

GOLDEN MINING DIVISION

Report on

Geochemical Soil Sampling Survey

and

Geological Mapping

ME Mineral Claim Group

and

Mineral Lease L1107

NTS Location - 82 KN/E

Coordinates $50^{\circ} 55'N$ - $116^{\circ} 48'W$

Operator - Cochrane Oil & Gas Ltd.

Consultant - Brunswick Resources Ltd.
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Date Technical Report Prepared - November 1, 1978

COCHRANE OIL & GAS LTD.
Registered Owner

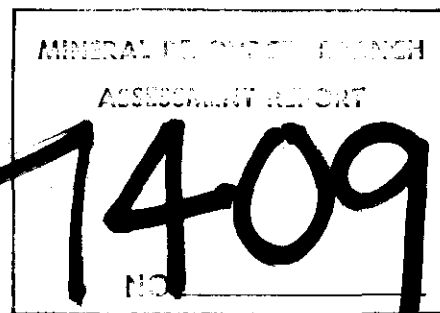


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INTRODUCTION

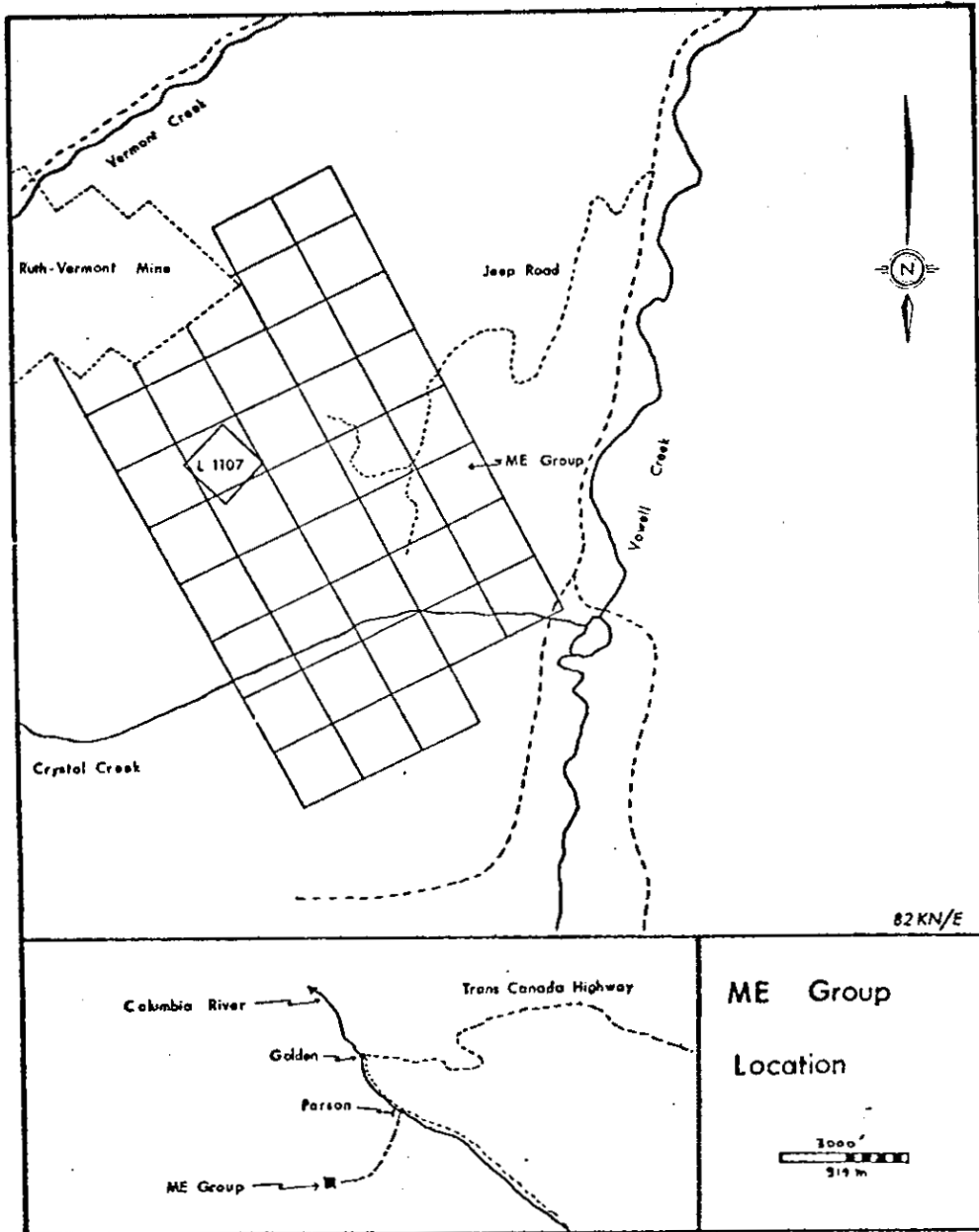
This report will describe the exploration program carried out in 1978 and correlate the information gathered with previously recorded data.

The ME Group of 40 unpatented mineral claims and mineral lease L1107 are located 82 km. (52 miles) southwest of Golden, B. C. in the Purcell Mountains (see index map). Access to the claims is by good gravel logging road to areas near the junction of Vowell and Crystalline Creeks, and reasonably good 4-wheel drive trails leading from the valley floor to approximately 1900 m. (6200') elevation.

Elevation on the claim block ranges from 1350 m (4500') to 2400 m (8000') on generally well treed slopes.

Several Pb-Zn-Ag mines (Giant Mascot, Mineral King, Paradise, Ruth-Vermont) are found in the area but are presently inactive.

The ME Group of claims is registered in the name of Cochrane Oil & Gas Ltd., of Calgary, and all claims are in good standing for several years.



EXPLORATION HISTORY

The claims were staked by R. Renn of Calgary in 1966 and were subsequently worked by him with financial support from a variety of sources until 1974. Considerable sums of money and time were expended on the property but results are of limited use. A general geological map was prepared by Ambrose (1966) from road cut exposures. Much of the other work, including several diamond drill holes and a biogeochemical survey, lacked specific guidance and so the programs were not properly executed or documented. Whatever documentation was retained is no longer available. The principal tangible results of work performed during this period are establishment of 1) a camp, and 2) a network of trails and trenches which have exposed most of the outcrops seen on the property as well as a number of surface showings.

In 1974, Medesto Exploration Limited of Calgary acquired the exclusive exploration rights to the claims. A summary of work performed by that company is as follows:

1974

- Constructed an 800 m (2600') baseline at 320° through the exposed showings,
- Collected soil samples for geochemical analysis at 8 m (25') intervals along 6400 m (21,000') of survey lines normal to the baseline and located 60 m (200') apart,
- Mapped surface geology for 300 m (1000') on either side of the main base line.

1975

- Completed three diamond drill holes for a total length of 65 m (215') using a small portable rig and company personnel. A fourth hole was abandoned in gravel at 15 m (50'). Core recovery in these small-diameter holes was poor but significant mineralization was encountered in one of the three holes which reached bedrock.

1976

- Constructed roads to a planned future drill site,
- Trenched using a bulldozer at two principal locations revealing new surface showings.

1977

- Completed road building and drill site preparation,
- Contracted 100 m (331') of large diameter diamond core drilling which yielded excellent recovery and one significant intersection of Pb-Zn-Ag mineralization,
- Established a secondary baseline 290 m (900') west of the main base line and sampled 1820 m (6000') of survey line,
- Conducted limited hand trenching in critical areas disclosing two new surface showings and significant mineralization.

The results of work undertaken by Medesto are documented in reports by Pelzer (1974, 1975, 1977) and Robertson (1976).

On completion of its obligations, Medesto acquired 100% interest and title to the claims. In the winter of 1977-1978, the name of Medesto was changed to Cochrane Oil & Gas Ltd. of Calgary. During the summer of 1978, the company completed the following work:

1978

- Compiled geological maps at scales of 1:5000 and 1:1200 over the claim block and area of geochemical soil survey respectively.
- Extended both baselines and completed soil geochemistry surveys covering 3550 m (11,700') of survey line.
- Conducted a limited stream silt geochemistry survey.
- Completed 35 m (115') of hand trenching across known mineralized zones in order to collect representative samples for assay.
- Examined several samples in thin and polished section in order to establish mineralogy and textural features of host rocks and ore minerals and to generate a geological history of the claim block.
- Collected several samples of relatively fresh rock using a G.S.C. portable packsack drill.

GEOLOGY

The ME Group claims are immediately underlain by Proterozoic rocks of the Horsethief Creek series. According to Reesor (1957) the series includes slates and argillites of various colors, quartz pebble conglomerate, quartzite, feldspathic quartzite and grit, and minor limestone, the entire series displaying rapid, recognizable facies changes and consistent fining upwards sequences. The thickness of the series in the Vowell Creek area is reported to be in excess of 1800 m (6000').

Substantial numbers of (metallic) mineral occurrences have been noted in limestones of the area but they are generally found in the underlying Upper Purcell Mt. Nelson Formation or the overlying Upper Cambrian Jubilee Formation, each having supported at least one mine nearby (Mineral King, Giant Mascot).

The Ruth-Vermont is situated on the S.W. limb of a gently plunging syncline trending 160° . The orebody is found where prominent veins intersect a thick (15 m; 50') limestone resulting in a bloom or manto-type replacement deposit of Pb-Zn-Ag-Cu minerals.

Exploration on the ME Group has tried to correlate the structural and lithologic features reported at the adjoining Ruth-Vermont Mine to those observed on the claims.

Lithology

Because of the gradational nature of the rocks with respect to grain size and composition, the field map units and rock divisions used are somewhat arbitrary. The units mapped in the field are, in approximate order of abundance:

- 1) Quartzites and arkosic quartzites,
- 2) Shales and phyllitic shales,
- 3) Limestones, and
- 4) Conglomerates.

1) Quartzites and Arkosic Quartzites

These vary considerably in grain size and composition but are designated as a single unit because of the preponderance of quartz as clast and matrix material. Grain size ranges from fine sand to conglomeratic with grains being usually sub-rounded. Sutured boundaries and evidence of recrystallization and strain adjustments are common. These rocks may be massive, foliated and even mylonitic displaying pressure shadows about competent, rigid clasts and some rotation effects. Cement is either carbonate or silica and some grains show quartz overgrowths. Composition varies from 80% quartz with accessory carbonate, feldspar, sericite, epidote and opaque minerals to 40% quartz, 40% carbonate and disseminated, interstitial opaque minerals. Bedding is thin to thick and these rocks usually form buff colored, blocky resistant outcrops.

2) Shales and Phyllitic Shales

Composition seems fairly constant consisting of variable amounts of quartz, feldspar, sericite, carbonate, epidote, micas and sometimes Pyrite/Marcasite euhedra of ≤ 1.0 cm. in length. Grain size varies from mud to silt size. Foliation, so intense as to often obscure bedding, is ubiquitous but, where visible, bedding is thickly laminated to thinly bedded, often appearing varved. These units appear as silvery grey to black recessive rocks.

3) Limestone

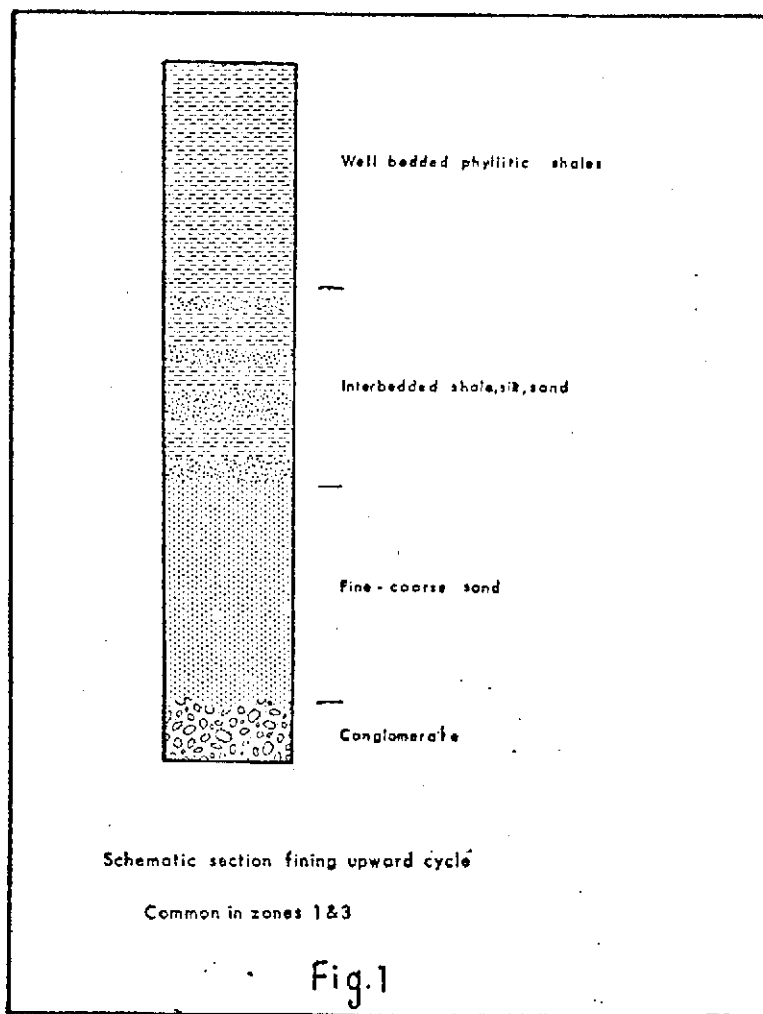
These rocks appear as olive colored, sandy, rounded outcrops. Texture is micro-to medium crystalline and distorted ooliths of ≤ 0.5 cm in length may be present. The main constituent is carbonate with variable amounts of silicate clastic debris. The limestones are usually massive and featureless but may become foliated as the shale content increases and even brecciated in places. These rocks may carry pyrite and assays indicate substantial Ag mineralization in limestone breccia and massive limestone. Near streams, there is very local "calcrete" formation of recently carbonate cemented rubble.

4) Conglomerate

This rock type is very local and rare in the mapped area. Where observed, the clasts are pebble to boulder size and are most commonly subrounded quartz, shale and limestone. Matrix varies from highly schistose to quartzitic sand size material. Conglomerates are usually foliated. They can occur as basal members in fining upwards sequences and, as such, are never thicker than 0.3 m (1'). No examples of mineralized conglomerate were encountered.

In general terms, the rocks underlying the claim block may be divided into three lithological zones. The area above 2000 m elevation is composed primarily of quartzites and conglomeratic and feldspathic sandstones with secondary amounts of shale and phyllite. The second zone contains most of the mineralized zones and soil geochemistry anomalies. The rocks are primarily phyllites and shales with relatively minor amounts of quartzite, sandstone and limestone. The third zone is found on the lower reaches of the soil grid extending to Crystal Creek. Quartzites and conglomeratic sandstones are the dominant lithologies with minor interbedded shales and phyllites.

At elevations greater than 2000 m (6500') on the NW section of the claim block, the rocks are primarily rhythmic successions of fining upwards quartzites and shales with interbedded silts. Figure 1 schematically shows a typical succession found in lithological zones 1 and 3. Each sequence varies in thickness from a few meters to a few tens of meters. Individual beds may range from millimetres (thickly laminated) in the shales to meters (thickly bedded) in the competent quartzites. No limestone and only minor, pebble sized thin basal conglomerate units were encountered above the 6500' contour level. Numerous barren and mineralized late stage hydrothermal quartz veins were noticed. (See assay BLA-1 for Pb-Zn-Ag values.)



In the vicinity of the soil geochemistry grid on the north side of Crystal Creek, the succession is primarily well-bedded phyllitic shales with interbedded siltstones and relatively minor amounts of quartzite and limestone. The rocks are thinly bedded to finely laminated, display intense foliation and are highly contorted by minor folds. Many of the observed folds are probably minor drag folds and not directly related to major structures. The succession appears to be generally dipping to the southwest but several zones of shearing and dip reversals are immediately apparent.

