

NPDES PERMIT NO. NM0029165

FACT SHEET

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

APPLICANT

City of Ruidoso Downs and Village of Ruidoso Wastewater Treatment Plant (WWTP)
313 Cree Meadows Drive
Ruidoso, NM 88345

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

May 4, 2012

PERMIT ACTION

Proposed reissuance of the current NPDES permit issued July 18, 2007, with an effective date of September 1, 2007, and an expiration date of August 31, 2012.

RECEIVING WATER – BASIN

Rio Ruidoso – Pecos River 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 the State of New Mexico.

I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued July 18, 2007, with an effective date of September 1, 2007, and an expiration date of August 31, 2012, are:

1. The limit for TRC has been changed.
2. Thallium limits have been modified and a new compliance schedule has been included in the draft permit.
3. Limits addressing percent removal of BOD and TSS have been added to the permit.
4. pH frequency of analysis has been changed to daily.
5. Final loading limitations for total nitrogen have been modified.
6. Loading limitations for total phosphorus have been modified.
7. Thallium monitoring frequency has been modified to three times per week.
8. Interim limits and the compliance schedule for total nitrogen have been modified.
9. The dilution series established for WET testing has been modified.
10. The facility's design flow has been increased from 2.6 MGD to 2.7 MGD.
11. Loading limits for TSS have been modified.
12. Loading limits for BOD have been modified.
13. An influent temperature reporting requirement has been added to the permit.
14. A monitoring requirement has been added to the permit for PCBs.
15. A monitoring requirement has been added to the permit for acrylonitrile.
16. A monitoring requirement has been added to the permit for aldrin.
17. A monitoring requirement has been added to the permit for heptachlor.
18. A monitoring requirement has been added to the permit for heptachlor Epoxide.
19. The monitoring requirement for cyanide has been modified.

II. APPLICATION LOCATION and ACTIVITY

As described in the application, the wastewater treatment plant is located at 26675 U.S. Highway 70, in Ruidoso Downs, Lincoln County, New Mexico. The effluent from the facility is discharged into the Rio Ruidoso. The discharge is located on that water at latitude 33° 21' 38" N and longitude 105° 32' 35" W, in Lincoln County, New Mexico.

Under the SIC Code 4952, the discharge is from a publicly owned treatment works (POTW) with a design capacity of 2.7 MGD serving a total population of 10,844 that includes the Village of Ruidoso and the City of Ruidoso Downs.

As described in the application, the treatment processes for the facility is as follows:

The City of Ruidoso Downs/Village of Ruidoso Regional WWTP was put online on April 2011. The WWTP is designed for an annual average day flow of 1.90 MGD and 2.70 MGD peak month average day flow. The facility is designed to be expanded at a future date, as population growth in the communities served dictates. The facility is an enhanced biological nutrient removal process, which consists of a Bardenpho process followed by membrane bioreactors (MBR). The individual components are as follows:

Raw sewage is received through a 24-inch line into the influent lift station. The wastewater is then pumped to the entrance works structure for preliminary treatment, which consists of screening and grit removal. After flow measurement, the raw sewage is conveyed to the biological treatment. The WWTP has been designed as an enhanced biological nutrient removal plant, thus there are multiple basins with specific functions, which all together integrate the biological treatment process. The biological process basins are identified as: anaerobic selector, de-oxygenation tanks, pre-anoxic basin, pre-aeration basin, post-anoxic basin, and membrane bioreactors.

The first basin is an anaerobic selector for bio-phosphorus removal. From this basin, the wastewater flows into a de-oxygenation basin; there it is mixed with returned activated sludge (RAS). The mixed wastewater is then conveyed to the pre-anoxic zone. The pre-anoxic basin is equipped with submersible mixers to keep the solids in suspension while maintaining anoxic conditions. Following the pre-anoxic basin, there is a pre-aeration zone, which is equipped with fine bubble diffusers. Another anoxic zone, which is called "post-anoxic," is located right after the pre-aeration basin. In the post-anoxic zone, chemicals (methanol and/or alum) can be added to assist on the process to achieve ultra-low effluent nitrogen and phosphorus. The last basin of the biological treatment process is the membrane bioreactors (MBRs) tank. The MBRs are aerated basins where biological treatment and filtration processes occur. The liquid (permeate) is collected into a pipe header and then conveyed to the ultraviolet disinfection process. The disinfected effluent flows into the washwater wet well. Effluent not pumped from the washwater wet well flows through an 18-inch Parshall flume and falls into the outlet box where it enters the 18-inch effluent line to the Rio Ruidoso. The solids are either returned back to the process (returned activated sludge, RAS) or wasted from the process (wasted activated sludge, WAS).

