

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: Molycorp, Inc.
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ISSUING OFFICE: U.S. Environmental Protection Agency
Region 6
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PERMIT ACTION: Proposed reissuance of the current permit issued December 8,
2000, with an effective date of February 1, 2001, and an expiration
date of January 1, 2006.

DATE PREPARED: May 16, 2006

40 CFR CITATIONS: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of July 1, 2005.

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.

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

I. PROPOSED CHANGES FROM PREVIOUS PERMIT

It is proposed that the current permit be reissued for a 4-year term.

The changes from the current permit issued December 8, 2000, with an effective date of February 1, 2001, and an expiration date of January 1, 2006, are:

- (A) Limits for chemical oxygen demand, cyanide, and iron are proposed to be removed at Outfall 002
- (B) The monitoring frequency is proposed to be reduced for total suspended solids, fluoride, molybdenum, and zinc.
- (C) Mass limits for Outfall 002 were recalculated based on current discharge rates.
- (D) All water quality based limits are proposed to be revised based on current water quality standards.
- (E) Limits for pH are proposed to be changed to reflect Water Quality Standards.

The specific effluent limitations and/or conditions will be found in the draft permit.

II. APPLICANT ACTIVITY

Under the Standard Industrial Classification (SIC) Code(s) 1061, the applicant currently operates a mine and mill producing Molybdenum Disulfide.

III. DISCHARGE LOCATION

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.

IV. RECEIVING WATER USES

The designated uses of the receiving water(s) are:

- Coldwater Aquatic Life
- Fish Culture
- Irrigation
- Livestock Watering
- Wildlife Habitat
- Primary Recreation

V. STREAM STANDARDS

The general and specific stream standards are provided in "New Mexico State Standards for Interstate and Intrastate Surface Waters," (20.6.4 NMAC, effective 7/17/05)

VI. FACILITY DESCRIPTION

Molycorp's mine is located in the southern margin of the Questa Caldera. The Caldera was formed in relation to regional continental rifting and the Rio Grande rift which is located to the west. The mine area consists of Pre-Cambrian igneous rocks and sedimentary and igneous based metamorphic rocks. Overlaying those rocks is a thick layer of Tertiary ashflow tuffs and andesitic lava flows. The area also has intrusions of granitic rocks containing mineralized quartz veins which were formed in the late magmatic, post-caldera hydrothermal stage. Those intrusions and the resulting hydrothermal fluid circulation caused intense fracturing of the area's geologic formations and alteration along the margin of the caldera (Allen, et.al., 1999, SPRI, 1995, Molycorp, 1998). That alteration led to widespread pyritization and the deposition of economically important deposits of Molybdenum (Allen, et.al., 1999). In the area of Molycorp's mine, the rock formations contain 1% to 5% Iron Pyrite (Molycorp, Sept. 15, 1998). The presence of Pyrite and other rocks containing sulfide is of concern because chemical reactions which take place during weathering result in acidic drainage which can severely impact water quality.

Operations at Molycorp's 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 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 tailings ponds located on Bureau of Land Management lands 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 a slurry to the tailings ponds.

VII. DISCHARGE DESCRIPTION

Molycorp is authorized to discharge at two distinctly different locations, the mine located in the Red River Canyon east of the town of Questa, and the tailings ponds located just west of Questa. Discharges at the tailings ponds are authorized through Outfalls 001 and 002. A quantitative description of the discharges at Outfalls 001 and 002, as described in the EPA Permit Application Forms 1 and 2C dated August 2, 2005, is presented in Appendix A of this Fact Sheet. The previous permit authorized the discharge of storm water from the mine area at outfalls 004 and 005. Molycorp has not discharged at Outfalls 004 or 005 under the permits issued in 1993 and 2000; therefore analytical data are not available and are not presented for those outfalls. Molycorp has applied for coverage under the Multi-Sector Storm Water general permit for Outfalls 004 and 005. However, the previous permit contains limits based on water

quality criteria for those outfalls. Therefore, the outfalls are not eligible for coverage under the Multi Sector Storm Water general permit and have been retained in the proposed permit.

In addition to the authorized discharges listed above, other potential discharges to the Red River through seeps and springs in the vicinity of the mine have historically been raised as issues of concern. Some sources have suggested that there is 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. A discussion of the available information and literature which are relevant to this issue follows.

Direct Hydrologic Connection

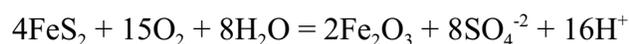
Section 301 of the Clean Water Act (CWA) prohibits any point source discharge of pollutants unless authorized by an NPDES permit. CWA Section 502(14) defines a point source to be “any discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or floating craft, from which pollutants are or may be discharged.” EPA does not have the authority to regulate discharges to ground water when they do not meet the definition of a point source. However, in cases where a discharge to ground water has a direct hydrologic connection to Waters of the United States, it is considered to be a point source discharge which is required to be authorized by an NPDES permit. In those cases, the soils and/or underground formations are simply a conduit between the discharge and a surface water.

Issues with potential discharges at the Molycorp facility, which may result from a direct hydrologic connection between waste materials and waters of the United States have been raised as issues of concern at both the tailings ponds and the mine site. EPA first received comments on hydrologically connected seepage discharges when the permit was reissued in 1993. At that time EPA determined that the discharges were not point source discharges and no permit action was taken. Subsequently, additional information became available and EPA gained a much more thorough understanding of the seeps at both the Mine and tailings ponds. In 1997 EPA informed Molycorp that, based on more current case law on the hydrologic connection issue, seepage associated with the waste rock piles at the mine would most likely be considered “point sources” subject to permitting in the future (Humke, 1997).

