

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 81-26

WASTE DISCHARGE REQUIREMENTS  
FOR  
BI-CO R&D FIELD TEST SITE NO.1  
North of Yuma - Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. BI-CO Mineral & Mining Company (hereinafter also referred to as the discharger), 2232 West 18th St. Yuma, Arizona 85364, submitted a Report of Waste Discharge dated September 25, 1979.
2. The discharger proposes to separate gold, silver and platinum from mined ore by using the heap leaching process. This process would consist of stacking a total of about 690 tons of rock and broken ore on an impervious pad over a period of 9 months. The ore would be periodically sprinkled with a solution consisting of 0.5 pounds of sodium cyanide (NaCN) and potassium cyanide (KCN) and 2.5 pounds of sodium hydroxide (NaOH) per ton of ore. The solution would leach through the ore and collect on the pad where it is to be pumped out for recycling through a closed system. The closed system (comprised of holding tanks, pipes, settling basin and gold removal apparatus) and the leaching pad will not contain more than 30,000 gallons at any given time. The leaching pad, designated as the only disposal site, is to be located (in a non-surveyed area) about 1 mile north and  $1\frac{1}{2}$  miles east of the NE corner of Section 16, T14S, R22E, SBB&M, which is about 18 miles north of Yuma, Arizona.
3. The discharger describes the impervious leaching pad as a pit, 100 feet by 84 feet by 5 feet deep, which would be lined with compacted soil covered with 4 inches of  $\frac{1}{2}$  inch (or less) gravel, and covered with a 35 mil. reinforced polyvinyl liner (one piece factory prefabricated). About 8 inches of  $\frac{1}{4}$  to  $\frac{3}{4}$  inch gravel would lie on top of this liner. The settling basin would be constructed to also be impermeable.
4. The discharger states that at the end of all operations at this site chlorine would be added to neutralize all cyanide present.

*Approved  
3/21/84*

5. The Water Quality Control Plan for the East Colorado River Basin was adopted by the Board on April 10, 1975. The Basin Plan contains water quality objectives for the Colorado Hydrologic Unit.
6. The beneficial uses of the groundwaters of the Colorado Hydrologic Unit are municipal, industrial and agricultural supply.
7. The discharger reports the depth to groundwater at the site is in excess of 130 feet. The supply water used for this heap leaching operation is to be piped from a flooded mine shaft, which is about 450 feet northwest of the pad site.
8. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the proposed discharge.
9. The Board in a public meeting heard and considered all comments pertaining to the proposed discharge.
10. The Imperial County Planning Department has approved Environmental Impact Report No. 234-80 (filing date November 26, 1980) for this proposed mining operation. This report indicates that this project would not have any significant adverse effects on the quality of local groundwaters and surface waters.

IT IS HEREBY ORDERED, the discharger shall comply with the following:

A. Discharge Specifications

1. Neither the mining process nor the discharge of wastewater or other wastes shall create a pollution or a nuisance as defined in Division 7 of the California Water Code.
2. The cyanide solution shall be contained only in the processing system or leakproof containers.
3. There shall be no wind transport of cyanide solution away from the leaching pad.
4. The leaching pad and settling basin shall have a permeability which does not exceed  $1 \times 10^{-6}$  cm/sec.

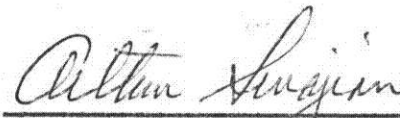
5. All drainage and collection facilities used to contain or transport leaching solution or ore wash water shall be effectively sealed to prevent exfiltration of these liquids.
6. A minimum freeboard of at least two (2) feet shall be maintained in the impervious pad and settling basin.
7. The processing area shall be protected from any washout or erosion which could occur as a result of floods having a predicted frequency of once in 100 years.
8. There shall be no discharge of wastewater containing any trace of cyanide at any location not approved by the Regional Board.
9. Prior to the removal of ore tailings from the impervious pad, the cyanide contained therein shall be neutralized and said tailings shall be discharged in an area permanently protected from a flood having a predicted frequency of once in 100 years.
10. Ore tailings may be abandoned on the pad, provided the cyanide in the ore is neutralized and said tailings are permanently protected from a 100 year flood. Lack of construction or operational activity on the site for a period of one year shall constitute abandonment for the purposes of this Order.
11. All containers and other waste materials containing cyanide shall be discharged at a Class I solid waste disposal site, or neutralized and discharged at a Class II-2 disposal site provided said discharged wastes are immediately covered. All containers shall be rendered unusable prior to final disposal.
12. Adequate measures shall be taken to assure that unauthorized persons and animal pets are effectively excluded from the processing area.

