010

GEOLOGICAL REPORT
on the
Raney Township Property
of
J-DEX MINING AND EXPLORATION
by
Greg Hodges
October 23, 1986

TABLE OF CONTENTS

INTRODUCTION

During the period from August 20 to September 12, 1986 a geophysical survey was conducted on the Raney Township property of J-Dex Mining and Exploration by Robert S. Middleton Exploration Services Inc.

The survey was composed of induced polarization surveying, to investigate previously located conductors, and magnetics and VLF to extend previous coverage to the newer claims to the north of the property.

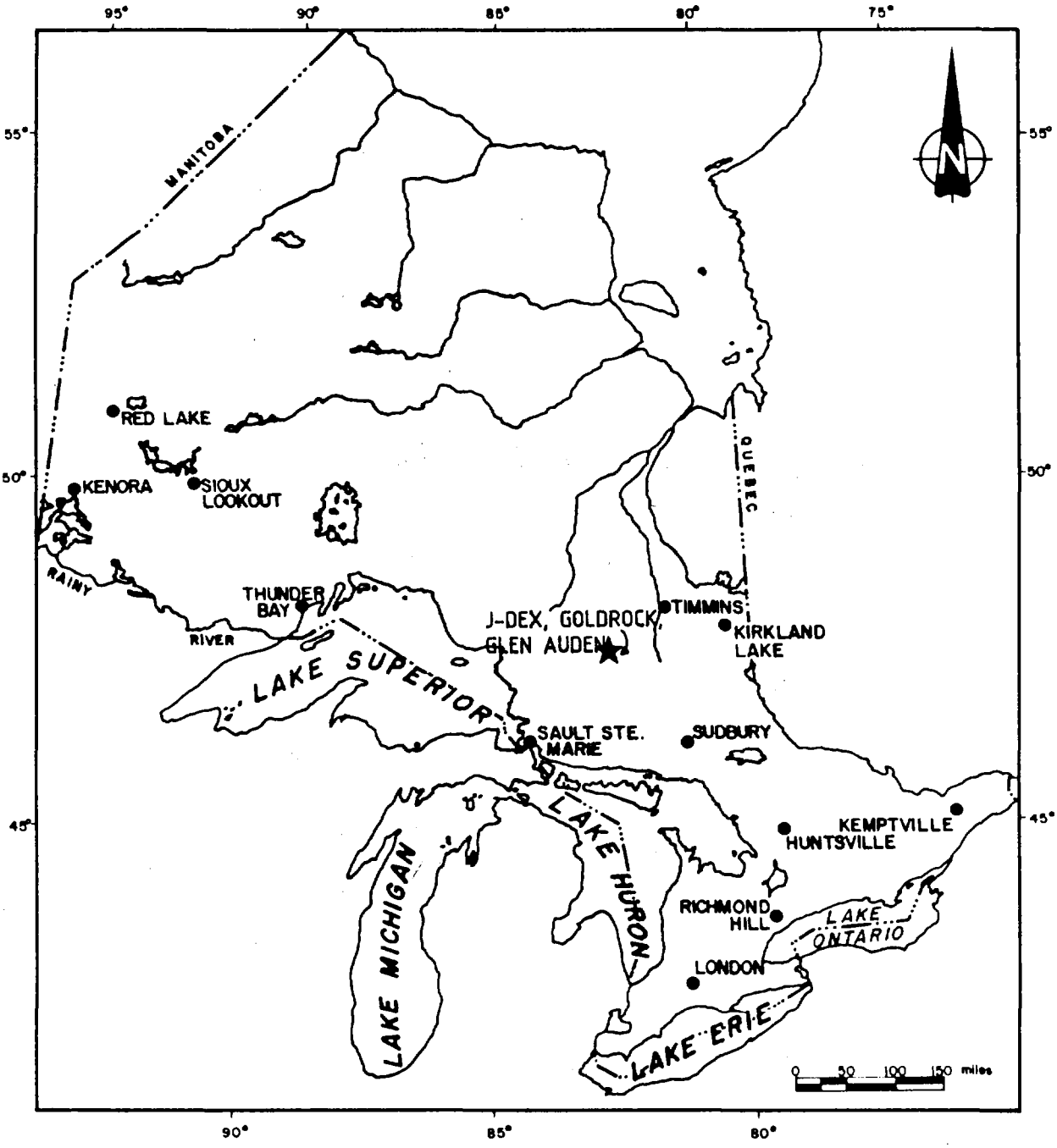
LOCATION AND ACCESS

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 to the grid was by fixed-wing float equipped aircraft to Raney Lake. The aircraft was leased from Theriault Air Service at Ivanhoe Lake, 10km south west of Foleyet.

CLAIM STATUS

The property consists of 72 claims, all held by Goldrock Resources Inc., and all in the Porcupine Mining Division.

These are listed below:



PROVINCE OF ONTARIO

Greg Hodgson

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for J-DEX, GOLDROCK, GLEN AUDEN RESOURCES		
	Title RANEY TWP. PROPERTY LOCATION MAP Fig. 1		
	Date: Oct/86	Scale: 1"=160mi.	N.T.S.:
	Drawn:	Approved:	File: M-69

ODM Geological Map 2221

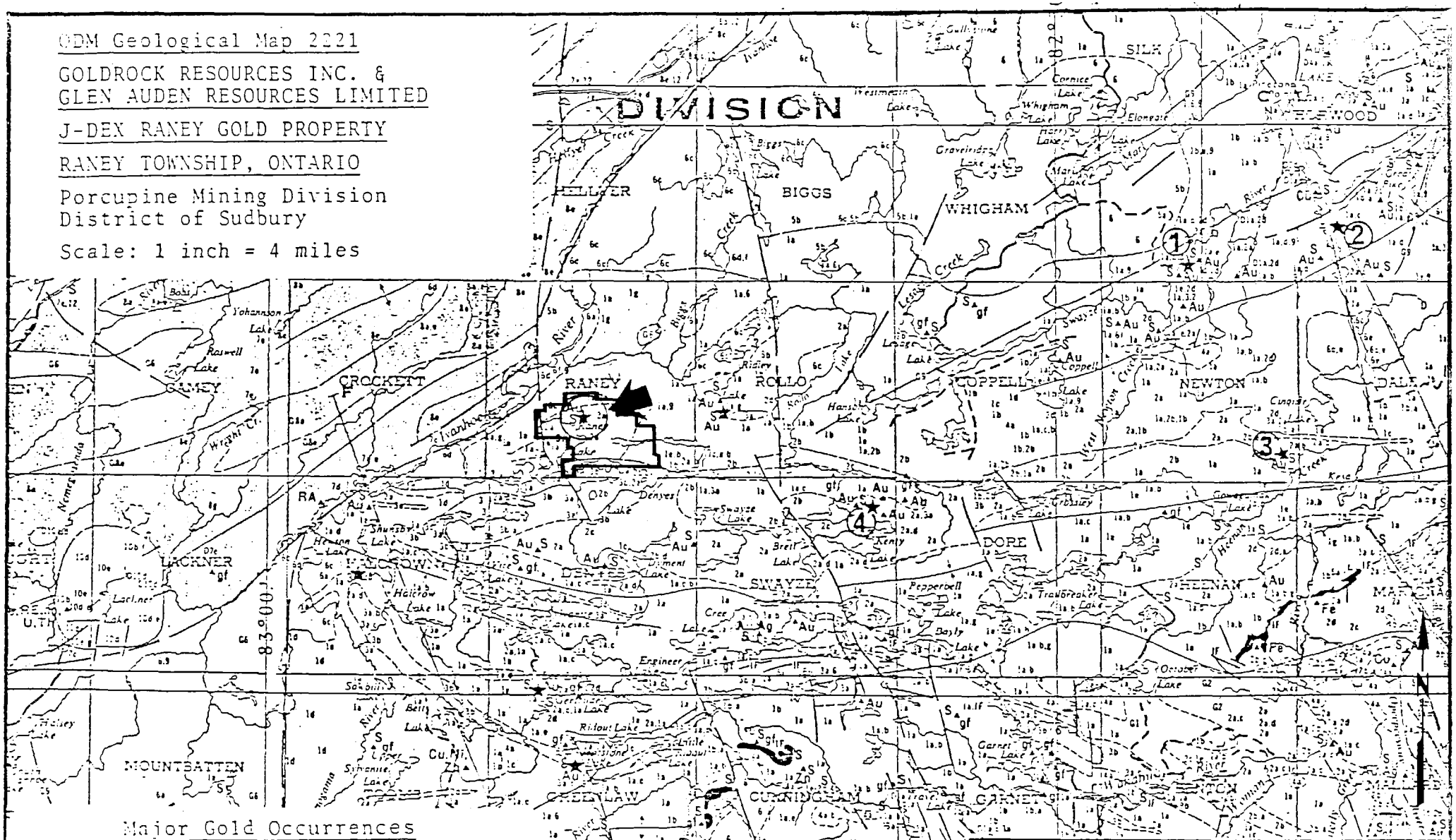
GOLDROCK RESOURCES INC. &
GLEN AUDEN RESOURCES LIMITED

J-DEX RANEY GOLD PROPERTY

RANEY TOWNSHIP, ONTARIO

Porcupine Mining Division
District of Sudbury

Scale: 1 inch = 4 miles

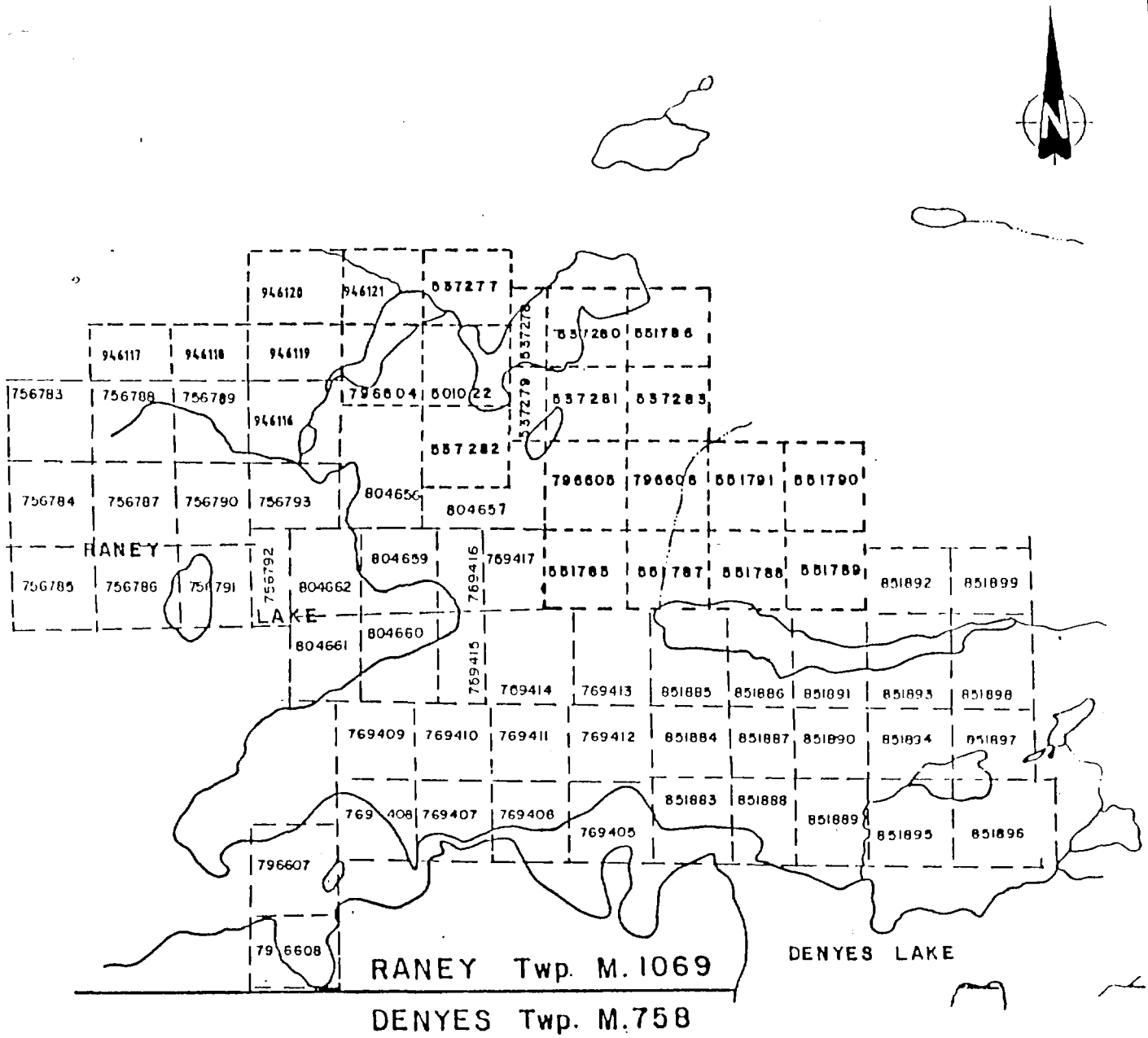


Major Gold Occurrences

SWAYZE GOLD AREA, ONTARIO

1. Orofino Mine; Silk Twp.
2. Tionaga Mine; Horwood Twp.
3. Rundle Prospects; Newton Twp.
4. Kenty Prospects; Swayze Twp.
5. Jerome Mine; Osway Twp.

