

NPDES PERMIT NO. NM0029131

FACT SHEET

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

APPLICANT

Southwest Public Service Company
Eddy County Direct Current Terminal
P.O. Box 1261
Amarillo, TX 79105

ISSUING OFFICE

U.S. Environmental Protection Agency
Region 6
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DATE PREPARED

March 15, 2012

PERMIT ACTION

Renewal of a permit previously issued August 29, 2006, with an effective date of October 1, 2006, and an expiration date of September 30, 2011.

RECEIVING WATER – BASIN

Unnamed arroyo – 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
FWS	United States Fish and Wildlife Service
mg/l	Milligrams per liter
ug/l	Micrograms per liter
MGD	Million gallons per day
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMIP	New Mexico NPDES Permit Implementation Procedures
NMWQS	New Mexico State Standards for Interstate and Intrastate Surface Waters
NPDES	National Pollutant Discharge Elimination System
ML	Minimum quantification level
O&G	Oil and grease
POTW	Publically owned treatment works
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
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 previous permit issued August 29, 2006, with an effective date of October 1, 2006, and an expiration date of September 30, 2011, are:

1. The pollutant pH is made more restrictive.
2. The permit establishes limits for aluminum, vanadium, and copper after a three (3) year compliance schedule.
3. Arsenic limits have been made less stringent.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the Eddy County Direct Current Terminal (ECDCT) is located approximately 9.5 miles east of Artesia NM on US 82 - Lovington Highway, Eddy County, New Mexico. Under the Standard Industrial Classification Code 4911, the ECDCT is an electrical power transmission facility.

PLAT OF ECDCT FACILITY



DISCHARGE ROUTE



The ECDCT essentially converts alternating current (AC) electricity between east coast and west coast grid service providers. East coast AC is at 230k volts where west coast AC is at 345k volts. The difference in the voltage between the two grids does not allow transfer to occur without changing them. The process works by changing the source AC voltage into direct current (DC), then converting the DC back to the proper destination grid AC voltage. Electrical losses in the conversion to DC are rejected as heat to the atmosphere through a combination wet/dry cooling tower.

Water for the facility is obtained from ground water resources through Double Eagle Water out of Carlsbad, NM. There are three storage tanks on site that hold approximately 30,000 gallons of water each. An 800 gallon wet surface air cooler (WSAC) basin provides the cooling needed in the AC voltage transfer. During cooler months the system does not require water coolers to be used. However, whenever the outside temperature exceeds 74° F, the cooling system requires auxiliary water cooling. This process results in a small volume discharge of non-contact cooling water from the WSAC through outfall 001. Effluent exits the WSAC basin, flows through an underground pipeline and discharges onto a concrete splash pad at Outfall 001.

A computer system continuously monitors and controls wastewater discharges for conductivity, pH, and temperature and an automatic discharge valve is triggered only when pH are within permit limits. The parameter pH is treated at the WSAC basin using sulfuric acid at a rate of approximately 1 lb/1000 gallons of water.

Arsenic in the source water was causing effluent exceedances above state WQS. The facility has implemented an arsenic treatment. The source water contains 5-6 mg/l arsenic, is run through the treatment system/resin filtration and is then stored until needed for use in the cooling towers. The two filters, which are run in series, are comprised of manganese dioxide coated silica sand and are regenerated once per week. Backwash water is sent to a septic tank. A bleach water/iron solution is pumped onto the resin to supply iron for the arsenic removal process, and due to the bleach, no other chlorine has been needed to be added for algal control at this point in time.

This permit discharges to an unnamed arroyo, thence to Hart Canyon, thence to the Pecos River in segment number 20.6.4.98 in the Pecos River Basin. Designated uses of stream segment 20.6.4.98 are livestock watering, wildlife habitat, primary contact and marginal warmwater aquatic life. The discharge from Outfall 001 is at Latitude 32° 48' 54.40" North, Longitude 104° 14' 30.40" West.

