

MAR 19690066: ALBERTA

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ECONOMIC MINERALS
FILE REPORT No.
S-AF-112(1)

MONTEGO MINES LIMITED

GEOLOGICAL-GEOCHEMICAL REPORT

PROVINCE OF ALBERTA

INDEXING DOCUMENT NO. 700473

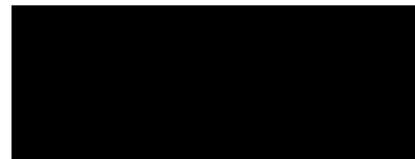
ADVANCE GEOLOGY & GEOPHYSICS LIMITED

SUMMARY:

A program of geological coverage and geochemical soil sampling was recently completed on the Montego Mines Limited Northern Alberta property to assess elemental sulphur potential.

No areas of rock outcrop were observed. Government geological maps indicate that the property is underlain by geology favourable as host for sulphur deposits. No geochemical anomalous zones were detected in the surveyed area.

In view of results to-date no further field work is recommended at this time. Prior to lapse of the property, it is recommended that a review of results of work programs be made in light of results of other work programs done in the area. This study may point to areas on the property warranting further attention.



G.L. Kirwan, B.Sc.

Toronto, Ontario

January 20th, 1969. ✓

MONTEGO MINES LIMITED,
Suite 305-100 Adelaide St. West,
Toronto 1, Ontario.

Gentlemen:

This report covers results of a combined program of geological coverage and geochemical soil sampling with determinations for sulphur content on your property located in northern Alberta.

PROPERTY, LOCATION, ACCESS:

The property consists of approximately 3,840 acres located in Township No. 103, range 14, west of the 5th meridian, being sections 2-6 inclusive, and Township 103, range 15, west of the 5th meridian, section 1.

The property comprises all available sulphur rights under Alberta's Schedule of Lands being Sulphur Prospecting Permit No. 112.

The property is located in the North Central portion of the Province of Alberta, some 36 miles south of the settlement of Fort Vermillion, Alberta, and is situated in the Buffalo Head Hills, northeast flank.

Best means of access is by helicopter. A small lake, 2,000 ft. in length located half a mile south of the subject property, may accommodate small float-equipped fixed-wing aircraft.

HISTORY:

Sulphur deposits in the area of the subject property have been known for over 100 years, however deposits were thought to be small vertically and horizontally. Spontaneously lit sulphur fires characterize the area and have been regarded as a nuisance.

Prompted by an acute world shortage of elemental sulphur, Madison Oils and Bow Valley of Calgary, Alberta, acquired considerable ground recently in the area covering known sulphur occurrences. Preliminary work indicates good-grade sulphur in the 35-89 per cent range. These acquisitions triggered a rush for property in the region reaching proportions of a few millions of acres.

The subject property is located tied onto the south boundary of the original Bow Valley acquisition in an area of sulphur fires, and is also tied onto the north boundary of permits held by Hudson's Bay Oil and Gas Co. Ltd.

ECONOMIC CONSIDERATIONS:

Sulphur is known to exist in the region of the property and has apparently being concentrated through fault and fissure breaks in crustal sediments, and possibly by fumarole action. Source appears to be the Elk Lake Point Evaporite of Middle Devonian age. Both Devonian and Cretaceous age formations appear to be host.

In many instances, sulphur occurrences outcrop below overburden which is considered to be moderate in the area. Potential exists for deposits to occur at depth along structurally controlled paths.

TABLE OF GEOLOGICAL FORMATIONS

Source: G.S.C. Map No. 1002A, Geological Map of Alberta.

Lower Cretaceous: The area of the property is described as being underlain by Undivided Lower Cretaceous Formations which would include the essentially flat-lying, undisturbed, Fort St. John Group consisting mostly of marine shale and sandy shale. Associated Formations consist of sandstone. Thicknesses of Formations are not indicated.

GEOLOGICAL SURVEY:

Field Procedure: Based upon a preliminary study of airphotographs covering the area and field reconnaissance through use of helicopter traverses, and employing advantages of photogrammetric and planimetric maps using topography for tie-in locations, the entire property was traversed on the ground on a north-south line separation grid of 1320 feet.

Geological Findings: No areas of outcrop were observed in the area covered.

GEOCHEMICAL SURVEY

Field Procedure: Through control by use of photogrammetric and planimetric maps, and employing normal soil auger equipment, samples of soil were taken from the "B" horizon immediately below the topmost or humous horizon along a 1320 ft. grid. The grid covers a linear distance of 24 miles. Each station was marked in the field by brilliant orange plastic ribbon. Depth of samples ranged from a few inches to one foot in depth below surface, averaging about 10 inches.

