

830249
QUE/6.7

SEREM. PROJECT

EST. COSTS: (PRODUCTION PREPARATION; EXCEPT MILL,)

<u>1</u>	ROAD UPGRADING	-	\$ 32 K
<u>2</u>	INITIAL FUEL FILL	-	400 K
<u>3</u>	LABOUR	-	18 K
<u>4</u>	TRANSPORTATION - PERSONNEL & SUPPLIES	-	90 K
<u>5</u>	BOARD & ROOM - CATERING	-	18 K
<u>6</u>	INITIAL SUPPLIES	-	30 K
			<u>\$ 588 K.</u>

EQUIPMENT AVAILABLE ON SITE - BAKER:

- 2 Mack Trucks - 15 Ton
- 1 Mechanic's Service Truck
- 2 Toyota Land Cruisers
- 2 Pick-ups (not in good shape)
- 1 Hyab Flat Deck (with removable 3000 Gallon fuel tank.)
- 1 D7G Cat.
- 1 F.E. Loader
- 1 Cat Grader

1984-02-22

To: J.A. STEWART
From: W. MUIR

THE SEREM PROPERTY

This report is a brief account of costs estimated to bring the DuPont/Baker mill on line to treat the Serem ore.

Given - mill feed to be 300 ton/day.

CRUSHING

Crusher equipment is all adequate, however it is recommended jaw crusher discharge be screened prior to feeding to cone crusher. This would be accomplished with addition of a vibrating screen to remove fines. Screen placement would be east side of the cone crusher, feed to the screen would be accomplished by extending No. 1 conveyor.

With fines removed, cone crusher could be set lighter than Baker had ($1\frac{1}{2}$ - $5\frac{1}{8}$) and power used in crushing better utilized thus decreasing power required in grinding section

- COST - \$20,000
- Ore haulage to Baker site from Serem would require extra equipment. Purchase of two more Mack trucks required COST $2 \times 80,000 = \$160,000$
new loader at Serem site COST \$150,000
rock breaker at coarse Ore Bin COST \$60,000
 - Crushing would be carried out on every shift
Therefore add 2 operators.
 - Ore shed is a debatable expenditure

GRINDING

Ball mill, fine ore bin need not be expanded. Pump and classification equipment will have to be changed/added to.
COST - \$15,000.

- metallurgical test data re: optimum grind level a big question. Screen prospectus indicates overall recoveries of 97% gold and 90% silver attainable, however grind level not given.

CYANIDATION

Existing leach tank volume is $\sim 10,000 \text{ ft}^3$ and mechanisms are not powerful enough.
at 300 ton/day; 55% solids; S.G. ore = 2.7
Retention time = 21 hrs.

- Therefore leaching system would have to be expanded.

Rough estimate if leaching system had to be expanded to 40 hrs and improve agitation

tanks	\$62,000	(4)	
agitators	\$100,000	(4)	
low pressure air comp	\$45,000	(1)	
pipings/power	\$15,000		
building	\$20,000		
	\$242,000		
			\$275,000
			15% contingency

CYANIDATION CONT'D

Another thickener would be a large commitment. As Serem ore has next to nil clay, as opposed to 10-15% in Baker ore and rerouting of some water streams lightening the load on the existing 28ft dia thickener is possible and perhaps the existing thickener would be adequate.

Should look at thickener sizing formula again. This facet of the operation depends on fineness of grind not yet established.

FILTERING

Expansion of the filtering section would be required and it would seem appropriate the existing belt filter at Baker be removed and in its place install 3 8' x 10' drum filters. Each filter would have its own vacuum system.

Purchase of new or used equipment will have an impact on final price.

Estimates on this facet of the expansion could conceivably range from \$500,000 to \$700,000 for purchasing. Installation costs on top of the purchase costs plus ancillary equipment (replacer pkg) say \$1,000,000 total.

PRECIPITATION

No new equipment required

REFINERY

No new equipment required

TAILING DISPOSAL

Based on Baker experience

summer operation 1.2 ton/yd³

winter operation 0.4 ton/yd³

with the exfiltrating pond.

