

NPDES PERMIT NO. NM0030457  
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

November 12, 2013

PERMIT ACTION

Proposed reissuance of the current permit issued with an effective date of September 1, 2008 and an expiration date of August 31, 2013.

RECEIVING WATER – BASIN

Rio Grande - Segment 20.6.4.101 of the Rio Grande Basin

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**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
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
F&WS	United States Fish and Wildlife Service
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
POTW	Publically owned treatment works
RP	Reasonable potential
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
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Service

WLA	Wasteload 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 July 17, 2008, with an effective date of September 1, 2008, and an expiration date of August 31, 2013, are:

- A. Add BOD and TSS percentage (%) removal limitations.

## II. APPLICANT LOCATION AND ACTIVITY

Under the Standard Industrial Classification (SIC) Code 4952, the applicant operates a municipal wastewater treatment plant with a design capacity of 0.20 million gallons per day (MGD) serving a population of approximately 1,000. The plant site is located at 2800 B.B. Roming Drive, Salem, in Dona Ana County, New Mexico. The effluent from the treatment plant is discharged into the Rio Grande in Segment 20.6.4.101 of the Rio Grande Basin. The discharge is on that water at Latitude 32° 41' 36" North, Longitude 107° 12' 30" West

The wastewater treatment process is as follows:

Influent wastewater comes into the treatment plant through a bar screen, a grit chamber and Parshall flume. Then, the raw wastewater flows through to one of two sequencing batch reactors (SBR) basins for biological treatment. The decanted flow passes to the equalization basin and then to UV disinfection unit. Sludge is extracted from the SBR basin to an aerobic digester for dewatering and thickening. Thickened sludge is pumped to sludge drying bed and is then disposed in an approved landfill.

## III. EFFLUENT CHARACTERISTICS

The EPA Permit Application Form 2A was received March 6, 2013. A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A is presented below:

Parameter	Max	Avg
	(mg/l unless noted)	
Flow, million gallons/day (MGD)	0.05	0.03
Temperature, winter	18.7°C	13.3°C
Temperature, summer	28.6°C	26.5°C
pH, minimum, standard units (su)	6.72	N/A
pH, maximum, standard units (su)	7.80	N/A
Fecal (#bacteria/100 ml)	60	4.03
Biochemical Oxygen Demand (BOD)	20.1	3.21

Total Suspended Solids (TSS)	11.9	4.76
Ammonia (NH <sub>3</sub> )	0.98	0.74
Chlorine, Total Residual (TRC)	0.0	0.0
Dissolved Oxygen (DO)	7.73	6.62
Total Kjeldahl Nitrogen (TKN)	8.0	8.0
Nitrate plus Nitrite Nitrogen	25.0	22.67
Oil & Grease	15.2	6.93
Phosphorus	0.05	0.05
Total Dissolved Solids (TDS)	1008	961

Because the facility's design flow is less than 1.0 MGD, the Expanded Effluent Testing Data (Part D of the application) are not required to be reported.

#### 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 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 current permit expires August 31, 2013. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a).

#### V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

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

Regulations contained in 40 CFR §122.44 requires that 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 described in subsection B and water quality-based effluent limitations are described in subsection C below.

##### B. 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 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, 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.

Effluent Limitations: The facility is a POTW treating sanitary wastewater. POTW's have 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 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, 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). 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 POTW's, the plant's design flow is used to establish the mass load. The Dona Ana County's Salem WWTP has a design flow of 0.2 MGD. Therefore, mass limitations are determined by the following mathematical relationship:

Loading in lbs/day = pollutant concentration in mg/l \* 8.345 lbs/gal \* design flow in MGD  
 TSS/BOD<sub>5</sub> loading (lbs/day) = 30 mg/l \* 8.345 lbs/gal \* 0.2 MGD = 50 lbs/day  
 TSS/BOD<sub>5</sub> loading (lbs/day) = 45 mg/l \* 8.345 lbs/gal \* 0.2 MGD = 75 lbs/day

Monitoring requirements for percent removal of BOD or TSS are proposed in accordance with 40 CFR Part 133 at a frequency of 1/month. As defined in 40 CFR §133.101, a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as

$$\{(30\text{-day Ave Conc})_{\text{inf}} - (30\text{-day Ave Conc})_{\text{eff}}\} \div (30\text{-day Ave Conc})_{\text{inf}} \times 100\%$$

Sludge Disposal: The digested sludge is pumped to drying beds for dewatering, and is then disposed of in an approved landfill.

