

MAUDE LAKE GOLD MINES LIMITED

EXPLORATION REPORT

SALVE CLAIM GROUP - GROUP OF 14

BEATTY TOWNSHIP

R.A. Bennett, MSc., PEng. August 20, 1984.





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MAUDE LAKE GOLD MINES LIMITED

EXPLORATION REPORT - SALVE "GROUP OF 14" CLAIMS

INTRODUCTION

As part of an on-going gold exploration program in Beatty Township, Maude Lake Gold Mines Limited completed geological mapping, magnetometer, two electromagnetic and radiometric surveys over a block of 14 claims. These claims have been called the SALVE "GROUP OF 14" and form the southern-most portions of Maude Lake's "SALVE LAKE GROUP". The Salve Lake Group consists of 116 staked mining claims that are centered around Salve Lake, in central and eastern Beatty Township.

This report describes the results of the exploration work completed on the "Group of 14" claims only.

PROPERTY, LOCATION, ACCESS

The claims under consideration in this report consist of fourteen (14) staked mining claims numbered:

- L. 714769
- L. 714770
- L. 714771
- ш. / 1 1///
- L. 772550
- L. 772551
- L. 772552
- L. 772553 L. 772554
- L. 772557
- L. 772558
- L. 772559
- L. 772560
- L. 772569
- L. 737478

That are held by Maude Lake Gold Mines Limited, 300 Elm Street West,

Sudbury, Ontario, P3C IV4.

The claims are located in central Beatty Township, Larder Lake Mining Division (NTS: 42A 9W), approximately seven (7) miles northeast of the Town of Matheson, Ontario. The claims lie about one-half mile south of Salve Lake. Access to the claims is by Highway # 101 east from Matheson to the Beatty-Carr Township Boundary Road and then north along all-weather gravel roads to within one-quarter (1/4) mile of the western boundary of the claims. An old farm track leads to post 4 of claim L. 772568. The baseline and an old bush trail has been cut and blazed to the eastern edge of the group.

A property and general location Claim Map is provided overleaf, Figure # 1.

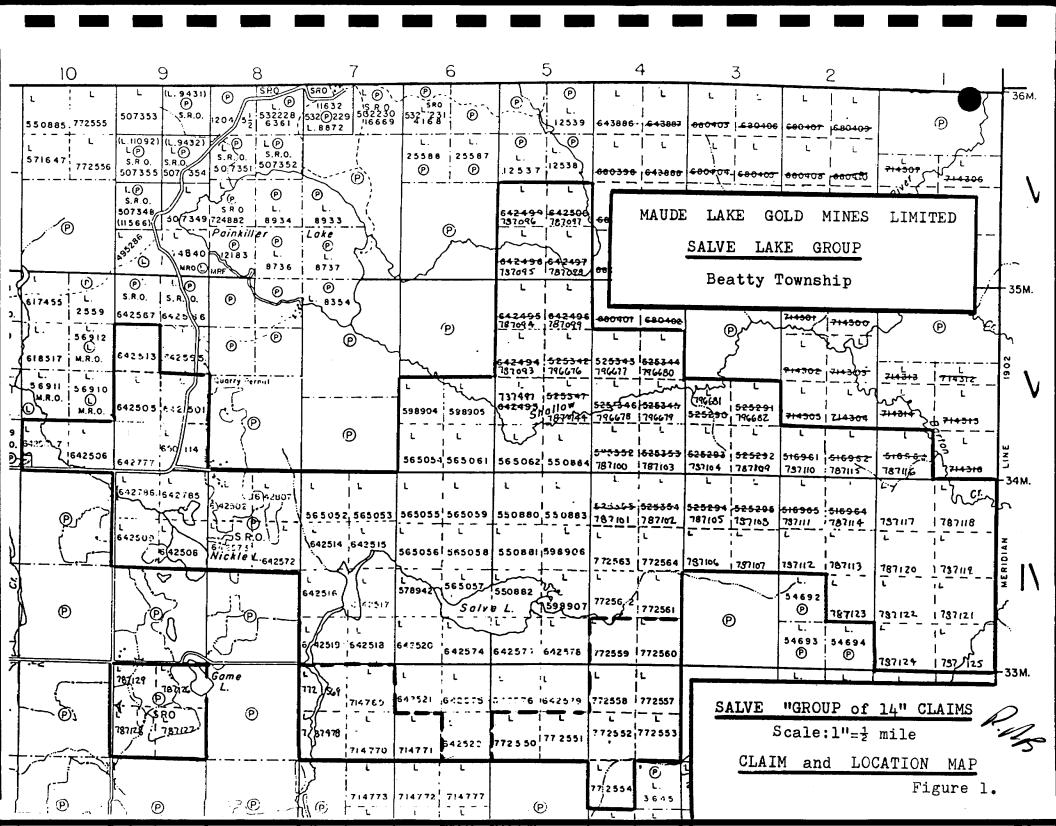
HISTORY

The earliest work in the area was a regional mapping survey of the Beatty-Munro Township area in 1914 by Hopkins and Greenland (OBM Volume XXIV, 1915, part 1). Beatty Township was later mapped by Satterly and Armstrong in 1947 (ODM Volume LVI, part 7).

The Salve "Group of 14" claims have seen only minor exploration by past workers. In 1939, Cominco Limited completed a geophysical survey over part of the group and drilled one 290 foot borehole located approximately near the central-western boundary of current claim L. 772552. The hole intersected rhyolite containing quartz stringers with pyrite and low grade gold values.

In 1945, Clodan Gold Mines Limited held 45 claims around Salve Lake. They drilled seven short X-ray holes in the outcrop area south of Salve Lake which are reported to have intersected mafic and felsic volcanics and pyroclastics cut by minor quartz veins containing gold values. The exact location of the holes is not known, but some old core boxes and oil drums were found near the northeastern corner of claim L. 642576.

In 1979, Gulf Minerals Limited held 40 claims south and west of Salve Lake. They drilled a north-bearing fence of three diamond drill holes totalling



3409 feet just east of the eastern boundary of L. 714771. The holes intersected mafic and felsic volcanics and minor graphite. The few samples assayed failed to return significant gold values. All the Gulf core is stored at the OGS Core Farm located in Swastika.

During 1982 and 1983, Maude Lake Gold Mines Limited completed magnetic, electromagnetic, and radiometric surveys over the claims immediately north of the group. In the Spring of 1984, Maude Lake mapped these claims as well.

No other work is recorded in the assessment files for the "Group of 14" claims, although several pits and trenches were seen and noted during the course of the exploration work.

