NPDES PERMIT NO. NM0029351
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

May 15, 2017

PERMIT ACTION

Proposed reissuance of the current NPDES permit issued September 27, 2011, with an effective date of November 1, 2011, and an expiration date of October 31, 2016.

RECEIVING WATER – BASIN

Rio Grande – 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	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 litter (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
UV	Ultraviolet light
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

As used in this document, references to State shall mean either State of New Mexico and/Santa Clara Pueblo.

I. CHANGES FROM THE PREVIOUS PERMIT

There are changes from the permit previously issued September 27, 2011, with an effective date of November 1, 2011, and an expiration date of October 31, 2016:

1. The WET monitoring frequency for test species *Daphnia pulex* and *Pimephales promelas* is set at quarterly, with a frequency reduction option;
2. Minimum Quantification Level and Sufficiently Sensitive Methods requirements have been added; and,
3. DMRs electronic reporting requirements have been added.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility is located at 308 Lower San Pedro Rd, Espanola, Rio Arriba County, New Mexico. Under the Standard Industrial Classification Code 4952, the applicant operates a POTW with a design flow of 2.0 MGD serving a population base of 10,000 people. Influent wastewater comes into the treatment plant at the entrance works, passing through mechanical bar screens and an aerated grit tank where the grit slurry is sent to a cyclone for grit removal. Wastewater from the aerated grit tank is sent from a splitter box via influent lift pumps to one of two separate clarifier/aeration basins. One set is the original aeration basin/clarifier designated as north/south and the second set is the newer systems designated east/west system. Treated effluent flow from both systems combine and are sent to the ultraviolet bacteria control building, metered and discharged through Outfall 001 to the Rio Grande.

All four clarifiers; north/south and east/west, introduce the return activated sludge (RAS) to the front of each aeration basin where it combines with the flow from the primary clarifiers. Waste activated sludge (WAS) and scum are removed and sent to the thickening centrifuges. Sludge is extracted from and sent to thickening/ dewatering centrifuges. Combined digested sludge from both systems is sent to the drying beds.

The discharge from Outfall 001 is to the Rio Grande. The facility is within State of New Mexico land but the discharge into the Rio Grande is within the boundary of the Santa Clara Pueblo. The discharge from Outfall 001 is located on the Rio Grande at Latitude 35° 59' 55" North, Longitude 106° 04' 38" West.

III. EFFLUENT CHARACTERISTICS

A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A and addendum received November 07, 2016 and April 25, 2017, respectively, are presented below:

POLLUTANT TABLE - 1

Parameter	Max	Avg
	(mg/l unless noted)	
Flow, MGD	2.00	0.67
Temperature, winter	11.0° C	12.0° C
Temperature, summer	25.0° C	23.0° C
pH, minimum, standard units (su)	6.6	---
pH, maximum, standard units (su)	8.8	---
$CBOD_5$	40	25
TSS	45	30
Ammonia (NH_3)	2.2	1
TRC	3	.1
DO	--	5.2
Total Kjeldahl Nitrogen (TKN)	--	.4
Nitrate plus Nitrite Nitrogen	--	8.4
Oil & Grease	0	0
Phosphorus	--	4.1
TDS	45	30

The facility has to sample and report all the priority pollutants identified in Part D, Expanded Effluent Testing Data of Form 2A. From that list, the following pollutants were either tested above MQLs or were tested at levels above EPA MQL and reported as being non detect. When a pollutant was tested at a detection level that was greater than the EPA MQL then for screening purposes that pollutant was assumed to have a concentration at that detection level.

POLLUTANT TABLE – 2 – Expanded Pollutant List

Parameter (Pollutants Greater than MQL)	Max	Avg
	(ug/l unless noted)	
Arsenic	5.6	4.57
Lead	6.0	2.0
Nickel	5.8	1.93
Zinc	46	38.37
Beryllium	1	1
Copper	10	10
Mercury	0.0055	0.0055
Selenium	2.2	2.2
Silver	2	2
Thallium	10	10

A summary of the last 36 months of available pollutant data (i.e., January 2013 through January 2016) taken from DMRs indicates no exceedances of permit limits for DO, pH, TSS, ammonia, TRC, E. coli and CBOD.

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.

It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). The previous permit has an expiration date of October 31, 2016. The application was received on November 7, 2016. The facility, also, submitted an addendum on April 25, 2017. The permit is administratively continued until this draft permit is issued.

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 require 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 established in the proposed draft permit for TSS, $CBOD_5$ and percent removal for each. Water quality-based effluent limitations are established in the proposed draft permit for ammonia, E. coli bacteria, DO, TRC and pH.

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, fecal coliform, 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.

The facility is a POTW's that has technology-based ELG's established at 40 CFR Part 133, Secondary Treatment Regulation. Pollutants with ELG's established in this Chapter are $CBOD_5$, TSS, percent removal for each and pH. $CBOD_5$ limits of 25 mg/l for the 30-day average, 40 mg/l for the 7-day average and 85% percent (minimum) removal are found at 40 CFR §133.102(a). TSS limits of 30 mg/l for the 30-day average, 45 mg/l for the 7-day 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). 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. Mass limits are determined by the following mathematical relationship:

Loading in lbs/day = pollutant concentration in mg/l * 8.345 lbs/gal * design flow in MGD
30-day average $CBOD_5$ loading = 25 mg/l * 8.345 lbs/gal * 2 MGD
30-day average $CBOD_5$ loading = 417 lbs

30-day average TSS loading = 30 mg/l * 8.345 lbs/gal * 2 MGD
30-day average TSS loading = 500 lbs

7-day average $CBOD_5$ loading = 40 mg/l * 8.345 lbs/gal * 2 MGD
7-day average $CBOD_5$ loading = 667 lbs

7-day average TSS loading = 45 mg/l * 8.345 lbs/gal * 2 MGD
7-day average TSS loading = 751 lbs

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

Final Effluent Limits – 2.0 MGD design flow.

