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Willa
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THE WILLA PROJECT
TREMINCO RESOURCES LTD.
INFORMATION RELATED TO PROCEEDING TO PRODUCTION
OCTOBER 15, 1994

SUMMARY

The Willa Gold-Copper deposit is well situated in south central British Columbia. Extensive exploration and mine development during the past twelve years has defined gold-copper reserves in the order of 500,000 tons, which includes approximately 100,000 ounces of gold. The potential for adding substantially to these reserves is excellent. The gross value of the developed portion of these reserves at present metal prices is 60 million dollars Cdn.

Treminto acquired the property in 1990 from the former owners for a sliding scale Net Smelter Royalty tied to the price of gold.

The information contained in the following sections examines strategies, costs, and economics for placing the Willa deposit into production. A two stage programme is recommended.

In stage I, a test mining programme involving 10,000 tons would be processed at a custom mill. Revenues from this programme would be \$1,130,000 and operating costs of \$720,000 for a \$410,000 operating profit.

Stage II proposes the acquisition of a 1,500 ton presently permitted mill, and the completion of mine development. Capital costs are estimated at \$1.9 million dollars. A financial plan based on a tonnage rate of 200 tons per day for six years indicates an IRR rate of return 113% before taxes.

If ore reserves, which come with the mill acquisition, are processed along with Willa ore, an additional \$850,000 capital is required, but the increased revenue increases the IRR to approximately 400% before taxes (see Appendix A).

REVISION 1
October 27, 1994

THE WILLA PROJECT

BACKGROUND

The Willa Property is situated in south eastern British Columbia, 30 miles north of the town of Nelson. It sits in the heart of the Slocan Mining District, 5 and 8 miles from the towns of Silverton and New Denver respectively in which the majority of Treminco's Sandon division employees reside.

Access is by paved highway No. 6 that bears northwards through the Slocan from Castlegar and Nelson and then by approximately 2 miles of all weather road to the workings.

The mine workings range between 800 and 1500 feet above the No. 6 highway.

The property has been explored sporadically since 1893 for copper and gold. In 1979, Riocanex and BP Minerals optioned and staked claims respectively, and then pooled their claims. The property currently comprises 21 units.

In 1980, the joint venture commenced surface drilling in the vicinity of the old workings to test molybdenum and copper-gold targets. From 1981 through 1984 drilling continued and in 1985 Northair became a partner and drove an adit, 883 m in length, to provide access for underground drilling. Work continued until 1988. Total underground workings amount to 2500 meters of raises and drifts and approximately 49,000 meters of diamond drilling.

Surface and underground drilling has shown that the molybdenum target is too low grade to be of current economic interest, but that at least three copper-gold zones are present that are of mineable sizes and grades. Very low grade silver values accompany the copper and gold. Ore reserve calculations show the three zones to contain:

<u>Zone</u>	<u>Reserve Type</u>	<u>Category</u>	<u>Cut-off oz/t Au</u>	<u>Tons</u>	<u>Au oz/t</u>	<u>%Cu</u>
West	Mining	Proven	0.100	456,727	0.173	0.91
East	Geological	Proven	0.100	44,111	0.185	0.74
Main	Geological	Probable	0.100	45,000	0.150	0.57
Main	Geological	Possible	0.100	15,000	0.150	0.57
Totals:				560,838	0.171	0.86

In this report all tonnages (symbol t) refer to short tons (2,000 lbs). Precious metal grades, therefore, refer to troy ounces per short ton.

Underground development has shown that ground conditions and stability are excellent. Water inflow is low to moderate.

Surface exploration has shown that at least two main target areas are present on the property: the area of the old workings that has been the subject of the current attention; and another 800 meters to the north that has received rudimentary attention, but at a comparable level of development, compares favourably with the results obtained in the area of the old workings.

Recent underground exploration by means of long-hole diamond drilling has intersected distal gold and copper bearing zones that deserve follow-up. This drilling has shown that the potential for finding additional mineralization is excellent.

Extensive bench scale testing and bulk sampling of a 545 ton sample of ore has shown that 82% of the gold and 92% of the copper is recoverable by flotation and gravity concentration after grinding to 90% -200 mesh. Less than 15% of the gold is recoverable in the gravity circuit.

To date (mainly during the period 1980-1988) approximately \$15,000,000 has been spent by Reocanex, BP and Northair on property exploration and reserve access development. The mine could be placed in economic production for modest additional mine development costs.

