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REFORF ON THE Magnetics and Electromagnetics Survey on the property of <u>UNIGOLD RESOURCES LTD.</u> Sheraton and Bond Townships by Greg Hodges, B.Sc.



RECEIVES

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MILLING LANDS SECTION



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SUMMARY

A geophysical survey was conducted on the Sheraton and Bond Townships property of Unigold Resources Ltd. A total of 77.2km of total field magnetics and horizontal loop electromagnetics data were collected. Although hampered by deep overburden, a wide zone of conductors was detected near the baseline at the centre of the grid. Highly conductive (100S) and relatively deep (40-50m) this zone has a maximum width of 150m, and a total strike length of 1.5km. This band of conductors has been repeatedly drilled in the past. Several other weaker conductors were detected and the possibility exists for undetected, deep conductors. The magnetic field is mostly quiet, except for diabase dikes and a weak anomaly parallel to the main conductor.

In light of the extensive previous drilling, careful consideration is recommended before re-drilling of the previous zones is conducted. Sensitive time-domain EM is recommended for detection of deep conductors, and induced polarization is strongly recommended for detecting disseminated mineralization which may be favourable for gold mineralization.

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INFRODUCTION

During the first months of 1987, a program of linecutting and geophysical surveying was conducted on the Sheraton and Bond Townships property of Unigold Resources Ltd. of 141 Adelaide St., Suite 1404, Toronto, Ontario.

The work consisted of magnetics and horizontal loop electromagnetics surveying, and was conducted by R.S. Middleton Exploration Services Inc. The surveys were conducted to locate and investigate in detail conductors detected by airborne surveys.

LOCATION AND ACCESS

The property is located on the boundary of Sheraton and Bond Townships in the Porcupine Mining District of Ontario (Figures 1 and 2).

The property is approximately 45 kilometres east of Timmins, Ontario. Access to the property was by snowmobile down a trail south from the end of Bond Township Road 1, by snowmobile down the Driftwood River, or by trail 4 miles east from the Gibson Lake Road in Macklem Township. Both roads are accessed from Highway 101.

CLAIMS

The property consists of 60 unpatented mining claims, all





held by Unigold Resources Ltd. The claim numbers, all of which are in the Porcupine Mining District are:

BOND TOWNSHIP		
CLAIM NUMBER	NO.	RECORDING DATE
795301-795306	6	October 9, 1984
756482-756489	8	July 2, 1985
796001-796006	6	October 9, 1984
805819	1	October 9, 1984
805807-805809	3	October 9, 1984
833111-833114	$2\frac{4}{8}$	October 9, 1984
SHERATON TOWNSHIP		
CLAIM NUMBER	<u>NO.</u>	RECORDING DATE
795030-795045	16	October 9, 1984
795502-795517	$\frac{16}{32}$	October 9, 1984

REGIONAL GEOLOGY

The following is an excerpt from Bowen (1986):

"The general geology of the Porcupine Area is characteristic of the Abitibi "Greenstone Belt", Figure 1. The rocks are Early Precambrian (Archean) in age and are composed of a series of metavolcanic flows and pyroclastics with interbedded sedimentary units. Late stage cyclic clastic sedimentation mark the end of volcanism in Mafic sills, dikes and plugs cut most the area. of the volcanic units and may be related to volcanic activity. Felsic hypabyssal stocks and



dikes are also common and may or may not be related felsic batholithic complexes that to intruded the supracrustal rocks either contemporaneously wi th or after the main volcanic-sedimentary events.

Tectonic events generally associated with felsic plutonism have caused the supracrustal rocks to be isoclinally folded about a general east-west axis. Subsequent faulting both parallel to sub-parallel to the fold axis and roughly perpendicular to the fold axis is prominently displayed throughout the area. The Destor-Porcupine Fault Zone that extends from Timmins to Destor Township, Quebec, passes through southern Stock Township (the location of the St. Andrews Goldfields mine and current St. Andrews-Esso Minerals exploration project) just to the north of Bond Township. The fault zone passes approximately 6 miles north of the property of Unigold Resources Ltd. This structure has long been associated with gold deposition in the Timmins Area and now in the Harker-Holloway Area east of Matheson and at the Aguibelle Mine in Destor Township, Quebec.

