



REPORT ON THE
Magnetometer Survey
on the
Raney Township Property
of
GOLDROCK RESOURCES INC.

by D.Greg Hodges, B.Sc. May 6, 1987

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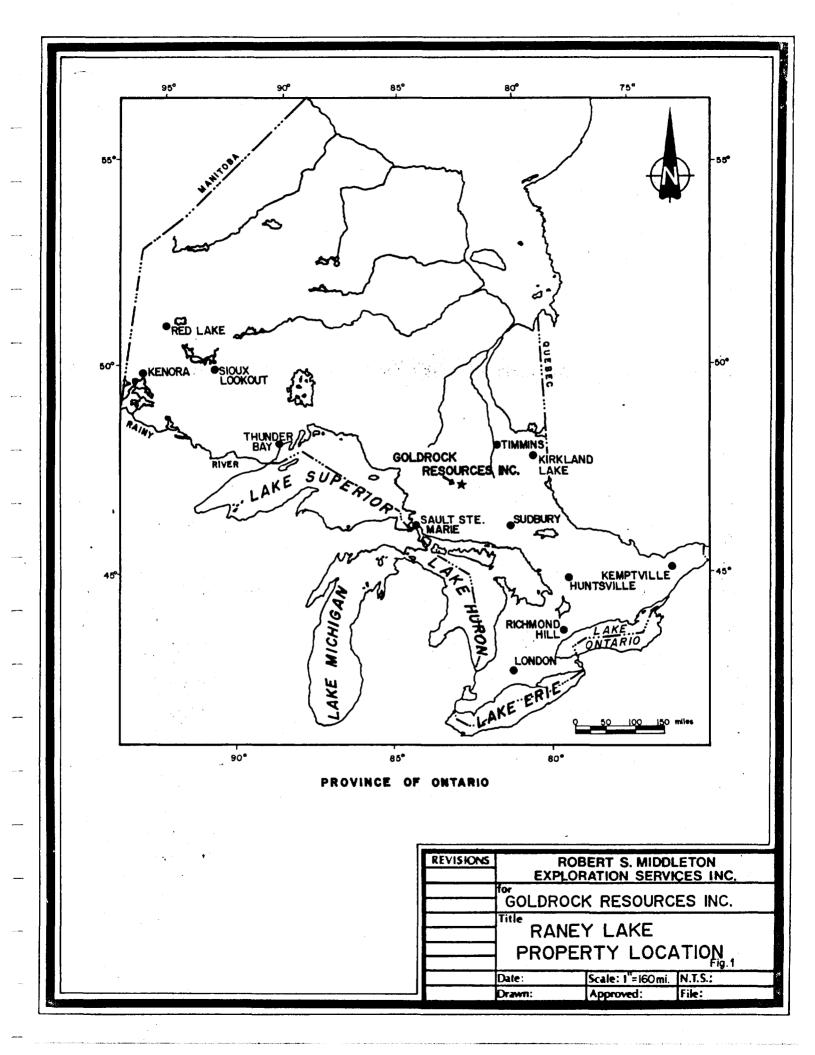
MILING LANDS SECTION

