

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 83-106

WASTE DISCHARGE REQUIREMENTS
FOR
MESQUITE PROJECT GOLD MINE
Northeast of Glamis - Imperial County

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

1. Gold Fields Operating Company - Mesquite (hereinafter also referred to as the discharger), 200 Union Blvd., Suite 500, Lakewood, Colorado 80228, submitted a Report of Waste Discharge, dated September 1, 1983, for an expansion of a mining operation.
2. The discharger proposes to expand a gold and silver exploratory (pilot) operation by cyanide leaching 33,600 tons of ore heaped on four impervious pads. Each ore heap (about 30 feet high) would be continually sprinkled with a solution that contains 0.08 weight percent sodium cyanide (NaCN) and has a pH of 10.2 to 10.5 with lime (CaO or Ca(OH)²). The solution would leach through the ore on each pad dissolving the gold and silver before draining into separate pregnant solution tanks. The solution would then be piped through carbon column units, where the precious metals would be removed. The gold and silver loaded carbon would be shipped off-site for further processing. The remaining barren solution would drain into a tank where cyanide is added to bring the concentration to the appropriate strength before it is recirculated onto the piles. This closed system would not contain more than 100,000 gallons of free solution at any given time. This testing operation is expected to last about one and a half years. The processing site is to be located in the S $\frac{1}{2}$ of Section 5 and the N $\frac{1}{2}$ of Section 8, T13S, R19E, SBB&M, which is about 6 miles northeast of Glamis and about 2,000 feet north of Highway 78.
3. The processing of gold and silver using cyanide at this site is also subject to waste discharge requirements adopted in Board Order No. 83-7.
4. The discharger has constructed a safety containment basin (downgrade from the pads and tanks) and lined berms around the leach pads and solution tanks to insure containment in the event of a spill or overflow from flooding.
5. The discharger describes each impervious leaching pad as a graded layer of compacted soil covered with six inches of sand that would be covered with an impermeable liner. Another layer of at least six inches of sand would be placed on the liner for protection from punctures. The existing plastic lined tanks are installed completely above ground on a well-graded and compacted base, protected by a cushioning sand layer and an underlying plastic liner. The existing containment basin, which is ten feet deep and 80 feet square is lined with a 30 mil. reinforced hypalon liner, or equivalent, over a layer of graded and compacted soil.

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6. The discharger states that at the end of the proposed test operation at this site, the remaining cyanide solution in the system would be discharged into the lined containment basin for complete solar evaporation, and later detoxified in the basin or disposed at a Board approved solid waste disposal site.
7. The Water Quality Control Plan for the West Colorado River Basin was adopted on April 10, 1975. The Basin Plan contains water quality objectives for the Amos-Ogilby Hydrologic Unit.
8. The beneficial use of the ground waters of the Amos-Ogilby Hydrologic Unit, as set forth in the above plan, is agricultural supply.
9. The discharger reports that ground water at the site occurs at depths of 180 to 200 feet. The supply water used for this heap leaching operation is piped from wells located within a half mile radius of the plant site.
10. The Board has notified the discharger and interested agencies and persons of its intent to prescribe 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 Imperial County Planning Department has approved a Negative Declaration (certification on September 1, 1983) for this mining operation expansion. The below waste discharge requirements are designed to assure against any significant adverse effects on the quality of local ground waters and of any surface waters resulting from infrequent storm runoff.

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 in leak-proof containers.
3. There shall be no wind transport of cyanide solution or ore containing cyanide away from the leaching test area.
4. The impermeable liner underlying the leaching pads, and each tank and containment basin liner shall have a permeability which does not exceed 1×10^{-8} cm/sec, and the fluids contained therein shall not penetrate through the lining during the containment period.