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Early to Middle Archean diabase dikes trending roughly north-south and Late Archean olivine diabase dikes trending northeast-southwest cut all rocks in the area."

PROPERTY GEOLOGY

The following is an excerpt from Bowen (1986):

"From the examination of diamond drill logs the geology underlying the Unigold claims appears to be near the interface of two volcanic formations. So far, research into this area has been insufficient to categorize the formations with confidence due to poor outcrop exposure.

The volcanic rocks are moderate to steeply dipping and are mafic to felsic in composition. They are interlayered with carbonaceous and argillaceous mudstones and wackes. Mineralogy is varied with pyrite, sphalerite, chalcopyrite, galena and pyrrhotite being reported in drill logs. Gold assays in the 0.01 oz/ton range and lead-zinc values over 3% and as high as 6.76% over lengths of 5 to 10 feet have also been reported in assessment files and by Mr. Don McKinnon, prospector, who assayed the diamond drill core for

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At least, one major north-south fault has gold. been mapped through the property, Figure 1, and the number of north-south diabase dikes indicate several zones of weakness were once present. Southwest to northwest trending late olivine diabase dikes bracket the north and south boundaries of the property and partially transect the central part of the property. Porphyritic units have also been reported in diamond drill logs."

PREVIOUS WORK

From Bowen (1986):

"Work done previously and submitted for assessment credit was reviewed at the Resident Geologist's Office, Timmins. Data Series maps P.2072 and P.2074, Hunt and Deosaran (1980 a and compiled work previous to 1979. b) Previous government work included gological surveys of Sheraton Township and the surrounding area, Berry (1940) and Bond Township and the surrounding area, Laird (1931). A geological compilation map was subsequently produced. Pyke al (1972). et Sheraton and Bond Townships were included in a 40

township airborne magnetic and electromagnetic survey conducted by the Ontario Geological Survey and published in 1984 (OGS 1984 a and b).

The previous exploration will work be described in rough chronological order 88 assessment file records indicate. The early history of the Porcupine mining camp is well documented. Timmins is celebrating 75 years of existence in 1986. Encompassed within a 100 mile radius of Sheraton and Bond Townships, two major gold camps (Timmins and Kirkland Lake) a major base metal mine (Kidd Creek) and several smaller base metal mines (KamKotia, Jameland, Canadian Jamieson, Alexo, Texmont and Langmuir) as well as talc and asbestos deposits located in Penhorwood and Munro Townships.

Stairs Property - Hollinger Option

In 1960 Hollinger diamond drilled 5 holes in Sheraton Township into a magnetic high area 1/2 mile south of claim 795517 and intersected a pyritic-jasper-epidote horizon hosted in mafic pillow basalts, massive and sphuleritic flows cut by felsic dikes. Carbonate alteration and quartz veining were also reported, however, no assays were reported.

Selco Exploration Co. Ltd.

In 1966 Selco Exploration Co. Ltd. held two claim blocks in Sheraton and Bond Townships. On a block in Sheraton Township, which two claim encompasses claim 795039 of the property presently owned by Unigold Resources, one hole was drilled into brecciated felsic metavolcanics with some feldspar porphyry and anderite portions and several disseminated to massive pyritic zones. Two intervals of 5 and 4 feet respectfully returned 0.01 oz/ton gold assays.

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In Bond Township, Selco also held a 4 claim block which encompasses claims 795302, 796004 to 796006 inclusive of Unigold Resources. 5 diamond drill holes were put down and intersected what appears to be an interface between volcanic flow units. The volcanics are described as being felsic to intermediate in composition and interbedded with graywacke and graphitic slate units. Feldspar porphyry and diabase dikes cut the metavolcanics metasediments. and Silicification carbonatization sulfidization are commonly mentioned. Sulphides are pyrite,

chalcopyrite, sphalerite, marcasite and galena. Our sample from drill hole 10 returned 0.11% zinc and 0.7% lead over 5.5 feet. These drill holes were relatively shallow and no depths below about 300 feet vertically were ascertained.

