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MILLSAPS MINERAL SERVICE, INC.

January 7, 1985

Mr. Ben F. Dickerson III DMEA, Ltd. Suite F 4203 N. Brown Avenue Scottsdale, AZ 85251

RECEIVED JAN 1 1 1985

Dear Ben:

Enclosed are the preliminary cost estimates for the projected Vulture heap leach. The capital cost estimates are based upon using used equipment where possible, and if it provides a saving, to use it. The screen is a new one, as it is cheaper than any used one on which I could obtain a quote.

The cost estimates are all based upon 130,000 tons per year, which is 500 TPD for 260 days per year. The leach, of course, will run seven days per week, but does not require any attention on the weekends except in case of rain.

The costs are based upon 260,000 tons of rock at .056 oz. Au/t, and 110,000 tons stamp mill tails at 0.044 oz. Au/t. Expected recovery is 75%.

Mining costs are assumed to be \$4.162 per ton. This allows \$1.00/ton for moving the stamp mill tails and \$5.50/ton for the surface mining.

This is actually only order of magnitude accuracy, even though where possible I obtained good budget figures, such as for crushers, pond and pad construction and contract crushing. However, a friend of mine got a road contractor to crush 20,000 tons of rock at 20¢/ton during off season for road building. He crushed the whole lot in about four months.

Thank you for the opportunity to develop these cost estimates for you.

Very truly yours,

MILLSAPS MINERAL SERVICE, INC.

Frank W. Millsaps

Enclosures FWM/f

PRELIMINARY COST ESTIMATES

Based upon 500 TPD, heap leach-agglomeration of stamp mill tails and rock. 370,000 tons total composed of 110,000 tons stamp mill tails assaying 0.044 oz. Au/ton; 260,000 tons rock assaying 0.056 oz. Au/ton; composite will average 0.052 oz. Au/ton. Expected recovery 75%.

Pads are designed to be used and spent material left on pad. Heap to be 30 feet high in lifts of 10 feet each. Pad will be 400 feet wide by 500 feet long. It is planned to start first layer 200 feet wide and start sprinkling after the heap has been extended to 100 feet. Based upon test work performed by Dawson Metallurgical Laboratories, a 15 day cycle was assumed. Solution is to be sprayed at the rate of 0.004 GPM/sq.ft.

The pond system is designed as a pregnant solution pond, a barren solution pond and an overflow pond. The pond system is designed to hold 24 hours of solution in each of the pregnant and barren ponds, with the arrangement being that any overflow from the pregnant pond will flow into the barren pond, and any overflow from the barren pond will be caught in the overflow pond. The total pond system will hold the normal flow from the heap, plus the rain which will fall on the heaps and the pond system during a one inch rain. The ponds are designed with minimum surface area to minimize evaporation. It is planned to line the ponds with a plastic liner, and divide the ponds with earthen berms.

It is assumed that the mine rock will have to be crushed; therefore capital and operating costs are determined as incorporating crushing. Costs are calculated two ways: one, Vulture owns the crusher; and two, they contract the crushing out.

As the solution flow and the gold recovered per day are both small, the costs have been developed using carbon, or zinc dust precipitation.

I. CAPITAL COST SUMMARY

CARBON CIRCUIT, INCLUDING CRUSHING

A.	Equipment in Plant Equipment FOB Supplier \$326,500 Frt. @\$12.50/cwt 113,750 lbs. 14,220 Unloading & Handling at Site @ 7c/lb. 8,000 Sales Tax @ 3½% 11,430	
	Total Plant Equipment at Site	\$360,150
В.	Mobile Equipment Front End Loader Cat 988B (Used)	115,000
С.	Building Process and Security	25,000
D.	Concrete Foundations 32 yds. @ \$2×50.00 \$8,000 Slabs 6,000	
		14,000
E.	Electrical Switch Gear, Wiring, Lighting	40,000
F.	Piping Process and Domestic Water	15,000
G.	Pad	25,000
н.	Ponds	30,000
I.	Equipment Installation	8,000
	Total A.through I.	\$632,150
J.	Engineering	45,000
K.	Water System	10,000
	Total A. through K.	\$687,150
	Contingency	95,000
	Total Estimated Capital Cost	\$782,150

