GEOLOGICAL AND GEOCHEMICAL REPORT ON THE MEL JEAN AND WET CLAIMS, YUKON

LAT. 60° 21' NORTH

LONG. 127° 24' WEST

NTS 95D/6

BY

D.C. Miller, P. Eng.

Feb 1 to Sept 23, 1977

FOR

ST. JOSEPH EXPLORATIONS LTD.

90 Eglinton Ave. W. 5th Floor

Toronto, Ontario

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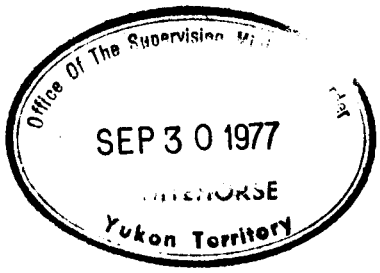

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Geological Evaluation Uni
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President Geologist
~~Resident Mining Engin~~

Considered as representation wo
Section 53 (4) Yukon Quartz Mini

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Terri

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INTRODUCTION AND SUMMARY

The Mel property was examined briefly by the writer in August, 1976. During the winter of 1976/77, St. Joseph Explorations Ltd. entered an agreement with Granby Mining Corporation Ltd. and Sovereign Metals Corporation Ltd. to conduct further exploratory work on the property. Line cutting, soil sampling, stream silt sampling, level surveys, gravity surveys, induced polarization surveys and geological mapping commenced on May 21, 1977 and were completed on July 1, 1977. A crew consisting of 3 geologists, 1 geophysicist, one geological technician, and 3 assistants was employed. Work was done from a base camp on the property supported by fixed wing and helicopter aircraft based at Watson Lake, Yukon.

Previous work on the property included bulldozer trenching, soil sampling, geological mapping, and 1951.6 metres (6403 feet) AQ diamond drilling in 18 holes. This work indicated two parallel, north striking, barite-sphalerite-galena zones on the property. The main (east) zone has an indicated strike length of 780 metres (2559 feet) and averages some 6.1 metres (20 feet) in true width. It dips about 65° westward and contains some 2.6 million tons averaging 1.93% Pb., 5.35% Zn., and 54.6% Ba SO4 to depth of 152 metres (500 feet) below surface. The west zone can be traced for approximately 120 metres (394 feet) on surface and is considered to be a faulted extension of the main zone. It is considered to have little tonnage potential because of negative

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drilling results below the zone and discouraging geochemical results along strike .

This year, encouraging results were obtained along the projected strike of the main zone to the south. Here, nearly coincident soil, induced polarization, and gravity anomalies were found over a length of 600 metres (1969 feet) in a region of sparse outcrops. The anomalous area extends from line 88 + 50 N to line 95N on accompanying maps (sheets 1, 2 and 3 in pocket).

CONCLUSIONS AND RECOMMENDATIONS

Previous exploratory work has shown stratabound barite-sphalerite-galena mineralization to occur over a total combined strike length of 900 metres (2953 feet) in two zones. Immediately south of the Granby drilled area, (line 96N) mineralization pinches out, but recent surveys indicate it may be present again further south between lines 87 + 50N and 95N.

To test this possibility, 480 metres (1574 ft) of B.Q. drilling are recommended. Geophysical interpretation suggests drill hole cuts 60 metres (197 feet) below surface are appropriate. Drilling should start on lines 92 and 94 north to intersect targets 30 metres (98.4 feet) west of the baseline. If the initial 2 holes are discouraging, the remainder of the drill contract can be used in deeper drilling of the main zone to the north. Cost of drilling is estimated at $25 per foot including indirect costs.

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The drilling should be done during February and March 1978 to take advantage of the winter road and to obtain results as soon as possible.

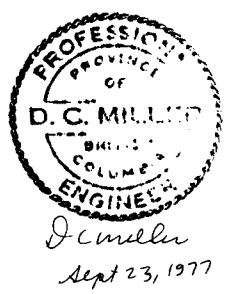
Respectfully submitted,

D.C. Miller

D.C. Miller, P. Eng.

