Geochemical Orientation Survey

of the

BEAR CLAIMS, GROUP A

Located in the
Omineca Mining Division
(NTS 94D/2W)

at
56°07' North and 126°52' West

owned by
Canadian Nickel Co. Ltd.

written by
Peter Peto, Ph.D.

on
October 30, 1980

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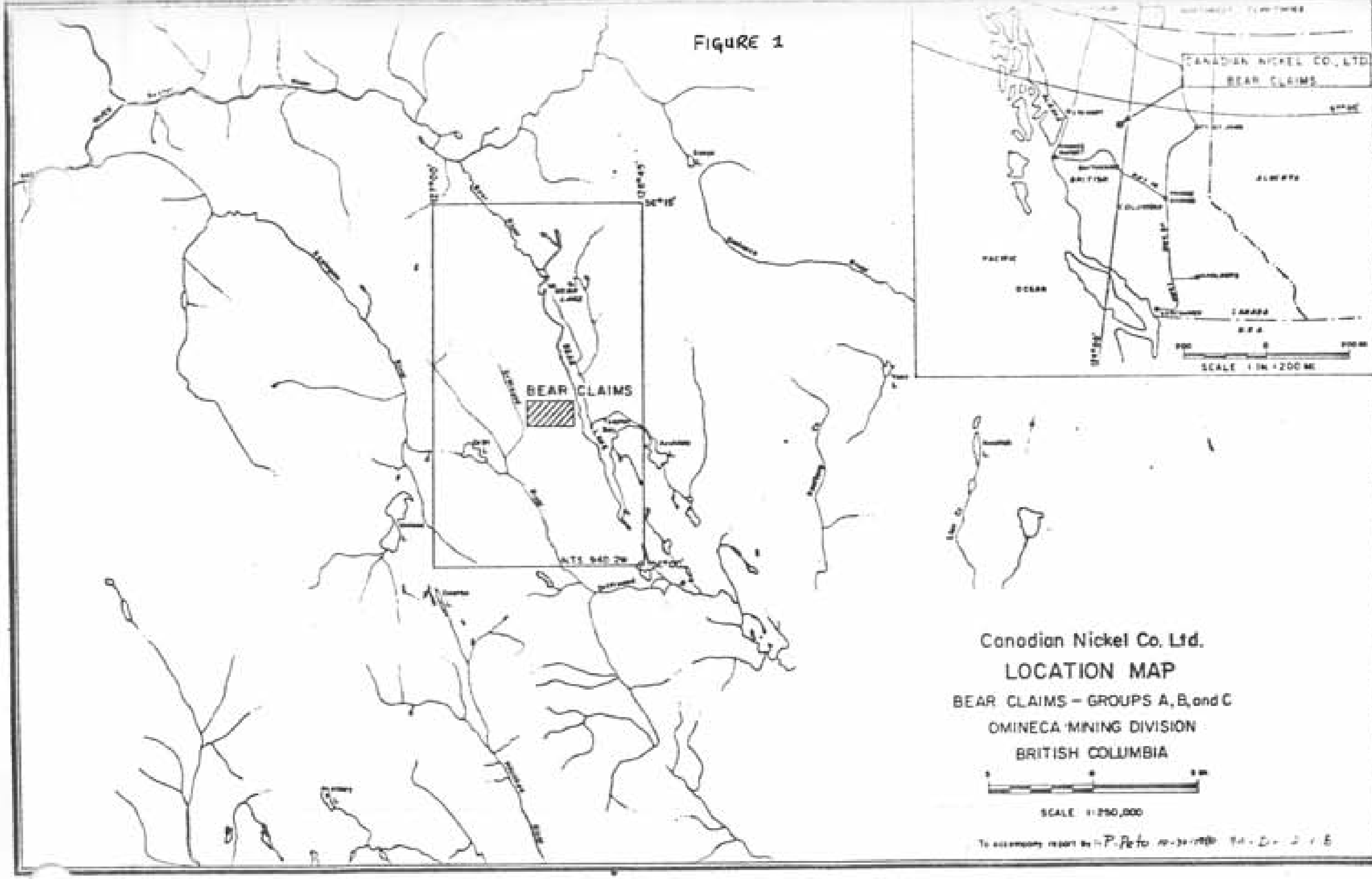
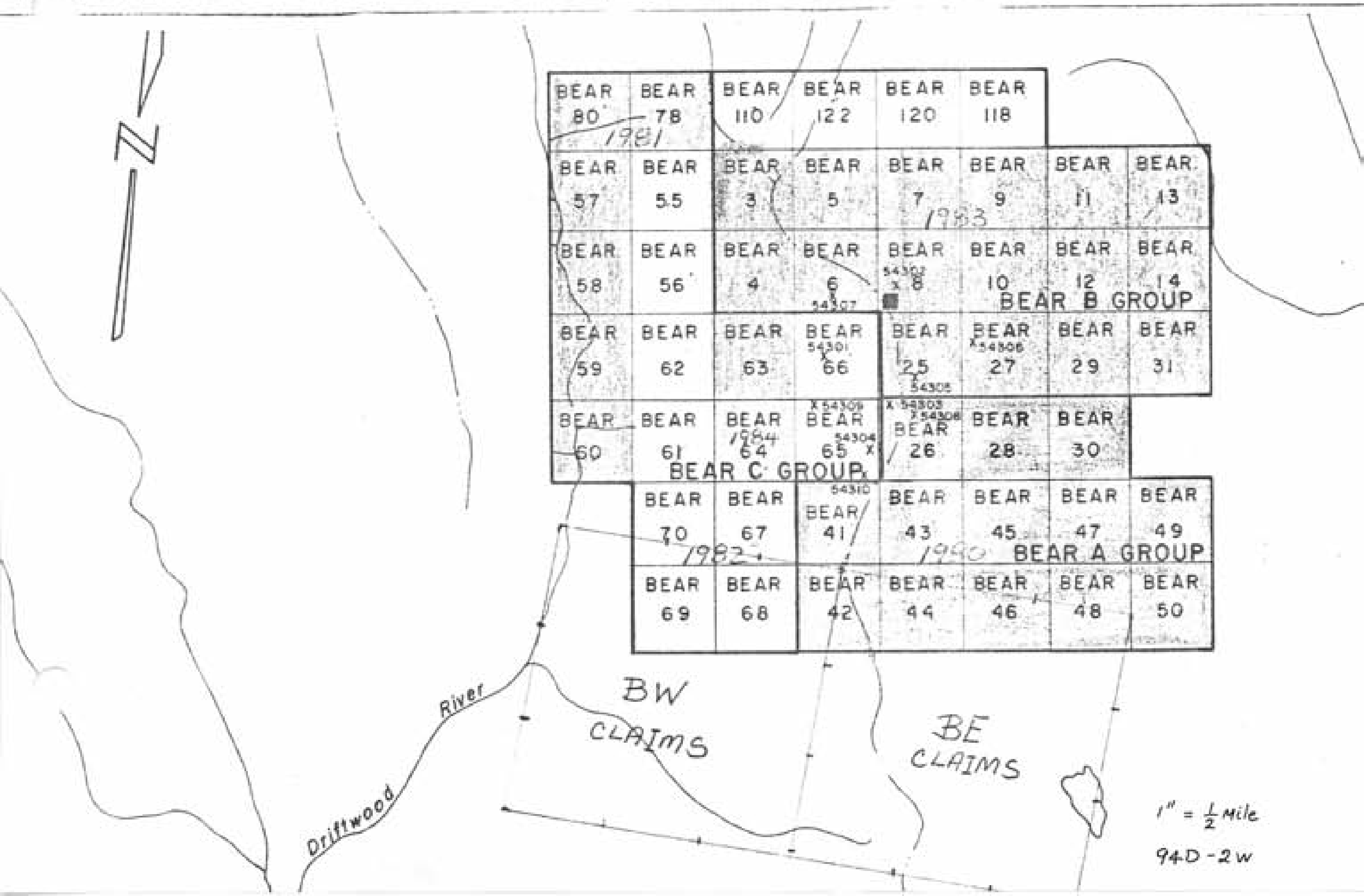
FIGURE 1


