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L. J. MANNING & ASSOCIATES LTD.

APPENDICES
TO ACCOMPANY
REPORT ON
RUTH VERMONT MINE BELT
BY
L. J. MANNING & ASSOCIATES LTD
SEPTEMBER 15, 1982

TABLE OF CONTENTS

APPENDICES I, II, & III

APPENDIX I

No.	TITLE		Page
1	Summary of Reserve Estimates	Table 1	6
2 A	Smelter Returns 1981 Operations		8
1	Lead Smelter		9
2	Zinc Smelter		16
B	Cominco Smelter Schedules May 1982		22
1	Lead Concentrate Schedule		24
2	Zinc Concentrate Schedule		31
C	Summaries of 1981 Concentrate Shipments		36
1	Lead Concentrate	Table 2-1	37
2	Zinc Concentrate	Table 2-2	37
3	Summary of Tailings Grades	Table 3	38
4	Application of 3 Product Formula to Data from Appendices I-1, I-2 & I-3		39
5 A	Calculations of Probable Smelter Receipts & Charges		40
1	Lead Smelter		41
2	Zinc Smelter		42
B	Total Probable Net Smelter Returns	Table 4	43
6	Annual Average Prices Escalated to 1981 Rates by the Consumer Price Index		44
A	Table of Prices Inflated to 1981 Rates	Table 5	45
B	Graphs of Metal Prices Quoted & Inflated		
1	Gold LME Initial	Graph 1	47
2	Silver Handy & Harman	Graph 2	48
3	Lead St.Louis/U.S.Producer	Graph 3	49
4	Zinc East St.Louis/U.S. Prime Western	Graph 4	50
7	Operating Costs for 7,000 TPM & 15,000 TPM	Table 6	53
8	Operating Profit Per Ton Ore & Per Year	Table 7	55
9	Net Smelter Returns, Percent of NSR From Silver & Operating Costs, All By Years	Graph 5	56
10	Analysis of Table 7	Table 8	57

APPENDIX II
REPORTS

No.	TITLE	Page
1	Reports by H. D. Forman on the Ruth Vermont Mine	59
	A Feasibility Study 30 November 1979	60
	B Projection of Production for November 1981	70
	C Problem Summary 27 November 1981	75
	D General Information 21 December 1981	81
	E Feasibility Report 15 March 1982	84
2	Excerpts From Report by L. J. Manning & Associates, Dated 28 April, 1972	112
	A Report by L. J. Manning. Frontispiece - P:6+P:31	120
	B Appendix Contents Pp.45-48 inc.	
3	Excerpt from Report by G. Nolin, Dated October 1981	122

APPENDIX III
LIST of MAPS and DRAWINGS

MAP	TITLE	DATE	SCALE
1.	Location Plan		1.0" = 4 miles
2.	Potential Mineralized Zone		1.3" = 1 mile
3.	Longitudinal Section Vein Assays	Nov.1971	1.0" = 40 feet
4.	Typical Cross Sections 13400 & 19475		1.0" = 40 feet
5.	Generalized Ore Bodies		1.0" = 80 feet
6.	General Mine Plan & Section (Pocket)		1.0" = 100 feet

APPENDIX I - 1

TABLE I

SUMMARY OF MILL FEED RESERVE ESTIMATES

DIAMOND DRILL INDICATED

----VEIN AND REPLACEMENT ORE----							----- COMBINED ORE -----								
TONS	GRADES			QUANTITIES			MINED TONS	GRADES			QUANTITIES				
	oz/ton Ag	% Pb	% Zn	ounces Silver	units Lead Zinc			oz/ton Ag	% Pb	% Zn	ounces Silver	units Lead Zinc			
V 80,243	10.03	6.08	5.00	804,524	487,487	401,580									
R 211,141	5.32	4.26	5.90	1,123,085	898,870	1,245,750									
1 28 April, 1972							291,384	6.62	4.76	5.65	1,927,609	1,386,357	1,647,331		
V 116,854	10.56	6.36	5.25	1,233,710	743,157	613,667									
R 592,500	4.11	3.13	4.59	2,435,550	1,856,800	2,721,000									
2 20 August, 1975							709,350	5.17	3.67	4.70	3,669,260	2,599,957	3,334,767		
A Mined 1976							41,057	?	?	?	?	?	?		
V 52,300	10.0	6.3	6.1	523,000	319,030	319,030									
R 162,000	4.96	3.56	4.90	803,900	577,100	793,800									
3 30 November, 1979							214,300	6.20	4.20	5.20	1,326,900	906,590	1,112,830		
B Mined 1981 H. D. Forman est.							14,250	4.30	2.90	2.10					
C: Mined 1981 L.J. Manning est.							11,566	3.90	2.40	3.40					
V 144,000	9.0	6.30	6.10	1,296,000	907,200	878,400									
R 158,000	4.9	3.50	4.90	774,200	553,000	774,200									
4 15 March, 1982							302,000	6.85	4.84	5.47	2,070,200	1,460,200	1,652,600		

V = Vein Ore
R = Replacement Ore

APPENDIX I-1

TABLE I

SUMMARY OF MILL FEED RESERVE ESTIMATES

DIAMOND DRILL INDICATED

1.	L. J. Manning & Associates Ltd.	28 April, 1972
2.	Laurence Sookochoff, P. Eng.	20 August, 1975
3.	H. D. Forman, P. Eng.	30 November, 1979
4.	H. D. Forman, P. Eng.	15 March, 1982
A.	Mining Campaign 1976	Report by H. D. Forman: 15 March, 1982
B.	Mining Campaign 1981	H. D. Forman Estimate
C.	Mining Campaign 1981	L. J. Manning Estimates From Three Product Formula Applied to Concentrates Received & Assay of Tails.

APPENDIX I - 2A
SMELTER RETURNS

1981



LEAD CONCENTRATE

COMINCO LTD.
TRAIL, B.C.

OCTOBER 08, 1981

FINAL SETTLEMENT: RUTH VERMONT MINES- PB CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

LOT NUMBER: 37 SERIAL NUMBER: 3486

CAR NUMBERS
CP 377223

DATE RECEIVED
08 21 81

NET WET WEIGHT		MOISTURE	NET DRY WEIGHT			SHORT DRY TONS	
77000 LBS		10.7000 %	68761 LBS			34.3805	
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
0.0300	71.8000	0.8900	43.9000	12.1000	20.7000	6.4000	
OZ/ DRY TON		%	%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
2.0000	6.8000	1.7000	0.7000	0.3500	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: SEPT81AV

EXCHANGE: \$US TO \$CDN = 1.20070 STERLING TO \$US = 1.81462
LABOUR RATE = 15.880

COMINCO CDN PRICE 50.381 * 0.350 = 17.63335

US PRICE 40.612 * 1.20070 * 0.300 = 14.62885

LME PRICE 424.924 / * 1.81462 / 2204.6 * 1.20070 * 0.350 = 14.69839

CALCULATED LEAD PRICE = 46.96059

PB PRICE 46.96059 - 10.00 - 0.25 (46.96059 - 45.00) = 36.47044 €/LB

ZN PRICE 000.000 / 2204.6 * 1.20070 - 15.00 = 39.46339 €/LB

AG PRICE 10.35480 * .970 * 1.20070 - 0.00000 = 12.06002 \$/OZ 12.4

CU PRICE 73.344 * 1.20070 - 20.000 = 68.06414 €/LB

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR	
FB 878.00 LBS	70.50 LBS	807.50 LBS	=\$ 294.50 LEAD
ZN 242.00 LBS	96.80 LBS	145.20 LBS	=\$ 57.30 ZINC
AG 71.8000 OZ	5.1915 OZ	66.6085 OZ	=\$ 803.30 SILVER
CU 17.80 LBS	10.68 LBS	7.12 LBS	=\$ 4.85 COPPER
		TOTAL PAYMENT	=\$ 1159.95

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -85.00

ARSENIC + ANTIMONY = \$ -0.96

ALUMINA = \$ -1.35

LABOUR: LABOUR RATE = 15.880 = \$ -1.68

MOISTURE = \$ -1.50

NET DEDUCTIONS = \$ -90.49

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1069.46

VALUE/S.D.T. * 34.3805 S.D.T. = \$ 36768.57

LESS:

EXTRA HANDLING = \$ 225.00 } 252.41

FREIGHT CHARGES = \$ 27.41 }

NET AMOUNT = \$ 36516.16

AMOUNT ADVANCED = \$ 25640.00

SETTLEMENT AMOUNT = \$ 10876.16

REMARKS:

CAR HIRE - 27.41



LEAD CONCENTRATE COMINCO LTD. NOVEMBER 05, 1981
TRAIL, B.C.
FINAL SETTLEMENT: RUTH VERMONT-PB CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

LOT NUMBER: 38 SERIAL NUMBER: 3571

CAR NUMBERS
CF 377245

DATE RECEIVED
09 17 81

NET WET WEIGHT MOISTURE NET DRY WEIGHT SHORT DRY TONS
468800 LBS 8.0000% 155296 LBS 77.6480

ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
	0.0350	89.4000	1.2000	57.8000	7.7000	19.7000	2.8000
	OZ/ DRY TON		%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
0.8000	5.7000	0.6000	1.0000	0.5000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: OCTOBER, 1981 AVERAG
EXCHANGE: \$US TO \$CDN = 1.20280 STERLING TO \$US = 1.84068
LABOUR RATE = 15.880

COMINCO CDN PRICE 45.024 * 0.350 = 15.75840
US PRICE 37.049 * 1.20280 * 0.300 = 13.36876
LME PRICE 393.949 * 1.84068 / 2204.6 * 1.20280 * 0.350 = 13.84683
CALCULATED LEAD PRICE = 42.97399
PB PRICE 42.97399 - 10.00 - 0.25 (42.97399 - 45.00) = 32.97399 \$/LB
ZN PRICE 000.000 / 2204.6 * 1.20280 - 15.00 = 39.55865 \$/LB
AG PRICE 9.25119 * .970 * 1.20280 - 0.00000 = 10.79351 \$/OZ 11.127
AU PRICE 437.75500 * 1.20280 * 0.98 - 0.000 = 516.00108 \$/OZ
CU PRICE 71.408 * 1.20280 - 20.000 = 65.88954 \$/LB

PAYMENTS PER TON	CONTENT	DEDUCTIONS	PAID FOR	
PB	1156.00 LBS	93.31 LBS	1062.69 LBS	=\$ 350.41 LEAD
ZN	154.00 LBS	61.60 LBS	92.40 LBS	=\$ 36.55 ZINC
AG	89.4000 OZ	6.4812 OZ	82.9188 OZ	=\$ 894.98 SILVER } B.
AU	0.0350 OZ	0.0300 OZ	0.0050 OZ	=\$ 2.58 GOLD }
CU	24.00 LBS	14.40 LBS	9.60 LBS	=\$ 6.33 COPPER
			TOTAL PAYMENT	=\$ 1290.85

DEDUCTIONS
BASIC TREATMENT CHARGE = \$ -85.00 ✓
ARSENIC + ANTIMONY = \$ -1.75
ALUMINA = \$ -0.27
LABOUR: LABOUR RATE = 15.880 = \$ -1.68
NET DEDUCTIONS = \$ -88.70 ✓
VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1202.15
VALUE/S.D.T. * 77.6480 S.D.T. = \$ 93344.54 ✓
LESS:
EXTRA HANDLING = \$ 225.00 ✓
FREIGHT CHARGES = \$ 27.41 ✓
NET AMOUNT = \$ 93092.13
AMOUNT ADVANCED = \$ 69090.00
SETTLEMENT AMOUNT = \$ 24002.13



LEAD CONCENTRATE COMINCO LTD. DECEMBER 04, 1981
 TRAIL, B.C.

FINAL SETTLEMENT: RUTHER VERMONT LEAD CCTS

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
 ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
 685 WEST HASTINGS ST
 VANCOUVER, B.C. V6B 1N9

RECEIVED
 DEC 13 1981

LOT NUMBER: 39 SERIAL NUMBER: 3682

CAR NUMBERS DATE RECEIVED
 CP 377194 10 23 81

NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
157900 LBS	7.7000 %	145742 LBS	72.8710				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
0.0400	98.5500	1.2000	60.1000	6.4000	18.6000	3.0000	
	OZ/ DRY TON	%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
0.6000	5.1000	0.6000	1.1000	0.6000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: NOVEMBER 81, AVERAGE

EXCHANGE: \$US TO \$CDN = 1.18740 STERLING TO \$US = 1.90251

LABOUR RATE = 15.880

COMINCO CDN PRICE 41.571 * 0.350 = 14.54985

US PRICE 33.875 * 1.18740 * 0.300 = 12.06695

LME PRICE 356.780 * 1.90251 / 2204.6 * 1.18740 * 0.350 = 12.79567

CALCULATED LEAD PRICE = 39.41247

PB PRICE 39.41247 - 10.00 - 0.25 (39.41247 - 45.00)

ZN PRICE 000.000 / 2204.6 * 1.18740 - 15.00 = 29.41247 €/LB

AG PRICE 8.54684 * .970 * 1.18740 - 0.00000 = 38.86011 €/LB

AU PRICE 413.36900 * 1.18740 * 0.98 - 0.000 = 9.84406 \$/OZ 10.145

CU PRICE 70.609 * 1.18740 - 20.000 = 481.01766 \$/OZ

PAYMENTS PER TON = 63.84113 €/LB

	CONTENT	DEDUCTIONS	PAID FOR	
PB	1202.00 LBS	96.99 LBS	1105.01 LBS	=\$ 325.01 LEAD
ZN	128.00 LBS	51.20 LBS	76.80 LBS	=\$ 29.84 ZINC
AG	98.5500 OZ	7.1217 OZ	91.4283 OZ	=\$ 900.03 SILVER } 504
AU	0.0400 OZ	0.0300 OZ	0.0100 OZ	=\$ 4.81 GOLD
CU	24.00 LBS	14.40 LBS	9.60 LBS	=\$ 6.13 COPPER
			TOTAL PAYMENT	=\$ 1265.82

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -85.00

ARSENIC + ANTIMONY = \$ -2.10

ALUMINA = \$ -0.09

LABOUR: LABOUR RATE = 15.880 = \$ -1.68

NET DEDUCTIONS = \$ -88.87

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1176.95

VALUE/S.D.T. * 72.8710 S.D.T. = \$ 85765.52

LESS:

EXTRA HANDLING = \$ 225.00 ✓

FREIGHT CHARGES = \$ 27.41 ✓

NET AMOUNT = \$ 85513.11

AMOUNT ADVANCED = \$ 64770.00

SETTLEMENT AMOUNT = \$ 20743.11

REMARKS:

CAR HIRE 27.41 ✓

RECEIVED
JAN 14 1982
12



CONCENTRATE

COMINCO LTD.
TRAIL, B.C.

JANUARY 06, 1982

SETTLEMENT: RUTH VERMONT-PB CN

COUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

NUMBER: 40 SERIAL NUMBER: 3717

CAR NUMBERS DATE RECEIVED

CP 377116 11 02 81

NET WEIGHT	MOISTURE	NET DRY WEIGHT		SHORT DRY TONS		
175370 LBS	5.9000 %	165023 LBS		82.5115		
GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
0.0370	122.3500	1.9000	69.1000	4.2000	17.4000	1.4000
	OZ/ DRY TON	%	%	%	%	%
IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
3.1000	0.2500	1.2000	0.5000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%

PRICES: DECEMBER 81, AVERAGE

EXCHANGE: \$US TO \$CDN = 1.18510 STERLING TO \$US = 1.90333

LABOUR RATE = 14.380

CDN PRICE 37.524 * 0.350 = 13.13340

PRICE 31.071 * 1.18510 * 0.300 = 11.04667

PRICE 359.810 * 1.90333 / 2204.6 * 1.18510 * 0.350 = 12.88489

CALCULATED LEAD PRICE = 37.06496

PRICE 37.06496 - 10.00 - 0.25 (37.06496 - 45.00) = 27.06496 ¢/LB

PRICE 950.000 / 2204.6 * 1.18510 - 15.00 = 36.06799 ¢/LB

PRICE 8.43159 * 1.18510 * .970 - 0.00000 = 9.69251 \$/OZ

PRICE 410.09200 * 1.18510 * 0.98 - 0.000 = 476.28003 \$/OZ

PRICE 70.915 * 1.18510 - 20.000 = 64.04137 ¢/LB

NET WEIGHTS PER TON

CONTENT	DEDUCTIONS	PAID FOR	
382.00 LBS	112.68 LBS	1269.32 LBS	=\$ 343.54 LEAD
84.00 LBS	33.60 LBS	50.40 LBS	=\$ 18.18 ZINC
2.3500 OZ	8.9179 OZ	113.4321 OZ	=\$ 1099.44 SILVER } 1102.7
0.0370 OZ	0.0300 OZ	0.0070 OZ	=\$ 3.33 GOLD
38.00 LBS	22.80 LBS	15.20 LBS	=\$ 9.73 COPPER
		TOTAL PAYMENT	=\$ 1474.22

CHARGES

BASIC TREATMENT CHARGE = \$ -85.00

ARSENIC + ANTIMONY = \$ -2.10

NET DEDUCTIONS = \$ -87.10

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1387.12

VALUE/S.D.T. * 82.5115 S.D.T. = \$ 114453.35

LESS:

EXTRA HANDLING = \$ 225.00

FREIGHT CHARGES = \$ 82.23

NET AMOUNT = \$ 114146.12

AMOUNT ADVANCED = \$ 86350.00

SETTLEMENT AMOUNT = \$ 27796.12



LEAD CONCENTRATE COMINCO LTD. JANUARY 06, 1982
 TRAIL, B.C.
 FINAL SETTLEMENT: RUTH VERMONT-PB CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
 ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
 685 WEST HASTINGS ST
 VANCOUVER, B.C. V6B IN9

LOT NUMBER: 41 SERIAL NUMBER: 3846

CAR NUMBERS DATE RECEIVED
 CP 377230 11 30 81

NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
158400 LBS	5.7000 %	149371 LBS	74.6855				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR ^x	SILICA	
0.0370	109.9500	1.6000	67.6000	3.6000	16.6000	2.0000	
	OZ/ DRY TON	%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIU
0.6000	3.7000	0.6000	1.1000	0.5000	0.0100	0.0000	0.000
%	%	%	%	%	%	%	

METAL PRICES: DECEMBER 81, AVERAGE

EXCHANGE: \$US TO \$CDN = 1.18510 STERLING TO \$US = 1.90333

LABOUR RATE = 14.380

COMINCO CDN PRICE 37.524 * 0.350 = 13.13340

US PRICE 31.071 * 1.18510 * 0.300 = 11.04667

LME PRICE 359.810 * 1.90333 / 2204.6 * 1.18510 * 0.350 = 12.88489

CALCULATED LEAD PRICE = 37.06496

PB PRICE 37.06496 - 10.00 - 0.25 (37.06496 - 45.00) = 27.06496 ¢/LB

ZN PRICE 950.000 / 2204.6 * 1.18510 - 15.00 = 36.06799 ¢/LB

AG PRICE 8.43159 * 1.18510 * .970 - 0.00000 = 9.69251 \$/OZ

AU PRICE 410.07200 * 1.18510 * 0.98 - 0.000 = 476.28003 \$/OZ

CU PRICE 70.915 * 1.18510 - 20.000 = 64.04137 ¢/LB

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR		
PB 1352.00 LBS	109.72 LBS	1242.28 LBS	=\$	336.22 LEAD
ZN 72.00 LBS	28.80 LBS	43.20 LBS	=\$	15.58 ZINC
AG 109.9500 OZ	7.9941 OZ	101.9559 OZ	=\$	988.21 SILVER
AU 0.0370 OZ	0.0300 OZ	0.0070 OZ	=\$	3.33 GOLD
CU 32.00 LBS	19.20 LBS	12.80 LBS	=\$	8.20 COPPER
		TOTAL PAYMENT	=\$	1351.54

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -85.00

ARSENIC + ANTIMONY = \$ -1.92

ALUMINA = \$ -0.09

NET DEDUCTIONS = \$ -87.01

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1264.53

VALUE/S.D.T. * 74.6855 S.D.T. = \$ 94442.06

LESS:

EXTRA HANDLING } 252.41 / 74.6855 = \$ 225.00 } 3.38/s

FREIGHT CHARGES } = \$ 27.41

NET AMOUNT = \$ 94189.65

AMOUNT ADVANCED = \$ 68760.00

SETTLEMENT AMOUNT = \$ 25429.65



LEAD CONCENTRATE COMINCO LTD. FEBRUARY 05, 1982
TRAIL, B.C.
FINAL SETTLEMENT: RUTH VERMONT-PB CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

RECEIVED
FEB 12 1982

LOT NUMBER: 42 SERIAL NUMBER: 3907
CAR NUMBERS DATE RECEIVED
CP 377090 12 14 81
CP 377176 12 22 81

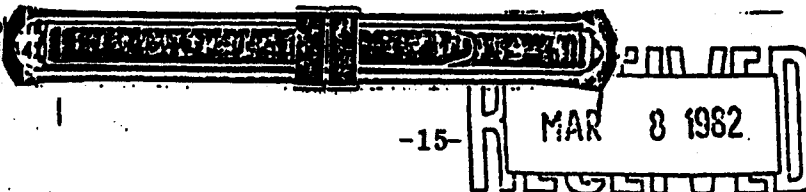
NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
279600 LBS	5.4000 %	264560 LBS	132.2800				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
0.0550	108.7500	1.5000	67.8000	4.1000	15.4000	2.2000	
OZ/ DRY TON	%	%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
0.6000	3.2000	0.6000	1.1000	0.5000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: JANUARY 1982, AVERAGE
EXCHANGE: \$US TO \$CDN = 1.19240 STERLING TO \$US = 1.88602
LABOUR RATE = 15.310
COMINCO CDN PRICE 36.587 * 0.350 = 12.80545
US PRICE 29.674 * 1.19240 * 0.300 = 10.61498
LME PRICE 349.126 * 1.88602 / 2204.6 * 1.19240 * 0.350 = 12.46493

CALCULATED LEAD PRICE = 35.88536
PB PRICE 35.88536 - 10.00 - 0.25 (35.88536 + 45.00) = 25.88536 €/LB
ZN PRICE 912.500 / 2204.6 * 1.19240 - 15.00 = 34.35430 €/LB
AG PRICE 8.03050 * 1.19240 * .970 - 0.00000 = 9.28830 \$/OZ 0.57
AU PRICE 384.12500 * 1.19240 * 0.98 - 0.000 = 448.87004 \$/OZ
CU PRICE 68.855 * 1.19240 - 20.000 = 62.10270 €/LB

PAYMENTS PER TON	CONTENT	DEDUCTIONS	PAID FOR	
PB	1356.00 LBS	109.86 LBS	1246.14 LBS	=\$ 322.57 LEAD
ZN	82.00 LBS	32.80 LBS	49.20 LBS	=\$ 16.90 ZINC
AG	108.7500 OZ	7.8915 OZ	100.8585 OZ	=\$ 936.80 SILVERT
AU	0.0550 OZ	0.0300 OZ	0.0250 OZ	=\$ 11.22 GOLD
CU	30.00 LBS	18.00 LBS	12.00 LBS	=\$ 7.45 COPPER
			TOTAL PAYMENT	=\$ 1294.94

DEDUCTIONS
BASIC TREATMENT CHARGE = \$ -85.00
ARSENIC + ANTIMONY = \$ -1.92
ALUMINA = \$ -0.09
NET DEDUCTIONS = \$ -87.01
VALUE/S.D.T. -- F.O.B. TADANAC = \$ 1207.93
VALUE/S.D.T. * 132.2800 S.D.T. = \$ 159784.98
LESS:
EXTRA HANDLING } 504.82 / 132.2800 = \$ 450.00 } 3.82 / CL
FREIGHT CHARGES } = \$ 54.82 }
NET AMOUNT = \$ 159280.16
AMOUNT ADVANCED = \$ 120200.00
SETTLEMENT AMOUNT = \$ 39080.16



MAR 8 1982

LEAD CONCENTRATE COMINCO LTD. MARCH 04, 1982
TRAIL, B.C.
FINAL SETTLEMENT: RUTH VERMONT-PB CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

LOT NUMBER: 43 SERIAL NUMBER: 3982

CAR NUMBERS DATE RECEIVED

CP 377214 01 16 82

NET WET WEIGHT MOISTURE NET DRY WEIGHT SHORT DRY TONS
60500 LBS 6.7000 % 56446 LBS 28.2230

ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
	0.0770	95.2000	1.2000	56.1000	5.5000	17.0000	5.9000
	OZ/ DRY TON		%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
1.6000	6.0000	1.7000	0.9000	0.6000	0.0100	0.0000	0.0000
%	%	%	%	%	%	%	%

METAL PRICES: FEBRUARY 1982, AVERA

EXCHANGE: \$US TO \$CDN = 1.21400 STERLING TO \$US = 1.84697

LABOUR RATE = 15.310

COMINCO CDN PRICE 35.275 * 0.350 = 12.34625

US PRICE 28.703 * 1.21400 * 0.300 = 10.45363

LME PRICE 339.500 * 1.84697 / 2204.6 * 1.21400 * 0.350 = 12.08529

CALCULATED LEAD PRICE = 34.88517

PB PRICE 34.88517 - 10.00 - 0.25 (34.88517 - 45.00) = 24.88517 C/LB

ZN PRICE 875.000 / 2204.6 * 1.21400 - 15.00 = 33.18334 C/LB

AG PRICE 8.26789 * 1.21400 * .970 - 0.00000 = 9.73610 \$/OZ 10.03

AU PRICE 374.13000 * 1.21400 * 0.98 - 0.000 = 445.10994 \$/OZ

CU PRICE 68.168 * 1.21400 - 20.000 = 62.75595 C/LB

PAYMENTS PER TON

CONTENT DEDUCTIONS PAID FOR

PB 1122.00 LBS 90.59 LBS 1031.41 LBS =\$ 256.67 LEAD

ZN 110.00 LBS 44.00 LBS 66.00 LBS =\$ 21.90 ZINC

AG 95.2000 OZ 6.8872 OZ 88.3128 OZ =\$ 859.82 SILVER

AU 0.0770 OZ 0.0300 OZ 0.0470 OZ =\$ 20.92 GOLD

CU 24.00 LBS 14.40 LBS 9.60 LBS =\$ 6.02 COPPER

TOTAL PAYMENT =\$ 1165.33

DEDUCTIONS

BASIC TREATMENT CHARGE =\$ -85.00

ARSENIC + ANTIMONY =\$ -1.75

ALUMINA =\$ -0.99

NET DEDUCTIONS =\$ -87.74

VALUE/S.D.T. -- F.O.B. TADANAC =\$ 1077.59

VALUE/S.D.T. * 28.2230 S.D.T. =\$ 30412.82

LESS:

EXTRA HANDLING =\$ 225.00

FREIGHT CHARGES =\$ 28.04

NET AMOUNT =\$ 30159.78

AMOUNT ADVANCED =\$ 21700.00

SETTLEMENT AMOUNT =\$ 8459.78



ZINC CONCENTRATE

COMINCO LTD.
TRAIL, B.C.

NOVEMBER 05, 1981

FINAL SETTLEMENT: RUTH VERMONT MINES-ZN CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

LOT NUMBER: 1 SERIAL NUMBER: 3537

CAR NUMBERS:
CP 377222

DATE RECEIVED
09 04 81

NET WET WEIGHT MOISTURE NET DRY WEIGHT SHORT DRY TONS
103500 LBS 6.8000 % 96462 LBS 48.2310

ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA
	0.0120	5.6500	0.3900	3.0000	48.5000	34.1000	3.0000
	OZ/ DRY TON	%	%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
0.0000	8.7000	0.5000	0.0400	0.1700	0.0000	0.1500	0.3800
%	%	%	%	%	%	%	%

METAL PRICES: OCTOBER, 1981 AVERAGE

EXCHANGE: \$US TO \$CDN = 1.20280 STERLING TO \$US = 1.84068

LABOUR RATE = 15.880

COMINCO CDN PRICE 55.500 * 0.260 = 14.43000

US PRICE 45.871 * 1.20280 * 0.370 = 20.41425

LME PRICE 000.000 / 2204.6 * 1.20280 * 0.370 = 20.18670

CALCULATED ZINC PRICE = 55.03095

PB PRICE 393.949 * 1.84068 / 2204.6 * 1.20280 - 0.100 = 29.56238 ¢/LB

ZN PRICE 55.03095 - 15.000 = 40.03095 ¢/LB

AG PRICE 9.25119 * .970 * 1.20280 - 0.000 = 10.79351 \$/OZ

CD PRICE 1.614 * 1.20280 - 0.700 = 1.24132 \$/LB

PAYMENTS PER TON
CONTENT

	CONTENT	DEDUCTIONS	PAID FOR	
PB	60.00 LBS	20.00 LBS	40.00 LBS	=\$ 11.82 LEAD
ZN	970.00 LBS	167.68 LBS	802.32 LBS	=\$ 321.17 ZINC
AG	5.6500 OZ	1.0780 OZ	4.5720 OZ	=\$ 49.35 SILVER
CD	7.60 LBS	4.84 LBS	2.76 LBS	=\$ 3.43 CADMIUM
			TOTAL PAYMENT	=\$ 385.77

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -51.00

LABOUR: LABOUR RATE = 15.880 = \$ -1.68

ZINC PRICE - 46.00000 * 3.00 = \$ -27.09

IRON = (8.7000 - 0.1 %) * 1.80 = \$ -15.66

MOISTURE = \$ -0.40

NET DEDUCTIONS = \$ -95.83

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 289.94

VALUE/S.D.T. * 48.2310 S.D.T. = \$ 13984.10

LESS:

EXTRA HANDLING } 252.41 / 48.2310 = \$ 225.00 } 5.23

FREIGHT CHARGES } = \$ 27.41 } S.D.T.

