REPORT
OF THE
MAPPING PROGRAM
ON THE
AKOW-LUNDMARK LAKE PROPERTY
FOR
ROMIOS GOLD RESOURCES INC.

May 30 - June 19, 1998

By: Ian Spence
Geologist
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Introduction

The Akow-Lundmark Property consists of 459 unpatented mineral claims which encompass 7,430 hectares (18,360 acres) in the center of the North Caribou Lake greenstone belt located in the Patrician Mining Division of northwestern Ontario, Canada. The property is underlain by over 23 kilometers of strike length of banded iron formations (BIF) analogous to those that host the Mussellwhite gold deposits (3,000,000 ounces of gold) and the Karl-Zeemel deposits (50,000 ounces of gold) at Opapimiskan Lake, located approximately 18 kilometers to the southeast. Exploration carried out to date on the Lundmark-Akow Lake property has identified a number of anomalous gold occurrences associated with sulphide zones within a banded iron formation domain.

Mussellwhite Project

The Mussellwhite Project is a joint venture between Placer Dome Inc. (68%) and TVX Gold Inc. (32%) with a published reserve of 3 million ounces of gold. The estimated capital cost to bring the property into production is $US190 million with commercial production scheduled to begin in the second quarter of 1997 at a rate of 200,000 refined ounces of gold per year.

Iron Formation - Gold Association

Some of the known gold occurrences on the Lundmark-Akow Lake property are associated with banded iron formations that occur within a varied assemblage of Archean volcanic rocks. Iron formation hosted gold deposits account for significant world gold production. The famous Homestake Mine in the state of South Dakota, U.S.A alone, has produced over 40 million ounces of gold since it commenced production in the late 1800's. Production at the Homestake Mine for 1997 is estimated to be in excess of 300,000 ounces of gold. According to Kerswell, J.A. 1993, iron formation hosted gold deposits,
worldwide, have a combined gold production exceeding 100 million ounces per year.

Area Activity

During 1996, Placer Dome Inc. optioned three large land packages in the North Caribou greenstone belt, two from Pangea Goldfields Inc. and one from Moss Resources Inc. Romios' Lundmark-Akow Lake property, strategically, lies between the Placer Dome Inc. and Placer's joint venture properties and encompasses a large part of the favourable iron formation domain that is the target of Placer's exploration efforts in the area. In addition to Romios' exploration activities, it appears that Placer Dome Inc. will be extremely active in the area conducting preliminary exploration programs on its recently acquired properties and continuing work on its own mineral claims.

Purpose of Work

The objective of the program was to geologically and structurally map the property. Dr. G. Zhang and the author of this report spent 21 days mapping and sampling the areas around and between Akow Lake and Lundmark Lake. A structural discussion of the area will be given under a separate report by Dr. Zhang. The focus of the program was to map the regional structure and to expand the mapping around the Spence deformation zone, Conductor #9 and the different iron formations which occur on the property. A geophysical crew accompanied the geological crew and ran a number test lines of IP and gravity over conductor 9. The iron formations were walked where exposed and the strike extension around Diamond Drill Hole RGRI-98-9 mapped. Rock samples were taken wherever deemed necessary and assayed for gold by Accruassay Laboratories of Thunder Bay.
Access

Access to the claim group was provided by float equipped aircraft based in Pickle Lake, Ontario using Turbo-Otter and Beaver operated by Northstar Airways. A southern camp was established at the 1997 campsite on the western shore of Akow Lake. A total of ten days were spent at this camp accessing various portions of the belt by boat and by foot. A northern camp was setup on the east shore of Lundmark lake about 50 meters from diamond drill hole RGRI-98-12-13 drill site. Access to this campsite is limited due the presence boulders along the eastern shore of Lundmark Lake which made landing with the otter impossible. The result of this was dropping the camp gear off on the west side of the lake and ferrying the equipment to the campsite with a boat. Ten days were spent at this site mapping the iron formations and concentrating on the north eastern portion of the grid.

Linecutting

Approximately 13.5 kilometers of line were cut at an azimuth of 330° with grid lined cut perpendicular to this every 100 meters. Twenty five meter stations were established along these grid lines. The base line was tied into the north shore of Lundmark Lake approximately 100 meters west of the creek. This point was set at 0+00 and grid lines were started at 300 meters north along the baseline to best tie in with the existing grid. Lines 0,1 and 2 were not cut because of the creek and the surrounding bog.

Geophysics

A horizontal loop max min survey was run over these lines at a coil spacing of 100 meters using 440 Hz and 1770 Hz to delineate the northerly extension of the main iron formation. A proton total field magnetometer survey was also run over these lines to test the magnetic response of the iron formation. Five winter cut lines on the 1997 winter grid were brushed out and run with
horizontal loop Max Min to complete lines that were omitted with the original survey.

A dipole-dipole IP survey and a gravity survey was also conducted over Conductor #9 and the results were found to be very encouraging. The IP response over the Spence Deformation Zone was found to be inconclusive with no real unique signature realized from the survey.

A detailed report by IPTEC of Bathurst, New Brunswick discussing the results of all the surveys can be found under a separate cover.

**Topography**

The topography is extremely flat with very little relief (1-2 meters) over much of the property. Swamps cover between 70-80% of the claim group with outcrop limited to low rounded “ridges” of volcanics and iron formations. Glacial boulder fields and till deposits account for the other topographic high ground between the lakes and swampy areas. The overburden thickness varies from 2 to 10 meters based on drilling information from the winter 1998 program.

**Discussion of Results**

A total of 54 samples were collected from different locations on the property. The locations and sample descriptions are found in Appendix A of this report. The results of the sampling program were generally low with the highest assay of 117 ppb and 236 ppb.

**Conductor #9**

This conductor is named after the diamond drill hole RGRI-98-9 which was drilled during the winter program of 1998. A intersection of ~ 30 meters of disseminated chalcopyrite and two sections which assayed up to 2 grams of gold were drilled. A dipole-diopole IP survey and a gravity survey was conducted over the conductor between lines 14+00S and 6+00S. The IP survey outlined a low resistivity / high chargeability anomaly with an associated strong gravity anomaly. This combination would seem to indicate a conductor with
massive sulphide potential considering the drilling results. A detailed discussion of the results can be found in IPTEC's report on the geophysical surveys.

A number of cross traverses were run along the length of the conductor from line 15+00S to 0+00 to try and locate any outcrop exposure along its strike length.

An outcrop on line 10+00S/6+00E provided a excellent snapshot of the minor drag fold structures that occur within the sediments and will be discussed in much greater detail by Dr. Zhang.

A large outcrop between 5+25E and 6+75E on line 6+00S was the only other exposure that was found along conductor #9. This series of outcrop gave a almost continuos section across the anomaly. There is a layered sequence sedimentary rocks which range from a metapelte - arenite to a more sandy quartz arenite to the west. It is thought that the clay fraction in the pelites is responsible for the increased frequency of staurolite, garnets and muscovite-biotite minerals on the eastern portion of the section. As you go up section towards the west the rocks become progressively more quartz rich (i.e. more sandy) and these alum-o-silicate minerals drop out of the assemblage. The mineralization observed was mainly as disseminated pyrite and pyrrhotite in beds approximately 1 meter thick. There was no evidence of massive or semi massive sulphides in this outcrop which would explain the conductor. All samples taken from these outcrops returned low values.

The rocks showed a high degree of shearing and transposition along the S$_2$ foliation planes.

**Spence Deformation Zone**

The Spence Deformation Zone was mapped by Dr. Zhang and his observations will appear in his report.

A dipole-dipole IP survey was run over the zone at a separation of 25 meters to see if the zone would respond to the IP. Unfortunately the results were inconclusive. A mini gradient or real section was run to try and better define the
zone again with out any definitive signature over the zone. The response that is seen is a resistivity high with moderately high chargeability off to the west of the zone at around 2+25 west. This is about 50 meters to the west of the zone and like the magnetics the zone's location may have to be plotted by inference rather than directly with a unique signature.

Main Iron Formation

This iron formation can be traced by horizontal loop Max Min from the bottom of the property (line 23+00 South) south of Akow Lake to line 48+00 North on the north east shore of Lundmark Lake. It has been drilled at a number places along its strike length with DDH RGRI-98-8, 10, 11, 12, 13. It has also been stripped and opened up by (Hodge 1985). These areas and all of the old trenches were located, mapped and sampled by Dr. Zhang and myself. The results were generally low with the highest value being 236 ppb taken from an old trench from stripped area “A” on the east side of Lundmark Lake. The two stripped areas provided an exceptional exposure of what these iron formations look like over a large width (50 to 70 meters) and along a reasonable strike length. (100 to 150 meters).

The general observations is that the frequency of 1-3% concentrations of sulphides is relatively rare. The outcrops for the most part are fairly dry with the occasional pod or 1 meter sections displaying rust. The stripped area “B” along the east shore of Atim Lake North is a good case in point.

I feel a more systematic approach is needed in order to evaluate the iron formations. A reasonable sampling across these iron formations would require a diamond saw and a reasonable criteria for eliminating the dead ground. We of course know that the oxide's do not contain gold, so we can eliminate these areas.

The diamond drilling led me to believe that the iron formations possessed a basal sulphide zone of quartz flooding and this was where the best assays were being found. The outcrop story is quite different. The basal sections don't
seem to be quartz flooded zones after all but rather varying width's of chert beds that have been recrystallized and fractured (brittle) allowing the later stage pyrrhotite and pyrite to fill the fractures. These chert beds are boudinaged and can vary quite remarkably along strike. This period of sulfidization does not appear to have significant gold mineralization associated with it. The only observed outcrop where grunerite and magnetite were present in appreciable quantities was at stripped area “B” where grunerite was observed replacing magnetite. The heavy gossan on the outcrop drew attention to the location initially.

Baring walking up the iron formation with a drill and drilling every 25 meters I would suggest the focus on iron formations be to the northern section between 32+00N and 48+00N. These areas seem to display a greater degree of deformation as evidence by the thickening of the iron formations. The outcrops observed between lines 35+00N and 40+00N had substantially more gossan associated with them that the areas around “stripped area “B” and the drill core showed definite indications of structural activity such as flattened garnets etc..

Eastern Iron Formation

This iron formation is located of the eastern part of the property around 20+00E. It was exposed at the contact between metasediments and massive pillowed volcanics and occurs within a chemical sediment. This lean BIF returned a 117 ppb which is the second best sample collected. The iron formations in this area are not as wide as those at Lundmark lake however this assay shows there is gold activity in the area.

Conclusions

The geological survey of the iron formations was successful in adding to the understanding of what the iron formations and the overall structure of the region.
The sampling showed that the eastern iron formations may warrant extra work.

The geophysics indicated that Conductor #9 has a very strong IP and gravity signature and is a definite drill target.

The geophysics failed to define a unique signature over the deformation zone.

**Recommendations**

It is recommended that an humus sampling program be conducted over a number of favourable areas or a basal till sampling program along the strike length of these iron formations.

It is also recommended that a drilling program be undertaken under the Conductor #9.

Respectively Submitted

[Signature]

