REVIEW OF GEOPHYSICAL DATA
FROM A
HELICOPTER-BORNE
MAGNETIC AND ELECTROMAGNETIC SURVEY

Gooderham Block
Temagami Diamond Project
Sudbury Mining Division
Ontario

Prepared by:

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Geological Consultant
Geological Consultant

For

Tres-Or Resources Ltd.

March 6, 2003
Summary

Tres-Or Resources Ltd. is exploring for diamonds in a large block of contiguous claims covering parts of 21 Townships in the Temagami – Marten River area. The claims are located 40 to 90 kilometres south of known diamondiferous kimberlites of the New Liskeard kimberlite field, in an area recently identified by government surveys as favourable for diamond-bearing kimberlites. During May 2002 Tres-Or contracted Goldak Exploration Technology Ltd. to complete a detailed fixed-wing, 3 axis gradient magnetometer survey over the project area. Regional geochemical sampling for kimberlite indicator minerals (KIM) returned anomalous numbers of kimberlitic indicators in the Gooderham Lake area of Gooderham Township, and a number of kimberlite-like geophysical features were identified by Goldak Exploration Technology Ltd., in the same area.

A detailed, helicopter-borne magnetic and electromagnetic survey was completed by Aeroquest Limited during October 2002. The results of the helicopter-borne survey have been reviewed in conjunction with a number of field programs carried out during 2002, including KIM indicator mineral sampling, geological mapping, prospecting and sampling. A number of targets have been identified that have magnetic signatures comparable to known kimberlite pipes. Additional ground surveys, including geophysical and geochemical sampling are recommended to further define the targets for drill testing.
### Table 1

Claim List

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<tr>
<th>Township</th>
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<th>Recording Date</th>
<th>Claim Due Date</th>
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<td>S1246324</td>
<td>2000-Oct-16</td>
<td></td>
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<tr>
<td>Gooderham</td>
<td>S1246325</td>
<td>2000-Oct-16</td>
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<tr>
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<td>S1246377</td>
<td>2000-Nov-02</td>
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<tr>
<td>Gooderham</td>
<td>S1246378</td>
<td>2000-Nov-02</td>
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Fixed-Wing Magnetic Survey

The fixed-wing survey was completed under contract by Goldak Exploration Technology Ltd., during May of 2002. The survey was flown on north-south flight lines spaced 150 metres apart, at an elevation of 90 metres over the entire Tres-Or Temagami claim area. Details of this survey have been filed and reported in an Assessment Report dated October 10, 2002 (approval pending).

Ground Magnetic Surveys

Ground magnetic surveys were completed under contract by Services Exploration ENR. during August 2002, over three small grids. The ground magnetic surveys did not provide sufficient data to define potential kimberlite targets. A helicopter-borne magnetic and electromagnetic survey was initiated to provide additional data over a wider area. The electromagnetic survey was recommended to further define structures related to potential kimberlite emplacement.

Helicopter-Borne Magnetic and Electromagnetic Survey

The helicopter-borne magnetic and electromagnetic survey was completed by Aeroquest Limited during October 2002. The survey was flown on north-south flight lines spaced 50 metres apart, at a bird elevation of 30 metres. A total of 761.6 line kilometres of survey, including tielines, was completed. Details of the helicopter-borne survey have been filed and reported in an Assessment Report dated October 22, 2002.

Review of Helicopter-Borne Data

The review of the helicopter-borne data comprised a compilation of nearby geochemical results, and detailed examination of the Total Magnetic Intensity Vertical Gradient and the Total Magnetic Intensity maps. Six magnetic features with signatures comparable to known kimberlite pipes were identified. This is based on the author’s extensive experience in the Lac de Gras area of Northwest Territories. The six targets are listed in Table 2.

Results

Of the six priority targets identified, five are on Tres-Or claims. Targets D and E are located up ice from a fence of samples across claims 1246324 and 1246335 that returned anomalous numbers of kimberlite indicator minerals. The majority of the kimberlite indicators are pyrope garnets. Microprobe analyses of some of the garnets is recommended. All of the targets are up ice from a fence of samples collected in Hammell Township that returned anomalous numbers of kimberlite indicator mineral in both the coarse and fine fractions.

