NPDES PERMIT NO. NM0022306
FACT SHEET

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

APPLICANT

Chevron Mining Inc. – Questa Mine
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ISSUING OFFICE

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PREPARED BY

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DATE PREPARED

June 26, 2013

PERMIT ACTION

Proposed reissuance of the administratively continued permit issued with an effective date of October 1, 2006 and an expiration date of September 30, 2011.

RECEIVING WATER BASIN

Red River – Segment No. 20.6.4.122 of the Red 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 litter (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 August 29, 2006, with an effective date of October 1, 2006, and an expiration date of September 30, 2011, are:

A. Eliminated previous Outfall 001;
B. Revised water quality-based limits at Outfalls 002, 004 and 005 to be consistent with the current NMWQS; and
C. Added new Outfall 001 to authorize discharges of treated milling waste stream, mine drainage, and captured mine seepages.

II. APPLICANT LOCATION AND ACTIVITY

The original application for renewal was received on April 1, 2011, and an updated application was received on December 26, 2012, which includes proposal for a new treatment facility. As described in the application, the plant site is located in Taos County, New Mexico. The discharge(s) are to receiving water(s) named the Red River, in Waterbody Segment Code No. 20.6.4.122 of the Rio Grande Basin.

Under the Standard Industrial Classification (SIC) Code(s) 1061, the applicant currently operates a mine and mill producing molybdenum disulfide. Operations at this molybdenum mine located near Questa, New Mexico initially began in 1918 and were limited to underground mining until 1965. During those first 46 years, ore milling operations were conducted at the southeast corner of the mine's property, near the Red River. Waste rock from those operations was deposited near the mill. In 1965, open pit mining was initiated at the site. During operation of the open pit mine, an estimated 328 million tons of waste rock were removed and deposited in piles, known as waste rock dumps, located on mine property. A new mill was built at the facility, and a pipeline was constructed to carry milling waste to a tailings pond located west of Questa. Open pit mining was discontinued in 1983. Operations since that time have consisted solely of underground mining. All tailings and spent ore are presently piped as slurry to the tailings ponds.

The applicant, Chevron Mining Inc. (CMI), plans operational changes to build a new mine site water treatment facility which is being designed to manage collected mine related waters (e.g., waters from underground, tailings filtrate, springs and groundwater wells), and captured stormwater at the mine. CMI has evaluated multiple treatment options and developed a proposed water treatment process. To date, CMI has conducted numerous bench-scale static beaker tests and a semi-continuous pilot study to evaluate the proposed water treatment process its effectiveness. The preferred treatment alternative that will be tested in the pilot study is called Enhanced Chemical Precipitation (ECP) process and is described below.

The first step of the ECP process is iron co-precipitation to target molybdenum removal in some waters from the mine. This may be considered an auxiliary treatment pursuant to 40 CFR 122.41(e) because it will only be used as needed on selected waters. The second step of the ECP process is lime/calcium-aluminate precipitation with reactor clarifier/thickener. The final step of the ECP process is carbonation

where carbon dioxide (CO2) is used to neutralize pH and precipitate calcium carbonate and aluminum hydroxide: these precipitates are recycled back to the lime/calcium-aluminate step. A nanofiltration step is also being considered which would result in lower concentrations of chemicals of concern (COCs) and would decrease the volume of water that would require treatment by the lime/calcium-aluminate treatment step.

III. EFFLUENT CHARACTERISTICS

The facility requested authorization for discharges from two distinctly different locations; from the mine located in the Red River Canyon east of the town of Questa, and from the tailings ponds located just west of Questa. No direct discharge from the mine located in the Red River Canyon was authorized by the previous permit. Mine drainage and/or seepage are collected and pumped to the tailings ponds. Discharges from the tailings ponds were made through Outfalls 001 and 002. The administratively continued permit also authorizes the discharge of storm water from the mine area at outfalls 004 and 005. Because the facility has not discharged from Outfall 001 included in the administratively continued 2006 permit, the applicant requested to remove Outfall 001 in the permit renewal application. The applicant provided effluent characteristics data for discharge at Outfall 002. The discharge at Outfall 002 consists of collected seepage from tailings facilities.

In addition to the authorized discharges listed above, other potential discharges to the Red River from seeps and springs in the vicinity of the mine had been addressed when EPA renewed the expired permit in 2006. EPA determined that there was a discharge of waste water originating from waste rock piles and flowing through shallow aquifers in a direct hydrologic connection to the seeps and springs. In order to prevent this type of potential discharge, Best Management Practices (BMPs) requirements were established in the permit. The BMPs consisted of French drains and a ground water withdrawal well to intercept ground water at seeps located just upstream of the mouth of Capuline Canyon, near the mouth of Goathill Gulch, and below the Sugar Shack South waste rock pile. The water collected by the interception systems is pumped into the tailings pipeline and sent to the tailings facility located west of Questa.