Seaway Copper Mines Limited-Republic Ores and Mining Corporation Limited

In 1971 Seaway Copper Mines Limited acquired 32 unpatented mining claims encompassing the northeastern part of the area concerned in this report including claims:

795512	to	795517	inclusive
795040	to	795045	inclusive
795303	to	795306	inclusive
756486	to	756488	inclusive
805807	to	805809	inclusive
833111	to	833114	inclusive
795301	to	795306	inclusive
796001	to	796006	inclusive
790004	to	790006	inclusive

These claims were staked by Mr. Donald McKinnon in 1969. 1970 ln Republic Ores and Mining Corporation Limited optioned the claims and completed ground magnetometer and horizontal loop electromagnetic surveys over the entire property. In 1971 an 80% interest was acquired by Mr. Gordon Leliever from Republic who, as president of Seaway Copper Mines Limited, sold his interest to Seaway

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for \$15,000.00 and a work committment. These claims were staked by Mr. McKinnon based on his examination of the Selco core logs where he noted the numerous mention of sulfides and some interesting assays.

Seway Copper Mines Limited acquired additional ground and in 1982 began a diamond drill program to test the targets outlined by Republic's geophysical survey.

The same general geology encountered in the Selco drilling was found during Seaway's drill program. These rocks were generally intermediate to mafic metavolcanics with some coarser flows, sills and dikes. Some tuffaceous horizons and slates, possibly interflow metasedimentary units. were also cored. Felsic prophyritic dikes cut the metavolcanics and metasediments. Breccia zones. interpreted to be flow tops and bottoms were mineralized with chalcopyrite, sphalerite, pyrite and galena. This mineralization was possibly due to inhalative action of hydrothermal fluids percolating along the volcanic flow interfaces. The presence of graphite is indicative of this type of subaqueous activity. Assays ranged from

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6.76% zinc over 10 feet to some combined lead-zinc values of 1.16 over 5.2 feet and 3.18% over 7.7 feet.

Cominco Limited

In 1971 Cominco Limited flew an airborne magnetic survey over the southwestern part of the present claim group and staked 14 claims encompassing the presently owned Unigold claims:

> 795037 to 795039 inclusive 795031 to 795033 inclusive 795503 to 795505 inclusive

Subsequent electromagnetic work revealed a conductor and one diamond drill hole was drilled in it. The drill log reveals that a pyrite horizon was the conductor and formed along the contact with felsic metavolcanic tuffs and argillites and graywackes. No assays were reported and no further work was recorded.

Ontario Paper Company Limited and Geomont Exploration Company Limited

In 1975 Ontario Paper Company Limited held a large block of claims in Sheraton and Bond Townships. The property encompasses claims 756486 to 756488 inclusive of the Unigold Resources claims. They contracted Geomont Exploration Company Limited to perform geological mapping, ground magnetometer and induced polarization/resistivity surveys over the property. While several interesting IP anomalies were turned up no follow-up work was recorded by this company.

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Noranda Exploration Company Limited

In 1977 Noranda held a claim block 1/4 mile west of the subject claims in Sheraton Township and conducted ground magnetometer and electromagnetic surveys over the claims. The conductors delineated coincided with those drilled by Cominco in 1974 which were pyrite zones along the contract between felsic metavolcanics and metasediments.

In 1984 Noranda had Aerodat Limited conduct an airborne geophysical survey with their system over western Bond and part of Sheraton Townships. Numerous conductors were delineated and Noranda is currently evaluating those responses by ground geophysical follow-up and proposed diamond drilling.

Sumach Resources Inc.

The present ground is under option by Unigold

from Sumach Resources. Sumach contracted H. Ferderber Geophysics to conduct an airborne geophysical survey over the property in 1985 and sufficient assessment credit has been accumulated to cover the first two years.

Since this survey has been conducted Sumach Resources has optioned the claims to Unigold Resources."

SURVEY PROCEDURE

MAGNET ICS

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.

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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 After this magnetic field is removed, the dipoles begin sample. 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 1n 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 measuring and recording the drift with a stationary (base station) magnetometer. This recorded drift is then applied to the data as a correction.

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:

 $0E.d1 = \frac{-0}{t}$ (the Faraday Induction Principle)

where E is the electric field strength in volts/metre (and so 0E.dl is the enf around a closed loop) and 0 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 150m) with the receiver leading. Three transmitter frequencies were used: 444Hz, 1777Hz and 3555Hz. The transmitter and receiver are connected by a cable, for phase reference and operator communication.