The lithologies of greatest interest are those displaying relatively thin interbeds of very calcareous, recrystallized quartz sandstones and well bedded phyllitic shales which appear to be rather intimately associated with limestones and are in proximity to soil geochemistry highs and known metallic mineral showings.

The lowermost lithologic zone closely resembles the Zone 1 in composition and appearance.

Figure 2 shows a generalized section from Crystal Creek to approximately 2600 m elevation.

Opaque Mineralogy

The sulphide minerals observed on the claim block are in approximate order of abundance:

- 1) Pyrite/Marcasite FeS_2
- 2) Galena PbS/Boulangerite $\text{Pb}_5 \text{Sb}_4 \text{S}_{11}$
- 3) Sphalerite ZnS
- 4) Stibnite Sb_2S_3
- 5) Malachite, $\text{Cu}_2 (\text{CO}_3) (\text{OH})_2$ Azurite $\text{Cu}_3 (\text{CO}_3)_2 (\text{OH})_2$
- 6) Tetrahedrite $(\text{Cu}, \text{Ag}, \text{Fe})_{12} \text{Sb}_4 \text{S}_{13}$
- 7) Arsenopyrite FeAsS

FeS_2 may appear in all of the rocks and hydrothermal veins on the property. Pyrite is typically cubic whereas its low temperature polymorph, marcasite, is orthorhombic. Marcasite is much more common in the sedimentary rocks and in the higher temperature hydrothermal veins pyrite is relatively more abundant.

Galena occurs in its typical coarse cubic habit and also in a fine grained steely form in, or proximal to hydrothermal veins. Where galena is found in quartzite, it typically shows coarse grained centers and much finer grained exterior shells in the disseminated masses. Boulangerite occurs as acicular, fibrous masses in vein material.

Sphalerite is generally very fine grained and is visible in hand specimen only under the microscope except in samples containing coarsely crystalline masses of galena, sphalerite and pyrite in which the sulphides display cross-cutting features with respect to bedding. Assay values from considerable lengths of drill core and surface trenches and microscopic examination of samples confirm the presence of very fine grained disseminated sphalerite in substantial quantities.

The other sulphide and supergene minerals are accessory except in very isolated high grade veins. Bladed stibnite crystals are occasionally observed in hand specimen and polished section. The supergene Cu minerals malachite and azurite coexist with bipyramidal galena crystals in hydrothermal veins. Tetrahedrite has been noticed only in polished section. It is assumed that Ag occurs with galena and tetrahedrite but has not been observed.

Examination of the heavily mineralized section of drill core from hole 3-77 and samples of mineralized quartzite shows that the sulphide minerals occur in the following ways:

- 1) in argillaceous layers, pyrite/marcasite is observed as large polycrystalline clasts somewhat elongated parallel to foliation and often having pressure shadows developed at the elongated borders,
- 2) as coarse grained masses showing cross-cutting relationships with bedding (the masses are generally almost pure sulphides).

Structural Geology

The area of the claim block may be divided into two fairly distinct structural zones, correlating closely to lithological Zones 1 and 2 mentioned in the preceding section. Each zone typically displays such features as foliation, bedding, fractures, faults and folds of various and amplitudes.

Foliation is by far the most common feature observed on the property. It ranges in intensity according to rock type but the planes of foliation are generally a few millimeters apart in sandstones and more closely spaced in shales, a direct result of the abundance of sheet silicates in these rocks. Often it is so intense that bedding is effectively masked, making collection of reliable data difficult.

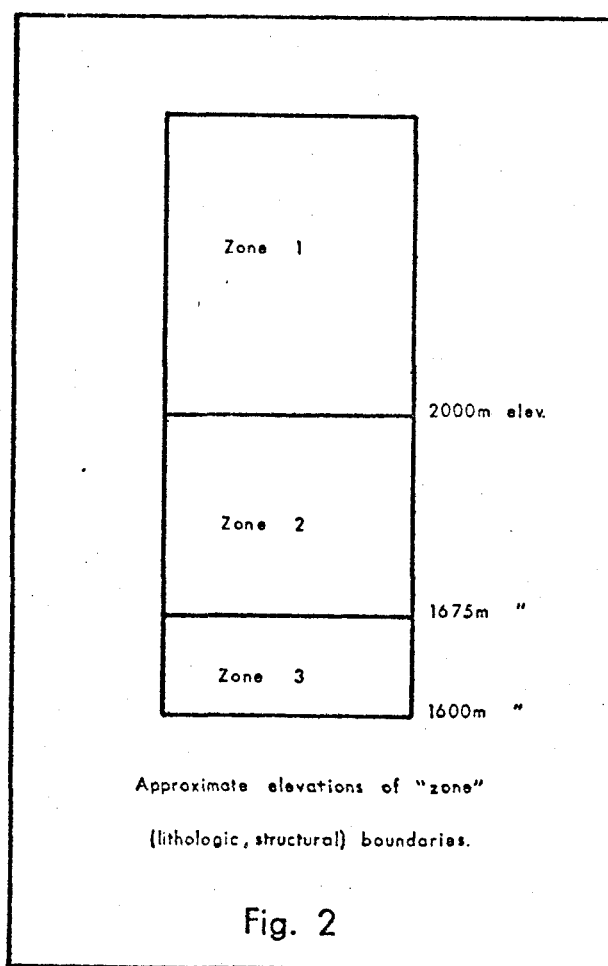
Bedding is generally defined by composition changes but in a few localities grain size gradation (ie. fining upwards sequences) are used to determine orientation of bedding and tops. In core samples, load features are sometimes visible.

Fractures are generally closed but may be open or filled with calcite, quartz or sulphides. No evidence of extension (ie. plumose structures) was noticed but shear features such as kink banding and tension gashes are common, particularly near faults.

Figures 3a, 3b, and 3c show stereographic plots of poles to bedding, foliation and fractures. The amount of data is not large but trends are immediately visible. Foliation and bedding planes appear to have undergone cylindrical folding about an axis trending $120 - 130^{\circ}$ and plunging $0 - 10^{\circ}$. Fractures show a weaker tendency to cluster but the majority strike at $20 - 30^{\circ}$ showing variable but generally steep dips. All structural data are compatible with regional NE to SW compressive forces.

Faults, shear zones and quartz veins appear to strike at $130 - 140^{\circ}$ and are either near vertical or dip steeply SW. Net displacement on any of the faults was not measured.

In Zone 1 ($\geq 2000\text{m}$ in elevation) the most obvious structural feature is a broad anticline, the axis of which trends NW-SE. Maximum observed dips on the limbs of the fold are in the $40 - 50^{\circ}$ range and the amplitude of the anticline is in the order of $1.5 - 3.0$ km ($1 - 2$ miles). The hinge or axial zone is marked by at least three folds of a few tens of meters amplitude, intense foliation, faulting, fracturing and heavy quartz veining. (See section G-G'). With reference to the 1:5000 scale geology map, this major anticline is a continuous feature readily visible on the mountain peaks to the north-west of the Ruth-Vermont workings. The south-east projection of the anticlinal axis and the axes of all small scale folds in the hinge zone falls between the main and 900 west base lines of the soil geochemistry grid.