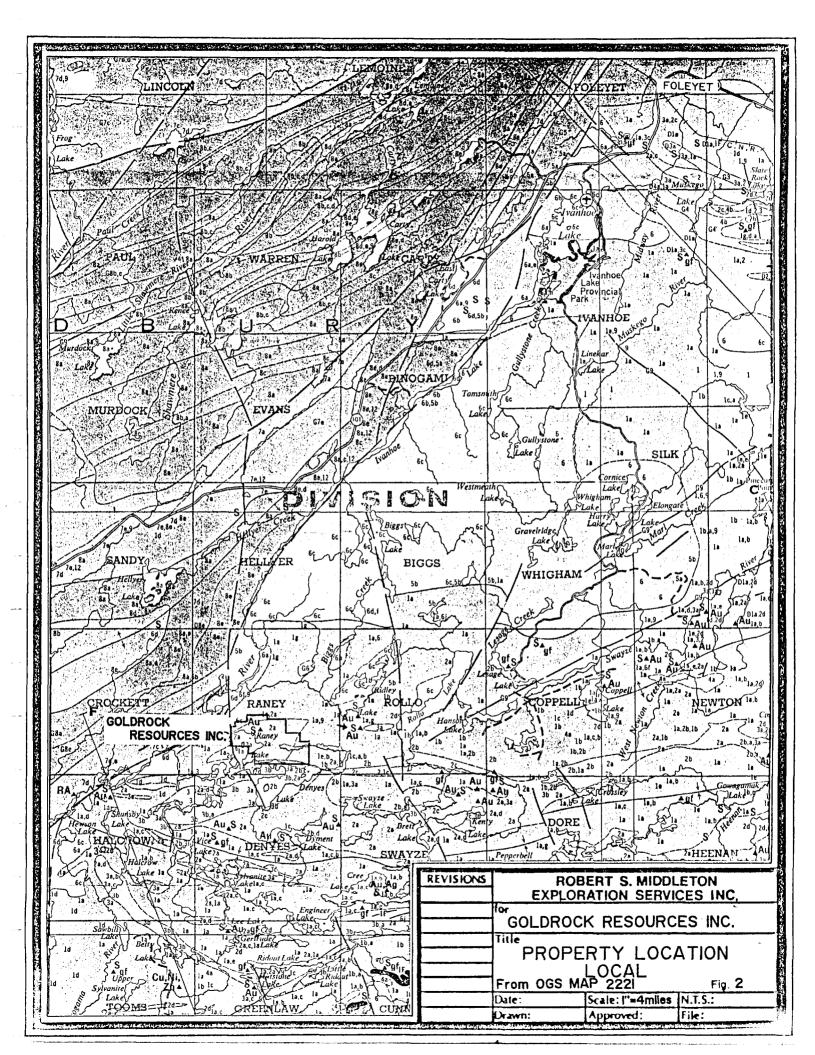




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#### INTRODUCTION

During the first part of 1987, a program of line-cutting, magnetics, and electromagnetics surveying was completed on 22 claims of the 72 claim Raney Township property of Goldrock Resources Inc.

The survey, conducted by Robert S. Middleton Exploration Services Inc., was used to define conductors and structure on the western area of the property, extending the coverage of previous surveys.