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.
	for J-DEX, GOLDROCK, GLEN AUDEN RESOURCES
	Title RANEY TWP.
	LOCATION MAP Fig. 2
	Date: Oct/86 | Scale: 1"=4miles | N.T.S.:
	Drawn: | Approved: | File: M-69



REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for J-DEX, GOLDROCK, GLEN AUDEN RESOURCES		
	Title **RANEY TWP.** CLAIM MAP		Fig. 3
	Date: Oct/86	Scale: 1"=1/2mile	N.T.S.:
	Drawn:	Approved:	File: M-69

Claims	Recording Date
P-501022	April 10, 1978
P-537277	February 14, 1980
P-537278	February 14, 1980
P-537279	February 14, 1980
P-537280	February 14, 1980
P-537281	February 14, 1980
P-537282	February 14, 1980
P-537283	February 14, 1980
P-551785	February 14, 1980
P-551786	February 14, 1980
P-551787	February 14, 1980
P-551788	February 14, 1980
P-551789	February 14, 1980
P-551790	February 14, 1980
P-551791	February 14, 1980
P-756783	June 12, 1985
P-756784	June 12, 1985
P-756785	June 12, 1985
P-756786	June 12, 1985
P-756787	June 12, 1985
P-756788	June 12, 1985
P-756789	June 12, 1985
P-756790	June 12, 1985
P-756791	June 12, 1985
P-756792	June 12, 1985
P-756793	June 12, 1985
P-769405	August 2, 1984
P-769406	August 2, 1984
P-769407	August 2, 1984
P-769408	August 2, 1984
P-769409	August 2, 1984
P-769410	August 2, 1984
P-769411	August 2, 1984
P-769412	August 2, 1984
P-769413	August 2, 1984
P-769414	August 2, 1984
P-769415	August 2, 1984
P-769416	August 2, 1984
P-769417	August 2, 1984
P-796604	April 24, 1984
P-796605	April 24, 1984
P-796606	April 24, 1984
P-796607	April 24, 1984
P-796608	April 24, 1984
P-804656	June 26, 1984
P-804657	June 26, 1984

Claims	Recording Date
P-804659	August 31, 1984
P-804661	August 31, 1984
P-804662	August 31, 1984
P-851883	June 12, 1985
P-851884	June 12, 1985
P-851885	June 12, 1985
P-851886	June 12, 1985
P-851887	June 12, 1985
P-851888	June 12, 1985
P-851889	June 12, 1985
P-851890	June 12, 1985
P-851891	June 12, 1985
P-851892	June 12, 1985
P-851893	June 12, 1985
P-851894	June 12, 1985
P-851895	June 12, 1985
P-851896	June 12, 1985
P-851897	June 12, 1985
P-851898	June 12, 1985
P-851899	June 12, 1985
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

GEOLOGY AND PREVIOUS WORK

The following is quoted from the Geological Report of the 21-claim Raney Township Property of J-Dex Mining and Exploration by Nadia Caira and Ian Coster, November 15, 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 age. The next youngest rocks are believed to be the felsic intrusives. These rocks have been interpreted by Thurston, Siragusa and Sage[1] to be Early Precambrian in age, and include massive to weakly foliated biotite and hornblende trondhjemite, granodiorite and minor quartz diorite. These rocks were not encountered on the J-dex Raney property. The next youngest rocks are the felsic to intermediate metavolcanics including 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 intermediate metavolcanics including basaltic to andesitic flows, pillow 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,

---

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

which is part of the Abitibi Subprovince.

The rocks of the Swayze - Deloro metavolcanic - 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 are conspicuous throughout the metavolcanic - metasedimentary belt. Throughout the Swayze - Deloro belt, the faulting is indicated by abrupt 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 tholeiitic 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 are silicified and somewhat brecciated 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 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 prominent gold exploration activity has been by; Orofino east of Raney township; Quinterra Resources in Tooms and Greenlaw townships southwest of Raney 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 Timmins 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 east-west trending fault zone with associated quartz-carbonate veins.

1982 — 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 Raney 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 charge-abilities.
Magnetic distortions.
Highest geochemical - copper 65ppm, Zn - 205ppm.
110' of winkie drilling done.

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

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.

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.

® Registered trade mark of Barringer Research Ltd.

SURVEY PROCEDUCES

INDUCED POLARIZATION/RESISTIVITY

Theory

The induced polarization (IP) and resistivity exploration methods are electrical methods based on measuring the response of the earth to an applied direct current.

The principle is to apply a known electric current to the earth, and measure the electric potential created by it at the survey location. The resistivity, a bulk property of the rock itself, is calculated from the difference between the applied current and the measured potential, corrected for the geometry of the current and potential electrode configuration.

The induced polarization measurement is based on the "over-voltage" effect. Most of the electric current carried by the earth is condcted by the flow of ions in the solutions filling the pore spaces in the rock. At the surface of any metallic particle in the path of current low, the ionic flow in the solution is changed to an electronic flow in the metal. In the process of the change, an electric charge of trapped ions is built up at the surface of the metal, storing a small voltage. If the voltage increases, the apparent resistance of the rock also increases. If the applied current flow is decreased or stopped, the voltage will create a potential in the opposite direction to the original applied current, and start a current

flowing in the opposite direction.

In time domain induced polarization the applied current is abruptly stopped, and the reverse potential created by the over-voltage effect is measured over time as it quickly decays. The definition of chargeability is:

$$M = \frac{V\ (t = \infty) - V\ (t = 0)}{V\ (t = \infty)}$$

where V (t = 0) is the voltage at turnoff, and V (t = oo) is the late-time voltage. This is usually measured over a certain time period after turn-off as an integral of voltage over time, corrected for the length of the time period, and normalised to the voltage at time 0. It is usually expressed in millivolts per volt (mV/V).

The over-voltage charge takes time to build-up or decay, so that if the applied current is caused to oscillate more and more frequently, the apparent resistance will decrease, as the over-voltage does not have time to build at higher frequencies. This effect is used to measure the IP effect in frequency domain IP surveys, wherein th current is applied at two or more frequencies, and the "percent frequency effect" (PFE) is calculated from the change in resistivities (P) between the diferent frequencies.

$$PFE = \frac{P\ (\text{low freq}) - P\ (\text{high freq})}{P\ (\text{high freq})} \times 100\%$$

Although not identical, for most purposes the PFE is

approximately equal to the chargeability.

Because the IP effect responds to effects on small metallic particles, it is particularly useful for detecting disseminated metallic minerals. Also because of this, it will respond strongly to the "membrane polarisation" created by the electric charges resident on clay particles or layered or fibrous minerals.

Field Method

The survey was conducted using a dipole-dipole array with a dipole length of 25m and array spacings of n = 1,2,3,4 dipoles. This array configuration involves having two dipoles separated in turn by each 'n' interval moving in-line down each survey line. One dipole is the receiver measuring Vp, the potential, and the other dipole is the transmitter.

For this survey the measurements were taken in the time domain, so the transmitted current was a bipolar on-off square wave with each on or off lasting two seconds. Measurements of resistivity and chargeability were taken.

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 independant 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 magetometer 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 25m intervals, and at 12.5m 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.

VLF

Theory

The VLF (Very Low Frequency) electromagnetic system is a frequency domain system which uses military transmitters designed to communicate with submarines as a source. The system measures the response of conductors to these time varying electromagnetic fields.

The transmitted, or primary EM field is a sinusoidally

varying field in the range of 15.0 to 30.0 KHz, dependant on the source station used. This field induces an electromotive force (emf), or voltage in any condctor though which the field passes. This is defined by

$$\oint E.dl = -\frac{\partial \phi}{\partial t}$$ (The Faraday Induction Principle)

where E is the electric field strength in volts/metre (and so $\oint E.dl$ is the emf around a closed loop) and ϕ is the magnetic flux through the conductor loop. This emf causes a "secondary" current to flow in the conductor in turn creating a secondary electromagnetic field, which is measured by the receiver.

The VLF transmitting antennae are vertically oriented, thus the primary field is horizontal perpendicular to the transmission direction.

The secondary field from a conductor is different in amplitude from the primary, and shifted in phase. Because both fields are sinusoidal, the resultant electromagnetic vector traces an ellipse. The receiver measures two of the following properties of the ellipse: orientation of the minor axis (tilt), ratio of minor to major axis (ellipticity), or amplitude of the minor axis (field strength).

The receiver has two receiving coils built in, one coil with a normally vertical axis and the other horizontal. The signal from the vertical axis coil is first minimized by tilting the instrument. The remaining signal in this coil is finally

balanced out by a measured percentage of a signal from the horizontal coil, after being shifted in phase by 90°.

Assuming the secondary signal is small compared to the primary field, the mechanical tilt angle is a accurate measure of the vertical real (in phase) component of the secondary, and the 90° compensation signal from the horizontal coil is a measure of the quadrature vertical signal.

Field Method

A transmitter station is selected which gives a strong field as close as possible to right angles to the suspected strike of the geology.

The reference (horizontal) coil is oriented parallel to the primary field, and then the instrument is tilted until the minimum is heard. The quadrature component (compensator) is then adjusted until a further minimum is reached, and the tilt angle and compensation field recorded as in-phase and quadrature field in percent.

Readings are normally taken at 25m intervals. Shorter spaced readings may be taken unless the data is to be Fraser Filtered for plotting.

Notes on the Fraser Filter

This is a system for presenting VLF tilt angle data devised by D.C. Fraser (Contouring of VLF-EM Data , Geophysics, Vol.34, No.6, December 1969). It is basically a combination of a low

pass (noise removal) filter and a gradient filter which smooths the data and converts high gradients (cross-overs) to peaks. These results are then plotted on a map and contoured to show high values in regions of high conductivity.

The filter operator is [M3 + M4 - M1 - M2] where M1,M2,M3,M4 are four consecutive data points.

PERSONNEL AND EQUIPMENT

Robert S. Middleton Exploration Services Inc provided 4 men to complete the induced polarization survey and one man for the VLF and magnetometer survey. The crew was accommodated in a camp set up by Middleton on Raney Lake.

The IP survey was completed with a Scintrex IPR-11 receiver and a Phoenix IPT-1 transmitter. The magnetics was done with an EDA PPM 350 proton precession magnetometer and the VLF with a Geonics EM-16.

The specifications for these instruments may be found in Appendix A.

SURVEY STATISTICS

The induced polarization survey was completed in 14 production days, to a total of 14.975km. Bad weather caused 6 days to be lost.

A total of 17.650km of magnetics and VLF were surveyed.

INTERPRETATION

There are three sub-parallel zones of induced polarization chargeability anomalies across the eastern edge of the grid (claims 501022, 537282, and 804656).

