

NPDES PERMIT NO. NM0022268
FACT SHEET

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

APPLICANT

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ISSUING OFFICE

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DATE PREPARED

March 25, 2013

PERMIT ACTION

Proposed reissuance of the current permit issued with an effective date of June 1, 2007 and an expiration date of April 30, 2012.

RECEIVING WATER – BASIN

Pecos River - 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 limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
F&WS	United States Fish and Wildlife Service
mg/l	Milligrams per liter (one part per million)
ug/l	Micrograms per liter (one part per billion)
MGD	Million gallons per day
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMIP	New Mexico NPDES Permit Implementation Procedures
NMWQS	New Mexico State Standards for Interstate and Intrastate Surface Waters
NPDES	National Pollutant Discharge Elimination System
MQL	Minimum quantification level
O&G	Oil and grease
POTW	Publically owned treatment works
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
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 June 1, 2007, and an expiration date of April 30, 2012, are:

- A. Add effluent limitations and monitoring requirements for total selenium;
- B. Add effluent limitations and monitoring requirements for dissolved oxygen; and
- C. Require effluent limitations for industrial users.

II. APPLICANT LOCATION AND ACTIVITY

As described in the application, the facility is located at the Northeast corner of the intersection of State Route 229 (Haldeman Road) and 357 (Richey Avenue) in Eddy County, New Mexico. The effluent from the treatment plant is transported through a 3,000 foot long piping system and discharged into the Pecos River in Segment No. 20.6.4.206 of the Pecos River Basin. The general and specific stream standards are provided in "New Mexico State Standards for Interstate and Intrastate Surface Waters," (20.6.4 NMAC, amended through November 20, 2012). The designated uses of the Pecos River in Stream Segment 20.6.4.206 are irrigation, livestock watering, wildlife habitat, warmwater aquatic life and secondary contact. The discharge is located on the Pecos River at Latitude 32° 51' 20" North and Longitude 104° 21' 30" West.

Under the Standard Industrial Classification (SIC) Code 4952, the applicant operates a publicly owned treatment works (POTW). The facility serves a population of approximately 12,000. Treatment at the facility consists of bar screen, grit chamber, aeration basin, secondary clarification, and ultraviolet (UV). Design flow capacity of the facility has been increased from 1.3 million gallons per day (MGD) to 2.6 MGD. The facility continuously discharges to surface impoundments which have no discharge to the waters of the United States (WUS) during the summer season. During the winter season, the annual average daily flow is 1.42 MGD to Pecos River.

III. EFFLUENT CHARACTERISTICS

The EPA Permit Application Form 2A was received February 1, 2012, and supplemental information with more effluent information received in September, 2012. A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A is presented below:

POLLUTANT TABLE – 1

Parameter	Max	Avg
	(mg/l unless noted)	
Flow, million gallons/day (MGD)	1.58	1.35
Temperature, winter	25.30°C	16.86°C
Temperature, summer	31.70°C	23.88°C
pH, minimum, standard units (su)	6.58	N/A
pH, maximum, standard units (su)	8.20	N/A
E. coli (#bacteria/100 ml) (Feb/11*)	412	103
Biochemical Oxygen Demand (BOD) (Feb/12*)	9.6	6.7
Total Suspended Solids (TSS)	24.0	4.2
Ammonia (NH ₃)	3.3	0.3
Chlorine, Total Residual (TRC)	0.0	0.0
Dissolved Oxygen (DO)	---	---
Total Kjeldahl Nitrogen (TKN)	129	11.2
Nitrate plus Nitrite Nitrogen	27.7	10.1
Oil & Grease	0.0	0.0
Phosphorus	120	8.4
Total Dissolved Solids (TDS)	1470	1313

* The highest data reported in the DMRs during the period of July/10 – July/12

Table-2 below shows pollutants have been detected in the effluent.