Ian Spence  B.Sc. Geology
Appendix A

Assay Results
<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Gold (ppb)</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6651</td>
<td>&lt;5</td>
<td>Northwest corner of Akow Lake</td>
<td>Contact Zone ~2 meters between mafic volcanic and diorite, 2-3% po/py, amphibolite, medium to coarse grained</td>
</tr>
<tr>
<td>6652</td>
<td>&lt;5</td>
<td>22+50N/23+75E</td>
<td>Crack-seal quartz vein, boudinage qtz, bull quartz with rusty mafic inclusions, 1 meter wide</td>
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<tr>
<td>6653</td>
<td>&lt;5</td>
<td>22+20N/23+75E</td>
<td>Mafic volcanic within a quartz vein</td>
</tr>
<tr>
<td>6654</td>
<td>&lt;5</td>
<td>22+50N/23+75E</td>
<td>Mafic volcanic tuff, banded(plag-amp bands 1-2mm), minor garnets, 3-4 quartz veins(boudinaged) 4-15 cm in width</td>
</tr>
<tr>
<td>6655</td>
<td>&lt;5</td>
<td>~27+00/22+50</td>
<td>Chemical sediment, ~1 meter wide in massive pillow mafic volcanics, deformed</td>
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<tr>
<td>6656</td>
<td>&lt;5</td>
<td>6+35S/5+81E</td>
<td>Sediment, rusty bed ~1 meter wide, contains darker mafic material</td>
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<td>6657</td>
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<td>6+38S/5+75E</td>
<td>Sediment, pod 15cm x 8 cm of garnet aggregate</td>
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<tr>
<td>6658</td>
<td>12</td>
<td>6+38S/5+75E</td>
<td>Sediment, foliated around pod of garnet, muscovite rich with large 1 cm garnets</td>
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<td>6659</td>
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<td>5+38S/5+74E</td>
<td>Sediment, muscovite rich, beside the garnet pod, 1 cm garnets</td>
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<td>6660</td>
<td>31</td>
<td>6+40S/5+65E</td>
<td>Sediment, rusty, weathers brick red, 1 cm tightly folded quartz veins</td>
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<td>6661</td>
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<td>5+56E/6+25S</td>
<td>Sediment, rusty zone ~50 cm wide</td>
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<td>6663</td>
<td>19</td>
<td>5+34E/6+20S</td>
<td>Sediment, rusty, disseminated pyrite (1-3%) late stage pyrite flaky and smeared along foliation surfaces</td>
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<td>6664</td>
<td>&lt;5</td>
<td>~300 meters north of Akow Lake, east of Banded Iron Formation drilled by DDH # RGRI-98-10</td>
<td>Very coarse grained gabbro? with 2-3% pyrrhotite / pyrite, ~2 meter wide in massive pillow mafic volcanics</td>
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<td>6665</td>
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<td>~150 meters north from sample #6664, probably the same horizon</td>
<td>Gossan zone in massive mafic pillow volcanics, stretched pillows</td>
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<tr>
<td>6666</td>
<td>23</td>
<td>West shore of small lake</td>
<td>Lean iron formation at the inferred contact between mafic volcanic and sediment, 1% pyrite</td>
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<tr>
<td>6667</td>
<td>&lt;5</td>
<td>16+10N/10+48E</td>
<td>Lean iron formation at mafic volcanic - sediment contact, gabbroic?</td>
</tr>
<tr>
<td>Sample Number</td>
<td>Gold (ppb)</td>
<td>Location</td>
<td>Description</td>
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<tr>
<td>6668</td>
<td>6</td>
<td>16+10N/10+48E</td>
<td>Lean iron formation at mafic volcanic - sediment contact, sediment</td>
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<td>6669</td>
<td>8</td>
<td>16+00N/9+75E</td>
<td>Banded Iron Formation</td>
</tr>
<tr>
<td>6670</td>
<td>117</td>
<td>24+25N/22+60E</td>
<td>Sediment, pyrite bed at sedimentary-mafic volcanic contact</td>
</tr>
<tr>
<td>6671</td>
<td>&lt;5</td>
<td>24+60/20+25</td>
<td>Mafic volcanic, rusty shear zone (50cm), siliceous, ~1% pyrrhotite/pyrite</td>
</tr>
<tr>
<td>6672</td>
<td>11</td>
<td>25+90N/20+35E</td>
<td>Rusty contact zone (20cm) between chemical sediment and garnet bearing mafic volcanic</td>
</tr>
<tr>
<td>6673</td>
<td>95</td>
<td>25+70N/20+75E</td>
<td>Chemical sediment, lean iron formation with pyrite</td>
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<tr>
<td>6674</td>
<td>&lt;5</td>
<td>25+60/20+25</td>
<td>Rusty zone in mafic volcanics</td>
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<tr>
<td>6675</td>
<td>41</td>
<td>44+50N/7+25E</td>
<td>Deformed Banded Iron Formation, rusty, magnetite, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6676</td>
<td>64</td>
<td>44+60N/7+30E</td>
<td>Banded Iron Formation, east end of old trench, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6677</td>
<td>6</td>
<td>44+65N/7+35E</td>
<td>Contact zone between very coarse grained mafic volcanic and Banded Iron Formation, interstitial pyrrhotite, with coarse pyroxene, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6678</td>
<td>86</td>
<td>44+65N/7+35E</td>
<td>Massive weathered pyrite sample found beside old trench, assumed to be from the contact zone between Mafic Volcanic and Banded Iron Formation, Stripped Area &quot;A&quot;</td>
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<td>6679</td>
<td>15</td>
<td>44+30N/7+10E</td>
<td>Banded Iron Formation with magnetite, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6680</td>
<td>21</td>
<td>44+30N/7+10E</td>
<td>Mafic volcanic silver with garnets, pyrrhotite with minor chalcopyrite? Stripped Area &quot;A&quot;</td>
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<tr>
<td>6681</td>
<td>16</td>
<td>45+00N/7+25E</td>
<td>Banded Iron Formation, old trench, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6682</td>
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<td>45+00N/7+18E</td>
<td>Banded Iron Formation, old trench, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6683</td>
<td>&lt;5</td>
<td>45+00N/7+16E</td>
<td>Banded Iron Formation, old trench, Stripped Area &quot;A&quot;</td>
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<td>6684</td>
<td>91</td>
<td>45+00N/7+14E</td>
<td>Banded Iron Formation, old trench, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6685</td>
<td>236</td>
<td>45+00N/7+12E</td>
<td>Banded Iron Formation, old trench, Stripped Area &quot;A&quot;</td>
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<tr>
<td>6686</td>
<td>16</td>
<td>45+00N/7+10E</td>
<td>Banded Iron Formation, semi massive crack filled pyrrhotite / pyrite, old trench, Stripped Area &quot;A&quot;</td>
</tr>
<tr>
<td>Sample Number</td>
<td>Gold (ppb)</td>
<td>Location</td>
<td>Description</td>
</tr>
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<td>-------------</td>
</tr>
<tr>
<td>6687</td>
<td>22</td>
<td>46+65N/7+10E</td>
<td>Banded Iron Formation, Old Trench</td>
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<td>6688</td>
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<td>35+00N/9+20E</td>
<td>Contact zone between Mafic Volcanic and a Banded Iron Formation</td>
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<td>6689</td>
<td>&lt;5</td>
<td>34+75N/10+30E</td>
<td>Sheared Gossan in Mafic volcanics (30 cm wide), 1% pyrrhotite and pyrite, heavy weathering, very fine grained, asp?</td>
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<tr>
<td>6690</td>
<td>&lt;5</td>
<td>33+90N/10+30E</td>
<td>Mafic dyke with gossan, coarse grained, numerous 2-5 cm quartz veins, 1% disseminated pyrrhotite</td>
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<tr>
<td>6691</td>
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<td>30+15/9+75E</td>
<td>Banded Iron Formation, ~10 meters wide, old trench, 1-3% disseminated pyrite</td>
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<tr>
<td>6692</td>
<td>20</td>
<td>26+80/10+00E</td>
<td>Lean Banded Iron Formation, on NW side of ATIM North, Stripped area “B”</td>
</tr>
<tr>
<td>6693</td>
<td>6</td>
<td>24+50/10+00E</td>
<td>Banded Iron Formation, gossan, 10 meters from Mafic Volcanic - Banded Iron Formation contact (western), Stripped area “B”</td>
</tr>
<tr>
<td>6694</td>
<td>&lt;5</td>
<td>24+75N/9+85E</td>
<td>Banded Iron Formation, magnetite(15%) and grunerite, well rusted</td>
</tr>
<tr>
<td>6695</td>
<td>11</td>
<td>24+95N/10+25E</td>
<td>Banded Iron Formation, rusted, Stripped area “B”</td>
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<td>6696</td>
<td>21</td>
<td>36+00N/8+75E</td>
<td>Banded Iron Formation</td>
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<td>6697</td>
<td>15</td>
<td>36+00N/8+94E</td>
<td>Banded Iron Formation</td>
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<tr>
<td>6698</td>
<td>&lt;5</td>
<td>SE shore of ‘301 Lake’</td>
<td>Sediment, euhedral garnets, disseminated pyrite with thin quartz vein’s, ‘Z’ shaped folding, probably near Banded Iron Formation contact</td>
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<tr>
<td>6699</td>
<td>&lt;5</td>
<td>East side of ‘301 Lake’, 200 meters south of creek</td>
<td>rusty sediment</td>
</tr>
<tr>
<td>6700</td>
<td>&lt;5</td>
<td>North of ‘305 Lake’</td>
<td>Strongly foliated Mafic Volcanic at contact with quartz arenite</td>
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<tr>
<td>6701</td>
<td>&lt;5</td>
<td>NE corner of ‘305 Lake’</td>
<td>Quartz-eye wacke?, coarse grained, strongly sheared, at Mafic Volcanic-sediment contact</td>
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<tr>
<td>6702</td>
<td>&lt;5</td>
<td>NE corner of ‘305 Lake’</td>
<td>Quartz-eye wacke?/arenite, coarse grained, strongly sheared, at eastern contact Mafic Volcanic-sediment contact</td>
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<tr>
<td>6703</td>
<td>&lt;5</td>
<td>NE corner of ‘305 Lake’</td>
<td>Quartz-eye wacke?/arenite, fine grained, strongly sheared,</td>
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<tr>
<td>6704</td>
<td>&lt;5</td>
<td>North side of ‘305 Lake’</td>
<td>Sediment-iron formation, rusty</td>
</tr>
</tbody>
</table>
Statement Of Qualifications

This is to Certify That:

1. William Ian Spence of 2180 Falconcrest Drive, Thunder Bay, Ontario, P7C 4V2 do certify that:

   1. I am a geologist and have been employed in the mining exploration industry since 1965 as a student and as an exploration geologist.

   2. I attended the University of New Brunswick in Fredericton, New Brunswick where I received a B.Sc. in Geology.

   3. I am the author of this report.

   4. The information in this report is based upon personal knowledge and sources quoted in this report.

Dated at Thunder Bay, Ontario, this 2 day of July, 1998

William Ian Spence
RESOURCE SERVICES

c/o ROMIOS GOLD RESOURCES
147 OAKWOOD AVE.
TORONTO, ONTARIO
M6E 2T7
ATT’N: TOM DRIVAS
FAX (416) 653-1176

June 24, 1998
Job# 9840379

SAMPLE #

<table>
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<tr>
<th>Accurassay</th>
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<th>Gold (ppb)</th>
<th>Gold (oz/t)</th>
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<td>1</td>
<td>6651</td>
<td>&lt;5</td>
<td>&lt;0.001</td>
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<td>53</td>
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<td>&lt;0.001</td>
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</tr>
<tr>
<td>59</td>
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</tr>
</tbody>
</table>

Certified By: [Signature]
LOGISTICAL and INTERPRETATIVE GEOPHYSICAL REPORT

on the

LUNDMARK-AKOW LAKE PROPERTY

NORTHWESTERN, ONTARIO
Patricia Division 30

for:

ROMIOS GOLD RESOURCES INC.
147 Oakwood Avenue
Toronto, Ontario

Bathurst, New Brunswick
March, 1999
IPTEC Project I0698

IPTEC reg'd.
A. Vickers
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1. INTRODUCTION

At the request of Romios Gold Resources Inc., of 147 Oakwood Avenue, Toronto, ON, M6E 2T7, IPTEC reg’d/division of Lone Pine Exploration Services Ltd. of 19 West Lane of Bathurst, New Brunswick, Canada, conducted multiple Dipole-Dipole IP/Resistivity, gravity, total field magnetometer, VLF, HLEM and line cutting from May 30th, 1998 to June 21st, 1998, at the Lundmark-Akow Lake Property. The Lundmark-Akow Lake property is situated north of Musselwhite Mine, ON (Figure 1). The project was carried out under the direction of Geologist Ian Spence and Gouway Wong, of Romios Gold Resources Inc.

The induced polarization (IP) survey employed the dipole-dipole array with six potential dipoles (n = 1 to 6) with dipole spacing equal to 25 meters. A total of nine thousand line-meters (9 000m; back current electrode to front pot) of IP/Resistivity coverage was achieved over selected areas. Complementing an area of the IP survey, a total of three thousand three hundred line-meters (3 300.0m survey coverage) of gravity and elevation was surveyed.

A grid extension to the north totaling eleven thousand five hundred cut and chained survey lines (11 500m) was covered with total field magnetics VLF and HLEM geophysical surveys. In addition to the grid extension, total field magnetometer/VLF and HLEM was surveyed as "in-fill" on the 1997 survey grid. The complete 1998 total field magnetometer/VLF survey coverage, including the in-fill on the older grid, totals fourteen thousand nine hundred line-meters (14 900.0m survey coverage). The complete HLEM survey 1998 coverage, including the in-fill on the older grid totals thirteen thousand line meters (13 000m survey coverage).

The exploration target for this current IP survey is gold and associated sulphides. The induced polarization will respond to dissemination of sulphides where the concentration and volume are significant. The apparent resistivity will map the more conductive mineralization, if in sufficient concentration, and will aid in mapping lithological units. The Bouguer gravity will respond to variations in density that may occur from massive sulphides. The relationship between the IP, high-low resistivity responses and density will further define drill targets. The total field magnetometer and VLF surveys aid with the interpretation of the IP/Resistivity data and geological mapping of the property.

The following report describes the geophysical work undertaken, the instrumentation used, survey techniques implemented, logistical parameters and interpretative results. The survey results are presented in plan map and pseudosections (for the IP data) with posted values. An interpretive map is included, indicating the major anomalies, accompanying the written interpretation.

2. GENERAL SURVEY DETAILS

2.1 Location and Access

The Lundmark-Akow Lake Property is located approximately fourth kilometers (40km) north of Musselwhite Mine, Ontario. The property consists of 459 unpatented mineral claims in the center of the North Caribou lake greenstone belt located in the Patrician Mining Division of Northwestern Ontario (Figures 1 & 2).