Treminco acquired title to the property from the above owners subject to a sliding royalty agreement as follows:

Au price	Less than \$470 Cdn.	- 2%
	470-525	- 4%
	+525	- 6%

and certain venter royalties that average approximately \$30,000/year. Under Northair direction a number of in-depth environmental studies were carried out, which have defined the parameters required for placing the property into production. A number of trial production rates have been analysed leading to the conclusion that a production rate of approximately 500 tons per day (180,000 tons/year) appears to offer the best potential for cost efficiencies. This would have to be complimented by further underground exploration and development of presently identified targets in order to maintain ore reserves.

PROJECT APPROACH, COSTS & ECONOMICS

STAGE I - Test Mining

An analysis indicates that within the approximate 500,000 ton ore reserve there can be mined a higher grade core of approximately 100,000 tons grading approximately 0.3 oz/ton Au and 1% Cu. To confirm the validity of this assumption it is proposed to obtain a bulk sample of approximately 10,000 tons from a combination of raises located to provide grade data on designated reserve blocks.

Arrangements are in place with Bethlehem Resources Corporation to treat a 10,000 ton test batch of Willa ore. Pending favourable results from the test batch, a longer term arrangement for treating approximately 200 tons per day has been discussed. Other alternatives for processing Willa ore have been investigated which may be more attractive.

The test mining proposal would involve equipping the present underground workings with compressed air and ventilation, relocating the access road to highway transport haulage grades, and extracting the 10,000 ton batch from higher grade gold sections adjacent to the present underground drifts.

The cost estimates related to this proposal are as follows:

Capital Costs:

Upgrade access road	\$50,000
Equip mine for test mining	<u>50,000</u>
Total	\$100,000

Operating Costs:

<u>MINING</u>	<u>\$/Ton</u>
Stope	\$30
Transport to Mill	14
Mill	25
Administration	<u>5</u>
Total	\$72.00/ton
Cost for 10,000 tons	<u>720,000</u>
Total Costs	\$820,000

Revenue Generation

Based on ore treatment at Bethlehem, under the present terms agreed to, a 10,000 ton test batch would generate revenues as follows. The following parameters have been used:

Gold price	\$525/oz Cdn.
Copper price	\$1.50/lb. Cdn.
Test batch tons	10,000
Net Recovery Au	83%
Net recovery Cu	93%
Au grade	0.25 opt
Cu grade	0.95%

Revenues to Treminco

Au	10,000 X 0.25 X .83 X \$525	=	\$1,090,000
Cu	10,000 X 0.95 X .93 X 20 X 0.50 X 0.5	=	<u>44,000</u>
Total			\$1,134,000

Operating Profits

Revenue	\$1,130,000
Less Stage I Costs	<u><820,000></u> (including \$100,000 Capital)
Net	\$ 310,000

STAGE II - Willa Mine As An Ongoing Operation

1. Mining - Preproduction Plan & Costs

Access and ventilation openings for the main ore reserves have been completed.

Required are openings to permit mining of ore and collection for shipment to surface. Blast hole open stoping has been selected as the method for recovery of approximately 80% of the ore. The remaining 20% will probably be mined by either shrinkage and/or open scraper stopes by jackleg pneumatic drills.

The blasthole method will involve bracketing the ore bodies with subdrifts from which 2 1/4" blastholes will be drilled with pneumatic drills. A preliminary estimate of development work required is as follows:

	<u>Ft</u>	
Subdrifts	2700	
Slot Raises	400	
Access Raises	1000	
Scraper & Subdrifts	<u>1000</u>	
Total development	5100	
Stope development	<u>500,000</u>	= 98 tons/ft.
	5,100	

Approximately 35% of this work would be required prior to commencement of production.

Cost would be: $0.35 \times 5100 \times \$250/\text{ft} = \$446,000$

Purchase of used mining equipment and setting up in mine: 450,000

Total of Preproduction Development \$900,000

2. Ore Concentration - Milling Options & Capital Costs

A number of alternatives have been explored for the processing of the Willa ore. The metallurgical test work indicates that the production of a Copper flotation concentrate at a grade of approximately 23% Cu and 3.0 oz.Au/ton is a reasonable expectation, and this has been assumed in all milling options. All gold would report to the Copper Concentrates.