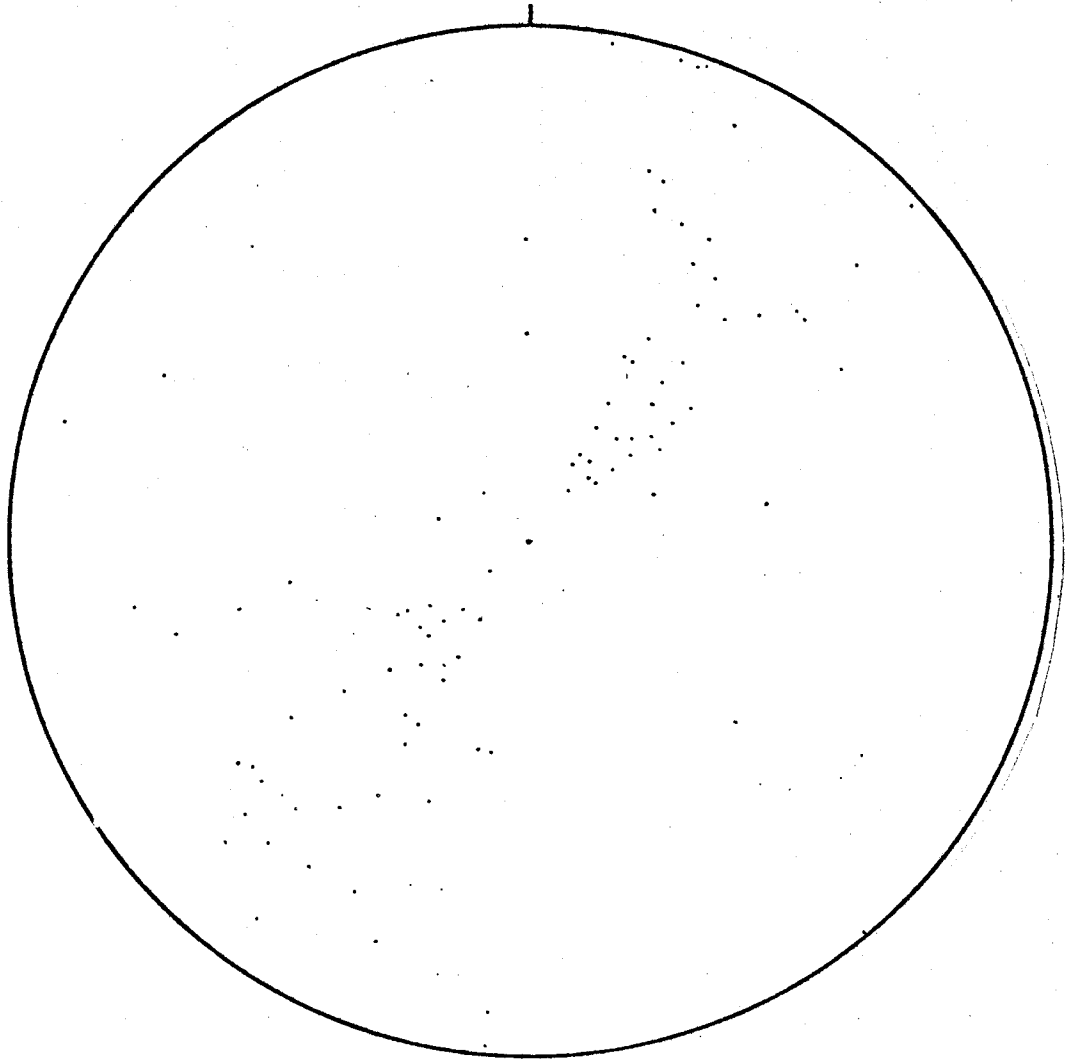


Figure 3a Stereographic (Wulff) Net
Poles to Bedding

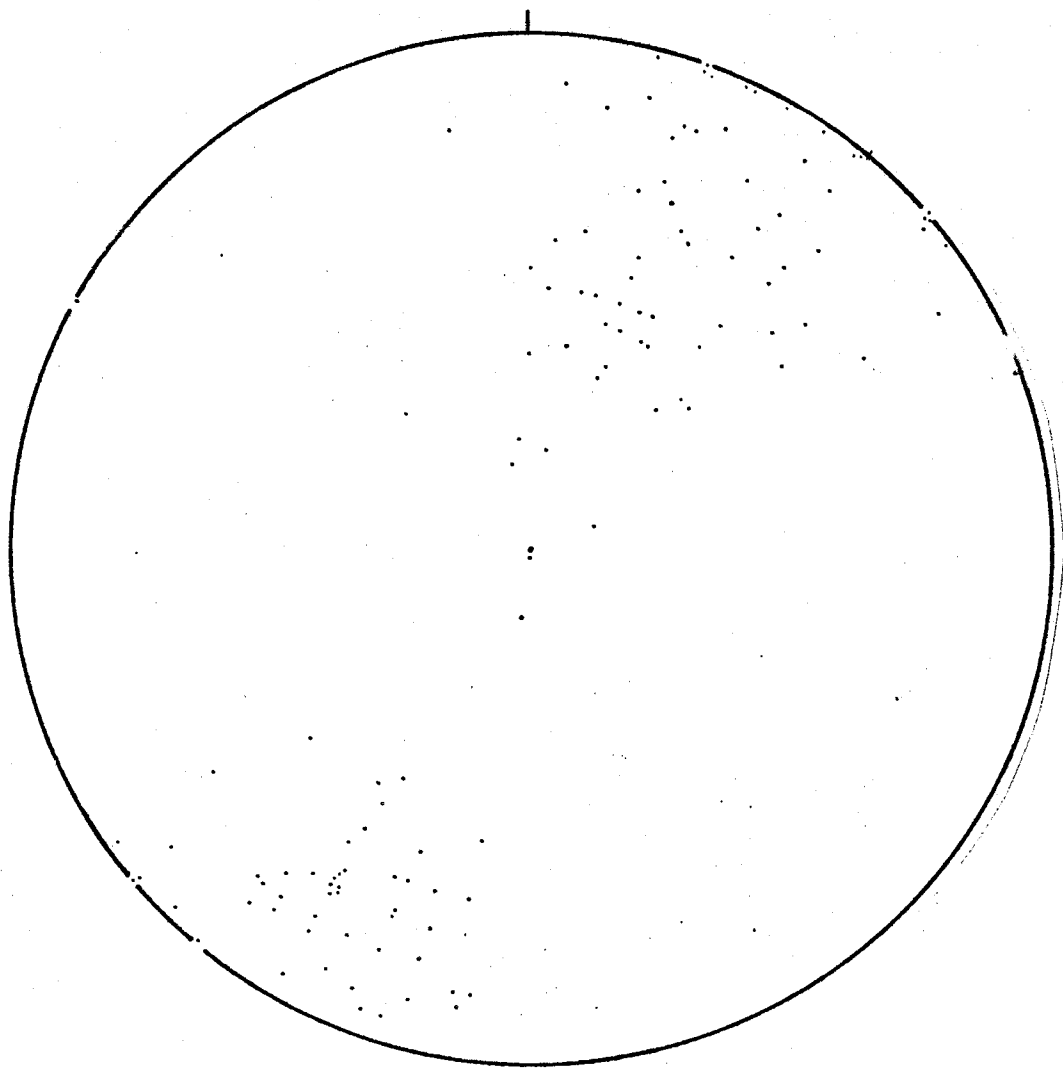


Figure 3b Stereographic (Wulff) Net
Poles to Foliation

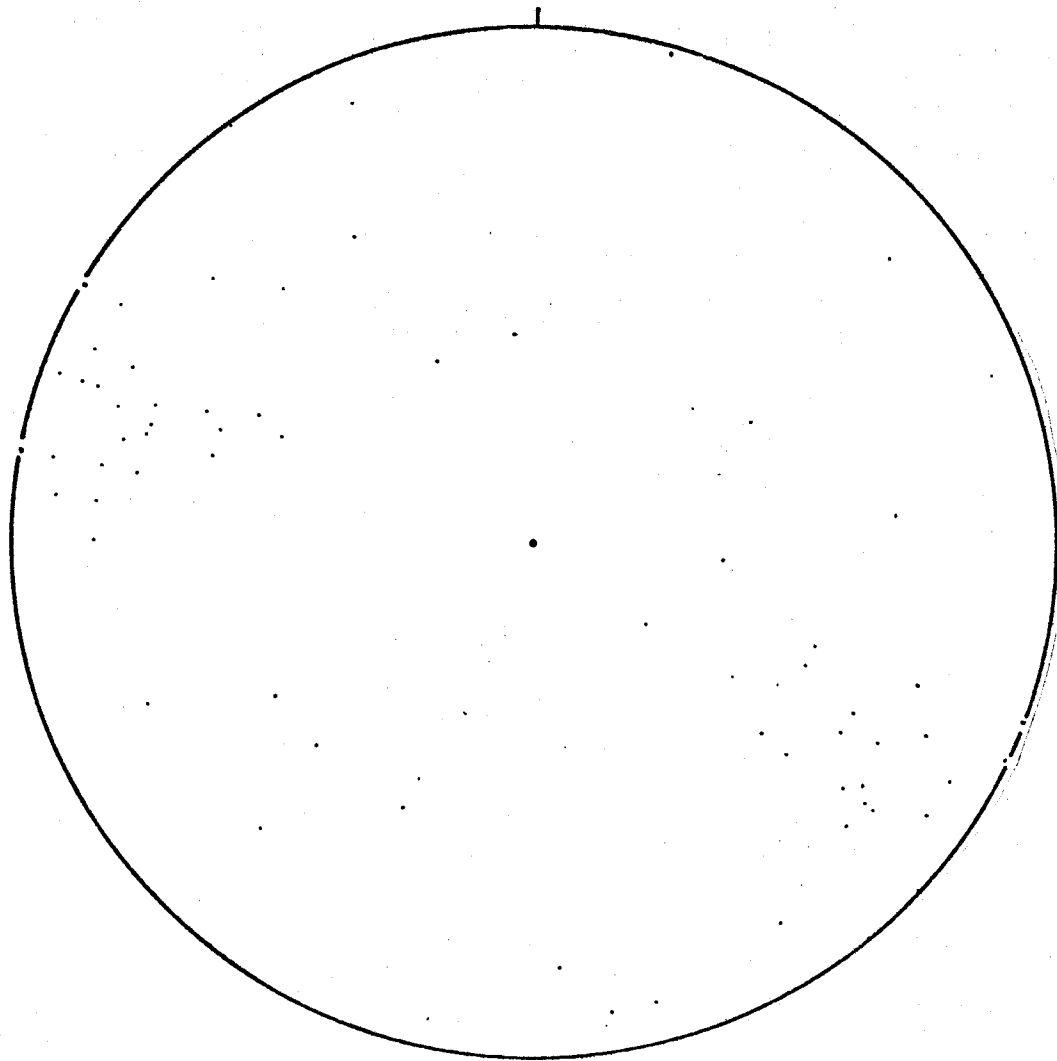


Figure 3c Stereographic (Wulff) Net
Poles to Fractures

The transition from lithological zone 1 to zone 2 is marked by a distinct change in structural style. With reference to the 1:1200 scale geology map and sections A-A' through F-F', it can be seen that the less competent shales and phyllites and the more competent quartzites have reacted differently to applied stress. There is a preponderance of southwesterly dips but reversals are common. Many of the reversals and the small scale folding (hand specimen to outcrop scale) are probably due to local drag folding and, in a broader sense, compensation by incompetent layers folded between competent layers. This has resulted in tight folds of all scales in the phyllites and shales. Cross-sections A-A' through F-F' (1:1200 scale geology map) show this locally complex folding with secondary faults and shear zones which probably act as important channelways for secondary geochemical dispersion and possibly metal-bearing fluid migration.

Of interest to note is the relationship of overall fracture, fault and foliation orientations, anomalous soil geochemistry values and general outcrop pattern. The overall orientation of foliation is striking 300° , approximately 20° west of base line orientation, with steep dips. Fractures generally strike at 25° , approximately 60° east of base line orientation, with variable dips. Faults strike parallel to the base line and dip steeply. The geochemistry anomalies trend approximately 340° or some 20° east of base line orientation. Bedding generally strikes at 310° .

SOIL GEOCHEMICAL AND STREAM SILT SURVEYS

The soil profile on the ME Group is relatively simple. A thin "A1" zone (7.6 cm. - 15.2 cm.) is underlain by an equally thin or thinner light grey to almost white "A2" zone, and this rests on what may be described as a "B-C" zone of light brown to reddish brown sandy clay which is almost always admixed with angular fragments of weathered bedrock. Since the profile of Crystal Creek is decidedly U-shaped, with tributary hanging valleys cut off at an elevation of 2150 m, it must be assumed that the soil profile is post-glacial and was developed on a scoured bedrock surface.

Geochemical survey lines have been run in the central portion of the claim block. Soil samples were selected from the "B-C" soil zone @ 7.5 m (25') station intervals along each line, placed in heavy kraft paper bags, and submitted to Loring Laboratories Ltd. of Calgary for analysis.

Treatment of the samples by Loring Laboratories consisted of thorough drying, sieving of the sample to minus 80 mesh, and selection of a 500 mg. portion for analysis. Digestion was in hot aqua regia for 2½ hours, and subsequent analysis by atomic absorption spectrometry, with appropriate standards.

The appendix map "Lead in B-C Soil Zone" illustrates the results for that element. Non-anomalous areas show an average background of 35 ppm., with little apparent variation from east to west or in the slope direction. Anomalous values have been contoured at values of 80 ppm., 160 ppm., 400 ppm., which represent approximately 2, 5, 10 and 20 times average background value. It is felt that values of more than 200 ppm. (6 times average background) are sufficiently anomalous to merit investigation, and in fact surface showings are known which are in close proximity to lower values (e.g. Station 1600 S350E at 140 ppm. is very close to the "Creek showing" of massive

galena.) Within each of the major anomalous areas, values in excess of 40 times background are reached, with a maximum value (Station 200N, 225W) of 26,500 ppm or 2.6%, equivalent to 755 times background.

The appended map "Zinc in B-C soil Zone" illustrates distribution of that element. Average background is 80 ppm., again with little apparent regional variation across the surveyed area. Anomalous areas are contoured at values of 160 ppm., 400 ppm., 800 ppm., and 1600 ppm., representing approximately 2, 5, 10 and 20 times average background value. Again it is felt that values in excess of 5 times background are of potential interest. Maximum concentration of 12,675 ppm. or 1.2% equivalent to 158 times average background, is at the same Station (200 N, 225 W) as the maximum lead concentration. Within the anomalous area, the higher values seldom exceed more than 25 times background, ie. the anomalies are less anomalous for zinc than for lead, relative to background.

The soil geochemistry sample grid was expanded in 1978 (see figure 4) in order to more completely delineate anomalies "A" and "D" (see Pelzer, 1977). From the enclosed soil geochemistry maps it can be seen that anomaly "D" shows significantly anomalous values (≥ 5 X background) for both Pb and Zn extending from Crystal Creek to line 100 N., a distance of 425 m (1400') and showing an average width of 40 m (130'). Anomaly "A" was not appreciably extended.

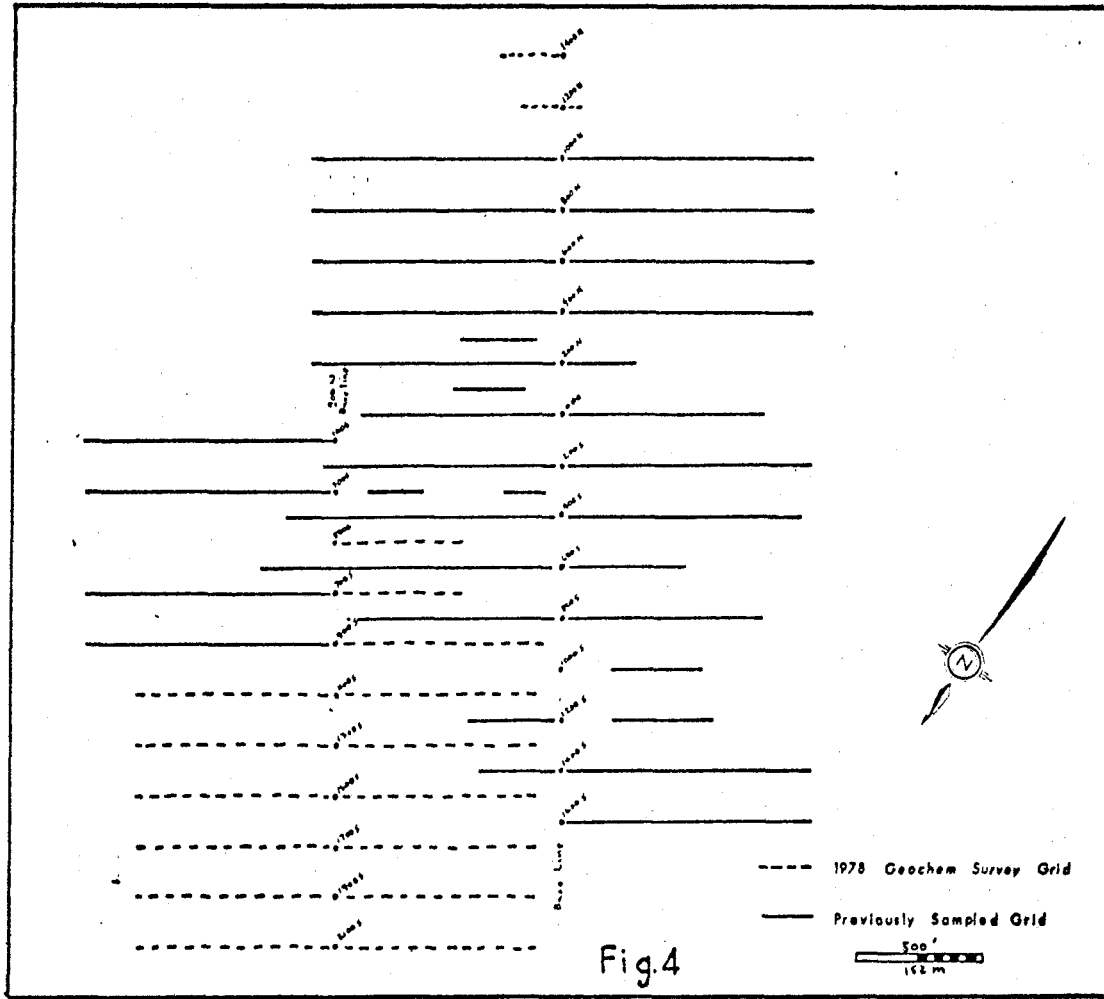
Of added interest is the fact that anomalous values and contours do not extend south of Crystal Creek. Possible reasons for this termination are:

- 1) There is a fairly drastic change in the kind of soil horizons developed on the south bank. It consists primarily of rounded pebbles in a soil matrix interspersed with short intervals of soil containing angular rocks fragments. This is indicative of a mostly transported soil horizon which masks the true

- geochemical nature of the underlying bedrock,
- 2) The succession of rocks could be faulted and displaced approximately parallel to Crystal Creek. Detailed geology for the south side of the creek is not available at present.
 - 3) The locally mineralized structures may steepen in plunge and effectively disappear or the outcrop pattern of favourable lithologies may not have been sampled on the south side of the creek.

Cursory examination of road cuts approximately 1.5 km (1 mile) south of Crystal Creek revealed boulders and fragments of lithologies similar to those on the north side as well as isolated pieces of vein quartz containing galena. Outcrop in this area is limited to less than 1%.

A stream sediment survey consisting of 13 stations at irregular spacing was conducted on Crystal Creek. Active stream sediments were collected (\approx 0.5 Kg/sample), dried and the -200 mesh fraction sieved out. The pulps, were then digested and tested for Pb and Zn. Values, as shown on the 1:5000 geology map, failed to isolate any provenance for Pb and Zn.



TRENCHING AND CHANNEL SAMPLING

Trenches were blasted at two localities in order to collect unweathered samples for representative assay. A total of 34.0 m (115') of trench was completed and sampled at variable intervals. Figure 5 is a schematic section through trench 28 showing rock types and assay values for Pb, Zn and Ag. Trench 29 showed no economic grades.

Limited success was achieved in collecting fresh, unweathered samples, particularly in sulphide-rich rocks. Competent sandstones often show a weathering crust with a fresh core but other lithologies are not well preserved within 2 m (7') of the surface. Where fresh or weathered rock were not available, samples of heavily gossaned purplish detrital material were collected.

SUMMARY

The Horsethief Creek series rocks were deposited in relatively shallow water, low to high energy environment (probably similar to present continental shelves) and suffered frequent changes in sea level. There is abundant evidence of immature terrestrial clastic influx as well as more stable carbonate desposition and fairly mature rounded high energy quartzite.

The local environment of deposition (zone 2) may be a medium energy shallow water basin bounded to seaward by an oolitic shoal and to landward by high energy sub-aerial systems. Frequent influxes of terrestrial clastic material (ie. shales, arenites) would account for a lack of extensive algal growth. An environment similar to a modified Florida Bay is envisaged. That is rhythmic interbeds of terrestrial shales, feldspathic sands, limestones and calcareous sands.

The structural geology is locally complex. There is evidence of drastically different structural styles from one zone or rock type to another and structural features may not be readily juxtaposed from one area to another.

Soil geochemical sampling has met with continued success in delineating and extending anomalous zones. Stream silt sampling, however, appears not to be a useful tool for exploration in this area, primarily due to the rate of flow in the streams.

Carbonate hosted Pb-Zn-Ag deposits are known to occur in limestone stratigraphically higher and lower than the Horsethief Creek series rocks. On the ME Group claims there is evidence of two types of sulphide mineral deposit:

- 1) high grade hydrothermal vein-type deposits of limited extent and volume but containing appreciable amounts of Ag-Pb-Zn with occasional Cu, W and Sb minerals. These typically exhibit cross-cutting relationships with sedimentary rocks and are probably of the same age as the late stage quartz veins on the property;
- 2) Bloom or manto-type replacement deposits in limestone.

With reference to the 1:1200 scale geology map, substantial amounts of limestone and sandstone are present in the mapped area. Assuming that these rocks have a certain degree of porosity, they could provide excellent traps for epigenetic replacement-type sulphide mineral deposits which could provide economically extractable tonnages of minerals and would be controlled by stratigraphy as well as major structures in the area.

Trench at Station 28

Samples 119-127

Pb, Zn in %

Ag in oz./ton

	121	120	119
Pb	1.34 0.12	0.22 1.05	0.46
Zn	3.85 1.90	1.68 0.2	0.19
Ag	0.18 0.34	1.0 0.79	0.32

	124	123	122
Pb	1.90 12.33	0.06	0.04 0.04
Zn	6.31 10.57	0.52	0.67 0.91
Ag	1.55 tr	tr	tr 0.24

	127		126		125
Pb	11.24 0.28 15.46	0.22	0.42	0.04	0.32 1.94
Zn	3.97 0.41 6.04	0.27	0.36	0.18	0.31 3.00
Ag	1.54 tr 0.10	0.2	tr	0.12	tr tr

Average Values

	119	120	121	122	123	124	125	126	127
% Pb	0.45	0.64	0.43	0.04	0.06	7.11	1.15	0.23	6.99
% Zn	0.19	0.94	2.88	0.79	0.52	8.44	1.65	0.27	4.27
oz./ton Ag	0.32	1.20	0.26	0.12	tr	0.78	tr	0.11	0.35
Length	3.7m	1m	2.8m	1.9m	1.3m	1.5m	1.6m	5m	1.9m
\$value/ton	6.31	17.60	27.40	6.47	4.06	113.14	19.46	4.10	93.84

Pb, Zn \$0.35/lb Ag \$5.80/oz.

Fig. 5

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Robertson, D.K., 1976; Report on ME 1 and ME 2 Group Mineral Claims.

STATEMENT OF QUALIFICATIONS

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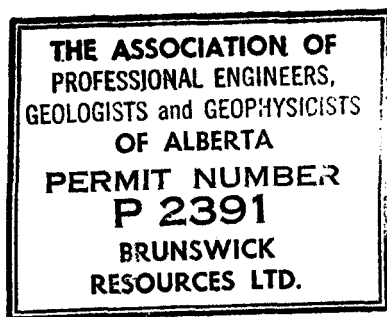
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THIS REPORT was prepared for Cochrane Oil & Gas Ltd.
by R.G. Dales under the supervision of Brunswick Resources
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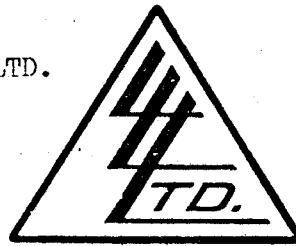
M. Aileen Pelzer, P. Geol.