BEAR CLAIMS
CANADIAN NICKEL CO. LTD.
BEAR CLAIMS
PACIFIC
OCEAN
ALBERTA
CANADA
U.S.A.
SCALE 1 IN. = 200 MI.
Canadian Nickel Co. Ltd.
LOCATION MAP
BEAR CLAIMS – GROUPS A, B, and C
OMINECA MINING DIVISION
BRITISH COLUMBIA
SCALE 1:250,000


N
BEAR 80
BEAR 78
BEAR 110
BEAR 122
BEAR 120
BEAR 118
1981
BEAR 57
BEAR 55
BEAR 3
BEAR 5
BEAR 7
BEAR 9
BEAR 11
BEAR 13
1983
BEAR 58
BEAR 56
BEAR 4
BEAR 6
54307
54302
BEAR 8
BEAR 10
BEAR 12
BEAR 14
BEAR B GROUP
BEAR 59
BEAR 62
BEAR 63
BEAR 66
54301
BEAR 25
54305
BEAR 27
54306
BEAR 29
BEAR 31
BEAR 60
BEAR 61
BEAR 64
1984
BEAR 65
54309
54304
BEAR 26
54303
54308
BEAR 28
BEAR 30
BEAR C GROUP
BEAR 70
BEAR 67
BEAR 41
54310
BEAR 43
BEAR 45
BEAR 47
BEAR 49
1982
1980
BEAR A GROUP
BEAR 69
BEAR 68
BEAR 42
BEAR 44
BEAR 46
BEAR 48
BEAR 50
Driftwood River
BW CLAIMS
BE CLAIMS
1" = 1/2 Mile
94D-2W

1.0. INTRODUCTION

This assessment report on the Bear, A Group, is based on a rock geochemical orientation survey conducted by Canico field crew on July 7, 1980. The purpose of the orientation survey was to determine whether a primary metal dispersion halo around the Bear Cu-Mo prospect could be delineated by chip sampling surface rocks. Previous work has indicated that higher molybdenite concentrations form an annular ring about the Bear Lake intrusion, whereas higher chalcopyrite concentrations appear to be restricted to the eastern intrusive contact. Also, an iron pyrite halo associated with Cu-Mo mineralization has not as yet been clearly identified. An orientation survey was therefore undertaken to establish a multi-element profile which might detect primary metal zonation patterns, and thus to better delineate the mineralized zone in the absence of a pyrite halo.

Property, Location and Access

The Bear claims are located 90 miles north of Smithers, on Tsyatut Spur west of Bear Lake at an elevation of 5,500 feet above sea level (Fig. 1). The claims lie three miles west of the Fort St. James to Dease Lake railway but are presently accessible only by helicopter or float-equipped aircraft.

Property Definition

This report concerns work done on Bear Group A situated in the southeast portion of the Bear claim block, or more specifically those claims listed in Table 1.

TABLE 1. BEAR GROUP A

Claim Name	Record No.	Month of Record
Bear 26	117514	September 18, 1972
Bear 28	117516	" " "
Bear 30	117518	" " "
Bear 41	117529	" " "
Bear 42	117530	" " "
Bear 43	117531	" " "
Bear 44	117532	" " "

Claim Name	Record No.	Month of Record
Bear 45	117533	September 18, 1972
Bear 46	117534	" " "
Bear 48	117536	" " "
Bear 49	117537	" " "
Bear 50	117538	" " "

Property History

The property was discovered by Canico in 1972 during a regional exploration program for porphyry Cu deposits. A surface evaluation program consisting of grid preparation, geological mapping, lithogeochmical sampling, induced polarization and magnetometer surveys were conducted by Canico crews from July to August, 1973. A Canico drill crew with a BBS-1 drilled 3,804 feet in seven holes and 385 feet of supplementary winkie drilling in three holes from July 3 to September 7, 1974.

