

# **NPDES PERMIT NO. NM0022292**

## **FACT SHEET**

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
(NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

### **APPLICANT**

City of Santa Fe  
73 Paseo Real  
Santa Fe, NM 87507

### **ISSUING OFFICE**

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### **DATE PREPARED**

February 19, 2010

### **PERMIT ACTION**

Proposed revocation and reissuance of the current permit issued with an effective date of September 1, 2006 and an expiration date of August 31, 2011.

### **RECEIVING WATER – BASIN**

Santa Fe River – 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
ug/l	Micrograms per liter
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
ML	Minimum quantification level
O&G	Oil and grease
POTW	Publically owned treatment works
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Service
WLA	Wasteload allocation
WET	Whole effluent toxicity
WQCC	New Mexico Water Quality Control Commission
WQMP	Water Quality Management Plan
WWTP	Wastewater treatment plant

## I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued July 21, 2006, with an effective date of September 1, 2006, and an expiration date of August 31, 2011, are:

- A. Limits for aluminum, boron, cadmium, copper, selenium and silver have been removed.

## II. APPLICANT LOCATION and ACTIVITY

As described in the application, the facility is located on 73 Paseo Road, in Santa Fe County, New Mexico. Under the Standard Industrial Classification Code 4952, the facility is a WWTP treating sanitary wastewater.

Located at the foothills of the Sangre de Cristo Mountains in north central New Mexico, the Santa Fe Paseo Real WWTP has a design flow of 13 MGD serving a population of over 75,000.

The WWTP is composed of headworks, clarifiers, bioselectors, sludge thickeners, digesters and storage units, aeration basins, secondary clarification, bacteria control, post aeration and discharge.

The headworks include a bar screen to remove larger trash; plastic products, paper and rags. These items are fed into the rag press where most of the moisture is removed and the solids are sent to the dumpsters placed under the chutes. The bar screen is followed by a grit trap that supplies enough aeration to remove sand, silts and inorganic wastes while allowing organic material to continue to a wet well for further treatment. The grit is removed by an auger and conveyor belt system and sent to a dumpster for disposal to a land fill. The wastewater continues to the wet well at the start of the primary wastewater treatment.

Primary treatment consists of two 580,600 gallon primary clarifiers. The clarifiers are used as sedimentation tanks which allow the wastewater velocity to be reduced enough so that the heavy organic material settles to the bottom of the clarifier while the lighter material floats to the top and is removed via a skimmer. The solids are scraped from the bottom of the clarifier and pumped to the digester. The rapid mix tank receives flow from the clarifiers and returns from several other process areas and is mixed together before entering the bioselector for secondary treatment. The rapid mix tank collects flows from the various recycle flows; the Return Activated Sludge (RAS), Dissolved Air Flotation (DAF) flow, mixed liquor line and the primary effluent. The aeration basins use nitrification and then denitrification to remove ammonia and nitrogen. The nitrification process utilizes dissolved oxygen (DO), fed through fine bubble diffusers, to change ammonium to nitrite. Ammonia is stripped off with either increased air or converted from ammonia to nitrites by *Nitrobacter* microorganisms. The nitrite continues through the basin to the anoxic zone and is broken down from nitrite to nitrate by *Nitrosomonas* microorganisms and then to nitrous oxide, carbon dioxide and water.

Secondary treatment continues as the wastewater moves from the clarifiers into one of four bioselector basins. These basins can be either aerobic, anaerobic, or a combination of each. At present the WWTP uses a low DO system in combination with mixed liquor pumps to recycle

mixed liquor back through the system to reduce the nitrates, utilize soluble COD, and inhibit the growth of filamentous bacteria. Mixed liquor from the aeration basins flows into one of six 460,000 gallon secondary clarifiers to allow solids to settle to the bottom of the tank. The clear effluent flows over the weirs and out of the tanks, while the settleable solids are pulled from the bottom of the clarifier, via suction pickup tubes. These solids enter two common channels and flow into the wet well then into the DAF. The overflow from the secondary clarifiers enters the influent channel to three disk filters and two sand filters. The ultraviolet light (UV) system disinfects the effluent prior to discharge. Two air blowers continuously aerate the effluent water in the post aeration basin to ensure adequate DO in the effluent. The non-potable water system draws filtered water from the effluent channel to supply water for reuse and is also sold at the standpipe to contractors for use in construction, dust control, watering of golf courses and sports playing fields.