From the tailings facility, seepages percolating to groundwater which flows toward the Red River through a direct hydrologic connection between the tailings ponds and the Red River were documented by EPA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program. CMI installed interception wells, seepage barrier, and water collection systems to capture the plume from the tailings facility and has discharged that water at Outfall 002 as authorized by the NPDES permit. However, CMI has rarely used Outfall 001 to discharge process water from milling operations and tailings disposal, including mine de-watering and interceptor wells, to the Red River as authorized in the administratively continued permit. Water balance data provided by the applicant indicates that a significant volume of water seeps through the tailings facility. EPA issued a Record of Decision (ROD), dated December 20, 2010, in accordance with CERCLA requirements. According to the water balance data (see the water balance Table below) provided in Chevron's final Feasibility Study Report (as of Revision No. 2.0, August 25, 2009) which is attached to the ROD, the annual average seepage from the tailings facility is 5.5 cfs ranging from the minimum monthly rate of 1.1 cfs to the maximum monthly rate of 7.5 cfs.

Table 1. Operational Water Balance for Tailings Facility (For Calendar Year 2006)

Year 2006	Annual		Monthly Minimum		Monthly Maximum	
	gpm	cfs	gpm	cfs	gpm	cfs
Total Water From Mine to Tailings Facility	3,290	7.3	1,850	4.1	4,770	10.6
Tailings Facility Net Evaporation	350	0.8	60	0.1	740	1.6
Moisture Retained in Tailings Facility	150	0.3	0	0	240	0.5
Total Consumptive Use	500	1.1	60	0.1	860	1.9
Total Water Available for Seepage at the Tailings Facility	2,790	6.2	1,260	2.8	4,400	9.8
Groundwater/Seepage Collected by Seepage Interception System	400	0.9	360	0.8	440	1.0
Groundwater/Seepage Collected by Pumpback System	150	0.3	100	0.2	300	0.7
Total Groundwater/Seepage Collected by the Interception System	550	1.2	510	1.1	660	1.5
Total Seepage Collected by Interception System	280	0.6	260	0.6	330	0.7
Uncollected Seepage from the Tailings Facility	2,510	5.5	480	1.1	3,410	7.5

Because flow data provided in Table 1 were outdated and the volume of uncollected seepage did not reflect the difference between total inflow and consumptive use, EPA requested CMI to provide new water balance data. In response to EPA's request, in a letter dated December 19, 2011, CMI provided EPA with 2010 and 2011 (up to September) monthly operational water balance data included below.

Table 2. Operational Water Balance for Tailings Facility (For Years 2010-2011)
(Volume in gallons per minute (gpm))

Month	Mine to Tailings (A)	Consump-tive at Tailings (B)	Discharge at Outfall 002 (C)	GW/Seep at Pumpback (D)	Potential Seepage Loss (E=A-B-C+D)	Total Potential Discharge (C+E)
Mills Not Operating						
2010 January	2250.3	45.3	534.3	73.0	1743.7	2278.0
February	1607.3	76.8	535.0	79.2	1074.7	1609.7
March	1606.5	154.7	402.2	87.6	1137.2	1539.4
April	1436.1	249.7	426.1	79.2	839.5	1265.6
June	1362.9	326.6	576.2	83.0	543.1	1119.3

July	1129.2	319.0	450.4	70.8	430.6	881.0
August	1064.2	151.1	432.8	75.2	555.5	988.3
September	1046.9	140.3	383.9	75.4	598.1	982.0
November	1452.7	76.9	444.2	76.2	1007.8	1452.0
December	1971.5	51.1	342.3	80.3	1658.4	2000.7
2011 January	1890.4	40.1	419.7	61.3	1491.9	1911.6
February	1644.5	70.3	414.6	70.3	1229.9	1644.5
March	1097.0	114.6	408.0	73.0	647.4	1055.4
May	1659.1	324.1	367.9	76.6	1043.7	1411.6
June	1438.3	396.7	372.6	67.9	736.9	1109.5
July	1115.3	340.9	342.3	63.5	495.6	837.9
August	1213.1	229.2	420.4	74.5	638.0	1058.4
September	1025.0	156.1	365.8	70.9	574.0	939.8
Maximum	2250.3	396.7	576.2	87.6	1743.7	2278.0
Minimum	1025.0	40.1	342.3	61.3	430.6	837.9
Average	1445.0	181.3	424.4	74.3	913.7	1338.1
Mills Operating						
2010 May	2872.2	394.9	354.7	72.3	2194.9	2549.8
2010 October	2605.0	237.9	402.2	67.2	2032.1	2434.3
2011 April	2788.4	316.0	402.0	72.4	2142.8	2544.8
Maximum	2872.2	394.9	402.2	72.4	2194.9	2549.8
Minimum	2605.0	237.9	354.7	67.2	2032.1	2434.3
Average	2755.2	316.3	386.3	70.6	2123.3	2509.6