Laboratory Procedure: All samples were dried then passed through an 80 mesh nylon screen to eliminate possible humus contamination. Concentrated hydrochloric acid is added and the solution heated to 150°C. for two hours then allowed to settle for 10 hours. The clear solution atop the preceitate is drained off, diluted with distilled water, and barium chloride is added. The resulting suspension of sulphur in the solution is then compared against known standards through visual methods.

"B" represents concentration of sulphur less than 500 parts per million, "L" is less than 5,000 PPM, "M" is less than 10,000 PPM, while "H" represents sulphur concentrations in excess of 10,000 PPM.

Results of Survey: In assessing anomalous areas, consideration is given to the relative high solubility of sulphur in water and thus its high degree of migration. Consideration is also given to local environment of each sample taken with drainage features taken into

account. In view of possible sulphide concentrations, it is noted that all determinations lack associated iron content and therefore are representative of elemental sulphur.

All soil samples were returned with sulphur concentration not exceeding 5,000 PPM. No anomalous zones were detected in the area surveyed.

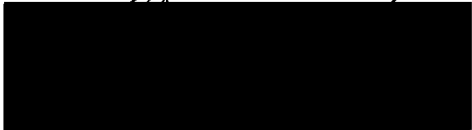
CONCLUSIONS AND RECOMMENDATIONS:

A program of geological coverage and geochemical soil sampling was recently completed on the Montego Mines Limited Northern Alberta property to assess sulphur potential.

No areas of outcrop were observed, and no geochemical anomalous zones representing elemental sulphur concentrations were detected.

In view of results to-date no further field work is recommended at this time. Prior to lapse of the property, it is recommended that a review of results of work programs be made in light of results of other work programs done in the area. This study may point to areas on the property warranting further attention.

Respectfully submitted,


G.L. Kirwan, B.Sc.
Consulting Geologist

GLK/bh

Toronto, Ontario,
January 20th, 1969.

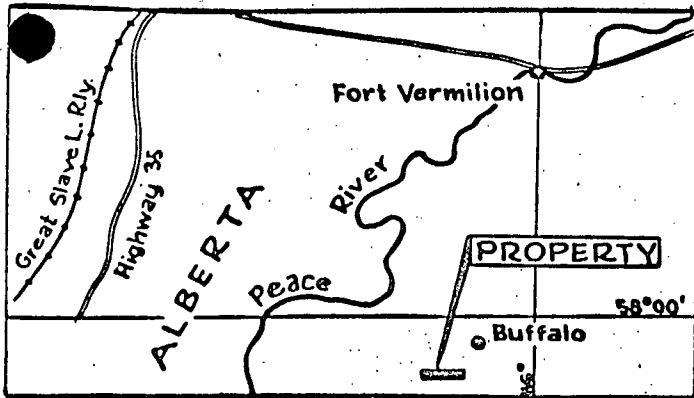
CERTIFICATE

I, Gerald L. Kirwan of the city of Toronto in the Province of Ontario, certify as follows:

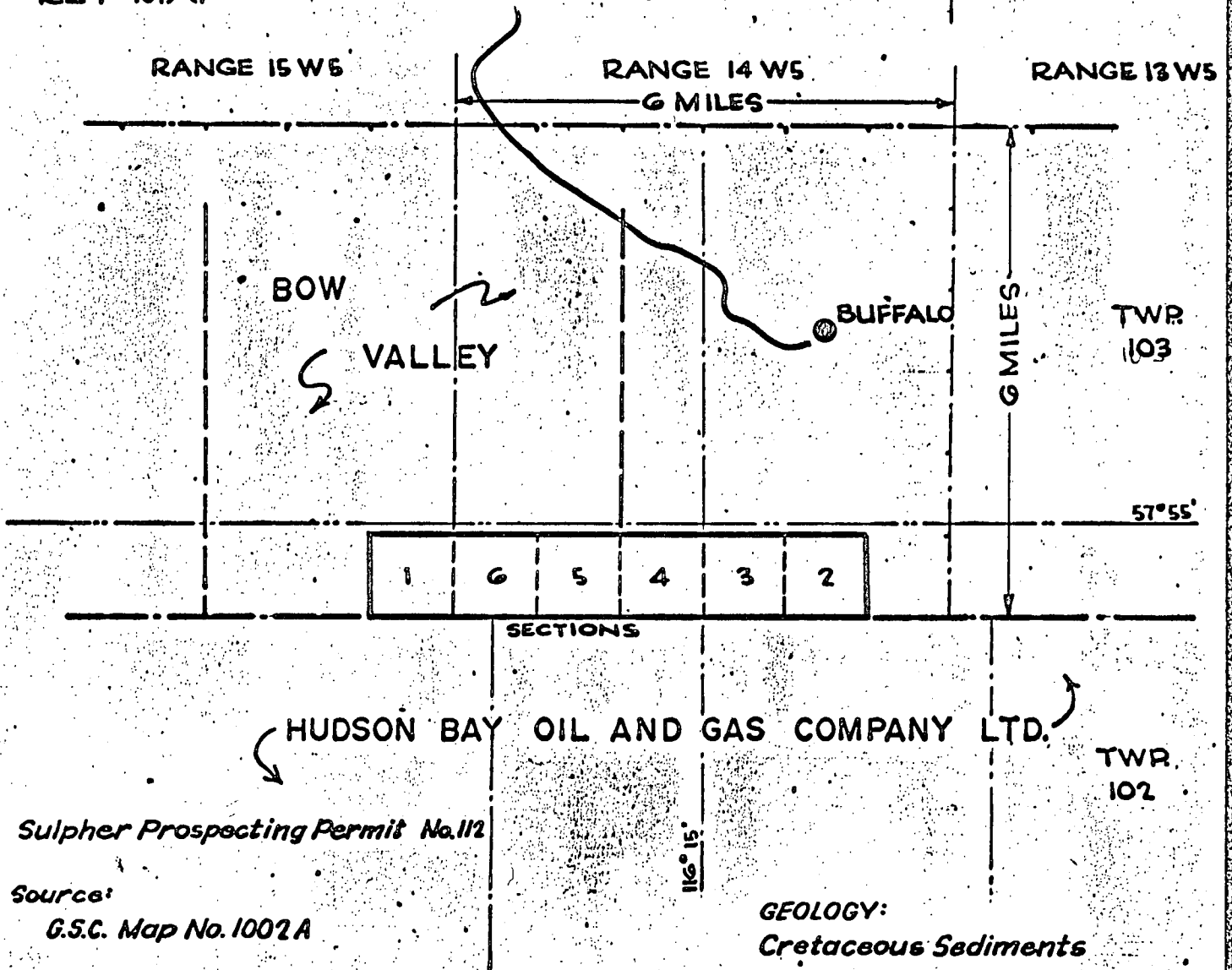
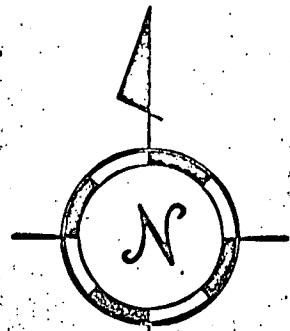
1. THAT I am a geologist with offices at 160 Bay Street, Toronto, and 130 Kingslake Road, Willowdale, Ontario.
2. THAT I have practised my profession continuously since being graduated from Carleton University, B.Sc., 1957.
3. THAT I am a Fellow of the Geological Association of Canada.
4. THAT I have not directly or indirectly received nor do I expect to receive any interest direct or indirect in the property of Montego Mines Limited or any affiliate, nor do I beneficially own directly or indirectly any security of the Company or any affiliate thereof.
5. THAT the accompanying report has been prepared by myself and is based upon supervision of the programs herein noted.

Dated at Toronto, Ontario, this 20th day of January, 1969.


