

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

ORDER NO. 89-019

WASTE DISCHARGE REQUIREMENTS  
FOR  
CLOSURE OF KAISER STEEL RESOURCES, INC. - EAGLE MOUNTAIN MINE  
TAILINGS BASINS NO. 4, 5, AND 6  
Eagle Mountain - Riverside County

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

1. Kaiser Steel Resources, Inc., (hereinafter also referred to as the discharger), 8300 Utica Avenue, Suite 301, Rancho Cucamonga, CA 91730, submitted a Report of Waste Discharge for Closure of the Slurry Tailings Basins dated November 1988. The discharger's headquarters address is P. O. Box 2679, Colorado Springs, Colorado 80901.
2. The report of waste discharge contains descriptive information for a closure plan for Tailings Basins No. 4, 5, and 6. A proposed time schedule for completion of the closure work is also included which is incorporated in the provisions of this Order.
3. The discharger will be required, as part of the closure work, to regrade the surface of the basins in order to eliminate the desiccation cracks and promote lateral runoff from the basins, thus minimizing percolation. In addition, one or more monitoring wells will be required.
4. The discharger submitted a technical report entitled, "Technical Report on Waste, Vadose Zone, and Ground Water Characterization of Tailings Basins No. 4, 5, and 6".
5. The discharger will be required to submit a Solid Waste Assessment Test (SWAT) Report by July 1, 1998 in accordance with Section 13273 of the California Water Code. The SWAT report will include additional information to characterize the vadose zone and ground water quality in the vicinity of the site. However, changes in the SWAT Program may necessitate performing the SWAT work at an earlier date.
6. The discharger has been subject to waste discharge requirements adopted in Resolution No. 68-1 for Tailings Basin No. 4, Resolution No. 68-19 for Tailings Basin No. 5, Order No. 73-83 for Tailings Basin No. 6, and Order 81-65 for Tailings Basin No. 7.
7. The discharger requested the cancellation of Resolution No. 68-1, Resolution No. 68-19, Board Order No. 73-83 and Board Order No. 81-65.

RESCINDED BY  
BOARD ORDER NO. 01-159

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CHANGE NAME / OWNERSHIP  
BY BOARD ORDER NO. 99-003

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8. Upon cancellation of said Resolutions and Orders, the tailings basins will not be used for disposal of any waste or water.
9. Tailings Basin No. 7 was constructed in 1981 but not used; thus closure requirements will not be necessary. Board Order No. 81-65 for this tailings basin will be rescinded under a separate Order.
10. The tailings basins were used for the disposal of tailings slurry from the mining operation of iron ore. The discharger's mining plant is located approximately 12 miles north of the town of Desert Center on Kaiser Road.
11. The tailings basins were constructed by excavating earth to a depth of 15 feet, or to the top of hard-pan caliche. The excavated material was used to construct the embankments around the basins. As the unit became filled with tailings slurry, the berms were built successively higher with waste overburden from the mining area. Upon reaching a height established by economics, a new unit was constructed. The berms' height ranged from 40 to 80 feet. The inner surface of the basins was lined with clay - containing fine-grained soil which had previously been deposited as tailings material.
12. The tailings slurry reportedly contains the minerals tremolite, mica, chlorite, talc, gypsum, montmorillonite, kaolinite, hematite, goethite, magnetite, and pyrite. The tailings waste was discharged as a slurry into the tailings basins during mine operation and the slurry water evaporated or percolated. The tailings material is a by-product of the iron ore beneficiation process. The remaining materials are dry at the present. The estimated volume of tailings material in Basins No. 4, 5, and 6 is 22.5 million cubic yards. The thickness of the tailings material is 60 feet in Basin No. 4, 70 feet in Basin No. 5 and 50 feet in Basin No. 6.
13. The tailings basins are located in Section 1, T4S, R14E, and Section 6, T4S, R15E, SBB&M as shown in Attachments "A" and "B" incorporated herein and made a part of this Order. The basins are on land owned by Kaiser Steel Resources, Inc.
14. The tailings basins lie in the Chuckwalla Valley near the eastern edge of the Eagle Mountains. The Valley is filled with Quarternary alluvial deposits. The site is underlain by thick deposits of unconsolidated recent alluvium, consisting of poorly sorted gravel, sand, clay and silt.
15. The discharger's technical consultant reports that there are no known Holocene faults in the vicinity of the site.
16. Surface drainage in the area is southeast from the vicinity of the mine area through Chuckwalla Valley. The valley is an internally drained basin which drains to Palen Dry Lake and beyond to Ford Dry Lake.

