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ITEM 23

SYNOPSIS OF BUCKSKIN FEASIBILITY STUDY

January 20, 1984

1. Underground (sulfide) and open-pit (oxide) reserves total presently 410,000 T @ .19 Au, .7 Cu, after factoring in mine dilution (underground reserves = 360,000 T; open-pit reserves = 50,000 T)
2. The first 10 months of 1984 will be spent developing the underground reserves and completing the mill.
3. A two-month mill start-up period will begin 11-1-84, at which time ore stockpiles will total 24,240 T, valued at \$1,546,000, after deducting milling and smelting losses and charges.
4. Total expenditures to that time will be \$5,110,000 for the mine and the mill.
5. Full production from underground mine and open pit, and full mill through-put of 300 T PD, will begin 1-1-85. Cash Flow before property payments and mill depreciation for period 11-1-84 to 6-30-86 is calculated to be \$5,570,000. After 6-30-86, Cash Flow will be \$250,000 monthly until depletion of ore reserves.
6. Potential of the Buckskin district is 1.5 to 2 million tons of ore. Exploration for and development of these reserves will proceed more rapidly after mine and mill begin producing.
7. Metal prices used in study are 1983 average (\$422/oz Au, \$11.41/oz Ag)

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SUMMARY

FEASIBILITY STUDY BUCKSKIN MINE

1/1/84 to 6/30/86 + Monthly Projection 7/1/86 to ?

Metal Prices are 1983 average (Au \$422/oz. Ag \$11.41/oz.)

| | Smelter & Refinery Revenues | Mill Operation Expenditures | Mill Capital Expenditures* | Mine Operating Expenditures | Mine Capital Expenditures | Cash Flow | Cumulative Cash Flow |
|--|-----------------------------------|-----------------------------------|---------------------------------------|-----------------------------------|--|--------------------|-------------------------|
| Completion of Phase I 1/1 to 2/29/84 (Total Phase I = 12/1/83 to 2/29/84) | | | \$130,000 | \$200,000 | \$4,000 (1 Jackleg Drill) | (\$334,000) | (\$334,000) |
| Phase II 3/1 to 5/31/84 | | | 190,000 | 330,000 | 87,000 (Jumbo & 2 Jackleg Drills) | (607,000) | (941,000) |
| Phase III 6/1 to 8/31/84 | | | 150,000 (Tailings Pond) 190,000 | 330,000 <i>Phase II</i> | 56,000 (2 Fans, 1200 CFM Compres.) | (726,000) | (1,667,000) |
| Phase IV 9/1 to 10/31/84 | | | 200,000 (CIP Circuit) 120,000 | 380,000 | | (700,000) | (2,367,000) |
| Phase V 11/1 to 12/31/84 | \$631,000 | \$126,000 | | 380,000 | | 125,000 | (2,242,000) |
| Phase VI 1/1/85 to 6/30/86 | 11,072,000 | 1,943,000 | | 3,684,000 | | 5,445,000 | 3,203,000 |
| Phase VII 7/1/86 to ? | 615,000 Monthly | 108,000 Monthly | | 257,000 Monthly | | 250,000 Monthly | |

*Total Mill Cost Estimated \$1,330,000

Plus CIP 200,000

Plus Tail Pond 150,000

TOTAL \$1,680,000

Less 700,000 Spent Through 12/31/83.

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SUMMARY OF PHASE I OPERATIONS

December 1, 1983 to February 28, 1984

OBJECTIVES: CONNECT DECLINE TO 230 LEVEL, DRIVE MUCK BAY WHERE RAMP-UP TO ADIT AREA STARTS (APPROX. 4835' EL.)

DRIFTING REQ'D: 690' (660' to Connection, 30' of Muck Bay)

MINERS: 2 Crews of 3 Miners per Shift, 2 Shifts per Day 24 Employees
(12 Miners, 2 Mechanics, 2 Toplanders, 2 Hoistmen,
2 Drillers, 1 Supt., 1 Geologist, 1 Engineer, 1 Watchman)

(2 Crews Driving Incline, 2 Crews Driving Decline)

TOTAL WORKING SHIFTS: 63 Days x 2 Shifts/Day x 2 Crews/Shift = 252 Crew Shifts

REQ'D ADVANCE: 690 Ft/252 Shifts = 2.75 Ft/Shift

Advance Split: 1/3 to Incline, 2/3 to Decline

MONTHLY ADVANCES: December - 230', January - 230', February - 230'