Sept 23, 1977

DCM/am



D.C. Miller
Sept 23, 1977

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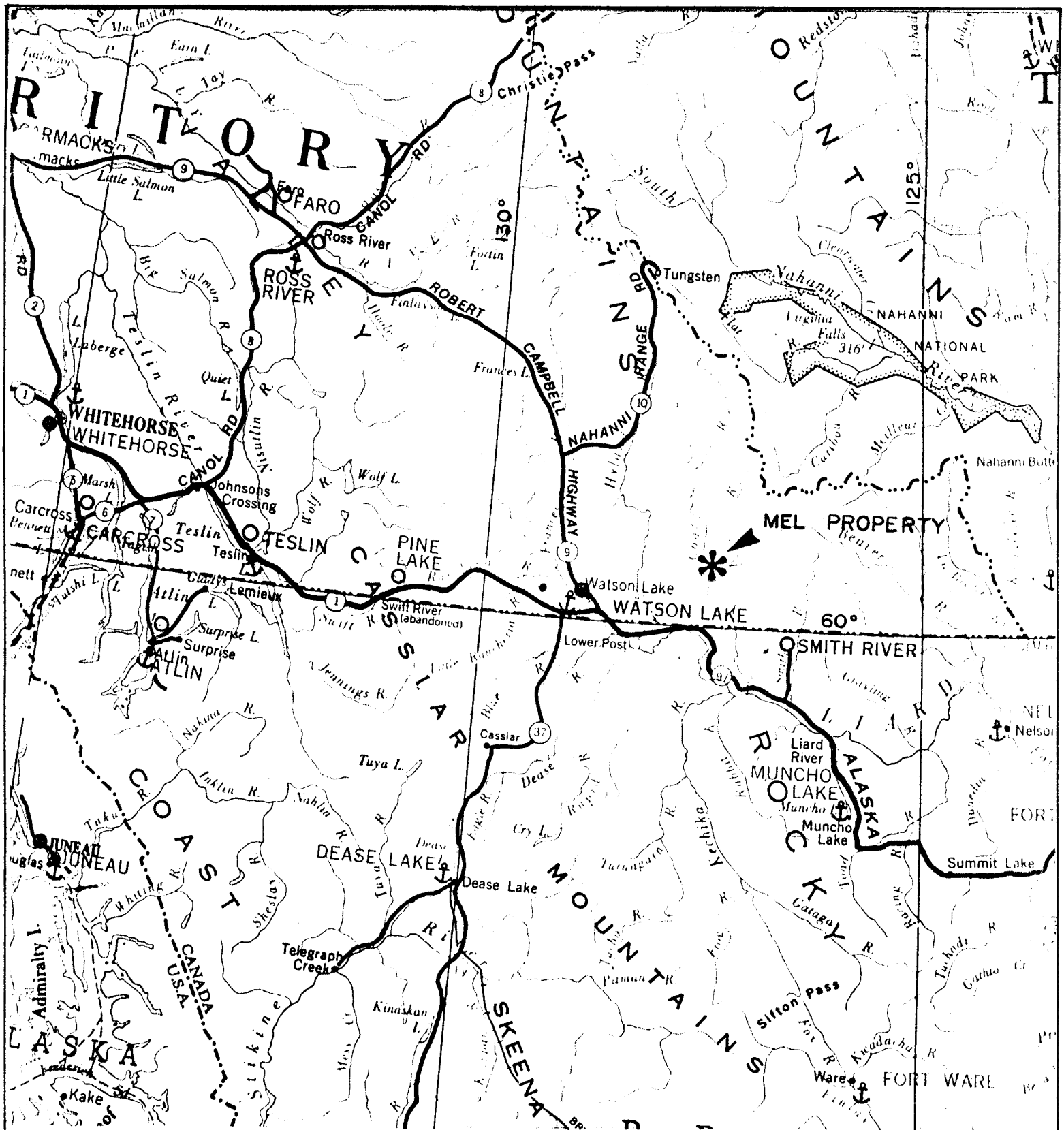


APPROX. LAT. & LONG. OF LOWER RT. COR. OF DWG. ° ' " — ° — ' — " LATITUDE — ° — ' — " LONGITUDE	PROJECT NO. 250 REPORT NO.	SHEET NO. ___ OF ___ N.T.S. 95 D/6

