180-#836-8639

NTS 82K/8W

ECHO BAY MINES LTD.

MIN3 AND MIN4 MINERAL CLAIMS

EXPLORATION - 1980

GOLDEN MINING DIVISION, BRITISH COLUMBIA

Trigg, Woollett Consulting Ltd.

January, 1981

J.G. Jansen
R.A. Olson

ECHO BAY MINES LTD.

MIN3 AND MIN4 MINERAL CLAIMS

EXPLORATION - 1980

GOLDEN MINING DIVISION, BRITISH COLUMBIA

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ECHO BAY MINES LTD.

MIN3 AND MIN4 MINERAL CLAIMS

EXPLORATION - 1980

GOLDEN MINING DIVISION, BRITISH COLUMBIA

SUMMARY

Exploration, which included prospecting, geological mapping and geochemical sampling, was performed at MIN3 and MIN4 mineral claims between June 21 and September 3, 1980.

Folded and faulted Dutch Creek Formation and Mount Nelson Formation carbonate and clastic rocks exist within the mineral claims. At least eleven sulphide mineral occurrences, comprising small amounts of one or more of galena, tetrahedrite, chalcopyrite and sphalerite, exist in bedrock or float within or near the mineral claims; none of the sulphide occurrences are, in themselves, economically important. There remains a possibility, however, that important concentrations of lead-, zinc- and silver-bearing sulphide minerals exist in Dutch Creek Formation dolomite within MIN3 mineral claim and/or in Mount Nelson Formation dolomite within MIN4 mineral claim.

Further exploration, comprising prospecting, geological mapping and geochemical soil sampling, is required to evaluate geochemical and geological anomalies that exist within MIN3 and MIN4 mineral claims. The estimated cost of the recommended exploration is $8,000.