Option 1

Construct a concentrator on one of a number of sites described in the Stage I Report of the Willa Project prepared by Northair. This option would provide:

- a. elimination of road transportation costs.
- b. cheaper mill operating costs.
- c. more effective control of metallurgy.

Based on cost experience related to construction of the 250 T.P.D. Ptarmigan mill at Yellowknife, it is estimated that the capital costs to construct a 500 T.P.D. mill near the Willa mine would be \$2.3 million dollars.

Total Preproduction Costs:

Mine Preparation	\$ 900,000
Mill Construction	<u>2,300,000</u>
Total	\$3,200,000

This option has been ruled out because of the time, energy, and costs related to obtaining necessary approvals to build a mill in the vicinity.

A number of offsite milling options have been considered. These include:

Option 2

Modifying existing Treminco Concentrator at Sandon, approximately 15 miles by road from the Willa mine. A number of reasons rule this out as a practical option.

Option 3

Entering into a business arrangement with the Company controlling the H.B. mill at Salmo, B.C. some 80 miles from the mine. While the mill could be modified to accomodate Willa ore at a reasonable cost, the combination of royalties and operating costs which have been proposed in discussions to date, plus the road transportation costs eliminate any prospective profits.

Option 4

Upon completion of the test batch at Bethlehem Resources, enter into a longer term agreement for treating Willa ore. This has been mentioned in an earlier section.

Option 5

Purchasing a mill facility and property situated in northern Washington state for approximately \$600,000 U.S. the property contains an open pit and underground reserve of approximately 2,000,000 tons of 1% lead and 5 1/2% zinc (not economic at prices below \$0.60 zinc). This facility is permitted for milling of Pb-Zn reserves. A modification of the existing permit, estimated to take six months, would be required to treat the Willa ore.

Treminco would plan to advance mine production over a period of a year to a rate of 200 tons per day (higher tonnage rates are realistic, given the configuration of the deposit). Permitting would proceed while test mining and milling was being carried out. The present Willa reserves provide for 8 years of operation.

A total of \$1.9 million is required as follows:

Equip and develop Willa mine	\$ 900,000
Increase Reclamation Bonding	200,000
Purchase Washington State Mill, modify and increase Reclamation Bonding	<u>800,000</u>
	\$1,900,000

This option provides the best economic rate of return for mining the Willa reserves.

An added bonus would be cash flow to be generated from the Van Stone reserves under higher zinc prices. The mill is sufficiently large that both Willa and Van Stone could be treated in batches simultaneously.

3. Operating Costs

Mining - Direct Mining Costs

- a) Mine Development: 65% of development costs are charged during operating phase as follows:

	<u>Per Ton</u>
.65 X 5100 ft. X \$250/ft. = \$829,000	
\$829,000/500,000 tons	\$1.70
Long hole drilling, loading & blasting	4.00
Collecting ore by Scraper or L.H.D. Equipment	2.00
Transportation labour to surface	<u>2.00</u>
Total Direct Mining	\$9.70
b) General Mine Expense:	
Equipment Maintenance and supplies	\$3.00
Power, primary services	4.00
Engineering services	<u>2.00</u>
Total General Mine Expense	<u>9.00</u>
Total Mine Costs	18.70
2. Diamond drilling ore definition to maintain reserves	5.00
3. Transport to Mill (Option 5)	<u>13.00</u>
	<u>18.00</u>
Total cost to deliver to Treminco owned mill (Option 5)	36.70
4. Milling (Own mill - Option 5)	15.00
5. Local Overhead	6.50
6. Administrative Overhead	<u>1.50</u>
Total Operating Costs	\$59.70
Rounded to	\$60.00

Note: Based on best available information the following are somewhat comparable Operating Costs.

Sullivan Mine - Cominco
Goldstream (budget)

\$36.00/ton
\$55.00/ton

4. Project Economics

A six year economic plan has been developed which is based on mining approximately 75% of the present reserves, concentrating on the higher grade in the earlier years. Prices for metals used and exchange rates are as follows:

Au Price \$385 U.S./ounce
Cu Price \$1.10 U.S./lb.
Exchange Rate \$1.00 U.S. = \$1.37 Cdn.

