FOR THE DRAFT NPDES PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

APPLICANT

City of Belen
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ISSUING OFFICE

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DATE PREPARED

07/07/2025

PERMIT ACTION

Draft reissuance of the current NPDES permit issued June 25, 2020, with an effective date of July 1, 2020, and an expiration date of June 30, 2025. Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed in Title 40, Code of Federal Regulations, revised as of July 7, 2025.

RECEIVING WATER – BASIN

Receiving waters named Bosque Drain, thence to the Rio Grande, in Segment No. 20.6.4.105 NMAC of the Rio Grande Basin.

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_5	Biochemical oxygen demand (five-day unless noted otherwise)
BPJ	Best professional judgment
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
E. coli	Escherichia coli
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
FDA	Food and Drug Administration
F&WS	United States Fish and Wildlife Service
gpm	Gallons per minute
mg/L	Milligrams per liter (one part per million)
ug/L	Micrograms per liter (one part per billion)
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
MQL	Minimum quantification level
O&G	Oil and grease
PFAS	Per- and polyfluoroalkyl substances
POTW	Publicly owned treatment works
RP	Reasonable potential
SIC	Standard industrial classification
SOPS	Standard Operating Procedures
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
UV	Ultraviolet light
USFWS	United States Fish & Wildlife Service
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
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant

In this document, references to State WQS and/or rules shall collectively mean the state of New Mexico.

I. **CHANGES FROM THE PREVIOUS PERMIT**

Changes from the permit previously issued on June 25, 2020, with an effective date of July 1, 2020, and an expiration date of June 30, 2025:

* Maintained requirements to submit a plan to monitor for nitrate and dichlorobromomethane (bromodichloromethane) based on a review of current DMR data and as determined during previous RP analysis to cause or contribute to violations of State WQS.

II. **WWTP LOCATION and ACTIVITY**

The Belen Wastewater Treatment Plant (WWTP) is at 1300 Conservancy Road in Belen, NM. The city of Belen WWTP is classified as a major municipal discharger under the federal Clean Water Act's Section 402 NPDES permit program. Based on design flow, it is authorized to discharge up to 1.2 million gallons per day (MGD), with an actual average discharge maintained around 0.4 MGD. The population served is approximately 7,400 residents, according to the 2020 United States Census. The effluent from the plant is discharged into the Bosque Drain, thence into the Rio Grande in water quality Segment No. 20.6.4.105 NMAC of the Middle Rio Grande Basin. The discharge is on that water at Latitude 34º 38' 32" North and Longitude 106º 46' 36" West in Valencia County, NM.

The Belen WWTP is an activated sludge facility. The main plant lift station consists of a wet well and four submersible pumps; each rated for 880 gallons per minute. Entrance works include a bar screen and Parshall Flume. All flow from the entrance works goes to the grit tank, where high specific gravity solids are dropped out of the raw wastewater influent in the grit chamber. Slurry from the grit chamber is taken to the grit classifier and de-watered. The grit solids are disposed of in a landfill. The wastewater flow from the grit chamber is split between the two aeration basins. However, either can handle the entire flow for maintenance if necessary. Flow from the aeration basins is divided between two secondary clarifiers. From the clarifier(s), all wastewater flow is treated with chlorine gas through the chlorine contact chamber, chlorine contact time is around 30-45 minutes and then is dechlorinated using sulfur dioxide. Water is then discharged via a rectangular weir into the Bosque Drain.

Sludge is drawn from the bottom of the secondary clarifiers and pumped to the sludge thickener unit. The sludge is decanted (thickened) in this unit prior to being pumped to the aerobic digesters. The supernatant from the sludge thickener is piped back to the influent wet well and re-introduced to the aeration basins. After digestion, sludge is taken to the sludge drying beds. Drainage from the beds is routed back to the wet well at the Main Plant Lift Station. After drying to approximately 50 percent total solids, the sludge is moved to a sludge composting pad for composting. The sludge is composted after drying without the use of amendment materials. After composting, the sludge is used as a soil conditioner on public and private property.

III. **RECEIVING STREAM STANDARDS**

The general and specific stream standards are provided in "NMWQS" (20.6.4 NMAC, approved by EPA effective, for Clean Water Act Purposes, April 10, 2025). The receiving Waterbody, Segment No. 20.6.4.105 NMAC, has designated uses of irrigation, marginal warm water aquatic life, livestock watering, public water supply, wildlife habitat, and primary contact. Based on previous NMED staff observations of the outfall location and an evaluation of readily available imagery, flow from the outfall would be toward the Bosque Drain, thence to the Segment 20.6.4.105 NMAC of the Rio Grande Basin.