2.0. PROPERTY GEOLOGY

The Bear claims encompass a multiphase, mineralized plug, or dykes, belonging to the Kastberg intrusions, of probable Tertiary age, which has intruded Lower to Middle Jurassic volcaniclastics and flows belonging to the Hazelton Group. The Kastberg intrusion is about 5,000 feet long and 2,000 feet wide consisting of an outer elliptical shell of "syenodiorite", or more correctly, quartz monzodiorite, and a younger core of granite prophyry and aplite dykes. Molybdenite, chalcopyrite, and pyrite mineralization occurs as disseminations in tight fractures and quartz veinlets. Drill holes 54303, 54304 and 54308 yielded average grades of 0.25% Cu and 0.09% MoS_2.

3.0. LITHOGEOCHEMICAL ORIENTATION SURVEY

A total of 21 rock chip samples were collected at 100-metre intervals along a north trending line running along the ridge crest for some two kilometers (Fig. 2). Samples PPR-139 to 147 were collected from volcanic country rocks of the Hazelton Group (Units 2 and 3) whereas samples PPR-148 to 159 were collected along the Kastberg intrusion (Units 6a and b). Thin sections of selected samples were made for the purposes of recording changes in mineral alteration assemblages. These are listed and briefly described in Appendix A.

Rock chip samples were submitted to Acme Analytical Laboratories Ltd. for multi-element geochemical determination by plasma emission spectroscopy based on "induced coupled plasma" or I.C.P. Sample preparation consisted of digesting 0.5 grams of sample with three mls. of 3:1:3 nitric: hydrochloric: water solution for one hour at 90°C. The final volume of 10 mls. was then analyzed and results are listed in Table 2.

Thin sections indicate that samples PPR-140 to 149 have typical, propylitic alteration assemblages typified by chlorite + epidote ± carbonate, whereas samples PPR-150 to 156 have typical phyllic alteration assemblages predominated by sericite + quartz. Samples PPR-157 and 158 suggest potassic alteration insofar as K-feldspar alteration envelopes are developed on mineralized fractures and primary hornblende phenocrysts are altered to biotite and epidote. The data thus suggest a broad alteration pattern with an epizonal propylitic envelope in volcanic rocks surrounding an intermediate zone of phyllic alteration coincident with marginal intrusive rocks, which in turn becomes a zone of potassic alteration coincident with hypogene Cu-Mo mineralization.

Table 2 also shows some broad, geologically controlled, element distribution patterns. Mo and Cu increase abruptly over the mineralized zone. Propylitic volcanic rocks with high Mg and Ca also have high transition element concentrations (Fe, Mn, Zn, Ni, Co, V) which are much lower in granitic rocks. Granitophile elements such as U, Th, La and Ba occur in greater concentrations within intrusive rocks. The monzodiorites appear to have higher Ti, U, Ag and possibly P concentrations than the younger monzogranites. These differences probably reflect primary compositional variations in rock types rather than epigenetic modifications, with the obvious exception of Cu and Mo. There also appears to be no systematic change in Fe concentration as might be expected if a pyrite halo were present.

4.0. CONCLUSIONS AND RECOMMENDATIONS

In the basis of the foregoing observations it is suggested that the Bear intrusion appears to show a classical porphyry alteration pattern but probably lacks a well-defined pyrite halo. Multi-element geochemical analyses are useful in defining differences rock types and confirm that Cu and Mo lithogeochemistry best delineate mineralized areas; however, Ag, Th and U may also be useful.

It is recommended that drill core also be analyzed to establish compositional changes with depth. The claims require remapping, with particular emphasis on alteration assemblages, fracture patterns and subcrop distribution, with the purpose of determining the nature of the intrusive complex and delineating alteration zones of sufficient size to merit deeper probing by exploratory drilling.

