

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

City of Espanola
Espanola Wastewater Treatment Facility
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ISSUING OFFICE

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DATE PREPARED

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PERMIT ACTION

Proposed reissuance of the current NPDES permit issued November 30, 2005, with an effective date of January 1, 2006, and an expiration date of December 31, 2010.

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 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
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 November 30, 2005, with an effective date of January 1, 2006, and an expiration date of December 31, 2010:

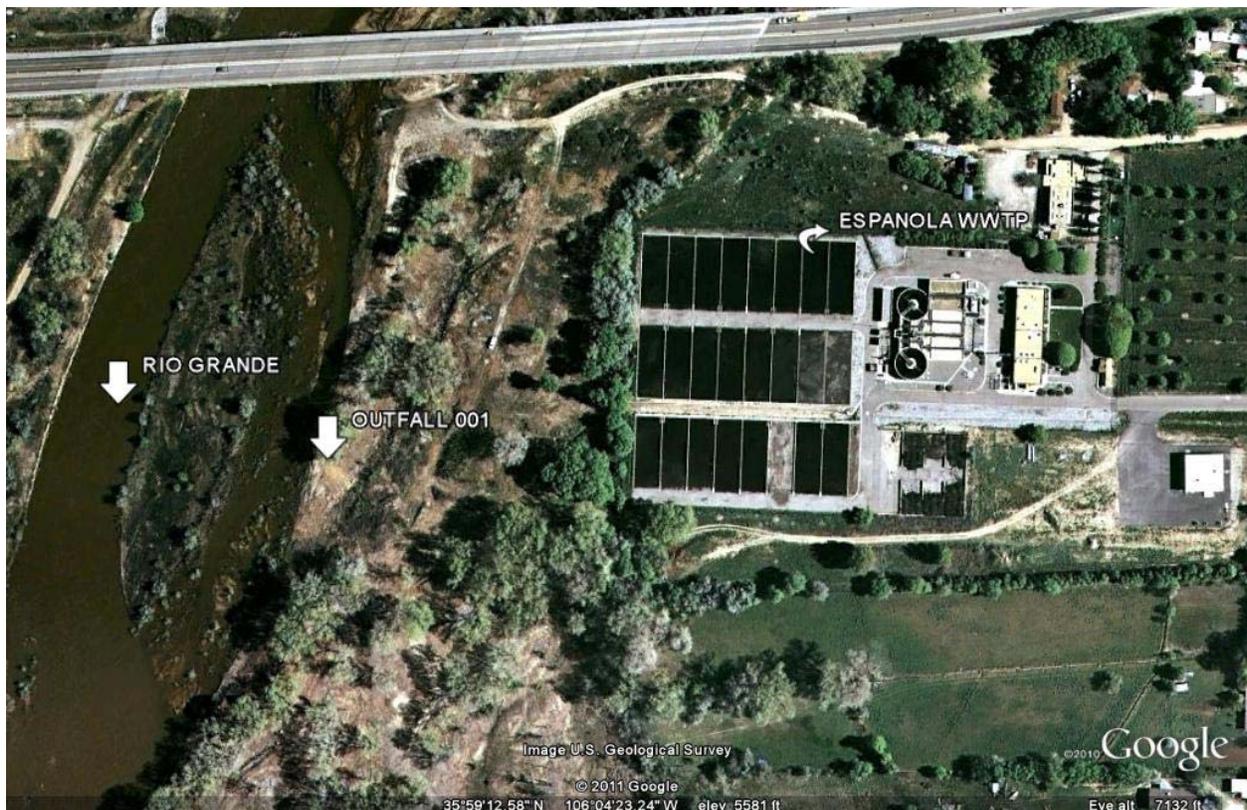
- A. FCB has been eliminated and replaced with E. coli bacteria.
- B. CBOD and TSS percent removal efficiency has been placed in the draft permit.

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.

PLAT OF ESPANOLA WWTP



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 received April 25, 2011, are presented below:

POLLUTANT TABLE - 1

Parameter	Max	Avg
	(mg/l unless noted)	
Flow, MGD	1.11	0.76
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	8.87	4.9
E. coli (#bacteria/100 ml)	210	77
TSS	9.5	6.1
Ammonia (NH ₃)	ND	ND
TRC	ND	ND
DO	6.06	5.81
Total Kjeldahl Nitrogen (TKN)	ND	ND
Nitrate plus Nitrite Nitrogen	22	21
Oil & Grease	ND	ND
Phosphorus	3.52	3.51
TDS	680	670

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	5.9	---
Barium	19	---
Boron	890	---
Copper	3.9	---
Aluminum, total	36	---
Nickel	1.4	---
Uranium	1.8	---
Zinc	120	---

A summary of the last 24-months of available DMR pollutant data; January 2009, thru December 2010, shows the following permit limit exceedances.

