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MINERALS PROGRAM
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April 8, 1994

Mr. Wayne Hedberg
Minerals Regulatory Program
Division of Oil, Gas, and Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, Utah 84140-1203

RE: Use of manure to replace hay for Escalante tailings pond reclamation, seeding schedule

Dear Mr. Hedberg:

The approved reclamation plan for the Escalante tailings pond calls for applying 2,000 to 3,000 pounds of hay per acre to the subsoil and topsoil surfaces. Hecla proposes applying a layer of manure to the subsoil and topsoil layers instead of hay. Manure would be superior to hay in several ways. Manure will provide nutrients that are immediately available to the new vegetation. Although hay will provide organic material, it will rob nutrients from the soil as it decomposes. Since the surface of the subsoil is quite rocky, it will be difficult to effectively disc the hay into the subsoil and some of the hay may be blown off the surface during high wind events. Manure will be more stable due to its higher moisture content and other physical characteristics. Hecla's general contractor has secured a source that can provide sufficient manure for the project.

I have talked to the Cedar City office of the Soil Conservation Service about this issue and they recommended applying manure at a rate that will provide an equivalent amount of organic material. They also provided moisture content estimates. Hay was to be applied at the rate of 2,000 to 3,000 pounds per acre. Assuming 10% moisture for the hay, this results in 1,800 to 2,700 pounds of organic material per acre. Moisture of manure varies considerably, but the source for this project is material that has been stacked and drained for several months. Moisture content has been conservatively estimated at 45%. The application rate will have to be 3,500 to 5,000 pounds per acre to achieve the equivalent pounds of organic material found in the hay.

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The Soil Conservation Service suggested seeding the disturbed areas some time after Thanksgiving to maximize the rate of germination. The reclamation plan called for seeding about one month earlier. Since an earlier seeding date would be counterproductive, Hecla proposes to seed in late November. The actual date will be weather dependent.

I appreciate your consideration of these proposed modifications to our plan. Feel free to call if you have any questions.

Sincerely yours,

Alan Wilson

Alan Wilson
Senior Reclamation Engineer

cc: G. L. Wilhelm