ST. JOSEPH EXPLORATIONS LIMITED

TORONTO, CANADA

FIGURE 1

MEL PROPERTY

LOCATION MAP

0 100

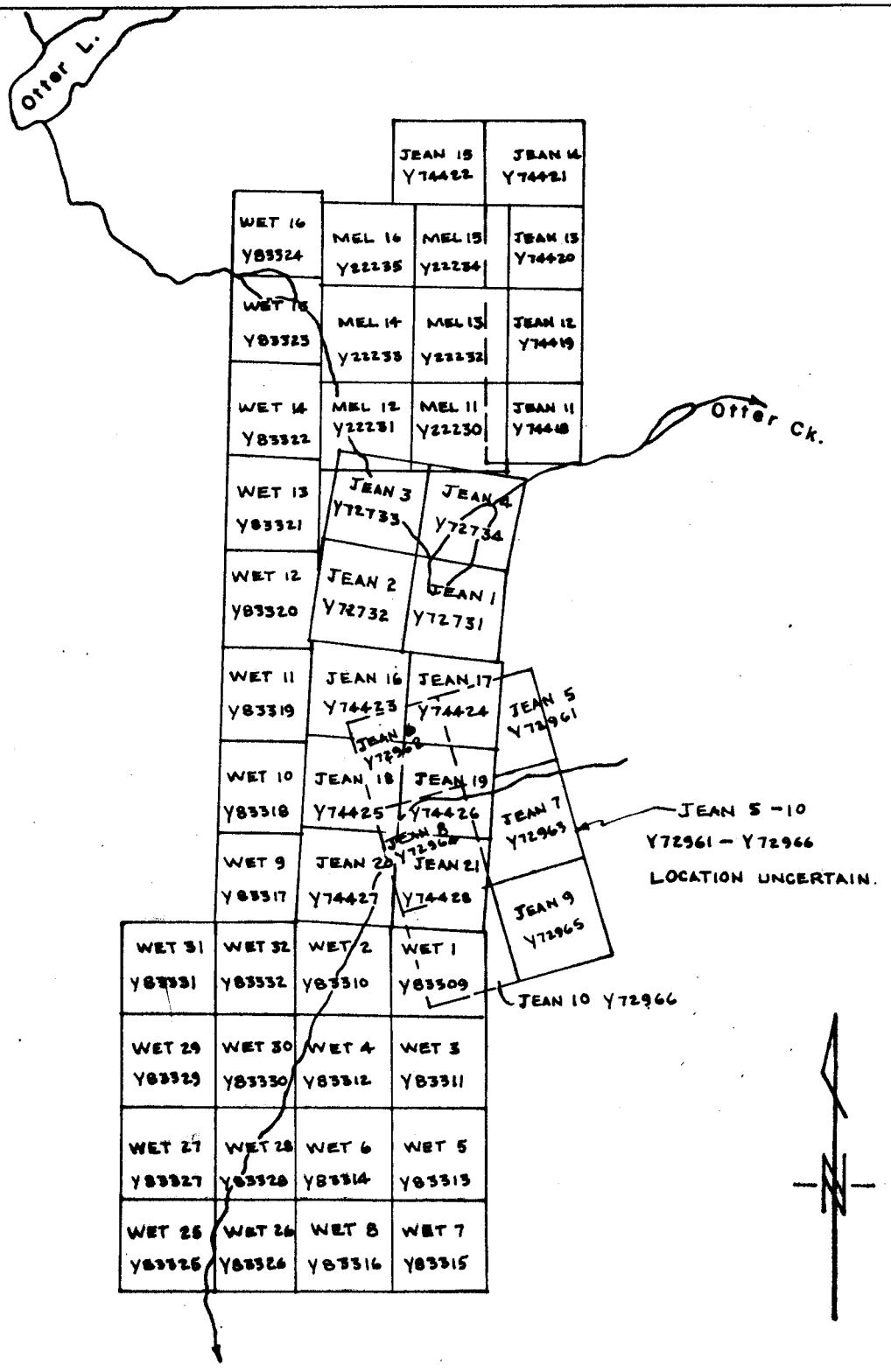
MILES

LOCATION AND ACCESS

The Mel property is located about 50 air miles (80.5 kilometres) east-northeast of Watson Lake, Yukon. The centre of the property is at coordinates 60° 21' north and 127° 24' west on NTS map sheet 95D/6. Otter Lake, which lies about 1.75 miles (2.8 kilometres) northwest of the property, is suitable for landing STOL float equipped aircraft in the summer. In winter, most ski equipped aircraft can utilize this lake which is about 3000 feet (914 metres) long. A succession of small lakes and swamps between Otter Lake and the property can be utilized for ski-doo travel in the winter. Also in winter, ski equipped aircraft can land on Coal River, some 7.5 miles (12.1 kilometres) southwest of the property. A winter tote road, some 28 miles (46 kilometres) in length, connects the property with the Alaska Highway. Frontier Helicopters Ltd. maintain a base at Watson Lake and provide convenient access to the property throughout the year.

PHYSIOGRAPHY

The claims lie within the Hyland Plateau, an area of moderate to low relief with broad, northerly trending valleys. Elevations range from 2900 feet (884 metres) to 4000 feet (1219 metres). Outcrops are fairly frequent in the northern part of the property but thick soil cover predominates to the south. Prominent cliffs, underlain by limestone and dolomitized limestone, occur in the central western part of the property. Heavy forest cover composed



APPROX. LAT. & LONG. OF LOWER RT. COR. OF DWG. 60° 19' ___" LATITUDE 127° 21' ___" LONGITUDE	PROJECT NO. 250 REPORT NO. _____	SHEET NO. ___ OF ___ N.T.S. 95D/6

ST. JOSEPH EXPLORATIONS LIMITED

TORONTO, CANADA

FIGURE 2

MEL PROPERTY

CLAIM MAP

0 0.5 1

MILES

principally of spruce and balsam is present in most areas. Some lodgepole pine are found in drier, well drained areas.

A number of boulders of glacial origin are found on various parts of the property, however, extensive, thick glacial deposits are not present. Soils exposed in pits and trenches are yellowish-brown, often have a high clay content, and appear to be mainly derived from underlying bedrock. Although no measurements of ice movement were obtained on the property, ice movement in nearby areas was easterly and northeasterly (Blusson and Gabrielse, 1969).

PROPERTY AND OWNERSHIP

The Mel property comprised the following contiguous claims under option to St. Joseph Explorations Ltd.:

CLAIMS	GRANT NO.'s	DUE DATE	OWNER
Jean 1 to 4	Y72731 to Y72734	April 3, 1983	Sovereign Metals Corporation Ltd.
Jean 5 to 10	Y72961 to Y72966	April 5, 1980	"
Jean 11 to 21	Y74418 to Y74428	Oct 15, 1979	"
Mel 11 to 16	Y22230 to Y22235	April 3, 1980	"
Wet 1 to 16	Y83309 to Y83324	April 3, 1978*	Granby Mining Corp.
Wet 25 to 32	Y83325 to Y83332	April 3, 1978*	"

* Certificates of work pending.

HISTORY AND PREVIOUS WORK

The property was staked in 1967 by J. Melnychuk and T. Flint. Newmont optioned the claims during 1967-68 and conducted bulldozer trenching and a geochemical survey. In 1973 the property was

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restaked by Melnychik, sold to Empire Metals Corporation, and optioned to Granby Mining Corporation Ltd. Granby conducted geological mapping, soil sampling, and drilled 18 AQ diamond drill holes totalling 6404 feet (1951.9 metres). During June, 1976, the property was mapped by R.C. Carne of the Department of Indian and Northern Affairs.

A summary of Granby's diamond drill results follows:

Hole	(Deg.) Dip	(Ft.) Intercept	(Ft.) Width	(Ft.) True Width	Oz/T Ag.	% Pb	% Zn	% $BaSO_4$
74-1	-45o	115.5 - 145.0	29.5	27.7	0.17	2.15	5.28	65.0
74-2	-45°	111.0 - 155.5	44.5.	41.8	0.17	2.16	4.83	63.1
74-3	-90°	Failed to reach footwall, probably deflected.						
74-4	-60°	121.5 - 155.0	33.5	27.4	0.04	1.05	5.86	48.3
74-5	-45°	151.0 - 160.5	9.5	8.9	0.06	1.44	8.52	65.6
74-6	-45°	187.5 - 192.5	5.0	4.7	0.15	1.91	3.11	Tr
74-7	-45°	No mineralization, drilled under west zone						
74-8	-45°	217.5 - 232.5	15.0	14.1	0.05	2.87	9.00	54.5
75-9	-60°	432.0- 458.0	26.0	15.6	-	1.84	6.77	63.3
75-10	-65°	Failed to reach footwall, deflected						
75-11	-55°	363.0 - 417.0	54.0	47.6	-	2.22	3.17	53.3
75-12	-50°	477.0 - 497.0	20.0	14.1	-	1.15	5.67	35.8
75-13	-45°	650.0 - 652.5	2.5	2.2		1.15	13.50	Tr
75-14	-60°	No mineralization, north of main zone						
75-15	-60°	No mineralization, north of main zone						
75-16	-60°	No mineralization, drilled under west zone						
75-17	-60°	No mineralization, drilled under west zone						
75-18	-60°	Weak mineralization, drilled under west zone						