NET AMOUNT = \$ 13731.69

AMOUNT ADVANCED = \$ 10140.00

SETTLEMENT AMOUNT = \$ 3591.69



DEC 14 1981

ZINC CONCENTRATE COMINCO LTD. TRAIL, B.C. DECEMBER 04, 1981
 FINAL SETTLEMENT: RUTH VERMONT-ZN CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
 ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
 685 WEST HASTINGS ST
 VANCOUVER, B.C. V6B 1N9

LOT NUMBER: 2 SERIAL NUMBER: 3642

CAR NUMBERS	DATE RECEIVED	NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
CP 377238	10 06 81	163100 LBS	8.2000 %	149726 LBS	74.8630				
ASSAYS:		GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
		0.0250	5.7000	0.4300	1.4000	46.0000	37.0000	1.3000	
		OZ/ DRY TON		%	%	%	%	% %	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM		
0.0000	12.6000	0.2500	0.0500	0.4000	0.0000	0.0500	0.3500		

METAL PRICES: NOVEMBER 81, AVERAGE

EXCHANGE: \$US TO \$CDN = 1.18740	STERLING TO \$US = 1.90251
LABOUR RATE = 15.880	
COMINCO CDN PRICE 55.500 * 0.260 = 14.43000	
US PRICE 46.148 * 1.18740 * 0.370 = 20.27457	
LME PRICE 000.000 / 2204.6 * 1.18740 * 0.370 = 19.92824	
CALCULATED ZINC PRICE = 54.63281	
PB PRICE 356.780 * 1.90251 / 2204.6 * 1.18740 - 0.100 = 26.55905 \$/LB	
ZN PRICE 54.63281 - 15.000 = 39.63281 \$/LB	
AG PRICE 8.54684 * .970 * 1.18740 - 0.000 = 9.84406 \$/OZ	
CD PRICE 1.600 * 1.18740 - 0.700 = 1.19984 \$/LB	

PAYMENTS PER TON	CONTENT	DEDUCTIONS	PAID FOR	
PB	28.00 LBS	20.00 LBS	8.00 LBS	=\$ 2.12 LEAD
ZN	920.00 LBS	170.13 LBS	749.87 LBS	=\$ 297.19 ZINC
AG	5.7000 OZ	1.0860 OZ	4.6140 OZ	=\$ 45.42 SILVER
CD	7.00 LBS	4.60 LBS	2.40 LBS	=\$ 2.88 CADMIUM
TOTAL PAYMENT				=\$ 347.61

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$ -51.00
LABOUR: LABOUR RATE = 15.880	=\$ -1.68
ZINC PRICE - 46.00000 * 3.00	=\$ -25.90
IRON = (12.6000 - 0.1 %) * 1.80	=\$ -22.68
MOISTURE	=\$ -1.30
NET DEDUCTIONS	=\$ -102.56
VALUE/S.D.T. -- F.O.B. TADANAC	=\$ 245.05
VALUE/S.D.T. * 74.8630 S.D.T.	=\$ 18345.18
LESS:	
EXTRA HANDLING } 252.41 / 74.8630	=\$ 225.00
FREIGHT CHARGES }	=\$ 27.41
NET AMOUNT	=\$ 18092.77
AMOUNT ADVANCED	=\$ 13760.00
SETTLEMENT AMOUNT	=\$ 4332.77

3.37 / S.D.T.

REMARKS:
 CAR HIRE 27.41



ZINC CONCENTRATE COMINCO LTD. DECEMBER 04, 1981
TRAIL, B.C.

FINAL SETTLEMENT: RUTH VERMONT-ZN CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

LOT NUMBER: 3 SERIAL NUMBER: 3683

CAR NUMBERS

DATE RECEIVED

CP 377090

10 23 81

NET WET WEIGHT 152300 LBS MOISTURE 7.9000 % NET DRY WEIGHT 140268 LBS SHORT DRY TONS 70.1340

ASSAYS: GOLD 0.0100 SILVER 5.5500 COPPER 0.4500 LEAD 1.5000 ZINC 48.6000 SULPHUR 35.6000 SILICA 1.3000

ALUMINA 0.0000 IRON 10.3000 OZ/ DRY TON 10.3000 LIME 0.2000 ANTIMONY 0.0500 ARSENIC 0.3000 BISMUTH 0.0000 MAGNESIA 0.0500 CADMIUM 0.3800

METAL PRICES: NOVEMBER 81, AVERAGE

EXCHANGE: \$US TO \$CDN = 1.18740 STERLING TO \$US = 1.90251

LABOUR RATE = 15.880

COMINCO CDN PRICE 55.500 * 0.260 = 14.43000

US PRICE 46.148 * 1.18740 * 0.370 = 20.27457

LME PRICE 000.000 / 2204.6 * 1.18740 * 0.370 = 19.92824

CALCULATED ZINC PRICE = 54.63281

PB PRICE 356.780 * 1.90251 / 2204.6 * 1.18740 - 0.100 = 26.55905 ¢/LB

ZN PRICE 54.63281 - 15.000 = 39.63281 ¢/LB

AG PRICE 8.54684 * .970 * 1.18740 - 0.000 = 9.84406 \$/OZ

CD PRICE 1.600 * 1.18740 - 0.700 = 1.19984 \$/LB

PAYMENTS PER TON

CONTENT	DEDUCTIONS	PAID FOR	
PB 30.00 LBS	20.00 LBS	10.00 LBS	=\$ 2.66 LEAD
ZN 972.00 LBS	172.06 LBS	799.94 LBS	=\$ 317.04 ZINC
AG 5.5500 OZ	1.0900 OZ	4.4600 OZ	=\$ 43.90 SILVER
CD 7.60 LBS	4.84 LBS	2.76 LBS	=\$ 3.31 CADMIUM
		TOTAL PAYMENT	=\$ 366.91

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -51.00

LABOUR: LABOUR RATE = 15.880 = \$ -1.68

ZINC PRICE - 46.00000 * 3.00 = \$ -25.90

IRON = (10.3000 - 0.1 %) * 1.80 = \$ -18.54

MOISTURE = \$ -0.95

NET DEDUCTIONS = \$ -98.07

VALUE/S.D.T. -- F.O.B. TADANAC = \$ 268.84

VALUE/S.D.T. * 70.1340 S.D.T. = \$ 18854.82

LESS:

EXTRA HANDLING } 252.41 / 70.1340 = \$ 225.00 } 3.60

FREIGHT CHARGES } = \$ 27.41 } SDT

NET AMOUNT = \$ 18602.41

AMOUNT ADVANCED = \$ 14020.00

SETTLEMENT AMOUNT = \$ 4582.41

REMARKS:

CAR HIRE 27.41



ZINC CONCENTRATE COMINCO LTD. JANUARY 07, 1982
 TRAIL, B.C.
 FINAL SETTLEMENT: RUTH VERMONT-ZN CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
 ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
 685 WEST HASTINGS ST
 VANCOUVER, B.C. V6B IN9

LOT NUMBER: 4 SERIAL NUMBER: 3807

CAR NUMBERS		DATE RECEIVED		NET DRY WEIGHT		SHORT DRY TONS	
CP 377114		11 17 81		145236 LBS		72.6180	
NET WET WEIGHT	MOISTURE						
159250 LBS	8.8000 %						
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
0.0200	8.6000	0.5700	2.8000	54.9000	33.5000	1.0000	
OZ/ DRY TON		%	%	%	%	%	%
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
0.0000	6.1000	0.1500	0.0500	0.2000	0.0000	0.0500	0.4300
%	%	%	%	%	%	%	%

METAL PRICES: DECEMBER 81, AVERAGE	
EXCHANGE: \$US TO \$CDN = 1.18510	STERLING TO \$US = 1.90333
LABOUR RATE = 14.380	
COMINCO CDN PRICE 53.333 * 0.260 = 13.86658	
US PRICE 42.589 * 1.18510 * 0.370 = 18.67472	
LME PRICE 950.000 / 2204.6 * 1.18510 * 0.370 = 18.89516	
CALCULATED ZINC PRICE = 51.43646	
PB PRICE 359.810 * 1.90333 * 1.18510 / 2204.6 - 0.100 = 26.81396 ¢/LB	
ZN PRICE 51.43646 - 15.000 = 36.43646 ¢/LB	
AG PRICE 8.43159 * 1.18510 * .970 - 0.000 = 9.69251 \$/OZ	
CD PRICE 1.400 * 1.18510 - 0.700 = 0.95914 \$/LB	

PAYMENTS PER TON		DEDUCTIONS		PAID FOR	
FB	56.00 LBS	20.00 LBS	36.00 LBS	= \$	9.65 LEAD
ZN	1098.00 LBS	180.25 LBS	917.75 LBS	= \$	334.39 ZINC
AG	8.6000 OZ	1.1140 OZ	7.4860 OZ	= \$	72.56 SILVER
CD	8.60 LBS	5.24 LBS	3.36 LBS	= \$	3.22 CADMIUM
			TOTAL PAYMENT	= \$	419.82

DEDUCTIONS		
BASIC TREATMENT CHARGE		= \$ -51.00
ZINC PRICE - 46.00000 * 3.00		= \$ -16.31
IRON = (6.1000 - 0.1 %) * 1.80		= \$ -10.98
MOISTURE		= \$ -2.20
NET DEDUCTIONS		= \$ -80.49
VALUE/S.D.T. -- F.O.B. TADANAC		= \$ 339.33
VALUE/S.D.T. * 72.6180 S.D.T.		= \$ 24641.47
LESS:		
EXTRA HANDLING	252.41 / 72.6180	= \$ 225.00
FREIGHT CHARGES		= \$ 27.41
NET AMOUNT		= \$ 24389.06
AMOUNT ADVANCED		= \$ 18770.00
SETTLEMENT AMOUNT		= \$ 5619.06



ZINC CONCENTRATE COMINCO LTD. FEBRUARY 08, 1982
TRAIL, B.C.
FINAL SETTLEMENT: RUTH VERMONT-ZN CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

LOT NUMBER: 5 SERIAL NUMBER: 3908
CAR NUMBERS DATE RECEIVED
CP 377190 12 14 81

NET WET WEIGHT		MOISTURE	NET DRY WEIGHT			SHORT DRY TONS		
144200 LBS		7.1000 %	133962 LBS			66.9810		
ASSAYS:	GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
	0.0220	12.9000	0.5400	6.2000	48.0000	33.5000	1.0000	
	OZ/ DRY TON	%	%	%	%	%	% %	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM	
0.0000	8.6000	0.2000	0.1000	0.4000	0.0000	0.0800	0.3500	
%	%	%	%	%	%	%	% %	

METAL PRICES: JANUARY 1982, AVERAG
EXCHANGE: \$US TO \$CDN = 1.19240 STERLING TO \$US = 1.88602
LABOUR RATE = 15.310
COMINCO CDN PRICE 50.750 * 0.260 = 13.19500
US PRICE 42.174 * 1.19240 * 0.370 = 18.60666
LME PRICE 912.500 / 2204.6 * 1.19240 * 0.370 = 18.26109
CALCULATED ZINC PRICE = 50.06275
PB PRICE 349.126 * 1.88602 * 1.19240 / 2204.6 - 0.100 = 25.61409 ¢/LB
ZN PRICE 50.06275 - 15.000 = 35.06275 ¢/LB
AG PRICE 8.03050 * 1.19240 * .970 - 0.000 = 9.28830 \$/OZ
CD PRICE 1.400 * 1.19240 - 0.700 = 0.96936 \$/LB

PAYMENTS PER TON		DEDUCTIONS		PAID FOR	
CONTENT					
PB	124.00 LBS	24.80 LBS	99.20 LBS	=\$	25.41 LEAD
ZN	960.00 LBS	165.93 LBS	794.07 LBS	=\$	278.42 ZINC
AG	12.9000 OZ	1.1080 OZ	11.7920 OZ	=\$	109.53 SILVER
CD	7.00 LBS	4.60 LBS	2.40 LBS	=\$	2.33 CADMIUM
			TOTAL PAYMENT	=\$	415.69

DEDUCTIONS

BASIC TREATMENT CHARGE = \$ -51.00
ZINC PRICE - 46.00000 * 3.00 = \$ -12.19
IRON = (8.6000 - 0.1 %) * 1.80 = \$ -15.48
MOISTURE = \$ -0.55
NET DEDUCTIONS = \$ -79.22
VALUE/S.D.T. -- F.O.B. TADANAC = \$ 336.47
VALUE/S.D.T. * 66.9810 S.D.T. = \$ 22537.10
LESS:
EXTRA HANDLING } 252.41 / 66.9810 = \$ 225.00
FREIGHT CHARGES } 27.41 = \$ 27.41
NET AMOUNT = \$ 22284.69
AMOUNT ADVANCED = \$ 16640.00
SETTLEMENT AMOUNT = \$ 5644.69

} 3.77
SDT



ZINC CONCENTRATE COMINCO LTD. FEBRUARY 08, 1982
TRAIL, B.C.
FINAL SETTLEMENT: RUTH VERMONT -ZN CN

IN ACCOUNT WITH: RUTH VERMONT MINES LTD
ASSIGNED ACCOUNT-ROYAL BANK OF CANADA
685 WEST HASTINGS ST
VANCOUVER, B.C. V6B IN9

FEB 12 1982

LOT NUMBER: 6 SERIAL NUMBER: 3935
CAR NUMBERS DATE RECEIVED
CP 377168 12 19 81

NET WET WEIGHT	MOISTURE	NET DRY WEIGHT	SHORT DRY TONS				
138250 LBS	8.0000 %	127190 LBS	63.5950				
ASSAYS: GOLD	SILVER	COPPER	LEAD	ZINC	SULPHUR	SILICA	
0.0230	12.1000	0.5400	5.2000	51.0000	32.0000	1.3000	
OZ/ DRY TON		%	%	%	%	%	
ALUMINA	IRON	LIME	ANTIMONY	ARSENIC	BISMUTH	MAGNESIA	CADMIUM
0.0000	6.6000	0.3000	0.1000	0.4000	0.0000	0.1000	0.3800
%	%	%	%	%	%	%	%

METAL PRICES: JANUARY 1982, AVERAG
EXCHANGE: \$US TO \$CDN = 1.19240 STERLING TO \$US = 1.88602
LABOUR RATE = 15.310
COMINCO CDN PRICE 50.750 * 0.260 = 13.19500
US PRICE 42.174 * 1.19240 * 0.370 = 18.60666
LME PRICE 912.500 / 2204.6 * 1.19240 * 0.370 = 18.26109
CALCULATED ZINC PRICE = 50.06275
FB PRICE 349.126 * 1.88602 * 1.19240 / 2204.6 - 0.100 = 25.61409 \$/LB
ZN PRICE 50.06275 - 15.000 = 35.06275 \$/LB
AG PRICE 8.03050 * 1.19240 * .970 - 0.000 = 9.28830 \$/OZ
CD PRICE 1.400 * 1.19240 - 0.700 = 0.96936 \$/LB

PAYMENTS PER TON	CONTENT	DEDUCTIONS	PAID FOR	
FB	104.00 LBS	20.80 LBS	83.20 LBS	=\$ 21.31 LEAD
ZN	1020.00 LBS	169.83 LBS	850.17 LBS	=\$ 298.09 ZINC
AG	12.1000 OZ	1.1080 OZ	10.9920 OZ	=\$ 102.10 SILVER
CD	7.60 LBS	4.84 LBS	2.76 LBS	=\$ 2.68 CADMIUM
			TOTAL PAYMENT	=\$ 424.18

DEDUCTIONS

BASIC TREATMENT CHARGE	=\$ -51.00
ZINC PRICE - 46.00000 * 3.00	=\$ -12.19
IRON = (6.6000 - 0.1 %) * 1.80	=\$ -11.88
MOISTURE	=\$ -1.00
NET DEDUCTIONS	=\$ -76.07
VALUE/S.D.T. -- F.O.B. TADANAC	=\$ 348.11
VALUE/S.D.T. * 63.5950 S.D.T.	=\$ 22138.06
LESS:	
EXTRA HANDLING } 307.23/63.5950	=\$ 225.00
FREIGHT CHARGES }	=\$ 82.23
NET AMOUNT	=\$ 21830.83
AMOUNT ADVANCED	=\$ 16440.00
SETTLEMENT AMOUNT	=\$ 5390.83

4.83
SDT.

APPENDIX I - 2B

COMINCO SMELTER SCHEDULES

1 MAY, 1982



-23-

Ruth Vermont
6th Floor, 73 Water Street
Vancouver, B.C.

April 6, 1982

Dear Sir:

Please find enclosed a copy of Cominco's open schedule for the purchase of lead concentrates. The terms of this schedule will be applicable to all shipments accepted at the Trail Smelter commencing commencing April 1, 1982 and will remain in effect until the schedule is revised.

If you have any questions concerning the schedule, please do not hesitate to inquire.

Yours very truly

A handwritten signature in cursive script that reads "John H. Reid".

J.H. Reid
Ore Buying Manager

JHR/la
Encl.



SCHEDULE OF
TERMS FOR THE PURCHASE OF LEAD CONCENTRATES
EFFECTIVE MAY 1, 1982

QUALITY, QUANTITY, ACCEPTANCE

Shippers shall provide for the Cominco Ore Buyer, representative analysis of the concentrates to be shipped. The analysis of trial and subsequent shipments shall conform generally to this representative analysis. If at any time, the analysis and/or physical condition of the concentrates deviates from the acceptance range, further shipments may not be accepted. Shippers must provide the Cominco Ore Buyer with proof of ownership and must await written acceptance of the Ore Buyer before making shipment. The quantity to be shipped must be agreed upon in advance of the first shipment and is subject to review and/or adjustment at any time.

Cominco reserves the right not to accept material for purchase unless the foregoing has been complied with and until inspection indicates physical acceptability.

NOTICES AND CORRESPONDENCE

Notice of all shipments must reach Cominco in advance of the shipment. Demurrage resulting from failure to notify of shipment arrival shall be for the shipper's account. Shippers must provide complete written instructions for payment.

FREIGHT AND DELIVERY

All freight and delivery charges are shipper's responsibility. Terms set out hereinafter, unless otherwise indicated, are based on delivery, in bulk, in a gondola railcar, F.O.B. Trail, B.C. For truck deliveries, unloading to designated location at buyer's works is shipper's responsibility and at shipper's expense. Foreign shippers are responsible for release of shipments through Canada Customs.

REPRESENTATION

The shipper is expected to arrange to be present or to have a representative present while his shipment is being weighed and sampled. If the shipper has not done so, Cominco reserves the right to appoint a suitable person to act as shipper's representative and at shipper's expense.



PRICING, QUOTATIONAL PERIOD

Metal prices and labour rates used to determine the settlement value of a lot will be the average for the calendar month following month of acceptance at Trail, B.C., determined in the manner hereinafter set out.

Terms of settlement will be those of the schedule in effect for the month following month of acceptance. When two or more schedules are in effect in any one calendar month, the weighted average prices, deductions and charges will be used.

United States quotations, where used for a settlement price, will be converted into Canadian funds at the average noon rate for buying and selling United States funds during the quotational period, as established by the Bank of Canada.

Sterling quotations, where used for a settlement price, will first be converted to United States funds at the Pound Sterling rate as published in Metals Week for the quotational period and then converted to Canadian funds as identified above.

Fractions in all cases are pro rata.

FAIR PRICING

In the event that any of the quotations used hereinafter cease to exist or no longer fairly reflect fair market value, Cominco reserves the right to amend the quotational basis with the objective of securing continuity of fair pricing.

PAYMENTS PER SHORT DRY TON

Lead: Deduct 0.1 units of lead for each unit of contained copper over 0.75% and pay for 92% of the balance (minimum deduction from the balance will be 20 pounds) at a weighted average composite price calculated as 65% of the average U.S. Producer price for lead as published in Metals Week and 35% of the average of the four London Metal Exchange quotations for lead as published in Metals Week. The deduction from the composite price shall be 10.0 cents per pound plus 0.25 cents per pound for each 1.0 cent the composite price exceeds 40.0 cents per pound.



- Zinc:** Deduct 0.7 units of zinc for each unit of iron by which the iron content is in excess of 1.44 times the zinc content and pay for 60% of the balance (minimum deduction from the balance will be 20 pounds) at the average quotation for G.O.B. zinc, European Producer basis, as published in Metals Week less 15.0 cents per pound.
- Silver:** Deduct 0.2 troy ounces of silver for each unit of contained copper and pay for 93% of the balance. (minimum deduction from the balance will be 1.0 troy ounce) based on commercial fire assay at 97% of the average Handy and Harman quotation for refined silver as published in Metals Week.
- Gold:** Pay for 93% of contained gold (minimum deduction 0.03 troy ounce) based on commercial fire assay at 98% of the average London Final quotation for gold as published in, Metals Week.
- Copper:** Pay for 40% of contained copper (minimum deduction 10 pounds) at the average quotation for copper, basis F.O.B. Atlantic Seaboard quotation for copper as published in Metals Week, less 20.0 cents per pound.

DEDUCTIONS PER SHORT DRY TON.

- Treatment Charge:** The base treatment charge will be \$120.00. Minimum base treatment charge for any one lot will be \$650.00.
- Arsenic & Antimony:** Increase the treatment charge by \$1.75 for each unit that the sum of antimony plus arsenic is greater than 0.5 units.
- Alumina:** Increase the treatment charge by \$0.90 for each unit greater than 0.5 units.
- Moisture:** Increase the treatment charge by \$0.40 for each unit of moisture greater than 8.0% but less than or equal to 10.0% and by \$1.00 for each unit of moisture greater than 10.0%.
- Silica:** Decrease the treatment charge by \$0.27 for each unit when the SiO₂ is in excess of 3.0 tons contained SiO₂ per lot.



- Lime:** Decrease the treatment charge by \$0.145 for each unit when the CaO is in excess of 3.0 tons contained CaO per lot.
- Labour Rate:** Increase the treatment charge by 8.0 cents for each cent by which the average loaded hourly C.W.S. Rate 12 exceeds \$15.67 per hour.
- Truck Receipts:** For concentrates received by truck, basic handling charges will be an additional \$6.00. For concentrates arriving by truck but unloaded to railcar the \$6.00 per ton charge will be waived but there will be a railcar service charge of \$225.00 per railcar plus the actual rail car rental for each car day the shipper requires to complete the car loading.
- Small Containers:** For receipts in small containers (boxes, drums, sacks) additional handling charges, as incurred, shall be charged to the shipper.
- Unusual Conditions:** Costs due to any unusual or abnormal conditions not otherwise identified will be charged to the shipper.

WEIGHING AND SAMPLING

Weighing, sampling, sample preparation and analysis shall be done by Cominco at its expense in accordance with established practices. The moisture and net weight thus determined shall be final for settlement.

The sample for analysis of each lot shall be divided into four equal parts: one for the shipper, one for Cominco, one for reserve and one to be sealed and retained for umpire purposes for a period of 30 days after settlement. Failure of shipper to take his portion of sample for analysis and to exchange assays shall constitute waiver of assay exchange and Cominco's assay will then be used for settlement.

All accepted shipments shall be released for treatment as soon as sampled.

LOTING AND DATING

The date of acceptance at Trail of the railcar or truck containing the shipment or of the last railcar or truck load in a shipment will be date of acceptance of the shipment or lot.

A lot of concentrate will be not over four railcars.



ASSAYS AND UMPIRES

If a shipper has elected to receive and assay his portion of sample and exchange assays, then assay exchange shall be in crossing mails. Cominco's assays shall be taken as settlement assays provided that, in case of disagreement, an umpire may be selected in rotation from a list mutually agreed upon. The umpire shall be instructed to provide assays as per terms definitions, and the umpire assays shall be final if between the assays of the two parties, and if not, the assay of the party nearer to the umpire shall be used for settlement.

The party whose assay result is farther from the umpire shall pay the cost of umpire but should the umpire assay be the exact mean of the shipper and Cominco assays then cost of umpire shall be split equally.

SETTLEMENT

75% of estimated value of a shipment will be paid when weights and assays are available.

Final settlement for a shipment will be made promptly following the receipt of all necessary information. No deductions for third parties will be made.

TITLE

Title shall pass from Seller to Cominco upon arrival and acceptance at the Buyer's works. For truck deliveries, Title shall pass from Seller to Cominco upon unloading and acceptance at the Buyer's designated location at the Buyer's works.

DEFINITIONS

Ton: - 2,000 pounds avoirdupois

Metric

Tonne: - 2,204.6 pounds avoirdupois

Ounce: - Troy ounce

Unit: - One per cent or 20 pounds avoirdupois

Commercial Fire Assay: Standard North American fire assay unadjusted for slag loss and cupel absorption.



TERMINATION

This schedule may be altered or cancelled by Cominco at any time.

This schedule may be considered as a basis of settlement for lead concentrates but in no way is to be interpreted as a contract.



Ruth Vermont Mines Ltd.
7th Floor, 73 Water Street
Vancouver, B.C.

April 12, 1982

Dear Sir:

Please find enclosed a copy of Cominco's open schedule for the purchase of zinc concentrates. The terms of this schedule will be applicable to all shipments accepted at the Trail Smelter commencing April 1, 1982 and will remain in effect until the schedule is revised.

If you have any questions concerning the schedule, please do not hesitate to inquire.

Yours very truly

A handwritten signature in cursive script that reads "H.M. Hamilton".

H.M. Hamilton
Assistant Ore Buyer

HMH/La
Encl.



SCHEDULE OF
TERMS FOR THE PURCHASE OF ZINC CONCENTRATES
EFFECTIVE MAY 1, 1982

QUALITY, QUANTITY, ACCEPTANCE

Shippers shall provide for the Cominco Ore Buyer, a ten pound sample representative of the concentrates to be shipped for examination and tests. The analysis of trial and subsequent shipments shall conform generally to this representative sample. If at any time, the analysis and/or physical condition of the concentrates deviates from the acceptance range, further shipments may not be accepted. Shippers must provide the Cominco Ore Buyer with proof of ownership and must await written acceptance of the Ore Buyer before making shipment. The quantity to be shipped must be agreed upon in advance of the first shipment and is subject to review and/or adjustment at any time. This schedule is applicable to zinc concentrates only, containing not less than 40% zinc.

Cominco reserves the right not to accept material for purchase unless the foregoing has been complied with and until inspection indicates physical acceptability.

NOTICES AND CORRESPONDENCE

Notice of all shipments must reach Cominco in advance of the shipment. Demurrage resulting from failure to notify of shipment arrival shall be for the shipper's account. Shippers must provide complete written instructions for payment.

FREIGHT AND DELIVERY

All freight and delivery charges are shipper's responsibility. Terms set out hereinafter, unless otherwise indicated, are based on delivery, in bulk, in a hopper-bottom railcar, F.O.B. Trail, B.C. For truck deliveries, unloading to designated location at buyer's works is shipper's responsibility and at shipper's expense. Foreign shippers are responsible for release of shipments through Canada Customs.

REPRESENTATION

The shipper is expected to arrange to be present or to have representative present while his shipment is being weighed and sampled. If the shipper has not done so, Cominco reserves the right to appoint suitable person to act as shipper's representative and at shipper expense.



PRICING, QUOTATIONAL PERIOD

Metal prices and labour rates used to determine the settlement value of a lot will be the average for the calendar month following month of acceptance at Trail, B.C., determined in the manner hereinafter set out.

Terms of settlement will be those of the schedule in effect for the month following month of acceptance. When two or more schedules are in effect in any one calendar month, the weighted average prices, deductions and charges will be used.

United States quotations, where used for a settlement price, will be converted into Canadian funds at the average noon rate for buying and selling United States funds during the quotational period, as established by the Bank of Canada.

Sterling quotations, where used for a settlement price, will first be converted to United States funds at the Pound Sterling rate as published in Metals Week for the quotational period and then converted to Canadian funds as identified above.

Fractions in all cases are pro rata.

FAIR PRICING

In the event that any of the quotations used hereinafter cease to exist or no longer fairly reflect fair market value, Cominco reserves the right to amend the quotational basis with the objective of securing continuity of fair pricing.

PAYMENTS PER SHORT DRY TON

Lead: Pay for 80% of the contained lead (minimum deduction 20 pounds) at the average of the four London Metal Exchange quotations for lead as published in Metals Week less 10.0 cents per pound.

Zinc: Deduct 0.15 units of zinc for each unit of contained iron and pay for 85% of the balance (minimum deduction from the balance 20 pounds) at a weighted average composite price calculated as 65% of the U.S. Producer price for High Grade zinc as published in Metals Week and 35% of the quotation for G.O.B. zinc, European Producer basis, as published in Metals Week. The deduction from the composite price shall be 15.0 cents per pound.

Silver: Deduct 0.2 troy ounces of silver for each unit of contained



COPPER and pay for 93% of the balance (minimum deduction from the balance 1.0 troy ounce) based on commercial fire assay at 97% of the average Handy and Harman quotation for refined silver as published in Metals Week.

Gold: Pay for 93% of the contained gold (minimum deduction 0.03 troy ounces) based on commercial fire assay at 98% of the London Final quotation for gold as published in Metals Week.