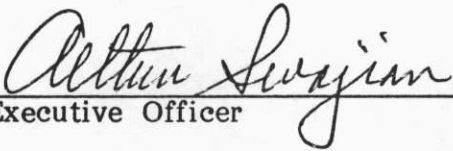
5. All drainage and collection facilities used to contain or transport leaching solution shall be effectively sealed to prevent leakage of these liquids.
6. A minimum impervious freeboard of at least two (2) feet shall be maintained around the impervious heap leach test pads and in the pregnant and barren solution tanks and safety containment basin.
7. The processing area shall be protected from any run-on, washout, or erosion which could occur as a result of floods having a predicted frequency on once in 100 years.
8. There shall be no discharge of process wastewater at any location without prior approval from the Regional Board.
9. Adequate measures shall be taken to insure that the liners will not be punctured for the duration of this activity.
10. Prior to removal of the leached ore residue from the impervious pads, the cyanide contained therein shall be detoxified to contain not more than 1.0 mg/kg (total CN^-), and said ore residue shall be discharged in an area permanently protected from a flood having a predicted frequency once in 100 years.
11. Ore residue may be abandoned on the pads, provided the cyanide in the ore is detoxified to contain not more than 1.0 mg/kg (total CN^-), and said residue is permanently protected from a 100 year flood.
12. All industrial containers and other waste materials shall be discharged at a Class I waste disposal site, or detoxified and discharged at a Class II-2 disposal site provided said discharged wastes are immediately covered. Said containers shall be rendered unusable prior to final disposal.
13. Adequate measures shall be taken to assure that unauthorized persons and mammals are effectively excluded from the processing area.
14. The leaching pads, tanks and the safety containment basin shall have a leakage detection system as deemed necessary by the Executive Officer of the Regional Board.
15. The entire processing area shall be diked to impound all storm water drainage from the pads, tanks and basin during a maximum probable one hour storm, in addition to the total volume of cyanide solution contained in the closed system.

B. Provisions

1. At least 60 days¹ prior to commencement of construction of new facilities, the discharger shall submit to the Board for approval by the Executive Officer a technical report which shall include a plan showing in detail the proposed construction of the pads, plus any new tanks, basins, leakage detection systems and flood protection facilities.
2. At least 10 days prior to commencement of expanded operations, the discharger shall submit to the Board a certificate, signed by a California Registered Civil Engineer, stating that the pads, tanks, containment basin, attendant facilities, leakage detection system, and disposal areas are constructed in accordance with the technical report as approved by the Executive Officer to meet the requirements of this Order.
3. At least 10 days prior to loading ore onto the pads, the discharger shall notify the Board to allow sufficient time to schedule a staff inspection.
4. The discharger shall comply with "Monitoring and Reporting Program No. 83-106", and future revisions thereto, as specified by the Executive Officer.
5. 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.
6. 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. Transmit a copy of this Order to the succeeding owner or operator, and file a copy of the transmittal letter with this Board.
7. The discharger shall submit to the Board, at least 30 days prior to commencement of expanded operations, written adequate assurance that money is available, upon abandonment of facilities, in an amount sufficient to insure detoxification of all cyanide, plus cleanup and closure of the processing and tailings disposal sites in a matter that will not adversely effect water quality.
8. This Order prohibits the processing of ore at this site to exceed 33,600 tons.
9. Lack of construction or operational activity on the site for a period of one year shall constitute abandonment for the purpose of this Order.

1. 60 days unless a lesser period is approved by the Executive Officer

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 November 16, 1983.


Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 83-106
FOR
MESQUITE PROJECT GOLD MINE
Northeast of Glamis - Imperial County

Location: Portions of the S $\frac{1}{2}$ of Section 5 and the N $\frac{1}{2}$ of Section 8, T13S, R19E, SBB&M

MONITORING

Gold Fields Operating Company - Mesquite (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:

- 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) that has been processed to date.
- C. Analysis for cyanide in ground water from each ground water monitoring well, and of any water found in each seepage monitoring well.

Monitoring and Reporting No. 2

- A. Immediate reporting of any accidental spillage, leakage, or release of waste material, including immediate measures being taken to correct same and limit detrimental effects.
- B. Upon request from this 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 discharge of leached ore residues or wastewater, or termination of the operation described in this Order, the discharger shall submit a copy of the results of analyses of the cyanide concentration in the leached ore residue and 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 No. 83-106.