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1977 PROGRAMME

During May and June 1977, St. Joseph Explorations conducted line cutting, soil sampling, stream silt sampling, and geological mapping over much of the Mel property. Gravity, induced polarization, and level surveys were carried out over a limited part of the property southward of the main showings previously tested by diamond drilling. The original Granby baseline was extended by the compass and chain method both north and south to the property boundaries. To the south, a portion of the baseline was offset 100 metres (328.1 feet) to the west to avoid a small lake. Picket markers were placed every 50 metres (164 feet) along the baseline over its total length of 5.3 kilometres (3.3 miles). Compass crosslines, generally spaced 200 to 400 metres (656 to 1312 feet) apart, were run east and west from the baseline. These lines were chained, blazed, and ribboned every 25 metres (82 feet). Where geophysical work was conducted, crosslines were thoroughly cut out and picketed every 25 metres (82 feet). A total of 31 kilometres (19.3 miles) of crosslines were run. Work was done from a base camp on the claims supported by fixed wing and helicopter aircraft based at Watson Lake. A total of 8 personnel were employed including 3 geologists, 1 geophysicist, one geological technician and 3 assistants.

GEOLOGICAL SETTING

The Mel property is underlain by folded or inclined lower Paleozic strata comprising carbonates, phyllite, calcareous shales, and calcareous siltstones. These rocks strike northerly and dip

both easterly and westerly. The Mel deposit, which is composed of relatively coarse-grained sphalerite and galena mineralization within a barite-rich host rock, is conformable with enclosing strata, strikes northward, and dips about 65° westward. The deposit and enclosing rocks are within the westerly limb of an overturned synclinal structure mapped on a regional scale by Gabrielse and Blusson (1969). This regional mapping also shows an inferred, north-south striking, west dipping thrust fault just west of the Mel deposit.

STRATIGRAPHY AND MINERALOGY

Table of Formations

Period	GSC* Map Unit	Property** Map Unit	Lithology	Thickness (Metres)
Cambrian and Ordovician	8	6	Dark grey, wavy-banded, silty limestone	700+
Lower	5	5	Brown to grey, laminated, calcareous phyllite	10-45
Cambrian	-	4	Mineralized zone	0-14.5
	5	3	Light grey, cryptograined limestone	100-150
	5	2	Buff dolomitized limestone	0-40
	4C	1	Medium to dark grey calcareous shale and siltstone, minor limestone lenses	400+ ?

* Paper 68-38 and Map 11-1968 (Gabrielse and Blusson, 1969)
** Accompanying geology map, Sheet 1

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Unit 1 (G.S.C. Unit 4c)

This unit underlies the western part of the property and consists of brown, maroon, and grey weathered, finely laminated medium to dark grey calcareous shale and siltstone and minor buff weathered grey limestone. Fine-grained pyrite in some siltstone laminae has oxidized to form sharp rusty bands.

Unit 2 (G.S.C. Unit 5)

This unit is best seen at the base of prominent cliffs near the collars of diamond drill holes 18 and 7. It also is present in talus forming the platform of diamond drill hole 12. It is buff brown to orange weathered, pale brown to light grey dolomite and partly dolomitized limestone. Minor quantities of a dark steel grey mineral tentatively identified as boulangerite were found with this unit in talus at the collar of diamond drill hole 12. Minor malachite stain was also found at this location.

Unit 3 (G.S.C. Unit 5)

This unit comprises nearly massive pale grey cryptograined limestone. It contains thin beds and layers of brown mudstone locally metamorphosed to talc phyllite. The muddy layers are best seen in diamond drill core and are often pyritic. The stratigraphic top of this overturned unit forms the stratigraphic base and structural hanging wall of the mineralized zone.

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Unit 4 (Mineralized Zone)

This unit is a local feature and consists of coarse white barite, brown calcareous phyllite, grey and white chert, and minor limestone up to 14.6 metres (48 feet) thick and contains about 7.5% combined zinc-lead mineralization. The unit, as defined by trenching and drilling, has an aggregate length in two zones of 900 metres (2953 feet) and is open at depth (below 152 metres) (500 feet). It strikes northward, dips westward at an average of 65°, and is completely conformable with enclosing strata. It is commonly sheared and brecciated and doesn't display bedding. The stratigraphic top of this unit (structural footwall) is composed of up to 3 metres (10 feet) of white to grey chert (best seen in drill core). The base (structural hanging wall) contains a relatively high percentage of mudstone altered to brown talcose phyllite. The average barite content is approximately 55%.

Relatively coarse-grained brown sphalerite is found throughout the unit but is most common in areas of high phyllite content. Here it occurs in small, elongate blebs. Galena is mainly associated with barite as fracture fillings and irregular blebs and may show sheared cleavage faces (Carne, 1976). It is commonly relatively coarse-grained. In surface exposures, sphalerite is oxidized to pale brown smithsonite while galena remains relatively unaffected. Up to 5% pyrite and some pyrrhotite are also present locally within the mineralized zone.

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Ore reserves of the main zone are estimated at 2.6 million tons averaging 1.93% Pb, 5.35% Zn and 54.6% Ba SO4 to a depth of 152 metres (500 feet) below surface. Whether the mineralized zone is a local sedimentary feature, or whether it is a vein deposit is still unresolved. However, its complete conformity with enclosing strata suggest the former is more reasonable and in this report it is considered as a local sedimentary unit.

Unit 5 (G.S.C. Unit 5)

Brown to grey, laminated, calcareous phyllite forms the structural footwall (stratigraphic hanging wall) of the mineralized zone. In drill core this unit is non-calcaceous within a half a metre of the mineralized zone but becomes increasingly calcaceous away from the mineralized zone.

Unit 6 (G.S.C. Unit 8)

Dark grey, wavy-banded, silty limestone is found mainly in the eastern part of the property. Two occurrences were also noted at the western limit of mapping. This unit is grey to brown weathering and has a distinctive texture because of differential weathering of silty and limy components. Near the mineralized zone, grey talc is present on cleavage faces.