The northern most is at 375N on L600W, and may continue to 500N on L700W. On Line 600W it is in an area of little outcrop, but it extends weakly to 325N on 500W, where there are outcrops of water-lain tuffs. This is only 25m north of an area where an

auriferous quartz-carbonate vein is hosted in dacitic crystal tuff and lapilli tuff. (Assays up to 1 oz Au/ton were taken in trenches). The second anomaly is from 100N on L1000W moderately strong to 100N on L700W, and weakly to 60N on L300W. It is associated with a resistivity low. The western part of the anomaly is in mostly un-mapped geology, but by extrapolation appears to be in crystal tuffs with some carbonate-sericite schist. At L700W it is 25m south of an area where samples assaying up to 1 oz Au/ton were collected in trenches from quartz-carbonate veins in sheared, hydrothermally altered feldspar porphyry. At the eastern end the anomaly is in an area of crystal tuffs, with some quartz stockwork and strong carbonatization.

The southern of the group of three anomalies shows moderately strong chargeabilities, and low resistivities. It is continuous from 250S on L1000W to 100S on L400W. The 25 to 50m wide moderate chargability zone is surrounded in most places by a weaker zone which is up to 250m wide (line 900W). Most of the area covered by this anomaly is either un-mapped or covered by overburden. At line 700W and 600W it is just north of an outcrop of lapilli tuff, strongly carbonatized and sericitized, and with much shearing.

The chargeability anomaly is roughly outlined by a resistivity low zone. The northern boundary of this zone follows

on strike from the geologic contact between the lapilli tuff (north) and the chlorite-carbonate schist to the south. It is probable, therefore, that this low resistivity zone delimits the schist.

Another moderately chargeable IP anomaly occurs from 840S on L100E to 860S on L300E (L200E was not surveyed in this area). It is in an area of basaltic and andesitic flows, strongly carbonatized and silicified. The IP anomaly is associated with a resistivity low, and is most likely the same conductor as detected by the Ontario Geological Survey Airborne Electromagnetic Survey (Maps 80536 and 80537).

The grid south of 825S was covered with VLF and magnetics. One major anomaly was detected, from 1560S on L400W to 1375S on L600E. Numerous smaller anomalies were detected, some of which appear to be offset by two major sinistral faults, one at 1450S, L900W, trending approximately 120°, and the other at 1400N, L400E, trending 145°. This fault may be a continuation of the geologically located fault at 200S on L500W.

Most of the VLF conductors coincide with the OGS airborne electromagnetic conductors.

There is a strong, but not continuous, magnetics response over the major VLF conductor described above, and a more continuous response with the conductor at 1700S on L300E to 1900S on L500W. This suggests that these are iron-formations.

One IP survey line (300W) was extended south of 825S to 1900S to cross this zone. It detected a broad, low resistivity, high chargeability zone from 1375S to the south. Strong chargeabilities were measured at 1525 to 1550S, and moderate from 1475S to 1575S, and 1750S to 1800S. The lowest resistivities are at 1550S to 1575S. A narrow, resistive, low chargeability zone occurs between 1675S and 1725S.

There appears to be a geologic contact at approximately 1400S on L200E, 1350S on L100W, 1375S on L300W, to 1550S at L600W. This may be the contact between the metavolcanics to the north and the metasediments hosting the iron formations to the south.

The geologic map by Caira and Coster (1984) indicates a "lineation from air photo" at 800S which occurs on the north edge of the VLF survey, where an incompletely defined anomaly is observed. This lineation is also in the region of the IP anomaly on lines 100E and 300E. The geology causing these anomalies should be determined.

CONCLUSIONS AND RECOMMENDATIONS

The IP anomalies at 375N on L600W and at 100N on L700W are in areas which in the past have been shown to have significant gold mineralization, but have already been extensively examined in trenches and by drilling. The 100N anomaly should, however, be geologically examined further west along the IP chargeability

anomaly.

The IP anomaly at 200S on 800W should be further examined, specifically by geologic mapping and possibly trenching to find the cause of the anomaly. The carbonatization, shearing, and sericitization at lines 600W and 700W (200S) are significant to this anomaly.

The anomaly at 850S on L100E and L300E is in an area where the outcrops (mafic metavolcanics) show carbonatization and silicification. The 1% pyrite observed is probably not sufficient to create a moderate chargeability anomaly and strong low resistivities, so there must be more mineralization below surface.

It is uncertain if this is coincident with the airborne EM anomalies, due to the error margin in flight path recovery. A previous VLF-EM survey over this part of the grid (Coster 1984) detected condctors at 675S and 850S, but wasn't extended west of line 100W this far south. The VLF-EM survey should be extended to cover this area, to determine which conductor extends to the west. (The airborne conductor is continuous.) If this does not distinguish between the conductors, a horizontal loop EM survey, with its superior definition of conductance and geometry may be necessary.

The induced polarization coverage of the IP anomaly at 850S should be extended east and west to map the extent of the

anomaly.

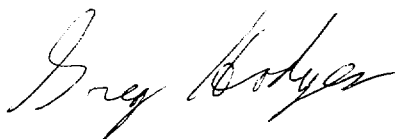
The southern portion of the grid (south of 825S) should be geologically mapped to locate and sample for gold mineralization the geologic formations, particularly the iron formations, there. From this work, particular targets for trenching or diamond drilling may be decided.

The area of the lineation at 800S should be examined by a geologist to determine its cause, as it appears to be related to both IP and VLF-EM anomalies.

In general, further work on the property should involve extending the induced polarization coverage east across Area 3 of Caira and Costers report to map any anomalies related to that significant outcrop.

Induced polarization surveying of the southern half of the grid should be conducted, as the single line (300W) completed to the south showed that it is a viable method for mapping in that area.

Respectfully submitted



Greg Hodges
Geophysicist

REFERENCES

Caira, Nadia and Coster, Ian
November 15, 1984 — Geological Report of the 21 Claim Raney Township Property, for J-Dex Mining and Exploration.

Coster, Ian
November 16, 1984 — VLF EM and MAGNETOMETER REPORT of the 18 claim Raney Township 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 J-Dex Mining and Exploration property in Raney Township, Province of Ontario and dated October 23, 1986:

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 six years.

4. I have no direct interest in the properties, leases, or securities of J-Dex Mining and Exploration, 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 October 23, 1986
Timmins, Ontario

Greg Hodges

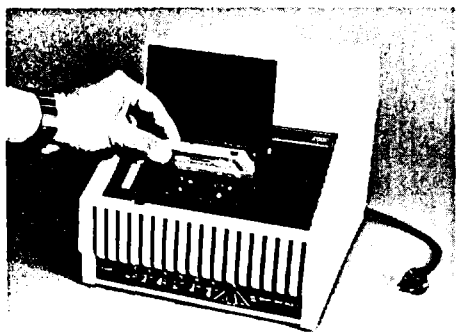
D. Greg Hodges, Geophysicist

Qual. 2591 9.

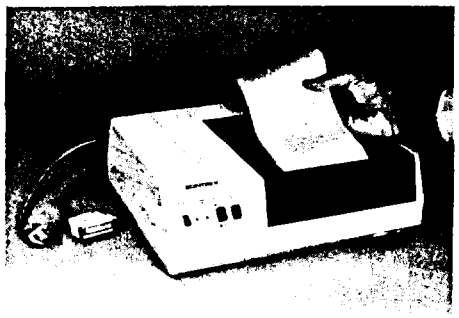
A P P E N D I X A

Technical Description of the IPR-11 Broadband Time Domain IP Receiver

Input Potential Dipoles	1 to 6 simultaneously
Input Impedance	4 megohms
Input Voltage (Vp) Range	100 microvolts to 6 volts for measurement. Zener diode protection up to 50 V
Automatic SP Bucking Range	±1.5 V
Chargeability (M) Range	0 to 300 mV/V (mils or 0/00)
Absolute Accuracy of Vp, SP and M	Vp; ±3% of reading for Vp > 100 microvolts SP; ±3% of SP bucking range M; ±3% of reading or minimum ±0.5m V/V
Resolution of Vp, SP and M	Vp; 1 m V above 100 m V approaching 1 microvolt at 100 microvolt SP; 1 m V M; 0.1 m V/V except for M_0 to M_3 in 0.2 second receive time where resolution is 0.4 m V/V.
IP Transient Program	Ten transient windows per input dipole. After a delay from current off of t, first four windows each have a width of t, next three windows each have a width of 6t and last three windows each have a width of 12t. The total measuring time is therefore 58t. t can be set at 3, 15, 30 or 60 milliseconds for nominal total receive times of 0.2, 1, 2 and 4 seconds.
Vp Integration Time	In 0.2 and 1 second receive time modes; 0.51 sec In 2 second mode; 1.02 sec In 4 second mode; 2.04 sec
Transmitter Timing	Equal on and off times with polarity change each half cycle. On/off times of 1, 2, 4 or 8 seconds with ±2.5% accuracy are required.
Header Capacity	Up to 17 four digit headers can be stored with each observation.
Data Memory Capacity	Depends on how many dipoles are recorded with each header. If four header items are used with 6 dipoles of SP, Vp and 10 M windows each, then about 200 dipole measurements can be stored. Up to three Optional Data Memory Expansion Blocks are available, each with a capacity of about 200 dipoles.
External Circuit Check	Checks up to six dipoles simultaneously using a 31 Hz square wave and readout on front panel meters, in range of 0 to 200 k ohms.
Filtering	RF filter, spheric spike removal; switchable 50 or 60 Hz notch filters, low pass filters which are automatically removed from the circuit in the 0.2 sec receive time.
Internal Calibrator	1000 mV of SP, 200 mV of Vp and 24.3 mV/V of M provided in 2 sec pulses.
Digital Display	Two, 4 digit LCD displays. One presents data, either measured or manually entered by the operator. The second display; 1) indicates codes identifying the data shown on the first display, and 2) shows alarm codes indicating errors.
Analog Meters	Six meters for; 1) checking external circuit resistance, and 2) monitoring input signals.
Digital Data Output	RS-232C compatible, 7 bit ASCII, no parity, serial data output for communication with a digital printer, tape recorder or modem.



Industry standard cassette recorders such as this MFE-2500 can be connected directly to the IPR-11.



DP-4 Digital Printer

Technical Description of the IPR-11 Broadband Time Domain IP Receiver

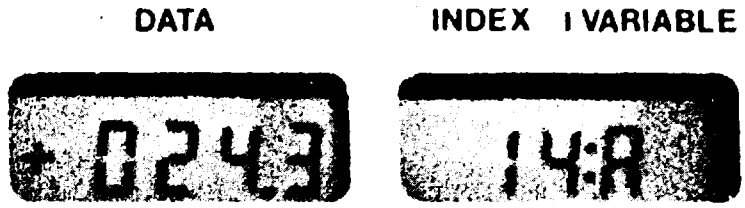
Standard Rechargeable Power Supply	Eight Eveready CH4 rechargeable NiCad D cells provide approximately 15 hours of continuous operation at 25°C. Supplied with a battery charger, suitable for 110/230 V, 50 to 400 Hz, 10 W.
Disposable Battery Power Supply	At 25°C, about 40 hours of continuous operation are obtained from 8 Eveready E95 or equivalent alkaline D cells. At 25°C, about 16 hours of continuous operation are obtained from 8 Eveready 1150 or equivalent carbon-zinc D cells.
Dimensions	345 mm x 250 mm x 300 mm, including lid.
Weight	10.5 kg, including batteries.
Operating Temperature Range	-20 to +55°C, limited by display.
Storage Temperature Range	-40 to +60°C.
Standard Items	Console with lid and set of rechargeable batteries, 2 copies of manual, battery charger.
Optional Items	Multidipole Potential Cables, Data Memory Expansion Blocks, Statistical Analysis Program, Crystal Clock, SPECTRUM Program, Digital Printer, Cassette Tape Recorder, Modem.
Shipping Weight	25 kg includes reusable wooden shipping case.