Solids are initially treated using DAF to thicken sludge. The DAF operates by pressurizing water in a tank and is introduced via a header along with pumped sludge and a polymer thickening agent. The sludge, pressurized water and polymer enter into the DAF tanks which are at atmospheric pressure. The difference in pressures causes air to come out of solution as fine bubbles which rise to the surface of the DAF tank. The sludge attaches to the fine bubbles and floats to the surface where it is thickened and is further treated either by anaerobic digestion or lime stabilization. The anaerobic digesters are composed of a 462,000 gallon fixed-cover primary digester and a 453,000 gallon floating-cover secondary digester. The digesters are heated by two hot water boilers using either natural gas or digester gas. The digester contents are also mixed by the use of digester gas which is compressed and introduced into the mixing guns. Sludge can also be treated with a second method using lime stabilization. Sludge is disposed by the City using subsurface injection at the Paseo Real Sludge Disposal Injection Field adjacent to the WWTP. During the winter months when sludge injection cannot be used sludge is stored in either sludge tank #1; 660,000 gallons or sludge tank #2; 1,618,000 gallons. The compost facility dewateres the digested sludge from the sludge storage tanks.

See **Appendix 1** of the Fact Sheet for an aerial view of the plant below and a schematic of the facility.

The discharge from the POTW is to the Santa Fe River thence to the Rio Grande in Waterbody Segment No. 20.6.4.113 of the Rio Grande Basin. The discharge is located at Latitude 35° 37' 30" North, Longitude 106° 05' 19" West.

### **III. EFFLUENT CHARACTERISTICS**

The City was provided a list of the current MQLs to be used in pollutant testing for the application. A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A received February 5, 2010, are presented below:

**POLLUTANT TABLE – 1**

Parameter	Max	Avg
	(mg/l unless noted)	
Flow, million gallons/day (MGD)	4.93	3.53
Temperature, winter	20.8°C	16.18°C
Temperature, summer	27.2°C	23.74°C
pH, minimum, standard units (su)	7.36	N/A
pH, maximum, standard units (su)	7.73	N/A
Carbonaceous Oxygen Demand, 5-day (CBOD <sub>5</sub> )	19.0	1.93
E. coli (#bacteria/100 ml)	5,000	18.3
Total Suspended Solids (TSS)	118	5.6
Ammonia (NH <sub>3</sub> )	4.93	0.86
Chlorine, Total Residual (TRC)	8.0	2.2
Dissolved Oxygen (DO)	10.1	6.76
Total Kjeldahl Nitrogen (TKN)	14.1	2.7
Nitrate plus Nitrite Nitrogen	5.82	1.29
Oil & Grease	N/D	N/D
Phosphorus	2.97	1.35
Total Dissolved Solids (TDS)	514	416

**POLLUTANT TABLE – 2 – Expanded Pollutant List**

Parameter (Pollutants Greater than MQL)	Max	Avg
	(ug/l unless noted)	
Hardness (As CaCO <sub>3</sub> )	116 mg/l	109 mg/l
Antimony	0.747	0.472
Arsenic	3.95	3.60
Chromium	1.04	0.173
Copper	12.3	9.42
Lead	0.742	0.627
Mercury	0.00625	0.00382
Nickel	1.91	1.80
Silver	0.18	0.056
Thallium	0.157	0.148
Zinc	66.8	62.5
Total Phenolic Compounds	13.2	10

A summary of the last 24-months of available pollutant data; October 2007 though September 2009, taken from DMRs shows no exceedances of permit limits for boron, CBOD, pH, DO, TRC, cadmium, selenium and silver. TRC, cadmium and silver were below MQL (non-detect). Results of boron and selenium DMR data for the most recent six-months are as follows:

