85-1145-14381

ASSESSMENT REPORT OF THE 1985

GEOLOGICAL, GEOCHEMICAL AND TRENCHING PROGRAM

ON THE

PHIL 13 CLAIM GROUP
(PHIL 13 & 14 and CHUCHI 1 & 2 Claims)

OMINECA MINING DIVISION
NTS 93N/7E,8W,2E,1W

Latitude 55° 15.5'; Longitude 124°33'W

Owner:
Operator: BP Resources Canada Limited

R.E. Meyers
Project Geologist

C.M. Rebagliati
Senior Geologist

John L. Gravel
Project Geochemist

BPVR 85-42

December, 1985

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SUMMARY

Exploration in 1985 on the PHIL 13 claim group was concentrated on the gold soil anomaly.

A fill-in soil sampling survey on the PHIL 13 claims outlined a northeast trending gold anomaly 1700 x 600 metres, with values in the 100-1160 ppb range. A limited trenching and rock sampling program carried out at the southwest end of the anomaly delineated zones of enhanced gold values, associated with pervasive quartz-carbonate-sericite-epidote alteration and minor pyrite-chalcopyrite-magnetite mineralization. Mineralization is restricted to narrow, discontinuous veins within a broad disseminated zone. However, information is somewhat inconclusive considering that the remainder of the anomaly remains untested.

CONCLUSIONS

1. Gold mineralization outlined to date on the PHIL 13 claim group is concentrated in localized pyrite-chalcopyrite-magnetite veins and disseminations which are spatially associated with restricted zones of intense quartz-carbonate alteration. The intense alteration zones are superimposed on widespread pervasive sericite-quartz-carbonate-Kspar alteration which is geochemically enhanced in gold and copper. Alteration is related to the intrusion of epizonal diorite stocks and dykes into the Takla volcanic sequence.

2. Present information indicates that mineralization is irregular, lacks continuity and does not appear to offer economic potential.

3. The gold potential of the northeast half of the Phil 13 gold anomaly is untested and cannot be evaluated at this time.

RECOMMENDATION

1. Prospecting, mapping and rock sampling should be continued on the PHIL 13 gold anomaly to locate additional surface mineralization. A limited amount of backhoe trenching in favourable areas should also be considered.

INTRODUCTION

1. Location, Access and Terrain

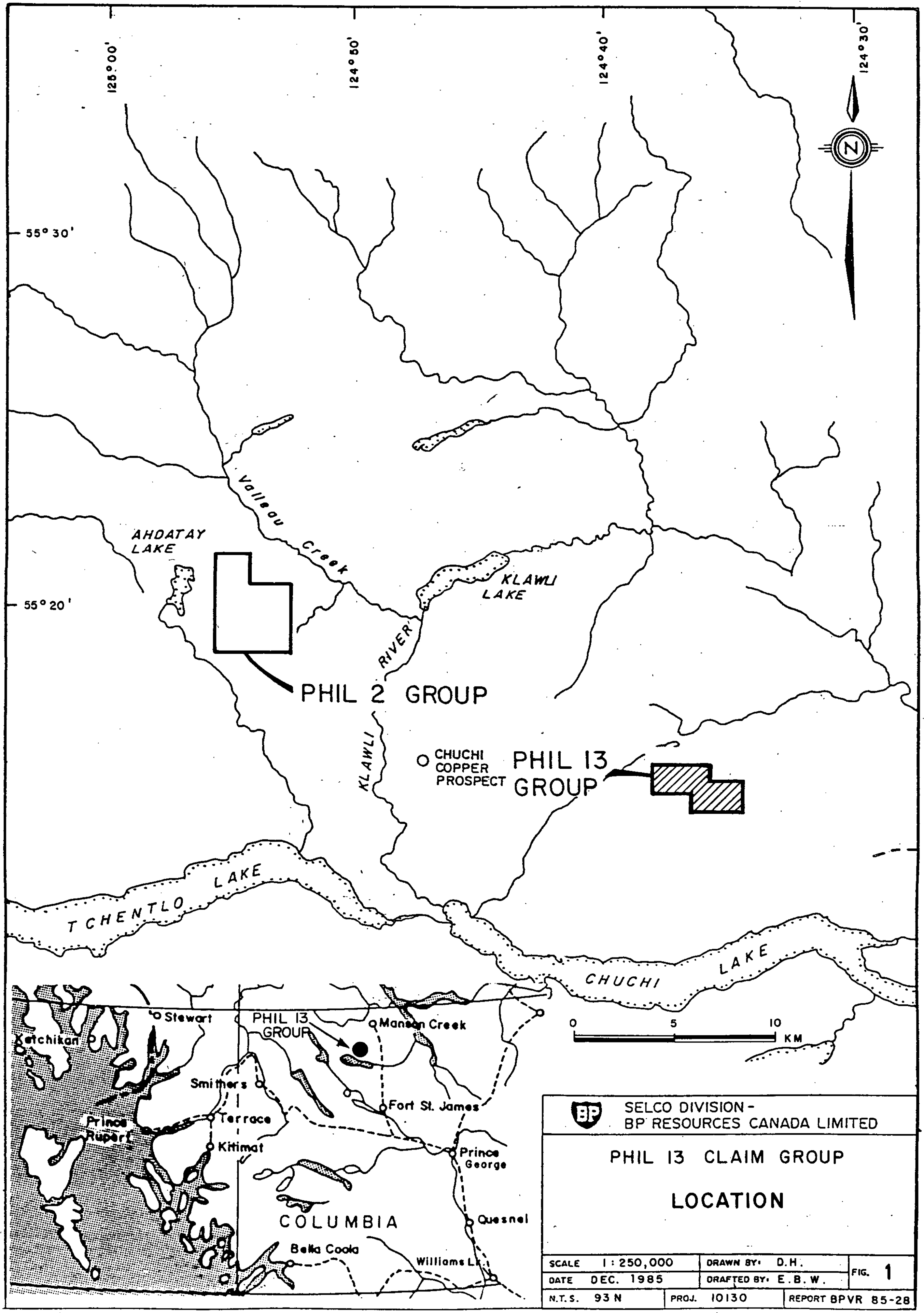
The PHIL 13 claim group is located at 55°16' north latitude and 124°33' west longitude in the Omineca Mining Division, 6 km north of Chuchi Lake and approximately 90 km northwest of Fort St. James (NTS 93N/7, Figure 1).

Access to the claims is by a 4-wheel drive road which extends 5 km beyond the end of a north branch of the Germansen-Indata logging road. This branch of the road is approximately 16 km west of mile 65.1 on the Manson Creek Highway.

The claims enclose an area of rounded forest-covered mountains with U-shaped valleys and elevations ranging from 1275 m to 1654 m. Ridge tops are recessive and slopes rarely exceed 30°. Forest cover consists of spruce, balsam, jack pine and alder in valleys and on lower slopes giving way to scrubby balsam at higher elevations.

2. Claim Status

The PHIL 13 claim group (Figure 2) consists of four claims comprising 58 contiguous units, listed as follows:

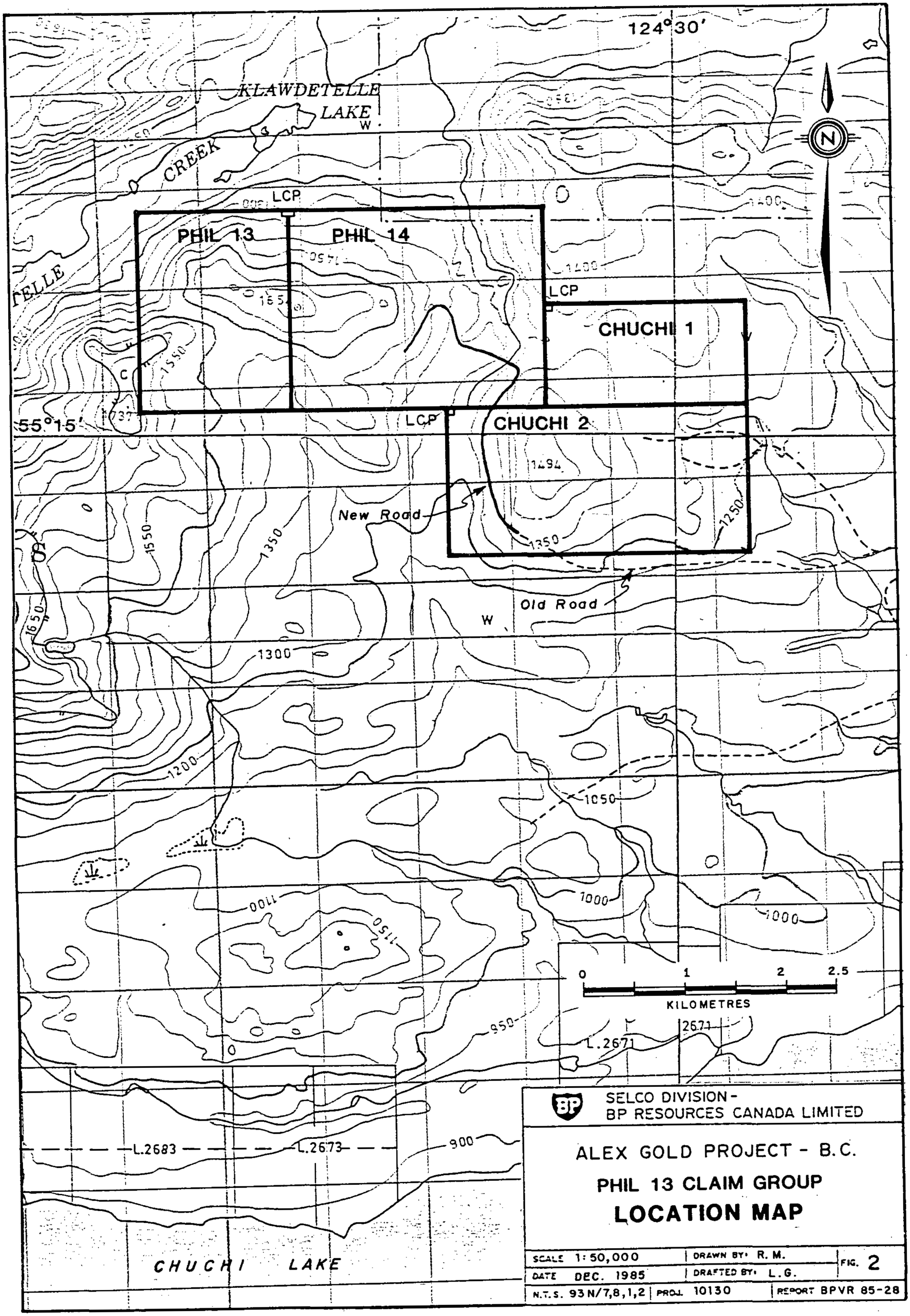


SELCO DIVISION - BP RESOURCES CANADA LIMITED

PHIL 13 CLAIM GROUP

LOCATION

SCALE 1 : 250,000	DRAWN BY: D.H.	FIG. 1
DATE DEC. 1985	DRAFTED BY: E.B.W.	
N.T.S. 93 N	PROJ. 10130	REPORT BPVR 85-28



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ALEX GOLD PROJECT - B.C.

PHIL 13 CLAIM GROUP

LOCATION MAP

SCALE 1:50,000	DRAWN BY: R. M.	FIG. 2
DATE DEC. 1985	DRAFTED BY: L. G.	
N.T.S. 93N/7,8,1,2	PROJ. 10130	REPORT BPVR 85-28

Claim	Units	Record No.	Recording Date	Expiry Date
PHIL 13	12	6035	29/12/83	29/12/90
PHIL 14	20	6036	29/12/83	29/12/90
CHUCHI 1	8	7085	13/06/85	13/06/89
CHUCHI 2	18	7086	13/06/85	13/06/89

3. History

The PHIL 13 claims were staked in December 1983 as a result of the 1983 Takla regional exploration project (Farmer and Rebagliati 1984). A gold anomaly was located by a soil sampling survey in an area previously untested for gold. In 1984 a property-wide soil sampling survey (100 x 200 metres) was carried out followed by preliminary geological mapping (1:5 000). The geochemical anomaly was confirmed and found to be spatially associated with high gold and copper in rock samples. The mineralization is associated with gossanous carbonate and epidote altered Takla augite porphyry andesite intruded by quartz-poor diorite.

4. 1985 Exploration Activities

In late July, a 5 km 4-wheel drive access road was built from the end of a logging road to the main gold showing. The road was contracted to Hat Lake Logging Ltd. of Fort St. James. A D-7 Caterpillar bulldozer was used.

The 1985 program consisted of fill-in soil sampling in areas of gold geochemical anomalies outlined in 1984, along with selected geological investigations. Following an evaluation of detailed and newly outlined anomalies, a limited program of backhoe trenching was carried out over the main gold anomaly on the PHIL 14 claim. Trenching was contracted to DBA Cordwood Industries of Mackenzie, who utilized a John Deere 450-C bulldozer with backhoe. The trenches were mapped in detail and sampled by collecting continuous chips along continuous 3 metre intervals. All rock and soil samples from the property were analyzed by Acme Analytical Laboratories in Vancouver. Analytical data and methods are found in Appendices 1 and 3.

REGIONAL GEOLOGY

The PHIL 13 claim group is situated in the central part of the Quesnel Trough, within the Intermontane Tectonic Belt of the Canadian Cordillera.

PROPERTY GEOLOGY

1. Distribution of Lithologies

The PHIL 13 claims are underlain by Takla Group volcanic flows, sills and volcaniclastic rocks of andesitic to basaltic composition. Three main stratigraphic units were outlined by Heberlein et al (1984) and their distribution is shown on Figure 3. Lithologies include a lower unit of augite and/or feldspar porphyritic flows and their tuffaceous equivalents (Unit 1), a middle unit of thinly bedded ash tuff (Unit 2), and an upper unit (Unit 3) of augite porphyry and augite-feldspar porphyry flows and tuffs.

The lower and upper augite bearing units are generally similar in texture and composition, although Unit 3 appears to have a significant proportion of non-porphyritic and plagioclase-rich flows. The thinly laminated tuffs of Unit 2 are typical of waterlain tuffs seen elsewhere in the Takla Group. Previous mapping inferred tops to face easterly.

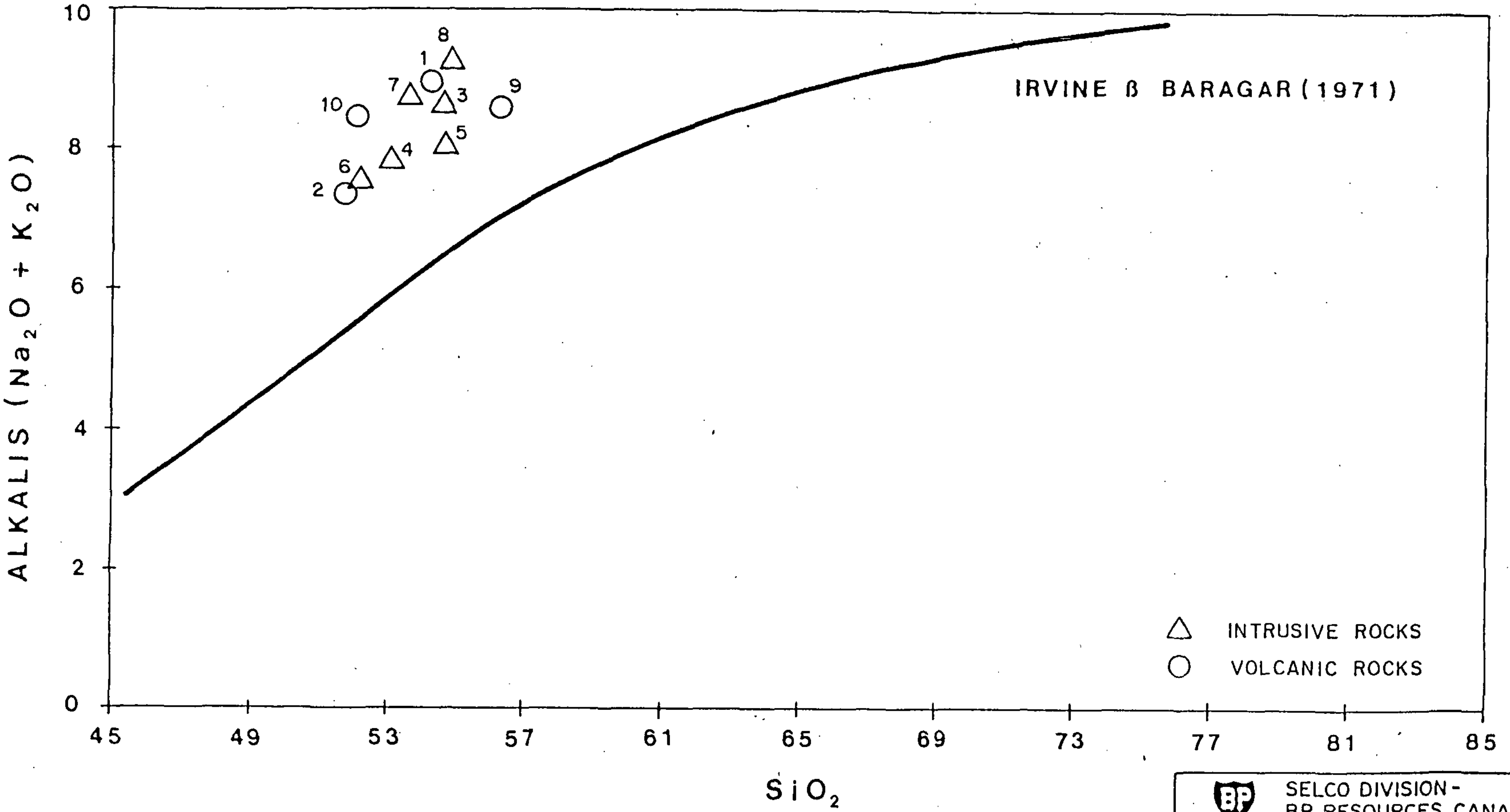
The section has been metamorphosed to greenschist facies and intruded by intermediate rocks of syenitic to dioritic composition. A weak biotite hornfels aureole is developed around the intrusive rocks. The Lower Jurassic Chuchi Lake syenite cuts across the southwest corner of the PHIL 13 and is the largest known intrusive on the property.

In the central area, near the main showing, outcrops of hornblende and plagioclase porphyritic diorite and minor latite dykes have been mapped. The distribution of the diorite suggests that a sub-circular stock of 200-300 metres diameter intrudes the volcanic sequence. Small plugs and dykes of diorite are also present in the vicinity of the showing and near the eastern edge of the PHIL 14 claim.

Boulders of syenite located in the western and southern portions of the claims likely originate with the Chuchi Lake syenite. However, hornblende syenite and augite porphyry boulders in the southeastern part of PHIL 14 and on the Chuchi claims may be derived from intrusive and volcanic rocks underlying the Chuchi claims. A plot of $Na_20 + K_20$ vs $Si0_2$ is shown in Figure 4 for selected hand samples collected on the Phil 14 claim (Appendix 2).

2. Structure

The structural geology on the property is poorly defined due to the lack of outcrop and the abundance of massive intrusive rocks. Outcrops of the bedded tuffs indicate a northerly strike with steep to intermediate easterly dips. The most prominent feature is a northeast trending fault which passes through the main gold showing on PHIL 14. There is no direct evidence of offset along the fault and detailed mapping in trenches suggest that it is more likely to be a localized set of conjugate shears. Several other easterly-trending creek valleys and depressions may also represent faults or shear zones.



511001 ALTERED ANDESITE
2 AUGITE PORPHYRY
3 DIORITE (MED.GR.)
4 DIORITE (PLAG.PORPH.)
5 DIORITE (PLAG.PORPH.)
6 HORNBLENDE DIORITE
7 SYENODIORITE (BIOTITE, HORNBLENDE)
8 BIOTITE-HORNBLENDE DIORITE
9 LAMINATED ASH TUFF (SILICIFIED)
10 AUGITE PORPHYRY (FLOW)

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PHIL 13 CLAIM GROUP

$Na_2O + K_2O$ vs SiO_2 PLOT

SCALE		DRAWN BY:	FIG. 4
DATE DEC ' 1985		DRAFTED BY: E.B.W.	
N.T.S.	PROJ. 10130		REPORT BPVR 85-28

GEOCHEMICAL SURVEYS B horizon soil.

Fill-in soil sampling survey was conducted in 1985 over anomalous areas outlined by the 1984 survey. (Refer to Memos and Maps in Appendix 1). On the PHIL 14 claim, the sampling density was increased from 200 x 100 metres to 100 x 50 metres. A broad elliptical gold anomaly measures approximately 1500 x 500 metres and forms a northeast-trending pattern which extends from 86+00N, 110+00E to 100+00N, 121+00E. The anomaly covers strongly altered and gossanous outcrops near 90+00N, 113+00E where small diorite plugs and stocks are intruded into the volcanic sequence and cross-cut by a northeast-trending fault. Interpretation of the anomaly (Appendix 1) suggests that the pattern is due to northeast glacial dispersion, originating at the southwest end, near the gossanous rocks.

TENCHING PROGRAM

1. Objectives

   Approximately 690 metres of backhoe trenching was completed on the PHIL 13 claim group. The work was on the gold anomaly located in the central part of Phil 14 claim. The objectives were to determine the anomaly source by bedrock sampling and to establish whether the target is worthy of drill testing.

Three main trenches were excavated in north-south and east-west orientations along and perpendicular to line 113+00E, between 87+00N and 90+50N. All trenches were geologically mapped and chip sampled at 3 metre intervals. Samples were geochemically analysed for gold and by inductively coupled plasma (ICP) multi-element analysis. Results are listed in Appendix 3.

2. Results

a) General

Gold values (Figure 5b) were moderately anomalous over most sampled sections, however, except for a few selected "high grade" hand samples, only one 3 metre sample returned more than 1000 ppb. It is emphasized that due to budget constraints, only the southeast section of the anomaly was trenched. Therefore, this work does not represent a complete evaluation of the anomaly.

Trench location, geology and gold and copper sampling results are presented in Figures 5 a,b,c. The remainder of the geochemical data are found in Appendix 1 and the geology, alteration and mineralization are summarized in the section that follows.

b) Trench Summary

The trenches encountered sections of plagioclase porphyritic andesite, augite porphyry and thinly bedded ash tuff, which are intruded by pervasively altered diorite. (Figure 5a) The ash tuff displays the weakest alteration, as minor chlorite and sericite and a few scattered cross-cutting pyrite veinlets. Sections adjacent to diorite contacts are weakly silicified with 2-3% pyrite disseminated along lamellar bedding planes. Andesite and augite porphyry display alteration somewhat more prominently. Pervasive sericite-chlorite±quartz± Kspar±Fe carbonate alteration is variably weak to moderate with localized Kspar-quartz-epidote-Fe carbonate-pyrite veining. An earlier biotite-tremolite-actinolite assemblage in the augite porphyry is likely a result of regional or contact metamorphism.

Diorite is medium-grained, equigranular to locally plagioclase porphyritic and occurs as small irregular dykes and plugs cross-cutting the volcanic rocks. Alteration is generally moderate pervasive sericite, Kspar and minor carbonate.

Superimposed on the widespread pervasive alteration assemblage is a narrow zone of highly fractured and intensely altered rocks. The zone is oriented east-west, subparallel or conjugate to the northeast-trending fault. Quartz, Fe carbonate and calcite form strong to intense pervasive alteration and veining. Disseminated pyrite, magnetite and chalcopyrite occur within and adjacent to the zone in variable amounts and proportions locally up to 5%. Minor Kspar, epidote and secondary biotite are also associated with the mineralization. Elevated gold values (+100 ppb) are somewhat irregularly distributed in the trenches. Although the highest individual gold values were returned from the intensely altered rocks, a large number of elevated values also occur in the less altered rocks south of the zone. Since the elevated values overlap all rock types it is difficult to explain their distribution with respect to lithology. It is likely that hydrothermal activity accompanying the intrusion of the diorite was controlled by rock porosity and permeability and played a significant role in the mineralization process.

DISCUSSION

Trenching results from the southwest end of the main gold anomaly on the PHIL 13 claim group indicate that mineralization is restricted to localized chalcopyrite-magnetite-pyrite veins and disseminations associated with intense fracturing and quartz-Fe carbonate alteration. This mineralization and intense alteration are superimposed on areas of widespread pervasive quartz-calcite-sericite-epidote alteration resulting from diorite intrusion into intermediate to mafic Takla volcanic flows and tuffs.

The northeast orientation of the gold anomaly is interpreted to be parallel to ice movement and may result from glacial dispersion. However, the concentration of values in the 200-500 ppb range at the northeast end of the anomaly enhances the possibility of an additional source of mineralization. The fact that overburden depth in that area is estimated to exceed 3 metres further complicates interpretation and eliminates the possibility of trench-testing the anomaly.

REFERENCES

Farmer, R., Rebagliati, C.M., 1984. Summary of Geological & Geochemical Work - Takla Project 1983 Selco Summary Report.

Richards, T.A., 1976. McConnell Creek Map Area (94D, East Half), British Columbia, in Report of Activities, Part A. GSC Paper 76-1A, p. 43-50.

Monger, J.W.H., 1977. The Triassic Takla Group in McConnell Creek Map Area, North Central, B.C., GSC Paper 76-29.

Heberlein, D.R., Rebagliati, C.M. and Hoffman, S.J., 1984. Summary Report on the Geological and Geochemical Exploration Activities, Phil 13 Claim Group, BPVR 84-12A.

APPENDIX 1

GEOCHEMICAL REPORT, ANALYTICAL DATA AND METHODS

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SELCO Memorandum

subject: INTERPRETATION OF 1985 PHIL 13 SOIL SURVEY

date : December 16, 1985

from : J. Gravel

to : M. Rebagliati
R. Meyers

cc: S. Hoffman

A follow-up soil survey was conducted on the Phil 13 claim group from July 31 to August 3, 1985, to detail a gold anomaly uncovered in the 1984 exploration program. A total of 238 samples were collected using a 50 metre X 100 metre sample density. Samples were analyzed at Acme Analytical for gold only (Appendix 1).

Gold Anomaly 1 resolves into a northeast trending band of enhanced background to threshold concentrations having four highly enriched cores (Fig. 1). Anomalies 1a and 1b are attributable to underlying mineralized bedrock related to local dioritic intrusions. Both zones have been trenched and sampled. Anomalies 1c and 1d lie 500 and 800 metres, respectively, northeast of the trenches. Source of the anomalies is unknown due to a moderate to thick cover of glacial overburden. Clustering of highly enriched samples suggest an underlying source. The anomlies could equally be due to downice dispersion of mineralized boulders from the trenched area. This is believed to be the case for Anomaly 1c which is underlain by at least 5 metres of glaciofluvial drift as seen in a roadcut. Overburden in the vicinity of Anomaly 1d is considerably thinner.

Trenching of Anomaly 1d is suggested if further exploration of the Phil 13 claim group is warranted.

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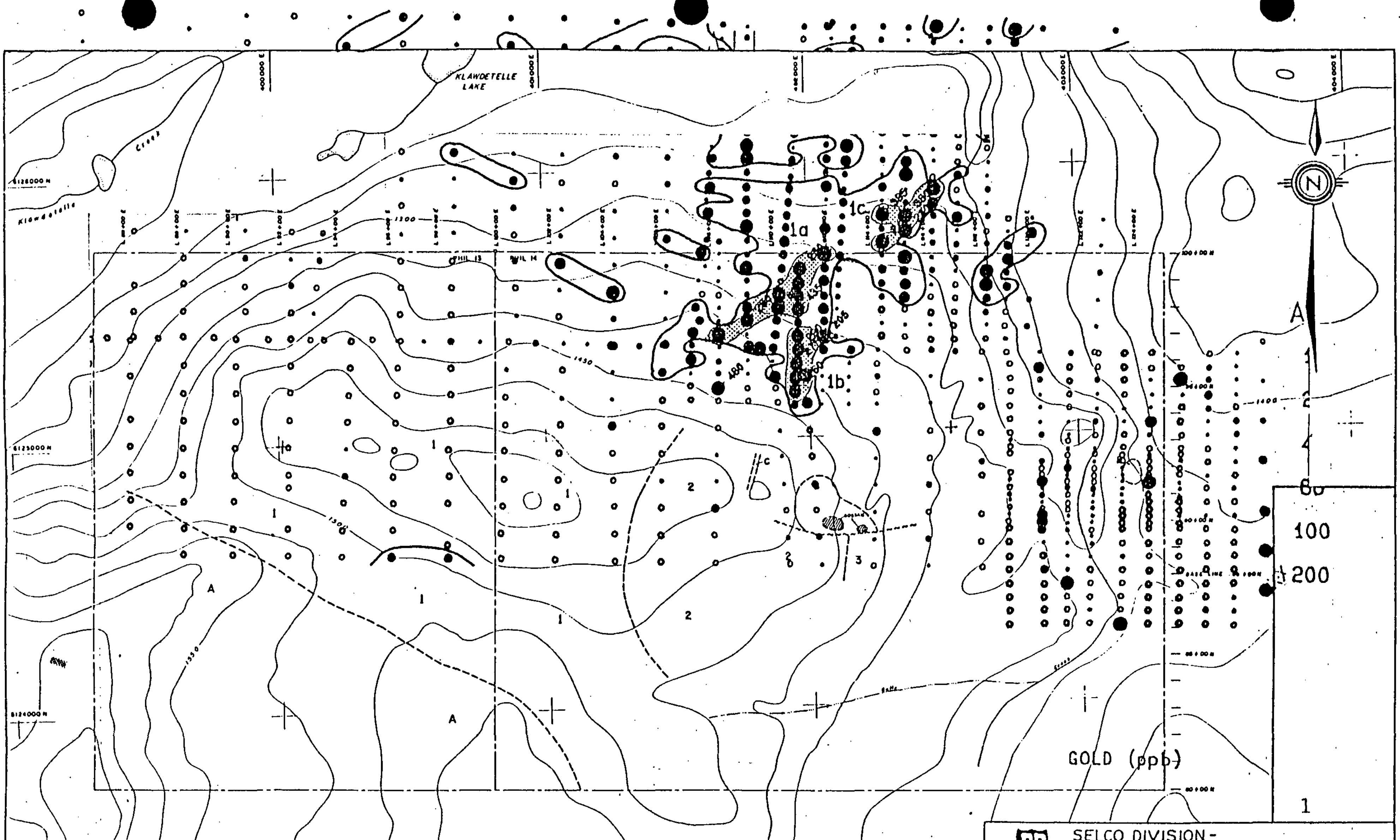

LEGEND

VOLCANIC AND SEDIMENTARY ROCKS

3	BASIC AUGITE PORPHYRY FLOWS AND MINOR CRYSTAL TUFFS
2	SILICEOUS ASH TUFFS AND CHERTY SILTSTONES
1	BASIC AUGITE PORPHYRY, AUGITE FELDSPAR PORPHYRY FLOWS AND INTERBEDDED CRYSTAL, CRYSTAL LAPILLI TUFFS

INTRUSIVE ROCKS

c	BASITE TO ANDESITE SILLS
b	HORNBLENDE DIORITE
A	SYENITE, HORNBLENDE SYENITE, SYENOMONZONITE

GEOLOGIC CONTACT (KNOWN, INFERRED)

FAULT

METRES

0 200 400 600 800

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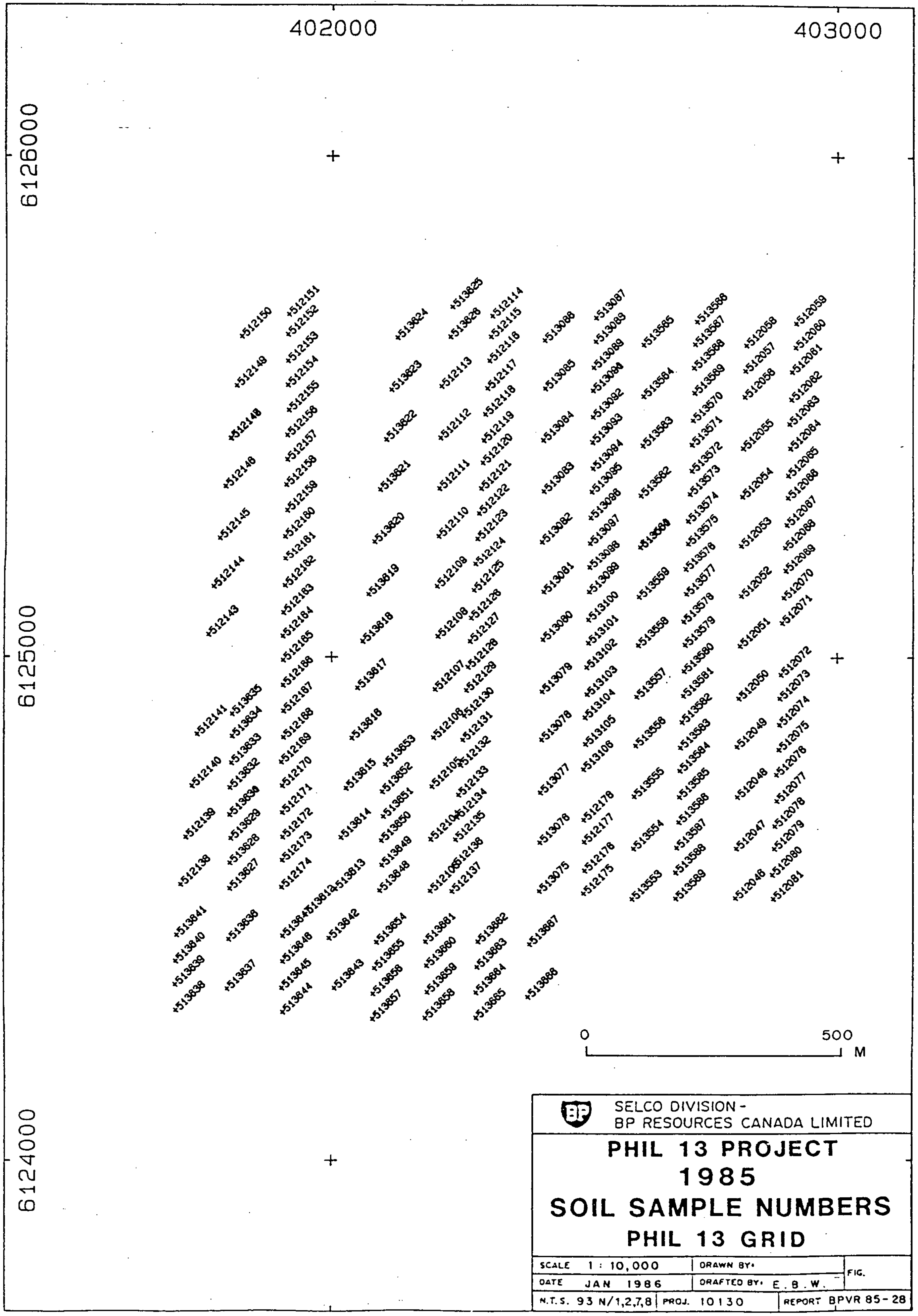
PHIL 13 - 14 CLAIMS

ALEX GOLD PROJECT - B.C.