Sludge treatment and handling facilities were put into operation in November 2009. The solids handling process at the facility includes both the ability to thicken the WAS before it is fed into the anaerobic digester for stabilization and the ability to dewater the sludge after it has been stabilized in the digester. Sludge is sent to local property owners for final disposal. The remainder of the sludge stays at the WWTP.

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 the Rio Ruidoso, thence to the Rio Hondo, thence to the Pecos River in Waterbody Segment No. 20.6.4.208 of the Pecos River Basin. The designated uses of this receiving water are fish culture, irrigation, livestock watering, wildlife habitat, coldwater aquatic life and primary contact.

IV. EFFLUENT CHARACTERISTICS

A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A received January 30, 2012 are presented below in Table 1:

POLLUTANT TABLE – 1

| Parameter | Max Daily Value | Avg Daily Value |
|----------------------------------|-----------------------|-----------------------|
| | (mg/l unless noted) | |
| Flow, million gallons/day (MGD) | 2.47 | 1.63 |
| Temperature, winter | 13.20°C | 10.90°C |
| Temperature, summer | 25.40 °C | 23.10 °C |
| pH, minimum, standard units (SU) | 6.97 su | NA |
| pH, maximum, standard units (SU) | 7.51 su | NA |
| Biochemical Oxygen Demand (BOD) | 15.90 | 6.64 |
| Total Suspended Solids (TSS) | 27.60 | 8.78 |
| <i>E. coli</i> (cfu/100 mL) | 218.70 | 17.92 |
| Ammonia (as N) | 6.20 | 1.80 |
| Chlorine (Total Residual) | NDR | NDR |
| Dissolved Oxygen | 6.76 | 6.68 |
| Total Kjeldahl Nitrogen | 8.30 | 3.10 |
| Nitrate Plus Nitrite Nitrogen | 4.50 | 1.40 |
| Oil and Grease | <5 | <5 |
| Phosphorus (Total) | 2.30 | 0.96 |
| Total Dissolved Solids (TDS) | 1.38 | 1.30 |

NDR – no data received

NA – not applicable

A summary of the last 36 months of available pollutant data from December 2008 through December 2011, taken from DMRs shows no exceedances of permit limits for pH, BOD-5, TSS *E. coli*, thallium, and TRC. Cyanide (weak acid dissociable) was reported as not detected during this period.

DMR data from the same period shows exceedances for total nitrogen and total phosphorus. See Table 2 below. As noted above, the new facility was put online in April 2011. Since July 2011, one exceedance of the 30-day average limit and one exceedance of the daily maximum limit have been reported for total phosphorus. Interim permit limits for total nitrogen became effective in December 2010. Exceedances to these permit limits were reported in December 2010. However, no permit exceedances of the interim permit limits for total nitrogen have been reported since that month.