From the tailings ponds, leachate infiltrates to groundwater flow toward the Red River (Abshire, 1998). Vail (September 4, 1993, August 24, 1989) documented this direct hydrologic connection between the tailings ponds and the Red River. Molycorp has installed interception wells to capture the plume from the tailings pond and discharges that water at Outfall 002, as authorized by its NPDES permit. Available information suggests that the ground water plume from the tailings ponds is successfully captured by Molycorp and is not presently an issue. Therefore, no additional permit requirements are proposed.

Seeps in the vicinity of the mine site have been investigated extensively during the time since the 1993 permit was issued. Much has been learned about their characteristics, origin, and effects on water quality in the Red River. Numerous studies of seeps located at the mine and their possible impacts to the Red River have been produced (Vail, 1993, South Pass Resources, Inc.[SPRI], 1995, SRK, 1995, Hutchison, 1997, Schafer, 1997, Chadwick, 1997, Chadwick, 1998, and Robertson, 1999). The State of New Mexico has also examined the mine and its impacts to the Red River (Kent, 1995 and Allen, et.al., 1999). Additional information on those potential discharges has also become available through expert testimony for the plaintiffs from the Amigos Bravos versus Molycorp, Inc. case in the United States District Court for the State of New Mexico (Kelsey, 1997, Mink, 1997, and Williams, 1997). Citizens' concerns about water quality in the Red River and impacts resulting from the mine have also prompted EPA to study the issue of mine related seeps in greater detail. In addition to reviewing the various studies on Molycorp's mine and its seeps, in preparation for development of the 2000 permit, EPA had a staff geologist examine the available information on the mine and conduct a site visit (see Abshire, 1998). The site has also been subject to further investigation under EPA's Superfund program.

The specific issue of concern at Molycorp's mine site is acid rock drainage, which could potentially originate from waste rock piles, flow through the soils and strata at the site, and discharge to the Red River from seeps. During open pit mining, Molycorp significantly modified the mine's rocks by blasting and excavating the pit. The rock was placed in waste piles presently described as: the Sugar Shack West Pile, Sugar Shack South Pile, Spring Gulch Pile, Sulphur Gulch Waste Rock Pile, Capulin Waste Rock Pile, Goathill Waste Rock Pile, and the Middle Waste Rock Pile. This alteration greatly increased the surface area of the rock and made it susceptible to oxidation in the presence of atmospheric oxygen (Allen, et.al., 1999). The result of oxidation is that sulfide in the waste rock becomes sulfuric acid. The chemical reaction for oxidation of pyrite can be represented as follows:



The actual reaction in the field involves intermediate reactions and bacterial catalysts; however, the basic result is that sulfur is reduced to sulfate ions and acidity is increased (Allen, et.al., 1999 and Robertson GeoConsultants, Inc., 1999). As a result of this process, if water from rainfall or snow melt percolates through the waste rock piles it can become highly acidic and metals from the rocks can dissolve in the solution. Acid rock drainage such as this is a nationally significant long term environmental threat (USEPA, June, 1997). At many mine sites across the country acid rock drainage has caused severe water quality impacts. In the National Forests there are estimated to be 5,000 to 10,000 miles of acid drainage impacted streams resulting from mining (USEPA, Sept., 1997).

Several studies have suggested that acid rock drainage from Molycorp's waste rock piles may flow through a direct hydrologic connection to the Red River (Abshire, 1998; Kelsey, 1997; Mink, 1997; SRK, 1995; SPRI, 1995; and Williams, 1997). Those studies all seem to agree that the potential exists for waste water to flow from waste rock piles, through the soils and strata and

discharge to the River. The studies also note that the natural hydrothermal scar areas can contribute acidic drainage and metals loading to the river and the greatest concentration of scaring is located in the vicinity of the mine.

Potential Sources of Pollutant Loadings to the Red River

Hydrothermal alteration scars exist in the north side of the Red River Canyon at the mine site as well as both upstream and downstream from the site. The scars are made up of rhyolite and andesite and contain varying amounts of sulfide bearing minerals such as pyrite (Shoemaker, 1998). Erosion of the scars is cited as a source of contaminants (acidic drainage, metals, sediments, and sulfates) to the Red River throughout the available literature (Abshire, 1998; Allen et. Al., 1999; Hutchison, 1997; Kent, 1995; Molycorp, 1998; SRK, 1995; and SPRI, 1995).

Several sources cite the waste rock piles at the Molycorp mine as a potential additional source of contaminant loading to the Red River (Abshire, 1998; Allen et.al., 1999; Kelsey, 1997; Kent, 1995; Mink, 1997; SPRI, 1995; SRK, 1995; and Williams, 1997). It is, however, difficult to differentiate pollutant loadings to the Red River from the alteration scars as opposed to those resulting from Molycorp's mining activities or waste rock piles. There are several reasons for this complication. The highest predominance of alteration scars exists in the area of the mine. Molycorp's waste rock piles contain many of the same minerals found in the erosional scars and could potentially contribute many of the same contaminants to the river as contributed by the scars. In some places, Molycorp laid the waste rock piles directly on top of alteration scars. Also, the waste rock piles are made up partly of scar material.

Several studies of the mine site have attempted to collect data which would show the differences in loadings from the hydrothermal alterations scars as opposed to those from Molycorp's waste rock piles. Kent (1995) collected and analyzed samples of waste rock, scar material, and surrounding soils in an attempt to quantify the impacts from both sources. That study reported average concentrations of molybdenum, zinc, copper, and manganese which were two to five times higher in the samples from the waste rock piles than those from the alteration scars. Kent's report also compared analyses of water from hydrothermal scars with leachate from Molycorp's waste rock piles. That comparison showed significantly higher concentrations of metals in the waste rock pile leachate than in water draining to the Red River from the alteration scars. SRK (1995) also found higher concentrations of sulfate and metals in mine impacted drainage as opposed to scar impacted drainage. The most notable of those were sulfate, aluminum, manganese, and zinc.