1984 SOIL GEOCHEMICAL SURVEY

SCALE 1:20,000	DRAWN BY:	FIG. 1
DATE OCT. 1984	DRAFTED BY: L.G.	
N.T.S. 93 N/7E	PROJ. 10130 C	REPORT BPVR 85-28

17.


402000
403000
6126000
6125000
6124000
0
500
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13 PROJECT
1985
SOIL SAMPLE NUMBERS
PHIL 13 GRID
SCALE 1 : 10,000
DRAWN BY:
FIG.
DATE JAN 1986
DRAFTED BY: E. B. W.
N.T.S. 93 N/1,2,7,8
PROJ. 10130
REPORT BPVR 85-28

PHIL 13 CLAIMS - SOIL SAMPLES 1985

SAMPLE #	AU	SAMPLE #	AU	SAMPLE #	AU	SAMPLE #	AU	SAMPLE #	AU	SAMPLE #	AU
513075	8	513556	15	513618	60	513658	14	512076	32	512137	30
513076	7	513557	28	513619	37	513659	20	512077	60	512138	85
513077	26	513558	85	513620	24	513660	12	512078	13	512139	55
513078	19	513559	8	513621	60	513661	20	512079	5	512140	13
513079	32	513560	15	513622	65	513662	13	512080	7	512141	70
513080	25	513561	15	513623	55	513663	23	512081	13	512143	21
513081	22	513562	165	513624	7	513664	20	512103	205	512144	27
513082	15	513563	30	513625	39	513665	12	512104	85	512145	22
513083	24	513564	14	513626	16	513666	10	512105	75	512146	20
513084	70	513565	36	513627	120	513667	10	512106	135	512147	6
513085	16	513566	15	513628	11	512046	7	512107	65	512148	19
513086	28	513567	22	513629	15	512047	28	512108	21	512149	6
513087	36	513568	16	513630	4	512048	105	512109	30	512150	22
513088	12	513569	190	513631	7	512049	19	512110	26	512151	24
513089	22	513570	55	513632	21	512050	6	512111	215	512152	31
513090	5	513571	12	513633	15	512051	18	512112	18	512153	21
513091	5	513572	8	513634	24	512052	11	512113	25	512154	11
513092	550	513573	9	513635	31	512053	8	512114	28	512155	27
513093	50	513574	6	513636	34	512054	160	512115	40	512156	27
513094	22	513575	7	513637	480	512055	12	512116	50	512157	39
513095	110	513576	7	513638	3	512056	10	512117	17	512158	115
513096	26	513577	55	513639	8	512057	13	512118	38	512159	60
513097	18	513578	6	513640	18	512058	27	512119	7	512160	110
513098	75	513579	18	513641	80	512059	160	512120	5	512161	180
513099	170	513580	80	513642	23	512060	50	512121	16	512162	33
513100	24	513581	14	513643	2	512061	17	512122	21	512163	60
513101	40	513582	35	513644	2	512062	13	512123	140	512164	50
513102	380	513583	28	513645	1	512063	10	512124	70	512165	50
513103	220	513584	16	513646	20	512064	3	512125	26	512166	110
513104	19	513585	9	513647	25	512065	13	512126	33	512167	34
513105	160	513586	10	513648	115	512066	9	512127	43	512168	28
513106	52	513587	4	513649	55	512067	14	512128	32	512169	160
513553	6	513588	4	513650	435	512068	20	512129	46	512170	30
513554	8	513589	10	513651	100	512069	13	512130	40	512171	35
513555	16	513612	105	513652	110	512070	17	512131	45	512172	70
		513613	55	513653	230	512071	65	512132	29	512173	280
		513614	605	513654	275	512072	5	512133	28	512174	20
		513615	8	513655	125	512073	11	512134	36	512175	4
		513616	44	513656	1160	512074	42	512135	15	512176	11
		513617	45	513657	55	512075	80	512136	11	512177	9

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APPENDIX 1

METHOD OF SAMPLE ANALYSIS

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone : 253 - 3158

Geochemical Analysis for Uranium

0.5 gram samples are digested with hot aqua regia and diluted to 10 ml.

Aliquots of the acid extract are solvent extracted using a salting agent and aliquots of the solvent extract are fused with NaF, K_2CO_3 and Na_2CO_3 flux in a platinum dish.

The fluorescence of the pellet is determined on the Jarrel Ash Fluorometer.

Geochemical Analysis for Fluorine

0.25 gram samples are fused with sodium hydroxide and leached with 10 ml water. The solution is neutralized, buffered, adjusted to pH 7.8 and diluted to 100 ml.

Fluorine is determined by Specific Ion Electrode using an Orion Model 404 meter.

Geochemical Analysis for Tin

1.0 gram samples are fused with ammonium iodide in a test tube. The sublimed iodine is leached with dilute hydrochloric acid.

The solution is extracted with MIBK and tin is determined in the extract by Atomic Absorption.

Geochemical Analysis for Chromium

0.1 gram samples are fused with Na_2O_2. The melt is leached with HCl and analysed by AA or ICP.

Geochemical Analysis for Hg

0.5 gram samples is digested with aqua regia and diluted with 20% HCl.

Hg in the solution is determined by cold vapour AA using a F & J Scientific Hg assembly. An aliquot of the extract is added to a stannous chloride / hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Geochemical Analysis for Ga & Ge

0.5 gram samples are digested with hot aqua regia with HF in pressure bombs.

Ga and Ge in the solution are determined by graphite furnace AA.

Geochemical Analysis for Tl (Thallium)

0.5 gram samples are digested with 1:1 HNO_3. Tl is determined in the extract by graphite AA.

Geochemical Analysis for Te (Tellurium)

0.5 gram samples are digested with hot aqua regia. The Te extracted in MIBK is analysed by AA graphite furnace.

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone : 253 - 3158

GEOCHEMICAL LABORATORY METHODOLOGY - 1984

Sample Preparation

1. Soil samples are dried at 60°C and sieved to -80 mesh.
2. Rock samples are pulverized to -100 mesh.

Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

A. Atomic Absorption (AA)

Ag*, Bi*, Cd*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb*, Tl, V, Zn
(* denotes with background correction.)

B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Geochemical Analysis for Au*

10.0 gram samples that have been ignited overnite at 600°C are digested with hot dilute aqua regia, and the clear solution obtained is extracted with Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 5 ppb direct AA and 1 ppb graphite AA.)

Geochemical Analysis for Au**, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt and Rh are determined in the solution by graphite furnace Atomic Absorption.

Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

Geochemical Analysis for Barium

0.1 gram samples are digested with hot NaOH and EDTA solution, and diluted to 10 ml.

Ba is determined in the solution by Atomic Absorption or ICP.

Geochemical Analysis for Tungsten

1.0 gram samples are fused with KCl, KNO_3 and Na_2CO_3 flux in a test tube, and the fusions are leached with 20 ml water. W in the solution determined by ICP with a detection of 1 ppm.

APPENDIX 2

LIST OF FIELD TECHNICAL AND ANALYTICAL DATA

LAKE SEDIMENTS

40 TOPOGRAPHY-SETTING OF LAKE ON LANDSCAPE

1. Cirque basin
2. Gentle slope
3. Steep slope > 20°
4. Footslope
5. Valley floor
6.
7. Level
8. Rolling
9. Major bog

41 DRAINAGE BASIN ENVIRONMENT

1. Tundra-arctic
2. Tundra-alpine
3. Grassland, pasture, meadows
4. Bog, swamp
5. Forest-coniferous
6. Forest-deciduous
7. Forest-mixed
8. Cultivated land
9. Semi arid to desert

(42) LAKE TYPE

L - Oligotrophic
E - Eutrophic
D - Dystrophic
Ø - Other - specify

43 OVERBURDEN TRANSPORT

L. Local E. Extensive-thin
T. Extensive-thick

44 WATERSHED AREA

1. Low 0-1 km^2
2. Moderate 1-3 km^2
3. Relatively large 3-10 km^2
4. Very large >10 km^2

45 PREDOMINANT GLACIAL OVERBURDEN

1. Till
2. Outwash sand
3. Lacustrine sand
4. Alluvium
5. Peat
6. Colluvium
7. Lacustrine clay
8. Talus
9. Residual
U. Unknown

46 FLUSHING RATE

1. None
2. Low
3. Moderate
4. High

47-48 pH

(49) TEXTURE

1. Nearshore sands/gravels
2. Deltaic sands/gravels
3. Woody
4. Well decomposed vegetation (bog)
5. Algae
6. Ooze
7. Clay
8. Silt/sand
9. Pre-lake deposits

50-52 MAXIMUM LAKE LENGTH IN METRES - 10

53-55 MAXIMUM LAKE WIDTH IN METRES - 10

(56-57) LAKE DEPTH AT POINT OF SAMPLING-METRES

58-60 LOCAL BEDROCK COMPOSITION-PRIMARY UNIT

Estimate - use lists 1-4

(61-66) COLOUR

Munsell notation or abbreviation

67 CONTAMINATION

Blank - none L - logging
C - culvert M - mine
F - farming R - road
G - garbage T - trench
H - house Ø - other - spec.
I - industry

68 LAKESHORE CHARACTER

B. Boggy
S. Sandy
R. Rocky
M. Mixed boggy and sandy/rocky

69 NUMBER OF MAJOR INFLOW STREAMS

Blank - none
1. 1
2. 2
3. 3
4. 4-10
5. >10

70 PROXIMITY OF SAMPLE SITE TO MAJOR INFLOW STREAMS

1. 0-50m
2. 51-100m
3. 101-250m
4. 251-500m
5. >500m

[71] SAMPLE HOMOGENEITY

H. Homogenous
L. Layered
T. Turbidite
Ø. Other - specify

[72] SEDIMENT CONSISTENCY

S. Soupy
F. Firm
Ø. Other

73 ISLANDS

Blank-none
1. Low density
2. Moderate density
3. High density

(74) PRECIPITATE

F. Fe oxides-red brown
M. Mn oxides-black
C. Calcium-carbonate -white
Ø. Other - specify

(75) FEATURE

1. Fe concretions
2. Mn concretions
3. Fe+Mn concretions
4. Shell fragments
5. Other - specify

(76) SEDIMENT ODOUR

Blank-none
H. Hydrogen sulphide
F. Fishy
Ø. Other - specify

78-80 LOCAL BEDROCK COMPOSITION

Secondary Unit
Estimate-use lists 1-4

( ) INFORMATION RECORDED ON SITE

[ ] INFORMATION NOTED ON SITE IF UNUSUAL

ROCK CHIP SAMPLES

32 SELECTIVE LITHOGEOCHEMICAL SAMPLE

Blank - representative sample

A. Altered zone - specify alteration minerals in col 77-80
C. Carbonate vein
G. Gossan zone
I. Iron stained (rusty) zone
M. Mineralized zone
Q. Quartz vein
R. Radioactive zone
S. Shear zone
Ø. Other - specify

40 OUTCROP TOPOGRAPHY

1. Rugged ridge
2. Recessive ridge
3. Steep slope (> 20°)
4. Shallow slope
5. Cirque headwall
6. Cirque floor
7. Valley floor
8. Flat land
9. Creek-channel
A. Nickpoint
Ø. Other

41 OUTCROP EXPOSURE

1. Continuous-well
2. Continuous-poor
3. Intermittent-well
4. Intermittent-poor
5. Isolated-well
6. Isolated-poor
7. Float
8.

43 WEATHERING

1. Frost heaved
2. Mechanical-plants
3. Sheeting (exfoliation)
4. Chemical disintegration
5. Mechanical disintegration (grus)
6. Leached
Ø. Other

44 CHEMICAL WEATHERING

1. Fresh 3. Weathered
2. Normal 4. Decomposed

45 SURFACE COATING OR STAINS

1. Gossan-mineralized
2. Gossan-barren
3. Primary ore minerals
4. Secondary ore minerals
5. Iron and manganese
6. Iron
7. Manganese
8. Calcium carbonate
9. Malachite/azurite
Ø. Other

46-48 WEATHERED SURFACE COLOUR

L.-light M.-medium D.-dark

ØR - Orange BR - Brown
RE - Red BK - Black
YE - Yellow GY - Grey
PI - Pink WH - White
BL - Blue RB - Red Brown
PU - Purple ØB - Orange Brown
GR - Green

49 TEXTURE #1

A - Aphanitic
F - fine grained
M - medium grained
C - coarse grained
E - equigranular
P - porphyritic
V - vesicular
B - brecciated
S - massive
G - glassy

50 TEXTURE #2

Use same coding as for col. 49

51 FRACTURE INTENSITY

1. Massive
2. Widely spaced
3. Moderately spaced
4. Closely spaced
5. Shattered

52 VEINING INTENSITY

1. Massive
2. Widely spaced
3. Moderately spaced
4. Closely spaced
5. Very closely spaced

54-56 FRESH SURFACE COLOUR

- Use same codes as for columns 47-49

57 FORMATION NAME

- Use a list describing local lithological units

58-62 LOCAL BEDROCK COMPOSITION

- Use list 1-4 detailed on the rock coding form

64-65 ORE ELEMENT #1

Use chemical element symbol

66-67 ORE ELEMENT #2

Use chemical element symbol

68-69 ORE ELEMENT #3

Use chemical element symbol

70-71 ORE ELEMENT #4

Use chemical element symbol

73 PROMINENT OUTCROP FEATURE #1

1. Bedding
2. Banding
3. Foliation
4. Shearing
5. Faulting
6. Veining
7. Diking
8. Contact zone
9. Alteration
A. Crossbedding
B. Fold axis
C. Greenschist meta
D. Amphibolite meta
E. Contact meta

74 PROMINENT OUTCROP FEATURE #2

Use same codings as for col 73

75 PROMINENT OUTCROP FEATURE #3

Use same coding as for col 73

77 ALTERATION MINERAL #1

A. Albite/Anorthite
B. Secondary biotite
C. Carbonate
E. Epidote
G. Gypsum/anhydrite
I. Illite
K. Kaolinite
L. Chlorite
M. Montmorillonite
P. Potash feldspar
Q. Quartz/silica
S. Sericite
T. Tourmaline
Z. Zeolites
Ø. Other-specify in notes

78 ALTERATION MINERAL #2

Use list for col 77

79 ALTERATION MINERAL #3

Use list for col 77

80 ALTERATION MINERAL #4

Use list for col 77

GENERAL

1-2 SAMPLE TYPE

- 10. Stream sediment
- 11. Stream water
- 12. Drainage ditch sediment
- 18. Heavy mineral concentrate
- 20. Seepage (spring) sediment
- 21. Seepage (spring) water
- 30. Lake sediment - lake center
- 31. Lake water
- 32. Lake sediment-near shore
- 40. Bog-upper 100 cm
- 41. Bog-stagnant water
- 42. Bog-below 100 cm
- 43. Bog-organic material at mineral horizon interface
- 44. Bog-mineral horizon
- 50. Soil-top of the B horizon (or top of the C horizon if B horizon absent)

1-2 SAMPLE TYPE Cont.

- 51. Soil-other horizons (organic-rich samples or when 2 samples taken at same hole)
- 52. Frost boil or seepage boil
- 54. Groundwater sample
- 55. Deep overburden sample
- 58. Heavy mineral concentrate
- 60. Talus fines
- 61. Talus blocks-hand sample
- 64. Talus blocks-chips
- 68. Heavy mineral concentrate
- 70. Biogeochemical sample
- 75. Radon
- 80. Bedrock hand specimen
- 81. Bedrock chips ± hand sample
- 82. Float hand specimen
- 83. Float chips ± hand sample
- 84. Drill core specimens

1-2 SAMPLE TYPE Cont.

- 85. Channel sample/split core
- 86. Drill chips
- 87. Drill sludge
- 88. Heavy mineral concentrate
- *89. High grade sample
- *90. Special sample-specify
- 99. Standard sample

*Clearly label if high grade.

Special Note
For keypunchers benefit, 7's should be crossed 7 and O's (letter) should be slashed Ø

3-4 YEAR

5-7 PROJECT NUMBER

8 PROJECT IDENTIFICATION

Blank-reconnaissance
A.B.C. etc. - properties, anomalies. (List 6)

9 DUPLICATE SAMPLES

Label duplicates as 1,2, etc. (collect 1 duplicate pair in 30)

10-12 SAMPLER IDENTIFICATION
(10-11) (List 7)

13-15 SAMPLE NUMBER
(12-15)

19-24 EAST COORDINATE

25-31 NORTH COORDINATE

34-38 NTS MAP SHEET NUMBER

Example: record 92F/3 as 92F03

STREAM SEDIMENTS

40 SAMPLE ENVIRONMENT

- 1. Side of creek
- 4. Middle of stream
- 9. Composite across stream
- A. Soil

41 WATER MURKINESS

Blank-clear
- 1. Murky (report findings in note section)

42 PRECIPITATE

Blank-none
- 1. Record colour (report presence of precipitate in immediate vicinity in stream bed. If heavy precipitate, sample separately as sample type 90)

43 OVERBURDEN TRANSPORT

- L. Local
- M. Mixed local & extensive
- E. Extensive
- U. Unknown

45 OVERBURDEN ORIGIN

- 1. Till-angular boulders
- 2. Outwash-sandy, rounded boulders
- 3. Lake sediment-sand/silt
- 4. Alluvium-stream deposit
- 5. Peat-bog
- 6. Colluvium*

45 OVERBURDEN ORIGIN Cont.

- 7. Lake sediment-clay
- 8. Talus
- 9. Residual
- C. Boulder field*
- D. Gravel*
- E. Soil*

*use only if former origin cannot be identified

46 BEDROCK

- M. Mineralized
- P. Present within 100m upslope
- D. Present within 100m down-slope
- B. Underlies sample site
- G. Gossan
- F. Fe surface stains
- R. Radioactivity

47-48 pH

49 SAMPLE TEXTURE

- Ø. Organic-decomposed
- 1. Clay
- 2. Silt and fine sand
- 3. Sand
- 4. Gravel
- 6. Cemented
- 7. Precipitate
- 8. Twigs or undecomposed organic matter

50-52 AVERAGE WIDTH OF STREAM-M
Decimal point in col 51 (or col 52 if stream > 10m wide)

53-55 AVERAGE DEPTH OF STREAM-CM

56 STREAM VELOCITY

- 1. Dry
- 2. Stagnant
- 3. Slow
- 4. Moderate
- 5. Fast
- 6. Turbulent

57 INDICATE AS TRIBUTARY

- R. Stream enters on the right looking down main stream
- L. Stream enters on left looking down main stream

58-60 LOCAL BEDROCK COMPOSITION

Estimate-use Lists 1-4

61-66 COLOUR

Munsell notation or abbreviation

67 CONTAMINATION

Blank - none	L - logging
C - culvert	M - mine
F - farming	R - road
G - garbage	T - trench
H - house	Ø - other - spec.
I - industry	

68 ORGANIC FRACTION *(Complete where sediment composition is unusual)

- 2. Large amount of undecomposed leaves, twigs, etc.
- 4. Large amount of well-decomposed vegetation
- 5. Moss
- 7. Sediment grains coated in organic matter
- 8. Lake sediment ooze.

69 MINERAL FRACTION *(Complete where composition is unusual)

- 3. Notable content of mafic minerals, resistates
- 4. Very high content of mafics, resistates

71 SCINTILLOMETER NUMBER

72-75 GAMMA COUNT AT SAMPLE DEPTH

(make note if landscape is affecting gamma count)

76 ROCK

*Star if bedrock is influencing scint count

77-78 APPROXIMATE SLOPE ANGLE

79-80 APPROXIMATE SLOPE DIRECTION

SOILS

40 SITE TOPOGRAPHY

- 1. Hill top
- 2. Gentle slope
- 3. Steep slope > 20°
- 4. Base of slope
- 5. Valley floor
- 6. Depression
- 7. Level
- 8. Rolling
- 9. Bog

41 SAMPLE ENVIRONMENT

- 1. Tundra-hummocky
- 2. Tundra-dry
- 3. Tundra-swampy
- 4. Grassland, meadows
- 5. Peat mounds
- 6. Bog in depression
- 7. Forest-coniferous
- 8. Forest-deciduous
- 9. Forest-mixed
- A. Alder or willows
- B. Cultivated land
- C. Desert, semi-arid
- D. Barren
- E. Talus fan
- F. Bank soil-stream
- G. Bank soil-lake
- H. Road cut

42 SITE DRAINAGE

- 1. Dry
- 2. Moist
- 3. Wet
- 4. Saturated

43 OVERBURDEN TRANSPORT

- L. Local
- E. Extensive
- U. Unknown
- M. Mixed

44 WATER MOVEMENT

- S. Seepage

45 OVERBURDEN ORIGIN

- 1. Till-angular boulders
- 2. Outwash-sandy, rounded boulders
- 3. Lake sediment-sand/silt
- 4. Alluvium-stream deposit
- 5. Peat-bog
- 6. Colluvium
- 7. Lake sediment-clay
- 8. Talus
- 9. Residual
- A. Frost boils*
- B. Seepage boils*
- C. Boulder field*
- D. Gravel*

* Use only if former origin cannot be identified.

46 BEDROCK

- M. Mineralized
- P. Present within 100m up-slope
- D. Present within 100m down-slope
- B. Underlies sample site
- G. Gossan
- F. Fe surface stains
- R. Radioactivity

47-48 pH

49 SAMPLE TEXTURE

- Ø. Organic muck
- 1. Fibrous, peaty organic matter
- 2. Very sandy
- 3. Sandy
- 4. Sand-silt
- 5. Sand-silt-clay
- 6. Silt
- 7. Silt-clay
- 8. Clay
- 9. Gravel

50-51 THICKNESS OF SOIL SAMPLE INTERVAL-CM

52-54 BOTTOM OF SOIL SAMPLE INTERVAL-CM

55-56 SOIL HORIZON

- LH. Leaf, humus layer, undecomposed vegetation lying on the ground surface (do not sample)
- AH. Dark grey to black, organic-rich mineral horizon usually no deeper than 15cm from the surface (do not sample)
- AE. Grey to white (occassionally brown) leached mineral horizon near ground surface, usually sandy; accompanied by BF or BT horizon at depth (do not sample)
- BH. Black, organic-rich mineral horizon at depths greater than 15cm (do not sample)
- BF. Red-brown, iron-rich horizon
- BT. Brown, clay-rich horizon
- BG. Horizon which is water-saturated most of the year, identified by red brown mottles
- BM. Brown horizon which is only slightly different in appearance from underlying parent material
- C1,C2,C3, etc. Parent material for soil
- CA. White calcium carbonate precipitate in C horizon
- Ø1,Ø2,Ø3, etc. Bog sample at various depths
- TF. Talus fines

57 SOIL TYPE

- C. Chernozem-prairie soil usually under grassland or meadow, thick AH > 10cm, CA horizon at depth
- S. Solonetz-saline soil, high content of NaCl

57 SOIL TYPE Cont.

- L. Luvisol-BT horizon diagnostic
- P. Podzol-BF horizon diagnostic
- B. Brunisol-BM horizon is only B horizon of profile
- R. Regosol-little or no soil development. No B soil horizon, only LH (maybe) and C horizon
- G. Gleysol-BG horizon diagnostic
- Ø. Organic soil-bog vegetation-no mineral matter

58-60 LOCAL BEDROCK COMPOSITION
Estimate-use Lists 1-4

61-66 COLOUR
Munsell notation or abbrevation

67 CONTAMINATION

Blank - none	L - logging
C - culvert	M - mine
F - farming	R - road
G - garbage	T - trench
H - house	Ø - other - spec.
I - industry	

68-69 % COARSE FRAGMENTS

70 SHAPE OF COARSE FRAGMENTS

- A. Angular
- R. Rounded
- S. Subrounded
- M. Mixed above types

71 SCINTILLOMETER NUMBER

72-75 GAMMA COUNT AT SAMPLE SITE
Scint reading at ground level over hole

76 ROCK
*Star if bedrock is influencing scint counts

77-78 APPROXIMATE SLOPE ANGLE

79-80 APPROXIMATE SLOPE DIRECTION

LIST 1

1-- INTRUSIVE ROCKS

- -1- QUARTZ RICH
- --1 Granite
- --2 Quartz Monzonite
- --3 Granodiorite
- --4 Quartz diorite
- -2- INTERMEDIATE
- --1 Syenite
- --2 Monzonite
- --3 Diorite
- --4 Gabbro
- -3- FELDSPATHOID RICH
- --1 Nepheline Syenite
- --2 Nepheline Monzonite
- -40 ULTRABASIC
- -50 CARBONATITES
- -6- SPECIAL TYPES
- --1 Pegmatite
- --2 Aplite
- --3 Lamprophyre
- --4 Trap
- --5 Felsite
- --6 Intrusion Breccia
- --7 Diabase

LIST 2

2-- VOLCANIC ROCKS

- -0- UNDIFFERENTIATED
- -1- BASALT
- -2- ANDESITE
- -3- DACITE
- -4- RHYOLITE
- -5- QUARTZ LATITE
- -6- LATITE
- -7- TRACHYTE
- -8- PHONOLITE
- -9- NEPHELINE LATITE
- --1 Fine grained flows
- --2 Prophyritic flows
- --3 Crystal tuffs
- --4 Ash tuffs
- --5 Lapilli tuffs
- --6 Agglomerate
- --7 Lapilli breccia
- --8 Block breccia
- --9 Turbidite

LIST 3

3-- SEDIMENTARY ROCKS

- -1- ARENACEOUS
- --1 Siltstone
- --2 Mudstone
- --3 Greywake
- --4 Sandstone
- --5 Quartzite
- --6 Conglomerate
- -2- ARGILLACEOUS
- --1 Shale
- --2 Argillite
- -3- CALCAREOUS
- --1 Limestone
- --2 Dolomite
- -4- CHEMICAL PRECIPITATE
- --1 Chert
- --2 Marble
- --3 Iron Formation

LIST 4

4-- METAMORPHIC ROCKS

- -10 FINE GRAINED CONTACT
- -2- PHANERITIC
- --1 Meta quartzite
- --2 Marble
- --3 Soapstone
- --4 Hornfels
- --5 Serpentine
- --6 Skarn
- --7 Amphibolite
- --8 Eclogite
- -3- MECHANICAL
- --1 Mylonite
- --2 Flaser
- --3 Augen
- --4 Ultramylonite
- -40 SLATE
- -50 PHYLLITE
- -60 SCHIST
- -7- GNEISS *
- -8- MIGMATITE *
- --1 *Granite
- --2 Monzonite
- --3 Granodiorite
- --4 Conglomerate
- --5 Sandstone
- --6 Augen
- --7 Granulite
- --8 Quartz diorite
- --9 Diorite
- --0 Amphibolite

APPENDIX 3

METHOD OF HISTOGRAM INTERPRETATION

Rules for choice of size coding or contouring intervals

(1) Examine both arithmetic and logarithmic histograms for each type of survey data. Choose the histogram which most closely approximates a normal (or lognormal) distribution. If there are several populations exhibited on the histogram, subjectively divide the data into a series of normal or lognormal distributions. Avoid interpreting histograms which are strongly skewed. Portions of the arithmetic or logaritmic histograms may be chosen for data interpretation over specific metal concentration intervals, if this allows for the best portrayal of the data in graphical form.

(2) Choose, as two of the coding intervals, points which represent between 90% and 95%, and 95% and 97.5% of the data, two different numbers. These choices highlight 1 in 10 and 1 in 20 samples which are considered slightly anomalous and definately anomalous, respectively. These limits are optimistic in that the two categories are defined to be anomalous regardless of the distribution of values on the remainder of the histogram. A rigorous statistical approach would suggest that only the 97.5% value be considered the anomaly threshold.

(3) Divide the remaining portion of the histogram into recognizable populations. The dividing point of each of these populations is chosen as a coding interval. Minimums caused by the failure of a laboratory to record specific concentration values are ignored. These artificial breaks in the histogram can be recognized by scanning the laboratory reports.

(4) For each population, choose one or two numbers which correspond to the 90% and 95% cumulative frequencies for that population (1 in 10 and 1 in 20 samples for that population respectively). These will also be used to represent anomalous conditions for each population.

(5) A maximum of six numbers can be chosen to plot symbol maps. This number is dictated by the ability to present data in graphical form with sufficiently different symbol sizes to be easily distinguishable, particularly if maps are to be reduced. The seven defined concentration classes are normally sufficient to represent geochemical data on a map. More intervals can be chosen if data are to be controured. Avoid choosing arithmetic intervals without considering rules (1) and (4).

(6) Maps plotted using the preceeding instructions might result in two areas being distinguished from each other by a relatively uniform density of symbol sizes, yet only poor contrast anomalies are indicated. Differences between the two areas, A and B, might be due to underlying geology, overburden character, soils etc. Whatever the cause, the data are not well displayed. If the underlying control distinguishing A and B can be recognized , the data must be divided and re-interpreted following steps (1) to

(5). Two sets of maps can be drawn, or both sets of interpreted data can be plotted on a single map. For such superimposed geochemical maps the symbol sizes lose their absolute meaning but assume a more important stance, that of reflecting anomalous conditions regardless of the underlying control. To illustrate, consider the case where A and B are areas underlain by very different geology. Anomalous conditions for low background rock types might be concentrations which are much lower than average values for the high background rock types. Nevertheless, anomalies defined in each area are to be considered significant. Reliance on absolute concentrations can be misleading in such cases.

APPENDIX 2

WHOLE ROCK ANALYTICAL DATA

```
 **      **          *****        *****          *****
 ****    ****       ********     *********      *********
***  *****  ***     ***          ***           ***     ***
***   ***   ***     *******       *******      ***********
***         ***     ***               ***      ***     ***
 **          **      ********    *********      **      **
  *           *    *  *****   *   *****    *     *      *    *
```

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Date 2 : 14-NOV-85

File-code: CMR2

Maurette Ref: CGY49

Selco Ref: 10130

Mark Rebagliata

BP/Selco
700-890 W. Pender Street
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Canada V6C1K5

N.B.