STRUCTURE

The mineralized zone and enclosing strata, dipping about 65° westward, occupy the western limb of an overturned syncline. Mapping north of the main zone (Sheet 1) has shown that stratigraphic units have shifted, abruptly, over 100 metres (328.1 feet)

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westward. A fault is inferred in this area of relatively sparse outcrop to account for this movement. This fault could also account for the lack of depth continuity in the west zone (indicating the west zone is part of a fault sliver). A minor fault is inferred south of the main zone to account for some 50 metres (164 feet) of right hand displacement of units near diamond drill hole 6. A major northerly striking fault inferred in G.S.C. mapping and shown by Carne (1976) to be present west of the mineralized zones was not recorded on the accompanying geology map because of the uncertainty of its location. Similarly, not enough field evidence for thrust faulting along the footwall of the phyllite (Unit 5) was observed, and these faults mapped by Carne (1976) are not shown on the accompanying geology map (Sheet 1).

GEOCHEMISTRY

With reference to the accompanying maps Sheet 2 and Sheet 3, soil sampling was conducted over much of the property except in the area of the main zone where Granby had previously conducted similar work. In the current programme, soils were collected from the B and C horizons at 25 metre (82 foot) intervals along cross lines spaced generally 200 to 400 metres (656 to 1312 feet) apart. In the northern part of the property, soils were collected at a depth of about 20 centimetres (8 inches) below organic and ash layers. In southern areas, deep organic material was encountered and samples were collected as deep as 50 centimetres (20 inches)

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to penetrate below organic material and ash. Where satisfactory samples were not obtained, N.S. is marked on accompanying maps. Soils sampled were generally yellowish brown, and contained some clay and fine rock chips.

Silt samples were collected where drainages were encountered in the course of soil sampling. Non-organic material was collected.

Both soils and silts were field dried and shipped to Barringer Research Ltd., Whitehorse for further drying, screening, and analyses. Minus 80 mesh portions of samples were digested with perchloric acid and analyzed for lead, zinc, and copper by the atomic absorption method. Values for lead and zinc were plotted on accompanying maps (Sheets 2 and 3). No significant copper anomalies were obtained and values were not plotted.

With reference to accompanying maps, (Sheets 2 and 3) three main areas anomalous in lead and zinc were found. The most interesting of these lies south of the main zone, along its projected strike, in an area of sparse outcrops between lines 88 + 50N and 94 N. It is hoped that this anomaly reflects an extension of the main zone to the south. Nearly coincident induced polarization and gravity anomalies in this area provide encouragement.

A second anomalous area lies at the foot of prominent cliffs between lines 106N and 110N. It is thought that this anomaly is related to weak mineralization associated with dolomite, Unit 2. More prospecting in this area is necessary to account for this anomaly.

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A third anomalous area is situated on the baseline between 102 and 108 north. This anomaly may be related to weak mineralization observed in dolomite or possibly from a northern extension of the main zone. In either case, it has been tested by diamond drill holes 14 and 16 and no significant mineralization was encountered.

Other smaller anomalies on the accompanying maps are judged to be insignificant and related to downslope or ice movement or weak mineralization in underlying bedrock.

An effort was made to thoroughly test the area northward of the west zone and extra short lines with soil samples at 12.5 metres (41 feet) were run in this area. Weak response was found locally but no strong indications were obtained.

Histograms for lead and zinc values in soils are appended.

GRAVITY AND INDUCED POLARIZATION SURVEYS

Gravity and induced polarization surveys were conducted over the following lines:

Granby line 0 North	-	200 E to 200 W
Line 98 N	-	OW to 300 W
Line 96 N	-	200 E to 200 W
Line 95 N	-	200 E to 200 W
Line 94 N	-	200 E to 200 W
Line 93 N	-	200 E to 200 W
Line 92 N	-	200 E to 200 W
Line 90 N	-	200 E to 200 W
Line 88 + 50 N	-	200 E to 150 W

Additionally, gravity readings were taken on line 86N from 200 E to 300 W and on line 84 N from 100 E to 300 W.

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Stations along the preceding lines were chained and marked with pickets at 25 metre intervals. A level survey was conducted to establish the elevations of all stations, relative to each other using a standard automatic level and levelling rod. Elevations were measured within a precision of 0.10 ft. (3 cm).

Geophysical work was supervised by J. Wright, geophysicist. Equipment used included a Sodin W.S. 410 gravity meter, a Huntec LOPO MK-3 induced polarization transmitter coupled with an Elliot R-20A receiver. A dipole-dipole array was used for induced polarization work. Induced polarization surveys showed weak chargeability anomalies more or less coincident with geochemical anomalies between lines 88 + 50N and 95N. Nearly coincident gravity anomalies are found in the same location. The best gravity response is at line 94N where a 0.30 mgal. anomaly centres at station 25W. An 0.20 mgal. anomaly is centred on line 92N at station 35W. With respect to geology, these anomalies seem to be centred too far west, which may reflect possible west dipping projections of favourable geology. At the time of writing, final gravity reductions and sections are not available. A final and more complete report on geophysical results will be available within a few weeks.

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Archer-Cathro and Associates Ltd.

1976: Northern Cordillera Mineral Inventory, Occurrence No. 5, NTS 95D/6, Mel

Carne, R.C.

1976: Geology of the Stratabound Barite-Lead-Zinc Deposit on the Mel and Jean Claim Group, Coal River, Yukon

Gabrielse, H and Blusson, S.L.

1969: Geology of Coal River Map-Area, Yukon Territory and District of Mackenzie (95D); Geol. Surv. Can., paper 68-38, map 11-1968.

Granby Mining Corporation Ltd.

1976: Company data on the Mel prospect.

