#6515

BRITISH NEWFOUNDLAND EXPLORATION LIMITED

GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT

LOG CLAIMS, KAMLOOPS MINING DIVISION

By: Bradford D. Pearson, P.Eng.
Richmond, British Columbia

FIELD PERIOD: October 12 to October 15, 1977

REPORT PERIOD: October 17 to November 25, 1977

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INTRODUCTION

A program of work on the Log Claims at Frederick Siding, B.C. was completed in early October. The work consisted of soil sampling, magnetometry and geological mapping. It was carried out by a crew of two, consisting of B.D. Pearson, P.Eng., consulting geologist, and Daniel Spancers, a graduate geologist who acted as Pearson's assistant. It was designed by Pearson and C.J. Sampson of British Newfoundland Exploration Limited, following a joint examination of the property on June 16.

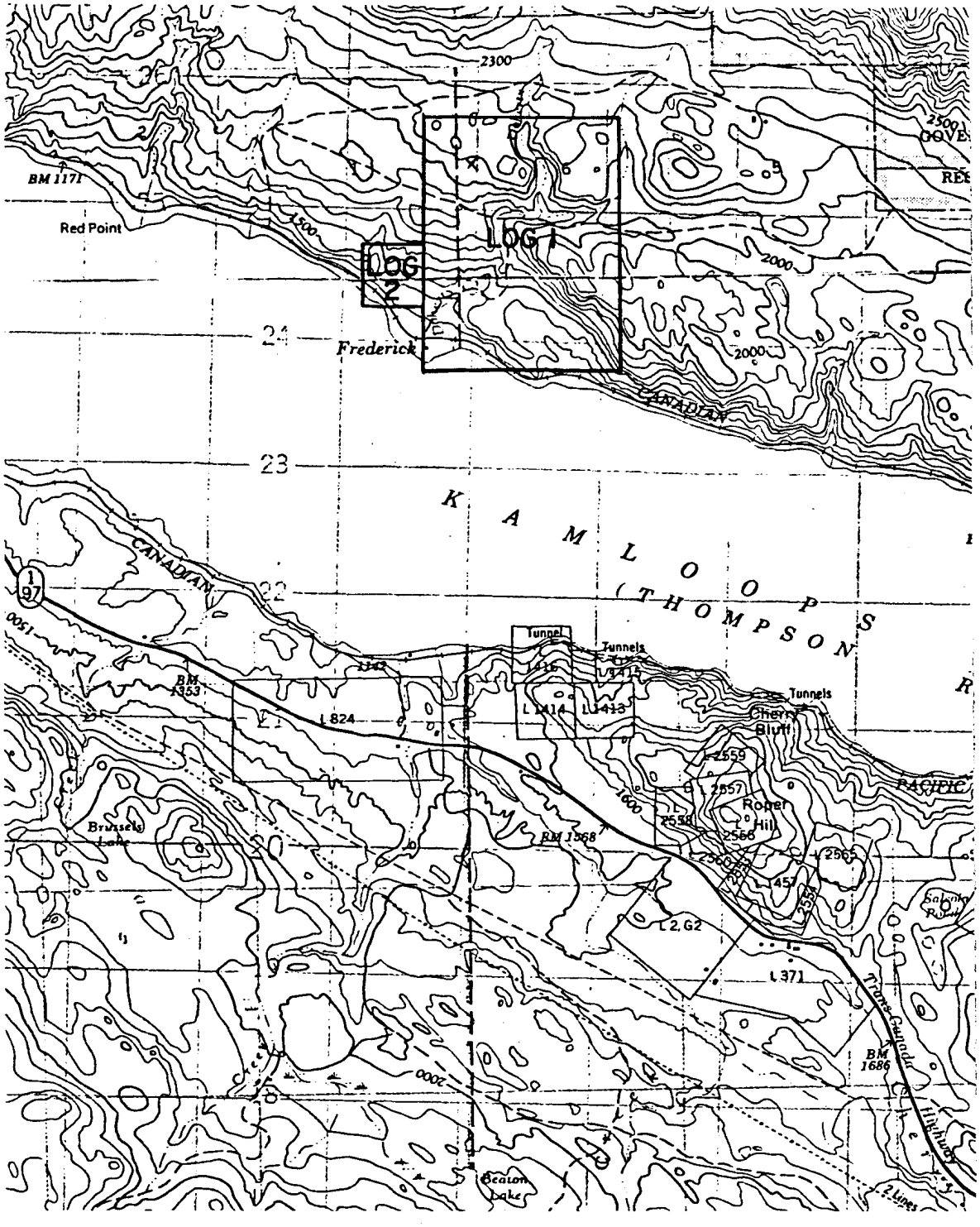


FIG. 1 LOCATION MAP

LOG CLAIMS
FREDERICK SIDING, B.C.
1 : 50,000

CONTROLS

A grid was established based on the Log 1 Legal Corner Post which is located at the northwest corner of the Log 1 claim. Lines spaced at 100 meter intervals were run east-west using a 50 meter nylon chain with directional control provided by a Brunton compass. Compass sightings were made at intervals no larger than 50 meters. Stations were established at 50 meter intervals. Lines 0 south, 100 south and 700 south were carried continuously across the property, and tied together by chaining along the western side (0E) and the eastern side (1500E). The intermediate lines were carried east from the western perimeter and west from the eastern perimeter to the edge of a major north-south-trending canyon which cuts through the property. Adjacent lines were tied together by chaining as close to the edge of the canyon as topography allowed. Stations thus established served as control points for all geological data collected, and were the sites of soil collection and magnetometer readings. These points are plotted as dots on Plates 1, 2, 3 and 4. Occasionally, points visible on an airphoto were tied into the grid for future reference. The photo used was BC7643-119.

GEOLOGICAL MAPPING (SEE PLATE 2)

Mapping was carried out by Pearson. All outcrops were tied in by pacing from the nearest grid station with the exception of those making up the canyon walls. The boundaries of the canyon exposures south of 100 south were estimated from the nearest station and are generalized on Plate 2.