COST - 3 MONTHS @ \$100,000/Month = \$300,000

(Cost 1/1/84 to 2/29/84 = \$200,000 - See Grand Summary)

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SUMMARY OF PHASE II OPERATIONS

March 1, 1984 to May 31, 1984

- OBJECTIVES: A) CONTINUE DECLINE TO BASE OF 230 LEVEL ORE PLUS X-CUT (4730' EL.) 300'
- B) CONTINUE MUCK BAY TO TOP OF 230 LEVEL ORE (4800' EL.) 310'
- C) CONTINUE DECLINE UP TO 4841' EL. X-CUT 200'
- D) START ADIT LEVEL STOPE (RATE OF 15 TONS/SHIFT)

DRIFTING REQ'D: 810'

MINERS: 2 Crews of 3 Miners per Shift (~~Designated A & B on Plan~~)

PLUS: 1 Crew per Shift Mining on Adit Level 27 Employees
(18 Miners, 2 Mechanics, 2 Nippers, 2 Drillers, 1 Supt.,
1 Geologist, 1 Engineer)

TOTAL WORKING SHIFTS: 65 Days x 2 Shifts/Day x 2 Crews/Shift = 260 Crew Shifts

REQ'D ADVANCE: 810 Ft/260 Shifts = 3.12 Ft./Shift

MONTHLY ADVANCE: March - 274', April - 262', May - 274'

ADIT PRODUCTION: 130 Shifts x 15 Tons/Shift = 1950T

MONTHLY PRODUCTION: March - 660 T, April - 630 T, May - 660 T

TOTAL STOCKPILED PRODUCTION END OF PHASE II = 1950 T + 3400 T Existing = 5350 T Ore

VALUE OF STOCKPILE: 5350 T @ \$63.78 Net per Ton after Costs = \$341,223

COST: 3 Months @ \$110,000/Month = \$330,000

27
1 - Supt.
1 - Geologist
2 - Supt.
2 - Mechanic
2 - Driller

19 v.m.

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SUMMARY OF PHASE III OPERATIONS

June 1, 1984 to August 31, 1984

- OBJECTIVES: A) FINISH DRIVING DECLINE TO ADIT LEVEL, WITH X-CUTS - 870'
This will access all the remaining stopes above the 230.
- B) START STOPE DEVELOPMENT ON 230 LEVEL
- C) CONTINUE STOPING AT ADIT LEVEL

DRIFTING REQ'D: 870'

MINERS: 1 Crew of 3 Miners per Shift Driving Decline and X-cuts as necessary
1 Crew of 3 Miners per Shift Stope Development on 230 Stope
1 Crew of 3 Miners per Shift Adit Stopping

Total Crew - 27 (Same as Phase II)

TOTAL WORKING SHIFTS: 65 Days x 2 Shifts per Day = 130 Shifts

REQ'D ADVANCE: (DRIFTING) = $870' / 130 \text{ Shifts} = 6.7 \text{ Ft./Shift}$

MONTHLY ADVANCES (Drifting): = June - 282', July - 282', August - 306'

ADIT PRODUCTION: June 42 Shifts x 20 Tons/Shift = 840 T
July 42 Shifts x 25 Tons/Shift = 1050 T
Aug. 46 Shifts x 30 Tons/Shift = 1380 T

230 PRODUCTION: 130 Shifts x 35 Tons/Shift = 4550 Tons

TOTAL STOCKPILED PRODUCTION END OF PHASE III = 13,170 T Ore

VALUE OF STOCKPILE: 13,170 Tons @ \$63.78 Net per Ton after Costs = \$839,983

COST: 3 Months x \$110,000/Month = \$330,000

000412

SUMMARY OF PHASE IV OPERATIONS

September 1, 1984 to October 31, 1984

- OBJECTIVES: A) CONTINUE MINING ADIT LEVEL
 B) CONTINUE MINING 230 LEVEL
 C) START UP 230 INT. STOPE AND 130 STOPE

MINERS: 1 Crew of 3 Miners per Stope per Shift (2 Shifts) = 24 Miners

Total Crew of 44
 (24 Miners, 2 Bolters, 3 Bull Gang, 4 Mechanics, 1 Oiler,
 2 Nippers, 2 Bosses, 1 Supt., 1 Geologist, 1 Engineer,
 1 Assayer, 2 Drillers)