Cadmium: Deduct 3.0 pounds and pay for 60% of the balance at the average of the lowest European free market quotation for sticks as published in Metal Bulletin less 70.0¢ per pound.

DEDUCTIONS PER SHORT DRY TON

Treatment Charge: The base treatment charge shall be \$51.00. Minimum base treatment charge for any one lot will be \$600.00.

Zinc Price: Increase the treatment charge by \$3.00 for each 1.0 cent by which the composite price for zinc exceeds 46.0 cents per pound.

Iron Content: Increase the treatment charge by \$1.80 for each unit of contained iron.

Moisture Content: Increase the treatment charge by \$0.50 for each unit of moisture greater than 6.0% but less than or equal to 8.0% and by \$1.50 for each unit of moisture greater than 8.0%.

Labour Rate: Increase the treatment charge by 8.0 cents for each cent by which the average loaded hourly C.W.S. Rate 12 exceeds \$15.67 per hour.

Truck Receipts: For concentrates received by truck, basic handling charges will be an additional \$6.00. For concentrates arriving by truck but unloaded to railcar the \$6.00 per ton charge will be waived but there will be a railcar service charge of \$225.00 per railcar plus the actual railcar rental for each car day the shipper requires to complete the car loading.

Small Containers: For receipts in small containers (boxes, drums, sacks) additional handling charges, as incurred, shall be charged to the shipper.

Unusual Costs due to any unusual or abnormal conditions not



Conditions: otherwise identified will be charged to the shipper.

WEIGHING AND SAMPLING

Weighing, sampling, sample preparation and analysis shall be done by Cominco at its expense in accordance with established practices. The moisture and net weight thus determined shall be final for settlement.

The sample for analysis of each lot shall be divided into four equal parts: one for the shipper, one for Cominco, one for reserve and one to be sealed and retained for umpire purposes for a period of 30 days after settlement. Failure of shipper to take his portion of sample for analysis and to exchange assays shall constitute waiver of assay exchange and Cominco's assay will then be used for settlement.

All accepted shipments shall be released for treatment as soon as sampled.

LOTING AND DATING

The date of acceptance at Trail of the railcar or truck containing the shipment or of the last railcar or truck load in a shipment will be date of acceptance of the shipment or lot.

A lot of concentrate will be not over four railcars.

ASSAYS AND UMPIRES

If a shipper has elected to receive and assay his portion of sample and exchange assays, then assay exchange shall be in crossing mails. Cominco's assays shall be taken as settlement assays provided that, in case of disagreement, an umpire may be selected in rotation from a list mutually agreed upon. The umpire shall be instructed to provide assays as per terms definitions, and the umpire assays shall be final if between the assays of the two parties, and if not, the assay of the party nearer to the umpire shall be used for settlement.

The party whose assay result is farther from the umpire shall pay the cost of umpire but should the umpire assay be the exact mean of the shipper and Cominco assays then cost of umpire shall be split equally.



SETTLEMENT.

75% of estimated value of a shipment will be paid when weights and assay are available. Final settlement for a shipment will be made promptly following the receipt of all necessary information. No deductions for third parties will be made.

TITLE

Title shall pass from Seller to Cominco upon arrival and acceptance at the Buyer's works. For truck deliveries, Title shall pass from Seller to Cominco upon unloading and acceptance at the Buyer's designated location at the Buyer's works.

DEFINITIONS

Ton: - 2,000 pounds avoirdupois

Metric

Tonne: - 2,204.6 pounds avoirdupois

Ounce: - Troy ounce

Unit: - One per cent or 20 pounds avoirdupois

Commercial Fire Assay: Standard North American fire assay unadjusted for slag loss and cupel absorption.

TERMINATION

This schedule may be altered or cancelled by Cominco at any time.

This schedule may be considered as a basis of settlement for zinc concentrates but in no way is to be interpreted as a contract.

APPENDIX I - 2C

SUMMARIES OF 1981
CONCENTRATE SHIPMENTS

APPENDIX I - 3

TABLE 3

SUMMARY OF TAILINGS GRADES.

TAILINGS FROM 1981 METALLURGICAL BALANCES.

1981	H E A D T O N S		T A I L I N G S				TONS
	Milled	Recorded	---ASSAY---		-----UNITS-----		
			Pb	Zn	Pb	Zn	
Aug.	2,700	?					
Sep.	4,639	4,372	0.22	0.92	896.21	3,747.80	4,073.7
Oct.	4,302	4,302	0.33	1.52	1,317.49	6,066.86	3,973.8
Nov.	5,092	4,223	0.36	0.95	1,407.81	3,659.48	3,859.9
Dec.	<u>2,226</u>	0					
TOTAL 18,959							
14,250 est. by H. D. Forman							
A = Calculated	12,897		0.3041	1.1316	3,621.51	13,474.14	11,907.4
B = A-(24-30 Oct. inc.)			0.27	0.92			
C = Bacon Donaldson Test #9			0.29	0.29		18/02/74	
D = Used in LJM & Assoc.1972			<u>0.45</u>	<u>0.76</u>		June 1971 achieved	
Use for 15/09/82 Calculations			0.35	0.76		Estimate Only	

APPENDIX I -4
APPLICATION OF 3 PRODUCT FORMULA TO DATA
FROM APPENDICES I-1, I-2, & I-3

Assumptions	Ag	Pb	Zn	
Heads	6.85	4.84	5.47	H. D. Forman 15 March 1982
Pb Conc. (C ₁)		65.00	5.10	Achieved 1981 Mining Campaign
Zn Conc. (C ₂)		3.30	49.7	Achieved 1981 Mining Campaign
Tails (T)		0.35	0.76	Estimated Achievable Table 3

1972 Report C₁, C₂ and T General

Wt. Balance $F = C_1 + C_2 + T$
Pb Balance $4.84 F = 65 C_1 + 3.30 C_2 + 0.35 T$ (a)
Zn Balance $5.47 F = 5.10 C_1 + 49.7 C_2 + 0.76 T$ (b)
C₁ = Pb Concentrate
C₂ = Zn Concentrate

$$C_1 = F \left[\frac{(f_a - C_{2a})(C_{2b} - tb) - (fb - C_{2b})(C_{2a} - ta)}{(C_{1a} - C_{2a})(C_{2b} - tb) - (C_{1b} - C_{2b})(C_{2a} - ta)} \right]$$

$$C_2 = F \left[\frac{(C_{1a} - fa)(fb - tb) - (C_{1b} - fb)(fa - ta)}{(C_{1a} - C_{2a})(C_{2b} - tb) - (C_{1b} - C_{2b})(C_{2a} - ta)} \right]$$

$$T = F \left[\frac{(C_{1a} - C_{2a})(C_{2b} - fb) - (C_{1b} - C_{2b})(C_{2a} - fa)}{(C_{1a} - C_{2a})(C_{2b} - tb) - (C_{1b} - C_{2b})(C_{2a} - ta)} \right]$$

$$C_1 = \frac{(4.84-3.30)(49.7-0.76) - (5.47-49.7)(3.30-0.35)}{(65.00-3.30)(49.7-0.76) - (5.10-49.7)(3.30-0.35)} = \frac{(1.54)(48.94) - (-44.2300)(2.95)}{(61.70)(48.94) - (-44.6000)(2.95)} = \frac{75.3676 + 130.4785}{3019.5980 + 131.5700} = \frac{205.8461}{3151.1680} = 0.06532 \approx 15.3:1$$

$$C_2 = \frac{(65-4.84)(5.47-0.76) - (5.10-5.47)(4.84-0.35)}{3151.1680} = \frac{(60.16)(4.71) - (-0.3700)(4.49)}{3151.1680} = \frac{283.3536 + 1.66130}{3151.1680} = \frac{285.0149}{3151.1680} = 0.09045 \approx 11.1:1$$

$$C_1 + C_2 = 0.15577 \approx 6.4:1$$

$$T = \frac{(65.0-3.30)(49.7-5.70) - (5.10-49.7)(3.30-4.84)}{3151.1680} = \frac{(61.7)(44.23) - (-44.60)(-1.54)}{3151.1680} = \frac{2728.9910 - 68.684}{3151.1680} = \frac{2660.3070}{3151.1680} = 0.84423$$

$$C_1 + C_2 + T = \text{Feed} = \frac{205.8461 + 285.0149 + 2660.3070}{3151.1680} = \frac{3151.1680}{3151.1680} = 1.00000$$

APPENDIX I - 5A
CALCULATIONS OF PROBABLE
SMELTER RECEIPTS
AND
CHARGES

RUTH VERMONT

LEAD CONCENTRATE (0.06532 TONS/TON ORE MILLED)
AS PER COMINCO LEAD SMELTER QUOTE 6 APRIL, 1982

Pb Conc. Analysis (Avg. Lot=88Tons)	% Troy oz.		%	%	%	%	%	%	%	%	%	%
	H ₂ O	Au										
	6.39	0.43	106	1.49	65.0	5.1	2.3	0.6	4.0	0.5	1.10	0.50

Metal Payment for 1 Ton Conc.	Metal Paid for	Credits From Other Metals	Pb, Zn, Ag Equivalents
Pb = [65 - 0.1(1.49 - 0.75)] 92% = [64.9260]0.92 = 59.73193% = 1194.63840# + 29.8(Cu)			1,224.4384 lb
Zn = [((5.1 - 0.7[4.0 - 1.44(5.1)])]60% = [5.1]0.60 = 3.06 = 61.20000# [1 applies if ≥0]			61.2000 lb
Ag = [106 - (0.2)(1.49)]0.93 = [105.702]93% =		0.65(Au)	98.9529 oz
Au = [0.043] - [0.07(0.043) ≥ 0.03] = 0.043 - 0.030 = 0.013 oz Au = 0.01300 oz 0.013 oz Au & @ 50:1 = 0.65/oz Ag			
Cu = (1.49)40% = 0.596% = 11.92# & @ 2.5:1 = 29.8# Pb = 11.92000#			

Prices to be Paid: Pb = Quote (¢/lb) - [10¢ + (0.25)(Quote - 40¢)] 1 [...] Applies if (Quote - 40¢) ≥ 0
Zn = Quote (¢/lb) - 15¢
Ag = Quote (\$/oz) 97%

Charges for 1 ton Concentrate:

Treatment	= \$120.00	\$120.000
Sb + As	= (\$1.75)[(1.1+0.5)-0.5] = 1.75[1.6 - 0.5] = (1.75)(1.1) = 1.9250	1.925
Al ₂ O ₃	= (\$0.90)[0.6-0.5] = 0.90[0.1]	.090
H ₂ O	= \$0.40[6.39 - 8.0] = 0	.000
SiO ₂	= -\$0.27[(.023)(88) - 3] = 0	.000
CaO	= -\$0.145[(0.005)(88) - 3] = 0	.000
Labour	= 0?	.000
Charges Smelter		122.015
Extra Handling & Freight Lots 38-42 1981 Inc. 1981 = \$1569.28/439.996 = 3.567		3.567
Total Charges by Cominco on Pb Conc.		\$125.582

APPENDIX 1 - 5A2

RUTH VERMONT
ZINC CONCENTRATE
(0.09045 TONS/TON ORE MILLED)
As Per COMINCO ZINC SMELTER QUOTE
1 MAY, 1982

Zn Conc. Analysis	% H ₂ O	Troy Oz		% Cu	% Pb	% Zn	% Fe	% Cd
Avg Lot = 70 tons	8.02	Au 0.0200	Ag 8.83	0.50	3.3	49.7	8.9	0.38

<u>Metal Payment for 1 Ton Conc.</u>			<u>Metal Paid For</u>	<u>Credits From Other Metals</u>	<u>Pb,Zn,Ag Equivalents</u>
Pb	[3.3] 80%	= 2.64%	52.8000#		52.8000 lbs
Zn	[49.7 - (0.15)(8.9)] 85%	= [49.56650] 85%	= 42.13153%	= 842.6305#	+13.8000(Cd) 856.4305 lbs
Ag	[8.83 - (0.2)(0.50)] 93%	= [8.73] 93%	=	8.1189 oz	8.1189 oz
Au	[0.0200] - .03			0.0000 oz	
Cd	[0.38 x 20 - 3] 60%	= [4.6] 60%	= [2.76# x 5 = 13.8 lb Zn]	2.7600#	

<u>Prices To Be Paid</u>	
Pb	= Quote (c/lb) - 10c
Zn	= Quote (c/lb) - 15c
Ag	= Quote (\$/oz) 97%

Charges For 1 Ton of Concentrate

Treatment	= \$51.00	\$ 51.000
Zn Price	= \$ 3.00 [Zn Price (c/lb) - 46 (c/lb)]	
Fe	\$ 1.80 [8.9]	16.020
H ₂ O	\$ 0.50 [8.00 - 6.00] + \$1.50 [8.02 - 8.00] =	1.040
Labour		0.000
Sub Smelter Charges		68.060
Extra Handling and Freight Lots 2 - 6 Incl. 1981 = \$1316.87/348.1910		3.782
Total charges on Zinc Conc.		<u>71.842</u>

APPENDIX 1 - 58

TABLE 4

TOTAL PROBABLE NET SMELTER RETURN

Per Ton Conc.	-----P A Y M E N T S -----		----- S M E L T E R -----		Truck Costs
	S I L V E R	L E A D	Z I N C	Charges	
Pb Conc.	(98.9529) (0.97)=95.984 (Quote)	[1,224.4384] [Quote-[0.10+(0.25) (Quote-40)]]	[61.2000] [Quote-0.15]	125.582	42.00
Zn Conc.	(8.1189oz) (0.97)=7.875 (Quote)	[52.8000] [Quote-0.10]	[Quote-0.15] [856.4305]	<u>71.842</u> 197.424	42.00
Per Ton Ore					
0.06532 Pb	6.26967	[79.98032] [Quote-[0.10+(0.25) (Q-.40)]]	[3.99758] [Quote-0.15]	8.20302	2.7344
0.09045 Zn	<u>0.71229</u>	<u>[4.77576] [Quote-0.10]</u>	<u>[77.46414] [Quote-0.15]</u>	<u>6.49811</u>	3.79890
<u>Total/ton Ore</u>	<u>6.98197 (Quote)</u>	<u>[84.75608] [Quote-10] - [19.99508] [Q-.4]</u>	<u>[81.46172] [Quote-0.15]</u>	<u>14.70113</u>	<u>6.54234</u>

† [19.99508] [Q - .4] applies if Pb Quote ≥ 40¢/lb.

CONC 15/1

13.43 T. ORE
TO 1 TON CON.

APPENDIX I-6

ANNUAL AVERAGE METAL PRICES

ESCALATED TO 1981 RATES

BY THE CONSUMER PRICE INDEX

TABLE 5

Metal Prices 1900-1981 (annual averages)
August 17, 1982

Year	CPI	Lead	Zinc	Silver	Gold L/i	Pb in/lb	Zn in/lb	Ag in/lb	Au in/lb
1982	290.60								
1981	272.40	36.53	44.56	1051.84	460.02	38.97	47.53	1122.11	490.76
1980	246.80	42.46	37.43	2063.16	612.95	49.99	44.07	2429.31	721.73
1979	217.40	52.64	37.30	1109.38	307.30	70.37	49.85	1482.91	410.77
1978	195.40	33.65	30.97	540.09	193.36	50.05	46.06	803.22	287.56
1977	181.50	30.70	34.39	462.30	147.71	49.16	55.07	740.19	236.50
1976	170.50	23.10	37.01	435.35	124.83	39.38	63.08	742.00	212.76
1975	161.20	21.53	38.96	441.85	161.09	38.81	70.23	796.54	290.41
1974	147.70	22.53	35.95	470.80	159.09	44.33	70.72	926.30	313.02
1973	133.10	16.29	20.66	255.76	97.13	35.56	45.10	558.40	212.06
1972	125.30	15.03	17.75	168.46	58.10	34.86	41.17	390.69	134.75
1971	121.30	13.80	16.13	154.56	40.79	33.06	38.64	370.29	97.72
1970	116.30	15.62	15.32	177.08	35.95	39.03	38.28	442.48	89.83
1969	109.80	14.90	14.60	179.07	41.10	39.42	38.64	473.92	108.77
1968	104.20	13.21	13.50	214.46	39.85	36.85	37.65	598.10	111.14
1967	100.00	14.00	13.84	154.97	38.00	40.68	40.23	450.34	101.71
1966	97.20	15.12	14.50	129.30	35.00	45.19	43.35	386.57	104.64
1965	94.50	16.00	14.50	129.30	35.00	49.20	44.59	397.61	107.63
1964	92.90	13.60	13.57	129.30	35.00	42.53	42.44	404.46	109.48
1963	91.70	11.14	12.00	127.91	35.00	35.29	38.02	405.36	110.92
1962	90.60	9.63	11.63	108.52	35.00	30.89	37.29	348.08	112.26
1961	89.60	10.87	11.54	92.45	35.00	35.26	37.43	299.84	113.52
1960	88.70	11.95	12.95	91.38	35.00	39.14	42.41	299.36	114.67
1959	87.30	12.21	11.45	91.20	35.00	40.65	38.11	303.59	116.51
1958	86.60	12.11	10.31	89.04	35.00	40.63	34.59	298.80	117.45
1957	84.30	14.66	11.40	90.82	35.00	50.53	39.29	313.08	120.65
1956	81.40	16.01	13.49	90.83	35.00	57.17	48.17	324.25	124.95
1955	80.20	15.14	12.30	89.10	35.00	54.85	44.56	322.85	126.82
1954	80.50	14.05	10.68	85.25	35.00	50.73	38.56	307.75	126.35
1953	80.10	13.49	10.86	85.19	35.00	48.94	39.38	309.06	126.38
1952	79.50	16.47	16.22	84.94	35.00	60.19	59.27	310.49	127.94
1951	77.80	17.50	18.00	89.37	35.00	65.37	67.23	333.81	130.73
1950	72.10	13.30	13.87	74.17	35.00	53.59	55.89	298.94	141.07
1949	71.40	15.36	12.14	71.93	35.00	62.53	49.43	292.76	142.45
1948	72.10	18.04	13.59	74.36	35.00	72.72	54.77	299.71	141.07
1947	66.90	14.67	10.50	71.82	35.00	63.74	45.61	311.97	152.03
1946	58.50	8.11	8.73	80.15	35.00	40.28	43.35	398.15	173.86
1945	53.90	6.50	8.25	51.93	35.00	35.04	44.48	279.97	188.70
1944	52.70	6.50	8.25	44.75	35.00	35.84	45.49	246.76	193.00
1943	51.80	6.50	8.25	44.75	35.00	38.47	46.28	251.05	196.35
1942	48.80	6.48	8.25	38.33	35.00	38.59	49.13	228.27	208.42
1941	44.10	5.79	7.47	34.77	35.00	38.17	49.25	229.14	230.63
1940	42.00	5.18	6.34	34.77	35.00	35.83	43.83	240.60	242.17
1939	41.60	5.05	5.11	39.08	35.00	35.30	35.70	273.01	244.50
1938	42.20	4.74	4.61	43.23	35.00	32.63	31.75	297.66	241.02
1937	43.00	6.01	6.52	44.88	35.00	40.61	44.06	303.33	236.53
1936	41.50	4.71	4.90	45.09	35.00	32.98	34.32	315.72	245.08
1935	41.10	4.07	4.33	64.27	35.00	38.74	30.60	454.45	247.47
1934	40.10	3.87	4.16	47.97	20.67	28.02	30.13	347.65	149.79
1933	38.80	3.87	4.03	34.73	20.67	28.98	30.18	260.09	154.81
1932	40.90	3.18	2.88	27.89	20.67	22.59	20.43	198.18	146.86
1931	45.60	4.24	3.64	28.70	20.67	27.04	23.20	182.90	131.73
1930	50.00	5.52	4.56	38.15	20.67	32.06	26.48	221.75	120.13
1929	51.30	6.83	6.51	52.99	20.67	38.71	36.89	300.19	117.09
1928	51.30	6.31	6.03	58.18	20.67	35.72	34.14	329.55	117.09
1927	52.00	6.76	6.24	56.37	20.67	37.75	34.88	315.02	115.51
1926	53.00	8.42	7.34	62.11	20.67	46.15	40.23	340.53	113.33
1925	52.50	9.02	7.62	69.07	20.67	49.93	42.19	382.29	114.41
1924	51.20	8.10	6.34	66.78	20.67	45.96	36.01	379.03	117.32
1923	51.10	7.27	6.61	64.87	20.67	41.33	37.57	368.93	117.95
1922	50.20	5.73	5.72	67.53	20.67	33.19	33.09	390.91	119.66
1921	53.60	4.55	4.66	62.65	20.67	24.64	25.24	339.69	112.07
1920	60.00	7.96	7.67	100.90	20.67	38.54	37.15	488.69	100.11
1919	51.80	5.76	6.99	111.12	20.67	32.31	39.20	623.40	115.96
1918	45.10	7.41	7.89	96.77	20.67	47.77	50.84	623.55	133.19
1917	38.40	8.79	8.81	81.42	20.67	66.50	66.69	616.14	156.42
1916	32.70	6.86	12.63	65.66	20.67	60.95	112.28	583.52	183.69
1915	30.40	4.67	13.05	49.68	20.67	44.67	124.79	474.94	197.59
1914	30.10	3.86	5.06	54.81	20.67	37.29	48.86	529.17	199.56
1913	29.70	4.37	5.50	59.79	20.67	42.76	53.85	585.03	202.25
1912	29.00	4.47	6.80	60.84	20.67	44.80	68.13	609.61	207.13
1911	28.00	4.42	5.61	53.30	20.67	45.87	58.20	553.22	214.53
1910	28.00	4.45	5.37	53.49	20.67	46.14	55.73	555.11	214.53
1909	27.00	4.27	5.35	51.50	20.67	45.99	57.60	554.31	222.47
1908	27.00	4.20	4.58	52.86	20.67	45.20	49.27	568.97	222.47
1907	28.00	5.33	5.81	65.24	20.67	59.27	60.32	677.07	214.53
1906	27.00	5.66	6.05	66.79	20.67	60.89	65.09	718.87	222.47
1905	27.00	4.71	5.73	60.35	20.67	50.66	61.67	649.57	222.47
1904	27.00	4.31	4.93	57.22	20.67	46.38	53.07	615.87	222.47
1903	27.00	4.24	5.19	53.57	20.67	45.60	55.87	576.57	222.47
1902	26.00	4.07	4.84	52.16	20.67	45.48	54.10	582.99	231.03
1901	25.00	4.33	4.07	58.95	20.67	50.33	47.31	685.23	240.27
1900	25.00	4.37	4.39	61.33	20.67	50.80	51.03	712.90	240.27
max.value						72.72	124.79	2429.31	721.73
ave.value						43.49	46.91	479.94	181.32
min.value						22.59	20.43	182.90	89.83

NOTES TO ACCOMPANY TABLE 5

Subject: Notes on CPI, Lead, Zinc & Silver Prices

The US Consumer Price Index (1976 basis), on a monthly basis from December 1966 to June 1982, and on an annual basis from 1900 to 1981, was used.

Annual average metal prices from 1900 to 1981:

Lead (common NY), Zinc PW (E.St.Louis), and Silver (NY) were inflated to June 1982 using the US CPI. (source American Bureau of Metal Statistics)

Monthly average metal prices from December 1966 to June 1982:

Lead (US Producer/St.Louis common); Zinc (US HG/Del PW/E.St.Louis); and Silver (Handy & Harman/NY) were inflated to June 1982 using the US CPI. (metal prices per Metals Week).

The prices in money and inflated dollars were plotted on log-normal graph paper.

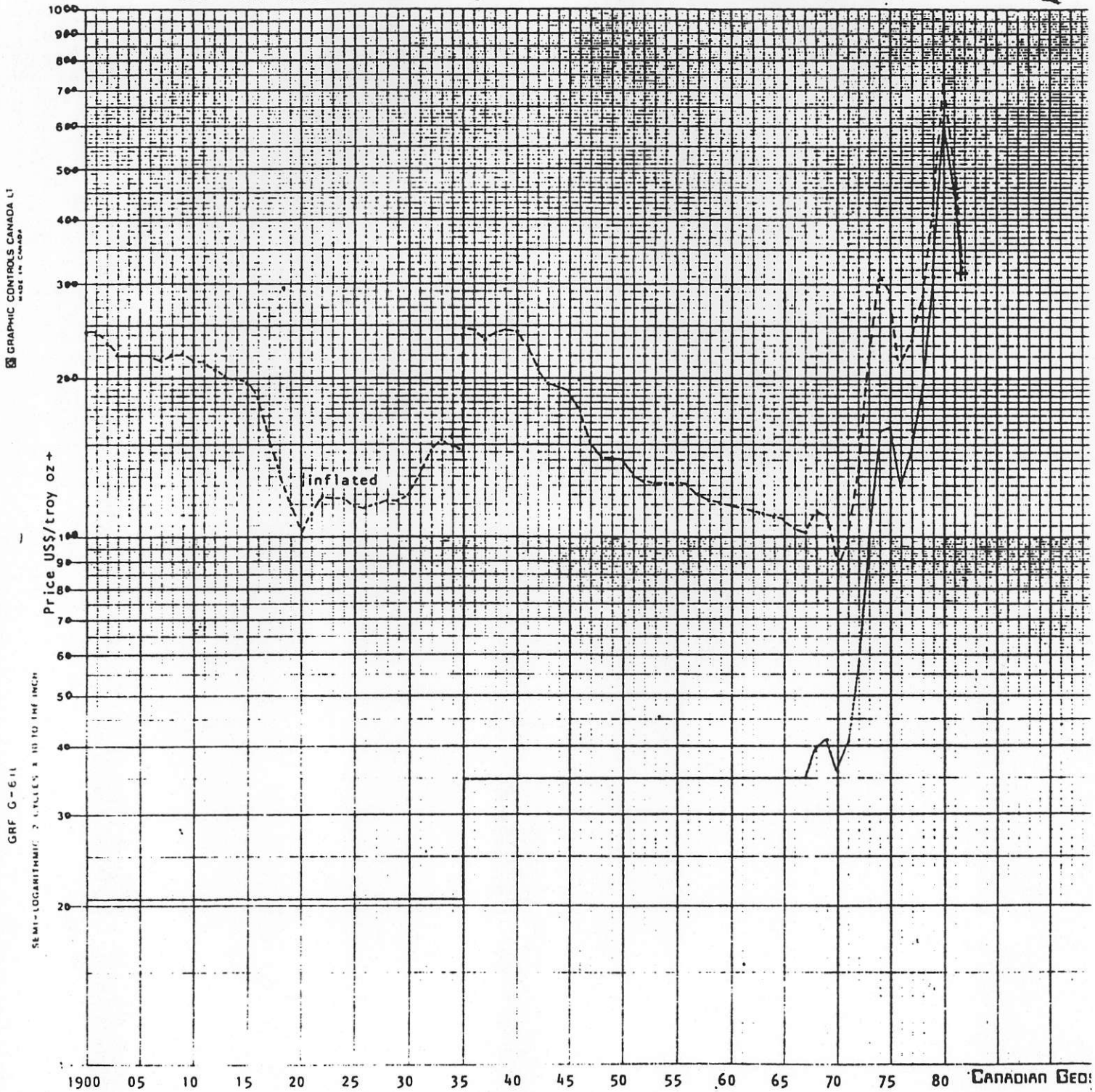
The averages of the 1900-1981 inflated prices were calculated.

Some moving averages of the annual inflated prices were computed.