The property was accessed from the village of Pickel Lake, Ontario via aircraft. The camp was situated on the survey grid at approximate grid coordinates L1000S at 1000E on Akow lake. The Akow lake camp was airlifted to a second campsite on Lundmark Lake grid to conduct surveys and line cutting for the Lundmark north extension grid (Figure 3).
Producing Mine

Deformation Zone

BIF Banded Iron Formation

Caribou Lake

Romios Gold Resources
Lundmark-Akow Lakes Claims
459 Claims 18,360 acres

Papimiskan

Mussewhite Mine
3,000,000 Oz
200,000 Oz/Year

FIGURE 2: Lundmark-Akow Lake Claim Location Map
2.2 Survey Grid and Coverage

Survey control on the Lundmark-Akow Lake property consists of cut-chained survey lines established the previous year. The survey lines were used as survey control for the geophysical surveys. A north grid extension was established by IPTEC/Lone Pine Exploration Services with cut picket lines and labeled Lundmark-Akow Lake North Extension as outlined below.

Survey Grids

AKOW LAKE GRID is a standard metric grid with baseline 0, (Azimuth 340°) extending 5000 meters from line L2300S to L2600N. The station interval is 25 meters labeled with cut pickets every 25 meters. The 50 survey lines comprise of 100 meter spaced lines from 1000m to 3000m in length.

LUNDMARK LAKE GRID is a standard metric grid with baseline/tieline 1000E, (Azimuth 340°) extending 2400 meters from line L2700N to L5100N. The station interval is 25 meters, labeled with cut pickets every 25 meters. The 25 survey lines comprise of 100 meter spaced lines extending 700.0 meters in average length from TL 1000E to a maximum 250E.

LUNDMARK-AKOW LAKE NORTH EXTENSION was established by IPTEC/Lone Pine Exploration Services as a standard metric grid with baseline 0, (Azimuth 330°) extending 1270 meters from line L0N to L1700N. The station interval is 25 meters with cut pickets labeled every 25 meters. The 50 survey lines comprise of 100 meter spaced lines extending 650.0 meters in average length from BL 0 to a maximum 725E, for a total of 11 500 line-meters.

Geophysical Surveys

Based on previous geophysical, geochemical and geological data, a selected area was chosen for the IP/Resistivity and gravity surveys. The survey control, for the dipole-dipole IP and gravity surveys consist of the previously established cut picket line grid. Surveys lines that did not have Mag/VLF or HLEM survey coverage were also surveyed as part of an in-fill survey program.

The IP/Resistivity geophysical program was undertaken between May 30th, 1998 to June 21th, 1998. A total of nine thousand line-meters (9 000m; back current electrode to front pot) of IP/Resistivity measurements were taken in the form of a Dipole-Dipole survey. The Dipole-Dipole IP/Resistivity production summary on the Lundmark-Akow Lake property is detailed in the following table 1.
Dipole-Dipole IP/Resistivity Survey Coverage

<table>
<thead>
<tr>
<th>P-LINE (Read Line)</th>
<th>START C1 (south Rx potential electrode station)</th>
<th>END P7 (north Tx current electrode station)</th>
<th>TOTAL SURVEY COVERAGE (C1 to P7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100S</td>
<td>275W</td>
<td>25E</td>
<td>300m</td>
</tr>
<tr>
<td>200S</td>
<td>550W</td>
<td>25E</td>
<td>775m</td>
</tr>
<tr>
<td>300S</td>
<td>450W</td>
<td>25E</td>
<td>475m</td>
</tr>
<tr>
<td>600S</td>
<td>200E</td>
<td>900E</td>
<td>700m</td>
</tr>
<tr>
<td>700S</td>
<td>200E</td>
<td>775E</td>
<td>575m</td>
</tr>
<tr>
<td>800S</td>
<td>200E</td>
<td>775E</td>
<td>575m</td>
</tr>
<tr>
<td>900S</td>
<td>200E</td>
<td>825E</td>
<td>625m</td>
</tr>
<tr>
<td>1000S</td>
<td>200W</td>
<td>1025E</td>
<td>1225m</td>
</tr>
<tr>
<td>1100S</td>
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<td>750m</td>
</tr>
<tr>
<td>1200S</td>
<td>275E</td>
<td>1125E</td>
<td>850m</td>
</tr>
<tr>
<td>1300S</td>
<td>275E</td>
<td>1125E</td>
<td>850m</td>
</tr>
<tr>
<td>1400S</td>
<td>1100E</td>
<td>275E</td>
<td>825m</td>
</tr>
<tr>
<td>1500S</td>
<td>375E</td>
<td>875E</td>
<td>475m</td>
</tr>
<tr>
<td>TOTAL:</td>
<td></td>
<td></td>
<td>9 000m</td>
</tr>
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</table>

*Table 1: IP/Resistivity Survey Coverage at Lundmark-Akow Lake Grid for 1998.*

A total of three thousand three hundred line-meters (3 300m) of gravity & elevation measurements were taken for bouguer gravity calculations on the Lundmark-Akow Lake property. The and the coverage is summarized in the following table 2.

Gravity & Elevation Survey Coverage

<table>
<thead>
<tr>
<th>Line</th>
<th>Start</th>
<th>End</th>
<th>Total (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000S</td>
<td>300.0E</td>
<td>1000.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>1100S</td>
<td>300.0E</td>
<td>975.0E</td>
<td>675.00</td>
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<tr>
<td>1200S</td>
<td>320.0E</td>
<td>1000.0E</td>
<td>675.00</td>
</tr>
<tr>
<td>1300S</td>
<td>300.0E</td>
<td>1000.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>1400S</td>
<td>300.0E</td>
<td>850.0E</td>
<td>550.00</td>
</tr>
<tr>
<td>5 survey lines</td>
<td></td>
<td></td>
<td>3 300.00m</td>
</tr>
</tbody>
</table>

*Table 2: Gravity & Elevation Survey Coverage at Akow Lake Grid for 1998.*

The total field magnetometer/VLF and HLEM data in-fill surveys program and Lundmark north grid extension was undertaken after the completion of the IP survey. A total of fourteen thousand nine hundred line-meters (14 900.0m survey coverage) of total field magnetometer/VLF and of a total of thirteen thousand line-meters (13 000.0m survey coverage) HLEM surveys measurements were measured on the Lundmark-Akow Lake property as detailed in the following tables.
Akow 1998 Survey In-Fill
Magnetometer/VLF Survey Coverage
Station Interval 12.5 m
Magnetometer Base Datum 58000nT
VLF Transmitter (24.0kHz) Cutler MN, 2666 km to VLF transmitter @ 216° Az.
Scintrex OMNI plus magnetometer/VLF System

<table>
<thead>
<tr>
<th>Line</th>
<th>Start</th>
<th>End</th>
<th>Total (m)</th>
</tr>
</thead>
<tbody>
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<td>1700S</td>
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<td>175.00</td>
</tr>
<tr>
<td>1300S</td>
<td>300.0E</td>
<td>1125.0N</td>
<td>825.00</td>
</tr>
<tr>
<td>BASE LINE</td>
<td>2300.0S</td>
<td>100.0N</td>
<td>2400.00</td>
</tr>
<tr>
<td>3 survey lines</td>
<td></td>
<td></td>
<td>3400.00m</td>
</tr>
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</table>

*Table 3: Magnetometer/VLF Survey Coverage at Akow Lake Grid for 1998.*

Akow 1998 Survey In-Fill
Horizontal Loop Electromagnetic (HLEM) Survey Coverage
Station Interval 25.0 m
Frequencies 1760Hz and 440Hz, 100m Coil Separation
(Apex Parametrics Max Min I-10)

<table>
<thead>
<tr>
<th>Line</th>
<th>Start</th>
<th>End</th>
<th>Total (m)</th>
</tr>
</thead>
<tbody>
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<td>900S</td>
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<td>1075.00</td>
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<td>1 survey lines</td>
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<td></td>
<td>1075.0m</td>
</tr>
</tbody>
</table>

*Table 4: Gravity & Elevation Survey Coverage at Akow Lake Grid for 1998.*

Lundmark 1998 Survey In-Fill
Horizontal Loop Electromagnetic (HLEM) Survey Coverage
Station Interval 25.0 m
Frequencies 1760Hz and 440Hz, 100m Coil Separation
(Apex Parametrics Max Min I-10)

<table>
<thead>
<tr>
<th>Line</th>
<th>Start</th>
<th>End</th>
<th>Total (m)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>4600N</td>
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<td>4700N</td>
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<td>500.00</td>
</tr>
<tr>
<td>4 survey lines</td>
<td></td>
<td></td>
<td>2100.0m</td>
</tr>
</tbody>
</table>

*Table 5: Horizontal Loop Electromagnetic (HLEM) Survey Coverage at Lundmark Lake Grid Survey In-Fill for 1998.*
**Lundmark North Extension**  
**Magnetometer/VLF Survey Coverage**  
Station Interval 12.5 m  
Magnetometer Base Datum 58000nT  

VLF Transmitter (24.0kHz) Cutler MN, 2666 km to VLF transmitter @ 216° Az.  
(Scintrex OMNI plus magnetometer/VLF System)

<table>
<thead>
<tr>
<th>Line</th>
<th>Start</th>
<th>End</th>
<th>Total (m)</th>
</tr>
</thead>
<tbody>
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<td>387.50</td>
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<td>0/BL</td>
<td>525.0E</td>
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<td>600N</td>
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<td>700.00</td>
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<td>0/BL</td>
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<tr>
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<td>0/BL</td>
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<td>700.00</td>
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<td>0/BL</td>
<td>650.0E</td>
<td>650.00</td>
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<tr>
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<tr>
<td>1700N</td>
<td>0/BL</td>
<td>725.0E</td>
<td>725.00</td>
</tr>
<tr>
<td>BASE LINE</td>
<td>25N</td>
<td>1700N</td>
<td>167.50</td>
</tr>
<tr>
<td>17 survey lines</td>
<td></td>
<td></td>
<td><strong>11 462.5m</strong></td>
</tr>
</tbody>
</table>

*Table 6: Total Field Magnetometer/VLF Survey Coverage at Lundmark Lake Grid North Extension for 1998.*
## Lundmark North Extension

*Horizontal Loop Electromagnetic (HLEM) Survey Coverage*

Station Interval 25.0 m  
Frequencies 1760Hz and 440Hz, 100m Coil Separation  
(Apex Parametrics Max Min I-10)

<table>
<thead>
<tr>
<th>Line</th>
<th>Start</th>
<th>End</th>
<th>Total (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>300N</td>
<td>0/BL</td>
<td>387.5E</td>
<td>387.50</td>
</tr>
<tr>
<td>400N</td>
<td>0/BL</td>
<td>450.0E</td>
<td>450.00</td>
</tr>
<tr>
<td>500N</td>
<td>0/BL</td>
<td>525.0E</td>
<td>525.00</td>
</tr>
<tr>
<td>600N</td>
<td>0/BL</td>
<td>675.0E</td>
<td>675.00</td>
</tr>
<tr>
<td>700N</td>
<td>0/BL</td>
<td>700.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>800N</td>
<td>0/BL</td>
<td>700.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>900N</td>
<td>0/BL</td>
<td>700.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>1000N</td>
<td>0/BL</td>
<td>725.0E</td>
<td>725.00</td>
</tr>
<tr>
<td>1100N</td>
<td>0/BL</td>
<td>700.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>1200N</td>
<td>0/BL</td>
<td>775.0E</td>
<td>775.00</td>
</tr>
<tr>
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<td>0/BL</td>
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<td>700.00</td>
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<tr>
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<td>0/BL</td>
<td>650.0E</td>
<td>650.00</td>
</tr>
<tr>
<td>1600N</td>
<td>0/BL</td>
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<td>675.00</td>
</tr>
<tr>
<td>1500N</td>
<td>0/BL</td>
<td>700.0E</td>
<td>700.00</td>
</tr>
<tr>
<td>1700N</td>
<td>0/BL</td>
<td>725.0E</td>
<td>725.00</td>
</tr>
</tbody>
</table>

17 survey lines  
**Total (m):** 11,462.5m

*Table 7: Horizontal Loop Electromagnetic (HLEM) Survey Coverage at Lundmark Lake Grid North Extension for 1998.*
2.3 Personnel

The Dipole-Dipole IP surveys require a minimum of five personnel. Data quality and placement of current electrodes was overseen by the main IPR-12 receiver operators, who are knowledgeable and familiar with statistical and spectral data quality and general interpretation of the data. After the completion of the IP/Resistivity survey, personnel immediately started the gravity, mag/VLF, HLEM, surveys and line-cutting. Mr. Albert Vickers of IPTEC/Lone Pine supervised the surveys, processed and compiled all geophysical data, interpreted the results, liaison with project Geologist, and authored this report.

3. SURVEY METHOD

3.1 IP Survey Description

A total of nine thousand line-meters (9 000m; current electrode-to-pot coverage) of IP/Resistivity measurements were taken in the form of a Dipole-Dipole survey on the Lundmark-Akow Lake grid. The Dipole-Dipole IP/Resistivity production is summarized in the above table 1.

The electrodes marked C_1 and C_2 comprise the current electrodes. Those marked by a P_1, P_2, etc., are the potential electrodes. The receiver measures the voltage across adjacent pairs of potential electrodes, e.g. P_1-P_2, P_2-P_3, ..., P_6-P_7. (figures 4 & 6). These potential pairs are labeled by an integer 'n' that indicates the multiple of the dipole width that the given dipole lies away from the near current electrode.