IV. **WWTP EFFLUENT CHARACTERISTICS**

A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A are presented below:

Parameter	**Average**	**Maximum**
Flow, million gallons/day (MGD)	0.424	1.20
Temperature, winter (°C)	17.4	19.0
Temperature, summer (°C)	23.0	22.5
pH, minimum, (s.u.) / pH, maximum, (s.u.)	7.22	7.51
Nitrate/nitrite (as N) mg/L	19.0	20.0
Biochemical Oxygen Demand, 5-day (BOD_5) mg/L	2.26	2.29
E. Coli (cfu /100 mL)	5.67	7.0
Total Suspended Solids (TSS) mg/L	2.4	2.8
Ammonia (NH_3) mg/L	ND	ND
Chlorine, Total Residual (TRC) mg/L	ND	ND
Dissolved Oxygen mg/L	6.82	6.31
Total Kjeldahl Nitrogen (TKN) mg/L	10.05	10.3
Oil and grease mg/L	ND	ND
Phosphorus, Total mg/L	4.33	4.50
Total Dissolved Solids (TDS) mg/L	753	760
Hardness (as $CaCO_3$) mg/L	NA	180

Effluent characteristics continued:

Pollutant	**Maximum (ug/L)**	**Average (ug/L)**	**MDL/MQL (ug/L)**	**Pollutant**	**Maximum (ug/L)**	**Average (ug/L)**	**MDL/MQL (ug/L)**
Antimony, total recoverable*	1.0	0.00	1.0/60	Copper, total recoverable	1.3	0.90	1.0/0.5
Zinc, total recoverable	21	21.0	10/20	Chlorodibromomethane*	6.1	3.467	1.0/10
Chloroform*	16	5.333	1.0/50	Dichlorobromomethane	10	9.8	1.010
Acenaphthene*	0.04	0.013	0.5/10	Acenaphthylene	0.037	0.012	0.5/NA
Anthracene*	0.044	0.0272	0.5/10	Benzo(a)anthracene*	0.038	0.013	0.5/5
Benzo(a)pyrene*	0.0381	0.0127	0.5/5	Benzo(k)fluoranthene*	0.0396	0.0132	0.5/5
4-bromophenyl phenyl ether	0.0379	0.0126	0.5/NA	Butyl benzyl phthalate*	0.0367	0.0122	0.5/10
2-chloronaphthalene*	0.0372	0.0124	0.5/10	4-chlorophenyl phenyl ether	0.0439	0.0422	0.5/NA
Chrysene*	0.0419	0.0406	0.5/5	di-n-butyl phthalate*	0.0471	0.0428	0.5/10
di-n-octyl phthalate	0.0422	0.0422	0.5/NA	Dibenzo(a,h)anthracene*	0.052	0.0476	0.5/20
1,2-dichlorobenzene*	0.039	0.0349	1.0/10	1,3-dichlorobenzene*	0.033	0.0328	1.0/10
1,4-dichlorobenzene*	0.034	0.0322	1.0/10	3,3-dichlorobenzidine*	0.040	0.0372	0.5/5
Diethyl phthalate*	0.042	0.0414	0.5/10	Dimethyl phthalate*	0.041	0.0401	0.5/10
N-nitrosodi-n-propylamine*	0.0349	0.0116	0.5/20	N-nitrosodiphenylamine*	0.0393	0.0131	0.5/20
Phenanthrene	0.0389	0.0130	0.5/NA	Pyrene*	0.0397	0.0132	0.5/10
2,4,6-trichlorophenol*	0.040	0.013	0.5/10	* Concentrations below MQLs			

On January 17, 2024, a Compliance Evaluation Inspection (CEI) was conducted at the Belen WWTP by the Enforcement & Compliance Assurance Division of the Environmental Protection Agency, Region 6. The CEI report can be found on the EPA website (https://www.epa.gov/nm/enforcement-and-compliance-assurance-documents-new-mexico). This inspection was conducted to determine compliance with the NPDES permitting program according to the requirements of the federal CWA. In addition, as part of the drafting permit, the discharge monitoring reports (DMRs) were also reviewed from January 2020 to January 2025 to determine if any excursions of the NPDES permit limits have occurred since the current permit was issued. It appears from the reported sampling results for nitrate that the facility had misreported nitrate testing data and are questionable. In addition, several Dichlorobromomethane and E. coli sampling results have exceeded the permit limits.

V. **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 the EPA the authority to implement pollution control programs such as setting wastewater standards for industry and establishing 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 guide specific activities and may be used in this document as required.

The permit is proposed to be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). The previous permit expired on June 30, 2025. EPA received the NPDES application on February 20, 2025. The existing permit is administratively continued until this permit is reissued.

VI. **DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS**

1. 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 to meet the more stringent 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 draft permit for TSS and BOD_5. The draft permit for pH, E. coli bacteria, and TRC establishes water quality-based effluent limitations.

2. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

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 without guidelines, or on a combination of the two. Secondary treatment technology-based effluent limits for POTW, established at [40 CFR 133.102(a)] and [40 CFR 133.102(b)], are 30 mg/L for the 30-day average and 45 mg/L for the 7day average and 85% percent (minimum) for BOD5 and TSS each and a pH range of 6.0 - 9.0.

When determining mass limits for POTWs, the plant's design flow is used to establish the mass load. The following mathematical relationship determines mass limits:

Loading in lbs./day = pollutant concentration in mg/L * 8.34 conversion factor * design flow in MGD

30-Day Avg. BOD5 loading (lbs./day) = 30 mg/L * 8.345 lbs./gal * 1.2 MGD = 300.42 lbs./day
7-Day Avg. BOD5 loading (lbs./day) = 45 mg/L * 8.345 lbs./gal * 1.2 MGD = 450.63 lbs./day
30-Day Avg. TSS loading (lbs./day) = 30 mg/L * 8.345 lbs./gal * 1.2 MGD = 300.42lbs/day
7-Day Avg. TSS loading (lbs./day) = 45 mg/L * 8.345 lbs./gal * 1.2 MGD = 450.63lbs/day

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

Parameter	30-Day Average	7-Day Average	30-Day Average	7-Day Average
Flow	N/A	N/A	Measure MGD	Measure MGD
BOD_5	300.42 lbs./day	450.63 lbs./day	30 mg/L	45
TSS	300.42 lbs./day	450.63 lbs./day	30 mg/L	45
BOD and TSS removal	≥85%	N/A	N/A	N/A
pH	Within the limit of 6.0-9.0			

3. WATER QUALITY-BASED LIMITATIONS

a. General Comments

Water quality-based requirements are necessary where effluent limits are 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 follow 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.

b. 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 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.

c. State Water Quality Standards

As stated, the effluent from the site is discharged into the Bosque Drain, thence into the Rio Grande in water quality Segment No. 20.6.4.105 NMAC of the Middle Rio Grande Basin. Based on the NMWQS, 20.6.4 NMAC (as approved by EPA effective for Clean Water Act Purposes, April 10, 2025), the designated uses of the receiving water are irrigation, marginal warm water aquatic life, livestock watering, public water supply, wildlife habitat, and primary contact.

d. Permit Action - Water Quality-Based Limits

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. Regulations promulgated at [40 CFR 122.44(d)] require limits in addition to or more stringent than effluent limitation guidelines (technology-based). Under 20.6.4 NMAC, the permit must be developed to allow for the maintenance and attainment of acute numerical criteria at the point of discharge to the receiving stream and for the maintenance and attainment of chronic numerical criteria at the edge of the mixing zone.

Results of all dilutions and the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity will be documented in a full report according to the appropriate test method publication. The complete reports required by each test section do not need to be submitted unless requested. However, the full report is to be retained following the provisions of [40 CFR Part 122.41 (j) (2)]. The permit requires submitting the toxicity testing information to be included on the DMR.

1. pH

For water segment 20.6.4.105 NMAC, there is a specific WQS range for pH, so a pH range of 6.6 - 9.0 is established based on the water segment-specific criteria.

2. E. coli Bacteria

The E. coli bacteria limitations of 126 cfu/100 mL monthly geometric mean and 410 cfu/100 mL daily maximum are established at 20.6.4.105 NMAC for primary contact. These limitations shall be established in the draft permit, providing appropriate control for the contribution of bacteria to the stream.

3. Toxics

i. Reasonable Potential

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 RP to cause an in-stream excursion above a water quality criterion, the permit must contain an effluent limit for that pollutant. All applicable facilities must fill out appropriate sections of Forms 2A and 2S to apply for or reissue an NPDES permit. The new form is relevant not only to POTWs and to facilities that are like POTWs but also to those that do not meet the regulatory definition of POTW (like privately owned sanitary wastewater treatment facilities 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 the final Rule's publication on August 4, 1999, Volume 64, Number 149, pages 42433 through 42527 of the FRL.

The critical low flow (4Q3) for the discharge stream is 8.6114 cubic cfs, while the harmonic mean flow is 65.009 cfs, according to the USGS gage 08331510 - Rio Grande at State Hwy 346 Near Bosque, NM, as provided by the NMED.