GENERAL GEOLOGY

The general geology of the Beatty Township area is described by J. Satterly and H.S. Armstrong in ODM Volume LVI, Part VII, 1947 - Geology of Beatty Township. Immature, Precambrian sediments underlie a mafic and felsic volcanic pile. Both units face north and the contact is interpreted to be marked by a major strike fault. Four types of intrusive rocks occur in the area and include, from oldest to youngest, mafic to ultramafic sill-like and irregular masses, quartz and/or feldspar porphyry dykes, Matachewantype diabase dykes, and Keweenawan olivine-bearing diabase dykes.

Gold mineralization in the immediate area is known to occur in simple to complex, cross-cutting fractures and stockworks, and in mineralized dykes associated with sericite and carbonate alteration.

EXPLORATION WORK

GRIDDING

A grid of picket lines totalling 10.5 miles and 1.9 miles of baseline was cut over the claims during April and May 1984 by Maude Lake personnel. Most of the baseline was cut in 1982 and only had to be cleaned-out.

The baseline strikes due east-west and approximates the boundary between Concession III and IV. The picket lines are perpendicular to the baseline and spaced at 400 foot intervals. Pickets were chained and set every 100 feet along all the cut lines.

Base stations were established along the baseline at 21+00W, 16+00W, and 52+00E for geophysical survey tie-in purposes.

GEOLOGICAL SURVEY

Geological and topographical mapping of the claims was completed during June 1984. The grid lines were used for control but in outcrop areas, many pace and compass traverses were made in-between as well. Representative rock specimens were collected from the bedrock exposures and closely examined with the aid of a binocular microscope.

RESULTS

Bedrock exposures are limited only to the eastern half of the claim group and represent approximately 5 percent of the surface area. Bedrock occurs as isolated but well-exposed outcrop areas.

The claims are underlain by interfingering mafic and felsic volcanics that strike in a west-northwesterly direction. Dips are near vertical to steeply south, suggesting the pile may be slightly overturned. Two major northeast trending linears cross-cut the volcanics and disrupt the stratigraphy. Minor northwesterly faults and northeasterly shearing are also present. The strike-fault contact between the sediments and the volcanics lies to the south of the claim group.

A geological plan, Map # SG-001 (in back pocket) illustrates the bedrock exposures, the overburden conditions, past drill collar locations and other cultural effects, and the interpreted geology.

Unit 1 - Mafic Volcanics

The mafic volcanics are basaltic in composition (likely iron-tholeiites), very fine to medium grained, green to dark green in colour, usually quite massive and unaltered. The basalts occur as massive, featureless flows and as well pillowed units. Where the pillows are well exposed and

close-packed, top direction appears to be to the north. A few flow top breccias were seen but could not be traced due to the limited or poor exposure. Only a few quartz veins were seen within the basalts (claims L. 772550 and L. 772551). The veins consist of white to locally grey quartz with lesser carbonate, strike due east-west, and are locally cut by a series of fine en-echelon quartz veinlets that strike at 35 degrees azimuth. A few white quartz and cherty black quartz 'sweats' were noted in the pillowed flows. Apart from minor zones of iron oxidation, usually within the inter-pillow material, no significant sulphides or zones of alteration were seen.

Unit 2 - Felsic Volcanics

The felsic volcanics inter-finger with the basaltic lavas and consist of rhyolitic to quartz-eye dacitic flows and volcaniclastics. Recent whole-rock analyses by the OGS suggest these felsics have a tholeitic affinity (R. Johnston, personal communication). Only one contact between the felsics and mafics was seen during the course of the mapping; at 52+40E, 12+00S. Here the contact is very sharp, strikes northeasterly, and shows only very minor alteration.

The rhyolite flows are usually grey in colour and weather an ash-white colour. They are fine to medium grained, contain distinct quartz and plagioclase crystals, are quite fractured, show sericitic alteration (Unit 2b) and are cut by numerous quartz veins and 'sweats'. Minor, deformed flow banding was noted in a few outcrops. Shearing typically occurs in a northeasterly direction. A northwest trending fault was seen in the central part of claim L. 772557. Here the rhyolites show strong sericite alteration, considerable iron oxidation, and numerous secondary shears at 20 degrees azimuth. Several milky-white quartz veins are also present and strike at 80 to 90 degrees and dip northerly at 40 to 45 degrees. A few old pits and trenches by past explorers tested several quartz veins and alteration zones with minor disseminated and bleb pyrite mineralization.

A distinct felsic fragmental was seen in L. 772558. Angular, lithic clasts of grey, cherty rhyolite occur in a quartz-eye and euhedral feldspar-rich crystal tuff matrix. The matrix is grey to locally pale green in colour and contains minor disseminated pyrite.

Unit 3 - Diabase

A north-striking Matrachewan diabase dyke is interpreted to cut the volcanic pile near the eastern boundary of L. 772550. A massive, fine to medium grained dyke was found in outcrop at 42+00E, 5+00S to the north of the group. A similar, but larger diabase dyke is interpreted from the magnetometer survey to parallel Line 24E.

MAGNETOMETER SURVEY

A magnetometer survey was completed over the claims in June 1984. A Sharpe Instruments MF-1 Fluxgate Magnetometer was used and readings were taken every 100 feet along all the cut grid lines for a total of 578 readings. Daily magnetic readings were tied to the base stations and corrected for diurnal drift. In addition, secondary base stations along the baseline at crossline intersections were re-read as each loop was completed. All the readings were also corrected to correlate with the results of earlier magnetic surveys to the north.

A summary of the MF-1 specifications and operation procedures is appended.

RESULTS

The results of the magnetometer survey are plotted on Map * SM-002 (in back pocket). Diurnal variations were a maximum of 360 gammas for any given day and 540 gammas for the entire survey. This caused considerable problems in bringing the data to a common base and several of the lines had to be re-read. Some of the magnetic data collected during earlier surveys on the claims between and north of the "Group of 14" are also shown for continuity purposes.

The background magnetic suscepibilities for the group fall between 750 and 850 gammas. The general trend of the magnetic data is west-northwesterly and approximates the known strike of the volcanic stratigraphy. The magnetic high in L. 772552 and L. 772553 closely parallels the interpreted upper contact of a basaltic pillow lava. Perhaps

this feature is caused by a pyrrhotite-rich flow top breccia (?). The other sharp magnetic high in eastern L. 772557 may be caused by the western extension of the peridotite body that is found in outcrop about three-quarters of a mile to the east-southeast (ODM Map # 1947-2).