Rock types were identified by gross visual examination and examination under a 20 power handlens. Three general rock types can be distinguished. Coarse basaltic breccia of Tertiary age occurs as large boulders, as small zones of rubble and in one case apparently as outcrop. The material, at least in part, is derived from the thick section of flows which make up steep cliffs to the north. The large boulders were probably rolled into place by gravity. Some of the material, however, may actually be in place, it being unlikely that the generally thin soil cover would nearly bury a large boulder, making it appear to be outcrop. In all events the unconformity which separates the Tertiary and Mesozoic must have been very close to the present erosion surface over the northern six units of the Log 1 claim.

Fine-grained, dark grey, green and purple andesite of the Nicola Formation (Upper Triassic) makes up the bulk of the exposure. Locally it is slightly porphyritic in feldspar. The surface textures of a number of outcrops in the north-western part of Unit 1 suggest that volcanic breccia is present, and the presence of fragmental material is clearly seen on the faces of rubble fragments in Unit 3. At the head of the canyon and over the bulk of the six units mapped, the rock appears to be uniformly fine-grained and even-textured.

Epidote patches and subhorizontal bands were noted in the canyon wall at 1000E between 200S and 300S. These may represent reaction zones between lava and thin lenses of limestone deposited between flows. A poorly developed cleavage of approximately A_z 0-20^{o}/Vert. is fairly widespread, and is probably responsible for the general N-S elongation of numerous outcrops.

Medium- to fine-grained, equigranular monzonite occurs in two areas, and may be more widespread than shown. It was not recognized at first, being assumed to be a coarser phase of the volcanics. Closer inspection of specimens brought back from the field has confirmed its presence. Thin section work will be carried out to better characterize this rock and the various andesites sampled. The rock is

almost certainly a part of the large intrusive mapped at Battle Bluff by Cockfield (1961) and assumed by present workers to be coeval though not coextensive with the Iron Mask Batholith, now thought to be Upper Triassic in age. (V. Preto, K. Northcote, personal communication).

Mineralization occurs widely scattered as malachite staining in both monzonite and andesite rubble and talus. It was noted in outcrop in andesite at the head of the canyon (O N, 750E to 1000E) and, much more spectacularly, at 400S, 485E where chalcopyrite, bornite and pyrrhotite also occur as disseminations in somewhat brecciated andesite. Disseminated malachite was also found within weathered fragments of monzonite float about 50 meters west of 400S, O E.