NPDES Permitting of Hydrologically Connected Discharges

EPA Regions VIII and IX have dealt extensively with the issue of seeps at mine sites. Region VIII's position on this issue is described in a 1993 letter to the Montana Water Quality Bureau which states that facilities discharging through such hydrologically connected seeps are required to obtain NPDES permits for those discharges. This includes ground water discharges

determined to be hydrologically connected to surface waters (Dodson, 1993). Region IX has regulated seeps from mines in several NPDES permits (see AZ0022705, 1999, AZ0020389, 2000, and AZ0020516, 2000). Those permits require implementation of Best Management Practices to identify and inspect potential seep zones, analyze water flowing from mine area seeps, and ensure compliance with State water quality standards.

EPA Region 6 has issued several permits which address discharges having the potential to flow into ground water which is hydrologically connected to surface waters. Three such permits are: the NPDES General Permit for Discharges from Concentrated Animal Feeding Operations (CAFO) (USEPA, 1993), the NPDES permit for US Liquids of Louisiana, Ltd. (USEPA, 1999), and the NPDES permit for Texas Eastman (USEPA, 1976). Those permits require operators of facilities to implement management practices to control or eliminate discharges to ground water which have direct hydrologic connections to waters of the United States.

EPA's authority to regulate discharges resulting from a direct hydrologic connection between ground water and surface waters has been the subject of several court cases. In the following cases, the courts have ruled that EPA has the authority to regulate discharges, such as seeps, which result from a direct hydrologic connection:

Williams Pipe Line Co. v. Bayer Corp., 964 F. Supp. 1300, 1319-20 (S.D. Iowa, 1997)
Friends of the Coast Fork v. County of Lane, 1997 U.S. Dist. LEXIS 22705
(D. Ore. 1997)
Washington Wilderness Coalition v. Hecla Mining Co., 870 F. Supp. 983, 990
(E.D. Wash. 1994)
Sierra Club v. Colorado Refining Co., 838 F. Supp. 1428, 1434 (D. Colo. 1993)
U.S. v. Earth Sciences, Inc., 599 F.2d 368, 374 (10th Cir. 1979).

At Molycorp's Questa mine, pollutants resulting from mining activities may have the potential to be discharged to surface waters of the United States, through a direct hydrologic connection. In order to prevent this type of potential discharge and the associated impacts to the Red River, the discharge of pollutants traceable to mine operations through a hydrologic connection were prohibited by the previous permit issued in 2000. That permit specified Best Management Practices (BMPs) which constituted compliance with the discharge prohibition. The BMPs prescribed by the permit required the permittee to conduct a field investigation to determine the most efficient design for the seepage interception system and, after approval from EPA, install a system consisting of two french drain collection systems and one ground water withdrawal well. The permit also required pilot testing of the system as well as monthly inspections of the system to ensure its effective operation. The seepage interception system was installed as required. Collected water is pumped to the mill where it is treated and sent to the tailings pond via the tailings pipeline. Changes which have been made to the seepage interception system as well as requirements proposed to be included in the reissued permit are discussed later in this Fact Sheet.

VIII. DRAFT PERMIT RATIONALE

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other necessary explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under 40CFR122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. REASON FOR PERMIT REISSUANCE (EXPIRING PERMIT)

It is proposed that the current permit be reissued for a 5-year term following regulations promulgated at 40CFR122.46(a). The current permit was issued December 8, 2000, with an effective date of February 1, 2001, and an expiration date of January 31, 2006. The permit renewal application was dated August 2, 2005.

B. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at 40CFR122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to 40CFR122.44(a) or on State water quality standards and requirements pursuant to 40CFR122.44(d), whichever are more stringent.

C. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. GENERAL COMMENTS

Regulations promulgated at 40CFR122.44(a) require technology-based effluent limitations to be placed in NPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgment) in the absence of guidelines, or on a combination of the two.

(B) EFFLUENT LIMITATIONS

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 PART 440.

a. OUTFALLS 001 and 002

Outfall 001, located at the tailings ponds, potentially discharges treated process waste water from milling operations and tailings disposal as well as mine de-watering, runoff from

waste rock piles, and water from interceptor wells. No discharge has been made from Outfall 001 since the 1980s; however, it is retained in the permit in case the permittee needs to restart the ion exchange plant. Since no effluent data are available for Outfall 001, no changes in the limits are proposed.

Outfall 002 discharges seepage from the tailings impoundment as well as seepage and intercepted ground water. The expired permit included technology-based effluent limitations for chemical oxygen demand, total suspended solids, arsenic, fluoride, iron, manganese, and molybdenum which were developed using the technology basis established in the previous permit issued September 10, 1993. The following table compares the expired permit's technology based limits for Outfall 002 with current effluent data.

Parameter	Monthly Avg. Limit (mg/l)	Daily Max. limit (mg/l)	Avg. Effluent Conc. (mg/l)	Max. Effluent Conc. (mg/l)
Chemical Oxygen Demand	60	90	<10	25
Total Suspended Solids	20	30	<4	7.2
Fluoride	3.0	3.0	1.43	2.0
Iron	0.6	0.6	0.11	0.28
Manganese	1.0	1.5	0.72	1.3
Molybdenum	3.3	5.03	1.35	1.8
Zinc	0.2	0.2	<0.01	<0.01

Effluent limits for chemical oxygen demand and iron are not proposed to be continued in the reissued permit. The Effluent Limitations Guidelines do not include limits for those parameters; therefore, technology based limits are not required by that regulation. The effluent concentrations have also been consistently far less than the permit limits during the terms of both the expired permit issued in 2000 and the previous permit issued in 1993.

