

NPDES PERMIT NO. NM0024066

FACT SHEET

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

APPLICANT

Town of Taos Wastewater Treatment Facility
P.O. Box 250
Ranchos de Taos, NM 87557

ISSUING OFFICE

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

PREPARED BY

Scott W. Stine, Ph.D.
Life Scientist
NPDES Permits & Technical Section (6WQ-PP)
Water Quality Protection Division
VOICE: 214-665-7182
FAX: 214-665-2191
EMAIL: stine.scott@epa.gov

DATE PREPARED

June 21, 2011

PERMIT ACTION

Proposed reissuance of the current NPDES permit issued June 26, 2006, with an effective date of August 1, 2006, and an expiration date of July 31, 2011.

RECEIVING WATER – BASIN

Rio Pueblo de Taos – 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 limitations 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
µg/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
MQL	Minimum quantification level
O&G	Oil and grease
PCB	Polychlorinated Biphenyl
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
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

In this document, references to State WQS and/or rules shall collectively mean either or both the State of New Mexico and/or the Pueblo of Taos.

I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued June 26, 2006, with an effective date of August 1, 2006, and an expiration date of July 31, 2011, are:

1. TRC limits made more stringent.
2. FCB limits made more stringent.
3. BOD 7-day average loading limits have been added.
4. TSS 7-day average loading limits have been added.
5. pH frequency of analysis has been changed to daily.
6. Limits for percent removal of BOD have been added.
7. Limits for percent removal of TSS have been added.

II. APPLICATION LOCATION and ACTIVITY

As described in the application, the wastewater treatment plant is located at 182 Los Cordovas Road, in Taos, Taos County, New Mexico. The effluent from the treatment plant is discharged into a man-made channel leading to the Rio Pueblo de Taos. The discharge is located on that water at latitude 36° 22' 24" N and longitude 105° 39' 21" W, in Taos County, New Mexico.

Under the SIC Code 4952, the discharge is from a publicly owned treatment works (POTW) with a design capacity of 2.0 MGD serving a total population of 11,300 that includes Town of Taos, Taos Pueblo, and El Prado.

As described in the application and a Compliance Evaluation Inspection dated March 24, 2011, the treatment processes for the facility is as follows:

The Town of Taos WWTF is currently undergoing major plan construction and upgrades that are altering normal plant processes. One of two aeration basins is off line and being rehabilitated.

The raw wastewater arrives by gravity flow to the enclosed entrance works. The raw sewage is screened by parallel channels with bar screen - grinders. A manual bar screen bypass channel is located parallel to the mechanical screen. The removed solids are sent to a hopper and dried before final disposal. It then passes flow recording equipment into an aerated grit chamber. The raw sewage entering the treatment plant is largely septic due to the amount of time spent flowing through the collection system. The aerated grit chamber is the first unit in the treatment works to inject oxygen into the raw sewage to begin the aerobic treatment process for activated sludge. The solids removed from the grit chamber are combined with the other solids from the head works.

A station for septage haulers is located at the head works. In order to protect the WWTP process, septage haulers must test their loads for pH and other parameters before being allowed to dump the waste at the treatment plant. A log is kept of these loads. Before construction there were proportional weirs at the end of the grit chamber, and the flow was split to the two rectangular aeration basins, 60% being sent to the West basin and 40% being sent to the East

basin. The West basin is off line and is being rebuilt with upgraded treatment mechanisms including new fine bubble diffusers. The new plant design will incorporate a Membrane Bio Reactor (MBR) system that is designed to enhance treatment and Nitrogen removal. The remaining aeration basin that in the past received only 40% of the wastewater is now processing 100% of the sewage. This unit is equipped with three surface aerators and two mixers.

Flow from the basin is delivered to the clarifier splitter box, which is outfitted with coarse bubbling aeration. The splitter box is designed for scum and grease removal. The removed scum and grease enters the sludge train for removal. Following the splitter box the flow is divided between the two trains of two clarifiers each. Within each train the clarifiers are run in series. As a result of the West aeration basin being off line, the plant is experiencing high levels of suspended solids that are interfering with the effectiveness of the Ultraviolet disinfection process. To compensate for the ineffective disinfection, operators are now chlorinating the secondary clarifiers, with a liquid solution of 10% and/or 12% Sodium Hypochlorite. The chlorine is delivered to the first clarifier each in both series.