When considering construction, would likely build the pond/dam all at once

Rule of Thumb

\$8000 × √ tons/day = \$ to build pond

$$= \$8000 \times \sqrt{300}$$

$$= 8000 \times 17.5$$

$$= \$140,000$$

× 2 for being where it is = \$280,000

× 2 for water reclaim, liquid effluent treatment ^{\$ COST} \$560,000

POWER

a) add 1 generator set - \$200,000

rearrangement of existing gen sets \$100,000
including waste heat reclaim system

TOTAL \$300,000

The fact that it may still be possible to run the expanded plant on two generators, they would be run at a very high load. Therefore expect failure sooner. If it is necessary to run three gen sets all the time, then must have one on standby as originally done for 100 TON/PM

Addition of one gen set is a safety margin.

b) MCC expansion → can use existing room but would have to add panels.

\$20,000

AIR OPERATION

Aircraft (twin otter) and hangar

purchase price \$1.4 M.

On a lease basis \$33,000/mo.

ASSAY LAB.

Consider adequate.

ROAD TO SEREM.

Upgrade existing road or put in a new one.

Upgrading - \$100,000

New road - \$300,000 *

* This road would go up to the headwaters of Galen (Castle) Creek and over along the ridge to Serem ore body. Advantage of this is possible ore reserves near road at Cliff Creek and Dukes Ridge see map.

FRESH WATER SUPPLY

Consider existing supply adequate

Since the mill would probably recycle considerable water, there is no need for fresh water in mill.

OPERATING COST PROJECTION

	\$1,000 (100 ton) F		(300)
Raw Materials	65.8	i)	197.4
Mining Supplies	10.0	ii)	30.0
Diesel Oil	104.8	iii)	272.5
Maintenance Supplies	50.0	iv)	85.0
Air	39.8	v)	48.9
Salaries	45.3	vi)	65.7
Wages	138.0	vii)	207.0
Benefits	17.4	viii)	26.1
Catering	38.1	ix)	57.9
Drilling	10.7	x)	32.1
Contract Services	16.4	xi)	16.4
Head Office	21.5	xii)	28.6
Taxes / Insurance	22.4	xiii)	31.3
Travel	11.2	xiv)	17.0
Miscellaneous	13.6	xv)	40.8
	<hr/> 605.00		<hr/> 1156.70