Technology based limits for fluoride, manganese, molybdenum, and zinc were established prior to promulgation of Effluent Limitations Guidelines for this industry. Those limits are not proposed to be changed. Although the effluent concentration for zinc is far less than the permit limit, the parameter is limited by Effluent Limitations Guidelines; therefore, limits are required to be included in the permit.

The proposed technology based mass limits for Outfall 002 are increased from those contained in the expired permit. The previous limits were calculated based on the 1998 discharge rate of 0.35 MGD. The proposed limits are based on the current discharge rate of

0.655 MGD. As noted above, the mass limits for Outfall 001, which are based on the reported discharge rate of 4.29 MGD, are not proposed to be changed.

The proposed technology based limits are as follows:

Outfall 001

<u>Pollutant</u>	<u>Concentration (mg/l)</u>		<u>Mass (lbs/day)</u>	
	<u>Daily Avg.</u>	<u>Daily Max.</u>	<u>Daily Avg.</u>	<u>Daily Max.</u>
Chemical Oxygen Demand	60	90	2147	3220
Total Suspended Solids	20	30	716	1073
Arsenic	0.5	1.0	17.9	35.8
Fluoride	3.0	3.0	107	107
Iron	0.6	0.6	21.5	21.5
Manganese	1.0	1.5	35.8	53.7
Molybdenum	1.0	2.0	35.8	71.6
Zinc	0.2	0.2	7.16	7.16

Outfall 002

<u>Pollutant</u>	<u>Concentration (mg/l)</u>		<u>Mass (lbs/day)</u>	
	<u>Daily Avg.</u>	<u>Daily Max.</u>	<u>Daily Avg.</u>	<u>Daily Max.</u>
Total Suspended Solids	20	30	109	164
Fluoride	3.0	3.0	16.4	16.4
Manganese	1.0	1.5	5.46	8.2
Molybdenum	3.3	5.03	18	27.5
Zinc	0.2	0.2	1.1	1.1

Water quality based limits for arsenic, cadmium, copper, lead, mercury, and molybdenum are more stringent than the technology based limits shown above and are included in the proposed permit. Derivation of those water quality based limits is described later in this Fact Sheet.

b. OUTFALLS 004 AND 005

Outfalls 004 and 005 were included in the previous permit for storm water discharges at the mine site. Molycorp has not discharged at these outfalls and no effluent data are available. Since no new data are available, none of the limitations are proposed to be changed.

3. MONITORING FREQUENCIES FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [40CFR122.48(b)] and to assure compliance with permit

limitations [40CFR122.44(i)(1)]. Based on available effluent data for Outfall 002 the monitoring frequency for total suspended solids, fluoride, molybdenum, and zinc are proposed to be reduced to once per quarter. The maximum effluent concentration has been significantly less than the monthly average limit for each parameter. The effluent concentrations for the three parameters have also been demonstrated to have little variability. The monitoring frequency for manganese is not proposed to be changed. Required monitoring frequencies for Outfall 001 are also not proposed to be changed since no data are available to suggest an appropriate frequency.

D. BEST MANAGEMENT PRACTICES (BMPs)

As described above, the expired 2000 permit required installation of french drain ground water interception systems at Spring 13, located upstream of the mouth of Capuline Canyon and at Spring 39, located near the mouth of Goathill Gulch. After conducting a field investigation and obtaining approval from EPA on the final design, Molycorp installed 1,000 and 300 foot long french drains at Spring 13 and Spring 39, respectively. The permit also required Molycorp to construct a ground water withdrawal well to intercept potential seepage below the Sugar Shack deposit, located near the old mill. Based on the results of the field investigation, Molycorp requested and obtained approval to construct two additional ground water withdrawal wells. Construction was completed and the system began operating in February of 2003.

The BMPs which have been installed and operated by Molycorp appear to be highly successful. On average, the ground water withdrawal wells collect 600,000 gallons per day and the french drains collect 69,000 gallons per day. Available data show that the collected ground water contains 259 lbs/day of aluminum, 113 lbs/day of manganese, 136 lbs/day of fluoride, and 6,008 lbs/day of sulfate. Most of this pollutant load would flow to the Red River if the seepage interception system were not in operation.

The requirements for BMPs are continued in the proposed permit. As proposed, the permit would require monthly visual monitoring of springs and seeps along the Red River and analysis of ground water data to ensure that to BMPs are properly operating. In addition, the proposed permit includes a requirement to report the discharge of seepage found within 14 days. The expired permit required quarterly reporting of seepage monitoring results to EPA and NMED. Since seepage is required to be reported within 14 days, the quarterly reporting requirement appears to be somewhat redundant. That reporting frequency is proposed to be reduced to annually.

E. WATER QUALITY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. GENERAL COMMENTS

Effluent limitations and/or conditions established in the draft permit are in compliance with State water quality standards and the applicable water quality management plan.

2. POST THIRD ROUND POLICY AND STRATEGY

Section 101 of the Clean Water Act (CWA) states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To insure that the CWA's prohibitions on toxic discharges are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants (49 FR 9016-9019, 3/9/84)." In support of the national policy, Region 6 adopted the "Policy for Post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. The Regional policy and strategy are designed to insure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State water quality standard resulting in nonconformance with the provisions of 40CFR122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

3. IMPLEMENTATION

The Region is currently implementing its post third round policy in conformance with the Regional strategy. The 5-year NPDES permits contain technology-based effluent limitations reflecting the best, economically achievable, treatment technology. 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.

4. STATE WATER QUALITY NUMERICAL STANDARDS

a. GENERAL COMMENTS

The Red River is classified for the uses of Coldwater Aquatic Life, Fish Culture, Irrigation, Livestock Watering, Wildlife Habitat, and Primary Recreation. A spread sheet Analysis of the effluent and its potential to exceed State water quality standards is presented in Appendix B of this Fact Sheet. The calculated limits are also shown in Appendix B.