Very limited sampling to the north of the survey area has returned much fewer kimberlite indicator minerals.
<table>
<thead>
<tr>
<th>Target</th>
<th>Claim</th>
<th>Easting</th>
<th>Northing</th>
<th>Total Field</th>
<th>Vert. Grad</th>
<th>Comments</th>
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<tr>
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<td></td>
<td></td>
<td>Signature</td>
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<tr>
<td>A</td>
<td>not TRS</td>
<td>608110</td>
<td>5174875</td>
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<td>High</td>
<td>distinct high, JML?</td>
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<tr>
<td>B</td>
<td>1246335</td>
<td>608780</td>
<td>5176950</td>
<td>High</td>
<td>High</td>
<td>Vert Grad high on flank of large feature</td>
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<tr>
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<td>604300</td>
<td>5174400</td>
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<td>1246324</td>
<td>607660</td>
<td>5178550</td>
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<td>Inflection high</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>1246334</td>
<td>608870</td>
<td>5178160</td>
<td>High</td>
<td>Inflection high</td>
<td>Vert Grad shoulder feature</td>
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<td>609600</td>
<td>5176350</td>
<td>Low</td>
<td>Low</td>
<td>Distinct inflection low</td>
</tr>
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</table>

Relevant Samples

Note: Targets D and E are up ice from a fence of 6 samples which returned KIM;

1246335
1246325
1246325
1246324
1246324
1246324
1246324
1246324

Sample 508, to N of Targets D & E is anomalous: 4PY, 4 Ilm
Other samples on this line have not been processed; is KIM train cutoff?

Discussion and Recommendations

The abundant kimberlite indicator minerals, in particular the pyrope garnets located down ice from the geophysical targets, and the reduced number of KIM up ice, suggests that the source of the kimberlite indicator minerals may be within the area covered by the helicopter-borne magnetic and electromagnetic survey. The priority geophysical anomalies selected, based on their magnetic signature, are viable, priority kimberlite targets.
Additional ground surveys are recommended to further define the geophysical targets. Additional till sediment sampling along the northern boundary of the helicopter-borne survey is required to determine the northern limit of the kimberlite indicator mineral dispersion train. Each of the geophysical targets should be ground checked. The area of the helicopter-borne survey should be geologically mapped and prospected in detail. Each of the geophysical targets should be covered by a ground magnetic geophysical survey, completed on a chained and flagged grid.

Estimated Cost of Recommended Program

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<th>Item</th>
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<th>Cost/Day</th>
<th>Total Cost</th>
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<tr>
<td>Sampling Crew</td>
<td>34</td>
<td>$200</td>
<td>$6800</td>
</tr>
<tr>
<td>Room &amp; Board</td>
<td>51</td>
<td>$100</td>
<td>$5100</td>
</tr>
<tr>
<td>Vehicle</td>
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<td></td>
<td>$750</td>
</tr>
<tr>
<td>Supplies</td>
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<td></td>
<td>$1250</td>
</tr>
<tr>
<td>Ground Magnetic Surveys</td>
<td>125 km</td>
<td>$160</td>
<td>$20000</td>
</tr>
<tr>
<td>Till Sampling (collection, HMC, sorting &amp; microprobe)</td>
<td>40 samples</td>
<td>$700</td>
<td>$28000</td>
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<td>Reporting</td>
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<td>$87000</td>
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</tbody>
</table>
STATEMENT OF QUALIFICATIONS

I, Laura Lee Duffett, Professional Geoscientist, with a business address at 1934-131 Street, South Surrey, B.C. V4A 7R7 Canada certify that:

1. I am a graduate of Carleton University, Ottawa, Ontario, Canada with a Bachelor of Science degree in Geology given November 7th 1982 in Ottawa, ON.

2. I am a registered Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia (Registration # 19722) given November 7, 1992, Vancouver, B.C.