GEOCHEMISTRY

Soil sampling was carried out by Spancers who worked with a thin mountain soil generally supporting only a sagebrush vegetation. There was little or no development of separate soil horizons. The minus 80 mesh fraction was analyzed by Min-En Laboratories of North Vancouver who determined copper using hot nitric acid-perchloric acid extraction and atomic absorption techniques. Results are shown on Plate 3.

Values have not been grouped by contouring. It was judged more productive, in view of the large number of samples (231), to break the results down into their component populations using cumulative probability techniques, as described by Sinclair (1976). The resulting graph (Fig. 2) reveals the presence of five distinct populations plus a group of high values (>300 ppm) which do not form a homogeneous population and which are anomalous with respect to all homogeneous populations. The homogeneous populations are probably each derived from distinct rock types, but the correlation with units established by geological mapping is poor. Three of the four anomalous zones can be correlated with mineralization observed in

K•E PROBABILITY X 2 LOG CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 8040

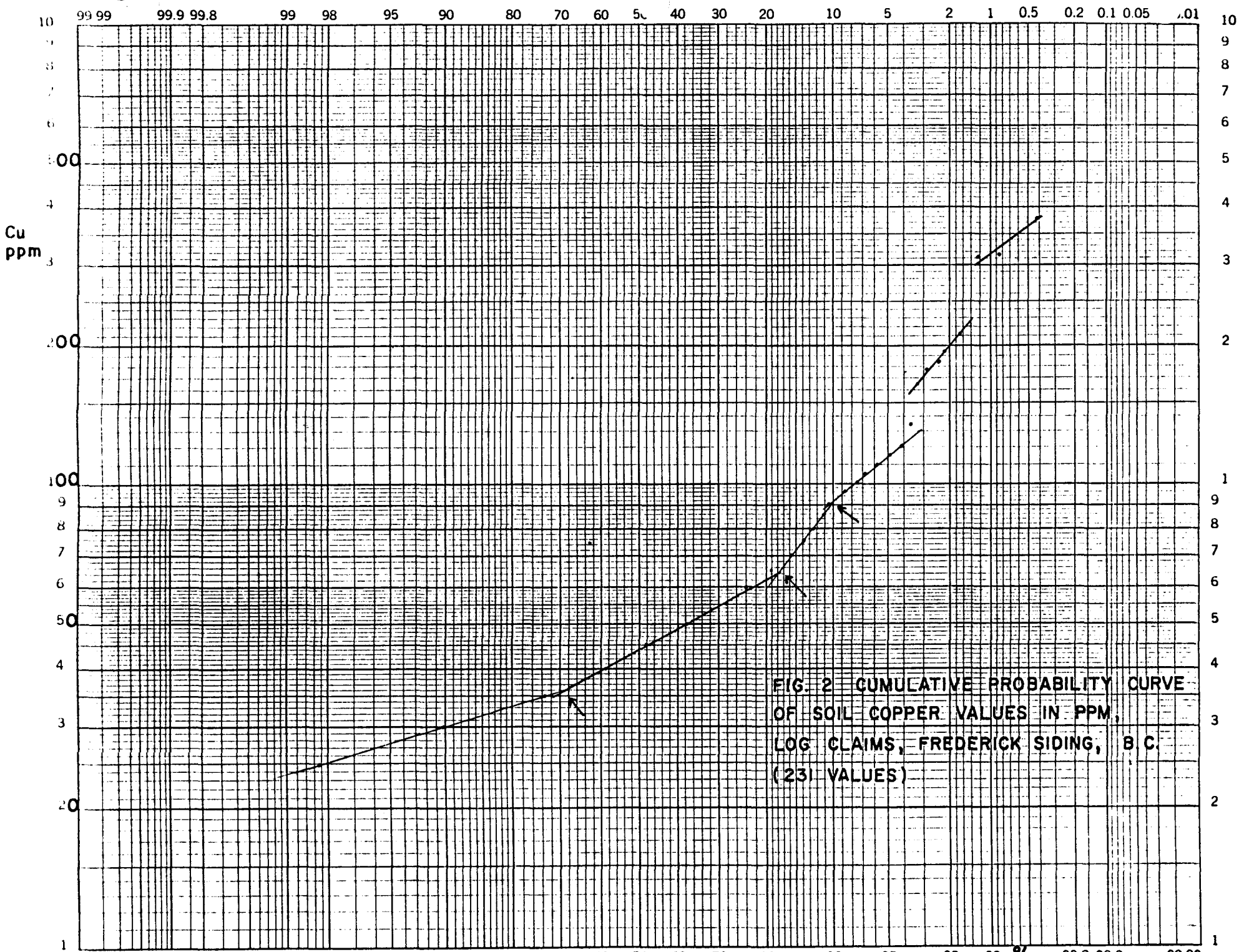


FIG. 2 CUMULATIVE PROBABILITY CURVE OF SOIL COPPER VALUES IN PPM, LOG CLAIMS, FREDERICK SIDING, B.C. (231 VALUES)

place or in talus, but the fourth (at 100S, 1350E) is due to a source as yet unknown. All four zones should be investigated more closely.

MAGNETOMETRY

Magnetometry was carried out by Pearson. The instrument employed was a Phoenix MV-1 fluxgate type, which measures the vertical component of the total magnetic field. Sensitivity is reported as $\pm$ 10 gammas on the most sensitive scale (300 gammas full scale). In practice we found it to be somewhat less, but judged this to be unimportant in view of a magnetic relief on the property exceeding 3000 gammas.

All readings were taken over loops requiring no more than three hours to complete and each loop tied into the preceding loop, thus allowing correction for diurnal changes in the magnetic field and for instrumental drift. Relative to the magnetic relief on the property, such corrections were minor.

The magnetic data are plotted on Plate 4. As with the geochemical results, the figures have been plotted on cumulative probability paper (Fig. 3). Two distinct populations can be distinguished, one comprising about 85% of the data and ranging from about 535 gammas to 2250 gammas. A second population contains about 8% of

