M/045/017

CLAYTON L. LANDA
Vice President & General Manager

BARRICK RESOURCES (USA) INC.
Barrick Mercur Gold Mine
P.O. Box 838
Tooele, Utah 84074

Tel: (801) 268-4447
Fax: (801) 266-4296

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MERCUR

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January 28, 1997

Ms. Mary Ann Wright
Associate Director - Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, UT 84114-5801

Re: M/045/017
Mercur Mine
Tooele County

Dear Ms. Wright:

Pursuant to recent conversations with Mr. Munson and Mr. Hedberg of your staff, please accept this correspondence requesting a change in status from our June 1996 **Notice of Intention to Revise Mining and Reclamation Plan** under R613-004-119, to a **Notice of Intention to Amend Mining and Reclamation Plan** under R613-004-118. Subsequent to the June 1996 submittal, Barrick and the Division have completed many discussions, changes, and refinements to the Notice. This effort has culminated in the assessment that a Revision is unnecessary for the Proposed action.

A careful comparison of the proposed permitting action and the Division's May 21, 1991, Policy for Defining Minerals Program Amendments and Revisions under rules R613-004-118 and R613-004-119 has been completed. Results indicate that at a minimum 3 of the 4 categories necessary to consider the action an amendment can be reasonably demonstrated by Barrick. These categories include:

Category 2: The recalculated surety will not exceed 25 percent of the current surety or $50,000. The December 20, 1996, revised surety calculation (attached) is $8,784,185. The current surety amount is $8,800,000.

Category 3: The degree of change in environmental impacts are negligible when compared to the existing level of disturbance under the current permit. The proposed action simply refines and clarifies minor disturbance activity designations and boundaries.

Category 4: Barrick believes that the impacts are not significant enough to warrant the need for public comment at this time. Upon submittal of the final closure plan for the Mercur Mine in late 1998 or early 1999, Barrick will encourage public comment on all aspects of the closure plan and post-closure mining land use.

Barrick will continue to work closely with the Division staff to complete the timely approval of the requested Amendment. Upon completion of your review of this request, please contact me to answer any questions you or your staff may have.

Thank you for your continued cooperation.

Sincerely,

Clayton L. Landa

CLL/sw

cc: T. Munson (UDOGM)
W. Hedberg (UDOGM)
G. M. Eurick
D. P. Beatty
C. L. Olsen
L. B. Jenkins (PBL)
D. R. Bird (PBL)

Chapter 7 RECLAMATION BOND

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7.0 Forms MR-RC and Self Bonding and Indemnity Agreement

7.1 General Overview

7.2 Pits - Table 7.2-1

7.3 Waste Rock Disposal Areas - Table 7.3-1

7.4 Facilities - Table 7.4-1

7.5 Valley Fill Leach Areas - Table 7.5-1

7.6 Tailing Impoundment - Table 7.6-1

7.7 Haul Roads - Table 7.7-1

7.8 General Disturbance Areas - Table 7.8-1

7.9 Other Direct Costs - Table 7.9-1

7.10 Reclamation Cost Estimate Summary - Table 7.10-1

7.11 Unit Cost Reference, Equipment and Labor - Table 7.11-1

7.12 Production Rate Calculations - Exhibit 7-1

Chapter 7
Reclamation Bond

7.1 General Overview

To determine the required surety amount for the reclamation bond, site specific calculations have been performed. They reflect DOGM's cost to reclaim the site should Barrick Resources (USA), Inc. default on its reclamation obligation. The methodology assumes that the work will be done on a contract basis. It includes all the work necessary to reclaim the land to the proposed postmining land use, including but not limited to dismantling and clean up of plant facilities, regrading, ripping, topsoiling, revegetation, drainage control, supervision, monitoring, and other miscellaneous activities. Earthwork production rates were calculated using the Means Heavy Construction Cost Data-1996 10th Edition and the Caterpillar Performance Handbook, 26th Edition. They have been adjusted as necessary to reflect actual contractor productivity experienced at this and other Barrick mines. All work includes the cost of equipment, material, labor, insurance, overhead, and profit. The work required is described in more detail in Chapter 5, Planned Reclamation.

Spreadsheet tables of earthwork and revegetation calculations have been created for the different reclamation areas that exist within the permit boundaries.

Area	Table
- Pits	7.2-1
- Waste Rock Disposal Areas	7.3-1
- Facilities	7.4-1
- Valley Fill Leach Areas	7.5-1
- Tailing Impoundment	7.6-1
- Haul Roads	7.7-1
- General Disturbance Areas	7.8-1

Within each table, the costs for specific equipment, labor and seeding tasks are calculated. The total acreage for that category (see Table 5.8-1, Final Reclamation Components) is multiplied by a production rate to determine the estimated time required for that task to be completed. The time is then multiplied by the cost per hour to yield a total cost for each task.