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			
	lbs/Day		mg/l (unless noted)	
Parameter	30-Day Avg.	7-Day Avg.	30-Day Avg.	7-Day Avg.
Flow	N/A	N/A	Measure MGD	Measure MGD
$CBOD_5$	417	667	25	40
$CBOD_5$, % removal	---	---	≥ 85% (*1)	---
TSS	500	751	30	45
TSS, % removal	---	---	≥ 85% (*1)	---
pH	N/A	N/A	6.0 – 9.0 standard units	

Footnotes:
*1 Percent removal is calculated using the following equation: (average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration.

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. Tribal Water Quality Standards

The facility lies on State of New Mexico land but the discharge is into the Rio Grande starting within the boundaries of the Pueblo of Santa Clara. After flowing for approximately 5 miles in Santa Clara waters, the discharge reaches the Pueblo of San Ildefonso, where after approximately 6.5 further miles within San Ildefonso waters the discharge reaches State of New Mexico waters in Segment No. 20.6.4.114 of the Rio Grande.

The general and specific stream standards are provided in the "Water Quality Code of the Pueblo of Santa Clara" (PSCWQC), revised November 5, 2002, and approved by the EPA April 7, 2006. The designated uses of the receiving waters, the Rio Grande, are: marginal coldwater fishery, livestock and wildlife, primary contact, warmwater fishery, groundwater recharge and irrigation.

The Pueblo of San Ildefonso does not currently have EPA approved water quality standards. In the absence of approved water quality standards, compliance with PSCWQC standards is expected to also be protective of Pueblo of San Ildefonso waters.

The State of New Mexico has designated the following uses for Stream Segment No. 20.6.4.114, the Rio Grande: marginal coldwater aquatic life, livestock watering, wildlife habitat, warmwater aquatic life, irrigation, primary contact, and public water supply on the main stem of the Rio Grande.

In accordance with the PSCWQC, the permit must be developed to allow the maintenance and attainment of livestock and wildlife, groundwater recharge and primary contact. EPA also has considered the downstream effects of the discharge on the State of New Mexico designated uses for the Rio Grande in Waterbody Segment Code No. 20.6.4.114 of the Rio Grande Basin: marginal coldwater aquatic life, livestock watering, wildlife habitat, primary contact, warmwater aquatic life, irrigation and public water supply on the main stem of the Rio Grande.

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

The E. coli limits (i.e. monthly geometric mean of 126 colonies/100 ml, and a single sample maximum of 235 colonies/100 ml) in the previous permit will be continued in the draft permit. The E. coli monitoring frequency requirement in the previous permit also remains in the draft permit.

b. Dissolved Oxygen

A steady state model (LA-QUAL) was used to evaluate the biochemical oxygen demand of the discharge. A complete characterization of the receiving water was not available. The evaluation demonstrated that the discharge would not cause an excursion of the in-stream standard of 5 mg/L (refer to Appendix 1).

c. pH

The pH limits (i.e., 6.6 to 8.8 su's for any single sample) in the previous permit will be continued in the draft permit.

d. 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 criterion, the permit must contain an effluent limit for that pollutant.

All applicable facilities are required to fill out appropriate sections of the Form 2A, 2S or 2E, to apply for an NPDES permit or reissuance of an NPDES permit. The new form is applicable not

only to POTWs, but also to facilities that are similar to POTWs, but which do not meet the regulatory definition of "publicly owned treatment works" (like private domestics, or similar facilities on Federal property). The forms were designed and promulgated to "make it easier for permit applicants to provide the necessary information with their applications and minimize the need for additional follow-up requests from permitting authorities," per the summary statement in the preamble to the Rule. These forms became effective December 1, 1999, after publication of the final rule on August 4, 1999, Volume 64, Number 149, pages 42433 through 42527 of the FRL. The facility is designated as a major and tested all the pollutants on the expanded pollutant list on Form 2A. Arsenic, Lead, Nickel, Zinc, Beryllium, Copper, Mercury, Selenium, Silver, and Thallium were found to be above minimum MQL or tested at levels above EPA MQL and reported as being non detect. These pollutants will be evaluated for RP to cause or contribute to WQS exceedances.

Effluent limitations and/or conditions established in the draft permit are in compliance with Pueblo of Santa Clara Water Quality Code. Data from the following sources are used to calculate initial dilution, in-stream waste concentrations, and effluent limitations:

There is a USGS Station (USGS08313000) in Rio Grande at Otowi Bridge near San Ildefonso Pueblo. The station, which is approximately 9.5 miles downstream of the facility, has over 100 years of data, 1895 to present. The low flow or 4Q3 (period of record beginning in 1919) is 292 cubic feet per second (188.63 MGD). Since the USGS Station is downstream of the facility, the low flow will be adjusted by subtracting the facilities long term average flow, 0.66 MGD (1.02 cfs) resulting in an adjusted low flow of 290.98 cfs (187.97MGD). Long term harmonic mean low flow used for human health calculations is 762 cubic feet per second (492.25 MGD).