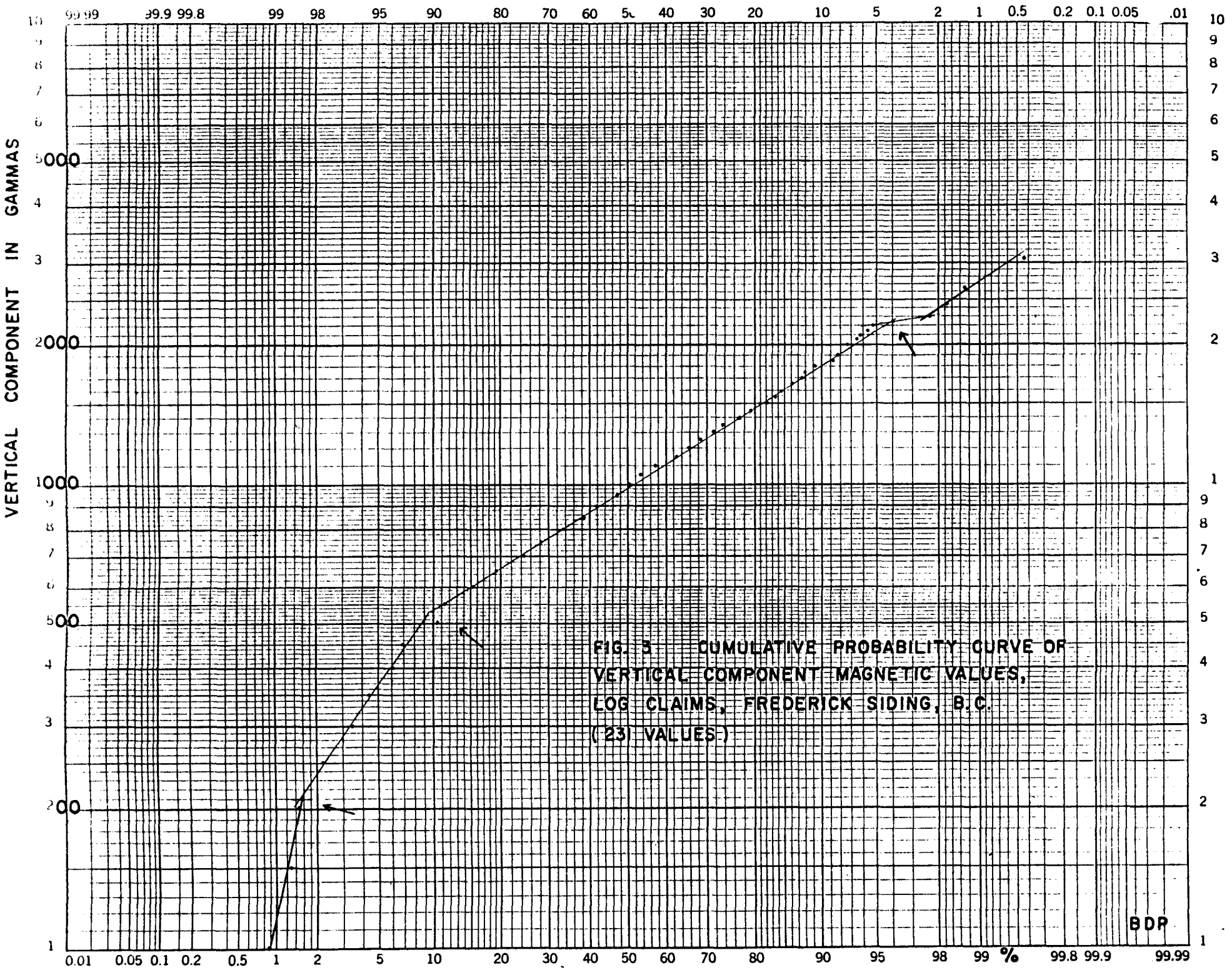


FIG. 3 CUMULATIVE PROBABILITY CURVE OF VERTICAL COMPONENT MAGNETIC VALUES, LOG CLAIMS, FREDERICK SIDING, B.C. (23 VALUES)

the data and ranges from about 210 gammas to 535 gammas. Two minor populations, each of less than 2%, contain the readings below 200 gammas and above 2250 gammas. Again, the correlation with geology is poor, but there is a suggestion that the very high population correlates with the presence of monzonite.

CONCLUSIONS AND RECOMMENDATIONS

The survey should be extended to cover the rest of the claims. Trenching should be carried out at 100 S, 1350 E if a resampling of soil at that point and in the immediate vicinity confirms the presence of anomalous copper values. Trenching and detailed mapping should also be carried out at 400 S, 485 E, and followed up by drilling if results warrant. Further soil sampling on smaller centers should be carried out at 600 S, 600 - 750 E, and an effort made to cover the steeper ground to the east.

Respectfully submitted,

Bradford D. Pearson, P.Eng.

Vancouver, B.C.
November 25, 1977

BIBLIOGRAPHY

Cockfield, W.E., 1961: Geology and Mineral Deposits of Nicola Map-Area, British Columbia, GSC Mem. 249.

Sinclair, A.J., 1976: Applications of Probability Graphs in Mineral Exploration. Special Volume No. 4, Association of Exploration Geochemists.