Using the stream's geometric mean total suspended solids (TSS) of 322.028 mg/L and a geometric mean stream hardness of 143.429 mg/L, compared the detected effluent data against the EPA-approved New Mexico Water Quality Standards (NMWQS). The analysis indicates that the discharge does not have RP to cause or contribute to violations of the NMWQS. For reference, the RP screening spreadsheet is attached. However, during the development of the last draft permit, it was determined that the discharge had the potential to cause or contribute to violations of the NMWQS for nitrate (10 mg/L) and dichlorobromomethane (5.6 µg/L) related to the designated use of the stream for drinking water supply (DWS). Since other entities downstream may use the stream water for potable purposes, the numeric criteria outlined in 20.6.4 NMAC for these two pollutants were established as monitoring limits within the compliance schedule. As a result, the city was requested to create a detailed plan for testing nitrate and dichlorobromomethane levels.

ii. Total Residual Chlorine

The draft permit establishes water quality-based effluent limitations for TRC of 11 ug/L due to the wildlife habitat designation of stream.

iii. PFAS (Per- and Polyfluoroalkyl Substances)

As explained at https://www.epa.gov/pfas, PFAS are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products. PFAS manufacturing and processing facilities, facilities using PFAS in production of other products, airports, and military installations can be contributors of PFAS releases into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. Exposure to some PFAS above certain levels may increase risk of adverse health effects[1]. EPA is collecting information to evaluate the potential impacts that discharges of PFAS from wastewater treatment plants may have on downstream drinking water, recreational and aquatic life uses.

Although the New Mexico Water Quality Standards do not include numeric criteria for PFAS, the 2022 New Mexico Water Quality Standards narrative criterion supply guidance including:

20.6.4.7(E)(2) NMAC states: “Emerging contaminants” refer to water contaminants that may cause significant ecological or human health effects at low concentrations. Emerging contaminants are generally chemical compounds recognized as having deleterious effects at environmental concentrations whose negative impacts have not been fully quantified and may not have regulatory numeric criteria. 20.6.4.7(T)(2) NMAC states:

“Toxic pollutant” means those pollutants, or combination of pollutants, including disease-causing agents, that after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will cause death, shortened life spans, disease, adverse behavioral changes, reproductive or physiological impairment or physical deformations in such organisms or their offspring. Since PFAS chemicals are persistent in the environment and may lead to adverse human health and environmental effects, the draft permit requires that the facilities conduct influent, effluent, and biosolids sampling for PFAS according to the frequency outlined in the permit.

The purpose of this monitoring and reporting requirement is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of water quality-based effluent limits on a facility-specific basis. EPA is authorized to require this monitoring and reporting by CWA § 308(a), which states:

"SEC. 308. (a) Whenever required to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this Act; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 305, 311, 402, 404 (relating to State permit programs), 405, and 504 of this Act—

(A) the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require;".

EPA notes that there is currently not an analytical method approved in 40 CFR Part 136 for PFAS. As stated in 40 CFR § 122.44(i)(1)(iv)(B), in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring shall be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters. Therefore, the draft permit specifies that until there is an analytical method approved in 40 CFR Part 136 for PFAS, monitoring shall be conducted using Method 1633. The Adsorbable Organic Fluorine CWA wastewater method 1621 can be used in conjunction with Method 1633, if appropriate. This is consistent with the December 5, 2022, USEPA Memorandum, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs, from Radhika Fox[2].

In October 2021, EPA published a PFAS Strategic Roadmap [1] that described EPA's commitments to action for 2021 through 2024. This roadmap includes a commitment to issuing new guidance recommending PFAS monitoring in state-issued and federally issued NPDES permits using EPA's recently published analytical Method 1633. In anticipation of this guidance, EPA has included PFAS monitoring in the draft permit using analytical Method 1633[3].

[1] EPA, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan,* EPA 823R18004, February 2019. Available at: https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf.
[2] The memo is available at https://www.epa.gov/newsreleases/epa-issues-guidance-states-reduce-harmful-pfas-pollution.
[3] For more information on Method 1633, see https://www.epa.gov/cwa-methods/cwa-analytical-methods-and-polyfluorinated-alkyl-substances-pfas.

Region 6 Recommended Monitoring Frequencies

Facility Type [1,2]	**Measurement Frequency**
Minor (< 0.1 MGD)	Once/Term
Minor (0.1 ≤ 1.0 MGD) [2,3]	3/Term
Major (if NOT in an applicable category) [2]	Once/6 Months
Major (if IS in an applicable category) [2]	Quarterly
Major (with required pretreatment OR discharge is > 5 MGD)	Quarterly

