State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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October 14, 1993

Mr. Glenn Eurick
Environmental Affairs Coordinator
Barrick Mercur Gold Mine
PO Box 838
Tooele, Utah 84074

Re: Approval of Proposal for the Land Application of Biosolids to Test Area at the Mercur Mine, Barrick Resources, Inc., M/045/017, Tooele County, Utah

Dear Mr. Eurick;

The Division has reviewed Barrick's proposal, received September 3, 1993, for the application of biosolids to a test area on the Carrie Steele/Snyder waste dump area. The Division hereby approves your proposal with the following conditions:

1. Provide as-built information to the Division describing the final disposition and design of the test plots to be placed on the Cherry Steele/Snyder waste dump site (number of test plots, dimensions, applications specific to each plot, seed mixtures to be employed, slope, aspect, etc.)

2. Provide soils analysis information to the Division, which characterizes the waste material and the topsoiled material to be used in the test plots. The same analysis should be duplicated for the sewage sludge to be received from the POTW. Please see analyses suggestions below.

3. Provide a description regarding the implementation of Barrick's Storm Water Pollution Prevention Plan, as it relates to this particular site. For example, will silt fencing be installed down slope from the test plots to catch any erodible material, or will some other means of capturing eroding sediments be provided? How will monitoring be performed regarding surface water quality of water generated from the test plot area?

4. Provide the Division with a time table for implementation of the test plots, monitoring and project completion. Also, provide information addressing the variables which will be monitored at each test plot (plant species and cover values, soil characteristics, site stability, etc.). Please state how monitoring will fit within the time table to be established by Barrick. Also, monitoring methodology needs to be described in the test plot plan summary.

The Division suggests that Barrick analyze the waste, soils and sludge materials for the following constituents:

1. pH
2. SAR
3. EC
4. nitrate-N
5. Water Holding Capacity
6. CEC
7. acid-base analysis (wastes only)
8. Organic Matter Content
9. Texture (Sand, Silt, Gravel)
10. Phosphorus
11. Potassium
12. DTPA extractable metals (Fe, Zn, Cu, Mn, Cd, Pb, Ni, Cr)
13. Saturation extractable (Ca, Na and Mg)
14. Carbon to Nitrogen ratios (C:N) (for soils and sludge only)

* *Possible additions or reductions to the parameter list will be subject to the outcome of the preliminary analytical results/information generated.*

The same constituents should be evaluated on a annual basis, for the amended soils, in each test plot. The duration of the test plot evaluation will be established by Barrick. The results of this project will assist the Division in evaluating the pros or cons of sludge application to a nutrient deficient mine waste/soil, situated at various slope angles. The Division encourages implementing a structured scientific approach on this and other similar test plot programs. The information generated from these plots will be extremely useful in determining what type of basic information will be needed for future, larger scale, sludge application projects.

The Division supports and appreciates Barrick's initiative and willingness to take the first steps to get Utah's Biosolids Program, off the ground and running. If you have further questions regarding this letter please contact me or Holland Shepherd of my staff.

Sincerely,

D. Wayne Hedberg

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
cc: Don Ostler, Utah Division of Water Quality
James Carter, DOGM
Lowell Braxton, DOGM
M045017.slg