CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 91-002

WASTE DISCHARGE REQUIREMENTS
FOR
VICEROY GOLD CORPORATION
CASTLE MOUNTAIN PROJECT
Hart, San Bernardino County

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

1. Viceroy Gold Corporation, 9457 Las Vegas Blvd. South, Suite D, Las Vegas, NV 89123 (hereinafter referred to as the discharger) submitted an application for Waste Discharge Requirements on March 27, 1990 to the Regional Board.

2. The above referenced application was deemed complete on December 5, 1990 by the Regional Board staff upon receipt of all of the appropriate documentation from San Bernardino County and the Bureau of Land Management. An Environmental Impact Report (State Clearinghouse Number 88062708) was prepared for this project pursuant to the provisions of the California Environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA). The San Bernardino Planning Commission certified this Environmental Impact Report as complete and adopted a Notice of Determination on September 27, 1990. The Bureau of Land Management issued a Record of Decision and certified Environmental Impact Statement Number 890053 on October 31, 1990 for the Castle Mountain Project. All technical and ground water quality data in the Environmental Impact Report and other technical reports are made a part of this order for the purpose of further compliance.

3. Several water quality problems that were addressed during the EIR/EIS review process were commented on by Regional Board staff in compliance with CEQA Section 15096. Adequate mitigation measures were made in the permitting process to protect the waters of the State. Some of the mitigation measures are discussed in other Findings of these Waste Discharge Requirements.

4. Any impact on the ground water underlying the heap leach site will be detected by the extensive ground water monitoring network that will be installed according to the Discharge Specifications of these Waste Discharge Requirements.

SUPERSEDED BY
BOARD ORDER NO. 99-015 6/10/99

5. The discharger proposes to operate a gold recovery heap leach facility using a weak cyanide solution that will be capable of processing up to 11,000 tons per day of mineral bearing ore over a 10-year period on a total site area of 2,735 acres on the following areas of land:

   T14N, R17E, SBB&M
   Section 13: S½ of SE¼ and W½ of SW¼ of SW¼
   Section 23: All, except N½ of N½
   Section 24: All, except E½ of NW¼ of NW¼, and NW¼ of NE¼ of NW¼
   Section 25: All
   Section 26: All

   T14N, R18E, SBB&M
   Section 19: SW¼ of SW¼
   Section 30: W½ of W½

   Approximately 890 acres of land area will be disturbed on the property described above for the purposes of mineral recovery.

6. Upon completion of the heap leach process, each pile or segment would be flushed with fresh water or otherwise rinse-treated after completion of leaching operations to reduce cyanide concentrations to an acceptable level which would result in a mining waste classification of Group C, under Article 7, Chapter 15, Title 23 of the California Code of Regulations. The pile would then be either abandoned in place or removed elsewhere.

7. 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.

8. The beneficial uses of ground waters in the Piute Hydrologic Unit are:

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

9. There are no domestic wells within 500 feet of the Castle Mountain Project discharge facilities described in Finding No. 5, (above).

10. The Board has notified the discharger and all known interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge.

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

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

A. Discharge Specifications

1. The treatment or disposal of wastes at this facility shall not cause pollution or nuisance as defined in Sections 13050(l) and 13050(m) of Division 7 of the California Water Code.

2. Adequate measures shall be taken to assure that flood or surface drainage waters do not erode or otherwise render portions of the Castle Mountain Project discharge facilities inoperable.

3. The Castle Mountain Project shall be protected from any washout or erosion of wastes or covering material, and from any inundation which could occur as a result of floods having a predicted frequency of once in 100 years.

4. The discharge of any wastes to any surface waters or surface drainage courses is prohibited.

5. The discharger shall comply with "Monitoring and Reporting Program No. 91-002", and future revisions thereto, as specified by the Regional Board's Executive Officer.

6. Prior to any modifications in this facility which would result in material change in the quality or quantity of wastewater treated or discharged, or any material change in the location of discharge, the discharger shall report all pertinent information in writing to the Regional Board.