The further the potential dipole lies from the current dipole the greater is the depth of investigation. However, the effective limit of distance is restricted by the attenuation of the signal as the distance increases. Resolution of the survey is increased by decreasing the 'a' separation however a smaller 'a' also decreases the depth of investigation as illustrated in figure 4.

![Dipole-Dipole Array](image)

**Figure 4: Description of Dipole Dipole Array and Geometric Parameters**

The phenomenon of the IP effect, which in the time domain can be likened to the voltage relaxation effect of a discharging capacitor, is caused by electrical polarization at the rock or soil interstitial fluid boundary with metallic or clay particles lying within pore spaces. The polarization occurs when a voltage is applied across these boundaries. It can be measured quantitatively by applying a time varying sinusoidal wave (as in the frequency domain measurement) or alternately by an interrupted square wave (as in the time domain measurement).
In the time domain the IP effect is manifested by an exponential type increase or decrease in voltage with time. The frequency domain measures either the difference in voltage as a function of frequency (maintaining constant current) or the real and quadrature components of the voltage compared to the transmitted current.

Both methods measure essentially the same phenomenon and theoretically the response of one can be translated to the other domain by Fourier analysis. The two methods are qualitatively comparable if only a change in relative response amplitude is required. The IP survey on the Lundmark-Akow Lake grid is a time domain survey with the IP waveform illustrated below in figure 5.

![IP Waveform with IP Parameters for Each Receiving Dipole](image)

Figure 5: IP Waveform with IP Parameters for Each Receiving Dipole

The current dipole and receiver dipoles were setup on the P-line and measured with a roll-along receiver spread of seven electrodes with a dipole "a" spacing of 25 meters. Both the primary voltages (Vp) and secondary voltage decays (chargeability M) were acquired in the time-domain, using a square waveform transmitted at a frequency of 0.125 Hz at 50% duty cycle (2-seconds ON, 2 seconds OFF).

3.2 Equipment and Survey Procedures

3.2.1 IP system

The survey IP survey employed the IPR-12 time-domain induced polarization/resistivity receiver manufactured by Scintrex Ltd. of Toronto Canada. The unit is a portable, microprocessor-controlled acquisition system capable of simultaneously measuring eight dipoles. The primary voltage, self-potential and individual transient windows are continuously averaged and the display is updated every cycle so the operator is fully aware of signal improvement. Geometric parameters, time parameters, primary voltage, array types and station numbers are fully programmable. A large display screen allows the operator real time access to graphic and numerical display of measured data. For each dipole, the unit measures or calculates the self-potential (Sp - mV), primary voltage (Vp - mV), apparent resistivity, the secondary voltage decay over 11 time slices, the total apparent chargeability (M - mV/V) and Cole-Cole Parameters (Spectral data). All programmed parameters, and measured and calculated values, are stored in solid state memory. (Appendix C).

The IPR-12 calculates in-field Cole-Cole spectral parameters and displays them in addition to the many other calculations and statistical parameters. The IPR-12 calculates the true chargeability ("M") and time constant tau (τ) for a fixed "c" of 0.25. These parameters, which are recorded in memory, may be used to assist interpretation by distinguishing between different chargeable sources, based mainly on textural differences.
The Androtex STX-10 IP variable frequency backpack portable transmitter was employed (maximum output voltage 4800 volts, weight 30 kg) in conjunction with a backpack portable motor-generator. The generator consists of a Westinghouse 30 kVA, 3-phase, 400 Hz. alternator coupled to a 5.5 H.P. Honda engine (34 lb.). The system provided a stable, regulated current (10 amps maximum) at an 8 second, 50 percent duty cycle.

Stainless steel current electrodes connected via 10 gauge copper wire were used for current injection contacts \((C_1 \& C_2)\). Electrode contacts were watered with saturated CaCl solution in order to improve the contact resistance when needed. Contact resistance varied between .02k-30k ohms, with an overall average of 25 k ohms. Transmitted currents between 0.3 - 3500.00 milliamperes were achieved on high resistivity and low resistivity ground respectively.

All measured values were routinely stored in the receiver’s solid state memory, and at the end of each survey day, the IPR-12 was interfaced with an Ultinet Portable micro-computer (586DX-166MHz) and the data transferred to disk for storage and processing. All data was transmitted at the IPTEC Bathurst office where report-quality field plots were generated daily, using a HP Paint Jet XL350 36 inch colour printer, to monitor the data quality and to provide a preliminary interpretation capability. Motorola VHP-band radios provided communication links for the crew in the field.

The induced polarization survey on the Lundmark-Akow Lake property implemented the dipole-dipole electrode configuration, using a dipole "a" spacing of 25 meters and current dipole of 25 meters (figures 4). The receiver array consisted of 6 end-on dipoles, totaling 150 meters in length, and the profiles were surveyed using the roll-along technique. The 6 \((D_n)\) end-on dipoles consisted of 7 \((P_n)\) receiving non-polarizing pot electrodes that are in turn connect to the receiver \((Rx)\) with 18 gauge copper insulated wire. Up to one thousand (1200) line-meters of coverage were surveyed, on the Lundmark-Akow Lake grid, on a good field day.

3.2.2 Total Field Magnetics and VLF system

The Scintrex OMNI Mag/VLF proton precession magnetometer/VLF microprocessor-based receiver system was employed on the Lundmark-Akow Lake Grid to measure the total magnetic field and VLF field components (Vertical in-phase, vertical quadrature, and horizontal field components) over the grid. Measurements were taken along the line at 12.5 meter station intervals. The geophysical measurements, time and position information are recorded in the instrument’s solid state memory. A second base magnetometer was used to monitor the diurnal change; the base magnetometer was set to take readings at 10 second intervals. At the end of each day the correction for the diurnal drift was made automatically by either linking the base station magnetometer to the field magnetometer or by dumping each magnetometer to an IBM compatible computer and running appropriate software for the drift correction.

3.2.3 Horizontal Loop Electromagnetic (HLEM)

The Apex Parameterics MaxMin 1-10 system employed on the Otter Brook Grid measured the maximum coupling Horizontal Loop ElectroMagnetic (HLEM) in-phase and out-phase components of the anomalous field from electrically conductive zones. The MaxMin HLEM is a two-man horizontal loop system with the transmitter parallel to the average slope between the transmitter \((Tx)\) and receiver \((Rx)\) at a fixed coil separation between the \(Tx\) and \(Rx\). For the Lundmark-Akow Lake grid a standard 100m coil separation was employed where the measured data is referenced to the position half the distance between the \(Tx\) and \(Rx\). Two of the MaxMin 1-10 frequencies were selected (440 Hz, 1760 Hz) to obtain a wide variety of frequency responses with minimum time-cost on the Lundmark-Akow Grid.
All HLEM measured values were routinely stored in the MMC dataloger's solid state memory, and at the end of each survey day, all surveyed data was interfaced with a micro-computer (586DX-233MHz) and the data transferred to disk for storage and processing. All data was processed in the Bathurst office where report-quality field plots were generated, using 36 inch HP Paint Jet XL350c printer-plotter, to monitor the data.

3.2.4 Gravity and Elevation

Survey lines with station pickets at 25 m intervals were surveyed twice; once with the Sodin gravimeter and once with the Sokkisha B2-A level.

Automatic Level

The Sokkisha B2-A Automatic Level was used to determine precise elevations of the surveyed stations. The instrument is levelled by adjusting the tripod screws until the level bubble is within a limiting circle. Automatic compensators are magnetically damped to reduced vibration and increase accuracy. The integrity of the measurements must be verified by closing survey lines to a starting benchmark.

Two persons were required to level the lines - one rod-man and one level instrument operator. Temporary bench marks where established for each survey grid line in order to close level run loops. All level loops closed to within 2 cm.

Sodin Gravimeter

The Sodin gravimeter responds to a change in gravity that alters the position of a proof mass balanced by a spring and a relatively small adjusting restoring force. The displacement is measured and recorded, where a 0.10065 mgal is equal a displacement division.

Gravity readings are looped back to a base station within two hours to determine instrument drift that may be apparent after tidal corrections. The quality of measurements in the field are closely monitored during the course of the survey in order to detect any weaknesses, either technical or natural, which could affected the quality of the data recorded. If the data quality exceeds, or is believed to exceed, i.e., rhythmic variations with repeat measurements, the two-hour loop is repeated. The readings taken by the Sodin meter and its instrument height are entered into IPTEC software for further processing and corrections with elevation data.

All measured values were hand entered into an IBM compatible portable micro-computer (586DX-166MHz) and the data transferred to disk for storage and processing. All data was processed in the Bathurst IPTEC office where report-quality field plots were generated daily, using 36 inch HP Paint Jet XL350C full color printer-plotter, to monitor the data quality and to provide preliminary interpretation capability.

Repeatability of measurements was easily maintained throughout the course of the gravity survey with a few exceptions that were quickly recognized and repeated. The gravity and elevation data was collected with an accuracy that enables consistent calculation of the bouguer gravity. In general, the excellent gravity and elevation data quality is evidenced by the low standard errors of measurement, good bouguer calculations, and high repeatability-as shown in the relatively smooth nature of the data on the 25m spaced stations.
3.3 Quantities Measured and Data Processing

Once the data have been collected in the field, the receiver is interfaced with a microcomputer and the raw field data is transferred onto diskette for further reduction. Following this, the data sets are reduced, using Geosoft™ software to calculate apparent resistivity, total chargeability, and cole-cole parameters as explained in the following figures and equations. The receivers for the total field magnetics and VLF are downloaded in a similar manner.

3.3.1 Resistivity Measurements and Processing

The applied current and measured voltage \( V_p \) equates an electrical resistivity as a measure of the bulk electrical resistivity of the subsurface. Electricity flows in the ground primarily through the ground water present in the subsurface bedrock. The current flows primarily within the pore-spaces and fractures of the bedrock. Silicates, which form the bulk of the rock forming minerals, are poor conductors of electricity, weathered layers are generally intermediate conductors and sulphides and graphite are very good conductors. For any array, the value of resistivity is a true value of subsurface resistivity only, if the earth is homogeneous and isotropic. Since homogeneous and isotropic conditions are improbable, the apparent resistivity is a qualitative calculation based on measured and idealized results used to locate relative changes in subsurface resistivity only.

Due to the electrical potential field decreasing with distance from the current electrode (figures 4 & 6) a k-factor is used to normalize the resistivity.

The K-factor calculations are based on the general formula for the calculation of the potential distribution in a current dipole.

\[
\Delta V = I_p \left( V_{C_1 P_1} - V_{C_1 P_2} - V_{C_2 P_1} + V_{C_2 P_2} \right) / \pi
\]

The K-factor calculations are based on the grid coordinates of \( C_1, C_2 \) and \( P_1, P_2 \) (figures 4 & 6).

The Apparent Resistivity \( \rho \) calculation is defined as:

\[
\rho = k * V_p / I
\]

Where:
- \( V_p \) is the primary Voltage of the respective dipole
- \( I \) is the transmitter current
- \( k \) is the K-factor
Figure 6: Plan Map Description of Dipole-Dipole at the Lundmark-Akow Lake Property

The above diagrams figures 4, 5 & 6 illustrates the dipole-dipole array electrode configuration and nomenclature as described in the above equations. The potential field distribution from the dipole-dipole array configuration varies in intensity from D_1 to D_8 station to station. The potential field decreases with distance from the current electrodes. When calculating the resistivity, the general formula for k-factor calculations corrects for this variation in the potential field distribution. One should note that the character of the potential field distribution limits the number of dipoles measured from a current setup. A receiver electrode spread of 6 dipoles was used on the Lundmark-Akow Lake grid.

3.3.2 IP Measurements and Processing

The IPR-12 also measures the secondary or transient relaxation voltage during the two second off cycle. Eleven slices of the decay curve are measured at semi-logarithmically spaced intervals between 50 and 1770 milliseconds after turn-off. The measured transient voltage when normalized for the width of the slice and the amplitude of the primary voltage yields a measure of the polarizability called chargeability in units of millivolts/volt.

The Chargeability (M) calculation is defined in the following formulas and figures 4 & 6:

\[(3a)\quad M = V_s \times 1000 / V_p\]

Where:

\[(3b)\quad V_s = \sum_{t_1}^{t_2} V_s dt\]

\[t_1 = \text{time at beginning of slice}\]
\[t_2 = \text{time at end of slice}\]
\[t_r = t_1 - t_2 \text{ (integration time)}\]
\[V_p = \text{primary voltage measured during current on}\]
\[V_s = \text{secondary voltage measured during current off}\]

The time slice M_{11} (590 - 820 sec, figure 7) was chosen as the optimal chargeability time window for the Lundmark-Akow Lake IP survey.
The measurement of the time-domain IP chargeability (M) is given by equations 3a & 3b where \( t_i, t_{i+1} \) are the beginning and ending times for each of the chargeability slices as set in the IPR-12 for a 2 sec ON/OFF cycle. To ensure optimum anomaly resolution and noise suppression - according to the specific geologic/geomorphologic environment the chargeability time-gate chosen for Lundmark-Akow Lake grid is \( M_{11} \) (590 - 820 msec from \( t_0 \), figure 7).