The decant from the two trains of clarifiers is sent through a fine screen for final removal of grease and foam before it enters the Ultra Violet (UV) disinfection chamber. This approximately 6'x4'x4' chamber with the fine screen is the delivery point for the de-chlorination agent, a liquid solution of 40% Sodium Bisulfite.

Operators stated that the proportional rates of chlorination to de-chlorination are based on calculations to determine the most effective treatment with an additional buffer of extra dechlorination added to prevent any chlorine release in the effluent. The UV chamber consists of two banks of lights with 14 modules of 8 bulbs each that are kept submerged by a weighted check dam. The lights are turned on 100% of the time. Following in the treatment train is a 12 inch Parshall flume and staff gauge with a backup Drexelbrook flow measurement device. A portion of the flow is diverted to a golf course storage pond for reuse irrigation during the warm months of the year.

Solids, as Return Activated Sludge (RAS), are pumped either to the end of the aeration grit chamber, where the blowers help to mix the RAS into the incoming raw sewage located just ahead of the aeration basin, or are pumped to the Waste Activated Sludge (WAS) train. From the remaining aeration basin and from 2 of the 4 secondary clarifiers, sludge that consists of 2% - 5% solids, is sent to the belt press for dewatering. A polymer coagulant is added to the solids. From the belt press solids are filled into a dump truck and taken to the newly built composting pad, to be mixed with wood chips for composting. The liquid from the belt press is sent back to the splitter box at the end of the aerated grit chamber. The composting pad is approximately 114'x172' and fitted with an under-drain that sends liquids to the sludge pond on site.

III. RECEIVING STREAM STANDARDS

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC, amended through January 14, 2011). The facility discharges into an unnamed arroyo thence to the Rio Pueblo de Taos in Waterbody Segment No. 20.6.4.122 of the Rio Grande Basin. The designated

uses of this receiving water are coldwater aquatic life, fish culture, irrigation, wildlife habitat, livestock watering, and primary contact.

The north bank of the Rio Pueblo de Taos, also known as the Rio Pueblo, is bordered by the Pueblo of Taos. The Pueblo of Taos has WQS approved by EPA on June 19, 2006. The Pueblo of Taos WQS establish designed uses of the Rio Pueblo, below Los Cordovas as domestic water supply (including groundwater recharge), wildlife habitat, cold water fishery, irrigation, livestock watering & wildlife water, aquatic life (acute & chronic criteria), and primary human contact/ceremonial use.

IV. EFFLUENT CHARACTERISTICS

A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A received March 4, 2011 are presented below in Table 1:

POLLUTANT TABLE – 1

Parameter	Max	Avg
	(mg/l unless noted)	
Flow, million gallons/day (MGD)	2.00	1.16
Temperature, winter	10.50°C	7.50°C
Temperature, summer	19.30 °C	18.00 °C
pH, minimum, standard units (SU)	6.6 su	N/A
pH, maximum, standard units (SU)	8.8 su	N/A
Biochemical Oxygen Demand, (BOD)	10.80	5.85
Fecal Coliform (bacteria/100 ml)	10.00	4.90
Total Suspended Solids (TSS)	15.30	5.80
Ammonia (as N)	19.3	17.2
Chlorine (Total Residual, TRC)	0.00	0.00
Dissolved Oxygen	6.40	4.63
Total Kjeldahl Nitrogen (TKN)	11.00	7.75
Nitrate plus Nitrite Nitrogen	10.00	5.38
Oil and Grease	6.1	3.9
Phosphorus (Total)	1.67	1.56
Total Dissolved Solids (TDS)	493	469

ND – no data received

A summary of the last 36 months of available pollutant data from March 2008 through February 2011, taken from DMRs shows no exceedances of permit limits for pH, TRC, TSS, or BOD₅. During the same period, three exceedances were reported for fecal coliform bacteria concentration limits, while four exceedances were reported for *E. coli*. These exceedances for bacteria limits occurred from October 2010 to February 2011. The March 24, 2011, NPDES Compliance Evaluation Inspection Report for the facility notes that major plant construction and upgrades have altered normal plant processes. The report contributes these exceedances to high levels of suspended solids interfering with the effectiveness of the Ultraviolet disinfection

process due to one of two aeration basins being off line for upgrading. The report also notes that chlorine has been used during this period to compensate for ineffective Ultraviolet disinfection.