Production rate calculations are attached as Exhibit 7-1 following the spreadsheet tables. Note that production rates are given in yd^3/hr for regrading and scraper activities while the remaining equipment production rates are in acres/hr to facilitate verification of all rates. It has been assumed that the flat surfaces will be planted with the agricultural tractor and that the sloped areas will be hydroseeded. Demolition costs for facilities were estimated to equal zero since the salvage value bids received for the mill equipment far exceed the demolition costs.

TABLE 7.2-1

Barrick Mercur Mine

Pits - Mercur, Marion, Rover and Phoenix
Earthwork and Revegetation Calculations

Equipment	Topsoil Haul/Place 631 E Scraper	Topsoil Blade/Scarify 14H Grader	Water Truck	Supervisor	D6E SR Agri.Tractor & Seed Drill	Hydroseed	TOTAL COSTS
Quantity - Acres							
Generally Flat	172.6	172.6	172.6		172.6	0	
Sloped							
Total	172.6	172.6	172.6		172.6	0	
Production Rate-*/Hr							
Flat	104	2.04	2.04		7.30		
Sloped							
Time Required - Hr							
Flat	2677.5	84.6	84.6		23.6		
Sloped							
Total	2677.5	84.6	84.6	420.0	23.6		
Cost - $/Hr							
Equipment	166.86	66.94	84.40	8.56	49.25		
Labor	39.50	39.50	37.95	44.70	37.95		
Total	206.36	106.44	122.35	53.26	87.20		
Seed, Mulch, Fert Cost $					86,300		
Total Costs $	552,532	9,006	10,352	22,369	88,362		$ 682,620
Total Costs Per Acre $	3,201	52	60	130	512		$ 3,955

* LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

TABLE 7.3-1

Barrick Mercur Mine

Waste Rock Disposal Areas

Earthwork and Revegetation Calculations

Equipment	Regrade D9R Dozer	Topsoil Haul/Place 631 E Scraper	Topsoil Blade/Scarify 14H Grader	Water Truck	Supervisor	D6E SR Agri. Tractor & Seed Drill	Hydroseed	TOTAL COSTS
Quantity - Acres								
Tops	78.6	78.6	78.6	78.6		78.6	0	
Slopes	171.9	171.9	171.9	171.9		0	171.9	
Total	250.5	250.5	250.5	250.5		78.6	171.9	
Production Rate - */Hr								
Tops	152	104	2.04	2.04		7.30		
Slopes	244	104	2.04	2.04		7.30		
Time Required - Hr								
Tops	1161.0	1219.3	38.5	38.5		10.8		
Slopes	2987.9	2666.7	84.3	84.3		0.0		
Total	4148.9	3886.0	122.8	122.8	607.0	10.8		
Cost - $/Hr								
Equipment	143.98	166.86	66.94	84.40	8.56	49.25		
Labor	39.50	39.50	39.50	37.95	44.70	37.95		
Total	183.48	206.36	106.44	122.35	53.26	87.20		
Seed, Mulch, Fert Cost $						39,300		
Total Costs $	761,233	801,907	13,070	15,024	32,329	40,239	206,280	$ 1,870,082
Total Costs Per Acre $	3,039	3,201	52	60	129	512	1,200	$ 8,193

* LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

Table 7.4-1

Barrick Mercur Mine

Facilities

Earthwork and Revegetation Calculations

Equipment	Regrade D9R Dozer	Ripping D9R Dozer	Topsoil Haul/Place 631 E Scraper	Topsoil Blade/Scarify 14H Grader	Water Truck	Supervisor	D6E SR Agri. Tractor & Seed Drill	TOTAL COSTS
Quantity - Acres								
Flat	27.3	27.3	27.3	27.2	27.3		27.3	
Sloped								
Total	27.3	27.3	27.3	27.2	27.3		27.3	
Production Rate - */Hr								
Flat	152	0.48	104	2.04	2.04		7.30	
Sloped								
Time Required - Hr								
Flat	328.9	56.9	423.5	13.3	13.4		3.7	
Sloped								
Total	328.9	56.9	423.5	13.3	13.4	66.0	3.7	
Cost - $/Hr								
Equipment	143.98	169.04	166.86	66.94	84.40	8.56	49.25	
Labor	39.50	39.50	39.50	39.50	37.95	44.70	37.95	
Total	183.48	208.54	206.36	106.44	122.35	53.26	87.20	
Seed, Mulch, Fert Cost $							13650	
Total Costs $	60,355	11,861	87,393	1,419	1,637	3,515	13,976	$ 180,157
Total Costs Per Acre $	2,211	434	3,201	52	60	129	512	$ 6,599

LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

Table 7.5-1

Barrick Mercur Mine

Valley Fill Leach Areas

Earthwork and Revegetation Calculations

Equipment	Regrade D9R Dozer	Cover Haul/Place 631 E Scraper	Topsoil Haul/Place 631 E Scraper	Topsoil Blade/Scarify 14H Grader	Water Truck	Supervisor	D6E SR Agri. Tractor & Seed Drill	Hydroseed	TOTAL COSTS
Quantity - Acres									
Surfaces	0	20.3	20.3	20.3	20.3		20.3	0	
Slopes	40	40.0	40	40	40		0	40	
Total	40	60.3	60.3	60.3	60.3		20.3	40	
Production Rate - */Hr									
Surfaces	152	104	104	2.04	2.04		7.3		
Slopes	244	104	104	2.04	2.04		7.3		
Time Required - Hr									
Surfaces	0.0	944.7	314.9	10	10		3		
Slopes	1024.6	1861.5	620.5	19.6	19.6		0.0		
Total	1024.6	2806.3	935.4	29.6	29.6	380.0	2.8		
Cost - $/Hr									
Equipment	143.98	166.86	166.86	66.94	84.40	8.56	49.25		
Labor	39.50	39.50	39.50	39.50	37.95	44.70	37.95		
Total	183.48	206.36	206.36	106.44	122.35	53.26	87.20		
Seed, Mulch, Fert Cost $							10150		
Total Costs $	187,992	579,102	193,034	3,146	3,617	20,239	10,392	48,000	$ 997,521
Total Costs Per Acre	4,700	9,604	3,201	52	60	336	512	1200	$ 14,965

LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

Table 7.6-1

Barrick Mercur Mine

Tailing Impoundment

Earthwork and Revegetation Calculations

Equipment	Regrade D9R Dozer	Cover Haul/Place 631 E Scraper	Topsoil Haul/Place 631 E Scraper	Topsoil Blade/Scarify 14H Grader	Water Tr	Supervisor	D6E SR Agri. Tractor & Seed Drill	Hydroseed	TOTAL COSTS
Quantity - Acres									
Surfaces	108.6	108.6	108.6	108.6	108.6		108.6	0	
Slopes	21.3	21.3	21.3	21.3	21.3		0	21.3	
Total	129.9	129.9	129.9	129.9	129.9		108.6	21.3	
Production Rate - */Hr									
Surfaces	152	104	104	2.04	2.04		7.30		
Slopes	244	104	104	2.04	2.04		7.30		
Time Required - Hr									
Surfaces	2200.1	3369.4	1684.7	53.2	53.2		14.9		
Slopes	268.8	660.8	330.4	10.4	10.4		0.0		
Total	2468.9	4030.2	2015.1	63.7	63.7	600.0	14.9		
Cost - $/Hr									
Equipment	143.98	166.86	166.86	66.94	84.40	8.56	49.25		
Labor	39.50	39.50	39.50	39.50	37.95	44.70	37.95		
Total	183.48	206.36	206.36	106.44	122.35	53.26	87.20		
Seed, Mulch, Fert Cost$							54,300		
Total Costs $	452,990	831,678	415,839	6,778	7,791	31,956	55,597	25,560	$ 1,375,199
Total Costs Per Acre $	3,487	6,402	3,201	52	60	246	512	1,200	$ 11,674

LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

Table 7.7-1

Barrick Mercur Mine

Haul Roads

Earthwork and Revegetation Calculations

Equipment	Ripping D9R Dozer	Topsoil Haul/Place 631 E Scraper	Topsoil Blade/Scarify 14H Grader	Water Truck	Supervisor	D6E SR Agri. Tractor & Seed Drill	Hydroseed	TOTAL COSTS
Quantity - Acres								
Flat	67.2	67.2	67.2	67.2		67.2	0	
Sloped	22.4	22.4	22.4	22.4		0	22.4	
Total	89.6	89.6	89.6	89.6		67.2	22.4	
Production Rate - */Hr								
Flat	0.48	104	2.04	2.04		7.30		
Sloped	0.48	104	2.04	2.04		7.30		
Time Required - Hr								
Flat	140.0	1042.5	32.9	32.9		9.2		
Sloped	46.7	347.5	11.0	11.0		0.0		
Total	186.7	1389.9	43.9	43.9	218.0	9.2		
Cost - $/Hr								
Equipment	169.04	166.86	66.94	84.40	8.56	49.25		
Labor	39.50	39.50	39.50	37.95	44.70	37.97		
Total	208.54	206.36	106.44	122.35	53.26	87.22		
Seed, Mulch, Fert Cost $						33,600		
Total Costs $	38,927	286,830	4,675	5,374	11,611	34,403	26,880	$ 381,820
Total Costs Per Acre $	434	3,201	52	60	130	512	1,200	$ 5,589

* LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

Table 7.8-1

Barrick Mercur Mine

General Disturbance Areas

Earthwork and Revegetation Calculations

Equipment	Ripping D9R Dozer	Blade/Scarify 14H Grader	Water Truck	Supervisor	D6E SR Agri. Tractor & Seed Drill	Hydroseed	TOTAL COSTS
Quantity - Acres							
Generally Flat	445.2	445.2	445.2		222.6	222.6	
Production Rate - */Hr							
Flat	0.48	2.04	2.04		7.30		
Time Required - Hr	927	218	218		30		
Total				250.0			
Cost - $/Hr							
Equipment	169.04	66.94	84.40	8.56	49.25		
Labor	39.50	39.50	37.95	44.70	37.97		
Total	208.54	106.44	122.35	53.26	87.22		
Seed, Mulch, Fert Cost $					500		
Total Costs $	193,408	23,227	26,699	13,315	2,659	267,102	$ 526,411
Total Costs Per Acre $	434	52	60	30	512	1,200	$ 1,182

Area shown represents 50% of the total disturbed area. Seeding is estimated at 1/2 Seed Drill and 1/2 Hydroseed.

* LCY/HR for Regrading and Scraper. ACRES/HR for Ripping, Grader, Water Truck, D6E

Barrick Mercur Mine

TABLE 7.9-1

OTHER DIRECT COSTS

TASK / ACTIVITY	COST $
Fencing @ 8$/LF x 16,000 LF	$ 128,000
Signage (lump sum)	$ 25,000
Site Monitoring @ 1,600 $/mo. x 60 months	$ 96,000
Tailing Pipe Removal (independent study)	$ 40,000
Drainage Channels (30,390 LF x 18.20 $/LF)	$ 553,100
General Cleanup (trash, scrap metal, etc.) LS	$ 18,500
TOTAL DIRECT COSTS	$ 860,600

Barrick Mercur Mine

TABLE 7.10-1

RECLAMATION COST ESTIMATE SUMMARY

AREA	COST $
PITS	$ 682,620
WASTE ROCK DISPOSAL AREAS	$ 1,870,082
FACILITIES	$ 180,157
VALLEY FILL LEACH AREAS	$ 997,521
TAILING IMPOUNDMENT	$ 1,375,199
HAUL ROADS	$ 381,820
GENERAL DISTURBANCE AREAS	$ 526,411
OTHER DIRECT COSTS	$ 860,600
SUB TOTAL	$ 6,874,410
MOBILIZATION / DEMOB (2.5%)	$ 171,860
CONTINGENCY (10%)	$ 687,441
SUB TOTAL	$ 7,733,712
INFLATION @ 2.58% for 5 Yrs.	$ 1,050,473
GRAND TOTAL BOND (2001 Dollars)	$ 8,784,185

Barrick Mercur Mine

TABLE 7.11-1

UNIT COST REFERENCE
EQUIPMENT AND LABOR

EQUIPMENT

Ref: Rental Rate Blue Book , Vol. 1, 1996 Dataquest Inc.

EQUIPMENT	MONTHLY RATE	ADJ. RATE PER HR	OPERATING COST/HR	OVERHEAD & PROFIT (10%)	TOTAL EQUIPMENT COST/HR
DOZER CAT D9R	$ 15,380	$ 87.39	$ 43.50	$ 13.09	$ 143.98
DOZER W/ RIPPER D9R	$ 17,640	$ 100.23	$ 47.60	$ 14.78	$ 169.04
SCRAPER CAT 631E	$ 16,340	$ 92.84	$ 58.85	$ 15.17	$ 166.86
GRADER CAT 14H	$ 7,040	$ 40.00	$ 20.85	$ 6.09	$ 66.94
AGRI. TRACTOR D6E SR	$ 5,160	$ 29.32	$ 15.45	$ 4.48	$ 49.25
WATER TRUCK (6000 GAL.)	$ 7,220	$ 41.02	$ 35.70	$ 7.67	$ 84.40
3/4 TON PICK UP TRUCK	$ 595	$ 3.38	$ 4.40	$ 0.78	$ 8.56

LABOR

Ref: Means Heavy Construction Cost Data, 1996, 10th Ed.