PRODUCTION: Adit Stope - 30 Tons/Shift x 82 Shifts = 2460 T Ore
 230 Stope - 35 Tons/Shift x 82 Shifts = 2870 T Ore
 230 Int. Stope - 35 Tons/Shift x 82 Shifts = 2870 T Ore
 130 Stope - 35 Tons/Shift x 82 Shifts = 2870 T Ore
 11,070 T Ore

TOTAL STOCKPILED PRODUCTION END OF PHASE IV = 24,240 T

VALUE OF STOCKPILE: 24,240 T @ \$63.78 Net per Ton = \$1,546,027

COST: (See Phase V) - 11,070 Tons @ \$34.32/Ton = \$380,000

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SUMMARY OF PHASE V OPERATIONS (MILL START-UP)

November 1, 1984 to December 31, 1984

MINERS: Same Crew Size (44)

PRODUCTION: Mine from Underground 41 Days x 270 T/Day = 11,070 T Ore

Mill 41 Days x 200 T/Day = 8,200 T Ore

Ore to Stockpile 2,870 T Ore

SMELTER AND REFINERY REVENUE FROM SULFIDE ORE: \$76.98/Ton

Underground Mining Cost - Sulfide Ore 34.32/Ton

Milling Cost - Sulfide Ore 15.40/Ton

Net Revenue from Sulfide Ore \$27.26/Ton

Will process 8,200 Tons x \$27.26 = \$223,532 Net Revenue

Less mining cost of ore mined & sent to
Stockpile 2,870 T @ 34.32/Ton = 98,498Adjusted Net Revenue = \$125,034
Before Depreciation & Property Payments*STOCKPILE = 27,110 Tons Ore, Worth \$63.78 per Ton after Deducting Milling,
Smelting, Refining Costs = \$1,729,076.

*\$150,000 due 10/10/84 to Lyon Hill Mines

000414

SUMMARY OF PHASE VI OPERATIONS (FULL PRODUCTION)

January 1, 1985 to June 30, 1986

Depletion of Stockpile of Sulfide Ore. This Stockpile totals 27,110 Tons, worth after deducting Milling, Smelting, and Refining Charges \$1,729,076.

MINERS: Same Crew Size (44 underground + 3 in open pit)

MONTHLY: Mine from Underground ⁵¹⁰⁰ 5535 T (255T/Day-5 Day Week)
 Mine from Open Pit ⁽¹⁰⁶⁰⁾ 1140 T (53T/Day-5 Day Week)
 Retrieve from Stockpile 1537 T
 Mill 8212 T (300T/Day x 90% availability
 - 7 Day Week)

| | |
|--|--------------------|
| SMELTER AND REFINERY REVENUE FROM SULFIDE ORE: | \$76.98/Ton |
| Underground Mining Cost - Sulfide Ore | 34.32/Ton |
| Milling Cost - Sulfide Ore | <u>13.20/Ton</u> |
| Net Revenue from Mined Sulfide Ore | <u>\$29.46/Ton</u> |
| Net Revenue from Stockpiled Sulfide Ore | <u>\$63.78/Ton</u> |
| Refinery Revenue from Oxide Ore: | \$62.02/Ton |
| Open Pit Mining Cost | 12.90/Ton |
| Oxide Ore Milling Cost | 12.80/Ton |
| Net Revenue from Oxide Ore | <u>\$36.32/Ton</u> |

| | | | |
|--------------------------------------|-------------------|---|------------------|
| MONTHLY REVENUES: Mined Sulfide Ore: | 5535T x \$29.46/T | = | \$163,061 |
| Sulfide Ore from Stockpile: | 1537T x 63.78/T | = | 98,030 |
| Oxide Ore: | 1140T x 36.32/T | | <u>41,405</u> |
| | | | <u>\$302,496</u> |

NET MONTHLY REVENUE:
 Before depreciation and property payments. *

| | | |
|---|---|--------------------|
| NET REVENUE | | |
| Before depreciation and property payments | | |
| 18 Months x \$302,496 | = | <u>\$5,445,000</u> |

*\$300,000 due 10/10/85 to Lyon Hill Mines

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SUMMARY OF PHASE VII
(FULL PRODUCTION AFTER SULFIDE STOCKPILE IS DEPLETED)

July 1, 1986 to ?