APEGGA Registration no. 23377

APPENDIX I Assays

To: PROBE EXPLORATIONS & DEVELOPMENT LTD.

2., 215A -10th ST. N.W.
CALGARY, Alberta T2N 1V5



File No. 15330

Date September 12th, 1973

Samples CHIP

Attn: Bob Dales

**Certificate of
ASSAY of
LORING LABORATORIES LTD.**

PAGE # 1

SAMPLE No.	OZ./TON Silver	% Pb	% Zn
<u>ROCK CHIP</u>			
# 1	Trace	.02	.01
# 2	Trace	.02	.01
# 3	11.52	26.30	1.13
# 4	1.66	1.92	2.91
# 5	Trace	.93	.04
# 6	Trace	.04	.25
# 28-1	5.38	6.76	1.98
# Ls -1	53.76	15.21	.24
# BLA-1	.78	.24	.03
# 29	36.98	39.78	.20
# 103	2.40	.34	.17
# 127 B	.10	15.46	6.04
# 117A	10.26	.12	.08
# 120A	1.60	.22	1.05
# 121A	.34	.12	1.90
# 122A	.24	.04	.91
# 124A	Trace	12.33	10.57
# 125A	Trace	1.94	3.01
# 126A	Trace	.42	.36
# 127A	Trace	.28	.81
# 129A	Trace	.12	.20
# 125B	Trace	.10	.51
# 126B	.12	.04	.18
# 126	.20	.22	.27
# 113	.94	1.34	3.35
# 119	.32	.46	.19
# 120	.74	1.63	.20
# 121	.18	1.54	3.85

28

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.

Pulps Retained one month
unless specific arrangements
made in advance.

Licensed Assayer of British Columbia

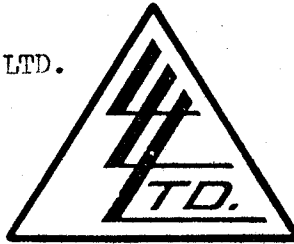
To: PROBE EXPLORATIONS & DEVELOPMENT LTD.

File No. 15830

Date September 12th, 1978

Samples Chip

2, 215A, 10th St., N.W.
CALGARY, Alberta T2N 1V5



Attn: Bob Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

PAGE # 2

SAMPLE No.	OZ./TON SILVER	% Pb	% Zn
# 122	Trace	.04	.67
# 123	Trace	.06	.52
# 124	1.56	1.90	6.31
# 125	Trace	.32	.31
# 127	8.90	11.24	5.97
# 129	Trace	.06	.17
# 130	5.01	3.12	6.16
# 140	11.83	11.63	11.59

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.

Pulps Retained one month
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made in advance.

ed m f o a e
Licensed Assayer of British Columbia

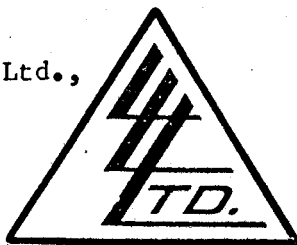
APPENDIX Ia Geochemistry Assays 1978

To: Probe Explorations & Development Ltd.,

#2 215A - 10th Street N. W.

CALGARY, Alta T2N 1V5

ATTENTION: R. Dales



File No. 15376

Date July 6, 1978

Samples Geochem Soil

PROJECT: Cochrane Oil & Gas

Certificate of
ASSAY of
LORING LABORATORIES LTD.

SAMPLE No.	PPM	PPM
	PB	ZN
500S-25E	124	540
500S-50E	330	650
500S-75E	900	1700
500S-100E	780	1200
500S-125E	310	1680
500S-150E	350	530
500S-175E	27	168
500S-200E	53	270
500S-225E	450	380
500S-250E	25	180
500S-275E	36	120
500S-300E	85	158
500S-325E	28	160
500S-350E	27	99
500S-375E	25	92
500S-400E	30	87
500S-425E	28	89
500S-450E	33	98
500S-475E	30	130
500S-500E	24	83
1300S-100E	110	300
1300S-125E	45	142
1300S-150E	18	62
1300S-175E	44	70
1300S-200E	34	74
1300S-225E	40	127
1300S-250E	32	100
1300S-275E	45	73
1300S-300E	30	135
1300S-325E	50	140

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.

Pulps Retained one month
unless specific arrangements
made in advance.

Edm Joac

Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Geochem Soil
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 2

SAMPLE No.	PPM PB	PPM ZN
1300S-350E	59	92
1300S-375E	138	205
1300S-400E	20	93
1300S-425E	29	85
1300S-450E	35	107
1300S-475	37	75
1300S-500E	42	56
1300S-525E	50	72
1300S-550E	36	116
1300S-575E	35	124
1300S-600E	32	85
1300S-625E	18	43
1300S-650E	28	57
1300S-675E	23	73
1300S-700E	36	54
1300S-725E	52	84
1300S-750E	33	400
1300S-775E	20	121
1300S-800E	22	195
1100S-25E	2600	6800
1100S-50E	2960	7600
1100S-75E	280	620
1100S-100E	90	430
100S-125E	103	380
1100S-150E	65	160
1100S-175E	42	105
1100S-200E	27	86
1100S-225E	30	125
1100S-250E	19	80
1100S-275E	39	108
1100S-300E	40	113

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

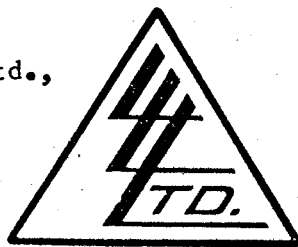
Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

E. L. McIsaac
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,

#2 215A - 10th Street N. W.

CALGARY, Alta T2N 1V5



File No. 15376

Date July 6, 1978

Samples Geochem Soil

PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 3

SAMPLE No.	PPM	PPM
	PB	ZN
100S-325E	19	40
1100S-350E	18	39
1100S-375E	17	59
1100S-400E	17	46
1100S-425E	66	114
1100S-475E	22	160
1100S-500E	17	34
1100S-525E	46	97
1100S-550E	205	72
1100S-575E	2900	160
1100S-600E	166	148
1100S-625E	43	92
1100S-650E	50	60
1100S-675E	42	63
1100S-700E	105	135
1100E-725E	36	69
1100S-750E	36	220
1100S-775E	21	260
1100S-800E	30	350
700S-25E	570	1200
700S-50E	154	1050
700S-75E	660	1820
700S-100E	7300	17200
700S-125E	1030	2960
700S-150E	122	1640
700S-175E	55	240
700S-200E	95	185
700S-225E	3400	2620
700S-250E	80	192
700S-275E	35	135
700S-350E	20	93

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

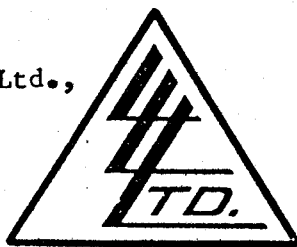
Rejects Retained one month.

Pulps Retained one month
unless specific arrangements
made in advance.

E. L. McFadden

Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Geochem Soil
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
 ASSAY of
 LORING LABORATORIES LTD.

Page 4

SAMPLE No.	PPM PB	PPM ZN
700S-375E	20	86
700S-400E	21	78
700S-425E	25	80
700S-450E	36	83
700S-475E	22	86
700S-500E	28	90
2100S-00E	24	42
2100S-25E	38	35
2100S-50E	26	33
2100S-75E	18	42
2100S-100E	20	27
2100S-125E	32	29
2100S-150E	29	40
2100S-175E	32	76
2100S-200E	17	60
2100S-225E	14	52
2100S-250E	22	81
2100S-275E	26	23
2100S-300E	18	44
2100S-325E	16	42
2100S-350E	29	47
2100S-375E	25	60
2100S-400E	33	56
2100S-425E	16	52
2100S-450E	22	48
2100S-475E	33	60
2100S-500E	28	57
2100S-525E	28	62
2100S-550E	70	80
2100S-575E	24	72
2100A-600E	60	136

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

Ed McJannet
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Geochem Soil
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
 ASSAY of
LORING LABORATORIES LTD.

Page 5

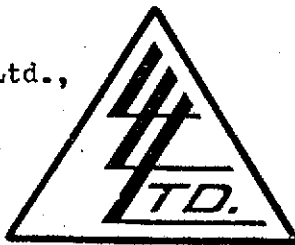
SAMPLE No.	PPM	PPM
	PB	ZN
2100S-625E	24	68
2100S-650E	29	59
2100S-675E	26	70
2100S-700E	38	67
2100S-725E	21	59
2100S-750E	35	88
2100S-775E	46	40
2100S-800E	28	65
1900S-00W	12	28
1900S-25W	14	29
1900S-50W	20	50
1900S-75W	25	18
1900S-100W	20	47
1900S-125W	19	48
1900S-150W	16	18
1900S-175W	23	68
1900S-200W	28	38
1900S-225W	20	60
1900S-250W	26	69
1900S-275W	32	49
1900S-300W	32	31
1900S-325W	24	58
1900S-350W	17	46
1900S-375W	36	49
1900S-400W	34	52
1900S-425W	22	36
1900S-450-W	21	70
1900S-475W	20	48
1900S-500W	22	47
1900S-525W	25	55
1900S-550W	24	86

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

Ed McIsaac
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 # 2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochem
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 6

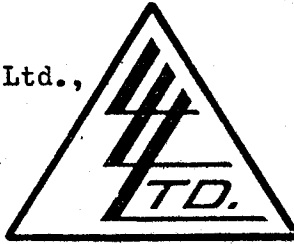
SAMPLE No.	PPM Pb	PPM Ln
1900-575W	25	50
1900S-600W	22	48
1900S-625W	20	37
1900S-650W	20	40
1900S-675W	25	44
1900S-700W	21	16
1900S-725W	18	32
1900S-550W	21	46
1900S-775W	20	38
1900S-800W	17	32
1100S-00W	3100	4000
1100S-25W	710	1760
1100S-50W	480	1470
1100S-75W	175	320
1100S-100W	600	660
1100S-125W	290	310
1100S-150W	250	610
1100S-175W	340	550
1100S-200W	1360	600
1100S-225W	130	280
1100S-250W	680	550
1100S-275W	950	770
1100S-300W	36	80
1100S-325W	71	100
1100S-350W	85	124
1100S-375W	76	128
1100S-400W	97	108
1100S-425W	79	144
1100S-450W	46	107
1100S-475W	42	79
1100S-500W	5	10
1100S-525W	26	45

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulp Retained one month
 unless specific arrangements
 made in advance.

S. J. McFadden
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 - 215A - 10th Street N. W.,
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochems
 PROJECT No. Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.

Page 7

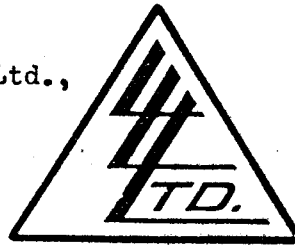
SAMPLE No.	PPM	PPM
	Pb	Ln
1100S-550W	24	47
1100S-575W	47	41
1100S-600W	22	54
1100S-625W	18	48
1100S-650W	45	75
1100S-675W	38	141
1100S-700W	37	150
100S-725W	25	42
1100S-750W	7.0	18
1100S-775W	31	58
1100S-800W	50	142
900S-25E	860	1230
900S-50E	1200	1640
900S-75E	1840	3200
900S-100E	2480	2900
900S-125E	55	400
900S-150E	64	520
900S-150E	210	290
900S-175E	30	69
900S-200E	22	50
900S-225E	250	320
900S-250E	18	39
900S-275E	15	28
900S-300E	28	80
900S-325E	40	115
900S-350E	44	146
900S-375E	120	220
900S-400E	25	142
900S-425E	34	154
900S-450E	32	118
900S-475E	80	200
900S-500E	30	83

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

R. Dales
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochems
 PROJECT: # Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 8

SAMPLE No.	PPM Pb	PPM Ln
900S-525E	30	88
900S-550E	33	80
900S-575E	37	46
900S-600E	32	72
900S-625E	28	69
900S-650E	36	48
900S-675E	26	90
900S-700E	1870	250
900S-725E	700	460
900S-750E	118	400
900S-775E	56	230
900S-800E	72	280
2100S-25W	41	54
2100S-50W	40	40
2100S-75W	46	68
2100S-100W	18	27
2100S-125W	27	64
2100S-150W	22	63
2100S-175W	22	47
2100S-200W	39	75
2100S-225W	28	60
2100S-250W	31	56
2100S-275W	34	83
2100S-300W	25	46
2100S-325W	30	53
2100S-350W	26	37
2100S-375W	36	28
2100S-400W	26	65
2100S-425W	24	48
2100S-450W	30	41
2100S-475W	26	48
2100S-500W	28	23

I **Hereby Certify** THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

R. Dales
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochems
 PROJECT: # Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 9

SAMPLE No.	PPM Pb	PPM Ln
2100S-525W	17	41
2100S-550W	36	40
2100S-575W	36	44
2100S-600W	38	60
2100S-625W	28	63
2100S-650W	18	38
2100S-675W	38	87
2100S-700W	34	79
2100S-725W	38	82
2100S-750W	36	21
2100S-775W	42	57
2100S-800W	28	49
1900S-25E	22	32
1900S-50E	30	46
1900S-75E	26	53
1900S-100E	24	38
1900S-125E	34	42
1900S-150E	38	35
1900S-175E	34	72
1900S-200E	32	57
1900S-225E	26	66
1900S-250E	48	25
1900S-275E	34	50
1900S-300E	22	42
1900S-325E	38	33
1900S-350E	30	62
1900S-375E	26	63
1900S-400E	26	28
1900S-425E	48	38
1900S-450E	28	56
1900S-475-E	32	64

I Herby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

C. L. M. J. O. A. C. E.

Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochems
 PROJECT: #Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 10

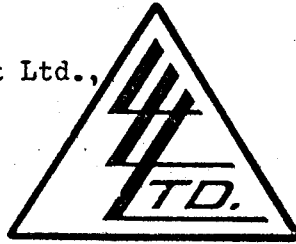
SAMPLE No.	PPM Pb	PPM Ln
1900S-500E	40	24
1900S-525E	38	63
1900S-550E	26	51
1900S-575E	20	45
1900S-600E	24	46
1900S-625E	38	93
1900S-650E	36	50
1900S-675E	44	52
1900S-700E	28	56
1900S-725E	56	50
1900S-750E	52	68
1900S-775E	40	61
1900S-800E	32	64
1700S-00E	24	27
1700S-25E	34	10
1700S-50E	24	42
1700S-75E	34	47
1700S-100E	24	53
1700S-125E	34	60
1700S-150E	38	50
1700S-175E	14	41
1700S-200E	28	68
1700S-225E	24	23
1700S-250E	30	42
1700S-275E	24	51
1700S-300E	32	65
1700S-325E	28	31
1700S-350E	28	34
1700S-375E	28	55
1700S-400E	32	32
1700E-425E	30	37

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

..... *edmafoae*
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochems
 PROJECT # Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
 ASSAY of
 LORING LABORATORIES LTD.

Page 11

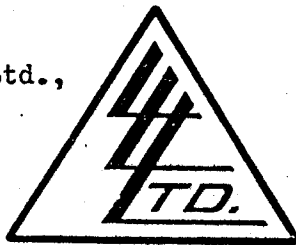
SAMPLE No.	PPM Pb	PPM Ln
1700S-450E	36	80
1700S-475E	30	131
1700S-500E	34	67
1700S-525E	44	30
1700S-550E	38	45
1700S-575E	34	85
1700S-600E	48	80
1700S-625E	30	69
1700S-650E	18	47
1700S-675E	24	53
1700S-700E	22	42
1700S-725E	26	85
1700S-750E	30	55
1700S-775E	34	72
1700S-800E	34	63
1500S-00W	30	53
1500S-25W	14	21
1500S-50W	27	58
1500S-75W	23	66
1500S-100W	22	64
1500S-125W	23	70
1500S-150W	26	58
1500S-175W	25	17
1500S-200W	24	57
1500S-225W	16	69
1500S-250W	28	40
1500S-275W	24	78
1500S-300W	21	68
1500S-325W	15	28
1500S-350W	36	75

I *Hereby Certify* THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

e L M C S a a e
 Licensed Assayer of British Columbia

To: Probe Explorations & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochem
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY OF
LORING LABORATORIES LTD.