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PERSONNEL AND EQUIPMENT

R.S. Middleton Exploration provided all the personnel to complete the geophysical surveying, and the linecutting was contracted to H. Ferderber Geophysics.

Due to the proximity of the grid to Timmins, the geophysical crews were accomodated in either Timmins or Iroquois Falls. Because of the proximity, the crews were often switched, as people went to other jobs, but one crew of two men were maintained to operate the Max Min I horizontal loop electromagnetic equipment, and two men to operate two field magnetometers. The magnetometers used were one EDA PPM-400 base station magnetometer and either EDA PPM-350 or Omni IV field (All are proton precession magetometers, which magnetomets. measure the absolute value of the total magnetic field, and so the results from different magnetometers are interchangeable.)

Middleton Exploration provided trucks for transportation to the area and snowmobiles for transportation onto the grid.

SURVEY STATISTICS

The survey consisted of 77.2 line km of total field magnetic survey at a nominal 25m station spacing with 12.5m detail sections, and 77.2 line km of three-frequency horizontal loop (Slingram style) electromagnetics with a 150m coil separation.

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INTERPRETATION

The electromagnetic survey detected most of the conductors located by the airborne EM survey, but suffered from a lack of depth penetration. This was caused by the great depth of the overburden. In the central part of the grid, the overburden is more than 60m thick in some places.

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The strongest EM response is a 50m to 150m wide zone of conductors between line 600E at 125S to line 200W at 100N. At the west end the conductor is very deep, and appears to continue at a depth too great to be detected. This same conductor does seem to re-appear at 75N on line 500W and continue to line 800W.

There is no mangetic anomaly associated with this zone of conductors. The western section (west of line 0) is a single, narrow conductor, while the eastern section shows varying widths and conductance, and appears to be faulted many times. The weak conductors on the south edge of the zone on lines 200E and 300E are interesting because they may be caused by disseminated metallic sulphides, which would be favourable environments for gold mineralization.

The strong conductors in this zone have conductivity-thicknesses of approximately 50 to 100S, and are 30 to 45m deep. (This depth is also the overburden thickness, if it is assumed that the conductors come to the bedrock surface.

In summary this appears to be a wide sheared zone with

numerous veins of massive and disseminated mineralization (iron, zinc and lead sulphides, and graphite were observed in the previous drilling). The east end of this zone appears to be getting weaker, and ends by line 700E, but the airborne EM survey detected it out to L800E. It is possible that the conductor is being lost at depth, and a deeper detecting ground EM system will be necessary to locate it.

Most of the conductors on the western half of the grid are relatively weak and deep. Some of them may be due to bedrock troughs, but most are definitely weak bedrock conductors, with conductivity thicknesses of approximately 5 to 10S.

The conductors at 300N to 350N on lines 250E to 350E also have low apparent conductivities on the Max Min surveys, and are about 45m deep.

The northern conductor at 400N, 150E to 200E appears to be significantly more conductive (10 to 50 Siemens), and is too deep for an accurate quantitative interpretation.

The magnetics did not detect any strong anomalies, and using them to map geology is difficult without any outcrop geology. Several north-trending anomalies, which cross the baseline at 10+50E and 6+50E are narrow diabase dikes.

Most of the property appears to be situated over felsic rock types, thus the quiet magnetic background. Some areas, specifically the south east corner (south of a contact at 1700E, 175S to 900E, 800S), the extreme western edge, and a region near 400N on lines 700E to 1600E appear to be mafic metavolcanic units.

A very weak diabase dike crosses the baseline at 150E trending north.

A weak anomaly trends east from 300N on 300W to 100N on 600E. The strength of the anomaly is comparable to that of a cross-cutting diabase dike, but it deserves further investigation because of its position parallel to, and 100m north of the main conductive zone.

CONCLUSIONS AND RECOMMENDATIONS

Extensive diamond drilling of the main conductor is the past detected promising, but sub-economic base metal and gold concentrations. A careful study of all of the previous work should be conducted to determine if further drilling would be likely to detect economic concentrations, and where this drilling should be conducted.

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It is often the case that a zone of massive mineralization such as exists on this property has only weak gold concentrations but disseminated mineralization to one side of the zone or the other have high concentrations. These disseminated zones would not be detectable by Max Min through the overburden depth encountered on this grid, and may not be conductive enough even for sensitive time-domain EM systems.