SCINTREX

222 Snidercroft Road
Concord Ontario Canada
L4K 1B5

Telephone: (416) 669-2280
Cable: Geoscint Toronto
Telex: 06-964570

Geophysical and Geochemical
Instrumentation and Services

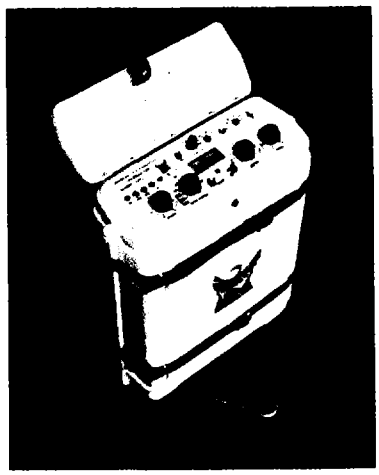


IPR-11 LCD displays, actual size

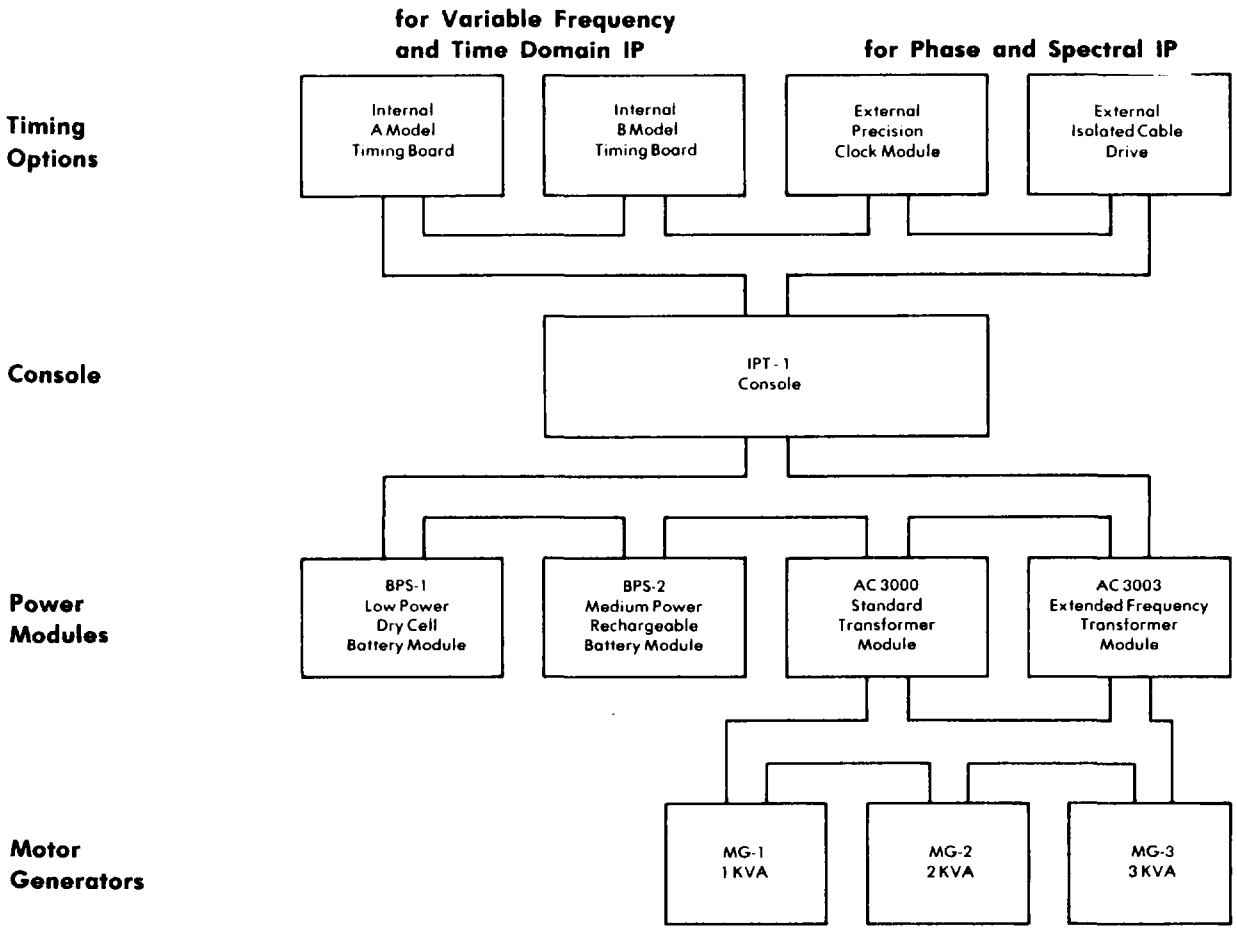
IPT-1

Variable Frequency, Time Domain and Phase IP Transmitter

- **Reliable: Backed by twenty years experience in the design and worldwide operation of induced polarization and resistivity equipment**
- **Versatile: Can be used for resistivity, variable frequency IP, time domain IP or phase angle IP measurements**
- **Stable: Excellent current regulation**
- **Lightweight, portable**
- **Wide selection of power sources**
- **Low cost**



Transmitter Configurations



PHOENIX

PHOENIX GEOPHYSICS LIMITED

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

Head Office: 200 Yorkland Blvd., Willowdale, Ontario, Canada M2J 1R5
Tel.: (416) 493-6350 Telex: 06-986856 Cable: PHEXCO TORONTO

Vancouver Office: 214 - 744 West Hastings Street, Vancouver, B.C., Canada V6C 1A6
Tel.: (604) 669-1070

Denver Office: 4891 Independence St., Suite 270, Wheat Ridge, Colorado, 80033, U.S.A.
Tel.: (303) 425-9393 Telex: 450690

Internal Power Modules

BPS-1 DRY CELL BATTERY POWER MODULE

Output Voltage : 90V, 180V and 360V.

Output Current : 1 mA to 1A maximum.

Output Power : Recommended maximum output power is 30 watts. Absolute maximum output power is 100 watts.

Power Supply : 8x45V dry cell batteries (Eveready 482, Mallory 202 or equivalent). Normal field operation, with low output power, results in an average battery life expectancy of one month. Operation with the absolute maximum output power results in much shorter battery life.

Control Supply : 4 x 6V lantern batteries (Eveready 409, Mallory 908 or equivalent) connected in series/parallel are used to provide the 40 to 70 mA at 12V required for the control circuitry. Average battery life expectancy is six months.

Operating Temperature : 0°C to +60°C.

BPS-2 RECHARGEABLE BATTERY POWER MODULE

Output Voltage : 50V, 106V, 212V, 425V, and 850V.

Output Current : 3 mA to 3A.

Output Power : Maximum output power is 300 watts. Above this output power a protective cut-out is engaged to prevent battery and circuit damage.

Batteries : 4 x 12V rechargeable gell cell batteries connected in series/parallel have a capacity of 9 A-hr. External batteries (such as car or motorcycle batteries) may also be used. A special cord and plug are provided for this mode of operation. An adaptor cord connects the 12V batteries in parallel with the 12V charging unit.

Operating Temperature : -40°C to +60°C. Below 0°C the capacity of the batteries is significantly reduced (by 70% at -40°C).

AC 3000 TRANSFORMER POWER MODULE

Output Voltage : 75V, 150V, 300V, 600V and 1200V.

Output Current : 3 mA to 10A.

Output Power : Maximum continuous output power is 3KW with MG-3 motor generator, 2KW with MG-2 motor generator and 1KW with MG-1 motor generator.

Input Power : Three phase, 400 Hz (350 to 1000 Hz), 60V (50V to 80V) is standard. Three phase, 400 Hz (350 to 1000 Hz), 120V (100V to 160V) is optional.

Current Regulation : Achieved by feedback to the alternator of the motor generator unit.

Operating Temperature : -40°C to +60°C.

Thermal Protection : Thermostat turns off at 65°C and turns back on at 55°C internal temperature.

AC 3003 TRANSFORMER POWER MODULE

Same as AC 3000 except for:

Output Voltage : 44V, 87V, 175V, 350V and 700V.

Frequency Range : DC to 3000 Hz under external drive (all other power modules have a maximum frequency of 5 Hz).

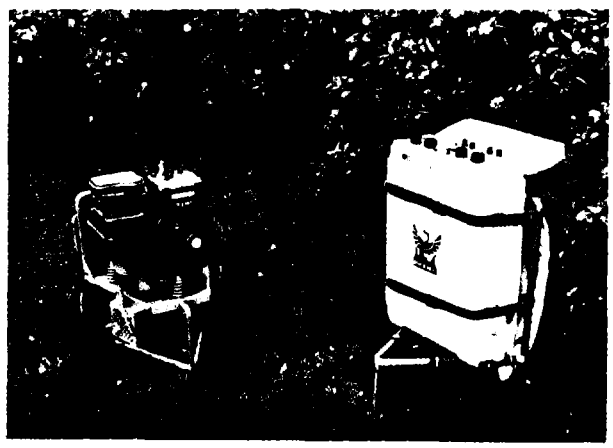
(Note: AC 3003 is not intended for extended time domain operation)

General

Dimensions : 20 x 40 x 55 cm (9 x 16 x 22 in).

Weight : 13 kg (29 lb) with BPS-1.
13 kg (29 lb) with BPS-2.
17 kg (37 lb) with AC-3000.
18 kg (40 lb) with AC-3003.

Standard Accessories : Pack frame, manual. At least one of the four possible power modules is required. The transformer power modules in turn require one of the three external 1KVA, 2KVA, 3KVA, motor generators and a connecting cable.



geoMetrics

Instrument Division

PORTABLE PROTON MAGNETOMETER
MODEL G-816

Data Sheet
August 1974

- ★ 1 gamma sensitivity and repeatability
- ★ Very small size and weight: less than 12 lbs complete with batteries and sensor
- ★ Over 10,000 readings per set of alkaline "D" cell (flashlight) batteries
- ★ Provision to attach sensor to carrying harness for use without staff
- ★ Pushbutton operation—numeric display directly in gammas
- ★ Total field measurements—independent of orientation—no calibration—no leveling

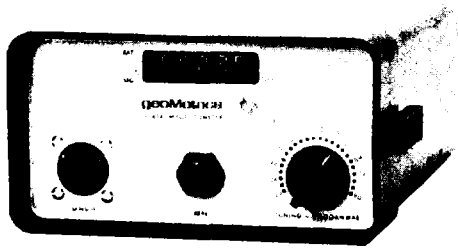
The Model G-816 is a complete portable magnetometer for all man-carry field applications. As an accurate yet simple to operate instrument, it features an outstanding combination of one gamma sensitivity and repeatability, compact size and weight, operation on standard universally available flashlight batteries, ruggedized packaging and very low price.

The G-816 magnetometer allows precise mapping of very small or large amplitude anomalies for ground geophysical surveys, or for detail follow-up to aeromagnetic reconnaissance surveys. It is a rugged, lightweight, and versatile instrument, equally well suited for field studies in geophysics, research programs or other magnetic mapping application where low cost, dependable operation and accurate measurements are required.

For marine, airborne or ground recording systems consider GeoMetrics Models G-801, G-803, and G-826.

"Hands-free" Back Pack Sensor

Based upon the principle of nuclear precession (proton) the G-816 offers absolute drift-free measurements of the total field directly in gammas. (The proton precession method is the officially recognized standard for measurement of the earth's magnetic field.) Operation is worldwide with one gamma sensitivity and repeatability maintained throughout the range. There is no temperature drift, no set-up or leveling required, and no adjustment for orientation, field polarity, or arbitrary reference levels. Operation is very simple with no prior training required. Only 6 seconds are required to obtain a measurement which is always correct to one gamma, regardless of operator experience. Only the Proton Magnetometer offers such repeatability—an important consideration even for 10 gamma survey resolution.



Complete Field Portable System

The Model G-816 comes complete, ready for portable field operation and consists of:

1. Electronics console with internally mounted and easily replaced "D" cell battery pack.
2. Proton sensor and signal cable for attachment to carrying harness or staff.
3. Adjustable carrying harness.
4. 8 foot collapsible aluminum staff.
5. Instruction manual, complete set of spare batteries, applications manual, and rugged field suitcase.

Price and lease rates on the G-816 magnetometer are available upon request.

SPECIFICATIONS

Sensitivity: ±1 gamma throughout range

Range: 20,000 to 90,000 gammas (worldwide)

Tuning: Multi-position switch with signal amplitude indicator light on display

Gradient Tolerance: Exceeds 300 gammas/ft (increased gradient tolerance to 800 gammas/ft upon request)

Sampling Rate: Manual push-button, one reading each 6 seconds

Output: 5 digit numeric display with readout directly in gammas

Power Requirements: Twelve self-contained 1.5 volt "D" cell, universally available flashlight-type batteries. Charge state or replacement signified by flashing indicator light on display.