### 3.3.3 Total Field Magnetics

The magnetic method consists of measuring the magnetic field of the earth as influenced by rock formations having different magnetic properties and configurations. The measured field is the vector sum of primary, induced and remnant magnetic effects. Thus, there are three factors, excluding geometric factors, which determine the magnetic field. These are the strength of the earth's magnetic field, the magnetic susceptibilities of the rocks present and their remnant magnetism.

The earth's magnetic field is similar in form to that of a bar magnet. The flux lines of the geomagnetic field are vertical at the north and south magnetic poles where the strength is approximately 60,000 nT (or gammas). In the equatorial region, the field is horizontal and its strength is approximately 30,000 nT.

The primary geomagnetic field is, for the purposes of normal mineral exploration surveys, constant in space and time. Magnetic field measurements may, however, vary considerably due to short-term external magnetic influences. The magnitude of these variations is unpredictable. In the case of sudden magnetic storms, it may reach several hundred nT over a few minutes. It may be necessary therefore, to take continuous readings of the geomagnetic field with a base station magnetometer while the magnetic survey is done.

The intensity of magnetization induced in rocks by the geomagnetic field \( F \) is given by:

\[
l = k H
\]

where:

- \( l \) is the intensity of magnetization
- \( k \) is the volume magnetic susceptibility
- \( H \) is the magnetic field intensity
The susceptibilities of rocks are determined primarily by their magnetite content since it is strongly magnetic and widely distributed.

The remnant magnetization of rocks depends on both their composition and their previous history. Whereas the induced magnetization is nearly always parallel to the direction of the geomagnetic field, the natural remnant magnetization may bear no relation to the present direction and intensity of the earth's field. The remnant magnetization is related to the direction of the earth's field at the time the rocks were last magnetized. Interpretation of most magnetometer surveys is normally done by assuming no remnant magnetic component.

Since the distribution of magnetic minerals (magnetite, pyrrhotite) will, in general, vary with different rock types, the magnetic method is often used to aid in geologic mapping.

3.3.4 Very Low Frequency Electromagnetics (VLF-EM)

The Very Low Frequency (VLF-EM) Electromagnetic method measures variations in the components of the electromagnetic fields set up by communication stations operating in the 15 to 25 kHz frequency range. These stations, located around the world, generate signals for the purposes of navigation and communication with submarines.

Above a uniform earth, the groundwave of the vertically polarized VLF radiowave has three field components:

1. a radial, horizontal electrical field,
2. a vertical electrical field, and
3. a tangential, horizontal magnetic field.

When these three fields meet conductive bodies in the ground, eddy currents are induced causing secondary fields to radiate outwards from the conductors.

The primary field from a VLF station can vary considerably. For the most part, the field fluctuates moderately during the course of the day due to changes in atmospheric conditions. More dramatic changes are however possible. Towards evening there is a large upward swing in the field strength. At several points during the day, both partial and total drops in the field amplitude can be observed. In the light of these irregularities, the horizontal field data should always be considered with reservation, as it is difficult to know whether changes are caused by conductors or by variations in the station's signal. If the primary field strength is constant, changes in the amplitude of the horizontal magnetic field reflect variations in the conductivity of the earth.

Normally there will be no vertical magnetic field. However, near a conductor, a vertical field will be observed. The relative amplitudes of the in-phase and quadrature components may be used to interpret the conductivity-size characteristics of the conductor.

A normalized Horizontal Field (Hn) may be derived as follows:

\[ Hn = \frac{(H - \text{background})}{\text{background}} \times 100\% \]

where:

H is the observed Horizontal Field. The computation of Hn provides a first pass removal of the diurnal component on an individual line basis only. The resulting profile map may be used to outline major conductive linear trends and differentiate between relative high and low conductive units. The use of a VLF base station would give a more accurate Hz as well as survey line to survey line continuity of the Hz, resulting with a data set reliable enough to contour.
3.3.5 Horizontal Loop Electromagnetic (HLEM)

The Horizontal Loop Electromagnetic (HLEM) is based on a magnetic field transmitted and received through horizontal multi-turned coils of wire. The EM transmitter creates a primary electromagnetic momentum that is capable of energizing subsurface conductors. HLEM transmitters are capable of creating a primary signal with sufficient strength to enable the conductor to produce a secondary signal sufficient to energize the receiver coil. The receiver coil is induced from both the primary signal of the transmitter and the secondary signal from the conductor, where the primary signal is also transmitted to the receiver via an interconnecting cable; hence the in-phase and out-of-phase components are expressed as a percentage of the secondary field over the primary field. This method of expressing the primary field is based on a constant coil separation between the coplanar transmitter and receiver coils.

3.3.6 Gravity and Elevation

The acceleration due to gravity is a measure of the force exerted between the Earth and a mass on the Earth. The unit of acceleration (cm/sec) is also called the gal. Variations in the gravitational field of the Earth are due to several factors. The factors, which are of interest to mineral exploration, are variations in the rock densities, shapes, and sizes.

Gravity responses due to instrument (drift, temperature etc.), Earth-tides, latitude, free-air, and mass (Bouguer correction) must be removed from the measured responses in order to determine the physical parameters of an area of different density (mineralized zone).

The operator, at each station recorded, must also measure instrument height. The station elevation is measured separately using the automatic level. PC based software is used to calculate the gravity due to distance from the datum plane (free-air correction).

The Bouguer correction accounts for the attraction of material between the station and the datum plane. When unknown, an average density of 2.67 g/cc is assumed for these calculations. In most cases, terrain and isostatic corrections are not necessary for such a small-scale gravity survey over relatively flat terrain.

Latitude corrections take into account different gravitational values due to latitude. When approaching a pole, this correction must be subtracted from the observed gravity. Conversely, when approaching the equator, it must be added.

At the conclusion of each survey day the collected data were entered into an IBM compatible microcomputer. One base station was set-up with gravity survey-line readings taken within two hours and at the start and end of each survey day. This was used to correct for various instrument drift and diurnal variations. Once edited, the gravity data were reduced to a datum plane by applying latitude and Bouguer corrections to the gravity data.

Latitudes and longitudes were obtained from a 1:50,000 topographic map. These data were entered into the computer and corrections were made using in-house software. The final gravity values were thus reduced to a datum plane with excess mass removed and where drift and latitude corrections have been done. These data are the Bouguer Gravity.
3.4 Difficulties Encountered and Accuracy of Measurements

The quality of measurements in the field was closely monitored during the course of the survey in order to detect any weaknesses, either technical or natural, which could have affected the quality of the data recorded. Overall, the survey progressed deliberately and efficiently with a few exceptions over areas of interpreted geological iron formations striking north-south to the grid. A considerable amount of time was needed to obtain a valid reading over such ground.

**IP & Cultural Noise**

The isolated location of the Lundmark-Akow Lake property does not lend to apparent cultural features on or near the survey area, i.e., power-lines, fences, buildings, etc. However, long linear geological trends, interpreted to be iron formations striking north-south, distorted the IP responses. Adjustment of the primary field, i.e., an increase or decrease in current, did not correct the IP distortion.

The data collected on the Lundmark-Akow Lake IP grid exhibited EM distortion on some of the readings associated geological contacts and trends striking NW to the grid. To minimize this effect various currents are applied, the readings are repeated, and the best reading is recorded for plotting.

![Early Time Slice IP Decay on the Lundmark-Akow Lake IP Grid (Not to Scale)](image)

An average current of only 0.8 A was maintained throughout the survey. Overall, a repeatability of approximately 1 decade ohm-m for the resistivity, and 0.5mV/V for the chargeability were easily maintained throughout the course of the survey. In general, the excellent data quality is evidenced by the low standard errors of measurement and high repeatability-as shown in the relatively smooth nature on the pseudo-sections.

3.5 Presentation of Results and Digital Data Formats

All geophysical data are included with this report in the form of maps, at a scale of 1:5000, and are listed in appendix D (List of Maps). The IP/Resistivity survey results are presented as pseudo-sections with posted values included on the contours. The total field magnetics survey results are plotted as contours and posted values on separate plan maps. Mag profiles are plotted in substitute of contours, for wide spaced survey lines. The VLF survey results are plotted as posted value plan maps, profile plan maps of the in-phase and out-phase, and Fraser filters contours. Fraser filter contours are not plotted for wide spaced survey lines. Bouguer and residual gravity profiles and posted values are plotted with elevations profiles. All maps are available in .DXF format and all data are stored in Geosoft™.XYZ ASCII format on DS-HD (1.44Mb) 3.5 inch diskettes.
4.0 DISCUSSION OF RESULTS AND RECOMMENDATIONS

Lundmark-Akow Grid, IP and Gravity, Interpretive Map I0698-I-1

The Lundmark-Akow Lake grid is dominated by known north-south (grid NS) geological trends (figure 1 & 2) that are further defined as multiple sub-parallel geophysical trends defined by the 1998 IP and gravity surveys. The 1998 geophysical surveys mapped the geoelectrical grain, and density variations of the Ludmark-Akow grid. The induced polarization (IP) chargeability and apparent resistivity map the geoelectrical grain, defining six north-south trends labeled CR1 to CR6 with very low resistivity responses less than 20 ohm-m and chargeability highs greater than 80mV/V. Residual Bouguer gravity, over a selected area, further defines the chargeability and resistivity trends. In-fill magnetic/VLF and HLEM are coincident with these trends.

CR1 (20 - 80 mV/V, striking NS from 600S to 1500S at 575E, multiple response, extending north and south beyond grid).

The very strong chargeability/resistivity CR1, striking north-south, is a multiple chargeability/resistivity trend exhibiting negative chargeabilities. This type of distorted chargeability response (negative values) is interpreted to be the result of telluric electromagnetics induced in this long conductor striking tens to hundreds of kilometers. This strong multiple chargeability/response CR1 has a relatively well defined weaker response CR1a flanking its east. The east flanking chargeability response CR1a may or may not be a separate feature of CR1, but should be considered part of the CR1 follow up. Both CR1 and CR1a are associated with moderate to very low resistivity responses within or on the west flank of gravity high G1. The significance of a resistivity low corresponding to a gravity high suggest massive sulfides.

The multiple anomalous aspect of CR1 is further expressed as one large multiple anomaly, south of 1100S, where the close proximity of adjacent chargeability/resistivity responses CR2 & CR3 are difficult to interpreted as separate responses. This larger multiple response is further defined from the high to moderate residual gravity responses G1 becoming narrow to the south and possibly incorporating G2 from the east. Further follow-up is strongly recommended within this closely spaced anomalous package, from lines L1400S to L1100S, for significant mineralization.

CR2 (20 - 50 mV/V, striking NS fr. 600S to 1500S at approx. 700E, extending north beyond grid)

The north-south chargeability/resistivity trend CR2 is a moderate chargeability response from L600S to L800S and extending to 1100S as a weak resistivity response with a decreasing chargeability. South of 1100S, CR2 continues as a moderate to weak chargeability response with an interpreted sub-branch CR2a on line L1200S. Both CR2 and CR2a are incorporated as part of the multiple anomalous response CR1 on lines L1300S and L1500S respectively. CR2 is further defined by moderate gravity high G1a. The combination of residual gravity moderate high and chargeability/resistivity responses suggest mineralization, warranting further follow-up.

CR3 (20 - 30 mV/V, striking NS fr. 600S to 1200S at approx. 425E, extending north beyond grid)

The north-south chargeability/resistivity trend CR3 is a weak chargeability response extending from L600S to L1100S. CR3 is interpreted to follow the residual gravity moderate high G1b becoming part of the multiple anomaly CR1, at 1200S. There is a very weak and questionable resistivity low associated with CR3, but it is not included on the interpretation map due to its questionable and very weak response. CR3 is significant where it is part of the
multiple anomaly CR1, on line L1200S. If significant mineralization within CR1, is determined to be part of CR3, mineralization may continue north along CR3 prompting further follow-up.

**CR4** (20 - 30 mV/V, striking NS fr. 1000S to 1500S at approx. 875E, extending north and south beyond grid)

The moderate to week north-south chargeability/resistivity trend CR4 is a strong to moderate chargeability and resistivity response within residual gravity high G2 from L1000S to L1100S. CR4 is interpreted to extend south of L1100S and beyond the grid, as a low resistivity response with a weak corresponding chargeability. South of L1100S the residual bouguer gravity high and chargeability/resistivity responses of CR4 may have a stronger signature than observed, due to low-density/conductive overburden masking the full potential of this response. Measurements of overburden thickness and soil conductivity should be considered as part of follow-up as well as deep penetrating time domain electromagnetics (TDEM), if geological and geochemical data are favorable.

**CR5** (> 80 mV/V, striking NS at approx. 75W, extending north and south beyond grid)
**CR6** (30 - 80 mV/V, striking NS at approx. 75W, extending north and south beyond grid)

Chargeability and resistivity responses CR5 and CR6 have limited IP coverage were, but are interpreted to extend north and south, parallel to the IP trends to the east and the known geology. CR5 and CR5a are interpreted to extend to L1000S. Extension of the IP survey from L300S to L1000S and further south is recommended.

