CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 86-63

WASTE DISCHARGE REQUIREMENTS
FOR
AMERICAN GIRL MINING CORPORATION
North of Ogilby - Imperial County

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

1. American Girl Mining Corporation (hereinafter also referred to as the discharger), P.O. Box 6426, Yuma, Arizona, 85364, submitted a Report of Waste Discharge, dated July 31, 1986, for a test heap-leach mining operation.

2. The discharger proposes an exploratory (pilot) gold and silver operation by heap cyanide leaching 200,000 tons of ore on one impervious leach pad. The ore heap would be continually sprinkled with a solution that contains 0.4 grams per liter of sodium cyanide (NaCN) and lime (CaO) for pH control. The solution would leach through the ore dissolving the gold and silver before draining into a pregnant solution containment basin. The solution would then be piped through carbon column units, where the precious metals would be removed. The remaining barren solution would drain into a tank where cyanide would be added to bring the concentration to the appropriate strength before it is recirculated onto the pile. This testing operation is expected to last six months. The processing site is to be located in an unsurveyed portion of T15S, R21E, and in Section 25 and 26, T15S, R20E, SBB&M, which is about (nine) 9 miles north of Ogilby in Imperial County.

3. The discharger has stated perference to utilize synthetic liners throughout the operations.

4. The heap/leach ore pile would be underlain by a synthetic liner designed to be effective throughout the processing life of the pile. Sunlight-resistant liners would be used in all areas subject to sunlight, and would extend under the edges of the pile. The pile would be flushed with fresh water 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 Title 23, Article 7, Chapter 3, Subchapter 15 of the California Administrative Code.

5. The discharger reports that ground water at the site occurs at depths of more than 400 feet. The process water used for this heap-leaching operation is projected to be piped from wells located more than (two) 2 miles to the south of the plant site.

Superseded
by
87-80
9/23/87

6. Average annual precipitation in this area is 3.5 inches, and average surface evaporation is (nine) 9 feet; therefore, natural precipitation is not sufficient to carry dissolved material to the depth of ground water.

7. There are no surface waters in the vicinity of the discharge. The closest ground water in the vicinity is deeper than 400 feet. The infiltration rate would be very low. Therefore ground water monitoring wells for this project would serve no useful purpose.

8. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted by the Regional Board on November 14, 1984.

9. The beneficial uses of the ground waters of the Amos-Ogilby Hydrologic Unit, as set forth in the above Plan, is municipal supply.

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 Number 17665-86, adopted September 24, 1986, by Imperial County for this mining test operation. The below waste discharge requirements are designed to assure against any significant adverse effects on the quality of local ground waters and on any temporary 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 a leak-proof processing system and in leak-proof containers.

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

4. The heap leach ore pile shall be underlain by a plastic synthetic liner which has a maximum permeability of 1×10^{-7} cm/sec and a minimum thickness of 40 mils. The fluids contained therein shall not penetrate the plastic synthetic liner during the containment period. The plastic synthetic liner shall be underlain by a sand layer with a thickness of at least six (6) inches to protect the liner from puncture.

5. The pregnant solution transport ditches and adjacent solution collection and freeboard areas shall be lined with a weather-resistant synthetic liner which has a minimum thickness of at least 36 mil and a permeability which does not exceed 1 x 10^{-7} cm/sec.

6. Each cyanide solution containment basin and each cyanide-bearing sludge containment basin 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 x 10^{-7} cm/sec. The bottom liner shall have a minimum thickness of at least 40 mil. The upper liner shall be weather-resistant synthetic material with minimum thickness of 36 mil. The double liners with leachate collection and removal system shall extend up the sidewalls to at least (two) 2 feet above the maximum working depth of cyanide solution and/or sludge contained therein. The remaining sidewalls shall have at least a single 36 mil weather-resistant synthetic liner or equivalent. Other design details for protection of the quality of State waters shall be as approved by the Regional Board's Executive Officer.

7. The mill site where the precious metals recovery operation is conducted shall be underlain by a synthetic liner of at least 36 mil thickness which is protected from sunlight and weather resistant with a maximum permeability of 1 x 10^{-7} cm/sec to contain any cyanide solution escaping the system through spillage or systems failure.

8. All agglomeration processes which include adding cyanide to the final agglomeration shall done only in closed containers.

9. A dike with a minimum freeboard of at least (two) 2 feet with a weather-resistant synthetic liner of at least 36 mil shall be maintained around the base of the heap leach pile. The synthetic liner shall have a permeability which does not exceed 1 x 10^{-7} cm/sec.