Page 12

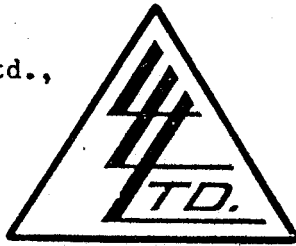
SAMPLE No.	PPM Pb	PPM Ln
1500S-375W	27	74
1500S-400W	26	61
1500S-425W	30	53
1500S-450W	22	66
1500S-475W	40	34
1500S-500W	30	63
1500S-650W	39	55
1500S-700W	36	62
1500S-725W	33	72
1500S-750W	24	47
1500S-775W	31	66
1500S-800W	27	58
1500S-25E	40	36
1500S-50E	34	60
1500S-75E	26	78
1500S-100E	31	56
1500S-125E	16	44
1500S-150E	21	48
1500S-200E	30	58
1500S-225E	24	60
1500S-500E	42	128
1500S-525E	40	380
1500S-550E	27	85
1500S-575-E	36	99
1500S-600E	27	80
1500S-625E	48	30
1500S-650E	23	93
1500S-675E	35	125
1500S-700E	19	148
1500S-725E	32	82
1500S-750E	92	320

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulp Retained one month
 unless specific arrangements
 made in advance.

C. A. M. Isaac
 Licensed Assayer of British Columbia

To: Probe Exploration & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Geochem Soil
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 12

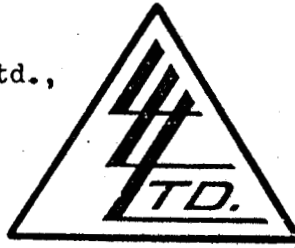
SAMPLE No.	PPM Pb	PPM Zn
1500S-775E	50	980
1500S-800E	37	1480
1700S-25W	23	43
1700S-50W	25	65
1700S-75W	20	80
1700S-100W	22	43
1700S-125W	13	21
1700S-150W	19	60
1700S-175W	18	48
1700S-200W	39	50
1700S-225W	29	52
1700S-250W	40	38
1700S-275W	23	60
1700S-300W	26	28
1700S-325W	23	65
1700S-350W	36	58
1700S-375W	22	71
1700S-400W	26	80
1700S-425W	30	65
1700S-450W	21	57
1700S-475W	23	63
1700S-500W	20	60
1700S-525W	21	79
1700S-550W	21	64
1700S-575W	31	75
1700S-600W	24	78
1700S-625W	25	57
1700S-650W	22	72
1700-675W	35	91
1700S-700W	42	80

I **Hereby Certify** THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulp Retained one month
 unless specific arrangements
 made in advance.

e. d. m. f. o. a. d. e.
 Licensed Assayer of British Columbia

To: Probe Exploration & Development Ltd.,
 #2 - 215A - 10th Street N. W.
 CALGARY, Alta T2N 1V5



File No. 15376
 Date July 6, 1978
 Samples Soil Geochem
 PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 13

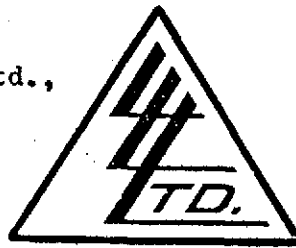
SAMPLE No.	PPM Pb	PPM Zn
1700S-725W	22	66
1700S-750W	28	82
1700S-775W	34	90
1700S-800W	33	91
1300S-00W	1250	2200
1300S-25W	1360	2300
1300S-50W	2440	2000
1300S-75W	690	1020
1300S-100W	210	650
1300S-125W	330	460
1300S-150W	27	117
1300S-200W	41	137
1300S-225AW	24	77
1300S-225BW	58	150
1300S-250W	42	112
1300S-275W	22	58
1300S-300W	29	68
1300S-325W	28	75
1300S-350W	27	58
1300S-375W	15	46
1300S-400W	16	35
1300S-425W	18	31
1300S-450W	17	34
1300S-475W	20	25
1300S-500W	22	52
1300S-525W	22	30
1300S-550W	23	11
1300S-575W	30	75
1300S-600W	19	48
1300S-625W	22	46
1300S-650W	20	51

I *Hereby Certify* THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

R. M. Dales
 Licensed Assayer of British Columbia

To: Probe Exploration & Development Ltd.,
#2 - 215A - 10th Street N. W.
CALGARY, Alta T2N 1V5



File No. 15376
Date July 6, 1978
Samples Soil Geochem
PROJECT: Cochrane Oil & Gas

ATTENTION: R. Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

Page 14

SAMPLE No.	PPM	PPM
	Pb	Zn
1300S-675W	23	54
1300S-700W	21	27
1300S-725W	24	48
1300S-750W	31	57
1300S-775W	28	32
1300S-800W	45	65

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
Pulps Retained one month
unless specific arrangements
made in advance.

E. J. McFadden

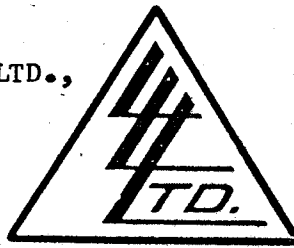
Licensed Assayer of British Columbia

To: PROBE EXPLORATIONS & DEVELOPMENT LTD.,

#2, 215A - 10th St. N.W.,

Edmonton, Alberta T2N 1V5

ATTN: Bob Dales



File No. 15553

Date July 28, 1978

Samples Soil Geochems

Cochrane Oil & Gas Project

Certificate of
ASSAY of

LORING LABORATORIES LTD.

SAMPLE No.	PPM Pb	PPM Zn
<u>"Soil Geochems"</u>		
1200N 175W	24	40
1200N 150W	24	38
1200N 125W	26	26
1200N 100W	24	1000
1200N 75W	24	26
1200N 50W	32	50
1200N 25W	32	74
1200N 0W	32	58
1200N 25E	32	80
1200N 50E	24	52
1200N 75E	26	50
1400N 250W	52	112
1400N 225W	56	114
1400N 200W	34	66
1400N 175W	42	38
1400N 150W	36	92
1400N 125W	30	50
1400N 100W	22	48
1400N 75W	20	46
1400N 50W	28	70
1400N 50W (B)	28	56
1400N 0W	260	80

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

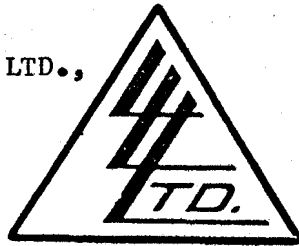
Rejects Retained one month.

Pulps Retained one month
unless specific arrangements
made in advance.

Edmund Isaac

Licensed Assayer of British Columbia

To: PROBE EXPLORATIONS & DEVELOPMENT LTD.,
 #2, 215A - 10th St. N.W.,
 Calgary, Alberta T2N 1V5



File No. 15555
 Date July 28, 1978
 Samples Silt Geochems
 Cochrane Oil & Gas Project

ATTN: Bob Dales

Certificate of
ASSAY of
LORING LABORATORIES LTD.

SAMPLE No.	PPM Pb	PPM Zn
<u>"Silt Geochems"</u>		
1	36	20
2	36	90
3	36	80
4	90	86
5	32	80
6	30	62
7	30	76
8	36	104
9	28	94
10	34	84
11 (A)	34	70
11 (B)	38	80
11 (C)	40	64
12	38	76
13	56	106

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

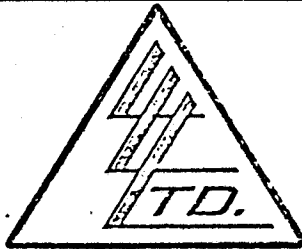
Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

Edm. J. J. J. J.

Licensed Assayer of British Columbia

APPENDIX Ib Selected Assays 1977

To: MEDESTO EXPLORATIONS,
 215 A-10th St. N.W.,
 CALGARY, Alberta.



File No. 10568
 Date October 1, 1977
 Samples Cores

ATTN: Mr. G. Evans

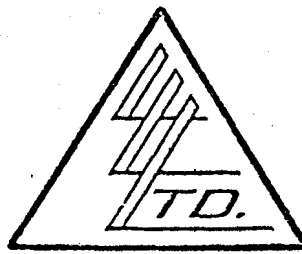
Certificate of
 ASSAY of
 LORING LABORATORIES LTD.
 "A" Anomaly

SAMPLE No.	OZ./TON SILVER	Pb	Zn
NOV 1977			
<u>CORE SAMPLES</u>			
ME-C1 42-45'	3.31	2.81	7.66
ME-C2 46-50'	1.75	1.69	4.10
Weighted Av.	2.42	2.17	5.62
		Pb: Zn	
		2.6:1	
		Zn: Pb	
<p>I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES</p>			

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

Licensed Assayer of British Columbia

To: MEDESTO EXPLORATIONS,
 215 A-10th St. N.W.,
 Calgary, Alberta



File No. 12399
 Date November 24, 1976
 Samples Chip

ATTN: Mr. Dales

Certificate of
 ASSAY of
 LORING LABORATORIES LTD.

"A" Anomaly

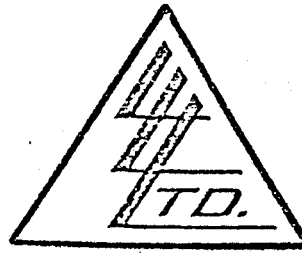
SAMPLE No.	OZ./TON SILVER	% Pb	% Zn	% Cu
	NOV 1977			
	Trench 76-1			
	Pb: Zn 3.02:1			
<u>"Chip Samples"</u>	<hr/>			
ME-800N-76				
ME-800N-76	2.80	3.17	1.05	-
	Trench @ 750N, 150E ; Composite sample across 18 ft. in gossan zone.			
	I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES			

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

[Signature]

Licensed Assayer of British Columbia

To: MEDESTO EXPLORATIONS,
 215A-10th St. N.W.,
 Calgary, Alta.



File No. 14053
 Date September 14, 1977
 Samples Chips

ATTN: Mr. Dales

Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.

Page # 1

"B₂" Anomaly

SAMPLE No.	OZ./TON SILVER	% Pb	% Zn
Hole 3-75			
3'-6"	1.12	1.47	1.10
3'6"-7'	4.02	3.30	3.03
7'-11'3"	.18	.10	.08
11'3-18'	1.06	1.22	3.19
18'-23'	5.16	6.61	4.84
23'-31'	6.8	.82	.38
31'-40'	.18	.15	.26
40'-44'	2.36	3.30	5.48
44'-45'6"	1.62	1.64	1.51

NOV 1977 Trench 75-3

Series of chip samples on Line 400 S to east
 of collar of D.D.H. #3-75

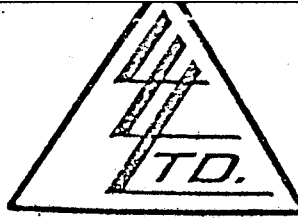
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.

Pulps Retained one month
 unless specific arrangements

C. M. Isaac

To: MEDESTO EXPLORATIONS,
 215A - 10th Street N.W.,
 Calgary, Alberta



File No. 13813
 Date August 15, 1977
 Samples Core

ATTN: Mr. Dales

Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.

"C" Anomaly

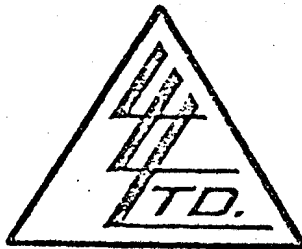
SAMPLE No.	OZ./TON GOLD	OZ./TON SILVER	% Pb		% Zn	% Sb	% Sn
			Pb	Pb:Zn			
Hole # 3-77							
"Core Samples"							
NOV 1977							
#1 3-77-2 Ft.	.020	Trace	.08	1:1	.09	.23	.01
#2 107-6-109'	.040	2.44	3.50	.48:1	7.36	.15	Trace
#3 109-111'	.060	2.00	1.54	.41:1	3.74	.20	Trace
#4 111-113'	.050	6.14	1.59	.21:1	7.70	.30	Trace
#5 113-115'	.060	4.74	5.02	.58:1	8.72	.66	.04
#6 115-117'	.040	3.80	4.20	.5:1	8.33	.35	.01
#7 117-119'	.040	2.44	3.15	.32:1	9.74	.23	.02
#8 119-121'	.040	2.16	2.93	.27:1	10.98	.20	.04
#9 121-123'	.040	3.40	5.50	.45:1	12.30	.26	.07
Average 107'6" - 123'		3.39	3.43	.4:1	8.61	.32	
D.D.H. #3-77							
Zn:Pb ~25:1 average							
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES							

Samples Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

Edmond J. A. A.
 Licensed Assayer of British Columbia

To: MEDESTO EXPLORATIONS,
 215A-10th St., N.W.,
 Calgary, Alta.

File No. 14053
 Date September 14, 1977
 Samples Chips



ATTN: Mr. Dales

Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.

Page # 1

"C" Anomaly

SAMPLE No.	OZ./TON SILVER	% Pb	Pb:Zn	% Zn
------------	-------------------	---------	-------	---------

Chip samples across trench @ 6505, 800 W

NOV 1977

Trench 77-3

Trench 505 (50' South of 6005)

0'-7'	6.20	3.60	6.85
7'-13'	2.78	3.01	5.10
13'-19'6"	5.94	8.82	5.65
19'6" -24'	3.30	3.61	3.10
24'-28'	2.22	.95	1.93
28'-31'6"	.86	.92	.80

{ 4.7 } { 4.8 } { 5.4 }

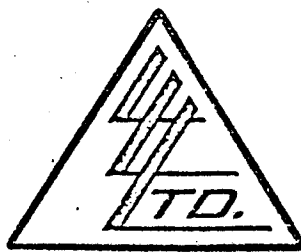
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES

Rejects Retained one month.
 Pulp Retained one month
 unless specific arrangements
 made in advance.

Edm. Isaac
 Licensed Assayer of British Columbia

To: MEDESTO EXPLORATIONS,
 215 A-10th St. N.W.,
 Calgary, Alberta

File No. 11922
 Date August 30, 1976
 Samples Chips



ATTN: Mr. Dales

Certificate of
 ASSAY OF
 LORING LABORATORIES LTD.

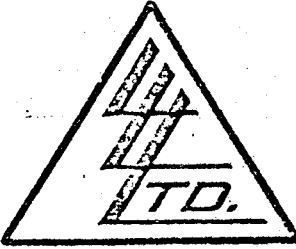
"C" Anomaly - "C-1 Zone"

SAMPLE No.	OZ./TON SILVER	% Pb	% Zn
NOV 1977			
<u>"Chip Samples"</u>			
Channel 1-76	7.50	20.06	4.18
S-1-76	21.24	59.47	0.80
<p>Channel 1-76 across 3 ft. vein disclosed by road building @ 600S 675W S-1-76 character sample of massive galena from same vein.</p>			
<p>I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES</p>			

Rejects Retained one month.
 Pulps Retained one month
 unless specific arrangements
 made in advance.

C. McFarlane

To: MEDESTO EXPLORATIONS,
 215 A-10th Street N.W.,
 Calgary, Alberta



File No. 13213
 Date May 18, 1977
 Samples Chips
 1-76-800 S 675W,
 C-2 + C-3 - 25' west
 first vein in
 anomaly 'C'

ATTN: Mr. Dales

**Certificate of
 ASSAY of
 LORING LABORATORIES LTD.**

"C" Anomaly - "C-2" and "C-3" Zones

SAMPLE No.	OZ./TON GOLD	OZ./TON SILVER	% Pb	% Zn	% Sb
NOV 1977					
<u>"Chip Samples"</u>					
3'6" C-2-77 Channel	.160	6.76	20.27	.90	-
6" C-3-77 Channel	Trace	.52	.61	6.43	-
3'6" C-4-77 Character	.080	19.02	58.12	.11	15.01
C-2 = Chip samples across 3'6" zone on Line 600S @ 695W C-3 = Chip samples across 6" zone on Line 600S @ 705W C-4 = Character sample, C-2 zone.					
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES					

Rejects Retained one month.
 Pulp Retained one month
 unless specific arrangements
 made in advance.