**POLLUTANT TABLE – 3**

Parameter	Avg. Concentration ug/l (unless noted)
Boron	277
Selenium	0.42

Single event exceedances for nitrate-nitrite (as N), ammonia (Total as N), TSS, and E. coli occurred over the same time period and do not appear to represent significant operational problems. Aluminum showed a continuous four-month period of exceedances; February 2008 through May 2008 inclusive, that has been corrected and DMR data no longer shows exceedances. Copper has shown a consistent history of permit limit exceedances. Aluminum and copper DMR data over the past two-years are as follows:

**POLLUTANT TABLE – 4**

Date	Aluminum, Total		Copper, Total	
	30 DAY AVG	MONTHLY MAX	30 DAY AVG	MONTHLY MAX
	ug/l	ug/l	ug/l	ug/l
Limit	58	87	6.6	10
10-2007	16	35	4.7	6.1
11-2007	27	33	6.5	7.5
12-2007	37	49	7.2-V	13.8-V
1-2008	19	37	5.8	9.9
2-2008	38	108-V	7.3-V	8.4
3-2008	69 -V	155-V	9.2-V	16.2-V
4-2008	105-V	440-V	11.9-V	40.2-V
5-2008	75-V	90-V	7.9-V	10.6-V
6-2008	47	78	6.1	9.4
7-2008	37	63	5.4	6.7
8-2008	35	49	6.2	10.5-V
9-2008	32	42	9.5-V	23.6-V
10-2008	15	30	5.8	13.3-V
11-2008	30	35	11.5-V	16.7-V
12-2008	27	31	15.6-V	25.1-V
1-2009	18	43	10.41-V	14.9-V
2-2009	45	80	14.3-V	18.2-V
3-2009	49	63	14.8-V	18.2-V
4-2009	34	55	10.6-V	20.8-V
5-2009	33	65	11.1-V	13.9-V
6-2009	28	42	10.9-V	15.5-V
7-2009	43	47	8.5-V	12.5-V
8-2009	38	43	7.9-V	9.4
9-2009	41	35	9.1-V	17.2-V

“V” denotes exceedance of permit limit

In addition, the permittee was required to perform pollutant testing for adjusted gross alpha particles, radium 226 + radium 228 and vanadium during the permit term. The results are as follows:

**POLLUTANT TABLE – 5**

Parameter	Concentration
Adjusted Gross Alpha	3.2 pCi/l
Radium 226 + Radium 228	0.869 pCi/l
Vanadium	4.3 ug/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.

The facility requested modifications to the permit based on new data for copper and in consideration of the current permits expiration date of August 31, 2011, EPA requested that the applicant submit a full application and EPA would revoke and reissue the permit as prescribed by 40 CFR §122.62. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). The existing permit is administratively continued until this 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. Water quality-based effluent limitations are established in the proposed draft permit for CBOD<sub>5</sub>, E. coli bacteria, pH, TRC, nitrite-nitrate, nitrogen, and DO.

##### **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 treating sanitary wastewater. POTW's have technology-based ELG's established at 40 CFR Part 133, Secondary Treatment Regulation. Pollutants with ELG's established in this Chapter are CBOD, TSS and pH. CBOD limits of 25 mg/l for the 30-day average and 40 mg/l for the 7-day average are found at 40 CFR §133.102(a)(4). TSS limits; also 30 mg/l for the 30-day average and 45 mg/l for the 7-day average, are found at 40 CFR §133.102(b). ELG's for pH are between 6-9 s.u. and are found at 40 CFR §133.102(c). Regulations at 40 CFR §122.45(f)(1) require all pollutants limited in permits to have limits expressed in terms of mass such as pounds per day. When determining mass limits for POTW's, the plant's design flow is used to establish the mass load. 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 TSS loading = 30 mg/l \* 8.345 lbs/gal \* 13 MGD  
 30-day average TSS loading = 3,254 lbs

30-day average CBOD loading = 25 mg/l \* 8.345 lbs/gal \* 13 MGD  
 30-day average CBOD loading = 2,712 lbs

Technology-Based Effluent Limits – 13 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 <sub>5</sub>	2712	4,339	25	40
TSS	3254	4881	30	45
pH	N/A	N/A	6.0 – 9.0 standard units	

### C. WATER QUALITY BASED LIMITATIONS

#### 1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in

compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

## 2. Implementation

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

## 3. State Water Quality Standards

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC amended through August 1, 2007). The facility discharges into the Santa Fe River in segment number 20.6.4.113 of the Rio Grande Basin. The designated uses of the receiving water are wildlife habitat, livestock watering, marginal coldwater aquatic life, warmwater aquatic life, irrigation and secondary contact.