II. CAPITAL COST SUMMARY

CARBON CIRCUIT, LESS CRUSHING

A.	A	83,000 7,750 4,350 6,400	
	Total Plant Equipment at Site		\$201,500
В.	Mobile Eqipment Front End Loader Cat 988B (Used)		115,000
C.	Building Process and Security		25,000
D.	Concrete	2 500	
		2,500 6,000	
			8,500
E.	Electrical Switch Gear, MCC, Wiring & Lighting		15,450
F.	Piping Process and Domestic Water		15,000
G.	Pad		25,000
н.	Ponds		30,000
ĭ.	Equipment Installation		4,500
	Total A. through I.		\$342,950
J.	Engineering		35,000
К.	Water System		10,000
	Total A. through K.		\$487,950
	Contingency		55,000
	Total Estimated Cost		\$542,950

CAPITAL COST ESTIMATE

CARBON CIRCUIT, INCLUDING CRUSHING PLANT

Equipment List

Item	Weight	HP	Cost
Jaw Crusher 18" x 36"	19,600	75	\$45,000
Cone Crusher 3' SH	23,200	75	85,000
Screen 4' x 10'	9,050	15	13,500
Conveyor-Stacker 18" x 100'	3,100	15	20,000
Feeder 18" x 20'	2,500	5	12,000
Agglomerator 6' x 30'	20,000	25	20,000
Carbon Columns (5)	5,500		7,000
Carbon Stripping Tank	2,800		13,500
Carbon Regeneration Kiln	6,500		65,000
Electrolyte Heating	5,000		10,000
Electrolytic Cell	10,000	5	23,500
Melting Furnace	4,000	3	8,000
Pumps	2,500	50	4,000
TOTAL	\$113,750	268	\$326,500
Front End Loader 988B			115,000
			\$441,500

III. CAPITAL COST SUMMARY

ZINC PRECIPITATION CIRCUIT, INCLUDING CRUSHING PLANT

A.	Equipment in Plant Equipment FOB Supplier \$265,000 Frt. @ \$12,50 cwt 95950# 11,995 Unloading & Handling @ Plant	
		4000 000
	Total Plant Equipment at Site	\$292,990
В.	Mobile Equipment Front End Loader, Cat 988B (Used)	115,000
C.	Building	
	Process and Security	25,000
D.	Concrete Foundations 32 yds.@ \$250 8,000 Slab 6,000	
		14,000
Ε.	Electrical Switch Gear, MCC, Wiring, Lighting	40,000
F.	Piping	
	Process & Domestic Water	18,000
G.	Pad	25,000
Н.	Ponds	30,000
ī.	Equipment Installation	6,720
	Total A. through K.	\$621,710
	Contingency	68,750
	Total Estimated Cost	\$690,460

IV. CAPITAL COST SUMMARY

ZINC PRECIPITATION CIRCUIT, LESS CRUSHING

Α.	Equipment in Dient			
Α.	Equipment in Plant Equipment FOB Supplier \$1 Frt. @ \$12.50/cwt 44,100# Unloading & Handling @ Site	121,500 5,500		
	@ 7c lb. Sales Tax @ 3½%	3,100 4,500		
	Total Plant Equipment at S	Site	\$134,600	
В.	Mobile Equipment Front End Loader, Cat 988B (U	Jsed)	115,000	
C.	Buildings Process and Security		25,000	Trailer
D.	Concrete Foundations 10 yds @ \$250 Slabs	2,500 6,000	8,500	
E.	Electrical Switch Gear, MCC, Siring, Lig	hting	15,450	
F.	Piping process and Domestic Water		18,000	
G.	Pads		25,000	
н.	Ponds		30,000	
ı.	Equipment Installation		3,100	
	Total A. through I.		\$374,650	
J.	Engineering		30,000	
K.	Water System		10,000	
	Total A. through K.		\$414,650	
	Contingency		39,000	
	Total Estimated Cost		\$453,000	

CAPITAL COST ESTIMATE
ZINC PRECIPITATION CIRCUIT, INCLUDING CRUSHING PLANT

Equipment List

Item	Weight	HP	Cost
Jaw Crusher 18" x 36"	19,600	75	\$45,000
cone Crusher 3' SH	23,200	75	85,000
Screen, DD 4' x 10'	9,050	15	13,500
Conveyor-Stacker	3,100	15	20,000
Feeder 18" x 20"	2,500	5	12,000
Agglomerator 6' x 30'	20,000	25	20,000
Sand Filter	10,000		5,000
Merrill Crowe ppt Units (2)	20,000	10	46,500
Melting Furnace	4,000	3	8,000
Pumps	1,600	40	2,000
			- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
TOTAL	\$113,050	268	\$257,000
Front End Loader 988B			115,000
			\$372,000