APPENDIX I

ITEMIZED MANDAYS OF WORK

Pearson:		
Field work -	4¼ days	@ $145.00
Office work -	3+ days	@ $100.00
Sampson:	¼ day	@ $100.00
Spancers:	4 days	@ $ 60.00

APPENDIX II

DECLARATION OF COSTS - LOG CLAIMS

Wages (field)	$ 881.25
Wages (office)	309.38
Room & board	189.01
Instrument rental	52.50
Transportation (flight fares & baggage)	73.50
Freight charges, supplies & packing	21.05
Truck rental & gas	101.14
Geochemical analyses (244 samples)	417.00
Report preparation	211.32
	$2,256.15

APPENDIX III

PERSONNEL QUALIFICATIONS

Bradford D. Pearson is a graduate of the Massachusetts Institute of Technology (1950), has an M.A. from Boston University (1961) and has done a further year of graduate study in Economic Geology at Harvard University. He is a member of the Association of Professional Engineers of British Columbia, a Fellow of the Geological Association of Canada, and a member of the American Geophysical Union, the Geological Society of America and the C.I.M. He has had nine years of experience as a mining and exploration geologist with Canadian Exploration Ltd., Cominco Ltd., and Utah Mines Ltd., and further six years as an independent consulting exploration geologist in Western Canada. In the course of this work he has carried out and supervised numerous geological, geochemical and geophysical surveys.