POLLUTANT TABLE – 2 – Expanded Pollutant List

Parameter (Pollutants Greater than MQL)	Max	Avg
	(ug/l unless noted)	
Hardness (As CaCO ₃)	605 mg/l	605 mg/l
Antimony	0.5	0.5
Arsenic	1.0	0.6
Chromium	3.0	1.0
Copper	8.0	6.2
Lead	0.6	0.4
Mercury	0.07	0.0
Nickel	6.8	4.4
Selenium	11	5.3
Zinc	165	118
Total Phenolic Compounds	4 mg/l	2 mg/l

Chlororodibromo-methane	4.16	1.70
Chloroform	14.7	6.9

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 current permit expired April 30, 2012. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). The expired 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 requires 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 BOD and TSS. Water quality-based effluent limitations are established in the proposed draft permit for E. coli bacteria, total residual chlorine (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, 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.

Effluent Limitations: 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 BOD, TSS and pH. BOD limits of 30 mg/l for the 30-day average and 45 mg/l for the 7-day average are found at 40 CFR §133.102(a). 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. The City of Artesia WWTP has increased its design flow from 1.30 MGD to 2.60 MGD. But, in order to avoid antidegradation evaluation process, the permittee requested to retain the current mass loading limitations which were based on the 1.30 design flow in the permit. Therefore, mass limitations 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 BOD (or TSS) loading = 30 mg/l * 8.345 lbs/gal * 1.3 MGD
30-day average BOD (or TSS) loading = 325 lbs

The 85% BOD or TSS percent removal are also established in the permit. The minimum monthly 85% removal is calculated as

$$\left(\frac{\text{Average of Inflow Concentration} - \text{Average of Effluent Concentration}}{\text{Average of Inflow Concentration}} \right) \times 100\%$$

Sludge Disposal: The sludge produced at the treatment plant is treated through digestion and dried. It is then mixed with yard waste and composted. The composted material is land applied on the city cemetery and is also available to the public. Requirements for facilities treating domestic sewage include, but are not limited to, treatment technologies, sludge requirements, operation, reporting requirements and waste water pollution prevention requirements.

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 discharge to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works. Sludge testing information, that is required of

handling or disposing of the sludge, will be retained on site for five years, as required in the record keeping requirements section of Part IV, in accordance with NPDES Permit No. NM0022268.

Pretreatment: According to the application, the facility receives industrial wastewater from Navajo Refining Company. Navajo Refining Company is a categorical industrial user. It has a continuous discharge of 21,000 gallons per day (GPD) of process wastewater into the collection system.

The NMED conducted Compliance Evaluation Inspection (CEI) on January 23, 2013, and indicated in the CEI Report that some treatment units were not properly operated or maintained. Some CEI findings of operation and maintenance problems are listed as below:

1. The Mixed Liquor Suspended Solids (MLSS) concentrations were low, 1200 mg/L and noted to be as low as 200 mg/L in previous months. This is one of several indications that an inadequate microbial population is being maintained. Operators indicated that because of the low MLSS, to compensate, they were limiting the volume of solids being wasted.

2. Flock shearing was noted in the oxidation ditch. This is an indication of interference with the optimal activated sludge process. The cause is not specifically identified in this report, however this condition is consistent with an interference occurring from unknown substances in the influent and improper mixing.

3. The color of the water in the oxydation ditches being used for secondary treatment was a dark grey brown. This is an indication of solids that are too old and an unhealthy microbial population. The color was atypical for an activated sludge process and indicated other contaminants may be in the system.

4. The secondary clarifier was opaque and grey green in color. This is atypical for the quality of the wastewater at this stage of the treatment process. It is also noted that some floating solids and pinfloc were in the basin, and being sent with the decant to the next treatment process, ultraviolet disinfection.

5. The ultraviolet disinfection unit: the color of the wastewater was an opaque greenish grey color. For this treatment process to be effective, the wastewater must be clear and free of floating material. It was reported that effluent exceedences for E.coli bacteria occurred on the day of the inspection.

6. Floating solids were entering the Ultraviolet Disinfection System, and being discharged with the effluent to the Pecos River.

Based on information provided in the CEI Report, EPA proposes that the permittee shall develop and enforce specific effluent limits for Industrial User(s), and all other users, as appropriate. Contributions to the wastewater treatment plant will be limited according to the requirements detailed in Part II, Section C of the proposed permit.