add starting eng
to VCE group

TONS PER MO. 3000 9000

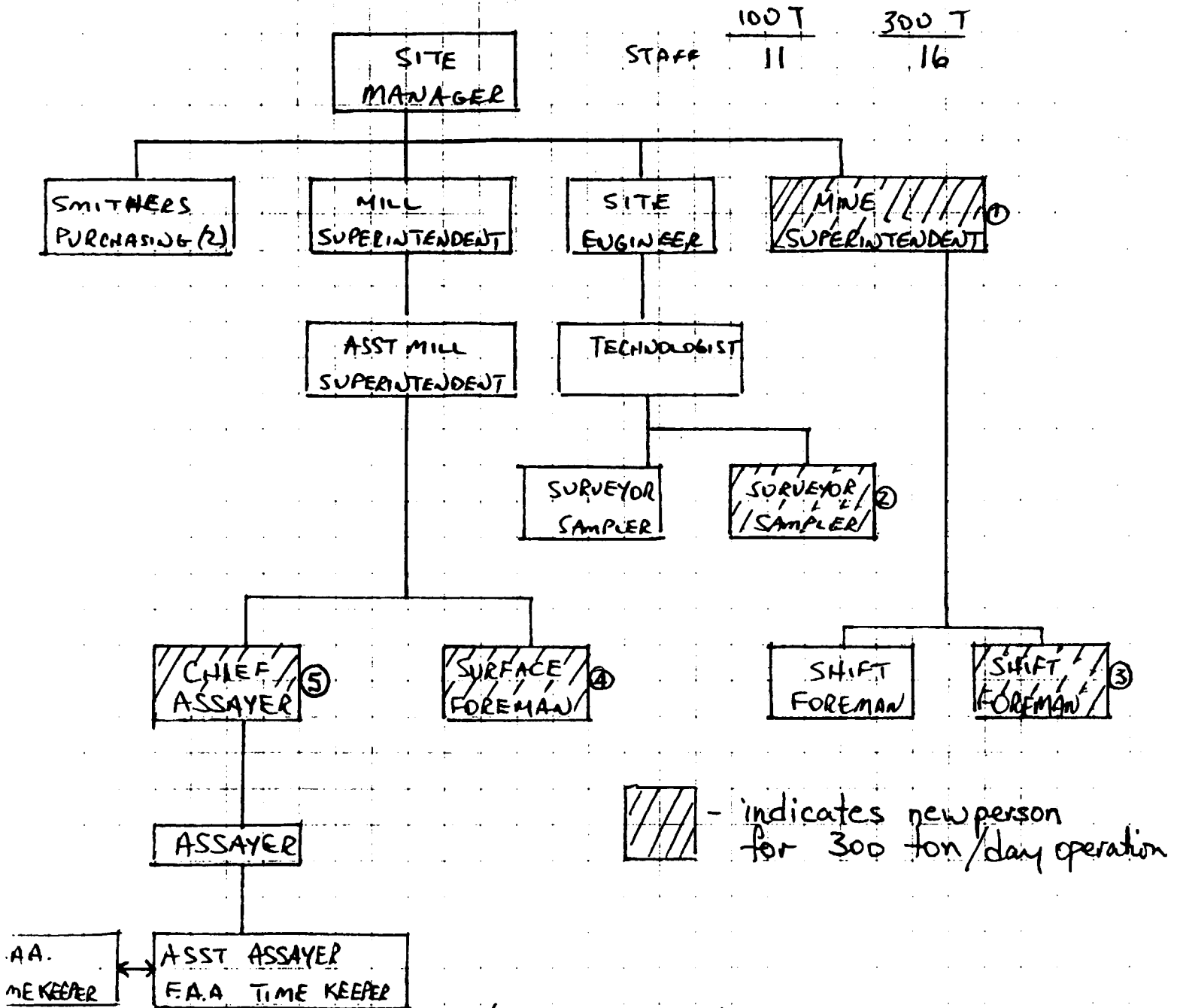
UNIT COST \$201.67/ton \$128.52/ton

F-Factor for 300 ton/day estimates

- i) 3 $(\frac{300}{100})$
- ii) $(3.0 \times .8x) + .2x = 2.6x$
- iii) $(3.0 \times .35x) + .65x = 1.7x$
- iv) $(\frac{35}{23} \times .45x) + .55x = 1.23x$
- v) $\frac{16}{11} = 1.45$
- vi) $\frac{51}{34} = 1.5$
- vii) $\frac{68}{44} = 1.52$
- viii) no change - 1.0
- ix) $\frac{4}{3} = 1.33$
- x) $(3.0 \times .2x) + .8x = 1.4x$

Key → $(3.0 \times \text{variable } \$.8x) + \text{fixed } \$.2x$
 $x = \$ \text{ cost for } 100 \text{ ton/day.}$

MINE ORGANIZATION CHART



- indicates new person for 300 ton/day operation

	100 T/D	300 T/D
SURFACE : H.D. MECH'S	3	4
CAMP OPERATORS	1	1
	<u>4</u>	<u>8</u>
	8	13
MINE : MACHINER DR	1	2
SCOOP OP	2	4
MINERS	7	14
	<u>10</u>	<u>20</u> *
MILL : OPS	16	18
TOTAL	<u>34</u>	<u>51</u>

* 2-FULL SHIFTS

Economic Strategy

To put the Baker mill into production it is suggested high grading the upgraded reserve tonnage for a year, then expand to mill remainder of upgraded ore body.

Prospectus indicates

Upgraded tonnage	oz/t GOLD	oz/t SILVER	oz/t (GOLD EQUIV)	TOTAL GOLD EQUIV	GOLD EQUIV OZS
335,275	0.28	8.57	(0.21)	0.49 oz/ton	164,285

Of the ore given above, there are high grade blocks

Say we mill 36,000 tons of high grade ore

TONS	oz/ton GOLD EQUIV	RECOVERY %	TOTAL GOLD EQUIV RECOVERED oz/ton	EQUIV OZS RECOVERED
36,000	1.02 (36,720 ozs)	88	0.897 oz/ton	32,040

Revenue from 32,040 ozs @ \$500 C = \$16.02 M
 Operating costs 1 year = \$ 8.0 M
 Net = \$ 8.02 M less
DuPont mill cost & start up costs

Then install equipment to upgrade plant to handle 300 ton/day

TONS	oz/ton GOLD EQUIV	RECOVERY %	TOTAL GOLD EQUIV RECOVERED oz/ton	EQUIV OZS RECOVERED
299,275	0.42 (127,565 ozs)	84	0.358	107,154

Revenue from 107,154 ozs @ \$500 C = \$53.57 M
 Operating costs 2.8 years = \$38.46 M
 Net = 15.11 M less
expansion costs.

Start Up 100 T/DAY
Capital Outlay for Baler start up 100 tm/day.