The water balance data indicate that the potential seepage rates ranged from 430.6 gpm (0.62 MGD) to 2194.9 gpm (3.16 MGD). The average seepage rate was 913.7 gpm (1.32 MGD) when the mill was not operating and is 2123.3 gpm (3.06 MGD) when the mill was operating (See Table 2). The total potential monthly average flow rate discharging to stream and ground water is the sum of monthly average discharge rate at Outfall 002 (Column C) and monthly average seepage rate (Column E). The average total potential discharge rate during mill operation period is 2509.6 gpm (3.61 MGD).

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 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 this 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 be established to meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative WQS-based effluent limits, or the previous permit limits.

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 which may include 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. BAT limits are:

Pollutant	30-day Average (mg/l)	Daily Maximum (mg/l)
Total Arsenic	0.5	1.0
Total Cadmium	0.05	0.1
Total Copper	0.15	0.3
Total Lead	0.3	0.6
Total Mercury	0.001	0.002
Total Zinc	0.5	1.0

This facility is covered by the Ore Mining and Dressing Effluent Limitations Guidelines Subpart J - Copper, Lead, Zinc, Gold, Silver, and Molybdenum Subcategory at 40 CFR §440. Subpart §440.102 establishes BPT effluent limitations and §440.103 establishes BAT effluent limitations. The administratively continued permit has ELGs at Outfall 002. Because WQ-based effluent limitations for arsenic, cadmium, copper, lead, and zinc are more stringent than the ELGs, WQ-based limitations will be established in the permit. The administratively continued permit also contains BPJ-based limitations for fluoride and manganese so those limitations are retained at Outfall 002 due to the anti-backsliding policy. Mass load limitations are recalculated based on new flow data provided in the application.

Outfalls 004 and 005 were designated for storm water discharges at mine site and BPJ-based limitations for COD, TSS, and zinc were established in the administratively continued permit. These BPJ-based limitations are retained in the permit due to the anti-backsliding policy provisions at section 402(o) of the CWA.

Because CMI requested to eliminate the previous Outfall 001 from the permit, any discharge from previous Outfall 001 is not authorized by this permit renewal.

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 water quality standards (WQS). Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on applicable 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 WQS 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 November 20, 2012). The facility discharges into Red River in Segment No. 20.6.4.122 of the Red River Basin. The designated uses of the receiving water are wildlife habitat, livestock watering, coldwater aquatic life, fish culture, irrigation and primary contact.

4. Permit Action - Water Quality-Based Limits at Outfall 002

Regulations promulgated at 40 CFR §122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). State WQ-based effluent limitations established at Outfall 002 are discussed below.

a. pH

The pH limit is based on pH stream standard range for coldwater aquatic life use (20.6.4.900.H. NMAC) which is 6.6 to 8.8 standard units (su).

b. Toxics

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet WQS. 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.

To determine if a pollutant has a reasonable potential (RP) to exceed a water quality criteria the following test is performed according to the NMIP:

$$IWC = ((FQa \times Ca) + (Qe \times Ce \times 2.13)) \div (FQa + Qe)$$

Where:

Ce is the daily average effluent concentration,
Cs is the applicable water quality criteria,
Ca is the ambient concentration upstream of discharger,
Qe is the effluent flow rate,
Qa is the 4Q3 stream low flow rate,
F is the fraction of stream allowed for mixing, 1.0 is used if site-specific value not available

If the IWC is greater than the applicable criteria, it demonstrates RP, then a permit limit must be developed.

EPA conducted a reasonable potential (RP) analysis against the currently approved WQS by using the maximum monthly effluent flow (0.645 MGD), average effluent concentrations provided in the application Form 2C dated December 21, 2012, ambient water data based on NMED SWQB Monitoring and Assessment (MAS) database, and the critical low flow of 7.0 cfs at USGS Gauging Station No. 08265000. (RP analytical spread sheet attached.)

CMI has only operated its mill processing at a capacity of approximately 10 days per six month period, so the discharge at Outfall 002, as submitted with the permit application, does not represent the wastewater quality during the normal mining and milling operations. The permit does not set any restriction for mining or milling operations (e.g., mining duration, production rate, etc.) that would prohibit more intensive mining operations, which means there is some uncertainty regarding reasonable potential for future discharges within the term of the proposed permit. To address this uncertainty, EPA has determined to retain the WQ-based effluent limitations in the administratively continued permit and update them based on new flow data to recalculate the effluent limitations for pollutants of concern at Outfall 002. Pollutants of concern include ELG-based pollutants, such as arsenic, cadmium, copper, lead, mercury, and zinc, and product-based molybdenum. CMI is required to use analytical methods with detection levels more sensitive than or equal to EPA approved MQLs.

