CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 90-054

WASTE DISCHARGE REQUIREMENTS
FOR
BLACKHAWK MINE
Southwest of Lucerne Valley - San Bernardino County

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

1. Blackhawk Mines Corporation (hereinafter also referred to as the discharger), P.O. Box 1190, Lucerne Valley, CA 92356, submitted current information on November 26, 1986 for the purpose of updating the waste discharge requirements for the proposed mining operation. These requirements are an update of Board Order No. 87-21.

2. The discharger proposes to recover gold and silver from mined ore by leaching cyanide solution through about 200 tons per day of crushed ore in a series of steel tanks located above the water course in a steep-walled canyon. The mixture would contain about two pounds of sodium cyanide (NaCN) per ton of ore, which is to be circulated through a closed system. After mixing and leaching in the tanks, the mixture would contain about 40 percent solids and 60 percent solution. The pregnant solution would then be piped through a carbon filter system, where the precious metals would be removed for further processing off-site. The barren solution would flow into a tank where cyanide would be added to restore the concentration to the necessary strength for recirculation. The tailings (consisting of 80% solids and 20% solution) would be neutralized with a sodium hypochlorite solution and then be saturated with slurry water to a mixture of 40% solids. The neutralized slurry would be piped about a half mile through a 6-inch underground line to an impervious tailings basin, which is located outside of the steep-walled canyon, in the W½ of SE¼, of Section 8, T3N, R2E, SBB&M. The free solution in the tailings would be pumped back to the mill site through a 3-inch underground pipeline for reuse as slurry solution. The mill site is located (in an area not sectioned on government maps) about ¼ mile south and ½ mile east of the SW corner of Section 8, T3N, R2E, SBB&M, which is about 9 miles south of State Highway 247.

3. The discharger proposes to process and treat the ore in steel tanks mounted on concrete foundations above ground. In addition, the discharger proposes to enclose much of the processing facilities within a roofed structure.

4. The discharger proposes to construct an impervious tailing basin with a 1-foot layer of compacted clay base covered with a 20 mil polyvinyl chloride (PVC) liner that would be protected with a layer of sand.

Changed name + ownership Bd. Ord. #92-015 Jan. 22/92

rescinded by Bd. Ord. # 92-078 11/18/92

5. The discharger states that at the end of all operations at this site, sodium hypochlorite would be added to neutralize all cyanide present. The tanks would then be drained into the basin where the solution would evaporate leaving the neutralized tailings and basin liner at the site.

6. The Water Quality Control Plan for the Colorado River Basin Region of California designates the beneficial uses of ground and surface waters in this Region.

7. The beneficial uses of ground waters in the Lucerne Hydrologic Unit are:

   a. Municipal supply (MUN)
   b. Industrial supply (IND)
   c. Agricultural supply (AGR)

8. The discharger reports the depth to ground water at the site is in excess of 280 feet. The supply water used for this leaching operation is to be pumped from a well at the mill site.

9. This proposed discharge has been subject to waste discharge requirements adopted in Board Order No. 87-21.

10. The Board has notified the discharger and interested agencies and person of its intent to update waste discharge requirements for the proposed discharge.

11. The Board in a public meeting heard and considered all comments pertaining to the proposed discharge.

12. The San Bernardino County Environmental Analysis Division approved a Mitigated Negative Declaration (approval date April 28, 1981) for this proposed mining operation. The Regional Board has reviewed this Negative Declaration. The below waste discharge requirements are designed to assure against any significant adverse effects on water quality.

IT IS HEREBY ORDERED, that 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 pollution or nuisance as defined in Division 7 of the California Water Code.

2. The cyanide solution shall be contained only in the processing and treatment system or in leakproof containers.

3. There shall be no wind transport of cyanide solution or ore containing cyanide solution away from the mill site facilities.

4. A sealed concrete pad of adequate thickness with a concrete berm, or an equivalent containment system, shall be constructed around the processing steel tanks to capture any spillage or leakage or cyanide-bearing fluids.

5. A minimum freeboard of two (2) feet shall be maintained around the tailings basin.

6. In the event that a liner is installed at the mill site, adequate measures shall be taken to ensure that the liner will not be punctured for the duration of this activity.

