State of Utah
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

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DOGM
MINERALS PROGRAM
FILE COPY

July 13, 1990

Mr. Frank Wicks
General Manager, Barrick Mercur Gold Mines
P.O. Box 838
Tooele, Utah 84074-9737

Subject: **Construction Permit**
Dump Leach Facility No. 3

Dear Mr. Wicks:

We have completed the review of the plans and specifications for the construction of Dump Leach No. 3. These documents were prepared by the staff of Barrick Mercur Gold Mine, and submitted to us on July 3, 1990. Supplemental information was received on July 10, 1990. The plans and specifications as submitted, comply with *the Utah Water Pollution Control Rules, (R448, Utah Code Annotated).* A **construction permit** is hereby issued as constituted by this letter, subject to the following conditions:

1. *Any revisions or modifications to the approved plans and specifications must be submitted to the Bureau of Water Pollution Control (the Bureau) for review and approval, before construction or implementation thereof.*

2. *The approved facilities must not be placed in service unless the Bureau has made a final inspection, and has authorized in writing to place the constructed facilities in service.*

3. *A schedule of construction sequence for installation of primary and secondary flexible membrane liners (FMLs), clay liner, other related components, etc., must be submitted within 15 days of receipt of this*

components, etc., must be submitted within 15 days of receipt of this permit.Inspections must be scheduled in advance, but not less than 48 hours, before beginning and after completing construction or installation of any component of the approved project.

4. *Maximum height of ore must not exceed 240 feet.*

5. *Only material passing through U. S. Standard Sieve size ¾ inch must be used in the construction of primary clay liner and the protective cover.*

6. *Maximum thickness of a given lift or placement of clay must not exceed 18 inches for 36-inch depth of clay, and 12 inches for 12 to 24-inch depth of clay.*

7. *Each lift or placement of clay shall be tested as provided in the Quality Assurance (QA)/Quality Control (QC) section viz., § 9.10, Part IV, of the approved specifications.*

8. *The high density polyethylene (HDPE) flexible membrane liners must be installed in accordance with the recommendations of the manufacturer. The installation and QA/QC testing must be supervised by an independent contractor in accordance with the QA/QC manual provided by the manufacturer.*

9. *Copies of all QA/QC test results whether passing or failing, shall be submitted to us upon receipt for our review. A summary of remedial action for failed tests including further testing of remedied sections, must be submitted with the results.*

10. *A certification of compliance with all QA/QC testing and requirements must be provided by the independent contractors supervising installation of various components of the project viz., earthwork, liners, etc., before final inspection is made by the Bureau.*

11. *The facilities constructed under this permit are authorized to be operated for a period of seven and half years from the date of authorization to begin operations. The operating period is subject to review of the operating experience annually, and may be extended beyond seven and half years following a detailed review of the facilities.*

This construction permit will expire on *July 12, 1991,* unless substantial progress is made in constructing the approved facilities, or the plans and specifications have been resubmitted and the construction permit is reissued. This permit does not relieve you in any way of your obligations to comply with other applicable local requirements, or those stated in the permit issued under the *Ground Water Protection Regulations (R448-6. Utah Administrative Code).* You may contact Mr. Myron Bateman of the Tooele County Health Department at (801) 885-5550, Extension 371 for further assistance in this regard.

Dump Leach No. 3 is a valley-fill type facility for leaching gold-bearing ores using cyanide as a lixiviant. The ore is mined from the nearby open pit. The ore leaching will take place in a leaching cell, approximately 1700 feet long and 750 feet wide in Meadow Canyon. Approximately 6.4 million tons of ore is estimated to be processed for recovery of gold.

The liner anchor trench will be configured to provide spill containment within the dump leach facility. The permanent pool of four million gallons pregnant solution at Elevation 7060 feet will cover an area of 3.3 acres at an average depth of 15 feet, assuming 25 per cent void space.

The foundation of the dump facility is constructed with the run of mine fill to a depth of approximately 90 feet. The liner system will be built on the foundation described below in the descending order from the top:

1. A 24-inch thick protective cover - a tailings blanket using sandy gravel with a clay matrix; hydraulic conductivity being not less than 1×10^{-3} centimeters/second (cm/sec)

2. A primary 60-mil HDPE flexible membrane liner textured on both sides; manufactured as Friction Flex®, by SLT North America, Inc

3. A clay liner, 36 inch thick under permanent pool and 24 inch thick on the side slopes; with hydraulic conductivity being not more than 1×10^{-7} cm/sec

4. Upper leak detection roll constructed of rounded gravel and geotextile, one foot nominal diameter and 600 feet in length

5. A secondary 60-mil HDPE flexible membrane liner textured on both sides; manufactured as Friction Flex®, by SLT North America, Inc

6. Lower leak detection roll constructed of run-of-mine foundation material and geotextile, one foot nominal diameter and 600 feet in length

The pregnant solution resulting from the cyanide leaching of gold ore will be conveyed to the processing plant (the plant) for recovery of gold. The plant facility will be comprised of five 4,000-gallon carbon columns, a 10,000-gallon cyanide tank, a 300,000-gallon barren solution surge tank, etc. The plant components, tanks, pipes, etc., are constructed on concrete surface with concrete curbs surrounding these facilities for a total-spill containment and to prevent release to the environment. The dump leach facility is designed to be a zero-discharge facility.

The pipes between the dump facility and the plant are installed in lined channels for spill containment and seepage control. The surface runoff is diverted off the dump facility and plant sites using culverts and storm channels. Any spillage will be directed into the dump facility.

Ore should be loaded onto the dump facility with the utmost care and diligence, preventing any damage to the FMLs.

A set of approved plans and specifications is returned herewith bearing an imprint of our construction permit stamp. The stamped set must be kept available for examination and inspections to be conducted by the Bureau, or for resolution of any conflicts or discrepancies that may arise during construction or installation.

Please be advised any increase of cyanide, arsenic, or heavy metals in ground water or surface water above background level by construction and operation of this dump facility, may cause the site to be listed on the national priority list of hazardous substances sites by the US Environmental Protection Agency in accordance with the provisions of *Comprehensive Environmental Response Compensation Liability Act (CERCLA).*

All wastes not exempt under the mining exemption will be managed in accordance with Utah Hazardous Waste Management Regulations (i.e. spent solvents, off specification cyanide, and chemicals, etc).

Please advise us of the beginning of construction. This will enable us to schedule periodic inspections. We request that a copy of record drawings be provided after the final inspection has been conducted by the Bureau, and completed works have been placed in service. This will enable us to keep our information accurate.

If we can be of further assistance, please contact Mr. C.C. Patel of my staff.

Sincerely,

Utah Water Pollution Control Committee

Jay B Pitkin

for Don A. Ostler, P.E.
Executive Secretary

CCP:rvg

Enclosures: as noted

cc: Mr. Ralph Sacrison, P. E., Barrick Mercur
Tooele County Health Department
Mr. Larry Mize, P. E., Ground Water Section
Mr. Tom Suchoski, Division of Oil, Gas & Mining

N:KLB/DL#3.CP
FILE:INDUSTRIAL\BARRICK MERCUR DUMP NO. 3