Daniel Spancers is a graduate of U.B.C. (1977) with five field seasons of experience in geological and geochemical surveying in Western Canada and Australia.

500 W

0 E

500 E

1000 E

1500 E

0 S

500 S

1000 S

1500 S

2000 S

LOG 1
(12 UNITS)

LEGAL CORNER POST
LOG 1

1

2

3

6

5

4

LEGAL CORNER POST
LOG 2

LOG 2
(1 UNIT)

7

8

9

12

11

10

N

0 100 200 300 400 500

SCALE IN METERS

Plate 1 To accompany geological, geochemical and geophysical report
by B. D. Pearson, P.Eng. on Log Claims, Frederick Siding, Kamloops M. D.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6515

BRITISH NEWFOUNDLAND EXPLORATION LIMITED
VANCOUVER, B.C., CANADA

UNIT NUMBERING

LOG CLAIMS, FREDERICK SIDING, B.C.

DATE: NOV. 16,'77	SCALE: 1 CM = 50 M	DRAWN BY: B. D. PEARSON
REV:	MAP NO:	TRACED BY:
	MAP REF:	CHECKED BY:

BCIL 6009A1 - B.N.E.X.

500 W

0 E

500 E

1000 E

1500 E

0 S

500 S

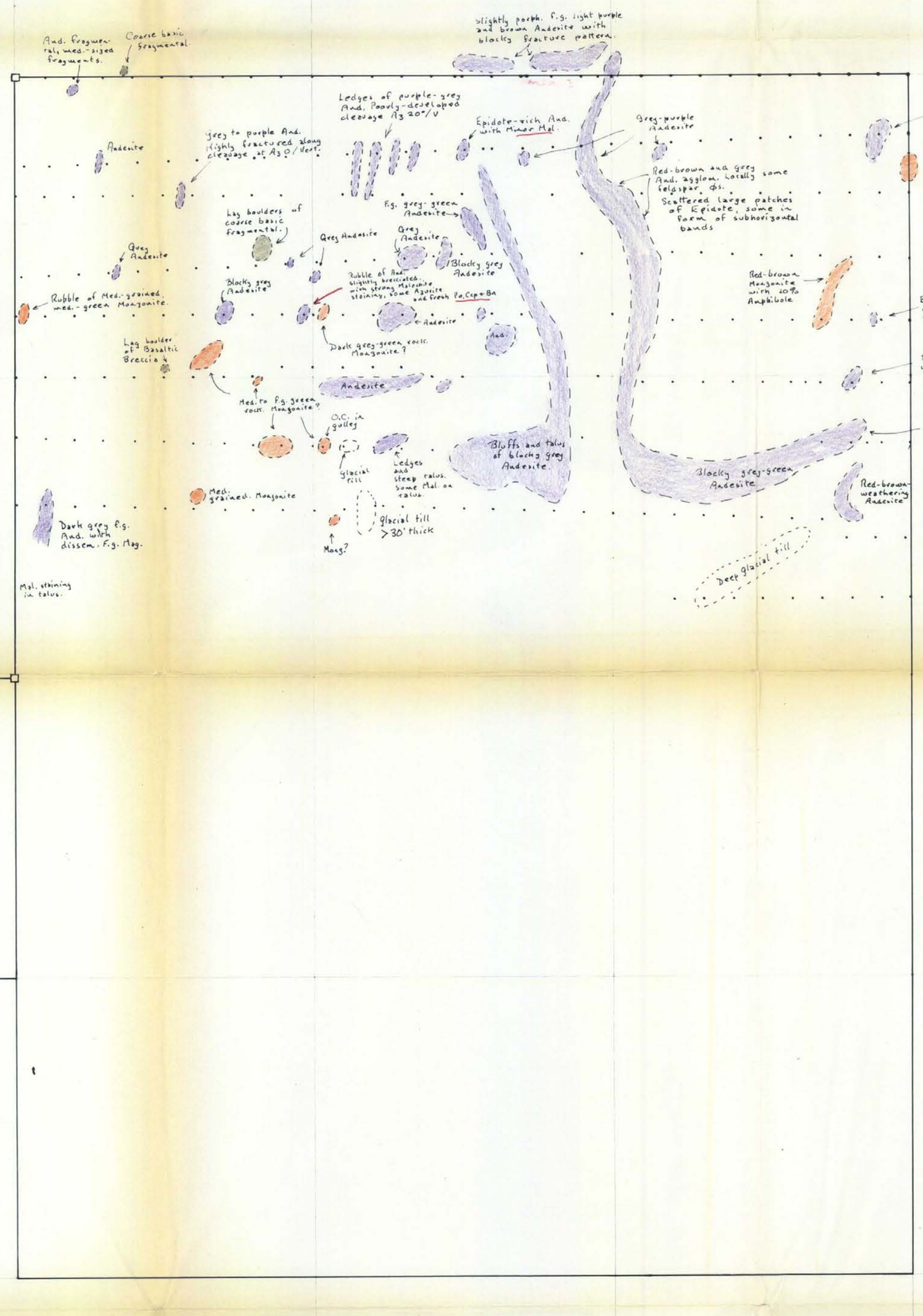