- Road \$100,000
- Mining Dev. \$100,000
- Tailing Pond \$100,000
- 4 Months Op Supplies \$750,000
- Mill \$100,000

SUB TOTAL \$1.15 M

Plane/Hangar 1.4 M
TOTAL \$2.55 M

+ COST of DUPONT MILL as is

Expansion 300 T/DAY

- Crushing - \$390,000
- Grinding - \$15,000
- Leamidation - \$275,000
- Filtering \$1,000,000
- Tailing Pond \$560,000
- Power \$320,000
- New Road? \$300,000
- TOTAL \$2.86 M

Independent Evaluation

The Company retained Robertson to advise of the appraised value of the mining properties held by the Company. Robertson's opinion as to the appraised value of the Company's holdings in these properties was \$24,427,000 as at September 30, 1983.

A copy of this valuation report has been filed with the securities authorities in each province in Canada. This report will also be available for inspection at the registered office of the Company during ordinary business hours while the securities offered by this prospectus are in the course of distribution to the public and for a period of 30 days thereafter.

Major Project — The Lawyers

The Lawyers property is a gold-silver project located in the Toodoggone River area of north-central British Columbia, approximately 175 miles north of the town of Smithers. The property is accessible only by air although it would be practical to construct a 50 mile road which would connect the property to a provincial highway if a mine is put into production.

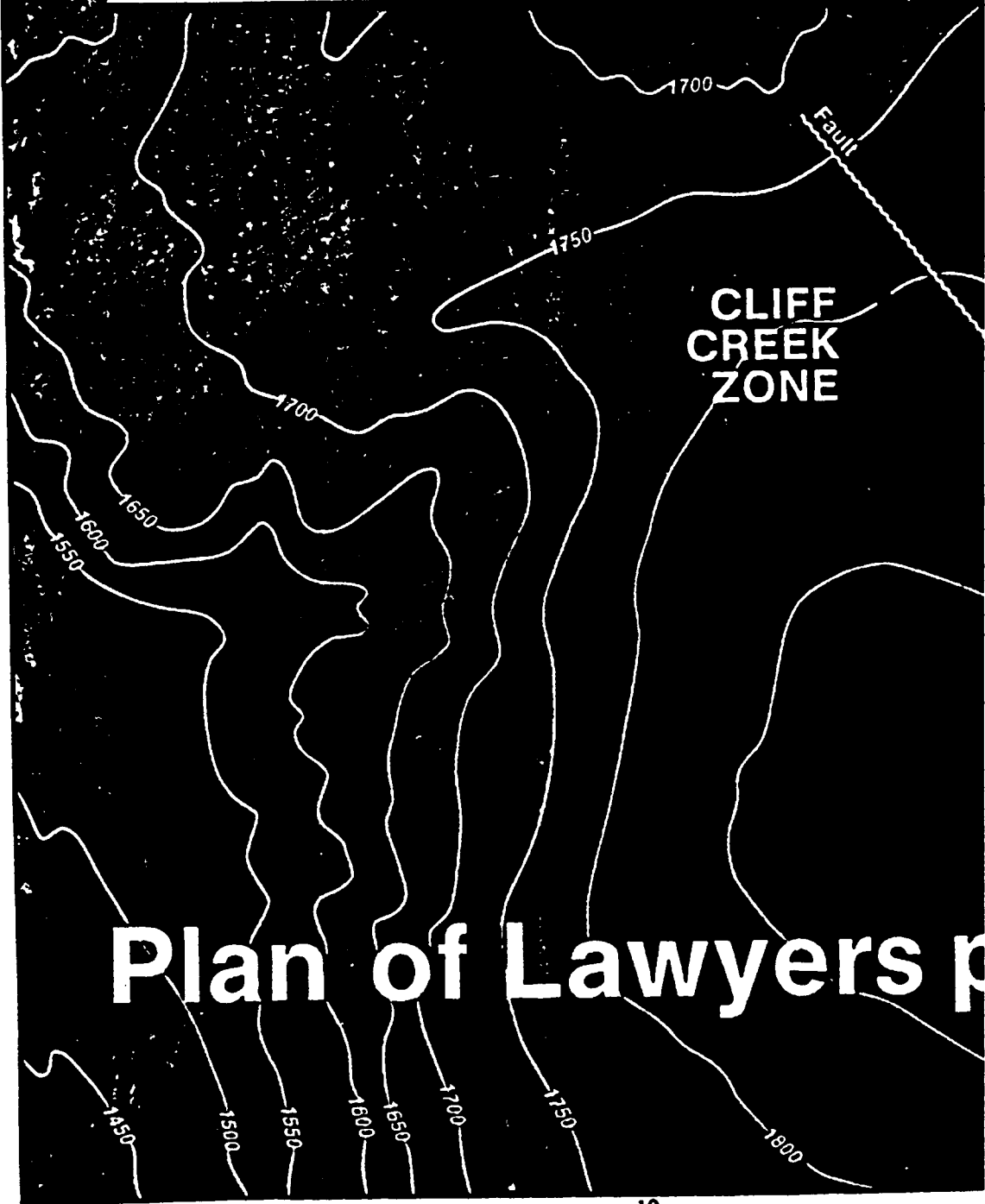
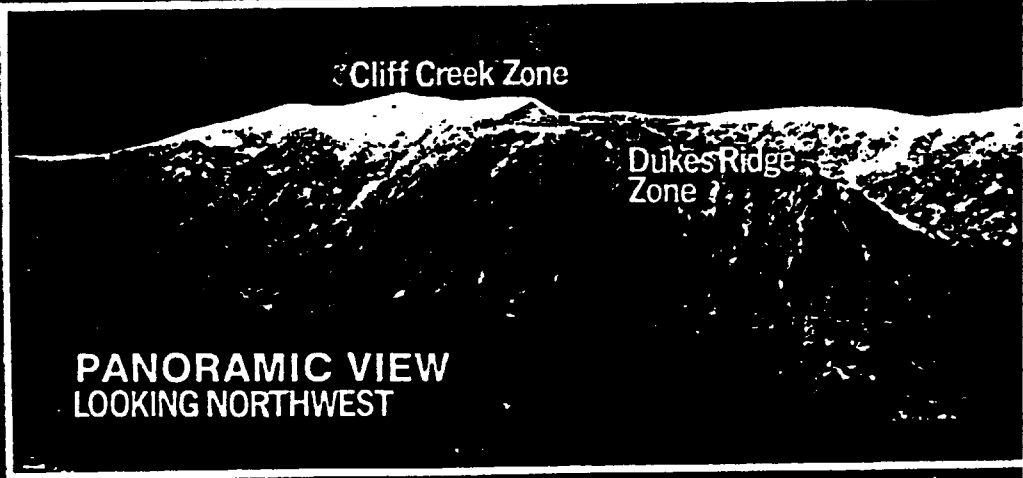
Gold and silver values were first discovered in the area in 1968 as a result of a regional geochemical program conducted by Kennco Explorations, (Western) Ltd. ("Kennco"). Further exploration work established both the Lawyers property and the Baker Mine which lies approximately five miles to the south-east of the Lawyers. The Baker Mine, which is operated by Du Pont of Canada Exploration Ltd., commenced commercial production of gold and silver in March 1981 and is currently producing at the rate of 100 tons per day.