MINERS: Increase crew size to about 50

MONTHLY: Mine from Underground
Mine from Open Pit
Mill

7072 T (326T/Day-5 Day Week)
1140 T (53T/Day -5 Day Week)
8212 T (300T/Day x 90% availability
- 7 Day Week)

SMELTER AND REFINERY REVENUE FROM SULFIDE ORE:

\$76.98/Ton

Underground Mining Cost - Sulfide Ore

34.32/Ton

Milling Cost - Sulfide Ore

13.20/Ton

Net Revenue from Sulfide Ore

\$29.46/Ton

Refinery Revenue from Oxide Ore

\$62.02/Ton

Open Pit Mining Cost

12.90/Ton

Oxide Ore Milling Cost

12.80/Ton

Net Revenue from Oxide Ore

\$36.32/Ton

MONTHLY REVENUES: Sulfide Ore: 7072T x \$29.46/T

=

\$208,341

Oxide Ore: 1140T x \$36.32/T

=

41,405

NET MONTHLY REVENUE:

Before depreciation and property payments

\$249,746 Monthly

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CHART OF OPERATIONS-PHASES I THROUGH V

| AREA | Dec. 83 | | PHASE I Jan. 84 | | Feb. | | PHASE II Apr. | | May | | PHASE III July | | Aug. | | PHASE IV Sept. | | Oct. | | PHASE V Nov. | | Dec. | |
|--|------------|-------|--------------------|--------|------------|------------|------------------------------|-------------------------|---------|------------|-------------------|-----------|------------|-----------|-------------------|-------------|-------------|--------|-----------------|------|------|------|
| | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. | Plan | Act. |
| Connection Decline | 153' | 125 | 153' | 132 | 153' | 108 | 110' carry over from phase 1 | | | | | | | | | | | | | | | |
| Incline | 77' | 80 | 77' | 139 | 77' | 76 | | | | | | | | | | | | | | | | |
| Rate of Advance | 2.75 ft/sh | 3.0 | 2.75 ft/sh | 3.9 | 2.75 ft/sh | 3.5 | | | | | | | | | | | | | | | | |
| Total Shifts | 84 | 68.4 | 84 | 80 1/2 | 84 | 80 | | | | | | | | | | | | | | | | |
| Decline A) To Bottom of 230 B) To Top of 230 NXS C) To 4841 X/C | | | | 43' | | 16' 81' | | 274' | 138' | 262' | 181' | | 274' | 168 | | | | | | | | |
| Rate of Advance | | | | | | | | 3.12 ft/sh | 3.3 | 3.12 ft/sh | | | 3.12 ft/sh | | | | | | | | | |
| Total Shifts | | | | | | | | 88 | 86.5 | 84 | 2.2 | | 88 | | | | | | | | | |
| Decline to Adit Level w/X-Cuts | | | | | | | | | | | | 168 | 168 | 306 | 228 | | | | | | | |
| Rate of Advance | | | | | | | | | | | | 4.0 ft/sh | 4.0 ft/sh | 6.7 ft/sh | 6.7 ft/sh | | | | | | | |
| Total Shifts | | | | | | | | | | | | 42 | 42 | 46 | 34 | | | | | | | |
| 230 Stope: Total Ore Production | | | | | | | | | | | | 1470T | 1470T | 1610T | 2280T | 2640T | 2520T | 2400T | | | | |
| Rate of Production | | | | | | | | | | | | 35 T/h | 35 T/h | 35 T/h | 60 T/h | 60 T/h | 60 T/h | 60 T/h | | | | |
| Total Shifts | | | | | | | | | | | | 42 | 42 | 46 | 38 | 44 | 42 | 40 | | | | |
| 230 Int. Stope: Total Ore Prod. | | | | | | | | DRIFTING → Decline | | | | 114 ft | 114 ft | | | | | | | | | |
| Rate of Production | | | | | | | | ① TO 290 Stope | | | | 2.7 ft/sh | 2.7 ft/sh | | | | | | | | | |
| Total Shifts | | | | | | | | (250 ft TOTAL) | | | | 42 | 42 | | | | | | | | | |
| 130 Stope: Total Ore Production | | | | | | | | STOPPING - 290 Stope | | | | | | | 1520T | 1760 | 1680T | 1600T | | | | |
| Rate of Production | | | | | | | | PROD. RATE | | | | | | | 40 T/h | 40 T/h | 40 T/h | 40 T/h | | | | |
| Total Shifts | | | | | | | | TOTAL SHIFTS | | | | | | | 38 | 44 | 42 | 40 | | | | |
| Adit Stope: Total Ore Production | | | | | | | | 660T 442.5 630T | 660T | 840T | 1050T | 1320 | 1330T | 1540T | 1970T | 1480T | | | | | | |
| Rate of Production | | | | | | | | 15 T/sh 10.1 T/sh | 15 T/sh | 20 T/sh | 25 T/sh | 30 T/sh | 35 T/sh | 35 T/sh | 35 T/sh | 35 T/sh | | | | | | |
| Total Shifts | | | | | | | | 44 44 42 | 44 | 42 | 42 | 46 | 38 | 44 | 42 | 40 | | | | | | |
| Tons Ore Produced | | | | | | | | 660T 1405.0 630T 2182.5 | 660T | 2310T | 2520T | 2990T | 5130T | 5940T | 5670T | 5400T | | | | | | |
| Tons to Date (All Phases) | 3400T | 3400T | 3400T | | 4060T | 4690T | 5300T | 7660T | 10180T | 13170T | 18300T | 24240T | 25810T | 27110T | | | | | | | | |
| Feet of Drift | 230 | 205 | 230 | 314 | 230 | 281 | 274 | 392 | 262 | 181 | 282 | 282 | 306 | 228 | - | 4100 Milled | 4100 Milled | | | | | |
| Feet to Date* | 230 | 205 | 460 | 519 | 690 | 800 | 274 | 392 | 536 | 573 | 282 | 564 | 870 | 228 | 228 | - | - | | | | | |
| *(Drifting totals are | | | | | | | | | | | | | | | | | | | | | | |