POLLUTANT TABLE – 2

| Date | Total Nitrogen | | | Total Phosphorus | | |
|-------------------|------------------|------------------|---------------|------------------|------------------|--------------|
| | 30 DAY AVG | 30 DAY AVG | DAILY MAX | 30 DAY AVG | 30 DAY AVG | DAILY MAX |
| | lbs/day | mg/L | mg/L | lbs/day | mg/L | mg/L |
| Limit | Report | Report | Report | 2.2 | 0.1 | 0.15 |
| 12/31/2008 | 239.9 | 18.8 | 19.5 | 24.7 | 2.19 | 2.19 |
| 1/31/2009 | 185.1 | 14.8 | 15.3 | 25.1 | 2.09 | 2.09 |
| 2/28/2009 | 156.3 | 14.2 | 15.1 | 21.6 | 2.12 | 2.12 |
| 3/31/2009 | 163.2 | 14.6 | 14.9 | 20.1 | 2.03 | 2.03 |
| 4/30/2009 | 169.2 | 16.1 | 16.5 | 20.5 | 2.24 | 2.24 |
| 5/31/2009 | 229.8 | 19.4 | 19.4 | 34.5 | 3.28 | 3.28 |
| 6/30/2009 | 305.1 | 23.6 | 24.9 | 39.2 | 3.24 | 3.24 |
| 7/31/2009 | 196.9 | 12.97 | 15.9 | 31.5 | 2.18 | 2.18 |
| 8/31/2009 | 134.6 | 9.12 | 9.94 | 29.1 | 1.94 | 1.94 |
| 9/30/2009 | 192.3 | 14.5 | 15 | 39.6 | 3.06 | 3.06 |
| 10/31/2009 | 191.8 | 16.7 | 16.9 | 28.7 | 2.55 | 2.55 |
| 11/30/2009 | 215.8 | 17.6 | 20.9 | 15.4 | 1.43 | 1.43 |
| 12/31/2009 | 244.9 | 17.8 | 18.9 | 18.8 | 1.6 | 1.6 |
| 1/31/2010 | 231.8 | 16.4 | 19.7 | 16.4 | 1.19 | 1.19 |
| 2/28/2010 | 183.6 | 13 | 17.3 | 25.2 | 1.94 | 1.94 |
| 3/31/2010 | 171 | 11.7 | 15.9 | 21.6 | 1.66 | 1.66 |
| 4/30/2010 | 287.1 | 20.3 | 32.31 | 40.2 | 3.05 | 3.05 |
| 5/31/2010 | 119.5 | 9.1 | 10 | 6 | 0.57 | 0.57 |
| 6/30/2010 | 174.2 | 12.5 | 13.7 | 31.8 | 2.28 | 2.28 |
| 7/31/2010 | 220.1 | 14 | 14.1 | 32.5 | 2 | 2 |
| 8/31/2010 | 126.2 | 8.3 | 8.9 | 18 | 1.16 | 1.16 |
| 9/30/2010 | 110.4 | 7.9 | 9.7 | 10.2 | 0.7 | 0.7 |
| 10/31/2010 | 129.2 | 10 | 11.1 | 22.8 | 1.75 | 1.75 |
| 11/30/2010 | 82.6 | 6.9 | 7.4 | 24.6 | 2.1 | 2.1 |
| Limit (*1) | <130.1 | <6 | <6 | – | – | – |
| 12/31/2010 | 91.4 | 6.6 | 9.6 | 27 | 2.3 | 2.3 |
| 1/31/2011 | 53.4 | 4.9 | 5.6 | 15.8 | 1.3 | 1.3 |
| 2/28/2011 | 50.5 | 4.0 | 4.9 | 13.7 | 1.1 | 1.1 |
| 03/31/2011 | 37.7 | 3.0 | 3.2 | 6.4 | 0.5 | 0.5 |
| 04/30/2011 | 14.7 | 1.2 | 1.3 | 13 | 1.1 | 1.1 |
| 05/31/2011 | 16.5 | 1.6 | 1.7 | 2.8 | 0.2 | 0.2 |
| 06/30/2011 | 19.8 | 1.6 | 1.8 | 4.5 | 0.36 | 0.39 |
| 07/31/2011 | 14.7 | 1 | 1 | 1.7 | 0.1 | 0.2 |
| 08/31/2011 | 31.9 | 2.1 | 2.1 | 1.2 | 0.08 | 0.098 |
| 09/30/2011 | 32.0 | 2.5 | 3.4 | 1.3 | 0.09 | 0.09 |
| 10/31/2011 | 33.1 | 2.5 | 2.6 | 2.0 | 0.14 | 0.14 |
| 11/30/2011 | 27.1 | 2.2 | 2.6 | <0.6 | <0.05 | <0.05 |
| 12/31/2011 | 46.6 | 2.0 | 2.6 | <0.7 | <0.05 | <0.05 |

Note

*1 Interim total nitrogen limits when influent temperature $\geq 13^{\circ}\text{C}$. The current permit also included interim total nitrogen limits for influent temperature $< 13^{\circ}\text{C}$. All DMR data for total nitrogen for this period was reported under the influent temperature $\geq 13^{\circ}\text{C}$ condition.