The permittee shall use only those sewage sludge disposal or reuse practices that comply with the federal regulations established in 40 CFR Part 503 "Standards for the Use or Disposal of Sewage Sludge." The specific requirements in the permit apply as a result of the design flow of

the facility, the type of waste discharge to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works.

Pretreatment: The facility has no significant industrial users; therefore, EPA has determined that the permittee will not be required to develop a full pretreatment program. However, general provisions for contributing industries have been required.

## C. WATER QUALITY BASED LIMITATIONS

### 1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

### 2. Implementation

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

### 3. State Water Quality Standards

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC amended through June 5, 2013). The facility discharges into the Rio Grande in segment number 20.6.4.101 of the Rio Grande River Basin which has designated uses of irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

### 4. Permit Action - Water Quality-Based Limits

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

#### a. BACTERIA

E. coli standards for primary contact (20.6.4.900.D NMAC) are 126 cfu (or MPN) per 100 ml monthly geometric mean and 410 cfu (or MPN) per 100 ml daily maximum. These limitations are identical to the expired permit and are continued in the draft permit renewal.

## b. pH

The pH range, 6.6 to 9.0 su., for warmwater aquatic life (20.6.4.900.H NMAC) is more stringent than the technology-based limits, so WQ-based pH limitations are established in the permit.

## c. TOXICS

## i. General Comments

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

All applicable facilities are required to fill out appropriate sections of the Form 2A and 2S, to apply for an NPDES permit or reissuance of an NPDES permit. The new form is applicable not only to Publicly Owned Treatment Works (POTWs), but also to facilities that are similar to POTWs, but which do not meet the regulatory definition of “publicly owned treatment works” (like private domestics, or similar facilities on Federal property). The forms were designed and promulgated to “make it easier for permit applicants to provide the necessary information with their applications and minimize the need for additional follow-up requests from permitting authorities,” per the summary statement in the preamble to the Rule. These forms became effective December 1, 1999, after publication of the final rule on August 4, 1999, Volume 64, Number 149, pages 42433 through 42527 of the FRL.

The facility is designated a minor POTW for permitting purposes and does not need to supply the expanded pollutant testing list described in EPA Application Form 2A. Therefore, toxic pollutants are presumed not present in the effluent.

To determine if a pollutant has a reasonable potential (RP) to exceed a numeric criteria, the following steady state complete mixing zone model is used:

$$Cd = \{(FQa * Ca) + (Qe * 2.13 * Ce)\} / (FQa + Qe)$$

Where:

Cd = Instream waste concentration

F = Fraction of stream allowed for mixing, as applicable, F = 1.0

Ce = reported pollutant concentration

2.13 = Statistical multiplier, an estimate of the 95th percentile for either a single available effluent concentration, or a geometric mean of effluent data concentration

Ca = Ambient stream concentration, if available

Qe = Wastewater treatment design flow (municipal facilities)

Qa = Critical low flow, 4Q3, of receiving stream

= Harmonic long term human health flow

If the calculated Cd exceeds the applicable WQS, a RP exists. Then, a WQ-based effluent limitation will be established in the permit. Because, in this case, the effluent concentration, Ce, is zero, and the receiving stream is not impaired ( $C_a < C_s$ , WQS), the Instream Waste Concentration, Cd which equals  $C_a * (Q_a / (Q_a + Q_e))$ , will be always less than the Ca and WQS ( $C_d < C_a < C_s$ ).