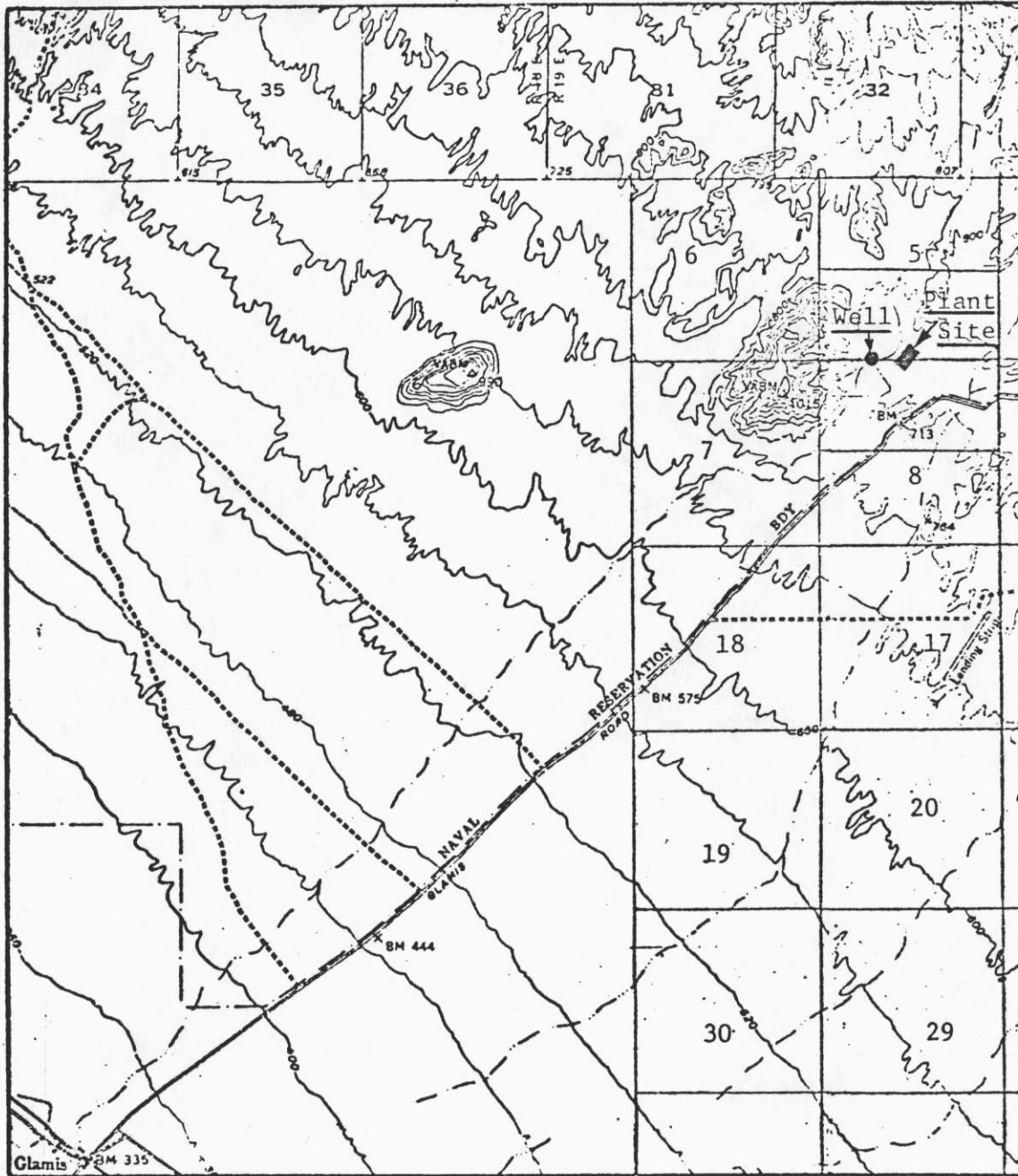
Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Items 2A, B, C and D (above) shall be forwarded immediately and if at all possible shall be preceded by phone communication to the Regional Board's office. Phone No. (619) 346-7491. Copies of 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 on 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 Sivajian
Executive Officer
December 2, 1983
Date



SITE MAP

MESQUITE PROJECT GOLD MINE

Northeast of Glamis - Imperial County

Plant Location: S 1/2 of Section 5 and N 1/2 of Section 8,
T13S, R19E, SBB&M

USGS Acolita, Glamis and Quartz Peak 15 min. Topographic Maps