CD is calculated as follows:

$$CD = Qe / [Qe + Qa]$$

Where:
Qa = 187.97 MGD
Qe = 2 MGD

$$CD = 2 / [2 + 187.97]$$
$$CD = 0.01 \text{ or } 1.0\%$$

Based on the low critical dilution, it is the professional judgment of the permit drafter that there will be no impact on the State of New Mexico portion of the Rio Grande, 11.5 miles below the point of discharge. State of New Mexico WQS will not be further evaluated for impacts due to toxics.

In the absence of specific implementation procedures, EPA has made the following interpretation of the PSCWQC allowance of a mixing zone in determining compliance with PSCWQC standards. Part H of Section III of the PSCWQC allows a mixing zone no greater than 1/3 of the cross sectional area at or above 4Q3 conditions of the receiving stream. EPA interprets this to mean that chronic toxicity shall be based on 1/3 of the 4Q3, acute toxicity shall be at end-of-pipe

(no dilution) and for human health considerations, 1/3 of the harmonic 4Q3 (long term average) shall be used for ingestion of fish.

The following steady state complete mixing zone model:

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

Where:

Cd = Instream waste concentration
Ce = Reported pollutant concentration
Ca = Ambient stream concentration, if available
Qe = Wastewater treatment design flow in MGD (municipal facilities), 2.0 MGD
F = Fraction of stream allowed for mixing, as applicable.
= 0.333 for chronic aquatic life and human health criteria
= 1.00 for all others
Qa = Critical low flow of receiving stream, 4Q3 (187.97 MGD)
= Long term harmonic low flow (492.25MGD)
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, as discussed in the EPA Region 6 document titled Effluent Variability Policy, dated September 17, 1991, or the most current revision thereof.

For acute aquatic life screening, criteria apply end-of-pipe, with no dilution, so Cd = Ce * 2.13

For chronic aquatic life screening:

$$Cd = \{(FQa * Ca) + (Qe * Ce)\} / (FQa + Qe)$$
$$Cd = \{(0.333 * 187.97 * 0) + (2.0 * Ce * 2.13)\} / \{(0.333 * 187.97) + 2.0\}$$
$$Cd = 0.0659 * Ce$$

For irrigation, ground-water recharge, domestic, municipal and industrial water supply and livestock and wildlife screening:

$$Cd = \{(FQa * Ca) + (Qe * Ce * 2.13)\} / (FQa + Qe)$$
$$Cd = \{(1.0 * 187.97 * 0) + (2.0 * Ce * 2.13)\} / \{(1.0 * 187.97) + 2.0\}$$
$$Cd = 0.02242 * Ce$$

For human health screening:

$$Cd = \{(FQa * Ca) + (Qe * Ce * 2.13)\} / (FQa + Qe)$$
$$Cd = \{(0.333 * 492.25 * 0) + (2.0 * Ce * 2.13)\} / \{(0.333 * 492.25) + 2.0\}$$
$$Cd = 0.02568 * Ce$$

PSCWQC presents some acute and chronic toxicity standards as a function of hardness. Hardness for the receiving waters was previously reported as 100 mg/l. The following are the mathematical hardness dependent standards, and the resulting standard:

PSCWQC Acute standards are defined as:

Zinc	= e(0.8473[ln (hardness)] + 0.8618)	= 114.61 ug/l
Nickel	= e(0.846[ln (hardness)] + 2.253)	= 467.3 ug/l
Lead	= e(1.273[ln (hardness)] - 1.46)	= 64.58 ug/l
Copper	= e(0.9422[ln (hardness)] - 1.7408)	= 12.90 ug/l
Silver	= e(1.72[ln (hardness)] – 6.6825)	= 2.93 ug/l

PSCWQC Chronic standards are defined as:

Zinc	= e(0.8473[ln(hardness)] + 0.8699)	= 116.48 ug/l
Nickel	= e(0.846[ln (hardness)] + 0.554)	= 51.85 ug/l
Copper	= e(0.8545[ln(hardness)] - 1.7428)	= 8.60 ug/l
Lead	= e(1.273[ln (hardness)] – 4.705)	= 2.52 ug/l

Some of the metals in the PSCWQC are based on dissolved concentrations and mean hardness values. The following formulae convert metals reported in total form to dissolved form if criteria are in dissolved form.

LINEAR PARTITION COEFFICIENTS FOR PRIORITY METALS IN STREAMS AND LAKES \1

METAL	STREAMS		LAKES	
	Kpo	a	Kpo	a
Arsenic	0.48×10^6	-0.73	0.48×10^6	-0.73
Copper	1.04×10^6	-0.74	2.85×10^6	-0.9
Lead	2.80×10^6	-0.8	2.04×10^6	-0.53
Nickel	0.49×10^6	-0.57	2.21×10^6	-0.76
Silver	2.39×10^6	-1.03	2.39×10^6	-1.03
Zinc	1.25×10^6	-0.7	3.34×10^6	-0.68

Footnotes:

\1 Delos, C. G., W. L. Richardson, J. V. DePinto, R. B., Ambrose, P. W. Rogers, K. Rygwelski, J. P. St. John, W. J. Shaughnessey, T. A. Faha, W. N. Christie. Technical Guidance for Performing Waste Load Allocations, Book II: Streams and Rivers. Chapter 3:Toxic Substances, for the U. S. Environmental Protection Agency.(EPA 440/4 84 022).