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 July 18, 2007, with an effective date of September 1, 2007, and an expiration date of August 31, 2012, may be 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 BOD and TSS. Water quality-based effluent limitations are established in the proposed draft permit for thallium, *E. coli*, total phosphorus, total nitrogen, 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 * 2.7 MGD

30-day average BOD₅/TSS loading = 676 lbs.

7-day average BOD₅/TSS loading = 45 mg/L * 8.345 lbs/gal * 2.7 MGD

7-day average BOD₅/TSS loading = 1014 lbs.

Technology-Based Effluent Limits – 2.7 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 | 676 | 1014 | 30 | 45 |
| BOD ₅ , % removal, minimum | ≥ 85% (*1) | NA | NA | NA |
| TSS | 676 | 1014 | 30 | 45 |
| TSS, % removal, minimum | ≥ 85% (*1) | NA | NA | NA |
| pH | NA | NA | 6.0 - 9.0 s.u. (see Part VI.C.4.a below) | |

NA- Not applicable.

C. WATER QUALITY BASED LIMITATIONS

1. General Comments

Water quality-based effluent limits are necessary where technology-based effluent limits alone will not achieve the applicable water quality standards. 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 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 the Rio Ruidoso, thence to the Rio Hondo, thence to the Pecos River in Waterbody Segment No. 20.6.4.208 of the Pecos River Basin. The designated uses of this receiving water are fish culture, irrigation, livestock watering, wildlife habitat, coldwater aquatic life and primary contact.

4. Permit Action – Water Quality-Based Limits

a. pH

The State of New Mexico WQS criteria applicable to the coldwater aquatic life designated use require pH to be between 6.6 and 8.8 s.u. This is more limiting than the technology-based limits presented above, and is consistent with the current permit. Therefore, the draft permit will maintain a limit of 6.6 to 8.8 s.u.

b. Bacteria

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. These values were used to establish final permit limits in the current permit. The draft permit will maintain these limits.

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 was provided by the permittee on April 26, 2012 and April 30, 2012. 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 | µg/l (unless noted) |
|---------------------------|---------------------|
| Copper | 2.36 (*1) |
| Thallium | 1.14 (*1) |
| Zinc | 82.1 (*1) |
| Arsenic | 0.74 |
| Lead | 1.5 (*1) |
| Nickel | 13.1 (*1) |
| Aluminum | 38.5 |
| Barium | 27.2 |
| Boron | 124.5 (*1) |
| Uranium | 1.1 |
| Ra-226 and Ra-228 (pCi/L) | 0.31 |
| Tritium (pCi/L) | 93.3 |
| Gross Alpha (pCi/L) | 6.33 |
| Nitrite + Nitrate (mg/L) | 1.4 |
| Mercury | 0.0183 |
| Molybdenum | 6.8 |

Footnote:

*1 Geometric mean of data submitted.

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. The NMWQS 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 2.65 cfs and the harmonic mean flow of 7.66 cfs for the facility.

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 (2.7 MGD [=4.19 cfs])

Q_a = critical low flow of the receiving waters (1.7 MGD [=2.65 cfs])

F = fraction of stream allowed for mixing (1.0)

$$\begin{aligned}
 CD &= 4.19 \text{ cfs} / [(1.0)(2.65) + 4.19] \\
 &= 0.61 \\
 &= 61\%
 \end{aligned}$$

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): 400 (Average of data provided by facility January 30, 2012 = 680).

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) 2.7 MGD

Q_a = Critical low flow, 4Q3, of receiving stream, 1.7 MGD

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

As shown in Appendix B of the Fact Sheet, the pollutant data demonstrated reasonable potential to exceed WQS of the receiving water for thallium. The current permit includes limitations for thallium based on a previous NMWQS human health criterion of 6.3 µg/L. The current NMWQS human health criterion for thallium is 0.47 µg/L. The following final limits for thallium have been included in the draft permit:

| POLLUTANT | Monthly Avg µg/L | Daily Max µg/L |
|-----------------|---------------------|-------------------|
| Thallium, total | 0.89 | 1.33 |

DMR data shows that thallium was not detected from December 2008 through September 2011. The current permit utilized a 10 µg/L MQL for thallium. The current EPA MQL for thallium is 0.5 µg/L. See Appendix A of Part II of the draft permit. Therefore, a compliance schedule has been established in the draft permit for thallium. The current permit limits for thallium will serve as interim limits during the compliance schedule.