Sinclair, W.D., Morin, J.A., Marchand, M. and Craig, D.B.,

1976: Mineral Industry Report, 1975, Yukon Territory, pp. 156 - 158

APPENDIX 2

HISTOGRAMS FOR LEAD AND ZINC

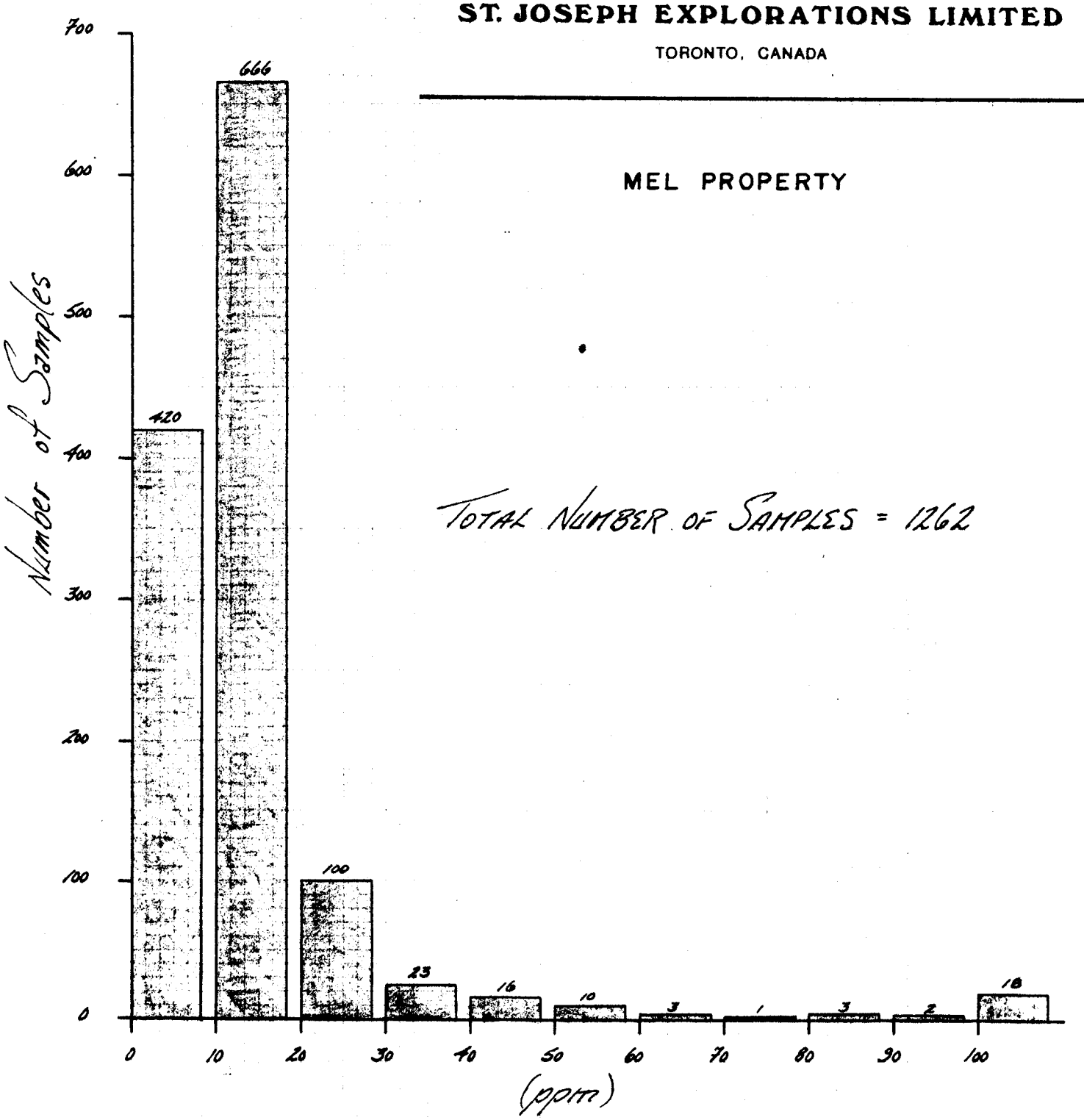
IN SOILS

LEAD
(SOILS)