ESTIMATED OPERATING COSTS - 130,000 TONS/YEAR CARBON CIRCUIT, INCLUDING CRUSHING

Suj	pervision	Cost/Y	ear (Cost/Ton
	½ Man @ \$36,000 + 40% Fringe	\$25,	200	\$0.194
Lal	bor			
	Crusher Operator - 1 @ \$12.50/hr.+40%	Fringe 36,	400	0.280
	Laborer - 1 @ \$6.50/hr + 40%	Fringe 18,	928	0.146
	Pad Operator - 3 @ \$10.00/hr.+40%	Fringe 87,	360	0.672
	Loader Operator - 2 @ \$12.50/hr.+40%	Fringe 72,	800	0.560
	Refiner & Carbon Operator - 2 @ \$12.50/hr.+40%	Fringe 36,	400	0.280
	Assayer - 1 @ \$12.50/hr.+40%	Fringe 36,	400	0.280
Tot	cal Personnel	\$313,	488	\$2.412
Rea	agents			
	Cement - 10#ton @ 5¢/1b.	65,	000	0.500
	Lime - 5#/ton @ 2¢/1b.	13,	000	0.100
	Cyanide - 2#/ton @ 68¢/1b.	176,	800	1.360
	Carbon04#/ton @ 75¢/1b.	3,	900	0.030
Tot	cal Reagents	\$258,	700	\$1.990
	Assaying	15,	600	0.120
	Refining	5,	200	0.040
	Fuel Electrolyte Heating 2,860 Carbon Regeneration 390			
	F.E.L. 24,700	27,	950	0.215

plantaluniont ?

Power	30,680 0.236
Water Supplies	5,980 0.046
Total Operating Costs	\$657,598 \$5.059

-11ESTIMATED OPERATING COSTS - 130,000 TONS/YEAR
CARBON CIRCUIT, LESS CRUSHING

	Cost/Year	Cost/Ton
Supervision	r	
½ Man @ \$36,000 + 40% Fringe	\$25,200	\$0.194
Labor		
Pad Operators -3 @ \$10.00/hr. + Fringe 40%	87,360	0.672
Loader Operator- 2 @ \$12.50/hr + Fringe 40%	72,800	0.560
Refiner & Carbon Operator -1 @ \$12.50/hr. +Fringe 40%	36,400	0.280
Assayer - 1 @ \$12.50/hr. + Fringe 40%	36,400	0.280
Total Personnel	\$258,160	\$1.986
Reagents		
Cement 10#/ton @ 5¢/1b.	65,000	0.500
Lime 5#/ton @ 22¢/1b.	13,000	0.100
Cyanide 2#/ton @ 68¢/1b.	176,800	1.360
Carbon .04#/ton @ 75¢/1b.	3,900	0.030
Total Reagents	\$258,700	\$1.990
Assaying	15,600	0.120
Refining	5,200	0.040
Fuel Electrolyte Heating \$2,860 Carbon Regeneration 390		
F.E.L. 24,700	27.950	0.215
Power	18,590	0.143
Water Supplies	5,980	0.046
Contract Crushing	52,000	0.400
Total Operating Costs	\$624,180	\$4.940

ESTIMATED OPERATING COSTS - 130,000 TONS/YEAR ZINC DUST PRECIPITATION, INCLUDING CRUSHING

	Cost/Year	Cost/Ton
Supervision		
½ Man @ \$36,000 + 40% Fringe	\$25,200	\$0.194
Labor		
Crusher Operator - 1 @ \$12.50/hr. +40	% Fringe 36,400	0.280
Laborer - 1 @ \$6.50/hr. + 40%	Fringe 18,928	0.146
Pad Operators - 3 @ \$10.00/hr. + 40%	Fringe 87,360	0.672
Loader Operators - 2 @ \$12.50/hr. + 40	% Fringe 72,800	0.560
Refiner & Merrill Crowe Op1 @\$12.50/hr.+40%	Fringe 36,400	0.280
Assayer - 1@\$12.50/hr. + 40%	Fringe 36,400	0.280
Total Personnel	\$313,488	\$2.412
Reagents		
Cement - 10#/ton @ 5¢/1b.	65,000	0.500
Lime - 5#/ton @ 2¢/1b.	13,000	0.100
Cyanide - 2#/ton @ 68¢/1b.	176,800	1.360
Zinc Dust .003#/ton @ \$1.33/1b.	520	0.004
Total Reagents	\$255,320	\$1.964
Assaying	15,600	0.120
Refining	7,800	0.060
Fuel - F.E.L.	24,700	0.190
Power	30,680	0.236
Water Supplies	5,980	0.046
Total Operating Costs	\$653,568	\$5.028