7. There shall be no discharge of wastewater containing free cyanide in excess of 1 mg/l or containing any metal constituent in concentrations greater than would be necessary to degrade any ground or surface water at the project site.

8. All industrial waste materials, used cyanide containers, or other hazardous products shall be discharged at a waste management facility approved to receive these waste materials.

9. Adequate measures shall be taken to assure that unauthorized persons and large animals are effectively excluded from the processing area.

10. The processing area and the tailings basin shall each be protected from any run-on, washout, or erosion which could occur as a result of floods having a predicted frequency of once in 100 years.

11. Prior to discharge to the tailings basin, the ore tailings shall be detoxified on a batch basis to a concentration of 1 mg/l or free cyanide. The determination of the free cyanide content shall be made on the undiluted liquid fraction of the rewatered slurry. The detoxified ore tailings shall meet the requirements for classification as a Group C mining waste as prescribed in Section 2571 of Subchapter 15, Chapter 3, Title 23 of the California Code of Regulations.

12. All sampling, preservation, storage and analyses shall be conducted in accordance with current EPA guideline procedures or in accordance with the then-current edition of Standard Methods for the Examination of Water and Wastewater.

13. The procedure for preparing samples for the analysis of free cyanide and extractable metals in the detoxified tailings shall be consistent with Monitoring and Reporting Program No. 90-054, and Attachments A and B to said Monitoring and Reporting Program. The monitoring reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized officer of the company.

B. Provisions

1. At least 60 days[1] prior to commencement of construction, the discharger shall submit to the Regional Board for approval by the Executive Officer a technical report which includes a hydrology report in accordance with SBFCWCD procedures and a plan detailing the proposed construction of the tanks, containment system, tailings basin, pipelines and flood protection facilities.

2. At least 10 days prior to commencement of operations, the discharger shall submit to the Regional Board a certificate, signed by a California Registered Civil Engineer, stating that the processing and containment

[1]Unless a lesser period is approved by the Executive Officer

facilities are constructed in accordance with the technical report as approved by the Executive Officer to meet the requirements of this Board Order.

3. The discharger shall comply with "Monitoring and Reporting Program No. 90-054", and future revisions thereto, as specified by the Executive Officer. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized officer of the Company.

4. Prior to any modifications in this facility which could result in material change in the quality or quantity of wastes discharged, quantity of ore processed, type of leachent used, or any material change in location of discharge, the discharger shall report thereon to the Regional Board.

5. As proposed by the discharger and as stated in the Findings, the entire processing and treatment operation shall take place in steel tanks mounted on concrete foundations aboveground. Any deviation from this proposal shall require the discharger to submit to the Regional Board a Report of Waste Discharge and a technical report describing the new mode of operation.

6. In the event of any change 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. Transmit a copy of this Board Order to the succeeding owner or operator; and a copy of the transmittal letter shall be filed with this Regional Board.

7. The discharger shall submit to the Regional Board, at least 30 days prior to commencement of operations, written adequate assurance that $10,000 is available, upon abandonment of facilities, to ensure neutralization of all cyanide, plus cleanup and closure of the processing and tailings disposal sites in a manner that will not adversely effect water quality.

8. The discharger shall process no more than one millon tons of ore under this Board Order.

9. Lack of construction or operational activity on the site for a period of one year after the effective date of this Board Order shall constitute abandonment for the purpose of rescinding this Board Order.

10. The discharger shall immediately inform the Executive Officer of any spillage beyond any of the containment facilities or elsewhere at the site, along with a proposal to correct same.

IT IS FURTHER ORDERED that Board Order No. 87-21 be superseded by this Board Order.

I, Philip A. Gruenberg, 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 September 19, 1990.

Philip A. Gruenberg
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 90-054
FOR
BLACKHAWK MINE
Southwest of Lucerne Valley - San Bernardino County

Basin Location: Portion of the SE¼ of Section 8, T3N, R2E, SBB&M
Mill Site: ¼ mile south and ½ mile east of the SW corner of Section 8, T3N, R2E, SBB&M

MONITORING

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.