**LUNDMARK NORTH EXTENSION**

Total Field Magnetics, VLF and HLEM, Interpretive Map I0698-I-2

The Lundmark North Extension was established to further define the known north-south (grid NS) geological trends (figure 1 &2). The orientation of the grid was based on preliminary geological mapping by geologist Ian Spence, concluding a baseline azimuth of 330 degrees. The grid lines were sufficient for coverage and geophysical definition of multiple sub-parallel geophysical trends, as expressed by the magnetic and electromagnetic responses.

The Lundmark North Extension grid is dominated by north-south (grid NS) geophysical multiple sub-parallel geophysical trends defined by the 1998 magnetic, VLF and HLEM geophysical surveys. The dominate features are the strong magnetic highs MVH1, MH1, M2 and M3, the very low frequency (VLF) responses V1 to V5 and the two HLEM responses H1 and H2.

**MVH1** (> 59500 nT, 25 to 100m wide extending length of grid)
**V1** (well defined in & out phase cross-overs extending length of grid)
**H1** (> 30 mhos conductivity thickness, 50 to 100m wide extending length of grid)

MVH1 is the dominate very high magnetic feature of the Lundmark north extension grid and is associated with the strong HLEM and VLF conductors H1 and V1. MVH1, V1 and H1 extend the full length of the Lundmark north extension grid with its strongest magnetic and electromagnetic responses at MVH1a. The very high magnetic response MVH1a exhibits negative flanking creating the false appearance of a discontinuous break in the NS striking magnetic high MVH1. A magnetic data calculation "reduction to the pole" will reduce this effect and should be considered for further interpretation and follow-up.
MH1 (> 59200 nT, 200m wide from 370E to 600E extending L1300N to L1000N)
V2 (weak response from L1300N at approximately 470E extending north)

MH1 is interpreted as part of the multiple character of the Lundmark North extension. MH1 is the widest magnetic response merging M2 with MVH1, suggesting a deeper magnetic source connecting M2 with MVH1. No noticeable electromagnetic response is directly present within MH1, east of MVH1. Further deep geophysical follow-up is recommended and should include deep transient electromagnetics (TEM) to determine an EM response may be present at depth.

M2 (> 59100 nT, 25 to 75m wide, discontinuous extending length of grid)
V3 (weak response from L600N at approximately 400E extending south)

M2 is a moderate magnetic high expressed as a linear discontinuous trend striking NS through the length of the grid. There is no dominate electromagnetic response associated with M2 with the exception of VLF conductor V3, south of L700N, where M2 is stronger, multiple, and may merge with the very high magnetic and electromagnetic features MVH1, H1 and V1. The relationship of M2 with adjacent anomaly MVH1 should be followed up with further geophysical, geological and geochemical surveys and is recommended during the winter month when the wet swamp conditions will permit access.

M3 (> 59100 nT, 25 to 75m wide, discontinuous extending length of grid)
V3 (weak response at approximately 100E extending length of grid)
H1 (questionable response)

M3 is a discontinuous magnetic response associated with the weak VLF response V5 and questionable HLEM response H2. M3 does exhibit a relatively stronger and wider multiple magnetic response south of L800N with corresponding stronger HLEM and VLF. Further geophysical surveys south and west of line L300N could not be conducted due to swampy grid conditions and the Lundmark lake. A winter survey program will permit a southwest extension of this grid and is recommended if additional geochemical and geological data prove favorable.
5.0 SUMMARY AND CONCLUSIONS

At the request of Romios Gold Resources Inc., of 147 Oakwood Avenue, Toronto, ON, M6E 2T7, IPTEC reg'd/division of Lone Pine Exploration Services Ltd. of 19 West Lane of Bathurst, New Brunswick, Canada, conducted geophysical surveys from May 30th, 1998 to June 21th, 1998, on the Lundmark-Akow Lake Property. The Lundmark-Akow Lake Property is located approximately forth kilometers (40km) north of Musselwhite Mine, Ontario within North Caribou lake greenstone belt located in the Patrician Mining Division of Northwestern Ontario.

The multiple geophysical surveys progressed deliberately and efficiently over the selected areas of the Lundmark-Akow Lake grids. The induced polarization (IP) survey employed the dipole-dipole array with six potential dipoles (n=1 to 6) with dipole spacing equal to 25 meters and totaling nine thousand line-meters (9 000m; back current electrode to front pot) of coverage. Complementing an area of the IP survey, a total of three thousand three hundred line-meters (3 300.0m survey coverage) of gravity and elevation was surveyed. A grid extension to the north totaling eleven thousand five hundred, cut and chained survey lines, (11 500m) was covered with total field magnetics VLF and HLEM geophysical surveys. The complete 1998 total field magnetometer/VLF survey coverage, including the in-fill on the older grid, totals fourteen thousand nine hundred line-meters (14 900.0m survey coverage). The complete HLEM survey 1998 coverage, including the in-fill on the older grid, totals thirteen thousand line meters (13 000m survey coverage).

The geophysical surveys mapped the NS geoelectrical, geomagnetic electromagnetic, and density grain of the Ludmark-Akow and Ludmark North extension grids. The induced polarization (IP) chargeability and apparent resistivity map the geoelectrical grain, defining six multiple sub-parallel north-south trends labeled CR1 to CR6 with very low resistivity responses less than 20 ohm-m and chargeability highs greater than 80mV/V. Residual Bouguer gravity, over a selected area, further defines these trends. In-fill magnetic/VLF and HLEM anomalies are also coincident.

The Lundmark North Extension grid is dominated by north-south (grid NS) multiple sub-parallel geophysical trends defined by the 1998 magnetic, VLF and HLEM geophysical surveys. The dominate features are the strong magnetic highs MVH1, MH1, M2 and M3, the very low frequency (VLF) responses V1 to V5 and the two HLEM responses H1 and H2, adding to the overall structural perception and interpretation of the Lundmark-Akow Lake property.

It is hoped that results from this survey be used in conjunction with other available geological and geophysical information, through mapping and drilling, to further determine the potential of the Lundmark-Akow Lake Property.

Respectfully Submitted,

Albert Vickers, B.Sc.
Geophysical Operations
APPENDIX A

STATEMENT OF QUALIFICATIONS
APPENDIX A

STATEMENT OF QUALIFICATIONS

I, Albert J. Vickers, hereby declare that:

- I am a geophysicist with residence in Bathurst, NB and I am presently employed in this capacity with IPTEC reg'd, division of Lone Pine Exploration Services Limited of Bathurst, NB

- I am a graduate of the University New Brunswick, Fredericton, NB, in 1987, with a Bachelor's Science Degree in Geology/Physics.

- I am a member of: The Association of Professional Geoscientists of New Brunswick, New Brunswick Branch of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), New Brunswick Prospectors & Developers Association and Prospectors & Developers Association of Canada and member of the Environmental and Engineering Geophysical Society.

- I have practiced my profession throughout North America continuously since graduation.

- I have no interest nor do I expect to receive any interest, direct or indirect, in the properties or securities of Romios Gold Resources Inc.

- The statements made by me in this report represent my best opinion and judgment based on the information available to me at the time of the writing of this report.

Bathurst, NB
March 11th 1999

Albert J. Vickers, B.Sc.
Geophysicist
APPENDIX B

LIST OF REFERENCES
APPENDIX B

LIST OF REFERENCES


HALLOF, P.G.; 1983: An Introduction to the Use of the Spectral Induced Polarization Method; Publication of Phoenix Corp.

IRIS (BRGM) INSTRUMENTS, ELREC 6 (IP-6) Operating Manual Reversion 9.1, IRIS Instruments, France.


SCINTREX LTD., 1994: IPR-12 Time Domain IP/Resistivity Receiver Operator Manual Rev. 1; Scintrex Ltd. 222 Snidercroft Rd. Concord, ON.,


WAIT, J.R. (Editor), 1959: Overvoltage Research and Geophysical Applications; Pergamon Press.
APPENDIX C

INSTRUMENT SPECIFICATIONS
## APPENDIX C

### INSTRUMENT SPECIFICATIONS

**SCINTREX IPR-12 TIME DOMAIN IP/RESISTIVITY RECEIVER TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td>Multiple inputs, allowing from 1 to 8 simultaneous dipole measurements. 9 binding posts mounted in a single row for easy reversal of the connection of the dipole array.</td>
</tr>
<tr>
<td><strong>Input impedance</strong></td>
<td>16 MΩ</td>
</tr>
<tr>
<td><strong>Input voltage range</strong></td>
<td>50 μV to 14 V</td>
</tr>
<tr>
<td><strong>Sum Vp2....Vp8</strong></td>
<td>14 V</td>
</tr>
<tr>
<td><strong>SP bucking range</strong></td>
<td>± 10 V. Automatic, linear slope correction operating on a cycle by cycle basis.</td>
</tr>
<tr>
<td><strong>Chargeability range</strong></td>
<td>0 to 300 m V/V</td>
</tr>
<tr>
<td><strong>Tau range</strong></td>
<td>$2^{-14}$ to $2^{11}$s</td>
</tr>
<tr>
<td><strong>Reading resolution of Vp, SP and M</strong></td>
<td>Vp - 10 μV, SP - 1 mV, M - 0.01 m V/V</td>
</tr>
<tr>
<td><strong>Absolute accuracy</strong></td>
<td>Better than 1%</td>
</tr>
<tr>
<td><strong>Common mode rejection</strong></td>
<td>&gt; 100 dB</td>
</tr>
<tr>
<td><strong>Vp integration time</strong></td>
<td>10% to 80% of the current on time.</td>
</tr>
<tr>
<td><strong>IP Transient program</strong></td>
<td>Total measuring time keyboard selectable at 1,2,4,8,16 or 32 seconds. Normally 14 windows except that the first four are not measured on the 1 second timing, the first three are not measured on the 2 second timing and the first is not measured on the 4 second timing. See diagram in the Measurement and Calculation section. An additional, transient slice of a minimum 10 ms width, and 10 ms steps, with delay of at least 40 ms is keyboard selection.</td>
</tr>
<tr>
<td><strong>Transmitter timing</strong></td>
<td>Equal on and off times with polarity reversal each half cycle. ON/OFF times keyboard selectable at 1,2,4,8,16 or 32 seconds. Timing accuracy of transmitter better than ± 100 PPM required.</td>
</tr>
<tr>
<td><strong>External circuit test</strong></td>
<td>All dipoles are measured individually in sequence, using a 10 MHz square wave. Range is 0 to 2 MΩ with 0.1 kΩ resolution. The resistance is displayed on the LCD and is also recorded.</td>
</tr>
<tr>
<td><strong>Synchronization</strong></td>
<td>Self synchronizes on the signal received at a keyboard selected dipole. Time limited to avoid mistriggering.</td>
</tr>
</tbody>
</table>
SCINTREX IPR-12 TIME DOMAIN IP/RESISTIVITY RECEIVER TECHNICAL SPECIFICATIONS (CONT.)

Filtering
RF filter, anti-aliasing filter, 10 Hz 6 pole lowpass filter, statistical noise spike removal, linear drift correction, operating on a cycle by cycle basis.

Internal test generator
SP = 1200 mV, Vp = 807 mV, M = 30.28 m V/V

Analog meter
For monitoring input signals, switchable to any dipole via keyboard.

Keyboard
17 key keypad with direct access to the most frequently used functions.

Display
16 line by 42 characters, 256 x 128 dot graphics liquid crystal display. Displays instruments status during and after the reading.

Display Heater
Used in below - 15°C operation. Thermostatically controlled. Requires separate rechargeable batteries for heater display only.

Memory capacity
Stores information for approximately 400 readings when 8 dipoles are used, more with fewer dipoles.

Real time clock
Data is time stamped with year, month, day, hour, minute and second.

Digital output
Formatted serial data output to printer or computer. Data output in 7 or 8 bit ASCII, one start, stop bits, no parity format. Baud rate is keyboard selectable, for standard rates between 300 Baud & 57.6 k Baud. Selectable carriage return delay to accommodate slow peripherals. Handshaking is done by X - on/X - off

Standard rechargeable batteries
Eight rechargeable Ni-Cad D cells. Supplied with a charger, suitable for 115/230 V, 50 to 60 Hz, 10 W. More than 20 hours service at +25°C, more than 8 hours at -30°C.

Ancillary rechargeable batteries
An additional 8 rechargeable Ni-Cad D cells may be installed in the console along with the Standard Rechargeable Batteries. Used to power the Display Heater or as back-up power. Supplied with a second charger. More than 6 hours service at -30°C.

Use of non-rechargeable batteries
Can be powered by D size Alkaline batteries, but rechargeable batteries are recommended for longer life and lower cost over time.

Field wire terminator
Used to custom make cables for up to eight dipoles, using ordinary field wire.

Optional multi-conductor cable adapter
When installed on the binding posts, permits connection of the Multi-dipole Potential Cables.