Footnotes:
1. These recommended frequencies are only for facilities where an applicable ELG for PFAS does not apply. These frequencies may be altered if an industry category is known or suspected to discharge PFAS or based on the permit writer's BPJ.
2. More information on PFAS is available at https://www.epa.gov/pfas.
3. PFAS samples must be collected and analyzed in three separate calendar years

iv. Critical Conditions

CDs are used to establish certain permit limitations and conditions. The State of New Mexico WQS allows a mixing zone to establish pollutant limits in discharges. The mixing zones established by the State of New Mexico do not overlap with tribal/pueblo borders. The NMWQS and NMIP establish a critical low flow designated as 4Q3, as the minimum average four consecutive day flow that occurs with a frequency of once in three years. NMED provided a low flow, or 4Q3, of 8.6114 cfs. For permitting purposes of certain parameters such as WET, the critical dilution of the effluent to the receiving stream is determined. The critical dilution, CD, is calculated as:

CD = Qe / (F*Qa + Qe), where:
Qe = facility flow (1.2 MGD)
Qa = critical low flow of the receiving waters (8.6114 cfs = 5.5657 MGD)
F = fraction of stream allowed for mixing (1.0)
CD = 1.2 MGD / [(1.0) (5.5657 + 1.2] = 1.2 MGD / 6.7657 MGD = 0.1774 * 100 = 17.74% ≈ 18%

According to the NMIP, it is determined that a facility is to receive chronic biomonitoring requirements at a critical dilution of 10% or more.

4. 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)]. Monitoring frequencies in the current permit are retained: three times per week for pH, BOD_5, TSS, e. coli, nitrate, and dichlorobromomethane, and daily for TRC. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 unless other test procedures have been specified in this permit or approved by the Regional Administrator.

5. Whole Effluent Toxicity Limitations

In Section D.3.d.3) iii above, "Critical Conditions," it was shown that the CD for the facility is 18%. Based on the nature of the discharge, POTW, the design flow; greater than 1 MGD, the nature of the receiving water; perennial, and the CD; 18%, the NMIP directs the WET test to be a 7-day chronic test using Ceriodaphnia dubia and Pimephales promelas (fathead minnow) a once per quarter frequency. The Belen Drain has a 4Q3 of 5.5657 MGD; therefore, the critical dilution is 18%. The draft permit proposes the following tests with a dilution series of 8%, 10%, 14%, 18%, and 24% in addition to the control (0% effluent).

During the period beginning the effective date of the permit and lasting through the expiration date of the permit, the permittee is authorized to discharge from Outfall 001 - Belen Drain, a perennial stream, thence to the Rio Grande River in Segment 20.6.4.105 NMAC of the Middle Rio Grande Basin. Discharges shall be limited and monitored by the permittee as specified below:

WET Testing (7-day Static Renewal)[1,2,3]	Value	Frequency	Type
Ceriodaphnia dubia	Report	Once/Quarter	24-Hr. Composite
Pimephales promelas	Report	Once/Quarter	24-Hr. Composite

Footnotes:
1. Monitoring and reporting requirements begin on the effective date of this permit. They shall be performed during the first year of the permit. See Part II, Section E, Whole Effluent Toxicity Testing Requirements, for additional WET monitoring and reporting conditions.

2. Monitoring and reporting requirements begin on the effective date of this permit. See Part II of the permit for WET testing requirements and additional WET monitoring and reporting conditions. Grab samples are allowed per method, if needed.

VII. **FACILITY OPERATIONAL PRACTICES**

1. SEWAGE SLUDGE

The permittee shall use only those sewage sludge disposal or reuse practices that comply with the federal regulations established at [40 CFR Part 503] "Standards for the Use or Disposal of Sewage Sludge." The specific requirements in the permit apply due to the design flow of the facility, the type of waste discharged to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works.

2. WASTEWATER POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute programs directed toward pollution prevention. The permittee will institute programs to improve the operating efficiency and extend the useful life of the treatment system.

3. INDUSTRIAL WASTEWATER CONTRIBUTIONS

The treatment plant has no non-categorical Significant Industrial User's (SIU) and no Categorical Industrial User's (CIU). The EPA has tentatively determined that the permittee will not be required to develop a complete pretreatment program. However, general pretreatment provisions have been required.

4. OPERATION AND REPORTING

The applicant must continuously operate the treatment facility at maximum efficiency, regularly monitor the facility's discharge, and report the results quarterly. The monitoring results will be available to the public.

VIII. **303(d) LIST**

The current "2024-2026 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report" lists segment no. 20.6.4.105 NMAC, as category 5/5A, fully supports the designated use of irrigation, livestock watering, primary contact, and wildlife habitat. Public water supply designation use has not been assessed, and marginal warm water aquatic life designation use is not supported due to temperature. A TMDL is underway or scheduled. The AU remains in IR Category 5A until TMDLs for all pollutants have been completed and approved by USEPA.