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

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

### a. BACTERIA

Stream segment specific (20.6.4.113 NMAC) WQS for E. coli bacteria is 548 cfu/100 ml daily monthly geometric mean and 2507 cfu/100 ml daily maximum. These limits are identical to the previous permit and are continued in the draft permit.

### b. pH

Stream segment specific (20.6.4.113 NMAC) WQS for pH, 6.6 to 9.0 su, are more restrictive than the technology-based limits presented.

### c. DISSOLVED OXYGEN

Stream segment specific (20.6.4.113 NMAC) WQS for dissolved oxygen (DO) require 4.0 mg/l or more as a single sample and 5.0 mg/l or more as a 24-hour average. These limits are identical to the previous permit and are 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 criteria, the permit must contain an effluent limit for that pollutant.

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

The facility is designated a major POTW for permitting purposes and must supply the expanded pollutant testing list described in EPA Application Form 2A as presented above in Part III of this Fact Sheet.

Upstream of the WWTP the Santa Fe River is generally a dry arroyo with upstream flow during some snowmelt periods in the spring and after some storm events the rest of the year. The 4Q3 for the receiving water is zero (0) cfs. The CD for the facility is 100%; therefore discharges must meet WQS at end-of-pipe.

##### ii. Hardness Data

Previously in Part III, Effluent Characteristics above, pollutant data for copper was presented showing exceedances with permit limits. In a letter from the City to EPA, dated July 2, 2007, the City requested that the hardness data, which was used to determine the limits for certain metals such as copper, be examined since the City believed that the data used to determine hardness-based permit limits was in error. The permit issued in calendar year 2001 used a hardness value of 145 mg/l; expressed as CaCO<sub>3</sub>, based on data that was prior to 1996. The permit issued July 2006, used a hardness value of 40.5 mg/l; expressed as CaCO<sub>3</sub>, based on the permit application sent by the facility. After receipt of the July 2, 2007, letter from the City, EPA on December 19, 2007, sent a reply providing procedures for the City to use to determine representative hardness data to be used in future permit modifications. In a letter dated February 19, 2009, the City provided the data. The Santa Fe River data is presented below:

**SANTA FE RIVER DATA**

DATE	HARDNESS (CaCO <sub>3</sub> ) mg/l	pH su	TEMPERATURE Deg C (*2)	CONDUCTIVITY mg/l
Feb 2008	118	7.93	15	794
Mar 2008 (*1)	102	7.19	19	708
Apr 2008	91	8.03	18	690
May 2008	94	7.93	21	650
Jun 2008	109	7.73	24	696
Jul 2008	98	7.57	25	673
Aug 2008	99	7.98	26	639
Sep 2008	104	7.75	23	662
Oct 2008	126	7.82	20	751
Nov 2008	117	7.75	19	707
Dec 2008	131	7.72	16	774
Jan 2009	157	7.62	15	858
Geo Mean	110	7.75	20	714

Footnote(s)

\*1 Average of two samples taken in month.

\*2 Rounded to nearest whole number.