#### d. Other Pollutants of Concern

The receiving stream, Rio Grande at segment 20.6.4.101, is not supporting for primary contact use with probable causes of impairment due to E. coli bacteria. The permit requires the facility to meet the published water quality standards for E. coli at the outfall, so the discharge will meet the requirements of 40 CFR §122.44(d). The standard reopener language in the permit allows additional permit conditions if a future TMDL is done.

### D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). Sample frequency is based on the NMIP. Based on the design flow of the facility, 0.2 MGD, the NMIP has 5/week monitoring frequency for pH and TRC, 2/month for BOD, TSS, and bacteria. Flow is proposed to be monitored daily by totalizing meter. E. coli bacteria and pH shall use grab samples. BOD and TSS shall use 3-Hr composite samples. TRC shall be sampled using instantaneous grab samples. Regulations at 40 CFR §136 define instantaneous grab as being analyzed within 15-minutes of collection. Monitoring frequency for BOD or TSS percent removal is 1/month. Because the facility does not use chlorine products for disinfection, monitoring of TRC is only required when chlorine products are used for any reason to the system.

### E. WHOLE EFFLUENT TOXICITY TESTS

The previous permit established chronic biomonitoring requirements for *Ceriodaphnia dubia* and *Pimephales promelas* at the critical dilution (CD) of 28%. Biomonitoring test results reveal test passing for both the *Ceriodaphnia dubia* and *Pimephales promelas* species during the last permit term. EPA concludes that this effluent does not cause or contribute to an exceedance of the State water quality standards. When EPA renewed the permit for the facility in 2008, the stream low 4Q3 flow of 0.784 cfs was used to calculate the CD. The updated 4Q3 flow is 0.79 cfs and therefore the same CD in the expired permit is retained for the WET test.

## VI. FACILITY OPERATIONAL PRACTICES

### A. SEWAGE SLUDGE

The sludge produced at the treatment plant is pumped to drying beds for dewatering before disposed at a landfill. Requirements for facilities treating domestic sewage include, but are not limited to, treatment technologies, sludge requirements, operation, reporting requirements and waste water pollution prevention requirements. The permittee shall use only those sewage sludge



disposal or reuse practices that comply with the federal regulations established in 40 CFR Part 503 "Standards for the Use or Disposal of Sewage Sludge." The specific requirements in the permit apply as a result of the design flow of the facility, the type of waste discharge to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works. Sludge testing information, that is required of handling or disposing of the sludge, will be retained on site for five years, as required in the record keeping requirements section of Part IV, in accordance with NPDES Permit No. NM0030457.

#### B. INDUSTRIAL WASTEWATER CONTRIBUTIONS

The facility does not receive industrial wastewater, so the treatment facility does not require a pretreatment program. However, a general contributing industries provision is still established in the permit.

#### C. OPERATION AND REPORTING

The applicant is required to operate the treatment facility at maximum efficiency at all times; to monitor the facility's discharge on a regular basis; and report the results quarterly.

#### D. RE-APPLICATION

In order to obtain a meaningful snapshot of pollutant testing for permit renewal purposes, this permit proposes that the testing for Tables A.12, B.6, and/or Part D of EPA Form 2A, or its equivalent if modified in the future, shall be conducted during the second, third and fourth years after the permit effective date. In addition, one yearly test must be during the warm summer months; defined as the period from June 1 through August 31, and another yearly test shall be sampled during cold weather; defined as the period from December 1 through February 28. The remaining yearly test may be taken during any time in that year. This testing shall coincide with any required WET testing event for that year, if applicable.

#### VII. 303(d) LIST

According to the "2012-2014 State of New Mexico 303(d) List for Assessed Stream and River Reaches," the Rio Grande, in WQS Segment No. 20.6.4.101, is not supporting for primary contact use. The probable cause is E. coli. Effluent limitations for E. coli are established based on the WQS for primary contact use at the discharge.

#### VIII. 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 waters, which is protective of the designated uses of that water, NMAC Section 20.6.4.8.A.2.