ESTIMATED OPERATING COSTS - 130,000 TONS/YEAR ZINC DUST PRECIPITATION WITH CONTRACT CRUSHING

Supervision Cost/Year Cost/Ton ½ Man @ \$36,000 + 40% Fringe \$25,200 \$0.194 Labor Pad Operators - 3 @ \$10.00/hr. + 40% Fringe 87,360 0.672 Loader Operators - 2 @ \$12.50/hr.+ 40% Fringe 72,800 0.560
½ Man @ \$36,000 + 40% Fringe \$25,200 \$0.194 Labor Pad Operators - 3 @ \$10.00/hr. + 40% Fringe 87,360 0.672 Loader Operators - 2 @ \$12.50/hr.+ 40% Fringe 72,800 0.560
Labor Pad Operators - 3 @ \$10.00/hr. + 40% Fringe 87,360 0.672 Loader Operators - 2 @ \$12.50/hr.+ 40% Fringe 72,800 0.560
Pad Operators - 3 @ \$10.00/hr. + 40% Fringe 87,360 0.672 Loader Operators - 2 @ \$12.50/hr.+ 40% Fringe 72,800 0.560
Loader Operators - 2 @ \$12.50/hr.+ 40% Fringe 72,800 0.560
Define a
Refiner & Merrill Crowe Operator- 1 @ \$12.50/hr+ 36,400 0.280 40% Fringe
Assayer - 1 @ \$12.50/hr. + 40% Fringe 36,400 0.280
Total Personnel \$258,160 \$1.986
Reagents
Cement -10#/ton @ 5¢/1b. 65,000 0.500
Lime - 5#/ton @ 2¢/1b.
Cyanide - 2#/ton @ 68¢/1b. 176,800 1.360
Zinc Dust .003#/ton @ \$1.33/1b. 520 0.004
Total Reagents \$255,320 \$1.964
Assaying 15,600 0.120
Refining 7,800 0.060
Fuel F.E.L. 24,700 0.190
Power 18,590 0.143
Water Supplies 5,980 0.046
Contract Crushing 52,000 0.400
Total Operating Costs \$638,150 \$4.909



MILLSAPS MINERAL SERVICE, INC.

August 21, 1985

Mr. Ben F. Dickerson III DMEA Ltd. Suite 111B East 7340 Shoeman Lane Scottsdale, AZ 85251

RECEIVED AUG 2 3 1985

Dear Ben:

Enclosed are the preliminary cost estimates for the projected Vulture tailings heap leach. The capital cost estimate is based upon all new equipment to outfit a "poor boy" operation. Equipment quotations were obtained from local vendors in Salt Lake City. Pad and pond costs were obtained from Judco in St.George, Utah. They are operating a heap leach on Silver Reef tailings. Their pads and ponds are a little larger than you will need, but the cost per square foot, or cubic foot, should be very close.

An addendum to the capital cost estimate is enclosed, which shows the savings obtainable by using the used equipment from the Searchlight, Nevada property.

The cost estimates are based upon a production of 11,000 tons per month, utilizing a 15-day leach cycle, and using 8 foot high stacking of the agglommerates. The pads will be designed for continuous use with a minimum of three courses being stacked.

500 tpd

The cost of moving the tailings is assumed to be \$1.00 per ton. This should place them in the hopper ahead of the agglommerator.

Labor costs are based upon present costs of comparable projects in Nevada.

While I have included the cost of a used 980 front end loader, one machine should be able to move the tailings into the hopper and then do what work is needed at the plant site. Therefore, in operating costs I am eliminating the front end loader operator from the plant personnel.

A good foreman, or whatever you wish to call him, should be able to supervise all the operation, including the mining, leaching and refining. I have included the cost of an assayer, even though you may decide to have the assaying done outside.

As the operation is of such limited duration, fringe benefits might be held to a minimum. There should be no retirement or pension costs, although there will probably be health insurance, vacations, sick leave, plus all the required unemployment, workman's compensation, etc. Therefore I figured costs including 30% for fringes.

All of the costs are based on best available information, but due to lack of engineering data, steel, concrete, piping and electrical costs are based upon factors generally used in the industry.

Thank you for the opportunity to develop these costs for you.

Very truly yours,

MILLSAPS MINERAL SERVICE, INC.