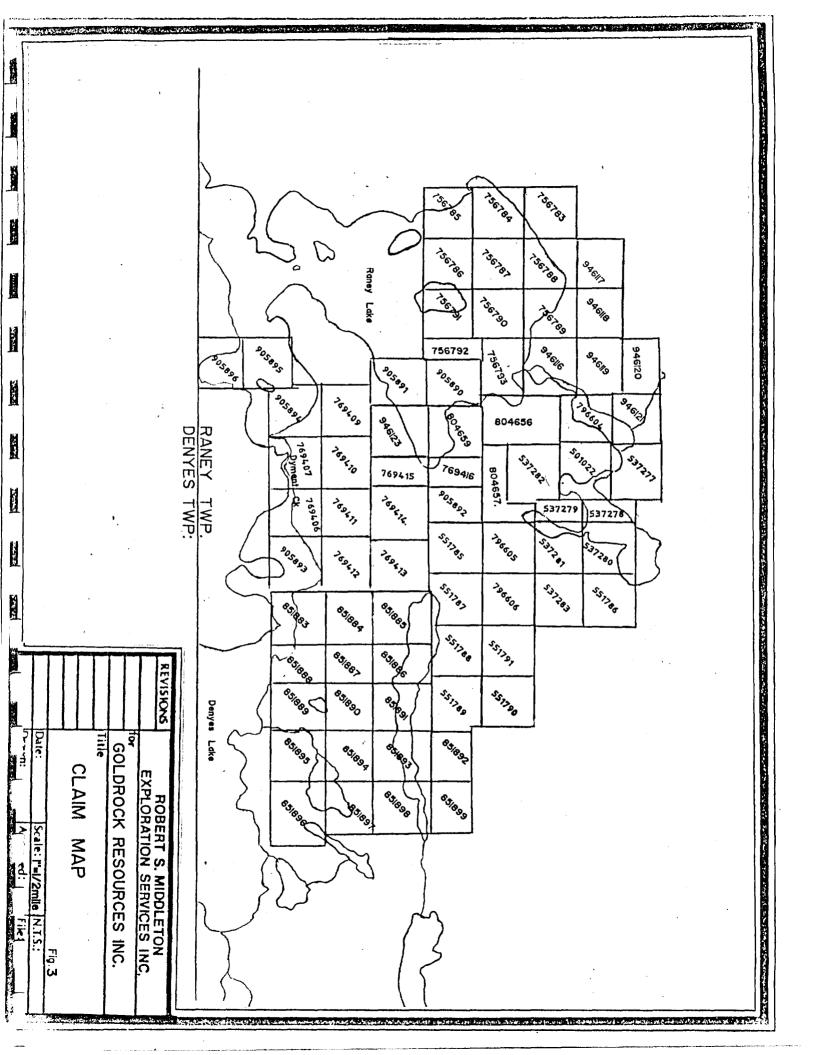
### LOCATION AND ACCESS

The property is located east of Raney Lake and north of Denyes Lake in Raney Township, Ontario, approximately 50km south west of Foleyet, Ontario. (Figure 1 and 2). Access is by fixed wing aircraft (available in Foleyet or Timmins) to either lake.

#### CLAIM STATUS

The area surveyed consists of 22 un-patented mining claims in the Porcupine Mining District, all of which are held by Goldrock Resources Inc. of 1300-33 Yonge Street, Toronto, Ontario.

The claims are:



Claims	Recording Date
P-756783	June 12, 1980
P-756784	June 12, 1980
P-756785	June 12, 1980
P-756786	June 12, 1980
P-756787	June 12, 1980
P-756788	June 12, 1980
P-756789	June 12, 1980
P-756790	June 12, 1980
P-756791	June 12, 1980
P-756792	June 12, 1980
P-756793	June 12, 1980
P-769416	August 2, 1984
P-804656	June 26, 1984
P-804657	June 26, 1984
P-804659	August 31, 1984
P-946116	July 21, 1986
P-946117	July 21, 1986
P-946118	July 21, 1986
P-946119	July 21, 1986
P-946120	July 21, 1986
P-946121	July 21, 1986
P-946123	July 21, 1986

## **GEOLOGY**

The following is quoted from Caira and Coster, 1984:

## Regional Geology

"Raney Township is situated in the western end of the Abitibi greenstone belt and is underlain by Early Precambrian (Archean) supracrustal rocks of volcanic and sedimentary origin. The supracrustal rocks have been intruded by Archean felsic and mafic intrusives. The plutonic rocks occupy the southwestern corner and the northwestern portion of the township.

The youngest rocks are lamprophyre dikes, that may possibly occupy pre-existing faults. The dikes are believed to be Late Jurassic to Early Cretaceous in The next youngest rocks are believed to be the felsic intrusives. These rocks have been interpreted Thurston, Siragusa and Sage to be Early Precambrian in age, and include massive to weakly foliated biotite and hornblende trondhjemite, granodiorite and minor These rocks were not encountered on quartz diorite. the J-dex Raney property. The next youngest rocks are felsic to intermediate metavolcanics including the felsic porphyritic and pyroclastic rocks with thin cherty interflow metasediments. These rocks occurred throughout a large portion of the J-dex Raney property.

The oldest rocks in Raney Township are mafic to metavolcanics intermediate including basaltic pillow andesitic flows. lavas. and gabbroic coarse-grained flows or intrusions. Among these the andesitic flows are predominant. The J-dex Raney property is thought, by the authors, to lie within the Swayze - Deloro metavolcaic - metasedimentary belt, which is part of the Abitibi Subprovince.

The rocks of the Swayze - Deloro metavolcanic -

<sup>1. 1977:</sup> Geology of the Chapleau Area, Districts of Algoma, Sudbury and Cochrane: Geoscience Report 157

metasedimentary belt generally have foliations and schistosities parallel or at low angles to the bedding and banding. Well foliated rocks occurred sporadically throughout the J-dex Raney property. The foliation was not discernable in the more massive varieties of the mafic metavolcanics.

Secondary lineations are relatively common in the metavolcanic - metasedimentary belts in the map area including elongated pyroclastic fragments, small scale crenulations and elongated clasts in detrital rocks. Several of these secondary lineations were seen on the J-dex Raney property.

A lack of outcrop throughout most of the Swayze Deloro map area makes the positive defining of faults a difficult process. Strike-slip faults exist throughout the map area together with east-trending shear zones. More major north-northwest to northwest striking faults conspicuous throughout the metavolcanic are Throughout the Swayze - Deloro metasedimentary belt. belt. the faulting indicated abrupt is by discontinuities in the felsic metavolcanic units, similar to that on the J-dex Raney property.