4. I have practiced my profession for eighteen years.

5. I have based my interpretation, recommendations and conclusions on direct participation of sampling and direct supervision of the project. I have reviewed numerous reports and papers and presented talks on diamond exploration and general geology. I have reviewed numerous work reports and assessment reports on diamond exploration in the area.

6. I have visited the properties August 2001 for a period of 10 days, and August and September 2002 for a period of one week each.

7. I am the President and a Director of Tres-Or Resources Ltd. and hold stock and options to purchase shares in the Company.

Signed:

I Philip A.R. Brown certify that

1. I am a registered P.Geo in Ontario.
2. I graduated from the Royal School of Mines, London University, London, England as a Mining Geologist, in 1966 and have been practising my profession continuously since that date.
3. I am a Fellow of the Geological Association of Canada.
4. I am a Member of the C.I.M.
5. I am a shareholder in Tres-Or Resources and an underlying Royalty holder in their diamond claims.
6. I am involved with the exploration of the diamond claims on a day to day basis.

My residence is 189 Corbeil-Astorville Road, Corbeil, Ontario P0H1K0.

P.A.R. Brown P.Geo
189, Corbeil-Astorville Road, Corbeil, Ontario, P0H1K0
Tel/Fax 705-751-1123

Dated at Corbeil

Mar 7th, 2003

Signature

[Signature]

P.A.R. Brown P.Geo
189, Corbeil-Astorville Road, Corbeil, Ontario, P0H1K0
Tel/Fax 705-751-1123
QUALIFICATIONS

Andrew W. Gourlay
Consulting Geologist
RR#1, Q-59
Bowen Island, B.C.
V0N 1G0

I, Andrew W. Gourlay, P. Geol., F.G.A.C., do hereby certify that:

1. I graduated with a Bachelor of Science (Honours) degree in Geology from the University of British Columbia in 1977.

2. I am a Professional Geologist registered with The Association of Professional Engineers, Geologists and Geophysicists of Alberta and am a Fellow of the Geological Association of Canada.

3. I have practised my profession as a geologist for a total of 26 years since my graduation from university.

4. I have worked as an exploration geologist since graduation on projects in North America, South America and Southeast Asia, including management of diamond exploration from regional surveys through to definition drilling in the Lac de Gras area of Northwest Territories.

Dated this 6th day of March, 2003
Airborne Geophysical Interpretation

of the

Gooderham Property

Temagami – Temiscaming Area, Ontario

Sudbury Mining Division

NTS 031L/12 and 031L/13

for

Tres-Or Resources Ltd.

1934 - 131 Street
White Rock, BC V4A 7R7
Canada

by

Intrepid Geophysics Ltd.

Christopher Campbell, P. Geo.
December 31, 2002

4505 Cove Cliff Road
North Vancouver, BC
Canada V7G 1H7

Project no. 02-085
Summary

A total of 721.5 line-kilometres of helicopter-borne electromagnetic and magnetic data over the Gooderham property in the Sudbury Mining Division of northeastern Ontario were reviewed on behalf of Tres-Or Resources Ltd. The data was acquired using traverse lines oriented north-south at a nominal line spacing of 50 metres and tied by perpendicular (east-west) control or tie lines every 1,500 metres. Ground clearance was approximately 48 metres, mean terrain clearance.

All airborne geophysical data were imported into a database for line-by-line viewing and processing; spreadsheet, profile and grid editing tools facilitated advanced processing and analysis as well as quality control/assurance of the basic data. Filtering transformations yielded secondary products with enhanced information content; this permitted greater information to be extracted from the data. The processed geophysical grids were further subjected to standard image processing techniques to provide increased target quality and higher confidence through integration of all types of data. The final integration of data and information was made using GIS software, where layers of drainage overlay the geophysical images, license permits, etc.

