

# **NPDES PERMIT NO. NM0028169**

## **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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Rio Puerco Mine  
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### **ISSUING OFFICE**

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### **DATE PREPARED**

June 1, 2016

### **PERMIT ACTION**

Renewal of a permit previously issued on March 25, 2011, with an effective date of April 1, 2011, and an expiration date of March 31, 2016.

### **RECEIVING WATER – BASIN**

Unnamed arroyo to Canon Del Piojo – Rio Grande Basin (Segment 20.6.4.97)

**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
DO	Dissolved oxygen
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FWS	United States Fish and Wildlife Service
mg/l	Milligrams per liter
ug/l	Micrograms per liter
lbs	Pounds
MG	Million gallons
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
SS	Settleable solids
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	Waste Load 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 on March 25, 2011, with an effective date of April 1, 2011, and an expiration date of March 31, 2016, are as follow:

- pH at Outfall 001 has been relaxed to 6.0 – 9.0 s.u.
- 24-hr composite sample has been changed to grab sample.
- Limit for COD (daily max.) has been corrected to 200 mg/L from 125 mg/L.
- Part IV of the permit is included for sewage sludge requirement.

## **II. APPLICANT LOCATION and ACTIVITY**

As described in the application, the facility (Outfall 001: Latitude 35° 16' 00" North and Longitude 107° 11' 35" West) is located at approximate eight miles southeast Marquez, in Sandoval County, New Mexico.

Under the SIC code 1094, the applicant operates the Rio Puerco Mine, an underground uranium mining, by conventional mining techniques through a single vertical shaft. The mine has been inactive with no discharge since 1980. The applicant did not include a timeline for when the mine would be reactivated, but provided the following estimates of possible production and discharge volumes. The operation will produce over 100,000 tons of ore per year and subsequently be processed as yellow cake. Water accumulating in the mine (540,000 gal/day) will be pumped to the surface and treated in mine water treatment ponds. Sanitary wastewater (potential flow of 7,000 gal/day) is separately treated by an extended aeration package plant and then combined with potential effluent from the ponds to enter the arroyo, to Canon Del Piojo, to Salado Creek, thence to Rio Puerco. Effluent discharging via Outfall 001 consists of potential mine and sanitary wastewater. A map of the facility is attached.

## **III. EFFLUENT CHARACTERISTICS**

Representative effluent information is not available due to no activity since 1980. When mining water pumping is resumed or discharge occurs, samples will be collected and analyzed. Because the receiving water is an ephemeral stream mentioned in the water quality based-limitations below (Section V.C), persistent pollutants must be analyzed using sufficiently sensitive EPA-approved analytical methods as defined under 40 CFR 122.44(i)(1)(iv); they are required in the draft permit Part I.F.

## **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 the 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). It has been brought to EPA's attention that leachate from waste rock site or seepage of mine water settling pond or tailing pond may reach surface water through hydrologic connection in some mining facilities. This permit does not authorize any discharge through hydrologic connection nor discharges at locations other than Outfall 001 as specified in the permit.

## **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 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 toxic pollutants, TSS, COD and BOD, and percent removal for each. Water quality-based effluent limitations are established in the proposed draft permit for gross alpha, Ra226+Ra228, *E. coli* bacteria and TRC.

### **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, *E. coli* bacteria, 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**

The uranium mine is subject to technology-based ELG's established at 40 CFR Part 440 subpart C. Since the mine commenced operation prior to December 3, 1982, it is not a subject to New Source Performance Standards and review under the National Environmental Policy Act does not apply. BPT is

retained from the previous permit. Pollutants with ELG’s established in this subpart are TSS, COD, Zinc, Ra226 (dissolved), Ra226 (total), Uranium and pH; these limitations are the same as previously per 40 CFR 440.32(a). For sanitary wastewater discharge, limitations of BOD, TSS and pH are retained (BPJ at internal Outfall 01A) in this draft permit consistent with secondary treatment requirements at 40 CFR 133.102. The previous factsheet stated ELG for COD is 200 mg/L, which is unchanged currently; however, the previous permit limited the COD at 125 mg/L with no reason found. EPA believes this was a typographical error and corrects this error in the draft permit. This correction would not violate the Antibacksliding pursuant to 40 CFR 122.44(l)(2)(i). Mass limits are not applicable per 40 CFR §122.45(f)(1) at this time because this mining operation may discharge intermittently and there has been no discharge data since 1980.