APPENDIX I - 6B - 1
GRAPH 1

GOLD LME INITIAL

GOLD - LME initial - Annual Average Prices & inflated by US CPI to June 1982 (see attached note)



GRAPHIC CONTROLS CANADA LTD
MADE IN CANADA

GRF G-6-11

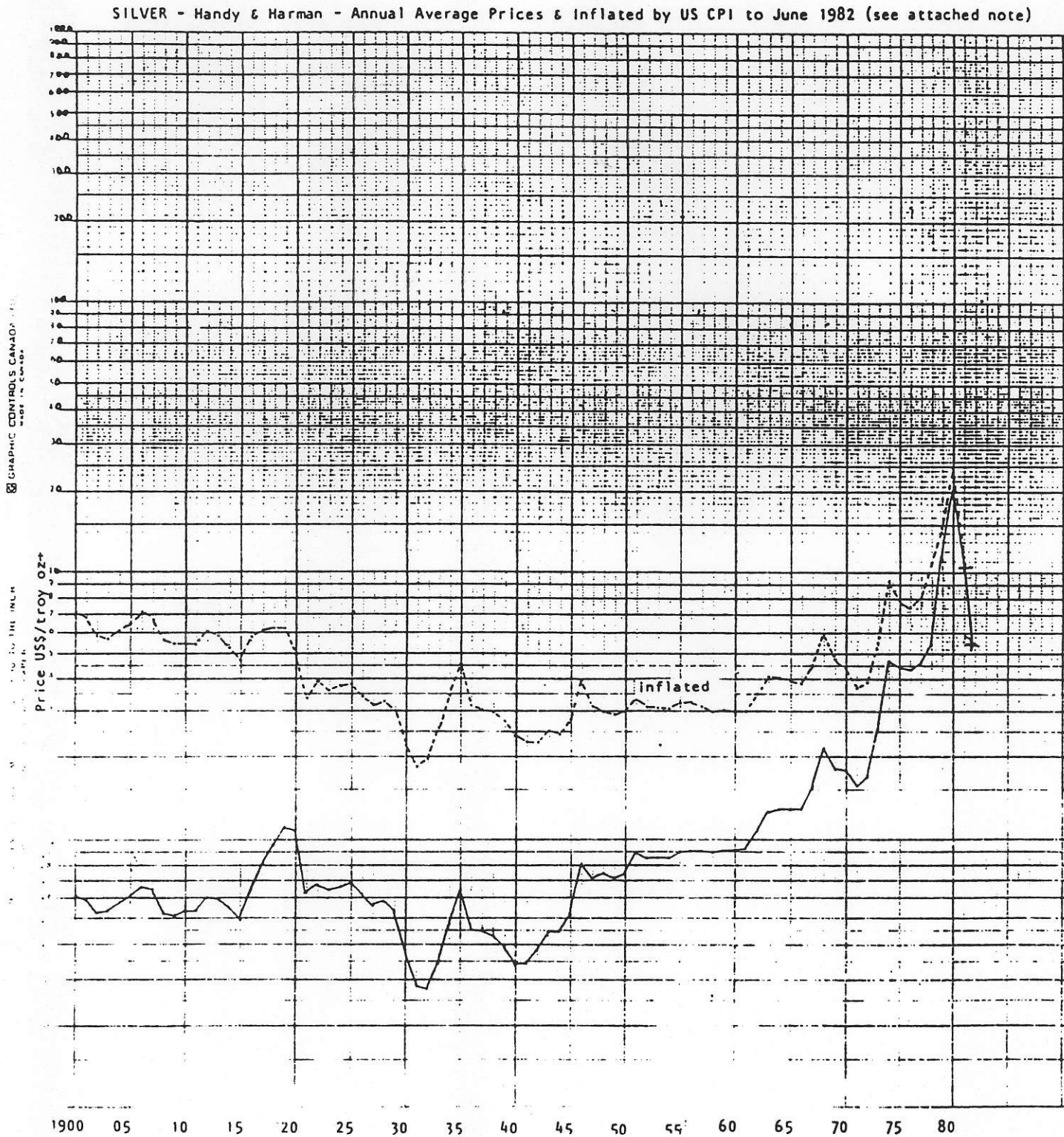
SEMI-LOGARITHMIC 2 CYCLES X 10 TO THE INCH

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APPENDIX I - 6B - 2

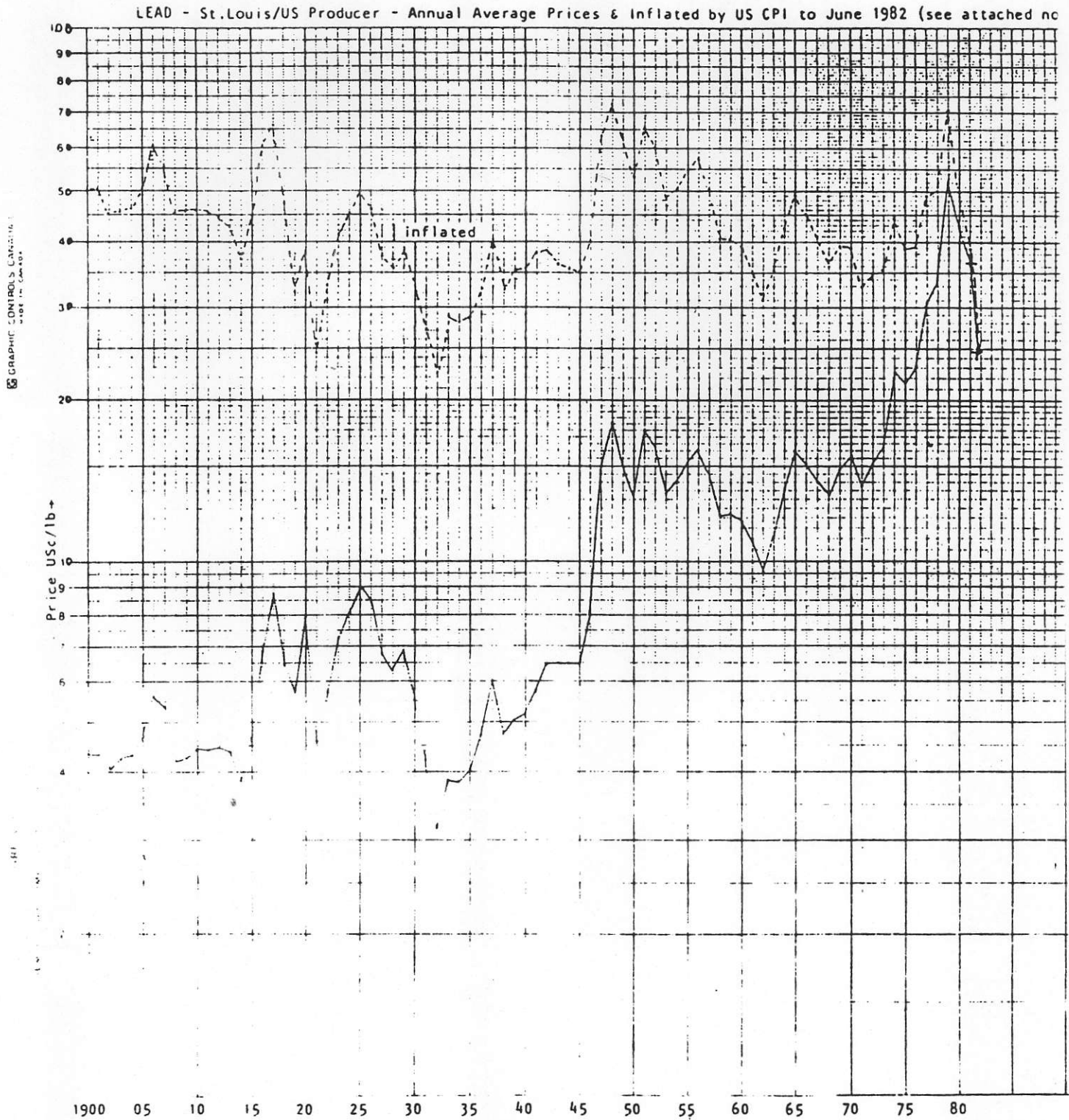
GRAPH 2

SILVER HANDY & HARMAN



APPENDIX 1- 6B-3
GRAPH 3

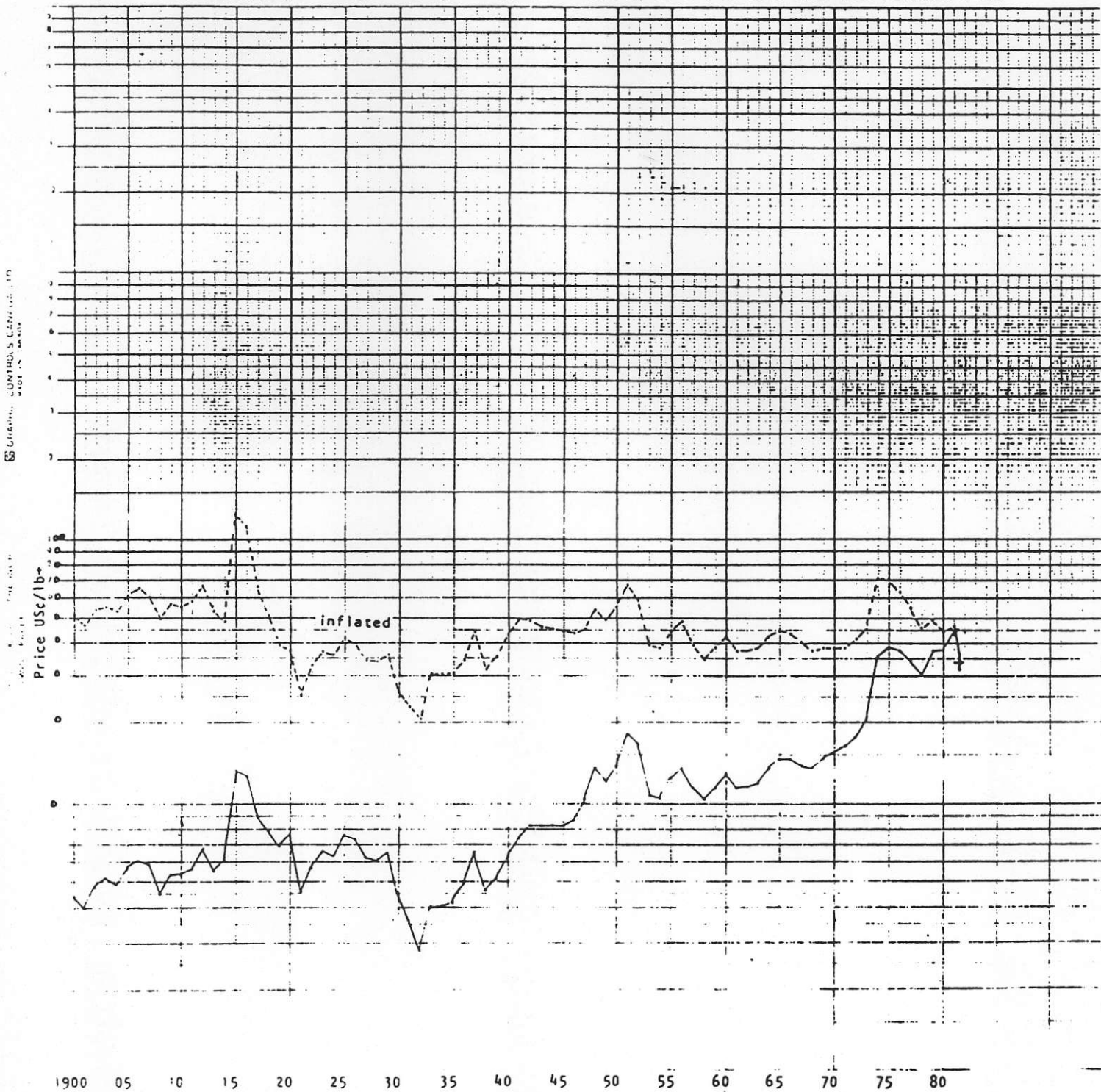
LEAD ST. LOUIS/U.S. PRODUCER



APPENDIX 1-6B - 4
GRAPH 4

ZINC EAST ST. LOUIS/U.S. PRIME WESTERN

ZINC - E.St.Louis/US pw - Annual Average Prices & Inflated by US CPI to June 1982 (see attached note)



APPENDIX I - 7

OPERATING COST ESTIMATES
FOR
ANNUAL TONNAGE CAPACITIES

OF

84,000 and 180,000 T.P.Y.

OR 250 T.P.D.

FOR

28 DAYS PER MONTH

AND

500 T.P.D.

FOR

30 DAYS PER MONTH

OPERATING COSTS

The camp has beds for 62 men which is sufficient to provide 7,000 tons per month, which rate has been used in the report dated 15 March, 1982, by H. D. Forman. In April, 1972, L. J. Manning & Associates Ltd. estimated that 120 men would be needed to provide 15,000 tons per month. This rate was based on mining approximately two lineal feet per day of the mixed reserves then estimated at 227 tons per lineal foot.

Mr. Forman estimated that mining 7,000 tons per month would cost \$58.00 ton before bank interest costs, and would require 52 men on site.

L. J. Manning & Associates estimated that 120 men would be needed on site for 15,000 tons per month and that costs would have been \$13.54 per ton in 1972. Escalating these costs by the factor of 2.363, used in the metal price considerations, results in June 1982 costs of \$32.29.

These have been further increased by an allowance for the extra fuel requirement of \$2.51 resulting in a cost of \$41.80 per ton. By assigning monthly costs to all L. J. Manning & Associates crew, a labour cost of \$22.09 was derived in lieu of 18.04 derived by escalation. This represents an increase of \$4.04 to a final estimate of \$46.25 per ton after contingency increases for the 15,000 tons per month operations. The crew estimated by Mr. Forman has been increased by the addition of six staff for a total of 62 men and an increase in cost of \$2.16 to \$62.88 per ton after 10% contingency allowances for the 7,000 tons per month operations. Concentrate freight of \$6.54 per ton ore added to each operating cost brings them to 15,000 TPM = \$52.79; 7,000 TPM = \$69.42

*Deducted in smelter
returns*

SECTION I - ESTIMATE OF OPERATING COSTS

C R E W	7000 TPM 200 TPD		15000 TPM 500 TPD		Monthly Labour Estimate		
	5 DAY WEEK HDF		7 DAY WEEK LJM		HDF	LJM	
	STAFF	HOURLY	STAFF	HOURLY			
	HDF	LJM INCREASE					
MANAGER	1						
Mine Supt.	1		1			\$ 5000	
Mill Supt.	1		1			4000	
Plant Supt.	1		1			4000	
Accountant	1		1			3500	
Secretary	1		1			2500	
Sr. Staff	5		5			18500	
Payroll Clerk			1			2000	
Gen. Clerk Typist		1	1			1500	
Warehouse	1		4			4500	
	1	1	6			8000	**
Van. Office	0	0	(4) + 1			19500	*
MINE SUPT. Engineering & Geology Supervision	1 2	3 1	6 5	14		15000 16500	Δ 0
Miner's Sub Mine	3	4	22	30	44	160200 191700	0
MILL SUPT. Assay Supervision (Foreman Clerk) Crushing Mill Sub Mill	1	1	2	8.4 10.4	18.8	53640	
PLANT SUPT. Kitchen Contractor	0	0	11 (4)	0	22.2 (8)	39960 (included)	
TOTAL LABOUR Camp Incl. (No.) Beds Required	10 12	6 58 + (4)	42 + (4)	(4) + 27	85 + (8)	\$ 331300	
		62	120	112 + (8)	120		
Total Payroll		62 + Van Off.	124 incl. Van. Off.				

**Two men's salaries omitted by error from LJM Estimate.

SECTION I - ESTIMATE OF OPERATING COSTS

NOTES:

VANCOUVER OFFICE -

President	5000	
Sec. Treasurer	4000	
Office girl	2500	
Consultants	0	
Manager	<u>8000</u>	
	19500	*

ENGINEERING & GEOLOGY

Chief Engineer	4000	
Surveyor	3000	
Helper	1500	
Chief Geologist	3500	
2-Samplers	<u>3000</u>	
	15000	Δ

MINE SUPERVISION

Foreman	3500	
2 Production Shifters	6600	
1 Service Shifter	3400	
Safety	<u>3000</u>	
	16500	□

MINE - HOURLY

HOURLY @ 19.75 DAYS/MONTH

18 Miners (19.75 x 200 = 3950) x 18 =	71100	
6 Muckers 3500 x 6	21000	
<u>6 Development Miners @ 275/day = 5431.25/MO. x 6 =</u>	<u>32600</u>	
30 Men		
TOTAL Variable (30 MEN)	124700	
4 Trammers @ 2500	10000	
6 Timbermen (Incl. Helpers) 3 x 3500 = 10,500		
3 x 1800 = 5,400	15900	
2 Tool Crib @ 1500	3000	
<u>2 Drill and Testhole @ 3300</u>	<u>6600</u>	
14 Men	35500	
44 Men	160200	0

Added by LJM to HDF estimates

General Clerk Typist	1	2000
Chief Engineer	1	3800
Surveyor	1	3000
Helper	1	1500
Chief Geologist	1	3300
Assay Helper	<u>1</u>	<u>1500</u>
Tot. added to HDF est. by LJM	6	15100

$$\frac{\$15100}{7000 \text{ TPM}} = \frac{\$2.16}{\text{TON}}$$

TABLE 6

APPENDIX I-7

SECTION

II - ESTIMATE OF OPERATING COSTS

LJM APRIL 1972 Material Escalated to 1982 Dollars @ 2.363 x1972

	<u>Labour</u>	<u>Material</u>	<u>Total</u>
LABOUR	20.911		20.911
FUEL SURCHARGE		2.506	2.506
MATERIAL	0	12.413	12.413
SUB-TOTAL	20.911	14.919	35.830
HEAD OFFICE	1.176	0.827	2.003
DIAMOND DRILLING	-	0.607	0.607
ONGOING CAPITAL		3.500	3.500
STOCKPILING		0.104	0.104
TOTAL	22.086	19.957	42.044
CONTINGENCIES	2.102	2.102	4.204
SUB-TOTAL	24.189	22.059	46.248

SECTION

III - COST PER TON ORE

	7000 TPM H.D. Forman 5 Day Week		1500 TPM L.J. Manning 7 Day Week		
	HDF ORIG.	LJM INCREASE	B APR. 72	C (2.363)(B)	D
LABOUR	23.00	25.16	7.138	16.864	20.911
FUEL SURCHARGE	0		0	2.506	2.506
MATERIAL	25.00	25.00	5.254	12.413	12.413
SUB-TOTAL	48.00	50.16	12.392	31.783	35.830
HEAD OFFICE	3.20	3.20	0.848	2.003	2.003
DIAMOND DRILL ETC.	0.30	0.30	0.257	0.607	0.607
ONGOING CAPITAL	3.50	3.50	0	3.500	3.500
STOCKPILING	0.00	0.00	0.044	0.104	0.104
TOTAL	55.00	57.16	13.541	37.997	42.044
CONTINGENCIES	3.00	5.72	0	3.800	4.204
SUB-TOTAL	58.00	62.88	13.541	41.797	46.248
CONC.TRUCK HAUL/Ton Conc. CONC.TRUCK HAUL/Ton Ore	42.00	6.54	18 TON/ TANDUM	42.00	6.539
TOTAL OPERATING COST		69.42			52.787

GRAPH No. 5

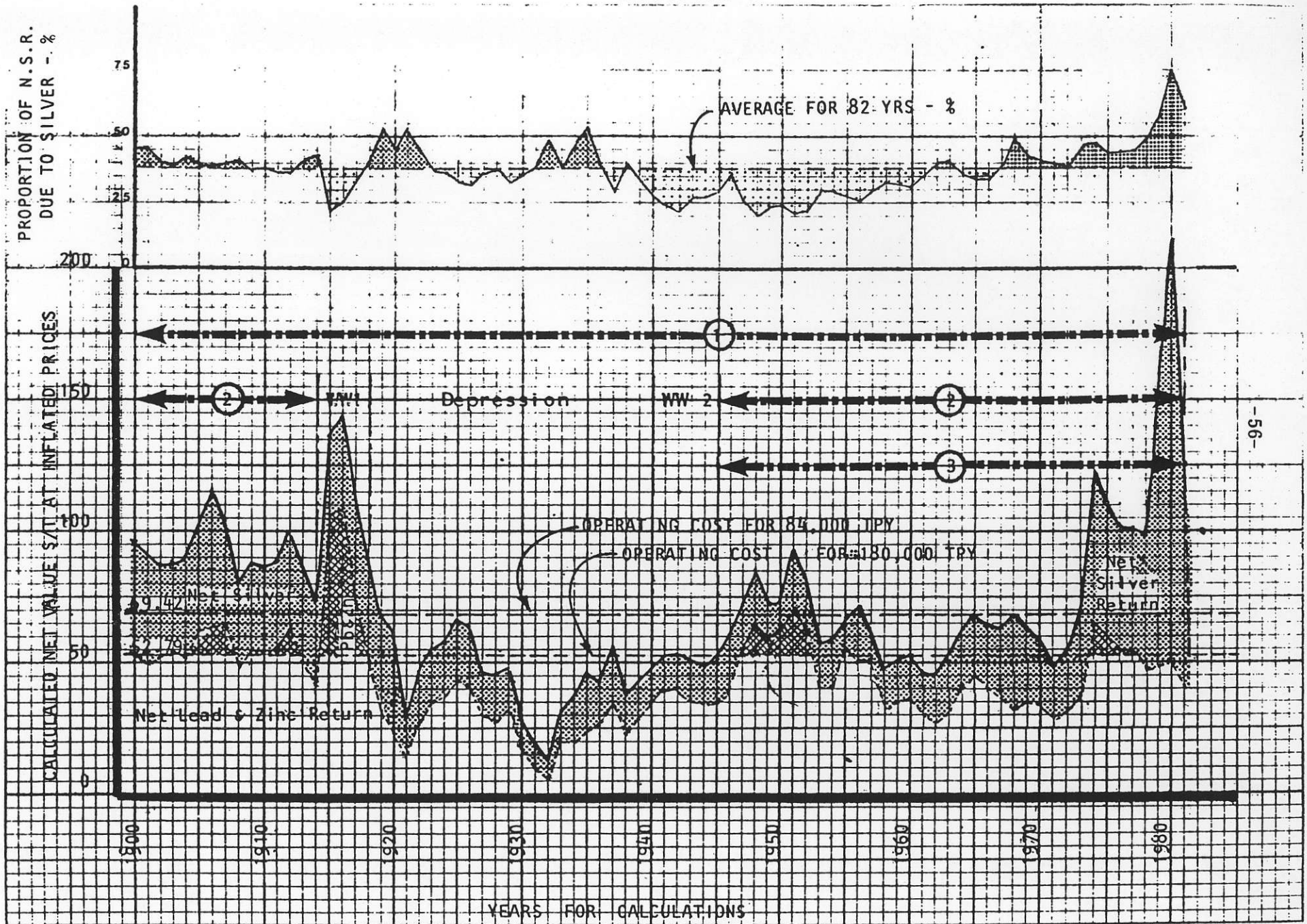


TABLE NO. 8

ANALYSIS OF TABLE NO. 7

DESCRIPTION OF PERIOD	CONTINUOUS OPERATIONS											INTERMITTENT OPERATIONS										
	AGGREGATE											AGGREGATE										
	NO. OF YEARS FOR 100%	OPERATING PROFIT(+) OR LOSS(-) 000'S CAN \$ @		NO. OF PROFITABLE YEARS @				NO. OF YRS WHEN OP PROFIT ≥ OP COST @				NO. OF YEARS FOR 100%	OPERATING PROFIT OR LOSS 000'S CAN. \$ @		NO. OF PROFITABLE YEARS @				NO. OF YRS WHEN OP PROFIT ≥ OP COST @			
	84,000TPY	180,000TPY	NO. YRS	%	NO. YRS	%	NO. YRS	%	NO. YRS	%		84,000TPY	180,000TPY	NO. YRS	%	NO. YRS	%	NO. YRS	%	NO. YRS	%	
1981-1900 (1)	+ 82	90,063	327,073	35	43	59	72	3	4	10	12	89,515	323,560	32	94	51	93	3	9	10	18	
	- 82	72,215	46,292	47	57	23	28					1,129	6,565	2	6	4	7					
TOTAL PERIOD	82	17,848	280,781	82	100	82	100					88,386	316,995	34	100	55	100					
PERIOD AVG.	82	218	3,424									2,600	5,764	82	41	82	67					
OP. PROFIT/T	-	3	19									31	32									
1981-1900 EXCLUDING 2 WORLD WARS AND THE DEPRESSION = 1945 - 1915 = 31 YEARS. THIS LEAVES 51 YEARS OF "NORMAL" METAL MARKETS																						
1981-1946 & 1914-1900 (2)	+ 51	72,889	268,279	31	61	46	90	2	4	7	14	72,341	266,085	28	97	42	95	2	7	7	16	
	- 51	19,508	4,228	20	39	5	10					963	1,380	1	3	2	5					
TOTAL PERIOD	51	53,381	264,051	51	100	51	100					71,378	264,705	29	100	44	100					
PERIOD AVG.	51	1,046	5,177									2,461	6,016	51	57	51	86					
OP. PROFIT/T		12	29									29	33									
1981-1946 (3)	+ 36	44,820	166,231	16	44	31	86	2	6	5	14	44,272	164,037	13	93	27	93	2	14	5	17	
	- 36	19,508	4,228	20	56	5	14					963	1,380	1	7	2	7					
TOTAL PERIOD	36	25,312	162,003	36	100	36	100					43,309	162,657	14	100	29	100					
PERIOD AVG.	36	703	4,500									3,094	5,609	36	39	36	81					
OP. PROFIT/T		8	25									37	31									

* Intermittent operations are an attempt to duplicate what could have happened with the mill constructed and mine developed on a fully operational standby basis at all times. During periods of operating profit it has been considered that the first year has been lost due to requirements for decision making and start up, and that operations have continued one year into periods of operating loss due to requirements for decision making and shut down.

APPENDIX II

REPORTS

No.	TITLE	Page
1	Reports by H. D. Forman on the Ruth Vermont Mine	59
	A Feasibility Study 30 November 1979	60
	B Projection of Production for November 1981	70
	C Problem Summary 27 November 1981	75
	D General Information 21 December 1981	81
	E Feasibility Report 15 March 1982	84
2	Excerpts From Report by L. J. Manning & Associates, Dated 28 April, 1972	112
	A Report by L. J. Manning. Frontispiece - P:6+P:31	120
	B Appendix Contents Pp.45-48 inc.	
3	Excerpt from Report by G. Nolin, Dated October 1981	122

APPENDIX II - 1

REPORTS BY H. D. FORMAN

UPDATED
FEASIBILITY STUDY OF
RUTH VERMONT MINE LTD.
(formerly known as Consolidated Columbia River Mines)
NOVEMBER 30, 1979
BY H.D. FORMAN, P. ENG.

INDEX

Introduction	1
Summary	1
Claims	2
Location & Climate	2
Ore Reserves	2
Notes on Tonnage	3
Ore Grades	3
Mill Recoveries	3
Head Values	4
Mine Costs	6
Economics	7
Mine Program	7
Recommendations	8
Conclusion	9
Certificate	10

Introduction

The purpose of this report is to outline the existing ore reserves and exploration potential of the mine. To evaluate the present reserves under existing metal prices and weight these against the present badly inflated labour, supply and smelting costs. Then to determine if the profit won is sufficient to justify the initial start up expenses plus a reasonable return on capital invested.

Summary

The mineable ore reserves are estimated as follows

Type of Ore	S I L V E R			L E A D		Z I N C	
	Tons	Oz/ton	Ounces	% Pb	Pounds	% Zn	Pounds
Replacement	101,000	5.0	505,000	3.6	363,600	4.9	494,000
Probable	61,000	4.9	298,900	3.5	213,500	4.9	298,900
Replacement	162,000	4.96	803,900	3.56	577,100	4.9	793,800
Vein Deposits	31,800	10.0	318,000	6.3	200,340	6.1	123,980
Probable	20,300	10.0	205,000	6.3	129,150	6.1	125,050
Vein	52,300	10.0	523,000	6.3	329,490	6.1	319,030
Total	214,300	6.2	1,326,900	4.2	906,590	5.2	1,112,830

Direct mining costs exclusive of taxes, interest, etc. are estimated at \$50.00 per ton and head values are calculated at \$129.00 per ton. Profit per ton is \$79.00

Earnings per month are 7000 x \$79.00 = \$ 553,000.00
 Earnings per year are 7000 x 8 x \$79.00 = \$ 4,424,000.00
 Earnings for total ore reserves 214000 x \$79.00 = \$16,906,000.00
 Assuming metal prices and inflation increase in unison.

The exploration of the vein deposits should add materially to the ore reserves but until further development has proven their continuity and grade it is not possible to place a value on these. Replacement type ore bodies may still be found where the vein deposits intersect limestone beds, but extensive diamond drilling will be required to explore this possibility.

Head values during the first two months of operation will be lower than estimated heads since 6000 tons of broken ore of lower grade is presently lying in the stopes. Also two months will be required to bring the vein deposits on stream at 90 tons per day.

Approximately \$900,000.00 is required for development, equipment, equipment repairs and supplies during the start up of the operation. Capital for the first three months, before first smelter returns are received, is estimated at \$700,000.00

It is estimated that a budget for \$1,600,000.00 should be made to get the operation into production. Careful selection of the mine manager is a vital statistic and the manager must have full control of the day to day operation of the property. The isolated location of the mine makes the procurement of personnel difficult and a work schedule of 10 or 20 days on and 5 or 10 off might prove the best for the property. It is the writers considered opinion that metal prices fully justify the re-opening of the mine.

Claims

The Vancouver office has the recorders receipts for the following claims in good standing:

Crown Grants	Record No.
Charlotte	405
Ruth	418
Minnie	419
Cleopatra	8122
Vermont	8123
Sheba	8124
Ruth Fr.	8125

Located Units

MP-1
MP-2
MP-3

Location & Climate

The mine lies approximately 23 miles south of Golden, B.C. and is reached by 35 miles of good logging road from the town of Parson, B.C.

It lies within a cirqued valley at an elevation of some 6000 feet. The claims straddle Vermont Creek which drains the rugged area. Mountain peaks rise to elevations of 8000 to 8500 feet and the steep sided valley is plagued by heavy snows and avalanches throughout five months of the year.

Ore Reserves Diamond Drill Indicated

Type	Tons	Oz. Ag.	%Pb	%Zn
Replacement	101,000	5.0	3.6	4.9
Probable	61,000	4.9	3.5	4.9
Vein Deposits	31,800	10.0	6.3	6.1
Probable	20,500	10.0	6.3	6.1
Total	214,300	6.2	4.2	5.2

Notes on Tonnage

The stope survey completed by Mr. J. Stard on March 22, 1977 shows that some 58,000 tons of ore should remain in the stoped out area of the mine. The original diamond drill sections of the ore zone indicate that the stoping method failed to conform to the outlines of the replacement ore zone. This ore lies largely within the stope floor and stope backs and can be profitably mined at today's metal prices. 26,000 tons of this tonnage has been placed as proven ore and 32,000 tons as probable ore.