5.0. ITEMIZED COST STATEMENT

Wages: July 7, 1980			
P. Peto	1 day @ $162/day =		$ 162
D. Dillon	1 day @ $75/day =		75
D. Arndt	1 day @ $50/day =		50
P. Magnussen	1 day @ $50/day =		50
			$ 337
Accommodation & Food:			
Room for 4 men for 5 days (3 days standby) =			$ 391.80
Food for 4 men for 5 days =			90.35
Transportation:			
Okanagan Helicopters - July 7, 1980, 4 hrs. @ $350/hr. =			$1,400
Truck Rental	1 day @ $30/day =		30
Geochemical Analysis:			
21 samples @ $7.75/sample =			$ 162.75
Thin Section Preparation:			
13 samples @ $5/sample =			$ 65.00
Report Preparation:			
2 days @ $162/day =			$ 324.00
		TOTAL COSTS	$2,800.90

6.0. AUTHOR'S QUALIFICATIONS

I, Peter S. Peto, hereby certify as follows:

I am graduate geologist with B.Sc. and M.Sc. degrees from the University of Alberta, and a Ph.D. from the University of Manchester, England.

I am a registered member, in good standing, of the Geological Association of Canada.

I am currently employed as project geologist with Canadian Nickel Company Ltd. in the Vancouver district office.

I have been practising my profession intermittently since 1970 and continuously from 1975 to present.

I have prepared this work assessment report on the basis of work performed as an agent of Canico.

Peter S. Peto

Peter S. Peto

October 30, 1980

APPENDIX A. THIN SECTION ROCK SAMPLE DESCRIPTIONS

PPR-140: Crystal-lithic tuff showing a mottled, brecciated texture consisting of highly altered volcanic rock fragments (10%), crystal fragments (30%), set in a microcrystalline matrix (40%) secondary chlorite amygdules and epidote clots (20%).

PPR-141: Microgranite showing a fine grained, allotriomorphic-granular texture consisting of anhedral grains of alkali-feldspar (45%), quartz (50%) with interstitial muscovite and secondary clay (5%).

PPR-142: Ash tuff having rare plagioclase crystals (1%), and chlorite pseudomorphs after mafic crystals (1%) set in a granophyric matrix (75%) with patches of secondary quartz (15%) and microcrystalline clay aggregates (20%).

PPR-144: Crystal-lithic tuff consisting of albite (15%), orthoclase (5%) and basalt rock fragments (10%) set in a granophyric matrix (75%) with patches of secondary quartz, chlorite, sericite and opaques.

PPR-146: Crystal-lithic tuff or volcanic microbreccia consisting of feldspar crystals (10%) and rock fragments (30%), mostly basalt, trachyte(?) and tuff(?) set in a microcrystalline, granophyric matrix (40%) spotted with secondary aggregates (20%) of clay, carbonate, quartz, epidote and pyrite.

PPR-147: Alkali-olivine basalt (?) showing an amygdaloidal texture consisting of fine grained serpentine-carbonate-opaque pseudomorphs (5%) after olivine, and fine grained orthocalse phenocrysts (5%) set in a matrix (60%) composed of plagioclase microlites, interstitial opaques. Amygdules (30%) 1 to 10 mm across, consist of quartz mantled by carbonate, or of carbonate with minor clay.

PPR-149: Crystal-lithic tuff, showing a tuffaceous texture consisting of quartz and feldspar crystal fragments set in a sericite matrix composed of granophyre, feldspar microlites with secondary aggregates of epidote, carbonate, biotite(?), pyrite and chlorite.

PPR-150: Granite porphyry consisting of ovoid quartz phenocrysts (15%), blocky orthoclase (25%), chlorite pseudomorphs after biotite (5%) set in a microcrystalline matrix (55%) composed of granophyre, secondary sericite, carbonate and pyrite.

PPR-151: Tuff consisting of fine to medium grained crystal fragments of albite (10%), orthoclase (20%), quartz (10%) set in a granophyric matrix (50%) with relict glass shards, patches of secondary quartz (10%) veinlets, sericite and opaques.

PPR-155: Granite porphyry consisting of medium to coarse grained phenocrysts of quartz, plagioclase, biotite and hornblende (altered to chlorite) phenocrysts set in fine grained granophyric matrix hosting secondary aggregates of carbonate, chlorite, sericite, quartz and pyrite.