Battery Type	Number of Readings
Alkaline	over 10,000
Premium Carbon Zinc	over 4,000
Standard Flashlight	over 1,500

NOTE: Battery life decreases with low temperature operation.

Temperature Range: Console and sensor: -40° to +85°C

Battery Pack: 0° to +50°C (limited use to -15°C; lower temperature battery belt operation—optional)

Accuracy (Total Field): ±1 gamma through 0° to +50°C temperature range

Sensor: High signal, noise cancelling, interchangeably mounted on separate staff or attached to carrying harness

Size:
Console: 3.5 x 7 x 10.5 inches (9 x 18 x 27 cm)
Sensor: 4.5 x 6 inches (11 x 15 cm)
Staff: 1 inch diameter x 8 ft lenght (3 cm x 2.44 m)

Weight:

	Lbs.	Kgs.
Console (w/batteries):	5.5	2.4
Sensor & signal cable:	4	1.8
Aluminum staff:	2	0.9
Total:	11.5	5.1

All magnetometers and parts are covered by a one year warranty beginning with the date of receipt but not to exceed fifteen months from the shipping date.

geoMetrics 395 JAVA DRIVE SUNNYVALE, CA. 94086 U.S.A (408) 734-4616 CABLE: "GEOMETRICS" SUNNYVALE TELEX NO: 357-435

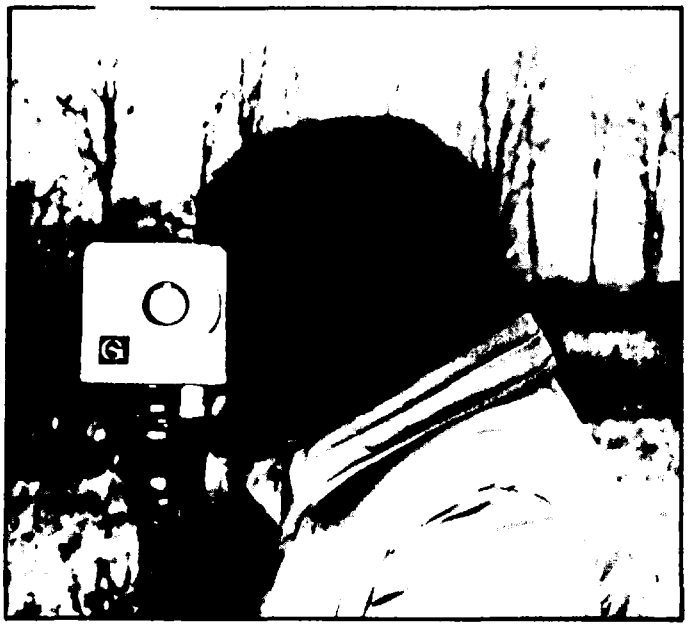
GEOMETRICS INTERNATIONAL CORP 80 ALFRED ST., MILSON'S POINT SYDNEY NSW 2061 PHONE: 929-9942

Exploranium DIVISION OF geoMetrics SERVICES (CANADA) LTD 436 LIMESTONE CRESCENT, DOWNSVIEW (TORONTO), ONTARIO, CANADA TELEPHONE: (416) 661-1966 TELEX NO: 06-22694

WORLD-WIDE AGENTS: EUROPE • SCANDINAVIA • AUSTRALIA • UNITED KINGDOM • JAPAN • SO. AFRICA • SO. AMERICA

VLF (PLANE WAVE) EM INSTRUMENTS

VLF EM



EM16

One of the most popular and widely used electromagnetic instruments, the EM16 VLF receiver makes the ideal reconnaissance EM. This can be attributed to its field reliability, operational simplicity, compactness and mutual compatibility with other reconnaissance instruments such as portable magnetometers and radiometric detectors.

The VLF method of EM surveying, pioneered by Geonics, has proven to be a simple economical means of mapping geological structure and fault tracing. The applications are many and varied, ranging from direct detection of massive sulphide conductors to the indirect detection of precious metals and radioactive deposits.

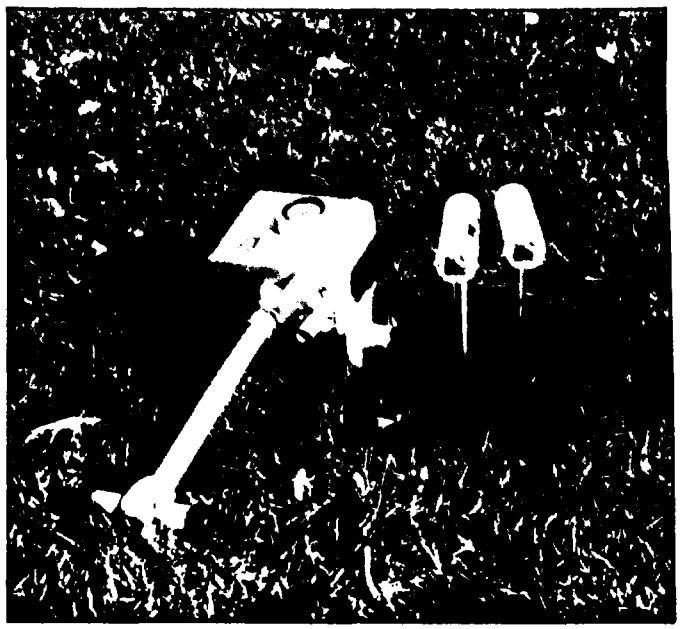
FEATURES

- The EM16 is the only VLF instrument that measures the quad-phase as well as the in-phase secondary field. This has the advantage of providing an additional piece of data for a more comprehensive interpretation and also allows a more accurate determination of the tilt angle.
- The secondary fields are measured as a ratio to the primary field making the measurement independent of absolute field strength.
- The EM16 is the only VLF receiver that can be adapted to measure VLF resistivity.

Specifications

MEASURED QUANTITY	In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity)
SENSITIVITY	In-phase : ±150% Quad-phase : ± 40%
RESOLUTION	±1%
OUTPUT	Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells
DIMENSIONS	42 x 14 x 9 cm
WEIGHT	Instrument: 1.6 kg Shipping : 5.5 kg

VLF RESISTIVITY METER



EM16/16R

The EM16R is a simple, button on attachment to the EM16 converting it to a direct reading terrain resistivity meter. The EM16R interfaces a pair of potential electrodes to the EM16 enabling the measurement of the ratio of, and the phase angle between, the horizontal electric and magnetic fields of the plane wave propagated by distant VLF radio transmitters.

The EM16R is direct reading in ohm-meters of apparent ground resistivity. If the phase angle is 45°, the resistivity reading is the true value and the earth is uniform to the depth of exploration (i.e. a skin depth). Any departure from 45° of phase indicates a layered earth. Two layer interpretation curves are supplied with each instrument to permit an interpretation based on a two layer earth model.

This highly portable resistivity meter makes an ideal tool for quick geological mapping and has been used successfully for a variety of applications.

- Detection of massive and disseminated sulphide deposits
- Overburden conductivity and thickness measurements
- Permafrost mapping
- Detection and delineation of industrial mineral deposits
- Aquifer mapping

Specifications EM16R ATTACHMENT

MEASURED QUANTITY	● Apparent Resistivity of the ground in ohm-meters ● Phase angle between E_x and H_y in degrees
RESISTIVITY RANGES	● 10 — 300 ohm-meters ● 100 — 3000 ohm-meters ● 1000 — 30000 ohm-meters
PHASE RANGE	0-90 degrees
RESOLUTION	● Resistivity : ±2% full scale ● Phase : ±0.5°
OUTPUT	Null by audio tone. Resistivity and phase angle read from graduated dials.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection by means of rotary switch.
INTERPROBE SPACING	10 meters
PROBE INPUT IMPEDANCE	100 MΩ in parallel with 0.5 picofarads
DIMENSIONS	19 x 11.5 x 10 cm. (attached to side of EM16)
WEIGHT	1.5 kg (including probes and cable)

December 31, 1986

Your File Nos. 314/86, 273/86
Our File: 2.9495

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

Dear Sir:

RE: Notice of Intent dated December 10, 1986
Geophysical (Electromagnetic, Magnetometer & Induced polarization) Surveys on Mining Claims
P 501022, 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,

J.C. Smith, Supervisor
Mining Lands Section

Whitney Block, 6th Floor
Queen's Park
Toronto, Ontario
M7A 1W3

Telephone: (416) 965-4888

DK/mc
cc: Goldrock Resources Inc
P.O. Box 1637
Timmins, Ontario
P4N 7W8
Attention: Mr. Greg Hodges

Resident Geologist
Timmins, Ontario

Encl.

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

Ontario Ministry of Natural Resources

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#273/86 29495

Mining Act

Oct. 15

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s)	Township or Area
Induced Polarization Survey	Raney Township

Claim Holder(s)	Prospector's Licence No.
Goldrock Resources Inc.	T-4715

Address: P.O. Box 1637, Timmins, Ontario P4N 7W8

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
Robert S. Middleton Exploration Services Inc.	15 07 86 (Day Mo. Yr.) 10 08 86 (Day Mo. Yr.)	N/A

Name and Address of Author (of Geo-Technical report): Greg Hodges, P.O. Box 1637, Timmins, Ontario P4N 7W8

Credits Requested per Each Claim in Columns at right

		Days per Claim
Special Provisions For first survey: Enter 40 days. (This includes line cutting) For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days Complete reverse side and enter total(s) here	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other I.P.	30.7
	Geological	
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.		Days per Claim
	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures				Total Days Credits
$	÷	15	=	

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date	Recorded Holder or Agent (Signature)
August 26, 1986	Ray Meikle

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P-	537279	~~30.7~~ 26
	796605	30.7
	804657	30.7
	537282	~~30.7~~ 26
	501022	~~30.7~~ 26
	796604	30.7
	804656	30.7
	804659	30.7
	769416	30.7
	769417	30.7
	551785	~~30.7~~ 26
	769415	30.7
	769414	30.7
	769413	30.7
	769412	30.7
	769411	30.7
	769410	30.7
	769409	30.7
	769407	30.7
	769406	30.7
	769405	30.7

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.

RECEIVED
SEP 19 1986
MINING LANDS SECTION

RECORDED
AUG 26 1986

RECEIVED
AUG 26 1986
PORCUPINE MINING DIVISION

Total number of mining claims covered by this report of work: 21

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
625.9	Aug 26/86	B. Stanley
	Date Approved as Recorded	Branch Director

Certification 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
Ray Meikle, P.O. Box 1637
Timmins, Ontario P4N 7W8

Date Certified	Certified by (Signature)
August 26, 1986	Ray Meikle

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

314/86 2.9495

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): VLF-EM MAGNETOMETER

Township or Area: RANEY TWP.

Claim Holder(s): Goldrock Resources Inc.

Prospector's Licence No.:

Address: P.O. Box 1637, TIMMINS, Ontario P4N 7W8

Survey Company: Robert S. Middleton Exploration Services Inc.

Date of Survey (from & to): 15 07 86 (Day Mo. Yr.) | 10 08 86

Total Miles of line Cut: N/A

Name and Address of Author (of Geo-Technical report): Greg Hodges, P.O. Box 1637, Timmins, Ontario P4N 7W8

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	20
	Geophysical - Magnetometer	20
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
P-	~~769405~~				
	769406				
	769407				
	769408				
	769409				
	769410				
	769411				
	769412				
	769413				
	769414				
	769415				

PORCUPINE MINING DIVISION
RECEIVED
SEP 30 1986

RECORDED
SEP 30 1986

RECEIVED
OCT 03 1986
MINING LANDS SECTION

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work: 10

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
400	Sept. 30/86	
	Date Approved as Recorded	Branch Director

Date: Sept. 30/86

Recorded Holder or Agent (Signature): Ray Meikle

Certification 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: Ray Meikle, P.O. Box 1637, Timmins, Ont. P4N 7W8

Date Certified: Sept 30/86

Certified by (Signature):

Ministry of Northern Development and Mines
Ontario

Technical Assessment Work Credits

File: 2.9495

Date: December 10,1986

Mining Recorder's Report of Work No.: 273/86

Recorded Holder: GOLDROCK RESOURCES INC

Township or Area: RANEY TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	P 501022 537282 551785 769406-07 769410-11 769413 to 16 inclusive 796604-05 804656-57 804659
Electromagnetic _____ days	
Magnetometer _____ days	
Radiometric _____ days	
Induced polarization 40 days	
Other _____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological _____ days	
Geochemical _____ days	
Man days [X] Airborne [ ]	
Special provision [ ] Ground [X]	
[ ] 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 mining claims

No credits have been allowed for the following mining claims

[X] not sufficiently covered by the survey [ ] insufficient technical data filed

P 537279
769405
769409
769412
769417

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.

