

October 2, 1987

TO: Memo to File

FROM: James S. Leatherwood, Reclamation Soils Specialist *JSL*

RE: Permit Stipulation UMC 817.48-(2)-JSL, Response Review, September 21, 1987 Submittal, Summit Coal Company, Boyer Mine, ACT/043/008, Folder No. 2, Summit County, Utah

Stipulation UMC 817.48-(2)-JSL

The above stated submittal has been reviewed and found to be deficient. The requirements of UMC 817.48 and corresponding UMC 817.103 have not been adequately addressed. The operator has obtained approval from Summit County Health to dispose of their acid- or toxic-forming material in the Three Mile Canyon landfill.

However, based on the following review, I do not recommend disposing any acid- or toxic-forming material at the Three Mile Canyon Landfill. A temporary storage plan should be initiated immediately. A meeting between the operator, their consultants and the Division is advised.

I have briefly reviewed the Three Mile Canyon landfill technical standards against the underground coal mining activities performance standards. The review of the landfill consisted of an examination of the September 21, 1987 submittal and the Department of Health, Division of Solid and Hazardous Waste file.

The September 21, 1987 submittal included a report entitled "Supplemental Soil, Bedrock and Groundwater Studies" by Dames and Moore, Job No. 14367-003-06, 1/3/86. As the title of the report infers, the submittal is a supplement to a 8/27/85 study by Dames and Moore. The submitted supplemental report did not contain detailed earthwork, surface hydrology, geology, or groundwater studies. An attachment to the September 21, 1987, submittal indicates that present technical problems exist between state Health and the Three Mile Landfill.

Further examination of the Three Mile landfill consisted of reviewing State Health files. The State Health file contained the 8/27/85 Dames and Moore Report - Proposal previously mentioned in this memo.

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The file also contained a inadequate sampling and analysis plan, a 6/17/86 Report and a 1/16/87 report titled "Drilling, Field Testing and Installation for An Up Gradient Observation Well." It was evident that there exists extreme localized variations in groundwater levels in the immediate landfill site. A handwritten review of the Three Mile Canyon landfill in the State Health file outlined various groundwater study problems. The following concerns are outlined from the review for your information:

1. Flow directions and gradients for groundwater in the landfill area have not been established.
 - only one well penetrates the deep water table,
 - no peizometric contour maps have been submitted.
2. The ability of the well system to monitor groundwater has not been demonstrated,
 - which wells are up gradient and downgradient
 - why is well No. 4 screened deeper than well No. 3,
 - how will background be established and how will analytical data be compared
 - well No. 1 is downslope of the landfill
3. The report states that Rockport Reservoir is locally recharging the aquifers, yet no data has been presented to support this conclusion
 - water level data for surrounding wells did not include the water level of the reservoir
4. The relationship between perched groundwater and deep groundwater has not been established
 - What is the water perched on?
 - No peizometric maps were submitted to illustrate the flow directions
 - groundwater stabilized below the soil/bedrock interface in boring No. 6
5. The report identifies 2 aquifers based on analytical data
 - the data submitted on page 10 is apparently erroneous
 - no sampling plan or QA/QC was submitted,
 - What additional analysis was conducted?
6. Miscellaneous
 - explain the 20 head difference between wells No. 3 and 4
 - what is the justification for projecting a decrease in jointing with depth..

Other problems were also evident. Lab analysis December 2, 1985, by Ford Labs indicate that Arsenic exceeded drinking water standards and Boron and chromium exceeded the maximum containment level in borehole #4. The iron content was also very high in

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borehole No. 4. Borehole No. 3 lead concentrations also exceeded the maximum containment level for the sampling time period. Well No. 4 exceeded cadmium drinking water levels in a March 17, 1987, analysis. Due to the complexity of the physical-chemical nature of this site, it would be extremely difficult to model out how an acid producing waste would symbiotically react in this system.

September 23, 1985, correspondence from the Bureau of Reclamation contained concerns about the potential waste degradation due to the location of the landfill to the Rockport Reservoir. They also questioned the high fluctuation of the water table data in Well No. 1 and 2 on August 7, 1985 and August 12, 1985. Well No. 1 and 2 were 6 and 13.5 feet on August 7, 1985, respectively, while on August 12, 1985, Well No. 1 was 13.5 feet and Well no. 2 was 7.9 feet.

The August 2, 1987, Dames and Moore Report for the pH of Well No. 3 and 4 is also questionable. These two wells are adjacent to each other, yet well No. 3 had a pH of 6.4 while well No. 4 had a pH of 9.6.

Dale Parker, Executive Secretary of Utah Solid and Hazardous Waste Committee in a September 20, 1985, correspondence stated that they are opposed to siting the facility at the location due to the threat to water quality at the Rockport Reservoir.

Based on this information, I recommend that the Summit Coal Company do not dispose or place any acid- or toxic-forming materials at the Three Mile Canyon landfill. Due to the complexity and time constraints involved, I recommend that the Division work with Summit Coal Company in developing a temporary storage site to adequately contain the acid- or toxic-forming material. A meeting between the operator, their consultants and the Division's should be administered as soon as possible.

Additional Comments

As outlined in the Division previous review, page 3-67 referencing the waste analysis does not adequately verify a non-acid or toxic-forming material.

jvb
cc: L. Braxton
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