TABLE 3 - DMR EXCEEDANCES

POLLUTANT/limit	Month(s) of Exceedances/value
FCB/avg – 200 cfu/100 ml	Jan/09 - 3043 cfu/100 ml
FCB/max – 400 cfu/100 ml	Jan/09 – 58000, Feb/09 – 1400, Mar/09 – 700, Aug/09 – 640, Oct/09 – 540, Mar/10 – 710 cfu/100 ml
CBOD/avg – 25 mg/l	Dec/10 – 70 mg/l
CBOD/max – 40 mg/l	Dec/10 – 327 mg/l
Total Ammonia/avg – 2.2 mg/l	Sep/09 – 3.1 mg/l

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 expired December 31, 2010. The original permit expiration date provided to the facility; December 30, 2011, was incorrect. The error was discovered October 22, 2010, and an administrative change letter was provided to the facility correcting the expiration date. Since the date of the administrative change letter would not allow the applicant the required 180 days to make a timely permit renewal to the correct expiration

date, the facility was granted a 180 days from the receipt of the October 22, 2010, letter to submit an application. The permit renewal application was due to EPA by April 25, 2011, and the application was received on that date. 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, CBOD₅ 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, TSS, percent removal for each and pH. CBOD 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:

$$\text{Loading in lbs/day} = \text{pollutant concentration in mg/l} * 8.345 \text{ lbs/gal} * \text{design flow in MGD}$$

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. State 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.

The State of New Mexico has designated the following uses for Stream Segment No. 20.6.4.114, the Rio Grande: marginal coldwater fishery, livestock and wildlife, warmwater fishery, groundwater recharge, irrigation and primary contact.

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 fishery, livestock and wildlife, primary contact, warmwater fishery, groundwater recharge and irrigation.

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

PSCWQC for primary contact limit E. coli to a monthly geometric mean of 126 colonies/100 ml, and a single sample maximum of 235 colonies/100 ml and are more stringent than NMWQS. These criteria will be used to establish bacteria limits in the draft permit. The previous permit had limits for FCB based on NMWQS but since the previous permit was issued, E. coli indicator bacteria for human health protection have been recommended instead of FCB. The draft permit will replace FCB with E. coli. The removal of FCB does not constitute antibacksliding as required in 40 CFR §122.44(l) since FCB has been replaced by E. coli as an indicator pollutant to assess compliance with the protection of primary body contact.

b. pH

For the protection of primary contact designated uses, PSCWQC requires the pH to be between 6.6 to 8.8 su's for any single sample and these limits are more stringent than NMWQS. These limits are also more stringent than technology-based limitations shown above but are identical to the previous 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, 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, barium, boron, copper, aluminum, nickel, uranium and zinc were found to be above minimum MQL and 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:

USGS Station: USGS08313000 in Rio Grande at Otowi Bridge near San Ildefonso Pueblo, 9.5 miles downstream of the facility. The previous permit established a 4Q3 of 341.746 cfs. Adding five years to the data set changed the 4Q3 to 346 cfs. The draft permit will evaluate impacts of pollutants based on the 4Q3 established in the previous permit; 341.7 cfs.

Since the USGS Station is downstream of the facility, the low flow will be adjusted by subtracting the facilities long term average flow, 0.75 MGD (1.16 cfs) resulting in an adjusted low flow of 340.586 cfs (220 MGD). Long term Harmonic mean flow is 897.501 cfs (580 MGD).

CD is calculated as follows:

$$CD = Q_e / [Q_e + Q_a]$$

where $Q_a = 220$ MGD
 $Q_e = 2$ MGD

$CD = 2 / [2 + 220]$
 $CD = 0.00901$ or 0.9%

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:

$$C_d = \{(FQ_a * C_a) + (Q_e * C_e)\} / (FQ_a + Q_e)$$

Where:

C_d = Instream waste concentration

F = Fraction of stream allowed for mixing, as applicable.
 = 0.333 for chronic aquatic life and human health criteria
 = 1.00 for all others

C_e = 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, as discussed in the EPA Region 6 document titled Effluent Variability Policy, dated September 17, 1991, or the most current revision thereof.