Ministry of Northern Development and Mines
Ontario

Technical Assessment Work Credits

File: 2.9495

Date: December 10,1986

Mining Recorder's Report of Work No.: 314/86

Recorded Holder: GOLDROCK RESOURCES INC

Township or Area: RANEY TOWNSHIP

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	
Electromagnetic 20 days	P 769406-07 769409 to 15 inclusive
Magnetometer 20 days	
Radiometric ____ days	
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 mining claims

5 DAYS ELECTROMAGNETIC AND
5 DAYS MAGNETOMETER

P 769408

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

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.

828 (85/12)

Ministry of
Northern Development
and Mines
Ontario

Order of the Minister

NOT. 3/86

Room 6610, Whitney Block
Queen's Park
Toronto, Ontario
M7A 1W3
416/965-4888

Mining Act

In the matter of mining claims:

P 501022
537279
537282
551785
769405 to 07 inclusive
769409 to 17 inclusive
796604-05
804656-57
804659

in Raney Township.

On consideration of an application from the recorded holder, Goldrock Resources Inc
under Section 77 Subsection 22 of the Mining Act, I hereby order that the time for filing reports and plans in support of
eophysical(Induced Polarization) assessment work recorded on August 26, 1986
be extended until and including November 3, 1986.

1986.10.23
Date

Signature of Director, Land Management Branch

Copies: Goldrock Resources Inc
P.O. Box 1637
Timmins, Ontario
P4N 7W8

Mining Recorder
Timmins, Ontario
File No.273/86

Ontario Ministry of Natural Resources

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#273/86 2949S

Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Induced Polarization Survey

Township or Area: Raney Township

Claim Holder(s): Goldrock Resources Inc.

Prospector's Licence No.: T-4715

Address: P.O. Box 1637, Timmins, Ontario P4N 7W8

Survey Company: Robert S. Middleton Exploration Services Inc.

Date of Survey (from & to): Day 15 Mo. 07 Yr. 86 / Day 10 Mo. 08 Yr. 86

Total Miles of line Cut: N/A

Name and Address of Author (of Geo-Technical report): Greg Hodges, P.O. Box 1637, Timmins, Ontario P4N 7W8

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
	Geophysical - Radiometric	
	Geophysical - Other I.P.	30.7
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Number	Expend. Days Cr.
P-	537279	26 30.7
	796605	30.7
	804657	30.7
	537282	26 30.7
	501022	26 30.7
	796604	30.7
	804656	30.7
	804659	30.7
	769416	30.7
	769417	30.7
	551785	26 30.7
	769415	30.7
	769414	30.7
	769413	30.7
	769412	30.7
	769411	30.7
	769410	30.7
	769409	30.7
	769407	30.7
	769406	30.7
	769405	30.7

(92×7) = 644 ÷ 16 = 40 days

Total number of mining claims covered by this report of work: 21

RECEIVED
SEP 19 1986
MINING LANDS SECTION

RECORDED
AUG 26 1986

RECEIVED
AUG 26 1986
MINING LANDS DIVISION
SUDBURY, ONTARIO

For Office Use Only

Total Days Cr. Recorded: 625.9

Date Recorded: Aug 26/86

Date Approved as Recorded:

Mining Recorder: [signature]

Branch Director

Date: August 26, 1986

Recorded Holder or Agent (Signature): [signature]

Certification 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: Ray Meikle, P.O. Box 1637, Timmins, Ontario P4N 7W8

Date Certified: August 26, 1986

Certified by (Signature): [signature]

Nov. 19

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

Mining Act

2.314|86
2.9495

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): VLF-EM MAGNETOMETER

Township or Area: RANEY TWP.

Claim Holder(s): Goldrock Resources Inc.

Prospector's Licence No.:

Address: P.O. Box 1637, TIMMINS, Ontario P4N 7W8

Survey Company: Robert S. Middleton Exploration Services Inc.

Date of Survey (from & to): 15 07 86 (Day Mo. Yr.) | 10 08 86 (Day Mo. Yr.)

Total Miles of line Cut: N/A

Name and Address of Author (of Geo-Technical report): Greg Hodges, P.O. Box 1637, Timmins, Ontario P4N 7W8

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical	
	· Electromagnetic	20
	· Magnetometer	20
For each additional survey: using the same grid: Enter 20 days (for each)	· Radiometric	
	· Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	· Electromagnetic	
	· Magnetometer	
	· Radiometric	
	· Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Number	Exp. Days Cr.	Mining Claim Prefix	Number	Exp. Days Cr.
P-	~~769405~~				
	769406	✓			
	769407	✓			
	769408	3/4			
	769409	✓			
	769410	✓			
	769411	✓			
	769412	✓			
	769413	✓			
	769414	✓			
	769415	✓			

PORCUPINE MINING DIVISION
RECEIVED
SEP 30 1986

RECORDED
SEP 30 1986

RECEIVED
OCT 03 1986
MINING LANDS SECTION

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work: 10

For Office Use Only

Total Days Cr. Recorded: 400

Date Recorded: Sept. 30/86

Date Approved as Recorded:

Mining Recorder: D. Stanley

Date: Sept. 30/86

Recorded Holder or Agent (Signature): Ray Meikle

Certification 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:

Ray Meikle

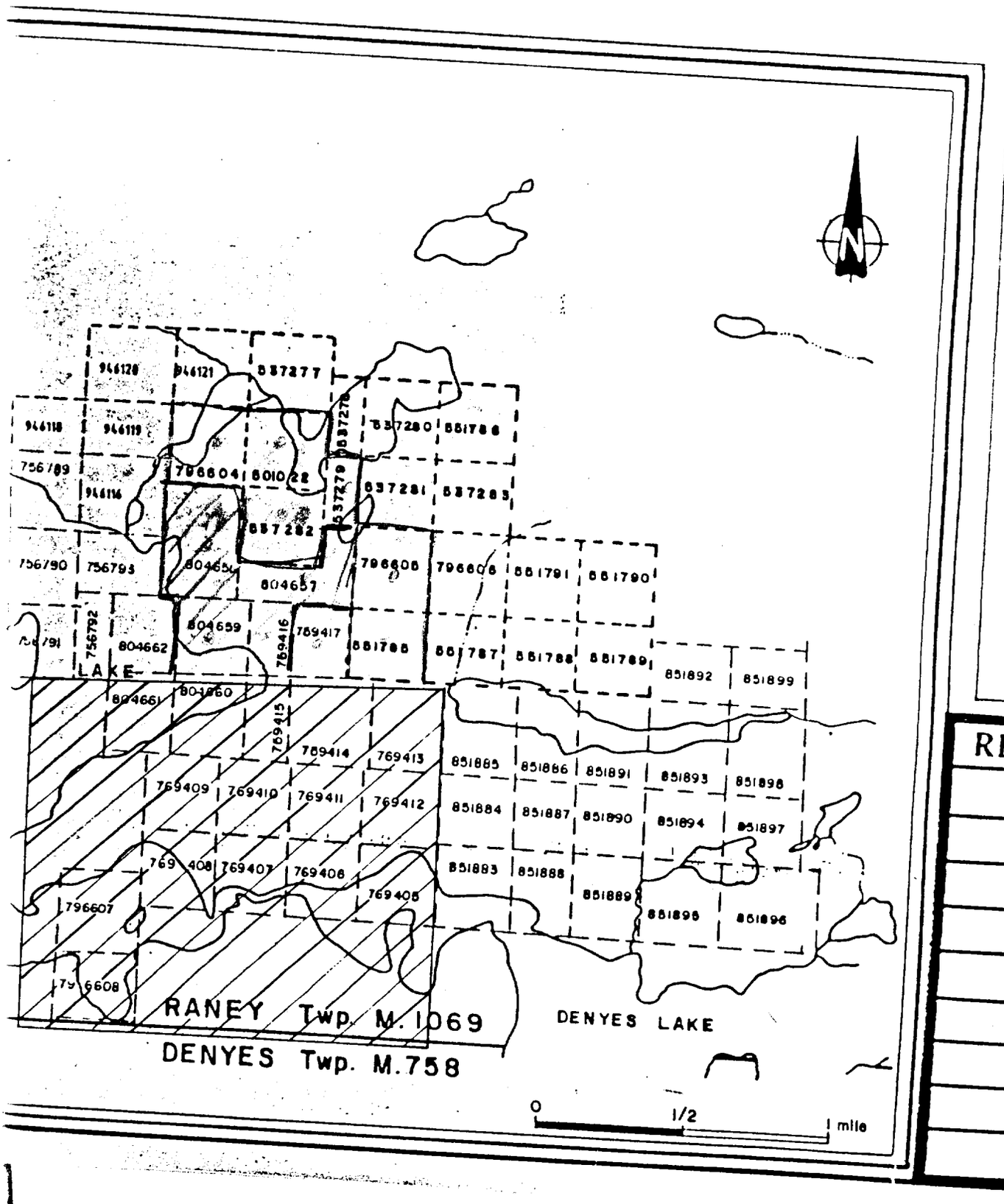
P.O. Box 1637, Timmins, Ont. P4N 7W8

Date Certified: Sept 30/86

Certified by (Signature): Ray Meikle

Line	
300E	625S – 975S
200E	625N – 350N
100E	675N – 100N
100E	200N – 850S
300W	325N – 825S
300W	775S – 1925S
400W	125N – 775S
500W	125N – 775S
500W	425N – 75S
600W	500N – 650S
700W	325N – 675S
700W	550N – 250N
800W	425N – 700S
900W	250N – 725S
1000W	175N – 475S

I.P. lines.



In-phase Dip A
(%)

True
Cross-Over

REVISIONS

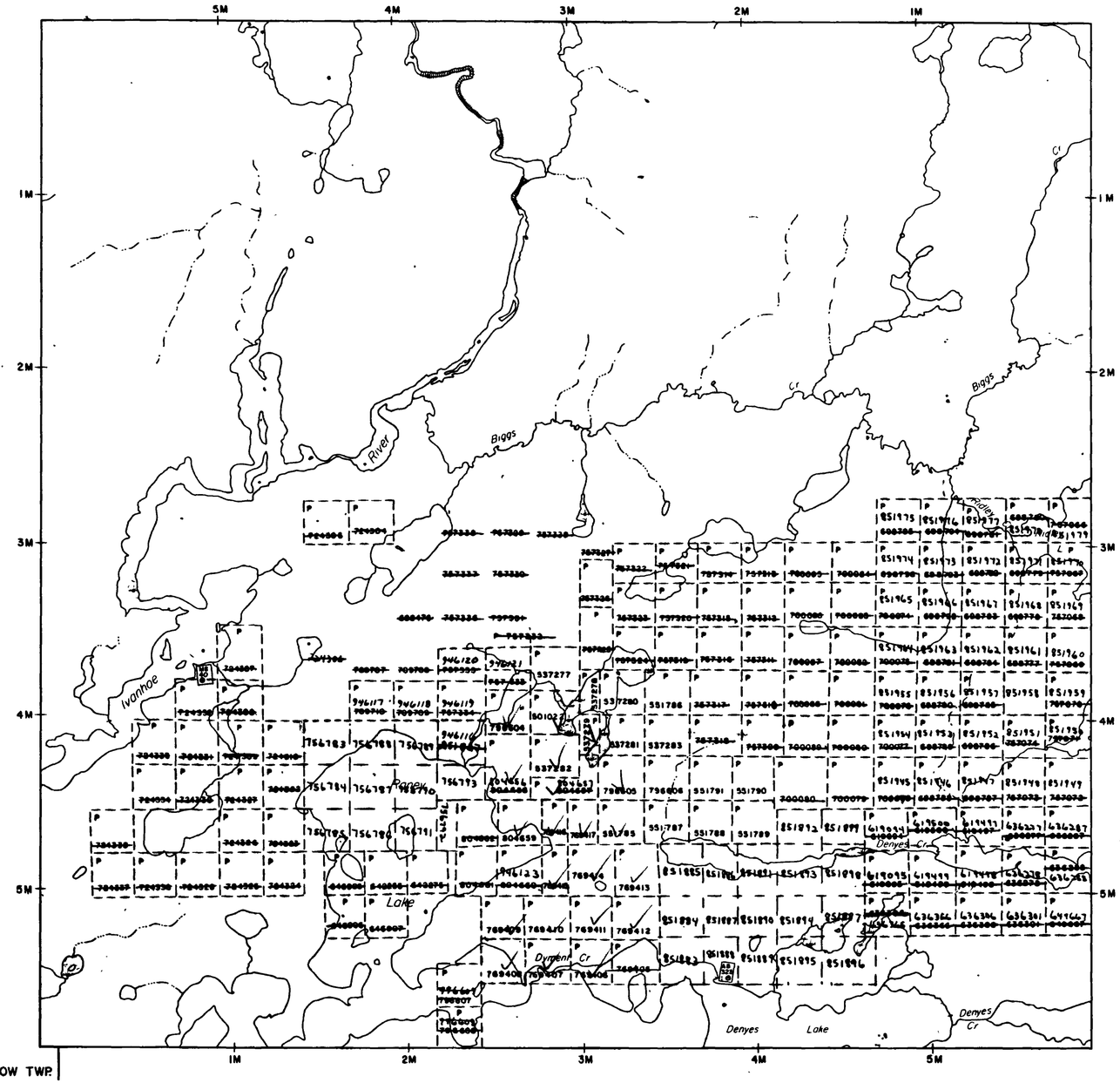
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
SMR				
~~MSA+MR~~ withdrawn from staking				
~~MRW~~	~~6/81~~		Cancelled	