1000 S

1500 S

2000 S

LEGAL CORNER POST
LOG 1

LEGAL CORNER POST
LOG 2



Basic fragmental volcanics. Lag deposits and float of Tertiary age.

Upper Triassic Nicola formation. Intermediate, largely andesitic, fragmental volcanics.

Battle Bluff Intrusive. Medium to fine-grained, equigranular monzonite of Upper Triassic age.

N

0 100 200 300 400 500

SCALE IN METERS

Plate 2 To accompany geological, geochemical and geophysical report by B. D. Pearson, P.Eng. on Log Claims, Frederick Siding, Kamloops M. D.

B D Pearson

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6515

BRITISH NEWFOUNDLAND EXPLORATION LIMITED
VANCOUVER, B.C., CANADA

GEOLOGICAL MAPPING
LOG CLAIMS, FREDERICK SIDING, B.C.

DATE: NOV. 16,'77	SCALE: 1 CM = 50 M	DRAWN BY: B. D. PEARSON
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	MAP REF:	CHECKED BY:

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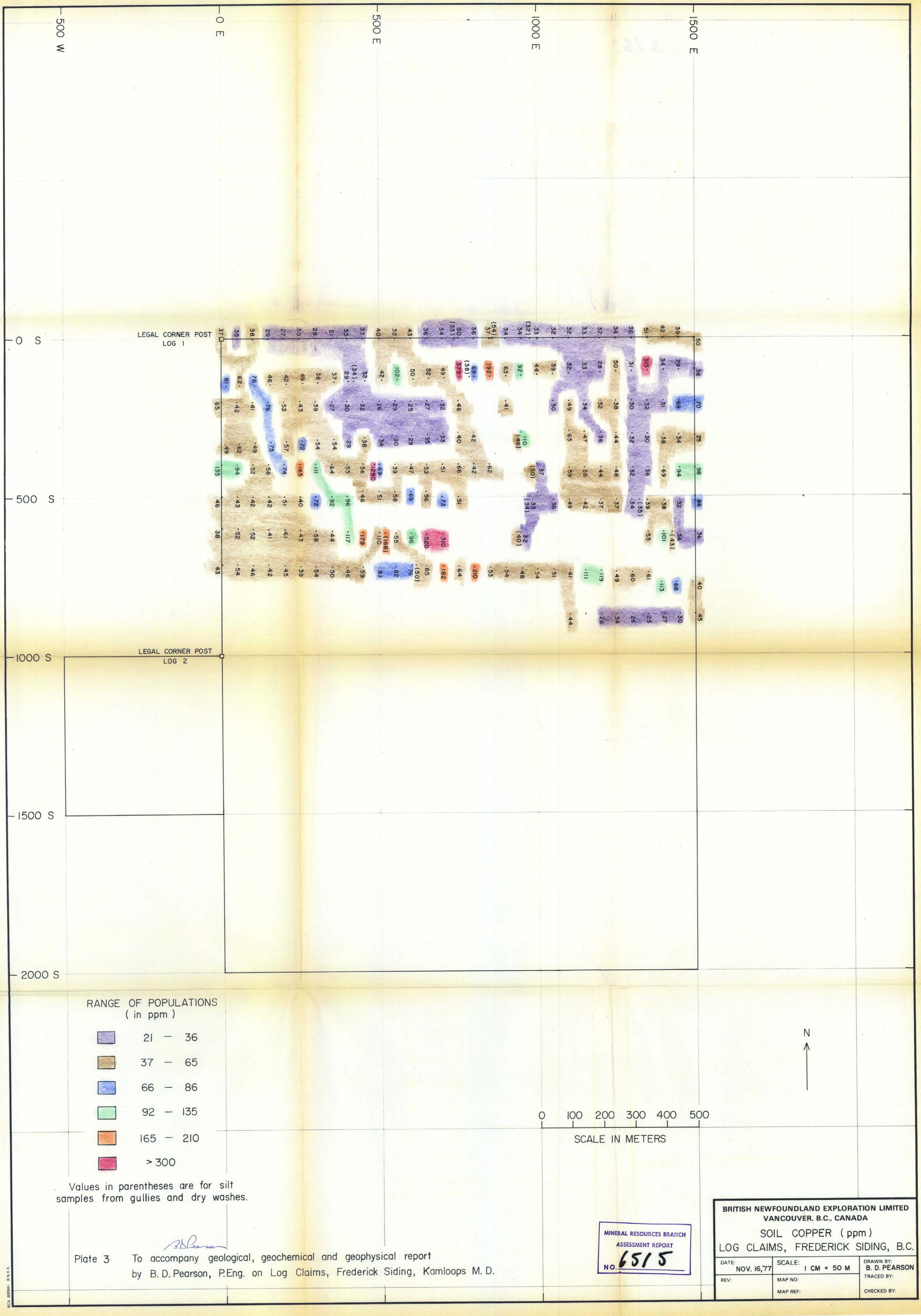