#### IX. 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)(i)(A), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation. No less stringent effluent limitations are proposed in this permit renewal.

#### X. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region website, [http://www.fws.gov/southwest/es/NewMexico/SBC\\_view.cfm](http://www.fws.gov/southwest/es/NewMexico/SBC_view.cfm), four endangered species are listed in Dona Ana County, and they are interior least tern, southwestern willow flycatcher, Rio Grande silvery minnow, and Sneed pincushion cactus.

EPA does not consider this permit renewal action will have any effects on the plant species, Sneed pincushion cactus, or on the Rio Grande silvery minnow which is determined extirpated in Dona Ana County. Evaluations of impacts to bird species are discussed below because those species may have potential to contact the receiving water.

**Interior least tern:** Interior least terns usually arrive on their breeding grounds in early to mid-May and begin to establish feeding and nesting territories. During the breeding season, the terns' home range is generally limited to a two-mile stretch of river associated with the nesting colony. Least terns nesting at sandpits along rivers use the adjoining river as well as the sandpit lake itself for foraging. Interior least terns consume small fish captured in the shallow water of rivers and lakes. In New Mexico, they breed regularly only at Bitter Lake, and they occur occasionally elsewhere along the Pecos River valley. Non-breeding, transient individuals have been observed at the Holloman Wetlands in Years 2002-2005. Human development and use of tern nesting beaches for housing and recreation subsequently lead to another rapid population decline. In the interior United States, river channelization, irrigation diversions and the construction of dams contributed to the destruction of much of the terns' sandbar nesting habitat. Quality of New Mexico breeding habitat is potentially variable due to changing water levels. Colonies may become vulnerable to disturbance and predation if water levels drop, and flows are required to maintain suitable nesting substrate.

**Southwestern willow flycatcher:** They build nests and lay eggs in late May or early June and fledge young in late June or early July. Typically, the southwestern willow flycatcher raises one brood per year. Breeding territory for the southwestern willow flycatcher extends from extreme southern Utah and Nevada, through Arizona, New Mexico, southern California, and west Texas to extreme northern Baja California and Sonora, Mexico.

In New Mexico, the State Game and Fish Department estimated fewer than 200 pairs remained in 1988. Surveys conducted in 1993-1995 found only about 100 pairs, with some 75% occurring in one local area.

Several factors have caused the decline in Southwestern willow flycatcher populations. Extensive areas of suitable riparian habitat have been lost due to river flow-regulation and channelization, agricultural and urban development, mining, road construction, and overgrazing. As a result of habitat fragmentation, cowbird parasitism has increased. The invasion of the exotic salt cedar has also altered the riparian ecosystem in the Southwest.

The sustained flow in the Rio Grande below Caballo reservoir is dependent on release from Caballo reservoir during the irrigation season; at other times of the year, there may be little or no flow, the reach of segment 20.6.4.101 may not provide proper habitat to least terns or flycatchers. Also, EPA has established effluent limitations, whenever applicable, to protect stream quality from being degraded by discharges. Furthermore, this permitting action does not authorize any action which may contribute to the destruction of potential habitats of those species. Therefore, EPA determines that this permit renewal action has no adverse effect to the least terns.

#### XI. 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.

#### XII. PERMIT REOPENER

The permit may be reopened and modified if new information which is not available to EPA prior to the final decision of the permit becomes available during the life of the permit. New information may include, but is not limited to, revised/new State Water Quality Standards, amended/new EPA approved TMDL, information/conditions obtained during government-to-government consultations, e.g., consultation pursuant to the ESA, and substantial changes of treatment process. Modification of the permit is subject to the provisions of 40 CFR §124.5.

#### XIII. VARIANCE REQUESTS

No variance requests have been received.

#### XIV. 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, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service prior to the publication of that notice.

#### XV. FINAL DETERMINATION

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

#### XVI. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

##### A. APPLICATION(S)

EPA Application Form 2A dated February 25, 2013, was received March 6, 2013.

##### B. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, as amended through 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, 2012 - 2014.