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# United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

15 JUL 1980

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DIVISION OF
OIL, GAS & MINING

Mr. James Smith
Coordinator of Mined Land Development
Utah Department of Natural Resources
Division of Oil, Gas and Mining
1588 West North Temple
Salt Lake City, Utah 84116

Dear Jim:

This office has reviewed Kaiser Steel Corporations's plan for the proposed sediment pond for the manshaft area of the Sunnyside Mine which included a map, with plans and profiles, submitted on April 30, 1980, and calculations, submitted on June 2, 1980. We have found this plan to be incomplete and not in compliance with applicable regulations. In addition, the calculations contain several errors and contradictions.

The sediment storage volume was estimated through use of the Universal Soil Loss Equation (USLE). Several values were incorrectly estimated. A length-slope factor (LS) of 0.80 is very low. Our calculations used a value of 19 (110 feet at a 50% slope). The cropping factor (C) that was used was .70 instead of 1.0, the cropping factor for bare rock slopes. The calculations used an erosion control practice factor (P) of 0.65. Kaiser Steel must justify use of this factor by documenting on-site erosion control practices. In addition, this office neither encourages nor recommends the use of the USLE in mountainous areas. The reason for this is that the length-slope factor has not been verified for steep slopes or long lengths. The Modified Universal Soil Loss Equation (MUSLE) may be more applicable to the manshaft area. In any case, the use of the sediment yield factor (Y) would be appropriate.

In the calculations, 45 acres was used as the disturbed area contributing sediment and the area of the drainage basin. Measurements made by this office on the map provided showed that the disturbed area contributing sediment is 4.80 acres and the area of the drainage basin served by the sediment pond is 7.85 acres. Calculations for the volume of the sediment pond are incorrect: 3'd x 45'w x 115'l = 15,525 cubic feet, not 18,500 cubic feet. Calculations for rainfall storage volume were made using S = 10.00 instead of S = 4.49, the S that came from calculations using CN = 69. The resulting Q should be .17 inches per acre, and the storage volume should be 24,030 cubic feet. Even if the 1710 cubic feet per year for sediment volume were correct, the pond would be undersized before the end of the first year because 1710 cubic feet of

sediment plus 24,030 cubic feet of rainfall storage = 25,740 cubic feet required, greater than 15,525 cubic feet available. The sediment pond shown on the map has a 45' x 115' base and a dam height of 3 feet. Our calculations indicate that for this base, the dam must be at least 11 feet high.

The statement in the General Notes section of the map "The fill and dike material shall be compacted to 95% min. density" is meaningless. The statement should indicate the maximum density as determined by the standard proctor test, the modified proctor test, or an equivalent test, and that the fill will be compacted to at least 95% of that maximum.

There is only one spillway noted on the sediment pond plan. It is unclear whether it is the principal spillway or dewatering device, the emergency spillway, or a combination principal/emergency spillway.

Before this review can be completed, the following information is required:

1. The proposed life of the sediment pond.
2. The acreage of the disturbed area and the acreage of the area draining into the sedimentation pond, and a map clearly showing the disturbed area and drainage area if they are different from the areas shown on the April 30, 1980 map.
3. Data for the 10 year-24 hour precipitation event and the 25 year-24 hour precipitation event used to design the sediment pond, including local vegetation details and more topographic detail on the 1" = 50' map.
4. Details of the principal spillway or dewatering device, and the emergency spillway.
5. An updated cross section of the sediment ponds showing, in addition to all the information presently shown, the elevations of all spillways and dewatering devices, the maximum water elevation, and the maximum sediment elevation.
6. The length, slope, and diameter of all culverts.
7. Revised calculations of sediment storage volume and storm runoff storage volume. Calculations demonstrating that the spillways will safely discharge the runoff from a 25 year-24 hour precipitation event. Calculations demonstrating that there will be no outflow through the emergency spillway during the passage of runoff resulting from a 10 year-24 hour precipitation event. Calculations demonstrating that the detention time for water inflow and run off entering the pond during a 10 year-24 hour event will be sufficient to meet effluent limitations. Calculations indicating that all culverts and ditches will safely pass the 10 year-24 hour precipitation event. Include all figures, charts, and graphs referred to in the calculations.
8. Method of sediment disposal.
9. Details of all on-site erosion control practices.
10. A method to determine the depth of sediment in the pond, such as a staff gage.

A copy of this letter is enclosed for transmittal by your office to the applicant. We will not continue processing the application until adequate information is provided. If you have any questions, please contact John Nadolski or Veronica Rovero of may staff (303)837-3773.

Sincerely,

DONALD A. CRANE

Enclosure

cc: Trippe, USGS, Denver
Wicks, BLM, Salt Lake City