Disseminated mineralization is an excellent target for the induced polarization method, and this survey is recommended for further exploration on this property. According to Bowen (1986), Ontario Paper Company and Geomont Exploration did detect "interesting" IP anomalies near the property, but apparently no follow-up diamond drilling was conducted.

The next phase of exploration on this property should be directed away from the methods used and targets examined in the previous work.

A reconnaissance induced polarization survey should be

conducted over most of the grid, to search for disseminated mineralization missed by the previous surveys. A program of approximately 33 line km of IP is recommended.

testing of any of the already-detected Diamond drill conductors should be preceded by a more powerful, more sensitive To gain the depth and sensitivity electromagnetic survey. required would require a fixed transmitter, time domain EM survey, using either a Crone PEM, a Geonics EM37 or Lamontagne UTEM. This EM survey should be directed at and around the areas of each of the previously detected conductors. The increased spatial and geometric resolution of fixed transmitter TDEM systems will collect much more information about the conductors than is currently known.

Respectfully submitted

Greg Hodges, B.Sc.

Geophysicist

REFERENCES

BOWEN, R.P. 1986

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Report on the Property of Unigold Resources Ltd., Sheraton and Bond Townships, Porcupine Mining Division, Ontario

PYKE, D.R. 1982

Geology of the Timmins Area, District of Cochrane, Ontario Geological Survey Report 219

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 Unigold Resources Ltd. property in Sheraton and Bond Townships, Province of Ontario and dated May 27, 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 Unigold Resources Ltd., 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 27, 1987 Timmins, Ontario

D. Greg Hodges; Geophysicist

<u>A P P E N D I X A</u>

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The MaxMin I ground EM System is designed for mineral and water exploration and for geoengineering applications. It is an expansion of the highly popular MaxMin II and III EM System concepts. The frequency range is extended to seven octaves from four. The ranges and numbers of coil separations are increased and new operating modes are added. The receiver can also be used independently for measurements with powerline sources. The advanced spheric and powerline noise rejection is further improved, resulting in faster and more accurate surveys, particularly at larger coil separations. Several receivers may be operated along a single reference cable.

Mating plug in data acquisition computer and cassette unit are available for use with the MaxMin I for automatic digital data acquisition and processing. These units are covered in separate data sheet.



MAXMIN I SPECIFICATIONS:

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Frequencies:	110, 220, 440, 880, 1760, 3520, 7040 and 14080 Hz, plus 50/60 Hz powerline frequency (receiver only).	Signal filtering:	Powerline comb filter, continuous spherics noise clipping, autoadjusting time constant and other filtering.
Modes:	MAX 1: Horizontal loop mode (Transmit- ter and receiver coil planes horizontal and coplanar).	Warning lights:	Receiver signal and reference warning lights to indicate potential errors.
	MAX 2: Vertical coplanar loop mode (Transmitter and receiver coil planes vertical and coplanar)	Survey depth:	From surface down to 1.5 times coil separation used.
	MAX 3: Vertical coaxial loop mode (Transmitter and receiver coil planes vertical and coaxial).	Transmitter dipole moments:	110 Hz: 220 Atm ² 1760 Hz: 160 Atm ² 220 Hz: 215 Atm ² 3520 Hz: 80 Atm ² 440 Hz: 210 Atm ² 7040 Hz: 40 Atm ² 880 Hz: 200 Atm ² 14080 Hz: 20 Atm ²
	MIN 1: Perpendicular loop mode 1 (Transmitter coil plane horizontal and receiver coil plane vertical).	Reference cable:	Light weight unshielded 4/2 conductor teflon ceble for maximum temperature range and for minimum friction, Please
	MIN 2: Perpendicular loop mode 2 {Transmitter coil plane vertical and receiver coil plane horizontal}.	Intercom:	specify cable lengths required. Voice communication link provided for
Coil separations:	12.5, 25, 50, 75, 100, 125, 150, 200, 250, 300, & 400 metres (stand- ard).	Receiver power	Four standard 9V batteries (0.5Ah, alkaline). Life 30 hrs continuous duty,
	10, 20, 40, 60, 80, 100, 120, 160, 200, 240 & 320 metres (selected with orid switch inside of receiver).	suppiy: Transmitten	tery and charger option available.
•	50, 100, 200, 300, 400, 500, 600, 800, 1000, 1200 & 1600 feet (selected with grid switch inside of	power supply:	12V-13Ah batteries (4x6V-61/2Ah) in cenvas belt. Optional 12V-8Ah light duty belt pack available.
Parameters measured:	receiver). In-Phase and quadrature components of the secondary magnetic field, in % of primary (transmitted) field.	Transmitter battery charger:	For 110-120/220-240VAC, 50/60/ 400 Hz and 12-15VDC supply opera- tion, automatic float charge mode, three charge status indicator lights.
	Field amplitude and/or tilt of 50/60 Hz powerline field.	Operating temp:	-40 to + 60 deg.C.
Readouts:	Analog direct readouts on edgewise panel meters for in-phase, quadrature and tilt, and for 50/60Hz amplitude.	Receiver weight:	8 kg, including the two integral ferrite cored antennas (9 kg with data acq. comp.)
	controls are provided for plug-in].	Transmitter weight:	16 kg with standard 12V-13Ah battery pack. 14 kg with light duty 12V-8Ah pack.
Ranges of readouts:	Analog in-phase and quadrature scales: $0 \pm 4\%$, $0 \pm 20\%$, $0 \pm 100\%$, switch activated. Analog tilt scale: $0 \pm 75\%$ grade. [Digital in-phase and quad. $0 \pm 102.4\%$]	Shipping weight:	59 kg plus weight of reference cables at 2.5 kg per 100 metres plus other optional items if any.
Readability:	Analog in-phase and quadrature 0.05% to 0.5%, analog tilt 1% grade. (Digital in-phase and quadrature 0.1%).	Standard spares: 	One spare transmitter battery pack, one spare transmitter battery charger, two spare transmitter retractile con- necting cords, one spare set receiver batteries.
Repeatability:	$\pm 0.05\%$ to $\pm 1\%$ normally, depending on frequency, coil separation & conditions.	Specifications	subject to change without notification.

APEX PARAMETRICS LIMITED

Telephones: 416-640-6102 416-852-5875

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The PPM-350 is the latest addition to EDA's OMNIMAG*[™] series of magnetometers and gradiometers. It is engineered to provide users with the latest state-of-the-art advances in microprocessor technology, including many features that are unique in the field.

Major benefits and features include:

- Significant increase in productivity
- Lowered survey costs
- Automatic diurnal correction
- Programmable grid coordinates
- Highly reproduceable data
- Ergonomic design
- Simplified fieldwork
- Computer-compatible

Specifications

Dynamic Range Sensitivity Statistical Error Resolution Standard Memory Capacity Absolute Accuracy

Display Resolution Capture Range

Deblay

Gradient Tolerance Sensor

Sensor Cable

Operating Environmental Range

Per Supply

Batery Cartridge Life

Maight and Dimensions Instrument Console only Lead Acid Battery Cartridge ensor System Complement

18,000 to 93,000 gammas ±0.02 gamma 0.01 gamma 1383 data blocks or readings ± 15 ppm at 23°C, 50 ppm over the operating temperature range 0.1 gamma ±25% relative to ambient field strength of last stored value Custom-designed, ruggedized liquid crystal display with an operating temperature range from -35°C to +55°C 5,000 gammas per meter Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy Remains flexible in temperature range: includes low strain connector -35°C to +55°C: 0-100% relative humidity; weather-proof Non-magnetic rechargeable sealed lead acid battery cartridge or belt; or, Disposable "C" cell battery cartridge or belt 2,000 to 5,000 readings, depending upon ambient temperature and rate of readings

3.4 kg, 238 x 150 x 250 mm 1.9 kg

1.2 kg, 56 mm diameter x 200 mm Electronics console; sensor with 3-meter cable; sensor staff; power supply; harness assembly; operation manual. EDA is a pioneer in the development of advanced geophysical systems and has created many innovations that increase field productivity and lower survey costs.

EDA's OMNIMAG series consists of the PPM-350 Total Field Magnetometer, PPM-400 Base Station Magnetometer, and the PPM-500 Vertical Gradiometer. Contact us *now* for details.