Operating and storage:
Temperature range
-30°C to +50°C

Dimensions
Console: 355 x 270 x 165 mm
Charger: 120 x 95 x 55 mm

Weight
Console: 5.8 kg
Standard or Ancillary Rechargeable Batteries: 1.3 kg Charger: 1.1 kg
### ANDROTEX STX-10 INDUCED POLARIZATION TRANSMITTER

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Power</td>
<td>10 kW maximum</td>
</tr>
<tr>
<td>Output Voltages</td>
<td>120 to 4800 volts</td>
</tr>
<tr>
<td>Output Current</td>
<td>30 mA to 20 Amperes</td>
</tr>
<tr>
<td>Current Stability</td>
<td>0.1% for 20% of load change.</td>
</tr>
<tr>
<td>Digital Display</td>
<td>Large 2.5 cm high Liquid Crystal Display (LCD) with switch selectable to react alternator frequency, input voltage and external circuit resistance.</td>
</tr>
<tr>
<td>Current Reading Resolution</td>
<td>1 mA</td>
</tr>
<tr>
<td>Time Domain Cycle Timing</td>
<td>T:T:T:T; on:off:on:off; automatic</td>
</tr>
<tr>
<td>Time Domain</td>
<td>Each 2T; automatic Polarity Change</td>
</tr>
<tr>
<td>Time Domain Pulse Duration</td>
<td>Standard: T = 1, 2, 4, 8 seconds</td>
</tr>
<tr>
<td>Time Stability</td>
<td>50 ppm in full temperature range</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>-40° to +50° C</td>
</tr>
<tr>
<td>Protections</td>
<td>Automatic</td>
</tr>
</tbody>
</table>
### Automatic Level
Sokkisha B2-A Automatic Level

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification</td>
<td>30x</td>
</tr>
<tr>
<td>Objective Aperture</td>
<td>40mm</td>
</tr>
<tr>
<td>Minimum Focusing Dist.</td>
<td>1.8m</td>
</tr>
<tr>
<td>Resolving Power</td>
<td>3in</td>
</tr>
<tr>
<td>Field of Viewing</td>
<td>1°5' (1.9m)</td>
</tr>
<tr>
<td>Range of Compensator</td>
<td>+/-10'</td>
</tr>
<tr>
<td>Sensitivity of Circular Level</td>
<td>10'/2mm</td>
</tr>
<tr>
<td>Multiplication Constant</td>
<td>100</td>
</tr>
<tr>
<td>Addition Constant</td>
<td>+0.15m</td>
</tr>
<tr>
<td>Standard Deviation for 1Km Double</td>
<td>+/- 0.1mm</td>
</tr>
<tr>
<td>Run Leveling</td>
<td></td>
</tr>
</tbody>
</table>

### Gravity Meter
Sodin Prospector 200-T

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>3500-6000 mgals</td>
</tr>
<tr>
<td>Fine Counter Range</td>
<td>1000 div. Approx. 100 mgals</td>
</tr>
<tr>
<td>Fine Counter Constant</td>
<td>0.09-0.11 mgal</td>
</tr>
<tr>
<td>Fine Counter linearity</td>
<td>1 in 1000</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1 counter div. = 0.01 mgal</td>
</tr>
<tr>
<td>Drift</td>
<td>less than 0.1 mgal/day</td>
</tr>
<tr>
<td>Level Sensitivity</td>
<td>40 sec./mm</td>
</tr>
<tr>
<td>Temp. Stability</td>
<td>to +/-0.1°C</td>
</tr>
<tr>
<td>Thermostatic Range</td>
<td>5,15,25,35 and 45°C</td>
</tr>
<tr>
<td>Power Supply</td>
<td>10.8V DC sealed rechargeable high capacity battery pack</td>
</tr>
<tr>
<td>Operational Time</td>
<td>minimum 10 hours at a temperature differential of 20°C</td>
</tr>
<tr>
<td>Battery Life</td>
<td>up to 1000 charge cycles</td>
</tr>
<tr>
<td>Recharger</td>
<td>operating on 110V or 220V ac (output 0.2A constant current)</td>
</tr>
<tr>
<td>Weight</td>
<td>5kg (11.0 lbs)</td>
</tr>
<tr>
<td>Height</td>
<td>37 cm (14.6 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>6.5 cm (6.5 in.)</td>
</tr>
<tr>
<td>Gross Weight (shipping)</td>
<td>25KG (55 lbs)</td>
</tr>
</tbody>
</table>
### MAXMIN I SPECIFICATIONS:

**Frequencies:**
- 110, 220, 440, 880, 1760, 3520, 7040 and 14080 Hz, plus 50/60 Hz powerline frequency (receiver only).

**Modes:**
- **MAX 1:** Horizontal loop mode [Transmitter and receiver coil planes horizontal and coplanar].
- **MAX 2:** Vertical coplanar loop mode [Transmitter and receiver coil planes vertical and coplanar].
- **MAX 3:** Vertical coaxial loop mode [Transmitter and receiver coil planes vertical and coaxial].
- **MIN 1:** Perpendicular loop mode 1 [Transmitter coil plane horizontal and receiver coil plane vertical].
- **MIN 2:** Perpendicular loop mode 2 [Transmitter coil plane vertical and receiver coil plane horizontal].

**Coil separations:**
- 12.5, 25, 50, 75, 100, 125, 150, 200, 250, 300, & 400 metres (standard).
- 10, 20, 40, 60, 80, 100, 120, 160, 200, 240 & 320 metres [selected with grid switch inside of receiver].
- 50, 100, 200, 300, 400, 500, 600, 800, 1000, 1200 & 1600 feet [selected with grid switch inside of receiver].

**Parameters measured:**
- In-phase and quadrature components of the secondary magnetic field, in % of primary (transmitted) field.
- Field amplitude and/or tilt of 50/60 Hz powerline field.

**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. $0 \pm 102.4\%$).

**Readability:**
- Analog in phase and quadrature $0.05\%$ to $0.5\%$, analog tilt $1\%$ grade. (Digital in-phase and quadrature $0.1\%$).

**Repeatability:**
- $\pm 0.05\%$ to $\pm 1\%$ normally, depending on frequency, coil separation & conditions.

**Signal filtering:**
- Powerline comb filter, continuous spheric noise clipping, autoadjusting time constant and other filtering.

**Warning lights:**
- Receiver signal and reference warning lights to indicate potential errors.

**Survey depth:**
- From surface down to 1.5 times coil separation used.

**Transmitter dipole moments:**
- 110 Hz: 220 Atn.
- 220 Hz: 215 Atn.
- 440 Hz: 210 Atn.
- 880 Hz: 200 Atn.
- 1760 Hz: 180 Atn.
- 3520 Hz: 160 Atn.
- 7040 Hz: 140 Atn.
- 14080 Hz: 100 Atn.

**Reference cable:**
- Light weight unshielded 4/2 conductor teflon cable for maximum temperature range and for minimum friction. Please specify cable lengths required.

**Intercom:**
- Voice communication link provided for operators via the reference cable.

**Receiver power supply:**
- Four standard 9V batteries (0.5Ah, alkaline). Life 30 hrs continuous duty, less in cold weather. Rechargeable battery and charger option available.

**Transmitter power supply:**
- Rechargeable sealed gel type lead acid 12V13Ah batteries (4x1V 6%/Ah) in canvas belt. Optional 12V-8Ah light duty belt pack available.

**Transmitter battery charger:**
- For 110/120V/240VAC, 50/60/400 Hz and 12-15VDC supply operation, automatic float charge mode, three charge status indicator lights. Output 14.4V-2.5A nom.

**Operating temp:**
- -40 to 160 deg. C.

**Receiver weight:**
- 8 kg, including the two integral ferrite cored antennas [9 kg with data acq. comp.]

**Transmitter weight:**
- 16 kg with standard 12V13Ah battery pack.
- 14 kg with light duty 12V-8Ah pack.

**Shipping weight:**
- 9 kg plus weight of reference cables at 2.5 kg per 100 metres plus other optional items if any.

**Standard spares:**
- One spare transmitter battery pack, one spare transmitter battery charger, two spare transmitter retractile connecting cords, one spare set receiver batteries.

Specifications subject to change without notification.

---

APEX PARAMETRICS LIMITED

Telephone: 416-640-6102
416-852-5975

Cables: APEXPARA TORONTO
Telex: 06 56625 APEXPARA UXO

P.O. Box 818, Uxbridge
Ontario, Canada LOC 1K0
Specifications*

Frequency Tuning Range ........ 15 to 30 kHz, with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 26.5 kHz

Transmitting Stations Measured .... Up to 3 stations can be automatically measured at any given grid location within frequency tuning range

Recorded VLF Magnetic Parameters .......... Total field strength, total dip, vertical quadrature (or alternately, horizontal amplitude)

Standard Memory Capacity .......... 800 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings

Display .... Custom designed, ruggedized liquid crystal display with built-in heater and an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal strength status monitor and function descriptors.

RS232C Serial I/O Interface ........ 2400 baud rate, 8 data bits, 2 stop bits, no parity

Test Mode .......................... A. Diagnostic Testing (data and programmable memory)  
B. Self Test (hardware)

Sensor Head ........................ Contains 3 orthogonally mounted coils with automatic tilt compensation

Operating Environmental Range ........ −40°C to +55°C; 0 – 100% relative humidity; Weatherproof

Power Supply ....................... Non-magnetic rechargeable sealed lead-acid 18V DC battery cartridge or belt; 18V DC disposable battery belt; 12V DC external power source for base station operation only.

Weights and Dimensions

Instrument Console .......... 2.8 kg, 128 x 150 x 250 mm
Sensor Head .................... 2.1 kg, 130 dia. x 130 mm
VLF Electronics Module .......... 1.1 kg, 40 x 150 x 250 mm
Lead Acid Battery Cartridge .......... 1.8 kg, 235 x 105 x 90 mm
Lead Acid Battery Belt .......... 1.8 kg, 540 x 100 x 40 mm
Disposable Battery Belt .......... 1.2 kg, 540 x 100 x 40 mm

*Preliminary

EDA Instruments Inc.,
4 Thorncliff Park Drive,
Toronto, Ontario
Canada M3H 1H1
Telex: 06 23222 EDA TOR,
Cables: Instruments Toronto
(416) 425-7800

In USA,
EDA Instruments Inc.,
5151 Ward Road,
Wheat Ridge, Colorado
U.S.A. 80033
(303) 422-9112

Printed in Canada
APPENDIX D

LIST OF MAPS
APPENDIX D

LIST OF MAPS
(1998 SURVEY)

AKOW LAKE GRID (1998 Survey)

Total Field Magnetometer Plan Maps
Magnetometer Profiles & Posted Values  Map No. I0698-A-M1 Plan Map, 1:5000

VLF Plan Maps
VLF In & Out – Phase, Posted Values  Map No. I0698-A-V1 Plan Map, 1:5000
VLF In & Out – Phase, Profiles  Map No. I0698-A-V2 Plan Map, 1:5000

HLEM Plan Maps
HLEM 1760Hz In & Out – Phase, Posted Values  Map No. I0698-A-H1 Plan Map, 1:5000
HLEM 1760Hz In & Out – Phase, Profiles  Map No. I0698-A-H2 Plan Map, 1:5000
HLEM 440Hz In & Out – Phase, Posted Values  Map No. I0698-A-H3 Plan Map, 1:5000
HLEM 440Hz In & Out – Phase, Profiles  Map No. I0698-A-H4 Plan Map, 1:5000

GRAVITY & ELEVATION Plan Maps
Bouguer Gravity & Elevation, Profiles & Posted Values  Map No. I0698-A-G1 Plan Map, 1:5000
Bouguer Gravity (Multiple Density) & Elevation, Profiles Map No. I0698-A-G2 Plan Map, 1:5000

IP/Resistivity Pseudosection
Chargeability, Resistivity, Metal Factor Contours  Map No. L1500S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L1400S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L1300S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L1200S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L1100S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L1000S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L900S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L800S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L700S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L600S Pseudosection, 1:5000

LUNDMARK LAKE GRID (1998 Survey)

HLEM Plan Maps
HLEM 1760Hz In & Out – Phase, Posted Values  Map No. I0698-L-H1 Plan Map, 1:5000
HLEM 1760Hz In & Out – Phase, Profiles  Map No. I0698-L-H2 Plan Map, 1:5000
HLEM 440Hz In & Out – Phase, Posted Values  Map No. I0698-L-H3 Plan Map, 1:5000
HLEM 440Hz In & Out – Phase, Profiles  Map No. I0698-L-H4 Plan Map, 1:5000

IP/Resistivity Pseudosection
Chargeability, Resistivity, Metal Factor Contours  Map No. L100S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L200S Pseudosection, 1:5000
Chargeability, Resistivity, Metal Factor Contours  Map No. L300S Pseudosection, 1:5000
LUNDMARK LAKE GRID (1998 GRID EXTENSION, BL Az 330°)

Total Field Magnetometer Plan Maps
- Magnetometer Contours: Map No. I0698-L-M1 Plan Map, 1:5000
- Magnetometer Posted Values: Map No. I0698-L-M2 Plan Map, 1:5000

VLF Plan Maps
- VLF In & Out – Phase, Posted Values: Map No. I0698-L-V1 Plan Map, 1:5000
- VLF In & Out – Phase, Profiles: Map No. I0698-L-V2 Plan Map, 1:5000
- VLF In-Phase Fraser Filter, Posted Values: Map No. I0698-L-V3 Plan Map, 1:5000

HLEM Plan Maps
- HLEM 1760Hz In & Out – Phase, Posted Values: Map No. I0698-L-H5 Plan Map, 1:5000
- HLEM 1760Hz In & Out – Phase, Profiles: Map No. I0698-L-H6 Plan Map, 1:5000
- HLEM 440Hz In & Out – Phase, Posted Values: Map No. I0698-L-H7 Plan Map, 1:5000
- HLEM 440Hz In & Out – Phase, Profiles: Map No. I0698-L-H8 Plan Map, 1:5000

Akow and Lundmark Interpretation on 1998 Surveys

Geophysical Interpretation Map (1998 Survey, Akow & Lundmark)
- IP/resistivity & Gravity Interpretation: Map No. I0698-I-1 Plan Map, 1:5000
  (1998 Surveys Results, Only)

Geophysical Interpretation Map (1998 Lundmark Grid Extension, BL 330° Az)
- Geophysical Interpretation & Compilation Map: Map No. I0698-I-2 Plan Map, 1:5000
  (1998 Surveys Results)
APPENDIX E

LIST OF CLAIMS
<table>
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<tr>
<th>TOWNSHIP / AREA</th>
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Ontario Ministry of Northern Development and Mines Declaration of Assessment Work Performed on Mining Land

Mineral Resources
Northern Development
and Mines

Declaration of Assessment Work
Performed on Mining Land

Mining Act, Subsection 66(2) and 66(3), R.S.O. 1990

section 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, assess work and correspond with the mining land holder. Questions about this should be directed to the Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury.