The primary objective of the geophysical interpretation was the identification and ranking of possible kimberlite targets based on their electromagnetic and/or magnetic response. Target selections made on the basis of discrete anomalies identified from these enhanced grid images were crosschecked on a profile-by-profile basis. A total of 35 targets were identified as possible kimberlite intrusives; although no anomalies are ranked as high priority (rank = 1), 4 targets are ranked as good (rank = 2). The remainder are felt to be less likely representative of kimberlite intrusions (on a ranking scale of 1 to 5; 1 being most likely and 5 least likely) although all "fit" accepted criteria for a kimberlitic, magnetic intrusion with or without a conductive association. All of these anomalies or targets are tabulated in this report, and are further incorporated in the final GIS analysis.
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Map 3 Analytic Signal (colourdrape image, 45° declination, 45° inclination), scale 1:10,000
1. Introduction

The Temagami area of Northeastern Ontario is considered prospective for diamond exploration. Tres-Or Resources Ltd.'s Temagami Diamond Claim properties are located west of the Timiskaming Structural Zone and straddle the Grenville Front, a deep-rooted structure that separates the thick Precambrian Superior Craton from the Grenville Province, a cratonized accreted mobile belt. These deep-seated fault structures may have tapped into the diamond bearing portions of the earth's mantle. The area exhibits many major north to northwest trending faults and lineaments (associated with the Timiskaming Structural Zone) that intersect major east to northeast trending structures. The intersection of these deep-rooted structures may have provided an excellent conduit or "plumbing system" for kimberlite emplacement.

![Figure 1. Project Location, Ontario](image)

2. Location and Access

Tres-Or's Temagami Diamond Property extends from 15 km south of Marten River, north to the village of Temagami and East from Highway to the Ontario-Quebec border. The property is about 30 minutes north of North Bay, Ontario on Highway 11, which crosses the western side of the property. Marten River, Temagami and New Liskeard (50 km to the north), in addition to other towns in the vicinity can provide the required personnel and infrastructure to support exploration. The properties are accessed by a network of logging roads, east off of Highway 11 and/or along the Ontario Northland Railway, which crosses southeasterly through the center of the property. An interconnected system of lakes provides boat access to many parts of the property and the larger lakes can be accessed by floatplanes.

The Temagami-Marten River area of eastern Ontario is characterized by rolling hills separated by lakes and swampy lowlands, with elevation ranging from 350 to 450 m. The area is forested partly with hardwoods, and partly with conifers.
Summer field conditions extend from June through September. Winters are cold, but suitable for exploration operations such as drilling and geophysical surveys. Break-up in the spring and freeze-up in the fall limit access to the area. The climate features intermittently cold winters (-40°C to +10°C) and mild summers, although temperatures can reach +30°C for short periods. Snow commonly reaches 1 to 1.5 m depth, and summer rains average 3 to 5 cm per month.

![Figure 2. Aeromagnetic Survey Location, Gooderham Block Location](image)

### 3. Survey Technology and Instrumentation

The airborne survey was flown October 12–17 2002 by Aeroquest Ltd. using their exclusive "IMPULSE" six channel frequency time domain helicopter electromagnetic system and a high sensitivity cesium vapour magnetometer. Ancillary equipment included a GPS navigation system with GPS base station, radar altimeter, video recorder, and a base station magnetometer. Complete details of this survey are described in a report by the airborne contractor, previously submitted to Tres-Or Resources Ltd.

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A Bell Textron 206L LongRanger helicopter - registration C-GKMJ - owned and operated by Gateway Helicopters Ltd., North Bay Airport, Ontario was used as the survey platform. Installation of the geophysical and ancillary equipment was carried out by AeroQuest Ltd. at the Gateway hanger in North Bay and survey operations were based from there. The helicopter and EM bird were parked in the hanger nightly. The survey aircraft was reportedly flown at a nominal terrain clearance of 200–250 ft although the average height as indicated by the radar altimeter was slightly higher at 81.35 m (267 ft).

4. Geophysical Survey Methodology

The survey was flown at 50 metre line spacing and in the north-south direction. The total line kilometres flown were 721.586 line-kilometres including tielines. The survey flying took place between October 12 and October 17, 2002 and was completed with nine survey flights.