The New Mexico Water Quality Control Commission adopted new Water Quality Standards on April 12, 2005. Those revised standards, as amended, are available on the NMED's website at <http://www.nmenv.state.nm.us/swqb/Standards/20.6.4NMAC.pdf>. Those revised standards have not been approved by EPA at this time.

Issues regarding implementation of new Water Quality Standards in NPDES permit prior to EPA approval were decided in the "Alaska Rule" [Alaska Clean Water Alliance v. Clark, No. C96-1762R (W.D. Wash.)]. That rule prohibits EPA from implementing Water Quality Standards until they are approved by EPA pursuant to section 303 of the Clean Water Act. EPA's Headquarters further clarified the role of State certification prior to approval of standards

in a memorandum from Geoffrey H. Grubbs, Director Office of Science and Technology, dated September 15, 2000. That memorandum states that if a State or tribe bases a section 401 certification on more stringent state requirements, as allowed under CWA section 401(d), EPA will include the effluent limitations specified in the certification in an NPDES permit.

In a letter from Marcy Leavitt (NMED) to Willie Lane (EPA) dated December 22, 2005, NMED provided such certification relative to the revised standards. The State certified that the permit will comply with applicable provisions of Sections 208(e), 301, 302, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of State law upon inclusion of conditions required by the revised standards.

b. WATER QUALITY ANALYSIS - OUTFALLS 001 AND 002

Molycorp is presently only discharging at Outfall 002, but intends to also discharge at Outfall 001 in the future. Since the two outfalls will discharge to the Red River in relatively close proximity, they are in the same mixing zone and water quality based limits will apply to the combined discharges when they are discharging concurrently. Therefore, water quality analyses were conducted for both the individual discharge at Outfall 002 and for the combined discharge from Outfall 001 and 002. Those analyses are shown in Appendix B of this Fact Sheet. Appendix B-1 presents a comparison of Outfall 002 effluent data with water quality criteria. Based on that analysis, water quality based limits are proposed for aluminum and cadmium. A comparison of technology based effluent limits with water quality criteria is shown in Appendix B-2. Based on that analysis technology based limits for arsenic, lead, and zinc are shown to exceed water quality criteria; therefore, water quality based limits for arsenic, lead, and zinc are proposed to be included in the reissued permit. The combined discharge from Outfalls 001 and 002, including technology based limits, is compared with water quality criteria in Appendix B-3. Based on that analysis, the combined Outfall 001 and 002 discharge has the potential to exceed water quality criteria for aluminum, arsenic, cadmium, copper, lead, mercury, molybdenum, gross alpha, and zinc. Limits for those parameters are included in the proposed permit.

The previous permit included limits and monitoring requirements for cyanide which were based on State water quality standards. Effluent data for Outfall 002 show that the cyanide concentration has been consistently less than the quantification limit. There also is no known source for cyanide at the mine or tailings pond. Therefore, limits and monitoring requirements for cyanide are proposed to be removed from the permit.

c. EFFLUENT LIMITATIONS FOR OUTFALLS 004 AND 005

The expired permit contains limits for discharges at Outfall 004 and 005 which are based on acute aquatic life criteria for arsenic, cadmium, copper, lead, mercury, aluminum, silver, chlordane and total residual chlorine. Those limits are revised in the proposed permit to be consistent with the current State Water Quality Standards.

d. SCHEDULE OF COMPLIANCE

More stringent limits for cadmium are proposed based on State Water Quality Standards. Part I.B of the draft permit establishes a schedule of compliance and reporting requirements leading to the attainment no later than two (2) years from the effective date of the permit for state water quality standards-based effluent limitations established for cadmium at Outfall 002.

e. LIMITATIONS FOR pH

The permits limitations for pH are proposed to be changed at every outfall to reflect the current State Water Quality Standards for the stream segment. As proposed, the current pH range limits of 6.0 to 9.0 standard units would be changed to 6.6 to 8.8 standard units.

f. MONITORING FREQUENCIES FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [40CFR122.48(b)] and to assure compliance with permit limitations [40CFR122.44(i)(1)].

At Outfall 002, the expired permit requires monitoring for all parameters on a minimum frequency of once per month. Except as stated above for the technology based limits for total suspended solids, fluoride, molybdenum and zinc, the monitoring frequencies are not proposed to be changed.

At Outfall 001, the expired permit requires monitoring at a frequency of once per week for arsenic, cadmium, copper, lead, mercury, aluminum, and gross alpha. All other parameters are required to be monitored once per month. Since no data are available to suggest a rationale for changing those monitoring frequencies, no changes are proposed.

5. AQUATIC TOXICITY TESTING

a. GENERAL COMMENTS

The State has established narrative criteria which, in part, state that

“surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms...” (NMAC 20.6.4.13.F.1)

The Implementation Guidance for NM Standards state that

“Biomonitoring requirements will be applied to all major dischargers and those minor dischargers with known or potential problems to cause or contribute to exceedances of applicable [NM Standards] numeric or narrative water quality criteria in waters with existing or designated fishery uses” (Section VI. Narrative Toxics Implementation)

b. PERMIT ACTION

EPA has determined that there may be pollutants present in the effluent(s) which have the reasonable potential to cause, or contribute to, an instream excursion above the narrative criterion within the applicable State water quality standards in violation of Section 101(a)(3) of the Clean Water Act. In addition, EPA is required under 40CFR122.44(d)(1) to include conditions as necessary to achieve the States' water quality standards as established under Section 303 of the Clean Water Act.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity.