C. Analysis for free cyanide from each batch of neutralized ore tailings prior to discharge to the tailings basin.

Monitoring and Reporting No. 2

A. Immediate reporting of any accidental spillage or release of waste material, including immediate measures being taken to correct same and limit detrimental effects.

B. Upon request from this Regional Board's Executive Officer, the discharger shall furnish special technical and/or monitoring reports on the treatment and discharge of wastes.

C. At least thirty (30) days prior to any proposed relocation of ore tailings, or discharge of wastewater, or termination of the operation described in this Board Order, the discharger shall submit a copy of the results of analysis of cyanide content of the ore tailings and of the wastewater, and shall request a Regional Board staff inspection to approve the proposed relocation, discharge or cleanup procedure.

D. Report of completion of cleanup of premises shall be submitted to the Regional Board in writing one week following completion of work.

Reporting

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

Monthly reports for Items 1A, B, and C (above) shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 2A (above) shall be forwarded immediately and if at all possible shall be preceded by telephone communication to the Regional Board's office, Telephone No. (619) 346-7491. Copies of the reports submitted to the Regional 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: Philip A Gruenberg
Executive Officer

September 19, 1990
Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT A

ANALYTICAL PROCEDURE
FOR
IONIC CYANIDE
Also known as free soluble cyanide

Description: Ionic cyanide and most weak complexes are soluble in distilled water. The strong complexes of ions, although normally soluble, are bound too tightly to the particle surface and are not solubilized. The sample is leached with distilled water in a single pass, flow-through manner. The leachate is collected, alkalized for preservation, and made up to a definite volume. This leachate sample is then analyzed via "Standard Methods" 412 C or E. Method 412 D may not be used.

Apparatus:

1) Large glass funnel, the stem throat plugged with glass wool;

2) Large glass funnel with glass fiber filter paper: Whatman GF/C,934-AH, or equivalent.

3) Balance capable of weighing to nearest 0.01 g.

4) 500 ml volumetric flasks.

5) Items necessary to perform cyanide analysis as described in narrative above.

Reagents:

1) 2.5 N NaOH (100 g NaOH/1)

2) Reagents necessary to perform cyanide analysis as described in narrative above.

Procedure:

Weigh out, to nearest 0.01 g, 100±1 g of samples as received. Place in glass funnel, either glass wool plugged or with filter paper. Add 50.00 ml of 2.5 N NaOH to 500 ml volumetric flask and place it so as to catch the filtrate from the funnel. Pour 50 ml of distilled (or deionized) water onto the solid sample and allow to percolate through. When liquid level is even with the top of the solids, add an additional 50 ml of water. Repeat the addition of water until a total of 400 ml H_2O has been used. Make up volume in volumetric flask to mark with distilled water. This constitutes the sample ready for analysis.

The titrametric (412C) and the ion selective probe (412E) require no further preparation. The sample is then read directly by either titrametric (412C) or the ion selective probe (412E) and the results indicating the amount of ionic cyanide reported in mg/1.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT B

PROCEDURE FOR THE DETERMINATION
OF EXTRACTABLE METALS

A. Samples from each location, as approved by the Regional Board's Executive Officer, shall be composited and tested for the net acid/base potential utilizing the procedure in "Field and Laboratory Methods Applicable to Overburden and Minesoil", (PB-280-495), March 1978; pp. 47-50 & 69-72.

1. If the net acid/base potential indicates a presence of net acid forming potential, the composites shall be subjected to the waste extraction test described in Section 66700, Article 11, Chapter 30, Division 4, Title 22 of the California Code of Regulations.