7. Prior to any change in ownership or management of this operation, the discharger shall transmit a copy of this Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

8. The discharger shall ensure that all site operating personnel are familiar with the content of this Board Order.

9. This Board Order does not authorize violation of any federal, state, or local laws or regulations.

10. The cyanide solutions shall be contained only in the processing system or in other leak-proof containers.

11. There shall be no wind transport of cyanide solution or ore containing cyanide away from the leaching area.

12. The heap leach ore piles shall be underlain by a synthetic liner which has a maximum permeability of 1×10^{-10} cm/sec and a minimum thickness of 40 mils. An equivalent liner may be approved by the Regional Board's Executive Officer if the discharger demonstrates that the equivalent liner will function as well or better than the above-specified minimum system. Any pad designed and constructed prior to the effective date of this Board Order may utilize 36-mil reinforced liners at the edges of the pads.

13. Each cyanide solution containment basin, each cyanide-bearing sludge containment basin, and each trunk cyanide solution transport ditch, shall be underlain by a double liner with a leachate collection and removal system installed between the two synthetic liners. Each synthetic liner shall have a permeability which does not exceed 1×10^{-10} cm/sec. The liners shall have a minimum thickness of 40 mils. Each basin shall contain a double-lined leak detection and withdrawal sump. Each trunk transport ditch shall contain double-lined leak detection and withdrawal sumps at approximately 1,000-foot intervals. The double liners with leachate collection and removal systems shall extend up the sidewalls to at

least 2.0 feet (vertically) above the maximum working depth of the cyanide solution and/or sludge contained therein.

The remaining sidewalls of both basins and trunk transport ditches shall have at least a single 40-mil weather-resistant synthetic liner, or an equivalent liner approved by the Regional Board's Executive Officer.

14. All drainage and collection facilities used to contain or transport leaching solution shall be effectively sealed to prevent leakage of these liquids.

15. The processing area shall be protected from any run-on, washout, or erosion which could occur as a result of a storm having a predicted frequency of once in 100 years.

16. There shall be no discharge of process wastewater at any location without prior approval from the Executive Officer.

17. Adequate measures shall be taken to insure that liners remain intact throughout the duration of the leaching activity and lifetime storage.

18. Leached ore residual shall not be placed in perennial, intermittent, or ephemeral stream channels unless provisions are made to divert runoff around the waste in a non-erosive manner. Waste shall not be placed where it can be eroded by stream flows or cause accelerated stream bank erosion.

19. Prior to removal of leached ore residue from a lined pad for disposal, the cyanide contained therein shall be neutralized as described in Specification No. 23, below.

20. Ore residue may be abandoned on a pad, provided the cyanide in the ore is neutralized as described in Specification No. 23, below, and all other necessary and applicable closure requirements are complied with.

21. All industrial waste materials not covered by said Article 7, Chapter 15 shall be discharged at a Board-approved waste management facility. Any hazardous waste containers shall be rendered unusable prior to final disposal.

22. The heap leach processing area shall be diked, and containment basins shall be provided to impound all storm water drainage from the piles and from the cyanide solution collection and transport facilities during a maximum probable one-hour storm, as set forth in Department of Water Resources Bulletin No. 195 for Needles. In addition, containment capacity shall be provided for 24 hours of cyanide solution drain down from the piles. Also, standby emergency facilities shall be available to assure continual circulation of the leaching solution if at any time it is determined that a planned processing configuration or rate could in an emergency result in flow in excess of existing basin storage capacity. The additional storm storage capacity shall be provided before the new processing configuration is started.

23. When abandoning leached ore residue, the procedure for determination of whether free cyanide (CN^-) in the ore residue has been neutralized to a satisfactory level shall be as follows:

    a. A sampling grid for the ore pile or segment on the leach pad shall be submitted for approval by the Executive Officer. The sampling grid shall contain a total of at least ten sampling locations on the ore pile or segment being abandoned.

    b. The sample to be analyzed from each sampling location shall contain 100 grams as an aliquot of samples taken as set forth below, except that no sample shall be taken within three feet above the plastic liner unless special provisions are made to avoid penetrating the liner or for sealing said penetrations:

        1. An ore pile thirty feet or less in depth shall have samples taken at 25, 50, and 75 percent of the depth.

        2. An ore pile greater than thirty feet in depth shall have samples taken every ten feet of depth.

    c. 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. 91-002, 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.

    d. The maximum allowable free cyanide (CN^-) shall not exceed the following levels in the filtrate portion of a 5:1 extraction.