ST. JOSEPH EXPLORATIONS LIMITED

TORONTO, CANADA

MEL PROPERTY



TOTAL NUMBER OF SAMPLES = 1262

ZINC

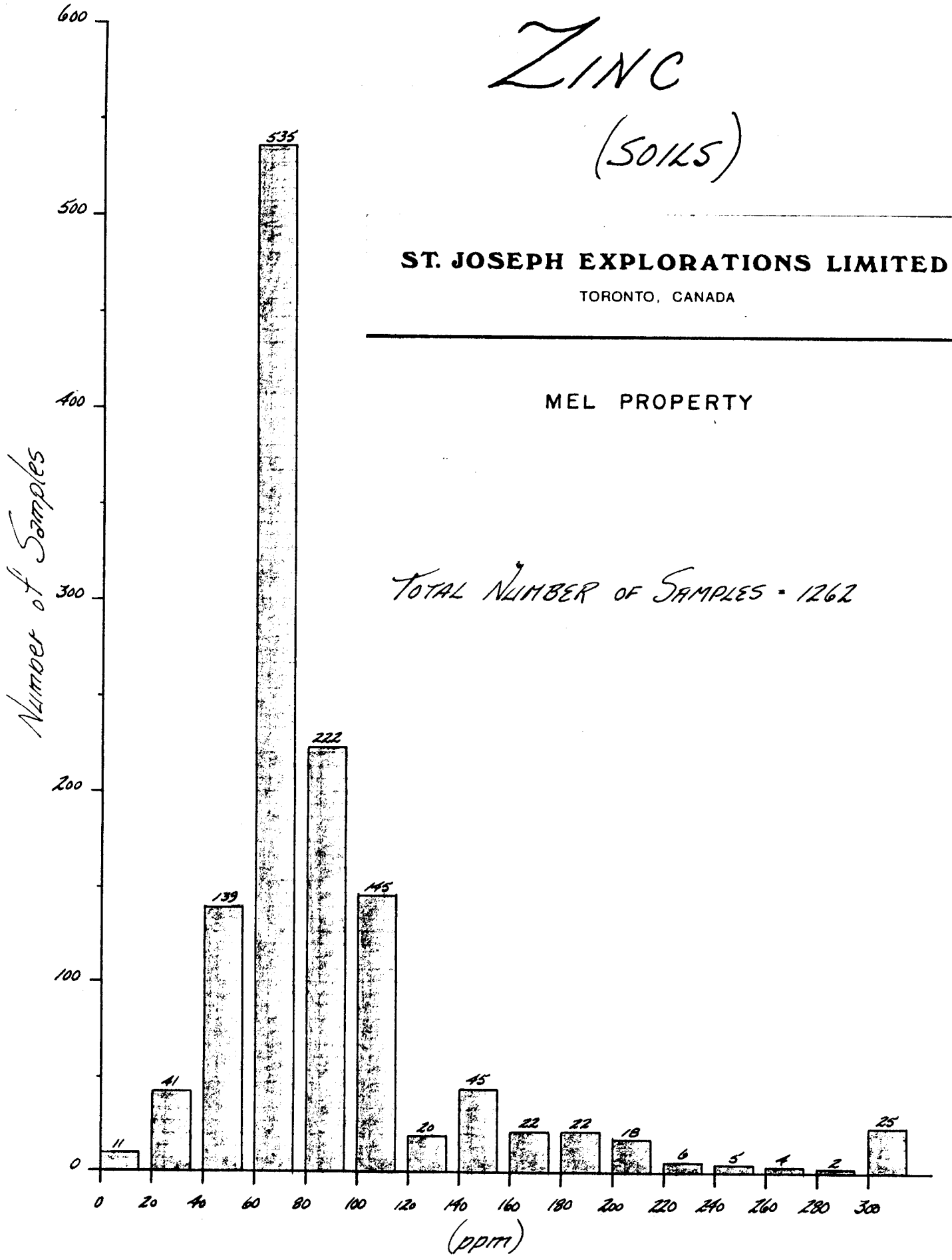
(SOILS)

ST. JOSEPH EXPLORATIONS LIMITED

TORONTO, CANADA

MEL PROPERTY

TOTAL NUMBER OF SAMPLES = 1262



14+00 W. 12+00 W. 10+00 W. 8+00 W. 6+00 W. 4+00 W. 2+00 W. 0 2+00 E. 4+00 E. 6+00 E.

118 N. 116 N. 114 N. 112 N. 110 N. 108 N. 106 N. 104 N. 102 N. 100 N. 98 N. 96 N. 94 N. 92 N. 90 N. 88+50 N. 86 N. 84 N. 82 N. 80 N. 76 N. 73 N. 69 N. 65 N.

JEAN 15 JEAN 14 JEAN 13 JEAN 12 JEAN 11 JEAN 10 JEAN 9 JEAN 8 JEAN 7 JEAN 6 JEAN 5 JEAN 4 JEAN 3 JEAN 2 JEAN 1

MEL 16 MEL 15 MEL 14 MEL 13 MEL 12 MEL 11 MEL 10 MEL 9 MEL 8 MEL 7 MEL 6 MEL 5 MEL 4 MEL 3 MEL 2 MEL 1

WET-16 WET-15 WET-14 WET-13 WET-12 WET-11 WET-10 WET-9 WET-32 WET-31 WET-30 WET-29 WET-28 WET-27 WET-26 WET-25 WET-24 WET-23 WET-22 WET-21 WET-20 WET-19 WET-18 WET-17 WET-8 WET-7 WET-6 WET-5 WET-4 WET-3 WET-2 WET-1

DDH-1 DDH-2 DDH-3 DDH-4 DDH-5 DDH-6 DDH-7 DDH-8 DDH-9 DDH-10 DDH-11 DDH-12 DDH-13 DDH-14 DDH-15 DDH-16 DDH-17 DDH-18

OO OLD GRID

BOUNDARY CLAIM BOUNDARY CLAIM

BASELINE 100 E.

LEGEND

- 6 — Dark grey, wavy-banded, silty limestone
- Brown to grey, laminated, calcareous phyllite
- Mineralized zone: barite, phyllite, chert, limestone, smithsonite, sphalerite, and galena
- Light grey, cryptograined limestone
- 2 — Buff, dolomitized limestone
- Medium to dark grey calcareous shale and siltstone, minor limestone, 1a
- Fault: defined, approximate
- Schistosity, slaty cleavage
- Bedding
- Outcrop, talus
- Geological contact: defined, approximate
- Zn — ZINC Mineralization
- Boul. — Boulangerite
- Si — Silicification
- Stream, lake, swamp
- Scarp
- Road
- Claim post
- Grid line, soil sample site, silt sample site
- DDH-1 -45° — Diamond drill hole

LOCATION MAP
N.T.S. 95D
1: 250,000
0 5 MILES
MEL PROPERTY
Rock Creek
Otter River
Gold River
Winter Road
60° 15' N.
127° 45' W.