Replacement ore between sections 1650 and 1975 is estimated at 99,672 tons based on diamond drill sections after an allowance of 10% for dilution. Diamond drilling in the 1975 section is not sufficient to allow accurate ore calculations and this tonnage has been reduced to 75,000 tons until further development has been done.

Vein ore deposit reserves have been reduced by 50% of the tonnage indicated by diamond drill holes. This was done after stoping operations in 1976 over an ore block showed that in 32% of the block the vein pinched to non commercial widths.

Ore Grades

Replacement ore grade has been based on the mill heads secured in the milling of 93,389 tons by Copperline in 1970-71 and the milling of 41,057 tons in 1976. This grade is below the estimate made from diamond drilling and indicates poor grade control in mining. Until mining control has been improved the former millheads are believed to be the best indicator of ore grade.

All vein ore deposits are calculated over a minimum four foot width and a further 20% deducted for dilution in mining. In summary ore estimates are believed conservative and a further 80,500 tons of probable ore estimated within the confines of the present ore blocks.

Mill Recoveries

The best record of metallurgical performance was that kept by Copperline Mining Co. in the milling of 93,389 tons of ore in 1970-71. These show lead concentrates contained 76.4% of the silver, 81.3% of the lead, 3.8% of the zinc. Zinc concentrates contained 14.6% of the silver, 76.4% of the zinc and 7.4 lbs of cadmium. Concentrate grades were as follows:

Lead Concentrates 72.23 oz. Ag., 59.8% Pb and 3.02% Zn

Zinc Concentrates Silver 9.12 oz., zinc 48.6%, lead not recorded, cadmium 7.42 lbs.

Test work done on Columbia Metals ores shows only slight improvement on the above results. A small percentage of graphite in the ore is given as the cause of the poor recoveries. Consolidated Columbia Metals milled 41,057 tons in 1976 but neither tonnage milled or assays were accurate. Smelter returns from this tonnage shows concentrate grades of 58.8% for lead and 50.1% for zinc.

The milling in 1976 suffered from a 18% time loss through power plant failures, inexperienced operators and the lack of a cleanup sump to recover spillage. If these factors were improved there is every reason to expect that both recoveries and concentrates grades will be upgraded.

The metallurgical results are however not satisfactory and every attempt should be made to upgrade them. If new tests work is undertaken it would be advisable to make the first test on replacement ore, the second on vein ores, and a third using three parts replacement and one part vein ore.

The following results are believed readily attainable and have been used in calculating head values.

Lead - 81% recovered in the lead concentrate, 77% of the silver content and 78 lbs of zinc.

Zinc - 78% of the zinc in the zinc concentrate, 14% of the silver, 60 lbs of lead and 7.4 lbs of cadmium.

Head Values

The metal prices used in calculating ore valuation are silver \$15.00 U.S., lead 61¢ lb U.S., zinc 34¢ lb U.S., cadmium \$3.10 U.S. and the Canadian exchange rate \$1.15 Canadian to \$1.00 U.S.

Trails calculated price would be:

Metal	U.S. Price	Deductions	Canadian Price
Silver	15.00 oz.	0.085 \$/oz.	17.15 \$/oz.
Lead	61¢/lb	17.08¢/lb *	50.50¢/lb
Zinc (lead ore)	34¢/lb	16.50¢/lb	20.12¢/lb
Zinc (zinc conc.)	34¢/lb	10.00	27.6¢/lb
Cadmium	3.10 \$/lb	60¢/lb	2.87 \$/lb

Concentrate content based on mill feed values of 6.2 oz. Ag., 4.2% Pb and 5.2% Zn.

Lead Concentrates - 84.21 oz. silver
- 1200 lbs lead
- 78 lbs zinc
Ratio concentration 17.64 to 1

Zinc Concentrates - 10.71 oz. Ag.
- 1000 lbs zinc
- 60 lbs lead
- 7.4 lbs cadmium
Ratio concentration 12.34 to 1

Value of one ton of lead concentrates

Metal	Contents	Deductions	Net	Value
Silver	84.21 oz.	5.90 oz.	78.31 oz.	\$1,343.01
Lead	1200 lbs	96.0 lbs	1104 lbs	\$ 557.52
Zinc	78 lbs	31.20 lbs	46.8 lbs	\$ 9.41
Sub Total				\$1,909.94
Less freight, handling and smelting etc. estimated				\$ 100.00
				<u>\$1,809.94</u>

Value of heads in lead concentrate
 $1809.94 + 17.64 = \$102.60$ per ton

Value of one ton of zinc concentrate

Metal	Contents	Deductions	Net	Value
Silver	10.71 oz.	1 oz.	9.71 oz.	\$166.52
Zinc	1000 lbs	160 lbs	840.00 lbs	\$231.84
Lead	60 lbs	26 lbs	34.00 lbs	\$ 17.13
Cadmium	7.4 lbs	4.76 lbs	2.64 lbs	\$ 6.86
Sub Total				\$422.36
Less freight, handling and smelting etc. estimated				\$ 88.00
				<u>\$334.36</u>

Value of heads in zinc concentrate
 $334.36 + 12.34 = \$27.09$

Total head value 129.69 per ton = \$129.00

Mine Costs

Crew required is estimated as follows:

Staff - Manager	
Mine Superintendent	
Mill Superintendent	
Mechanical Superintendent	
Geologist	
Mine Surveyor	
Assayer	
Accountant	
Warehouse, first aid	
3 shift bosses	
Total	12 men
Underground - 16 miners	
4 trammers	
2 timbermen	
2 mechanics	
6 general	
	30 men
Mill - 3 Operators	
3 Ball mill operators	
2 Helpers	
1 Mechanic	
1 Crusherman	
	10 men
Surface - 4 mechanics	
1 cat operator	
1 tailings	
4 other	
6 camp	
1 transport	
	15 men
Total crew	67 men

Direct costs estimate

Item	Cost per ton
Labour	21.00
Powder	1.54
Steel and bits	.66
Rock bolts and timber	.50
Repairs underground	1.65
Diamond Drilling	.50
Rental purchase	5.00
Power	5.00
General including camp	3.50
Mill repairs	1.35
Chemicals	1.43
Head office and travel	3.00
Preproduction costs	2.50
Contingencies	2.00
Total	49.63 = \$50.00

Economics

Head values in the mine	\$129.00
Direct mine costs	<u>\$ 50.00</u>
Operating profit per ton	\$ 79.00
Monthly 7000 x 79 =	\$553,000.00
Yearly 8 x 553,000.00 =	\$4,424,000.00
For present ore reserves 214,300 x 79 =	\$16,906,000.00
Assuming metal prices and inflation continue to rise in unison.	

Mine Program

The immediate mine program should be based on continuing the present mining system. A down ramp to the 1975 section started in 1976 should be pushed through as soon as possible.

The cliff pillar at section 875 should be opened up by a 7' x 8' drift driven along the left wall in ore from the 950 section. Raises from this drift will explore and open for stoping ore indicated as lying along the limestone bedding up dip.

The four diamond drill holes drilled from the 5750 level in 1976 all encountered a well defined vein. It is still not possible to determine if this is the Pinetree vein since its position does not correlate with downdip projection of the Pinetree. Cross cutting from the present face of the 5750 level should be continued 66 feet to encounter this vein. Drifting east and west along the vein for 425 feet in each direction should follow. Raises from this level will open up the lower portion of the replacement ore at sections 1850 to 1975 for stoping. Raises to the west will open the vein deposit ore for stoping and should be continued through to the 6000 level.

A drift on the Pinetree vein at the 5950 level beneath the present stopes with raises to the stope floor would open up a high grade ore section on the Pinetree vein and also allow stoping of any replacement ore left in the floor by present stoping methods.

The complete plan of exploration and development should be drawn up along with its time schedule. Every effort should be made to adhere to this plan and to regulate mill feed on the basis of 3 tons of replacement ore for each one of vein ore.

It is recognized that it would take two months to bring the mill heads up to these estimates. This is due to the facts that 6000 tons of lower grade ore is already broken in the stopes and that two months are required to bring the vein deposit ores on stream.

Recommendations

Item one Underground

If possible the 5750 should be advanced to the Pinetree vein and a 350 foot drift completed to the east and 100 feet of drift to the west. Two double raises should be completed, one on the east to the 5900 elevations and one on the west to the 6000 elevation.

Total estimated costs

550 drift at \$140 per foot	\$77,000.00
1000' 5' x 7' raises \$90 per foot	\$90,000.00
Total	\$167,000.00

Item two Power

Currently proposals for the installation of three diesel power plants capable of generating 750 KVA each and two electric driven air compressors each rated at 950 ACFM output are being received. The cost is estimated at \$450,000.00.

Item three

Forward 200 lbs. of replacement ore and 100 lbs. of vein for testing as outlined under mill recoveries.

Estimated cost \$5,000.00.

Item four

Install cleanup sump in mill, complete ball mill feed adjustment and crusher feed adjustment repairs. General mill overhaul.

Estimated cost \$123,000.00

Item five

Inventory presently available, surface equipment, mill equipment, mine equipment, and camp needs.

Then list items needed and items to be repaired

Estimated cost - \$155,000.00

Total outlay prior to production is estimated at \$900,000.00.

Additional capital of \$700,000.00 would be necessary for operating for two months before first returns from the smelter were received. The minimum capital needed to place the operation in production is therefore \$1,600,000.00.

Conclusion

Prevailing metal prices are sufficient to overcome today's labour, supply and smelting costs and provide an excellent profit. The mine has sufficient ore reserves to maintain production on a 7000 ton per month, 8 months per year basis for four years. Ore potential within the vein deposits offers an excellent chance of adding several more years of profitable production on a lesser scale. The possibility of locating further replacement ore bodies is not exhausted and the location of a repeat of the present replacement ore body would add six years to the mine's life. The necessary improvements in power supply, equipment additions, metallurgical upgrade and management as outlined in this report are still the keystones to a successful operation.

Respectfully submitted,


H.D. Forman, P.Eng.

RUTH VERMONT MINE LTD. (N.P.L.)

Projection of production for the month of November 1981.

6100 to 6130 Pinetree Vein

Mining faces available four, number of miners three, rounds per day

three, tons per round $\frac{5 \times 6 \times 7}{11} = 19$

Working days: 21

Total tonnage: $21 \times 19 \times 3 = 1197$ per month

Estimated: 1200 per month

Grade: silver 10 oz., lead 6.3%, zinc 6.1%

6000 Level

No. 1 Down Ramp Section 1250

Rounds per day: one

Tons per round $\frac{12 \times 10 \times 9}{11} = 98$ tons

Grade: silver 4.5 ag., lead 3%, zinc 3%

Working days: 21 = 2058 tons

No. 2 Down Ramp Section 1750

Rounds per day: one

Tons per day $10 \times 10 \times 9 = 82$

Tons per month $21 \times 82 = 1722$

Grade first 50': Silver 2 oz., lead 1%, zinc 1% = 454 tons stockpile

Grade first 139': Silver 5.2 oz., lead 3.5, zinc 4% = 1268 tons

Stope Bench

Tons per round $\frac{20' \times 6' \times 10'}{11} = 110$ tons

Rounds per month 11 X 110 = 1210 tons

Grade: Silver 5.2 oz., lead 3.5%, zinc 4%

5750 Five Raises

Rounds per day: three

Tons per round: $\frac{5 \times 7 \times 6 \times 3}{12} = 54$ tons

Tons per month 21 X 54 = 1134

Days per month: 21

Grade: Silver 4 oz., lead 4%, zinc 5%

Monthly Summary

<u>Place</u>	<u>Tons</u>	<u>oz. Ag.</u>	<u>% Pb.</u>	<u>% Zn.</u>
6000 - 6140	1200	10.0	6.3	6.1
6000 - No. 1 Ramp	2058	4.5	3.0	3.0
No. 2 Ramp	1268	5.2	3.5	4.0
Stope Bench	1210	5.2	3.5	4.0
5750 Raises	1134	4.0	4.0	5.0
Total	6870	5.6	3.9	4.2%

Concentrates Lead

$6870 \times 3.9 \times \frac{88}{100} \times \frac{3}{2} = \frac{70733}{200} = 353$ SDT

A) Value at \$1200 per SDT = 423600.00

B) Value at \$1100 per SDT = 388300.00

Concentrates Zinc

$6870 \times 4.2 \times \frac{80}{100} \times \frac{2}{1} = 46166 = 461$ SDT

Value at Trail \$270. per SDT = 124,470.00

Total value of concentrates lead B + Zinc = \$512,770.00

Other Factors

Mill operation 600 hours out of a possible 720 hours or 83% of available time at 11.5 tons per hour. Current average operating rate 12 tons per hour.

Power House

100% efficiency on two engines leaving one spare.

Mine

- Trimming rate 240 tons per 24 hours
- Lodie problems must be solved by November 6th or mill will be out of ore
- Weak link - Jumbo availability must average 80% for above figures to be met.

Crews

- Underground at full strength
- Mechanical - needs Master Mechanic
- Mill - needs Mill Forman
- Staff - needs Geologist

Winter Operation

- (a) If 1981-82 winter proves a normal year then it should be possible to operate through the winter providing the crew do not panic when the noise, wind and snow spray resulting from the first slides in January are experienced.

(b) The Directors have voted to maintain operations during the winter, if possible. Protective bermes of slide rock are currently being implaced on the three slides which border the mine camp and mill buildings. This was done on the advice of Mr. Bleuer an Avalanche expert recommended by Mr. Schearer the government expert on avalanche control.

Snow Ploughing Equipment

The following equipment is available for road and camp snow clearance:

D8-Cat, Grader and 950 Loader

Extra Cost of Winter Operation

Rock bermes	\$22,000.00
D 8 Cat rental	18,000.00
Labour	30,000.00
Fuel, oil & repairs	14,500.00
Avalanche control by helicopter	<u>5,000.00</u>
Total	\$89,500.00

Over four months = \$22,375.00 per month

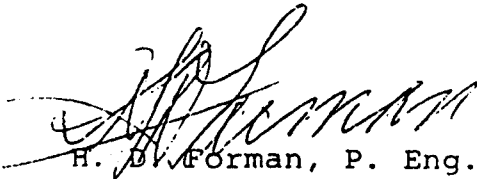
Unknown Factors

No. 1 Metal Prices

Present metal prices are bottom level at which the mine can be operated. The economics of whether it is sound business to expend 28,100 tons of ore by operating over the winter at low metal prices or to close down in the hope that an increase in metal prices will occur by May of 1982 is a debatable question. Certainly a \$3.35 U.S.

price increase in silver would add \$22.50 to the head values. To offset this is the cost of mine maintenance, insurance, interest, inflation and loss of personnel.

Past experience shows that in one winter in seven, snow and atmospheric conditions create dangerous conditions and if this should occur anywhere from one to three months could be lost in production.



H. D. Forman, P. Eng.

RUTH VERMONT MINE LTD. (N.P.L.)

The following brief report summarizes the problems which have beset the Ruth Vermont Mine during the past six months. These problems have resulted in the mine's capital needs far exceeding those forecast and have placed the management and staff in a very difficult position.

A - The delivery date of equipment has continually been behind schedule. Commencing with the diesel generating equipment which arrived two months behind schedule and set the whole project back by two months. Underground and surface equipment managed to arrive one week to six weeks behind due date. This created a serious difficulty in providing crews to man this equipment.

Secondly, too often the equipment when received was faulty and the securing of even small parts to remedy the faults caused a second delay. This supply problem persists today and weeks even months elapse before repair parts are received.

B - The mine being behind schedule attempted to go into production in August not June as planned. In August mining and exploration in B.C. were at their peak and underground crews almost impossible to secure. The result was mining crews were limited to six miners of which only two could be classified as experienced men. In September the situation improved slightly and the addition of four miners from Newfoundland allowed the first real start on the lower level (5750). This level, at that time, was four months behind expectations with the result that the mill was largely dependent on exploration ore from the 6000 level development headings. Ore transport from those headings was dependent on scooptrams and the company machines proved inadequate. A new machine rented for delivery on

September 12th arrived September 20th and was immediately found to be faulty in the fuel pump. To date inspite of the attendance of four experts sent in by the company supplying this machine the scooptram is operating only at forty percent of capacity.

In October failure of the electric locie shut down the tramming system from the main ore pass to the fine ore bin. A crash program located a second locie which was rented but it too failed after five days. Production for October was 4,302 tons as a result.

November offered the promise of being the first month of profitable production, but electric locie problems were not solved for the first week and the two diesel generator sets burnt out the automatic voltage regulators at the same time. Since one engine could only provide power for fifty percent of the operation two more days production were lost. Experts sent in by the manufacturers of the engine have yet to locate the problem and the power plant is now operated on manual controls.

The overall result is that November's production will be 1500 tons below expectations and the ore grade 20% below that predicted. The writer having undergone an operation was not capable of climbing raises and sub levels and as a result grade control suffered. A geologist has finally been secured and grade control is no longer limited to one man.

Also, the assay office is now in operation. This is three months behind schedule due to a series of stupid mistakes which are beyond the writers patience to recount.

Unfortunately during the past four months metal prices have progressed steadily downward particularly silvers price. The

result is that the mine product now has a value of over \$200,000.00 monthly less than that estimated. The best remedy for this situation would be to close the operation and await silver price of \$10.00 U.S. or more. Again interest payments prevent this course and an alternative plan of operating only at a rate sufficient to pay costs and interest is proposed. This should tide the operation over the next three to four months with a minimum loss in ore reserves. Production to the end of November has used up approximately 17,000 tons of reserves but development on the 5750 has indicated an additional 15,000 tons of vein ore.

The following is the proposed plan and estimated cost starting December 1st 1981. Effective December 1st 1981 the following reductions in crews and personal are necessary if the mine's finances are to allow the operation to continue.

Mine Crew	12 miners
	6 helpers
	1 mechanic
	2 shift bosses
	1 engineer
	1 geologist
	1 mine superintendant
	<u>2 other</u>
Total	26 men

Mechanical Staff	1 master mechanic
	1 powerhouse mechanic
	1 welder mechanic
	2 mechanics
	<u>1 electrician</u>
Total	6 men

Concentrator	1 Foreman
	1 Assayer
	3 Float Operators
	3 Helpers
	1 Crusherman
	<u>1 Other</u>
Total	10 men

Surface	1 Manager
	1 Timekeeper
	1 Surface Superintendent

Surface - continued

- 1 Carpenter
- 3 Labourers
- 3 Snow Removal

Total 10 Men

Total Crew 52 Men excluding cookhouse.

Estimated Cost

Mine Labour	- \$156,000.00
Parts & Supplies	- 128,000.00
Travel & Transportation	- 12,000.00
Rentals	- 6,000.00
Insurance	- 11,400.00
Vehicles Rentals	- 5,000.00
Radio and Telephone	- 3,000.00
Concentrate Freight	- 33,500.00
Interest	- 66,000.00
Head Office	- 28,000.00
Snow Ploughing	- 15,000.00

Total \$463,900.00

Head office economics could reduce this to \$450,000.00 monthly.

Production Rates

Minimum - Grade 5.5 oz AG. 3.6% Pb. - 4.0% Zn.
 Value 5.5 X 8.61 = 47.20 for silver
 72 lbs at 20 = 14.40 lead
 80 lbs at 20 = 16.00 zinc
 Total \$77.60 per ton
 Total 6000 tons = 4676.00 per month

Optium

Grade 6.0 oz. 4% Pb. 4% zn.
 Value silver 51.30
 lead 16.00
 zinc 16.00
 Total \$83.30

Tons per month 7000
 Production per month 7000 X 83.30 = 583100.00

Summary of Labour & Repairs, Parts & Equipment

Crews

Underground crew adequate
Staff - Need a more experienced manager
Mechanical - Need electrician (desperately)
Mill - adequate

Repairs

Most major repairs completed
Underground needs jackleg and stoper parts
Also 2 new jacklegs
2 new stopers
SC-2 fuel pump

Mill

Spare parts inventory	\$12,000.00
New belts	10,000.00
Balls 10 ton	4,000.00
Reagents	25,000.00

Surface

1 second hand 4 wheel drive 3/4 ton pickup

Powerhouse

Automatic regulators for controll panel

The descision to carry on operations during the winter months has added the following expenses to original cost estimates.

1. Avalanche berms	\$25,000.00
2. Cat rental D-8	12,000.00
3. Avalanche control	12,000.00
4. Supplies and fuel	8,000.00
5. Insulation of shop, buildings and water lines	16,000.00

Total	\$79,000.00
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Items 1 and 5 now completed.

Summary -

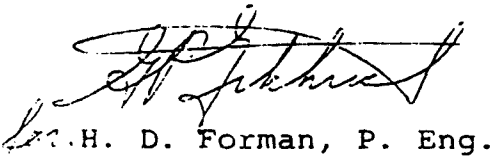
With rigid control of expenditures at the mine and head office, overall expenditures can be kept below \$450,000.00 per month.

. . . /6

Mine economy should be based on improving, labour efficiency, powder usage, steel consumption and more rigid control of the supply and distribution of parts and tools.

Head office should be able to eliminate \$12,000.00 to \$15,000.00 in expenditures by curtailing directors fees for the present, cutting office to the minimum and rigid control of travel, expenses, promotional expenses, telephone and radio currently running nearly \$4000,00 month and in general practise of economy.

It is the writers considered opinion that for the present the main objective of the mine is to produce at a profit with the minimum expenditure of its ore reserves. Once metal prices return to normal every ton produced will have a valuation of \$50.00 above those used in the evaluations in this report. The major obstacle to the plan put forward in this report ~~in this report~~ is the possibility that first avalanches expected in January will frighten away many of the crew.



H. D. Forman, P. Eng.

General Information
December 21, 1981

RUTH VERMONT MINE LTD. (N.P.L.)

Location and Accessibility

The Ruth Vermont Mine lies approximately 96 kilometers S.W. of the town of Golden, British Columbia. The mine is accessible by 36 kilometers of paved highway and 60 kilometers of logging road.

History

The mine was originally staked in the early twenties, but serious exploration did not commence until 1969. This was followed by the construction of a 500 ton concentrator. In 1970 Copperline Mining operated for eleven months, but declining metal prices forced closure. A second attempt of production was tried for eight months in 1976 but proved unsuccessful. In 1980 the mine's ore reserves were reassessed in the light of the then existing prices for silver, lead and zinc. The reassessment showed existing ore reserves were sufficient for four years production at a rate of 56,000 tons per year. Also that excellent opportunities for the development of greater ore reserves were present.

1980 - 1981 Program

In 1980 the mine was reopened and some \$800,000.00 expended. In 1981 under a \$4,000,000.00 loan from the Royal Bank of Canada the mill, mine and camp were rehabilitated and the property readied for production by October 1st, 1981.

Staff problems, mechanical failures and difficulties with the supply of parts for the equipment have created many setbacks and the mine has to date only reached 70% of its expected rate of production. The underground is currently in position to supply 300 tons daily and the concentrator can easily treat this tonnage. A new 2250 KVA powerhouse has been installed as well as three 750 cfm electric driven compressors. On the surface a D-8 caterpillar grader and an Allis-Chalmers loader are capable of handling snow conditions on the access road.

Accommodations for a 65 man crew are provided for and the mess hall has been let out on contract and operates efficiently.

General Information
December 21, 1981

Underground

Ore reserves consist of two types, namely replacement silver, lead and zinc ores in limestone and vein type deposits which have acted as the feeders to the replacement ores.

Mining is by jumbo and scooptram with the replacement ore bodies and conventional underground methods in the vein deposits.

Concentrator

The mill is standard for a two product flotation operation. Coarse ore bin to jaw crusher to cone crusher to screen with fines to fine ore bin and oversized returned to cone crusher.

Two balls to cyclone to lead circuit to zinc circuit. With lead thickener and zinc thickener and lead filter and zinc filter both leaf type.

Surface Buildings

Office and warehouse with time keeper and warehouseman with all accounting done at head office in Vancouver.

Staff and Crews

- Mine - Mine Superintendent and two shift bosses - Geologist - Engineer - 22 Miners
- Mechanical - Master Mechanic and Welder, Machine Doctor and two Mechanics
- Mill - Mill Foreman
Assayer - Metallurgist
three Flotation Operators
three Helpers
three other
- Surface - Surface Foreman
Cat Operator, Grader Operator
Carpenter
Electrician
four Laborers
- Office - Manager
Time Keeper
Warehouseman
- Camp - five men under contract

Concentrates

By truck - mine to trail smelter under contracts

General Information
December 21, 1981

Head Office

73 Water Street
6th floor
Vancouver, B.C.

phone: 689-8534

Managing Director: H. D. Forman, P. Eng.

FEASIBILITY REPORT OF
RUTH VERMONT MINE LTD. (N.P.L.)
MARCH 15, 1982
BY H.D. FORMAN, P. ENG.

Introduction

The following report is an update of the writer's report of April 18, 1979. Mining costs have been revised upward to bring them into line with present day labour, supply, and smelting costs.

Vein ore deposits have been increased since the 1981 operation indicated their increased potential as an ore source.

Ore Reserves

Replacement Ore		<u>Ag.</u>	<u>Pb.</u>	<u>Zn.</u>
Tons Diamond Drill Indicated	101,000	5.0	3.6	4.9
Probable Ore	<u>57,000</u>	<u>4.9</u>	<u>3.5</u>	<u>4.9</u>
Sub-total	158,000	4.9	3.5	4.9

Vein Deposits

Tons Diamond Drill Indicated	44,000	9.0	6.3	6.1
Probable Ore	<u>100,000</u>	<u>9.0</u>	<u>6.3</u>	<u>6.1</u>
Sub-total	144,000	9.0	6.3	6.1
Total	302,000	6.8	4.8	5.4

Mining costs, inclusive of interest, and head office are estimated at \$68.00 per ton on a production rate of 7,000 tons monthly. Head values based on a Silver price of \$8.00 U.S. per ounce, Lead price of 38¢ per pound Canadian and Zinc price of 46¢ per pound Canadian at Trail, B.C. are calculated at \$81.60 Cdn. per ton after allowing for recovery, trucking, and smelting costs. This figure represents the value of one ton of ore in the mine.

Earnings per month are estimated at $7,000 \times (\$84 - \$68) = \$112,000.00$
Annual profit at $(12 \times 112,000.00) = \$1,344,000.00$

Each increase or decrease of \$1.00 U.S. in the price of silver represents a change of \$6.50 per ton in earnings or \$548,000.00 per year.

Exploration of the vein deposits on the 5750 level have added one new vein system to the ore potential and other parallel vein structures are indicated to the East.

The mine in 1981 was equipped with a new 2250 KVA power plant, two new 750 CFM compressors, fourteen jacklegs and six stopers. In addition all mill equipment, mining equipment, and surface equipment were overhauled. The camp buildings, office, dry and warehouse were serviced and repaired. The mine can therefore be placed in production within one month of start-up preparations.

Funds necessary to get the mine into production are \$450,000.00 to meet existing creditors, \$150,000.00 for move-in expenses and \$1,200,000.00 operating capital for a total of \$1,800,000.00.

The 1981 operation failed to reach economic production levels for the following reasons. Delivery of equipment and repair parts was from two to four months late in arriving at the property and set the start-up operation three months behind schedule. The mine was never able to secure experienced staff and the absence of a competent resident manager was a costly error.

The selection of a mine manager, and through him the balance of the staff members, is the key to the mine's success and no attempt to reopen the mine should be made until this problem is resolved.

Claims

The Vancouver office has the recorders receipts for the following claims in good standing:

	<u>Crown Grants</u>	<u>Record No.</u>
	Charlotte	405
	Ruth	418
	Minnie	419
<u>Located Units</u>	Cleopatra	8122
MP - 1	Vermont	8123
MP - 2	Sheba	8124
MP - 3	Ruth Fr.	8125

Location & Climate

The mine lies approximately 23 miles south of Golden, B.C. and is reached by thirty-five miles of good logging road from Parsons, B.C. It lies within a cirqued valley at an elevation of some 6,000 feet. The claims straddle Vermont Creek which drains the rugged area. Mountain peaks rise to elevations of 8,000 to 8,500 feet and the steep-sided valley is plagued by heavy snows and avalanches throughout five months of the year.

Ore Reserves

Replacement Ore		<u>Ag.</u>	<u>Pb.</u>	<u>Zn.</u>
Tons Diamond Drill Indicated	101,000	5.0	3.6	4.9
Probable Ore	<u>57,000</u>	<u>4.9</u>	<u>3.5</u>	<u>4.9</u>
Sub-total	158,000	4.9	3.5	4.9

Vein Deposits

Tons Diamond Drill Indicated	44,000	9.0	6.3	6.1
Probable Ore	<u>100,000</u>	<u>9.0</u>	<u>6.3</u>	<u>6.1</u>
Sub-total	144,000	9.0	6.3	6.1
Total	302,000	6.8	4.8	5.4

Notes On Tonnages

Twenty-six thousand tons of replacement ore left in the backs and floors of the present stopes is still recoverable. The stope survey completed by Mr. J. Start on March 22nd, 1977 shows this on the diamond drill sections. This survey indicates that some 58,000 tons of ore should remain in the stoped area. A large part of this tonnage was left in the roof and floor of the old stopes and can be mined at today's metal prices.

Replacement ore between sections 1650 and 1975 is estimated at 99,672 tons based on diamond drill sections after an allowance of 10% for dilution. Diamond drilling in the 1975 section is not sufficient to allow accurate ore calculations and this tonnage has been reduced to 75,000 tons until further development has been done.