        1. 90 percent of at least 10 samples shall contain less than 1 mg/l free cyanide (CN^-) in the filtrate.

        2. None of the samples shall contain more than 2 mg/l free cyanide (CN^-) in the filtrate.

    e. For any sampling location that indicates a free cyanide level in excess of 2 mg/l in the filtrate, the areal extent of the inadequately detoxified area shall be determined and detoxified so that the cyanide levels in that particular ore pile will comply with the limitations contained in Specification No. 23, above.

24. Adjacent and contiguous ore piles or segments shall also be sampled simultaneously when any pile or segment is to be abandoned. If any additional processing is done in the sampled areas, the piles and segments tested will require additional neutralization and testing prior to abandonment.

25. Prior to the start of the operations, the discharger shall install a ground water monitoring well network and a vadose zone monitoring system as approved by the Executive Officer.

26. At least 60 days[1] prior to commencement of construction of each component of the facility, the discharger shall submit a technical report to the Board for approval by the Executive Officer, which shall include a plan showing in detail the proposed construction of that component.

27. At least 10 days prior to commencement of operations, the discharger shall submit a certificate to the Board, signed by a California Registered Civil Engineer or Certified Engineering Geologist, stating that the pads, containment basins, leakage detection system, flood protection and attendant facilities, and disposal areas are constructed in accordance with the technical report as approved by the Executive Officer to meet the requirements of this Board Order.

28. At least 20 days prior to loading ore onto the pads, the discharger shall notify the Board to allow sufficient time to schedule a staff evaluation of construction and inspection procedures utilized by the discharger for liner installation.

29. The discharger shall submit to the Board, at least 30 days prior to commencement of the herein stated expanded operations, written adequate assurance as determined by the Executive Officer that money is committed in an amount sufficient to insure neutralization of all cyanide, plus cleanup and closure of the processing and tailings disposal site upon abandonment of facilities, in a manner that will not adversely affect water quality.

30. Lack of construction or operational activity on the site for a period of one year shall constitute abandonment for the purpose of this Board Order.

31. The discharger shall maintain devices installed in the ore piles which permit measurement of solution depth (the hydraulic head) over the liner beneath that ore pile.

32. A closure plan shall be submitted to the Regional Board and approved by the Executive Officer before the start of the leaching activities.

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 January 16, 1991.

Philip A Gruenberg
Executive Officer

[1] 60 days unless a lesser period is approved by the Executive Officer in writing.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 91-002
FOR
VICEROY GOLD CORPORATION
CASTLE MOUNTAIN PROJECT
Hart, San Bernardino County

Location of Discharge: Portions of T14N, R17E, SBB&M and T14N, R18E, SBB&M

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

MONITORING AND REPORTING PROGRAM NO. 1

A. The current status of mining operations as to whether the operation is active or inactive.

B. An estimate of the total amount of ore (tons) presently being processed.

C. The amount of liquid collected in each seepage collection sump and corresponding liner permeability in centimeters per second.

D. Analysis for free cyanide and total cyanide in ground water from each ground water monitoring well, and of any water found in each seepage collection sump.

E. Analysis for free cyanide and total cyanide for any liquid found in the vadose zone monitoring system.

MONITORING AND REPORTING PROGRAM NO. 2

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

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, and on the integrity of the cyanide solution containment system.

C. At least 30 days prior to any proposed abandonment of leached ore residues or discharge of wastewater, or termination of the operation described in this Board Order, the discharger shall submit a copy of the results of analyses of the cyanide concentration in the leached ore residue and in the wastewater in accordance with Discharge Specification No. 23, 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.

The above monitoring program shall be implemented and/or maintained immediately upon adoption of Board Order No. 91-002.

REPORTING

Monthly Monitoring reports shall be submitted to the Regional Board by the 15th day of the following month.

Submit monitoring 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

January 16, 1991
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/l.

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.