A concentrate grade of 23% Cu which contains all of the gold will be produced. This will provide a concentrating ratio of 27.2:1. Average concentrate grades will be as follows:

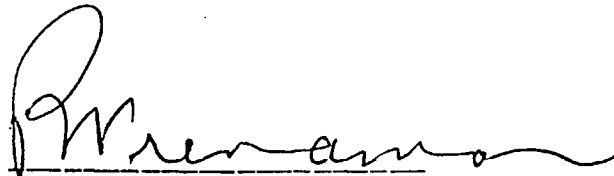
	<u>% Cu</u>	<u>Au Oz/ton</u>
Year 1	23%	4.96
Year 2	23%	4.51
Year 3	23%	3.61

After accounting for smelter charges and freight, returns to Treminco are as follows:

Year 1	\$105.77 Cdn./ton ore treated
Year 2	97.30 Cdn./ton ore treated
Year 3-5	80.42 Cdn./ton ore treated

Operating costs of \$60/ton are used throughout.

See attached cashflow projection. Projected cashflows are pre-tax and would be adjusted according to the company's marginal rate of tax. Financing would be provided by equity.



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Treminco Resources Ltd.

TREMINCO RESOURCES LTD.

CASH FLOW
PROJECTION

BASIC ASSUMPTIONS: GOLD PRICE U.S. \$385/OZ.,
COPPER PRICE U.S. \$1.10/LB., EXCHANGE RATE \$0.73

WILLA MINE	TEST	SUSTAINED PRODUCTION					TOTAL	
	MINING	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5		YEAR 6
Gold Price U.S.\$/oz		\$385	\$385	\$385	\$385	\$385	\$385	
Copper Price U.S.\$/lb.		\$1.10	\$1.10	\$1.10	\$1.10	\$1.10	\$1.10	
Exchange Rate USD/CAD		\$0.730	\$0.730	\$0.730	\$0.730	\$0.730	\$0.730	
Production								
Tons of Ore Mined		10,000	40,000	72,000	72,000	72,000	72,000	338,000
Tons per day			200	200	200	200	200	200
Grade (oz./Ton): Gold		0.25	0.22	0.20	0.16	0.16	0.16	0.23
Net recovery: Gold		83.0%	83.0%	83.0%	83.0%	83.0%	83.0%	99.6%
Ounces Produced: Gold		2,075	7,304	11,952	9,562	9,562	9,562	50,016
Grade (Percentage):Copper		0.95%	0.91%	0.91%	0.91%	0.91%	0.91%	1.10%
Net recovery: Copper		93.00%	93.00%	93.00%	93.00%	93.00%	93.00%	111.6%
Pounds Produced: (,000)		177	677	1,219	1,219	1,219	1,219	5,728
NET SMELTER REVENUE(CAD ,000)		\$1,130	\$4,231	\$7,006	\$5,790	\$5,790	\$5,790	\$29,737
OPERATING COSTS (CAD ,000)								
Mining Costs		\$720	\$968	\$1,742	\$1,742	\$1,742	\$1,742	\$8,656
Transport		\$0	\$520	\$936	\$936	\$936	\$936	\$4,264
Milling		\$0	\$600	\$1,080	\$1,080	\$1,080	\$1,080	\$4,920
Overheads		\$0	\$312	\$562	\$562	\$562	\$562	\$2,560
Royalty @ 4% Northair		\$0	\$168	\$280	\$232	\$232	\$232	\$1,143
Other Royalty		\$0	\$40	\$70	\$70	\$70	\$70	\$320
Reclamation & closure		\$0	\$0	\$0	\$0	\$0	\$200	\$200
TOTAL OPERATING COSTS (CAD ,000)		\$720	\$2,608	\$4,670	\$4,622	\$4,622	\$4,822	\$22,063
PRE-TAX PROFIT (,000)								
CASHFLOW TO COMPANY		\$410	\$1,623	\$2,336	\$1,168	\$1,168	\$968	\$7,674
INVESTMENT: (,000)								
Capital Costs		\$100	\$1,900	\$0	\$0	\$0	\$0	\$2,000
Working Capital		\$720	\$0	\$0	\$0	\$0	\$0	720
EQUITY FINANCING		\$820	\$1,900	\$0	\$0	\$0	\$0	\$2,720
PRE-TAX CASH FLOW		\$410	\$1,623	\$2,336	\$1,168	\$1,168	\$968	\$7,674
NET PRESENT VALUE @ 10% (PRE TAX CASHFLOW) @ \$ 385 US/OZ		\$410	\$1,341	\$1,754	\$798	\$726	\$534	\$5,562

INTERNAL RATE OF RETURN

P.V. OF R.O.I.