## Property Geology

The 21 claim J-dex, Raney Township property is underlain by metavolcanic and metasedimentary rocks of the Swayze - Volcanic belt. The metavolcanic sequence includes predominantly calc-alkalic basaltic to andesitic massive flows, pillowed flows and tholeittic coarser grained massive flows, as well as predominantly rhyodacitic ash tuffs and crystal tuffs related to a felsic to intermediate volcanic center and possible shallow water volcanogenic sedimentation.

In the northern part of the property sheared felsic to intermediate tuffs occur that are greater than 400 metres in thickness. Along the lower contact, basaltic to andesitic massive flows, pillowed flows and intermittent tholeiitic basalts occur that silicified brecciated and somewhat along the mafic-felsic contact.

Towards the centre of the claim group the basaltic to andesitic massive flows and pillowed flows predominate. Pillow top directions were difficult to determine although south facing tops were seen in one locality. Numerous zones of felsic pyroclastic rocks composed of rhyodacitic crystal tuffs and ash tuffs are indiscriminantly scattered throughout the sequence and

indicates that intermittent felsic explosive activity continued during the accumulation of the predominantly mafic metavolcanic sequence. In the southern part of the property, a thicker sequence of felsic pyroclastic rock occurs, including waterlain rhyodacitic crystal lapilli tuffs and fine ash tuffs."

#### PREVIOUS WORK

The following is quoted from Caira and Coster, 1984:

"The Swayze gold belt has been intermittently explored over a time span of about 80 years. Most of the interest has centered on gold but base metals have been searched for as well.

Current exploration activity has been directed to the search of gold mineralization. Some of the more exploration activity has been by; prominent gold Orofino east of Raney township; Quinterra Resources in Greenlaw townships southwest of Raney Tooms and township; and by Carlson Mines in Rollo township. This activity has discovered significant gold values within chert and quartz-carbonate zones within basalts. These occurrences coupled with many known gold occurrences in the Swayze Gold Belt implies a good environment to search for gold deposits.

The following summary of the previous work in the area has been abstracted from assessment work files and reports from others who have worked in the area. Figure No. 2 shows the location of the J-dex Raney township claim group relative to neighbouring townships along the Swayze gold belt.

A review of the assessment work files in the Timnins Resident Geologist's office reveals that sporadic exploration has been carried out on the J-dex property in the northeast corner of Raney Lake. It is as follows:

#### 1984

## Hole No. 84-15EA

245' of winkie drilling encountered visible gold in quartz stringers with disseminated pyrite, molybdenite, sphalerite, chalcopyrite and associated apple green mineral (fuchsite?), tourmaline within an east-west trending fault zone.

## Hole No. 84-15EB

216' of winkie drilling encountered visible gold in quartz stringers with disseminated pyrite and associated fuchsite?, tourmaline, fault zone.

#### Hole No. 84-15WA

213' of winkie drilling encountered visible gold, disseminated pyrite, pyrrhotite, sphalerite, chalcopyrite associated with quartz floodings, fault zone.

#### Hole No. 84-15WB

197' of winkie drilling encountered visible gold, with disseminated pyrrhotite, pyrite, molybdenite associated with quartz floodings, fault zone.

#### Hole No. 84-30EA

186' of winkie drilling encountered visible gold, with disseminated pyrrhotite, pyrite, molybdenite associated with quartz-carbonate veining, within an east-west fault zone.

#### Hole No. 84-30EB

199' of winkie drilling with visible gold, and disseminated molybdenite and pyrite within quartz-carbonate veins in tuffs.

#### Hole No. 84-30EC

181' of winkie drilling with visible gold, and disseminated molybdenite pyrite and sphalerite within quartz -carbonate veins in tuffs.

#### Hole No. 84-450NA

185' of winkie drilling encountered disseminated pyrite and pyrrhotite within Dacitic tuffs.

#### Hole No. 84-450NB

163' of winkie drilling encountered disseminated pyrite, pyrrhotite and chalcopyrite within Dacitic tuffs.

#### Hole No. 84-450NC

123' of winkie drilling encountered disseminated pyrite within Dacitic tuffs.

## Hole No. 84-450ND

110' of winkie drilling enountered disseminated pyrite within tuffs.

1983

218' of winkie drilling in one hole.