DETAIL

BUCKSKIN FEASIBILITY - BASED ON PRESENT RESERVE OF 410,000 TONS
SULFIDE ORE*

RESERVE BASIS:

Measured, Indicated, and Inferred ore after mine dilution:

360,000 Tons containing: .19 ounce per ton Au
.3 ounce per ton Ag
.70% Copper

METAL PRICES (1983 AVERAGE):

Au = \$422/ounce; Ag = \$11.41/ounce; Cu = \$.80/lb.

METALLURGICAL BASIS:

Will recover 96% of the copper in a concentration assaying 15% Copper.

Gold Assay 3.62 opt., Recovery 85%

Silver Assay 5.4 opt., Recovery 80%

Will recover 12% of gold [=80% of (100% less 85%)] and
13% of Silver [=66% of (100% less 80%)] from flotation tail
in cyanide leach carbon - in pulp circuit.

*5422/ounce (514 #)
90% Recovery*

*15000 Tons
mixed*

*See separate sheet for oxide ore.

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Smelter Payments per Ton Concentrate From Copper Smelter:

Cu: (300# -26#) x \$.80 = \$ 219.20 per ton
 Au: (3.62 - .05) x 98% x \$422 = 1,476.41 per ton
 Ag: (5.4 - .5) x 98.5% x \$11.41 = 55.07 per ton
 GROSS PAY \$1,750.68 per ton

Less Smelting 95.30*per ton
 Less Freight 99.00*per ton
 Less Refining (\$.1545/#) 42.64 per ton
 Less Cu/Fe Penalty 6.68 per ton
 NET PAY \$1,507.06 per ton

Concentration ratio = $\frac{300\#}{14\# \times 96\%} = 22.3/1$

Net Pay per Ton Ore from Copper Smelter = 67.58

Refinery Payment per Ton Ore:

Flotation tail assays:

.19 opt. x 15% = .028 Ounce per ton Au
 .3 opt. x 20% = .06 Ounce per ton Ag
 Au Pay: .028 opt. x 80% x \$422 = \$9.45 per ton
 Ag Pay: .06 opt. x 66% x 11.41 = .45 per ton
 GROSS PAY \$9.90 per ton

Less 5% Refinery Charge .50 per ton
 Net Pay per Ton Ore from Refinery \$9.40

TOTAL NET SMELTER & REFINERY = \$76.98 per ton Ore

*10% above 1982 rates

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DETAIL

BUCKSKIN FEASIBILITY - BASED ON PRESENT RESERVE OF 410,000 TONS
OXIDE ORE*

RESERVE BASIS:

Measured and Indicated ore after mine dilution:

50,000 tons containing: .16 ounce per ton Au
 .6 ounce per ton Ag

METAL PRICES (1983 AVERAGE)

Au = \$422/ounce; Ag = \$11.41/ounce

METALLURGICAL BASIS:

Will recover 90% of the Gold and 66% of the Silver in a precip.