Based on the pollutant data in Part III of this Fact Sheet, a water quality screen has been run to determine if discharged pollutant concentrations demonstrate RP to exceed WQS for the various designated uses. If RP exists, the screen would also calculate the appropriate permit limit needed to be protective of such designated uses. The screen is based on the NMIP as of November 30, 2009. For hardness dependent WQS, the geometric mean hardness calculated above; 110 mg/l, expressed as CaCO<sub>3</sub>, was used. This screen is shown as **Appendix 2** of the Fact Sheet. The mathematical equation for hardness based criteria for certain pollutants is found on Pages 2 and 3 of **Appendix 2** of the Fact Sheet. The relationships for copper, zinc and silver are as follows:

Copper - Acute	$0.960 e^{(0.9422[\ln(\text{hardness})] - 1.700)}$	(Equation 1)
Copper - Chronic	$0.960 e^{(0.8545[\ln(\text{hardness})] - 1.702)}$	(Equation 2)
Zinc - Acute	$0.978 e^{(0.8473[\ln(\text{hardness})] + 0.884)}$	(Equation 3)
Zinc - Chronic	$0.986 e^{(0.8473[\ln(\text{hardness})] + 0.884)}$	(Equation 4)
Silver - Acute	$0.85 e^{(1.72[\ln(\text{hardness})] - 6.59)}$	(Equation 5)
Silver - Chronic	(Silver has no chronic criteria)	

The significance of the change in hardness is shown in the following table:

POLLUTANT	HARDNESS BASED INSTREAM CRITERIA 40.5 mg/l (expressed as CaCO <sub>3</sub> )	HARDNESS BASED INSTREAM CRITERIA 110 mg/l (expressed as CaCO <sub>3</sub> )
Copper - Acute (Equation 1)	5.73	14.70
Copper - Chronic (Equation 2)	4.14	9.72
Zinc - Acute (Equation 3)	54.48	127.04
Zinc - Chronic (Equation 4)	54.92	128.08
Silver - Acute (Equation 5)	0.68	3.79

Additionally, certain pollutants such as copper, zinc and silver have criteria reported in dissolved form. Page 2 of **Appendix 2** of the Fact Sheet shows the conversion from total pollutant

concentrations to the dissolved form. Data from the spreadsheet are summarized below for the three pollutants.

POLLUTANT	Concentration Total, ug/l	Concentration Dissolved, ug/l
Copper	8.19	3.11
Zinc	62.5	20.2
Silver	0.056	0.017

Based on the NMIP, RP is determined by comparing a discharged pollutant concentration times an appropriate statistical variability factor; 2.13, and then comparing the result against the instream criteria. The significance of the change in hardness-based criteria for pollutants such as copper, zinc and silver shown above shows the sensitivity of instream criteria based on low levels of hardness. In addition to the hardness change that affected copper, silver and zinc, the other pollutants proposed to be eliminated benefited from lower pollutant concentrations between the previous permit application data set and the larger data set available for the draft permit screening.

As shown in **Appendix 2** of the Fact Sheet, none of the pollutants demonstrate RP to violate WQS consistent with the designated uses for the receiving water. The draft permit will propose the elimination of the limits for aluminum, boron, cadmium, copper, selenium and silver based on no RP to exceed WQS. Copper, silver and zinc are based on the increase of the hardness from 40.5 mg/l to 110 mg/l; both expressed as CaCO<sub>3</sub>, as shown above and cadmium and selenium are based on lower pollutant concentrations that are primarily due to the use of clean sample techniques.

### iii. TRC

The facility uses UV to control bacteria. The previous permit however maintained an 11 ug/l TRC limit when chlorine is used as a treatment chemical for process equipment sanitization and/or filamentaceous algae control. The requirement will be maintained in the draft permit.

## 5. TMDL Requirements

EPA approved March 21, 2000, a NMED TMDL for the Santa Fe River for Total Residual Chlorine and Stream Bottom Deposits. The TMDL established TRC limits of 11 ug/l. The facility had already stopped using chlorine as the bacteria control chemical in March 1998. The draft permit has maintained the 11 ug/l limit for times when chlorine may be used at the WWTP to disinfect equipment or in the control of algae. The draft permit requirements for TRC maintain the conditions to ensure continued TMDL requirements consistent with the previous permit. The TMDL established limits for TSS of 2,127 lbs/day based on the design flow in use at the time; 8.5 MGD, and a monthly average target concentration of 30 mg/l TSS at end-of-pipe. These limitations were in the previous permit and are proposed in the draft permit. They are more restrictive than the technology-based limitations shown above in Part B of this Section above.