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 April 18, 2011). The facility discharges into the Pecos River in segment number 20.6.4.206 of the Pecos River Basin. The designated uses of the receiving water are wildlife habitat, livestock watering, 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

E. coli standards for secondary contact (20.6.4.900.E NMAC) are 548 cfu/100 ml daily geometric mean and 2507 cfu/100 ml daily maximum. These limitations are identical to the expired permit and are continued in the draft permit renewal.

b. pH

The pH range, 6.6 to 9.0 su., for warmwater aquatic life (20.6.4.900.H NMAC) is more stringent than the technology-based limits, so WQ-based pH limitations are established in the permit.

c. TOXICS

i. General Comments

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR §122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream

excursion above a water quality criteria, the permit must contain an effluent limit for that pollutant.

All applicable facilities are required to fill out appropriate sections of the Form 2A 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.

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

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

Where:

Cd = Instream waste concentration

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

Ce = 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

Ca = Ambient stream concentration, if available

Qe = Wastewater treatment design flow in MGD (municipal facilities) 2.6 MGD

Qa = Critical low flow, 4Q3, of receiving stream, 2.075 MGD

= Harmonic long term human health flow, 17.5 MGD

If the calculated Cd exceeds the applicable WQS, a RP exists. Then, a WQ-based effluent limitation will be established in the permit. A stream hardness of 400 mg/l was used to calculate hardness-dependant standards, and TSS of 17.3 mg/l was used to convert total metals to dissolved metals.

Parameter (Pollutants Greater than MQL)	Max	Avg	Calculated Cd	Most Stringent Applicable WQS
	(ug/l unless noted)		(ug/l unless noted)	(ug/l unless noted)
Antimony	0.5	0.5	0.59	None
Arsenic	1.0	0.6	0.098	9.0

Chromium	3.0	1.0	3.56	100
Copper	8.0	6.2	2.98	29.3
Lead	0.6	0.4	0.12	10.9
Mercury	0.07	0.0	0.08	0.77
Nickel	6.8	4.4	3.02	168
Selenium	11	5.3	13.0	5.0
Zinc	165	118	49.7	428
Total Phenolic Compounds	4 mg/l	2 mg/l	4.74 mg/l	None
Chlororodibromo-methane	4.16	1.70	4.93	None
Chloroform	14.7	6.9	17.4	None

Because selenium has demonstrated RP, effluent limitations are established for total selenium. The daily maximum limit is 8.98 µg/l and the monthly average limit is 5.99 µg/l.

d. Other Pollutants of Concern

Because the receiving stream, Pecos River, is a designated critical habitat for the threatened species, Pecos bluntnose shiners, EPA proposes to establish an effluent limitation of 5 mg/l dissolved oxygen (DO) based on the stream standard for warmwater designated use for further protection of the threatened species.

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 NMIP. Based on the design flow of the facility, 2.6 MGD, the NMIP requires that most limited parameters have 2/week monitoring frequency requirements. Flow is proposed to be monitored continuously by totalizing meter. E. coli bacteria, pH, and DO shall use grab samples. BOD and TSS shall use 6-Hr composite samples. TRC shall be sampled using instantaneous grab samples. Regulations at 40 CFR §136 define instantaneous grab as being analyzed within 15-minutes of collection. Monitoring frequency for selenium is 3/week and for BOD or TSS percent removal is 1/week.

E. WHOLE EFFLUENT TOXICITY LIMITATIONS

Based on the plant design flow (2.6 MGD) and the stream critical low flow (2.075 MGD), the new critical dilution, CD, for the facility is 56%. 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; 56%, the NMIP directs the WET test to be a 7 day chronic test using *Ceriodaphnia pulex* and *Pimephales promelas* at a once per quarter frequency consistent with the NMIP. 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 24%, 32%, 42%, 56%, and 75%.

If all WET tests pass during the first year, the monitoring frequency may be reduced for the following 2-5 years of the permit. The invertebrate species (*Ceriodaphnia pulex*) testing

frequency may be reduced to once per six (6) months. The vertebrate species (*Pimephales promelas*) testing frequency may be reduced to once per year. If any tests fail during that time the frequency will revert back to the once per three months frequency for the remainder of the permit term. The both species shall resume quarterly monitoring at a once per three months frequency on the last day of the permit.