Pursuant to an agreement dated May 15, 1979, Kennco optioned the Lawyers property to Semco Mining Corporation ("Semco") subject to a retained 20% interest entitling Kennco to 20% of net profit on production from the property after recovery of preproduction expenditures. On July 25, 1979, Serem obtained an assignment of this agreement from Semco, subject to a 5% net profit interest, and formed a joint venture in 1980 (with a formal agreement entered into on January 1, 1981) with Agnico-Eagle Mines Ltd. ("Agnico-Eagle") and Sudbury Contact Mines Ltd. ("Sudbury Contact") with the Company as operator. Major work programs were carried out under this agreement during 1980 and 1981. After the 1981 work program, Agnico-Eagle and Sudbury Contact elected not to participate in future programs relating to the property and, accordingly, will have their interests diluted as expenditures continue to be made until such time as their aggregate joint venture interest reaches 20%. Thereafter Agnico-Eagle and Sudbury Contact will be entitled to receive 20% of the net profits realized by the joint venture after recovery of preproduction expenditures.

Under the 1979 agreement with Kennco, Serem has an option, exercisable before January 31, 1988, to purchase a further 5% interest in the property for \$750,000. As Agnico-Eagle and Sudbury Contact have declined further participation in this project, they are not entitled to share in this further interest, if acquired, and, accordingly, the benefit derived from an exercise of this option would accrue solely to Serem. The Company intends to exercise this option if the property is placed into production prior to January 31, 1988 and would thereby increase its interest in the Lawyers to 65%.