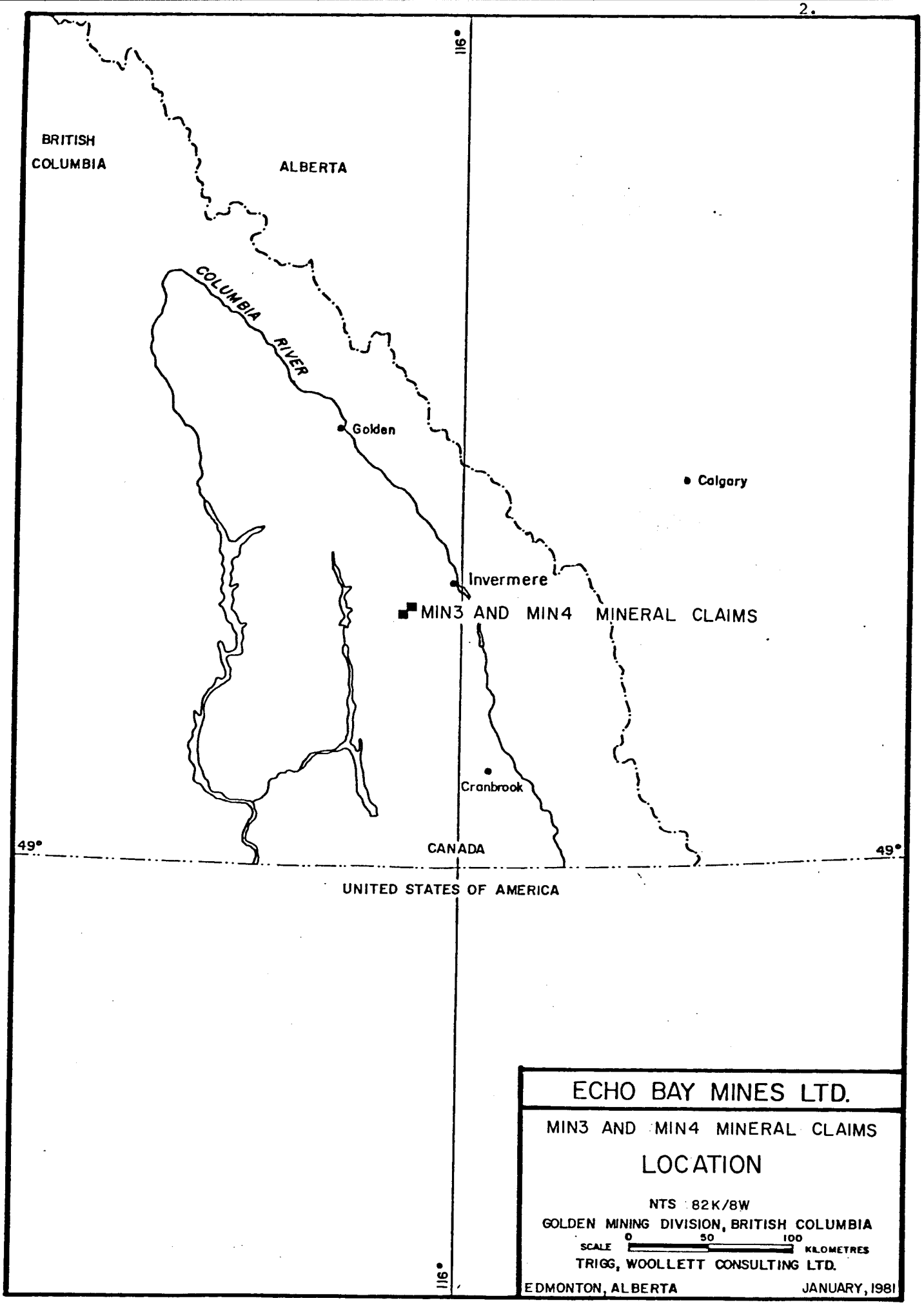
INTRODUCTION

Location

The MIN3 and MIN4 mineral claims are in Golden Mining Division within National Topographic System (NTS) map-sheet 82K/8W and are centered at 50°21'N latitude, 116°28'W longitude (Dwg. 1EBI-1). The mineral claims cover a total area of 425 hectares and are accessible by helicopter or by four-wheel-drive vehicle.

History

The area has been geologically mapped at a scale of one inch equals 2 miles (Walker, 1926), at a scale of 1 cm equals 2.5 km (Reesor, 1957 and 1973) and at a scale of 1 inch equals 1,500 feet (Fyles, 1959). A zinc-lead-silver-copper-cadmium sulphide ore deposit existed at the now closed Mineral King mine which is 2 km southeast of MIN4 mineral claim; the Mineral King deposit was actively mined from 1954 to 1967.



ECHO BAY MINES LTD.

MIN3 AND MIN4 MINERAL CLAIMS

LOCATION

NTS 82K/8W

GOLDEN MINING DIVISION, BRITISH COLUMBIA

SCALE 0 50 100 KILOMETRES

TRIGG, WOOLLETT CONSULTING LTD.

EDMONTON, ALBERTA JANUARY, 1981

DWG. IEBI-1

In 1979, Trigg, Woollett Consulting Ltd., on behalf of Echo Bay Mines Ltd., performed reconnaissance and detailed geochemical stream sediment sampling in parts of the area now covered by MIN3 and MIN4 mineral claims. MIN3 and MIN4 mineral claims, bearing record numbers 512 and 513 respectively, were staked on November 13 and 14, 1979 and were recorded on November 23, 1979. MIN3 and MIN4 mineral claims are held by Echo Bay Mines Ltd.

1980 Exploration

A total of 14 man-days of field work, which included prospecting, geological mapping and geochemical sampling, was performed at MIN3 and MIN4 mineral claims between June 21 and September 3, 1980 (Appendix I).

Exploration on the mineral claims during 1980 included geological mapping of a 50 hectare area at a scale of 1 cm equals 100 m and collecting 26 geochemical soil samples and 12 geochemical stream sediment samples.

The total cost of exploration performed within MIN3 and MIN4 mineral claims between June 21 and September 3, 1980 is $3,634 (Appendix II).

GEOLOGY

Regional Geology

The eastern Purcell Mountains are underlain by rocks of Helikian to Cretaceous age and include Helikian Purcell System and Hadrynian Windermere System (Reesor, 1973). At and near MIN3 and MIN4 mineral claims, however, only the two upper formations of Purcell System are present.

The two upper formations of Purcell System are Dutch Creek Formation, which comprises mainly argillite, siltstone and quartzite with lesser amounts of carbonate rocks, and Mount Nelson Formation, which comprises mainly dolomite with lesser amounts of quartzite, dolomitic limestone, slate, argillite and conglomerate. Mount Nelson Formation is the host unit for the sulphide deposit mined at the now closed Mineral King mine.

The eastern Purcell Mountains have undergone at least two orogenic events. Prior to the deposition of Windermere System, Purcell System rocks were faulted and were deformed into northerly trending folds. The effects of this early orogeny have been overprinted and masked by a Mesozoic orogenic event that resulted in Paleozoic and older rocks being faulted, folded and intruded. Mesozoic deformation is characterized by northwesterly trending folds, by normal faults that strike mainly northwesterly and northerly, and by local thrust faults that dip mainly southwesterly (Reesor, 1973; Jansen and Olson, 1979).

Stratigraphy and Structure Within the Mineral Claims

Dutch Creek Formation lithologies present within the mineral claims include argillite, siltstone, quartzite, calcareous argillite and dolomite (Dwg. 1EBI-2). Two, massive to finely laminated dolomite units exist within MIN3 mineral claim; the location of the western contact of the western dolomite unit is uncertain. These dolomite units are on strike with dolomite units that exist at MIN2 mineral claim (Jansen and Olson, 1980).

Within MIN4 mineral claim, lower Mount Nelson Formation, comprising quartzite, dolomite and argillaceous dolomite, conformably overlies Dutch Creek Formation. The basal unit of Mount Nelson Formation is an orthoquartzite which grades upward into argillaceous dolomite and dolomite. Upper Mount Nelson Formation is not present within the mineral claim; a north-northwesterly trending fault has juxtaposed lower Mount Nelson Formation dolomite against Dutch Creek Formation argillite (Dwg. 1EBI-2).

Quartz veins are common within the mineral claims and exhibit a variety of attitudes.