Two north-trending magnetic highs parallel Lines 24+00E and 32+00E and are likely caused by diabase dykes. The sharp magnetic low in northwestern L. 772551 occurs in a rhyolite outcrop area. The broad, rather flat magnetic susceptiblities present in the western five claims likely reflect more the overburden depth than the underlying bedrock.

ELECTROM AGNETIC SURVEYS

Two electromagnetic surveys were completed over the claim group during June 1984. A Phoenix VLF-2 EM Unit was used and readings were taken every 100 feet along all the grid lines. At each station, the dip angle, phase angle and field strength were measured. The first station used was that at Cutler, Maine (24.0 KHz) to test for easterly striking structures and/or conductive zones that might parallel the volcanic stratigraphy. The second station used was that at Annapolis, Maryland (21.8 KHz) to test for crosscutting structures and/or conductive zones. All dip angle readings are plotted at 1 inch = 40 degrees. The field strength readings were tie to the base stations on a regular basis since the signal strength, especially for the Annapolis station showed considerable variance during the course of the survey.

A summary of the Phoenix VLF-2 EM Units specifications is appended (Appendix 2).

RESULTS

The results of the electromagnetic surveys are plotted on two maps:

Map # SV-003 - Cutler, Maine

Map # SV-004 - Annapolis, Maryland

in the back pocket. For each survey, 578 stations were read.

Map SV-003

Some of the cross-over anomalies of an earlier survey (1983) on the claims to the north are also shown on Map SV-003 for continuity and comparative purposes.

Several good cross-over anomalies were found using the Cutler. Maine (24.0 KHz) station. Anomalies A, B, C, D, and E all have high field strengths and appear bonafide. Anomaly A parallels an interpreted contact between mafic and felsic volcanics. It may be due to a shear or sulphide-rich flow Anomaly B appears to be an eastern extension of Anomaly "Q" located during an earlier survey in 1983. This anomaly is interpreted to be caused by the sulphide-graphite interflow horizon reported in the Clodan diamond drilling results in 1945. Anomaly C is directly associated with the high mag trend and likely is caused by a sulphide zone. The cross-over at 80+00E, 16+00S may be associated with this zone as well(?). Anomalies D and E, for the most part occur near the contact between the mafic and felsic volcanics. These anomalies could be the result of a sulphide-rich flow top or shearing along the contact. The isolated crossovers at 64+00E on the baseline and at 68+00E, 2+00N also have high field strengths, but no obvious explanation can be described. The remaining cross-overs at 16+00W, 7+00S and 18+00S, and at 4+00W. 18+00S all have low field strengths and fall in areas of suspected deep clay deposits. These anomalies are likely caused by overburden effects.

Map SV-004

Several cross-over anomalies were found using the Annapolis, Maryland station (21.8 KHz). The most significant is the three line anomaly in claim L.772557 which has higher than background field strengths and falls directly on a known shear zone found in outcrop at 76+00E, 4+00S. Should gold mineralization be returned from the outcrop samples (submitted for assay) associated with this structure, the anomaly could represent an important target for follow-up exploration. The cross-over anomaly at 48+00E, 13+00S also has higher than background field strength. This anomaly falls along the interpreted northeasterly fault structure and appears bonafide.

The remaining cross-overs are isolated and all have low field strengths. The cross-overs at 16+00W, 1+50S, and 4+00W, 8+50S fall in thick clay areas and are likely caused by overburden effects. The cross-over at

56+00E, 17+00S likely has similar causes. The two anomalies at 48+00E, 20+00S and 60+00E, 8+00S both occur in overburden areas but close to outcrop. These cross-overs are probably the result of overburden-bedrock contrasts.

RADIOMETRIC SURVEY

A radiometric survey was completed over the claim group in June 1984 to assist the geological interpretation and test for potassium-rich felsic intrusions and/or alteration zones that can be associated with gold mineralization events. A McPhar TV-IA Radiation Spectrometer was used and total field readings were taken every 100 feet along all the grid lines. In all, 578 stations were read. The readings were tied to the base stations and corrected for diurnal drift using the time-linear method. The readings were also adjusted to correlate with those of an earlier survey completed in 1983. The general topography and outcrop areas were also charted.

A summary of the TV-IA's specifications is appended, Appendix 3.

RESULTS

The results of the radiometric survey are plotted on Map * SR-005, in back pocket. The total field readings ranged from 1 to 20 counts per minute for the entire survey area. The readings can be grouped into distinct populations based on the rock types in outcrop areas and the overburden conditions elsewhere. The lowest readings (1 to 5 cpm) always occur in wet, swampy areas. This is best exemplified in claims L. 772559 and L. 772560 which are mostly covered by wet spruce swamp. In the clay covered areas forested by Poplar, the readings range from 8 to 18 cpm; with the higher readings in the areas of thicker clay (reflecting the potassium levels in the clays).

The basalt outcrops returned total count readings averaging between 6 and 12 cpm. The felsic lavas typically gave values between 10 and 18 cpm. This reflects the higher concentrations of K-spar in the felsics. The highest readings (19 to 20 cpm) occur directly on the highly sericitized rhyolitic outcrops in claim L. 772557. This highly altered and quartz-veinned area is suspected to carry gold values (Clodan work). High total count readings are also seen along strike on lines 68E at 1S and 80E at 6S.

These areas may represent extensions of the highly sericitized lavas under shallow overburden.

CONCLUSIONS AND RECOMMENDATIONS

Preliminary exploration work was completed over Maude Lake Gold Mines' Salve "Group of 14" Claims in central Beatty Township which consisted of geological mapping, magnetometer, two electromagnetic, and radiometric surveys. The work has not only better defined the geological understanding of the area, but also outlined specific geological and geophysical targets that warrent follow-up exploration.

The claims are underlain by a steeply dipping, west-northwest striking pile of interfingering mafic and felsic volcanics. Graphitic and/or sulphiderich horizons are known to contain gold mineralization. Large areas of strong sericite alteration with numerous quartz veins and recognizable cross-cutting structures may also have economic potential and warrent follow-up work. Specific geophysical targets include co-incident magnetic and electromagnetic anomalies, conformable and cross-cutting conductive zones, and a potassium-rich alteration zone within the felsic volcanics. All these targets will be considered for more detailed investigations.