Rio Grande WQS 20.6.4.105 NMAC from the confluence at the Rio Puerco to the Isleta Pueblo boundary was listed on the "2024-2026 State of New Mexico CWA §303(d)/§305(b) Integrated Report", requiring TMDLs for not supporting primary contact and marginal warm water aquatic life due to e. coli and temperature criterion violations. The segment-specific criteria for E. coli were incorporated as effluent limitations into the current permit. EPA approved the TMDL for the Middle Rio Grande Watershed on June 30, 2010, where the e. coli effluent limits and WLA for the Belen WWTP for e. coli were 26 cfu/100mL and $5.73x10^9$ cfu/day, respectively.

However, according to the Assessment Rationale for the 2018-2020 State of New Mexico §303(d)/ §305(b) Integrated List, Assessment Unit (AU):

NM-2105_40 (WQS: 20.6.4.105 NMAC) was sampled again as part of the Middle Rio Grande (2014) survey in 2016. There were 1/8 E. coli exceedance(s) at the Bernardo near HWY 60 and Belen (309 bridge) stations.

The maximum thermograph temperature was 32.90 C. Therefore, E. coli was removed, and temperature remains a cause of impairment. However, to protect downstream entities that may use stream water for portable purposes, the draft permit will retain e. coli effluent limits and WLA.

IX. **ANTIDEGRADATION**

The NMAC, Section 20.6.4.8 NMAC, "Antidegradation Policy and Implementation Plan," sets forth the requirements to protect designated uses by implementing the State water quality standards. The limitations and monitoring requirements outlined in the draft permit are developed based on state water quality standards and protect those designated uses. Furthermore, the policy intends to protect the existing quality of those waters whose quality exceeds their designated use. The permit requirements and limitations protect the assimilative capacity of the receiving waters, which is protective of the designated uses of that water, NMAC Section 20.6.4.8.A.2 NMAC.

X. **ANTIBACKSLIDING**

The draft permit is consistent with the requirements and exemption to meet Anti-backsliding provisions of the CWA, Section 402(o) and 40 CFR Part 122.44(i)(B), which state in part that interim or final effluent limitations must be as stringent as those in the current permit unless information is available which was not available at the time of permit issuance. The draft permit maintains the limitation requirements of the current permit for BOD_5, TSS, pH, TRC, and E. coli.

XI. **ENDANGERED SPECIES CONSIDERATIONS**

According to the most recent Valencia County listing available at the US Fish and Wildlife Service (USFWS) website, https://ecos.fws.gov/ecp/report/species-listings-by-current-range-county?fips=35061 on July 7, 2025, the following species are listed as endangered (E) or threatened species (T):

1. **Yellow-billed Cuckoo** (Coccyzus americanus) (T): Yellow-billed Cuckoo uses wooded habitat with dense cover and water nearby, including woodlands with low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. In the Midwest, look for cuckoos in shrublands of mixed willow and dogwood and in dense stands of small trees such as American elm. In the central and eastern U.S., Yellow-billed Cuckoos nest in oaks, beech, hawthorn, and ash. In the West, nests are often placed in willows along streams and rivers, with nearby cottonwoods serving as foraging sites.

2. **Pecos sunflower** (Helianthus paradoxus) (T): Pecos sunflower is an annual herbaceous plant. It grows 1-3 meters (m) (3.3 - 9.9 feet (ft)) tall and is branched at the top. It inhabits desert wetlands and grows in permanently saturated soils, such as desert wetlands (or Cienega) associated with springs and the margins of streams and lakes. Various factors threaten it, mainly the destruction or degradation of wetlands by filling; draining through diversion to provide water for livestock or irrigation; the construction of impoundments; the drying of its habitat through the depletion of local groundwater; excessive livestock grazing or mowing; the effects of local highway maintenance; and competition from non-native plant species (particularly salt cedar, Tamarix spp.).

3. **Monarch butterfly** (Danaus plexippus) (T): Monarch butterfly, known for its striking orange and black markings, is one of the most recognizable insects worldwide. In North America, monarchs are divided into two main migratory populations: the eastern population, which overwinters in central Mexico, and the western population, which primarily winters in coastal California. In the 1980s, over 4.5 million Western monarchs gathered in California. In comparison, an estimated 380 million eastern monarchs made the journey to Mexico in the mid-1990s, illustrating one of the longest insect migrations globally.

In New Mexico, monarchs are commonly found in river valleys and prairies at elevations below 8,000 feet, migrating through the state in spring and fall, with some populations overwintering in the south. Today, the eastern migratory population has declined by roughly 80%, and the western population has dropped by over 95%, leading to a greater than 99% chance of extinction for western monarchs by 2080. The extinction probability for eastern monarchs' ranges from 56% to 74%. Significant threats to monarchs include habitat loss, insecticide exposure, and climate change. While many efforts have been made to conserve the species, further habitat protection is needed to ensure their survival for future generations.

