



REPORT ON GEOPHYSICAL SURVEYS
FOR QUEENSLAND EXPLORATIONS LTD.
ON THE GERRY LAKE PROPERTY,
RED LAKE MINING DIVISION, ONTARIO.

INTRODUCTION:

During August and September 1959, geophysical surveys were carried out by Hopkins Mining Consultants Limited for Queensland Explorations Ltd. on a group of 24 mining claims, known as the Gerry Lake property. The property is in the area covered by the Fredart Lake claim map, Red Lake Mining Division, Ontario. The claims are numbered KRL. 44357 to 44374 and KRL. 45048 to 45053.

The geophysical work consisted of the following:

- (a) An electromagnetic survey, which did not cover the entire property, because of too much interference from a hydro-electric transmission line;
- (b) A self-potential survey, originally begun to fill in the parts not covered by electromagnetic work; later extended to the rest of the property because it was obviously more effective than E.M. in outlining the anomalous zones.
- (c) A magnetometer survey covering the whole property.

The geology, location, mineral prospects, etc., of this property are described in a report by Albert Hopkins, mining engineer, dated 25th September, 1959.

SUMMARY AND RECOMMENDATIONS:

The most important geophysical information is from the self-potential survey, to be seen on one of the three maps accompanying this report. In the west central part of the property -- chiefly in claims 44372 and 44370 -- there is a large zone in which the anomalous potentials exceed 200 millivolts, and within this zone there are two strong peaks, one of them exceeding 600 millivolts.

The zone as a whole may well represent an area of disseminated sulphides, signs of which have been noted in the geological survey. The peaks within the zone are likely to be more concentrated mineralization. Outcrop is absent or scarce at the two principal peaks and at many of the lesser peaks.

It is recommended that diamond drilling be carried out to investigate the two principal peaks. Favourable results would call

for an extensive drilling program, as the zone of anomalies stretches across the entire breadth of the property.

Several strong magnetic anomalies occur in the same general zone as the self-potential anomalies. Electromagnetic conductors appear here and there, -- occasionally in conjunction with S.P. peaks; but none of these indications are as definite as the S.P. anomalies. The magnetic anomalies may be partly due to pyrrhotite, but some of them suggest the outlines of iron formation.

PROPOSED DIAMOND DRILLING:

The following drill sites should be given priority:

- D.D.H. 1. Collar: On Line 78, 50 feet southeast of Base Line,
Bearing: Northwesterly, in direction of picket line,
Initial dip: 50°;
Hole length: 500 feet minimum.
- D.D.H. 2. Collar: On Line 72, 450 feet southeast of Base Line,
Bearing: Northerly, 30° from picket-line direction,
Initial dip: 50°,
Hole length: 500 feet minimum.
- D.D.H. 3. On Line 80, parallel to D.D.H. 1.
Hole length: 500 feet minimum.

The above three drill holes are plotted on the plan of self-potential anomalies. Results from these would be the deciding factor in the siting of further holes. This leaves 500 feet of drilling to test the gossan zone and associated anomalies that stretch from 7500' S., 900'E., to 6700'S., 600'E. This could be called D.D.H.4.

DISCUSSION OF SURVEYS:

All of the geophysical surveys were carried out on a grid of picket lines running northwest across the property at intervals of 200 feet. Survey readings were made every 100 feet along these lines, though occasionally at closer intervals. The survey involved 40 line miles of self-potential readings, the same for magnetometer readings, but less for electromagnetic readings.

The three types of survey are described below.

Self-Potential

This method depends on negative voltages (or potential) developed electro-chemically in the vicinity of metallic sulphides, graphite and a few other minerals. A potentiometer with two special ground contacts and a suitable supply of connecting wire is used for measuring potential (in millivolts) at all survey stations. Each set of readings overlaps other sets of readings, so that all values can be reduced to a common datum. The reduced readings are mapped and contoured.

The accompanying plan of S.P. results shows one large area and several detached localities in which the potential of ground surface is anomalous by more than 100 millivolts (negative). In this survey there are also some fairly extensive areas of positive potentials; these might be largely removed by a different choice of datum -- they are not otherwise significant. Negative values are what count, and some of them are quite strong.