HELLYER TWP.



DENYES TWP.

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◓
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◨
" , MINING RIGHTS ONLY	◧
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	Ⓡ
CANCELLED	Ⓒ
SAND & GRAVEL	Ⓢ

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC 63, SUBSEC 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1600 2000 4000 6000 8000
METRES 0 200 1000 (1 KM) 2000 (2 KM)

TOWNSHIP

RANEY

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ontario Ministry of Natural Resources — Land Management Branch

Date MARCH, 1985

Revised Gen. 10/85
C.L.
P.M.

Number G-3245

804661

804660

769415

769410

769409

769408

769407

796607

796608

L13W

L12W

L11W

L10W

L9W

L8W

L7W

L6W

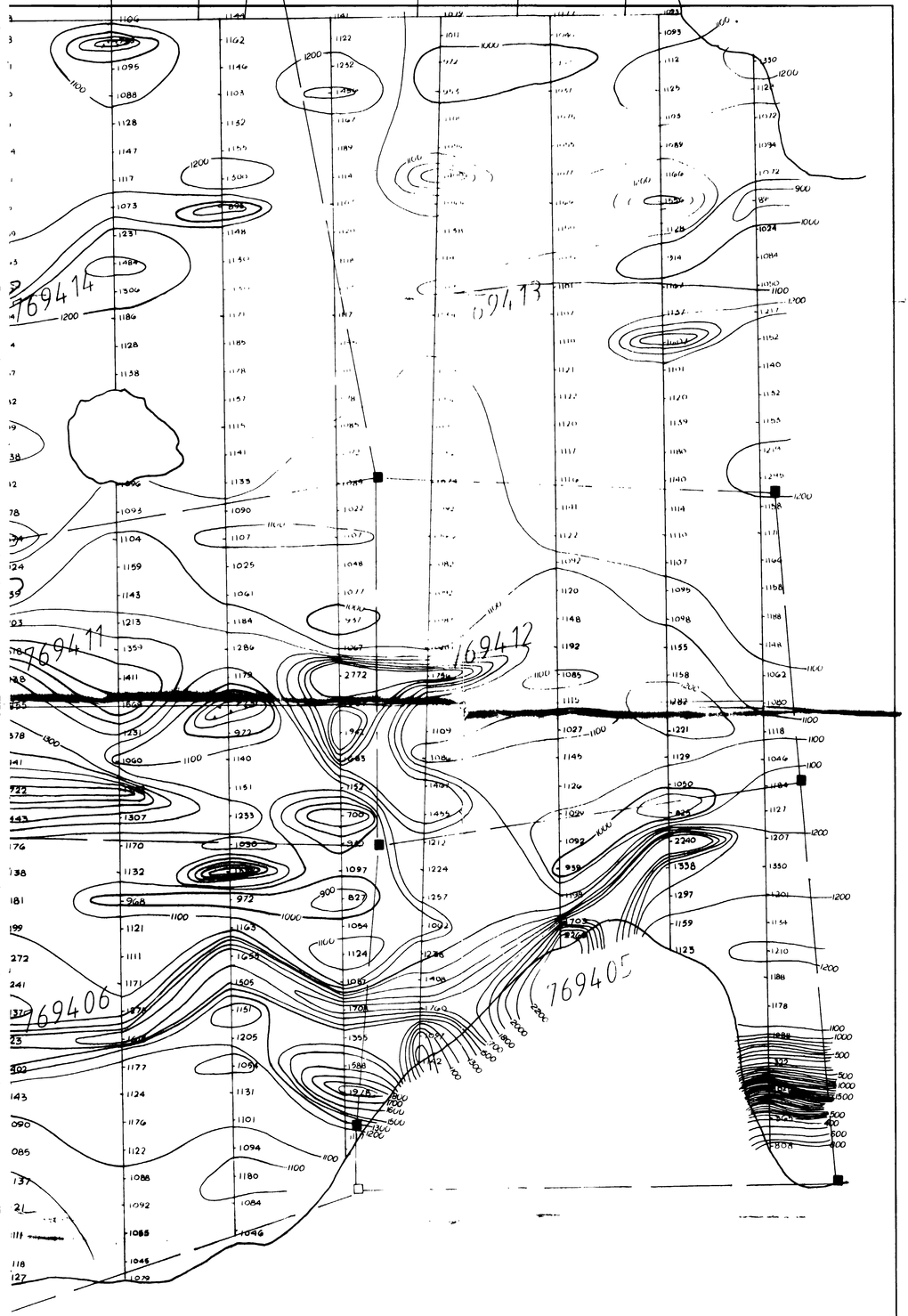
L5W

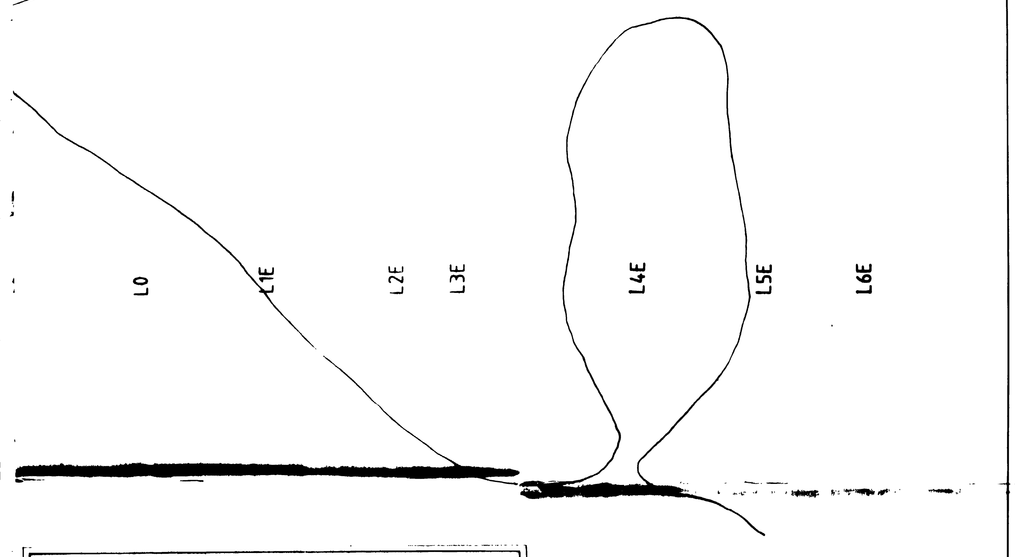
L4W

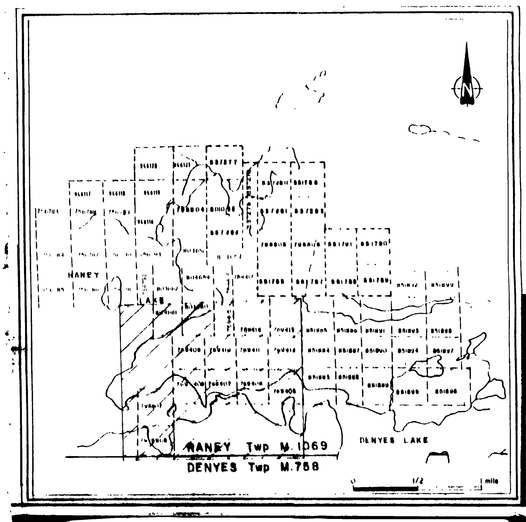
L3W

L2W

L1W







LEGEND

INSTRUMENT: EDA PPM 350
Proton Precession
PARAMETERS MEASURED: Total Magnetic Field
Diurnals Corrected by Base Station Looping
ACCURACY: +/- 10 nano - teslas
CONTOUR INTERVAL: 100

29495

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for J-DEX, GOLDROCK RESOURCES INC., GLEN AUDEN RESOURCES LTD.		
	Title RANEY TWP. CONTOURED MAGNETOMETER SURVEY (Background 58,000 Gammas)		Fig.
	Date: Oct/86	Scale: 1:2500	N.T.S.:
	Drawn: P.G.	Approved:	File: M-69.