The previous permit established WET biomonitoring with CD = 35%. DMR reports reveal thirteen (13) passing test for both the *Ceriodaphnia pulex* and *Pimephales promelas* species during the last permit term. The EPA Reasonable Potential Analyzer for outfall 001 indicates that RP exists for *Ceriodaphnia pulex* and *Pimephales promelas* but since reasonable potential for an excursion of the narrative criterion to protect the aquatic life against toxicity does not actually exist because toxic events were not demonstrated, WET limits will not be established in the proposed permit for the invertebrate or vertebrate species for outfall 001. EPA concludes that this effluent does not cause or contribute to an exceedance of the State water quality standards. Therefore WET limits will not be established in the proposed permit.

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 Pecos River at segment 20.6.4.206. 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>		
<i>Ceriodaphnia dubia</i>	REPORT	REPORT
<i>Pimephales promelas</i>	REPORT	REPORT

EFFLUENT CHARACTERISTIC	MONITORING REQUIREMENTS	
	FREQUENCY	TYPE
Whole Effluent Toxicity Testing (7 Day Static Renewal) <u>1/</u>		
<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 sludge produced at the treatment plant is treated through digestion and dried. It is then mixed with yard waste and composted. The composted material is land applied on the city cemetery and is also available to the public.

Requirements for facilities treating domestic sewage include, but are not limited to, treatment technologies, sludge requirements, operation, reporting requirements and waste water pollution prevention requirements. 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 discharge to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works. Sludge testing information, that is required of handling or disposing of the sludge, will be retained on site for five years, as required in the record keeping requirements section of Part IV, in accordance with NPDES Permit No. NM0022268.

B. INDUSTRIAL WASTEWATER CONTRIBUTIONS

According to the application, the facility receives industrial wastewater from Navajo Refining Company. Navajo Refining Company is a categorical significant industrial user. It has a continuous discharge of 21,000 gallons per day (GPD) of process wastewater into the collection system.

The treatment works is required to develop a pretreatment program. Contributions to the wastewater treatment plant will be limited according to the requirements detailed in Part II, Section C of the proposed permit.

C. 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.

D. RE-APPLICATION

In order to obtain a meaningful snapshot of pollutant testing for permit renewal purposes, this permit proposes that the testing for Tables A.12, B.6, and Part D of EPA Form 2A, or its equivalent if modified in the future, shall be conducted during the second, third and fourth years after the permit effective date. In addition, one yearly test must be during the warm summer months; defined as the period from June 1 through August 31, and another yearly test shall be sampled during cold weather; defined as the period from December 1 through February 28. The remaining yearly test may be taken during any time in that year. This testing shall coincide with any required WET testing event for that year.

VII. 303(d) LIST

According to the “2012-2014 State of New Mexico 303(d) List for Assessed Stream and River Reaches,” the Pecos River, in WQS Segment No. 20.6.4.206, from Rio Peñasco to Salt Creek, is not supporting for warmwater aquatic life use. The probable causes are DDT and PCBs found in fish tissues, and the probable sources are atmosphere toxics deposition and some unknown sources. The City of Artesia POTW is unlikely to contribute both DDT and PCBs, so there are no additional permit requirements to be placed in the permit to address impairment.

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. Although the design flow has been double since the last issued permit, the total mass loads for BOD and TSS are remained the same as the expired permit. Therefore, the NMED waived the antidegradation evaluation. 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 BOD and TSS, and the concentration limits for pH, E. coli, and TRC.

X. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, <http://ifw2es.fws.gov/EndangeredSpecies/lists/>, nine species in Eddy County are listed as endangered or threatened. Two of the species are avian and include the interior least tern and the southwestern willow flycatcher. Four of the species are plants and include gypsum wild-buckwheat, Kuenzler hedgehog cactus, Lee pincushion cactus, and Sneed pincushion cactus. Two of species, the Pecos bluntnose shiner and Pecos gambusia, are aquatic. The remaining species is the black-footed ferret.