(1) TESTING AND REPORTING REQUIREMENTS

The draft permit establishes the following testing and reporting requirements for Outfalls 001 and 002:

<u>TOXICITY TESTS</u>	<u>FREQUENCY</u>
Chronic static renewal 7-day survival and reproduction test using <u>Ceriodaphnia dubia</u> [Method 1002.0]	1/Quarter (when discharging) for the first year then 1/6 months
Chronic static renewal 7-day larval survival and growth test using fathead minnow (<u>Pimephales promelas</u>) [Method 1000.0]	1/Quarter (when discharging) for the first year then 1/year

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-91/002." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards.

The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at 40CFR122.48. Toxicity testing established in the current permit has not demonstrated ambient aquatic toxicity. Toxicity testing is retained in the draft permit to assure compliance with state water quality standards narrative requirements governing ambient aquatic toxicity. The required frequency is consistent with New Mexico's implementation guidance.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. This full report need not be submitted unless requested. However, the full report is to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of 40CFR124.5. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

(2) DILUTION SERIES

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. When discharge is solely made through Outfall 002 the effluent dilutions shall be 3%, 6%, 12%, 24%, and 48% based on a 0.5 dilution series with the low-flow effluent concentration (critical low-flow dilution) defined as 12% effluent. Toxicity testing guidance recommends that a factor of 0.5 is used to calculate a dilution series when the critical dilution is less than 20% and a factor 0.75 is used when the critical dilution is greater than 20%. At times when discharge occurs concurrently through Outfalls 001 and 002 the critical dilution is 40%. The required dilution series for toxicity testing on the combined discharge from Outfalls 001 and 002 is: 23%, 30%, 40%, 53%, and 71%

IX. ENDANGERED SPECIES

The Environmental Protection Agency has evaluated the potential effects of reissuance of this permit upon listed or proposed endangered or threatened species. Using available tools, primarily the Biota Information System of New Mexico (BISON-M), Version 9/97, EPA finds data which lead to a determination of "no effect" upon listed or proposed endangered or threatened species or their critical habitat as a result of this permit reissuance. The facility currently holds an NPDES permit with USEPA which limits aluminum, cadmium, chromium, copper, fluoride, lead, mercury, and molybdenum in its discharges. The proposed permit includes more stringent limits for cadmium as well as requirements for biomonitoring. It also continues the requirements to prevent the discharge of pollutants from seeps located near the mine.

Six species are listed or proposed to be listed as threatened or endangered in Taos County. These are the Black-footed ferret, Bald eagle, Mexican spotted owl, Southwestern willow flycatcher, Mountain plover, and Chiricahua dock.

Review of available material reveals that the primary cause for population declines leading to threatened or endangered status for all six species to be destruction of habitat. Reissuance of this permit is found to have no impact on the habitat of the species since no construction is authorized by this permitting action. All pollutants in the discharges proposed to be authorized, which have the potential to impact the habitat of the species, are proposed to be limited by the permit to ensure compliance with New Mexico's water quality standards. In addition, the reissued permit continues the previous permit's requirements proposes to limit pollutants in seep discharges at the mine. EPA has found those requirements successful in significantly reducing pollutant loading to the Red River. When the previous permit was issued in 2000, EPA determined that it's issuance would have no effect on listed or proposed threatened or endangered species or their critical habitat. Since there are no changes to the permit which would change the environmental baseline in a way which would affect threatened or endangered species, EPA has again determined that reissuance of the permit will have no effect on listed or proposed threatened or endangered species.

X. VARIANCE REQUESTS

No variance requests have been received.

XI. 303(d) LIST AND TOTAL MAXIMUM DAILY LOAD (TMDL)

The 2004 Clean Water Act section 303(d) list for New Mexico indicates the uses not fully supported in the stream segment 20.6.4.122 are cold water fishery. The specific pollutant of concern is aluminum (acute and chronic). NMED has recently developed a TMDL for acute aluminum in the Red River. That TMDL establishes a Waste Load Allocation for acute aluminum based on the chronic criteria based limits in Molycorp's expired NPDES permit. Based on that TMDL, the mass limits for aluminum are proposed to remain unchanged.

XIII. ADMINISTRATIVE RECORD

The following section is a list of the fact sheet citations to applicable statutory or regulatory provisions and appropriate supporting references to the administrative record required by 40CFR124.9:

A. PERMIT(S)

NPDES Permit No. NM0022306 effective February 1, 2001, expired January 31, 2006.

NPDES Permit No. NM0022306 effective October 15, 1993, expired October 14, 1998.

NPDES Permit No. AZ0022705, Phelps Dodge, Morenci Mine, effective October 3, 1999.

NPDES Permit No. AZ0022389, BHP Copper, Superior Operations, effective February 13, 2000.

NPDES Permit No. AZ0020516, Cyprus Miami Mining Corp., Christmas Facility, effective February 13, 2000.

NPDES Permit No. TX0000949, Texas Eastman, November, 18, 1976.

NPDES Permit No. LA0068420, US Liquids of Louisiana, Ltd., Permit Number, August 6, 1999.

NPDES General Permit and Reporting Requirements for Discharges from Concentrated Animal Feeding Operations, 58 FR 7610, February 8, 1993.

Fact Sheet to NPDES Permit NM0022306, dated May 17, 2000.

Fact Sheet to NPDES Permit NM0022306, dated January 16, 1988.

B. APPLICATION(S)

EPA Application Forms 1 and 2C and Supplemental Information, dated August 4, 2005.

EPA Application Forms 1 and 2C and Supplemental Information, dated April 13, 1998.