Navigation was assisted by a GPS receiver and the AG-NAV2 flight path guidance system that reports GPS coordinates as WGS-84 latitude/longitude and directs the pilot over a pre-programmed survey grid. The x-y-z position of the aircraft, as reported by the GPS, is recorded at one second intervals.

5. Data Presentation

The airborne geophysical interpretation is based on a profile analysis using Geosoft's Oasis Montaj integrated editors (spreadsheet and flight path). A screen capture of each target is presented at an appropriate, detailed scale for analysis and archival purposes (Appendix A). All the final data is also presented as a series of digital maps and images generated at scale of 1:10,000.

The airborne geophysical gridded data was analyzed using the following derived images:

- Total Magnetic Intensity; pseudocolour and colourdrap images
- Vertical derivative (gradient); pseudocolour and greyscale shaded-relief images
- Horizontal derivative (gradient); greyscale, shaded-relief and colourdrap images
- Total gradient (analytic signal); greyscale, shaded-relief and colourdrap images

In addition, the final interpretation consisting of kimberlite target identification was prepared in MapInfo *.tab format and further archived in Section 8 of this report in Word *.doc format.

6. Data Description

The located data provided to the Client from the Contractor is judged to be of high standard, and permitted final processing (Fourier analysis and imaging) of a similar standard. The surveys' signal-to-noise ratio as determined by 4\textsuperscript{th} difference on the magnetic data indicates a relatively active noise background (i.e., mean of 0.0000 and a standard deviation of 0.0177 nT). The noise envelope on the magnetics was generally ≤ 0.040 nT). Radar altimetry, for the most part, was within or close to contract specifications; in the few instances of where outside specification, it occurred only sporadically (typically due to severe, local topography) and should not have impaired either the final processing or subsequent interpretation. The diurnal activity during accepted flight operations was low, and well within contract specification and accepted practices.
The Nyquist frequency ($f_N$) for the gridded total field data was determined to be 0.04 cycles/metre with a Fundamental frequency of 0.000134 cycles/metre; this translates to 25 m and 7462.5 m respectively. The Nyquist frequency represents the highest frequency we can determine or resolve in Fourier transform applications (e.g., horizontal gradient and analytic signal). The “Sampling Theorem” states that when a waveform is sampled at an interval $\tau$, only those frequencies less than or equal to $1/2\tau$, called the Nyquist frequency, are accurately preserved. Higher frequencies are said to be aliased, i.e., they appear as lower frequencies.

**Figure 3. Total Magnetic Intensity image, Gooderham Block**

**Figure 4. Principal facts of the Earth’s field, Gooderham Survey**
7. Interpretation Methodology

The identification of a kimberlite or lamproitic diatreme from geophysics will depend upon the recognition of a characteristic response or signature. Clearly, the frequency and amplitude of that response will depend on the geophysical contrast between the target diatreme and the surrounding country rocks. Quite simply, if the physical properties are such that the kimberlite/lamproite is essentially similar to the country rock, then there will be no geophysical 'anomaly.' Fortunately, the nature of kimberlites and lamproites are such that there are often 'signature' responses that permit a distinction to be made.

Several workers have reported on the physical parameters of kimberlites and lamproites in particular regions around the world. Gerryts\(^2\) provided an excellent overview in 1967, and Macnae\(^3\) has provided key facts for several southern African kimberlites. Mwenifumbo has more recently reported\(^4\) on the geophysical characteristics of Canadian kimberlites in Ontario and Saskatchewan. Data was compiled from multi-parameter borehole logging on one pipe in Saskatchewan and four pipes in the Kirkland Lake area to obtain \textit{in situ} physical rock property data on kimberlites and their host rocks. Measurements included natural gamma-ray spectrometry, magnetic susceptibility, resistivity/conductivity, induced polarization, spectral gamma gamma (density and heavy element indicator), temperature, borehole 3-component magnetometer and seismic P-wave velocity. The geophysical data from the kimberlites investigated indicate that the physical properties are variable in a kimberlite pipe and also between different pipes in a single field. Although there is a high degree of variability of the physical properties within the kimberlite, most geophysical measurements show anomalous values that are characteristic of the kimberlites compared to the surrounding sediments.