EPA does not consider this permit renewal action will have any effects on plants such as gypsum wild-buckwheat, Kuenzler hedgehog cactus, Lee pincushion cactus, and Sneed pincushion cactus, or on the black-footed ferret. An evaluation of impacts to birds and fish

species is discussed below because both bird and fish species may contact the receiving water, Pecos River, directly or indirectly.

Interior least tern: Interior least terns usually arrive on their breeding grounds in early to mid-May and begin to establish feeding and nesting territories. During the breeding season, the terns' home range is generally limited to a two-mile stretch of river associated with the nesting colony. Least terns nesting at sandpits along rivers use the adjoining river as well as the sandpit lake itself for foraging. Interior least terns consume small fish captured in the shallow water of rivers and lakes. In New Mexico, they breed regularly only at Bitter Lake, and they occur occasionally elsewhere along the Pecos River valley. Non-breeding, transient individuals have been observed at the Holloman Wetlands in Years 2002-2005. Human development and use of tern nesting beaches for housing and recreation subsequently lead to another rapid population decline. In the interior United States, river channelization, irrigation diversions and the construction of dams contributed to the destruction of much of the terns' sandbar nesting habitat. Quality of New Mexico breeding habitat is potentially variable due to changing water levels. Colonies may become vulnerable to disturbance and predation if water levels drop, and flows are required to maintain suitable nesting substrate.

The authorized discharge has no reasonable potential to cause or contribute violation of state stream water quality standards. This action does not authorize any action which may contribute to the destruction of least terns' nesting substrate, rather, the authorized discharge may benefit the least terns' habitat by contributing water to the Pecos River. Therefore, EPA determines that this permit renewal action has no effect to the least terns.

Southwestern willow flycatcher: They build nests and lay eggs in late May or early June and fledge young in late June or early July. Typically, the southwestern willow flycatcher raises one brood per year. Breeding territory for the southwestern willow flycatcher extends from extreme southern Utah and Nevada, through Arizona, New Mexico, southern California, and west Texas to extreme northern Baja California and Sonora, Mexico.

The Southwestern willow flycatcher is an insectivore. It forages within and above dense riparian vegetation taking insects on the wing and gleaning them from the foliage. It also forages along water edges, backwaters, and sandbars, adjacent to nest sites.

In New Mexico, the State Game and Fish Department estimated fewer than 200 pairs remained in 1988. Surveys conducted in 1993-1995 found only about 100 pairs, with some 75% occurring in one local area. The U.S. Fish and Wildlife Service has designated critical habitats for southwestern willow flycatcher and Pecos River is not within the critical habitat areas.

Several factors have caused the decline in Southwestern willow flycatcher populations. Extensive areas of suitable riparian habitat have been lost due to river flow-regulation and channelization, agricultural and urban development, mining, road construction, and overgrazing. As a result of habitat fragmentation, cowbird parasitism has increased. The invasion of the exotic salt cedar has also altered the riparian ecosystem in the Southwest. EPA determines that this permit renewal action does not cause adverse effect to the species

based on the following analyses:

Direct Effect: Adverse direct effects are not expected to result from the action because issuance of the permit does not authorize construction activities which might disturb currently occupied or potentially available habitat.

Indirect Effect: The potential indirect effects of the permitted discharge to the Southwestern willow flycatcher include the loss of suitable habitat for future use; and, adverse impacts to either the quantity or quality of willow flycatcher's food or water supply. As previously discussed, EPA's reissuance of the NPDES permit neither authorizes nor requires construction activities which might adversely affect suitable habitat to the extent that it could not be occupied by Southwestern willow flycatchers. As to whether the permitted discharge will adversely affect the future availability of an adequate food supply, EPA notes that the permit effluent limits are protective of aquatic life species. EPA believes effluent limits which protect both vertebrate and invertebrate aquatic organisms will be protective of the aquatic and riparian insects on which the flycatcher subsists.