E D A Instruments Inc. 1 Thorncliffe Park Drive Toronto, Ontario Canada M4H 1G9 Telex: 06 23222 EDA TOR Cable: Instruments Toronto (416) 425-7800

In U.S.A. E D A Instruments Inc. 5151 Ward Road Wheat Ridge, Colorado U.S.A. 80033 Telex: 00 450681 DVR (303) 422-9112





Ministry of Northern Development and Mines



2A07NE0153 2.11321 BOND

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Ministère du Développement du Nord et des Mines

August 23, 1988

Your file: W8806-175 Our file: 2.11321

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

Dear Sir:

ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES OFFICE SEP 8 1988

Re: Notice of Intent dated August 8, 1988 Geophysical (Electromagnetic & Magnetometer) RECEIVED submitted on Mining Claims P 795030 et al in the Townships of Bond and Sheraton

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,

W.R. Cowan, Manager Mining Lands Section Mines & Minerals Division

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

Telephone: (416) 965-4888

AB:pl Enclosure

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

> > Unigold Resources Limited Suite 1404 141 Adelaide Street W. Toronto, Ontario M5H 3M7

Resident Geologist Timmins, Ontario



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Date 1988 08 08

Mining Recorder's Report of Work No.W8806-175

Recorded Holder UNIGOLD RESOURCES LIMITED	
Township or Area BOND AND SHERATON	
Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical 32 days Electromagnetic 17 days Magnetometer 17 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 Special provision Ground	P 756484-86-88-89 795030 to 34 incl 795036 to 45 incl 795301 to 06 incl 795502 to 06 incl 795508-09-10 795512 to 16 incl 796001 to 06 incl 805808-09-19 833111 to 14 incl
Special credits under section 77 (16) for the following mining	claims
lo credits have been allowed for the following mining claims	
Int sufficiently covered by the survey P 756482-83-85-87 795035 795507 795511 795517 805807	fficient technical data filed
The Mining Recorder may reduce the above credits if necessary in orde xceed the maximum allowed as follows: Geophysical - 80; Geologoca	er that the total number of approved assessment days recorded on each claim does not al - 40; Geochemical - 40; Section 77(19) - 60.