Geologically, the property is underlain by a sequence of Jurassic Age volcanics in which mineralization in the form of gold, electrum (gold-silver), native silver and argentite (silver sulphide) occurs in silicified breccia zones traversing the volcanic complex. The bedrock surface is covered for the most part by several feet of rock rubble which is essentially in place.

The most important zone discovered and defined to date, the Amethyst Gold Breccia Zone (the "AGB Zone"), strikes north-south and extends for approximately 2,000 feet with widths up to several hundred feet. The significant mineralization within this zone occurs in a core of more intense silicification toward the footwall of the structure. Since 1979, the Company has completed 34,260 feet of surface diamond drilling, 3,966 feet of trenching, 2,508 feet of underground horizontal adit development on one level of the zone (approximately 300 feet below outcrop) and 7,044 feet of underground definition diamond drilling. Based on this exploration, the drill-indicated



Plan of Lawyers p

reserves of the AGB Zone (after applying assay cutting factors and an allowance for anticipated mining dilution) have been calculated by the Company and confirmed by Robertson as follows:

	Tons	Grades		TOTAL GOLD EQUIV.*
		Gold (oz/ton)	Silver (oz/ton)	
Up-graded*	335,275	.280	8.57 (.21)	= .49
Maximum	561,773	.211	7.11 (.17)	= .38

*Up-graded reserves are calculated primarily by deleting marginal blocks while retaining mining continuity.

* Ag/40 = GOLD EQUIV

Preliminary test work by an independent metallurgical laboratory has indicated that overall recoveries of 97% gold and 90% silver using conventional treatment methods may be expected. Based on the foregoing reserves and recovery estimates, the Company has concluded that acceptable operating profits could be derived from the AGB Zone at current metal prices but that reserves must be expanded to provide a viable operating life.

The Company has established two additional zones on the Lawyers property, the Duke's Ridge Zone and the Cliff Creek Zone, which are relatively unexplored but evidence mineralization and silicified breccia with similar potential to that of the AGB Zone at an equivalent stage of exploration. The Company has completed 15,826 feet of trenching and 6,517 feet of surface diamond drilling on these zones.

The Company's 1984 work program is expected to include a second adit level and surface and underground drilling on the AGB Zone and further diamond drilling and trenching on the Cliff Creek and Duke's Ridge Zones.

Other Gold and Silver Projects

Toodoggone

This exploration project which consists of ten groups of claims is located in the general area of the Lawyers and the Baker Mine volcanic belt and is a joint venture of the Company, Agnico-Eagle and Sudbury Contact with the Company as the operator. Agnico-Eagle and Sudbury Contact have elected not to continue participation in the venture and as further monies are expended they will be diluted to an aggregate 5% net profit royalty. Project personnel work out of the Lawyers base camp.

Exploration on the project commenced in 1979 with a regional geochemical program and the Company followed up such program with claim staking and further exploration in anomalous areas through to the end of 1982. Significant gold and silver values have been found or are indicated on several of the groups. One claim group of particular interest indicates gold-silver values occurring in a similar geological environment to that of the Lawyers project situated one mile to the south-east.

The 1984 and 1985 programs for this project include further prospecting, detailed mapping and follow-up trenching and diamond drilling.

Lesperance

The Lesperance project is located approximately 140 miles north-east of Val d'Or, near the village of Desmaraisville on the Senneterre-Chibougamau highway and railway. This project, which commenced with a 1978 airborne survey, and the Entente J-1 and Grevet-Mountain projects described below are part of an extensive basic exploration program carried out under a joint venture agreement between the Company and Société de Développement de la Baie James ("SDBJ"), a crown corporation of the Quebec Government. Under the terms of the joint venture agreement, SDBJ is obligated to contribute to work programs on each of these projects on a pro-rata basis but may elect not to participate in expenditures not contemplated by the original program and thereby suffer dilution.

In the late 1940's, exploration activity in the area resulted in a number of gold discoveries. One of these, Bachelor Lake Gold Mines Inc. ("Bachelor Lake"), has recently been brought into production and a second, the Lac Shortt deposit of Corporation Falconbridge Copper, is now under production development.

Three of the claim groups on the Lesperance project are of particular interest. The first, less than one mile north of the Bachelor Lake property, has gold potential related to a 3,000 foot long geophysical anomaly which has been tested by six drill holes. The most promising result was a 4.9 foot core section which assayed 0.31 ounces of