Accumulate Effect: Many non-federal activities provide impetus to increased growth of municipalities, increased recreational use, land conversion to agriculture, or grazing. Local land use restrictions which could mitigate such adverse effects are beyond the scope of the NPDES Program and are outside EPA's authority.

Pecos bluntnose shiner: The Pecos bluntnose shiner is a relatively small, moderately deep-bodied minnow, rarely exceeding 3.1 inches (in) (80 millimeters (mm)) total length. A short intestine, large terminal mouth, silvery peritoneum, and pointed, hooked pharyngeal teeth indicate that the Pecos bluntnose shiner is carnivorous. Young Pecos bluntnose shiners likely consume zooplankton primarily, while Pecos bluntnose shiners of increasing size rely upon terrestrial and aquatic insects. The Pecos bluntnose shiner's diet is indicative of drift foraging (a feeding strategy where individuals wait in a favorable position and capture potential food items as they float by). Drift foragers depend upon frequent delivery of food to offset the energy required to maintain a position in the current. Water velocity must be adequate to deliver drift but also of low enough speed to form refugia where the fish can rest within striking distance of target items. Habitat structure that creates adjacent areas of high and low velocity (e.g., bank projections, debris, bedforms) may be important for Pecos bluntnose shiner feeding. Alluvial bed forms may be the most abundant form of habitat structure in sand-bed rivers and these bed forms require a certain velocity for formation and maintenance. Thus, Pecos bluntnose shiners rely upon flow both for delivering food items and for maintaining favorable habitat.

The Pecos bluntnose shiner inhabits big rivers. It has survived only within perennial stretches of the middle Pecos River, New Mexico. The Pecos bluntnose shiner is found in wide river channels with perennial flow that have a shifting sand-bed and erosive banks. The highly erosive bed and banks allow channel configurations to change in response to flow events.

Pecos bluntnose shiner critical habitat is divided into two separate reaches designated as upper and lower critical habitat. Upper critical habitat is a 64 mi (103 km) reach extending

from 0.6 mi (1 km) upstream from the confluence of Taiban Creek downstream to the Crockett Draw confluence. Upper critical habitat is encompassed within the Rangelands reach (Pecos bluntnose shiner stronghold). Approximately 36 mi (58 km) of the Rangelands reach is suitable habitat contiguous with, but downstream from, the upper designated critical habitat. This area is referred to as “quality habitat,” because of its habitat suitability and large Pecos bluntnose shiner population, but it is not designated as critical habitat. Lower critical habitat is a 37 mi (60 km) reach extending from Hagerman to Artesia. This portion of the critical habitat is located in the Farmlands reach. These two areas were chosen for critical habitat designation because they had permanent flow and populations of Pecos bluntnose shiner. However, these two areas vary greatly in their habitat characteristics. Upper critical habitat has a wide sandy river channel with moderately incised banks, and provides habitat suitable for all age classes. The lower critical habitat is deeply incised, has a narrow channel, and a compacted bed. Although the lower critical habitat has permanent flow, the habitat is less suitable for Pecos bluntnose shiner and only smaller size classes are common in this reach.

Reduced flow and associated altered riparian habitats and hydrographs remain the primary threats to the Pecos bluntnose shiner. The construction of dams has had many adverse effects on the Pecos River ecosystem. Dams have many downstream effects on the physical and biological components of a stream ecosystem including habitat fragmentation, a reduction in lateral channel migration, channel scouring, blockage of fish passage, channel narrowing, changes in the riparian community, diminished peak flows, changes in the timing of high and low flows, and a loss of connectivity between the river and its flood plain.

The USFWS concluded in their 5-Year Review of Pecos Bluntnose Shiner Recovery Plan (Federal Register notice (71 FR 20714) published on April 21, 2006) that the highest priority to facilitate recovery for the Pecos bluntnose shiner is maintaining a continuous river flow from the confluence of Taiban Creek to Brantley Reservoir. The USFWS also recommended to determine the fate of the Pecos bluntnose shiner in the Farmlands reach- whether do shiners perish or do they disperse upstream?