1. Oxide data are quoted in weight percent oxide

2. Values below the (2s) detection limit are quoted as zero

PHIL 13 WHOLE ROCK

*CMR2 Midland Earth Science Associates Page 1

Var.\ID:	511001	511002	511003	511004	511005	511006
SIO2	54.40	51.97	54.71	53.10	54.39	52.26
AL2O3	14.83	15.62	16.63	15.61	15.87	15.02
TIO2	0.57	0.87	0.65	0.72	0.68	0.75
FE2O3	10.63	9.03	7.67	8.89	7.48	8.83
MGO	3.35	4.74	2.64	3.40	2.70	3.53
CAO	4.01	6.27	5.68	6.22	5.15	5.06
NA2O	2.97	2.60	3.30	3.65	3.44	2.79
K2O	6.09	4.84	5.43	4.23	4.63	4.82
MNO	0.10	0.14	0.12	0.13	0.07	0.08
P2O5	0.38	0.66	0.46	0.60	0.53	0.64
Total	97.34	96.73	97.30	96.56	95.44	93.78

Var.\ID:	511007	511008	511009	511010
SIO2	53.68	54.99	56.36	52.06
AL2O3	15.56	15.45	15.57	15.37
TIO2	0.71	0.78	0.58	0.85
FE2O3	6.51	6.67	5.38	9.45
MGO	3.02	3.27	3.46	3.62
CAO	4.97	4.33	3.57	4.64
NA2O	3.20	3.31	4.50	2.42
K2O	5.62	6.09	4.19	6.14
MNO	0.12	0.12	0.04	0.08
P2O5	0.62	0.64	0.35	0.69
Total	94.01	95.64	93.99	95.33

APPENDIX 3

ROCK CHIP SAMPLING DATA

PHIL 13 CLAIMS - ROCK CHIP SAMPLES 1985

SAMPLE #	AU	AG	CU	ZN	AS	PB	MO	NI	FE	TI	U	MN	CO	SB	SN	W	BA	TH	CD	BI
511863	250	.1	440	50	3	7	1	10	5.58	.16	5	550	13	2	1	1	85	5	1	2
511864	29	.2	373	46	8	2	2	10	6.19	.16	5	466	13	2	1	1	55	4	1	2
511865	50	.1	328	47	2	6	1	8	5.88	.15	5	410	10	2	1	1	124	4	1	2
511866	27	.1	375	43	6	6	1	9	6.24	.15	5	437	11	2	1	1	88	5	1	2
511867	50	.2	572	50	2	6	2	10	8.16	.16	5	482	13	2	1	1	94	5	1	2
511868	175	.6	986	46	7	3	1	8	5.7	.14	5	432	11	2	1	1	81	4	1	2
511869	90	.2	790	43	4	7	2	8	6.01	.15	5	452	11	2	1	1	82	4	1	2
511870	32	.1	456	35	3	5	1	7	4.73	.14	5	358	8	2	1	1	80	4	1	2
511871	13	.1	227	31	6	5	1	7	4.18	.14	5	345	8	2	1	2	64	4	1	3
511872	35	.1	423	43	7	3	1	7	3.79	.21	5	407	9	2	1	1	92	4	1	2
511873	140	.6	560	39	6	2	2	8	6.2	.2	5	352	14	2	1	1	57	3	1	2
511874	70	.1	586	35	5	2	1	10	7.26	.16	5	419	13	2	1	1	74	4	1	2
511875	28	.1	252	37	5	6	3	10	8.92	.16	5	372	12	2	1	1	61	4	1	2
511876	20	.3	409	42	3	11	4	11	9.32	.17	5	449	15	2	1	1	62	5	1	2
511877	180	.5	1302	46	5	2	3	13	8.07	.17	5	429	22	2	1	1	91	3	1	2
511878	26	.1	296	39	2	4	1	9	6.64	.14	5	417	11	2	1	1	73	4	1	2
511879	70	.3	251	41	5	7	3	7	9.5	.18	5	343	8	2	1	1	55	4	1	2
511880	95	.4	1981	49	5	6	2	9	6.25	.06	5	497	15	2	1	1	64	5	1	3
511881	42	.1	369	40	4	4	1	8	6.28	.16	5	371	8	2	1	1	80	4	1	2
511882	50	.1	569	51	5	4	1	13	7.07	.17	5	556	12	3	1	1	62	4	1	4
511883	33	.4	547	47	3	4	2	8	5.8	.16	5	443	11	2	1	1	64	4	1	2
511884	34	.1	238	34	2	2	1	8	5.75	.16	5	339	10	2	1	2	59	3	1	4
511885	75	.4	1415	43	5	5	1	7	5.33	.11	5	422	11	2	1	1	75	4	1	2
511886	37	.1	809	45	2	10	1	9	7.22	.12	5	528	11	2	1	1	69	3	1	2
511887	47	.1	761	43	2	6	1	8	4.97	.06	5	730	13	3	1	1	114	3	1	3
511888	30	.1	922	49	6	2	1	9	5.61	.03	5	781	14	6	1	1	114	4	1	2
511889	170	.3	1491	45	18	5	7	10	7.36	.12	5	464	14	2	1	1	149	5	1	2
511890	165	.6	1893	46	6	8	3	10	7.39	.12	5	515	15	2	1	1	177	4	1	2
511891	70	.1	489	47	8	10	1	11	10.12	.15	5	460	15	2	1	1	74	4	1	2
511892	80	.2	2470	55	5	5	1	11	6.5	.13	5	601	15	2	1	1	288	5	1	2
511893	195	.9	1627	70	6	6	1	12	8.18	.2	5	667	16	2	1	1	231	5	1	2
511894	125	.6	1296	70	9	10	2	14	6.79	.21	5	730	19	2	1	1	343	3	1	2
511895	110	.2	1488	73	3	4	2	13	7.16	.18	5	843	19	2	1	1	189	4	1	5
511896	225	1.2	3450	89	2	7	1	14	7.61	.13	5	734	16	2	1	1	110	5	1	2
511897	80	.2	2405	64	3	3	5	9	5.28	.03	5	525	14	4	1	1	251	3	1	4

SAMPLE #	AU	AG	CU	ZN	AS	PB	MO	NI	FE	TI	U	MN	CO	SR	SN	W	BA	TH	CD	BI
511898	39	.1	1908	61	4	8	1	11	8.83	.05	5	724	17	2	1	1	175	3	1	3
511899	44	.1	2681	60	10	5	5	12	5.95	.06	5	857	13	2	1	1	359	2	1	2
511900	1860	1.8	5007	77	28	3	131	12	6.69	.03	5	726	14	7	1	1	122	3	1	2
511901	28	.1	1856	48	45	4	11	11	5.94	.01	5	779	14	2	1	1	57	2	1	2
511902	34	.2	1689	57	36	4	4	14	5.58	.01	5	921	17	2	1	1	1261	2	1	2
511903	14	.1	1546	55	19	4	2	11	6.34	.01	5	1026	16	2	1	1	1309	3	1	2
511904	37	.1	1923	53	11	4	11	12	6.85	.01	5	1022	18	2	1	1	305	3	1	2
511905	26	.1	689	42	10	2	6	12	6.75	.01	5	1185	18	2	1	1	98	3	1	2
511906	36	.1	1143	50	15	5	4	13	6.74	.02	5	1009	18	2	1	1	346	3	1	2
511907	14	.1	750	60	10	3	4	12	8.06	.01	5	1224	20	2	1	1	1019	1	1	2
511908	24	.1	586	47	6	8	2	13	7.68	.04	5	903	19	2	1	1	963	2	1	3
511909	34	.1	424	42	6	2	1	14	6.01	.23	5	554	15	2	1	1	138	1	1	2
511910	48	.1	504	49	8	4	1	16	6.6	.16	5	667	15	2	1	1	180	1	1	2
511911	30	.1	259	39	8	6	1	10	6.08	.16	5	452	12	2	1	1	120	2	1	2
511912	17	.2	287	46	7	2	1	11	5.72	.16	5	448	13	2	1	1	97	4	1	2
511913	50	.1	288	44	5	3	1	10	6.84	.15	5	419	12	2	1	1	41	2	1	2
511914	65	.8	1381	50	12	6	8	11	11.3	.17	5	551	16	2	1	1	120	3	1	6
511915	26	.1	326	44	12	8	2	12	9.34	.18	5	435	13	2	1	1	81	3	1	2
511916	19	.1	378	47	6	4	1	11	5.29	.17	5	458	12	2	1	1	87	2	1	2
511917	18	.1	855	44	10	2	1	12	5.72	.02	5	835	16	2	1	1	209	2	1	2
511918	7	.1	143	54	10	2	1	9	6.09	.01	5	955	13	2	1	1	592	3	1	2
511919	35	.1	561	59	12	5	1	12	5.59	.12	5	975	15	2	1	1	304	3	1	2
511920	21	.2	422	54	16	5	1	16	5.97	.14	5	872	19	2	1	1	376	4	1	4
511921	460	2.9	1310	55	33	9	17	7	10.59	.11	5	325	9	2	1	1	68	10	1	2
511922	625	1.7	1414	61	20	3	3	13	7.2	.15	5	498	19	2	1	1	64	6	1	2
511923	150	.3	1222	56	8	6	1	13	9.26	.12	5	604	15	2	1	1	96	4	1	2
511924	90	.1	1722	56	8	6	1	14	8.06	.06	5	883	22	2	1	1	77	2	1	2
511925	29	.1	862	44	9	6	1	10	8.68	.08	5	722	16	2	1	1	95	4	1	2
511926	75	.1	1654	38	5	2	1	9	4.7	.12	5	546	13	2	1	1	278	4	1	2
511927	105	.4	1544	46	5	4	2	9	7.02	.07	5	583	15	2	1	1	94	4	1	2
511928	1190	3.4	5260	76	16	8	1	11	10.11	.05	5	425	20	9	1	1	65	6	1	3
511929	55	.2	521	45	7	6	1	11	7.01	.16	5	471	14	3	1	2	50	4	1	2
511930	28	.1	329	44	8	2	1	10	7.08	.16	5	455	13	2	1	1	69	1	1	2
511931	50	.2	685	43	7	8	1	14	7.4	.16	5	489	13	2	1	2	72	3	1	2
511932	50	.1	882	53	4	3	11	13	8.03	.17	5	559	16	2	1	1	78	3	1	2
511933	225	.7	3894	61	12	4	1	15	7.36	.15	5	670	19	2	1	1	74	3	1	2
511934	190	.7	2819	82	11	5	2	16	10.73	.14	5	732	20	8	1	1	72	3	1	2
511935	150	1.8	4922	64	10	9	1	14	6.3	.05	5	706	16	6	1	1	252	9	1	2
511936	460	2.2	1087	41	10	4	3	7	4.12	.17	5	305	7	2	1	1	98	2	1	2
511937	165	.7	2371	64	22	4	6	12	5	.12	5	928	24	6	1	1	274	3	1	2

SAMPLE #	AU	AG	CU	ZN	AS	PB	MO	NI	FE	TI	U	MN	CO	SB	SN	W	BA	TH	CD	BI
511938	115	.9	1835	40	10	5	6	7	4.62	.05	5	380	21	6	1	1	123	4	1	2
511939	150	.7	1096	37	8	4	4	6	5.2	.13	5	364	29	2	1	1	38	4	1	2
511940	175	.9	3343	40	36	3	12	6	4.9	.01	5	729	34	11	1	1	71	3	1	2
511941	90	1	3711	39	65	8	17	13	3.35	.01	5	785	37	14	1	1	68	5	1	3
511942	385	1.5	789	52	13	2	2	8	5	.23	5	381	7	2	1	1	98	2	1	2
511943	16	.1	337	65	10	3	1	23	4.7	.22	5	867	18	2	1	1	40	5	1	2
511944	60	.1	578	50	9	2	1	17	4.27	.14	5	653	16	2	1	1	42	3	1	2
511945	16	.2	432	53	13	3	1	7	4.19	.06	5	655	16	3	1	1	412	3	1	2
511946	28	.1	560	27	9	2	1	5	2.9	.04	5	474	8	5	1	1	363	4	1	2
511947	27	.4	634	33	19	2	2	7	5.05	.07	5	642	16	2	1	1	137	4	1	2
511948	220	1.3	948	32	20	6	3	8	4.52	.03	5	600	16	2	1	1	35	5	1	2
511949	705	2.6	2620	47	76	9	9	10	7.92	.01	5	450	19	3	1	1	45	4	1	2
511950	165	.7	1081	40	17	4	3	6	5.26	.01	5	538	12	2	1	1	233	5	1	2
511951	70	.1	1051	50	11	2	1	8	5.06	.03	5	666	11	2	1	1	142	3	1	2
511952	35	.1	666	44	3	2	1	11	5.68	.14	5	666	12	2	1	1	225	3	1	2
511953	29	.2	358	43	8	3	1	11	5.18	.14	5	674	12	2	1	1	192	3	1	2
511954	32	.4	799	48	106	3	1	11	5.19	.07	5	921	13	8	1	1	276	3	1	2
511955	90	.4	662	51	50	4	1	11	5.8	.02	5	1142	15	9	1	1	411	4	1	2
511956	130	.4	1202	52	6	2	1	12	5.67	.06	5	1019	18	2	1	1	489	3	1	2
511957	150	.1	977	60	32	3	1	14	6.88	.01	5	1215	20	2	1	1	179	4	1	2
511958	145	.5	2704	54	23	4	1	12	5.78	.02	5	1081	17	2	1	1	805	5	1	2
511959	130	.5	865	56	10	2	1	12	5.53	.04	5	1035	15	2	1	1	728	5	1	2
511960	70	.2	865	47	12	2	1	11	5.45	.07	5	869	15	2	1	1	689	2	1	4
511961	41	.2	576	48	12	5	1	12	6.61	.02	5	1120	15	2	1	1	309	3	1	2
511963	205	1.3	1867	40	45	5	38	16	6.31	.02	5	1091	21	2	1	1	157	7	1	2
511964	31	.3	386	57	19	2	3	15	6.89	.06	5	984	21	2	1	1	390	6	1	2
511965	25	.3	523	38	15	2	1	12	4.92	.03	5	748	15	2	1	1	688	5	1	2
511966	90	.2	1327	45	10	2	2	11	5.74	.01	5	992	17	2	1	1	536	3	1	2
511967	20	.1	919	49	14	3	2	12	5.81	.01	5	1025	15	2	1	1	508	2	1	2
511968	35	.1	487	58	15	6	2	13	7.97	.01	5	1039	20	2	1	2	1093	4	1	2
511969	6	.1	1928	70	14	2	4	12	8.39	.01	5	1465	17	2	1	1	648	4	1	2
511970	32	.4	850	46	12	5	2	12	6.02	.01	5	1151	19	2	1	1	157	5	1	2
511971	18	.2	809	47	12	6	1	10	5.33	.01	5	824	16	2	1	1	590	5	1	2
511972	19	.5	1280	51	9	2	3	12	6.29	.01	5	1019	20	2	1	1	856	5	1	3
511973	20	.4	1014	61	10	8	4	16	7.4	.01	5	1329	21	2	1	1	378	5	1	2
511974	75	.4	792	44	12	7	5	8	5.46	.01	5	873	12	2	1	1	353	5	1	2
511975	8	.1	665	55	3	4	1	9	4.92	.01	5	728	12	2	1	1	1365	5	1	2
511976	41	.3	3029	42	15	4	1	9	4.31	.01	5	671	15	2	1	1	91	3	1	2
511977	90	.6	3025	43	10	5	3	11	4.77	.01	5	670	17	2	1	1	98	3	1	2
511978	31	.1	244	51	4	5	1	12	4.35	.19	5	579	11	2	1	1	63	3	1	2

SAMPLE #	AU	AG	CU	ZN	AS	PB	MO	NI	FE	TI	U	MN	CO	SB	SN	W	BA	TH	CD	BI
511979	85	.4	231	20	7	6	4	2	3.26	.15	5	175	7	2	1	1	21	2	1	2
511980	95	.4	358	19	9	6	6	4	3.23	.17	5	150	8	2	1	1	21	3	1	2
511981	210	.4	242	15	12	4	13	4	2.78	.17	5	122	5	3	1	1	28	4	1	2
511982	225	.3	363	16	10	7	7	6	3.48	.15	5	134	17	2	1	1	25	3	1	2
511983	55	.4	167	9	10	2	17	4	2.24	.15	5	77	4	2	1	1	23	4	1	2
511984	75	.3	222	13	12	5	4	4	2.51	.14	5	112	5	2	1	1	17	3	1	3
511985	65	.1	147	17	10	2	3	5	3.64	.16	5	144	4	2	1	1	25	3	1	4
511986	80	.3	238	17	19	2	8	4	3.77	.17	5	157	5	2	1	1	37	2	1	2
511987	55	.1	155	19	11	6	6	5	4.26	.16	5	199	3	2	1	1	30	2	1	2
511988	75	.2	222	19	8	3	59	5	4.15	.15	5	188	5	2	1	1	23	2	1	2
511989	70	.1	242	21	10	2	3	5	5	.16	5	235	5	2	1	1	23	1	1	2
511990	55	.4	350	26	12	8	2	7	7.44	.16	5	210	20	2	1	1	21	3	1	2
511991	65	.1	213	17	9	6	1	5	4.16	.13	5	146	8	2	1	1	24	3	1	2
511992	14	.1	122	20	9	2	8	3	3.09	.14	5	198	3	2	1	1	20	2	1	2
511993	15	.1	167	21	7	8	3	4	3.73	.17	5	244	4	2	1	1	34	3	1	2
511994	24	.1	127	10	10	9	12	3	1.83	.14	5	90	2	5	1	1	23	3	1	2
511995	95	.2	172	15	8	4	19	2	1.92	.12	5	120	2	2	1	1	17	2	1	2
511996	70	.2	204	13	4	8	37	3	2.35	.13	5	113	4	3	1	1	21	2	1	2
511997	165	.6	1016	32	13	9	48	5	3.55	.15	5	260	9	5	1	1	74	4	1	3
511998	50	.2	249	17	5	2	2	3	2.37	.13	5	156	4	2	1	1	17	2	1	2
511999	40	.3	326	26	13	8	5	5	3.5	.13	5	259	8	2	1	1	17	2	1	2
511012	50	.2	1498	35	5	4	4	5	3.81	.02	5	362	10	4	1	1	385	6	1	2
511013	165	.2	990	51	4	5	1	8	5.73	.06	5	585	10	2	1	1	117	2	1	2
511014	50	.1	1293	58	7	6	1	13	5.96	.01	5	758	16	2	1	1	66	3	1	5
511015	90	.3	826	46	6	7	1	10	7.21	.1	5	499	12	2	1	1	110	2	1	2
511016	65	.6	588	41	10	5	1	12	5.48	.13	5	485	13	6	1	1	53	3	1	2
511017	12	.1	309	41	9	5	1	5	4.1	.01	5	729	9	2	1	1	40	4	1	2
511018	21	.1	384	30	4	5	1	3	2.49	.01	5	684	7	2	1	1	117	1	1	2
511029	85	.4	306	18	6	3	6	4	3.86	.18	5	168	6	2	1	1	66	3	1	2
511030	55	.2	262	20	8	6	3	5	3.45	.16	5	208	4	2	1	1	82	3	1	2
511031	24	.1	174	16	5	4	7	3	2.01	.17	5	144	3	2	1	1	21	3	1	2
511032	65	.4	222	20	10	4	6	4	3.59	.17	5	193	8	2	1	1	33	4	1	2
511033	32	.1	130	17	4	5	27	5	2.17	.15	5	149	4	2	1	1	23	2	1	2
511034	70	.3	252	11	2	4	27	4	1.96	.14	5	144	4	2	1	1	34	4	1	2
511035	9	.1	106	15	5	4	5	3	2.37	.15	5	119	2	2	1	1	26	3	1	2
511036	29	.1	248	15	4	8	6	15	3.35	.21	5	109	8	2	1	1	48	3	1	2
511476	55	.1	990	60	6	8	2	9	6.7	.14	7	651	15	2	1	1	157	1	1	2
511477	39	.1	416	46	9	9	1	11	6.8	.16	6	492	28	2	1	1	85	1	1	2
511478	50	.1	641	53	8	9	2	9	9.01	.16	5	608	17	2	1	1	66	2	1	2
511479	40	.1	560	48	14	8	1	12	7.36	.15	5	511	16	3	1	1	77	3	1	2

SAMPLE #	AU	AG	CU	ZN	AS	PB	MO	NI	FE	TI	U	MN	CO	SB	SN	W	BA	TH	CD	BI
511480	32	.1	625	45	5	2	1	10	5.79	.16	5	427	12	2	1	1	64	2	1	2
511789	125	.2	337	37	10	8	9	7	5.13	.22	5	386	26	2	1	1	24	2	1	6
511790	225	.1	265	22	7	2	6	4	3.32	.18	5	198	13	2	1	2	20	1	1	3
511791	130	.3	202	14	13	2	13	3	2.81	.17	5	111	9	2	1	1	18	2	1	2
511792	53	.2	184	16	25	5	5	4	2.57	.14	6	147	9	2	1	2	32	3	1	2
511793	190	.8	707	28	16	8	5	2	4.27	.17	5	201	14	3	1	1	53	3	1	2
511794	170	.6	539	22	11	5	16	4	4.98	.18	5	152	10	2	1	1	28	2	1	2
511795	615	1.9	1749	22	11	5	31	7	6.37	.17	5	142	37	2	1	1	29	2	1	2
511796	235	1.7	8687	38	4	2	10	7	3.96	.2	5	166	1	3	1	1	35	2	1	2
511797	270	.6	684	21	5	5	10	8	3.47	.19	5	166	8	2	1	1	54	4	1	2
511798	150	.3	537	16	7	2	19	9	3.32	.21	5	140	11	4	1	1	32	2	1	2
511799	290	.8	1025	16	4	2	59	11	2.78	.18	5	138	7	2	1	1	27	3	1	2
511800	55	.1	188	10	5	3	5	7	2.1	.17	5	106	12	2	1	1	23	2	1	2
511801	55	.2	166	9	5	2	4	8	2.13	.17	5	107	11	2	1	1	32	2	1	2
511802	41	.1	127	8	6	5	4	8	2.08	.15	5	90	11	2	1	1	27	2	1	2
511803	29	.1	129	11	4	2	3	11	2.54	.18	5	119	12	2	1	1	38	3	1	2
511804	24	.1	175	11	4	2	6	12	2.48	.19	5	123	11	2	1	1	37	2	1	2
511805	10	.1	117	11	2	4	5	8	2.38	.2	5	121	9	2	1	1	39	2	1	2
511818	100	.5	276	17	10	4	6	4	2.88	.18	5	122	12	2	1	1	47	2	1	2
511819	175	.9	566	25	9	3	7	3	3.69	.21	5	169	8	3	1	1	115	3	1	3
511820	195	.9	641	28	53	6	4	1	4.74	.24	5	172	13	2	1	1	112	2	1	2
511806	7	.1	105	11	5	3	10	7	2.74	.2	5	117	9	2	1	1	36	3	1	2
511807	16	.1	163	13	2	3	12	11	2.52	.19	5	129	11	2	1	1	30	2	1	2
511808	31	.1	189	14	3	2	23	11	2.37	.18	5	140	12	2	1	1	21	2	1	2
511809	65	.4	344	15	2	2	14	8	2.56	.2	5	147	17	2	1	1	30	4	1	2
511810	75	.5	356	15	4	2	5	7	2.6	.19	5	129	17	2	1	2	29	4	1	2
511812	175	1.3	780	10	5	2	18	8	2.24	.15	5	99	3	3	1	1	22	2	1	2
511813	70	.4	252	15	7	2	12	7	2.34	.17	5	149	14	2	1	1	30	2	1	2
511814	51	.2	150	10	6	2	17	5	1.62	.15	5	95	7	2	1	1	19	3	1	2
511815	65	.2	257	15	10	5	16	5	3.08	.16	5	129	14	2	1	1	26	1	1	2
511816	55	.2	267	12	14	5	7	5	2.71	.18	5	112	15	2	1	1	23	3	1	2
511817	135	.5	472	13	3	7	18	7	2.52	.17	5	129	7	2	1	1	32	3	1	2
511838	290	1	1690	33	3	8	3	6	3.31	.19	5	207	20	2	1	1	57	2	1	2
511839	170	.4	878	29	2	5	3	7	2.79	.22	5	277	14	2	1	1	60	2	1	2
511840	190	.8	732	33	4	6	4	6	2.73	.22	5	299	12	2	1	1	62	2	1	3
511841	115	.5	625	31	3	2	3	8	2.51	.22	5	266	10	2	1	1	50	2	1	3
511821	165	.8	659	30	13	5	11	2	3.54	.21	5	179	14	2	1	1	85	3	1	2
511822	170	.6	517	31	11	8	3	5	3.7	.24	5	230	14	2	1	1	95	1	1	2
511831	580	1.8	777	10	4	5	6	1	3.15	.21	5	76	11	2	1	1	40	2	1	2
511832	640	.8	440	12	8	2	5	5	3.25	.21	5	83	19	2	1	6	59	2	1	2

SAMPLE #	AU	AG	CU	ZN	AS	PB	MO	NI	FE	TI	U	MN	CO	SB	SN	W	BA	TH	CD	BI
511833	405	.8	694	22	6	4	4	8	3.49	.26	5	192	11	2	1	1	36	3	1	2
511823	230	1.1	459	32	7	12	4	5	3.15	.22	5	171	22	2	1	1	84	2	1	3
511824	70	.4	422	41	7	2	2	19	4.16	.27	5	465	24	2	1	1	29	2	1	4
511825	320	.9	704	34	10	2	5	7	3.46	.22	5	238	15	2	1	1	86	1	1	2
511826	380	1.3	747	47	8	7	7	7	2.59	.2	5	247	13	2	1	1	65	1	1	2
511827	185	.9	1152	38	10	13	8	12	3.35	.25	5	277	23	2	1	1	29	2	1	3
511828	60	.2	286	43	9	12	3	5	4.21	.26	5	497	21	2	1	1	42	2	1	2
511829	150	.3	537	21	4	7	3	4	4.68	.23	5	144	10	2	1	1	58	3	1	2
511830	770	1.4	453	16	5	11	8	6	3.24	.23	5	97	22	2	1	1	55	3	1	2
511834	285	1.3	1310	23	6	2	4	10	2.84	.24	5	168	15	2	1	1	48	3	1	3
511835	175	1	1069	21	3	4	7	13	2.66	.25	5	145	15	2	1	1	44	3	1	2
511836	150	.8	435	17	4	4	5	8	2.73	.23	5	126	21	2	1	1	30	3	1	2
511837	440	1.7	1645	30	3	8	3	6	2.31	.19	5	221	20	2	1	1	37	3	1	2
511848	305	1.5	604	27	6	4	2	4	3.99	.24	5	161	7	2	1	1	71	2	1	2
511842	300	.8	435	39	3	2	5	7	3.23	.26	5	324	23	2	1	1	60	2	1	5
511843	680	1.7	3038	46	6	6	3	13	3.8	.27	5	405	30	2	1	1	62	2	1	2
511844	125	.5	345	34	8	3	2	8	3.63	.27	5	344	20	2	1	1	71	1	1	4
511845	185	.7	915	27	4	2	4	7	2.13	.22	5	257	11	2	1	1	81	1	1	2
511846	235	1.1	924	31	3	6	3	6	2.65	.21	5	194	11	2	1	1	76	1	1	3
511847	260	.9	570	30	2	5	3	5	3.56	.24	5	187	6	2	1	1	70	1	1	2
511858	51	.2	249	33	3	8	1	7	5.38	.17	5	368	19	2	1	1	50	2	1	4
511859	23	.2	185	42	2	7	1	11	7.11	.18	5	488	21	2	1	1	44	1	1	2
511860	105	.3	285	36	5	7	1	11	4.58	.18	5	404	18	2	1	1	50	2	1	2
511861	19	.2	205	36	2	3	1	10	3.96	.18	5	386	16	2	1	2	52	2	1	2
511849	145	.4	431	40	2	8	2	6	6.76	.23	5	332	27	2	1	1	75	1	1	6
511850	225	1	747	41	7	8	2	5	5.67	.24	5	263	13	2	1	1	60	2	1	2
511851	115	.5	539	39	5	3	2	5	5.76	.23	5	255	10	2	1	1	50	2	1	2
511852	90	.4	688	38	3	2	5	10	5.72	.25	5	319	15	2	1	1	91	1	1	2
511853	95	.3	717	41	3	5	2	9	5.96	.3	5	368	16	2	1	1	89	1	1	2
511854	210	.7	1202	45	3	5	2	9	5.93	.28	5	369	19	2	1	1	57	1	1	5
511855	75	.3	582	35	2	11	2	7	5.71	.22	5	322	14	2	1	1	57	2	1	2
511856	50	.2	228	32	2	8	1	8	5.12	.18	5	361	18	2	1	1	76	2	1	2
511857	50	.3	235	33	7	5	1	9	7.06	.19	5	341	18	2	1	1	72	2	1	4
511862	44	.2	515	40	2	2	1	8	4.21	.19	5	379	9	2	1	1	70	2	1	2
511037	60	.1	413	15	3	3	4	14	3.56	.2	5	154	8	2	1	1	42	3	1	2
511038	520	12.6	2016	657	771	50	16	29	24.85	.07	11	114	21	2	1	1	3	4	2	12

PHIL 13 CLAIMS - ROCK CHIP SAMPLES 1985

SAMPLE #	V	SR	SI	AL	CA	MG	NA	K	P	LA	B	CR	ZR?	CE?
511863	196	107	.03	1.27	1.42	.73	.04	.12	.32	6	3	12	2	11
511864	213	75	.02	1.13	1.08	.79	.03	.08	.22	2	2	13	2	8
511865	203	74	.02	1.06	1.16	.72	.04	.08	.3	4	2	11	2	10
511866	217	70	.03	1.13	1.3	.74	.05	.09	.34	8	6	11	2	11
511867	290	99	.03	1.2	1.18	.82	.04	.08	.26	6	2	13	2	10
511868	204	69	.04	1.14	1.04	.82	.04	.09	.31	4	2	14	2	10
511869	205	73	.02	1.3	1.23	.98	.04	.07	.27	5	2	12	2	10
511870	153	56	.03	1.04	.83	.72	.03	.09	.27	6	5	11	2	10
511871	133	158	.04	1.06	1.06	.74	.04	.08	.23	5	4	9	2	9
511872	122	64	.06	1.25	.97	.97	.06	.26	.22	4	2	9	3	9
511873	171	65	.03	1.26	.8	.97	.04	.12	.27	5	3	11	2	10
511874	249	49	.04	1.07	1.1	.95	.06	.24	.45	9	2	18	-2	14
511875	315	47	.02	.98	1.07	.81	.04	.16	.34	6	3	8	1	11
511876	324	64	.03	1.08	.96	.93	.04	.13	.32	7	2	12	1	11
511877	227	31	.03	.97	.66	1.1	.03	.23	.27	7	2	8	2	10
511878	214	69	.01	1.01	1.15	.84	.03	.09	.36	7	2	11	2	10
511879	332	42	.03	.94	.92	.77	.04	.2	.34	10	2	11	1	11
511880	168	34	.03	.99	.59	.87	.04	.14	.27	9	4	4	2	12
511881	177	59	.03	1.04	1.06	.89	.05	.13	.22	4	2	16	2	10
511882	216	65	.02	1.1	1.16	1.18	.04	.13	.26	5	6	39	2	11
511883	186	68	.02	.99	1.07	.97	.03	.12	.24	4	3	15	2	10
511884	181	50	.02	.97	1.02	.81	.05	.1	.23	3	4	13	2	10
511885	159	48	.02	.93	.56	.84	.03	.1	.22	6	6	9	3	11
511886	219	47	.02	.96	.79	1.02	.03	.08	.27	7	4	11	2	11
511887	115	36	.02	.93	.45	.85	.04	.2	.14	4	2	7	2	11
511888	124	45	.02	.93	.86	.61	.03	.15	.29	12	5	7	2	16
511889	194	42	.02	.99	.89	1.01	.04	.17	.36	11	2	9	3	14
511890	184	31	.02	.74	.63	.82	.03	.21	.24	9	6	7	3	11
511891	338	57	.02	1.15	1.25	.97	.04	.15	.46	13	2	10	1	13
511892	174	47	.02	1.05	.83	1.2	.03	.15	.31	6	2	7	2	12
511893	230	66	.03	1.55	.81	1.77	.03	.15	.24	6	2	16	3	11
511894	202	102	.03	1.61	1.17	1.78	.03	.12	.31	9	8	26	3	11
511895	203	39	.02	1.58	.71	1.6	.02	.22	.24	8	6	12	2	11
511896	179	32	.02	1.57	.66	1.45	.02	.34	.33	11	2	10	2	14
511897	111	37	.02	.9	.48	.5	.03	.14	.18	12	5	4	2	14

SAMPLE #	V	SR	SI	AL	CA	MG	NA	K	P	LA	B	CR	ZR?	CE?
511898	224	36	.02	1.23	.44	.83	.03	.13	.22	12	10	9	2	12
511899	131	63	.01	1.1	1.19	.88	.03	.16	.32	7	2	10	2	13
511900	109	85	.01	1.35	1.37	.95	.01	.13	.31	15	4	8	2	17
511901	58	34	.01	1.28	.5	.51	.01	.14	.22	2	2	8	1	10
511902	82	71	.02	.91	1.16	.4	.02	.16	.28	2	7	6	1	11
511903	70	96	.04	.66	.99	.31	.02	.17	.31	4	10	8	1	12
511904	81	52	.05	.56	1.21	.27	.02	.15	.33	5	7	5	2	11
511905	89	55	.03	.73	1.11	.36	.02	.18	.22	3	8	9	1	12
511906	98	36	.03	.7	.52	.26	.01	.17	.24	3	5	9	2	11
511907	95	69	.04	.67	1.01	.27	.01	.14	.24	4	2	7	1	11
511908	176	31	.02	1.1	.44	.75	.01	.16	.29	4	2	11	2	12
511909	193	50	.02	1.42	.96	1.69	.03	.28	.3	6	2	17	1	11
511910	214	63	.01	1.25	.84	1.46	.02	.13	.32	4	3	14	2	12
511911	186	89	.03	1.12	1.15	1	.04	.12	.29	2	2	12	2	11
511912	182	65	.02	1.13	1.18	.93	.03	.14	.28	3	2	14	2	11
511913	213	52	.02	1.05	.99	.99	.03	.08	.26	3	2	14	2	10
511914	282	21	.04	1.56	.44	1.41	.02	.08	.24	5	2	10	2	9
511915	294	46	.04	1.07	1.01	1.03	.03	.18	.25	5	2	11	1	10
511916	152	56	.01	1.28	.98	1.08	.03	.19	.24	4	4	23	2	10
511917	108	35	.03	.81	.61	.4	.02	.21	.36	3	11	9	2	10
511918	71	151	.05	.67	2.87	.38	.02	.17	.39	8	18	3	1	11
511919	146	74	.02	1.18	.99	1.26	.03	.12	.29	10	6	11	3	14
511920	161	64	.01	1.37	.87	1.36	.03	.13	.27	8	9	16	3	13
511921	280	98	.02	1.26	1.75	1.2	.03	.22	1	22	2	5	1	22
511922	174	52	.03	1.53	1.01	1.63	.03	.23	.56	10	2	7	2	16
511923	225	47	.03	1.75	.76	1.64	.04	.34	.39	7	2	7	2	13
511924	185	37	.02	1.62	.51	1.24	.04	.21	.31	7	3	7	1	13
511925	226	36	.03	.9	.52	.67	.04	.17	.22	7	10	5	2	13
511926	124	51	.03	.89	.95	1	.04	.18	.21	7	8	10	4	11
511927	177	34	.02	.98	.62	.93	.02	.13	.35	7	2	7	2	15
511928	215	45	.01	.81	1.12	.63	.02	.13	.61	12	2	9	2	18
511929	201	48	.02	.96	.85	.99	.03	.12	.26	6	3	8	2	10
511930	213	52	.02	1.06	1.13	1.01	.03	.13	.26	6	2	17	2	9
511931	213	66	.03	1.1	1.08	1.05	.03	.1	.23	6	4	18	2	9
511932	227	52	.03	1.22	1.1	1.25	.04	.07	.3	5	2	18	2	10
511933	206	76	.03	1.22	1.75	1.26	.03	.09	.4	10	4	12	2	13
511934	275	54	.03	1.12	1	1.14	.03	.12	.4	13	2	11	2	13
511935	122	71	.02	.77	1.47	.78	.03	.18	.44	14	2	8	2	15
511936	147	40	.02	1	.55	.65	.03	.13	.2	2	2	6	2	8
511937	107	39	.02	1.34	.74	.96	.02	.1	.26	11	2	11	3	12