POLLUTANT TABLE – 2

Date	BOD ₅			pH		TSS			TRC	Fecal Coliform		<i>E. coli</i>	
	30 DAY AVG	30 DAY AVG	7 DAY AVG	Min.	Max.	30 DAY AVG	30 DAY AVG	7 DAY AVG	Max.	30 DAY AVG	Daily Max	30 DAY AVG	Daily Max
	lbs/day	mg/L	mg/L	s.u.	s.u.	lbs/day	mg/L	mg/L	µg/L	cfu/100 mL	cfu/100 mL	cfu/100 mL	cfu/100 mL
Limit	500	30	45	6.6	8.8	500	30	45	19	500	500	126	235
3/31/2008	82.5	9.6	13.3	7.5	7.9	165.5	19.6	31.5	NA	11.6	26	26.2	43
4/30/2008	101.6	11.4	13.2	7.7	7.8	160.8	18	23	NA	9.4	21.7	10.8	21
5/31/2008	68.3	5.7	6.1	7.8	7.9	114.7	9.7	11.1	NA	17.5	42	18.4	34.8
6/30/2008	54.8	4.4	5	7.8	8	86.9	6.9	8.5	NA	12.3	21.7	11.2	31
7/31/2008	58.5	4.9	5.7	7.7	7.9	58.4	5	6.2	NA	2.9	15.1	4.9	13.2
8/31/2008	40.8	4	4.7	7.8	7.8	83.2	8.2	19	NA	4.5	6.6	4.7	14.6
9/30/2008	41.2	4.3	5.2	7.7	7.8	52.4	5.4	6.7	NA	11.2	28.3	6.7	16.2
10/31/2008	53.6	5.6	8	7.7	7.9	72.8	7.6	11.2	NA	17.2	42	11.6	24
11/30/2008	47.3	5.4	7.3	7.6	7.7	78.9	8.9	15.2	NA	5.3	19.1	3.7	6
12/31/2008	59.6	6.4	10.5	7.7	7.8	70.4	7.6	11.5	NA	9.9	145	11.6	73.7
1/31/2009	43.7	4.8	6	7.6	7.8	69.3	7.6	14	NA	6.8	13.8	3.5	7.6
2/28/2009	38.9	4.2	5.6	7.7	7.9	143.2	15.5	33.3	NA	2.5	5.9	3.4	5.6
3/31/2009	72	8.4	11.3	7.6	7.7	131.3	15	42.8	NA	2.4	17.1	2.9	15.6
4/30/2009	71.2	7.3	13	7.8	7.9	56.1	6	7.3	NA	3.7	13.8	4.6	18.9
5/31/2009	73.7	6	8	7.7	7.8	73.1	6	8.2	NA	22.6	34.2	19	31.5
6/30/2009	54.2	4.6	5.4	7.8	7.9	77.8	6.7	9.1	NA	10	15.8	8.8	12.2
7/31/2009	6.74	6	6.7	7.7	7.9	51.9	4.7	6.8	NA	7.4	13.2	4.3	9.6
8/31/2009	46.9	4.9	7.6	7.7	7.9	53.1	5.6	8.7	NA	9.1	43	7.2	22
9/30/2009	49	6	7	7.8	7.9	43	5	7	NA	6	12	5	12
10/31/2009	45	5	6	7.7	7.9	46	6	7	NA	2.5	5	2	4
11/30/2009	27	3	4	7.6	7.9	26	3	4	NA	2	5	2	4
12/31/2009	75	8	11	7.3	7.6	71	8	10	NA	2	4	2	4
1/31/2010	57.1	6.5	8	7.3	7.6	67.4	7.8	10	NA	3.4	5	2.5	5
2/28/2010	127	14	21	7.2	7.8	116	13	22	NA	6	79	9	95
3/31/2010	85	10	15	7.2	7.7	85	10	14	NA	2	13	3	30
4/30/2010	82	9	14	7.5	7.7	51	6	9	NA	6	27	7	24
5/31/2010	69	6	11	7.4	7.6	76	6	12	NA	3	11	6.9	9
6/30/2010	69.7	6	9	7.4	7.8	90	7	18	NA	3	6	3	7
7/31/2010	40.6	4	8	7.4	7.8	37.8	4	4	NA	8	41	10	14
8/31/2010	47.8	5	6	7.3	7.8	42.8	4	10	NA	13	87	20	36
9/30/2010	51.9	6	11	7.7	7.8	52.3	6	15	NA	5	10	8	14
10/31/2010	55.9	6	8	7.4	7.7	50.2	6	9	NA	20	450	29	250
11/30/2010	112.7	14	32	7.6	7.9	57.8	7	18	ND	26	135	46	205