\2 Linear partition coefficient shall not apply to the Chromium VI numerical criterion. The approved analytical method for Chromium VI measures only the dissolved form. Therefore, permit limits for Chromium VI shall be expressed in the dissolved form. See 40 CFR 122.45(c)(3).

\3 PSCWQC only lists mercury in total and not dissolved form, no partition coefficient is needed.

\4 Contains revised values for stream applications in accordance with an EPA memo dated March 3, 1992, page 18; from Margaret J. Stasikowski (WH 586) to Water management Division Directors, Region I IX.

\5 Texas Environmental Advisory Council, 1994

Evaluating dissolved values in streams only, the following relationships are used:

Kp = Linear Partition Coefficient

$Kp = Kpo \times TSS^a$

TSS = Total suspended solids concentration found in receiving stream, or in the effluent for intermittent stream. Previously reported as 140 mg/l.
a = found from table
Total Metal Criteria (Ct) = Cr / (C/Ct)
C/Ct = Fraction of Metal Dissolved
C/Ct = $1/(1+ (Kp \times TSS \times 10^{-6}))$
Cr = Dissolved criteria value, the value used in acute and chronic screening

DISSOLVED EFFLUENT CONCENTRATION IN STREAMS

METAL	Total Pollutant Value (ug/L)	Kpo	Alpha (a)	Kp	C/Ct	Dissolved Value in Streams, Cr, ug/L
Arsenic	5.6	0.48×10^6	-0.73	13018.7	0.354	1.984
Copper	10	1.04×10^6	-0.74	26847.17	0.21	2.101
Lead	6	2.80×10^6	-0.8	53734.8	0.117	0.704
Nickel	5.8	0.49×10^6	-0.57	29302..39	0.196	1.137
Silver	2	2.39×10^6	-1.03	14719.26	0.327	0.653
Zinc	46	1.25×10^6	-0.7	39320.62	0.154	7.072

ACUTE TOXICITY SCREENING (Not dependent on facility flow)

Pollutant	Pollutant Ce or Cr, ug/l	Cd ug/l	Acute Aquatic Criteria, ug/l	Does RP exist?
Arsenic/1	1.984	4.23	340	No
Copper/1	2.101	4.48	12.90	No
Lead/1	0.704	1.50	64.58	No
Nickel/1	1.137	2.42	467.3	No
Silver/1	0.653	1.39	2.93	No
Zinc/1	7.072	15.06	114.61	No
Beryllium	1	2.13	130	No
Mercury	0.0055	0.0117	2.4	No
Selenium	2.2	4.686	20	No
Thallium	10	21.3	---	No

CHRONIC TOXICITY SCREENING (2.0 MGD Final Design Flow)

Pollutant	Pollutant Ce or Cr, ug/l	Cd ug/l	Chronic Aquatic Criteria, ug/l	Does RP exist?
Arsenic	1.984	0.131	150	No
Copper	2.101	0.138	8.6	No
Lead	0.704	0.046	2.52	No
Nickel	1.137	0.075	51.85	No
Zinc	7.072	0.466	116.48	No
Silver/1	0.653	0.043	---	No
Beryllium	1	0.0659	5.3	No
Mercury	0.0055	0.00036	0.012	No
Selenium	2.2	0.145	2	No
Thallium	10	0.659	---	No

HUMAN HEALTH SCREENING (2.0 MGD Final Design Flow)

Pollutant	Pollutant Ce\1, ug/l	Cd ug/l	Human Health Criteria, ug/l	Does RP exist?
Arsenic	1.984	0.051	20.5	No
Copper	2.101	0.054	1000	No
Nickel	1.137	0.029	4600	No
Lead	0.704	0.018	---	No
Zinc	7.072	0.182	5000	No
Silver	0.653	0.0168	---	No
Beryllium	1	0.02568	---	No
Selenium	2.2	0.0565	11,000	No
Mercury	0.0055	0.00014	0.051	No
Thallium	10	0.2568	6.3	No

\1 PSCWQC Human health standards are not expressed in dissolved concentrations, so concentrations are reported as total.

Additional chemical specific limitations are required to be protected for the above designated uses. They will be summarized in the table below.