The following equation is used to calculate the WQ-based effluent limitations.

$$\text{Daily Maximum Permit Limit} = Cs \{(FQa + Qe) \div Qe\} - Ca \{FQa \div Qe\}$$

The calculated effluent limitations (in µg/l) are listed below:

Pollutant	Arsenic	Cadmium	Copper	Lead	Mercury	Molybdenum	Zinc
Daily Max	310	1.79	44.1	86.1	4.76	7920	640
Monthly Avg	207	1.19	29.4	57.4	3.17	5280	485

The receiving water, Red River, was listed by the state of New Mexico as impaired by aluminum when EPA reissued the permit in 2006, but is no longer impaired due to a change in the WQS for aluminum. EPA approved new aluminum NMWQS on April 30, 2012, and also approved the withdrawal of the Dissolved Aluminum Total Maximum Daily Load (TMDL) for Red River (Rio Grande to Placer Creek). Because the effluent data demonstrated no RP based on the new standard, WQ-based effluent limitations for aluminum are not established at Outfall 002.

Because the ROD has listed seven "key" Contaminants of Concern (COCs) that describe the distribution and temporal changes in ground water at the mine site which are aluminum, fluoride, manganese, molybdenum, sulfate, zinc, and pH, NMED requested that EPA include monitoring requirements for those pollutants of concern. In addition to monitoring requirements and effluent limitations established for fluoride, manganese, molybdenum, sulfate, zinc, and pH as described above, EPA proposes to have a quarterly monitoring requirement for aluminum in the permit. EPA is not proposing a monitoring requirement for sulfate because sulfate criteria has not been established for the Red River.

c. Whole Effluent Toxicity (WET)

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP, March 15, 2012. Table 11 of Section V of the NMIP outlines the type of WET testing for different types of discharges. Analysis of past WET data to determine RP is attached to the Fact Sheet. WET monitoring for toxicity at Outfall 002 will be maintained for the proposed permit term. The CD of the discharge at Outfall 002 is recalculated to be 13% (0.645 ÷ (0.645 + 4.516) x 100%). The test species shall be *Ceriodaphnia dubia* and *Pimephales promelas*.

d. Monitoring Requirements

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). Monitoring frequency is based on the NMIP, revised as May 2012. Because discharges at Outfall 002 are continuous, the monitoring frequency is daily for pH. EPA proposes reduced monitoring frequency for WQ-based arsenic, cadmium, copper, lead, mercury, zinc, and molybdenum and BPJ-based manganese, fluoride and aluminum to be 1/month because the mill is not operating during most of the year and previous data has demonstrated compliance. EPA also proposes a monitoring frequency of 1/day when the mill is being operated. The frequency for WET is once per quarter. The WET frequency for *Ceriodaphnia dubia* may be reduced to 1/6 months and for *Pimephales promelas* reduced to 1/year if all WET tests pass in the first year.

5. Outfalls 004 and 005

The administratively continued permit contains WQ-based limits for discharges of storm water at Outfalls 004 and 005 which are based on acute aquatic life standards for aluminum, arsenic, cadmium, copper, lead, mercury, silver, chlordane, and total residual chlorine. These effluent limitations and monitoring requirements are retained in the proposed permit. However, these limits have been recalculated to reflect stream data available and to be consistent with the most recent NMWQS. When stream partition coefficients are available for metals, dissolved WQS will be converted to total effluent

concentrations. When such a coefficient is not available, a coefficient of 1.0 is used to convert dissolved WQS to total effluent limitations. When a calculated monthly average limitation is more stringent than the WQS, EPA has determined that it is appropriate to establish applicable WQS at the end of pipe rather than to establish a calculated effluent limitation below the WQS. All monthly average limitations established at Outfalls 004 and 005 are revised to be the same as the daily maximum. Due to the nature and frequency of discharges, EPA proposes grab samples, instead of 24-hour composite samples, and daily monitoring frequency when discharges occur.

D. BEST MANAGEMENT PRACTICES

Best Management Practices (BMP) at Spring 13, Spring 39, and springs in the vicinity of the old mill site below the Sugar Shack South Deposit required in Part II.A of the administratively continued permit are retained to control discharges of pollutants traceable to point source mine operations through a hydrologic connection to the Red River.

E. NEW WATER TREATMENT FACILITY

1. Tailings Facility Seepages

The water balance data provided by CMI indicate that up to 3.6 million gallons of water have potential to seep into the ground through the tailings facility every day. Seepages from the tailings facility may reach downstream Red River through hydrological connection. Such seepage discharges were not authorized in the administratively continued permit, except for those seepages collected and discharged at Outfall 002. EPA is not proposing to authorize discharges of seepage from the tailings facility, except for those discharging through Outfall 002. Seepages from the tailings facility which are not authorized by the NPDES permit will be addressed under the CERCLA program and the proposed permit's requirement to stop conveyance of flows to the tailings ponds by October 1, 2016 (see Section E.3 below). There are ongoing groundwater investigations managed by the CERCLA program. Findings of those investigations may be used to evaluate whether or not further EPA actions are needed.