PPR-156: Granite porphyry consists of medium grained phenocrysts of oligoclase (25%), orthoclase (10%), quartz (10%), biotite (2%), hornblende (3%) set in a very fine grained granophyric matrix (50%) with amygdules composed of chlorite, sericite and quartz.

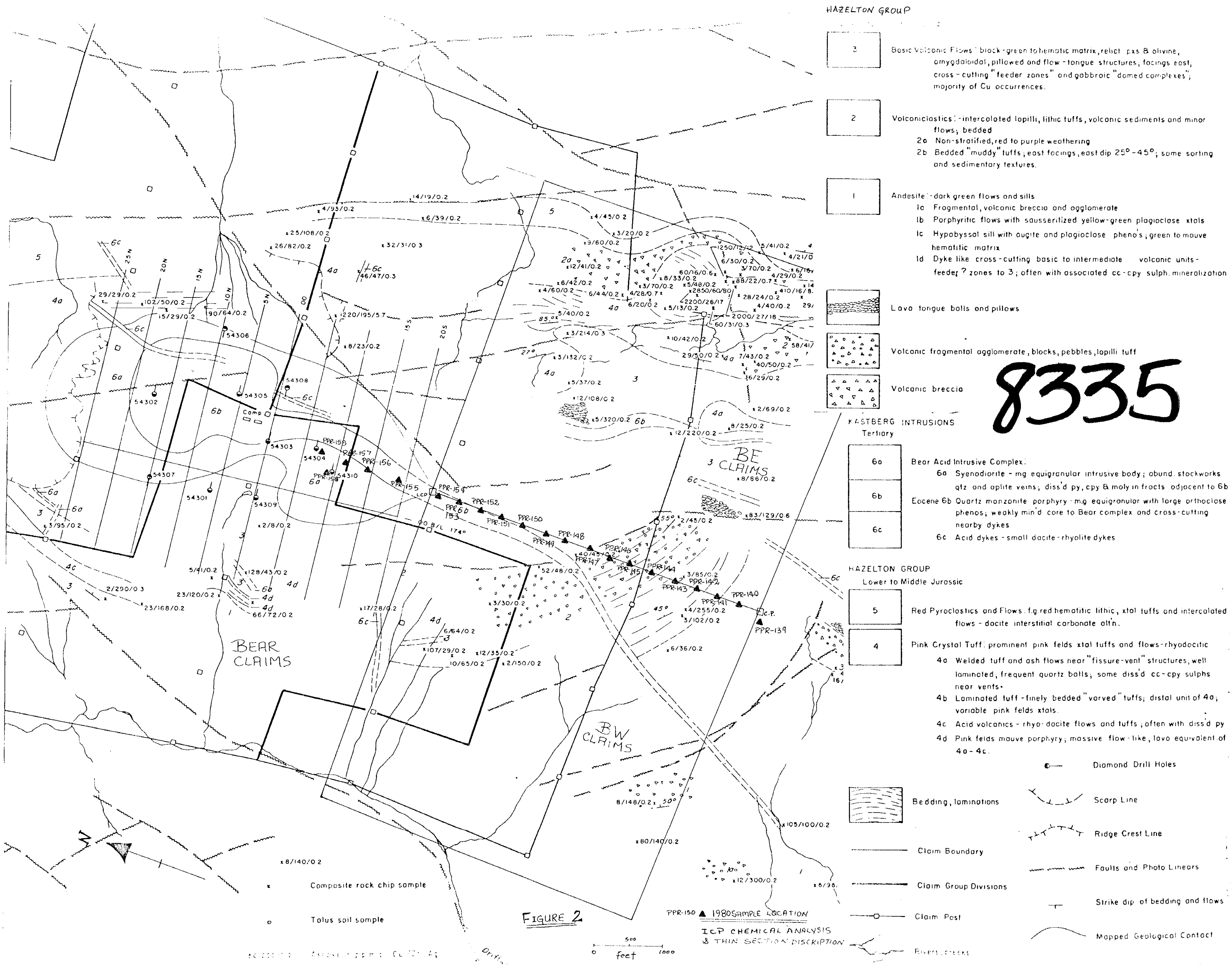
PPR-157: Quartz-monzodiorite shows a medium grained, hypidiomorphic-equigranular texture consisting of blocky andesine (50%), interstitial orthoclase (15%) and quartz (10%), biotite flakes (5%) and hornblende (5%), with minor sphene, apatite, and magnetite.