Kimberlites can contain 5–10% iron oxides consisting predominantly of magnetite, ilmenite and a solid solution of these two constituents\(^5\). Unweathered kimberlites and lamproites typically have a strong magnetic signature. Kimberlite/lamproite typically have relatively high porosity and permeability, leading to rapid weathering when exposed to surface and meteoric waters. The uppermost zone may thus break down into a disk-shaped, lower density, highly conductive clay rich horizon depleted in magnetic mineralization. A more modest but still detectable conductivity anomaly in fresh, unweathered kimberlites may be due to serpentinization of olivine during initial diatreme emplacement.

Regardless, it must be stressed that the geophysical responses over kimberlite pipes are generally complex, indicating a basic inhomogeneity of the kimberlite and its physical properties. These geophysical responses vary significantly from one geographic area to another, resulting in different workers reaching very different conclusions as to the applicability and reliability of various geophysical techniques. Ideally, a diatreme target in plan view should show a circular to elliptical conductivity response coincident with a strong magnetic anomaly of slightly smaller diatreme (due to the convergent shape of the pipe and the depth of weathering). A similar,


matching pattern should be evident on profiles across the pipe. Of course, reality may be very
different due to divergence in the geological model from actual geophysical parameters of the
target kimberlite/lamproite.

Geophysical responses are complicated by tectonism, depth of burial and subsequent erosion,
nature of the Quaternary overburden or alluvium as well as the surrounding country rock,
permafrost, and lithological/mineralogical variations within the diatreme itself. Figure 6 shows
idealized geophysical properties of an altered diatreme.

Depth of the weathering profile will influence the size of the conductive cap and depth to ‘fresh’ kimberlite. Intensity and relative
orientation of the magnetic anomaly are related to the proportion of iron oxides (i.e., magnetite
and ilmenite), degree of alteration and remanent magnetization, etc.

Figure 5: Idealized geophysical properties of kimberlite pipe.

Gooderham Block

All airborne geophysical data was imported into Geosoft Oasis montaj database for line-by-line
viewing and processing. Spreadsheet, Profile and Grid editing tools inherent to the INTREPID
geophysical processing system facilitated advanced processing and analysis as well as quality
assurance / quality control of the basic data. Subsequent to the acquisition of airborne magnetic
data, corrections were applied to produce located profile, contours and grid versions of the data.
Filtering transformations (carried out in Fourier domain) conducted by Intrepid Geophysics
yielded secondary products with enhanced information content; this permitted greater information
to be extracted from the data. These enhancement techniques included:

- Upward and downward continuations — the effect of shallow anomalies may be suppressed
  when further detail on contributions from deeper sources is desired, or conversely, shallow,
  high-frequency anomalies may be ‘sharpened’ by bringing them ‘closer’ to surface.

Urquhart, W. E. S., Exploration geophysics and the search for diamondiferous diatremes; in Diamonds:
Exploration, Sampling and Evaluation, Proceedings of a short course presented by the Prospectors and
• Reduction to the pole — greatly simplifies the interpretation of magnetic data in areas of low
(i.e., < 50° magnetic latitude), where the relationship between anomaly form and source
geometry is often not obvious.
• Vertical and horizontal derivatives — eliminate long-wavelength regional effects, and resolve
adjacent features. Body outlines can also be more precisely identified by the horizontal
derivative.
• Analytic signal — (or total gradient) provides a quantity that is independent of the direction of
source magnetization and the direction of the Earth's field. Thus all bodies with the same
geometry will have the same analytic signal, an obviously useful quality in any interpretation.

The processed geophysical grids were further subjected to standard image processing
techniques using ER MAPP$^R$; e.g., aeromagnetics and conductivity/resistivity grids were 'fused'
into a single image using variable bands and colour look-up tables to provide increased target
quality and higher confidence through integration of all types of data. The final integration of data
and information was made using MAPINFO GIS software, where the geophysical images were
overlain by layers or ‘tables’ of drainage, license permits, etc.