Bedding within MIN3 and MIN4 mineral claims generally strikes north-northwesterly and dips moderately to steeply east-northeasterly. Medium- to large-scale folds have not been defined: however, minor folds and local variations in bedding attitudes indicate that such folds are present. A north-northwesterly striking, subvertical fault which is downthrown on the west side exists in the eastern part of MIN4 mineral claim (Fyles, 1959).

Minor structures related to the Mesozoic orogenic event include a pervasive north-northwesterly striking, generally steeply east-northeasterly dipping foliation, and lineations and minor fold axes that generally plunge shallowly north-northwesterly.

MINERAL OCCURRENCES

Eleven sulphide mineral occurrences, comprising one or more of galena, tetrahedrite, chalcopyrite and sphalerite that exist in bedrock or in float boulders, have been discovered in Dutch Creek Formation argillite and dolomite and Mount Nelson Formation dolomite within or near MIN3 and MIN4 mineral claims (Dwg. 1EBI-2). All the sulphide occurrences contain less than two visually estimated volume per cent of sulphide minerals.

Within MIN3 mineral claim, sulphide mineral occurrences comprise galena, chalcopyrite, tetrahedrite and/or sphalerite that generally exist in quartz veins in Dutch Creek Formation argillite and dolomite float. At occurrence 0SHM008, for example, galena is disseminated within quartz boulders and within quartz veins in argillite boulders in a stream. At sulphide occurrence 9JJM006, however, galena exists in a quartz vein in an argillite outcrop.

Within MIN4 mineral claim, sulphide mineral occurrences comprise galena, sphalerite and/or tetrahedrite that exist in quartz veins and along fractures in Mount Nelson Formation dolomite. At two of the sulphide occurrences, including occurrence 0SHM005, the sulphide minerals are in quartz veins and fractures in dolomite bedrock; at one occurrence galena exists along a fracture in dolomite float.

GEOCHEMICAL SURVEYS

Twenty-six geochemical soil samples and 12 geochemical stream sediment samples were collected within and near MIN3 and MIN4 mineral claims (Dwg. 1EBI-3). All geochemical samples were dried and sieved for the -80 mesh fraction at the field base camp. All samples were analyzed for lead, zinc, silver, and cadmium; nine samples were analyzed for mercury and barium. Analyses were performed by Bondar-Clegg & Company Ltd., Vancouver, British Columbia (Appendix III). Geochemical results for lead, zinc, silver, cadmium, mercury and barium in soil and stream sediment are compiled on drawing 1EBI-3.

Metal concentrations present in soil and stream sediment range up to 1,220 parts per million (ppm) lead, 1,350 ppm zinc, 2.3 ppm silver, 2.2 ppm cadmium, 650 parts per billion mercury and 7,090 ppm barium. Maximum concentrations of lead and silver exist in a stream sediment sample collected downslope from sulphide mineral occurrence 0SHM008 in MIN3 mineral claim. Maximum concentrations of zinc and cadmium exist in soil and stream sediment samples collected near mineral occurrence 0SHM005 in MIN4 mineral claim. Maximum concentrations of mercury and barium are not spatially near any known sulphide mineral occurrences.

CONCLUSIONS

Folded and faulted Dutch Creek Formation and Mount Nelson Formation carbonate and clastic rocks exist within MIN3 and MIN4 mineral claims.

At least eleven sulphide mineral occurrences, comprising small amounts of one or more of galena, tetrahedrite, chalcopyrite and sphalerite, exist within or near the mineral claims. At MIN3 mineral claim, seven sulphide occurrences are in Dutch Creek Formation argillite and dolomite float and one sulphide occurrence is in Dutch Creek Formation argillite bedrock. At MIN4 mineral claim, two sulphide mineral occurrences are in Mount Nelson Formation dolomite bedrock and one is in Mount Nelson Formation dolomite float. None of the sulphide occurrences within MIN3 and MIN4 mineral claims are, in themselves, economically important.

Several geochemical anomalies exist within the mineral claims. Soil and stream sediment contain up to 1,220 ppm lead, 1,350 ppm zinc, 2.3 ppm silver and 2.2 ppm cadmium. Maximum concentrations of lead, zinc, silver and cadmium are near occurrences of galena and/or sphalerite. A few geochemical anomalies are not spatially near known sulphide occurrences.

There remains a possibility that important concentrations of lead-, zinc- and silver-bearing sulphide minerals exist in the western Dutch Creek Formation dolomite unit within MIN3 mineral claim and/or in Mount Nelson Formation dolomite within MIN4 mineral claim. At MIN4 mineral claim, the existence of geologically favourable Mount Nelson Formation and the proximity to the now closed Mineral King mine indicate that economic sulphide deposits are more likely to exist at MIN4 mineral claim than at MIN3 mineral claim.