Visible gold with disseminated galena, pyrite, tourmaline within an eastwest trending fault zone with associated quartz-carbonate veins.

Magnetic and VLF surveys by J-dex Mining and Exploration Ltd. and Ingamar Resources.

Sporadic exploration has been carried out on properties in the immediate vicinity located east and southeast of the J-dex Raney Township claim group.

This work is briefly summarized as follows:

## 1932 & 1935 Throne - Greaser Gold Showing

Reported on by Furse G.D. (1932) and Rickaby H.C. (1935). Located on the south shore of a small pond north of Ranev Lake. 2' wide quartz vein traced for 100' in arkose and impure quartzite. Veins strikes Az 080° and dips steeply to the north. Vein contains pyrite, carbonate and trace native gold. Smaller 6" quartz vein in feldspar porphyry 500' south of larger vein; strikes Az 060° and traced for 100'. At one location native gold, pyrite, chalcopyrite, galena and tourmaline was reported.

1972

## Claw Lake Molybdenite Mines Ltd.

Located over part of Raney Lake and beyond to the east. Aeromagnetic survey: Ground Magnetic Survey - 52 miles. Magnetics reported to be flat.

1972 - 1982

## J-dex Mining and Exploration

Claim blocks on southwest end of Raney Lake.
1972
345' of winkie drilling in 3 holes. Rhyolite with some disseminated pyrite interesected.
1973
I.P., Magnetic and Geochemical Surveys Produced:
9 zones of anomalous chargeabilities.
Magnetic distortions.
Highest geochemical - copper 65ppm, Zn - 205ppm.

1975 - 1979 5 winkie drill holes totalling 1,568'.

110' of winkie drilling done.

1976

#### Umex

Airborne survey southwest end of Raney Lake. Part of a larger program over parts of the Swayze Gold Belt.

1982

## Ontario Geological Survey

Input aeromagnetic survey over the Swayze Belt Magnetic and Electromagnetic surveys flown.

<sup>(</sup>R) Registered trade mark of Barringer Research Ltd.

1983

## Lacana Mining

Geological survey work on west boundary of Raney Township west of J-dex claim group. Carbonatite - alkalic complex. Rock types associated with Kapuskasing structural zone mapped."

During the summer of 1986 induced polarization, magnetics and VLF-EM surveys were conducted by Goldrock Resources. The IP survey covered the north central area of the claim block, and the mag/VLF survey covered the south-central area. Several interesting IP anomalies were detected, some of which extend west into the current claim block.

#### SURVEY PROCEDURE

## MAGNETICS

## Theory

The magnetic method is based on measuring alteration in the shape and magnitude of the earth's naturally ocurring magnetic field caused by changes in the magnetization of the rocks in the earth.

These changes in magnetization are due mainly to the presence of the magnetic minerals, of which the most common is magnetite, and to a lesser extent ilmenite, pyrrhotite, and some

less common minerals.

Magnetic anomalies in the earth's field are caused by changes in two types of magnetization: induced and remanent (permanent). Induced magnetization is caused by the magnetic field being altered and enhanced by increases in the magnetic susceptibility of the rocks, which is a function of the concentration of the magnetic minerals.

Remanent magnetism is independent of the earth's magnetic field, and is the permanent magnetization of the magnetic particles (magnetite, etc.) in the rock. This is created when these particles orient themselves parallel to the ambient field when cooling. This magnetization may not be in the same direction as the present earth's field, due to changes in the orientation of the rock or the field.

The most common method of measuring the total magnetic field in ground exploration is with a proton precession magnetometer. This device measures the effect of the magnetic field on the magnetic dipole of hydrogen protons. This dipole is caused by the "spin" of the proton, and in a magnetometer these dipoles in a sample of hydrogen-rich fluid are oriented parallel to a magnetic field applied by an electric coil surrounding the sample. After this magnetic field is removed, the dipoles begin to precess (wobble) around their orientation under the influence of the ambient earth's magnetic field. The frequency of this

precession is proportional to the earth's magnetic field intensity.

## Field Method

The magnetics data were collected with a proton precession magnetometer, which measures the absolute value of the total magnetic field of the earth to an accuracy of  $\pm$  1 n Tesla. The magnetometer is carried down the survey line by a single operator, with the sensor mounted on a short pole to remove it from the surface geologic noise. Readings are normally taken at 25 m intervals, and at 12.5 m intervals where the operator observes a high gradient (anomaly).