17. A monitoring well (MW-2) was constructed by the discharger in 1981. The well is located approximately 650 feet east of Tailings Basin No. 7. Total depth of the well is 467 feet, with bedrock encountered at 462 feet. The water table is at 277 feet below ground surface.
18. Chemical analyses of a water sample collected from monitoring well No. 2 (MW-2) indicate that the sulfate concentration is 195 mg/l and total dissolved solids concentration is 495 mg/l.
19. On September 21, 1988, exploratory borings were drilled through the tailings basins to depths of 30, 65, and 66.5 feet. Samples were collected from the waste materials, the clay liner at the bottom of the basins and the soil beneath the liner. Analyses results indicate concentrations of iron ranging from 11000 mg/kg to 45000 mg/kg in the soil, 64000 to 81000 mg/kg in the liner and 89000 mg/kg in the waste materials. Concentrations of sulfate ranges from 1250 to 1820 mg/kg in the soil, 1770 to 1860 mg/kg in the liner, and 1340 mg/kg in the waste materials.
20. Chemical analyses of a ground water sample collected on October 7, 1988 from the Eagle Mountain School well, less than a mile southwest of the tailings basins, show concentrations of 302 mg/l sulfate, 773.5 mg/l total dissolved solids (TDS) and less than 0.1 mg/l iron.
21. Chemical analyses of a ground water sample collected on October 7, 1988 from the Chuckwalla Well No. 2, which is located 4 miles east of the tailings basins, show concentrations of 282 mg/l sulfate, 745 mg/l TDS, and 0.42 mg/l iron.
22. Average annual precipitation for the general vicinity of the site is about 3 inches per year. The average annual evaporation is approximately 86 inches.
23. The Water Quality Control Plan for the Colorado River Basin Region of California was adopted by the Board on November 14, 1984.
24. The Basin Plan delineates the facility to be in the Chuckwalla Hydrologic Unit. Ground water recharge in the Chuckwalla Hydrologic Unit results from deep percolation of runoff from precipitation in the Chuckwalla and Eagle Mountains. Ground water flow is generally towards the east.
25. The beneficial uses of ground water listed in the Basin Plan for the Chuckwalla Hydrologic Unit are:
  - a. Municipal supply
  - b. Industrial supply
  - c. Agricultural supply
26. There are no permanent natural bodies of surface water in the vicinity of the site. Runoff, which occurs as a result of infrequent torrential rainstorms, drains as sheet flow towards the canyons and washes.

27. In accordance with Section 15301, Chapter 3, Title 14, of the California Code of Regulations, the issuance of these waste discharge requirements, which govern the operation of an existing facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.).
28. The Board has transmitted a draft copy of this Order to the discharger and interested agencies and persons and has notified them of its intent to prescribe closure and post-closure maintenance requirements for this facility.
29. The Board in a public meeting heard and considered all comments pertaining to the existing discharge.

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

A. Closure Specifications

1. The disposed tailings slurry shall not cause pollution or nuisance as defined in Section 13050 (l) and 13050 (m) of the California Water Code.
2. The discharge of any waste to Tailings Basins No. 4, 5, and 6 is prohibited.
3. There shall be no surface flow of waters containing wastes away from the tailings basins.
4. The tailings basins shall be protected during the closure period, by natural or artificial features so as to assure protection from washout or inundation which could occur as a result of storm events.
5. The exterior surfaces of the disposal area shall be graded to promote lateral runoff and to prevent any ponding of water.
6. The Board shall be notified immediately of any structural failure occurring at the tailings basins.