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	Ministry of	Report of W	ork			ls	structions:	Please typ	be or print.	
	<u>Northern</u> Developme and Mines	(Geophysical,	Geologica	al,	DO	CUMENT No.	-	If numbe exceeds si	r of mining clai	ms traversed
Ontario		Geochemical a	nd Expen	nditur	res 🗤	8806.175	Note: -	Only day	vs credits calcul	ated in the
					Minin	a Act		in the "	Expend, Days C	columns.
Type of \$	Survey(s)		<u></u>				Township	or Area	e shaded areas beig	<u>.</u>
	Max-Min S	urvey And Ma	gnetor	net	er Sı	irvey	Bond	and S	heraton	
Claim Ho	ilder(s)		3 L L A					Prospecto	r's Licence No.	
Address	Unigota R	esources Lim	ited					T-4	1033	
14	04-141 Adela	aide Street	West,	To	ronto	o, Ontario	M5H 3	M7		ļ
Survey C	ompany	· · · · · · · · · · · · · · · · · · ·				Date of Survey	(from & to)	-	Total Miles of line	Cut
Mid	dleton Expl	oration Serv	ices]	Inc	•	01,5 0,1	87 12 v	02 87	48 Miles	6
Name and	d Address of Author (o	of Geo-Technical report)	Ctro	~+ (Co	mimmina	0-+	1_	* * * * * * · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Credits R	lequested per Each (Claim in Columns at r	ight		Mining C	1, 1 LIUNIIIS	, Untar	10		
Special Pr	rovisions	Geophysical	Days per	ו ר	Anning C	Aining Claim	Expend.	rical seque	ence) tining Claim	Expand
- For fir	rst survey:		Claim	┥┝	Prefix	Number	Days Cr.	Prefix	Number	Days Cr.
En	ter 40 days. (This	- Electromagnetic	40							
inc	ludes line cutting)	Magnetometer	20			Please				
For ea	ch additional survey:	- Radiometric								
using t	the same grid:	- Other				-see	1			
En	ter 20 days (for each)	0			a des destas. A destas dest	attached		2017 (1997) 1997 - 1997 (1997) 1997 - 1997 (1997)		
		Geological				list		\$ \$ \$ \$		
L		Geochemical			1.175					
Man Days	5	Geophysical	Days per			Man				-
Compi	ete reverse side	• Electromagnetic	Ciaiiii			Maximum	20 00	合意語		
and en	ter total(s) here	- Lieuti omagnetic				Allowed per	claron.			-
		- Magnetometer						Part Part I		
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		Castastast			1.1					
		Geological								
		Geochemical		12	68 8 63 12 15 01	RECE	IVED			
Airborne	Credits		Days per Claim						******	
Note:	Special provisions	Electromagnetic				JUN-2	7 1988			
	credits do not apply			S.						
	to Airborne Surveys.	Magnetometer				MILLING LAN	DS SECT			
		Radiometric			5.0			1 Miles		
Expendit	ures (excludes powe	r stripping)	······		563			Mor	CODD	
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Performed	on Claim(D)		}{							l-l
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	J	IN 151988							011-1-3-190	9
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Total F	Non of Experiditure Days	Credits	otil			· · · · · · · · · · · · · · · · · · ·		1.2		
					in Sin			(1997) (1997) (1997)		
\$] + [15] = [Total num	ber of mining	
Instruction	IS Coodias mars ha and							report of v	vork.	60
choice.	Enter number of days	credits per claim selected	ider's			For Office Use Or	nly		7. 1	
In colur	nns at right.			To	tal Days corded	Cr. Date Recorded	1000	Mining B	order, Ind.	
Oate	Reco	orded Holder or Agent (Si	onature)		200	June 15	Becorded	Research Dis	While	
June	15188 R	ander Traase		/	000	100	An a se n			\mathbf{v} .
Pertificati	on Verifying Report	t of Work					A	3	work	<u>a</u>]
I hereby	certify that I have a p	ersonal and intimate kno	wiedge of	the fa	cts set fo	orth in the Report of	Work annexe	d hereto, h	aving performed th	e work
Name and I	Postal Address of Perso	on Gertifying	io the anne	exed r	eport is t					
Ran	dy Maass Du	rham Geologi	cal S	erv	ices	Inc.				
Roy	731 Timmi	ng Ontonio	DAN 7	<u>~~</u>		Date Certified		Certified by	(Signature)	
XUG		ns, Untario	£'411 /I	62		June 15	: 188	Rond	y noos	\sim

SHERATON TOWNSHIP

	MINING CLAIM	DAYS CREDIT
PREFIX		60
	795030	60
P	795031	60
Р	795032	60
P	795033	60
P	795034	60
Р	795035	60
Р	795036	60
Р	795037	60
P	795038	60
P	795039	60
Р	795040	60
P	795041	60
P	795042	60
P	795043	60
P	795044	60
P	795045	60
P	795502	60
P	795503	60
P	795504	60
P	795505	60
Р	795506	60
P	795507	60
P	795508	60
Р	795509	60
P	795510	60
P	795511	60
Р	795512	60
P	795513	60
P	795514	60
Р	795515	60
Р	795516	60
Р	795517	÷ -
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TOTAL CLAIMS = 32

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DECEIVE JUN 151989

BOND TOWNSHIP

	MINING CLAIM	DAYS CREDIT
PREFIX	MINING OBJECT	
	756482	60
P	756483	60
Р	756484	60
Р	756485	60
Р	756486	60
Р	756487	60
Р	756488	60
P	756489	60
P	705301	60
Р	705302	60
Р	705202	60
Р	190000	60
Р	790304	60
Р	795300	60
Р	795300	60
Р	796001¢ 706002	60
Р	796002	60
P	790003	60
Р	790004	60
Р	796005	60
Р	190000	60
Р	805807	60
Р	805808	60
Р	805809	60
Р	805819	60
Р	833111	60
P	833112	60
Р	833113	60 60
р	833114	••

TOTAL CLAIMS = 28

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L 12+00E	L 12+00E
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С <u></u> 4+00Е	
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	T 4+00E
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L 3+00E	
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M00+g T	- + моо+s т	ROBERTS. M LORATION SI	HERATON & BONE XX-MIN II 440 Hz	17 Scale; 1:25(
M00+9 T	- + моо+9 Т			Date: April 6
M00+2 7		REVISIONS		

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