It is reasonable to suppose that the 100-millivolt contours give a rough outline of zones of disseminated sulphides. Areas within the 200-millivolt contours have been shaded for emphasis, as this sort of value may represent worthwhile concentrations of mineral. There are several scattered peaks of 300 millivolts or more; some of them are quite local, but two of them are fairly extensive and ought to be further examined by drilling. Copper, nickel, lead and molybdenum are all possibilities suggested in Hopkins' geological report on this property; and the ores of these metals are all capable of producing healthy self-potential effects.

In the self-potential map the contours have been generalized to some extent. This is because the depth and nature of overburden always contributes some irregularity to the observed potentials, and there is no point in trying to map this sort of irregularity in detail. In the course of the survey, most of the stronger anomalies were checked and confirmed by a repetition of readings, as shown on the map.

Magnetometer

Readings of vertical field strength were made with a Sharpe A-2 magnetometer. Throughout the general zone of self-potential anomalies there are strong and quite irregular magnetic anomalies. Elsewhere the magnetic results are featureless. The readings are plotted in gammas, after reduction for time variations.

Keewatin iron formation, including banded magnetite, has been mapped at several points in the geological survey. Magnetite and sedimentary iron deposits generally lead to high magnetic anomalies with a regular "build-up" that can be clearly shown by contour patterns. In the present survey there is one extensive zone of values exceeding 10,000 gammas. This would suggest magnetite. But other wise the anomalous zones consist of erratic high and low values. These are not amenable to contouring, but can be outlined as obviously anomalous zones. This effect is often characteristic of pyrrhotite occurrences.

Electromagnetic

This work was done with a Sharpe SE-200 apparatus, consisting of a portable loop transmitter and a receiver for measuring tilt angles. The two units were used at corresponding stations along picket lines, 400 feet apart.

In the plan of results, the observed tilts have been marked West and East, rather than NW and SE. A typical conductor anomaly consists of west tilts to the west and east tilts to the east of a zero axis; and the zero axis marks approximately the position of the conductor.

Numerous conductors have been mapped, and a few of these are moderately strong; others are probably due to conductive overburden. In a few cases the E.M. conductors correspond closely with peaks of the self-potential survey. In other cases there is an approximate or very indefinite correspondence. In the case of disseminated sulphides, or for a group of separate concentrations, electromagnetic results are often quite indefinite. Self-potential results depend on a different sort of electrical phenomenon; and in the present survey they appear to be far more definite. The electromagnetic readings can therefore be considered redundant.

Respectfully submitted,
HOPKINS MINING CONSULTANTS LIMITED,

Ralph D. Hutchison
Ralph D. Hutchison, P.Eng.
Consulting Geophysicist.

Toronto, Canada,
1st October, 1959.



REPORT ON A GEOL.
GEO. SURVEY
on the

GERRY LAKE PROPERTY, RED LAKE MINING DIVISION, ONTARIO

for

QUEENSLAND EXPLORATIONS LIMITED

PROPERTY:

This consists of 24 contiguous unpatented mining claims numbered KRL. 44357-74 inclusive and KRL. 45048-53 inclusive. They comprise an area of approximately a thousand acres, and were recorded in October 1958.

LOCATION:

The property lies in the Fredart Lake mining claim whiteprint map sheet, Red Lake Mining Division, N.W. Ontario. This is at 50° 59' N. latitude and 92° 59' W. longitude.

The property lies between Gerry lake and the southeast bay of Snakeweed lake. This is on the southeast side of Woman river, 25 air miles northeast of Ear Falls, 10 air miles north of Dome's Bluffy lake iron property, 20 air miles northeast of Iron Bay Mines' iron property, 37 air miles east of Red Lake, 19 air miles WSW. of Uchi gold mine, 13 air miles southwest of Jackson Manion gold mine, 44 air miles southwest of New Jason gold mine at Casummit Lake, and 45 air miles southwest of Dome Mines' Richardson lake gold prospect.

ACCESS:

The property is presently best reached by air from Lac Seul Airways at Ear Falls (25 miles) or from Greene Airways or Ontario Central Airways at Red Lake (37 miles) to the campsite of Split Rock Mines Ltd. on the southeast bay of Snakeweed lake. A tractor road connects this camp with the Uchi Road ($\frac{1}{4}$ mile), which road traverses your property and extends about 30 miles to Ear Falls.