R. A. BENNET T

RAB Matheson, Ontario

R.A. Bennett, MSc., PEng. August 20, 1984.

attachments: 3 Appendices

In Pocket: Maps # SC-001, SM-002, SV-003, SV-004, SR-005 (1"=400")

REFENCES

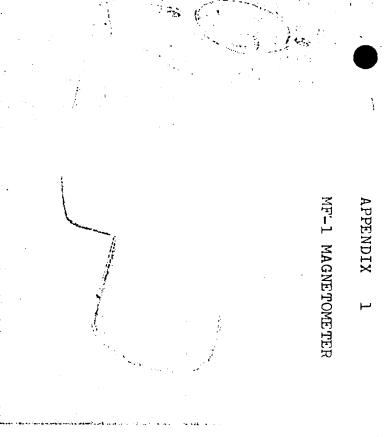
- Assessment Files, Office of the Resident Geologist, Kirkland Lake. Clodan Gold Mines file Gulf Minerals file
- 2. Maude Lake Gold Mines Limited 1982 and 1983 -company reports.
- 3. Satterly J. and Armstrong H. 1947 Geology of Beatty Township (ODM Volume LVI, Part VII and Map No. 1947-2).

MP-1 FLUXGATE MAGNETOMETER



A first order fluxgate type vertical component magnetometer. Advanced transistorized circuitry and extensive temperature compensation is the core of its accuracy comparable to precision tripod mounted Schmidt type magnetometers.

it is a hand held instrument and needs only coarse levelling and no orientation. Features such as direct reading of gamma values and the possibility of accurate zero setting at base stations ensure simplicity of operation and higher field economy.



The Model MF-1 Fluxgate Magnetometer is designed for accurate ground surveys in the mining industry as well as a basic component for air surveying by small aircraft. Technical data and comparison charts available on request.

S P E C I F I C A T I O N S

MAXIMUM SERSITIVITY:

READABILITY:

RANGES: (FULL SCALE)

20 gammas (per scale division) on 1000 gamma range.

5 gammas (¼ scale division on 1000 gamma range.

1,000 gaininas

3,000 gammas

10,000 gammas

30,000 gammas

100,000 gammas

MAXIMUM RANGE:

LATITUDE ADJUSTMENT RANGES:

100,000 gammas

10,000 to 75,000 gammas, Northern hamisphere

convertible to:

7" x 4" x 16"

10,000 to 75,000 gammas, Southern bandsphere

or = 30,000 gammas equatorial.

DIMENSIONS: (INCLUDING BATTERY CASE)

WEIGHT: UNCLUDING BATTERY CASED

BATTERIES:

9 lbs.

12 Flashlight Batteries ("C" cell).

DESCRIPTION OF PLUXGATE MAGNETOMETER MODEL MP-

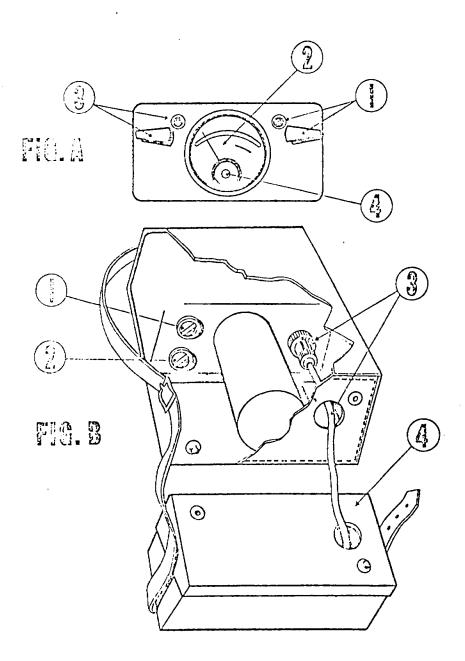


FIGURE A

- 1 RANGE SWITCH indicating gamma values in ranges of 100 K, 30 K, 10 K, 3000, 1000.
- 2 METER SCALE upper scale indicating 0-1000 (50 divisions)
 - lower scale indicating 0-3009 (60 divisions)
 red arc for battery check
- 3 MAIN SWITCH showing the following steps:

 OFF
 Battery check
 -|-
- 4 CIRCULAR for rough levelling the instrument LEVEL

FIGURE B

- 1 LATITUDE in steps
 ADJUSTMENT
 SWITCH
- 2 LATITUDE fine ADJUSTMENT
- 3 BATTERY CABLE AND CONNECTOR
- 4 BATTERY PACK For transportation attachable to instrument



E. J. SHARPE INSTRUMENTS OF CANADA LTD.

P.O. Box 279, Willowdale, Ontario

MODEL MF-1 FLUXGATE MAGNETOMETER

Operation of the Meter

- Remove all magnetic objects from operator's person, e.g. keys, coins, buttons, etc. Zippers should be non-magnetic.
- 2.) Connect Battery Cable, Figure 6, to magnetometer receptacle on bottom of main housing. This connection must be secured by lock-ring.
- 3.5 Attack battery pack (Fig. 5) either in back pocket or on belt behind operator.
- 4.) Switch on Main Switch (Fig. 3) to first position, which is the battery check. Indicating meter needle should rest within red arc. Replace batteries if reading below red arc.
- Signatitude Adjustment-To adjust the latitude setting to read 0 gammas is a simple operation.
 - a. After indicating meter needle (fig.2) shows voltage okay, switch Main Switch (Fig.3) is next position which is the positive reading with the Range Switch (Fig. 1) set at the 100K step. (100,000 gamma range)
 - 3. If needle goes full arc to left past 0, switch main switch (Fig. 3) to last position which is the negative reading range.
 - c. Figures 10 and 9 indicate the latitude adjustment controls Coarse control is Fig. 10 and Fine control is Fig. 9. If scale reading is more than ± 7,000 gammas rotate coarse control (Fig. 10) in steps of 7,000 and switch range down to more sensitive range until scale is reading less than ± 7,000 gammas. Remove protection cap on time control (Fig. 8) by pulling straight off. Then rotate fine control switch (Fig. 9) until scale reading is 0 gammas. Check reading by switching main switch from positive to negative (or vice versa) to ensure 0 reading both polarities. Replace fine control protection cap.
- 6.) Calibration This meter is calibrated at the factory prior to delivery. Field tests show that only by severe misuse (i.e. constant dropping, rough handling, improper shipping) can the calibration of this instrument be effected. It is therefore not necessary to recalibrate in the field and if through misuse calibration becomes necessary, the meter should be returned to the factory. *All parts are guaranteed against defect for a period of one year and will be replaced free of charge.
 - * This guarantee does not apply to batteries or the connecting cable.
- 7.) Trouble Shooting Under normal conditions the only field problem will be batteries or the connecting cable. If after completion of step (4) under "Operation of the Meter" the meter still does not indicate voltage, check cable for faulty connection or broken cable. If after this procedure, meter still does not indicate current, return unit immediately to your supplier or directly to the factory.