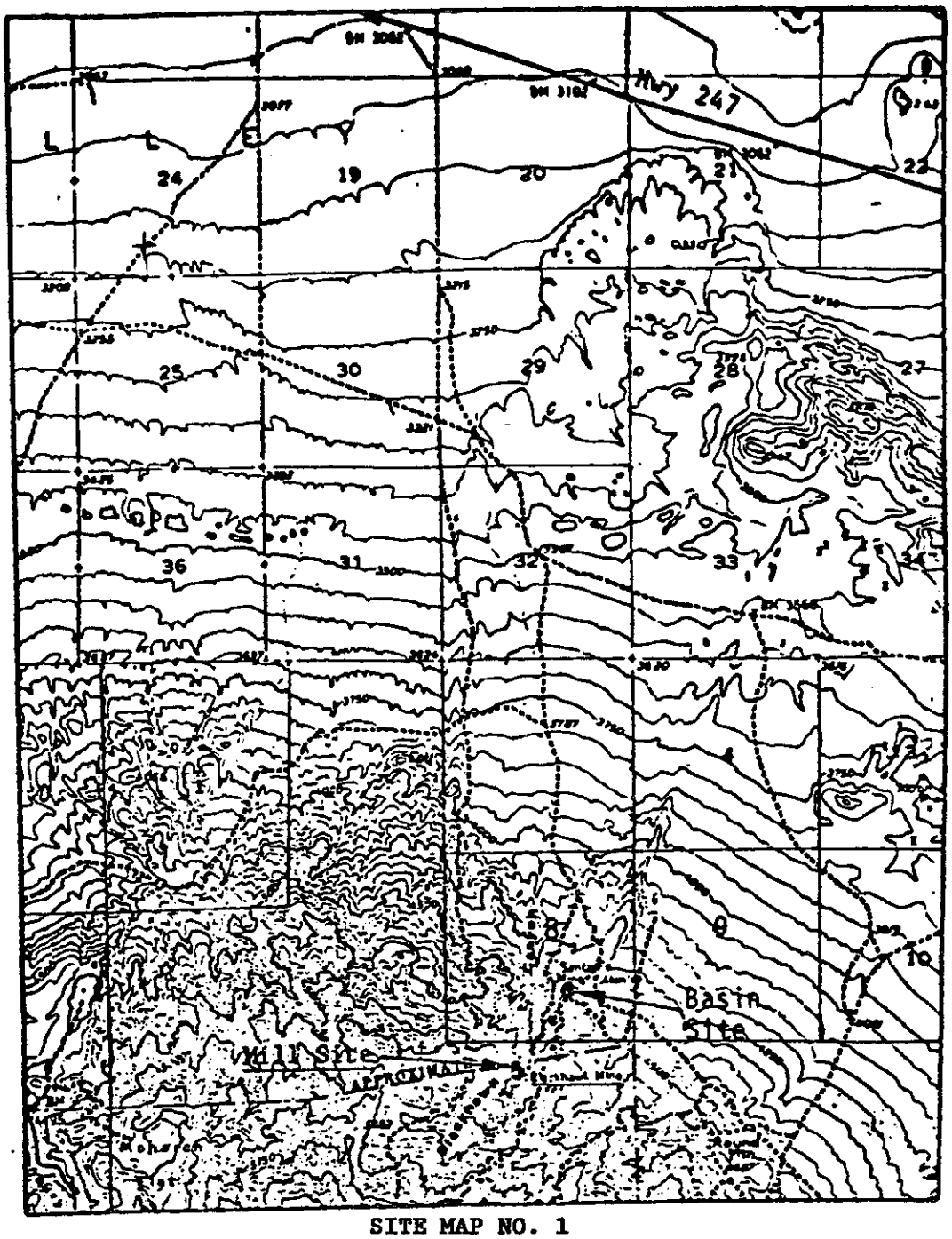
2. If the net acid/base potential indicates an absence of net acid forming potential, the composites shall be subjected to a waste extraction test similar to that in A.1., above, but utilizing distilled water buffered to the pH of rainwater, as the extractant.

B. The resultant test extracts shall be analyzed as follows:

1. All of the extracts shall be analyzed for copper and iron.

2. Ten percent of the extracts shall be analyzed for the metals listed under Section 66699, Article 11, Chapter 30, Division 4, Title 22 of the California Code of Regulations.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



N.