4. **Southwestern willow flycatcher** (Empidonax traillii extimus) (E): Southwestern Willow Flycatcher's habitat occurs in riparian areas along streams, rivers, and other wetlands where dense willow, cottonwood, buttonbush and arrow-weed are present. The primary reason for the decline is the reduction, degradation, and elimination of the riparian habitat. Other reasons include brood parasitism by the brown-headed cowbird and stochastic events like fire and floods that destroy fragmented populations.

5. **Rio Grande Silvery Minnow** (Hybognathus amarus) (E): Rio Grande Silvery Minnow is a small herbivorous North American fish. It is one of the seven North American members of the genus Hybognathus in the cyprinid family. It was once abundant throughout the Rio Grande and Pecos basins. However, now it is limited to just a few locations in the Rio Grande in New Mexico. Within North America, the Rio Grande silvery minnow inhabits the Rio Grande River. The Rio Grande silvery minnow currently occupies less than 10% of its historic range. It is now only found in the Rio Grande River from Cochiti Pueblo, downstream to the in-stream flow of Elephant Butte Reservoir. This species is now extinct in Texas.

The maximum size for the Rio Grande silvery minnow is 8.9 cm (3.5 in). They travel in schools. The abundance of the Rio Grande silvery minnow varies from season to season and year to year. If stream or river flows do not significantly increase during the spring, this species is less likely to spawn that year. Silvery minnows tend to skim the bottom of rivers and streams. These fish are herbivores whose diet consists of river plants and benthic macro-invertebrates. Silvery minnows prefer large streams with slow to moderate currents flowing over a mud or gravel substrate or shifting sand-silt substrate bottom. Silvery minnows typically occupy stream habitats where water depths are moderate 0.2 to 0.8 m (8 to 31.5 in.) and have velocities from 0 to 30 cm (0 to I ft./sec). These minnows are most found in nearly still water with debris cover during the winter. However, they are found in isolated pools during low flows, and water immediately reaches the downstream of diversion structures. They have also been found in irrigation ditches and canals.

6. **New Mexico meadow jumping mouse** (Zapus hudsonius luteus) (E): New Mexico meadow jumping mouse is a water-loving animal that lives only along the banks of southwestern streams. It is semi-aquatic, and its large back feet may assist it with swimming and jumping. Unlike other subspecies of meadow jumping mouse, it is never found in meadows or grasslands without suitable perennial water and riparian habitat. It is rarely seen more than a few feet (1.8 m) from running water.

These mice are naturally rare and scattered across isolated population centers. It is no wonder riparian areas make up less than 1 percent of the landmass in the Southwest. But these precious arteries of life are in decline, and the jumping mouse along with them. The mouse has been extirpated from 70 to 80 percent of its historic range, which extended from the San Juan Mountains in southwestern Colorado into the Rio Grande Valley in New Mexico and the White Mountains in Arizona. These days, they are found only in 5 isolated mountain ranges in Colorado, New Mexico, and Arizona, and in the Rio Grande Valley. In all historical locations surveyed since 2000, populations have undergone large declines and, in some cases, may have completely disappeared.
Overgrazing by livestock is the primary driver of this decline; even with low numbers of cows, cattle grazing destroys sensitive streamside habitat through loss of vegetation, alteration of the vegetative community by selective grazing of certain species, soil compaction, and general destruction from trampling. A mouse in a grazed habitat generally cannot collect enough food during its short active period to survive the winter.

During surveys in 2005 and 2006, every New Mexico meadow jumping mice population was found in areas inaccessible to livestock.

7. **Suckley's cuckoo bumble bee** (Bombus suckleyi) (E): Bombus suckleyi, or Suckley's cuckoo bumblebee, is named after biologist George Suckley. This species is known for its large, fuzzy appearance and goes through complete metamorphosis, including larvae, pupae, and adult stages.

Typically, black and yellow, female Suckley's cuckoo bumblebees do not collect pollen and lack pollen baskets, as they are nest parasites. They rely on habitats that provide nectar-producing flowers, host bumblebee nests for nesting, and rotting logs or mulch for overwintering. Suckley's cuckoo bumblebees inhabit diverse areas such as open spaces, farms, urban environments, forests, and meadows. However, their populations are declining due to habitat loss, pesticide use, and reductions in their host bumblebee populations.

8. **Mexican spotted owl** (Strix occidentalis lucida) (T): Mexican spotted owl nests, forages, roosts, and disperses in a wide variety of biotic communities:

• Mixed-conifer forests are commonly used throughout the range. They may include Douglas fir, white fir, southwestern white pine, limber pine, and ponderosa pine. The understory may consist of Gambel oak, maples, box elder, and/or New Mexico locust. The highest densities of Mexican spotted owls occur in mixed-conifer forests that have experienced minimal human disturbance.