Regional Latitude Settings

Normally each unit is pre-set at the factory for the Northern Hemisphere. However, if the unit is required for Equatorial or Southern Hemispheric regions, the unit will be pre-set at the actory for these areas. If a unit is going from one of the above regions to another, restrictions will be supplied on request.

Ficia Procedure

- 1.) Select Base Control station. This station should be selected in relation to one or ...th of two things.
 - .. General magnetic background (i.e. not anomalous) if possible.
 - Accessibility in relation to area being surveyed.
- 2.) Set magnetometer to read between 0 and 200 gammas. (For contouring and to avoid small negative readings, an arbitrary value of 1000-800 gammas should be added to all readings.
- 3.) For effective diurnal control, control stations should be permanently marked and readings should be taken at the same height and location each time; a simple method is to the control stations' pickets hammered into the ground with the top about waist wight. Rest the probe end of the magnetometer on the top of the picket. In barren country, a mound or large piece of rock or some other material should be used.
- 4. Continue survey the same as any other method of magnetic surveying.
- 5.) Remove and replace Silica-Gel (Fig.7) when deteriorated. The silica gel is located in the removable probe housing.
- The Silica bag should not be placed on the bottom of the probe housing.
- c not pass powerful magnet closer than I foot to instrument.
- 7 Juring winter operation, batteries should be kept in pocket or under parka.

- Lightweight, low battery drain, rugged, simple to operate
- Two independent channels
- Each channel may select any station between 14.0 and 29.9 kHz
- Single crystal used for all frequencies
- Locking clinometer provides tilt-angle memory
- Superheterodyne detection and digital filtering provide extremely high selectivity and noise rejection





Military and time standard VLF transmitters are distributed over the world. These stations are used for geophysical EM surveying thus eliminating the need for a local transmitter and permitting one-man operation.

To ensure that a station excites the prospective conductor, two stations at approximately right angles are used during a survey (see data on back).

The choice of 160 frequencies in the range 14.0 to 29.9 kHz permits the use of a local EM transmitter when no suitable regular VLF station is available.



PHOENIX GEOPHYSICS LIMITED

Geophysical Consulting and Contracting, Instrument Manufacture, Sale and Lease.

Head Office: 200 Yorkland Blvd. Willowdale, Ont., Canada M2J 1R5, Tel: (416) 493-6350 310 - 885 Dunsmuir St. Vancouver, B.C., Canada V6C 1N5, Tel: (604) 684-2285 4690 Ironton St. Denver, Colorado, U.S.A. 80239, Tel: (303) 373-0332

Specifications

Paramet_i Measured

Orientation and magnitude of the major and minor axes of the ellipse of polarization.

Frequency Selection, Front Panel:

Dual channel, front panel selectable (F1 or F2) each with independent precision 10-turn dial gain control.

Frequency Selection, Internal

F1 and F2 can be selected by internal switches within the range 14.0 to 29.9 kHz in 100 Hz increments.

Detection And Filtering

Superheterodyne detection and digital filtering provide a much narrower bandwidth and thus greater rejection of interfering stations and 60 cycle noise than conventional receivers.

Meter Display

2 ranges: 0 to 300 or 0 to 1000. Background is typically set at 100. Meter is also used as dip angle null indicator and battery test.

Clinometer

Audio

 $\pm 90^{\circ}$, $\pm 0.5^{\circ}$ resolution. Normal locking, push button release.

Crystal speaker. 2500 Hz used as null indicator.

Battery

One standard 9v transistor radio battery. Average life expectancy - 1 to 3 months (battery drain is 3 mA)

Temperature Range

 -40° to $+60^{\circ}$ C.

Dimensions

 $8 \times 22 \times 14$ cm $(3 \times 9 \times 6$ inches).

Weight

850 grams (1.9 pounds).

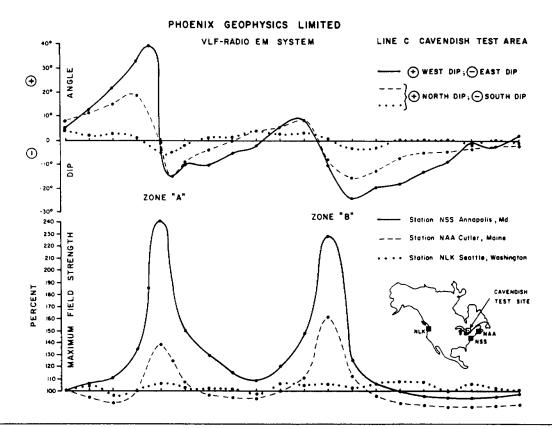
All of the established stations may be selected, or alternatively, a local VLF transmitter may be used which transmits at any frequency in the range 14.0 to 29.9 kHz.

VLF Station	Frequency (kHz)
Bordeaux, France	15.1
Odessa (Black Sea)	15.6
Rugby, U.K.	16.0
Moscow, U.S.S.R.	17.1
Yosamai, Japan	17.4
Hegaland, Norway	17.6
Cutler, Maine	17.8
Seattle, Washington	18.6
Malabar, Java	19.0
Oxford, U.K.	19.6
Paris, France	20.7
Annapolis, Maryland	21.4
Northwest Cape, Aust	ralia 22.3
Laulualei, Hawaii	23.4
Buenos Aires, Argenti	na 23.6
Rome, Italy	27.2

Field Data

The results below illustrate the need for using two orthogonal stations when the strike of the prospective conductor is not well-known. The dip angle and amplitude data measured using station NLK in Seattle, Washington, show only a very weak anomaly associated with the two conductive sulphide zones at Cavendish, Ontario.

The results obtained using Cutler, Maine reveal a more prominent anomaly, but the best response was obtained using Annapolis, Maryland since the station lies almost due south and the transmitted electromagnetic field is thus maximum-coupled with the North-South trending conductors.





TV-1A Radiation Spectrometer

A 3-channel instrument for reconnaisance use

Both meter and audio reading
Four count scales
Trigger on-off switch
Functional pistol design
Lightweight



Model TV-1A is a three channel, integral type radiation spectrometer. Measurements are based on the spectral characteristics of gamma radiation from radioactive elements. Selection of the operating threshold is made by means of the threshold selector switch.

The instrument is designed primarily for reconnaissance. The total count position provides for maximum sensitivity. Additional thresholds however, provide the

capability to differentiate between gamma radiations emanating from daughter elements of uranium and thorium and provide quantitative information relating to each.