IRRIGATION, GROUND WATER, LIVESTOCK and WILDLIFE SCREENING

Pollutant	Ce or Cr \3 mg/l	Cd \4 mg/l	Irrigation mg/l	Ground Water mg/l	Livestock & Wildlife mg/L	Does RP exist?
Lead, D \1	0.0007	$1.57x10^{-5}$	5.0	0.015	.1	No
Arsenic, D \1	0.00198	$4.93x10^{-5}$	0.10	0.01	0.2	No
Selenium, T\2	0.0022	0.00022	0.13	0.05	0.002	No
Copper, D \1	0.0021	$4.71x10^{-5}$	0.20	1.0	0.5	No
Zinc, D, \1	0.0071	0.00016	2.0	---	25.0	No
Beryllium, T\2	0.001	$2.24x10^{-5}$	---	0.004	---	No
Nitrate, T \2	8.4	0.188	---	10.0	---	No
Mercury, T\2	0.0000055	$1.233x10^{-7}$	---	0.002	0.012 ug/L	No
Nickel, D, \1	0.0011	$2.47x10^{-5}$	---	0.1	---	No
Silver, D, \1	0.00065	$1.46x10^{-5}$	---	0.1	---	No
Thallium, T\2	0.01	0.0002	---	0.002	---	No

Footnotes:
\1 Dissolved form
\2 Total form
\3 If pollutant is dissolved, then Cr determined in metal linear partition coefficient section determined above
\4 Cd = 0.02242 * Ce

Preliminary toxic analysis shows no RPs exist. Permit limitations are not required for chemical specific pollutants.

Ammonia limits; 30-day average - 2.2 mg/l, DO; 30-day average - 2.0 mg/l minimum and TRC; daily maximum – 3 ug/l are carried over from the previous permit.

OTHER WATER QUALITY SCREENING

PSCWQC requires that all waters shall be free from objectionable oils, scum, foam, grease, and other floating materials and suspended substances of a persistent nature resulting from other than natural causes including but not limited to visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

Floatables are prohibited from discharge.

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). The discharge is on Tribal land; however, EPA has adopted a common guideline of monitoring frequency for both Tribal and State of New Mexico facilities. The policy is contained in the NMIP. Technology based pollutants; Frequency of once per week is established for CBOD, TSS, and CBOD/TSS percent removal from the previous permit will be continued in the draft permit. Flow is proposed to be monitored daily when discharging by totalizing meter. Sample type for CBOD and TSS are 6-hour composite which is the same as the previous permit.

Water quality-based pollutant; Monitoring frequency for DO and E. coli shall be once per week by grab sample from the previous permit will be continued in the draft permit. The pollutant pH, and TRC shall be monitored daily using grab samples, which is which is the same as the previous permit. Total ammonia shall be monitored once per week. Sample type for total ammonia is by 6-hour composite.

E. WHOLE EFFLUENT TOXICITY LIMITATIONS

The PSCWQC state that “Biomonitoring testing following current EPA test methods shall be used to determine compliance with the narrative criteria.” Appendix 2 of the Fact Sheet shows WET data and the RP test based on past WET DMR data. Appendix 2 demonstrates that no RP to cause WET impacts have been shown in the past 5-years data. Based on the WET Recommendation shown in Appendix 2 of the Fact Sheet, no WET limits will be established in the proposed permit. Previously it was shown that the CD for the discharge is 1.0%. If it is determined that a facility is to receive chronic biomonitoring requirements at a critical dilution of 10% or less, then an acute-to-chronic ratio of 10:1 may be used in order to allow acute biomonitoring in lieu of chronic. This will result in a higher critical dilution by decreasing the ratio between the amounts of effluent and receiving water used as well as a reduction in the cost per biomonitoring test for the permittee.

The WET test requirement in the previous permit will be continued in the draft permit. The permittee shall continue to conduct a 48-hour acute test using *Daphnia pulex* and *Pimephales promelas* at a once per three months frequency for the first year of the permit. If all WET tests pass during the first year, then the permit may allow a frequency reduction of to once per six months for Daphnia pulex and once per year for Pimephales promelas. Any failure shall re-establish all tests for both the affected species to once per three months for the remainder of the permit. Both test species shall resume monitoring at a once per three months frequency on the last day of the 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 shall be 4%, 6%, 8%, 10%, and 13%. The low-flow effluent concentration (critical low-flow dilution) is defined as 10% 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 - the discharge to the Rio Grande of the treatment system aeration basin. Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE MONITORING
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) 1/	NOEC
Daphnia pulex	REPORT
Pimephales promelas	REPORT

EFFLUENT CHARACTERISTIC	MONITORING REQUIREMENTS	
	FREQUENCY	TYPE
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) 1/		
Daphnia pulex	1/3 months	24-Hr Composite
Pimephales promelas	1/3 months	24-Hr Composite

FOOTNOTES

1/ Monitoring and reporting requirements begin on the effective date of this permit. See Part II, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

F. EFFLUENT TESTING FOR APPLICATION RENEWAL

In addition to the parameters identified in this fact sheet, EPA designated major POTW's are required to sample and report other parameters listed in tables of the EPA Form 2A and WET testing for its permit renewal. The minimum pollutant testing for NPDES permit renewals specified in Form 2A requires three samples for each of the parameters being tested. Current practice is to obtain the three samples over a short time frame, sometimes within two weeks

during the permit renewal testing process. In order to obtain a meaningful snapshot of pollutant testing for permit renewal purposes, the draft permit shall require that the testing for Tables A.12, B.6, and Part D of EPA Form 2A, or its equivalent if modified in the future, during the second, third and fourth years after the permit effective date. This testing shall coincide with any required WET testing event for that year. The permittee shall report the results as a separate attachment in tabular form sent to the Permits and Technical Assistance Section Chief of the Water Quality Protection Division within 60 days of receipt of the lab analysis and shall also be reported on the NPDES permit renewal application Form 2A or its equivalent/replacement.