PPR-158: Quartz-monzodiorite shows a fine to medium grained, hypidiomorphic-granular texture consisting of blocky andesine (50%), interstitial orthoclase (25%) and quartz (20%) with hornblende prisms (5%), biotite flakes (2%), secondary chlorite (1%) and accessory sphene, zircon, apatite, opaques.

TABLE 2 I.C.P. *ANALYSIS OF BEAR LAKE ROCK SAMPLES

SAMPLE	MO	CU	PB	ZN	AG	NI	CO	MN	FE	AS	U	TH	BI	V	CA	P	LA	MG	BA	TI	B	AL	SB
PPR-139	2	15	13	91	0.3	14	16	728	3.37	13	4.3	0.4	1.6	88	2.29	0.097	9	2.02	33	0.14	5.4	2.45	8.6
PPR-140	2	136	9	134	0.3	5	18	630	3.36	16	3.9	0.5	2.0	86	0.87	0.08	5	1.97	31	0.15	6.4	2.24	9.5
PPR-141	1	22	3	15	0.2	3	2	105	0.99	4	3.0	1.3	1.6	15	0.31	0.02	6	0.22	23	0.02	3.7	0.45	1.8
PPR-142	1	71	6	22	0.1	1	2	105	0.94	7	3.2	2.6	1.5	14	0.26	0.07	7	0.09	57	0.01	5.0	0.79	0.8
PPR-143	2	6	18	233	0.2	12	19	886	4.62	15	0	2.4	1.0	132	0.99	0.09	11	2.11	71	0.08	8.5	1.60	9
PPR-144	1	33	8	52	0.1	2	4	587	1.86	4	3.0	3.6	1.5	21	0.71	0.04	17	0.06	212	0.02	5.2	0.71	2
PPR-145	2	12	19	90	0.3	44	24	984	4.27	12	1.5	0.6	1.1	111	1.19	0.08	10	2.55	105	0.17	15.4	2.72	9.6
PPR-146	2	14	8	61	0.2	4	4	950	2.25	8	1.6	5.2	1.7	31	1.77	0.05	16	0.45	193	0.03	7.4	0.87	4.3
PPR-147	2	3	16	174	0.3	85	20	981	4.32	17	0	1.2	0.9	165	3.94	0.08	11	2.32	61	0.07	7.4	1.49	9
PPR-148	2	5	12	190	0.3	7	19	1346	2.50	8	0.9	0.8	3.5	75	1.09	0.10	9	2.19	37	0.10	7.6	1.74	8.5
PPR-149	2	41	9	77	0.3	5	9	366	2.96	9	5.2	4.3	1.3	47	0.42	0.08	9	0.86	145	0.11	6.2	1.72	6.0
PPR-150	1	15	5	39	0.2	4	4	247	1.47	5	6.4	7.7	1.6	12	0.85	0.06	15	0.20	2.61	0.0	5.3	0.70	1.7
PPR-151	1	65	13	33	0.3	2	1	76	0.74	29	0.4	9.6	1.7	6	0.07	0.02	28	0.03	61	0.0	3.7	0.49	1.9
PPR-152	1	26	6	30	0.1	3	3	90	1.32	8	3.2	8.1	1.7	17	0.08	0.01	7	0.25	47	0.02	4.4	6.71	1.8
PPR-153	2	141	17	54	0.3	3	7	247	2.74	6	5.1	7.1	1.0	54	0.63	0.13	19	0.35	459	0.08	6.9	0.9	6.6
PPR-154	4	264	5	41	0.4	5	5	210	2.02	3	6.7	9.6	1.5	27	0.35	0.09	21	0.30	525	0.01	6.4	0.9	2.5
PPR-155	1	133	6	37	0.3	4	6	254	2.03	4	4.5	8.7	1.8	33	0.82	0.09	17	0.47	281	0.03	4.6	0.9	3.4
PPR-156	4	66	3	29	0.2	4	4	140	2.01	4	4.5	8.4	2.0	38	0.25	0.08	11	0.45	238	0.04	5.4	1.02	2.9
PPR-157	14	124	8	32	0.2	4	8	197	3.42	5	6.7	5.5	0	91	0.81	0.15	19	0.46	404	0.10	6.3	0.99	4.5
PPR-158	619	601	8	26	0.6	2	6	157	2.60	2	11.2	16.4	1.4	49	0.49	0.09	20	0.31	146	0.90	5.2	0.90	4.2
PPR-159	28	1584	8	72	0.9	13	14	282	3.52	6	7.5	7.9	0.5	83	0.61	0.13	18	0.95	539	0.16	10.8	1.38	7