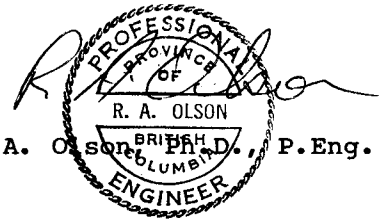
RECOMMENDATIONS

Further exploration is required at MIN3 and MIN4 mineral claims to evaluate geochemical and geological anomalies. At MIN3 mineral claim, the western dolomite unit should be prospected and geologically examined. At MIN4 mineral claim, prospecting, geological mapping and geochemical soil sampling along lines spaced 200 m apart should be performed in the area underlain by Mount Nelson Formation dolomite; geochemical samples should be analyzed for lead, zinc, silver, cadmium and, for selected samples, barium. Depending upon the results of this work, geophysical surveys, trenching and/or diamond drilling may be required.

The estimated cost of the recommended exploration is $8,000.

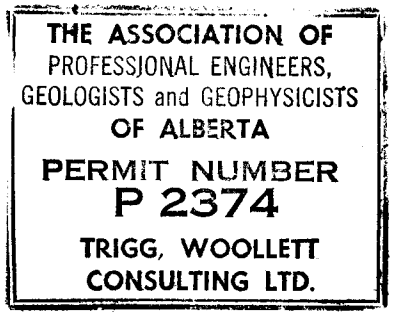
Trigg, Woollett Consulting Ltd.

J.G. Jansen, B.Sc.



R.A. Olson, Ph.D., P.Eng.

January, 1981
Edmonton, Alberta



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Fyles, J.T.	(1959)	Mineral King, Red Ledge; in Minister of Mines, British Columbia, Ann. Rep't, p. 74-89.
Jansen, J.G. and Olson, R.A.	(1979)	Exploration - 1979, Invermere Project, Fort Steele and Golden Mining Divisions, British Columbia; unpublished report prepared for Echo Bay Mines Ltd. by Trigg, Woollett Consulting Ltd.
_____	(1980)	MIN1, MIN2, SMIN1, RED LEDGE 1 and RED LEDGE 2 Mineral Claims, Exploration - 1980, Golden Mining Division, British Columbia; unpublished report prepared for Echo Bay Mines Ltd. by Trigg, Woollett Consulting Ltd.
Reesor, J.E.	(1957)	Geology, Lardeau, British Columbia, Sheet 82K (east half); Geol. Surv., Canada, Map 12-1957.
_____	(1973)	Geology of the Lardeau map-area, East-Half, British Columbia; Geol. Surv., Canada, Memoir 369.
Walker, J.F.	(1926)	Geology and mineral deposits of Windermere map-area, British Columbia; Geol. Surv., Canada, Memoir 148.

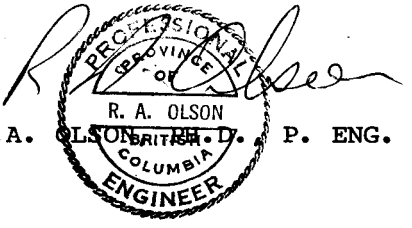
CERTIFICATION

I, R.A. OLSON OF 8727 - 181 STREET, EDMONTON, ALBERTA CERTIFY AND DECLARE THAT I AM A GRADUATE OF THE UNIVERSITY OF BRITISH COLUMBIA WITH A B.SC. DEGREE IN GEOLOGY (1968), A GRADUATE OF THE UNIVERSITY OF WESTERN ONTARIO WITH A M.SC. DEGREE IN GEOLOGY (1971) AND A GRADUATE OF THE UNIVERSITY OF BRITISH COLUMBIA WITH A PH.D. DEGREE IN GEOLOGY (1977). I AM REGISTERED AS A PROFESSIONAL ENGINEER WITH THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF BRITISH COLUMBIA AND AS A PROFESSIONAL GEOLOGIST WITH THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA.

MY EXPERIENCE INCLUDES SERVICE AS AN EXPLORATION GEOLOGIST WITH TEXASGULF INC., VANCOUVER, BRITISH COLUMBIA. SINCE 1969 I HAVE CONDUCTED AND DIRECTED PROPERTY EXAMINATIONS, PROPERTY EVALUATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A GEOLOGIST IN THE EMPLOY OF TRIGG, WOOLLETT & ASSOCIATES LTD. AND TRIGG, WOOLLETT CONSULTING LTD., EDMONTON, ALBERTA.

TRIGG, WOOLLETT CONSULTING LTD. HAS A RETAINED INTEREST IN THE INVERMERE PROJECT OF ECHO BAY MINES LTD. I AM A PARTNER IN TRIGG, WOOLLETT CONSULTING LTD.

J.G. JANSEN'S REPORT ON MIN3 AND MIN4 MINERAL CLAIMS IS BASED UPON FIELD WORK AND UPON STUDY OF PUBLISHED AND UNPUBLISHED DATA.



R.A. OLSON, PH.D., P. ENG.