A summary of the technology-based limits for the facility is:

Effluent Characteristic	Discharge Limitation			
	Outfall 001 (mg/L, unless noted)		Outfall 01A (mg/L, unless noted)	
Parameter	30-day Avg	Daily Max	30-day Avg	7-day Avg
TSS	20	30		
COD	100	200		
Zn, total	0.5	1.0		
Ra226, dissolved	3 pCi/l	10 pCi/l		
Ra226, total	10 pCi/l	30 pCi/l		
Uranium, total	2	4		
BOD			30	45
TSS			30	45
pH	6.0 to 9.0 s.u.		6.0 to 9.0 s.u.	

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/Tribe WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State/Tribal WQS and applicable State/Tribe 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/Tribe narrative and numerical water quality standards are used in conjunction with EPA criterion 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 approved on June 5, 2013). The receiving water is unnamed arroyo to Canon Del Piojo (segment 20.6.4.97 NMAC), which was approved by EPA on January 30, 2013. The stream designated uses are livestock watering, wildlife habitat, limited aquatic life 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). Concentration limits are monitored at Outfalls 001 & 01A; whereas, mass limits are monitored at Outfall 001. State or Tribal WQS that are more stringent than effluent limitation guidelines and the most stringent limitations are chosen as follows:

a. TRC

Water Designated Use(s)	State WQS
Wildlife habitat	11 ug/L [20.6.4.900.G]

b. Bacteria

Water Designated Use(s)	State WQS
Secondary contact	E. coli: 548 cfu/100 mL monthly; 2507 cfu/100 mL daily maximum, [20.6.4.900.E]

c. pH

Previously pH was limited between 6.6 - 9.0 s.u. at Outfall 001. Since the receiving stream is ephemeral, there is no specified pH limitation for the applicable designated uses. However, pH for technology based limit (6.0 – 9.0 s.u.) is instead established at the outfall; this less stringent pH limitation does not violate the Antidegradation because the current designated uses were not available previously pursuant to 40 CFR 122.44(1)(2)(i).

d. Toxics

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 criterion, the permit must contain an effluent limit for that pollutant. Due to the potential discharge is to an ephemeral stream, applicable pollutants (Table 3 in NMIP, see the draft permit Part I.F) are subjects to the RP analysis.

Because there has been inactive and no discharge since 1980, no data is available; therefore no RP analysis is performed. Gross alpha and Ra226+Ra228 are retained from the previous permit.

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 Table 10 (page 35 of the NMIP). All limited parameters are

monitored with a frequency of once/discharge with no more than once/week. Grab samples are allowed instead of 24-hr composite based on BPJ because potential discharge is likely occasional and not 24-hr period long. EPA may change the sample method upon receiving sufficient effluent data.

**E. WHOLE EFFLUENT TOXICITY**

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. Table 11 (page 42) of the NMIP outlines the type of WET testing for different types of discharges. The receiving water is ephemeral with 4Q3 of zero. No RP for WET is performed due to no available data.

The proposed permit requires five (5) dilutions (same as previously) 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 must be 32%, 42%, 56%, 75% and 100%. The low-flow effluent concentration (critical low-flow dilution) is defined as 100% effluent. The permittee shall limit and monitor discharge(s) as specified below for a major industrial facility:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	30-day Avg Min.	48-hr Min.	Frequency <sup>2</sup>	Type
WET Testing (48-hr Static Renewal) <sup>1</sup>	Report	Report	Once/Quarter <sup>3</sup>	Grab
Daphnia pulex	Report	Report	Once/Quarter <sup>3</sup>	Grab

<sup>1</sup> Monitoring and reporting requirements begin on the effective date of this permit. See Part II of the permit, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

<sup>2</sup> This permit does not establish requirements to automatically increase the WET testing frequency after a test failure, or to begin a toxicity reduction evaluation (TRE) in the event of multiple failures. However, upon failure of any WET test, the permittee must report the results to EPA and NMED, Surface Water Quality Bureau, in writing, within 5 business days of notification of the test failure. EPA and NMED will review the test results and determine the appropriate action necessary, if any.