III. EFFLUENT CHARACTERISTICS

Discharge is intermittent at the facility occurring only when the cooling tower is required to remove excess heat from the transformers. Pollutant data was provided in the NPDES application Form 2C and is as follows:

<u>Pollutant</u>	<u>mg/l</u>
COD	4.5
TOC	1.67
TSS	<1.0
Aluminum	0.155
Barium	0.169
Arsenic	0.023
Copper	0.080
Nickel	0.027
Zinc	0.280

Data submitted as part of the previous permit is as follows:

<u>Pollutant</u>	<u>ug/l</u>
Cobalt - D	1.6 ug/l
Chromium - D	3 ug/l
Vanadium - D	66
Selenium - D	5

The following pollutants were tested and not detected: radium 226 & 228, tritium, gross alpha mercury, cadmium, lead, silver, pentachlorophenol, gamma BHC, alpha endosulfan, endrin, heptachlor, heptachlor epoxide, toxaphene.

A review of DMR data has shown the following exceedances:

<u>Exceedances</u>	<u>Pollutant</u>	<u>Reported Value</u>	<u>Limit</u>
July 13, 2007	pH	4.6 su	6.0 su
June 2010	TRC	2200 ug/l	11 ug/l
June 2010	Arsenic	46.7 ug/l	13.3 ug/l

Southwestern Public Service was required by their permit to be in compliance with their arsenic limit starting October 1, 2009. The facility had difficulty finding an arsenic treatment system

that would effectively remove the arsenic from the treatment process. When the limit became effective in October 2009, the facility only had five actual discharges between October 2009 and September 2011 (the most recent quarter's DMRs were not available for review). Of those five discharges, only one met the limit for arsenic in September 2011.

The explanation for the chlorine exceedance was that the source of TRC (the bleach injection into the arsenic treatment unit) was at a feed rate that was too high.

IV. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water," more commonly known as the "swimmable, fishable" goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry and established the basic structure for regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

The facility submitted a complete permit application March 24, 2011. It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a).

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW OF TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations contained in 40 CFR §122.44 require that NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

Technology-based effluent limitations are established in the proposed draft permit for flow reporting. Water quality-based effluent limitations are established in the proposed draft permit for aluminum, vanadium, arsenic, copper, and pH.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. General Comments

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.

2. Effluent Limitation Guidelines

Technology based effluent limitations have not been promulgated for this type of activity. Flow rate reporting requirements are proposed consistent with the previous permit, "Estimate" flow measurements shall not be subject to the accuracy provisions established at Part III.C.6 of the 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 January 14, 2011). The facility discharges to an unnamed arroyo thence Hart Canyon thence to the Pecos River in segment number 20.6.4.98 in the Pecos River Basin. The designated uses of the receiving water are livestock watering, wildlife habitat, primary contact and marginal warmwater aquatic life.

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. pH

Criteria for pH is listed in 20.6.4.900.H.(6) for marginal warmwater aquatic life within the range of 6.6-9.0 su's. The previous permit had pH limits of 6.0 – 9.0 su's, and these limits are more stringent than the current permit. The draft permit will establish the more stringent 6.6 – 9.0 su's for Outfall 001.

b. 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.

ii. Critical Conditions - Toxics

The low flow or 4Q3 is zero (0) for the dry arroyo. The critical dilution for the discharge is 100% meaning the discharge at end-of-pipe must meet instream criteria. Human health pollutants are evaluated using the harmonic mean flow (HMF). By definition the HMF is nonzero flow and according to the NMIP, when flow data does not exist to determine HMF, a value of 0.001 MGD shall be used.

iii. Reasonable Potential - Toxics

Appendix 1 of the Fact Sheet shows the RP for those pollutants that had detections reported on the application form. As shown on Appendix 1, aluminum, vanadium, arsenic, and copper demonstrate RP to exceed WQS and limits are established in the draft permit based on this analysis. Arsenic has previously been limited in the permit but the limits were based on a zero HMF. The change in the latest revision of the NMIP established that lacking data, when human

health pollutants are being evaluated, the HMF is assigned 0.001 MGD for RP and permit limit calculations. The arsenic limits based on the default HMF are less restrictive than the previous permit but since the change is consistent with new procedures the antibacksliding provisions of 40 CFR 122.44(l) apply allowing less restrictive limitations. Since the new arsenic limits are less restrictive and the schedule of compliance has previously been granted in the previous permit no additional schedule will be provided for arsenic. Aluminum, vanadium, and copper however are first time limits and the facility shall be given a three (3) year compliance schedule to meet those new limits. The proposed limits are as follows:

POLLUTANT	Monthly Avg ug/l	Daily Max ug/l
Aluminum	87 (*1)	87
Arsenic	9.0 (*1)	13.3
Vanadium	100 (*1)	100
Copper	39.8	59.7

Footnote:

*1 The NMIP states that monthly or 30-day average limit will not be less than the applicable water quality criteria unless state or EPA approved documents specify more stringent limitations.”

