NPDES PERMIT NO. NM0023311
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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DATE PREPARED

March 19, 2015

PERMIT ACTION

Renewal of a permit previously issued on January 21, 2010 with an effective date of March 1, 2010 and an expiration date of February 28, 2015.

RECEIVING WATER – BASIN

Rio Grande River – Rio Grande Basin (Segment 20.6.4.101 NMAC)

DOCUMENT ABBREVIATIONS

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

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

I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued on January 21, 2010 with an effective date of March 1, 2010 and an expiration date of February 28, 2015, are as follow:

- Measurement frequency and sample type have been changed.
- Removal percentage for BOD and TSS has been established.
- WET limit has been established.
- TRC limit has been changed to 11 ug/l from 19 ug/l.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility (Latitude 32° 17' 35.2" N and Longitude 106° 49' 23.94" W) is located at 2851 West Amador, Las Cruces in Dona Ana County, New Mexico.

Under the SIC code 4952, the applicant operates Jacob Hands Memorial WWTF, which has a design flow of 13.5 MGD (current average flow of 7.5 MGD) providing sanitary services for approximately 104,731-population, including the same 5 significant industrial users in the previous application. The secondary treatment process mainly consists of equalization basin, primary clarifiers, roughing filters, aeration basins, secondary clarifiers and chlorine contact basin. Effluent is dechlorinated before discharging to a short unnamed ditch, thence to the Rio Grande River. Bio-solids are composed at a separate consolidation facility and processed to exceptional quality Class-A standard, then provided to users as a soil enhancer. Since the last permit term, the facility has added magnesium hydroxide for odor control in the treatment process. A facility location map is attached.

III. EFFLUENT CHARACTERISTICS

Data submitted in Form 2A is as follows:

Parameter	**Max**	**Avg**
	(mg/l unless noted)	
Flow (MGD)	9.9	8.1
pH, minimum, standard units (su)	6.2	N/A
pH, maximum, standard units (su)	7.1	N/A
Temperature (C), winter	15.2	19.2
Temperature (C), summer	29	27.8
Biochemical Oxygen Demand, 5-day (BOD_5)	50.5	7.2
Total Suspended Solids (TSS)	25.3	10.54
E. coli (MPN/100 ml)	2419.6	14.61
Ammonia (as N)	11.3	3.77
TRC	0.01	0
DO	7.78	7.58
Total Kjeldahl Nitrogen (TKN)	10	6.33
Nitrate + Nitrite Nitrogen	30.2	26.0
Oil & Grease	<5.0	<5.0
Phosphorus (Total)	3.0	2.65
TDS	740	7.16

Attached violation results from 2/1/11 to 2/1/15 obtained via ICIS database shows there were several exceedance of pH, many E. coli exceedances, two for TRC and several violations for WET testing.

IV. REGULATORY AUTHORITY/PERMIT ACTION

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

The application was dated August 21, 2014. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a).

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

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

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

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

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. General Comments

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

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

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

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

2. Effluent Limitation Guidelines

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

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

Loading in lbs/day = pollutant concentration in mg/l * 8.345 (lbs)(l)/(mg)(MG) * design flow in MGD

30-day average BOD/TSS loading = 30 mg/l * 8.345 (lbs)(l)/(mg)(MG) * 13.5 MGD = 3,379 lbs/day
7-day average BOD/TSS loading = 45 mg/l * 8.345 (lbs)(l)/(mg)(MG) * 13.5 MGD = 5,069 lbs/day

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

Effluent Characteristic	**Discharge Limitation**			
	lbs/day, unless noted		mg/l, unless noted	
Parameter	30-day Avg	7-day Max	30-day Avg	7-day Max
BOD	3379	5069	30	45
BOD, % removal[1]	≥ 85	---	---	---
TSS	3379	5069	30	45
TSS, % removal	≥ 85	---	---	---
pH	N/A	N/A	6.0 to 9.0 s.u.	