0 300 METRES

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. C. MILLER

Dl miller Sept 23, 1977

ST. JOSEPH EXPLORATIONS LIMITED
TORONTO, CANADA

MEL PROPERTY
GEOLOGY

SCALE: 1: 5,000

APPROX. LAT. & LONG. OF LOWER RT. COR. OF DWG.
60° 19' LATITUDE
127° 24' LONGITUDE

PROJECT NO. 250
REPORT NO.
SHEET NO. 1 OF
NTS 95 D/6

WET-16
WET-15
WET-15
WET-14
WET-14
WET-13
MEL 14
MEL 13
JEAN 12
JEAN 11
MEL 12
MEL 11
JEAN 4
JEAN 3
JEAN 4
JEAN 1
JEAN 2
JEAN 2
JEAN 1
JEAN 17
JEAN 16
JEAN 18
JEAN-17
JEAN 19
JEAN-18
JEAN-20
JEAN-19
JEAN-21
DDH-16
DDH-15
DDH-14
DDH-18
DDH-17
DDH-7
DDH-13
DDH-2
DDH-8
DDH-11
DDH-1
DDH 78-4
DDH 78-3
DDH-6
DDH-4
DDH 78-1
DDH-9
DDH-5
DDH 78-5
DDH 78-2
BASELINE (10,000E)
OO OLD GRID
CLAIM BOUNDARY
Boul
Zn
Si
114 N
112 N
110 N
108 N
106 N
102 N
100 N
98 N
96 N
94 N
92 N
90 N
88 + 50 N

LEGEND

GEOLOGY

- 6 — Dark grey, wavy-banded, silty limestone
- 5 — Brown to grey, laminated, calcareous phyllite and shale
- 4 — Mineralized zone: barite, phyllite, chert, limestone,
- 3 — Light grey, cryptograined limestone
- 2 — Buff, dolomitized limestone
- 1 — Medium to dark grey calcareous shale and siltstone, minor limestone, tuff

SYMBOLS

- Fault: defined, approximate
- Schistosity, slaty cleavage
- Outcrop, talus
- Geological contact: defined, approximate
- Zn — Zinc Mineralization
- Boul — Boulangerite
- Si — Silicification
- Stream, lake, swamp
- Scarp
- Road
- Claim post
- Grid line, soil sample site, silt sample site
- DDH-1 -45° — Diamond drill hole

SCALE 1:2500
0 50 100 150 200
metres

ST. JOSEPH EXPLORATIONS LIMITED

MEL PROPERTY
GEOLOGY AND DRILLING

1:2500

A1

RENNIE, D. BASc. 1979

0096-46360
090234

14+00 W. 12+00 W. 10+00 W. 8+00 W. 6+00 W. 4+00 W. 2+00 W. 0 2+00 E. 4+00 E. 6+00 E.

118 N. 116 N. 114 N. 112 N. 110 N. 108 N. 106 N. 104 N. 102 N. 100 N. 98 N. 96 N. 94 N. 92 N. 90 N. 88+50 N. 86 N. 84 N. 82 N. 80 N. 76 N. 73 N. 69 N. 65 N.

BASELINE 0

00 OLD GRID

CLAIM BOUNDARY

CLAIM BOUNDARY

BASELINE 100 E.

LEGEND

Soil threshold: 140 ppm

Probably anomalous: 220 - 300 ppm

Definitely anomalous: > 300 ppm

Sample depth: 20 - 50 cm.

Size fraction: -80 mesh

Digestion: Perchloric acid

Analysis: Atomic absorption

Laboratory: Barringer Research, Whitehorse, Yukon Territory

Field work: D. Miller, C. Harrison, S. Kirkby, M. Price, J. Bilinski, W. Koop, C. Brossard

(May 21 – July 1, 1977)

SYMBOLS

Grid line, soil sample sites

Silt sample location

Soil > 300 ppm ZINC

LOCATION MAP

N.T.S. 95D 1:250,000

5 0 5 MILES

MEL PROPERTY

Winter Road

0 300 METRES

de miller Sept 23, 1977

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. C. MILLER

ST. JOSEPH EXPLORATIONS LIMITED

TORONTO, CANADA

MEL PROPERTY GEOCHEMISTRY ZINC (ppm) — Soil and Silt

SCALE: 1: 5,000

APPROX. LAT. & LONG. OF LOWER RT. COR. OF DWG.

60° 19' ___" LATITUDE

127° 24' ___" LONGITUDE

PROJECT NO. 250

REPORT NO. Sept. 1977

SHEET NO. 2 OF ___

N.T.S. 95 D/6

14+00 W. | 12+00 W. | 10+00 W. | 8+00 W. | 6+00 W. | 4+00 W. | 2+00 W. | 0 | 2+00 E. | 4+00 E. | 6+00 E.

118 N.
116 N.
114 N.
112 N.
110 N.
108 N.
106 N.
104 N.
102 N.
100 N.
98 N.
96 N.
94 N.
92 N.
90 N.
88+50 N.
86 N.
84 N.
82 N.
80 N.
76 N.
73 N.
69 N.
65 N.

BASELINE 0

00 OLD GRID

CLAIM BOUNDARY

CLAIM BOUNDARY

BASELINE 100 E.

N

0 300
METRES

LEGEND

Soil threshold: 40 ppm

Probably anomalous: 60 - 80 ppm

Definitely anomalous: > 80 ppm

Sample depth: 20 - 50 cm.

Size fraction: -80 mesh

Digestion: Perchloric acid

Analysis: Atomic absorption

Laboratory: Barringer Research, Whitehorse, Yukon Territory

Field work: D. Miller, C. Harrison, S. Kirkby, M. Price, J. Bilinski, W. Koop, C. Brossard

(May 21 - July 1, 1977)

SYMBOLS

Grid line, soil sample sites

Silt sample location

Soil > 70 ppm LEAD

LOCATION MAP
N.T.S. 95D
1: 250,000

MEL PROPERTY

Rock Creek
Coal River
Otter Creek
Otter River
Winter Road
60° 15' N
127° 45' W

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. C. MILLER

D C Miller
Sept 23, 1977

ST. JOSEPH EXPLORATIONS LIMITED
TORONTO CANADA

MEL PROPERTY
GEOCHEMISTRY
LEAD (ppm) — Soil and Silt

SCALE 1: 5,000

APPROX. LAT. & LONG. OF LOWER RT. COR. OF DWG.
60° 19' N LATITUDE
127° 24' LONGITUDE

PROJECT NO. 250

REPORT NO. Sept. 1977

SHEET NO. 3 OF

N.T.S. 95 D/6