12/31/2010	141.7	16	26	7.7	7.9	117.5	14	20	ND	437	4000	>1698	>8000
1/31/2011	167.2	19	26	7.7	7.9	127.8	15	21	ND	>748	>6000	>1800	>8000
2/28/2011	257.2	29	39	7.2	7.7	148.9	16	31	ND	75	2450	128	950

* NA – According to DMRs submitted by the facility, chlorine was not used for disinfection and was not monitored.

* ND – No data.

V. 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 existing NPDES permit initially issued June 26, 2006, with an effective date of August 1, 2006, and an expiration date of July 31, 2011 is administratively continued until this permit is reissued.

VI. 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 ELGs, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

Technology-based effluent limitations are established in the proposed draft permit for TSS and BOD₅. Water quality-based effluent limitations are established in the proposed draft permit for fecal coliform bacteria, *E. coli* bacteria, 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. POTWs have technology-based ELGs established at 40 CFR 133, Secondary Treatment Regulation. Pollutants with ELGs established in this Chapter are BOD, TSS and pH. BOD₅ 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 (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). ELGs 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 POTWs or WWTPs, 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 BOD₅/TSS loading = 30 mg/L * 8.345 lbs/gal * 2.0 MGD

30-day average BOD₅/TSS loading = 500 lbs.

7-day average BOD₅/TSS loading = 45 mg/L * 8.345 lbs/gal * 2.0 MGD

7-day average BOD₅/TSS loading = 751 lbs.

Technology-Based 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
BOD ₅	500	751	30	45
BOD ₅ , % removal, minimum	≥ 85% (*1)	NA	NA	NA
TSS	500	751	30	45
TSS, % removal, minimum	≥ 85% (*1)	NA	NA	NA
pH	NA	NA	6.0 - 9.0 s.u.	

NA- Not applicable.

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 the 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 and Tribal Water Quality Standards

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC, amended through January 14, 2011). The facility discharges into an unnamed arroyo thence to the Rio Pueblo de Taos in Waterbody Segment No. 20.6.4.122 of the Rio Grande Basin. The designated uses of this receiving water are coldwater aquatic life, fish culture, irrigation, wildlife habitat, livestock watering, and primary contact.

The north bank of the Rio Pueblo de Taos, also known as the Rio Pueblo, is bordered by the Pueblo of Taos. The Pueblo of Taos has WQS approved by EPA on June 19, 2006. The Pueblo of Taos WQS establish designed uses of the Rio Pueblo, below Los Cordovas as domestic water supply (including groundwater recharge), wildlife habitat, cold water fishery, irrigation, livestock watering & wildlife water, aquatic life (acute & chronic criteria), and primary human contact/ceremonial use.

In this document, references to State WQS and/or rules shall mean collectively either or both the Pueblo of Taos and/or the State of New Mexico. Where different standards apply for a particular pollutant, the most stringent standard has been used to develop effluent limitations in order to protect for all applicable designated uses.