<sup>3</sup> If all 4 tests pass in the 1<sup>st</sup> year, the frequency will be once/6 months thereafter; otherwise once/quarter remains unchanged for the remaining permit term.

**F. SEWAGE SLUDE REQUIREMENTS**

The facility separately treats sanitary wastewater (flow up to 7,000 gal./day) with a package plant. Generation of sewage sludge is regulated under 40 CFR 503. Part IV of the permit is included for a minor (less than 1 MGD) sanitary wastewater facility.

**VI. TMDL REQUIREMENTS**

The receiving water, Canon Del Piojo (segment 20.6.4.97 NMAC) has been scheduled for assessment in 2019; there is no water impairment stated in the 303(d) List. No additional limit is established in term of TMDL. The permit has a standard reopener clause that would allow the permit to be changed if at a later date additional requirements on new TMDLs are 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 water, 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 list updated on February 18, 2016 for Sandoval County, NM obtained from <http://ecos.fws.gov>, there are endangered (E)/threatened (T) species that were listed in the previous permit: Mexican spotted owl, Southwestern willow flycatcher and Rio Grande Silvery Minnow. These species were determined with “no effect”. Since then, there have been 3 additional threatened/endangered species: Jemez Mountains salamander (E), Yellow-billed Cuckoo (T) and New Mexico meadow jumping mouse (E).

There has been no recovery plan for all these additional species, except the jumping mouse. According to the Recovery Outline for the mouse in June 2014, the species is endangered because of habitat loss; the main sources of the loss include grazing eliminating herbaceous vegetation, lack of water, severe wildland fire, souring flooding, highway reconstruction, unregulated recreation, loss of beaver ponds and mowing of riparian vegetation. According to the Federal Register on 11/20/2013 (78 FR 69569 69591), habitat characteristics for the salamander include moderate to high tree canopy cover with high relative humidity, elevations from 6,988 to 11,254 ft, ground surface in forest areas with large fallen trees and underground habitat in forest or meadow areas containing interstitial spaces. Major factors affecting the species are (a) wildland fire, (b) disease (fungus, infection) or predation (by snake, bear, owl), (c) inadequacy of existing regulations and (d) others including chemical use for weed control and climate change per the Federal Register on 09/10/2013 (78 FR 55599 55627). Because of these facts, EPA believes the salamander’s habitats unlikely exist in flow path of the discharge. According to the Federal Register on 8/15/2014 (79 FR 48547 48652) the primary constituent elements specific to the western yellow-billed cuckoo are: riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn-forest vegetation, presence of a prey base consisting of large insect fauna, and river systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor. The moist conditions that support riparian plant communities that provide western yellow-billed cuckoo habitat typically exist in lower elevation, broad floodplains, as well as where rivers and streams enter impoundments. Major factors affecting the cuckoo are (a) manmade features that alter watercourse hydrology, livestock overgrazing and encroachment from agriculture, climate change, (b) disease (West Nile virus) or predation (by hawk), (c) inadequacy of existing regulations and (d) others including pesticide chemical per the Federal Register on 10/03/2014 (79 FR 59991 60038).

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 no information determining that the reissuance of this permit will have “effect” on the listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.
2. The draft permit is consistent with the Tribe/States WQS and does not increase pollutant loadings.

3. There is currently no information determining that the reissuance of this permit will have “effect” on the additional listed threatened and endangered species.
4. The previous permit initiated Formal Consultation with the FWS for the discharge from the facility. EPA provided a Biological Evaluation (BE) to FWS March 27, 2001. The FWS responded to EPA’s BE, August 20, 2001, Consultation # 2-22-01-I-592, concurring with EPA’s “no effect” determination for the Southwestern flycatcher and its “may affect, but not likely to adversely affect” the Rio Grande silvery minnow.

#### **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 NMWQS are promulgated or revised. In addition, if the State develops 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**

None

#### **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 of COE, to the Regional Director of FWS 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 2C dated September 29, 2015.

##### **B. 40 CFR CITATIONS**

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 June 5, 2013

State of New Mexico Clean Water Act Section 303(d)/Section 305(b) Integrated Report, 2014-2016, November 18, 2014

D. MISCELLANEOUS

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

EPA letter dated January 30, 2013.

Recovery Outline: New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*), June 2014.