The property may also be reached by canoe from Highway 105 (the Red Lake Road) by going up the Troutlake river, through Bruce lake, to Snakeweed lake. There are 6 rapids and portages:- at Whitefish Falls, Big Falls, a 6-ft. rapids, a 3-ft. rapids, a 43-ft. falls, and a 15-ft. falls.

The Uchi or Casummit lake road, although once used all year, has degenerated into a winter road due to a few bridge and

and culvert washouts and flooding by beaver dams. The federal and provincial governments have announced that they will jointly repair this road which will allow motor cars to reach your property from almost anywhere, and construction will probably commence in the spring of 1960.

TOPOGRAPHY:

Most of the property and surrounding area is covered by marsh, "labrador-tea" swamp, and low muskeg areas. Possibly this basin was once a shallow lake. The north central and east sections are drained by a creek that empties into the southeast bay of Snakeweed lake. The southwest section drains into the east end of Gerry lake. This lake and the west section of the property are drained by Gerry creek which also flows into the southeast bay of Snakeweed lake. The Uchi or Casummit road, for the most part, follows eskers and higher ground northeast - southwest across the property, and pretty well marks the dividing line between the two drainage basins.

Relief is generally very low and rock outcrops scarce. Higher ground as shown on the accompanying map usually has only very little elevation over the swamps, and the highest hill on the property is only about 50 ft. above the lake.

The property is heavily wooded with second-growth spruce, poplar, and jackpine.

An ample supply of water for domestic or industrial use is readily available anywhere on the property for preliminary exploration and mine development work.

GENERAL GEOLOGY:

Table of Formations

ALGOMAN

- granite (fresh, felspathic)
- granite pegmatite
- syenite dykes
- quartz and felspar porphyry
- granite porphyry
- quartz diorite
- diorite porphyry

TIMISKAMING

- greywacke
- quartzite
- conglomerate
- slate

LAURENTIAN

- granite gneiss
- hybrid granite
- lit-por-lit gneiss
- granite-foliated, micaceous
- syenites

KEEWATIN

greenstone (andesite)
 serpentine
 pillow lava
 rhyolite
 amphibolite
 hornblende & biotite schists
 diorite
 diorite gneiss
 paragneiss
 iron formation

LOCAL GEOLOGY: (see attached map)

The property is 90% covered by a mantle of swamp, muskeg, and clay. From outcrops, however, it is inferred that the property is underlain by Keewatin lavas, sediments and intrusives which have been intruded by Laurentian and Algonian granitic and dioritic rocks. The Keewatin and Timiskaming rocks occupy a band about half a mile wide dipping very steeply to vertically, and striking from 60° to 70°. This belt traverses the centre of the property. The north and northwest section of the property is underlain mainly by Algonian granite and associated rocks, with some Laurentian granite gneisses and related rocks lying between the Algonian and Keewatin rocks. The south section of the property is mainly underlain by Laurentian granite gneiss and related rocks.

Besides the usual andesites, the Keewatin rocks include altered diorites, amphibolites, and hornblende-biotite-schist. These diorites are often difficult to distinguish from the adjacent andesite, and one almost appears to grade into the other, due to the intense alteration.

Hornblende-biotite-schists have been arbitrarily placed in the Keewatin age, although in their present metamorphic condition they could be much later.

Many remnants of altered and carbonatized lavas are to be found. The banded iron formation is in places folded and crenulated, and replaced by iron and zinc sulphides.

There is evidence of two stages of granitization, and the writer has designated these as Algonian and Laurentian in age. During the Laurentian period the granites invaded the Keewatin sediments and lavas. It appears that the lavas more successfully resisted the invasion than did the more competent sediments. At the same time numerous feldspathic dykes injected the above rocks, and hornblende-anorthosites resulted from alteration and recrystallization of diorites and amphibolites. The syenites are probably of Laurentian age as well.

The Algonian (iron) granites injected and intruded all the above rocks, and completed their metamorphism.

STRUCTURAL GEOLOGY: (see accompanying map showing lineaments)

No field evidence of faults or major shear zones was found. However a study of the Ontario Forestry vertical aerial photos shows definite strong lineaments crossing the area of the property.