B. Closure Provisions


1. The discharger shall submit a closure and post-closure maintenance plan and shall comply with the following time schedule for closure:

<u>Task</u>	<u>Compliance Date</u>	<u>Report Date</u>
1. Submit a Closure & Post-Closure Maintenance Plan and Ground Water Monitoring Program	December 1, 1989	December 15, 1989
2. Start Construction of Closure Work	January 1, 1990	January 15, 1990
3. Progress Report	March 1, 1990	March 15, 1990
4. Progress Report	May 1, 1990	May 15, 1990
5. Complete Construction of Closure Work	July 1, 1990	July 15, 1990

2. The discharger shall maintain a copy of this Order at the site, and this Order shall be made available at all times to site-operating personnel.
3. The discharger shall comply with "Monitoring and Reporting Program No. 89-019", and future revisions thereto, as specified by the Executive Officer.
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. Transmit a copy of this Order to the succeeding owner or operator, and file a copy of the transmittal letter with this Board.
5. The discharger shall notify the Regional Board, in writing, of any proposed change in responsibility for post-closure maintenance.
6. All construction work shall be performed under the supervision of a Civil Engineer registered in the State of California.

IT IS FURTHER ORDERED that this Order supersedes Board Resolution No. 68-1, Resolution No. 69-19 and Board Order No. 73-83.

I, Phil 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 March 22, 1989.

  
Executive Officer

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION**

MONITORING AND REPORTING PROGRAM NO. 89-019  
FOR

CLOSURE OF KAISER STEEL RESOURCES, INC. - EAGLE MOUNTAIN MINE  
TAILINGS BASINS NO. 4, 5, AND 6  
Eagle Mountain - Riverside County

Location of Discharge: Section 1, T4S, R14E  
Section 6, T4S, R15E

MONITORING

- A. Ground water monitoring wells shall be sampled quarterly except as noted during March, June, September and December. The samples shall be analyzed for the following indicator parameters:

<u>Parameters and Constituents</u>	<u>Unit</u>	<u>Type of Samples</u>	<u>Frequency</u>
1. pH	-	Grab	Quarterly
2. TDS	mg/l	Grab	Quarterly
3. Specific conductance	micromhos/cm	Grab	Quarterly
4. Temperature	°C	Grab	Quarterly
5. Calcium	mg/l	Grab	Quarterly
6. Magnesium	mg/l	Grab	Quarterly
7. Sulfate	mg/l	Grab	Quarterly
8. Sodium	mg/l	Grab	Quarterly
9. Total Iron	mg/l	Grab	Annually
10. Fluoride	mg/l	Grab	Quarterly
11. Chloride	mg/l	Grab	Quarterly
12. Nitrate	mg/l	Grab	Quarterly
13. Copper	mg/l	Grab	Annually
14. Zinc	mg/l	Grab	Annually
15. Arsenic	mg/l	Grab	Annually
16. Cobalt	mg/l	Grab	Annually

The collection, preservation and holding times of all samples shall be in accordance with EPA approved methods. All analyses shall be conducted by a laboratory certified by the State Department of Health Services to perform the required analyses.

- B. During the post-closure period the discharger shall report the following annually to the Regional Board the following:
1. The status of drainage features
  2. The physical integrity of the graded surfaces of the tailings within the basins which includes cracks, erodability, and settlement.

REPORTING

1. Quarterly monitoring reports shall be submitted to the Regional Board by January 15, April 15, July 15, and October 15 of each year. Annual reports by January 15 of each year.
2. The discharger shall arrange the data in tabular form so that the data and other specified information are readily discernible. The data shall be summarized in such a manner as to clearly illustrate whether the waste management facility is operating in compliance with waste discharge requirements.

Monitoring reports shall be certified under penalty of perjury to be true and correct and shall contain the required information at the frequency specified in the monitoring program.

Submit monitoring reports to:

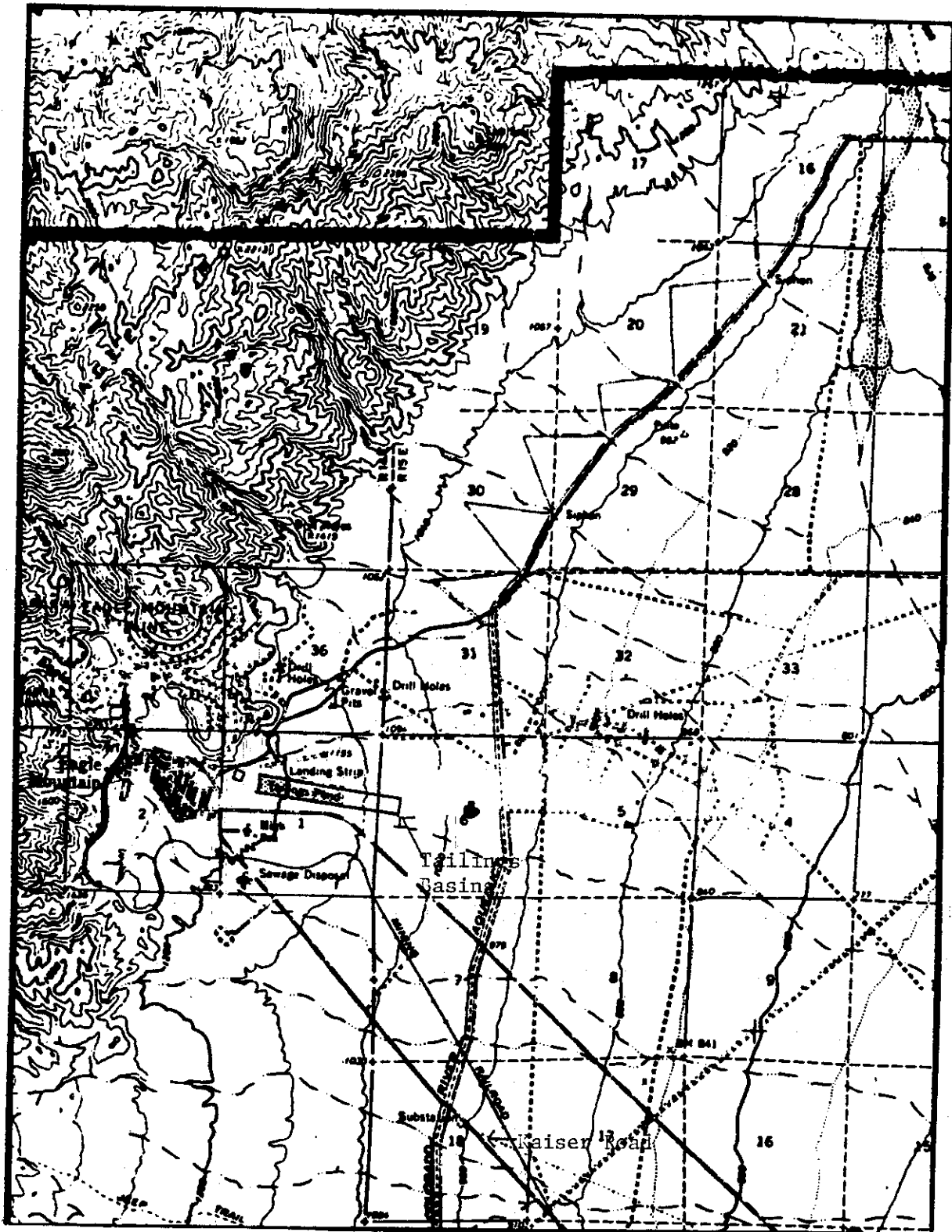
California Regional Water Quality Control Board  
Colorado River Basin Region  
73-271 Highway 111, Suite 21  
Palm Desert, CA 92260

ORDERED BY:

Phil Gumbert  
Executive Officer

March 22, 1989  
Date

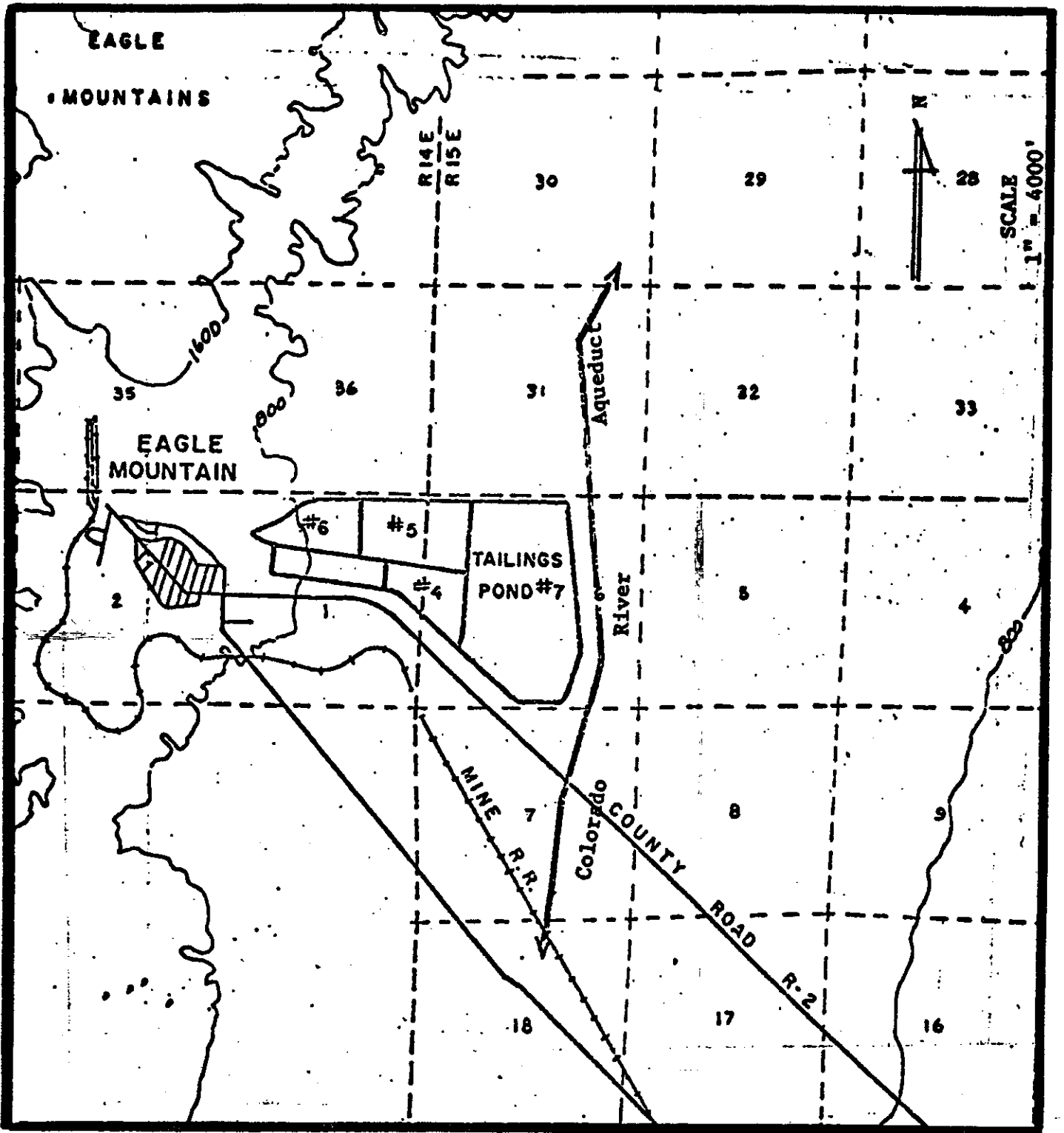




ATTACHMENT "A"

KAISER STEEL CORPORATION - TAILINGS BASIN  
TAILINGS BASINS NOS. 4, 5, AND 6  
Eagle Mountain - Riverside County  
Section 1, T4S, R14E, SBB&M  
Section 6, T4S, R15E, SBB&M  
Coxcomb Mountains USGS Topographic Map

Order No. 89-019



ATTACHMENT B  
SITE MAP  
KAISER STEEL CORPORATION - TAILINGS BASINS  
Eagle Mountain - Riverside County  
Section 1, T4S, R14E, SBB&M  
Section 6, T4S, R15E, SBB&M

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
COLORADO RIVER BASIN REGION

INTERNAL MEMO

TO: Phil Gruenberg

FROM: Adnan Abdalla

DATE: February 16, 1989

SIGNATURE: Adnan Abdalla

SUBJECT: Kaiser Steel Resources, Inc. - Closure of Tailings Basins No. 4, 5, and 6 - Eagle Mountain, Riverside County, Order No. 89-019

A letter (copy attached) dated February 2, 1989 was received in this office from Kaiser Steel Resources (KSR) which contains their comments concerning the subject Order. The following issues were raised:

1. Closure Specification A.3 and A.5 - KSR staff claims in the letter that Specification A.3, which prohibits surface flow of water containing wastes away from the basins, contradicts Specification A.5, which states that the exterior surface of the basin shall be graded to promote lateral runoff.