The 2006 permit noted that water seeping out of the tailings ponds in the tailing facility area had a direct hydrologic connection to the Red River (2006 permit fact sheet, p. 4, citing Abshire, 1998 and Vail, September 4, 1993 and August 24, 1989). While this seepage was technically unpermitted, at that time the EPA determined that, based on the available information, the seepage from the tailing ponds was successfully captured by Molycorp. Molycorp had installed interception wells to capture the water and discharged the captured water through Outfall 002 in accordance with the permit. Thus the 2006 permit did not require any additional work to address these discharges.

The Chevron Questa Mine is currently undergoing a Superfund remediation. In 2009, as part of the Superfund process, CMI performed a Remedial Investigation and Feasibility Study. The RI/FS data developed by CMI showed that not all the seepage from the tailings pond was successfully captured. The EPA has made the decision to address the seepage from the tailings ponds as part of the CERCLA remedy at the Site rather than authorizing it under this NPDES permit. The CERCLA Record of Decision (ROD) calls for upgrades to the existing seepage barriers and installation of extraction wells to capture most or all of the seepage from the tailing facility. The collected water will be discharged from the existing Outfall 002 under this permit. If water is collected in amounts that exceed the parameters of this permit, the remaining water will be treated at a water treatment plant to be built at the tailings facility. The EPA and CMI entered into an Administrative Order on Consent (AOC) in October of 2012 under which CMI agreed to perform a groundwater investigation to determine the extent of groundwater

contamination from the tailing facility. Depending on the results of that investigation, groundwater treatment at the tailing facility water treatment plant may be necessary. For questions on the CERCLA remedy at the Chevron Questa Mine Site, please contact the Remedial Project Manager at the following address:

Gary Baumgarten
Chevron Questa Mine Remedial Project Manager
U.S. Environmental Protection Agency
1445 Ross Avenue (6SF-RA)
Dallas, Texas 75202-2733

2. New Water Treatment Facility

CMI proposes to change their operation practices as described in their modified permit application received by EPA on December 26, 2012. The proposed operational changes to the Questa Mine site include the addition of a paste tailings thickener and filter cake plant to process milled tailings for disposal in the existing open pit. The thickener would be in the mill area and the proposed filter cake plant would be located adjacent to the proposed tailings dam on the southeast side of the open pit. The operation of the paste tailings plant and disposal of tailings paste in the open pit would eventually remove the need for further use of the tailings storage facility located in the vicinity of the Village of Questa, as well as the pipeline used to move tailings from the mill to the tailings facility. The proposed operational changes to the site also include construction of a water treatment plant at the mine site which would potentially treat 1) waters from the underground mine (average [avg] 250 gallons per minute [gpm]), 2) collected mine waters including waters from groundwater well and springs (avg 700 gpm including future groundwater extraction wells per the Record of Decision under the EPA Superfund program), 3) potential filtrate from the future paste plant (avg 300 gpm) as well as 4) contact storm water (avg 316 gpm) from the mine site. The treated waters would be discharged from a new proposed outfall location near the water treatment plant in the vicinity of the mill. This new treatment plant would likely have two treatment trains, each providing up to 1,600 gpm capacity to handle the maximum expected flows, given on-site water quantity management. The process would result in a large portion of the contact waters on the mine site undergoing full treatment.

3. Effluent Limitations and Monitoring Requirements

A new Outfall 001 is included for the discharge from the new treatment facility. Because waste stream (tailings filtrate) from mill process and mine drainage will be treated at the new water treatment facility, EPA determines that the most stringent ELG-based limitations could be established after the new water treatment process, instead of at internal outfalls. General definitions provided in 40 CFR 440.131(g) and (h) state that mine is an active mining area, including all land and property placed under, or above the surface of such land, used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, including secondary recovery of metal ore from refuse or other storage piles, wastes, or rock dumps and mill tailings derived from the mining, cleaning, or concentration of metal ores; and mine drainage means any water drained, pumped, or siphoned from a mine. Because captured seepages from mining area through the BMPs mentioned in subsection D of this part consist of contaminated groundwater due to runoff from waste rock piles or previous active surface mining areas, EPA is regulating those captured seepages or groundwater as mine drainage. Because ELGs for mills waste are more stringent than ELGs for mine drainage, EPA proposes to establish the most stringent ELGs at the new Outfall 001.