In the EPA Permit Application Form 2A received January 30, 2012, and/or supplemental data provided on April 26, 2012 and April 30, 2012, the facility reported that following pollutants were less than the "limit of quantitation." However, the levels used for the testing of these pollutants were greater than the MQLs established by Appendix A of Part II of the draft permit.

Cyanide, weak acid dissociable; Acrylonitrile; Carbon Tetrachloride; Aldrin; Alpha-Endosulfan; Heptachlor; Heptachlor Epoxide

The draft permit proposes monthly monitoring requirements for cyanide, acrylonitrile, carbon tetrachloride, aldrin, alpha-endosulfan, heptachlor, and heptachlor epoxide for the first year of permit term. The EPA will reopen the permit to establish effluent limitations if the pollutants have a reasonable potential to cause or contribute to an excursion above State Water Quality Standards.

Using the reported “limit of quantitation” value of 5 µg/L for screening purposes, no reasonable potential to cause or contribute to an excursion above State WQS was found for carbon tetrachloride. Therefore, no additional monitoring has been proposed in the draft permit for carbon tetrachloride.

Additionally, the permittee did not submit sampling results for PCBs. The draft permit proposes one-time monitoring requirements for this pollutant to be conducted within the first thirty days of the effective date of the permit. The EPA will reopen the permit to establish effluent limitations if the pollutant has a reasonable potential to cause or contribute to an excursion above State Water Quality Standards, or if the permittee does not provide the required sampling results within ninety days of the effective date of the permit.

(iii) TRC

For TRC, State WQS establish acute end-of-pipe criteria of 19 µg/L and chronic in-stream criteria of 11 µg/L. The current permit included a TRC limit of 19 µg/L. However, at a critical dilution of 61%, the criteria of 11 µg/L is the most stringent limitation. The draft permit proposes to establish a TRC limit of 11 µg/L.

5. 303(d) List Impacts

The Rio Ruidoso, from Rio Bonito to US Hwy 70 Bridge, 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 designated use listed as not supporting. The designated uses of fish culture, irrigation, livestock watering, secondary contact, and wildlife habitat are listed as fully supporting. Nutrient/Eutrophication Biological Indicators have been identified as probable causes of impairment. A TMDL for total nitrogen and total phosphorus for the Rio Ruidoso, from Rio Bonito to US Hwy 70 Bridge, was approved by the EPA on February 10, 2006. Final concentration permit limits for total phosphorus and total nitrogen have been brought forward from the current permit. Final total phosphorus and final total nitrogen 30-day average mass limits were established in the current permit as 2.2 lbs/day and 21.7 lbs/day, respectively. The draft permit modifies the final 30-day average mass limits to 2.16 lbs/day for total phosphorus and 18.9 lbs/day for total nitrogen. This change has been made to ensure consistency with the waste load allocations (WLAs) established in the TMDL. See Table 5.10 of the TMDL.

The aforementioned TMDL establishes target concentration values and WLAs for both total nitrogen and total phosphorus based on both numeric and narrative standards. The target concentration value for total phosphorus was established based on the New Mexico state standard that total phosphorus shall be less than 0.1 mg/L in waters of the Rio Ruidoso. The nitrogen standard utilized by the TMDL (1 mg/L) was based on projections of the ratio of N:P required for algal biomass of 10:1.

As previously noted, the new facility came online in April 2011. From July 2011 through December 2011, only one exceedance of the 30-day average concentration limit of 0.1 mg/L has been reported for total phosphorus. During the same period, no exceedances of the 30-day average loading limit for total phosphorus were reported.