JANUARY, 1981

EDMONTON, ALBERTA

APPENDIX I

PERSONNEL

Name and Address	Position	Dates in Field (1980)	Days
Foley, P. 32 Wordsworth Way WINNIPEG, Manitoba	Geologist	July 26	1
Hawker, S. General Delivery URANIUM CITY, Saskatchewan	Prospector	June 21,28; July 5,6	4
Jansen, J. 10504 - 103 Street EDMONTON, Alberta	Geologist	September 3	1
Redwood, I. 9618 - 113 Avenue GRANDE PRAIRIE, Alberta	Geological Assistant	June 28	1
Root, K. P.O. Box 653 INVERMERE, British Columbia	Geologist	June 21; July 26; August 27; September 3	4
Sperling, T. 5619 King's Road VANCOUVER, British Columbia	Geological Assistant	July 5,6; August 27	3

APPENDIX II

COST STATEMENT

MIN3 AND MIN4 MINERAL CLAIMS

(1) SALARY (Includes salary, fringe benefits and related charges):

P. Foley	1 day	@ 92/day	$ 92	
S. Hawker	4 days	@ 104/day	416	
J. Jansen	1 day	@ 164/day	164	
I. Redwood	1 day	@ 57/day	57	
K. Root	4 days	@ 79/day	316	
T. Sperling	3 days	@ 64/day	192	
				$ 1,237

(2) MEALS AND ACCOMMODATION (Includes accommodation, food and food preparation):

14 man-days @ $30/man-day 420

(3) TRANSPORTATION:

(a) Helicopter: 2.4 hrs. @ $410/hr. 984

(b) Truck (Includes rental, kilometreage, fuel, oil and repairs):
14 man-days @ $18/man-day 252

1,236

(4) EQUIPMENT (Includes rental of technical and camp equipment and cost of maps, air photos, etc):

14 man-days @ $5/man-day 70

(5) GEOCHEMICAL (Includes analysis for lead, zinc, silver and cadmium, sample preparation*, shipping charges, sample bags, and field drafting of sample location maps and geochemical results):

38 samples @ $6.60/sample 251

(6) REPORTING (Includes secretarial, drafting, reproduction and editing): 420

TOTAL COST $3,634

* Samples were oven-dried and sieved in camp in order to promote consistency in sample preparation, to avoid possible contamination or switching of samples in the lab and to hasten turn-around time between collection of samples and receipt of results.

APPENDIX III

GEOCHEMICAL LAB REPORTS

STREAM SEDIMENT SAMPLES

BONDAR-CLEGG & COMPANY LTD.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEX: 04-54554

Geochemical Lab Report

Extraction: Hg; Controlled Aqua Regia Cu Pb,Zn Ag,Cd ; Hot Aqua Regia Ba Sb; X.R.F.

Method: Cu,Pb Zn Ag Cd Hg; Atomic Absorption

Fraction Used:

Report No. 28 - 1499 PROJECT: EB - I

From: Trigg - Woollett

Date: October 16 19 78

SAMPLE NO.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm	Sb ppm	REMARKS
82K 78JKC									
005	42	38	47	0.5	0.3	< 5	1410	< 1	

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 29 - 980

Page No. 3

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K 79 KRC								
190	44	242	0.2	0.9	40	680		

BONDAR-CLEGG & COMPANY LTD.

Report No. 29 - 1111 **Geochemical Lab Report** Page No. 3

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Ba ppm	Hg ppb		REMARKS
82K-79-MCC								
160	36	46	0.2	0.2	3530	15		
161	26	46	0.2	0.2	580	15		
162	41	168	0.2	1.0	910	50		

BONDAR-CLEGG & COMPANY LTD.

Report No. 29 - 1111 **Geochemical Lab Report** Page No. 5

SAMPLE NO.	Pb ppm	Zn ppm	As ppm	Cd ppm	Ba ppm	Hg ppb		REMARKS
82K-79-TSC 193	30	54	0.2	0.2	760	30		
194	66	115	0.2	0.8	500	20		
195	7	63	0.2	0.2	2050*	15		
196	42	43	0.2	0.2	380	10		
197	99	70	0.7	0.3	650	35		

* interference

OCT 09 1979 STREAM SEDIMENT AND SOIL SAMPLES

BONDAR-CLEGG & COMPANY LTD.

130 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEX: 04-352667

Geochemical Lab Report

Extraction: Hg; Controlled Aqua Regia
Pb,Zn,Ag,Cd; Hot Aqua Regia

Report No. 29 - 1881 PROJECT: EBI

Method: Hg; Closed Cell Atomic Absorption
Pb,Zn,Ag,Cd; Atomic Absorption Ba; XRF

From: Trigg, Woollett Consulting

Fraction Used: -80 mesh

Date: September 19 19 79

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K-79KRC 399	48	52	0.6	0.2	10	160		
400	78	107	0.6	0.7	40	550		
401	60	52	0.5	0.5	45	360		
402	54	58	0.5	0.3	30	640		
403	48	49	1.4	0.3	50	360		
404	1220	195	2.3	1.5	145	2050		
405	64	62	0.4	0.2	30	600		
406	45	51	0.4	0.2	15	370		
407	94	77	0.3	0.3	35	570		
408	44	39	0.3	0.2	25	300		
409	50	64	0.3	0.2	20	670		
410	< 2	81	0.7	0.2	15	2120*		

BONDAR-CLEGG & COMPANY LTD.