Due to very low and intermittent flow, the draft permit will not establish mass loading limits but will require report only. This is consistent with the previous permit.

iv. TRC

The applicant still uses chlorine and the previous permit has a TRC limit, 11 ug/l, that will be continued in the draft permit.

5. 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 March 12, 2012, NMIP.

For Outfall 001, flow is proposed to be estimated once per week when discharging and reported. "Estimate" flow measurements shall not be subject to the accuracy provisions established at Part III.C.6 of the permit. Arsenic, aluminum, copper, and vanadium, are to be sampled once per month when discharging and reporting using grab samples. TRC and pH shall be sampled and reported once per week when discharging and reported using instantaneous grab samples.

D. WHOLE EFFLUENT TOXICITY LIMITATIONS

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. Table 11 of Section V of the NMIP outlines the type of WET testing for different types of discharges. The previous permit required an acute WET test using *Daphnia pulex* on a once per year frequency and that will be continued in the draft permit. Due to sporadic discharges, the WET test for any year is due on the first discharge within the calendar year. 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 32%, 42%, 56%, 75%, and 100%. The low-flow effluent concentration (critical low-flow dilution) is defined as 100% effluent.

Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE MONITORING	
	30-DAY AVG MINIMUM	48-HOUR MINIMUM

Whole Effluent Toxicity Testing
(48-Hour Static Renewal) (*1)

Daphnia pulex	REPORT	REPORT
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EFFLUENT CHARACTERISTIC	MONITORING REQUIREMENTS	
	FREQUENCY	TYPE

Whole Effluent Toxicity Testing
(48-Hour Static Renewal) (*1)

Daphnia pulex	Once/term	Grab
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Footnote:

*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. TMDL REQUIREMENTS

Neither the unnamed arroyo nor Hart canyon is listed on the 2010-2012 State of New Mexico Clean Water Act §303(d) list of impaired waters. The permit has a standard reopener clause that would allow the permit to be changed if at a later date the segment was listed and/or a TMDL was completed.

VII. ANTIDegradation

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

VIII. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at USFWS, Southwest Region 2 website, http://www.fws.gov/southwest/es/EndangeredSpecies/EndangeredSpecies_Lists/EndangeredSpecies_ListSpecies.cfm, ten species in Eddy County are listed as endangered (E) or threatened (T). They are the black-footed ferret (E) (*Mustela nigripes*), interior least tern (E) (*Sterna*

antillarum), Northern aplomado falcon (E) (*Falco femoralis septentrionalis*), Pecos gambusia (E) (*Gambusia nobilis*), Kuenzler hedgehog cactus (E) (*Echinocereus fendleri var Kuenzleri*), the Sneed pincushion cactus (E) (*Coryphantha sneedii var. sneedii*), the Mexican spotted owl (T) (*Strix occidentalis lucida*), the Lee pincushion cactus (T) (*Coryphantha sneedii var. leei*), the Pecos bluntnose shiner (T) (*Notropis simus pecosensis*) and Gypsum wild-buckwheat (T) (*Eriogonum gypsophilum*). The American bald eagle (*Haliaeetus leucocephalus*) was previously listed in Eddy 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. EPA makes this determination based on the following:

1. No additions have been made to the USFWS list of threatened and endangered species and critical habitat designation in the area of the discharge since prior issuance of the permit.
2. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.
3. The draft permit is consistent with the States WQS and does not increase pollutant loadings.
4. EPA determines that Items 1, thru 3 result in no change to the environmental baseline established by the previous permit, therefore, EPA concludes that reissuance of this permit will have “no effect” on listed species and designated critical habitat.

IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of the permit should have no impact on historical and/or archeological sites since no construction activities are planned in the reissuance.

X. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if State Water Quality Standards are promulgated or revised. In addition, if the State amends a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that TMDL. Modification of the permit is subject to the provisions of 40 CFR §124.5.

XI. VARIANCE REQUESTS

No variance requests have been received.

XII. 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.

XIII. FINAL DETERMINATION

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

XIV. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Form 2A received March 24, 2011.

B. 40 CFR CITATIONS

Citations to 40 CFR are as of March 16, 2011.
Sections 122, 124, 125, 133, 136

C. STATE OF NEW MEXICO REFERENCES

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

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, 2010 - 2012.