The permittee and NMED are currently analyzing total nitrogen in the facility's effluent and the Rio Ruidoso to further evaluate 1) the performance and limits of the best available biological treatment technology for removal of TN from WWTP effluent; and 2) the response of the Rio Ruidoso, in terms of algal growth, to reductions in total phosphorus and total nitrogen achieved at the new wastewater treatment plant compared to the previous WWTP. The goal of this effort is to ensure that the narrative state WQS is appropriately implemented by the nitrogen target utilized by the TMDL (1 mg/L), which was determined to be ten times the numeric phosphorus standard (0.1 mg/L). The compliance schedule for the final total nitrogen limit of 1.0 mg/L has been extended in the draft permit to allow for sufficient time for 1) the permittee and NMED to complete data collection and for NMED to re-evaluate the relationship of total nitrogen and total phosphorus in the control of plant growth in the Rio Ruidoso; and 2) the permittee to identify and implement new biological, chemical or physical technologies for achieving the target of 1.0 mg/L total nitrogen if the appropriateness of the current nitrogen target and WLA are confirmed.

Therefore, the draft permit proposes a compliance schedule for the final total nitrogen limitations. This compliance schedule with interim milestones identifies an enforceable sequence of events leading to compliance with the final total nitrogen permit limitation. The final total nitrogen limits will become effective on the last day of the draft permit's five-year term.

The current permit established interim limitations of 6.0 mg/L total nitrogen at influent temperatures greater than or equal to 13°C and 9.0 mg/L total nitrogen at influent temperatures less than 13°C. Based on information provided to the EPA by the City of Ruidoso Downs and the Village of Ruidoso on April 13, 2012, and DMR data provided in Pollutant Table 2 above, the current treatment technology is capable of removing total nitrogen to ≤ 4.0 mg/L and ≤ 6.0 mg/L under the current influent temperature approach. The EPA proposes interim limits of 4.0 mg/L total nitrogen at influent temperatures greater than or equal to 13°C and 6.0 mg/L total nitrogen at influent temperatures less than 13°C in the draft permit. Interim 30-day average loading limits have been 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 TN loading = 4 mg/L * 8.345 lbs/gal * 2.7 MGD = 90.1

30-day average TN loading = 6 mg/L * 8.345 lbs/gal * 2.7 MGD = 135.2

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 pollutant; TSS and BOD, are proposed to be monitored once per week, which is the same monitoring frequency established by the current permit. Sample type for these pollutants is 6-hour composite. Percent removal shall be monitored once per week. The proposed technology based monitoring frequencies are consistent with the NMIP.

Water quality-based pollutants; The monitoring frequency for *E. coli* shall be once per week, as established by the current permit. The current permit requires TRC and pH to be sampled daily and once per week, respectively. The draft permit proposes that pH will be changed to daily. TRC and pH will be measured by instantaneous grab sample. These changes are consistent with the NMIP. Regulations at 40 CFR Part 136 define instantaneous grab as being analyzed within 15-minutes of collection. The once per month monitoring frequency for the total phosphorus has been carried forward from the current permit. Also maintained in the draft permit are the final and interim total nitrogen monitoring frequencies established in the current permit of once per month and once per two weeks, respectively. The monitoring frequency for thallium has been changed from once per month to three times per week. This change is consistent with the NMIP.

E. WHOLE EFFLUENT TOXICITY REQUIREMENTS

In Section V.C.4.c.ii.(b) above; “Critical Conditions”, it was shown that the critical dilution, CD, for the facility is 61%, because the discharge is to a perennial. Based on the nature of the discharge; POTW, the design flow; more than 1.0 MGD, the nature of the receiving water; perennial, and the critical dilution; 61%, the NMIP directs the WET test to be a 7 day chronic test using *Ceriodaphnia dubia* and *Pimephales promelas* at a once per three-month frequency consistent with the NMIP. The test series will be 0% (control), 26%, 34%, 46%, 61%, and 81%. The critical dilution has been increased from 60% in the previous permit to 61%.