These consist of a two parallel strike lineaments about 1500 ft. apart, striking about 72°. From field mapping we know these lineaments include the main mineralized basic zone of the area.

Normal to these strike lineaments is a series of cross lineaments, mostly in the Snakeweed lake granites.

ECONOMIC GEOLOGY:

Gold, silver, copper, nickel, lead, zinc, and molybdenum are known to occur in this area.

Immediately ENE. of the Queensland property, Split Rock Mines Ltd. has occurrences of copper, molybdenum, gold, silver, zinc and lead in the same basic mineralized belt. Immediately WSW. of the Queensland property, Mr. W. Hayes has a 44-claim property including most of Gerry Lake, on which are occurrences of chalcopyrite, pyrrhotite, quartz veins, and mineralized Iron Formation in this same basic horizon.

On the Queensland property there are several known occurrences of chalcopyrite, pyrrhotite, molybdenite, magnetite, sphalerite, pyrite, low gold and silver values, and gossan. It is possible that hidden beneath the overburden and below the gossan are economic ore shoots of some or all of these metals.

Stripping, trenching and small test pits on the Queensland property wherever the few outcrops showed rust, gossan, or mineralization, expose disseminated pyrite, pyrrhotite, occasional molybdenite, and a fair amount of sphalerite. Copper and gold assays are low from these showings. However, the interesting point is that in each case, the showings are on the edge of overburdened areas, where the geophysical surveys (reported on separately) show anomalies. It is reasonable to believe that possible ore shoots, principally zinc-copper-gold-silver, occur in these low-lying anomalous areas adjacent to disseminated mineralization. They could only be proven by diamond drilling. This expectation of ore shoots is partly justified by the known mineralized showings ENE. and WSW. of the Queensland property. One of these, WSW. of Queensland, is reported by a usually reliable authority to assay 2.5% Cu and 2.5 oz. Ag from grab samples across 4 ft. The writer has not yet had time to find this showing. It is supposed to be near the north boundary of claim No. KRL. 45059 on the 'Hayes' property.

REFERENCES:

Although the immediate area in question has never been mapped by government geologists, the following geological maps come close to this property:-

Ont. Dept. of Mines Geol. Map No. 35e, "Red Lake Gold Area" 1926.

Ont. Dept. of Mines Geol. Map No. 36e, "Woman to Narrow Lakes Gold Area", 1927.

Ont. Dept. of Mines Annual Report, 1927, part 3, "Woman and Narrow Lakes Area" by J.W. Craig.

Ont. Dept. of Lands and Forests Air Photos Nos.:-
 51-5044-26-236
 51-5044-26-238
 51-5045-28-95
 51-5045-28-97

Ont. Dept. of Mines claim whiteprint, "Fredart Lake Area", No. M.2415.

Topographical Map No. 52K, "Lac Seul" sheet.

CONCLUSIONS:

1. Queensland Explorations Limited holds a 24-claim mining property in the Gerry lake area on the Uchi Road, some 37 miles east of Red Lake, Ontario.
2. This immediate area has never been geologically mapped by government surveys, but it straddles a regional zone of Keewatin lavas, sediments, and intrusives between the Bruce Lake iron deposits and the Jackson-Manion and Uchi gold mines area.
3. The Queensland property has sparse outcrops, but nevertheless these show a "basic horizon" about half a mile wide containing disseminated mineralization of pyrite, pyrrhotite, sphalerite, chalcopyrite, molybdenite, and magnetite, with traces to low values in gold and silver.
4. Reports and maps on geophysical surveys performed concurrently with this geological mapping will show strong anomalies in the vicinity of the above-mentioned outcrops where the bed-rock is covered with overburden.
5. On either side of the Queensland property on strike are showings of chalcopyrite and molybdenite with gold and silver values, also zinc and pyrrhotite.

RECOMMENDATIONS:

It is recommended by the writer that:-

1. Subject to the exact spotting of the holes by the geophysical

surveys presently being interpreted, that a minimum of 2000 feet of diamond drilling be performed to seek ore shoots on the favourable portions of this Queensland Explorations Limited property.

All of which is respectfully submitted.

HOPKINS MINING CONSULTANTS LIMITED,

Albert Hopkins.
Albert Hopkins,
Consulting Mining Engineer.

Toronto, Canada,
25 September, 1959.