[Signature]
 Licensed Assayer of British Columbia

ME Group Claims
Valuation of Work
1978

7409

a) Personnel

<u>No. Days</u>	<u>Rates/D</u>	<u>Specific Dates</u>	<u>Total Wages</u>	<u>Persons Employed No.</u>	<u>Employed Type</u>
2	\$75.00	June 12-13	\$ 600.00	4	Management Students
1	75.00	June 27	450.00	6	Management Students
5	75.00	June 28 - July 2	1,500.00	4	Management Students
2	75.00	July 18-19	300.00	2	Management
2	75.00	August 10-11	300.00	2	Management
4	75.00	August 28-31	1,200.00	4	Management Students
2	* September 6 - 7			6	
			\$4,350.00	\$4,350.00	

* Senior management, geologists and consultant inspection.

Salaries

July 1 - September 1 - 2 months - Geologist and 2 field assistants - Field work	\$ 8,000.00
September 1 - October 1 - Geologist to compile, map, assess, supervise lab work and prepare final report	<u>2,000.00</u>
	<u>\$10,000.00</u>

b) Food and Accomodation

The company allowed \$20.00 per day per man to cover living cost in camp and while travelling. For wage earners (see section A). 70 man days were charged. For salaried employees (geologist, 2 assistants) 126 man days were charged.

(70 man days + 126 man days) @ \$20.00 per day \$ 3,920.00

c) Transportation

Private automobile, 3/4 ton truck and two 4-wheel drive vehicles were used on the project. Rates paid were as follows:

Private auto	23¢/mile	(14.4¢/km)
3/4 ton truck	40¢/mile	(25¢/km)
3/4 ton 4-wheel drive	40¢/mile	(25¢/km)

The remaining 4-wheel drive vehicle was obtained on a lease basis for 3 months. Mileage was paid only for round trips Calgary-Claim site - Clagary with the exception of the leased vehicle.

Four wheel drive was needed to negotiate trails on the property. Trucks were required for supplies, camp transport and equipment transport.

<u>Date</u>	<u>Round Trip</u>	<u>Type of Transport</u>
June 12-13	Probe Crew	Auto/4-wheel drive
June 27	Probe Crew	Auto/3/4 Ton Truck/4-wheel drive
June 28- July 2	Probe Crew	4-wheel drive/auto
July 18-19	Management	Auto
August 10-11	Management	Auto
August 28-31	Probe Crew	3/4 Ton Truck/Auto/4-wheel drive
September 6-7	Management	Auto/Auto

Transportation charges were as follows:

Private Auto - 3520 miles (5632 km)	\$ 809.60
3/4 Ton Truck - 890 miles (1424 km)	356.00
3/4 Ton 4-wheel drive - 1370 miles (2192 km)	548.00
4-wheel drive leased vehicle (3 months)	<u>2,079.00</u>
	\$3,787.60

d) Instrument Rental

Freezer	2 months @ \$ 50/mo	\$ 100.00
G.S.C. packsack drill	7 days @ 50/day	350.00
Jack hammer	4 days @ 50/day	200.00
Generator	2 months @ 150/mo	300.00
Chain saw	2 months @ 50/mo	100.00
Tents & camp equipment	2 months @ 200/mo	<u>400.00</u>
		\$1,450.00

e) Surveys

i) Trenching - August 28-31 - salaried crew plus one employee of Probe Exploration Ltd. blasted trenches in 3 locations of known mineralization and collected relatively fresh rock samples.

<u>Date</u>	<u>#Crew</u>	<u>Days Worked</u>	<u>Wages</u>	<u>Food & Accom.</u>	<u>Transport</u>	<u>Total</u>
Aug 28-31	1	4	\$300.00	\$80.00	* Ø	\$380.00

Assays of rock samples (Pb, Zn, Ag)

Samples 36

ii) Geological Soil Sampling - June 28 - July 2 - a Probe Exploration crew extended the previously established geochemistry grid (see Fig. 4 in text). Line spacing was 200' (60m) and sample spacing was 25' (8m). Locations were by chain and compass. Sampling procedure is outlined in the text. Each sample was analyzed for Pb, Zn.

<u>Date</u>	<u>#Crew</u>	<u>Days Worked</u>	<u>Wages</u>	<u>Food & Accom.</u>	<u>Transport</u>	<u>Total</u>
June 28 - July 2	4	5	\$1,500	\$400	* Ø	\$1,900

* Travel costs for these occasions already noted in Section C.

f) Analyses

Loring Laboratories of Calgary performed all analyses on rocks, rock chips, soil samples and silt samples. Methods are described in the text. As noted in section e (i) and e (ii) and including samples collected by the salaried crew:

Soil samples	Pb, Zn	464 samples
Silt samples	Pb, Zn	15 samples
Rock assays	Pb, Zn, Ag	36 samples

Total invoice from Loring Laboratories \$1,682.00 ✓

g) Report

Preparation of maps, charts, reports and printing. Included here are cost of preparation of thin and polished sections, cutting and polishing of rock samples: \$2,000.00 ✓

h) Consulting

Outside consulting, related travel and other costs: \$5,000.00 ✓

The summer work project was carried on as described in the text and appendixes. Costs are listed by section except where noted and are summarized as follows:

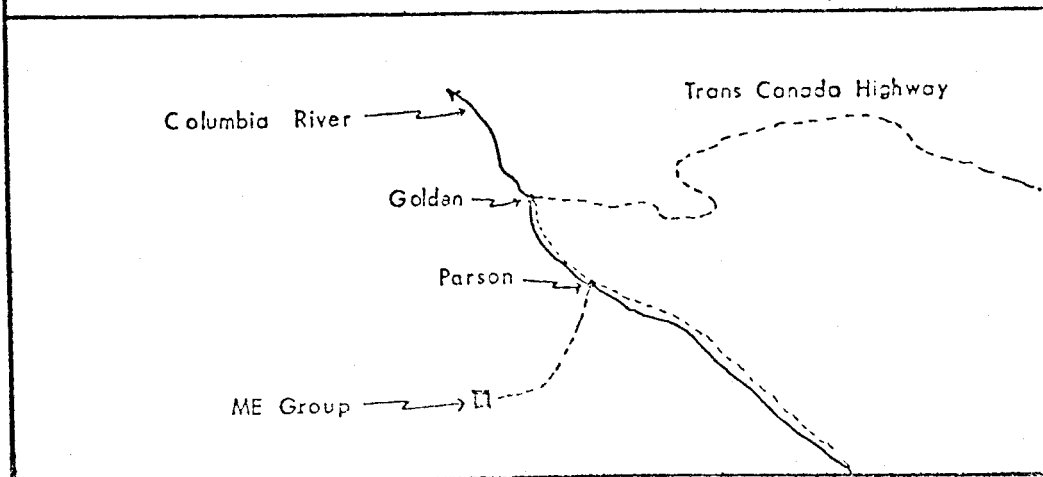
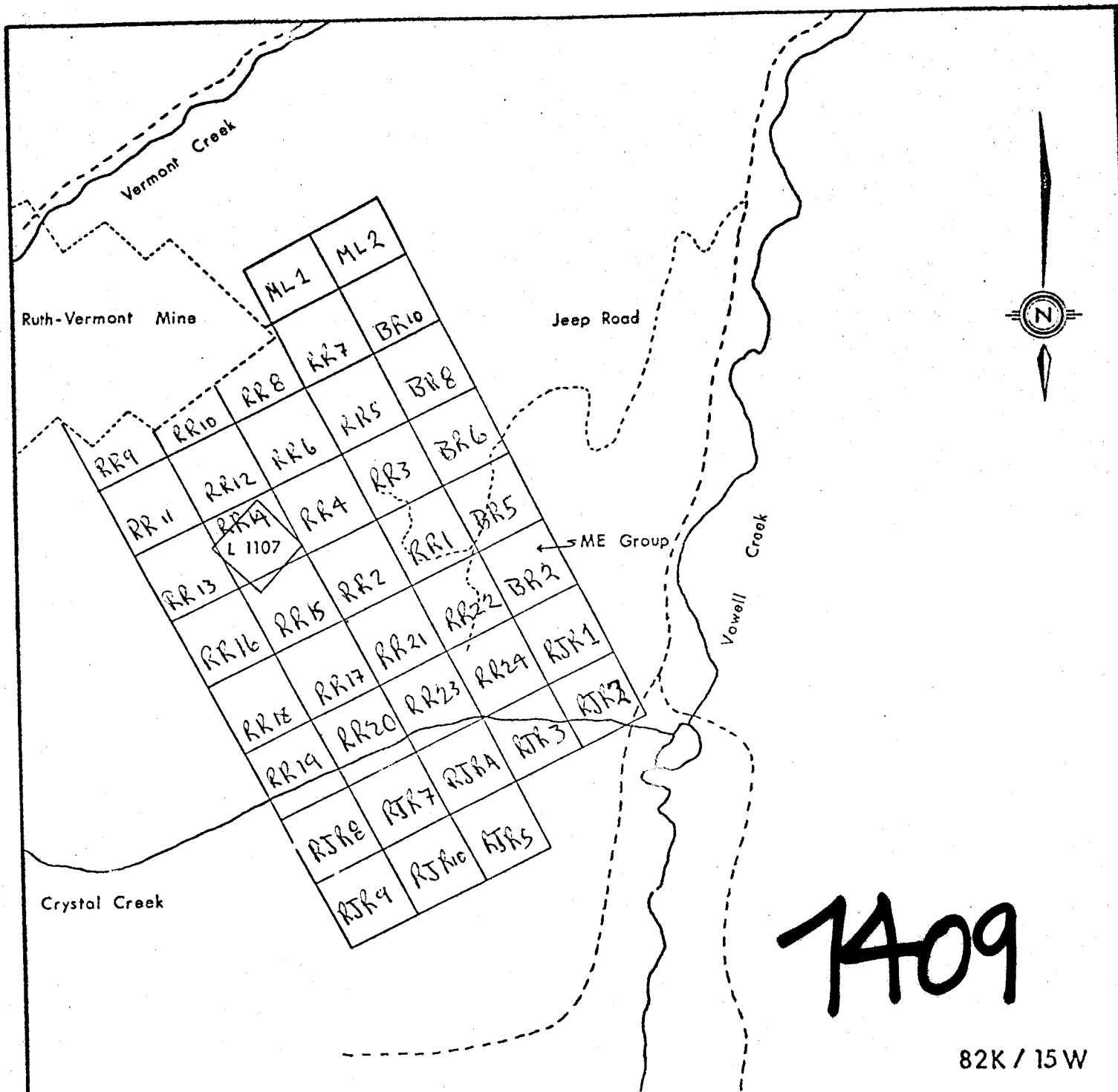
Wages	Section a	\$14,350.00 *
Food and Accomodation	b	3,920.00 *
Transportation	c	3,787.60
Instrument Rental	d	1,450.00
Surveys	e	Ø **
Analysis	f	1,682.00
Report	g	2,000.00
Consultant	h	<u>5,000.00</u>
		\$32,189.60

* Includes cost of surveys (pro-rated)

** costs included in sections a and b

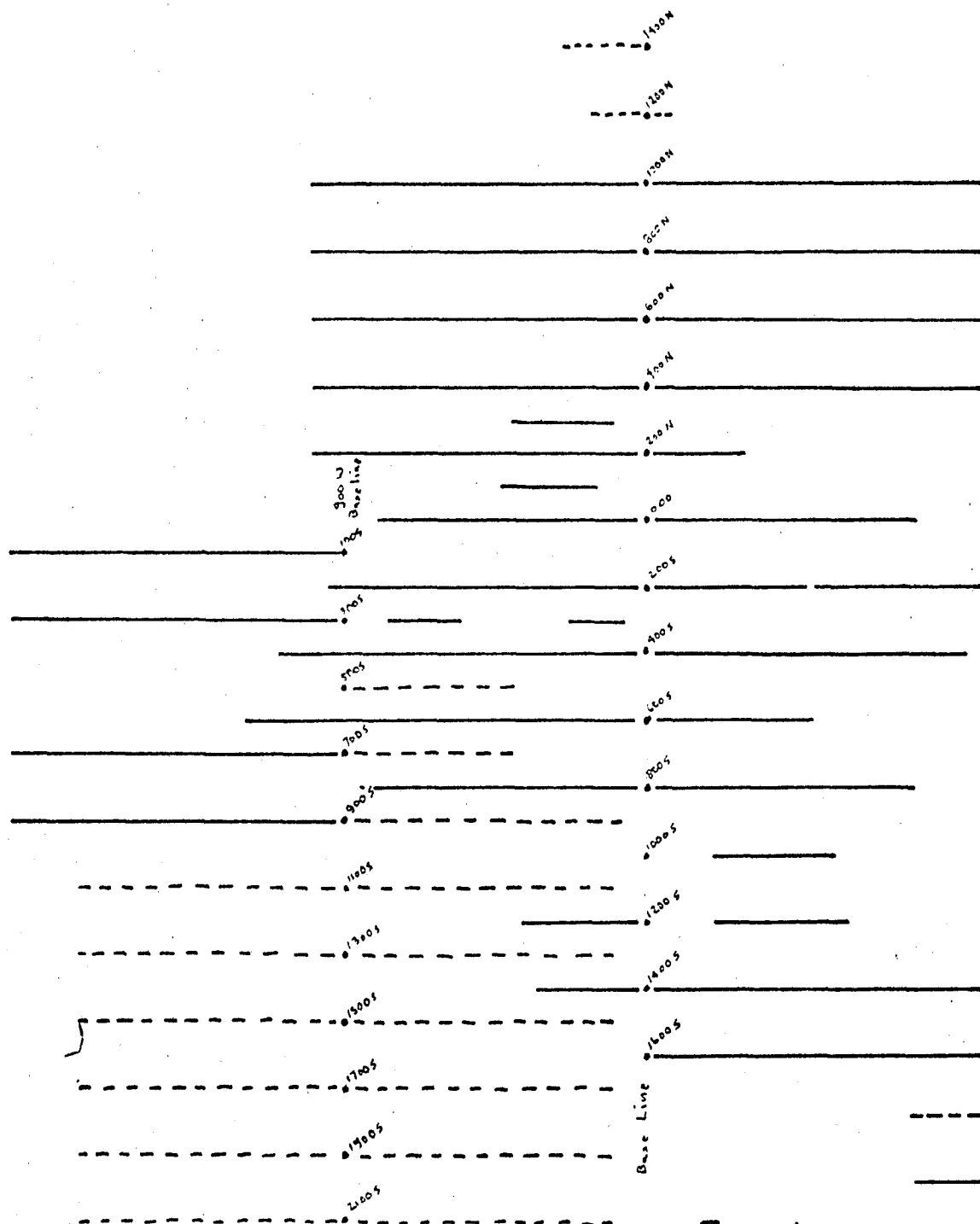
By project the work may be assessed as follows:

Trenching	\$ 2,811.00 /
Geochemical Sampling	3,175.65 /
Mapping and Prospecting	19,202.95 /
Report	2,000.00 /
Consultant	<u>5,000.00 /</u>
	<u>\$32,189.60</u>