Refinery will pay 95% of (90% x .16 ounce per ton Au x \$422 +
 66% x .6 ounce per ton Ag x \$11.41) = \$62.02 per ton Ore

*See separate sheet for sulfide ore.

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UNDERGROUND MINING COST STUDY - BUCKSKIN MINE

PHASES VI and VII (11/1/84 to 6/30/86)

| <u>COST CENTER</u> | <u>DRIFTING COST/TON</u> | <u>STOPPING COST/TON</u> |
|-------------------------|------------------------------|------------------------------|
| Blasthole Drilling | 2.52 | 2.23 |
| Blasting | 1.80 | 1.60 |
| Loading | .81 | .81 |
| Hauling | 2.10 | 2.10 |
| Ground support | 4.10 | 3.20 |
| Ventilation | .64 | .64 |
| Material handling | 1.06 | 1.06 |
| Mine Maint. & Shop | 1.55 | 1.55 |
| Mine Power | 2.30 | 2.30 |
| Compressed Air | 1.58 | 1.58 |
| Fuel & Lube | 1.35 | 1.35 |
| Mine Tools | .15 | .15 |
| Safety | 1.20 | 1.20 |
| Assaying | .80 | .80 |
| Eng. and Geology | .60 | .60 |
| Sand-fill | | 8.00 est. |
| Equip. Amort. | 2.25 | 2.25 |
| TOTAL | 24.81 /Ton rock | 31.42 /Ton ore |
| 2/3 of drifting is ore, | 37.22 /Ton ore | 31.42 /Ton ore |
| All of stoping is ore | | |

Average Cost per ton ore is
\$34.32

COMPARISON #1: 44 Man Crew X \$200/Shift Labor, Burden, & Supplies X
 262 Shifts ÷ 12 = \$192,133/Month ÷ 5535 T = \$34.71/Ton

COMPARISON #2: Buckskin experience September 1 through November 30, 1983

Mining Cost: \$176,600 direct, \$65,400 Ground Support, \$22,000 Core Drilling,
 \$29,000 General. Total rock mined 5,946 T = \$40.70/Ton Direct,
 4.88 Gen. (Within the \$40.70 direct cost, \$11.01 is for Ground
 Support.

Since most mining will be without timber, assume ½ present cost for ground
 support; the \$29,000 general cost will be charged against 16,605 tons for the
 3 month period rather than 5,946 tons, = \$1.75/Ton.

Predicted adjusted mining cost \$29.70 + \$5.50 Ground Support +
 \$1.75 General = \$36.95/Ton

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COMPARISON #3: Ward experience 6/1/83 to 10/31/83:

| <u>COSTS</u> | | <u>TONS</u> | <u>COST/TON</u> |
|-----------------------|-----------|-------------|-----------------|
| Direct Mining Cost | \$383,187 | 17,872 | \$21.44 |
| Direct General Cost | 39,798 | 17,872 | 2.23 |
| Non-Controllable Cost | 15,250 | 17,872 | .85 |
| | | | <u>\$24.52</u> |

$$\begin{aligned}
 (\text{ADVANCE} = 595' \text{ M\&E} \times 12' \times 13' \div 12 &= 7,735 \text{ T} \\
 669' \text{ Conveyor} \times 12' \times 13' \div 12 &= 8,697 \\
 54' \text{ X-cut} \times 12' \times 13' \div 12 &= 702 \\
 96' \text{ Raise} \times 6' \times 6' \div 12 &= 288 \\
 30' \text{ Compressor Station} & \\
 \times 12' \times 15' \div 12 &= 450 \\
 &= 17,872 \text{ T}
 \end{aligned}$$