The readings are corrected for changes in the earth's total field (diurnal drift) by repeating readings at base stations and "tie points" several times each day.

#### SURVEY PROCEDURE

#### MAX-MIN II

#### Theory

The Max-Min II is a frequency domain, horizontal loop electromagnetic (HLEM) system, based on measuring the response of conductors to a transmitted, time varying electromagnetic field.

The transmitted, or primary EM field is a sinusoidally varying field at any of five different frequencies. This field induces an electromotive force, (emf), or voltage, in any

conductor through which the field passes. This is defined by:

$$\oint E \cdot dl = -\frac{1}{\sqrt{3}}$$
 (the Faraday Induction Principle)

where E is the electric field strength in volts/metre (and so §E.dl is the enf around a closed loop) and § is the magnetic flux through the conductor loop. This emf causes a "secondary" current to flow in the conductor in turn generating a secondary electromagnetic field.

This changing secondary field induces an emf in the receiver coil (by the Faraday law) at the same frequency, but which differs from the primary field in magnitude and phase. The difference in phase (the phase angle) is a function of the conductance of the conductor(s), both the target and the overburden and host rock. The magnitude of the secondary is also dependant on the conductance, and also on the dimensions, depth, and geometry of the target, as well as on the interference from overburden and the host rock.

These two parameters (phase angle and magnitude) are measured by measuring the strength of the secondary field in two components: the real field or that part "in-phase" with the primary field; and the imaginary field, or that part in "quadrature" or 90° out of phase from the primary field.

The magnitude and phase angle of the response is also a function of the frequency of the primary field. A higher frequency field generates a stronger response to weaker

conductors, but a lower frequency tends to pass through weak conductors and penetrate to a greater depth. The lower frequency also tends to energise the full thickness of a conductor, and gives a better measure of its true conductivity-thickness product (conductance).

For these reasons two or more frequencies are usually used; the lower for penetration and accurate measure of good conductors, and the higher frequency for strong response to weak conductors.

Distinction between conductive targets, overburden, and host rock responses are made by studying the shape of the secondary field, and the difference in the frequency responses.

The transmitted primary field also creates an emf in the receiver coil, which is much stronger than the secondary, and which must be corrected for by the receiver. This is done by electronically creating an emf in the receiver, whose magnitude is determined by the distance from receiver to transmitter as set on the receiver, and whose phase is derived from the receiver via an interconnecting wire.

#### Field Method

The Max-Min II survey was carried out in the "maximum coupled" mode (horizontal co-planar). The transmitter and receiver are carried in-line down the survey line separated by a constant distance (in this case 150 m) with the receiver leading.

Three transmitter frequencies were used: 444 Hz, 1777 Hz and 3555 Hz. The transmitter and receiver are connected by a cable, for phase reference and operator communication.

### PERSONNEL AND EQUIPMENT

The survey was conducted by Guy Thibeault Exploration Services of P.O. Box 1670, Timmins, Ontario, who provided 3 men to complete the survey. The line-cutting was done by Henry T. Gonzalez.

The electromagnetic survey instrument was an Apex Parametrics Max Min II horizontal loop (Slingram style system). The magnetometer was a Geometrics G-816 Proton Precession magnetometer.

## INTERPRETATION

The magnetic field over the Raney property is relatively flat, with a number of narrow, moderate strength anomalies. None of the anomalies are of a strength to indicate oxide facies iron formations. The previous drilling on the property outlined a lot of pyrrhotite bands, and many intermittant tholeiitic basalt flows and pillows. The background levels indicate that most of felsic the intermediate metavolcanics (No grid is to metasediments were reported in the grid area). An interesting anomaly is the long trend from 450S on L11W to 500N on L23W.

This may be caused by a shear or contact with alteration and pyrrhotite mineralization along it. The results of the electromagnetic survey (when completed) should be examined for further signs of this.

## CONCLUSIONS AND RECOMMENDATIONS

The forthcoming results of the electromagnetic survey should be examined before a final decision is made on further work, but it is apparent that this grid should be mapped geologically, and induced polarization surveying should be employed to locate and map areas of disseminated sulphide mineralization, which are favourable for gold deposition.