This permit renewal action is to authorize discharges to the bottom portion of the Farmland reach which is less suitable for the species. The authorization will result in an increase of river flow which is a critical factor for supporting the habitat. The permit action also establishes permit conditions, i.e., WET testing requirement and DO limitation, to ensure the authorized discharge will support the designated aquatic life use for the receiving stream. Therefore, based on information available to the Agency, EPA determines that this permit renewal action will have no adverse impact to the Pecos bluntnose shiner or their habitat.

Pecos gambusia: The Pecos gambusia was introduced into New Mexico in Lake St. Francis and in sinkholes at Bitter Lake National Wildlife Refuge, Chaves County, that did not contain native populations of this species (other sinkholes where it was introduced contained native populations); Ink Pot, Salt Creek Wilderness Area, Chaves County; Geysers Spring; and artificial ponds at the Living Desert State Park near Carlsbad, Eddy County.

This endangered species was intentionally stocked to create additional populations. Ink Pot and

one sinkhole at Bitter Lake were stocked in 1973. The source of the Living Desert State Park population stocked in 1975 is apparently Blue Spring, near Black River Village, Eddy County. Pecos gambusia were transplanted from waters near the north end of the Bitter Lake National Wildlife Refuge into 19 new localities within the same refuge and within the Salt Creek Wilderness Areas in 1972 and 1973. Other sinkholes at Bitter Lake were stocked in July and August 1981. As part of recovery efforts, health officials in New Mexico investigated the use of *G. nobilis* in stock ponds within the Pecos River drainage to control mosquitoes, but the project was stopped when stocked fish failed to survive.

The Pecos gambusia extirpated at Lake St. Francis and Geyser Spring, Bitter Lake National Wildlife Refuge, probably due to predation by introduced green sunfish *Lepomis cyanellus* and largemouth bass *Micropterus salmoides*. New populations became established in two sinkholes and at Ink Pot as result of 1972-1973 stockings. The other 16 transplants made at that time failed.

Based on information available, EPA determines that this permit renewal action has no effect on the Pecos gambusia.

The US Fish and Wildlife Service (USFWS) concurred EPA’s “may affect but is unlikely to adversely affect the Pecos bluntnose shiner and its designated critical habitat” in the letter dated November 26, 2001. (Cons. # 2-22-02-I-114) EPA is in the process of consulting with USFWS, Albuquerque field office on the reissuance of this permit due to changes of baseline. The Table below lists changes of baseline of 2001 consultation,

Changes	2001 Baseline	Proposed Permit
Species	Black-footed ferret, interior least tern, Northern aplomado falcon, bald eagle, Mexican spotted owl, Pecos gambusia, Kuenzler hedgehog cactus, Lee pincushion cactus, gypsum wild-buckwheat, and Pecos bluntnose shiner	Black-footed ferret, interior least tern, southwestern willow flycatcher, Pecos gambusia, Kuenzler hedgehog cactus, Lee pincushion cactus, Sneed pincushion cactus, gypsum wild-buckwheat, and Pecos bluntnose shiner
Discharges	Total reuse of effluent	Discharge during winter season
Toxic Pollutants	Aluminum, mercury, selenium, and cyanide	Selenium (Note: other pollutants have no reasonable potential)
Industrial Dischargers	No industrial pretreatment program required	Requires permittee to develop local limitations for industrial dischargers
Other Control Measure		Propose WQS for DO at pipe to protect Pecos bluntnose shiner habitat

EPA will satisfy its ESA obligation prior to issuance of this permit.

XI. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The State of New Mexico Historic Preservation Office indicated in an email of July 6, 2012, to the City that there are no historical and/or archeological sites within the action area.

XII. PERMIT REOPENER

The permit may be reopened and modified if new information which is not available to EPA prior to the final decision of the permit becomes available during the life of the permit. New information may include, but is not limited to, revised/new State Water Quality Standards, amended/new EPA approved TMDL, information/conditions obtained during government-to-government consultations, e.g., consultation pursuant to the ESA, and substantial changes of treatment process. 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 dated January 30, 2012, and revised application dated September 25, 2012.

B. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, as amended through November 20, 2012.

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico, March 15, 2012.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2012 - 2014.