SAMPLE #	V	SR	SI	AL	CA	MG	NA	K	P	LA	B	CR	ZR?	CE?
511938	89	35	.02	1.15	.41	.83	.02	.14	.23	8	3	5	4	11
511939	121	48	.02	1.2	.54	.97	.03	.08	.2	5	2	5	5	10
511940	28	18	.03	.64	.28	.17	.01	.14	.26	11	5	1	3	13
511941	23	28	.01	.65	.27	.14	.01	.15	.21	5	4	3	2	7
511942	166	65	.02	1.05	1.12	.98	.03	.22	.24	4	2	7	2	8
511943	147	51	.02	2.01	1.86	1.74	.04	.06	.26	9	5	47	4	10
511944	115	50	.01	1.53	1.03	1.31	.03	.06	.21	8	2	31	3	11
511945	85	42	.01	2.04	.47	1.81	.03	.29	.22	7	8	4	1	11
511946	58	30	.02	1.16	.39	.8	.04	.13	.17	9	5	4	2	13
511947	90	34	.02	2.13	.7	1.66	.02	.11	.23	8	5	3	1	11
511948	59	38	.02	1.33	.39	.7	.03	.1	.2	7	2	5	2	12
511949	164	21	.01	.88	.36	.33	.01	.14	.4	8	2	4	1	12
511950	140	36	.02	1	.78	.52	.02	.12	.21	6	2	7	2	11
511951	190	26	.02	1.24	.41	1.12	.03	.14	.21	5	2	8	2	11
511952	172	71	.02	1.32	1.07	1.36	.04	.07	.23	5	2	13	3	10
511953	156	72	.02	1.22	1.13	1.21	.04	.08	.22	7	2	15	3	10
511954	113	44	.03	.86	.72	.67	.03	.11	.21	8	4	11	2	12
511955	95	41	.04	.72	.5	.43	.03	.13	.16	8	10	9	1	11
511956	118	56	.03	1.02	.71	.85	.03	.12	.25	10	2	13	2	14
511957	100	52	.05	.73	1.08	.5	.03	.14	.35	13	7	8	2	14
511958	80	45	.04	.82	.83	.4	.03	.15	.3	10	9	6	2	14
511959	106	47	.03	.95	.96	.71	.03	.13	.28	10	6	9	2	13
511960	126	57	.03	1.03	.85	.74	.03	.1	.23	8	6	11	2	11
511961	123	32	.03	.87	.49	.43	.02	.11	.28	14	7	8	1	15
511963	121	43	.03	.89	.79	.78	.02	.1	.43	22	3	12	3	24
511964	138	69	.02	1.39	1.17	.89	.02	.14	.33	13	10	10	2	13
511965	94	63	.02	.88	1.12	.6	.02	.17	.35	11	4	7	2	14
511966	81	42	.04	.73	.4	.23	.02	.19	.3	7	10	9	1	10
511967	77	33	.05	.54	.4	.11	.02	.16	.29	7	11	5	1	11
511968	80	41	.04	.56	.51	.13	.01	.17	.39	7	3	4	1	10
511969	100	63	.05	.51	1.01	.24	.02	.15	.36	9	2	3	2	12
511970	75	84	.05	.75	1.17	.62	.02	.15	.32	14	7	6	2	15
511971	69	35	.03	.93	.57	.23	.02	.17	.3	11	12	4	1	14
511972	74	35	.03	.66	.54	.15	.01	.15	.32	13	10	4	2	15
511973	91	41	.05	.5	.73	.12	.02	.16	.48	19	14	8	2	18
511974	54	108	.06	.45	5.53	.4	.01	.14	.29	10	8	2	2	8
511975	74	125	.04	.69	2.55	.43	.02	.16	.25	13	13	2	2	12
511976	50	112	.04	.53	4.72	.42	.02	.12	.3	11	11	2	2	10
511977	43	56	.05	.57	1.27	.24	.02	.17	.3	11	15	2	3	12
511978	118	68	.03	1.91	1.65	1.11	.03	.06	.26	7	9	26	4	9

SAMPLE #	V	SR	SI	AL	CA	MG	NA	K	P	LA	B	CR	ZR?	CE?
511979	48	51	.03	1.1	.84	.63	.05	.1	.16	6	8	4	3	10
511980	48	59	.03	1.09	.73	.64	.06	.11	.13	6	7	4	3	10
511981	61	34	.03	.84	.47	.46	.05	.14	.15	5	4	13	4	9
511982	61	29	.02	.88	.51	.58	.04	.19	.15	5	5	8	4	9
511983	42	40	.02	.68	.54	.29	.04	.08	.16	6	3	10	4	10
511984	37	37	.03	.81	.75	.34	.05	.08	.13	5	11	3	3	8
511985	55	51	.02	1.01	.66	.61	.05	.15	.14	6	6	8	3	9
511986	79	47	.02	.88	.54	.54	.04	.1	.17	5	6	7	3	8
511987	108	73	.02	1.21	.8	.74	.04	.13	.21	6	4	8	2	8
511988	89	81	.03	1.3	.94	.7	.04	.07	.21	5	5	7	3	8
511989	101	74	.03	1.24	.71	.69	.03	.06	.18	7	5	6	3	9
511990	106	54	.03	1.29	.55	.81	.04	.08	.21	7	2	10	4	8
511991	73	43	.02	1.08	.61	.61	.04	.07	.14	6	4	7	4	8
511992	61	87	.03	1.32	.72	.88	.04	.05	.18	5	4	5	3	9
511993	72	204	.02	1.39	.91	.97	.04	.13	.26	7	2	6	3	10
511994	43	83	.02	.83	.66	.37	.05	.07	.16	7	3	5	3	9
511995	37	52	.02	.97	.86	.4	.04	.05	.12	6	6	4	1	8
511996	41	38	.03	.83	.81	.33	.03	.06	.18	4	5	5	2	7
511997	97	51	.03	1.16	.91	.79	.03	.08	.2	7	7	7	3	8
511998	50	39	.02	1.11	.74	.57	.03	.05	.15	5	4	5	3	9
511999	84	43	.03	1.28	.72	.82	.02	.05	.17	5	5	6	4	9
511012	65	31	.02	.59	.38	.26	.03	.09	.17	9	3	3	2	15
511013	152	54	.02	.79	1.83	.9	.03	.16	.26	11	4	5	2	10
511014	128	35	.02	1.06	.57	.54	.03	.12	.28	11	9	12	1	13
511015	207	41	.02	.96	.53	.84	.03	.11	.24	7	6	9	2	10
511016	171	39	.03	1.06	.89	1.27	.03	.08	.27	7	7	26	2	10
511017	62	158	.02	.44	5.02	.75	.03	.08	.2	9	4	4	1	7
511018	36	137	.01	.29	3.27	.7	.02	.1	.21	7	4	4	1	9
511029	93	67	.19	1.34	.98	.6	.1	.16	.19	11	13	6	3	11
511030	103	124	.12	1.45	1.15	.66	.06	.16	.19	8	10	4	4	9
511031	50	60	.13	1.31	.99	.57	.1	.07	.13	8	10	5	4	10
511032	76	57	.14	1.32	1.01	.62	.1	.1	.18	8	9	6	3	9
511033	47	41	.14	1.17	1.01	.56	.12	.06	.14	8	8	7	4	10
511034	34	42	.23	1.11	1.01	.3	.13	.1	.12	7	8	5	4	10
511035	66	44	.13	1.27	1.13	.54	.09	.07	.15	7	8	4	3	9
511036	114	51	.11	1.38	.77	.8	.13	.3	.14	10	11	19	6	10
511476	207	53	.01	1.45	.82	1.55	.03	.19	.28	12	2	17	2	36
511477	225	41	.01	1.21	.93	1.26	.03	.12	.25	14	2	15	3	29
511478	310	43	.01	1.35	.86	1.48	.03	.16	.28	16	2	15	3	13
511479	228	58	.01	1.24	1.03	1.34	.04	.13	.35	18	4	17	3	17

SAMPLE #	V	SR	SI	AL	CA	MG	NA	K	P	LA	B	CR	ZR?	CE?
511480	192	54	.01	1.04	.93	.91	.04	.15	.25	10	6	16	3	17
511789	108	66	.02	1.68	1.17	1	.05	.09	.22	12	5	22	5	16
511790	63	51	.01	1.3	.88	.74	.05	.07	.13	10	6	6	4	17
511791	46	46	.01	.82	.46	.4	.05	.05	.16	9	6	7	4	11
511792	43	54	.01	.99	.59	.46	.05	.08	.14	7	7	7	2	13
511793	100	48	.01	1.15	.65	.78	.04	.13	.19	12	5	7	6	8
511794	107	44	.01	1.05	.59	.63	.03	.07	.2	8	2	7	6	8
511795	91	44	.01	.82	.55	.48	.03	.14	.18	12	2	11	5	9
511796	111	23	.01	1.06	.56	.8	.04	.36	.23	11	3	22	8	11
511797	115	29	.01	1.02	.44	.81	.03	.3	.16	8	3	23	7	10
511798	117	38	.01	1.1	.53	.89	.05	.33	.16	12	8	20	8	10
511799	99	22	.01	1.05	.56	.76	.05	.25	.15	10	2	19	5	11
511800	61	29	.01	1.04	.89	.52	.06	.13	.11	11	8	11	4	13
511801	62	25	.01	.82	.64	.47	.06	.16	.13	8	5	12	3	9
511802	67	19	.01	.77	.54	.43	.05	.11	.13	8	2	14	4	7
511803	82	43	.01	1.11	.6	.72	.1	.34	.13	9	2	14	3	6
511804	99	29	.01	1.12	.57	.79	.08	.39	.13	9	2	17	4	7
511805	95	35	.01	1.13	.58	.78	.09	.42	.14	8	5	17	4	9
511818	91	39	.01	1.2	.7	.48	.05	.13	.17	7	2	7	4	5
511819	123	52	.01	1.25	.65	.74	.04	.22	.18	7	6	4	5	9
511820	144	50	.01	1.2	.46	.86	.04	.26	.21	5	5	2	5	8
511806	102	30	.01	1.15	.54	.81	.07	.34	.15	9	2	18	4	11
511807	90	27	.01	1.1	.6	.8	.07	.31	.14	8	2	18	3	6
511808	93	21	.01	1.07	.55	.78	.07	.21	.14	8	2	18	4	10
511809	91	33	.01	1.21	.6	.81	.07	.29	.13	9	3	16	4	8
511810	102	19	.01	1.22	.49	.86	.04	.24	.14	8	4	18	5	9
511812	71	20	.01	.86	.52	.61	.05	.2	.13	8	4	13	2	5
511813	80	23	.01	1.08	.58	.8	.04	.19	.14	9	2	15	3	7
511814	52	25	.01	.86	.55	.47	.05	.1	.12	8	4	8	3	8
511815	86	63	.01	1.22	.99	.52	.04	.07	.21	9	9	6	3	9
511816	73	25	.01	1.01	.48	.65	.05	.16	.13	9	4	11	6	6
511817	77	31	.01	.89	.59	.61	.04	.23	.15	6	4	10	5	6
511838	91	70	.01	.93	.65	.69	.04	.29	.15	4	6	5	4	8
511839	108	80	.01	1.08	.75	.89	.05	.39	.18	6	7	12	4	6
511840	100	59	.01	1.1	.81	.98	.05	.45	.28	5	3	13	4	9
511841	101	62	.01	1.05	.79	.89	.04	.3	.17	4	4	15	5	10
511821	120	41	.01	1.02	.45	.81	.04	.22	.21	5	3	5	5	8
511822	118	62	.01	1.33	.8	.95	.04	.35	.2	5	6	3	5	11
511831	87	45	.01	.48	.35	.38	.03	.18	.17	5	2	13	6	10
511832	114	45	.01	.55	.35	.39	.03	.23	.16	5	5	18	5	5

SAMPLE #	V	SR	SI	AL	CA	MG	NA	K	P	LA	B	CR	ZR?	CE?
511833	120	85	.01	1.02	.76	.93	.05	.31	.19	7	2	20	6	11
511823	117	65	.01	1.15	.93	.72	.04	.17	.21	4	7	4	6	11
511824	126	55	.01	1.46	1.59	1.06	.07	.39	.25	5	12	31	4	6
511825	129	57	.01	.97	.79	.75	.05	.26	.21	4	10	6	4	5
511826	93	67	.01	1.06	.71	.83	.04	.25	.19	5	4	3	4	6
511827	104	55	.01	.96	.76	.92	.05	.18	.21	6	3	15	5	9
511828	87	154	.01	1.63	1.39	1.52	.05	.21	.32	7	8	4	4	8
511829	164	48	.01	.95	.75	.58	.04	.19	.19	4	3	11	5	4
511830	102	30	.01	.64	.39	.49	.04	.19	.16	7	2	13	5	8
511834	106	36	.01	.99	.62	.9	.05	.39	.18	7	3	21	6	9
511835	100	35	.01	.9	.59	.84	.06	.38	.16	6	2	21	8	11
511836	95	33	.01	.72	.52	.6	.04	.25	.15	6	5	17	6	11
511837	76	33	.01	.91	.7	.78	.05	.35	.2	7	5	12	5	11
511848	140	51	.01	.8	.6	.52	.04	.15	.19	2	2	8	4	8
511842	105	63	.01	1.26	.82	1.14	.05	.46	.19	4	3	12	4	7
511843	103	68	.01	1.31	1.02	1.21	.04	.37	.37	8	3	15	4	10
511844	111	73	.01	1.36	.98	1.15	.05	.45	.22	5	5	11	3	7
511845	69	37	.01	.93	.6	.86	.04	.42	.17	3	7	9	3	7
511846	88	48	.01	.99	.56	.8	.04	.3	.16	3	5	7	3	5
511847	100	62	.01	1.23	.73	.77	.05	.23	.16	3	3	7	3	5
511858	200	64	.01	1.02	1.15	.79	.03	.09	.22	5	3	9	2	13
511859	264	56	.01	1.13	1.08	.96	.03	.06	.15	6	12	10	2	10
511860	162	62	.01	1.13	.92	.95	.04	.09	.13	4	5	22	3	10
511861	134	89	.02	1.24	1.09	1.1	.04	.09	.14	4	7	16	4	11
511849	223	73	.01	.98	.98	.68	.04	.16	.16	2	2	16	4	5
511850	186	70	.01	1.16	1.27	.75	.05	.15	.31	6	8	11	4	11
511851	179	77	.01	1.17	1.17	.72	.05	.14	.21	4	7	12	3	7
511852	181	67	.01	1.09	1.08	.89	.05	.29	.21	5	9	14	3	13
511853	209	61	.01	1.2	.87	1.19	.05	.36	.13	3	4	14	4	10
511854	196	124	.01	1.17	1.09	1.05	.04	.13	.18	4	7	12	4	12
511855	201	75	.01	1.1	1.36	.78	.04	.13	.22	4	7	11	4	12
511856	199	85	.03	1.17	1.31	.85	.04	.12	.24	4	2	9	3	13
511857	296	66	.02	1.02	1.01	.83	.03	.11	.23	3	2	9	2	11
511862	148	49	.01	1.27	1.08	1.15	.04	.08	.05	3	3	16	5	9
511037	88	30	.04	1.11	.64	.83	.08	.37	.15	9	5	16	4	10
511038	94	10	.03	1.52	.04	.43	.01	.04	.25	2	2	1	1	3

APPENDIX 4

PETROGRAPHIC REPORT

PHIL 13

Harris
EXPLORATION
SERVICES

MINERALOGY AND GEOCHEMISTRY

534 ELLIS STREET, NORTH VANCOUVER, B.C., CANADA V7H 2G6

TELEPHONE (604) 929-5867

Job #85-66

December 19th, 1985

Report for: Mark Rebagliati,
B.P. Canada, Selco Division,
700-890 West Pender St.,
Vancouver, B.C.
V6C 1K5

Samples:

7 rock samples from Project 10130 for petrographic study.

Samples containing substantial opaques were prepared as polished thin sections; the remainder were prepared as conventional thin sections.

Cross reference between sample numbers and slide numbers is as follows:

Sample No.	Slide No.	Preparation type
511-038	85-214X	Polished thin section
-932	215X	"
-933	216X	"
-905	217X	Thin section
-953	218X	Thin section
-017	219X	"
-818	220X	"

Summary:

The suite is made up of quartz-free alkalic igneous rocks of monzonitic (latitic) composition.

The least altered examples are 511-818 and 953, which are fine-grained porphyries with phenocrysts of mafics and sericitzed plagioclase in a felsitic groundmass of K-feldspar. The mafics are dominantly amphibole in 818 and pyroxene in 953. Apatite is a prominent accessory. Disseminated opaques are mainly pyrite in 818 and magnetite in 953.

The suite includes examples of several distinct types of alteration.

One is characterized by veining, breccia filling and pervasive replacement by carbonate, with quartz as an associated component of the veining phase. Samples exhibiting this feature are 511-017 and 905. Sulfides are not associated with this alteration type.

Another alteration type is characterised by irregular permeations and micro-structurally controlled replacements of magnetite. This is found in 511-932 and 933. Associated minerals are chlorite, epidote and, possibly, K-feldspar in 932, and biotite, apatite and possibly pyroxene in 933. Quartz is notably absent. These samples contain minor pyrite and chalcopyrite, but this is not clearly associated with the magnetite alteration. 932 is very rich in K-spar and, hence of syenitic

rather than latitic composition. A part of this K-spar could be of metasomatic origin.

The remaining sample of the suite (511-038) is also of strongly K-feldspathic composition; moreover, it is coarse-grained and apparently lacks associated plagioclase and mafics. In the absence of specific evidence for a metasomatic origin it is assumed to be a primary intrusive syenite.

It exhibits yet another type of alteration, associated with breccia fillings and veinlets of pyrite and chalcopyrite with quartz. The adjacent K-spar is strongly altered to a fine-grained, yellowish brown to sub-opaque, fibrous to compact material of uncertain composition (probably mainly sericite or biotite and clays).

J.F. Harris Ph.D.

Sample 511-953 (Slide 85-218X) LATITE PORPHYRY

Estimated mode

K-feldspar	30
Plagioclase) Sericite) Clays)	30
Pyroxene	28
Epidote	6
Biotite) Chlorite)	4
Apatite	trace
Sphene	trace
Quartz	trace
Carbonate	trace
Opaques	2

This is a homogenous igneous porphyry consisting of abundant euhedral phenocrysts in a microcrystalline groundmass.

The phenocrysts are dominantly of plagioclase and pyroxene. Both show euhedral prismatic form and a size range from 0.2 - 2.0mm, with the plagioclase tending overall to be a little larger than the pyroxene. Some of the pyroxenes are in the form of coalescent clusters of smaller grains.

The plagioclase is rather strongly and evenly altered to very fine-grained sericite, clays and epidote. The pyroxene is a colourless to pale green variety and is generally fresh. Partial alteration to epidote and chlorite is occasionally observed.

A minor proportion of strongly altered mafic phenocrysts occurs. These mainly consist of ragged cores of biotite or chlorite surrounded by fringes of granular epidote and fine-grained opaques. Occasionally these contain small remnants of pyroxene or olive-brown amphibole. In the main, they probably represent the selective alteration of accessory amphibole.

The phenocrysts are set in a felsitic groundmass consisting of an anhedral aggregate of K-feldspar of grain size 0.01 - 0.02mm with a minor component of disseminated granules of mafic silicates and opaques. Rare tiny coarser grains of K-spar (microphenocrysts) are present. The K-spar is unaltered.

Apatite is a prominent accessory, as sparsely scattered individual subhedral grains to 1mm in size.

Opaques are clusters of equant anhedral/subhedral grains of magnetite and minor pyrite, generally closely associated with pyroxene.

The rock is cut by a hair-line veinlet of quartz and carbonate.

This is a similar type of rock to 511-818 except that the dominant mafic silicate is pyroxene rather than amphibole, and the opaques mainly oxides rather than pyrite.

Sample 511-933 (Slide 85-216X) ALTERED LATITE PORPHYRY

Estimated mode

K-feldspar	29
Plagioclase	22
Pyroxene	18
Amphibole	7
Biotite	4
Epidote	5
Chlorite	2
Sericite	2
Carbonate	1
Apatite	2
Magnetite	8
Chalcopyrite	trace
Pyrite	trace

This rock consists of abundant euhedral phenocrysts, 0.2 - 2.0mm in size, of plagioclase, pyroxene and minor K-feldspar in a fine-grained felsitic groundmass of K-feldspar.

The plagioclase is rather strongly pervasively altered to fine-grained mixtures of sericite, chlorite, epidote and carbonate. The pyroxene (a colourless to pale green variety) shows varying degrees of alteration to amphibole and chlorite. Scattered phenocrysts of biotite (sometimes with rutile inclusions and rims of fine-grained opaques) and rare olive-coloured amphibole are also present. Accessories are small grains of apatite.

The groundmass K-spar is essentially unaltered. It contains rather abundant tiny granules (0.01 - 0.02mm) of mafic silicates and magnetite.

The rock is traversed by a network of what appear macroscopically to be magnetite-rich fracture fillings. In thin section these zones show no defined contacts but are seen as linear zones of coarser crystallization and enrichment of magnetite and associated biotite, apatite and lesser epidote, presumably representing introduction via incipient microfractures.

The clear association of coarse apatite (grains to 2mm in size) and biotite as an associate of the magnetite stockwork is a notable feature.

The magnetite zones locally include concentrations of granular pyroxene; these may be related to the introduced phase or may represent primary glomeroporphyritic masses or possibly altered xenoliths.

Chalcopyrite is a minor constituent of the introduced phase - chiefly in association with veinlets and segregations of epidote. It is generally not intimately associated with the magnetite. Pyrite occurs as scattered, partially limonitized grains which may, in part, be primary.

The association of mafic silicates and magnetite in this alteration suggests skarnic affinities (though carbonate is rare).

Sample 511-932 (Slide 85-215X) MINERALIZED SYENITE

Estimated mode

K-feldspar	48
Plagioclase	16
Sericite	2
Amphibole	5
Chlorite	6
Epidote	4
Apatite	2
Carbonate	trace
Magnetite	12
Pyrite	4
Chalcopyrite	1

This is a heterogenous rock in which original primary textures are overlain, in varying degree, by metasomatic features associated with concentrations of magnetite and sulfides.

The host rock appears to be a porphyritic monzonite or syenite in which the dominant constituent is K-feldspar. Accessories consist of euhedral plagioclase crystals (weakly sericitized), scattered prismatic amphiboles - sometimes partially altered to chlorite and epidote - and rather coarsely subhedral grains of apatite.

The K-spar ranges from finely granular, felsitic to coarser, porphyritic. Some coarser K-spar grains look as if they may be replacements of original plagioclase.

A proportion of the K-spar in this rock may be of secondary origin. Some of the coarser granular K-spar appears to be in the form of veins and segregations associated with clumps of coarse, pale green amphibole, chlorite, epidote, magnetite and sulfides.

The opaques form irregular impregnations ranging from coarse patches of coalescent grains with associated silicates as above, to a more dispersed,disseminated form consisting of clusters and lines of grains in essentially unaltered host rock. The rock is cut by a few wispy veinlets of chlorite and epidote, but overall there is no clear fracture control to the mineralization.

Magnetite is the principal opaque constituent, but pyrite and chalcopyrite are significant accessories - the pyrite as clumps and individual subhedral grains, mainly separate in the host rock, but also intergrown with the magnetite; and the chalcopyrite as tiny disseminated flecks in the silicate host, and scattered small pockets with magnetite and pyrite.

Sample 511-905 (Slide 85-217X) FRACTURED ALTERED LATITE PORPHYRY

Estimated mode

K-feldspar	22
Plagioclase	15
Sericite) Clays)	25
Carbonate	30
Quartz	5
Apatite	1
Epidote	trace
Pyrite	2

This is a porphyritic rock of monzonite (latite) composition, extensively veined and pervasively altered.

The original rock type consists of abundant euhedral plagioclase phenocrysts, 0.2 - 2.0mm in size, in a fine-grained felsitic groundmass of K-feldspar. The plagioclase is rather strongly and evenly sericitized and the K-spar groundmass also shows a brownish turbidity possibly representing pervasive argillization. Traces of very fine-grained epidote and opaques also occur disseminated through the groundmass.

The rock also contains numerous subhedral patches of carbonate which may be centres of replacement associated with the fracturing and alteration, or may represent totally replaced mafic silicates, although no recognizable remnants of pyroxene or hornblende are seen. One large patch of carbonate clearly shows the pseudomorphous forms of a prismatic aggregate. There are also a few small grains of lamellar sericite/rutile which probably represent altered biotite.

Accessories are scattered grains of subhedral apatite to 1mm in size, and disseminated granules of pyrite, 0.1 - 0.5mm.

The rock is cut by several (sub-parallel) directions of veinlets of sparry carbonate and quartz, intergrown in various proportions. A central, intensely altered zone shows strong pervasive alteration to carbonate and sericite which tends to obliterate the primary igneous textures.

The sulfides in this rock are not apparently associated with the carbonate/quartz veining and alteration but are of primary or deuteric origin.

Sample 511-818 (Slide 85-220X) LATITE PORPHYRY

Estimated mode

K-feldspar	38
Plagioclase)	
Sericite)	33
Clays)	
Amphibole	17
Epidote	5
Biotite	3
Apatite	1
Sphene	trace
Pyrite	2
Limonite	1
Magnetite	trace

This is a homogenous, porphyritic igneous rock, with rather even-sized phenocrysts of plagioclase and mafic silicates randomly distributed through a fine-grained groundmass of K-feldspar.

The most abundant phenocrysts, ranging in size from 0.2 - 2.5mm, are of plagioclase. These are euhedral, occasionally zoned, and typically rather strongly and evenly altered to compact masses of very fine-grained sericite, clays and epidote.

The mafics are mainly a rather pale green amphibole which forms somewhat ragged prismatic grains of similar, or somewhat smaller size to the plagioclase. Occasionally the amphibole is intergrown with rather scrappy looking brown biotite, which also forms a few phenocrysts in its own right (sometimes with hexagonal inclusions of acicular rutile). The biotite has probably developed as a late magmatic alteration of amphibole. The amphibole itself may well be a reaction product from original pyroxene though no remnants of that mineral survive.

Some amphibole grains show replacement by granular epidote, which also forms scattered grains on its own. Minor sphene is associated with the mafic silicates.

Apatite forms scattered individual subhedral grains, often surprisingly coarse-grained (to 2mm) for an accessory.

Opaques are principally pyrite, as randomly disseminated individuals and clusters of irregular, sometimes poikilitic grains, 0.1 - 0.5mm in size. They are commonly more or less limonitized. Traces of magnetite are locally intergrown with the pyrite.

The groundmass of the rock consists of homogenous, fine-grained, felsitic to feathery-textured K-feldspar. Occasional small clumps of slightly coarser grain size and a few euhedral microphenocrysts of K-spar are present. The groundmass contains a minor proportion of evenly distributed tiny (5 - 20 micron) granules of mafic silicates and opaques. The K-spar is unaltered.

Sample 511-038 (Slide 85-214X) MINERALIZED, ALTERED SYENITE(?)

Estimated mode

K-feldspar	25
Sericite)	
Clays)	20
Biotite)	
Quartz	5
Pyrite	45
Chalcopyrite	5
Magnetite	trace

This is a strongly altered, brecciated rock of uncertain origin.

The apparent host is a coarse-grained (0.5 - 5.0mm) anhedral aggregate of monomineralic K-feldspar (orthoclase). Whether this is an original primary texture (intrusive syenite) or a product of metasomatism cannot be ascertained from the slide.

The K-spar exists as brecciated remnants veined and cemented by sulfides and accessory quartz. It shows variable degrees of alteration to a fine-grained, compact, sub-opaque to fibrous, translucent, colourless to golden brown material apparently composed of a mixture, in varying proportions, of sericite, clays, secondary biotite and possibly leucoxene.

In the least brecciated and mineralized central area of K-spar the alteration is pervasive, as rather evenly disseminated flecks and irregular patches, often showing a build-up adjacent to small limonitic veinlets. Adjacent to the main zones of sulfide veining and replacement , and in brecciated fragments of K-spar included within these zones, the alteration becomes more intense and in many cases the K-spar is completely pseudomorphed by the brown, sub-opaque, compact form of the alteration product.

There appear to be no associated mafics (or altered forms thereof) or accessory minerals associated with the K-spar.

The sulfides fill breccia cracks and angular pockets, and also form extensive areas of replacement. Quartz is the only associated gangue product.

Pyrite is the dominant sulfide and in the most extensive area of mineralization in the slide forms a "sandy" aggregate of close-packed individual rounded to euhedral grains, 0.01 - 0.5mm in size, in an interstitial cement or matrix of quartz. Locally the pyrite grains coalesce to form semi-massive, sometimes lamellar-structured patches. A few patches or pockets of chalcopyrite occur, where this mineral takes the place of quartz as the "cement" to the pyrite granules.

At the other end of the slide the mineralization exhibits a somewhat different form. It is a complex of veins and breccia-controlled pockets in which chalcopyrite is relatively much more abundant, forming veinlets and angular segregations to 1 or 2mm in size as well as granular intergrowths with pyrite on the scale 0.2 - 0.5mm. Locally the chalcopyrite appears to replace the pyrite but overall they are probably essentially contemporaneous. This style of mineralization is accompanied by only very minor quartz gangue. Traces of magnetite are present. Strong halos of the brownish sericitic alteration are developed in the K-spar adjacent to the sulfide veinlets.

Sample 511-017 (Slide 85-219X) BRECCIATED ALTERED LEUCO-MONZONITE

Estimated mode

K-feldspar	12
Sericitized plagioclase	8
Apatite	trace
Carbonate	50
Quartz	28
Limonite	2
Pyrite	trace

This is an intensely altered rock.

Remnants of what was presumably the original rock type are recognizable at both ends of the slide. This consists of a granular intergrowth of K-feldspar and plagioclase of grain size 0.1 - 1.0mm. The plagioclase (which is evenly and rather strongly altered to fine-grained sericite) tends to form euhedral prismatic grains and the K-spar (fresh) to constitute the interstitial or matrix phase. However, the latter is not the even felsitic groundmass of the porphyritic monzonites or latite porphyries which make up much of this suite. Rather, it forms an aggregate of elongate, subhedral/euhedral, prismatic grains similar in size to the plagioclase. Another difference from the porphyritic monzonites is the apparent lack of mafics. The only constituent other than feldspar appears to be scattered grains of accessory apatite.

This leuco-monzonite is strongly fractured and veined by carbonate; some true brecciation with displacement of fragments is seen marginal to the central zone of intense alteration and the fracturing grades into strong granulation.