Out of 12 tests performed during the last permit term (14 tests are in the Reasonable Potential Analyzer because 2 tests were from the previous permit term) the effluent exhibited no failures for the *Ceriodaphnia dubia* or *Pimephales promelas*. The EPA Reasonable Potential Analyzer (Appendix A) recommends biomonitoring for the *Ceriodaphnia dubia* and *Pimephales promelas* test species be added to the permit. Biomonitoring only will be granted for the *Ceriodaphnia dubia* test species but the WET limit from the previous permit will be carried over for *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 - the discharge to Rio Ruidoso Segment 20.6.4.208. Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC

DISCHARGE MONITORING
30-DAY AVG MINIMUM 7-DAY MINIMUMWhole Effluent Toxicity Testing
(7 Day Static Renewal) 1/*Ceriodaphnia dubia*

REPORT

REPORT

EFFLUENT CHARACTERISTIC

MONITORING REQUIREMENTS
FREQUENCY TYPEWhole Effluent Toxicity Testing
(7 Day Static Renewal) 1/*Ceriodaphnia dubia*

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.

EFFLUENT CHARACTERISTIC

DISCHARGE LIMITATIONS
30-DAY AVG MINIMUM 7-DAY MINIMUMWhole Effluent Toxicity (PCS 22414)
(7-Day NOEC) 1/

61%

61%

Pimephales promelas

REPORT

REPORT

EFFLUENT CHARACTERISTIC

MONITORING REQUIREMENTS
FREQUENCY TYPEWhole Effluent Toxicity
(7-Day NOEC) 1/*Pimephales promelas*

1/Quarter

24-Hr. Composite

FOOTNOTES

1/ Monitoring and reporting requirements begin on the effective date of this permit. Compliance with the Whole Effluent Toxicity limitations is required as soon as the permit is made effective. 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.

VII. ANTIDegradation

The State of New Mexico has 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.

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 effluent limitations of the previous permit for total phosphorus, BOD (concentration), TSS (concentration), *E. coli* and pH. Mass limits for BOD and TSS have been increased based on the change of the facility's design flow from 2.6 MGD to 2.7 MGD. Final limits for TRC and thallium, as well as interim limits for total nitrogen have been made more stringent.

X. 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/EndangeredSpecies_Lists/EndangeredSpecies_ListSpecies.cfm, four species in Lincoln County are listed as endangered (E) or threatened (T). Two species are birds and include the northern aplomado falcon (*Falco femoralis septentrionalis*) (E) and the Mexican spotted owl (*Strix*

occidentalis lucida) (T). One species, the Kuenzler hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*) (E), is a flowering plant. The lone mammalian species is the black-footed ferret (*Mustela nigripes*) (E). Although the black-footed ferret is listed as endangered in the County listing, it is also listed as extirpated in Lincoln County. The American bald eagle (*Haliaeetus leucocephalus*) was previously listed in Lincoln 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, the 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. The EPA makes this determination based on the following:

The EPA determined that the current permit, issued on July 18, 2007, would have “no effect” on listed threatened and endangered species nor will adversely modify designated critical habitat.

Except for the removal of the bald eagle in 2007, no changes 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.

The EPA has received no additional information since July 18, 2007, which would lead to the revision of its determination.

EPA determines that Items 1, 2, and 3 result in no change to the environmental baseline established by the previous permit. Therefore, the EPA concludes that the reissuance of this permit will have “no effect” on listed threatened and endangered species nor will adversely modify designated critical habitat.

XI. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of this permit should have no impacts on historical properties since no construction activities are proposed during its reissuance.

XII. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if relevant portions of 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 the 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.

XIII. VARIANCE REQUESTS

No variance requests have been received.

XIV. 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.

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 January 30, 2012.

Supplemental information provided via email from Bobby Snowden (Village of Ruidoso) to Scott Stine (EPA) on April 26, 2012 and April 30, 2012.

B. 40 CFR CITATIONS

Citations to 40 CFR as of March 20, 2012.

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, March 15, 2012.

Statewide Water Quality Management Plan, May 10, 2010.

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

Final Approved Total Maximum Daily Load (TMDL) for the Rio Hondo Watershed (Lincoln County), Pecos River to Headwaters, February 10, 2006.

D. OTHER

Letter from Cleatus Richards (City of Ruidoso Downs) and Randall Camp (Village of Ruidoso) to Brent Larsen (EPA), dated April 13, 2012.