Plate 3 To accompany geological, geochemical and geophysical report by B. D. Pearson, P.Eng. on Log Claims, Frederick Siding, Kamloops M. D.

BCIL 6009A1 - B N E X

500 W | 0 E | 500 E | 1000 E | 1500 E

0 S

500 S

1000 S

1500 S

2000 S

LEGAL CORNER POST
LOG 1

LEGAL CORNER POST
LOG 2

390	760	670	-200	1670	1080	540	1770	520
310	570	570	770	1370	940	420	1740	400
500	720	740	620	1080	770	0	280	590
480	430	1380	830	680	690	1370	230	580
620	780	1120	700	600	380		290	930
780	600	720	680	470	290		170	1500
920	680	1310	650	590	770		110	1400
1050	900	730	850	1000	980		820	920
810	680	1680	1560	1820	700		1270	620
820	910	1120			770		1300	
920	1150			670			1490	
600	860		400		460		470	
750	1120	620				1240		1420
480	1120			830			670	
740	740		830	770			600	
460	460	1220	760	820	620		860	
820	1470	1620	1120	1490	3030	810	880	
860	1200	1280	1830	1050	1360	910	1120	
910	770	980	1170	1190	1050	1630	780	
650	980	1010	1980	910	1190	1780	2110	
970	1140	1430	1080	870	630	1280	1250	
1220	670	1030	1060	1200	320	3080	1210	
1060	780	800	990	1890	640	2640	1520	
990	1200	1420	1100	2420	820	1540	1820	
930	1130	1500	1120	1480	1450	1310	3020	
1120	1340	1280	1420	910	1690	1840	1840	
1100	1400	780	1100	750	1690	1970	2380	
1500	1040	890	1400	740	1230	2050	2070	
1150	1070	1280	1100	1310	1530	2360	2160	
1350	1300	1560	1630	1400	1650	2230	2250	
1190	930	1150	1800	880	2230	2370	2030	

RANGE OF POPULATIONS
(in gammas)

- < 210
- 210 – 534
- 535 – 2250
- > 2250

N

0 100 200 300 400 500
SCALE IN METERS

Plate 4 To accompany geological, geochemical and geophysical report by B. D. Pearson, P.Eng. on Log Claims, Frederick Siding, Kamloops M. D.

MINERAL RESOURCES BRANCH
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NO. 6515

BRITISH NEWFOUNDLAND EXPLORATION LIMITED
VANCOUVER, B.C., CANADA

VERTICAL COMPONENT MAGNETICS
LOG CLAIMS, FREDERICK SIDING, B.C.

DATE: NOV. 16,'77	SCALE: 1 CM = 50 M	DRAWN BY: B. D. PEARSON
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