The primary objective of the geophysical interpretation was the identification and ranking of
possible kimberlite targets based on their magnetic response. Target selections made on the
basis of discrete anomalies identified from these enhanced grid images were crosschecked on a
profile-by-profile basis. Essentially, the interpretation was seeking or focusing on presumed
geophysical signatures that should occur over intrusive kimberlite pipes-like bodies.

8. Data Interpretation

Much reliance in the interpretation process for kimberlite targets is based on an analysis of the
horizontal gradient magnetic and analytic signal (total gradient) images. These have proved most
beneficial in previous exploration programs and are the primary tools for identifying kimberlite
intrusives directly from gridded aeromagnetic data sets. All anomalies thus identified were
crosschecked for their individual profile response and then tabulated. The final edited list of
targets identified from the Gooderham airborne geophysical data is tabulated in Table 1 below.

An analysis of the airborne geophysics over the Gooderham property has identified 35
electromagnetic and/or magnetic targets that fit ‘accepted’ magnetic criteria for kimberlite
intrusions. Of these 35, 4 are ranked as good priority (rank = 2) and a further 14 are ranked as
fair (rank = 3) targets. The remainder are felt to be less likely representative of kimberlite
intrusions (on a ranking scale of 1 to 5; 1 being most likely and 5 least likely) although all ‘fit’
accepted criteria for a kimberlitic, magnetic intrusion. It should be pointed out that this
géophysical-based interpretation relies on the magnetic susceptibility of the kimberlite being
different from the surrounding rock, and/or the electrical conductivity/resistivity being similarly
distinguishable. Kimberlite is generally strongly susceptible, having susceptibilities up to 6*10^{-2}
SI, which is why the magnetic method is so successful. A diatreme is generally magnetic due to
magnetite and ilmenite being present in the unweathered kimberlite; significant weathering can
reduce the magnetic susceptibility. The susceptibility values of kimberlites can vary considerably.
In some kimberlites, there are multiple phases of intrusions or pyroclastic eruptions and each
phase can have a different magnetic susceptibility (Jenke and Cowan, 1994; Jansen and Doyle,
1998). Some phases can appear to be non-magnetic. A number of the kimberlites in the Lac de
Gras area (Slave Province, NWT) in particular show reversed magnetic anomalies, implying that
there is strongly remanent magnetic material in the kimberlite.

While most anomalies identified in this project comprise relative positives or magnetic highs, a very few were identified from their conductive response alone. No anomalies evidenced a negative magnetic character, which may reflect a reversed polarity or the presence or remanent magnetization. Regardless of polarity, particular focus should be paid to targets assigned a rank of 2 or 3; these are believed worthy of ground follow-up using additional geophysics and geological mapping and/or geochemical sampling.

Experience by the author and the literature confirm that often the more fragmented diatreme and crater facies of kimberlites that have the lowest resistivities or highest conductivities. Water (especially when saline or frozen) can also make marked changes to the resistivity values. Resistivities vary strongly with only minor changes in mineralogy such as clay, sulphides, oxide minerals and graphite. The lowest DC resistivities are always recorded in the shallower more weathered kimberlite, and can be as low as 5 ohm-m. A target model for kimberlites sought in this study was felt to be reasonable at 10–1000 ohm-m.
Table 1. Intrepid Anomalies

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<td>moderate-strong, isolated conductivity anomaly; associated with NW-trending dyke/fault inferred from magnetics</td>
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9. Conclusions and Recommendations

The objective of this geophysical interpretation was the identification and priority ranking of kimberlite targets derived from an airborne geophysical survey flown over the Gooderham Block in October 2002. Results of this interpretation effort are listed in Table 1 and further noted in Appendix A; anomalies are further identified and posted in a MapInfo GIS table, and are included in the digital archive attached to this report.