Respectfully submitted

D. Greg Hodges, B.Sc.

## REFERENCES

CAIRA, NADIA and COSTER, IAN 1984

Geological Report of the 21 claim property for J-Dex Mining and Exploration

#### CERTIFICATION

- I, D. Greg Hodges, of 136 Cedar Street South, in the city of Timmins, Province of Ontario, certify as follows concerning my report on the Goldrock Resources Inc. property in Raney Township, Province of Ontario and dated May 6, 1987:
  - 1. I am a member in good standing of the Society of Exploration Geophysicists
  - 2. I am a graduate of Queen's University at Kingston, Ontario, with a B.Sc. (Hons.) Geological Sciences with Physics, obtained in 1980.
  - 3. I have been practising in Canada, and occasionally in the United States, Europe, and Australia for the past seven years.
  - 4. I have no direct interest in the properties, leases, or securities of Goldrock Resources Inc., nor do I expect to receive any.
  - 5. The attached report is a product of:
    - a) Examination of data included in the report which was collected on the property concerned.

Dated this May 6, 1987 Timmins, Ontario

D. Greg Hodges, Geophysicist

## $\underline{A} \quad \underline{P} \quad \underline{P} \quad \underline{E} \quad \underline{N} \quad \underline{D} \quad \underline{I} \quad \underline{X}$

#### SPECIFICATIONS

The MP-2 has the following specifications:

Resolution

1 Gamma

Total Field Accuracy

±1 Gamma over full operating range

Range

20,000 to 100,000 gammas in 25

overlapping steps.

Internal Measuring Programme

Single reading - 3.7 seconds. Recycling feature permits automatic repetitive readings at 3.7 seconds intervals.

External Trigger

External trigger input permits use of sampling intervals longer than 3.7

seconds.

Display

5 digit LED (Light Emitting Diode) readout displaying total magnetic field in gammas or normalized battery

voltage.

Data Output

Multiplied precession frequency and gate time outputs for basestation recording using interfacing optionally

available from Scintrex.

Gradient Tolerance

Up to 5000 gammas/metre

Power Source

8 alkaline "D" cells provide up to 25,000 readings at 25°C under reasonable signal/noise conditions (less at lower temperatures). Premium carbonainc cells provide about 40% of this

number.

Sensor

Omnidirectional, shielded, noisecancelling dual coil, optimized for

high gradient tolerance.

Harness

Complete for operation with staff

or back pack sensor.

Operating Temperature Range

-35°C to +60°C

Size

Console, with batteries:

80 x 160 x 250 mm.

Sensor: 80 x 150 mm.

Staff: 30 x 1550 mm. (extended)
30 x 600 mm. (collapsed)

Weights

Console, with batteries: 1.8kg.

Sensor: 1.3kg Staff: 0.6kg



June 2, 1987

Your File: 35/87 Our File: 2.10026

Mining Recorder
Hinistry of Northern Development and Mines
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

RE: Notice of Intent dated May 15, 1987 Geophysical (Magnetometer) Survey on Mining Claims P 756783, et al, in Raney Township

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,

Gary L. Weatherson, Manager Mining Lands Section Mineral Development and Lands Branch Mines and Minerals Division

Whitney Block, Room 6610 Queen's Park Toronto, Ontario M7A 1W3

Telephone: (416) 965-4888

SH/mc

cc: Goldrock Resources Inc P.O. Box 1637 Timmins, Ontario P4N 7W8 Attention: Nadia Caira

> Resident Geologist Tirmins, Ontario

Encl.

Greg Hodges P.O. Box 1637 Timmins, Ontario

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



# Technical Assessment Work Credits

2.10026

May 15, 1987

Mining Recorder's Report of Work No. 35/87

Recorded Holder GOLDROCK RE	SOURCES INC						
Township or Area RANEY TOWNSHIP							
Type of survey and number of Assessment days credit per claim	Mining Claims Assessed						
Geophysical							
Electromagnetic days							
Magnetometer days	P 756783 to 793 inclusive 946116 to 121 inclusive						
Radiometric days							
Induced polarizationdays							
Other days							
Section 77 (19) See "Mining Claims Assessed" column							
Geologicaldays							
Geochemicaldays							
Man days Airborne 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 r	nining claims						
L No credits have been allowed for the following mining c	laims						
	insufficient technical data filed						
	P 804656 - 57 - 59 946123 769416						
The Minuag Pagarder may reduce the above gradite if pagarery							

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) - 60.

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