C. CLEAN WATER ACT CITATIONS

Section 101
Section 101(a)(3)
Section 303
Section 304(e)
Section 308
Section 401(a)(1)
Section 401(a)(2)

D. 40CFR CITATIONS

STANDARD CITATIONS

122.44
122.44(a)

122.44(d)
122.44(d)(1)
122.44(i)(1)
122.44(i)(2)
122.44(1)(2)(ii)
122.45(c)(3)
122.46(a)
122.47
122.48
122.48(b)
124.5
124.53
131 amended at 57FR60848, 12/22/92

E. STATE WATER QUALITY REFERENCES

STATE ADMINISTRATIVE CODE

The general and specific stream standards are provided in "New Mexico State Standards for Interstate and Intrastate Surface Waters," (20.6.4 NMAC, effective 7/17/05)

WATER QUALITY STANDARDS IMPLEMENTATION

USEPA, Region 6 Implementation Guidance for State of New Mexico Standards for Interstate and Intrastate Stream, 5/5/95.

F. MISCELLANEOUS REFERENCES

Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants [49FR9016-9019, 3/9/84]

EPA Region 6 "Policy for Post Third Round NPDES Permitting" and "Post Third Round NPDES Permit Implementation Strategy," 1 October 1, 1992.

Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001, March 1989.

Abshire, D, *Report on Hydrological Connection Associated with MolyCorp Mining Activity, Questa, New Mexico*, USEPA, Region 6, February 13, 1998.

Allen, B.D., A.R. Groffman, M.C. Moles Jr., R.Y. Anderson, and L.J. Crossey, *Geochemistry of the Red River Stream System Before and After Ope-Pit Mining, Questa Area, Taos County, New Mexico*, October, 1999.

Avanti Corporation, Compliance Costs and Pollutant Removals for Coastal Gulf of Mexico Produced Water Assuming Compliance with Zero Discharge Under the EPA Region 6 General Permit, September 16, 1996.

Chadwick Ecological Consultants, Inc., *Aquatic Biological Assessment of the Red River, New Mexico, in the Vicinity of the Questa Molybdenum Mine*, April, 1997.

Chadwick Ecological Consultants, Inc., *Fall, 1998 Data Addendum, Red River Aquatic Biological Assessment*, February, 1998.

Hutchison, I, *Questa Mine Site Expert Report*, TRC Environmental Solutions, Inc., April 23, 1997.

Kelsey, R.K., Plaintiffs Rule 26(a)(2)(B) Expert Report, U.S. District Court, New Mexico, March 17, 1997

Kent, S., *Expanded Site Inspection Report on Molycorp, Inc., Questa Division, Taos County, New Mexico*, New Mexico Environment Department, 1995

Mink, L.L., Plaintiffs Rule 26(a)(2)(B) Expert Report, U.S. District Court, New Mexico, March 17, 1997.

Molycorp, Inc., NPDES Permit Renewal Application and Supporting Documentation, April 13, 1998.

Molycorp, Inc., Letter from Shoemaker (Molycorp) to Wilson (EPA, Region 6) commenting on the Abshire (1998) report, September 15, 1998.

Rae, S., Correspondence from Vail Engineering to Molycorp, September 11, 1979.

Robertson GeoConsultants, Inc., *Interim Report: Questa Waste Rock Pile Drilling, Instrumentation and Characterization Study*, September 13, 1999.

Robertson GeoConsultants, Inc., *Study of Groundwater Flow and Tailings Seepage near Questa, New Mexico*, October, 1997.

- Robertson GeoConsultants, Inc., *Study of Groundwater Flow and Tailings Seepage near Questa, New Mexico, Appendice A - E*, October, 1997.
- Robertson GeoConsultants, Inc., *Three Dimensional Geometric Model of Molycorp's Questa Tailings Facility*, October, 1997.
- Schafer, W.M., *Expert Report*, April 23, 1997.
- Smolka, L.R., *Special Water Quality Survey of the Red River, Taos County, New Mexico, February - December, 1992*.
- Souder, Miller, and Associates, *Evaluation of Tailings Area Seepage Interception System, Molycorp, Inc., Questa, New Mexico, September 30, 1998*.
- South Pass Resources, Inc. (SPRI), *Progress Report on the Geology, Hydrology, and Water Quality of the Mine Area, Molycorp Facility, Taos County, New Mexico, April 21, 1995*.
- South Pass Resources, Inc. (SPRI), *Discussion of Geology, Hydrology, and Water Quality of the Tailings Area, Molycorp Facility, Taos County, New Mexico, April 13, 1995*.
- South Pass Resources, Inc. (SPRI), *Remediation Plan for the Tailings Area, Molycorp Facility, Taos County, New Mexico, April 13, 1995*.
- South Pass Resources, Inc. (SPRI), *Hydrogeologic Evaluation of Tailings Ponds, Molycorp, Questa Division, Questa, New Mexico, September 23, 1993*.
- Stephen, Robertson, and Kirsten, Inc. (SRK), *Questa Molybdenum Mine Geochemical Assessment, SRK Project No. 09206, April 13, 1995*.
- Stephen, Robertson, and Kirsten, Inc. (SRK), *Questa Tailings Facility Geochemical Testing Final Report, SRK Report No. 09211/2, November 4, 1997*
- URS Corporation, *Evaluation of Effectiveness of NPDES Best Management Practices, April 19, 2006*
- U.S. Environmental Protection Agency (USEPA), *Cost of Remediation at Mine Sites, Office of Solid Waste, April, 1998*.
- U.S. Environmental Protection Agency (USEPA), *EPA's National Hardrock Mining Framework, September, 1997*.

U.S. Environmental Protection Agency (USEPA), *EPA Can do More to Help Minimize Hardrock Mining Liabilities*, Audit Report, Office of the Inspector General, June 11, 1997.

U.S. Environmental Protection Agency (USEPA), *Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category*, Effluent Guidelines Division, EPA 440/1-82/061, November, 1982.

Vail Engineering, Inc., *Report on Ground Water Seepage Below Molycorp's Existing Tailings Dams Near Questa, New Mexico*, August 24, 1989.