EPA approved January 11, 2001 a second TMDL for the Santa Fe River for Dissolved Oxygen and pH. The TMDL established limits for CBOD, nitrate-nitrite, ammonia, DO and pH. For ammonia and nitrate-nitrite loading limits were based on the previous design flow of 8.5 MGD. The TMDL established limits for DO of 5.0 mg/l minimum and for pH of 6.6 su to 9.0 su. The DO limits are identical to the previous permit and are proposed in the draft permit. The limits for pH are more restrictive than the technology-based limits shown in Part B of this Section above. During the draft permit development it has been discovered that there is a typographical error in the previous permit in that it shows pH to be 6.6 to 8.8 su. It should be 6.6 to 9.0 su as proposed in this draft, based on the TMDL and stream specific WQS as presented above. Daily mass limits for CBOD are 709 lbs/day at a target end-of-pipe concentration of 10 mg/l. Limits for ammonia are established at 141.78 lbs/day and 2 mg/l end-of-pipe concentration. Nitrate-nitrite daily limits are established at 212.67 lbs/day at an end-of-pipe target concentration of 3 mg/l. These limits are identical to the previous permit and are proposed in the draft permit.

## 6. Other Requirements

The previous permit had report requirements for vanadium, adjusted gross alpha and radium 226 + radium 228. The reported pollutant concentrations were screened in the RP table included in **Appendix 2** of the Fact Sheet and discussed earlier. Based on those results further permit reporting conditions are not proposed in the draft permit for vanadium, adjusted gross alpha and radium 226 + radium 228 since they did not demonstrate RP to exceed WQS.

### D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). Sample frequency is based on the November, 2009, NMIP. Based on the design flow of the facility, 13.5 MGD, the NMIP requires that all limited parameters have daily monitoring frequency requirements. Flow is proposed to be monitored continuously by totalizing meter. E. coli bacteria, pH, and DO shall use grab samples. The other parameters; CBOD, TSS, ammonia, and nitrate-nitrite shall use 24-Hr composite samples, which is consistent with the previous permit. When chlorine is used to disinfect treatment equipment and/or treat filamentaceous algae, TRC shall be sampled daily using instantaneous grab samples. Regulations at 40 CFR §136 define instantaneous grab as being analyzed within 15-minutes of collection.

### E. WHOLE EFFLUENT TOXICITY LIMITATIONS

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP, July 2009. Table 11 of Section V of the NMIP outlines the type of WET testing for different types of discharges. Analysis of past WET data to determine RP is shown on **Appendix 3** of the Fact Sheet. Due to multiple toxicity failures for both test species, reasonable potential has been demonstrated. WET *limits* for toxicity will be maintained for the proposed permit term. The CD of the discharge was previously determined to be 100%. The test species shall be *Ceriodaphnia dubia* and *Pimephales promelas*.

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 to the Santa Fe River treated sanitary wastewater. Discharges shall be limited and monitored by the permittee as specified below:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE LIMITATIONS</u>	
	<u>30-DAY AVG MINIMUM</u>	<u>7-DAY MINIMUM</u>
Whole Effluent Toxicity (PCS 22414) (7-Day NOEC) 1/	100%	100%
<i>Ceriodaphnia dubia</i>	REPORT	REPORT
<i>Pimephales promelas</i>	REPORT	REPORT

<u>EFFLUENT CHARACTERISTIC</u>	<u>MONITORING REQUIREMENTS</u>	
	<u>FREQUENCY</u>	<u>TYPE</u>
Whole Effluent Toxicity (7-Day NOEC) 1/		
<i>Ceriodaphnia dubia</i>	1/Quarter	24 Hr. Composite
<i>Pimephales promelas</i>	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.

**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". The specific requirements in the permit apply as a result of the design flow of the facility, the type of waste discharged to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works. The permittee shall submit an Annual Sludge Status report in accordance with NPDES Permit NM0022292, Parts I and Parts IV.