Exploration on the vein deposits is limited to a few hundred feet of drifting and a series of diamond drill holes put in from the 6,000 foot level. Since the drill holes were largely oriented to prove up the replacement ore tonnage, only a few holes shed light on continuity of the vein deposit.

Four vein systems have been found in the exploration to date, namely the Blacksmith, Pinetree, North vein and South vein. They have a combined strike length of 2700 feet and two have a vertical range of from 200 feet to 500 feet within the confines of the present workings. Taken over an average five foot mining width and a specific gravity of eleven cubic feet to the ton, they have an ore potential of 429,545 tons. Since exploration to date is too limited to estimate the distribution of ore shoots within the vein a conservative estimate of one ton of ore in each three tons of ore potential has been used. Possible ore is therefore 142,512 tons, of which 44,000 tons within the Pinetree vein are diamond drill indicated, leaving possible ore as 98,512 tons. The figure of 100,000 tons has been used in calculating ore reserves.

Ore Grades

Replacement ore grade has been based on the mill heads secured in the milling of 93,389 tons by Copperline in 1970-71 and the milling of 41,057 tons in 1976. This grade is below the estimate made from diamond drilling and indicates poor grade control in mining. Until mining control has been improved the former mill heads are believed to be the best indicator of ore grade.

All vein ore grade calculations were made over a five foot vein width although practice has shown that mining is quite possible over a four foot width. The silver content of vein ore has been reduced by one ounce since the grade of the large tonnage of possible estimated ore remains to be proven.

Mill Recoveries

The best record of metallurgical performance was that kept by Copperline Mining Company in the milling of 93,389 tons of ore in 1970-71. These show Lead concentrates contained 76.4% of the Silver, 81.3% of the Lead, and 3.8% of the Zinc. Zinc concentrates contained 14.6% of the Silver, 76.4% of the Zinc and 7.4 pounds of Cadmium.

Concentrate grades were as follows:

Lead Concentrates	72.23 oz. Ag., 59.8% Pb. and 3.02% Zn.
Zinc Concentrates	Silver 9.12 oz., Zinc 48.6%, Lead not recorded and Cadmium 7.42 pounds

Test work done on Columbia's ores shows only slight improvement on the above results. A small percentage of graphite in the ore is given as the cause of the poor recoveries. Consolidated Columbia River Mines milled 41,057 tons in 1976 but neither tonnage milled nor assays were accurate. Smelter returns from this tonnage shows concentrate grades of 58.8% for Lead and 50.1% for Zinc.

The milling in 1976 suffered an 18% time loss through power plant failures, inexperienced operators and the lack of a cleanup sump to recover spillages. If these factors are improved there is every reason to expect that both recoveries and concentrate grades will be upgraded.

The metallurgical results are, however, not satisfactory and every attempt should be made to upgrade them. If new test work is undertaken it would be advisable to make the first test on replacement ore, the second on vein ore and a third using three parts replacement and one part vein ore.

The following results are believed readily attainable and have been used in calculating head values.

Lead - 81% recovered in the Lead concentrate, 77% of the Silver content and 78 pounds of Zinc.

Zinc - 78% of the Zinc in the Zinc concentrate, 16% of the Silver, 60 pounds of Lead and 7.4 pounds of Cadmium.

1981 concentrates ran from 90 to 120 ounces in Silver and it is believed this resulted from the milling of a much higher percentage of vein ore. The vein deposits have a higher ratio of Silver to Lead content.

Head Values

Head values calculated directly from smelter returns are \$8.00 Cdn. per ounce for Silver, 14¢ per pound for Lead and 15¢ per pound for Zinc. When metal prices were \$8.00 U.S. per ounce for Silver, 38¢ Cdn. per pound for Lead and 46¢ Cdn. per pound for Zinc, deductions for mill recoveries, trucking, and smelting were made and the price represents the value of the metal in the mine.

Geology

The geology of the mine area is briefly covered in Mr. T.S. Tough's report, a copy of which is appended.

The writer notes one important factor which appears to have been overlooked. The Pinetree vein and North vein have been responsible for providing the solutions which resulted in the replacement ore body within the limestone at the 6,000 foot elevation. These veins, however, are not paralalled in either strike or dip.

They come together on the 6,000 foot level at section 1175 and diverge going east, and are 50 to 60 feet apart at section 1650. The result is the replacement zone between 1150 and 1400 sections is a single ore body but east of this becomes two ore bodies separated by a horse of non-commercial mineralization. A second feature as yet to be defined is the extent and movement of a major fault obliquely cutting the ore zone beyond section 2000. This fault has never been mapped but is clearly indicated in the diamond drill holes.

Mining Costs Estimate - 1982

<u>Item</u>	<u>Cost Per Ton</u>
Labour	\$23.00
Powder	3.50
Steel and bits	1.70
Roof bolts and timber	.40
Repairs - Underground equipment	1.50
Diamond drilling	.30
Rental Purchases	3.50
Power	5.50
General (Including camp)	4.50
Mill repairs, surface, and road	4.00
Chemicals	3.00
Balls, liners, etc.	.90
Head Office, etc.	3.20
Interest and bank charges	10.00
Contingencies	3.00
Total	<u>\$68.00</u>

Economics

Head Values	\$84.00
Mining Costs	<u>68.00</u>
Profit before taxes	\$16.00 per ton
Monthly 7,000 x 16.00 =	\$112,000.00
Annually 84,000 x 16.00 =	\$1,344,000.00

Each \$1.00 U.S. change in Silver prices changes the Head Values by \$6.50 per ton.

Labour Requirements

Staff -	Manager		
	Mine Superintendant/Engineer		
	Mill Superintendant		
	Geologist/Surveyor		
	Assayer		
	Accountant		
	Warehouse/First Aid		
	Two Shiftbosses		
	Master Mechanic/Surface Foreman	- 10 Men	
Underground -	Miners	12	
	Trammers	2	
	Timberman	1	
	Mechanical	1	
	Others	6	- 22 Men
Mill -	Operators	3	
	Ball Mill/P House	3	
	Helpers	2	
	Mechanic	1	- 9 Men
Surface -	Mechanics	2	
	Cat/Loader Op.	1	
	Grader Operator	1	
	Road	1	
	Power Plant	1	
	Others	2	
	Transport	1	
	Carpenter	1	
	Electrician	1	- 11 Men

Total crew not including cookhouse and camp, which will be set up on a contract basis, amounts to 52 men.

Ten days on and four days off is the most economical schedule for all departments.

Mine Program

The present mine program should be continued until such time as exploration and development programs have provided a better knowledge of the ore shoots, at which time stoping operations may require revision. The immediate need underground is an 1100 foot diamond drill program to definitely establish the location of the Pinetree vein on the 5750 foot level. It would also provide information on the exact location of the major fault at the 2000 section. This program could be completed in two weeks and would cost \$38,500.00.

There are immediately available for mining two down ramp faces size 15' x 10' in ore and capable of providing 13 tons of ore to the foot of advance.

On the vein deposits eight faces size 5' x 7' are all equipped for mining and can produce 120 tons of ore per day. Production can be commenced at a rate of 120 tons of replacement ore with an overall grade of 6.6 ounces of Silver, 4.68% Lead and 5.3% Zinc. Following the opening up of the Pinetree vein on the 5750 foot level mill tonnage can be balanced at 150 tons daily of replacement ore and 150 tons of vein ore.

1981 Program

Rehabilitation of the mine commenced in April of 1981 and consisted of the installation of a new power plant with three 750 KVA Detroit 149T diesel engines. Mine air was supplied by two new Atlas Copco 750 CFM electric compressors and one former 750 CFM Gardner Denver electric compressors. Underground the two boom Gardner Denver jumbo and Wagner ST5 scooptram were overhauled and fourteen new jacklegs plus six new stopers were added to the existing equipment. Several thousand feet of underground water and airline were renewed and 600 feet of cross-cutting and drifting completed on the 5750 foot level. On the surface the concentrator was overhauled and repaired from the coarse ore binns. The cookhouse, bunkhouses, office, dry, warehouse, and pumphouse were all repaired, equipped and readied for production.

The delivery of the power plant machinery was two months behind its promised date and put the whole operation two months behind schedule, and the ball mill was not ready until mid August. The mine, due to a shortage of miners, was not in a position to supply ore other than that mined in development and exploration headings. This situation continued throughout September and into October at which time adequate mine crews became available but the underground was now four months behind its schedule.

Qualified staff were difficult to find and as a result the mine limped along during August, September, October and November with limited management, no geologist, mine superintendent or manter mechanic. In addition the assay equipment was late in arriving, then installed improperly and never really operated until December. Also in October and November a series of breakdowns in mine equipment delayed production. The major culprit was the failure of a new ST2D scooptram, which was rented to speed up the underground development. In three months operation, this machine never reached a power output above 40% of its rating, and four teams of experts sent in failed to diagnose its troubles.

To add to the mine's problems, accounting and purchasing were done through the Vancouver office and the result was confusion and the failure to have the accounts up to date.

In short, the mine failed in 1981 due to: No. 1 - the lack of a competent, experienced resident manager and as a result the lack of adequate staff; No. 2 - the failure of suppliers to deliver equipment and repair parts on time; and No. 3 - the lack of an experienced mine accountant located at the mine site.

Recommendations

It is recommended that the first prerequisite for opening the mine is the securing of a competent manager and supporting staff, including a mine accountant.

It is further recommended that the diamond drill program outlined in January, 1982 be completed as the first step underground.

The mill repairs commenced over the 1981 Christmas holidays should be completed in conjunction with the diamond drilling. Both of these projects should be completed in two weeks.

The trucking contract for hauling concentrates should include a clause that the mine is to be supplied with 18 empty pots so that concentrates go from filter to pot by gravity, thus avoiding a concentrate loss in handling and reducing time lost in loading operations.

The attempt should be made to place most of the underground work on small contracts. Groups of three to four miners would undertake contracts of various sections of the ore body. The Company would provide supplies at cost, as well as maintain all equipment. This would add to the direct mining cost but would prove much more economical in the overall picture since the mill would be assured of the full tonnage and underground labour shortages largely eliminated.

The practice of attempting major overhauls of equipment on the property should be avoided. The shops for such repair jobs are not available at the mine nor is the ability of the mechanical crews up to this type of work. A deal should be made with the repair shops in Cranbrook and all major repairs completed by contract. The machines would be transported by flatbed trucks to Cranbrook. This would speed up repairs and prove much more economical.

Cranbrook has extensive repair and supply centres for mining equipment. It is also served by much more efficient freight lines than Golden. It should therefore be set up as the major supply centre and thus speed up deliveries of equipment and supplies.

The mine must be operated by the resident manager if it is to operate efficiently. Therefore, accounting and purchasing must be done at the mine if the manager is to have control of expenditures. The head office could give assistance in expediting the securing of personnel to a limited degree.

Overall direction of policy, economics along with help in the layout of the mining system, exploration and helpful hints on operating efficiency can be supplied by the managing director or a consultant, but the day-to-day operation is the resident manager's job.

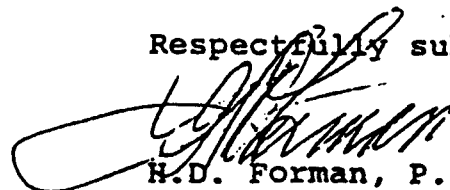
If a monthly inventory of all standard items for repairs and supplies is kept up then it should be possible to place one main order monthly and thereby obtain 95% of the mine's needs. This would assure supplies on hand at all times and eliminate much of the confusion in ordering and warehousing that was evident in 1981. This should be further aided by an improved telecommunications system between the mine and Golden.

Conclusions

The Ruth Vermont Mine is largely dependent upon its Silver values for an economical operation. When silver prices drop below \$8.00 U.S. per ounce the mine's ore grade quickly becomes marginal. When the Silver price exceeds \$8.00 U.S. per ounce the property has excellent potential to become a profitable long-term producer.

In past operations the mine has always managed to be brought into production after metal prices peaked. It is now in a position to take advantage of rising metal prices and every effort should be made to keep it in good repair; ready to take advantage of rising metal prices later in 1982.

Respectfully submitted,



H.D. Forman, P. ENG.

CERTIFICATE OF QUALIFICATIONS

I, H.D. Forman, of RR 3, Oliver, B.C. certify as follows:

- (1) That I am a graduate of the University of Alberta with a Bachelor of Science degree in Geology;
- (2) That I am a member of the Professional Engineers of British Columbia;
- (3) That I have practiced my profession for over forty years in Canada and abroad;
- (4) That the information contained in this report was gathered during the year 1981 when I was Managing Director of Ruth Vermont Mine Ltd.;
- (5) That I hold an option on 75,000 shares of Ruth Vermont Mine Ltd. stock at a price of \$2.50 per share.

H.D. Forman, P. Eng.

T.R. TOUGH & ASSOCIATES LTD.
Consulting Geologists
519 - 602 West Hastings Street
Vancouver, B.C.

GEOLOGICAL REPORT
RELATING TO THE
ORE RESERVE POTENTIAL

of the

RUTH VERMONT MINE

for

COLUMBIA RIVER MINES LTD. (N.P.L.)

March 16, 1972
Vancouver, B.C.

Thomas R. Tough, P. Eng.
Consulting Geologist

INTRODUCTION

The following report is based on information obtained by the writer during the period between December, 1965 and August, 1967 while employed as a geologist at the minesite and in various consulting capacities to the present date.

PROPERTY GEOLOGY

The Ruth Vermont property is underlain by rocks of the Horsethief Creek series of late Proterozoic Age. Polymictic quartz pebble conglomerates grade locally to grit and impure quartzite which in turn grade into slate or argillite and argillaceous limestone.

The conglomerates contain blue and white quartz pebbles, are sericitic, chloritic and contain scattered pyrite. Locally they are limey. Deformation of the beds has produced an elongation of the pebbles. The finer grained character of the grit and quartzite is the only discernible difference between them and the conglomerate.

Argillite beds are locally slaty, phyllitic and limey and vary from 1/8 inch to several feet in thickness and are black, green and grey. Porphyroblasts of ankerite are present within all the argillite members. Syngenetic pyrite, as euhedral and elongated cubes and pyritohedrons, occurs parallel to the bedding. Minor drag folding is common.

The argillaceous limestone units are conformable to overlying and underlying slaty argillite members. They are bluish grey, aphanitic, exhibit minor drag folding, and are the most significant host rocks in the area.

The main unit is 20 to 50 feet thick with individual beds varying from a fraction of an inch to several feet in thickness.

All members of the series are intercolated with readily discernible facies changes both along the strike and dip.

Structurally, the units have been folded to an anticline approximately 600 feet from crest to trough. The fold plunges gently to the southeast. To the east of this, the Ruth Anticline, lies a series of synclines and anticlines of varying amplitudes which culminate near the eastern extremity of the Charlotte crown grant, into the Charlotte Anticline which is overturned to the west. The main workings are along the limbs of a southeast plunging syncline, immediately east of the Ruth Anticline.

Three sets of quartz-calcite fissure veins occur obliquely, transversely and parallel to bedding relative to the fold structures. The oblique veins strike southeast and have an average dip of 65° to the southwest. They are well mineralized and cut at an angle of 15° to the strike of the beds. The transverse veins are poorly mineralized and are representative of fissure fillings along a series of near vertical and parallel shears. Tension gashes are generally related to such veins. The veins parallel to the bedding normally mark concordant contacts between the argillite and argillaceous limestone. Sulphide content in the veins is low. Scheelite occurs in varying amounts in the three sets of veins.

Some of the veins have been traced underground for some 2000 feet and where they intersect the limestone beds, replacement bodies have formed. The oblique veins occur in swarms which produce bulges and the irregular shape of such replacement zones. Diamond drilling has shown that the veins tend to widen at depth. The vein system has been traced intermittently on surface for some six miles. On the property they vary from 1/2 inch to eight feet in width.

MINERALIZATION

Vein Type

Two veins of particular importance are the Pine Tree Vein and the Blacksmith Vein. The Pine Tree Vein has been traced underground for a length of some 1200 feet and it plays a significant role as the main feeder for the replacement zone of the Nelson Orebody. The underground work and diamond drilling have proven a vertical extension of 500 feet to the vein. The surface trace of the vein, in a southeasterly direction, is approximately 2600 feet. The average grade of the vein over a length of some 1200 feet is 12.27 oz. Ag/ton, 7.0% Pb and 6.06% Zn across a width of 5.0 feet.

The Blacksmith Vein has been developed by four drifts over a vertical height of 400 feet and along a horizontal distance of 500 feet. The vein is almost parallel to the Pine Tree Vein and it has a surface trace of some 2600 feet to the southeast. The average grade of the vein in the area covered by underground development is 10.00 oz. Ag/ton, 5.20% Pb and 3.10% Zn across 4.0 feet.

Assays from channel samples cut on the extensions of both the Pine Tree and Blacksmith veins were only done for silver and lead in 1928 as zinc was an undesirable metal for direct shipping to a smelter.

The average grade over a length of 65 feet of the Pine Tree Vein extension across a 4.0 foot width is 3.68 oz. Ag/ton and 6.75% Pb. The Pb-Zn ratio in the area of the vein recently developed is 1:0.87, hence the probable zinc content of the above portion of the vein would be 5.81% Zn.

The Blacksmith Vein extension was sampled over a length of 90 feet and averaged 2.59 oz. Ag/ton and 6.74% Pb across 4.0 feet. The Pb-Zn ratio of the reserves developed underground is 1:0.6, thus the zinc content could well be 4.05% Zn.

During the course of underground diamond drilling two other significant veins were intersected. They are the South Vein and the North Vein. The South Vein has an average grade of 8.28 oz. Ag/ton, 5.68% Pb and 6.78% Zn across a width of 5.25 feet, whereas the North Vein averaged 15.26 oz. Ag/ton, 10.74% Pb and 5.16% Zn across a width of 5.1 feet.

The minerals present in the veins are pyrite, galena, sphalerite, arsenopyrite, boulangerite, freibergite, chalcopyrite and scheelite. Gold occurs generally associated with arsenopyrite and pyrite.

Replacement Type

The most important replacement zone developed is the Nelson Orebody. The zone has been delineated for a length of 1180 feet and varies from 20 to 110 feet in width. Silicification accompanying sulphide replacement has taken place where the mineralizing veins have intersected the argillaceous limestone beds. Minerals which occur in the replacement body are pyrite, galena, sphalerite, arsenopyrite, chalcopyrite, boulangerite, and freibergite. Scheelite is also present as fine disseminations. The replacement, depending on the intensity of the mineralizing veins, is represented by a mineral halo emanating from the veins and extending in all directions.

The extent of the replacement mineralization varies directly with the size and number of the feeder veins. A plunge to the zone is effected by the oblique intersection of the veins across the limestone. The mineralization of the zone exhibits lineations both parallel and normal to the bedding; the latter coincides with slaty cleavage, or axial plane cleavage of small drag folds. The average grade of the replacement ore presently blocked out is 5.5 oz. Ag/ton, 4.4% Pb and 6.1% Zn.

ORE RESERVES

Mr. John W. Hogan, of L.J. Manning & Associates Ltd. has recently reassessed the mineable ore reserves at the the Ruth Vermont Mine. The following is a breakdown of his reserves:

Nelson Ore Body (Replacement Ore)

209,491 tons grading 5.50 oz. Ag/ton, 4.40% Pb and 6.10% Zn.

Pine Tree Vein

48,400 tons grading 12.27 oz. Ag/ton, 7.00% Pb and 6.06% Zn.

South Vein

8,300 tons grading 8.28 oz. Ag/ton, 5.68% Pb and 6.78% Zn.

North Vein

11,500 tons grading 15.26 oz. Ag/ton, 10.74% Pb and 5.16% Zn.

POTENTIAL ORE RESERVES

1) Blacksmith Vein

The grades calculated for this vein have been derived from channel sampling done on a total of five drifts varying from 35 feet to 130 feet in length. The drifts are spread out over a vein strike length of some 2600 feet. The surface trace of the vein is known for approximately 5,000 feet within the property. Based on the underground mining and diamond drilling it appears that approximately 30% of the vein should make ore. The vein should therefore have a potential ore reserve of:

$$\frac{4.0 \times 5,000 \times 1 \times 30\%}{10} = 600 \text{ tons/vertical foot}$$

at a probable average grade of 6.30 oz. Ag/ton, 5.33% Pb, and 3.19% Zn.

2) Pine Tree Vein

The dimensions of the Pine Tree Vein are similar to the Blacksmith Vein but of higher grade. The potential ore reserves could be:

$$\frac{4.5 \times 5,000 \times 1 \times 30\%}{10} = 675 \text{ tons/vertical foot}$$

at a probable grade of 8.45 oz. Ag/ton, 6.89% Pb, and 5.95% Zn.

3) South Vein

Little is known of the actual or potential limits of the veins and projections at this time are difficult. The vein averages 5.25 feet wide and utilizing a vertical depth of approximately 500 feet the vein should have a potential of:

$$\frac{5.25 \times 500 \times 1 \times 30\%}{10} = 79 \text{ tons/horizontal foot}$$

of advance grading 8.28 oz. Ag/ton, 5.68% Pb, and 6.78% Zn.

4) North Vein

A similar situation exists for the North Vein as does for the South Vein regarding the possible strike and dip dimensions. The vein is 5.1 feet wide and using a 500 foot vertical depth the potential tonnage would be:

$$\frac{5.1 \times 500 \times 1 \times 30\%}{10} = 77 \text{ tons/horizontal foot}$$

of advance grading 15.26 oz. Ag/ton, 10.74% Pb, and 5.16% Zn.

The system of veins is known to extend northwesterly from the property for several miles and the acquisition of the adjoining properties may provide a similar or greater potential ore reserve.

Other veins are known to exist within the Ruth Vermont property and are yet to be explored.

6) Replacement Deposits

The potential of increasing ore reserves appears excellent as geologic structures in the immediate area may provide a repetition of replacement zones similar to the Nelson Orebody. Wherever the feeder veins cut folded limestone units, replacement bodies may exist.

A relatively unexplored replacement zone further up-dip from the Nelson Orebody may provide potential ore. To the southwest, and at a much higher elevation from the Nelson Orebody, another limestone unit is known to exist. Veining has also been noted in this area.

A replacement zone of unknown dimensions has been examined by the writer on the Syenite Bluff crown grant immediately north of the Ruth Vermont property on the north side of Vermont Creek. The property is presently held by Beverley Mines Ltd. of Montreal. The company also holds a property at the headwaters of McMurdo Creek, some 10 miles to the northwest which contains vein and replacement deposits which have been partially developed by underground workings and diamond drilling.

Several veins have been traced some four miles northwest of the Ruth Vermont property on Carbonate Mountain. The vein system there has been traced for over two miles between Malachite or Copper Creek and Bobbie Burns Creek.

March 16, 1972
Vancouver, B.C.



CONSOLIDATED
COLUMBIA RIVER MINES

-97- LTD. (N.P.L.)

3rd Floor, 73 Water Street, Vancouver, B.C. V6B 1A1 Telephone 689-3911

August 22, 1975

Vancouver Stock Exchange
536 Howe Street
Vancouver, B.C.

Dear Sirs:

RE: Ruth Vermont Mine Ore Reserves
Golden, B.C.

Mr. Laurence Sookochoff , P. Eng. of T.R. Tough & Associates
has reported the following ore reserves in the Ruth Vermont
silver, lead & zinc Mine of which a copy is attached.

Yours very truly,

CONSOLIDATED
COLUMBIA RIVER MINES LTD.

M.M. Pardek,
President

MMP:rl

August 20, 1975

Board of Directors
Consolidated Columbia River Mines
3rd Floor - 73 Water St.
Vancouver, B.C.

Dear Sirs:

The following is a resume of ore reserves on your Ruth Vermont Property:

NELSON OREBODY

<u>Class</u>	<u>Tonnage</u>	<u>Grade</u>		
		oz. Ag/Ton	%Pb	%Zn
Proven	242,500	4.66	3.76	5.52
Probable	350,000	3.73	2.70	3.95
Inferred	<u>450,000</u>	-	-	-
	1,042,500			

PINE TREE VEIN

<u>Class</u>	<u>Tonnage</u>	<u>Grade</u>		
		oz. Ag/Ton	%Pb	%Zn
Proven	60,000	10.00	6.61	5.80
Probable	35,000	10.00	6.61	5.80
Inferred	<u>164,400</u>	-	-	-
	259,400			

BLACKSMITH VEIN

<u>Class</u>	<u>Tonnage</u>	<u>Grade</u>		
		oz. Ag/Ton	%Pb	%Zn
Proven	4,700	9.10	4.72	2.82
Probable	8,400	9.10	4.72	2.82
Inferred	<u>94,000</u>	-	-	-
	107,100			

...../2

Board of Directors
August 20, 1975
Page 2

WIND LASS VEIN

<u>Class</u>	<u>Tonnage</u>	<u>Grade</u>		
		oz. Ag/ton	%Pb	%Zn
Proven	3,750	18.8	6.10	2.94
Probable	5,000	18.8	6.10	2.94
Inferred	<u>50,000</u>			
	58,750			


Total tonnage in the proven, probable & inferred categories for the Ruth Vermont Mine is 1,467,750.

Total tonnage of proven ore is 310,950 with a weighted average grade of 5.95 oz/ton Ag; 5.03% Pb; and 5.53% Zn.

In addition to the silver, lead and zinc mineralization, tungsten in the form of scheelite occurs in a quartz vein along the footwall of the ore zone. 115 feet of the vein along the lower Nelson Tunnel has been sampled which returned an average of 3.12% WO₃ over an average width of 1.18 feet. One sample returned 18% WO₃.

A circuit in the mill to recover the tungsten values is planned.

Respectfully submitted,


 A circular professional seal for Laurence Sookchoff, a Professional Engineer in British Columbia. The seal contains the text: "PROFESSIONAL ENGINEER OF BRITISH COLUMBIA". The name "LAURENCE SOOKCHOFF" is written across the center of the seal. A handwritten signature is visible over the seal.

Laurence Sookchoff, P. Eng.

LS:rl

Touche Ross & Co.

-100-

RUTH VERMONT MINE LTD. (N.P.L.)

REPORT AND FINANCIAL STATEMENTS

OCTOBER 31, 1981

Touche Ross & Co.

Chartered Accountants

AUDITORS' REPORT

The Shareholders,
Ruth Vermont Mine Ltd. (N.P.L.)

We have examined the balance sheet of Ruth Vermont Mine Ltd. (N.P.L.) as at October 31, 1981 and the statements of deferred exploration, development and administration expenses, deficit and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Company as at October 31, 1981 and the results of its operations and the changes in its financial position for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

The comparative figures for the preceding year are based on financial statements examined by another auditor.

Vancouver, B.C.,
February 16, 1982.

Touche Ross & Co.

Chartered Accountants

RUTH VERMONT MINE LTD. (N.P.L.)

(Incorporated under the Company Act of British Columbia)

BALANCE SHEET AS AT OCTOBER 31, 1981

	<u>1981</u>	<u>1980</u> (Restated)		<u>1981</u>	<u>1980</u> (Restated)
<u>ASSETS</u>			<u>LIABILITIES</u>		
Current			Current		
Cash	\$ -	\$ 923	Bank indebtedness (Note 7)	\$ 348,928	\$ -
Accounts receivable	344,999	26,063	Accounts payable	287,898	51,736
Bank term deposits	-	541,750	Corporation capital taxes payable	212,500	181,500
Security deposits	30,048	5,307	Due to shareholders	25,835	-
Prepaid expenses	3,987	-	Due to venturers	11,484	-
Inventories (Note 3)	<u>128,996</u>	<u>-</u>	Current portion of long-term debt	373,395	-
	508,030	574,043	Current portion of deferred liabilities	<u>158,063</u>	<u>115,000</u>
				1,418,103	348,236
Interest in mineral properties, net of accumulated amortization of \$96,900 (1980 - nil) (Note 4)	1,942,884	2,039,784	Long-term debt (Note 8)	3,067,904	876,956
Interest in joint venture, at cost (Note 5)	11,484	-	Deferred liabilities (Note 9)	450,595	654,625
Fixed (Note 6)	2,234,489	1,510,566	<u>SHAREHOLDERS' EQUITY</u>		
Deferred exploration, development and administration expenses	11,352,683	8,404,042	Capital stock (Notes 10 and 11)		
Incorporation costs	8,160	8,160	Authorized		
	<u>\$16,057,730</u>	<u>\$12,536,595</u>	140,000 preference Class A shares, without par value		
			20,000 preference Class B shares, without par value		
			700,000 preference Class C shares, without par value		
			10,000,000 common shares without par value		
			Issued and fully paid	12,662,372	12,198,022
			Deficit	<u>(1,541,244)</u>	<u>(1,541,244)</u>
				<u>\$16,057,730</u>	<u>\$12,536,595</u>
			Contingencies (Note 1)		

Approved by the Directors

M. J. L. Lardik.....Director
H. J. J. J. J. J......Director

See accompanying notes to financial statements.