#### B. Provisions

1. The discharger shall submit to the Board, at least 10 days prior to commencement of operations, a technical report showing the construction of said pad, basin and flood protection facilities, and a certificate signed by a California Registered Civil Engineer stating that the pad, basin and attendant facilities are constructed to meet the requirements of this Order.

2. The discharger shall comply with the "Monitoring and Reporting Program No. 81-26", and future revisions thereto, as specified by the Executive Officer.
3. Prior to any modifications in this facility which could result in material change in the quality or quantity of wastes discharged, or any material change in location of discharge, the discharger shall report in writing to the Regional Board.
4. In the event of any change in operation, or in control or ownership of land or waste disposal facilities owned or controlled by the discharger, the discharger shall:
  - a. Notify this Board of such change and
  - b. Notify the succeeding owner or operator by letter of the existence of this Order, a copy of which shall be filed with this Board.

I, Arthur Swajian, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on January 28, 1981.

  
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Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 81-26  
FOR

BI-CO R&D FIELD TEST SITE NO.1  
North of Yuma - Imperial County

Location: 1 mile north and 1 1/2 miles east of NE corner of Section  
16, T14S, R22E, SBB&M

MONITORING

Bi-Co Mineral & Mining Co. (discharger) shall report to the Regional Board concerning the following:

MONITORING AND REPORTING NO.1

The discharger shall submit to the Regional Board monthly reports containing the following information:

- A. The current status of mining operations - whether the operation is active or inactive.
- B. An estimate of the total amount of ore (tons) that has been processed to date.

MONITORING AND REPORTING NO. 2

- A. Immediate reporting of any accidental spillage or release of waste material, and also, plan for immediate measures being taken to correct same and limit detrimental effects.
- B. Upon request from this Board's Executive Officer, the discharger shall furnish technical and/or monitoring reports on the treatment and discharge of wastes.
- C. At least thirty (30) days prior to any proposed discharge of ore tailings or wastewater, or termination of the operation described in this Order, the discharger shall submit a copy of the results of analysis of cyanide concentration of wastewater, and shall request a Regional Board staff inspection to approve the proposed discharge or cleanup procedure.
- D. Report of completion of cleanup of premises shall be submitted to the Regional Board in writing within one week following completion of work.

REPORTING

The above monitoring program shall be implemented immediately upon adoption of this Order.

Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Items 2 A, B, C, and D (above) shall be forwarded immediately and if at all possible shall be preceded by phone communication to the Regional Board's office. Phone No. (714) 346-7491. Copies of the reports submitted to the Board pursuant to this Monitoring and Reporting Program shall be maintained at the operations site, and shall also be made available to staff of the Regional Board upon request.

Mail reports to:

California Regional Water Quality Control Board  
Colorado River Basin Region  
73-271 Highway 111, Suite 21  
Palm Desert, CA 92260

ORDERED BY

*Arthur Levajian*

Executive Officer

January 28, 1981

Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



Winterhaven, 12 mi.

SITE MAP  
BI-CO R&D FIELD TEST SITE NO. 1  
North of Yuma - Imperial County  
Location: 1 mile north and 1 1/2 miles east of  
NE corner of Section 16, T14S, R22E, SBB&M  
USGS Picacho Peak 15 min. Topographic Map

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