G.L. Kirwan



KEY MAP

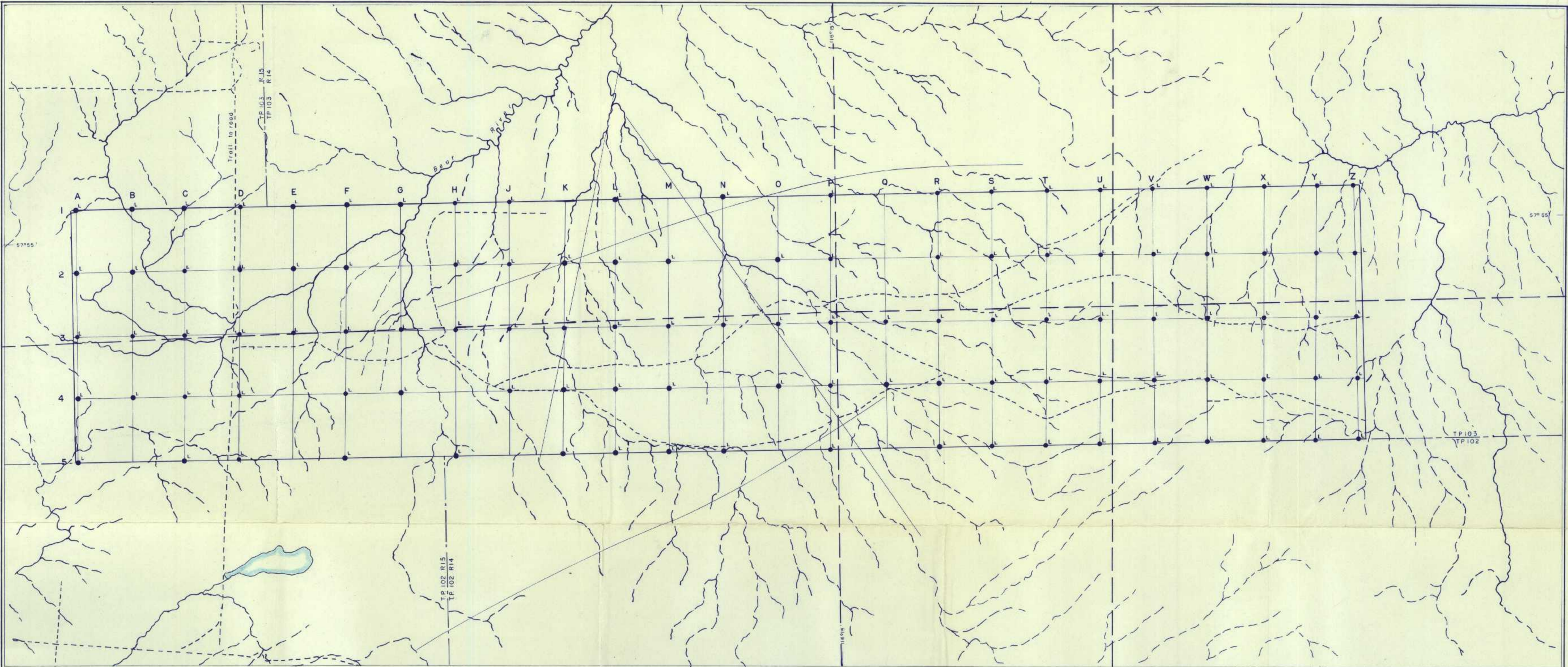


Property Location and Geology Map

MONTEGO MINES LIMITED
 TWP. 103, FORT VERMILION AREA, ALBERTA.

Scale: 1 in. to 2 mi.

19690066
 Map No. 1



GEOCHEMICAL SURVEY

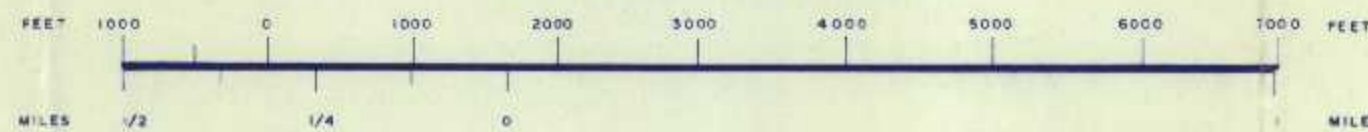
FOR

MONTEGO MINES LIMITED

TWP. 103, R. 14 & 15, West of 5th Meridian

Fort Vermillion Area, Alberta

Scale 1320 feet to 1 inch



Compiled from Air Photos, for Geo-Surveys Consultants Ltd

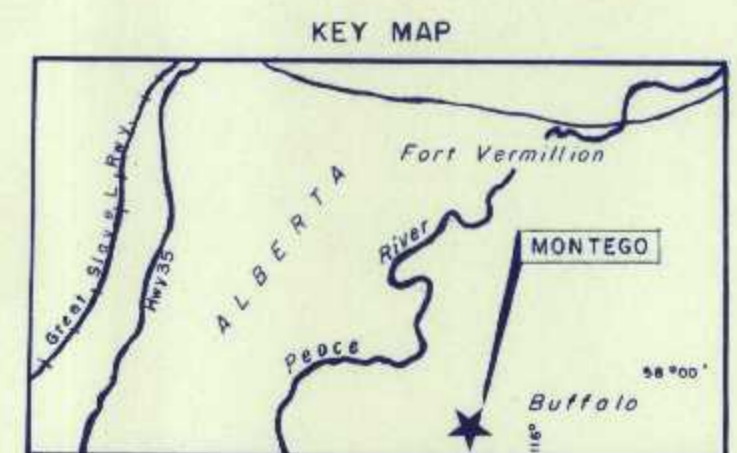
by
Cartographic Services
Unionville Ontario

LEGEND

- Rivers, Streams
- Non-Perennial Drainage
- Trail or Cutline
- Claim Boundary
- Sample location

- parts per million in Sulphur
- B = less than 500 ppm
- L = " 5,000 ppm
- M = " 10,000 ppm
- H = greater than 10,000 ppm

- Lineation
- Possible fault



17690066
Map No. 2

G. J. R.
Jan 16, 69

SULPHUR PROSPECTING PERMIT No. 112

GERALD LAMBERT KIRWAN
130 - KINGSLAKE ROAD,
WILLOWDALE, ONTARIO.

DATE OF ISSUE - JANUARY 25, 1968
AREA - 3,840 ACRES.

TP. 103

84F/116
WE

TP. 102

R. 15

R. 14

R. 13 W. 5 M.