Water quality-based pH effluent limitation range of 6.6 – 8.8 s.u. is established at Outfall 001 when discharges commence. Because building a new treatment facility as described above is part of the CERCLA program and NPDES permit program does not require specific technologies for compliance purposes, in order to avoid any unexpected schedule conflict, EPA is not proposing a compliance schedule for the construction of treatment facility. Instead, EPA proposes that CMI ceases conveying mill process wastewater, mine drainage, or captured groundwater or spring water to the tailings facility by October 1, 2016, and proposes WQ-based interim effluent limitations based on CMI projected maximum flow of 3,200 gpm (4.608 MGD). The October 1, 2016, date which is about 3 years from the projected effective date of this permit was selected to provide time for operational start up and shake down of the new treatment facility and change in mine operations prior to ceasing use of the existing tailings facility. The interim effluent limitations are established for ELG-based pollutants. EPA may reopen the permit and develop final effluent limitations when effluent flow and characteristics data at Outfall 001 become available. The calculated WQ-based effluent limitations (in µg/l) using same stream hardness and TSS for Outfall 002 are listed below:

Pollutant	Arsenic	Cadmium	Copper	Lead	Mercury	Molybdenum	Zinc
Daily Max	58.53	0.48	29.18	19.93	1.01	2690	640
Monthly Avg	39.02	0.48	29.18	15.71	0.77	1895	485

The above projected effluent limitations are based on projected flow data provided in the application and if new projected flow data become available showing significant change of the total flow rate, EPA may recalculate the limitations accordingly. The more stringent either WQ-based effluent limitations or ELG-based effluent limitations are established in the permit.

Additional monitoring requirements are proposed to collect effluent data for future RP analysis and development of WQ-based effluent limitations. EPA proposes to require CMI to monitor all metal constituents quarterly and other pollutants annually during discharges at Outfall 001. Analytical results shall be submitted with the next permit renewal application.

Beginning at the start-up of the new water treatment facility and lasting through the expiration date of the permit, the permittee shall collect samples at Outfall 001 once per calendar year, during the period of mill operations, for analysis of the additional effluent characteristics as listed below. Samples shall be taken at least six months apart or longer.

RADIOACTIVITY, NUTRIENTS, AND CHLORINE

Aluminum (T); Barium (D); Boron (D); Cobalt (D); Uranium (D); Vanadium (D); Ra-226 and Ra-228 (pCi/l); Strontium (pCi/l); Tritium (pCi/l); Gross Alpha (pCi/l); Total Residual Chlorine; Nitrate as N (mg/l); and Nitrite + Nitrate (mg/l).

VOLATILE COMPOUNDS

Acrolein; Acrylonitrile; Benzene; Bromoform; Carbon Tetrachloride; Chlorobenzene; Clorodibromomethane; Chloroform; Dichlorobromomethane; 1,2-Dichloroethane; 1,1-Dichloroethylene; 1,2-Dichloropropane; 1,3-Dichloropropylene; Ethylbenzene; Methyl Bromide; Methylene Chloride; 1,1,2,2-Tetrachloroethane; Tetrachloroethylene; Tolune; 1,2-trans-Dichloroethylene; 1,1,1-Trichloroethane; 1,1,2-Trichloroethane; Trichloroethylene; and Vinyl Chloride.

ACID COMPOUNDS

2-Chlorophenol; 2,4-Dichlorophenol; 2,4-Dimethylphenol; 4,6-Dinitro-o-Cresol; 2,4-Dinitrophenol;

Pentachlorophenol; Phenol; and 2,4,6-Trichlorophenol.

BASE/NEUTRAL
Acenaphthene; Anthracene; Benzidine; Benzo(a)anthracene; Benzo(a)pyrene; 3,4-Benzofluoranthene; Benzo(k)fluoranthene; Bis(2-chloroethyl)Ether; Bis(2-chloroisopropyl)Ether; Bis(2-ethylhexyl)Phthalate; Butyl Benzyl Phthalate; 2-Chloronapthalene; Chrysene; Dibenzo(a,h)anthracene; 1,2-Dichlorobenzene; 1,3-Dichlorobenzene; 1,4-Dichlorobenzene; 3,3'-Dichlorobenzidine; Diethyl Phthalate; Dimethyl Phthalate; Di-n-Butyl Phthalate; 2,4-Dinitrotoluene; 1,2-Diphenylhydrazine; Fluoranthene; Fluorene; Hexachlorobenzene; Hexachlorobutadiene; Hexachlorocyclopentadiene; Hexachloroethane; Indeno(1,2,3-cd)Pyrene; Isophorone; Nitrobenzene; n-Nitrosodimethylamine; n-Nitrosodi-n-Propylamine; n-Nitrosodiphenylamine; Nonylphenol; Pyrene; and 1,2,4-Trichlorobenzene.