Report No. 29 - 1881

Geochemical Lab Report

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K-79KRC 411	< 2	83	0.5	0.2	10	2080*		
412	59	94	0.2	0.4	25	530		
413	52	94	0.2	0.2	30	510		
414	58	117	0.2	0.2	30	510		
415	37	85	0.2	0.2	20	710		
416	42	48	0.2	0.2	5	920		
82K-79KRS 042	24	41	0.2	0.2	30	570		

* Interference

STREAM SEDIMENT AND SOIL SAMPLES

BONDAR-CLEGG & COMPANY LTD.

130 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEX: 04-352667

Geochemical Lab Report

Extraction: Hg; Controlled Aqua Regia
Pb,Zn,Ag,Cd; Hot Aqua Regia

Method: Hg; Closed Cell Atomic Absorption
Pb,Zn,Ag,Cd; Atomic Absorption Ba; XRF

Report No. 29 - 1844 PROJECT: EBI

From Trigg, Woollett Consulting

Fraction Used -80 mesh

Date September 14 19 79

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K-79AKC								
413	26	64	0.2	0.2	30	710		
414	50	275	0.2	1.0	55	1000		
415	86	307	0.3	1.2	100	880		
416	24	58	0.2	0.2	25	690		
417	27	61	0.2	0.2	20	630		
418	28	66	0.2	0.2	20	600		
419	30	62	0.2	0.2	10	580		
420	28	83	0.2	0.2	10	540		
421	36	81	0.2	0.2	5	580		
422	28	71	0.2	0.2	5	510		
423	26	41	0.2	0.2	20	490		

BONDAR-CLEGG & COMPANY LTD.

Report No. 29 - 1844 **Geochemical Lab Report** Page No. 3

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K-79MCC 363	38	57	0.2	0.4	< 5	3300		
364	194	535	0.3	2.2	65	4610		
365	37	41	0.2	0.2	40	7840		
366	18	55	0.2	0.5	35	3290		
367	18	43	0.2	0.2	20	1600		
368	36	136	0.2	0.7	20	3930		
369	57	146	0.2	0.4	30	630		
370	36	84	0.2	0.2	25	450		
371	38	352	0.2	1.0	30	490		
372	45	291	0.2	0.8	40	570		
373	54	255	0.6	0.7	< 5	630		
374	42	300	0.2	1.0	650	720		

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1123 Page No. 3

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm	% Ba*	REMARKS
82 K80 KRC 005	141	390	0.7	0.8	25	3370	-	

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1123 Page No. 4

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm	%Ba*	REMARKS
82 K80 KRC 006	56	44	0.2	0.3	20	7090	-	
007	30	60	0.2	0.6	25	3000	-	
								* semi-quantatative assay
								cc Mr. John Jansen

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1333 Page No. 4

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82-K-80-SHC 001	41	62	0.9	0.4	15	410		
002	620	143	1.6	0.2	60	750		
003	230	118	0.7	0.6	60	690		

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1333 Page No. 5

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82-K-80-SHC 004	56	127	0.3	0.4	25	250		
005	103	108	1.4	0.4	60	190		
006	41	44	1.4	0.2	15	450		

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1561 Page No. 2

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K-80-PFC								
054	33	83	0.2	0.4	-	-		
055	25	37	0.2	0.3	-	-		
056	39	51	0.2	0.2	-	-		

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1561 Page No. 4

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Be ppm		REMARKS
82K-80								
PFS 018	34	138	0.2	0.2	-	-		
019	26	111	0.2	0.2	-	-		
020	33	69	0.2	0.2	-	-		
021	28	112	0.2	0.2	-	-		
022	36	94	0.2	0.3	-	-		
023	37	77	0.2	0.2	-	-		
024	49	204	0.2	0.2	-	-		
025	30	145	0.2	0.3	-	-		
026	41	80	0.2	0.2	-	-		
027	25	53	0.2	0.2	-	-		
028	18	75	0.2	0.2	-	-		
029	23	43	0.2	0.2	-	-		
030	33	66	0.2	0.2	-	-		
031	24	34	0.2	0.2	-	-		
032	30	37	0.2	0.2	-	-		

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 20 - 1561 Page No. 5

SAMPLE NO.	Pb ppm	Zn ppm	Ag ppm	Cd ppm	Hg ppb	Ba ppm		REMARKS
82K-80-PFS 033	30	37	0.2	0.2	-	-		
034	56	87	0.2	0.2	-	-		
035	105	184	0.2	0.3	-	-		
036	61	155	0.2	0.6	-	-		
037	58	139	0.2	0.3	-	-		
038	300	610	0.2	1.5	-	-		
039	360	670	0.5	1.2	-	-		
040	270	1350	0.2	1.3	-	-		
041	118	42	0.2	0.5	-	-		
042	23	6	0.2	0.2	-	-		
043	14	13	0.4	0.2	-	-		