ME Group
Location

3000'
914 m



- - - - 1978 Geochem Survey Grid
 ———— Previously Sampled Grid

Fig. 4

Key



Shale



Shale - Limestone



Limestone



Sandstone

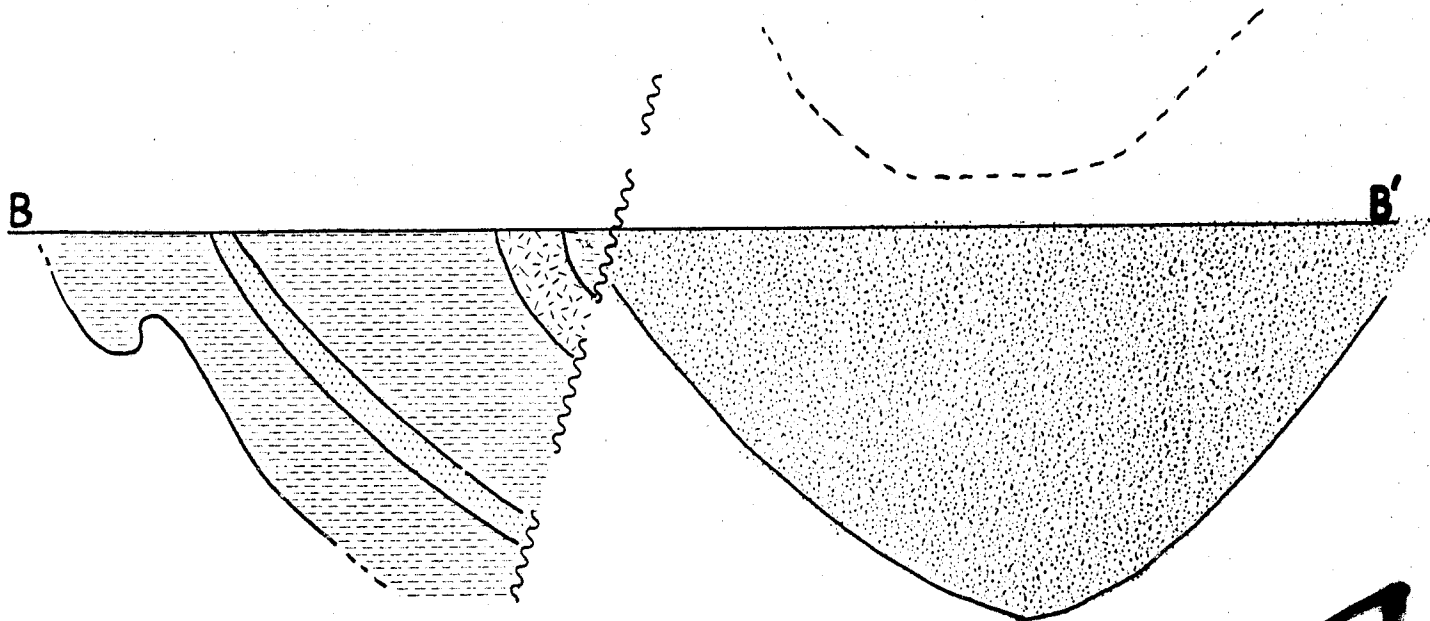
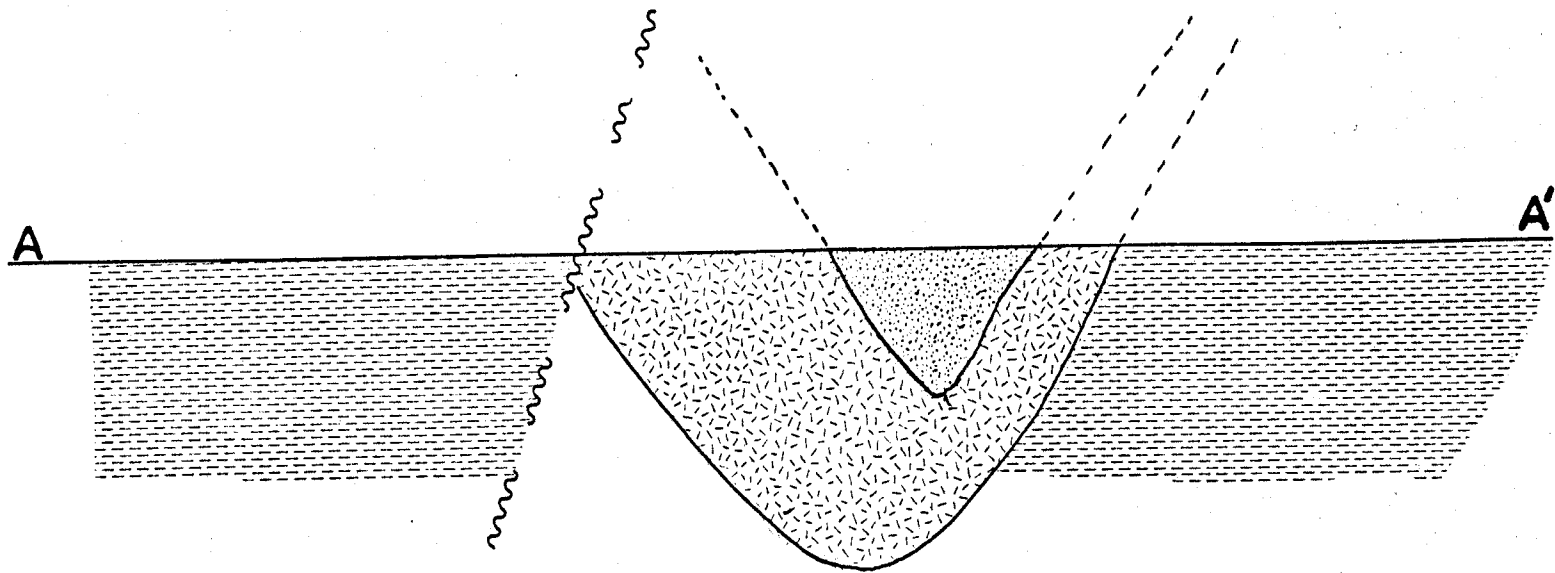


Conglomerate

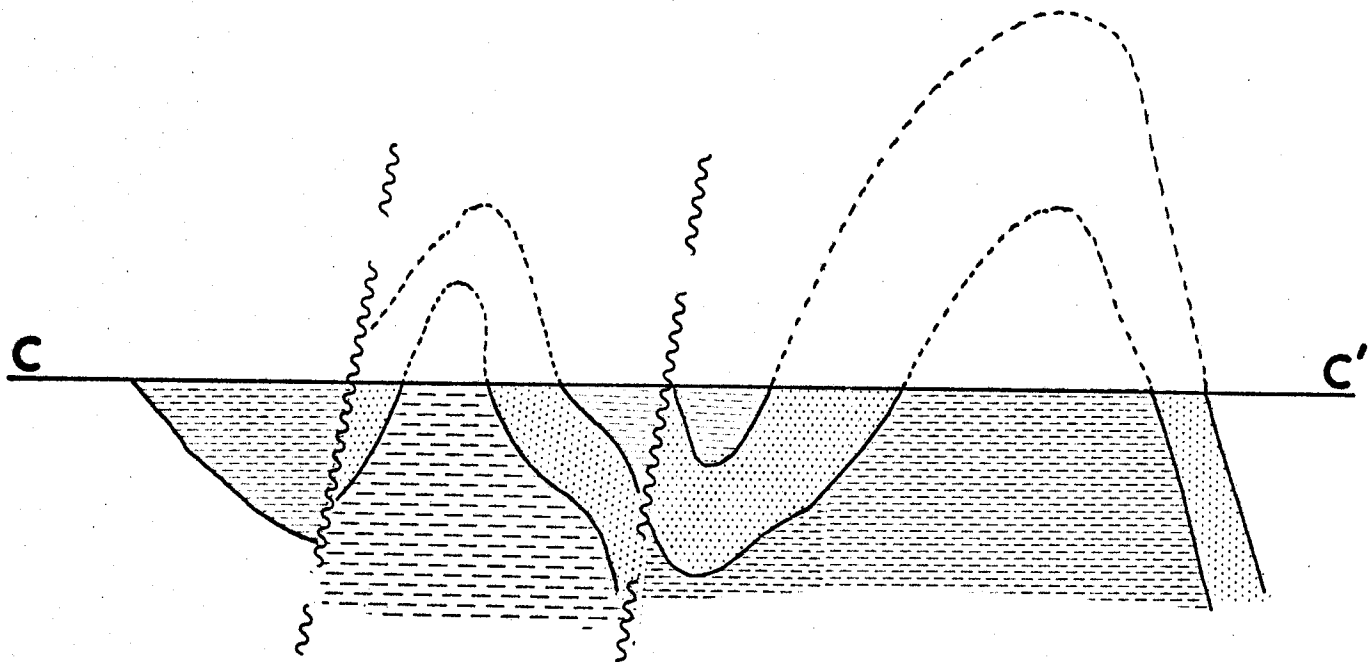


Sandstone - Shale

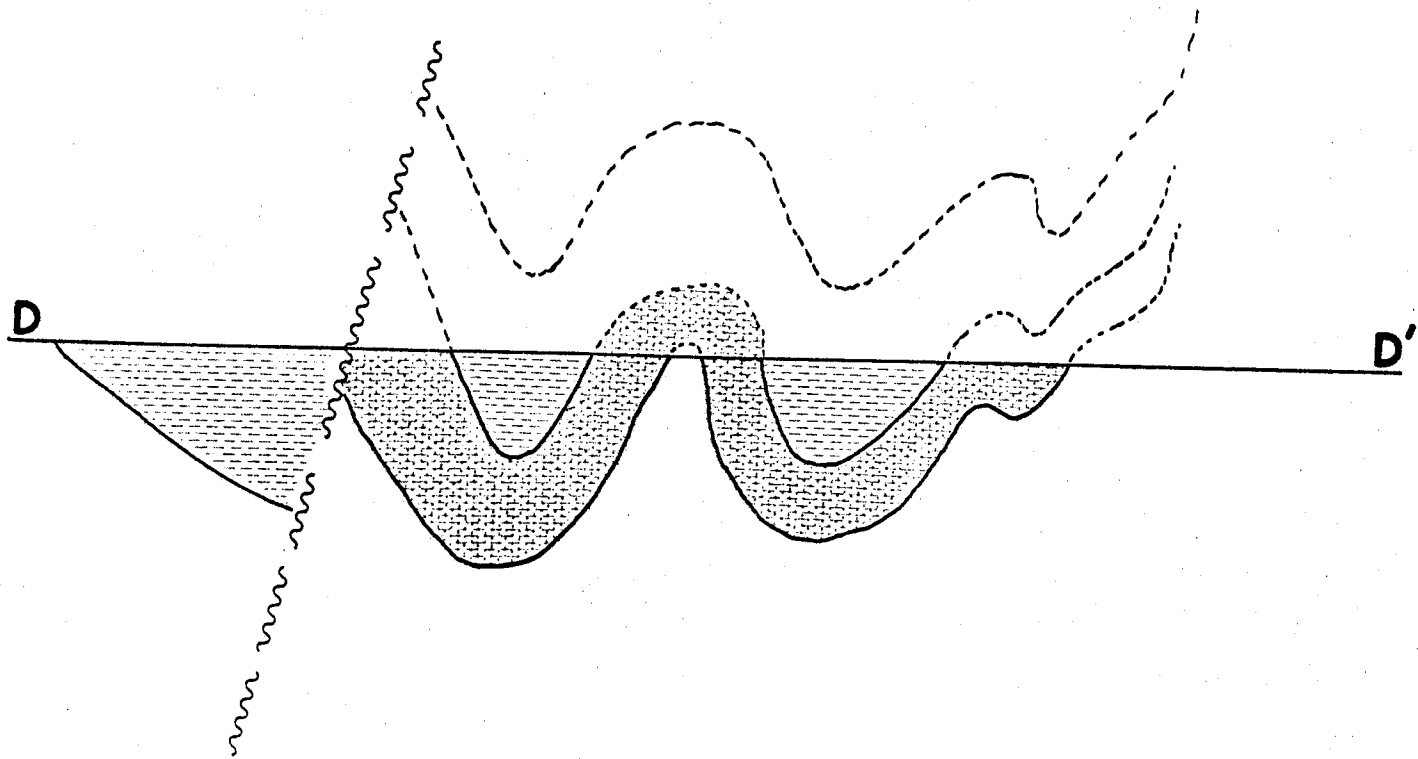
7409



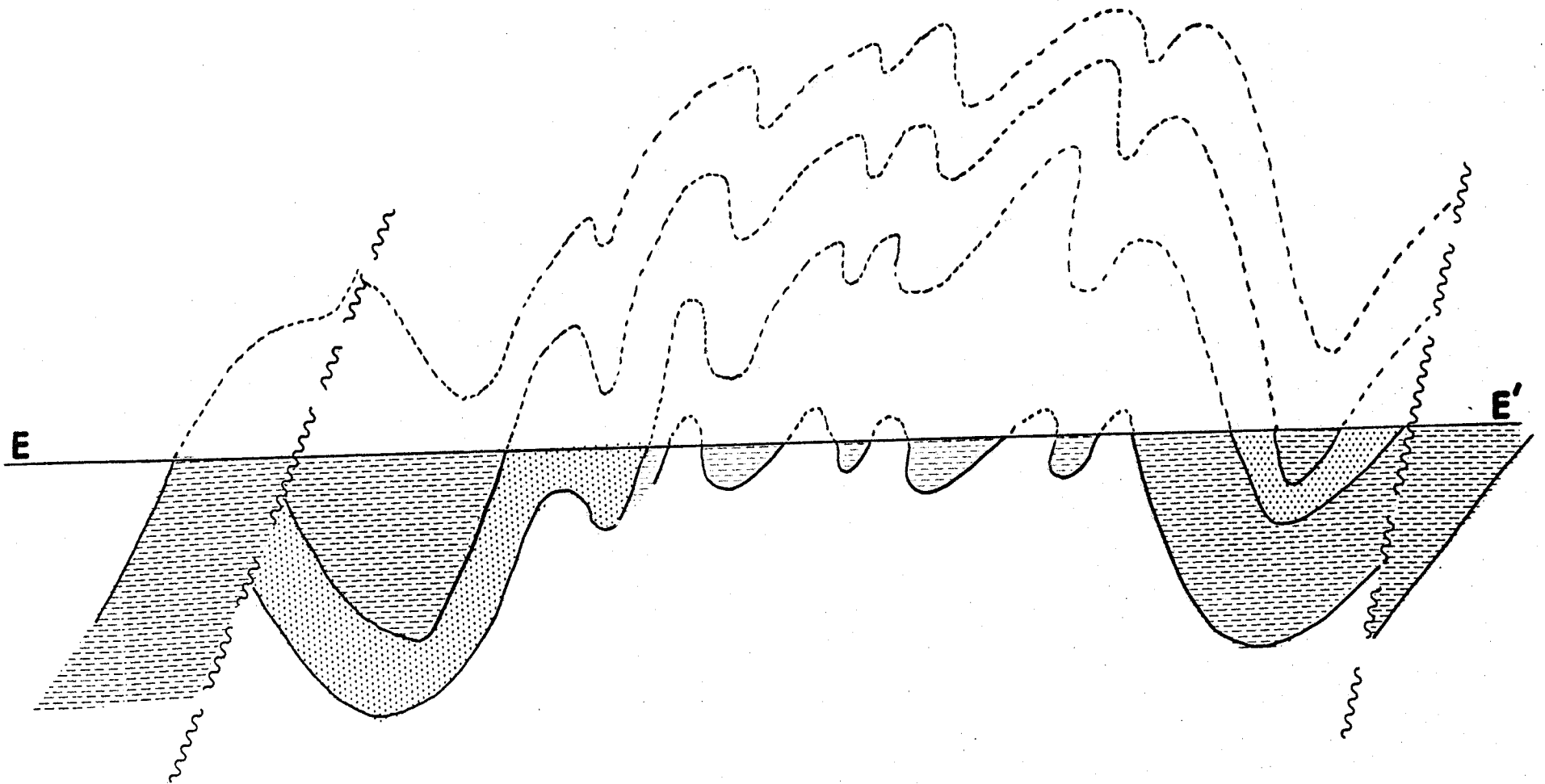
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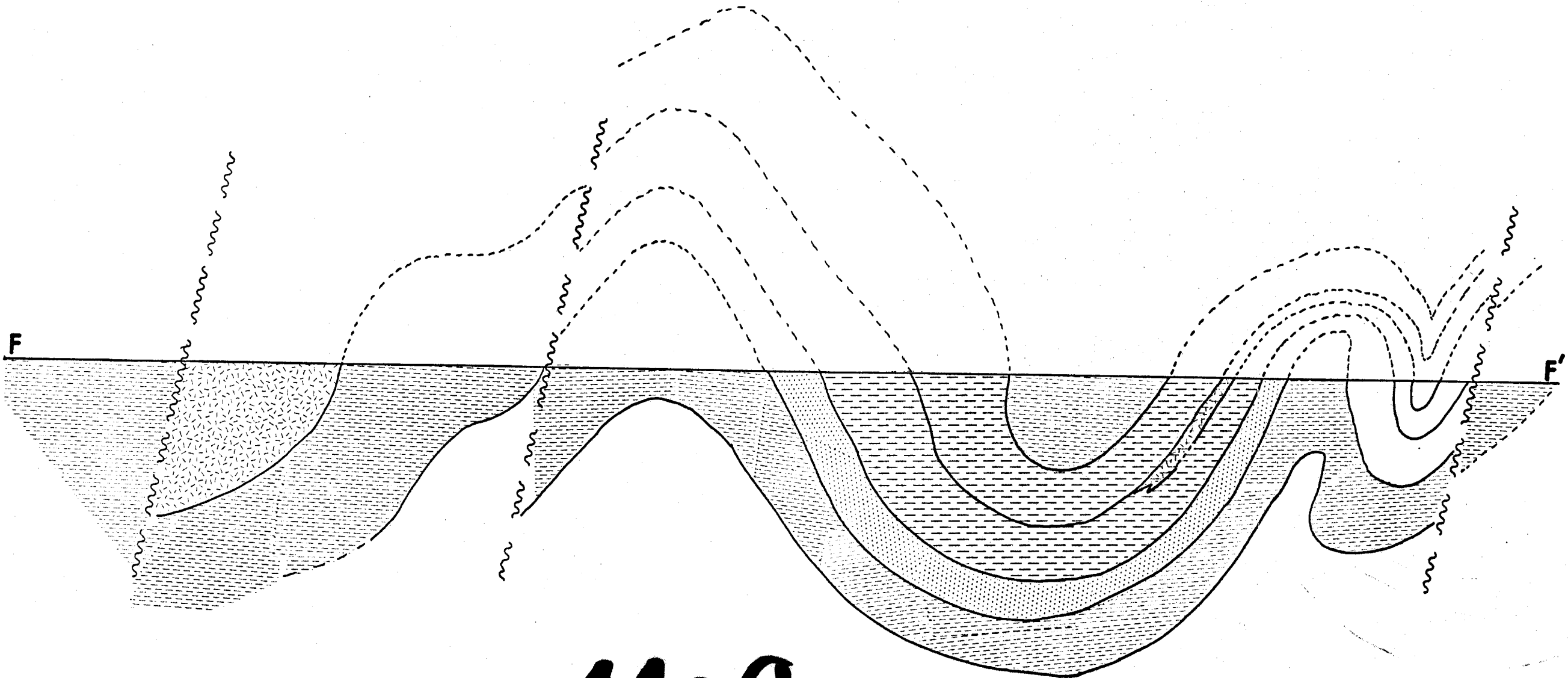
7409