PESTICIDES AND PCBS
Aldrin; Alpha-BHC; Beta-BHC; Gamma-BHC; Chlordane; 4,4'-DDT and derivatives; Dieldrin; Diazinon; Alpha-Endosulfan; Beta-Endosulfan; Endosulfan sulfate; Endrin; Endrin Aldehyde; Heptachlor; Heptachlor Epoixde; PCBs; and Toxaphene.

In additional to annual effluent characteristics samples as addressed above, the permittee must also take samples once per calendar quarter for metal analysis as listed below.

METALS AND CYANIDE
Arsenic (D); Beryllium (D); Cadmium (D); Chromium-III (D); Chromium-VI (D); Chromium (D); Copper (D); Lead (D); Manganese (D); Mercury (T & D); Molybdenum (T & D); Nickel (D); Selenium (T); Silver (D); Thallium (D); Zinc (D); and Cyanide (T). [Note: T means total recoverable or total and D means dissolved]

4. Whole Effluent Toxicity (WET)

Quarterly WET monitoring for toxicity at Outfall 001 is proposed. The CD of the discharge at Outfall 001 is calculated based on the maximum projected flow, 3200 gpm which is 4.608 MGD, and the adjusted 4Q3flow at the Mill because the USGS gauging station (No. 08265000) is about 7 miles downstream from the Mill and additional flows are contributed to the Red River between Mill and the gauging station. The adjusted 4Q3 low flow at the Mill is approximately 3 cfs which is 1.94 MGD based on information provided in CMI's application. Therefore, the CD is 70% (4.608 ÷ (4.608+1.94) x 100%). The test species shall be *Ceriodaphnia dubia* and *Pimephales promelas*. The final CD may change if projected flow changes.

5. Compliance Schedule

EPA proposes that CMI ceases transfer of mill process wastewater, mine drainage, or captured groundwater or spring water to the tailings facility and complies with the effluent limitations at new Outfall 001 by October 1, 2016. EPA does not specify treatment technologies in the permit, in case CMI needs to modify their plan to comply with the proposed permit limits and conditions.

6. Monitoring Reduction at Outfall 002

Once CMI ceases pumping wastewater into tailings facility, the discharge quantity is expected to be reduced significantly so that the CD used both for WET test and for RP analysis would not be

representative and the quality of discharge is also expected to be improved gradually. Therefore, EPA proposes that all monitoring requirements at Outfall 002 be reduced to 1/6 months and WET tests could be reduced to 1/year after CMI demonstrates that: 1) CMI ceases conveying all waste streams to tailings facility; 2) discharges at Outfall 002 after cessation of water conveyance to the tailings facility are in compliance with effluent limitations and pass WET tests; and 3) the maximum discharge flow at Outfall 002 is below and not expected to exceed 0.645 MGD for the rest of the permit term.

VI. 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 WQS. The limitations and monitoring requirements set forth in the proposed permit are developed from the State WQS 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. Although future discharges from a new outfall are authorized by this permit action, the newly authorized discharge results from collection and treatment of wastewater which have been potentially discharging through seepages from the tailings facility. This change actually will result in less unaccounted pollutants to be released to the environment.

VII. 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), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit. ELG-based limitations are established at the internal outfall instead of at the final outfall so to comply with the best available technology requirement. This change results in more stringent control of waste stream because the discharge at Outfall 002 was diluted by captured groundwater, springs, and storm water prior to discharging. The most recently available ELGs are used to develop the ELG-based limitations.

VIII. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at USFWS, Southwest Region 2 website, http://ifw2es.fws.gov/EndangeredSpecies/lists/, three species are listed as threatened or endangered in Taos County. These are the Black-footed ferret, Mexican spotted owl, and Southwestern willow flycatcher.

Black-footed ferret- In New Mexico, positive historic records are known from Bernalillo, Catron, Chaves, Colfax, Curry, Lincoln, McKinley, and Santa Fe counties. However, the best possibility for occurrence in New Mexico appears to be in the northwest portion. Black-footed ferrets have not been historically found or located in Northeastern or North Central New Mexico. The species was last confirmed in New Mexico in 1934. The species is presumed extirpated in New Mexico and is not listed by the New Mexico Department of Game and Fish. The causes for the decline of the species are mainly attributable to the widespread eradication of prairie dogs, the main provider of food, shelter, and dens for the ferret.

Mexican spotted owl- The vegetative communities occupied by the Mexican spotted owl consist primarily of warm-temperate and cold-temperate forests, and, to a lesser extent, woodlands and riparian deciduous forest. The mixed-conifer community appears to be most frequently used. The most common

overstory trees associated with these owls in these communities are white fir, Douglas fir, and ponderosa pine. Less common species are southwestern white pine, limber pine, aspen, and corkbark fir. The understory, providing important roosting sites for Mexican spotted owls, usually contains the same conifer species found in the overstory plus Gambel's oak, maples, and New Mexico locust. Montane riparian canyon bottoms used by owls in the mixed-conifer zone may contain box elder, narrowleaf cottonwood, maples, and alders. The main threats to the Mexican spotted owl are starvation, fire and loss of habitat due to logging, which also causes a greater risk of predation by great horned owls as a result of increased open space.