Follow-up testing of the geophysical anomalies ranked 2–3 is recommended by further geochemical indicator mineral sampling, where applicable, and ground geophysics such as electromagnetics, gravity and magnetics, as well as by, ultimately, by auger or drill testing where those results warrant. The always ambiguous geophysical character of the anomalies tabulated by this interpretation dictates that additional information, such as positive indicator results, be confirmed before drill testing on any one target be undertaken. Regardless, in the event that any of the above-listed priority targets are indeed drilled as kimberlite, then all airborne targets should be further reviewed in light of that success.

Ground follow-up geophysics should consist of electromagnetic profiling (either frequency-domain such as the MaxMin II horizontal-loop system or time-domain such as the Geonics Protem 57 system) as well as confirmatory magnetics. Gravity readings might also be utilized in selected traverses across the 2 and 3 ranked targets.

The success of electromagnetic methods in detecting kimberlite depends on a distinct contrast in conductivity of the kimberlite as compared with the surrounding material. Kimberlites in the NWT have (although not in every instance of course) exhibit a moderately conductive (about 100 to 1000 ohm-m) response. Fortunately, this is significantly more conductive than the surrounding country rock in the NWT, which is typically greater than 10,000 ohm-m. Initial ground electromagnetic carried out to date in the general region of the Gooderham property indicates (personal communication) distinct EM anomalies over the known kimberlite pipes tested to date by this method.
10. **Certificate of Professional Qualifications**

I, Christopher J. Campbell, with business address of 4505 Cove Cliff Road, North Vancouver British Columbia V7G 1H7, hereby certify that:

- I am a graduate (1972) of the University of British Columbia, with a Bachelor of Science degree in Geophysics.
- I am a graduate (1986) of the University of Denver, with a Masters of Business Administration.
- I am a registered member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia.
- I am a registered member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
- I have practiced my profession for approximately thirty years in Canada (British Columbia, Alberta, Manitoba, Ontario and Quebec, Yukon and Northwest Territories / Nunavut), United States of America, Australia, Lesotho and Botswana.
- I have no interest, direct or indirect, in the properties or securities of Tres-Or Resources Ltd., or in any of their related companies or joint venture partners anywhere in Canada.

Dated this day December 31, 2002 in North Vancouver, British Columbia.

Christopher J. Campbell, P. Geo.
KCG-35:

Intrepid Geophysics Ltd.
## Work Report Summary

Transaction No: W0370.00372  
Status: APPROVED  
Recording Date: 2003-MAR-10  
Work Done from: 2002-OCT-02  
Approval Date: 2003-JUL-24  
Client(s):  
202512 TRES-OR RESOURCES LTD.

Survey Type(s): DATA

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**External Credits:** $0

**Reserve:** $6,264 Reserve of Work Report#: W0370.00372  
($6,264) Applied by W0370.00642 2003-APR-17

**Total Remaining:** $0

Status of claim is based on information currently on record.
Dear Sir or Madam

Submission Number: 2.25139
Transaction Number(s): W0370.00372

Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

The revisions outlined in the Notice dated May 30, 2003 have been corrected. Accordingly, assessment work credit has been approved as outlined on the Declaration of Assessment Work Form that accompanied this submission.

If you have any question regarding this correspondence, please contact STEVEN BENETEAU by email at steve.beneteau@ndm.gov.on.ca or by phone at (705) 670-5855.

Yours Sincerely,

Ron Gashinski
Senior Manager, Mining Lands Section

Cc: Resident Geologist
Tres-Or Resources Ltd.
(Claim Holder)

Laura Lee Duffett
(Agent)

Assessment File Library
Tres-Or Resources Ltd.
(Assessment Office)
Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the Provincial Mining Recorders' Office, local Land Titles or Registry Office, or the Ministry of Natural Resources.

IMPORTANT NOTICE

LAND TENURE WITHDRAWALS

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The information shown is compiled from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations

The information may not show unregistered land tenure and interests in land including mineral rights, water rights, or other forms of disposition of rights in real property. It should be used only to identify areas which may be available for staking. The map cannot be used to determine the status of mining claims.

Data Source: Land Information Ontario; Mining Division Sudbury

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