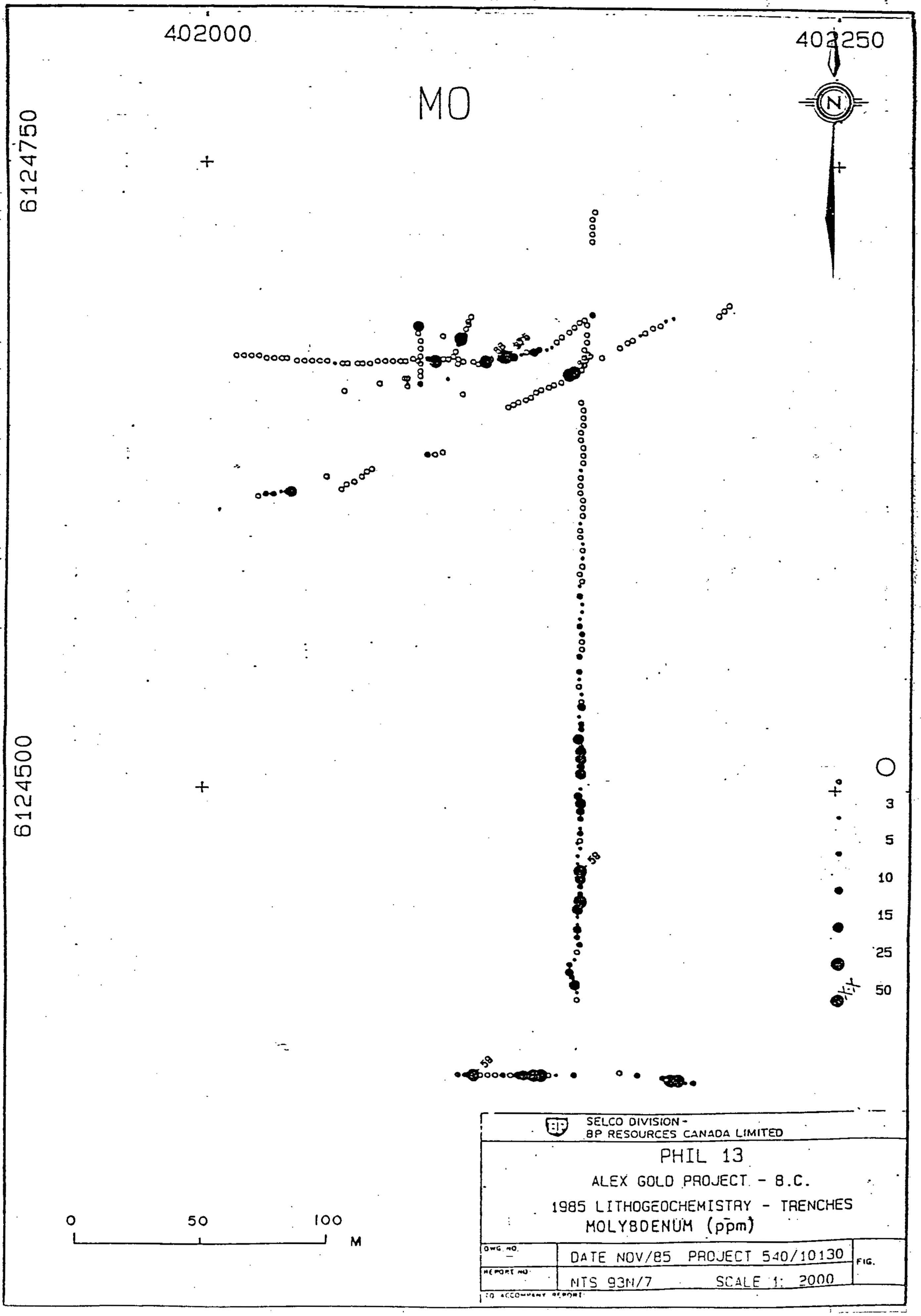
The carbonate in these fractured/brecciated areas is strongly limonitized (a feature absent from the core zone of quartz/carbonate alteration). It is unclear whether this is a weathering effect, perhaps enhanced by the oxidation of sparsely disseminated sulfides, or whether this is a different type of carbonate to that of the central zone.

The central zone consists largely of fine-grained carbonate with quartz as sparry pockets and intimately intergrown cherty material. Remnants of veins and fragments of quartz and carbonate and of the K-spar/plagioclase host-rock are present in this zone and it is clearly the locus of complex shearing and brecciation and strong metasomatism.

There appears to be no sulfide or oxide mineralization associated with this phase of alteration.

APPENDIX 5

TRENCHES - 1985 LITHOGEOCHEMISTRY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402250
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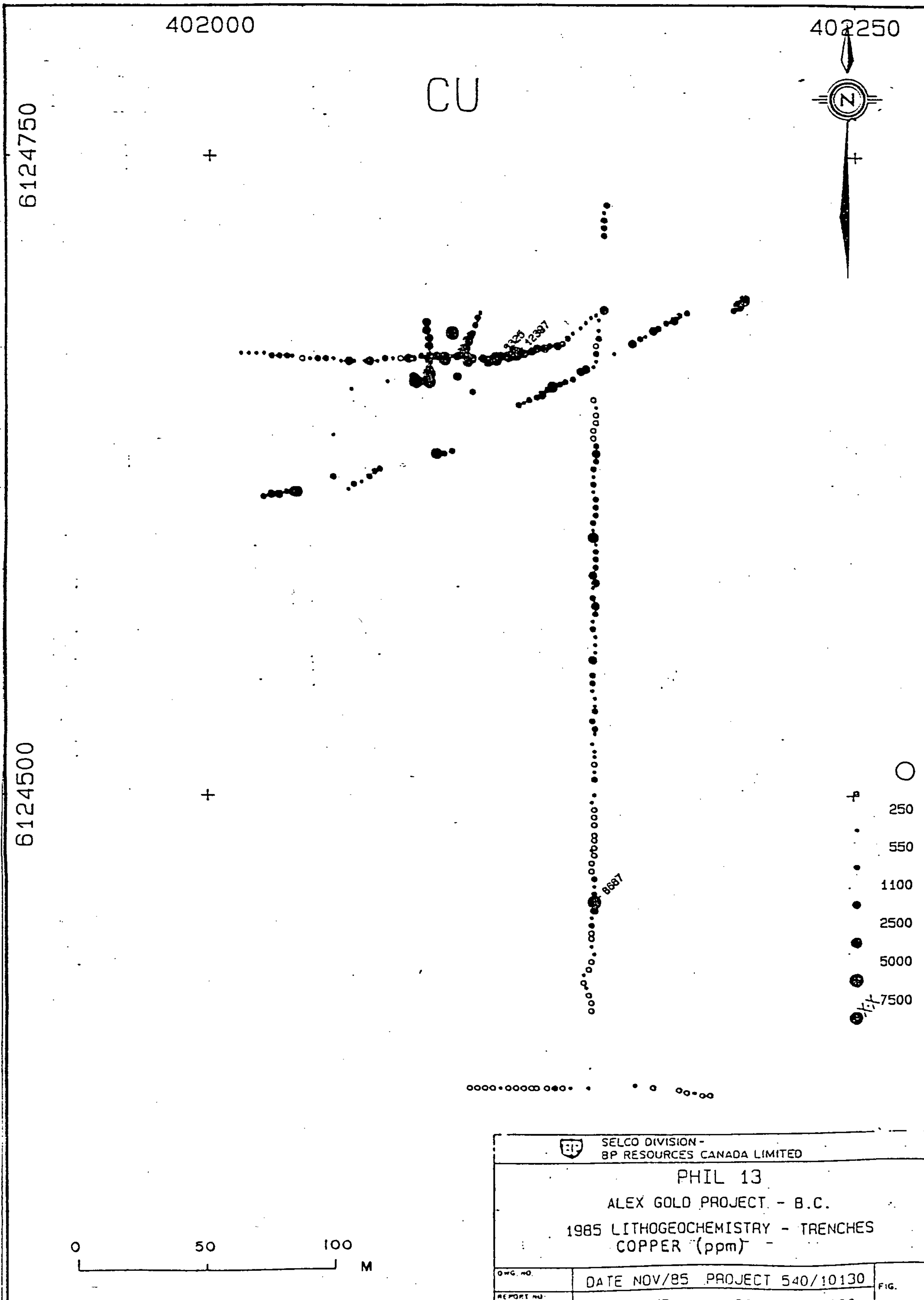
6124750
6124500
3
5
10
15
25
50
59
59
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
MOLYBDENUM (ppm)
DWG. NO.
REPORT NO.
TO ACCOMPANY REPORT
DATE NOV/85
PROJECT 540/10130
FIG.
NTS 93N/7
SCALE 1: 2000



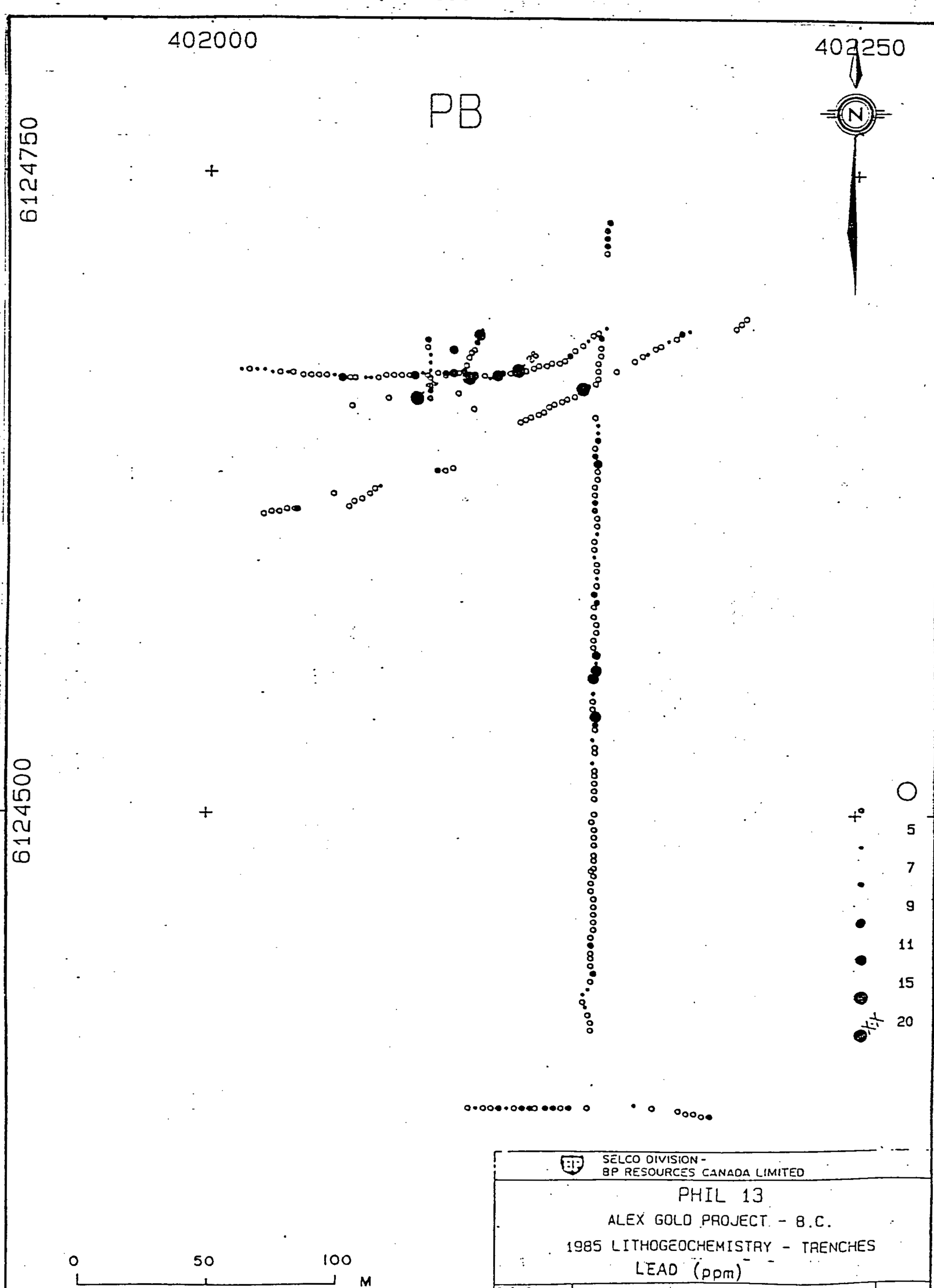
SELCO DIVISION -
BP RESOURCES CANADA LIMITED

PHIL 13

ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES
COPPER (ppm)

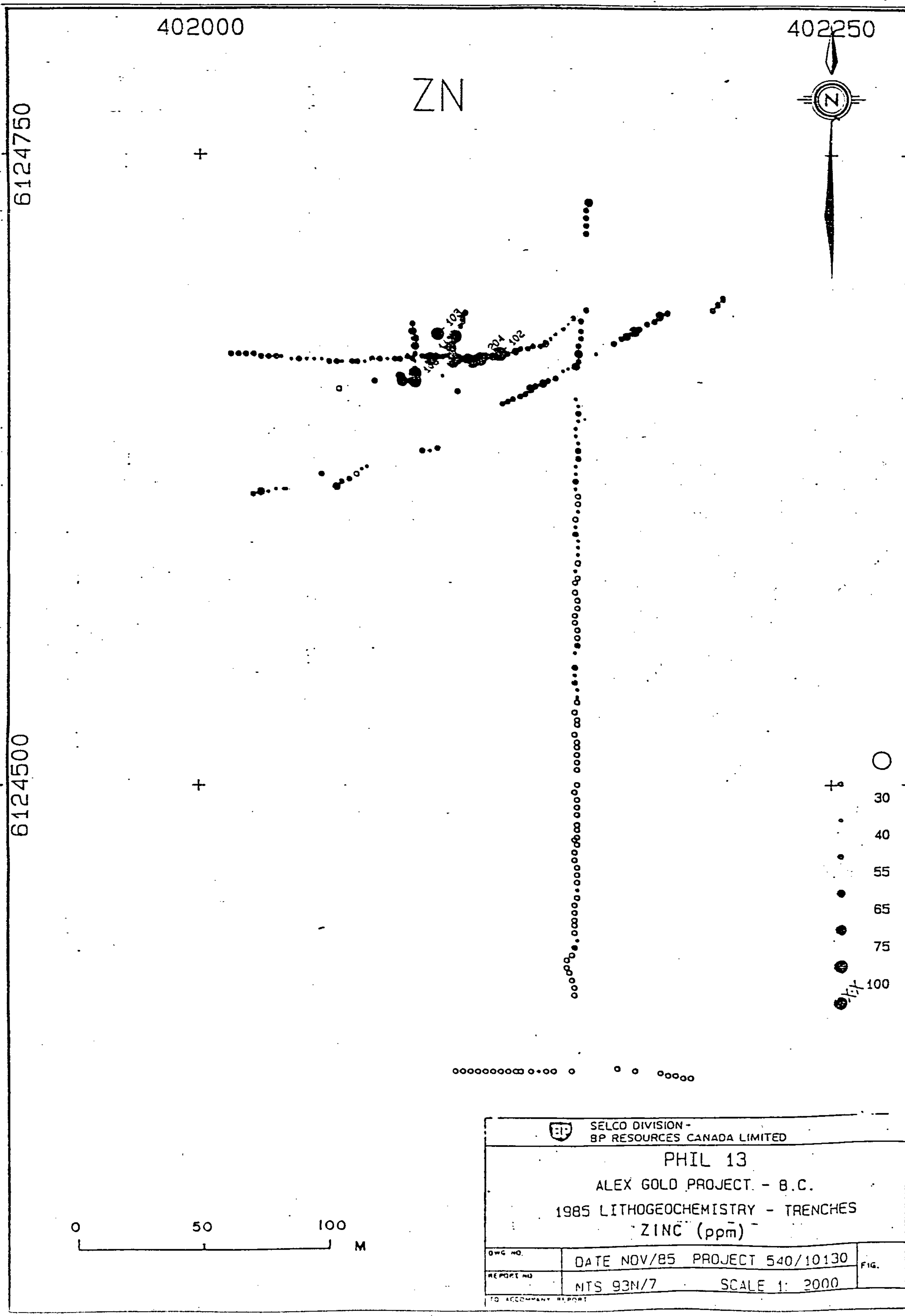
DWG. NO.	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO.	NTS 93N/7 SCALE 1: 2000	
TO ACCOMPANY REPORT		



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
LEAD (ppm)

DATE NOV/85 PROJECT 540/10130
NTS 93N/7 SCALE 1: 2000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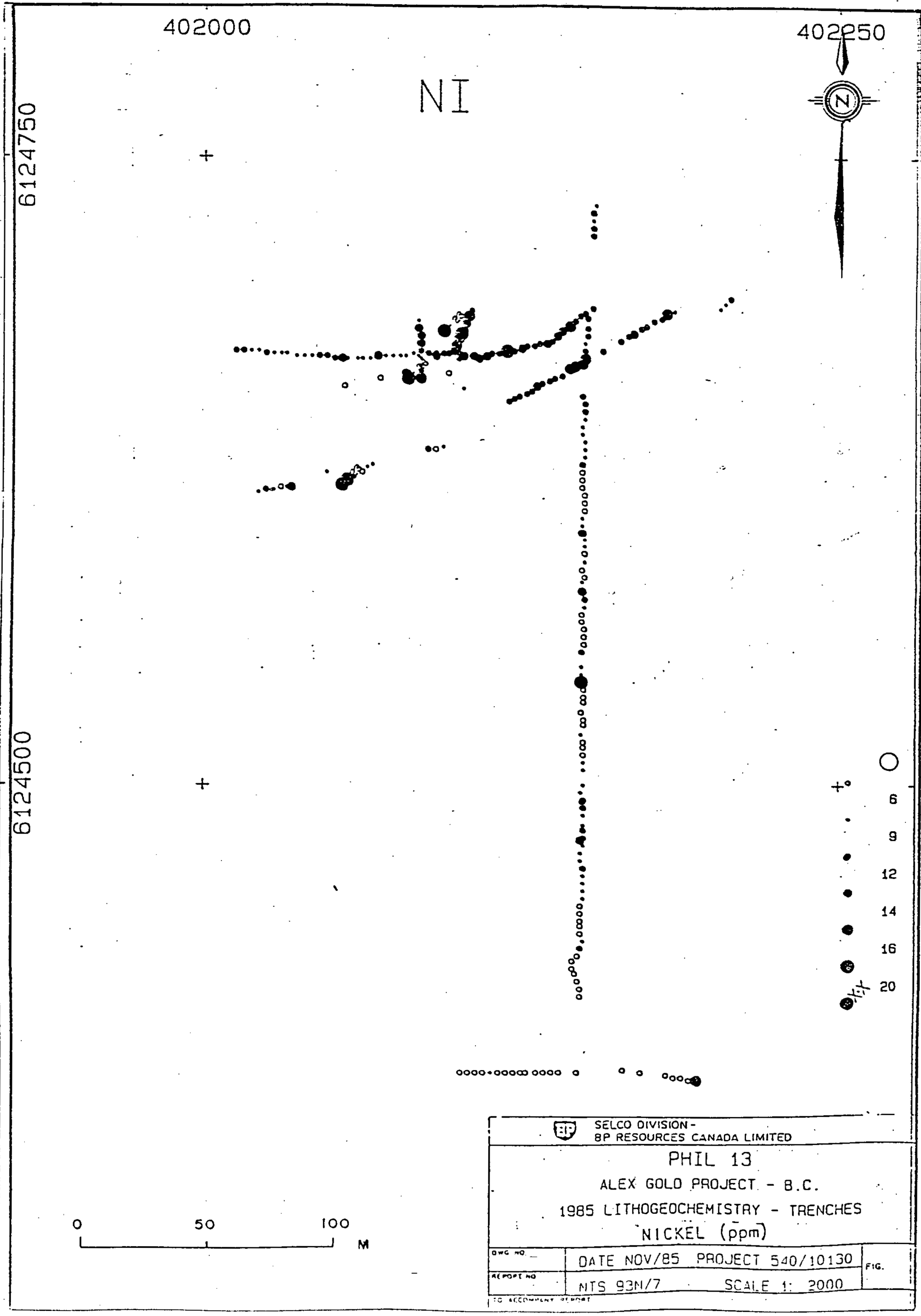
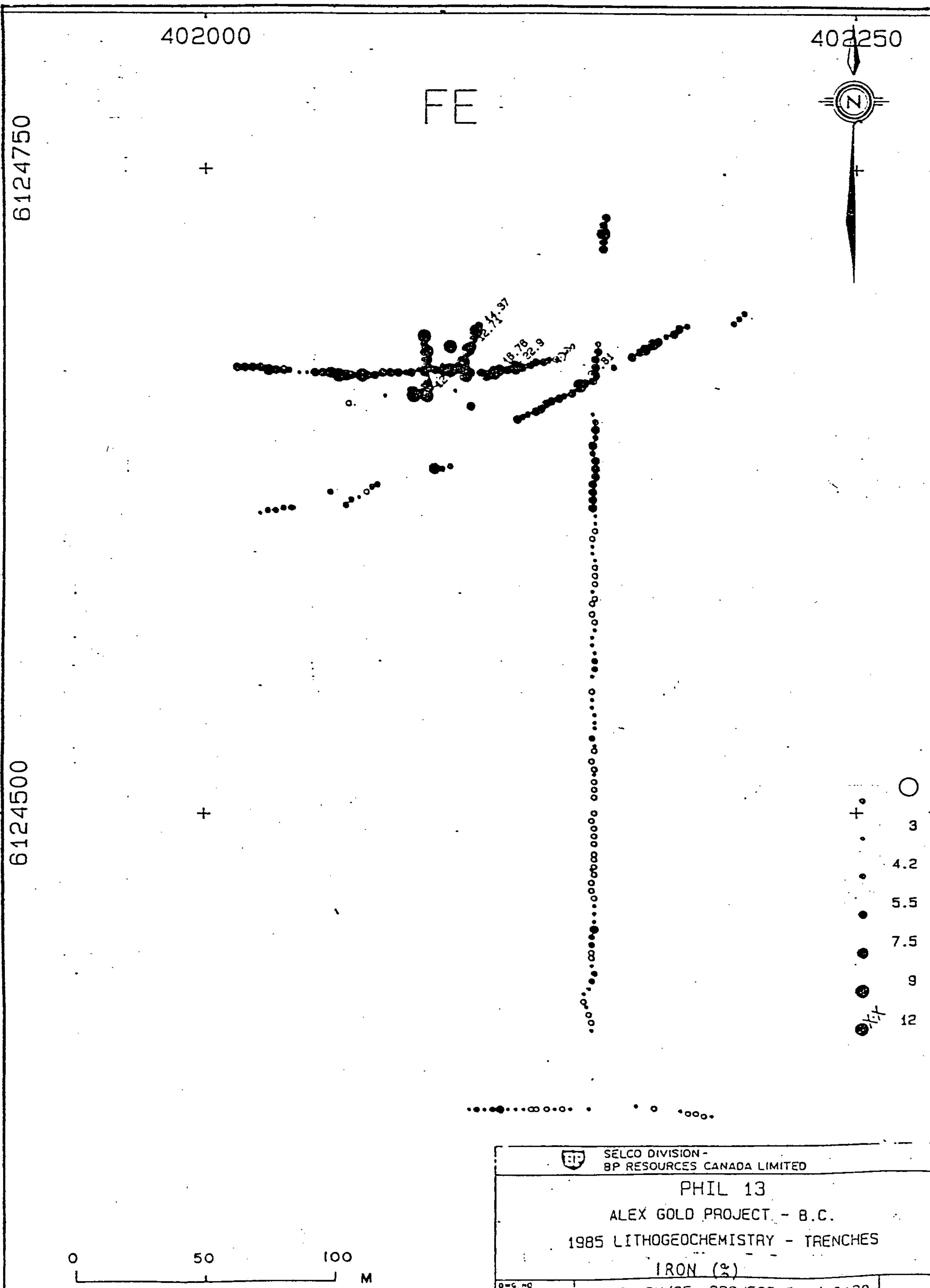
ZN
N
6124750
6124500
30
40
55
65
75
100
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
ZINC (ppm)
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000


402000
402250
NI
6124750
6124500
6
9
12
14
16
20
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
NICKEL (ppm)
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000



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BP RESOURCES CANADA LIMITED

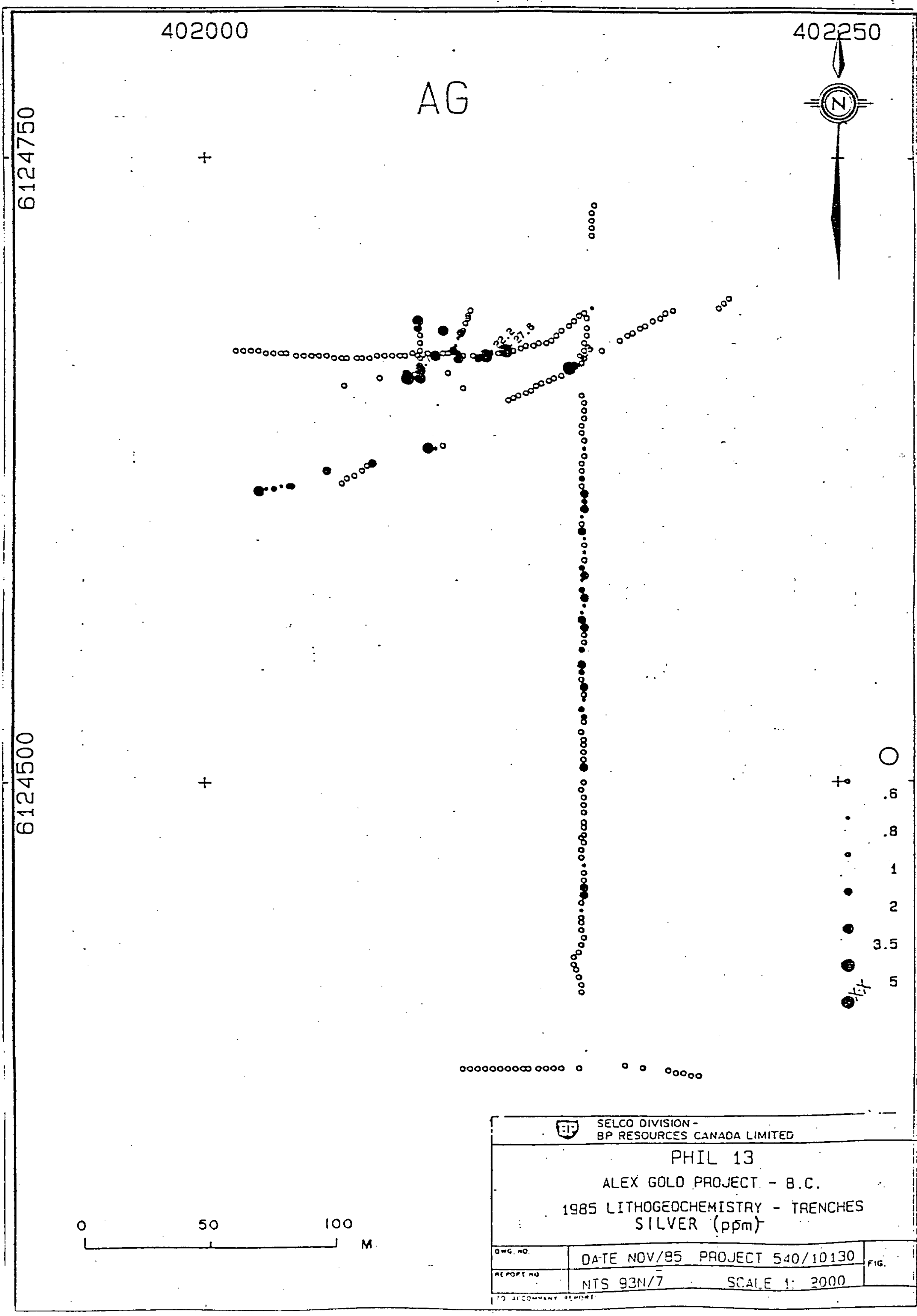
PHIL 13

ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES

IRON (%)

DWG. NO	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO	NTS 93M/7 SCALE 1: 2000	
TO ACCOMPANY REPORT:		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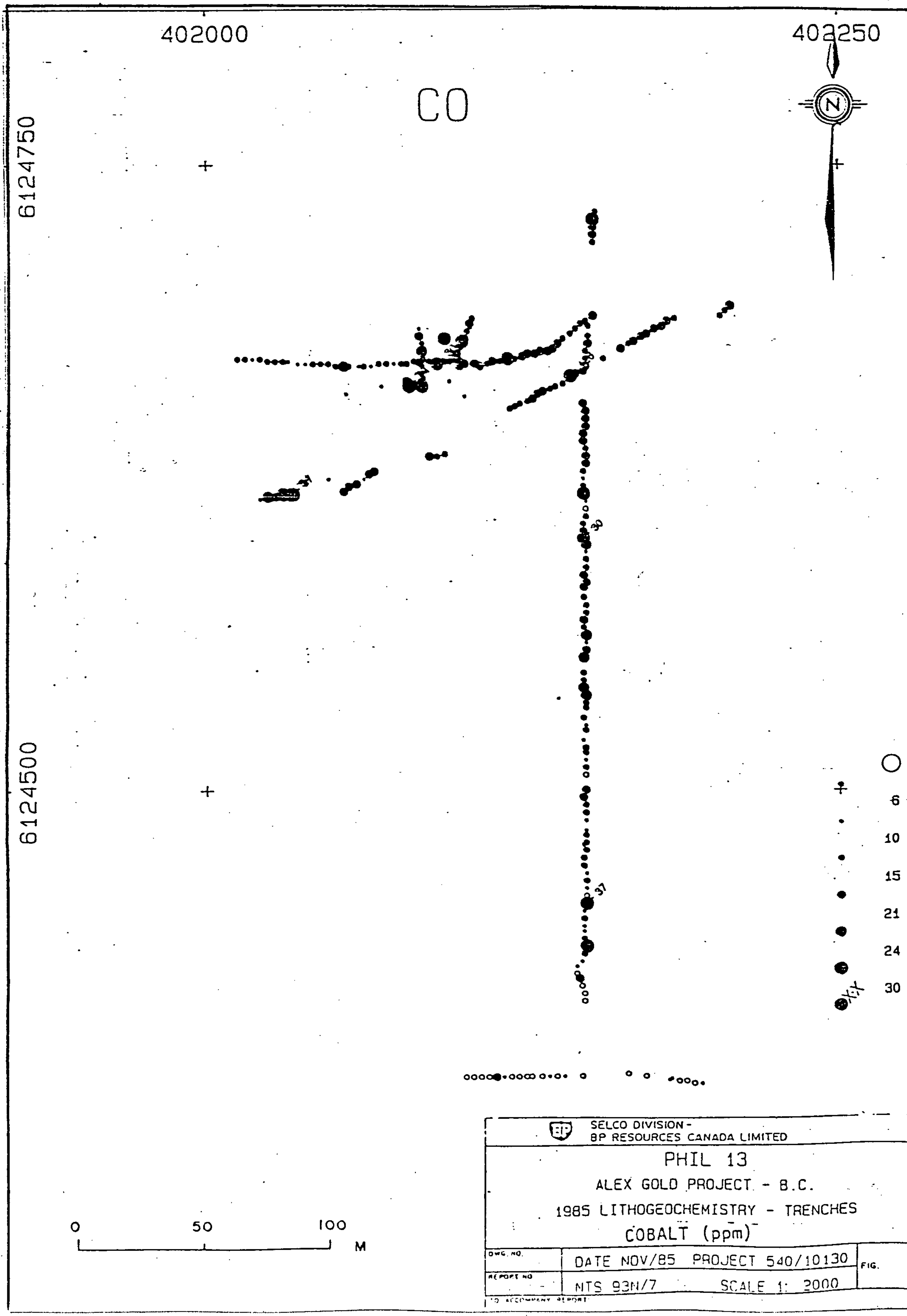
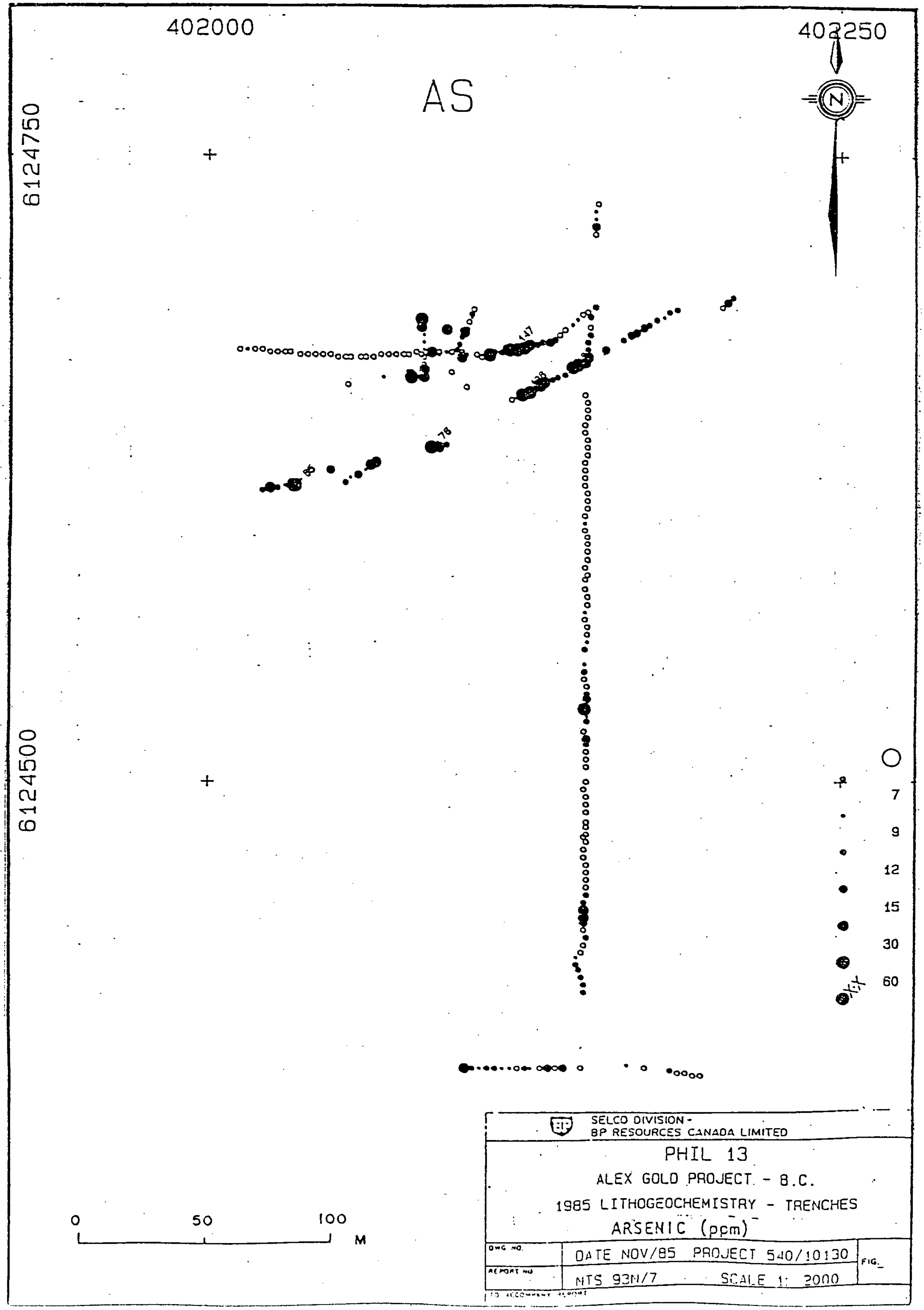
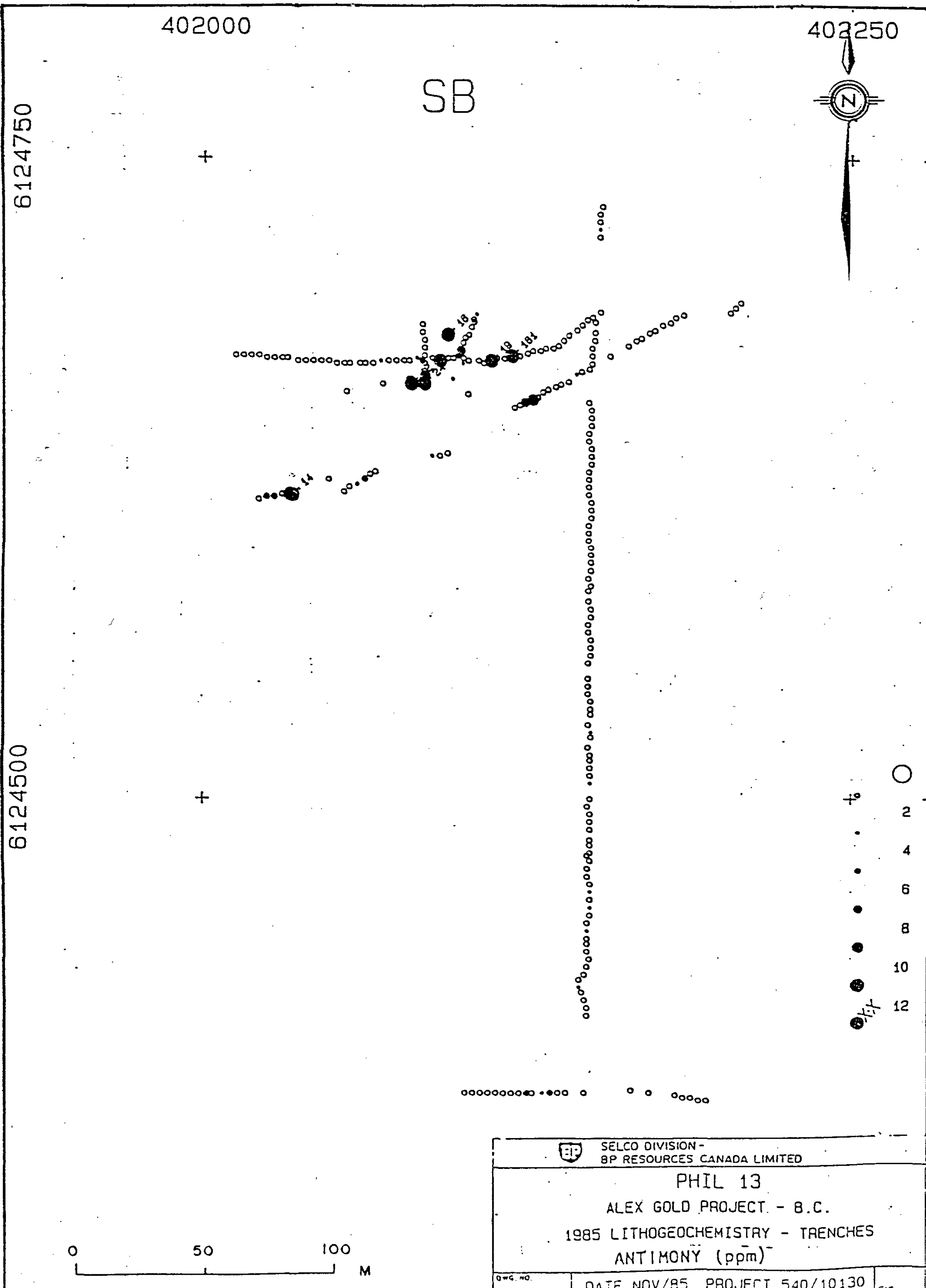
402250
AG
6124750
6124500
N
22.2
27.8
.6
.8
1
2
3.5
5
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
SILVER (ppm)
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000