804661

804660

769415

769410

769409

769407

769408

796607

796608

L13W

L12W

L11W

L10W

L9W

L8W

L7W

L6W

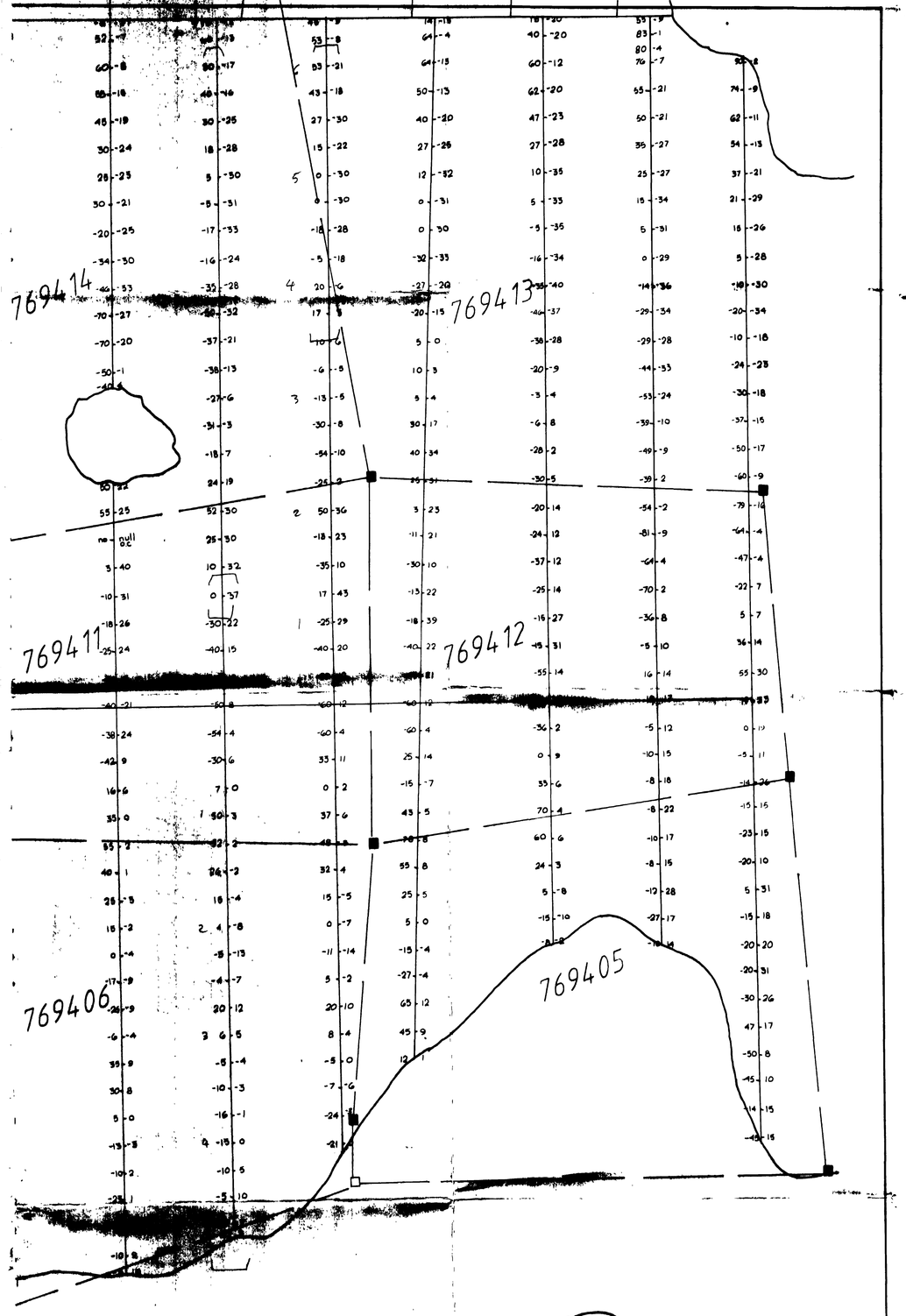
L5W

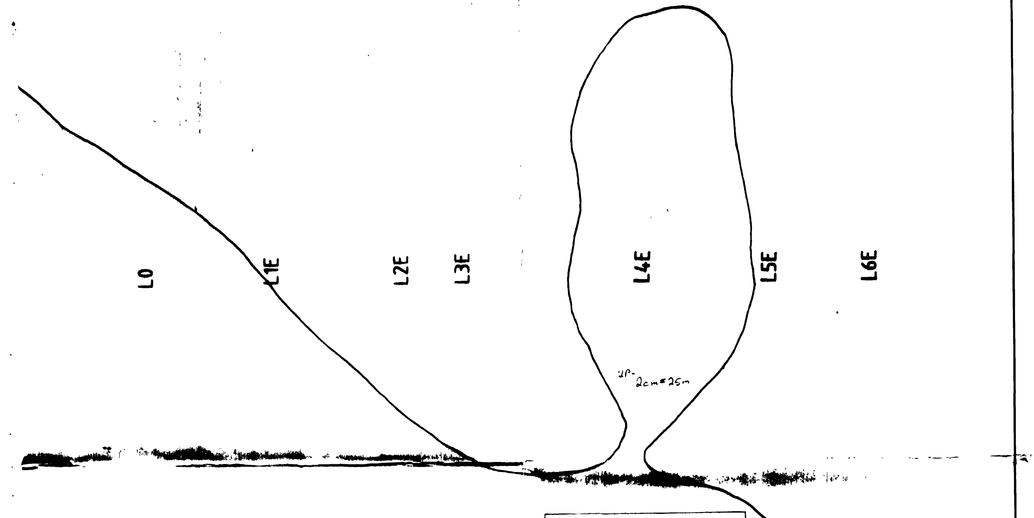
L4W

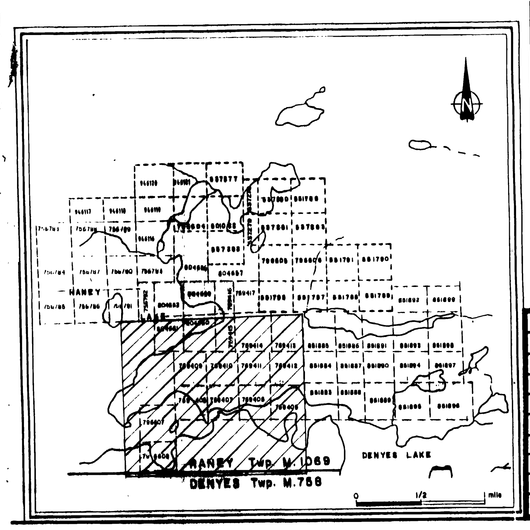
L3W

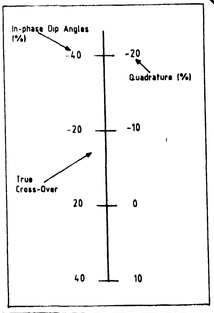
L2W

L1W









LEGEND

Instrument: Geonics EM-16
Parameter Measured: -In-phase dip angles in percent
-Quadrature in %
All readings taken facing North
Transmitter Station: Seattle Washington (NLK)
Frequency: 21.4 KHz

29495

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for J-DEX, GOLDROCK RESOURCES INC., GLEN AUDEN RESOURCES LTD.		
	Title RANEY TWP. VLF-EM		
	Date: Oct/86	Scale: 1:2500	N.T.S.:
	Drawn: P.G.	Approved:	File: M-69

804661

804660

769415

769410

769409

769407

769408

L13W

L12W

L11W

L10W

L9W

L8W

L7W

L6W

L5W

L4W

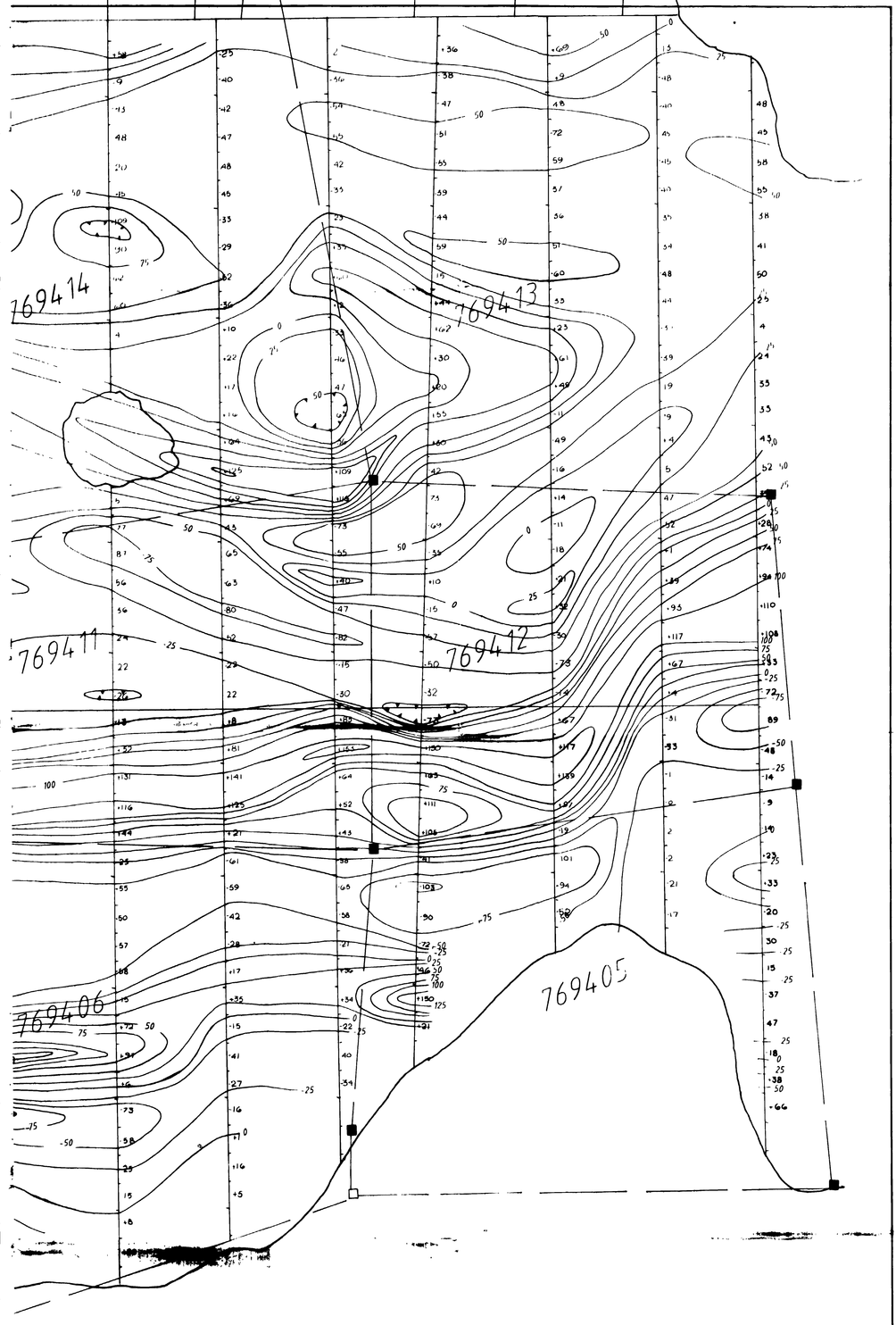
L3W

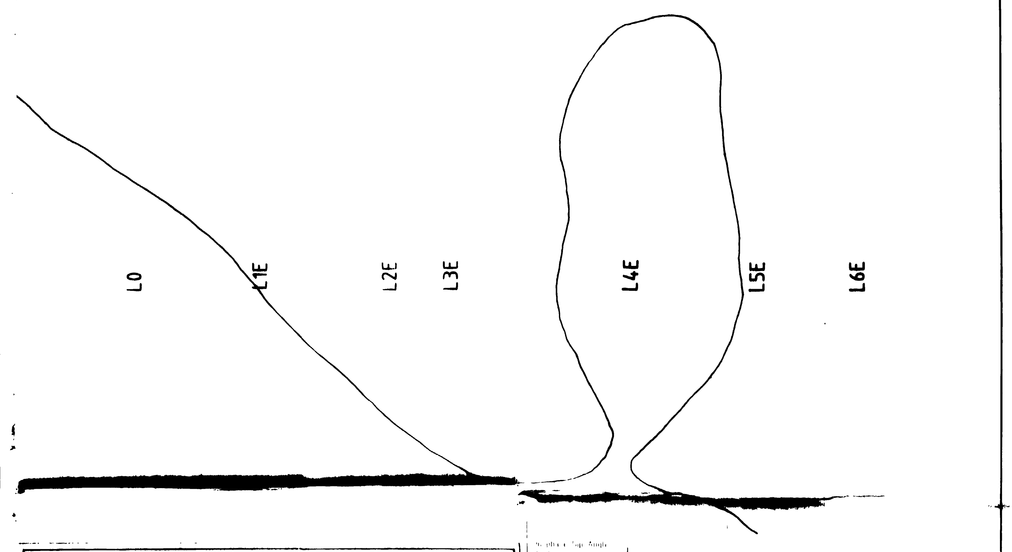
L2W

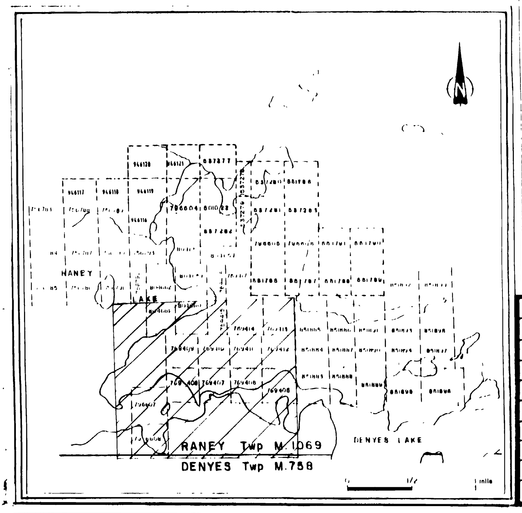
L1W

796607

796608







22495

REVISIONS	ROBERT S. MIDDLETON EXPLORATION SERVICES INC.		
	for J-DEX, GOLDROCK RESOURCES INC., GLEN AUDEN RESOURCES LTD.		
	Title RANEY TWP. FRASER FILTERED VLF-EM		Fig.
	Date: Oct/86	Scale:	N.T.S.:
	Drawn: P.G.	Approved:	File: M-69