4. Permit Action – Water Quality-Based Limits

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

a. pH

The State of New Mexico WQS criteria applicable to the coldwater aquatic life designated use and Pueblo of Taos WQS criteria for the cold water fishery designated use require pH to be between 6.6 and 8.8 s.u. This is more limiting than the technology-based limits presented earlier, and is also more restrictive than the current permit. The draft permit shall establish a limit of 6.6 to 8.8 s.u. for pH, which is consistent with the current permit.

b. Bacteria

The previous permit had limits for fecal coliform bacteria (FCB) of 500 cfu/100 mL monthly geometric average and a 500 cfu/100 mL single maximum. Since the previous permit issuance, New Mexico has adopted *E. coli* as the State bacteria standard in lieu of FCB. However, Pueblo of Taos numeric criteria for the ceremonial use – primary human contact designated use requires a monthly geometric mean for FCB of 200 cfu/100 mL and single sample of 400 cfu/100 mL. Therefore, the draft permit will propose FCB limits of 200 cfu/100 mL monthly geometric average and a 400 cfu/100 mL single maximum, which are more restrictive than the current permit.

The NMWQS criteria require *E. coli* of 126 cfu/100 mL monthly geometric mean and single sample of 410 cfu/100 mL, end-of-pipe to protect the primary contact designated use. However, NMWQS establishes segment-specific criteria for Waterbody Segment No. 20.6.4.122 of the Rio Grande Basin for monthly geometric mean for *E. coli* of 126 cfu/100 mL and single sample of 235 cfu/100 mL. Pueblo of Taos numeric criteria for the ceremonial use – primary human contact designated use requires a monthly geometric mean for *E. coli* of 126 cfu/100 mL and single sample of 235 cfu/100 mL. Therefore, the draft permit will propose to maintain the *E. coli* bacteria limits of 126 cfu/100 mL monthly geometric average and a 235 cfu/100 mL single maximum.

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 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 classified as a major and must supply the expanded pollutant testing list described in EPA Application Form 2A and the NMIP. Supplemental pollutant data not included in Form 2A was provided by the facility on June 8, 2011. See Appendix B of this Fact Sheet for the full list of sampled pollutants. The following are the data that were in excess of the EPA’s MQL for the particular pollutant.

Parameter	Max	Avg
	(µg/l unless noted)	
Arsenic	2.38	1.9
Chromium	3.6	1.3
Copper	8.03	4.49
Nickel	2.61	2.55
Zinc	38.1	29.64
Aluminum, dissolved	16.9	16.9
Boron	193	193
Ra-226 and Ra-228 (pCi/l)	0.6	0.6
Tritium (pCi/l)	159	159
Gross Alpha (pCi/l)	2.28	2.28
Nitrite + Nitrate (mg/l)	1	0.58
Mercury, total	0.093	0.064

TRC is a toxic that has been identified in previous permits to be limited and is discussed below.

(ii) Critical Conditions

Critical conditions are used to establish certain permit limitations and conditions. The State of New Mexico WQS allow a mixing zone for establishing pollutant limits in discharges. Both states establish a critical low flow designated as 4Q3, as the minimum average four consecutive day flow which occurs with a frequency of once in three years. The SWQB of the NMED provided EPA with the 4Q3 of 7.39 cfs and the harmonic mean flow of 9.37 cfs for the Town of Taos.

For permitting purposes of certain parameters such as WET, the critical dilution of the effluent to the receiving stream is determined. The critical dilution, CD, is calculated as:

$CD = Q_e / (F \cdot Q_a + Q_e)$, where:

Q_e = facility flow (2 MGD)

Q_a = critical low flow of the receiving waters (4.78 MGD [= 7.39 cfs])

F = fraction of stream allowed for mixing (1.0)

$$\begin{aligned} CD &= 2 \text{ MGD} / [(1.0)(4.78) + 2] \\ &= 0.29 \\ &= 29\% \end{aligned}$$

Data from the following sources are used to calculate in-stream waste concentrations and effluent limitations:

Stream TSS (mg/l): 20 (Value from the current permit).

Stream Hardness (mg/l): 244 (Value from the current permit).

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

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

Where:

C_d = Instream waste concentration

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

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 MGD

Q_a = Critical low flow, 4Q3, of receiving stream, 4.78 MGD

This screen is shown as Appendix B of the Fact Sheet.