10. 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 of once in 100 years (as set forth in Department of Water Resources Bulletin No. 195, Volume 111, for Yuma, Arizona, and based on time of concentration at the processing area), and applicable constructed flood drainage channels.

11. The entire processing area shall be diked to impound all storm water drainage from the heap-leaching facilities and lined basins provided to store said drainage during a probable maximum one (1) hour storm event, as set forth in Department of Water Resources Bulletin No. 195, Volume I, (5.21 inches) for Yuma Arizona, in addition to 24 hours of cyanide solution draindown.

12. There shall be no discharge of process wastewater at any location without prior approval from the Regional Board.

13. Adequate measures shall be taken to insure that liners would not be punctured for the duration of this activity.

14. Leached ore residue shall not be placed in perennial, intermittent, or ephemeral stream channels unless provision is made to divert runoff around the waste in a non-erosive manner. Waste shall not be placed where it can be eroded by streamflows or cause accelerated streambank erosion.

15. Prior to abandonment or removal of leached ore residue from an impervious pad for disposal, the cyanide contained therein shall be neutralized as described in Discharge Specification No. 18. The pile shall be flushed with fresh water after completion of leaching operations to reduce cyanide concentrations to a level which would result in a mining waste classification of Group C, under Title 23, Article 7, Chapter 3, Subchapter 15 of the California Administrative Code.

16. All industrial waste materials except properly neutralized leached ore shall be discharged at a Board approved waste management unit. Any waste containers of hazardous materials shall be rendered unusable prior to final disposal.

17. Adequate measures shall be taken to assure that unauthorized persons and mammals are effectively excluded from the processing area.

18. 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 of the ore pile on the leach pad shall be submitted that is acceptable to the Executive Officer. The sampling grid shall contain a total of at least ten sampling locations on the ore pile.

    b. The sample to be analyzed from each sampling location shall consist of a 100 gram aliquot taken at depths 25, 50 and 75 percent from the top of the ore pile, except that no sample shall be taken within three (3) feet above the plastic liner unless special provisions are made to avoid penetrating the liner or for sealing said penetrations.

    c. The sample analysis procedure shall be as set forth in Attachment A, which is a part of this Order.

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

        1. Ten (10) mg/l free cyanide (CN^-) in 90 percent of samples;

2. Twenty (20) mg/l free cyanide (CN^-) in any of the samples.

e. For any sampling location that indicates a free cyanide level in excess of 20 mg/l in the filtrate, the extent of the inadequately detoxified area shall be determined and detoxified so that the cyanide levels will comply with the limitations contained in Specification No. 18 (d) 1 and 2 above.

B. Provisions

1. At least 30 days prior to commencement of construction of these 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, basins, leakage detection system and flood protection facilities.

2. At least 10 days prior to commencement of operation, the discharger shall submit to the Board a certificate, signed by a California Registered Civil Engineer, stating that the pads, containment basins, attendant facilities, leakage detection system, flood protection facilities, 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. The discharger shall process no more than a total of 200,000 tons of ore; and shall process this 200,000 tons in a period of time not to exceed 6 months from date of commencement of leaching operations.

4. 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 evaluation of construction and inspection procedures utilized by the discharger for liner installation.

5. The discharger shall comply with "Monitoring and Reporting Program No. "86-63," and future revisions thereto, as specified by the Executive Officer.

6. 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.

7. The discharger shall submit to the Board, at least (seven) 7 days prior to commencement of operation, written adequate assurance that $10,000 is committed to insure detoxification of all cyanide, plus cleanup and closure of the processing and tailing disposal sites upon abandonment of facilities in a manner that will not adversely affect water quality.

8. Lack of construction or operational activity on the site for a period of one (1) year shall constitute abandonment for the purpose of this Order.

9. The discharger shall test the leak detection system of each double-lined containment basin prior to commencement of operations. The results of said testing shall be submitted to the Regional 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 November 19, 1986.

Arthur Swajian
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT A

SAMPLE PREPARATION PROCEDURE
FOR
IONIC CYANIDE ANALYSIS
Also Known as Free or Soluble Cyanide

Description: Ionic cyanide and most weak complexes are soluble in distilled water. The strong complexes of iron, 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, flowthrough 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.

412 D may not be used.

Apparatus:

1) Large glass funnel, the stem throat plugged with glass wool;
or
2) Large glass funnel with glass fiber filter paper: Whatman GF/C, 934-AH, or equivalent.

3) Balance capable of weighing to nearest 0.01g.

4) 500 ml volumetric flasks.

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

Reagents:

1) 2.5 N NaOH 100g NaOH/1

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

Procedure:

Weight out, to the nearest 0.01g, 100 plus or minus one gram of sample as received. Place in glass funnel, either glass wool plugged or with filter paper. Add 50.00 ml of 2.50 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 of analysis.

