arsenic, were 17.4 °C on average and 8.46

s.u. at 95th percentile during a period of March to Oct. 2014. Ambient data for ammonia is not available at location (32RGrand499.2) above the WWTP #2 from March to Oct. 2014. The criterion for total ammonia is as below pursuant PSWQS Appendix A, Tables 1 and 3:

Ammonia, total	Acute	Chronic
Criterion, mg/L	2.14 using pH = 8.5, fish present. Same criterion as NMWQS	0.928 using pH = 8.5; 17°C, fish present. Between 0.99 and 0.87 for NMWQS.
Effluent, mg/L (average)	1.05 (2.18 at Outfall 601 per DMR)	1.05 (2.18 at Outfall 601 per DMR)
Calculated Instream Concentration, mg/L	N/A because criterion must be met at end of pipe. RP level = effluent x 2.13 = 2.24 (4.64 at Outfall 601)	0.14 (0.10 using 2.7 MGD at Outfall 601)
Applicable Limit	2.14 mg/L daily max. (146 lbs./day total for both outfalls)	NA

RP exists for acute criterion because the calculated instream is greater than the acute criterion (2.14 mg/L), which must be met at the point of discharge per 20.6.4.11.E(2) NMAC. EPA establishes new limitations for the ammonia at both outfalls with a compliance schedule stated in the permit draft. Per 40 CFR 122.47(a)(3) interim limit, effective immediately in the meantime, is set at the highest level (4.9 mg/L) reported in DMR.

A guideline for TP is 0.100 mg/L pursuant PSWQS Section III.E; but it’s not a criterion. There is no numerical criterion for TP in the NMWQS. Monitoring of TP is retained for next permit renewal and in case PSWQS is revised.

h. Nutrients (total nitrogen and total phosphorus)

EPA has started to monitor nutrients (total nitrogen and total phosphorus) discharged from major POTWs and others. Data would be used to determine applicable limits to protect local and downstream water quality. The proposed monitoring frequency for the nutrients is once/quarter.

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). EPA established the monitoring frequency based on Table 9 (page 34 of the NMIP) for design flow between 5 and 10 MGD at each outfall.

Parameter	Frequency	Sample Type
Flow	Daily	Totalized Meter
pH	Daily	Instantaneous Grab
BOD ₅	5/week	12-hr Composite
TSS	5/week	12-hr Composite
% Removal	1/month	Calculation
TRC*	Daily	Instantaneous Grab
E. coli Bacteria	Daily	Grab
Total ammonia	5/week	12-hr Composite
O&G, TDS	Weekly	12-hr Composite
Chlorides	Monthly	12-hr Composite
Mercury, total phosphorus, total nitrogen, adjusted gross alpha	Quarterly	12-hr Composite
PCB	Once	12-hr Composite
Toxics	1/six months	12-hr Composite

* Applicable at Outfall 601 and Outfall 001 (when chlorine is used in the treatment process, including cleaning treatment units or effluent from WRF #6 is diverted to the UV unit).

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. An acute test at 74%, using an acute-to-chronic ratio of 10:1 will be the requirement for this permit based on a 4Q3 of 103 MGD and effluent flow of 8.2 MGD for Outfall 001, and an acute test at 26% based on an effluent flow of 2.7 MGD at Outfall 601. Submitted WET data shows all results were reported as 67% for Outfall 001 and 601, which meant no toxicity was not exhibited during the previous permit cycle. The Reasonable Potential (RP) Analysis shows RP because the new critical dilution for Outfall 001 is higher than the highest concentration tested in the previous dilution series. However, there is no RP and no limitations will be required for WET.

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. The additional effluent concentrations for Outfall 001 must be 31%, 41%, 55%, 74%, 98%. The effluent series for Outfall 601 is 11%, 15%, 20%, 26%, 35%. The permittee shall limit and monitor discharge(s) as specified below for both outfalls:

WET Testing (48-hr Acute Static Renewal NOEC) ¹	VALUE	Frequency	Type
Daphnia pulex	Report	Once/Quarter	12-hr Composite ²
Pimephales promelas	Report	Once/Quarter	12-hr Composite ²

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. EPA outlines steps for retesting/TRE since the facility has quarterly testing.

² To be consistent to other comparable parameters.

VI. TMDL REQUIREMENTS

The receiving water segment 20.6.4.106 NMAC Rio Grande (non-pueblo Alameda Bridge to HWY 550 Bridge) has been listed in 303(d) List. The receiving water is impaired for wildlife habitat, livestock watering, primary contact and marginal warmwater aquatic life. Causes are PCBs (including fish consumption), mercury (fish consumption), adjusted gross alpha and E. coli bacteria. DO has been removed from the previous list; so, EPA removes the DO monitoring. Latest TMDL for E. coli was issued in 2010, which the limits were established based on this TMDL. EPA retains the previous limits for E. coli in this permit draft. TMDLs for other causes are estimated in 2023. PCB and adjusted gross alpha monitoring are retained as before. Effluent PCB level was detected < 0.000021 ppb, which is below the Tribe and State WQS; the monitoring is continued in this permit draft for TMDL purpose. EPA propose monitoring of mercury quarterly for TMDL purpose at well. 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. ANTIBACKSLIDING

The proposed permit is consistent with the requirements to meet Antibacksliding provisions of the Clean Water Act, Section 402(o) and 40 CFR 122.44(l)(2)(i)(B), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless information is available which was not available at the time of permit issuance.

IX. ENDANGERED SPECIES CONSIDERATIONS

According to the IPaC list updated on January 28, 2021 for Sandoval County, NM obtained from <http://ecos.fws.gov>, there are endangered (E)/threatened (T) species that were listed in the previous permit: Mexican spotted owl (T), Southwestern willow flycatcher (E), Rio Grande Silvery Minnow (E), Jemez Mountains salamander (E), Yellow-billed Cuckoo (T) and New Mexico meadow jumping mouse (E). These species were previously determined with “no effect”. A critical habitat for the Rio Grande Silvery Minnow has been established per 68 FR 8088 8135 dated 02/19/2003. The discharge flow path may cross this habitat. The discharge does not increase the loadings that could impact the water quality and on the endangered fish subsequently.

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. No additions have been made to the USFWS list of threatened and endangered species and critical habitat designation in the area of the discharge since prior issuance of the permit.
2. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.
3. The draft permit is consistent with the States WQS and does not increase pollutant loadings.
4. EPA determines that Items 1, thru 3 result in no change to the environmental baseline established by the previous permit, therefore, EPA concludes that reissuance of this permit will have “no effect” on listed species and designated critical habitat.

X. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

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

XI. 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.

XII. VARIANCE REQUESTS

None

XIII. 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.

XIV. FINAL DETERMINATION

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

XV. ADMINISTRATIVE RECORD

The following information was used to develop the draft permit:

A. APPLICATION(S)

EPA Application Forms 2A and 2S dated December 17, 2020; additional information received on February 18, 2021, March 12, 2021

B. 40 CFR CITATIONS

Sections 122, 124, 125, 133, 136, 434

C. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, effective September 12, 2018.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2020-2022

Total Maximum Daily Load (TMDL) Report for the Middle Rio Grande Watershed, approved by EPA, June 30, 2010.

D. MISCELLANEOUS

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

NMED emails dated January 27, 2021; March 4, 2021

Permittee email dated February 23, 2021; March 23, 2021; March 25, 2021