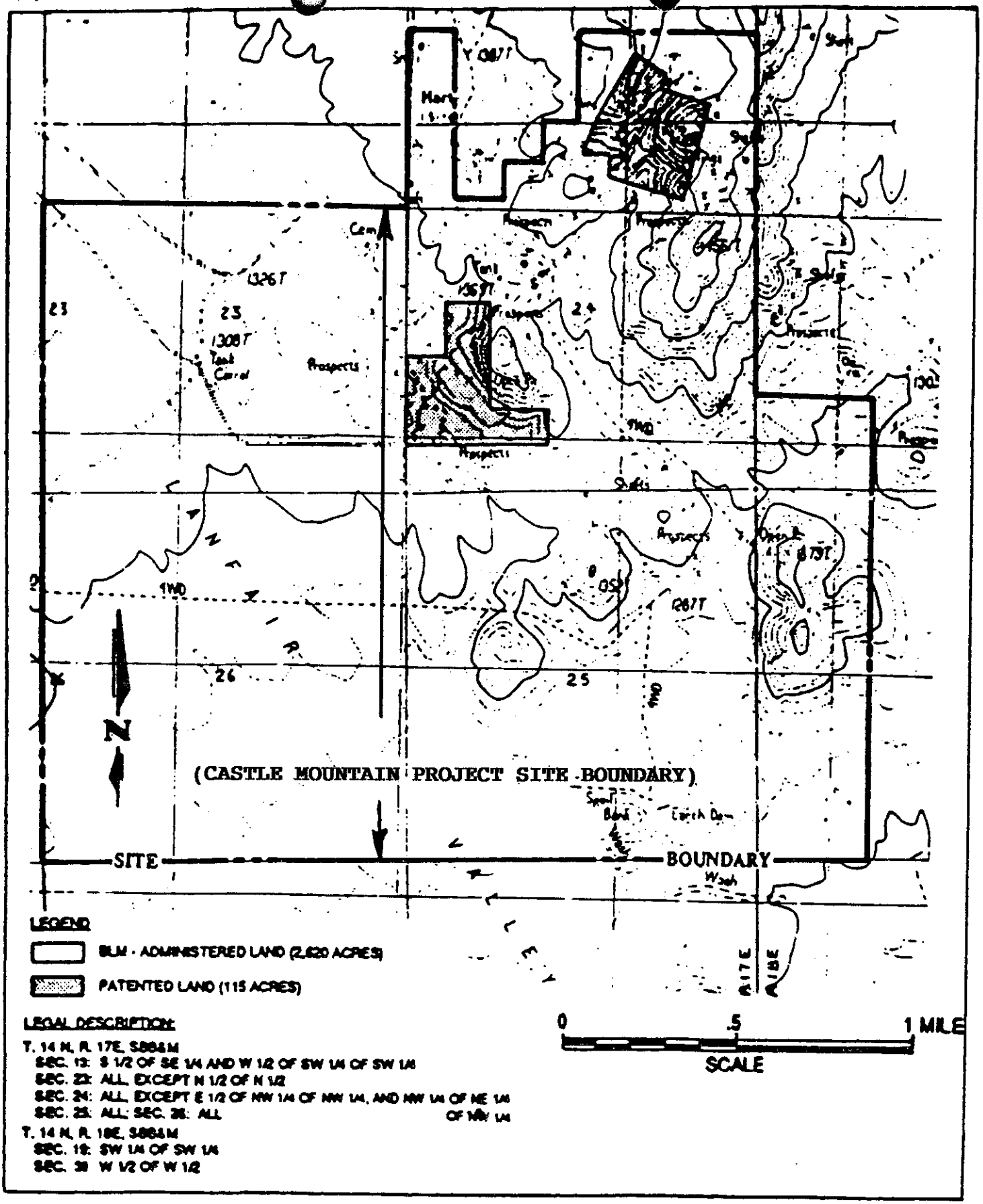
1. If the net acid/base potential indicates a presence of net acid forming potential, the composites shall be subjected to the waste extraction test described in Section 66700, Article 11, Chapter 30, Division 4, Title 22 of the California Code of Regulations.

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.



SITE MAP

VICEROY GOLD CORPORATION
CASTLE MOUNTAIN PROJECT
Hart, San Bernardino County
Portion of T14N, R17E & T14N, R18E SBB&M

Board Order No. 91-002