402000
402250
CO
N
6124750
6124500
30
37
37
6
10
15
21
24
30
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
COBALT (ppm)
DWG. NO.
DATE NOV/85
PROJECT 540/10130
FIG.
REPORT NO
NTS 93N/7
SCALE 1: 2000
TO ACCOMPANY REPORT

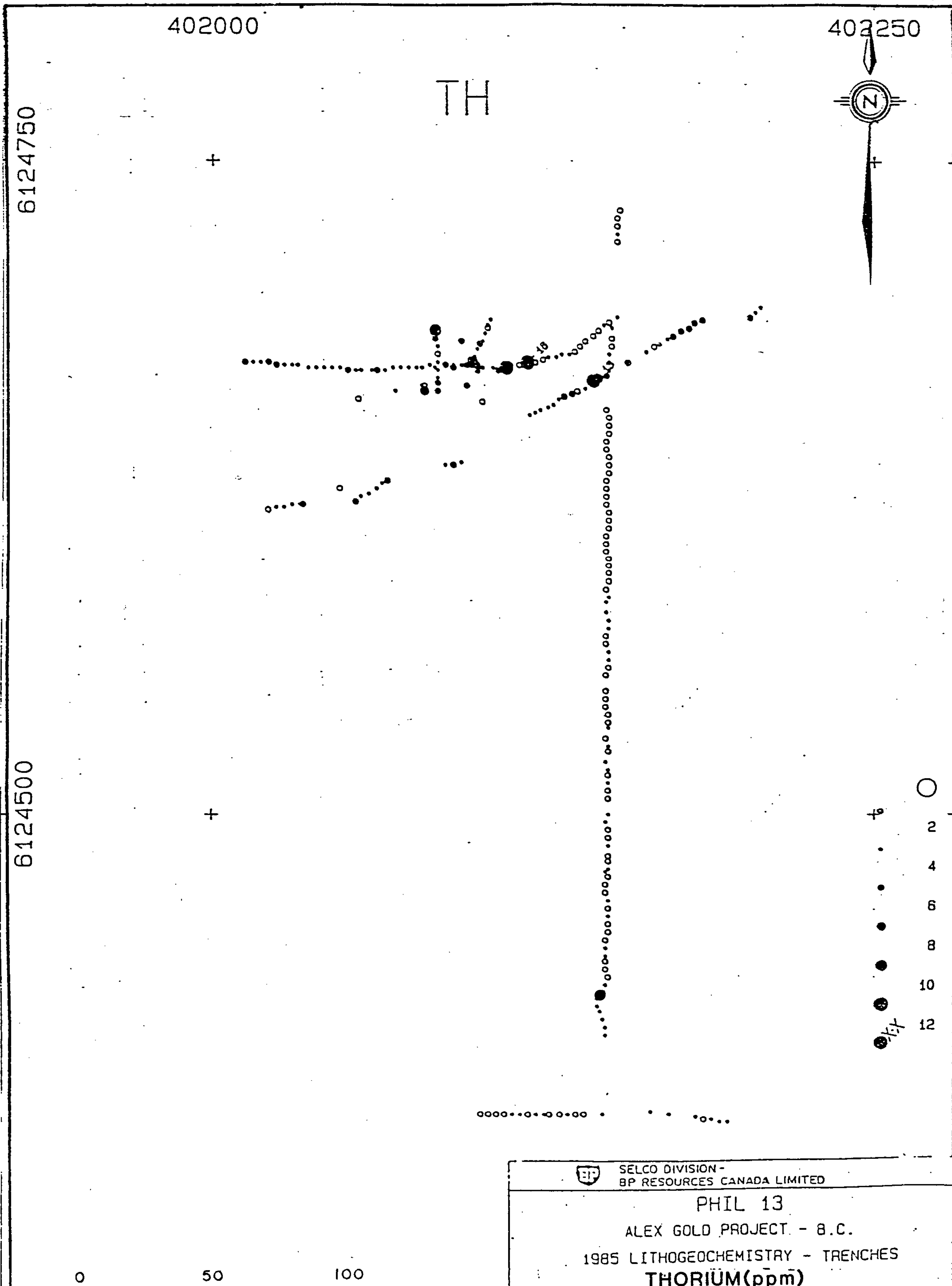

402000
402250
AS
N
6124750
6124500
7
9
12
15
30
60
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
ARSENIC (ppm)
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
ANTIMONY (ppm)

DWG. NO.	DATE NOV/85	PROJECT 540/10130
REPORT NO.	NTS 93N/7	SCALE 1: 2000



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

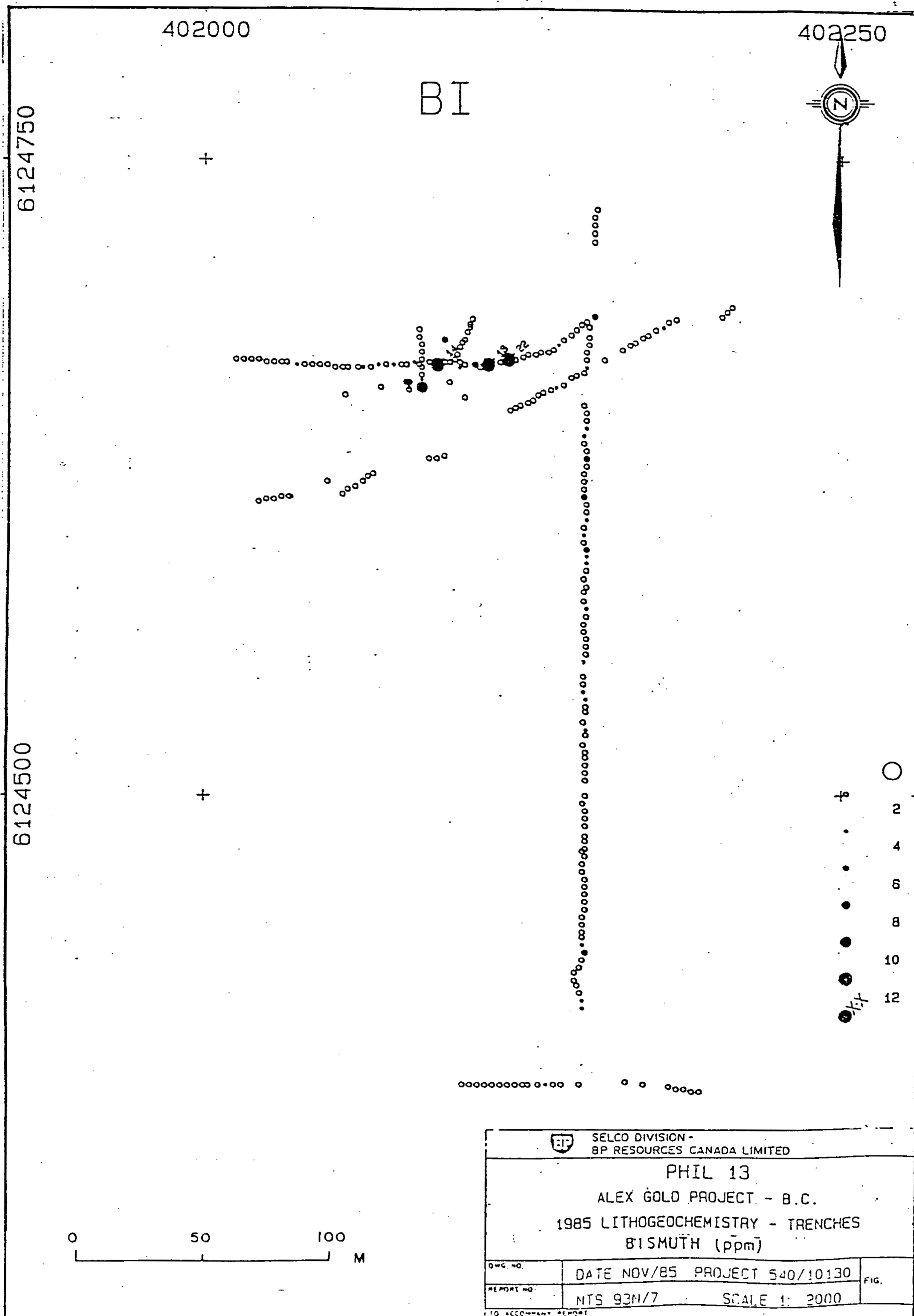
PHIL 13

ALEX GOLD PROJECT - B.C.

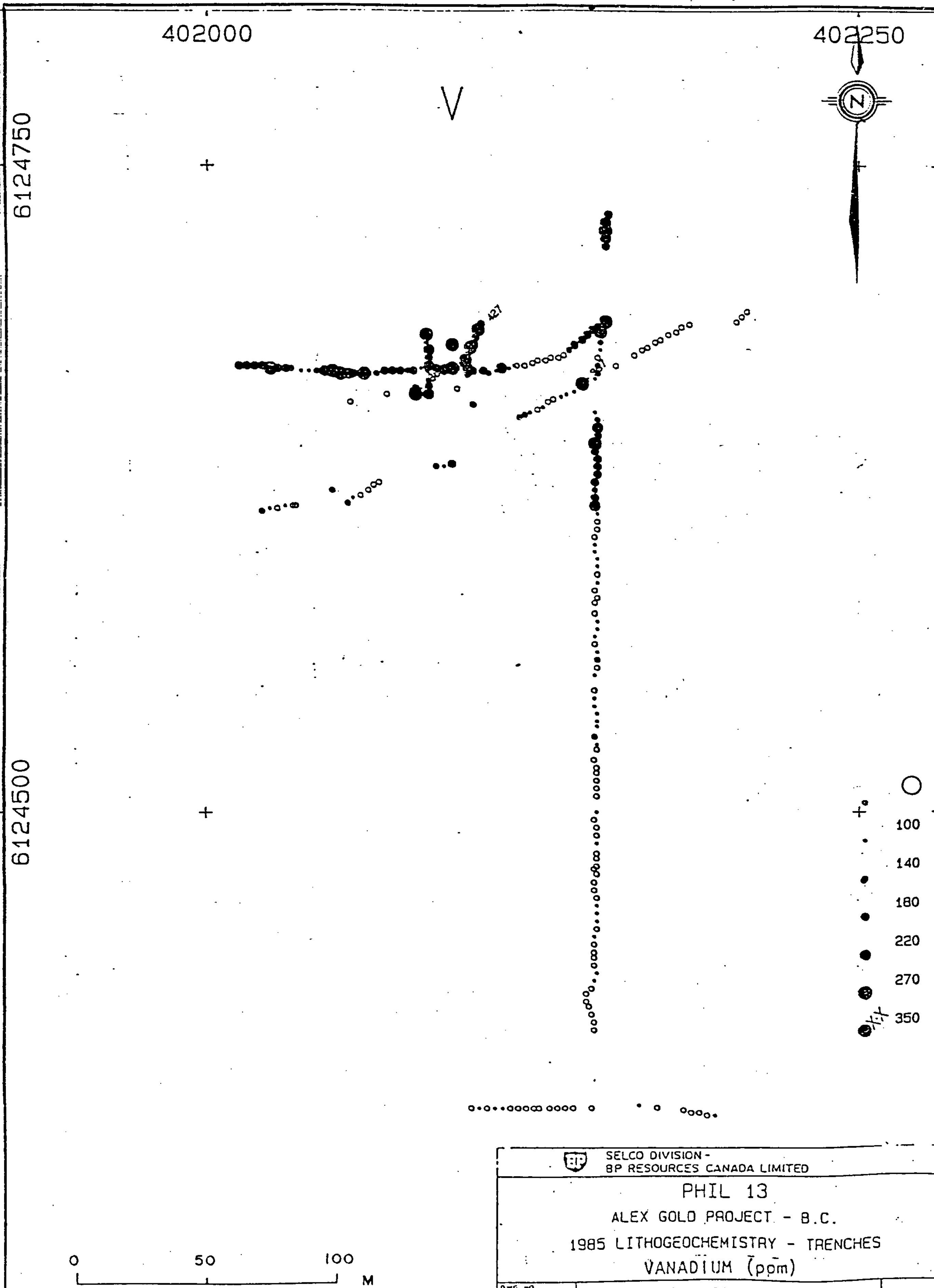
1985 LITHOGEOCHEMISTRY - TRENCHES

THORIUM(ppm)

DWG. NO.	DATE NOV/85	PROJECT 540/10130
REPORT NO	NTS 93N/7	SCALE 1: 2000



402000
402250
BI
6124750
6124500
2
4
6
8
10
12
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
BISMUTH (ppm)
DWG. NO.
DATE NOV/85 PROJECT 540/10130
FIG.
REPORT NO.
NTS 93N/7 SCALE 1: 2000
TO ACCOMPANY REPORT



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

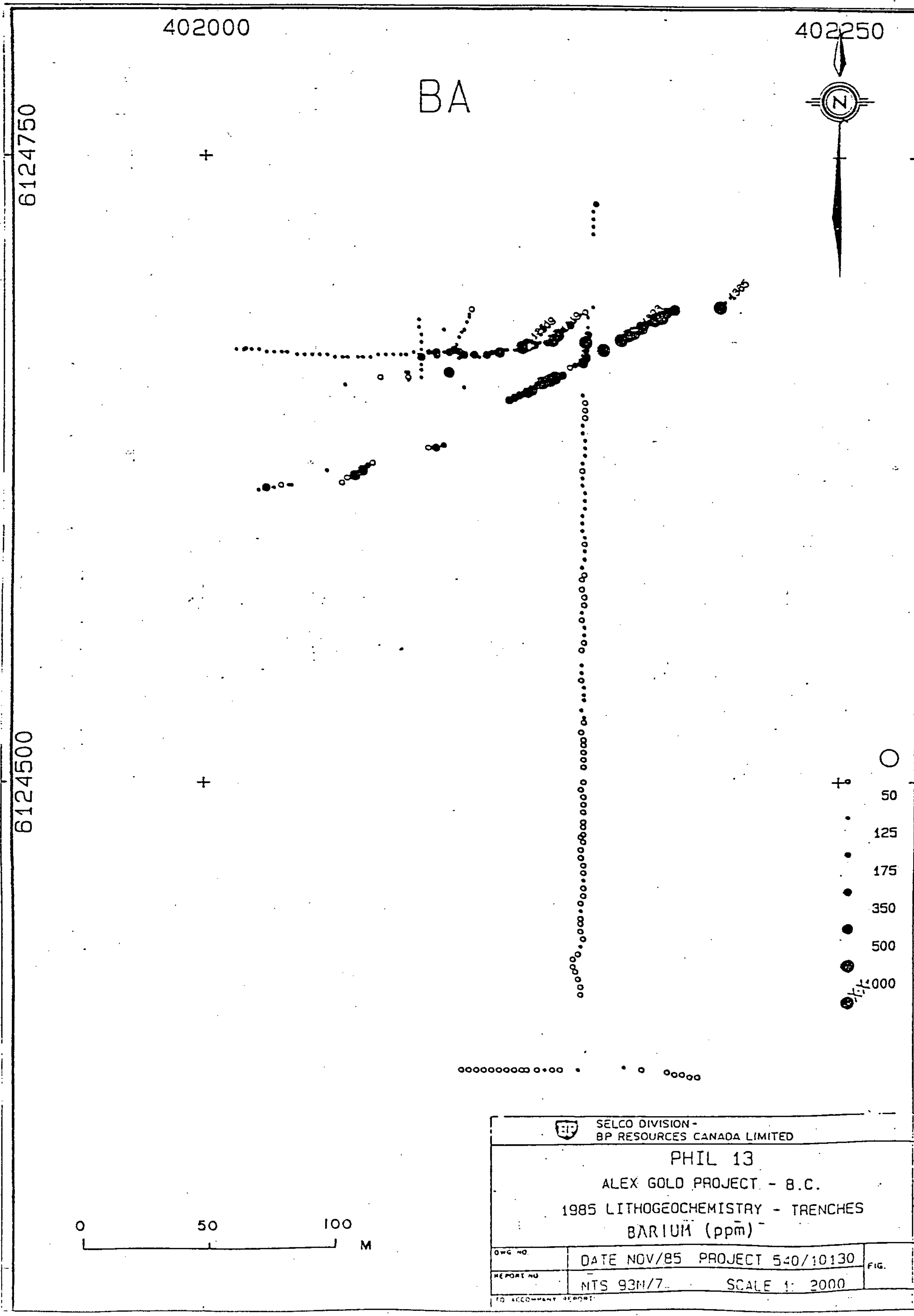
PHIL 13

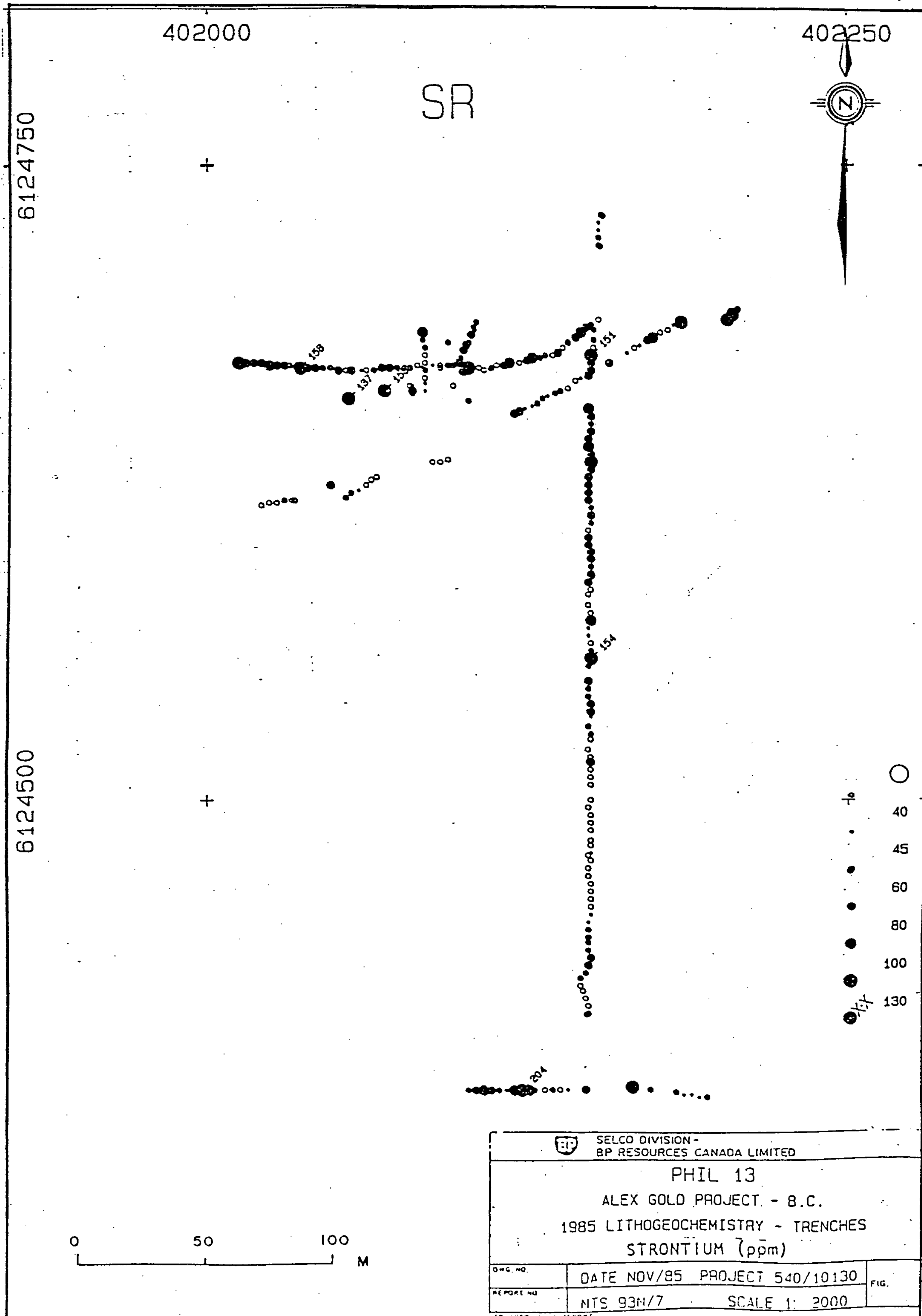
ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES

VANADIUM (ppm)

DWG. NO.	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO.	NTS 93N/7 SCALE 1: 2000	
TO ACCOMPANY REPORT		


402000
402250
BA
N
6124750
6124500
4365
50
125
175
350
500
1000
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
BARIUM (ppm)
DATE NOV/85
PROJECT 540/10130
NTS 93M/7
SCALE 1: 2000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6124750
6124500
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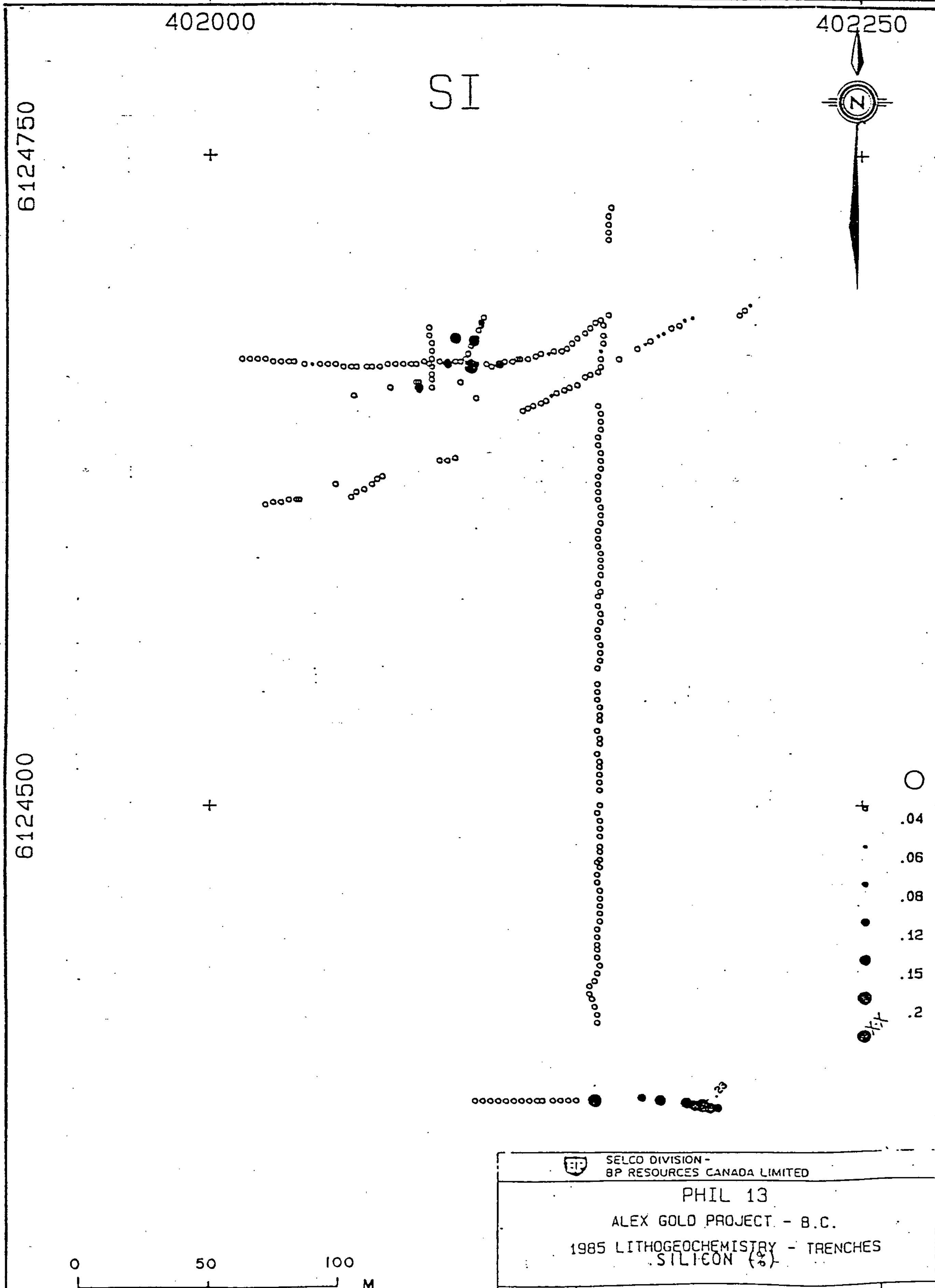
137
151
154
204
40
45
60
80
100
130
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
STRONTIUM (ppm)
DATE NOV/85 PROJECT 540/10130
NTS 93M/7 SCALE 1: 2000



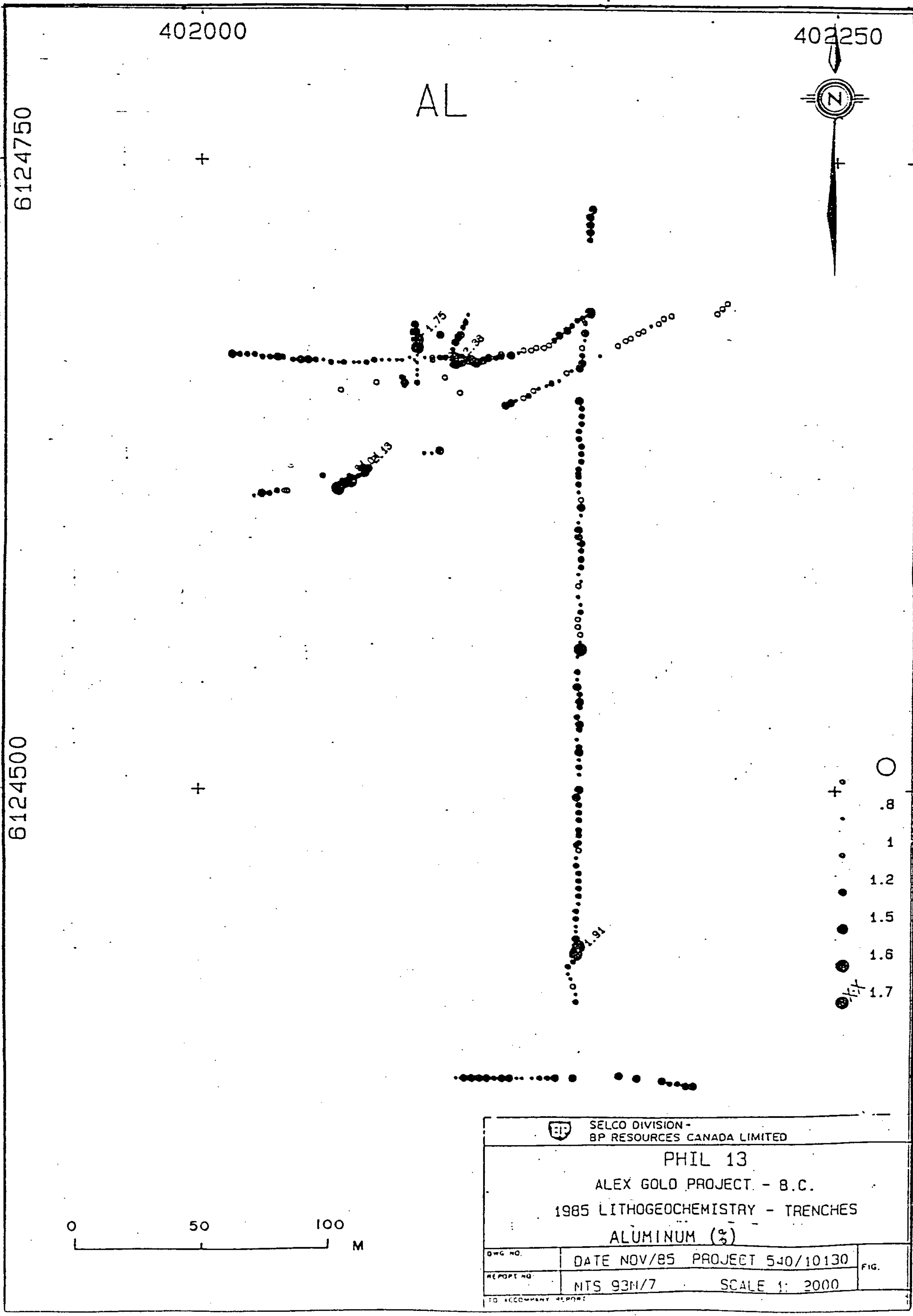
SELCO DIVISION -
BP RESOURCES CANADA LIMITED

PHIL 13

ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES
SILICON (%)