STATEMENT OF DEFICIT
FOR THE YEAR ENDED OCTOBER 31, 1981

	<u>1981</u>	<u>1980</u>
Deficit at beginning of year		(Restated)
As previously reported	\$ 809,571	\$ 809,571
Prior period adjustment		
Fixed assets (Note 12.a.)	<u>731,673</u>	<u>731,673</u>
Deficit at beginning of year as restated and at end of year	<u>\$1,541,244</u>	<u>\$1,541,244</u>

STATEMENT OF DEFERRED EXPLORATION, DEVELOPMENT AND ADMINISTRATION EXPENSES
FOR THE YEAR ENDED OCTOBER 31, 1981

	<u>1981</u>	<u>1980</u>
		(Restated)
Development expenses		
Mine salaries, wages and benefits	\$ 912,388	\$ 108,675
Mine, mill and camp supplies	456,604	7,142
Mechanical repairs and maintenance	233,603	41,348
Transportation and freight	152,057	17,916
Power and fuel	126,703	29,288
Consultant's fees	65,592	23,298
Insurance	55,976	-
Carpentry repairs and maintenance	48,581	5,889
Licenses and taxes	15,996	293
Diamond drilling	36,451	-
Depreciation	184,765	-
Amortization	96,900	-
	<u>2,385,616</u>	<u>233,849</u>
Less revenue earned before commercial production	380,643	-
	<u>2,004,973</u>	<u>233,849</u>
Development and exploration expenses at beginning of year	<u>3,472,347</u>	<u>3,238,498</u>
Development and exploration expenses at end of year	<u>5,477,320</u>	<u>3,472,347</u>
Administration expenses		
Bank charges and interest	332,282	112,992
Financing costs	203,807	45,000
Office salaries	117,984	26,284
Deferred liability interest	72,222	-
Legal and audit	42,907	54,077
Public relations and promotion	53,601	8,550
Travel	42,490	11,608
Office rent	18,712	12,125
Transfer agent and stock exchange	16,614	11,448
Printing and office supplies	15,661	11,835
Bad debt	9,349	-
Telephone	8,366	6,121
Reorganization	-	400,450
Depreciation	2,114	-
Corporation capital tax	31,000	30,500
	<u>967,109</u>	<u>730,990</u>
Less term deposit interest	23,441	3,463
Carried-forward	<u>\$ 943,668</u>	<u>\$ 727,527</u>

Ruth Vermont Mine Ltd. (N.P.L.)
 Statement of Deferred Exploration Development and
 Administration Expenses
 For the Year Ended October 31, 1981

Page 2

	<u>1981</u>	<u>1980</u> (Restated)
Brought-forward	\$ <u>943,668</u>	\$ <u>727,527</u>
Administration expenses at beginning of year		
As previously reported	4,750,195	4,053,168
Prior period adjustment		
Corporation capital taxes (Note 12.b.)	<u>181,500</u>	<u>151,000</u>
As restated	<u>4,931,695</u>	<u>4,204,168</u>
Administration expenses at end of year	<u>5,875,363</u>	<u>4,931,695</u>
Total deferred expenses at end of year	<u>\$11,352,683</u>	<u>\$ 8,404,042</u>

See accompanying notes to financial statements.

STATEMENT OF CHANGES IN FINANCIAL POSITION
FOR THE YEAR ENDED OCTOBER 31, 1981

	<u>1981</u>	<u>1980</u> (Restated)
Source of funds		
Increase in long-term debt, net	\$2,190,948	\$ 46,411
Issue of shares	464,350	867,188
Increase in deferred liability	-	23,818
	<u>2,655,298</u>	<u>937,417</u>
Application of funds		
Deferred exploration, development and administration expenses	2,948,641	366,675
Items not requiring an outlay of funds		
Depreciation and amortization	<u>283,779</u>	<u>-</u>
	2,664,862	366,675
Acquisition of fixed assets	910,802	4,782
Decrease in deferred liability, net	204,030	-
Purchase of interest in joint venture	<u>11,484</u>	<u>-</u>
	<u>3,791,178</u>	<u>371,457</u>
Increase (decrease) in working capital	(1,135,880)	565,960
Working capital (deficiency) at beginning of period (Note 16)	<u>225,807</u>	<u>(340,153)</u>
Working capital (deficiency) at end of period	<u>(\$ 910,073)</u>	<u>\$ 225,807</u>

See accompanying notes to financial statements.

NOTES TO FINANCIAL STATEMENTS
OCTOBER 31, 1981

1. Basis of accounting

These financial statements have been prepared based upon accounting principles which presume the realization of assets and the settlement of liabilities in the course of continuing operations. However, the Company's ability to resume continuing operations is contingent upon:

- a. Successful completion of additional financing arrangements. Negotiations concerning additional financing are in progress.
- b. Approval by the British Columbia Ministry of Energy, Mines and Petroleum Resources of geological reports filed to extend the Company's mineral claims from 1981 to 1984. In the opinion of management all required work has been performed and approval will be received.
- c. The Company's ability to sell concentrate for an economic return.

2. Summary of significant accounting policies

a. Inventories

Inventories are valued at the lower of cost and replacement cost except for concentrate which is valued at net realizable value.

b. Interest in mineral properties

The Company records its interest in mineral properties at cost. The interest in mineral properties will be amortized over the estimated potential production of the property.

c. Fixed assets and depreciation

Fixed assets are recorded at cost. Depreciation of fixed assets is provided over estimated economic useful lives ranging from 3 to 5 years on the straight-line basis. No depreciation is taken in periods of shutdown.

d. Deferred exploration, development and administration expenses

Costs related to the exploration and development of mineral properties are deferred and amortized over the estimated production of the property once the mine reaches commercial production levels.

Touche Ross & Co

Ruth Vermont Mine Ltd. (N.P.L.)
Notes to Financial Statements
October 31, 1981

-107-

Page 2

3. Inventories

Chemicals	\$ 41,213
Parts and supplies	45,976
Fuel	33,741
Concentrate	<u>8,066</u>
	<u>\$ 128,996</u>

4. Mineral properties

The Company has a 100% interest in mineral lease M16 near Golden, B.C. and several nearby claims.

5. Interest in joint venture

The Company has a 50% interest in a joint venture which has the option to earn a 47-1/2% working interest in the Crystal Creek property near Golden, B.C. The joint venture must expend \$300,000 for exploration work by August 1, 1984 to exercise the option, as follows:

\$100,000 before August 1, 1982;
\$100,000 before August 1, 1983;
\$100,000 before August 1, 1984.

6. Fixed assets

	<u>Cost</u>	<u>Accumulated depreciation</u>	<u>Net book value</u>
Building	\$ 596,691	\$ 39,779	\$ 556,912
Mill equipment	764,757	53,359	711,398
Ore transport equipment	61,644	6,849	54,795
Mine equipment	282,233	31,359	250,874
Electrical and air equipment	514,285	34,286	479,999
Communications equipment	15,939	1,063	14,876
Surface equipment	142,579	15,842	126,737
Vehicles	32,829	3,648	29,181
Office and camp furniture and equipment	<u>10,411</u>	<u>694</u>	<u>9,717</u>
	<u>\$2,421,368</u>	<u>\$ 186,879</u>	<u>\$2,234,489</u>

7. Bank indebtedness

Cheques written in excess of funds on deposit	\$ 98,928
Demand loan with interest payable at prime plus 1% and secured as described for bank term loans in Note 8 below.	<u>250,000</u>
	<u>\$ 348,928</u>

8. Long-term debt

Bank term loans secured by a general assignment of debts, a registered fixed and floating charge debenture covering major equipment and mineral leases and claims and assignments of ore and concentrate. Payments include interest at prime plus 1% and are based on total smelter receipts less operating costs.	\$3,353,000
Note payable to shareholder, repayable in one payment of principle plus interest at prime plus 1-1/2% on April 30, 1982. Unsecured.	30,000
Mortgage payable, repayable in equal monthly instalments of \$2,345 including interest at 18-1/2%, secured by charges on specific equipment.	49,258
Mortgage payable, repayable in equal monthly instalments of \$372 including interest at 13%, secured by charges on specific equipment.	<u>9,041</u>
	3,441,299
Less current portion	<u>373,395</u>
	<u>\$3,067,904</u>

9. Deferred liabilities

Due to the Department of National Revenue, the Surveyor of Taxes, the Ministry of Mines and Petroleum Resources and the Workers' Compensation Board. Repayment of the amounts plus interest have been deferred, to be paid out of the profits of production at rates of \$1.00 per ton of ore, \$.50 per ton, \$.50 per ton and \$.25 per ton respectively. The Workers' Compensation Board holds a lien against the Company's property. 95,000 common shares have been issued in trust as additional collateral for these loans.	\$ 362,208
Due to the individual who acted as the Company's trustee in the period 1976 to 1980, to be paid annually on February 1 by way of a royalty of \$1.50 per ton of ore milled in the preceding calendar year. 75,000 common shares have been issued in trust as collateral for this debt. Each year that the annual cash payment will not be made or where less than 25,000 tons was milled in the preceding year, 25,000 shares will be released at a value of \$3.00 per share.	<u>246,450</u>
	608,658
Less current portion	<u>158,063</u>
	<u>\$ 450,595</u>

10. Share capital

	<u>1981</u>	<u>1980</u>
a. Shares issued		
Total shares issued	3,789,072	3,652,339
Less shares issued in trust as security for debt	<u>170,000</u>	<u>195,000</u>
	3,619,072	3,457,339
Less shares issued as security for stock transactions during the 1980 reorganization	<u>10,000</u>	<u>10,000</u>
Net shares issued	<u>3,609,072</u>	<u>3,447,339</u>
b. Share transactions		
Net shares issued at beginning of year	3,447,339	\$12,198,022
Issued during the year		
i) To retire debt;	78,333	235,000
ii) Stock bonus to secure financing;	50,000	137,500
iii) For cash.	<u>33,400</u>	<u>91,850</u>
	<u>3,609,072</u>	<u>\$12,662,372</u>

11. Stock options

The Company has issued stock options to four directors for 170,000 common shares, exercisable at prices from \$2.65 per share to \$3.15 per share, which will expire on January 31, 1984.

A stock option for 75,000 shares at a price of \$2.50 per share is outstanding to a director-employee at year end. One half of the option is exercisable on completion of 16 months employment with the remainder exercisable after 32 months of employment.

Stock options to three key employees of the Company for 35,000 common shares are outstanding. These are exercisable at various dates from January 21, 1982 to January 31, 1984 at prices ranging from \$2.50 per share to \$2.75 per share.

The Company's financing agreement with the bank provides for delivery of 10,000 common shares for each \$200,000 of overrun loans received by the Company. Subsequent to October 31, 1981 the Company issued 20,000 shares at \$2 per share to the bank.

12. Prior period adjustment

a. Fixed assets

During the year the Company reviewed the fixed asset balances and wrote off amounts to reflect deterioration and destruction of fixed assets prior to the current year.

b. Corporation capital tax

During the year the Company accrued estimated corporation capital taxes payable relating to prior years.

13. Subsequent event

Subsequent to the year end the Company entered into an agreement to purchase a 15% working interest in three oil and gas leases in Jones County, Texas, payable by issuance of 17,280 common shares.

14. Related party transactions

During the year the Company had the following transactions with shareholders:

Advance received and repaid	\$ 5,329
Reimbursement of shareholder's costs	\$ 16,343
Rent expense	\$ 15,581
Note payable as at October 31, 1981	\$ 30,000
Advance receivable as at October 31, 1981	\$ 2,601

15. Remuneration of directors and shareholders

Remuneration of directors, and senior officers including the five highest paid employees amounted to direct remuneration of \$99,100 (1980 - \$25,688) and management fees of \$63,000 (1980 - \$20,600).

16. Comparative information

The comparative figures of October 31, 1980 have been reclassified to reflect current accounting classifications and the prior period adjustments referred to in Note 12.

The statement of changes in financial position comparative figures reflect operations from May 1, 1980 to October 31, 1980.

APPENDIX II - 2

EXCERPTS FROM REPORT

BY

L. J. MANNING & ASSOCIATES LTD.

28 APRIL 1972

COLUMBIA RIVER MINES LTD (N.P.L.)
FEASIBILITY REPORT
RUTH-VERMONT MINE
28th April 1972

L. J. Manning & Associates Ltd.,
310 - 890 West Pender Street,
Vancouver 1, B.C.

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION AND AUTHORITY	2.
SUMMARY	2.
LOCATION, TOPOGRAPHY, CLIMATE, AND CLAIMS Location Map	7.
HISTORY	10.
GEOLOGY	11.
ORE RESERVES	15.
MINING METHODS	18.
METALLURGY	24.
SMELTER SCHEDULES	26.
OPERATING COSTS	28.
PRO FORMA STUDIES	32.
CERTIFICATE OF QUALIFICATION	35.
ORE RESERVE POTENTIAL by T. R. TOUGH Claims Exploration, and Topographic Map	36.
APPENDIX	45.
TABLE OF CONTENTS	46.

-113-

L. J. MANNING & ASSOCIATES LTD.
CONSULTING MINING AND GEOLOGICAL ENGINEERS

310-890 WEST PENDER STREET VANCOUVER 1, B. C.
 April 28, 1972.

OFFICE PHONE:
 683-5861

RESIDENTIAL PHONE:
 L. J. MANNING - 985-5690

The President & Directors,
 Columbia River Mines Ltd.,
 302 - 475 Howe St.,
 Vancouver 1, B.C.

Dear Sirs:

The following report is based on a visit to the property by the writer on the 20th December, 1971, previous examinations of the property by J. W. Hogan, and previous mining studies of the property by the firm of the undersigned for other clients. In addition, much of the information from the recent "Copperline" operation was made available.

SUMMARY:

Mineable ore reserves after dilution have been estimated by this office as follows:

	<u>Tons</u>	<u>Ag oz/ton</u>	<u>Pb %</u>	<u>Zn%</u>	<u>N.S.R./ton</u>	
					<u>B.M.*</u>	<u>B.H.*</u>
Vein Ore	80,243	10.03	6.08	5.00	\$26.92	\$22.19
Replacement Ore	<u>211,141</u>	<u>5.32</u>	<u>4.26</u>	<u>5.90</u>	<u>\$20.14</u>	<u>\$15.85</u>
Total	291,384	6.62	4.76	5.65	\$22.00	\$17.59

The study indicates that the Ruth-Vermont Deposit produces 227 tons per foot of strike length with costs of \$3.594 per foot or \$15.79 per ton for mining and concentrating. The foregoing costs include start-up costs, development costs, and an allowance sufficient to explore an

* B.M. - British Metal Corporation Contract- prices 13th December, 1971.
 B.H. - Bunker Hill Contract

an increase in reserves within the 900 feet of strike length for which exploration costs have been allowed. The geologic environment described in this study and in the appended report by Thomas R. Tough appears similar to that from which much of the world's supply of lead and zinc is mined. In these other areas, the success ratio of discovery along the veins has been sufficient to sustain mines for many years. The length of the zones of mineralized veining and the observance of other replacement activity on the claims, as reported by Mr. Tough, reinforces the probability of the reoccurrence of mineable vein and replacement ore along strike as well as up and down dip from the known deposits. Compared to other similar deposits, the Ruth-Vermont deposit has a higher silver content. This will assist in obtaining a favourable smelter contract during the present shortage of available smelter capacity.

Mining methods are designed to permit required development material to be sufficiently undiluted that ore grade mill feed will result when developing vein ore zones. A comparison of the proposed Columbia River operation reveals the following differences resulting from the different mine designs.

BRITISH METAL CONTRACT -- 13 DECEMBER, 1972 PRICES

	Method		<u>Differences</u>
	<u>Copperline Improved to 15,000 T.P.M.</u>	<u>Proposed</u>	
Reserves, Tons	211,141	291,384	+ 80,243
Op. Profit/ton	8.16	7.76	- \$0.40
Op. Profit Total	\$1,722,910	\$2,261,140	+\$528,230
Start-up Costs	147,000	363,350	- 214,350
Stockpile rehandling costs		12,758	- 12,758
U.G. Expl. Costs	<u>75,000</u>	<u>75,000</u>	<u>-</u>
Cash before Interest etc.	\$1,498,910	\$1,810,032	+\$311,122

Please note that in spite of a reduction in profit per ton due to higher mining and development costs, the overall profit per ton is increased due to mining a greater tonnage of higher grade ore. This is due to the proposed methods permitting economic exploitation of vein ore in addition to the replacement ore. These methods permit economical explorations along the veins in search of additional replacement (high profit) zones and utilize equipment and procedures familiar to crews resident in the general district.

It is therefore recommended that every effort be made to acquire a favourable smelter contract and that on acquisition of such a contract,

-117-

L. J. MANNING & ASSOCIATES LTD.

\$800,000 be made available for start-up costs and working capital.

Respectfully submitted,

L. J. MANNING & ASSOCIATES LTD.

L. J. Manning, P. Eng.

LJM: kd l

-118-

RUTH-VERMONT
OPERATING COST SUMMARY

Responsibility Cost Center	Cost Per Ton Milled							
	Payroll			Labour			Material	Total
	Staff	Hrly	Total	Staff	Hrly	Total		
1. Mine Supt.								
a) Mine Fixed:-								
Eng & Geog.	6	-	6	0.414	-	0.414	0.091	0.505
Supervision	5	-	5	0.385	-	0.385	-	0.385
D.D. Test Hole	-	2	2	-	0.133	0.133	-	0.133
Gen. Services	-	8	8	-	0.469	0.469	0.328	0.797
Main Haulage	-	4	4	-	0.242	0.242	-	0.242
Total Mine Fixed	11	14	25	\$ 0.799	\$ 0.844	\$1.643	\$ 0.419	\$ 2.062
b) Mine Work Face Avg:-								
Development	-	6	6	-	0.591	0.591	0.330	0.921
Vein Stopes	-	9	9	-	0.607	0.607	0.272	0.879
Repl. Stopes	-	15	15	-	1.056	1.056	0.420	1.476
Total Mine Supt. Var.	-	30	30	-	2.254	2.254	1.022	3.276
Total Mine Supt.	11	44	55	0.799	3.098	3.897	1.441	5.338
2. Mill Supt.								
a) Assay Office	2	-	2	0.104	-	0.104	0.047	0.151
b) Supervision	2	-	2	0.126	-	0.126	-	0.126
c) Crusher	-	8.4	8.4	-	0.455	0.455	0.129	0.584
d) Mill	-	10.4	10.4	-	0.593	0.593	1.032	1.625
Total Mill Supt.	4	18.8	22.8	0.230	1.048	1.278	1.208	2.486
3. Plant Supt.								
a) Avalanche Control	-	-	-	0.015	-	0.015	0.094	0.109
b) Mine & Gen Shop Var.	-	-	-	-	-	-	0.328	0.328
Fixed	-	5	5	-	0.299	0.299	0.097	0.396
Sub	-	5	5	-	0.299	0.299	0.425	0.724
c) Mill Maint	-	3	3	-	0.192	0.192	0.346	0.538
d) Carpenter Shop	-	4	4	-	0.220	0.220	- *	0.220
e) Garage & Gen Vehcls.	-	4	4	-	0.235	0.235	0.443	0.678
f) Snow Rem. & Rds.	-	2	2	-	0.116	0.116	0.146	0.262
g) Electricity & Air	-	4.2	4.2	-	0.256	0.256	0.689	0.945
h) Camp	-	-	-	-	-	-	0.402	0.402
Plant Supt. Var.	-	-	-	-	-	-	0.328	0.328
Plant Supt. Fixed	-	22.2	22.2	0.015	1.318	1.333	2.217	3.550
Total Plant Supt.	-	22.2	22.2	0.015	1.318	1.333	2.545	3.878
4. Manager & Mine Off.								
a) Office & Warehouse	6	-	6	0.213	-	0.213	0.060	0.273
b) Manager	5	-	5	0.417	-	0.417	-	0.417
Total Manager & Office	11	-	11	0.630	-	0.630	0.060	0.690
5. Van, Office	5	-	5	0.498	-	0.498	0.350	0.848
Ruth-Vermont Fixed	31.0	55.0	86.0	2.172	3.210	5.382	4.254	9.636
Ruth-Vermont Var Avg.	-	30.0	30.0	-	2.254	2.254	1.350	3.604
Ruth-Vermont Sub	\$31.0	85.0	116.0	\$2.172	\$5.464	\$7.636	\$5.604	\$13.240
Additional Costs Detailed Elsewhere								
Stockpiling and rehandling				Per Ton				
Underground Exploration				\$0.044				
				0.257				
				\$0.301				\$ 0.301
Total Ruth-Vermont Normal								\$13.541
Start-up Fixed				\$1.002				
Start-up Capital				\$1.247				
Start-up Total on 1st 291,384 Tons				\$2.249				2.249
Total Ruth-Vermont including start-up								\$15.790

* It is assumed that the carpenter shop material costs were distributed to other cost centers in the Copperline summary. The same assumption has been used in the Columbia River estimate.

APPENDIX

TABLE OF CONTENTS

	<u>PAGE</u>
ORE RESERVES	1-1
Calculations	1-2
Block Grades	1-5
METALLURGICAL AND NET SMELTER RETURN CALCULATIONS	
Combined Reserves	
Metallurgical Calculations	2-1
Net Smelter Return British Metal Contract	2-4
Net Smelter Return Bunker Hill Contract	2-8
Replacement Reserves	
Metallurgical Calculations	2-11
Net Smelter Return British Metal Contract	2-14
Net Smelter Return Bunker Hill Contract	2-16
Vein Reserves	
Metallurgical Calculations	2-18
Net Smelter Return British Metal Contract	2-20
Net Smelter Return Bunker Hill Contract	2-22
Variations of Net Smelter Returns with Variation in Metal Prices (U.S.\$)	
British Metal Contract	2-24
Bunker Hill Contract	2-26
Summary Tables of N.S.R. Values	
N.S.R. With Varying Metal Prices - British Metal	2-28
N.S.R. With Varying Metal Prices - Bunker Hill	2-29
Reserve and Net Smelter Return Summary	2-30
Charts of N.S.R. With Varying Metal Prices	
British Metal Corporation	2-31
Bunker Hill Company	2-33
Tables of In-Place Block Grades	
Vein Ore	2-35
Replacement Ore	2-36
Copperline Smelter Returns	
Lead Returns	2-37
Zinc Returns	2-38
Combined Returns	2-39
MINE PRODUCTION-QUANTITY, GRADE, CREW & EQUIPMENT REQUIRED	
Mine Production Quantities and Grade	3-1
Development Requirements	3-2
Productivity Factors	3-4
Mining Summary	3-5
Mill Feed Produced	3-6
Mill Feed From Blocks	3-7

TABLE OF CONTENTS CONT'D

	<u>PAGE</u>
Mine Crew and Equipment Requirements	3-11
Labour Requirements	3-12
Mine Production Equipment Summary	3-15
 LABOUR COSTS	
Work Year Considerations	4-1
Labour Cost Summary	4-2
Costs By Responsibility Centers	4-3
 "VARIABLE" MATERIAL COST ESTIMATES	
Direct Break Costs Used	5-1
Material Prices Used	5-2
"Variable" Material Cost Summary	5-6
"Variable" Material Costs by Responsibility Centers	5-8
 "VARIABLE" LABOUR-MATERIAL COSTS USED IN PRODUCTION PRO FORMA STUDIES	
Increase in Direct Costs For 7 Day Week	6-2
Costs Per Unit of Production	6-3
Per Mill Day/Manshift Productivities and Costs	6-4
Labour Cost Summary Per Ton Milled	6-5
Summary Total "Variable" Costs For Known Reserves	6-6
 "FIXED" OPERATING COSTS DERIVED FROM COPPERLINE OPERATING COSTS	7-1
Table of Copperline Achieved - Columbia River Proposed Costs	7-2
Copperline Major Material Cost Summary	7-3
Copperline Performance Analysis	7-4
Start-up "Fixed" Operating Costs	
Start-up Labour Material Summary	7-5
Notes	7-6
Underground Exploration Costs	
Calculations	7-7
 ADDITIONAL COST CONSIDERATIONS	
Notes on Additional Considerations	8-1
Stock-pile Requirements: Text	9-1
Calculations	9-3
Sketch Plan	9-7
Avalanche Control: Text	10-1
Sketch Plan	10-3
Water Supply	11-1
Concentrate Freight Costs	12-1
Capital Expenditure Schedule	13-1
 OPERATING LABOUR MATERIAL SUMMARY	
Notes	14-1
Summary Table	14-2

TABLE OF CONTENTS CONT'D

	<u>PAGE</u>
PRO FORMA STUDIES	
Notes	15-1
Annual Work Weeks and Mill Tons	15-2
<u>CHARTS</u>	
PRO FORMA STUDIES	<u>NUMBER</u>
Variable Operating Summary	
Development Production	PF 1
Stope Production	PF 2
Fixed + Variable Basic Operating Summary	
Period to Month Reconciliation	PF 3
Operating Summaries 1-V	PF 4
<u>MAPS</u>	
VEIN ORE RESERVE CALCULATIONS	
E-W Projection	M-1
TYPICAL CROSS SECTIONS	
N-S 13+00	M-2
N-S 19+75	M-3
KNOWN ORE ZONE OUTLINES	
Plan of Ore Zone	M-4
E-W Projection of Ore Zone and Schematic of Planned Development	M-5
SURFACE PLANS	
General Surface and Buildings	M-6
Mill Schematic	M-7

APPENDIX II - 3

EXCERPT FROM REPORT

BY

G. NOLIN

DATED

OCTOBER 1981

From Report By G. Nolin, P. Geol.
 Entitled
 Yearend Report
 1981 Exploration Program
 October 1981

Part of Section VI Geology
Mineralization

The observed mineralization on the Tect portion of the property appears to be related to release fractures along a zone of weakness related to the axial planes of anticlines. The area lies on the axial trace of the Vermont anticlinorium. The mineralized veins on the Ruth Vermont property are steeply dipping and strike at approximately 115 degrees. Most ore grade mineralization appears to be in veins but several intersections of sulphide mineralizations with good base metal values have been encountered which appear to be strata bound.

Drilling and trenching have encountered ore grade Ag, Pb, Zn, and Cu mineralization in 5 locations: drill holes # 79-11, 77-3, 81-3, 75-1, and trench # 77-3; along a N.W., S.E. strike extending over 2,200 feet. Ore grade mineralization has also been encountered at 4 locations: drill holes # 79-8, 81-3, 77-3, and trench # 77-3; along an approximate bearing of 115 degrees for a distance of 300 feet.