The titrimetic (412 C) and the ion selective probe (412E) require no further preparation. The sample is then read directly by either titrimetic (412 C) or the ion selective probe (412 E) and the results reported in mg/l (CN^-).

END

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 86-63
FOR
AMERICAN GIRL MINING CORPORATION

North of Ogilby - Imperial County

Location : Unsurveyed portions of T15S, R21E, and in Sections 25 and 26, T15S, R20E, SBB&M

MONITORING

American Girl Mining Corporation shall report to the Regional Board concerning the following:

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

2. An estimate of the total amount of ore (tons) that have been processed - monthly.

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

4. 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.

5. Prior to commencement of discharger, the discharger shall furnish to the Regional Board the result of testing the leak detection system of each double-lined containment basin and any other leak detection systems.

6. 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 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. 18, and shall request a Regional Board staff inspection to approve the proposed discharge or cleanup procedure.

7. Report of completion of cleanup of premises shall be submitted to the Regional Board in writing within one (1) week following completion of work.

REPORTING

The above monitoring program shall be implemented immediately upon commencement of discharge.

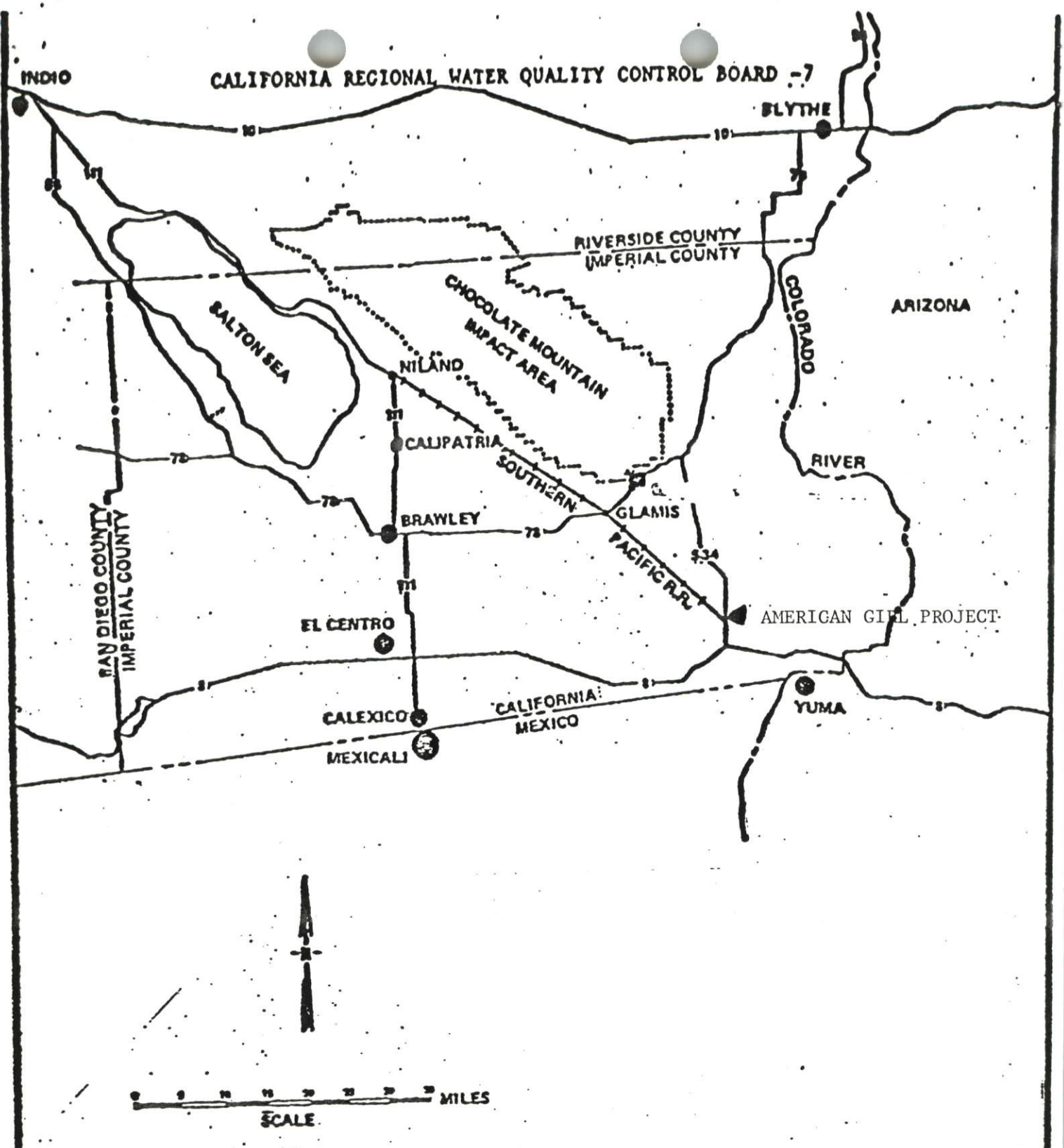
Monthly reports shall be submitted to the Regional Board by the 15th day of the following month. Reports for Item 3, (above) shall be forwarded immediately and if at all possible shall be preceded by phone communication to the Regional Board's office, Phone No. (619) 346-7491. Copies of the reports submitted to the Board pursuant to this Monitoring and Reporting Program shall be maintained at the operations site, and shall 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 Sevajian
Executive Officer