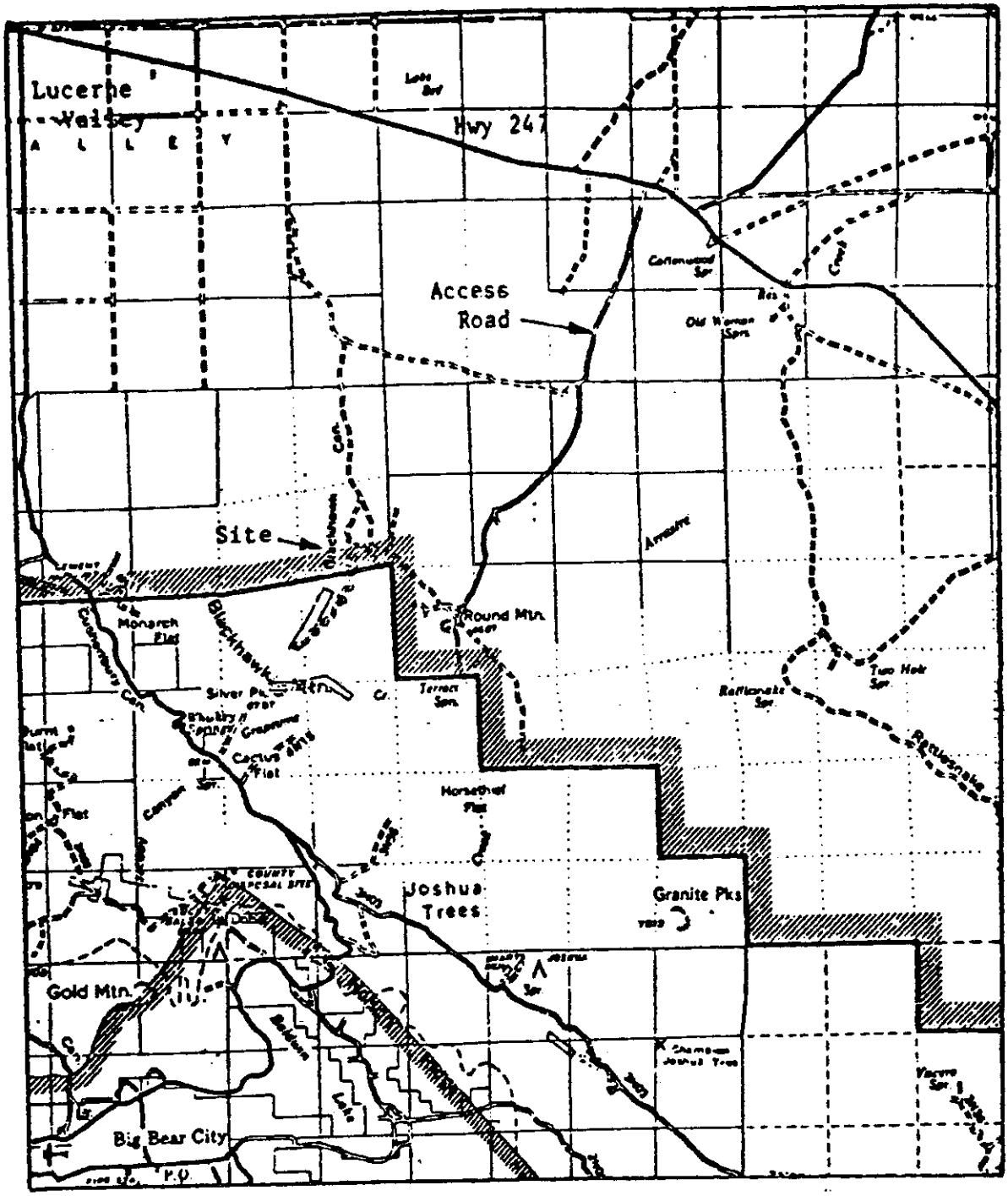
Scale:
1" = 1 mile

SITE MAP NO. 1

BLACKHAWK MINE
Southwest of Lucerne Valley - San Bernardino County
Basin Site: Portion of SE¼ of Section 8, T3N, R2E, SBB&M
Mill Site: ¼ mi. south and ½ mi. east of the SW corner of Section 8, T3N, R2E, SBB&M
USGS Lucerne Valley 7.5 min. Topographic Map

Order No. 90-054

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD - 7



SITE MAP NO. 2

Blackhawk Mine
Southwest of Lucerne Valley - San Bernardino County

Order No. 90-054