A list of significant mineralization is as follows:

Selected Assays

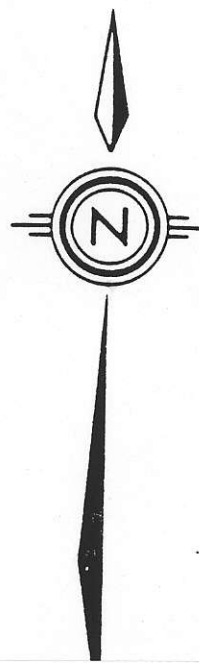
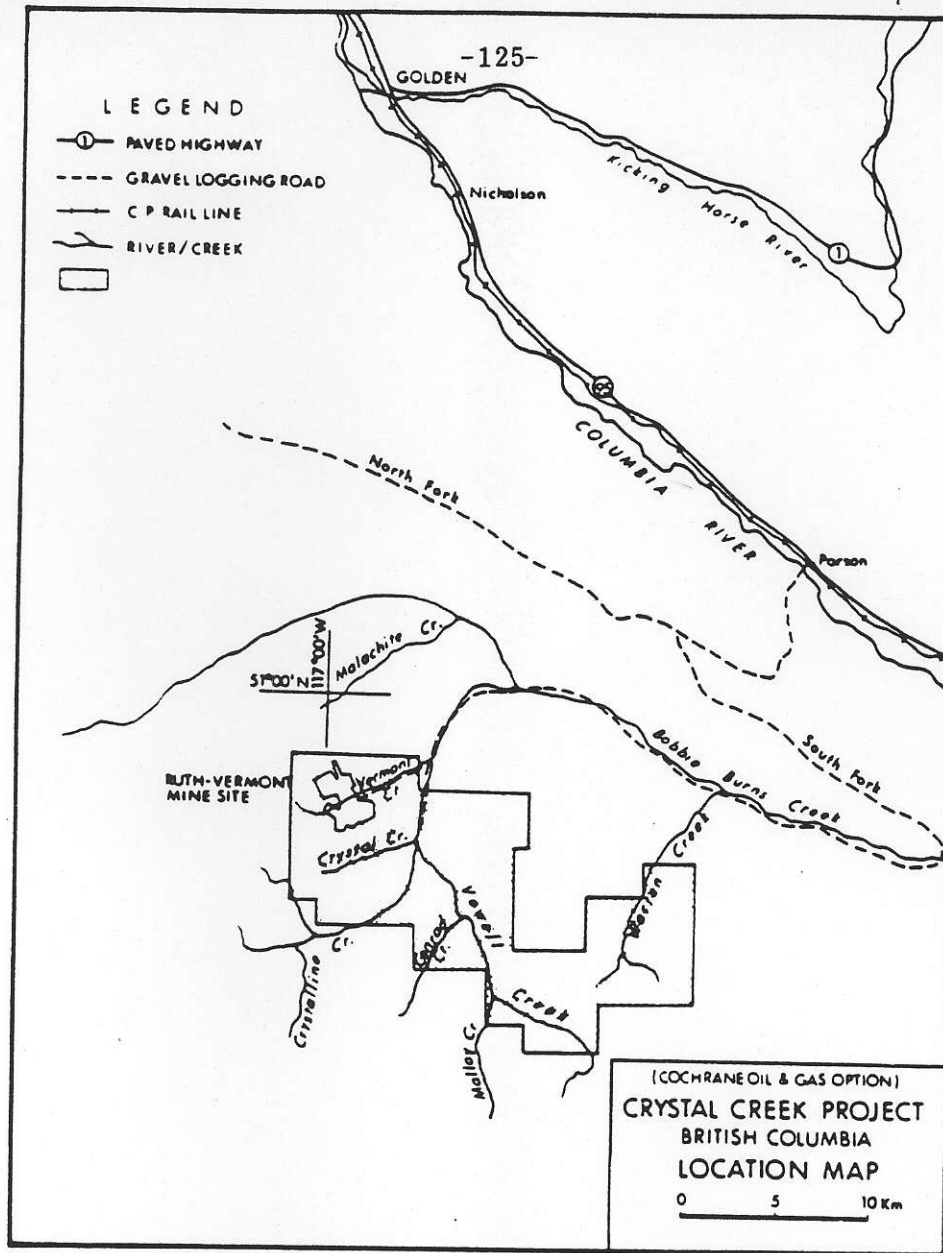
<u>Hole #</u>	<u>Interval</u> (in feet)	<u>Width</u> (in feet)	<u>% Pb</u>	<u>% Zn</u>	<u>Oz/Ton Ag</u>
1-75	42 - 50	8	2.11	5.43	2.33
3-77	107.5 - 123	15.5	3.43	8.61	3.39
81-3	200.7 - 206.1	5.4	1.72	7.34	2.12
79-11	312 - 313.3	1.3	12.49	13.13	12.72
	328.3 - 328.9	0.6	1.62	8.20	1.44
	374 - 374.3	0.3	5.40	0.42	4.28
	387.3 - 387.6	0.3	7.40	14.50	20.50
	408 - 408.6	0.6	4.99	12.88	8.90
	410.9 - 412	1.1	15.44	1.45	14.92
79-8	74.13 - 75.1	0.97	2.48	7.43	1.72
	75.1 - 75.9	0.8	2.0	2.8	2.34
	75.9 - 76.88	0.98	5.78	8.32	5.36
	76.88 - 78.55	1.67	7.85	11.64	8.84
	78.55 - 79.7	1.15	10.95	15.39	10.70
	79.7 - 80.03	0.33	2.64	3.90	2.56
	80.03 - 81.01	0.98	2.22	4.20	2.50
<u>Trench</u>					
77-3		18 feet	1.9	2.84	3.43

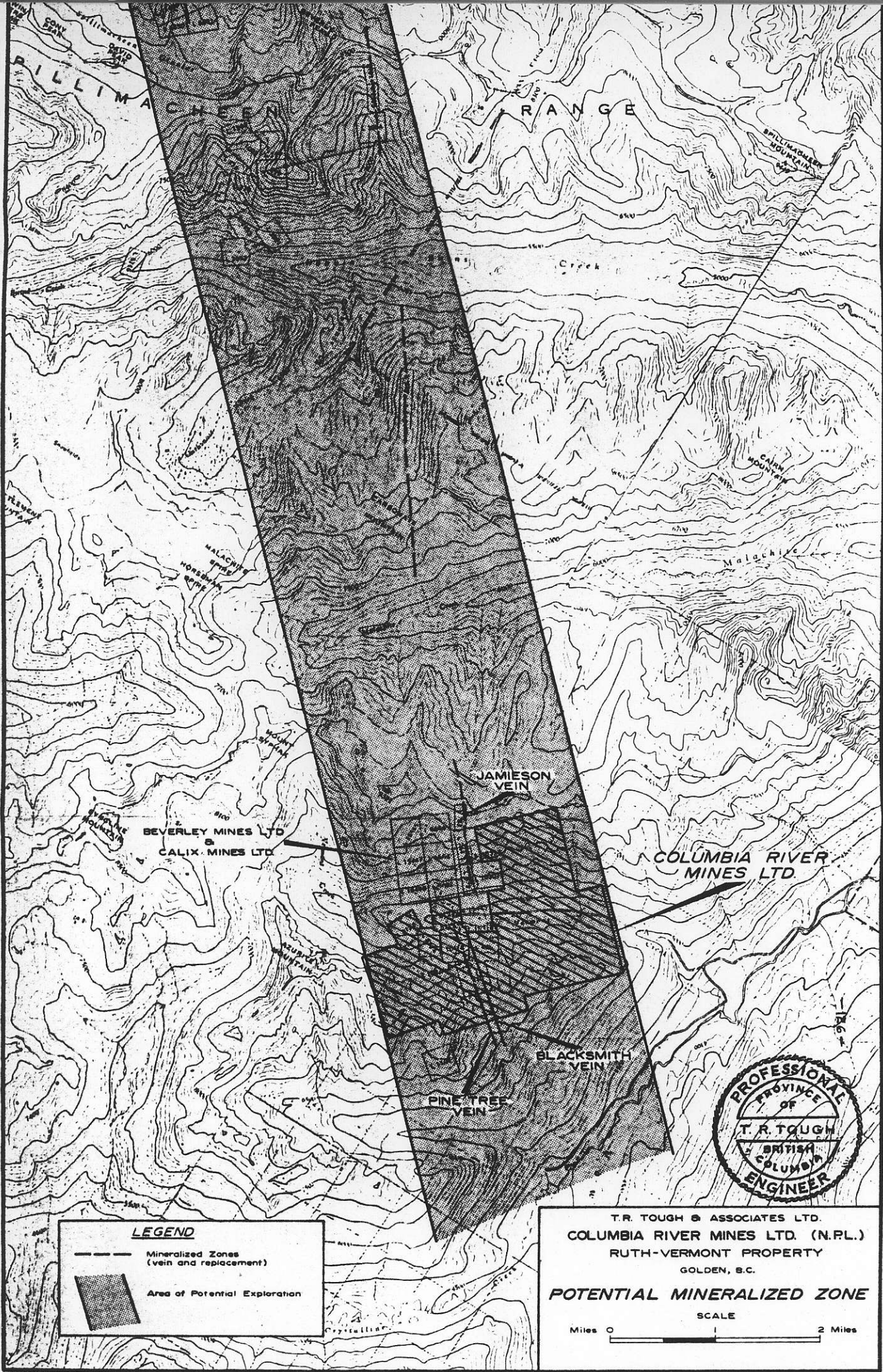
On Warren Creek claims, chalcopyrite which assayed over 4% Cu was located by an old dump. The mineralization is reported to be related to narrow quartz veins in a shear zone.

APPENDIX III
LIST of MAPS and DRAWINGS



MAP	TITLE	DATE	SCALE
1.	Location Plan		1.0" = 4 miles
2.	Potential Mineralized Zone		1.3" = 1 mile
3.	Longitudinal Section Vein Assays	Nov.1971	1.0" = 40 feet
4.	Typical Cross Sections 13+00 & 19+75		1.0" = 40 feet
5.	Generalized Ore Bodies		1.0" = 80 feet
6.	General Mine Plan & Section (Pocket)		1.0" = 100 feet

51°00'





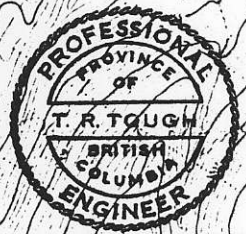
LEGEND

-  Mineralized Zones
(vein and replacement)
-  Area of Potential Exploration

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 RUTH-VERMONT PROPERTY
 GOLDEN, B.C.

POTENTIAL MINERALIZED ZONE

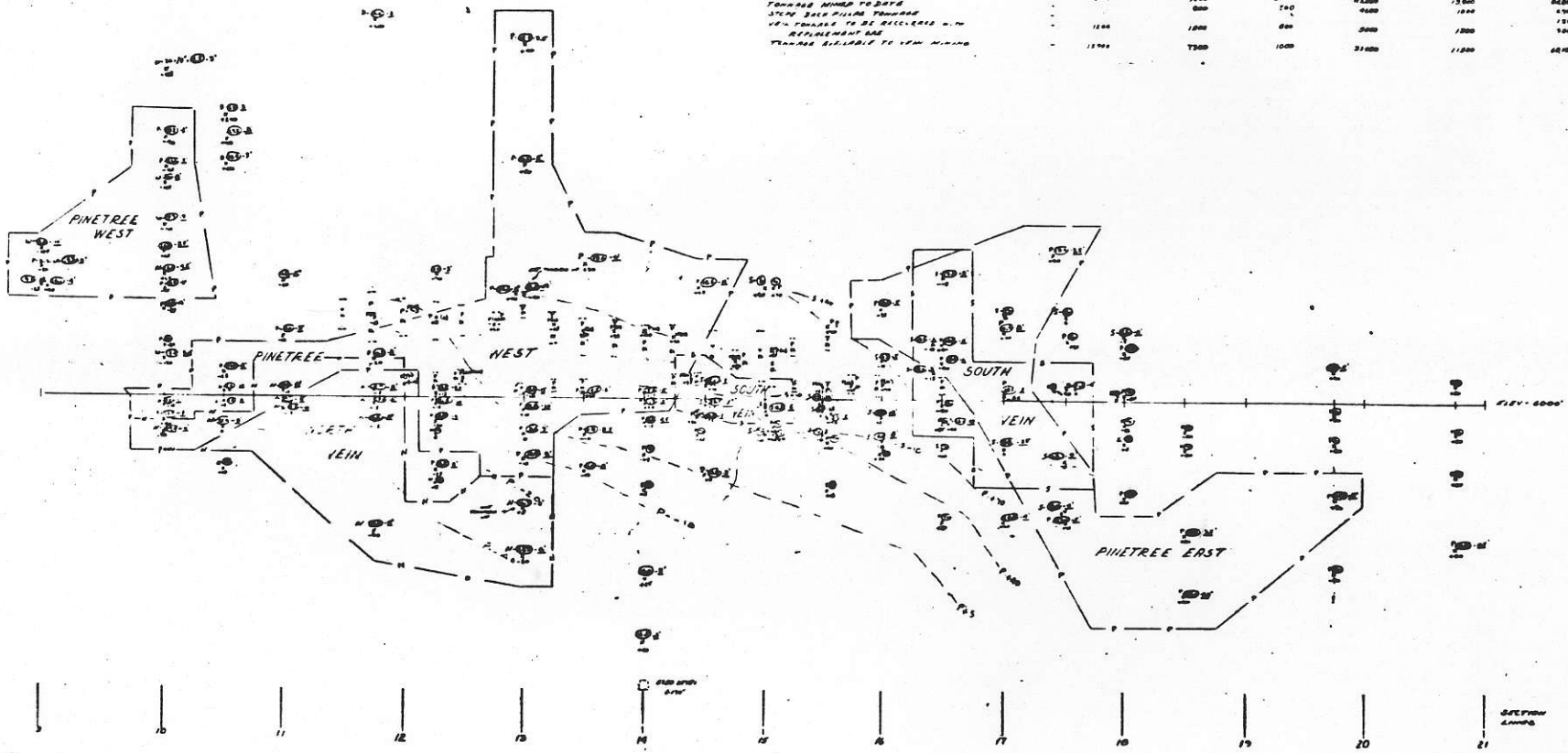
SCALE
 Miles 0 1 2 Miles



INDICATED GRADE (ELEVATION, VALUE AND CLASS) SURFACE AS ONE INTERSECTION

	PINETREE VEIN WEST	SOUTH VEIN EAST	SOUTH VEIN WEST	PINETREE VEIN WEST	NORTH VEIN	VEIN TOTAL
3% EQUIVALENT	210	152	246	195	208	238
5% EQUIVALENT	160	62	167	96	126	118
7% EQUIVALENT	200	62	219	220	127	278
9% EQUIVALENT	220	54	240	242	116	332
11% EQUIVALENT	170	61	24	67	21	281
13% EQUIVALENT	150	54	200	120	150	260
15% EQUIVALENT	100	50	140	100	100	190
17% EQUIVALENT	100	50	100	100	100	150
19% EQUIVALENT	100	50	100	100	100	150
21% EQUIVALENT	100	50	100	100	100	150
23% EQUIVALENT	100	50	100	100	100	150
25% EQUIVALENT	100	50	100	100	100	150
27% EQUIVALENT	100	50	100	100	100	150
29% EQUIVALENT	100	50	100	100	100	150
31% EQUIVALENT	100	50	100	100	100	150
33% EQUIVALENT	100	50	100	100	100	150
35% EQUIVALENT	100	50	100	100	100	150
37% EQUIVALENT	100	50	100	100	100	150
39% EQUIVALENT	100	50	100	100	100	150
41% EQUIVALENT	100	50	100	100	100	150
43% EQUIVALENT	100	50	100	100	100	150
45% EQUIVALENT	100	50	100	100	100	150
47% EQUIVALENT	100	50	100	100	100	150
49% EQUIVALENT	100	50	100	100	100	150
51% EQUIVALENT	100	50	100	100	100	150
53% EQUIVALENT	100	50	100	100	100	150
55% EQUIVALENT	100	50	100	100	100	150
57% EQUIVALENT	100	50	100	100	100	150
59% EQUIVALENT	100	50	100	100	100	150
61% EQUIVALENT	100	50	100	100	100	150
63% EQUIVALENT	100	50	100	100	100	150
65% EQUIVALENT	100	50	100	100	100	150
67% EQUIVALENT	100	50	100	100	100	150
69% EQUIVALENT	100	50	100	100	100	150
71% EQUIVALENT	100	50	100	100	100	150
73% EQUIVALENT	100	50	100	100	100	150
75% EQUIVALENT	100	50	100	100	100	150
77% EQUIVALENT	100	50	100	100	100	150
79% EQUIVALENT	100	50	100	100	100	150
81% EQUIVALENT	100	50	100	100	100	150
83% EQUIVALENT	100	50	100	100	100	150
85% EQUIVALENT	100	50	100	100	100	150
87% EQUIVALENT	100	50	100	100	100	150
89% EQUIVALENT	100	50	100	100	100	150
91% EQUIVALENT	100	50	100	100	100	150
93% EQUIVALENT	100	50	100	100	100	150
95% EQUIVALENT	100	50	100	100	100	150
97% EQUIVALENT	100	50	100	100	100	150
99% EQUIVALENT	100	50	100	100	100	150
100% EQUIVALENT	100	50	100	100	100	150

INDICATED WITH
 INDICATED TRIMMING (10 CUT / 100)
 TOWARDS MINOR ROAD
 1/2" TO 3/4" FILLING TOWARDS
 VEIN TO BE RECLAIMED WITH
 REFINEMENT AND
 TRIMMING APPLICABLE TO VEIN MINING

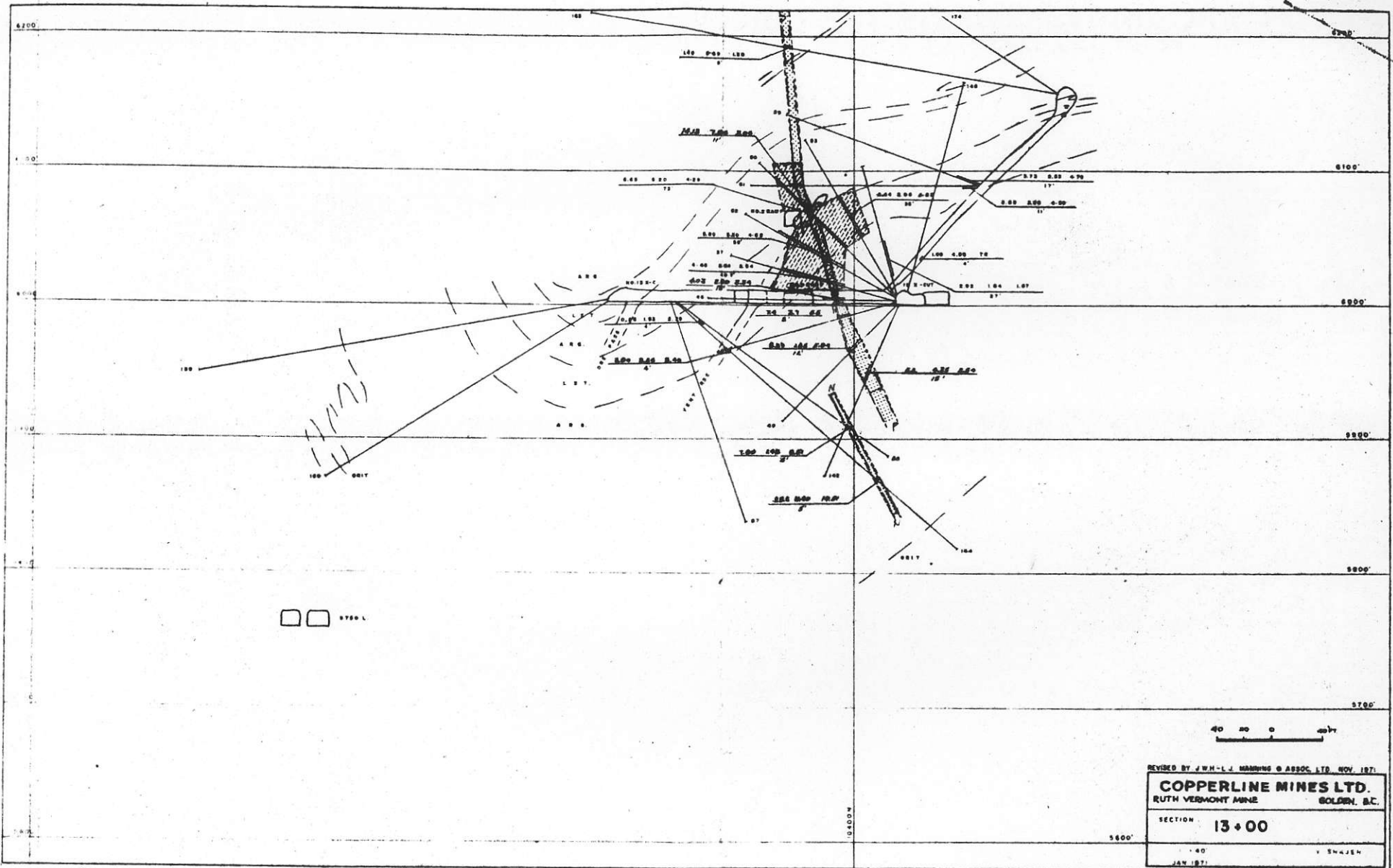


LEGEND

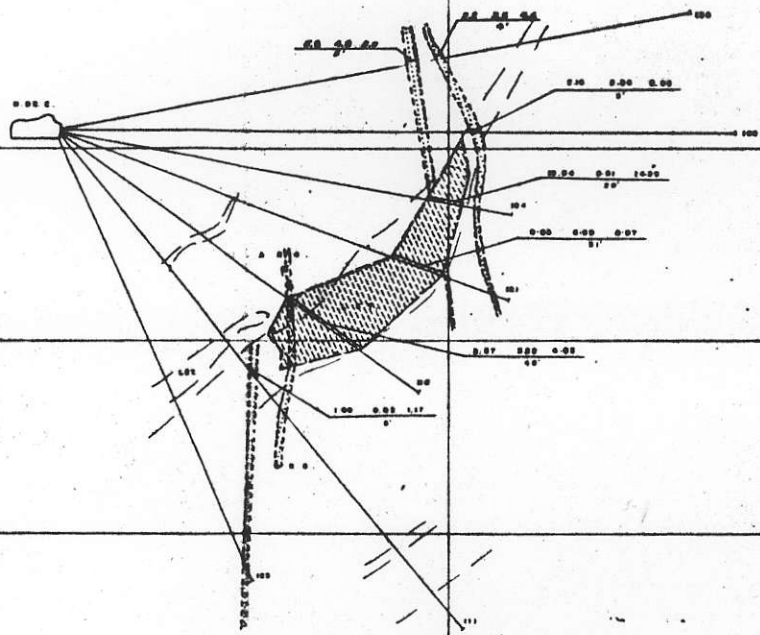
- X - VEIN INTERSECTION
- 10 - DISTANCE NORTH OF 10000 SECTION LINE (-10 SOUTH)
- P - PINETREE VEIN (10' WIDELAND 1/2" TO 3/4" FILLING TO 3' SOUTH VEIN & NORTH VEIN)
- 11 - 1/2" TO 3/4" FILLING TOWARDS VEIN TO BE RECLAIMED WITH REFINEMENT AND TRIMMING APPLICABLE TO VEIN MINING
- 12 - ROAD VEIN
- 13 - PINETREE VEIN MINED
- 14 - STRUCTURAL CONTAINING ANOMALY
- 15 - ONE INTERSECTION: PINETREE VEIN CUT BY 100' TO 150' FILLING (VEIN - OTHER VEIN)
- 16 - ANOMALY ONE INTERSECTION: PINETREE VEIN CUT BY 100' TO 150' FILLING (ROAD - OTHER VEIN)

SCALE: 40 0 40 80 FEET

Colvada River Mills Ltd
 LONGITUDINAL SECTION VEIN ASSAYS
 RUTH VERMONT FELDERLY GOLDEN BC
 SCALE: 1" = 100' (AS SHOWN)
 J.M.S.



M-3

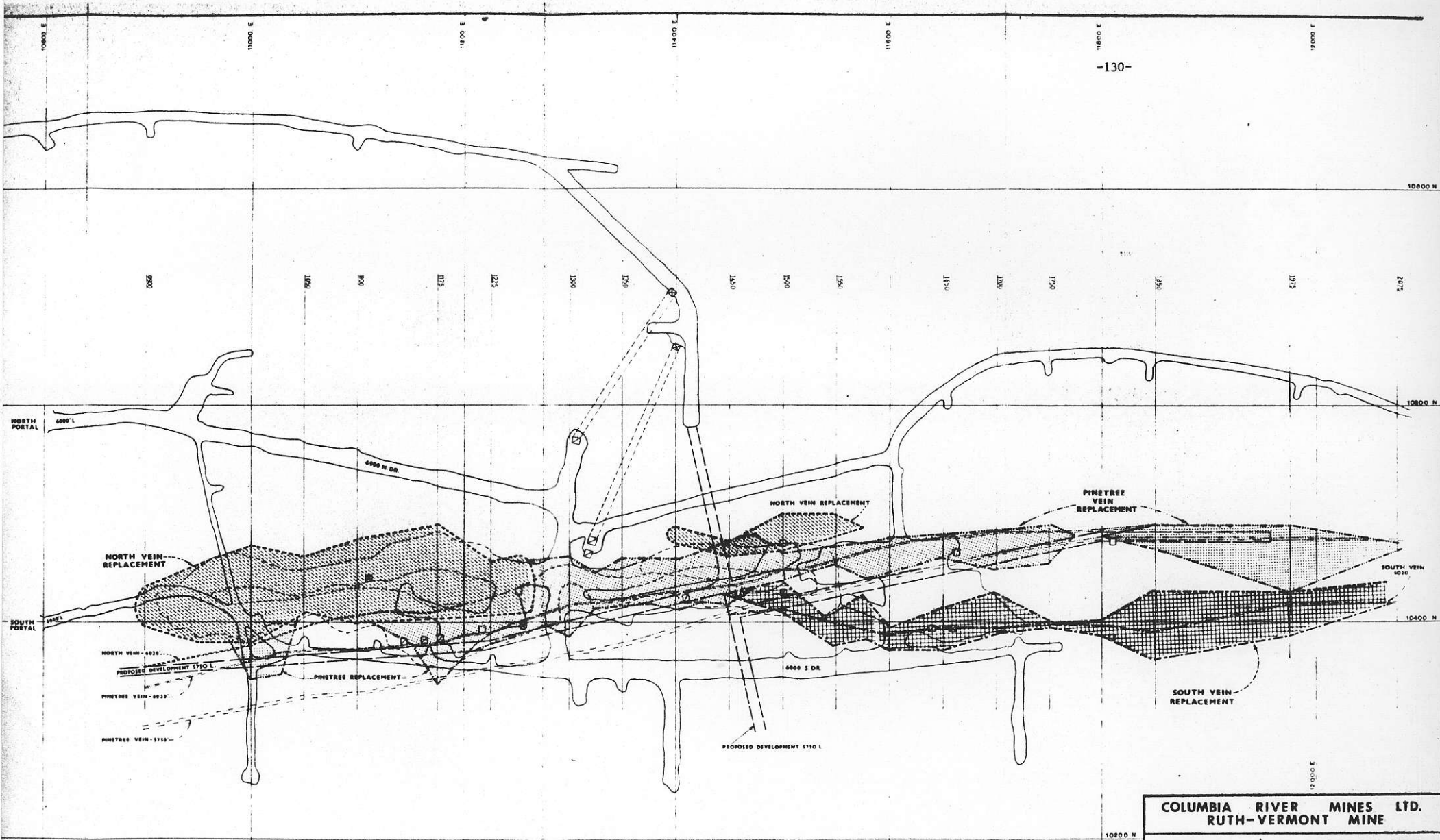


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COPPERLINE MINES LTD.
 RUTH VERMONT MINE GOLDEN, S.C.

SECTION: **19-75**

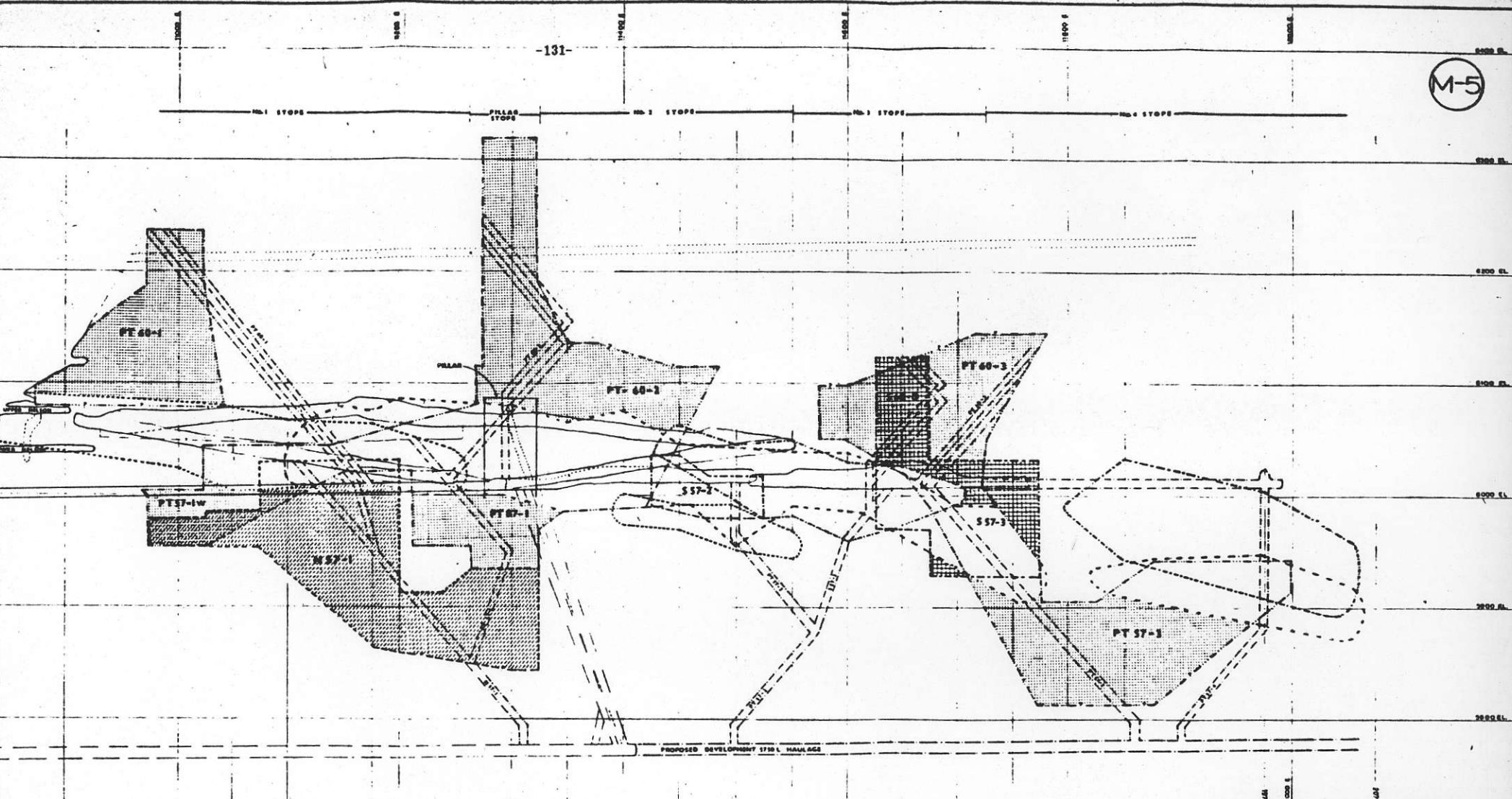
1" = 40'
 V. BRAJER
 10 JAN 1972



COLUMBIA RIVER MINES LTD.		
RUTH-VERMONT MINE		
GENERALIZED - ORE BODIES		
CONSULTING ENGINEERS -		
L. J. MANNING & ASSOCIATES LTD.		
DRAWN BY: I. J. MANNING	FILE NO.	ROLL.
TRACED BY: S. E. TAN	DWG. NO.	
DATE: JAN. 1973	SCALE: 1 IN. = 40 FT.	

-131-

M-5



COLUMBIA RIVER MINES LTD.
RUTH-VERMONT MINE
SECTION - ORE BODIES & PROPOSED DEVELOPMENT
 CONSULTING ENGINEERS -
L. J. HANNING & ASSOCIATES LTD.

DRAWN BY: L. J. HANNING	FILE NO.	ROLL.
TRACED BY: S. J. TAN	DWG. NO.	
DATE: JAN 1973	SCALE:	