TRADE	RATE/HR ($)
Equip. Operator, Medium	$ 39.50
Equip. Operator, Light	$ 37.95
Foreman (Supv.) Average, Outside	$ 44.70

Notes:
1. Monthly Rates are divided by 176 hr/mo for hourly rate
2. Rates include all burdens, overhead and profit

EXHIBIT 7-1

PRODUCTION RATE CALCULATIONS

RIPPING - Roads, Facilities and General Disturbance Areas

EQUIPMENT:	CAT D9R Dozer with Multishank Ripper - Long Tip
TRAVEL SPEED:	(0.5 mph (includes slope, efficiency, stalls, turning)
RIP WIDTH/PASS:	8 ft. (46.4 inch pocket spacing)

PRODUCTION RATE = $\frac{0.5 \text{ mi/hr} \times 8 \text{ ft.} \times 5280 \text{ ft/mi}}{43{,}560 \text{ ft}^2\text{/ac}} = 0.48 \text{ ac/hr}$

Production Rate (ac/hr) x Acreage (ac) = TIME REQUIRED (hr)

REGRADING - Waste Rock Areas, Facilities, Valley Fill Leach Areas, Gen Dist Areas

EQUIPMENT:	Cat D9R Dozer	
OPERATOR:	0.75	Average Operator
MATERIAL:	0.8	Rock, Ripped, Blasted
JOB EFFICIENCY:	0.83	50 min/hr
WEIGHT CORRECTION:	0.64	Material Weight = 3600 lb/yd^3
SLOT DOZING:	1.2	Slot Dozing
COMBINED FACTOR F:	0.38	Factor for Flat Surfaces
COMBINED FACTOR S:	0.61	(F x 1.6) Factor for average of 33% slope

Assume push distance - 350 ft. (Average)
Universal Blade
Uncorrected Production Rate = 400 LCY/hr CAT pg. 1-54

PRODUCTION RATE (CORRECTED)

Flat surface = 400 x .38 = 152 LCY/hr
Sloped surfaces = 400 x .61 = 244 LCY/hr

$\frac{\text{Regrade Volume (LCY)}}{\text{Production Rate (LCY/hr)}}$ = TIME REQUIRED (hr)

TOPSOIL AND COVER, HAUL & PLACE - All Areas (as noted)

EQUIPMENT:	CAT 631E Series II scraper
HAUL DISTANCE:	3000 ft. (average)
SLOPE:	6% (average)
ROLLING RESISTANCE:	2%
OPERATOR:	0.75 Average Operator
JOB EFFICIENCY:	0.83 50 min/hr
CAPACITY:	26 yd^3 (nominal)
LOAD TIME:	0.9 minutes
HAUL TIME:	4.2 minutes
SPREAD TIME:	1.0 minutes
RETURN TIME:	3.1 minutes
TOTAL CYCLE:	9.2 minutes

PRODUCTION RATE: Loads/Hour = 60 min/hr ÷ 9.2 min/load x.83 x.75 = 4 loads/hr

Yd^3/ hour = 104 (4 loads/hr x 26 yd^3/load)

$$\frac{\text{acres x 1 ft* x 43,560 ft}^2\text{/ac}}{27\ \text{ft}^3/\text{yd}^3 \times 182\ \text{yd}^3/\text{hr}} = \text{TIME REQUIRED (hr)}$$

* use 1 ft thickness of topsoil for all areas
* use 2 ft thickness of cover on Tailing Pond
* use 3 ft thickness of cover on VFL 3

TOPSOIL BLADE AND SCARIFY - All Areas

EQUIPMENT:	CAT 14H	Grader w/Scarifier
TRAVEL SPEED:	2.8 mph	pg. 3-10
SCARIFY WIDTH/PASS:	6 ft.	

PRODUCTION RATE: $\frac{\text{2.8 mi/hr x 5280 ft/mi x 6 ft}}{\text{43,560 ft}^2\text{/ac.}}$ = 2.04 ac/hr

Production Rate (ac/hr) x Acreage (ac) = TIME REQUIRED (hr)

AGRICULTURAL TRACTOR AND SEEDING

EQUIPMENT:	CAT D6E SR Agricultural Tractor	
TRAVEL SPEED:	3.0 mph	pg. 2-10
TILLAGE WIDTH:	20 ft.	

PRODUCTION RATE: $\frac{\text{3.0 mi/hr x 5280 ft/mi x 20 ft}}{\text{43,560 ft}^2\text{/ac}}$ = 7.30 ac/hr

Production Rate (ac/hr) x Acreage (ac) = TIME REQUIRED (hr)