The meter is calibrated to display zero to 100 counts per minute. A four position scale multiplier switch provides four full scale ranges of 100, 1,000, 10,000 and 100,000 counts per minute. A fifth position on this switch is employed to

test the condition of the batteries.

The variable time constants are tied in with the threshold selector switch. In the total count (maximum sensitivity) position, a fast or slow time constant may be selected. In the upper thresholds (lower net count), the long time constant only, is in effect.

The detecting element is a 1½ by 1½ inch sodium iodide crystal coupled to a photomultiplier tube. These are hermet-

Field use is convenient with leather holster

ically sealed, magnetically shielded and mounted in the forward end of the scintillometer housing.

A speaker provides a variable pitch

output with changing radiation levels. A speaker control, mounted on the top of the instrument, can be used to adjust the pitch for any given level of radiation.

TV-1A spectrometer comes complete with a leather holster, thorium calibrating source and a foam fitted attache case.





Specifications

Measurement Ranges: Four switch positions provide full scale counts per minute of 100, 1,000, 10,000 and 100,000.

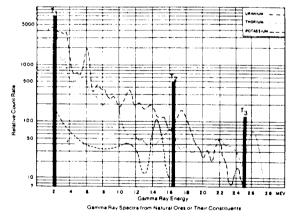
Time Constant: Threshold T₁: 1 and 10 seconds. Thresholds T₂ and T₃: 10 seconds.

Speaker: Variable pitch output governed by radiation intensity.

Temperature Range: -35 degrees to +55 degrees C.

Detector Crystal: Nal (T) 1% ' \times 1%'' (43 cu. cm.) and matched photomultiplier hermetically sealed.

Battery Supply: Two "C" size flashlight cells located in handle. On-off control by either trigger or slide switch.



Voltage Regulation: Internally generated high and low voltages are highly regulated down to ½ initial battery voltage.

Accessories: Leather belt holster,

thorium calibrating source, spare batteries, instruction manual, foam fitted attache case.

Weight: 3 pounds.

McPhar Instrument Corporation

Head Office:

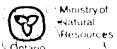
55 Tempo Avenue Willowdale, Ontario, Canada M2H 2R9 Tel: (416) 497-1700 Telex: 0623541

Cable: McPHAR TOR

Sales agents in:

Africa, Asia, Australia, Europe, North & South America

Contact McPhar Instrument Corp. head office for the agent in your area.



Report of Work (Geophysical, Geolog Geochemical and Exp



mining claims traversed n this form, attach a list. edits calculated in the section may be entered id. Days Cr." columns.

Type of purvey(s)	4-4-25-	42A09SW00	72 2.7107 BE	ATTY		900	ed areas belo	ow.
GEOLOGI	CAL and (SEO	PHYSIC	CAL	B	EATT	Y TW	P
MAUDE L	AKE GOL	D 1	MINES	LIMIT	ED	Prospector 7	's Licence No.	
300 ELM								
Survey Company				Date of Survey	(from & to)	Total Miles of line	e Cut
Name and Address of Author Is	TT, Consu	LTING	GEOL.	04 04 Day Mo.	84 20 Day	06 84 Mo. Vr.	12.7	
R.A.BENNET	T, RL#4	SITE	37,Box	1. SUDB	URY.	ONT	P3E 4N	14
Credits Requested per Each				aims Traversed (<i></i>
Special Provisions	Geophysical	Days per Claim		ining Claim Number	Expend. Days Cr.		ning Claim Number	Expens Days C
For first survey: Enter 40 days, (This	File: tromagnetic	20	L	714769		1.0.12	Admite	154,3 6
includes line cutting)	. Magnetometer	20		714770				
For each addit onal survey.	- Radiometric	20		714771	İ		7	
using the same grid:	2nd Sung (ULF)	20		772550				
Enter 20 days (for each)	Geological	40		772551	1			
	Geochernical			772552				
Man Days	Geophysical	Days per Claim				 	And the second of the second o	-
Complete reverse side	Ele: tromagnetic	, Ciaiiii		772553				
and enter total(s) here	Magnetonieter		-	772559				
	- Bacconetric			772557				
	Other		:	772558				
	Geolog⊬cal			772559				-
	Geochemical			772560	-			
Airtiorne Credits	S. C. IX. III. Call	Days per		772569				
Note: Special provisions	Electronagnetic	Claim	į	737478		i .		
credits do not apply	Magnetorneter						5 - 1 2 4 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
to Airborne Surveys.	Radiometric	: -						
Expenditures (excludes powe		İ			LAR	DER LA	k E	ļ
Type of Work Performed								
Performed on Clarm(s)						IN 2 1 198		
					hm		PM	
				<u> </u>	1819110	11/12/1/2/3	41516	
Cases ation of Expenditure Days		otal						
Total Expend tures		Credits						
\$	<u> </u>					Total numb	er of mining red by this	14
Instructions Total Day s Credits may be ap	portioned at the claim h	older's		- 000 11 0		report of w	ork.	14
choice. Enter number of days credits per claim selected in columns at right. For Office Use Only Total Days Cr. Date Recorded Mining Recorder								
Pate / Becorded /Suprature) Recorded /Suprature) Pate Approved as Recorded Branch Director								
JUNE 21/84 Recold de Mold of Agent 15 ignature) Date Approved as Recorded Branch Director 1 Sel Klused Statement								
Pertification Verifying Report of Work								
I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true. Name and Postal Address of person Certifying								
RUBERT A. BENNETT, PENG. Re#4, SITE 37, BUXI								
RUBERT A. BENNETT, PENG. Rl#4, SITE 37, BUXI SUDBURY, ONTARIO PSE 4 M9 Date Certified JUNE 21/89 Certified JUNE 21/89								
962 N 9.								