OPEN - CUT MINING OF OXIDE ORE: 50,000 Tons Ore @ 6/1 Strip Ratio

6 Months/Year Mine 2280T/Month Ore

Lease D155A Cat @

Lease Clark 55B Loader @

3 Men x 21 Shifts x \$200/Shift

= 16,000T/Month Rock

\$11,500/Month ^{OK}

3,000/Month ^{OK 4000 if w/yr}

= 12,600/Month

\$27,100/Month

\$27,100/Month ÷ 16,000T/Month

= \$ 1.70/Ton Rock

= \$11.90/Ton Ore + \$1.00/Ton Exploration & Sampling Cost = \$12.90/Ton Ore

cat 966cl 4 yd heap
3.5 stank

000422

MILLING COST STUDY - BUCKSKIN MILL

20 Man Crew

A: 300 TPD - Flotation and Cyanide leach - Carbon-in-pulp extraction of gold-silver from flotation tail.

| | |
|------------------------------|----------------|
| Mill Power | 1.92/Ton |
| Crushing | 2.24/Ton |
| Grinding | 2.05/Ton |
| Flotation & Filtering | 1.51/Ton |
| Leaching-precipitation | 2.05/Ton |
| Mill-Warehouse Inventory | .20/Ton |
| Mill Mobile Equipment | .10/Ton |
| Mill Tools & Shop | .06/Ton |
| Fuel & Lube | .30/Ton |
| Tailings Pond & Water System | .64/Ton |
| Mill Overhead | .88/Ton |
| Miss Assaying | .65/Ton |
| Other Mill | <u>.60/Ton</u> |

Total 13.20/Ton

B: 300 TPD - Cyanide leach - Carbon-in-pulp extraction of gold-silver from oxide ore.

| | |
|------------------------------|----------------|
| Mill Power | 1.92/Ton |
| Crushing | 2.24/Ton |
| Grinding | 2.05/Ton |
| Leach-Precipitation | 2.45/Ton |
| Filtering | .71/Ton |
| Mill Warehouse Inventory | .20/Ton |
| Mill Mobile Equipment | .10/Ton |
| Mill Tools & Shop | .06/Ton |
| Fuel & Lube | .30/Ton |
| Tailings Pond & Water System | .64/Ton |
| Mill Overhead | .88/Ton |
| Mill Assaying | .65/Ton |
| Other Mill | <u>.60/Ton</u> |

Total 12.80/Ton

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BUCKSK MINE
DILUTED ORE RESERVES
1/4/84

| LEVEL | CLASSIFICATION | | | | | | | | | | | | | | |
|--|----------------|------------|------|-----------|------------|------|--|------------|------|----------|------------|------|----------|------------|------|
| | MEASURED | | | INDICATED | | | DEMONSTRATED (Measured & Indicated) | | | INFERRED | | | TOTAL | | |
| | Tons | Au oz/T | Cu % | Tons | Au oz/T | Cu % | Tons | Au oz/T | Cu % | Tons | Au oz/T | Cu % | Tons | Au oz/T | Cu |
| 5000'-4730' | 196,000 | .184 | .70 | 27,000 | .184 | .70 | 223,000 | .184 | .70 | | | | 223,000 | .184 | .70 |
| 4730'-4650' | 28,000 | .19 | .70 | 42,000 | .20 | .70 | 70,000 | .196 | .70 | 17,000 | .19 | .70 | 87,000 | .194 | .70 |
| 4650'-4600' | | | | | | | | | | 50,000 | .19 | .70 | 50,000 | .19 | .70 |
| TOTAL SULFIDE ORE | 224,000 | .185 | .70 | 69,000 | .194 | .70 | 293,000 | .19 | | 67,000 | .19 | .70 | 360,000* | .19 | .70 |
| SURFACE OXIDE ORE | 30,000 | .16 | - | 20,000 | .16 | - | 50,000 | .16 | | | | | 50,000 | .16 | - |
| TOTAL ORE | 254,000 | .18 | .62 | 89,000 | .19 | | 343,000 | .19 | | 67,000 | .19 | .70 | 410,000 | .19 | .61 |
| (Additional) (130 Level) (Copper Ore) | 36,000 | .07 | 2.30 | | | | | | | | | | 36,000 | .07 | 2.30 |

*Compares with production to date from 230 Level: 2100 T @ .23 Au, .75 Cu + 1300 T of low grade @ .09 Au, .57 Cu for a total of 3400 T @ .18 Cu, .68 Au. We can control the gold grade of ore milled between .18 and .23, and the copper grade between .68 and .75, by degree of selectivity in handling of low grade.

000424

DATE 5/12/83

BUCKSKIN LOCKED/CYCLE TEST.