**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 treatment plant has four-non-categorical Significant Industrial Users (SIU) and no Categorical Industrial Users (CIU). The facilities, their services and estimated long-term flow contribution to the POTW are as follows:

<u>Discharger</u>	<u>Product</u>	<u>Discharge Volume</u>
St. Vincent=s Hospital	Sanitary and medical care	0.043 MGD
Steve Herrera Judicial Complex	Groundwater remediation	0.020 MGD
Genzyme Genetics	Medical Lab Testing	0.002 MGD
Public Service New Mexico	Remediated ground water	0.009 MGD

The facility has an approved pretreatment program in place and will be continued with this draft permit. 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

The Santa Fe River, a sub-basin of the Upper Rio Grande, is listed as being impaired for DO, pH, chlorine and stream bottom deposits. Previously in Part V of the Fact Sheet, permit conditions were identified as being based on approved TMDLs to address these pollutants. No additional pollutants are listed for this waterbody. The standard reopener language in the permit allows additional permit conditions if warranted by future changes and/or new TMDLs.

#### VIII. ANTIDegradation

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

#### IX. ANTIBACKSLIDING

The proposed permit is consistent with the requirements to meet antibacksliding provisions of the Clean Water Act, Section 402(o) and 40 CFR §122.44(l)(i)(A), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation. The proposed permit maintains the mass loading requirements of the previous permit for CBOD, TSS, nitrate-nitrite, ammonia and the concentration limits for DO, pH, E. coli, and TRC. Limits for aluminum,

boron, cadmium, copper, selenium, and silver have been eliminated from the draft permit. The pollutant deletions are based on 40 CFR §122.44 (I)(B), new information that was not available at the time the previous permit was issued and was discussed in Part V above.

## **X. ENDANGERED SPECIES CONSIDERATIONS**

According to the most recent county listing available at USFWS, Southwest Region 2 website, <http://ifw2es.fws.gov/EndangeredSpecies/lists/>, four species in Santa Fe County are listed as endangered or threatened. The Black-footed ferret (*Mustela nigripes*), Rio Grande silvery minnow (*Hybognathus amarus*), and the Southwestern willow flycatcher (*Empidonax traillii extimus*) are listed as endangered. The Mexican spotted owl (*Strix occidentalis lucida*) is listed as threatened. 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).

A Section 7 consultation was initiated in accordance with the Endangered Species Act, 16 USC Sec. 1536, on July 31, 2000, with the Department of Interior Fish and Wildlife Service Field Office to evaluate the effect of the discharge from the Paseo Real WWTP to threatened and endangered species in the county. Concurrence from that office is dated November 28, 2000, whereby the Service agreed with EPA's determination that there are no effects from this discharge to the Santa Fe River for the following listed species: Black-footed ferret, Bald eagle, Mexican spotted owl, Southwestern willow flycatcher, and Rio Grande silvery minnow.

EPA has determined that the reissuance of the Santa Fe NPDES permit will have "no effect" on listed species nor will destroy or adversely modify listed critical habitat. The "no effect" determination by EPA in 2000 was made in light of the absence and/or infrequency of listed species in the vicinity of the discharge. Although the characteristics of the effluent appear to have changed since the last permit issuance, EPA believes that the permit limitations, including additional whole effluent testing, are protective. These permit changes, as well as the proximity of any listed species or designated critical habitat, result in EPA's determination of "no effect".

## **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 State Agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service prior to the publication of that notice.

**XV. FINAL DETERMINATION**

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

**XVI. ADMINISTRATIVE RECORD**

The following information was used to develop the proposed permit:

**A. APPLICATION(S)**

EPA Application Form 2A received February 5, 2010.

**B. 40 CFR CITATIONS**

Citations to 40 CFR are as of January 20, 2010.  
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, as amended through August 1, 2007.

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico, November 2009.

Statewide Water Quality Management Plan, December 17, 2002.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2008 - 2010.

Total Maximum Daily Load for the Santa Fe River from the Cochiti Pueblo to the Santa Fe Wastewater Treatment Plant for Chlorine and Stream Bottom Deposits, approved by EPA March 20, 2000.

Total Maximum Daily Load for the Santa Fe River for Dissolved Oxygen and pH, approved by EPA January 11, 2001.