*Fe, Ca, P, Mg, Ti and Al are given in weight %, the rest are given in parts per million.



8335
HAZELTON GROUP
3 Basic Volcanic Flows: black-green to hematic matrix, relict pxs & olivine, amygdaloidal, pillowed and flow-tongue structures, facings east; cross-cutting "feeder zones" and gabbroic "domed complexes"; majority of Cu occurrences.
2 Volcaniclastics: - intercalated lapilli, lithic tuffs, volcanic sediments and minor flows; bedded
2a Non-stratified, red to purple weathering
2b Bedded "muddy" tuffs; east facings, east dip 25° - 45°; some sorting and sedimentary textures.
1 Andesite: - dark green flows and sills
1a Fragmental, volcanic breccia and agglomerate
1b Porphyritic flows with saussuritized yellow-green plagioclase xtals
1c Hypabyssal sill with augite and plagioclase pheno's; green to mauve hematitic matrix
1d Dyke like cross-cutting basic to intermediate volcanic units - feeder ? zones to 3; often with associated cc-cpy sulph. mineralization
Lava tongue balls and pillows
Volcanic fragmental agglomerate, blocks, pebbles, lapilli tuff
Volcanic breccia
KASTBERG INTRUSIONS
Tertiary
6a Bear Acid Intrusive Complex:
6a Syenodiorite - mg equigranular intrusive body; abund. stockworks qtz and aplite veins; diss'd py, cpy & moly in fracts adjacent to 6b
Eocene 6b Quartz monzonite porphyry - mg equigranular with large orthoclase phenos; weakly min'd core to Bear complex and cross-cutting nearby dykes
6c Acid dykes - small dacite-rhyolite dykes
HAZELTON GROUP
Lower to Middle Jurassic
5 Red Pyroclastics and Flows. f.g red hematitic lithic, xtal tuffs and intercalated flows - dacite interstitial carbonate alt'n.
4 Pink Crystal Tuff: prominent pink felds xtal tuffs and flows - rhyodacitic
4a Welded tuff and ash flows near "fissure-vent" structures, well laminated; frequent quartz balls; some diss'd cc-cpy sulphs near vents.
4b Laminated tuff - finely bedded "varved" tuffs; distal unit of 4a; variable pink felds xtals.
4c Acid volcanics - rhyo-dacite flows and tuffs; often with diss'd py
4d Pink felds mauve porphyry; massive flow-like, lava equivalent of 4a - 4c.
Diamond Drill Holes
Scarp Line
Ridge Crest Line
Faults and Photo Linears
Strike dip of bedding and flows
Mapped Geological Contact
Bedding, laminations
Claim Boundary
Claim Group Divisions
Claim Post
Composite rock chip sample
Talus soil sample
PPR-150 ▲ 1980 SAMPLE LOCATION
ICP CHEMICAL ANALYSIS
& THIN SECTION DISCRIPTION
BEAR CLAIMS
BE CLAIMS
BW CLAIMS
0 500 1000
feet

FIGURE 2