Southwestern willow flycatcher- 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. Red River is not designated as critical habitat for the flycatcher. 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.

EPA prepared a decision document, entitled "Record of Decision" (ROD), which presents the "Selected Remedy" for the Questa Mine site in December 2010. The Selected Remedy is chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601 *et seq.* and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. That decision was based on the Administrative Record file for the Site, which was developed in accordance with CERCLA § 113(k), 42 U.S.C. § 9613(k).

EPA states in the ROD, "In accordance with the NCP, EPA consulted with the State of New Mexico and the Federal and New Mexico natural resource trustee agencies during development of the Selected Remedy. The State of New Mexico concurred with the Selected Remedy. The Selected Remedy focuses on engineering controls for source containment of waste rock at the mine site and tailings at the tailings impoundment as sources of acid rock drainage or tailings seepage that contaminates ground water, surface water, and sediment at the Site. The Selected Remedy also focuses on active ground water remediation (extraction, seepage interception) and treatment, soil removals to address polychlorinated biphenyl (PCB) and molybdenum contamination, and the dredging and removal of lake sediment to address metals contamination. By focusing on source containment and ground water remediation at the mine site, including seeps and springs at zones of ground water upwelling, the Selected Remedy will improve the water quality of the Red River."

Impacts on federally listed endangered and threatened species were discussed in the ROD. The following statements are found in the ROD:

> "Fish-eating birds such as herons and merganser occur in the Site area. Birds dependent on aquatic insects such as blackbirds, American dipper, and flycatchers also are present. The southwestern willow flycatcher (*Empidonax traillii extimus*), an endangered species, frequents riparian habitat where dense groves of willow, alder, and other species are present. This species has been documented in the Taos area. This bird requires surface water nearby for nesting and abundant aquatic insects for food. Surveys have not been conducted for the southwestern willow flycatcher along the Red River. However, there appears to be suitable habitat for this species between Eagle Rock Lake and the Red River State Fish Hatchery."
>
> "For the southwestern willow flycatcher, certain habitats have been listed as

designated critical habitats. Most documented sightings of this flycatcher have occurred south of Taos. The Site is located approximately 30 miles north of Taos. None of these endangered species were observed during field activities."

"For the Mexican spotted owl, certain habitats have been listed as designated critical habitats. The Mexican spotted owl may also be present in the canyons surrounding the mine site."

"Species of special concern, including threatened and endangered species, do not appear to be at significant risk based on the media type, locations, and magnitude of COC (contaminants of concern) concentrations associated with habitats for which exposure is likely. For example, some of the most significant risks are associated with Red River surface waters at locations where pH is low and dissolved metals and total aluminum concentrations are elevated. These locations (primarily at seeps) offer little suitable habitat for special status species, and such species have not been reported to reside in or near these areas."

Review of available material reveals that the primary cause for population declines leading to threatened or endangered status for these species to be destruction of habitat. Although the proposed permit conditions will require construction of treatment facilities on site, the scope of activities resulting from this permit action is smaller than the "Selected Remedy" described in the ROD. Even both Mexican spotted owls and southwestern willow flycatchers may present in the area, they are not found in the area and furthermore, the current water quality of Red River within the action area does not provide suitable habitat for the flycatcher. All pollutants in the discharges proposed to be authorized, which have the potential to impact the wildlife habitat are proposed to be limited by the permit to ensure compliance with New Mexico's WQS. In addition, quarterly toxicity testing requirements for newly authorized discharge are established to ensure such a discharge will not cause adverse impact to aquatic life. EPA has determined that reissuance of the permit will have no effect on listed threatened or endangered species.

IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of the permit should have no impact on historical and/or archeological sites since such sites are not found in the mining area.

X. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit when new information becomes available. New information may include, but not be limited to, revised State WQS, EPA approved TMDL, or new effluent data. This permit may also be reopened for modification pursuant to 40 CFR 122.62.

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:

EPA Application Form 2C package received April 1, 2011, and modified application package received December 26, 2012.

Letter transmitting updated water balance date from Chevron Mining Inc. to EPA received December 27, 2011.

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)/305(b) Integrated Report, 2012 - 2014.

USEPA Approval, Withdrawal of the Red River (Rio Grande to Placer Creek) Dissolved Aluminum Total Maximum Daily Load (TMDL), New Mexico Statewide Water Quality Management Plan Update, January 16, 2012.

Record of Decision for Molycorp, Inc., CERCLIS ID NO. NMD002899094, EPA, December 20, 2010.