DWG. NO.	DATE NOV/85	PROJECT 540/10130	FIG.
REPORT NO.	NTS 93M/7	SCALE 1: 2000	
TO ACCOMPANY REPORT			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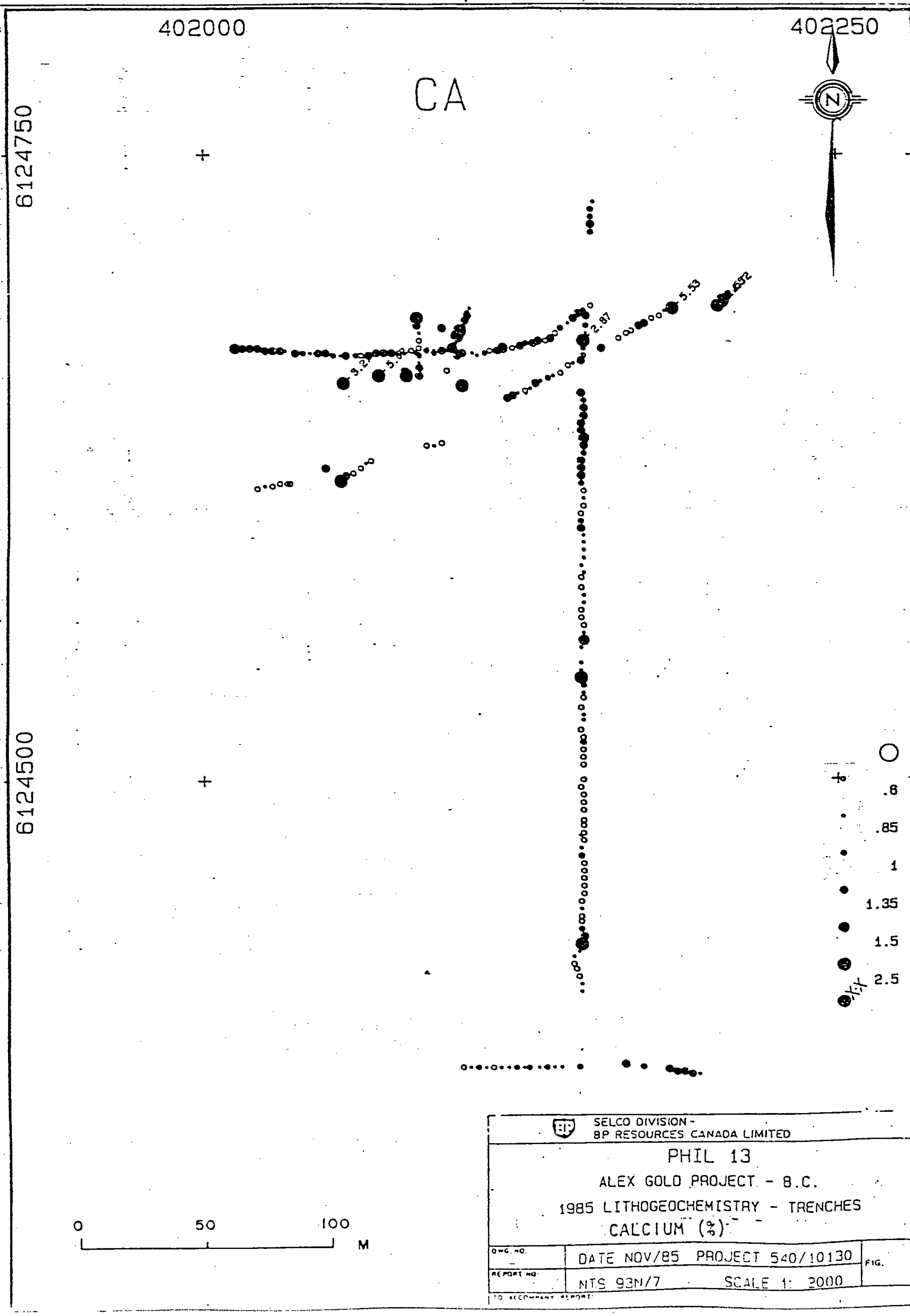
.8
1
1.2
1.5
1.6
1.7
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
ALUMINUM (%)
DWG NO.
DATE NOV/85 PROJECT 540/10130
FIG.
REPORT NO.
NTS 93N/7
SCALE 1: 2000
TO ACCOMPANY REPORT



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

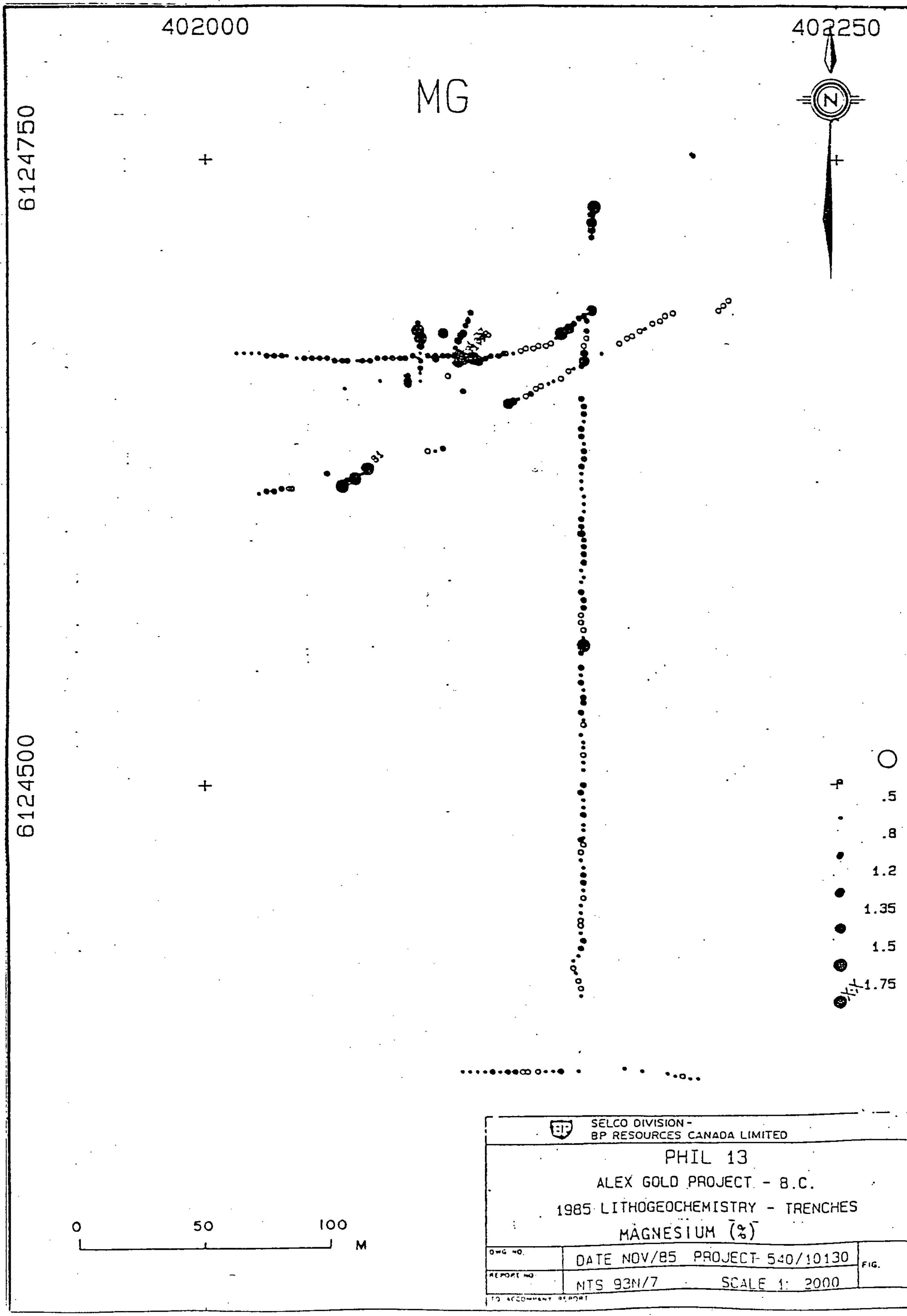
PHIL 13

ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES

CALCIUM (%)

DWG. NO.	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO.	NTS 93N/7 SCALE 1: 2000	
TO ACCOMPANY REPORT:		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402250
MG
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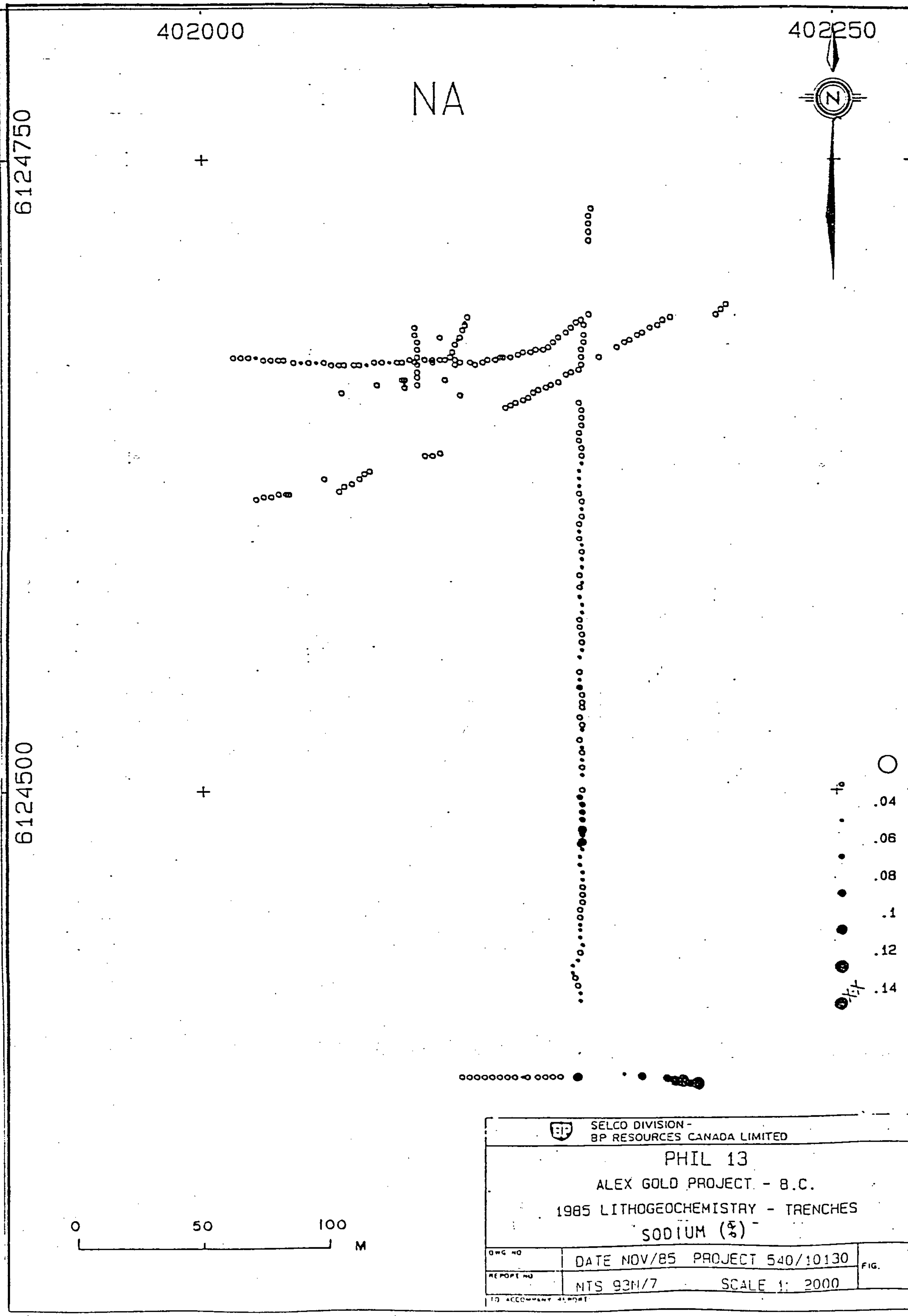
6124500
.5
.8
1.2
1.35
1.5
1.75
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
MAGNESIUM (%)
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000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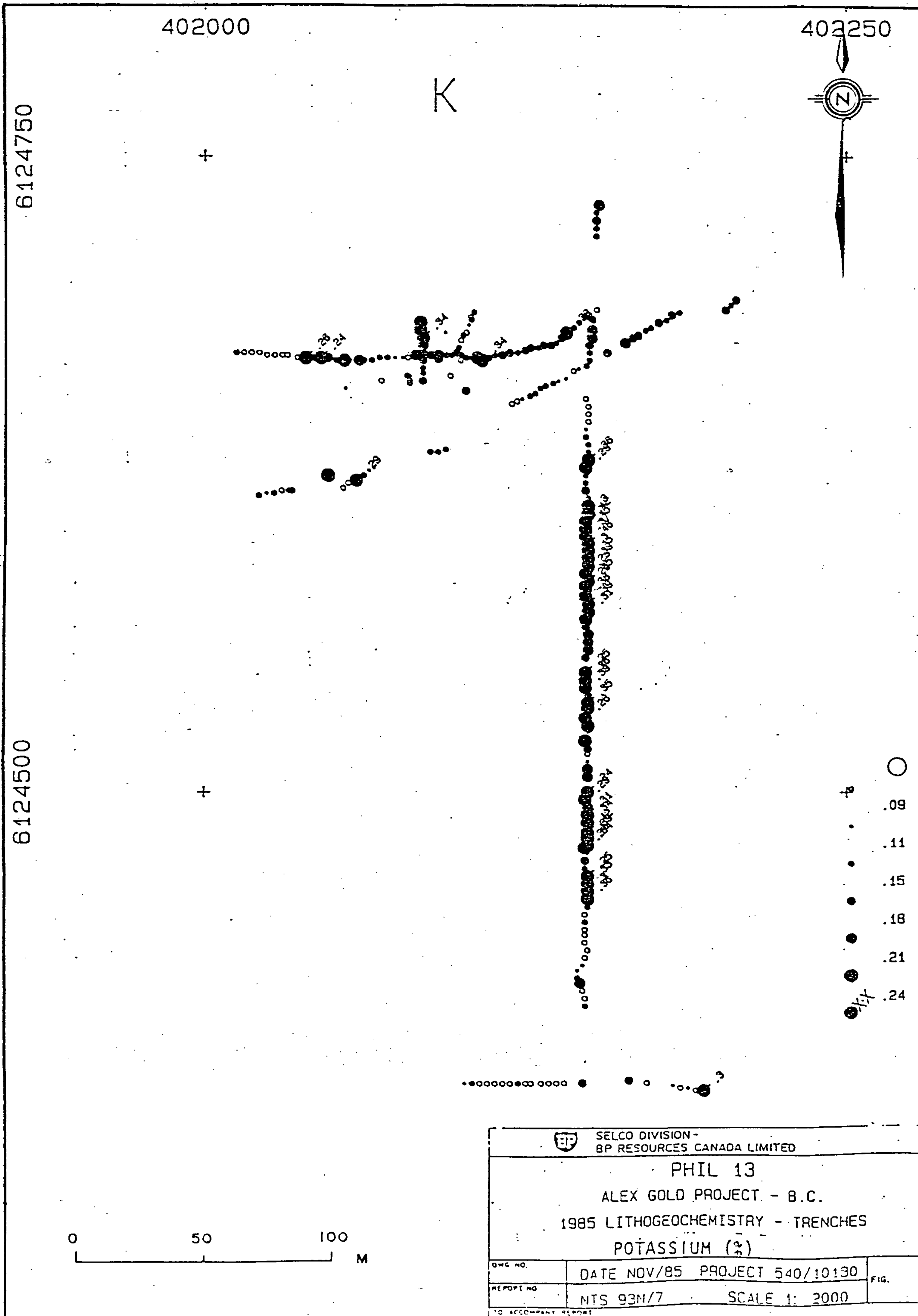
6124750
6124500
.04
.06
.08
.1
.12
.14
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
SODIUM (%)
DWG NO
REPORT NO
TO ACCOMPANY REPORT
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000
FIG.



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

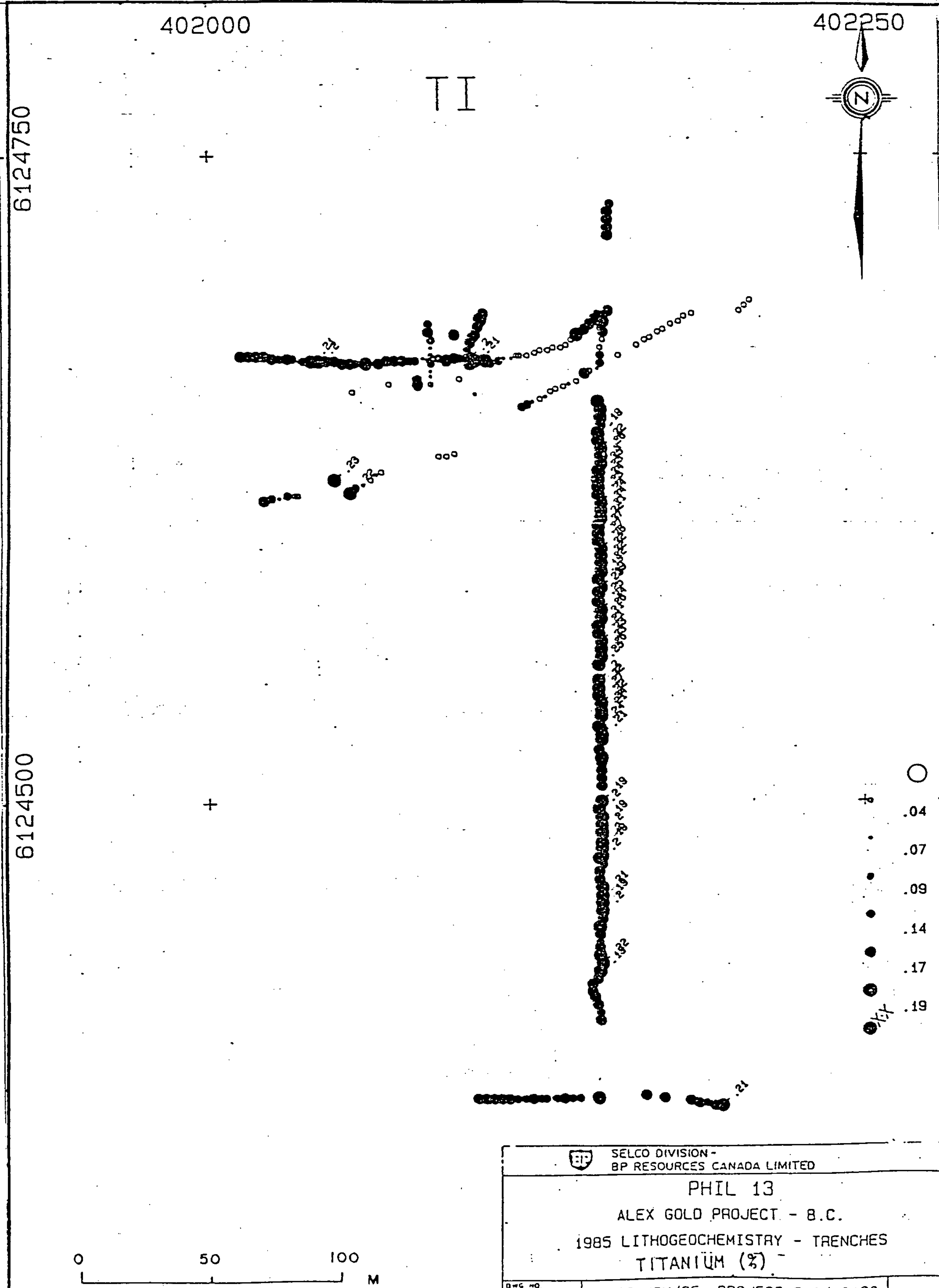
PHIL 13

ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES

POTASSIUM (%)

DWG NO.	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO	NTS 93M/7 SCALE 1: 2000	
TO ACCOMPANY REPORT		



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

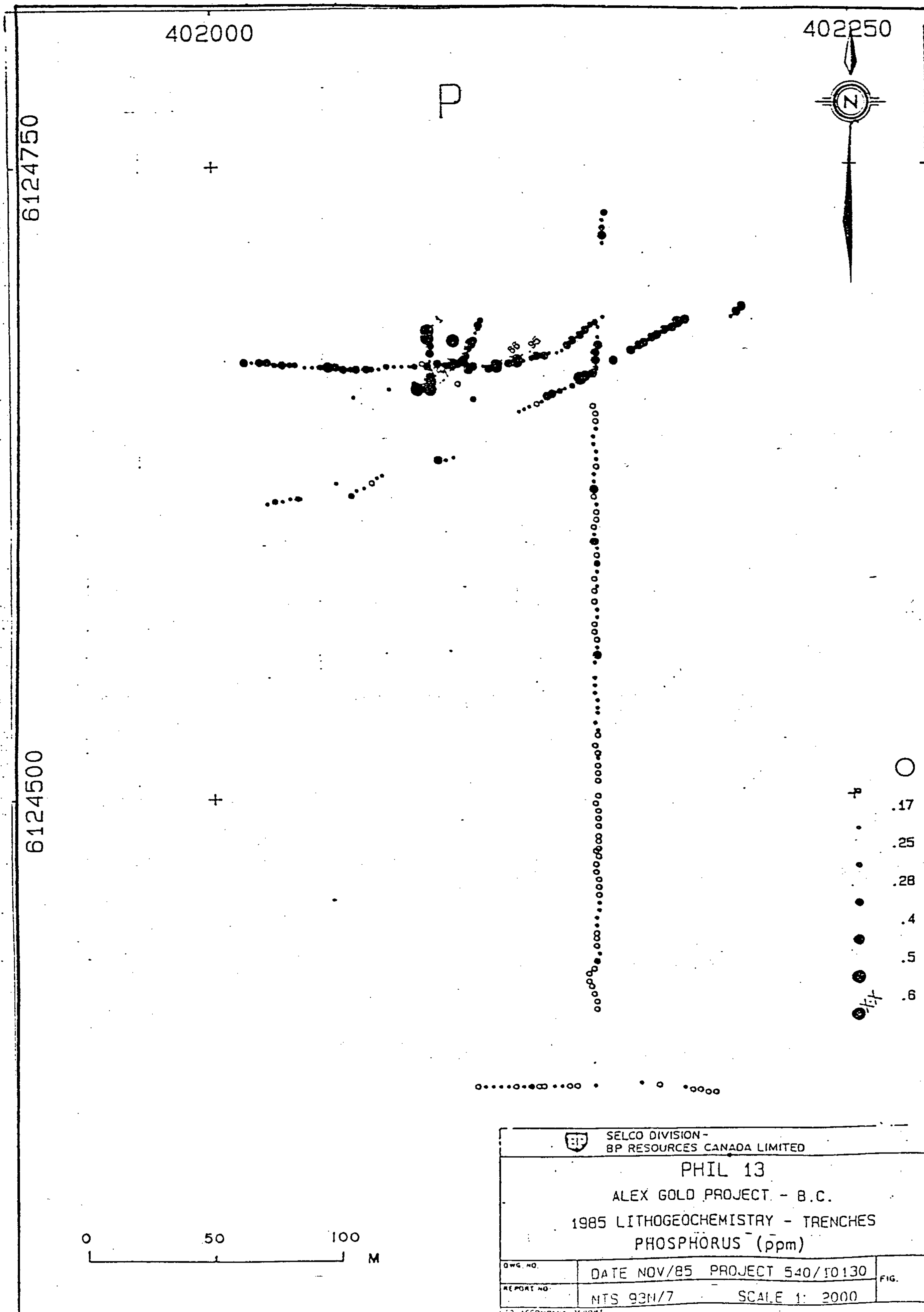
PHIL 13

ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES

TITANIUM (%)

DWG NO.	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO.	NTS 93N/7 SCALE 1: 2000	
TO ACCOMPANY REPORT		



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

PHIL 13

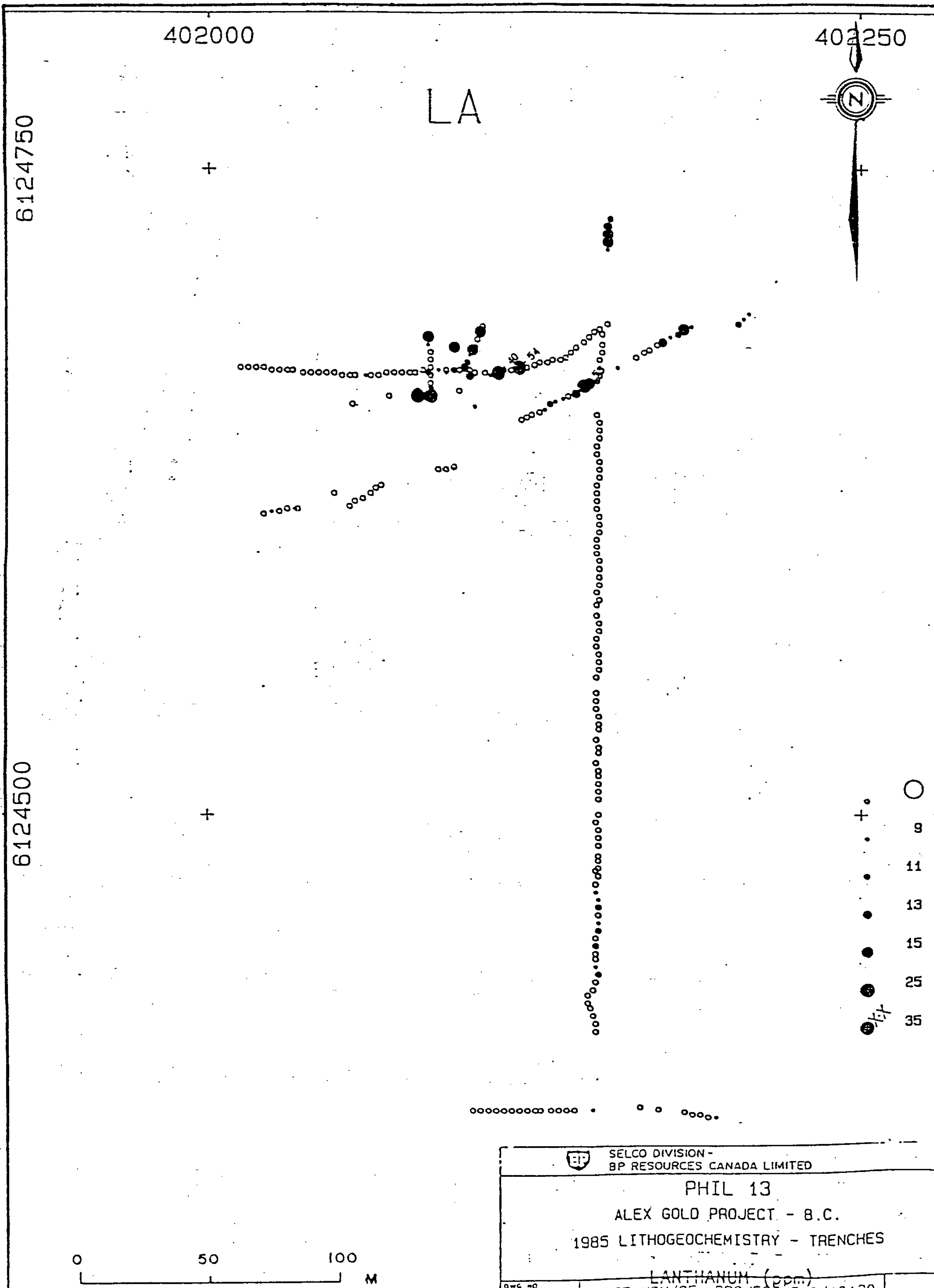
ALEX GOLD PROJECT - B.C.

1985 LITHOGEOCHEMISTRY - TRENCHES

PHOSPHORUS (ppm)

DWG. NO.	DATE NOV/85 PROJECT 540/10130	FIG.
REPORT NO.	NTS 93N/7 SCALE 1: 2000	

TO ACCOMPANY REPORT



SELCO DIVISION -
BP RESOURCES CANADA LIMITED

PHIL 13

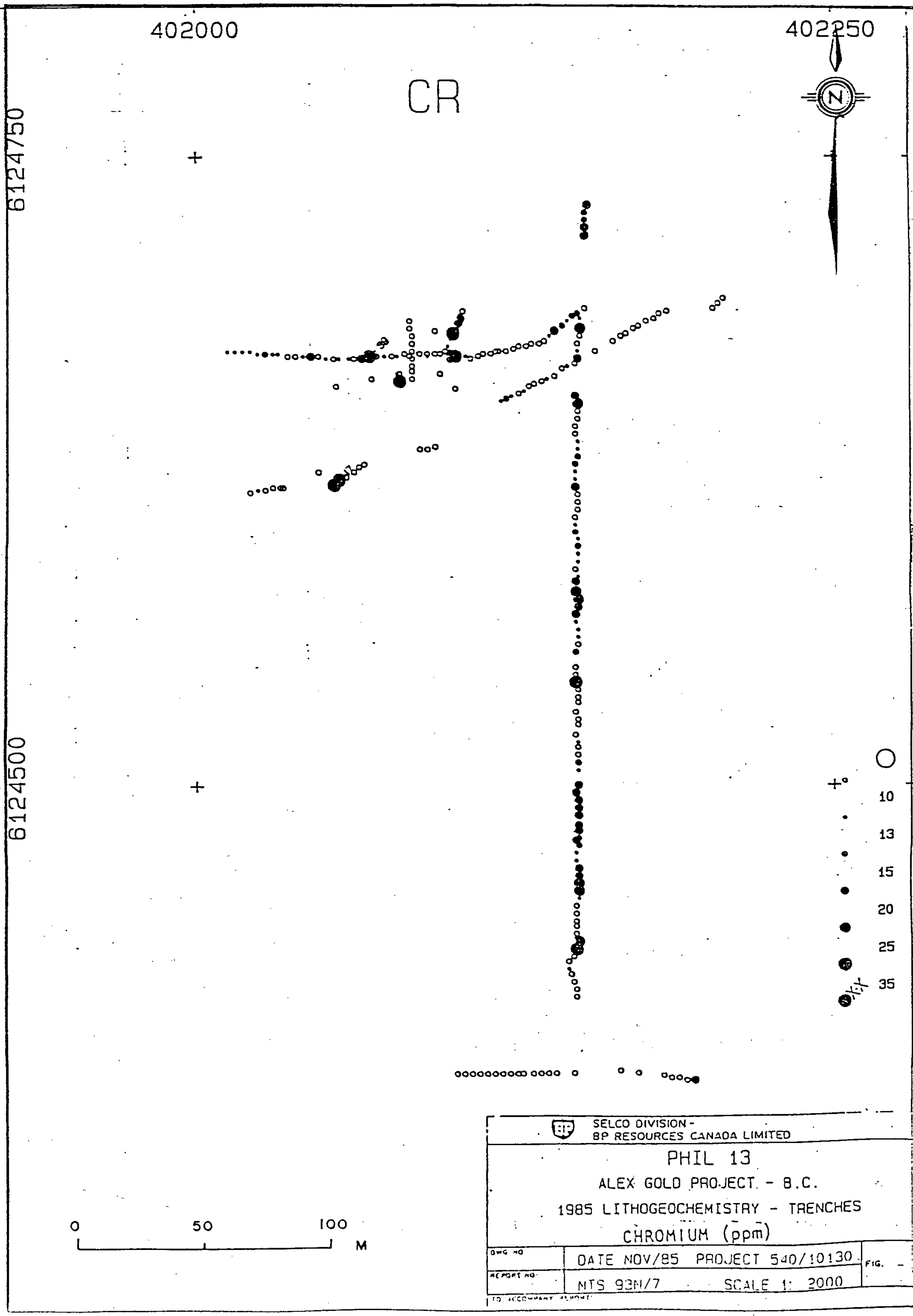
ALEX GOLD PROJECT - B.C.