As shown in Appendix B of the Fact Sheet, the pollutant data did not demonstrate reasonable potential to exceed WQS of the receiving water. No limits have been established in the proposed permit for any of the pollutants evaluated in Appendix B of the Fact Sheet.

(iii) TRC

The facility used ultraviolet disinfection units for bacterial disinfection under the previous permit, which had limits for TRC of 19 µg/L when chlorine was used. For TRC, State WQS establish acute end-of-pipe criteria of 19 µg/L and chronic in-stream criteria of 11 µg/L. Under the cold water fishery designated use, Pueblo of Taos criteria for TRC is 3 µg/L. At a critical dilution of 29%, the criteria of 3 µg/L is the most stringent limitation. The draft permit will establish a TRC limit of 3 µg/L when chlorine is used.

5. 303(d) List Impacts

The Rio Pueblo de Taos, from Arroyo del Alamo to Rio Grande del Rancho, is listed on the “2010-2012 State of New Mexico Integrated Clean Water Act Section 303(d) / 305(b) Report.” The waterbody is classified as Category 4A with coldwater aquatic life and livestock watering designated uses listed as not supporting and not assessed, respectively. The designated uses of fish culture, irrigation, primary contact, and wildlife habitat are listed as fully supporting. Sedimentation/siltation and temperature have been identified as probable causes of impairment. A TMDL for temperature and stream bottom deposits for the Upper Rio Grande Watershed, which includes the Rio Pueblo de Taos, was approved by EPA on December 17, 2004. No point source contributions were associated with this TMDL.

The standard reopener language in the permit allows additional permit conditions if warranted by new or revised TMDLs.

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). Technology based pollutants; BOD₅ and TSS, are proposed to be monitored once per week consistent with the previous permit. Sample type for BOD₅ and TSS is 6-hour composite. Flow shall be sampled continuously (daily) by totalizing meter consistent with the previous permit. The technology based monitoring frequencies are consistent with the NMIP.

Water quality-based pollutant monitoring frequency for FCB and *E. coli* shall be sampled once a week using grab samples, which is consistent with the current permit and the NMIP. The current permit requires TRC (when chlorine is used) and pH to be sampled daily and once per week, respectively. The draft permit proposes that TRC (when chlorine is used) and pH both be measured daily by instantaneous grab (field measurement), which is consistent with the NMIP. Regulations at 40 CFR Part 136 define instantaneous grab as being analyzed within 15-minutes of collection.

E. WHOLE EFFLUENT TOXICITY REQUIREMENTS

In Section VI.C.4.c.ii.(b) above; “Critical Conditions”, it was shown that the critical dilution, CD, for the facility is 29%, because the discharge is to a perennial. Based on the nature of the discharge; POTW, the design flow; greater than 1 MGD, the nature of the receiving water; perennial, and the critical dilution; 29%, the NMIP directs the WET test to be a 7-day chronic test using a once per three months frequency for the first year of the permit for *Ceriodaphnia dubia* and a once per three months frequency for the entire permit term for *Pimephales promelas*. If during the first year all four tests pass both the lethal and sub-lethal test endpoints then the permit may allow a frequency reduction of once per six-months for *Ceriodaphnia dubia* only. Any failure shall re-establish all tests for the *Ceriodaphnia dubia* test species to once per three-month for the remainder of the permit. The *Ceriodaphnia dubia* 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 12%, 16%, 22%, 29%, and 39%. The low-flow effluent concentration (critical low-flow dilution) is defined as 29% effluent.

The previous permit established WET biomonitoring with CD = 30%. Data provided in the application reveals one (1) failing test for the test species *Pimephales promelas* during the last permit term. The EPA Reasonable Potential Analyzer (See Appendix A) indicates that RP exists at the sub-lethal endpoint for this vertebrate test species. However, fifteen (15) passing tests for both vertebrate and invertebrate test species have occurred subsequent to the single test failure. Therefore, WET limits will not be established in the proposed permit but a monitoring frequency reduction will not be allowed for the *Pimephales promelas* test species either.