TEST 16:1-6

| CHARGE | | CLR CONC | | | | SCAV TAIL | | | | CLR TAIL | | | | % RECOVERY * | | | | ACTUAL HEAD | | | |
|--------|--------|----------|-------|-------|------|-----------|------|------|------|-------------------|---------------|------|----------------|--------------|-------|-------|--|-------------|------|------|--|
| No | WT gms | WT gms | % Cu | % Fe | % Au | WT gms | % Cu | % Fe | % Au | WT gms | % Cu | % Fe | % Au | Cu | Fe | Au | | % Cu | % Fe | % Au | |
| 1 | 1000 | 37.6 | 20.64 | 32.57 | 3.84 | 837.0 | .04 | 7.66 | .030 | 125.4 | .56 | | .124 | 95.64 | | 84.44 | | .88 | 5.07 | .185 | |
| 2 | 1000 | 40.0 | 17.34 | 28.86 | 3.74 | 849.7 | .05 | 4.93 | .028 | 235.7 | .866 | | .136 | 94.53 | 34.93 | 85.91 | | .87 | 6.94 | .190 | |
| 3 | 1000 | 44.3 | 17.34 | 26.63 | 3.70 | 901.7 | .05 | 6.08 | .028 | 289.7 | .797 | | .100 | 94.32 | 30.48 | 85.59 | | .84 | 7.95 | .186 | |
| 4 | 1000 | 44.8 | 17.10 | 26.44 | 3.60 | 908.4 | .05 | 7.28 | .024 | 336.5 | .593 | | .077 | 93.86 | 13.04 | 87.25 | | .78 | 8.04 | .180 | |
| 5 | 1000 | 48.4 | 16.99 | 28.74 | 3.35 | 914.1 | .05 | 6.75 | .039 | 374.0 | .432 | | .070 | 94.25 | 20.89 | 81.25 | | .83 | 8.09 | .198 | |
| 6 | 1000 | 56.4 | 15.92 | 26.06 | 3.12 | 910.2 | .03 | 6.08 | .030 | 407.4 (353.7)* | .187 (.20) | | .044 (.040) | 96.18 | 31.80 | 85.44 | | .84 | 8.04 | .195 | |
| | | | | | | | | | | | | | | | | | | | | | |

$$* \text{Calculated recovery} = 100 \times \frac{C(f-e)}{f(C-e)}$$

(ACTUAL)*

6000gms @ .240 Cu, .189 ozs/ton Au
 versus 59463gms @ .847% Cu, .190 ozs/ton Au
 (calculated)

CONDITIONS: all primary grinds 20 mins, all regrinds 15 mins (mother MIBC/FGS as req'd)

*No sand
 scavenging

Reagents to primary grind:

.05 ggt SIPX
 .05 ggt 238
 .05 ggt 404
 .5 ggt lime

Charge

1 9.0 pH
 2 9.3
 3 9.3
 4 9.3
 5 9.3
 6 9.2

Re (5 mins) 1 9.1-9.0 pH
 2 10.5-10.2
 3 11.0-10.7
 4 11.0-10.7
 5 11.0-10.8
 6 11.0-10.7

Cond 5 mins 1 9.0 pH
 2 10.3
 3 10.7
 4 10.7
 5 10.8
 6 10.7

Reagents to scav

(Note no 404 in
 Sc for 3, 4, 5 & 6)

.05 ggt SIPX
 .05 ggt 238
 .05 ggt 404

Sc 5 mins 1 9.0-8.9 pH
 2 10.3-9.9
 3 10.7-10.5
 4 10.7-10.3
 5 10.8-10.6
 6 10.7-10.4

REGRIND 15 mins 1 12.3 pH
 2 12.3
 3 12.3
 4 12.3
 5 12.3
 6 12.3

CLR 10 mins 1 12.3-12.0 pH
 2 12.2-12.0
 3 12.2-12.0
 4 12.2-12.1
 5 12.2-12.1
 6 12.2-12.1

Reagents to reground

.02 ggt SIPX
 .02 ggt 238
 4 ggt lime

SCREEN ANALYSIS

Prim Grnd (i.e. Sc TI 1-6 comp)

+65 .10 %
 100 1.29
 200 21.06
 325 19.42
 -325 58.13
 100.00

Regrind CLR #6

+65 0 %
 100 .06
 200 .18
 325 6.10
 -325 93.66
 100.00

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