SUDBURY, ONTHRID PSE4M9

OFFICE USE ONLY



Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

The form () Cools	av Non UID IN	N. M. E. J.M. Lingson, h. e.
		M, VLF-EM, Radiometric
Township or Area <u>Beat</u>	-	MINING CLAIMS TRAVERSED
Claim Holder(s) LAUDI I.		
	St W., Sudbury,	
Survey Company A.A.B.		(
Author of Report R.A.	•	714770
Address of Author All.		מזי ממי
Covering Dates of SurveyA	pr. 4 to June 20 (linecutting to office	0; 1904 fice)
Total Miles of Line Cut		772550
grammer tradición de la violación de la compania del compania de la compania de la compania del compania de la compania del la compania del la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania de la compania del la compania	and the control of th	772551
SPECIAL PROVISIONS CREDITS REQUESTED		DAYS 772552
	GeophysicalElectromag	1 1 7/7556
ENTER 40 days (include	es —Magnetome	
line cutting) for first survey.	–Radiometri	ric 20
ENTER 20 days for each	TTT IT	((622)
additional survey using	Geological	772558
same grid.	Geochemical	
AIRBORNE CREDITS (Spe		1.1.5.200
MagnetometerElec	tromagnetic Ra	772569
DATE: Aug 20,1984	SIGNATURE: Author	or of Report or Agent 737478
	_Qualifications	
Previous Surveys File No. Type I	Date Claim	n Holder
		TOTAL CLAIMS 14

GEOPHYSICAL TECHNICAL DATA

THE RESERVE OF STATE
Number of Stations	Number of Readings578
Station interval 100 ft	Line spacing400_ft
Profile scale 1 inch = 40 degrees	
Contour interval 100 gammas	
Diurnal correction methodTime = Lines Base Station check-in interval (hours) 8 hou Base Station location and value 16+00%, 0-	ar ars (Main BS); 4hours (Sub-BS) +00 Baseline; 52+00%, 0+00 Baseline(Sub-BS)
Instrument FHCFN1X VLE-2 FF. Unit	
Coil configuration	
Accuracy	
Method: Marked transmitter Frequency Survey 1 = Cutler, Ma (2)	☐ Shoot back ☐ In line ☐ Parallel line 4.0 KHz);Survey 2 = Annapolis, My(21.8 KHz) (specify V.L.F. station)
Parameters measured <u>Dip</u> angle, Phas Instrument	(Specie) (Tant Carriery)
Instrument	
Method [] Time Domain	☐ Frequency Domain
Parameters On time	Frequency
	Range
Delay time	
Integration time	
Power	
Electrode array	
Electrode spacing	

V) 1 (V) 1 (

Instrument______Range____ Survey Method ____ Corrections made_____ Instrument | I.cPnAl TV-1A hadiation Spectrometer Values measured Total Field Readings Energy windows (levels) Height of instrument 3 ft Background Count 10 cpm Size of detector 12 by 12 inches Overburden Swamp, Clay, Cutcrop - on map (type, depth - include outcrop map) Type of survey_____ Parameters measured______ Additional information (for understanding results)______ Type of survey(s) Instrument(s) (specify for each type of survey) (specify for each type of survey) Aircraft used_____ Sensor altitude_____ Navigation and flight path recovery method ______ Aircraft altitude______Line Spacing______ Miles flown over total area _____Over claims only_____

GEOCHEMICAL SURVEY - PROCEDURE RECORD

Numbers of claims from which samples taken	
Total Number of Samples	
Type of Sample(Nature of Material)	─ Values expressed in: per cent □
Average Sample Weight	p. p. m. ☐ p. p. b. ☐
Method of Collection	-
	Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)
Soil Horizon Sampled	Others
Horizon Development	Field Analysis (tests)
Sample Depth	Extraction Method
Terrain	Analytical Method
	Reagents Used
Drainage Development	Field Laboratory Analysis
Estimated Range of Overburden Thickness	
	Reagents Used
n en	Commercial Laboratory (tests
(Includes drying, screening, crushing, ashing)	Name of Laboratory
Mesh size of fraction used for analysis	Extraction Method
	Analytical Method
	Reagents Used
	Keagents Oscu
General	General
General	

Mining Lands Section

File No 2.7/07

Control Sheet

TYPE OF SURVEY	GEOPHYSICAL GEOLOGICAL GEOCHEMICAL EXPENDITURE
MINING LANDS COMMENTS:	
rij · Oper	
<i>∵</i>	
	Signature of Assessor
	Date

1984 10 19

Your File: 222 Our File: 2.7107

Mining Recorder
Hinistry of Natural Resources
4 Government Road East
Kirkland Lake, Untario
P2N 1A2

Dear Sir:

RE: Notice of Intent dated September 24, 1984.
Geophysical (Electromagnetic, Magnetometer & Radiometric) and Geological Survey on Mining Claims L 714769 et al in the Township of Beatty.

The assessment work credits, as listed with the above mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely.

S.E. Yundt Director Land Management Branch

Whitney Block, Room 6643 Queen's Park Toronto, Ontario M7A 1W3 Phone: (416) 965-6918

S. Hurst:sc

cc: Maude Lake Gold Mines Limited 300 Elm Street West Sudbury, Ontario P3C 1V4

cc: Mr. G.H. Ferguson Mining & Lands Commissioner Toronto, Untario cc: REsident Geologist
Kirkland Lake, Ontario



Technical Assessment Work Credits

AMENDED

	2.7107
Date 1984 09 24	Mining Recorder's Report of Work No. 222

Recorded Holder		
	MAUDE LAKE GOLD MINES LIMITED	
Township or Area	BEATTY TOWNSHIP	

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic days	L 714769-70-71 772550 to 554 inclusive
Magnetometerdays 20	772557 to 560 inclusive 772569 737478
Radiometric days	737476
Induced polarization days Other days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological days	
Geochemical days	
Man days Airborne	
Special provision 🗵 Ground 🏝	
Credits have been reduced because of partial coverage of claims.	
Credits have been reduced because of corrections to work dates and figures of applicant.	
Special credits under section 77 (16) for the following m	ining alaime
special credits under section 77 (10) for the following in	ining ciakits
No credits have been allowed for the following mining c	laims
not sufficiently covered by the survey	Insufficient technical data filed



049/84

AMENDED

1984 09 24

Your File: 222 Our File: 2.7107

Mining Recorder
Ministry of Natural Resources
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt Director

Land Management Branch

Whitney Block, Room 6643 Queen's Park Toronto, Ontario M7A 1W3

Rb S. Hurst:mc

Encls.

cc: Maude Lake Gold Mines Limited 300 Elm Street West Sudbury, Ontario P3C 1V4

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario



AMENDED

Notice of Intent for Technical Reports 1984 09 24 2.7107/222

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.

MAUDE LAKE GOLD MINES LIMITED

Pox 159 (atheson, Ontario, POK 1NO)

SEPTEMBER 13, 1984

Mr. D.J. Pichette
Minsitry of Natural Resources
Lands Administration Branch
Mining Lands Section
Whitney Block, ROOM 6610
Toronto, Ontario, M7A 1W3

Dear Mr. Pichette:

re: **Your File 2.7107**

Mining Claims # 714769 et al; <u>VLF Survey</u>

Further to your letter of September 7 and our telephone conversation of September 13, 1984, I should like to submit some additional information about the <u>2nd</u> VLF-EM survey that was completed on Maude Lake's "SALVE GROUP OF 14 CLAIMS" in Beatty Township, Larder Lake Mining Division. As I mentioned on the telephone, several grid lines had to be traversed twice, with one being traversed three times.