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 Pueblo de Taos of the treatment system aeration basin. The aeration basin receives process area wastewater, process area stormwater, and treated sanitary wastewater. Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE MONITORING	
	30-DAY AVG MINIMUM	7-DAY MINIMUM
Whole Effluent Toxicity Testing (7 Day Static Renewal) <u>1</u> /		
<u>Ceriodaphnia dubia</u>	REPORT	REPORT
<u>Pimephales promelas</u>	REPORT	REPORT

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

VII. FACILITY OPERATIONAL PRACTICES

A. SEWAGE SLUDGE PRACTICES

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 treatment plant has 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 Section 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.

IX. ANTIDegradation

The State of New Mexico and the Pueblo of Taos both have antidegradation requirements to protect existing uses through implementation of their WQS. The limitations and monitoring requirements set forth in the proposed draft are developed from the appropriate State WQS and are protective of those designated uses. Furthermore, the policy's set 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.

X. 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 effluent limitations of the previous permit for pH, *E. coli*, BOD₅, and TSS. The pollutants TRC and FCB have been made more stringent and this action is not subject to antibacksliding provisions. All of the changes represent permit requirements that are consistent with the State WQS and WQMP.

XI. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>, three species in Taos County are listed as endangered (E) or threatened (T). Two species are birds and include the Southwestern willow flycatcher (*Empidonax traillii extimus*) (E) and the Mexican spotted owl (*Strix occidentalis lucida*) (T). The lone mammalian species includes the black-footed ferret *Mustela nigripes* (E). The American bald eagle (*Haliaeetus leucocephalus*) was previously listed in Taos County; 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.

Southwestern Willow Flycatchers habitat occurs in riparian areas along streams, rivers, and other wetlands where dense willow, cottonwood, buttonbush and arrowweed 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.

The **black-footed ferret** research finds that the species has diminished due to the eradication of prairie dogs, the primary source of the ferret’s habitat and food. Main causes of the decline in the ferret population included habitat conversion for farming; efforts to eliminate prairie dogs, which competed with livestock for available prairie forage; and sylvatic plague, a disease that wiped out large numbers of prairie dogs and has also killed ferrets. Reintroduced black-footed ferrets have been designated as “non-essential experimental” populations under the Endangered Species Act. This designation allows, Federal, State, and Tribal resource managers, and private citizens more flexibility in managing new populations. The “non-essential, experimental” designation does not limit land uses such as forest management, agricultural practices, sport hunting, and non-consumptive outdoors recreation. The NPDES program regulates discharge of pollutants and does not regulate forest management practices and agricultural practices. Issuance of this permit will have no effect on the Black-footed Ferret food source or habitat.

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 reviewed by the permitting process. 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.

XII. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The permittee submitted a Cultural Resource Survey for the proposed Town of Taos Wastewater Treatment System Improvements project to the State Historic Preservation Office (SHPO) on July 17, 2009. The SHPO concurred that no historic properties would be affected on August 28, 2009.

XIII. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if relevant portions of either States WQS are revised or remanded. In addition, the permit may be reopened and modified during the life of the permit if relevant procedures implementing the States Water Quality Standards are either revised or promulgated. Should either State adopt a new WQS,

and/or develop or amend a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that approved State standard and/or water quality management plan, in accordance with 40 CFR 122.44(d). Modification of the permit is subject to the provisions of 40 CFR 124.5.

XIV. VARIANCE REQUESTS

No variance requests have been received.

XV. CERTIFICATION

The permit is in the process of certification by the State of New Mexico 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.

XVI. FINAL DETERMINATION

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

XVII. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(S)

EPA Application Form 2A received March 4, 2011.

Supplemental information provided via email on June 7, 2011 and June 8, 2011.

B. 40 CFR CITATIONS

Citations to 40 CFR as of March 25, 2011.

Sections 122, 124, 125, 133, 136

C. STATE WATER QUALITY REFERENCES

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

Procedures for Implementing NPDES Permits in New Mexico, May 2011.

Statewide Water Quality Management Plan, December 17, 2002.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2010-2012.

E. PUEBLO OF TAOS REFERENCES

Pueblo of Taos Water Quality Standards, enacted August 13, 2002.

F. OTHER

Compliance Evaluation Inspection of the Town of Taos Wastewater Treatment Plant NPDES Permit Number NM0024066, March 4, 2011.