C_a = Ambient stream concentration, if available

Q_e = Wastewater treatment design flow in MGD (municipal facilities), 2.0 MGD

Q_a = Critical low flow, 4Q3, of receiving stream
 = 220 MGD, 4Q3

= 580 MGD harmonic long term human health flow

For acute aquatic life screening, criteria apply end-of-pipe, with no dilution, so $C_d = C_e * 2.13$

For chronic aquatic life screening:

$$C_d = \{(FQ_a * C_a) + (Q_e * C_e)\} / (FQ_a + Q_e)$$

$$C_d = \{(0.333 * 220 * 0) + (2.0 * C_e * 2.13)\} / \{(0.333 * 220) + 2.0\}$$

$$C_d = 0.0566 * C_e$$

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

$$C_d = \{(FQ_a * C_a) + (Q_e * C_e * 2.13)\} / (FQ_a + Q_e)$$

$$C_d = \{(1.0 * 220 * 0) + (2.0 * C_e * 2.13)\} / \{(1.0 * 220) + 2.0\}$$

$$Cd = 0.01919 * Ce$$

For human health screening:

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

$$Cd = \{(0.333 * 580 * 0) + (2.0 * Ce * 2.13)\} / \{(0.333 * 580) + 2.0\}$$

$$Cd = 0.02183 * Ce$$

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:

Stream TSS (mg/l): 140 (previous permit)
 Stream Hardness (mg/l): 100 (previous permit)

PSCWQC Acute standards are defined as:

Copper = $e(0.9422[\ln(\text{hardness})] - 1.7408)$ = 13.44 ug/l
 Zinc = $e(0.8473[\ln(\text{hardness})] + 0.8618)$ = 117.2 ug/l

PSCWQC Chronic standards are defined as:

Copper = $e(0.8545[\ln(\text{hardness})] - 1.7428)$ = 8.96 ug/l
 Zinc = $e(0.8473[\ln(\text{hardness})] + 0.8699)$ = 118.1 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
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:

K_p = Linear Partition Coefficient

$K_p = K_{po} \times TSS^a$

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

C/Ct = Fraction of metal dissolved

Total Metal Criteria (Ct) = $C_r / (C/Ct)$

C/Ct = Fraction of Metal Dissolved

$C/Ct = 1 / (1 + (K_p \times TSS \times 10^{-6}))$

C_r = Dissolved criteria value, the value used in acute and chronic screening

DISSOLVED EFFLUENT CONCENTRATION IN STREAMS

Total Metals	Total Pollutant Value, ug/l	K _{po}	alpha (a)	K _p	C/Ct	Dissolved Value in Streams, C _r , ug/l
Arsenic	5.9	480000	-0.73	13018.705	0.3543	2.09
Copper	3.9	1040000	-0.74	26847.175	0.2101	0.82
Zinc	120	1250000	-0.7	39320.623	0.1537	18.44

ACUTE TOXICITY SCREENING (Not dependent on facility flow)

Pollutant	Pollutant Ce or Cr, ug/l	Cd ug/l	Acute Aquatic Criteria, ug/l	Is Permit Limit Required?
Aluminum	36	76.6	748	No
Copper	0.82	1.75	13.44	No
Zinc	18.44	39.3	117.2	No

CHRONIC TOXICITY SCREENING (2.0 MGD Final Design Flow)

Pollutant	Pollutant Ce or Cr ug/l	Cd ug/l	Chronic Aquatic Standard ug/l	Is Permit Limit Required?
Aluminum	36	2.04	748	No
Copper	0.82	0.046	8.96	No
Zinc	18.44	1.044	118.1	No

HUMAN HEALTH SCREENING (2.0 MGD Final Design Flow)

Pollutant	Pollutant Ce <u>1</u> , ug/l	Cd, ug/l	Human Health Standard, ug/l	Is Permit Limit Required?
Aluminum	36	0.78	---	No
Copper	3.9	0.085	1000	No
Zinc	120	2.62	5000	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 <u>3</u> mg/l	Cd <u>4</u> mg/l	Irrigation mg/l	Ground Water mg/l	Livestock & Wildlife	Permit Limit Needed ?
Aluminum, D <u>1</u>	0.036	0.0007	5.0	0.2	5.0	No
Arsenic, D	0.00209	0.00004	0.10	0.01	0.2	No
Boron, D	0.89	0.017	0.75	---	5.0	No
Copper, D	0.0008	0.000020	0.20	1.0	0.5	No
Zinc, D	0.0184	0.00035	2.0	---	25.0	No
Barium, D	0.019	0.0004	---	2.0	---	No
Nitrate, T <u>2</u>	22	0.42	---	10.0	---	No
Uranium, D	0.0018	0.00003	---	0.03	---	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 = 0.01919 * Ce