7409



1409

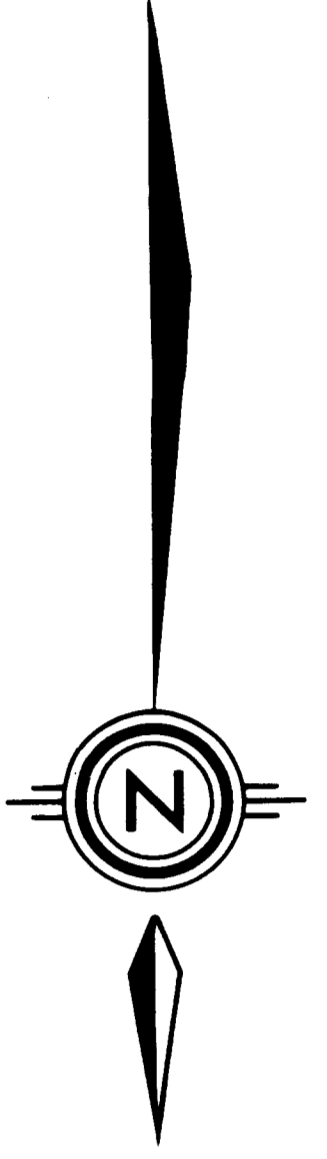


1409

Red Vein
Area

L 819

L 1107



MINERAL RESOURCES BRANCH
7409

Cochrane Oil & Gas Ltd.
ME Group Claims

- | | |
|-----------------------------------|-----------------------|
| 1 Limestone | Bedding |
| a oolitic | est. strike |
| b breccia | est. dip |
| 2 Quartzite/Feldspathic quartzite | Foliation |
| 3 Shale/Phyllite | Fracture |
| a well bedded | Anticline with plunge |
| 4 Conglomerate | Syncline |
| a polymictic | Lithologic contact |
| b quartz pebble | inferred |
| 5 Quartz Veins | Outcrop |
| Road | Fault |
| Mineralization | inferred |
| | Sample location |
| | Silt sample location |
| | Claim post |

Scale 1:5000
1000
300m



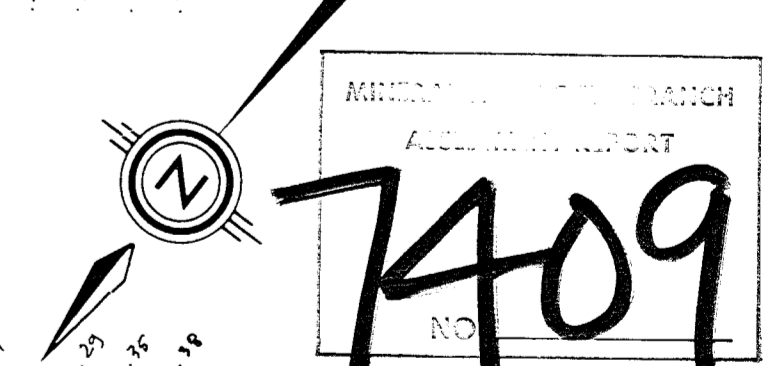
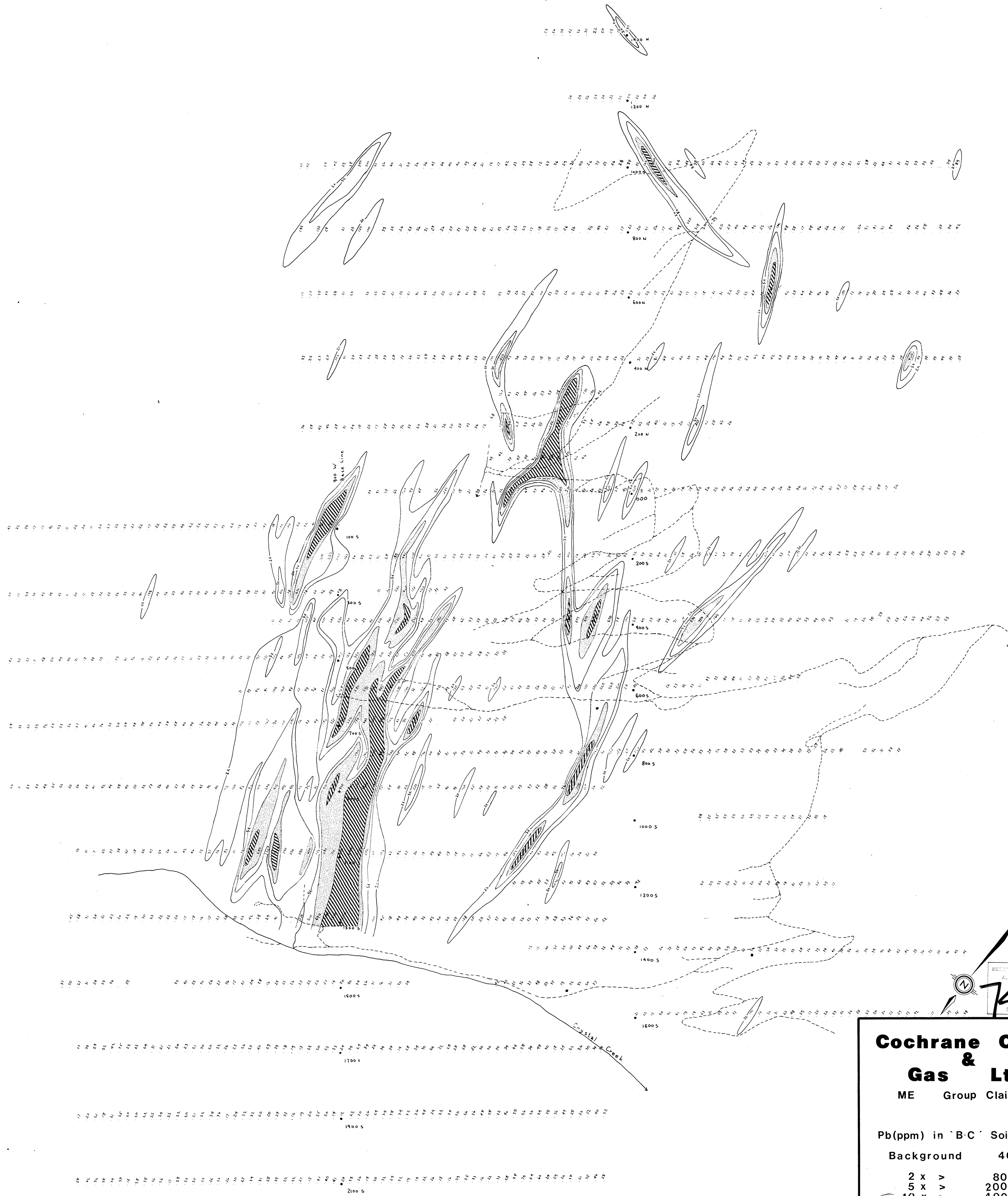
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 7409

**Cochrane Oil
&
Gas Ltd**
ME Group Claims

Geology

- | | | | |
|-----------------------------------|---|-----------------------|-------------|
| 1 Limestone | Finely crystalline, olive weathered, soft grey fresh, finely bedded, 2-4' thick, 1-2' pyrite. | Bedding | est. strike |
| a: oolitic | | | est. dip |
| b: breccia | | Foliation | |
| 2 Quartzite/Feldspathic quartzite | fine-grained, massive, well-bedded, buff weathered, CaCO ₃ 50% cementation, quartzitic, limonitic, pyrite. | Fracture | |
| 3 Shale/Phyllitic shale | medium to fine, wavy bedded, phyllitic, dark grey fresh, grey weathered, limonitic, pyrite. | Anticline with plunge | |
| a: well bedded phyllitic shale | | Syncline | |
| 4 Conglomerate | | Fault | inferred |
| a: polymictic | | Drag folds | |
| b: quartz pebbles | | Lithologic contact | |
| 5 Quartz veins | | | inferred |

Scale: 1:1200



**Cochrane Oil
&
Gas Ltd**
ME Group Claims

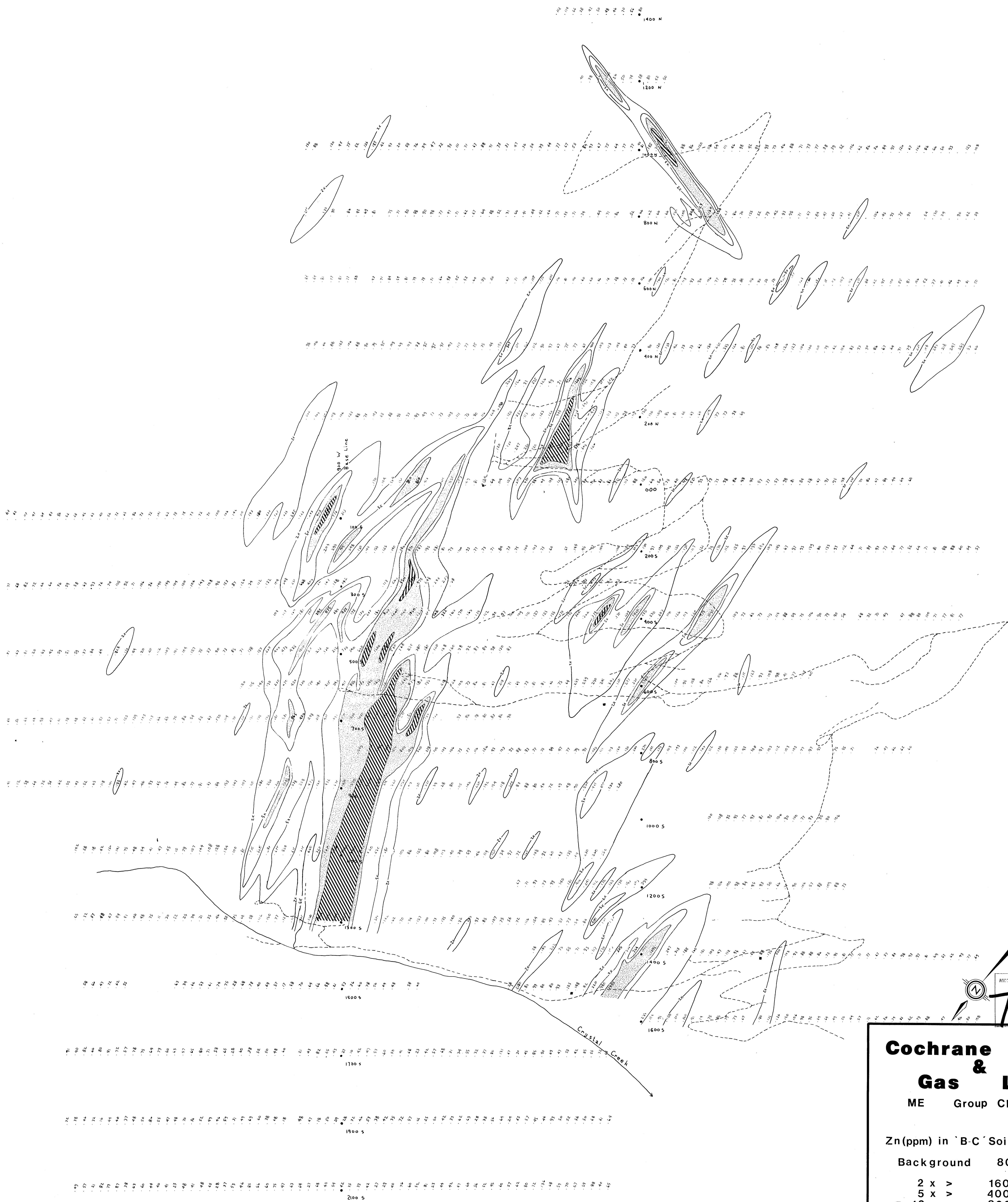
Pb(ppm) in 'B-C' Soil Zone

Background 40 ppm

2 x v	80 ppm
5 x v	200 "
10 x v	400 "
20 x v	800 "

Scale: 1:1200





7409

**Cochrane Oil
&
Gas Ltd**
ME Group Claims

Zn(ppm) in 'B-C' Soil Zone

Background	80 ppm
2 x v	160 ppm
5 x v	400 "
10 x v	800 "
20 x v	1600 "

Scale: 1:1200



**Cochrane Oil
&
Gas Ltd**
ME Group Claims

- Sample location
- Trench (1978)
- DDH
- DDH (proposed)
- Road (proposed)

MINERAL RIGHTS
REGISTERED
7409
113

Scale: 1:1200