THE DISCOUNT RATE THAT EQUATES THE PRESENT VALUE OF CASH OUTFLOWS
WITH THE PRESENT VALUE OF EXPECTED INFLOWS.
(THE RATE OF RETURN AN INVESTMENT IS EXPECTED TO RETURN)

	-410
	-229
EST. IRR	1754
	798
80.00% 112.83%	726
	534

APPENDIX A

WILLA PROJECT

TREATING BOTH WILLA AND VAN STONE
ORE THROUGH VAN STONE MILL

On the following page are cash flow projections based on the following assumptions:

1. The Willa Ore is treated through the wholly owned Van Stone Mill.
2. Both Willa and Van Stone Ore are batched through Van Stone Mill at the following rates:

Van Stone	18,000 tons/month
Willa	6,000 tons/month
3. For Willa, Metal Prices, Recoveries, Ore Grades, Smelter Settlements, and Costs are as shown in Willa Report.
4. For Van Stone, figures used are based on projections developed by Pan American personnel (owners of Van Stone).
5. All dollars are Canadian Dollars.
6. Capital required is summation of requirements from Willa Report; and for Van Stone, Pan American Estimate.
7. Capital Injection is by Equity.

WILLA PROJECT

PRELIMINARY CASH
FLOW PROJECTIONTREATING BOTH WILLA & VAN STONE
ORE THROUGH VAN STONE MILL

TONS MILLED	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	TOTAL
VAN STONE	216	216	216	216	216	216	
WILLA	28	72	72	72	72	72	
ORE GRADES							
VAN STONE; Pb	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	
Zn	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	
WILLA; Au oz/ton	0.23	0.21	0.18	0.16	0.16	0.16	
Cu	0.92%	0.91%	0.91%	0.91%	0.91%	0.91%	
METAL PRICES							
Gold	\$385	\$385	\$385	\$385	\$385	\$385	
Copper	\$1.10	\$1.10	\$1.10	\$1.10	\$1.10	\$1.10	
Lead	\$0.30	\$0.30	\$0.30	\$0.30	\$0.30	\$0.30	
Zinc	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	\$0.55	
Exchange Rate USD/CAD	\$0.730	\$0.730	\$0.730	\$0.730	\$0.730	\$0.730	
NET SMELTER REVENUE(CAD ,000)							
VAN STONE	\$6,625	\$6,625	\$6,625	\$6,625	\$6,625	\$6,625	\$39,748
WILLA	\$3,033	\$7,300	\$5,950	\$5,790	\$5,790	\$5,790	\$33,653
TOTAL	\$9,658	\$13,925	\$12,575	\$12,415	\$12,415	\$12,415	\$73,401
OPERATING COSTS (CAD ,000)							
VAN STONE	\$4,977	\$4,977	\$4,977	\$4,977	\$4,977	\$4,977	\$29,860
WILLA	\$1,893	\$4,670	\$4,670	\$4,670	\$4,670	\$4,670	\$25,243
TOTAL	\$6,870	\$9,647	\$9,647	\$9,647	\$9,647	\$9,647	\$55,103
PRE-TAX PROFIT (,000)							
CASHFLOW TO COMPANY	\$2,788	\$4,278	\$2,928	\$2,768	\$2,768	\$2,768	\$18,298
INVESTMENT: (,000)							
VAN STONE	\$849	\$0	\$0	\$0	\$0	\$0	\$849
WILLA (includes mill)	\$2,720	\$0	\$0	\$0	\$0	\$0	\$2,720
EQUITY FINANCING	\$3,569	\$0	\$0	\$0	\$0	\$0	\$3,569
PRE-TAX CASH FLOW							
	\$2,788	\$4,278	\$2,928	\$2,768	\$2,768	\$2,768	\$18,298
NET PRESENT VALUE @ 10% (PRE TAX CASHFLOW) @ \$ 385 US/OZ							
	\$2,788	\$3,534	\$2,199	\$1,891	\$1,719	\$1,525	\$13,655

INTERNAL RATE OF RETURN

P.V. OF R.O.I.

THE DISCOUNT RATE THAT EQUATES THE PRESENT VALUE OF CASH OUTFLOWS
WITH THE PRESENT VALUE OF EXPECTED INFLOWS.
(THE RATE OF RETURN AN INVESTMENT IS EXPECTED TO RETURN)

EST.	IRR
	-781
	3534
	2199
	1891
400.00%	417.77%
	1719
	1525