Based on the screenings above, permit limitations are not required for chemical specific pollutants for the protection of aquatic protection, irrigation, ground-water recharge, domestic, municipal and industrial water supply and livestock and watering standards.

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 current 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; CBOD and TSS are proposed to be monitored once per week. These frequencies are less frequent than the current permit. New parameter percent removal percentage each for CBOD and TSS shall be once per week. 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 E. coli shall be once per week by grab sample which is less frequent than the previous permit. The pollutant pH shall be monitored daily using grab samples, which is more frequent than the previous permit. TRC shall be monitored daily by grab sample which is the same as the current permit. Total ammonia and DO shall be monitored once per week. This is less frequent than the current permit. Sample type for DO is grab and 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 1** of the Fact Sheet shows WET data and the RP test based on past WET DMR data. Appendix 1 demonstrates that no RP to cause WET impacts have been shown in the past 5-years data. Previously it was shown that the CD for the discharge is 0.9%. 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 shall be 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.

Based on the WET Recommendation shown in Appendix 1 of the Fact Sheet, no WET limits will be established in the proposed 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%, 5%, 7%, 9%, and 12%. The low-flow effluent concentration (critical low-flow dilution) is defined as 9.0% effluent.

During the period beginning the effective date of the permit and lasting through the expiration date of the permit, the permittee is authorized to discharge from Outfall 001 - 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	
	30-DAY AVG MINIMUM	48-Hr. MINIMUM
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) 1/		
Daphnia pulex	REPORT	REPORT
Pimephales promelas	REPORT	REPORT

EFFLUENT CHARACTERISTIC	MONITORING REQUIREMENTS	
	FREQUENCY	TYPE
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) 1/		
Daphnia pulex	1/Quarter	24 Hr. Composite
Pimephales promelas	1/Quarter	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, Antidegradation 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 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. The proposed permit maintains the mass loading requirements of the previous permit for CBOD and TSS. The pollutant pH is identical with the previous permit. Limits for E. coli bacteria have replaced FCB based on changes in policy but are consistent with PSCWQC. The removal of FCB and its change to E. coli does not constitute antibacksliding since only the indicator bacteria have changed.

X. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at USFWS, Southwest Region 2 website, <http://ifw2es.fws.gov/EndangeredSpecies/lists/>, five species in Rio Arriba County are listed as endangered (E) or threatened (T). They are the Black-footed ferret (E) (*Mustela nigripes*), the Interior least tern (E) (*Sterna antillarum*), the Southwestern willow flycatcher (E) (*Empidonax traillii extimus*), the Rio Grande silvery minnow (E) (*Hybognathus amarus*) and the Mexican spotted owl (T) (*Strix occidentalis lucida*). The American bald eagle (*Haliaeetus leucocephalus*) was previously listed as endangered; however, the USFWS removed the American bald eagle in the lower 48 states from the Federal List of Endangered and Threatened Wildlife Federal Register, July 9, 2007, (Volume 72, Number 130).

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:

1. Through an informal consultation with FWS November 30, 2000, the Service agreed with EPA’s no effect determination on the permit on listed species and habitat. In the permit issued November 30, 2005, EPA again made a “no effect” determination for federally listed species. EPA has received no additional information since then which would lead

to a revision of that "no effect" determination. EPA determines that this reissuance will not change the environmental baseline established by the previous permit, and therefore, EPA concludes that reissuance of this permit will have "no effect" on the listed species and designated critical habitat.

2. No additions have been made to the USFWS list of threatened and endangered species and critical habitat designation in the area of the discharge since prior issuance of the permit.
3. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.
4. The draft permit is no less restrictive from the previous.
5. EPA determines that Items 1, thru 4 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.

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 2E received April 25, 2011.

B. 40 CFR CITATIONS

Citations to 40 CFR are as of June 13, 2011.

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

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, as amended through January 14, 2011.

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico May 2011.