VI. FACILITY OPERATIONAL PRACTICES

A. SEWAGE SLUDGE

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." EPA may at a later date issue a sludge-only permit. Until such future issuance of a sludge-only permit, sludge management and disposal at the facility will be subject to Part 503 sewage sludge requirements. Part 503 regulations are self-implementing, which means that facilities must comply with them whether or not a sludge-only permit has been issued. Part IV of the draft permit contains sewage sludge permit requirements.

B. WASTE WATER POLLUTION PREVENTION REQUIREMENTS

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

C. INDUSTRIAL WASTEWATER CONTRIBUTIONS

The application form listed 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 full pretreatment program. However, general pretreatment provisions have been required. The facility is required to report to EPA, in terms of character and volume of pollutants any significant indirect dischargers into the POTW subject to pretreatment standards under §307(b) of the CWA and 40 CFR Part 403.

D. 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 monthly. The monitoring results will be available to the public.

VII. 303(d) LIST

As of this time, Tribes are not required to maintain a 303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs). A reopener clause however is

included in the permit allowing the incorporation of more stringent requirements of a TMDL established for the receiving stream. Modification or revocation and reissuance of the permit shall follow regulations listed at 40 CFR Part 124.5.

VIII. ANTIDEGRADATION

The PSCWQC, Subpart A of Section II, Anti-degradation Policy and Implementation Plan, sets forth the requirements to protect designated uses through implementation of the Pueblo water quality standards. The limitations and monitoring requirements set forth in the proposed permit are developed from the Pueblo 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 limits are protective of the assimilative capacity of the receiving waters, which is protective of the designated uses of that water, per PSCWQC.

IX. ANTIBACKSLIDING

The proposed permit is consistent with the requirements to meet anti-backsliding 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. The proposed permit maintains the mass loading requirements of the previous permit for CBOD and TSS. The pollutants pH and E. coli are identical with the previous permit.

X. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at USFWS, Southwest Region 2 website, https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=35039, eight species in Rio Arriba County are listed as endangered (E) or threatened (T). They are the Jemez Mountains salamander (E) (*Plethodon neomexicanus*), the Yellow-billed Cuckoo (T) (*Coccyzus americanus*), the Least tern (E) (*Sterna antillarum*), the Southwestern willow flycatcher (E) (*Empidonax traillii extimus*), the Mexican spotted owl (T) (*Strix occidentalis lucida*), North American wolverine (T) (*Gulo gulo luscus*), New Mexico meadow jumping mouse (E) (*Zapus hudsonius luteus*), and Canada Lynx (T) (*Lynx Canadensis*).

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 threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

The Jemez Mountains salamander *(Plethodon neomexicanus)* is uniformly dark brown above, with occasional fine gold to brassy coloring with stippling dorsally (on the back and sides) and is sooty gray ventrally (underside). The salamander is slender and elongate, and it possesses foot webbing and a reduced fifth toe. The Jemez Mountains salamander is restricted to the Jemez

Mountains in northern New Mexico, in Los Alamos, Rio Arriba, and Sandoval Counties, around the rim of the collapsed caldera (large volcanic crater), with some occurrences on topographic features (e.g., resurgent domes) on the interior of the caldera. The majority of salamander habitat is located on federally managed lands, including the U.S. Forest Service (USFS), the National Park Service (Bandelier National Monument), Valles Caldera National Preserve, and Los Alamos National Laboratory, with some habitat located on tribal land and private lands. Wildland fires have significantly degraded important features of salamander habitat, including removal of tree canopy and shading, increases of soil temperature, decreases of soil moisture, increased pH, loss or reduction of soil organic matter, reduced soil porosity, and short-term creation of hydrophobic (water-repelling) soils. These and other effects limit the amount of available aboveground habitat, and the timing and duration when salamanders can be active above ground, which negatively impacts salamander behavior (e.g., maintenance of water balance, foraging, and mating) and physiology (e.g., increased dehydration, heart rate and oxygen consumption, and increased energy demands). The permit does not authorize activities that may cause destruction of the Jemez Mountains salamander habitat, and issuance of the permit will have no effect on this species.

North American Wolverine *(Gulo gulo luscus)*: The wolverine is the largest terrestrial member of the family Mustelidae. It resembles a small bear with a bushy tail. It has a round, broad head; short, rounded ears; and small eyes. In North America, wolverines occur within a wide variety of alpine, boreal, and arctic habitats, including boreal forests, tundra, and western mountains throughout Alaska and Canada. The southern portion of the species' range extends into the contiguous United States, including high-elevation alpine portions of Washington, Idaho, Montana, Wyoming, California, and Colorado. Climate changes and human disturbance in the contiguous United States has likely resulted in the loss of some wolverine habitat, although this loss has not yet been quantified. Potential sources of human disturbance to wolverines include winter and summer recreation, housing and industrial development, road corridors, and extractive industry such as logging or mining. The permit does not authorize activities that may cause destruction of the wolverine habitat, and issuance of the permit will have no effect on this species.

The yellow-billed cuckoo *(Coccyzus americanus)* is a Neotropical migrant bird that winters in South America and breeds in North America. The yellow-billed cuckoo has been listed as endangered. The primary cause of loss and degradation of yellow-billed cuckoo is the loss and degradation of riparian breeding habitat, which is believed to have caused the declines in the distribution and abundance of the species Conversion to agriculture and other land uses, urbanization, dams and river flow management, stream channelization and bank stabilization, and livestock grazing are the causes of riparian habitat losses. The permit does not authorize activities that may cause destruction of the yellow-billed cuckoo habitat, and issuance of the permit will have no effect on this species.