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

3. Pretreatment Regulation

The facility has five non-categorical significant industrial users (SIUs), which is subject to the local limits. The permittee is required to develop/revise and implement a full pretreatment program pursuant to 40 CFR 403.8.

C. WATER QUALITY BASED LIMITATIONS

1. General Comments

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

2. Implementation

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

3. State Water Quality Standards

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC approved on June 5, 2013). The discharge is to Rio Grande River Basin (20.6.4.101 NMAC). The designated uses of the receiving water are 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. pH

For marginal warmwater aquatic life and primary contact, criteria for pH is between 6.6 and 9.0 s.u. pursuant to 20.6.4.900.D and H(6) NMAC.

b. Bacteria

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

c. TRC

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

d. Toxics

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

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

The 4Q3 of 1.06 cfs and harmonic mean flow of 1.19 cfs provided by NMED on February 26, 2015 were from 2008 to 2012 at Elephant Butte Irrigation District (EBID) Flow Station: Rio Grande below Picacho near Las Cruces. USGS data from 2010 to present show similar values at the hydrologic unit 13030102. NMED also provides other ambient data of the receiving water shown in the attached Appendix A. For applicable pollutants with numerical standards in 20.6.4.900.J, submitted analyses (in form 2A and additional data on March 16, 2015) detected above the MQLs are Aluminum, Nickel, Zinc, and Bis (2-ethylhexyl) Phthalate. A geometric mean value of Bis (2-ethylhexyl) Phthalate is calculated from the submitted data as follows:

Values in Form 2A, ug/L	Additional data submitted on 3/16/15), ug/L	MQL/ML/MDL, ug/L	Calculated geometric mean, ug/L
18.4, 10.7, 11.2	< 10 for all 3 samples (value of 5 is used for all 3 samples)*	10	8.06 from data set [18.4, 10.7, 11.2, 5, 5, 5]

*Half value of the MDL/ML is used per NMIP for this case.

Total recoverable Nickel and Zinc are converted into dissolved values because the WQS criteria are based on analysis of the dissolved metals. The reasonable potential (RP) calculation is used to determine if a limit is needed. With the input data, there is no RP exist in Appendix A; EPA establishes no toxic pollutant limit in the draft permit.

e. DO

For marginal warmwater aquatic life, the criteria for DO is at least 5 mg/l pursuant to 20.6.4.900.H(6) NMAC. EPA uses LA-QUAL version 9.30 to model DO along the receiving stream; some of the factors used are 4Q3 and BOD_5 (30 mg/l for monthly average, 45 mg/l for 7-day maxima). It shows DO level stays above 5 mg/l along this 8.3 mile long stream (See attached graph; other detail information is available upon request). At this time, the proposed BOD_5 limits are protective of the DO for this water segment.

D. MONITORING FREQUENCY FOR PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR

§122.44(i)(1). EPA established the monitoring frequency based on Table 9 (page 34 of the NMIP) for design flow > 10 MGD and history compliance.

Parameter	Frequency	Sample Type
Flow	Daily	Totalized Meter
pH	Daily	Instantaneous Grab*
BOD_5/TSS	Daily	12-hr Composite
% Removal	1/week	Calculation
TRC	Daily	Instantaneous Grab*
E. coli Bacteria	Daily	Grab

*Sample must be analyzed within 15 minutes after collected.

E. WHOLE EFFLUENT TOXICITY

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. Table 11 (page 42) of the NMIP outlines the type of WET testing for different types of discharges. The receiving water (Rio Grande River), a perennial stream currently has the 4Q3 of 1.06 cfs (0.685 MGD). With the facility design flow rate of 13.5 MGD and mixing fraction of 100%, a CD is calculated about 95%. Submitted WET data show RPs exist for both vertebrate and invertebrate species at the CD (see attached Reasonable Potential Analyzer); therefore, limit at 95% is established in the draft permit.