• Madrean pine-oak forests are commonly used throughout the range and, in the southwestern U.S., are typically dominated by an overstory of Chihuahua and Apache pines, with species such as Douglas fir, ponderosa pine, and Arizona cypress. Evergreen oaks are generally prominent in the understory.

• Mexican utilizes rocky canyons and spotted owls in the northern part of their range, including far north Arizona and New Mexico, as well as southern Utah and Colorado.

Nesting habitat is typically in areas with complex forest structures or rocky canyons. It contains mature or old-growth stands which are uneven-aged, multistoried, and have high canopy closure. In the northern portion of the range (southern Utah and Colorado), most nests are in caves or on cliff ledges in steep-walled canyons. Elsewhere, most nests are in Douglas-fir trees (Pseudotsuga menziesii).

The patterns of habitat use by foraging owls are not well known. However, Mexican spotted owls generally forage in a broader array of habitats than they use for roosting, most commonly in Douglas fir. Ganey and Balda (1994) found that, in northern Arizona, owls generally foraged slightly more than expected in unlogged forests, and less so in selectively logged forests. However, habitat use patterns varied between study areas and individual birds, making generalization difficult.

By 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 determined that the reissuance of this permit will have “no effect” on listed threatened and endangered species, nor will it adversely modify designated critical habitat. EPA makes this determination based on the following:

1. On July 31, 2002, EPA provided a Biological Evaluation (BE) to the Fish and Wildlife Service (FWS) for a consultation (Cons. # 2-22-02-I-572) under Section 7 of the Endangered Species Act. EPA asked FWS to concur with the “no effect” determination for flycatcher.

In a September 16, 2002, letter, the EPA requested that an informal consultation for the proposed silvery minnow critical habitat be added to the consultation. EPA determined that the reissuance of the permit "may affect but is not likely to affect" the proposed silvery minnow critical habitat adversely.

In the letter dated October 11, 2002, the FWS concurred with the EPA that the permit reissuance was "not likely to adversely affect" the silvery minnow critical habitat and "no effect" for the flycatcher. EPA reviewed the compliance status and found that the facility had no failure in the Whole Effluent Toxicity (WET) test. EPA determined that the 2002 consultation baseline has not been changed and that this action has "no effect" on the listed species. EPA also concludes that reissuance of this permit will have "no effect" on other listed species and designated critical habitats.

2. There have been no changes in operation and treatment of discharge at the hatchery since prior permit issuance.

3. EPA has received no additional information since the previous permit issuance, which would lead to revision of its determinations. Also, the draft permit is consistent with the State's WQS and does not increase pollutant loadings.

4. The NPDES program regulates the discharge of pollutants from the treatment facility and does not regulate forest and agricultural management practices.

5. Based on items 1 through 4 above, EPA concludes that reissuance of this permit will have "no effect" on the listed species and designated critical habitat.

XII. **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.

XIII. **PERMIT REOPENER**

The permit may be reopened and modified if relevant portions of New Mexico's Water Quality Standards for Interstate and Intrastate Streams are revised or remanded by the New Mexico Water Quality Control Commission. In addition, the permit may be reopened and modified during its life if the NMED either revised or promulgated relevant procedures for implementing the WQS. The permit may also be reopened if the State adopts a state water quality standard, and/or develops or amends a TMDL to establish effluent limitations for the parameter(s) to be consistent with that approved State standard and/or water quality management plan, by [40 CFR 122.44(d)]. Modification of the permit is subject to the provisions of [40 CFR 124.5].

XIV. **VARIANCE REQUEST**: No variance requests have been received.

XV. **FINAL DETERMINATION**

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

XVI. **ADMINISTRATIVE RECORDS**

The following information was used to develop the draft permit:

1. APPLICATION(s)

EPA Application Form 2A and 2S received February 20, 2025.

2. 40 CFR CITATIONS

Citations to 40 CFR are as of April 24, 2025: Sections 122, 124, 125, 133, 136

3. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, as approved by EPA effective, for Clean Water Act Purposes, June 13, 2024

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

State of New Mexico CWA §303(d)/§305(b) Integrated List & Report, 2024-2026

EPA Approved TMDL for the Middle Rio Grande Watershed, June 30, 2010

XVII. **MISCELLANEOUS REFERENCES**

Email from Helen Nguyen, EPA, R6 on February 24, 2025, providing DMR data for the city of Belen.

Email from Mauricio Tarazona, Ph.D., NMED on April 21, 2025, providing the 4Q3 (calculated at USGS gage 08331510) and ambient data at 32RGrand421.4 station (above the WWTP).

Email sent to Susan LucasKamat, NMED on May 8, 2025, requesting review of draft permit. Email received from Jason Martinez, NMED on June 5, 2025, providing comments on the draft permit.