Gerald Fawcett, KSR Senior Vice President, was contact and informed that the exterior surfaces of Basins No. 4, 5 and 6 should be graded to promote lateral runoff which should be directed towards Basin No. 7 which contains no wastes for the ultimate containment of any surface flow of water containing wastes. Also, Mr. Fawcett was informed that waste materials must be contained in the basins to protect the recharge areas down gradient from the basins. Mr. Fawcett stated that grading Basin Nos. 4, 5, and 6 to direct runoff to Basin No. 7 appears feasible; however, he needs to discuss this further with his staff.

2. Monitoring and Reporting Program 89-019 - the KSR staff claims that because of the stability of the tailings basins material and the very low rainfall in the area, monitoring frequency should be reduced from quarterly to annually.

Mr. Fawcett was informed that due to lack of monitoring data in the vicinity of the basins the need for quarterly monitoring is necessary; however, frequency of monitoring could be reduced after at least one year of quarterly monitoring. At that time, based on the results of this one year monitoring, the need for continued quarterly monitoring will be determined.

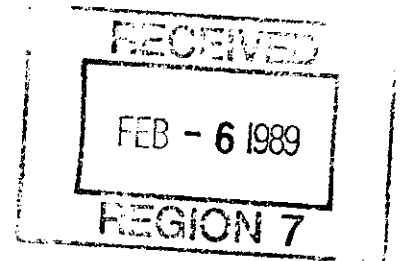
3. Other comments contained in the KSR letter were incorporated in the WDR.

AA/sa

**KaiserSteel  
Resources**

A. A. Adnan  
2. 214  
Kaiser Steel Resources, Inc.  
8300 Utica Avenue, Suite 301  
Rancho Cucamonga, California 91730  
(714) 944-4155  
(714) 944-4158 Telecopier

February 2, 1989



Mr. Adnan Abdalla  
WRC Engineer  
California Regional Water Quality Control Board  
Colorado River Basin Region 73-271 Highway 111, Suite 21  
Palm Desert, California 92260

Re: Order No. 89-019  
Water Discharge Requirements for  
Closure of Eagle Mountain Tailings  
Basin Nos. 4, 5, and 6.

Dear Mr. Abdalla:

Listed below are our comments regarding the water discharge requirements in subject Order No. 89-019.

Page 1, Paragraph 1

Kaiser Steel Corporation has been reorganized and is now Kaiser Steel Resources, Inc., 8300 Utica Avenue, Suite 301, Rancho Cucamonga, California, 91730.

Page 3, A. Closure Specifications, Paragraphs 3 and 5

These two paragraphs seem to be a contradiction. Paragraph 3 states that there shall be no surface flow of waters away from the basins and paragraph 5 says we should provide grading of the ponds to promote lateral runoff.

We will need a clarification of this issue. In our discussions at your office the consensus seemed to be that we should provide drainage.

Page 4, B. Closure Provisions, Paragraph 1

Kaiser Steel Resources recognizes it's responsibility to satisfy the closure requirements for the tailings ponds. We are, however, a newly reorganized company having been discharged from bankruptcy on November 15, 1988. Our plan of reorganization provides for the businesses which will sustain the New Company. However, these businesses will be from one to three years coming on line. We do want to complete this project as soon as possible. However, we earnestly request that each of the completion dates listed in this paragraph be extended by six (6) months.

Page 2  
Mr. Adnan Abdalla  
February 2, 1989

Page 1, A. Monitoring and Reporting Program No. 89-019.

Because of the stability of the tailings basin material and the very low rainfall in the area, it is requested that all monitoring activities be completed on an annual basis.

All other provisions of the closure plan are acceptable to Kaiser Steel Resources. We wish to cooperate with the Regional Water Quality Control Board in the closure of these tailings basins. Thank you for considering our requests and questions regarding the closure plan.

Sincerely,

KAISER STEEL RESOURCES, INC.



Gerald A. Fawcett  
Senior Vice President  
Corporate Development

GAF:pw  
GAF35/GAF89A