The proposed permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests based on a 0.75 dilution series. These additional effluent concentrations must be 30%, 40%, 53%, 71%, and 95%. The low-flow effluent concentration (critical low-flow dilution) is defined as 95% effluent. The permittee shall limit and monitor discharge(s) as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
WET Testing (7-day Chronic Renewal)[1]	30-day Avg Min.	7-day Min.	Frequency[2]	Type
Ceriodaphnia dubia	95%[2]	95%[2]	Once/Quarter	24-hr Composite
Pimephales promelas	95%[2]	95%[2]	Once/Quarter	24-hr Composite

[1] Monitoring and reporting requirements begin on the effective date of this permit. See Part II of the permit, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.
[2] Effective after WET limits go into compliance, 3 years from the permit effective date. This permit does not establish requirements to automatically increase the WET testing frequency after a test failure, or to begin a toxicity reduction evaluation (TRE) in the event of multiple failures. However, upon failure of any WET test, the permittee must report the results to EPA and NMED, Surface Water Quality Bureau, in writing, within 5 business days of notification of the test failure. EPA and NMED will review the test results and determine the appropriate action necessary, if any.

VI. TMDL REQUIREMENTS

The receiving water segment, Rio Grande (NM192 bridge W of Mesquite to Picacho Bridge), was originally categorized under Rio Grande (Anthony Bridge to Picacho Bridge). In 2006, this "old" assessment unit was listed in New Mexico's 303(d) list of impaired waters because its primary contact designated use was not being supported due to excessive E. coli bacteria. An E. coli TMDL for the impaired reach was completed and approved in 2007. However, during the planning phase of the 2011 water quality survey, the "old" assessment unit was split to better capture the influences of changing hydrology, land uses, and pollutant sources. As a result, data from the "new" assessment unit (NM192 Bridge W of Mesquite to Picacho Bridge) was reassessed and E. coli was removed as a cause of impairment for this stream reach in 2014. Regardless of the 2014 assessment and full support determination, limits for E. coli in the previous permit are retained in this permit draft to protect in-stream (previously impaired) and downstream water quality ("Anthony Bridge to NM 192 bridge W of Mesquite" is still impaired due to E. coli). The permit has a standard reopener clause that would allow

the permit to be changed if at a later date additional requirements on new or revised TMDLs are completed.

VII. ANTIDEGRADATION

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

VIII. ENDANGERED SPECIES CONSIDERATIONS

According to the list updated on January 27, 2015 for Dona Ana County, NM obtained from http://ecos.fws.gov, there are 2 endangered (E) and 1 threatened (T) species: Least tern (E), Sneed pincushion cactus (E) and Yellow-billed Cuckoo (T). The two endangered species were listed in the previous permit with determination of "no effect".

The threatened species has been added since previous permit. It was published on November 12, 2014 at 79 FR 67154-67155; public comment was ended on January 12, 2015. No recovery plan or recovery plan action status is available; at this time EPA is not able to determine whether or not this permit action will have effect on this proposed threatened species. The permit may be reopened and modified during the life of the permit if a determination of this permit action will cause effect on this species.

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 determined that the reissuance of this permit will have "no effect" on listed endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.

2. The draft permit is consistent with the States WQS and does not increase pollutant loadings.

3. EPA determines that Items 1, thru 2 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.

IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

Process improvements have been made within the facility during the previous permit term. The reissuance of the permit should have no impact on historical and/or archeological sites since no expansion of construction activities are planned in the reissuance.

X. PERMIT REOPENER

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

XI. VARIANCE REQUESTS

None

XII. CERTIFICATION

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

XIII. FINAL DETERMINATION

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

XIV. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Forms 2A dated on August 21, 2014 and 2S dated February 13, 2015. Additional data provided on February 13, 2015.

B. 40 CFR CITATIONS

Sections 122, 124, 125, 133, 136

C. STATE OF NEW MEXICO REFERENCES

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

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

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

TMDL For the Main Stem of The Lower Rio Grande dated June 11, 2007

D. MISCELLANEOUS

Permittee's email dated 2/13/15, 3/16/15