Southwestern Willow Flycatchers (*Empidonax traillii extimus)* 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 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. The

permit does not authorize activities that may cause destruction of the flycatcher habitat, and issuance of the permit will have no effect on this species.

Research of available material finds that the primary cause for the population decreases leading to threatened status for the Mexican Spotted Owl is destruction of habitat. No pollutants are identified which might affect species habitat or prey species and are not limited by the permit. Catastrophic fires and elimination of riparian habitat also were identified as threats to species habitat. The NPDES program regulates the discharge of pollutants and does not regulate forest management practices and agricultural practices, which contribute to catastrophic fires and elimination of riparian habitat, and thus, species habitat. The issuance of this permit is found to have no impact on the habitat of this species.

Canada Lynx (*Lynx canadensis*): The lynx is a medium-sized cat with long legs, large, well-furred paws, long tufts on the ears, and a short, black-tipped tail. The distribution of lynx in North America is closely associated with the distribution of North American boreal forest. In Canada and Alaska, lynx inhabit the classic boreal forest ecosystem known as the taiga. The range of lynx populations extends south from the classic boreal forest zone into the subalpine forest of the western United States, and the boreal/hardwood forest ecotone in the eastern United States. Forests with boreal features extend south into the contiguous United States along the North Cascade and Rocky Mountain Ranges in the west, the western Great Lakes Region, and northern Maine. Within these general forest types, lynx is most likely to persist in areas that receive deep snow and have high-density populations of snowshoe hares, the principal prey of lynx. In all regions within the range of lynx in the contiguous U.S., timber harvest, recreation and their related activities are the predominant land use affecting lynx habitat. The permit does not authorize activities that may cause destruction of the lynx habitat, and issuance of the permit will have no effect on this species.

New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*): The jumping mouse is a small, nocturnal, solitary mammal and an obligate riparian subspecies. Its historical distribution likely included riparian wetlands along streams in the Sangre de Cristo and San Juan Mountains from southern Colorado to central New Mexico, including the Jemez and Sacramento Mountains and the Rio Grande Valley from Española to Bosque del Apache National Wildlife Refuge, and into parts of the White Mountains in eastern Arizona. Ongoing and future habitat loss is expected to result in additional extirpations of more populations. Research indicates that the primary sources of past and future habitat losses are from grazing pressure (which removes the needed vegetation) and water management and use (which causes vegetation loss from mowing and drying of soils), lack of water due to drought (exacerbated by climate change), and wildfires (also exacerbated by climate change). Additional sources of habitat loss are likely to occur from scouring floods, loss of beaver ponds, highway reconstruction, coal-bed methane development, and unregulated recreation. The issuance of this permit is found to have no impact on the habitat of this species.

Least terns *(Sterna antillarum)* are the smallest member of the gull and tern family. They are approximately 9" in length. Unlike gulls, terns will dive into the water for small fish. The body of least terns is predominately gray and white, with black streaking on the head. Least terns have a forked tail and narrow pointed wings. Interior least terns breed in the Mississippi and Rio

Grande River Basins from Montana to Texas and from eastern New Mexico and Colorado to Indiana and Louisiana. From late April to August they occur primarily on barren to sparsely vegetated riverine sandbars, dike field sandbar islands, sand and gravel pits, and lake and reservoir shorelines. Threats to the survival of the species include the actual and functional loss of riverine sandbar habitat. Channelization and impoundment of rivers have directly eliminated nesting habitat. The permit does not authorize activities that may cause destruction of the Least terns habitat, and issuance of the permit will have no effect on this species.

The proposed permit does not authorize constructions and land development, nor will cause release of toxic pesticides or spread of disease. Based on the information available to EPA, that the reissuance of this permit will have no effect on these federally listed threatened or endangered species.

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 during the life of the permit if State Water Quality Standards are promulgated or revised. In addition, if the State amends 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.

XIII. VARIANCE REQUESTS

No variance requests have been received.

XIV. CERTIFICATION

The permit is in the process of certification by the Tribal agency following regulations promulgated at 40 CFR124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers and to the Regional Director of the U.S. Fish and Wildlife Service prior to the publication of that notice. In addition, the draft permit will also be sent to New Mexico and the Pueblo of San Ildefonso as downstream states for their review.

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 received November 7, 2016.

B. 40 CFR CITATIONS

Sections 122, 124, 125, 133, 136

C. PUEBLO OF SANTA CLARA REFERENCES

Water Quality Code of the Pueblo of Santa Clara" (PSCWQC), revised November 5, 2002, approved by EPA April 7, 2006.