Frank W. Millsaps

Enclosures

CAPITAL COST ESTIMATE SUMMARY

A.	Equipment in Plant	\$229,300	
	Frt. @ \$12.50/cwt., 63,800#	8,000	
	Unloading & Handling At Site	4,500	
	Sales Tax @ 3½%	8,025	
	TOTAL COST EQUI	IPMENT AT PLANT	\$249,825
D	Mobile Environt		
В.	Mobile Equipment	D /4 ?	
	Used Front End Loader, Cat.980	JB 12452	115,000
c.	Buildings & Structures		
	Process & Security		20,000
			20,000
D.	Concrete		
	Foundations 4 yds. @ \$250/yd.	1,000	
	Slabs	3,500	
			4,500
E.	Structural Steel		
	Included with Equipment		
F.	Electrical		
	Switch Gear, MCC, Wiring &		
	Lighting		7,000
G.	Piping		
	Process & Domestic Water		15,000
Н.	Pads		35,000
_	Paris Paris (Paris 10 - 61 -		40.000
Ι	Ponds Barren/Preg./Overflow		13,250
J.	Equipment Installation		4,500
			4,300
	TOTAL A THROUGH	J	\$464,075

K. Engineering		\$23,100				
L. Water System (to Plant)		10,000				
TOTAL A THROUGH L		\$497,175				
Contingency		75,000				
Total Estimated Plant Capital Cost		572,175				
Start-Up Working Capital @ 1 %		5,725				
TOTAL		\$577,900	# 463,000			
ADDENDUM						
Estimated Capital Cost Using New Equipment		\$577,900				
Estimated Capital Cost Using Equipment from Searchlight, NV						
Subtract \$151,000 for items available	-\$151,000					
Add modifying for use	+ 53,000					
Add cost of Equipment	+ 18,000					
Total Change	- 80,000					
Total Estimated Cost Using Available Used Equipment		\$497,900	less loader 383,000			

EQUIPMENT LIST (NEW)

ITEM	DESCRIPTION	HP	COST F.O.B	
1.	Hopper, 25 T. Cap.		\$6,200	
2.	Feeder, Belt 30" Wide	3	4,000	
3.	Clod Breaker	15	6,500	
4.	Conveyor 30"x 50'	5	8,000	
5.	Cement & Lime Storage		15,000	
6.	Cement Day Bin & Feeder	1/2	4,000	
7.	Lime Day Bin & Feeder	12	4,000	
8.	Agglommerator	25	20,000	
9.	Conveyor Stacker	15	20,000	
10.	Carbon Columns (5)		8.000	
11.	Carbon Screens (2)	1	7,000	
12.	Stripping System		25,000	
13.	Electrolytic Cell	-65	27,000	
14.	Regeneration Kiln	5ay: 75hp	63,000	
15.	Melting Furnace propana		8,000	
16.	Pumps (2)		2,400	
17.	Electrolyte Pumps (2)		1,200	
	TOTAL E	QUIPMENT	\$229,300	

ESTIMATED DIRECT OPERATING COSTS 132,000 TPY

Support of an	Cost/Yr.	Cost/Ton		
Supervision 1 No. 0.00 1.00% To 1	444.000			
1 Man @ \$36,000 + 30% Fringe	\$46,800	0.355		
Labor	01 100	0.615		
Pad Operator - 3 @ \$10/hr. + 30% Fringe	81,120	0.615		
Refiner & Carbon Oper 2 @ \$12.50/hr. + 30% Fringe		0.512		
Assayer - 1 @ \$12.50/hr. + 30% Fringe	33,800	0.256		
Watchmen/Security - 3 @ \$8.50/hr. + 30% Fringe	68,952	0.256		
TOTAL PERSONNEL	\$298,272	2.260		
Reagents Cement 10#/ton @ 5¢/1b.	66,000	0.500		
Lime 5#/ton @ 2¢/1b.	13,200	0.100		
Cyanide 2#/ton @ 83¢/1b.	219,120	1.660		
Carbon .04#/ton @ 75¢/1b.	3,960	0.030		
TOTAL REAGENTS				
	\$302,280	2.290		
Assaying	15,600	0.118		
Refining	5,200	0.039		
<u>Fuel</u>				
Electrolyte Heating \$2480				
Carbon Regeneration 350	2,830	0.021		
Power - 113 KWH Demand @ 7¢/KWH	16,460	0.125		
Water Supplies	5,980	0.045		
TOTAL ESTIMATED DIRECT PLANT OPERATING COSTS	\$646,622	\$4.898		
Tailings Reclaiming ? \$1/00	\$132,000	\$1.000		
TOTAL ESTIMATED DIRECT OPERATING COSTS	\$778,622	\$5.898		
Estimated Direct Operating Cost/oz. Au. Produced				
$132,000 \times 0.044 \times 0.75 = 4,356 \text{ Oz./year}$		\$178.75		