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DIVISION OF
OIL GAS & MINING

April 19, 1991

Mr. Frank Wicks
Vice President & General Manager
Barrick Mercur Gold Mine
P.O. Box 838
Tooele, Utah 84074

RE: Conditional Acceptance of January, 1991 Long Term Aquifer Pumping Test Analysis, Dump Leach #3, Well MW-10; Ground Water Quality Discharge Permit No. UGW450001.

Dear Mr. Wicks:

We have reviewed both the original report referenced above, and the March 7, 1991 submittal on your behalf by Dames & Moore. We have also met with both your staff and the consultant in a meeting of April 1, 1991.

As a matter of record the December 18, 1990 Conditional Approval the objectives for the pump test of well MW-10 were to:

1. Determine the hydraulic conductivity of the aquifer as measured in monitoring wells MW-10 and 11 (December 18, 1990 Conditional Approval, Conditions 2 and 5), and

2. Demonstrate hydraulic interconnection exists between wells MW-10, 11 and 13 (see Condition 2).

At the time of the negotiations that led to the conditional approval Barrick and its consultant affirmed that these objectives could be met, which led us to believe that the long term pump test was feasible. In retrospect it appears these objectives were overly optimistic.

Because type curve analysis of the data from the monitoring wells was not possible due to poor water level response, Barrick is only able to provide specific capacity type permeability data from well MW-10. This is little more than a repeat of the testing conducted on well MW-10 in June, 1990 and does not represent the additional and improved data called for by the Conditional Approval (see Site Hydrogeologic Report for Dump Leach Area #3, July, 1990).

The water level response in well MW-11 during the pump test was less than the sensitivity of the transducers used in the well. After considering the arguments presented in the March 7, 1991 submittal and again in our April 1, 1991 meeting, our position remains firm; hydraulic interconnection between wells MW-10 and 11 has not yet been demonstrated. However regarding well MW-13, we agree that though the water level response was small, it was larger than the transducer sensitivity. Although it is not conclusive, it appears that hydraulic interconnection may exist between wells MW-10 and 13.

Regarding the lack of aquifer storage coefficient data, we agree that it is less critical to the ground water modeling in that the model is not required to predict time of contaminant arrival, but ground water flow direction. Consequently, the scope of the ground water modeling will not be jeopardized without it. However, we do expect that some sensitivity analysis will be conducted on the model to assess any impact storage coefficient may have. Vertical infiltration velocity estimates from the tritium isotope studies may help constrain the possible range of storage coefficient for the aquifer.

After careful consideration of all the issues outlined in our February 25, 1991 Notice of Deficiency and the subsequent submittals and meeting, we have concluded:

1. Despite Barrick's failure to fully satisfy the December 18, 1990 Conditional Approval, the proposed ground water flow model may be a useful tool to gain additional understanding of the ground water flow regime at Dump Leach No. 3. This additional information is a critical part of the determination regarding the adequacy of the existing monitoring well network.

2. The insufficient hydraulic data for the aquifer, including hydraulic conductivity measured in observation wells and storage coefficient may be overcome with sensitivity analysis using conservative input parameters approved by the Executive Secretary.

3. Hydraulic interconnection of wells MW-10 and 11 is not as critical to the success of the model in that the leakage is most likely to be from the permanent process pool which is located at the south margin of the dump leach. Just east and down the structural dip from the process pool it is apparent that hydraulic interconnection exists between wells MW-10 and 13. Though not entirely conclusive this interconnection east of the dump is reasonable based on the lack of vertical faults which could isolate portions of the aquifer, the highly fractured nature of the limestone aquifer, the presence of the saturated zone in one geologic unit (Upper Member of the Great Blue Limestone), and a basal boundary to the flow system formed by the Long Trail Shale at depth.

4. The lack of a unique solution to the model which will result from the multiple data uncertainties is finite and can be reduced to manageable number of possible solutions. The selection of which solution(s) is most probable or representative of the site which may or may not confirm the adequacy of the existing monitoring well system, will be determined by the Executive Secretary.

Based on discussions with your staff and consultant and these determinations we will allow Barrick to continue progress in completing the ground water model, under the following conditions:

1. That all input parameters to the model will receive prior approval by the Executive Secretary.

2. That sensitivity analysis will be conducted by Barrick in order to overcome any and all data uncertainty, as deemed necessary by the Executive Secretary.

3. Barrick will conduct an adequate pump test and analysis, in full compliance with the requirements of the Conditional Approval, at some future date, if required by the Executive Secretary.

If you have any questions or comments, please contact Loren Morton at 538-6146. We appreciate your continued cooperation.

Sincerely,

Utah Water Pollution Control Committee

Don A. Ostler, P.E.
Executive Secretary

cc: George Condrat, Dames & Moore
Wayne Hedberg, DOGM
Myron Bateman, Tooele County Health Dept.

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