L 15977
L 15976
L 15975
L 15974
L 15973
L 15972
L 15971
L 15970
L 15969
L 15968
L 15979
L 15691
L 11258
L 15693
L 15692
L 16126
L 16154
L 7148
L 15686
L 12866
L 12867
L 15689
L 15688
L 11256
L 15687
L 11257
Mineral King mine glory hole
Mineral King mine (closed)
Mineral King mine (closed)
CREEK
JUMBO
5000
8000
MIN4 (513)
MIN3 (512)
GLEN
GLEN, SPHL
X GLEN, TTHD
GLEN, CLCP
CLCP TTHD SPHL
GLEN CLCP, TTHD
GLEN
MINI
MIN2
SMINI
RED LEDGE 2
RED LEDGE 1
5500
Pharaoh Creek
TOBY
Pharaoh Peaks
Starbird Creek
7000

LEGEND

HELIKIAN

Purcell System

6 — MOUNT NELSON FORMATION: 6a, massive and thin- to thick-bedded, fine- to medium-grained white and pale green quartzite; 6b, massive and laminated, medium- to thick-bedded, buff- to brown-weathering grey dolomite; 6c, green, grey and black argillite, and dolomitic argillite

5 — DUTCH CREEK FORMATION: 5a, thin bedded, grey, green, black and white argillite, siltstone, fine grained quartzite and calcareous argillite; 5b, massive and finely laminated, buff weathering cream dolomite

SYMBOLS

- Area geologically mapped and prospected
- Outcrop or area of outcrop
- Frost heaved rock
- Geological boundary (defined, approximate, assumed, gradational)
- Fault (assumed)
- Bedding, tops unknown (inclined)
- Foliation (inclined)
- Lineation (inclined)
- Minor fold axis (inclined)
- X COMMODS GLEN, SPHL — Mineral occurrence in bedrock (identifier; GLEN denotes galena, SPHL denotes sphalerite, TTHD denotes tetrahedrite, CLCP denotes chalcopyrite)
- Float mineral occurrence
- Road
- Mine (now closed)
- MIN4 (513) — Mineral claim boundary: claim name, legal corner post shown
- 5000 — Topographic contour after 1:50,000 NTS map sheet 82K/8: elevation in feet; contour interval is 100 feet

Note: Geology, in part, after Fyles, 1959

PROFESSIONAL ENGINEERS PROVINCE OF ALBERTA R. A. ROW 30179 CALGARY ENGINEER

PROFESSIONAL GEOLOGIST ALBERTA P. A. OLSON

THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS and GEOPHYSICISTS OF ALBERTA
PERMIT NUMBER P 2374
TRIGG, WOOLLETT CONSULTING LTD.

ECHO BAY MINES LTD.

MIN3 and MIN4 MINERAL CLAIMS

GEOLOGY, MINERAL OCCURRENCES

NTS 82K/8W
GOLDEN MINING DIVISION, BRITISH COLUMBIA
SCALE 100 0 100 200 300 METRES

TRIGG, WOOLLETT CONSULTING LTD.
EDMONTON, ALBERTA
JANUARY, 1981

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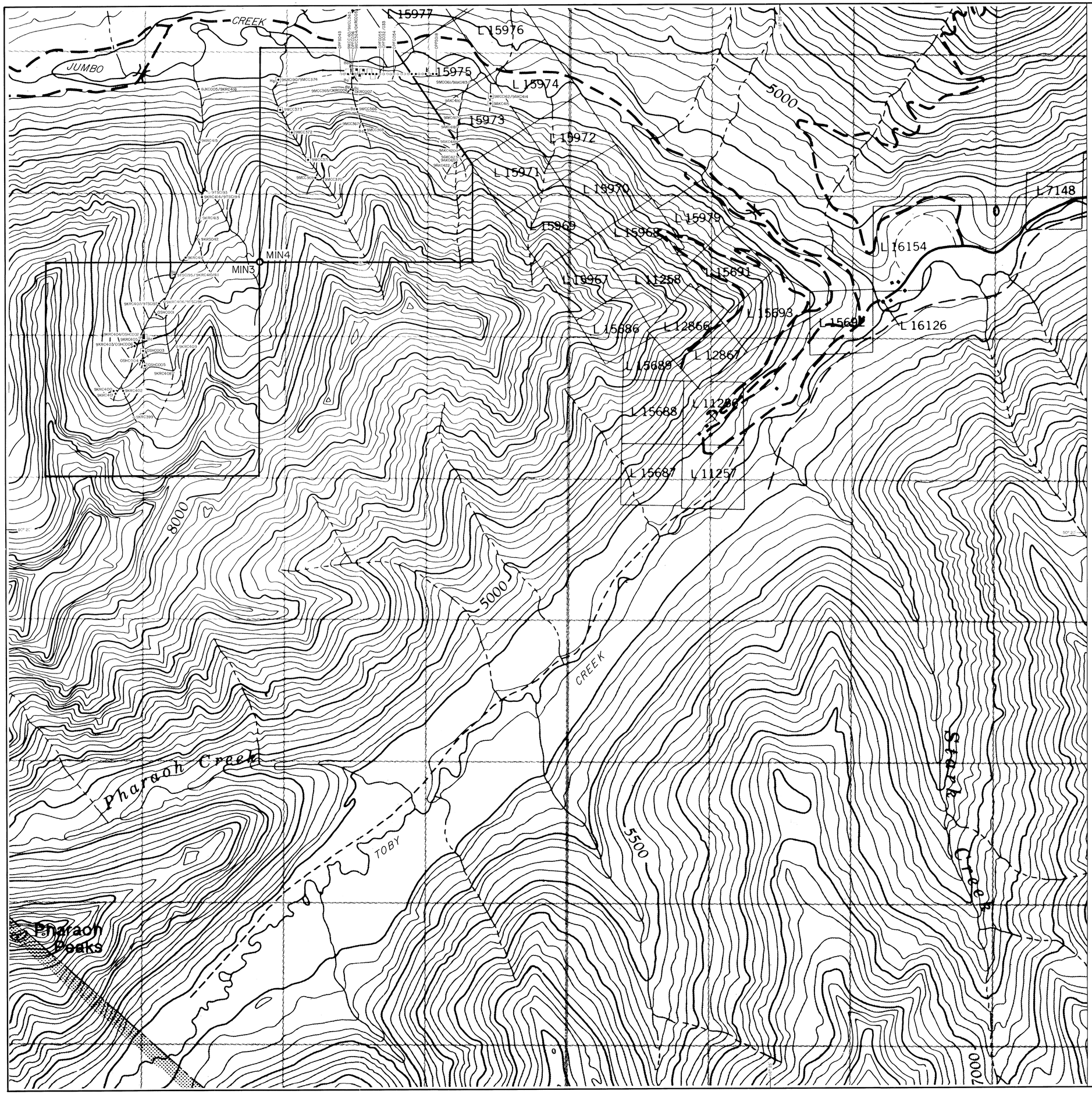