November 19, 1986
Date

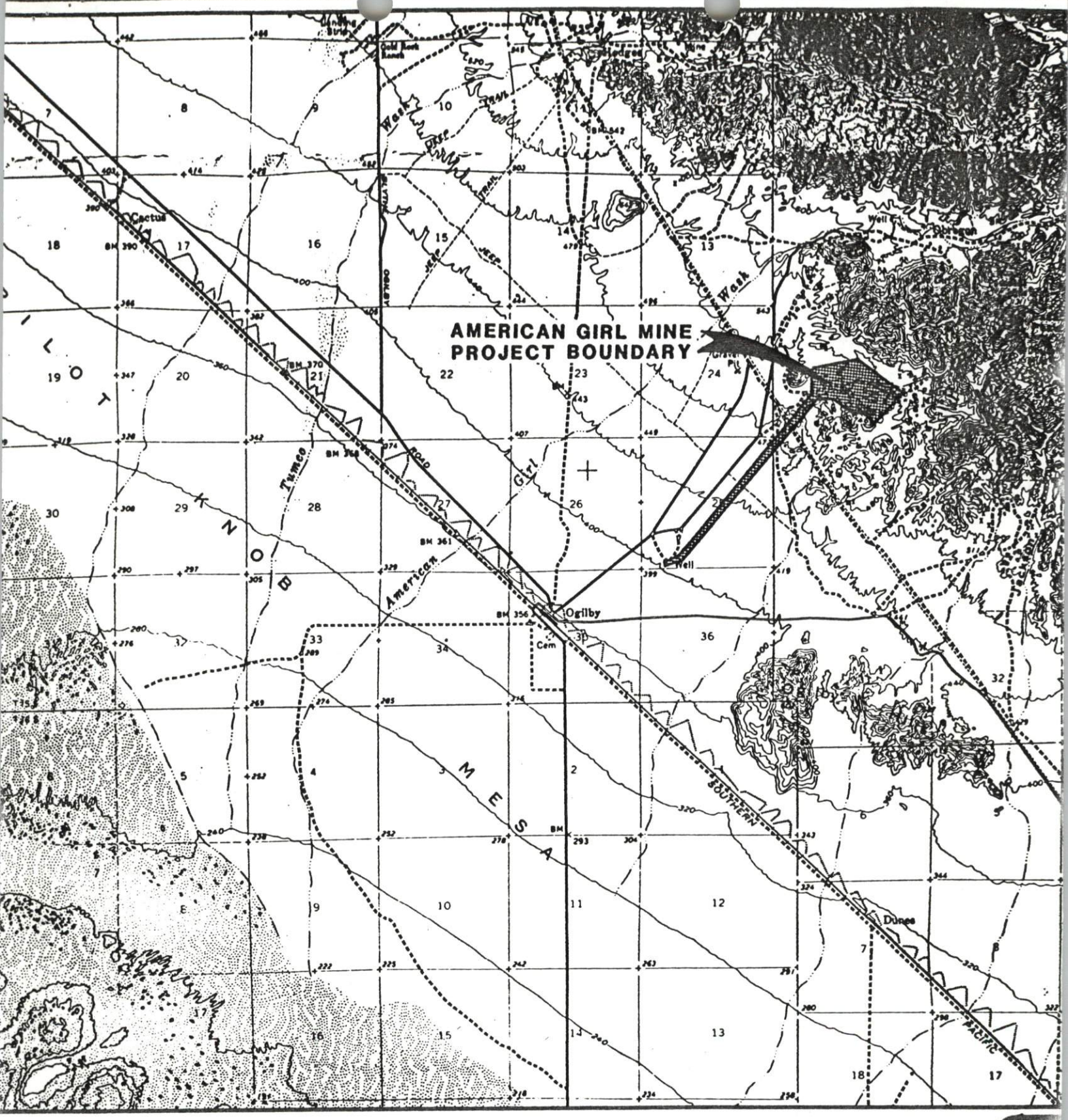


American Girl Project

Site Map No. 1

VICINITY MAP

North of Ogilby, Imperial County



0 1/2 1 2 3 MILES

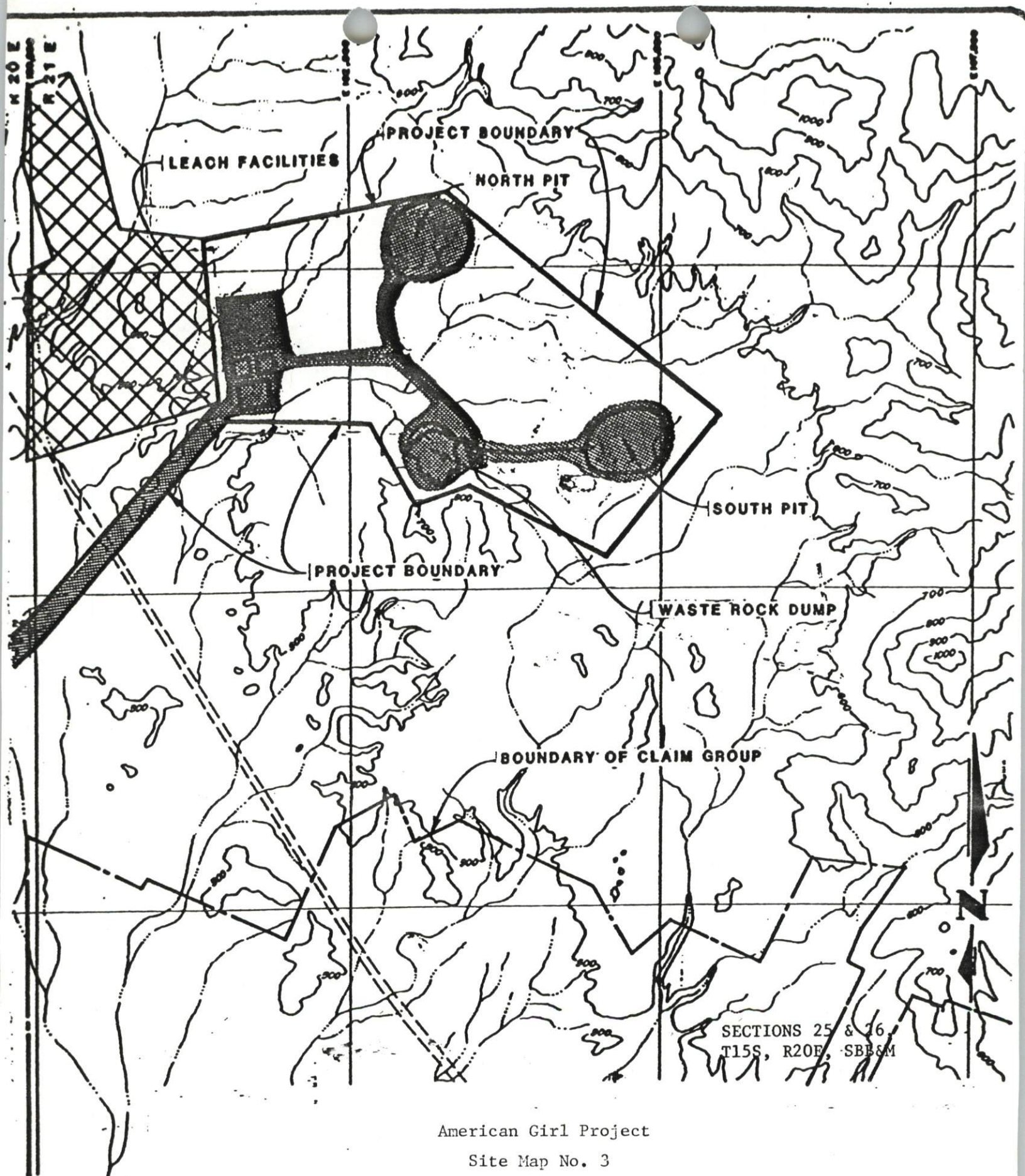
American Girl Project
Sections 25 & 26, T15S, R20E, SBB&M

LOCATION MAP

North of Oligby, Imperial County

PROJEC 0291
DATE 7/8
REVISI 0

Site Map 2



American Girl Project

Site Map No. 3

GENERAL FACILITIES

ARRANGEMENT

North of Ogilby, Imperial County

15-13