Vail Engineering, Inc., *Interim Study of the Acidic Drainage to the Middle Red River, Taos County, New Mexico*, July 9, 1993.

Vail Engineering, Inc., *Evaluation of Effectiveness of Spring 13 and Spring 39 Seepage Collection Systems and Ground Water Withdrawal Wells*, April 30, 2003

Williams, B.C., Plaintiffs Rule 26(a)(2)(B) Expert Report, U.S. District Court, New Mexico, March 17, 1997

Schafer, W, *Expert Report*, April 23, 1997

Response to Comments, Final Permit Decision, Permit Number NM0022306, Molycorp, Inc., issued September 10, 1993

G. LETTERS/MEMORANDA/RECORDS OF COMMUNICATION, ETC.

Dodson, M.H. (EPA Region VIII), Letter to Dan Fraser (Water Quality Bureau, Montana Department of Health), concerning permitting at mine sites, December 22, 1993

Humke, F.O. (EPA), Letter to Brian Shields (Amigos Bravos), concerning seeps associated with waste rock piles at Molycorp, April 30, 1997.

Humke, Frederick O. (EPA), Letter to Richard E. Schwartz (Attorney for Molycorp), concerning seepage associated with Molycorp's waste rock piles, May 6, 1997.

Rae, S. (Vail Engineering), Letter to Molycorp, September 11, 1979.

Sacrison, C.R. (Molycorp), Letter to Dick Whittington (EPA), Concerning

process changes and achievability of molybdenum limits, November 26, 1984.

Saums, G.E. (NMED), Letter to Jane Watson, Ph.D. (USEPA), concerning applicable State Water Quality Standards and flows for the Red River, June 3, 1999.

Schwartz, R. E. (Attorney for Molycorp), Letter to Frederick O. Humke (EPA), concerning seepage associated with Molycorp's waste rock piles, May 5, 1997.

Wilson, J.S. (USEPA), Record of Communication to Rich Powell (NMED), Concerning location of seeps near the Molycorp Mine, February 1, 2000.

Wilson, J.S. (USEPA), Summary of site visit to the Red River and Molycorp on February 22 and 24, 2000, February 28, 2000.

Wynne, B.J. (EPA), Letter to Brian Shields (Amigos Bravos), concerning acid mine drainage at Molycorp, January 21, 1992.

H. LEGAL PROCEEDINGS.

Williams Pipe Line Co. v. Bayer Corp., 964 F. Supp. 1300, 1319-20 (S.D. Iowa, 1997)

Friends of the Coast Fork v. County of Lane, 1997 U.S. Dist. LEXIS 22705 (D. Ore. 1997)

Friends of Santa Fe County v. LAC Minerals, Inc., 892 F. Supp. 1333, 1357-58 (D.N.M.. 1995)

Washington Wilderness Coalition v. Hecla Mining Co., 870 F. Supp. 983, 990 (E.D. Wash. 1994)

Sierra Club v. Colorado Refining Co., 838 F. Supp. 1428, 1434 (D. Colo. 1993)

U.S. v. Earth Sciences, Inc., 599 F.2d 368, 374 (10th Cir. 1979).

APPENDIX A**EFFLUENT ANALYSIS****OUTFALL NO: 001****FREQUENCY: Intermittent****SOURCE: EPA Form 2C Dated April 13, 1998**

Parameter	Units	Monthly Avg.	Daily Max.
TSS	mg/L	3.5	5
Flow	MGD	0.7	4.29
COD	mg/L	10.4	12.8
Fluoride	ug/L	2150	2400
Iron (T)	ug/L	195	290
Molybdenum (T)	ug/L	630	770
Manganese (T)	ug/L	85	130
Arsenic (T)	ug/L	NA	< 10
Cadmium (T)	ug/L	NA	20
Copper (T)	ug/L	65	80
Lead (T)	ug/L	105	110
Mercury (T)	ug/L	NA	0.24
Zinc (T)	ug/L	14	17
Cyanide (T)	ug/L	NA	< 1

OUTFALL NO: 002
FREQUENCY: Continuous
SOURCE: EPA Form 2C and supplemental information Dated August 4, 2005 and November 2, 2005

Parameter	Unit	Monthly Avg.	Daily Max.
Flow	MDG	0.655	0.726
COD	mg/l	<10	25
TSS	mg/l	<4	7.2
Fluoride	mg/l	1.43	2.0
Aluminum (T)	mg/l	<0.1	0.12
Iron (T)	mg/l	0.11	0.28
Molybdenum (T)	mg/l	1.35	1.8
Manganese (T)	mg/l	0.72	1.3
Arsenic (T)	ug/l	<5	<5
Cadmium (T)	ug/l	<1	<1
Copper (T)	ug/l	<10	<10
Lead (T)	ug/l	<3	<3
Zinc (T)	ug/l	<20	<20
Cyanide (T)	ug/l	<10	<10
Uranium (T)	ug/l	N/A	31.4
Gross Alpha	pCi/l	N/A	28.9
Nitrate - N	mg/l	N/A	0.17
Barium (D)	ug/l	N/A	31.4
Boron (D)	ug/l	N/A	45.5
Cadmium (D)	ug/l	N/A	2.7
Cobalt (D)	ug/l	N/A	1.0
Copper (D)	ug/l	N/A	2.9

Molybdenum (D)	ug/l	N/A	1,330
Nickel (D)	ug/l	N/A	8.5

All other parameters were present in concentrations less than the minimum quantification level.

APPENDIX B-1

Water Quality Criteria Analysis

Outfall 002 Discharge

APPENDIX B-2

Water Quality Criteria Analysis

Outfall 002 Discharge

Technology Based Limits Comparison

APPENDIX B-3

Water Quality Criteria Analysis

Outfall 001 and 002 Combined Discharge