SYMBOLS

o 9KRC415 — Sample site: Identifier (prefix 82K7 or 82K8 omitted); S in 4th digit from right denotes a soil sample, C denotes a stream sediment sample
Note: All soil samples were collected from the B soil horizon

o — BACKGROUND: Geochemical soil or stream sediment sample in which Pb, Zn, Ag and Cd are less than the following concentrations:

Soil		Stream Sediment	
Pb	50 ppm	Pb	50 ppm
Zn	50 ppm	Zn	100 ppm
Ag	0.5 ppm	Ag	0.5 ppm
Cd	>0.2 ppm	Cd	>0.2 ppm

• — POSSIBLY ANOMALOUS: Geochemical soil or stream sediment sample in which two or more of Pb, Zn, Ag and Cd are within the following concentration ranges, or one of these elements is above the following concentrations:

Soil				Stream Sediment			
Pb	50	-	<100 ppm	Pb	50	-	<100 ppm
Zn	50	-	<100 ppm	Zn	100	-	<200 ppm
Ag	0.5	-	<1.0 ppm	Ag	0.5	-	<1.0 ppm
Cd	>0.2	-	<0.5 ppm	Cd	>0.2	-	<0.5 ppm

PROBABLY ANOMALOUS: Geochemical soil or stream sediment sample in which two or more of Pb, Zn, Ag and Cd are within the following concentration ranges:

Soil				Stream Sediment			
Pb	100	-	<500 ppm	Pb	100	-	<500 ppm
Zn	100	-	<500 ppm	Zn	200	-	<1,000 ppm
Ag	1.0	-	<2.0 ppm	Ag	1.0	-	<2.0 ppm
Cd	0.5	-	<2.0 ppm	Cd	0.5	-	<2.0 ppm

Hg Ba — Geochemical stream sediment sample in which Hg or Ba is within the following concentration ranges:

Hg	200	-	<1,000 ppb
Ba	2,000	-	<5,000 ppm

Pb Zn Ag Cd — ANOMALOUS: Geochemical soil or stream sediment sample in which one or more of Pb, Zn, Ag and Cd are greater than or equal to the following concentrations:

Soil		Stream Sediment	
Pb	500 ppm	Pb	500 ppm
Zn	500 ppm	Zn	1,000 ppm
Ag	2.0 ppm	Ag	2.0 ppm
Cd	2.0 ppm	Cd	2.0 ppm

Ba — Geochemical stream sediment sample in which the concentration of Ba is greater than or equal to 5,000 ppm

NOTE: Pb denotes lead
Zn denotes zinc
Ag denotes silver
Cd denotes cadmium
Hg denotes mercury
Ba denotes barium
ppm denotes parts per million
ppb denotes parts per billion
> denotes greater than
< denotes less than

MIN4 — Mineral claim boundary; claim name, legal corner post shown

5000 — Topographic contour after 1:50,000 NTS map sheet 82K/8: elevation in feet; contour interval is 100 feet

Part 1 of 3

ECHO BAY MINES LTD.

MIN3 and MIN4 MINERAL CLAIMS

SAMPLE LOCATION AND NUMBER, GEOCHEMICAL ANOMALIES

NTS 82K/8W
GOLDEN MINING DIVISION, BRITISH COLUMBIA
SCALE 100 0 100 200 300 500 METRES
TRIGG, WOOLLETT CONSULTING LTD.
EDMONTON, ALBERTA
JANUARY, 1988

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