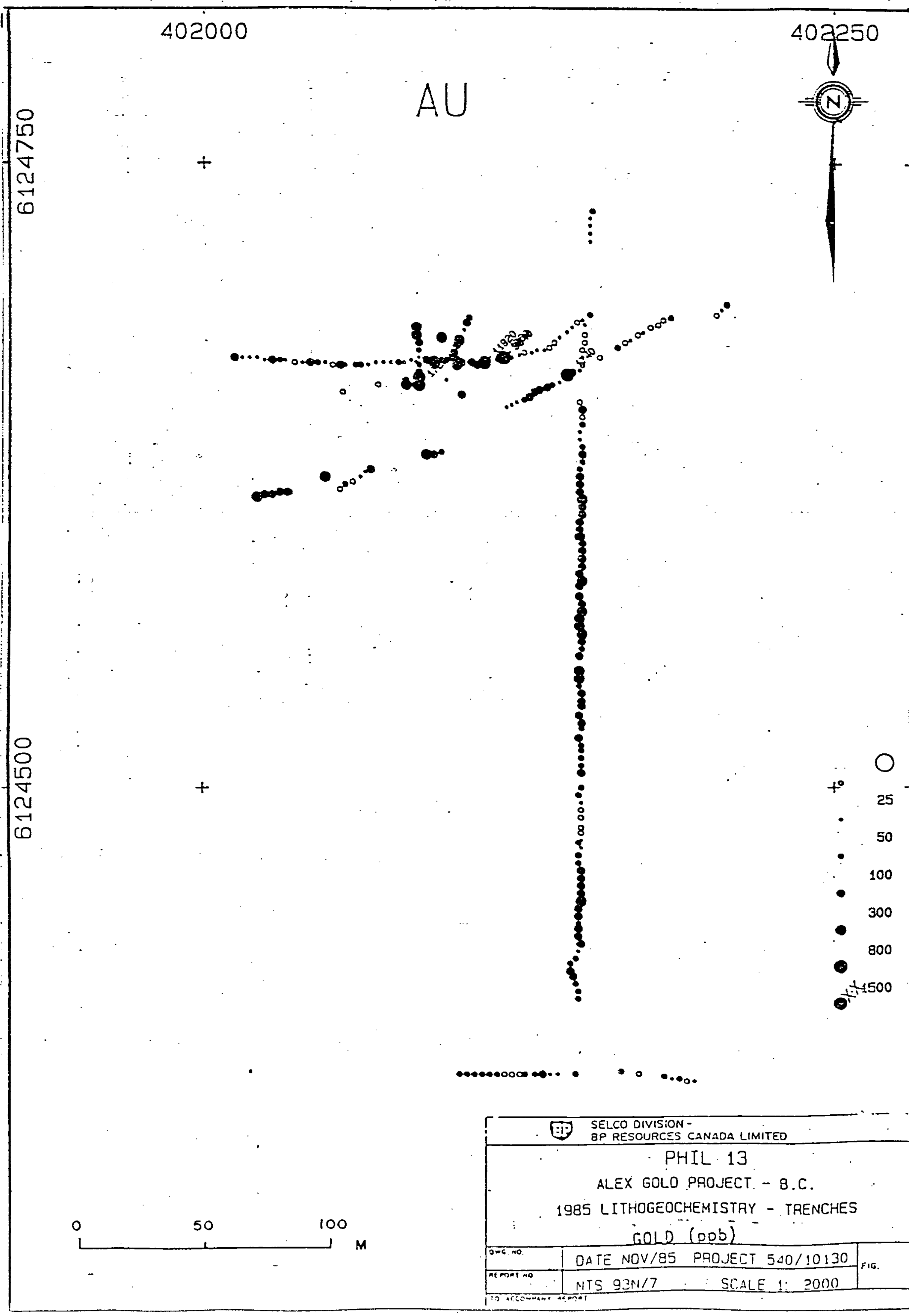
1985 LITHOGEOCHEMISTRY - TRENCHES

LANTHANUM (ppm)

DWG NO.	DATE NOV/85	PROJECT 540/10130	FIG.
REPORT NO	NTS 93N/7	SCALE 1: 2000	

TO ACCOMPANY REPORT


402000
402250
CR
N
6124750
6124500
10
13
15
20
25
35
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
CHROMIUM (ppm)
DATE NOV/85
PROJECT 540/10130
MTS 93N/7
SCALE 1: 2000


402000
402250
AU
N
6124750
6124500
25
50
100
300
800
1500
0
50
100
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13
ALEX GOLD PROJECT - B.C.
1985 LITHOGEOCHEMISTRY - TRENCHES
GOLD (ppb)
DATE NOV/85
PROJECT 540/10130
NTS 93N/7
SCALE 1: 2000

APPENDIX 6

STATEMENT OF COSTS - PHIL 13 CLAIM GROUP

STATEMENT OF COSTS - PHIL 13 CLAIM GROUP

ANALYTICAL COSTS

244 Rock samples - Au + ICP @ $13	$3,172.00	
Computer Processing @ $2.00	488.00	
Geochemist - 2 days @ 102/day	204.00	
Shipping	250.00	
TOTAL		$ 4,114.00

FIELD LABOUR COSTS

Project Geologist (R. Meyers) (July 21-30, Sept. 8-10, 14,15, 23-25, Sept. 30 - Oct. 4) 23 days @ $141/day	$3,243.00	
Geological Assistant (R. Diment) (July 21 - Aug. 4) 14 days @ $55/day	770.00	
Geological Assistant (G. Campbell) (Sept. 8-26) 19 days @ $73/day	1,387.00	
Field Assistant (C. Nichols) (Sept. 8-30) 23 days @ $62/day	1,426.00	
Geological Assistant (G. MacKay) (Sept. 14 - Oct. 14) 31 days @ $88/day	2,728.00	
Geological Assistant (J. Cullen) (Oct. 1-14) 14 days @ $75/day	1,050.00	
Geologist (R. Lane) (Oct. 1-14) 14 days @ $94/day	1,316.00	
Supervisory Visits (C.M. Rebagliati) (July 29, Oct. 2-3) 3 days @ $200/day	600.00	
TOTAL		$12,520.00

ROAD CONSTRUCTION - 5 km 4-wheel drive road	$13,333.00
BACKHOE TRENCHING - (690 metres) (includes mobilization charges)	$ 6,272.00

STATMENT OF COSTS - PHIL 13 GROUP Cont'd.

CAMP COSTS

141 mandays @ $50/day (includes all food & lodging & equipment)		$ 7,050.00
Vehicle Rental & Operation 45 days @ $100/day		$ 4,500.00
Travel Expenses		
4 return airfares (Van.-Prince George) @ $282/person	$ 1,128.00	
Hotel & Meals, 6 men, 2 nights @ $50	600.00	
TOTAL		$ 1,728.00

MAPS & REPORT PREPARATION

Geologist (R. Meyers) 4 days @ $141/day	$ 564.00	
Drafting - 10 hrs. @ $18/hr.	180.00	
Materials	100.00	
TOTAL		$ 844.00
TOTAL COSTS		$50,361.00

APPORTIONMENT OF COSTS

3 YEARS APPLIED TO CHUCHI 1 & 2 CLAIMS = $7,800.00

NON-PHYSICAL WORK APPLIED TO PAC - $30,756.00

APPENDIX 6

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS - C.M. REBAGLIATI

I, C.M. Rebagliati, of Vancouver, in the Province or British Columbia, hereby certify the following:

1. That I am a registered Professional Engineer in the Province of British Columbia.

2. That I have practised my profession since graduation from the Haileybury School of Mines of Ontario in 1966 and from the Michigan Technological University in 1969 with a B.Sc. degree in Geological Engineering.

3. That I am presently employed by Selco Division - BP Resources Canada Limited in Vancouver, B.C. as Senior Geologist.

4. That I personally examined the property to confirm and evaluate the exploration program.

Respectfully submitted,

C.M. Rebagliati, P.Eng.

Vancouver, B.C.
January, 1986

STATEMENT OF QUALIFICATIONS - R.E. MEYERS

B.Sc. (Hons.) Geology 1974 - Carleton University, Ottawa

M.Sc. Economic Geology 1980 - McGill University, Montreal

Associate Member of the Geological Association of Canada (1974)

Member of the Canadain Institute of Mining and Metallurgy.

I have practised my profession continuously since graduation in 1974, as a Mine Geologist (1974-1977); in Economic Geology research (1977-1979); and in mineral exploration (1979-present).

STATEMENT OF QUALIFICATIONS

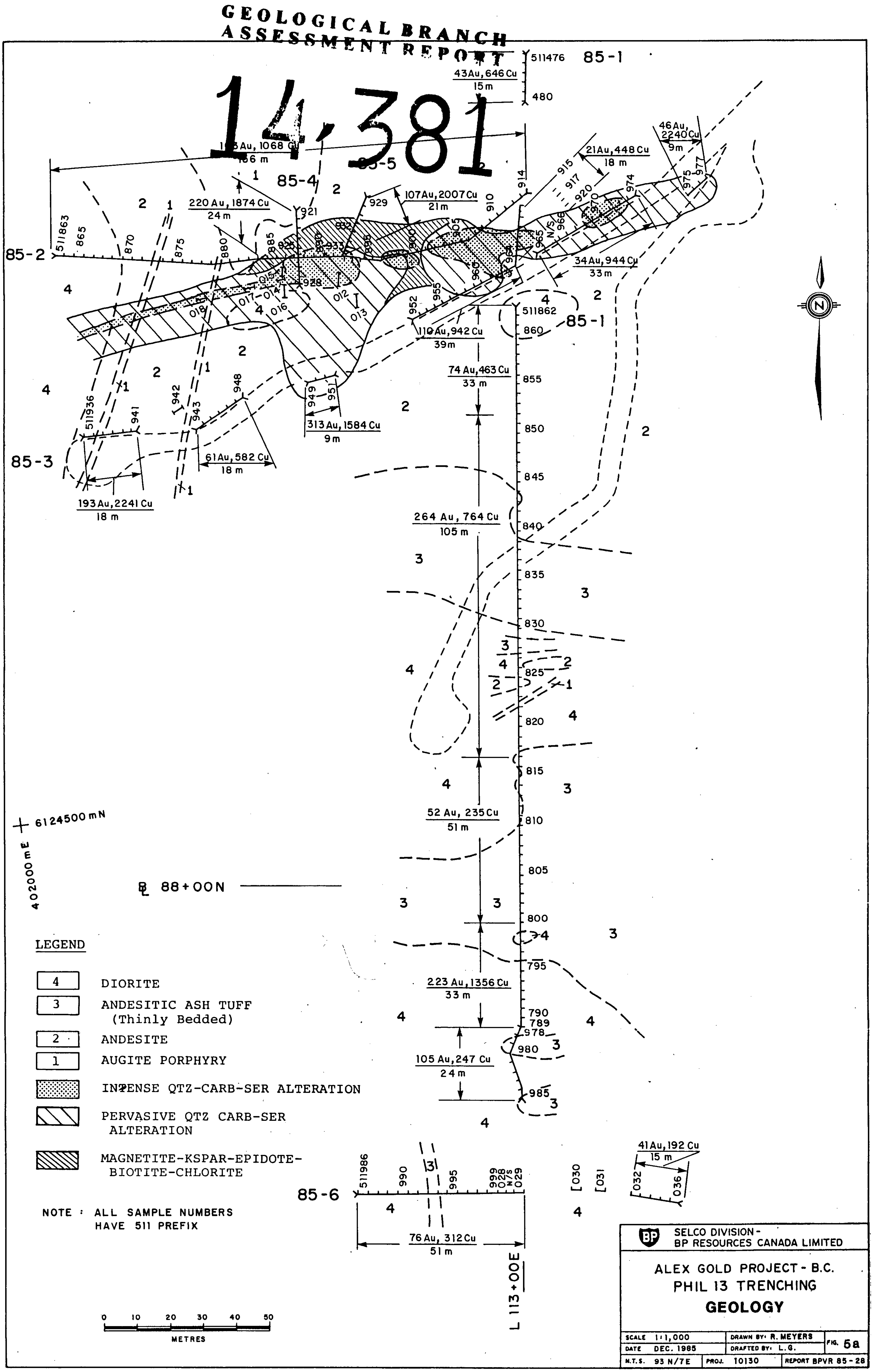
J.L. GRAVEL

J.L. Gravel, M.Sc.A.

B.Sc. Geology, 1979
McGill University
Montreal, Quebec

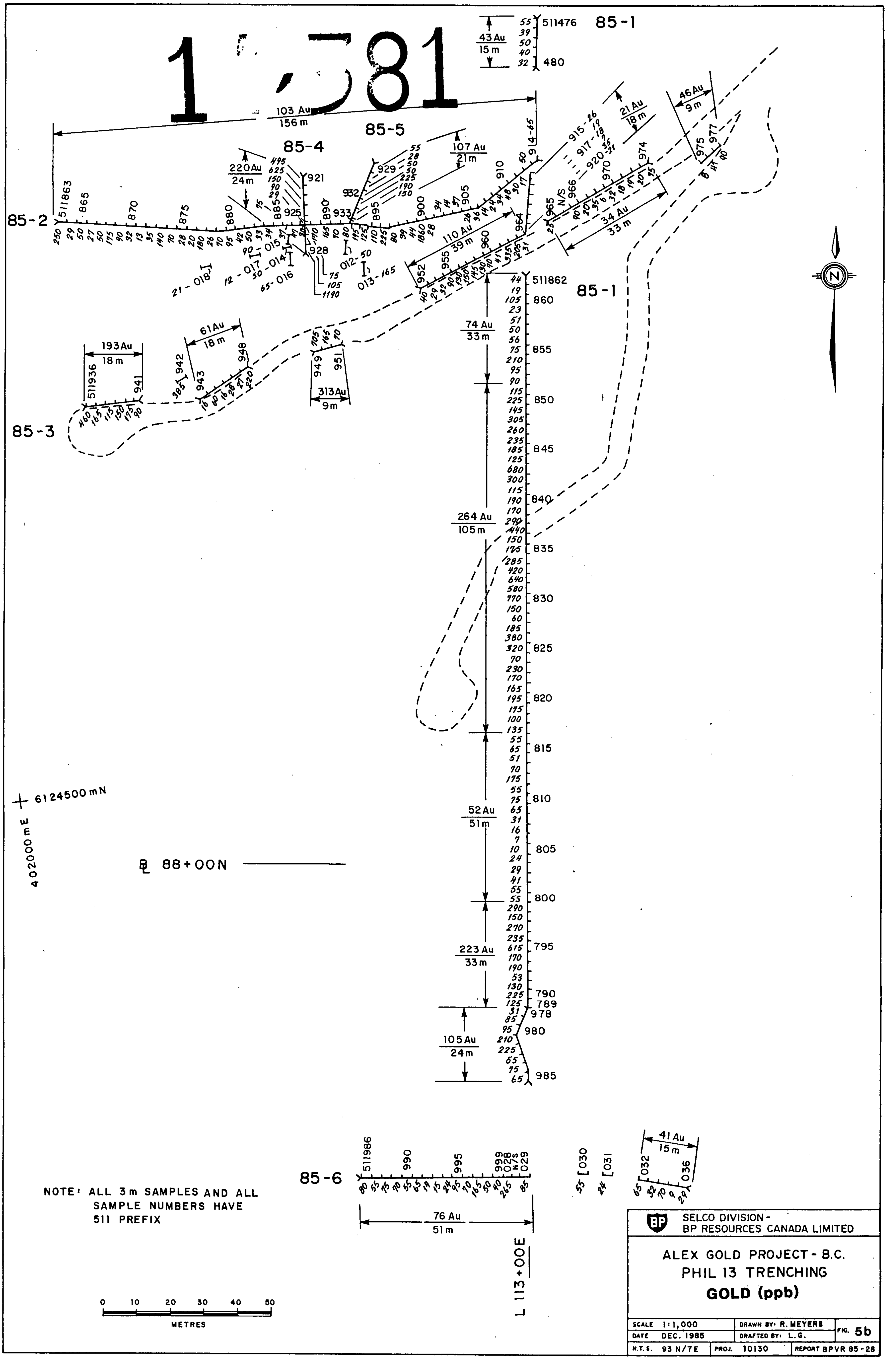
M.Sc.A. Geology, 1985
McGill University
Montreal, Quebec

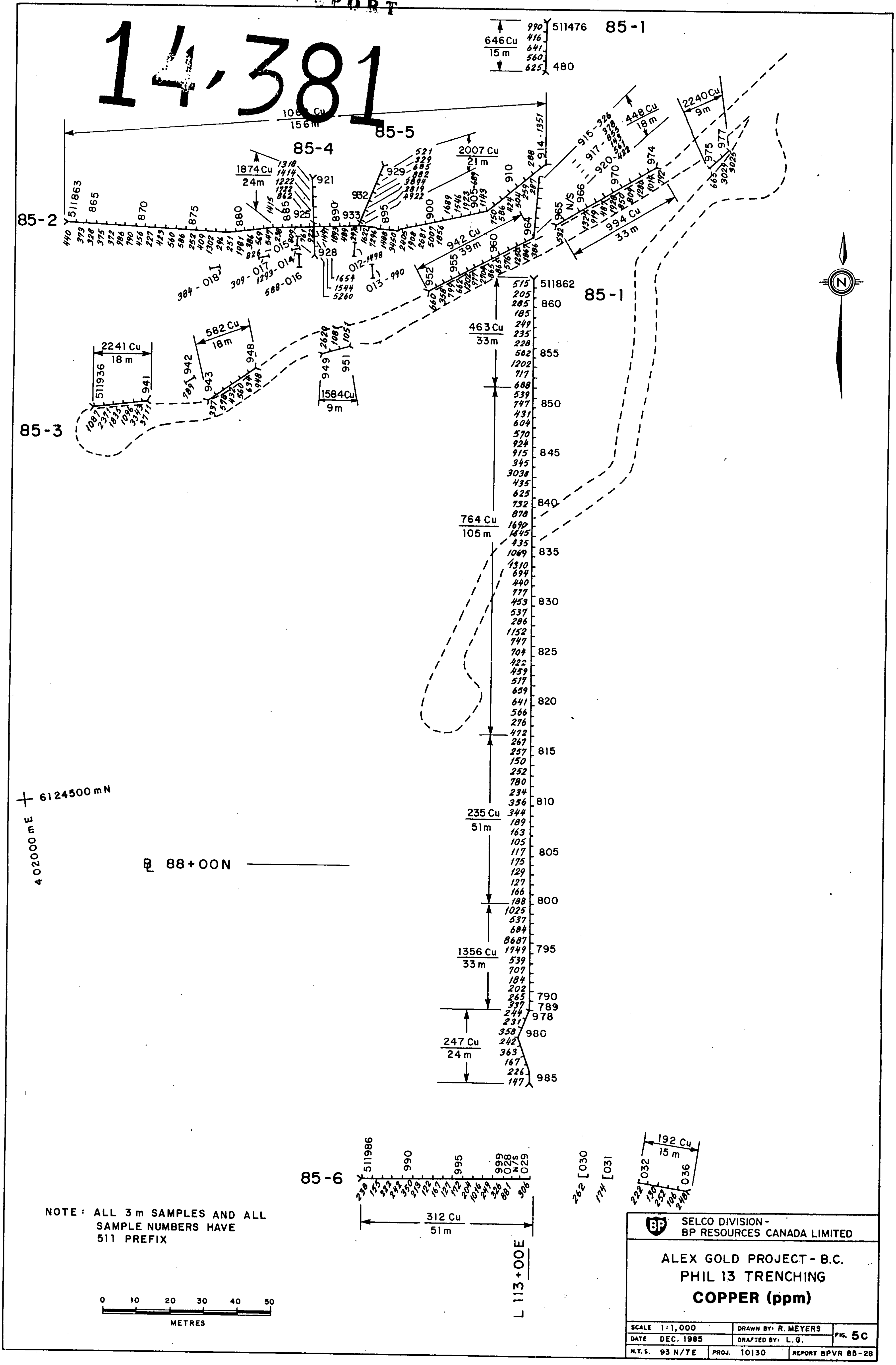
Member of Association of Exploration Geochemists.



GEOLOGICAL BRANCH
ASSESSMENT REPORT
14,381
85-1
85-2
85-3
85-4
85-5
85-6
43Au, 646 Cu
15 m
46Au, 2240 Cu
9m
21Au, 448 Cu
18 m
220 Au, 1874 Cu
24 m
107Au, 2007 Cu
21m
34Au, 944 Cu
33 m
110 Au, 942 Cu
39m
74 Au, 463 Cu
33 m
313 Au, 1584 Cu
9 m
61Au, 582 Cu
18 m
193Au, 2241 Cu
18 m
264 Au, 764 Cu
105 m
52 Au, 235 Cu
51 m
223 Au, 1356 Cu
33 m
105 Au, 247 Cu
24 m
41Au, 192 Cu
15 m
76 Au, 312 Cu
51 m
6124500 mN
402000 mE
℄ 88+00N
L 113+00E
LEGEND
4 DIORITE
3 ANDESITIC ASH TUFF (Thinly Bedded)
2 ANDESITE
1 AUGITE PORPHYRY
INTENSE QTZ-CARB-SER ALTERATION
PERVASIVE QTZ CARB-SER ALTERATION
MAGNETITE-KSPAR-EPIDOTE-BIOTITE-CHLORITE
NOTE : ALL SAMPLE NUMBERS HAVE 511 PREFIX
0 10 20 30 40 50
METRES
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
ALEX GOLD PROJECT - B.C.
PHIL 13 TRENCHING
GEOLOGY
SCALE 1:1,000
DATE DEC. 1985
N.T.S. 93 N/7E
DRAWN BY: R. MEYERS
DRAFTED BY: L. G.
PROJ. 10130
FIG. 5a
REPORT BPVR 85-28

GEOLOGICAL BRANCH
ASSESSMENT REPORT





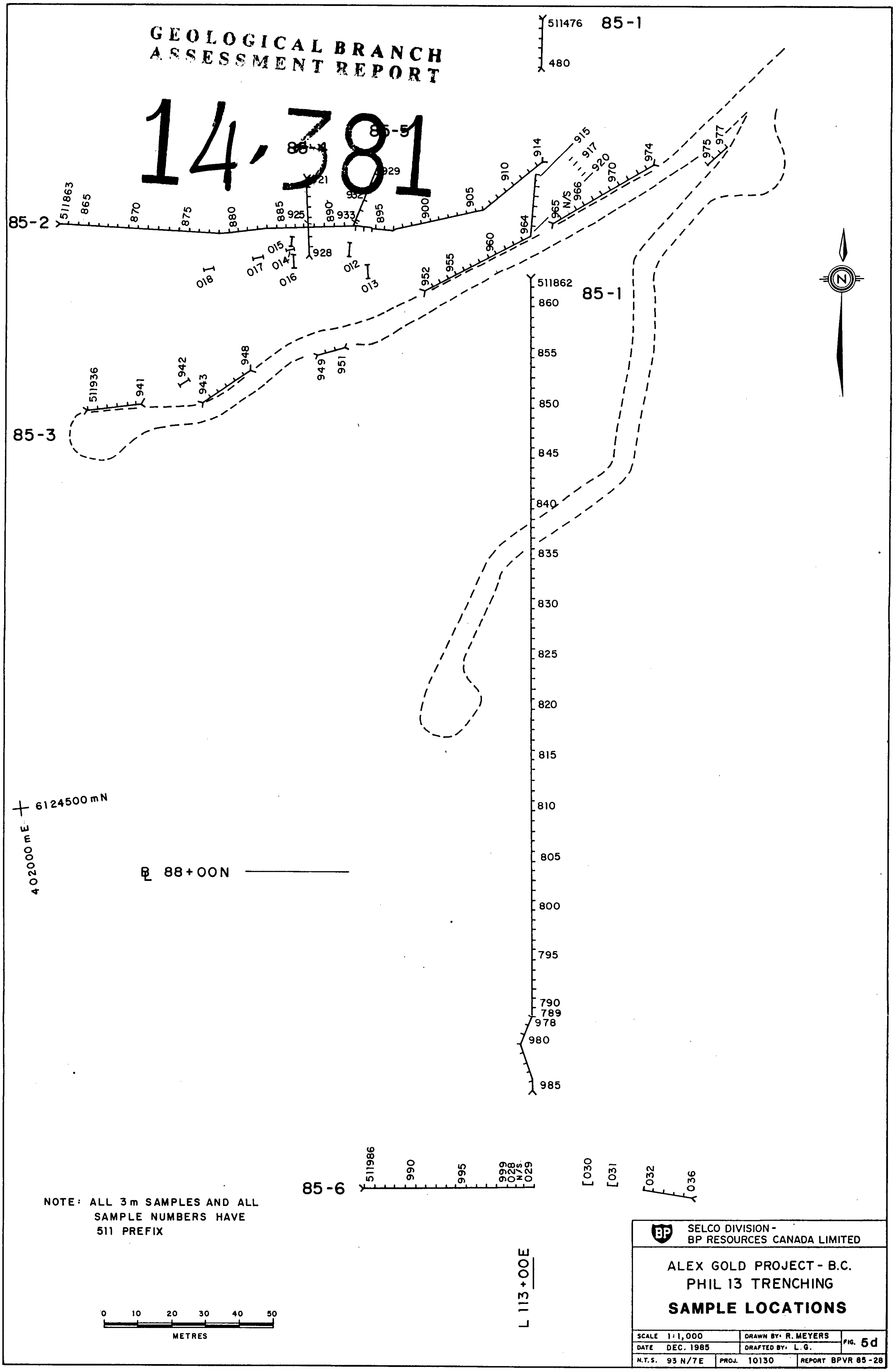
NOTE: ALL 3 m SAMPLES AND ALL SAMPLE NUMBERS HAVE 511 PREFIX

0 10 20 30 40 50
METRES

SELCO DIVISION -
BP RESOURCES CANADA LIMITED

ALEX GOLD PROJECT - B.C.
PHIL 13 TRENCHING
COPPER (ppm)

SCALE 1:1,000	DRAWN BY: R. MEYERS		FIG. 5c
DATE DEC. 1985	DRAFTED BY: L.G.		
N.T.S. 93 N/7E	PROJ. 10130	REPORT BPVR 85-28	


GEOLOGICAL BRANCH
ASSESSMENT REPORT
14,381
85-1
85-2
85-3
85-5
85-6
511476
480
511863
511862
511936
511986
6124500 mN
402000 mE
℄ 88+00N
L 113+00E
N
NOTE: ALL 3m SAMPLES AND ALL SAMPLE NUMBERS HAVE 511 PREFIX
0 10 20 30 40 50
METRES
SELCO DIVISION - BP RESOURCES CANADA LIMITED
ALEX GOLD PROJECT - B.C.
PHIL 13 TRENCHING
SAMPLE LOCATIONS
SCALE 1:1,000
DATE DEC. 1985
N.T.S. 93 N/7E
DRAWN BY: R. MEYERS
DRAFTED BY: L.G.
PROJ. 10130
FIG. 5d
REPORT BPVR 85-28

LEGEND

VOLCANIC AND SEDIMENTARY ROCKS

3	BASIC AUGITE PORPHYRY (AP), AUGITE-FELDSPAR PORPHYRY (AFP), PLAGIOCLASE PORPHYRY (FP) FLOWS AND BASIC CRYSTAL (XT) AND LAPILLI (LT) TUFFS
2	SILICEOUS ASH TUFFS AND CHERTY SILTSTONES (AT)
1	BASIC AUGITE PORPHYRY (AP) AND AUGITE PLAGIOCLASE PORPHYRY (AFP) WITH INTERBEDDED CRYSTAL TUFFS (XT) AND CRYSTAL LITHIC TUFFS (XLT)

INTRUSIVE ROCKS

Sy	SYENITE, HORNBLENDE SYENITE AND SYENOMONZONITE
Dp	DIORITE PORPHYRY
Mz	MONZONITE

SYMBOLS

GEOLOGIC CONTACT (KNOWN, INFERRED)
FAULT
OUTCROP
BEDDING ATTITUDE
POND
DRY GULLY
CREEK
ROAD
511001 WHOLE ROCK HAND SAMPLES (Not Chip Samples)

GEOLOGICAL BRANCH ASSESSMENT REPORT

14,381

METRES 0 50 100 150 200 250 300 350 400 450 500

SELCO DIVISION - BP RESOURCES CANADA LIMITED

PHIL 13-14 CLAIMS
ALEX GOLD PROJECT - B.C.
GEOLOGY

SCALE 1:5,000	DRAWN BY: D.H. & R.M.	FIG. 3
DATE DEC. 1985	DRAFTED BY: L.G.	
N.T.S. 93 N/7E	PROJ. 10130	REPORT BPVR 85-28

LEGEND

CONTOUR INTERVAL 25, 50, 100, 200 ppb GOLD

1985 TRENCHING

METRES 0 50 100 150 200 250 300 350 400 450 500

SELCO DIVISION -
BP RESOURCES CANADA LIMITED

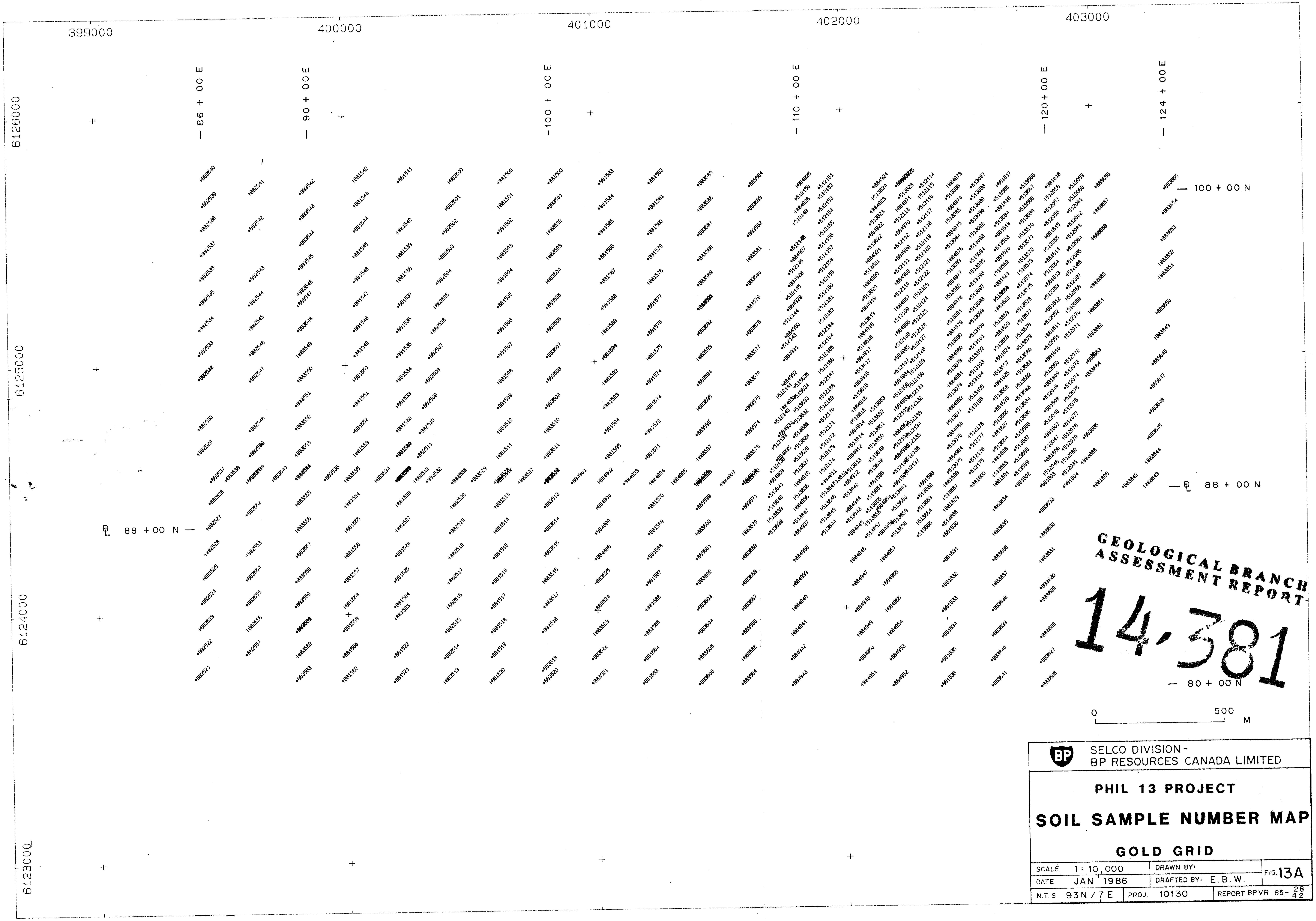
PHIL 13-14 CLAIMS

ALEX GOLD PROJECT - B.C.

1984 SOIL GEOCHEMICAL SURVEY
1985

GOLD (ppb)

SCALE 1:5,000	DRAWN BY:	FIG. 13
DATE DEC. 1985	DRAFTED BY: L.G.	
N.T.S. 93 N/7E	PROJ. 10130	REPORT BPVR 85 - 28/42



399000
400000
401000
402000
403000
6126000
6125000
6124000
6123000
86 + 00 E
90 + 00 E
100 + 00 E
110 + 00 E
120 + 00 E
124 + 00 E
100 + 00 N
BL 88 + 00 N
BL 88 +00 N
80 + 00 N
GEOLOGICAL BRANCH
ASSESSMENT REPORT
14,381
0
500
M
SELCO DIVISION -
BP RESOURCES CANADA LIMITED
PHIL 13 PROJECT
SOIL SAMPLE NUMBER MAP
GOLD GRID
SCALE 1 : 10,000
DATE JAN 1986
N.T.S. 93N / 7E
PROJ. 10130
DRAWN BY:
DRAFTED BY: E. B. W.
FIG. 13A
REPORT BPVR 85-28/42