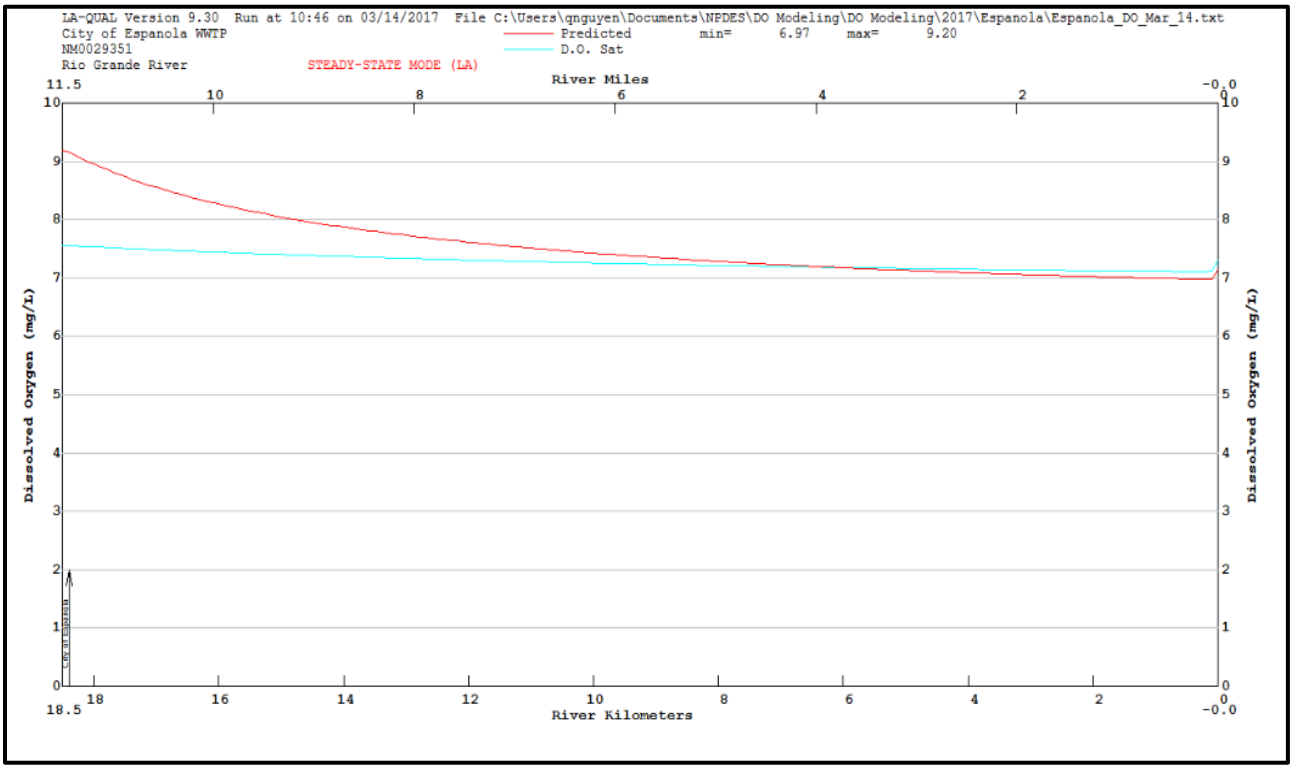
D. STATE OF NEW MEXICO REFERENCES

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

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

PLAT OF ESPANOLA WWTP

Appendix 1


LA-QUAL Version 9.30 Run at 10:46 on 03/14/2017 File C:\Users\qnguyen\Documents\NPDES\DO Modeling\DO Modeling\2017\Espanola\Espanola_DO_Mar_14.txt
City of Espanola WWTP
NM0029351
Rio Grande River
STEADY-STATE MODE (LA)
Predicted min= 6.97 max= 9.20
D.O. Sat
River Miles
River Kilometers
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)

Appendix 2

Facility Name	City of Espanola							
NPDES Permit Number	NM0029351				Outfall Number			
Proposed Critical Dilution*	10							
			*Critical Dilution in draft permit, do not use % sign.					
			Enter data in yellow shaded cells only. Fifty percent should be entered as 50, not 50%.					
Test Data								
		VERTEBRATE				INVERTEBRATE		
Date (mm/yyyy)	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU
Apr-13	12		8.33		12		8.33	
Jul-13	12		8.33		12		8.33	
Oct-13	12		8.33		12		8.33	
Jan-14	12		8.33		12		8.33	
Apr-14	12		8.33		12		8.33	
Jul-14	12		8.33		12		8.33	
Oct-14	12		8.33		12		8.33	
Jan-15	12		8.33		12		8.33	
Apr-15	12		8.33		12		8.33	
Jul-15	12		8.33		12		8.33	
Oct-15	12		8.33		12		8.33	
Jan-16	12		8.33		12		8.33	
Apr-16	12		8.33		12		8.33	
Jul-16	12		8.33		12		8.33	
	12	0	8.33	#DIV/0!	12	0	8.33	#DIV/0!
Count			14	0			14	0
Mean			8.333	#DIV/0!			8.333	#DIV/0!
Std. Dev.			0.000	#DIV/0!			0.000	#DIV/0!
CV			0.0	0.6			0	0.6
RPMF			#N/A	6.2			#N/A	6.2
		10	Reasonable Potential Acceptance Criteria					
Vertebrate Lethal		#N/A	#N/A					
			No Reasonable Potential exists. Permit requires WET monitoring, but no W					
Vertebrate Sublethal		#DIV/0!	#DIV/0!					
Invertebrate Lethal		#N/A	#N/A					
			No Reasonable Potential exists. Permit requires WET monitoring, but no W					
Invertebrate Sublethal		#DIV/0!	#DIV/0!					