As you know, the military VLF transmitters on which the EM surveys operate are regularly shut down for maintenance. They also shut down **irregularly** for long periods of time and/or at a much-reduced power. This often is a problem when conducting a VLF-EM survey and results in long delays or lost days. During the course of our work, 3.5 days were lost and the following lines had to be <u>re-traversed</u> and read:

LINE 4W, LINE 0, LINES 4E, 8E, 12E, 16E, 20E that cover claims L.714769 through L.714771.

LINE 60E north of the baseline, and LINES 64E, 68E, 72E, 76E, 80E both north and south of the baseline that cover claims L.772552 through 772554, and L.772557 through 772560.

With this information, please review our work report submittals and adjust the assessment credits accordingly. In all future reporting, should two VLF-EM surveys be completed, I will describe more completely the traversing time-table for the second survey.

Thank you.

Yours very truly,

1111116

Robert A. Bennett, PEng.

Project Engineer.



Sept 20/8/

1984 09 11

Your File: 222 Our File: 2.7107

George J. Koleszar Mining Recorder Ministry of Natural Resources 4 Government Road East Kirkland Lake, Ontario P2N 1A2

Dear Sir:

Enclosed are two copies of a Notice of Intent with statements listing a reduced rate of assessment work credits to be allowed for a technical survey. Please forward one copy to the recorded holder of the claims and retain the other. In approximately fifteen days from the above date, a final letter of approval of these credits will be sent to you. On receipt of the approval letter, you may then change the work entries on the claim record sheets.

For further information, if required, please contact Mr. R.J. Pichette at 416/965-4888.

Yours sincerely,

S.E. Yundt Director

Land Management Branch

Whitney Block, Room 6643 Queen's Park Toronto, Ontario M7A 1W3

S. Hurst:mc

Encls.

cc: Maude Lake Gold Mines Limited 300 Elm Street West Sudbury, Ontario P3C 1V4

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

please contact

And the problem with the problem of



Notice of Intent for Technical Reports

1984 09 11

2.7107/222

An examination of your survey report indicates that the requirements of The Ontario Mining Act have not been fully met to warrant maximum assessment work credits. This notice is merely a warning that you will not be allowed the number of assessment work days credits that you expected and also that in approximately 15 days from the above date, the mining recorder will be authorized to change the entries on his record sheets to agree with the enclosed statement. Please note that until such time as the recorder actually changes the entry on the record sheet, the status of the claim remains unchanged.

If you are of the opinion that these changes by the mining recorder will jeopardize your claims, you may during the next fifteen days apply to the Mining and Lands Commissioner for an extension of time. Abstracts should be sent with your application.

If the reduced rate of credits does not jeopardize the status of the claims then you need not seek relief from the Mining and Lands Commissioner and this Notice of Intent may be disregarded.

If your survey was submitted and assessed under the "Special Provision-Performance and Coverage" method and you are of the opinion that a re-appraisal under the "Man-days" method would result in the approval of a greater number of days credit per claim, you may, within the said fifteen day period, submit assessment work breakdowns listing the employees names, addresses and the dates and hours they worked. The new work breakdowns should be submitted direct to the Land Management Branch, Toronto. The report will be re-assessed and a new statement of credits based on actual days worked will be issued.



Technical Assessment Work Credits

	File 2.7107
Date 1984 09]]	Mining Recorder's Report of Work No. 222

Recorded Holder	MAUDE LAKE GOLD MINES LIMITED	
Township or Area	BEATTY TOWNSHIP	

Type of survey and n Assessment days cred	i	Mining Claims Assessed							
 Geoឦអូស្គាតនៅ									
VLF Electromagnetic	20 _{days}	L 714769-70-71 772550 to 554 inclusive							
Magnetometer	20 days	772550 to 554 inclusive 772557 to 560 inclusive 772569							
Raciometric	20	737478							
laduced po ar zatión	days								
Other :	days								
Section 77 (19) See 'Mining Cla	ims Assessed" column								
Geological .	40 days								
Geochemical	days								
Man days []	Airborne 🗆								
Special provision [X	Ground 🔼								
Credits have been reduc	ed because of partial								
Credits have been reduced to work dates and figures of									
Special restite under rection 77	/16) for the following -								
Special credits under section 77	(16) for the following m	ining claims							
No credits have been allowed for	the following mining at	aime							
		Insufficient technical data filed							
\sum_{i} not sufficiently covered by th	e survey L_]	insumment technical data filed							
NO	CDEDIT ALLOWED E	OD 2ND WE FLECTROMACNETIC CURVEY AC							
NO CREDIT ALLOWED FOR 2ND VLF-ELECTROMAGNETIC SURVEY AS PROPERTY ONLY TRAVERSED ONCE									

1934 09 04 Your File: 222 Our File: 2.7107

Mr. George J. Koleszar Mining Recorder Hinistry of Natural Resources 4 Government Road East P.O. Box 984 Kirkland Lake, Ontario P2N 1A2

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic, Magnetometer and Radiometric) and Geological Survey sulmitted under Special Provisions (credit for Performance and Coverage) on Mining Claims L 714769 et al in the Township of Beatty.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours sincerely,

S.E. Yundt Director Land Management Branch

Whitney Block, Room 6643 Queen's Park Toronto, Ontario M7A 1W3 Phone: (416)965-6918

A. Barr:sc

cc: Haude Lake Gold Mines Limited 300 Elm Street West Sudbury, Ontario P3C 1V4

cc! R.A. Bennett
R.R. #4
Site 37
Box 1
Sudbury, Ontario
P3E 4M9

plug of

Room 6450, Whitney Block Queen's Park Toronto, Ontario M7A 1W3 416/965-1380

In the matter of mining claims:

L 714769 to 71 inclusive 772550 to 54 inclusive 772557 to 60 " 772569 737478

in the Township of Beatty.

On consideration of an application from the recorded holder, Maud Lake Gold Mines Limited under Section 77 Subsection 22 of The Mining Act, Leberby order that the time for filing reports and plans in support of Electromagnetic, Magnetometer, V.L.F. & Geological assessment work recorded on June 21. 1984 be extended until and including August 31, 1984.

1984.08.21

Date

St/und1

Signature of Director, Land Management Branch

Copies:

Robert A. Bennett R.R. #4 - Site 37 Box 1 Sudbury, Ontario P3E 4M9

Mining Recorder Kirkland Lake, Ontario

FILE

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