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240.
- Please type or print in ink.

1. Recorded holder(s) (Attach a list if necessary)

Name: ROMOS GOLD RESOURCES INC.
Address: 17 DIDRICKSON DR
TORONTO, ONTARIO, M2P 1J7

2. Type of work performed: Check (hand report on only ONE of the following groups for this declaration.

Geotechnical: prospecting, surveys, assays and work under section 18 (regs) [ ]
Physical: drilling stripping, trenching and associated assays [ ]
Rehabilitation [ ]

Work Type: LINE CUTTING, HOLE, TRENCH, SURVEYING, ASSAYING

Office Use

Total Value of Work Claimed: $48,409

NTS Reference:

Global Positioning System Data (if available):

Please remember to:
- obtain a work permit from the Ministry of Natural Resources as required;
- provide proper notice to surface rights holders before starting work;
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report.

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: IPEC
Address: 11 WESTLACE RATHMUIR, AB T2A 4Z9

Name: W. SPENCE, 6010 GUEST
Address: 2180 FALCONICREST DRIVE, THUNDER BAY, ON

4. Certification by Recorded Holder or Agent

I, TOM DRUSS, do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent Date: June 15, 2000

Agent's Address: 17 DIDRICKSON DR, TORONTO, ONTARIO, M2P 1J7
Telephone Number: 416-876-9757
Fax Number: 416-217-9722

RECEIVED JUN 16, 2000 10:05am
GEO SCIENCE ASSESSMENT OFFICE
### Statement of Costs for Assessment Credit

**Transaction Number (office use)**

<table>
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<tr>
<th>Work Type</th>
<th>Units of Work</th>
<th>Cost Per Unit of Work</th>
<th>Total Cost</th>
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<tr>
<td>DP-IP/RESISTIVITY</td>
<td>9 km</td>
<td>1000</td>
<td>9630</td>
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<tr>
<td>GRAVITY &amp; ELEVATION</td>
<td>3.3</td>
<td>650</td>
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<td>HELI AVG (MAX-UNW HT)</td>
<td>13 km</td>
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<td>INTERPRETATION &amp; IP RESISTIVITY</td>
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<td>LINE-CUTTING</td>
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<td>MAPPING-1 DAY GEOL.</td>
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<td>300/10km</td>
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**Associated Costs (e.g. supplies, mobilization and demobilization).**

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<th>Description</th>
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<td>1159</td>
<td>TELEPHONE AND DISTANCE 21 DAYS</td>
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<td>710</td>
<td>ASSAYS</td>
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**Transportation Costs**

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<td>450/mile</td>
<td>AIR TRANSPORTATION</td>
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**Food and Lodging Costs**

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<td>CAMP ACCOMMODATION 2 GEOLOGIST (18 DAYS)</td>
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**Total Value of Assessment Work**

\[
\text{Total Value of Assessment Work} = 63030 + 2295.15 + 236770 + 192288 + 1530 + 3750 + 1159 + 710 + 450 + 1530 + 6765 = 418409.71
\]

### Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

\[
\text{Total Value of Assessment Work} \times 0.50 = \text{Total value of worked claimed}
\]

### Note:

- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

### Certification verifying costs:

1. **Tom Davies**, do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as **President** (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

\[\text{Signature} \quad \text{Date} \quad \text{June 15, 2003}\]

**RECEIVED**

**JUN 16 2003**

**10:05 am**

**GEOSCIENCE ASSESSMENT OFFICE**
### Schedule for Declaration of Assessment Work on Mining Land

<table>
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<tr>
<th>PA</th>
<th>Mining Claim Number</th>
<th>Number of Claim Units</th>
<th>Value of Work performed on this claim or other mining land</th>
<th>Value of work applied to this claim.</th>
<th>Value of work assigned to other mining claims</th>
<th>Value of work to be distributed at a future date</th>
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**Column Totals**: 18,408.78

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**Received**

JUN 16 2000
10:05am
GEOGSCIENCE ASSESSMENT OFFICE

---

**Ontario Ministry of Northern Development and Mines**

**Transaction Number (office use)**

W0030: 00043
November 7, 2000

ROMIOS GOLD RESOURCES INC.
17 Didrickson Drive
TORONTO, ONTARIO
M2P 1J7

Dear Sir or Madam:

Submission Number: 2.20395

Subject: Transaction Number(s):
W0030.00043 Approval After Notice

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact LUCILLE JEROME by e-mail at lucille.jerome@ndm.gov.on.ca or by telephone at (705) 670-5858.

Yours sincerely,

Lucille Jerome
Acting Supervisor, Geoscience Assessment Office
Mining Lands Section

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mismnpge.htm
**Work Report Assessment Results**

**Submission Number:** 2.20395

**Date Correspondence Sent:** November 07, 2000

<table>
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<th>Township(s) / Area(s)</th>
<th>Status</th>
<th>Approval Date</th>
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<td>AKOW LAKE, NORTH CARIBOU LAKE</td>
<td>Approval After Notice</td>
<td>November 07, 2000</td>
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**Section:**

- 14 Geophysical EM
- 14 Geophysical MAG
- 14 Geophysical VLF
- 14 Geophysical GRAV
- 14 Geophysical IP

The revisions outlined in the Notice dated September 12, 2000 have been partially corrected.

Assessment work credit has been reduced, as outlined on the attached Distribution of Assessment Work Credit sheet, to better reflect the quantity of work reported.

**Correspondence to:**

Resident Geologist
Thunder Bay, ON

Assessment Files Library
Sudbury, ON

**Recorded Holder(s) and/or Agent(s):**

ROMIOS GOLD RESOURCES INC.
TORONTO, ONTARIO
Distribution of Assessment Work Credit

The following credit distribution reflects the value of assessment work performed on the mining land(s).

**Date:** November 07, 2000  
**Submission Number:** 2.20395  
**Transaction Number:** W0030.00043

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**Total:** $23,723.00
THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN OBTAINED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HERE.

**LEGEND**

- **Type of Document:** Patent, Surface Rights, Mining Rights, Crown Forest, Survey, Subdivisions, Plans, Reserves, Subdivision, Holders, Dispositions
- **Symbol:** Patent, Surface Rights, Mining Rights, Crown Forest, Survey, Subdivisions, Plans, Reserves, Subdivision, Holders, Dispositions

**REFERENCES**

- Areas Withdrawn from Disposition
  - M.R.O. - Mining Rights Only
  - S.R.O. - Surface Rights Only
  - M.S. - Mining and Surface Rights

- Area of Crown Lands
  - Census Planning Board
  - All Details Call 322-682

**SCALE**

- 1 inch = 1 chain

**AREAS**

- **Akow Lake**
  - **District:** Sioux Lookout
  - **Division:** Patricia

**DEPARTMENT**

- Ministry of Natural Resources
- Ministry of Natural Resources

**DISPOSITION OF CROWN LANDS**

- Land Titles Registry Division
- Kenora (Patricia Portion)
THE INFORMATION THAT APPEARS ON THIS MAP MAY NOT BE ACCURATE AND MIGHT BE IN ERROR. THE INFORMATION SHOULD NOT BE USED TO MAKE DECISIONS CONCERNING PROPERTY. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE CONSIDERED LEGAL OR AUTHORITY BASED. MINISTRY OF NATURAL RESOURCES, OFFICE OF THE MINES AND MINERALS REGISTRY. MINISTRY OF NATURAL RESOURCES, OFFICE OF THE MINES AND MINERALS REGISTRY, PROPERTY OF THE GOVERNMENT OF ONTARIO. INFORMATION IS CURRENT AS OF THE DATE OF ISSUE, ACCURACY NOT GUARANTEED. THE INFORMATION SHOWN ON THIS MAP IS NOT LEGALLY BOUNDARY OR MINERAL RIGHTS. INFORMATION IS CURRENT AS OF THE DATE OF ISSUE, ACCURACY NOT GUARANTEED. THE INFORMATION SHOWN ON THIS MAP IS NOT LEGALLY BOUNDARY OR MINERAL RIGHTS.

LEGEND

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT

SYMBOL

AREA WITHDRAWN FROM DISPOSITION

ARMS - MINING RIGHTS

M.R.O. - MINING RIGHTS ONLY

S.R.O. - SURFACE RIGHTS ONLY

M.+ C. - MINING AND SURFACE RIGHTS

TRAVEL MONUMENT

REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

AREA OF MINDING, FEDERAL, PLANNING BOARD FOR DETAILS CALL 737-1585

SCALE: 1 INCH = 40 CHAINS

AREA NORTH CARIBOU LAKE

(NORTH - EAST PART)

MINING DIVISION

PATRICIA

LND TITLES REGISTRY DIVISION

KENORA (PATRICIA PORTION)

Ministry of Natural Resources

Ontario

S.E. ARM NORTH CARIBOU LAKE - 0-2215

G-2147
LEGEND
INSTRUMENT: MAXMIN 1-10
INPHASE: TOP OF LINE
QUADRATURE: BOTTOM OF LINE

Scale 1:5000

ROMIOS RESOURCES INC
AKOW LAKE GRID
HELM SURVEY
1760 HERTZ

NTS: 53 B/08
DATE: JUNE 1998
SURVEY BY: G.F & M.G
BASELINE AZIMUTH 330 Deg.

IPTEC/LONE PINE EXPLORATION SERVICES LTD.
BOUGUER GRAVITY PROFILES

ROMIOS GOLD RESOURCES INC.
LUNDMARK-AKOW LAKE PROPERTY, ON
AKOW GRID
NTS: 52 B/08

BOUGUER GRAVITY PROFILES
ELEVATION PROFILES

Bouguer Values 2.17, 2.67, 3.17, 3.67, 4.17

Gravity Profile Scale:
- Base Level for 2.17: 103.30 mgals
- Base Level for 2.67: 101.15 mgals
- Base Level for 3.17: 99.00 mgals
- Base Level for 3.67: 96.85 mgals
- Base Level for 4.17: 94.70 mgals

Elevation Profile Scale:
- Base level: 1 cm = 0.0 metres
- Map Scale: 1 cm = 50 metres

Interpretation:
IPTEC A.Vickers
Processing by:
A.Vickers - June, 98
Surveyed by:
IPTEC MG, OP - June, 98
Instrumentation:
Gravity: Sodin
Elevation: Sokkisha B2A

IPTEC reg'd
MAP NO. : 10698-PM-G2
LEGEND
INSTRUMENT: MAXMIN 1-10
FREQUENCY: 1760 Hz
INPHASE: TOP OF LINE
QUADRATURE: BOTTOM OF LINE

Scale 1:5000

Map No. 10198-L-H1

ROMIOS GOLD RESOURCES INC.
LUNDMARK LAKE GRID
HLEM SURVEY
1760 HERTZ

NTS: 53 B/08 DATE: JUNE 1998
SURVEY BY: M.G. & G.F.
BASELINE AZIMUTH: 330 Deg.

IPTEC/LONE PINE EXPLORATION SERVICES LTD.
LEGEND
INSTRUMENT: MAXMIN 1-10
FREQUENCY: 1760 Hz
INPHASE: TOP OF LINE
QUADRATURE: BOTTOM OF LINE

Scale 1:5000

ROMIOS GOLD RESOURCES INC.
LUNDMARK LAKE GRID
HLEM SURVEY
440 HERTZ

NTS: 53 B/08 DATE: JUNE 1998
SURVEY BY: M.G & G.F
BASELINE AZIMUTH: 330 Deg.

IPTEC/LONE PINE EXPLORATION SERVICES LTD.
LEGEND
INSTRUMENT: MAXMIN 1-10
COIL SPACING: 100 METERS
VERTICAL SCALE: 1 cm = 20 %
PHASE: ———x———
INPHASE: ———x———
TOP OF LINE
QUADRATURE: - - -*- -* - -
BOTTOM OF LINE

ROMIOS GOLD RESOURCES INC.
LUNDMARK LAKE GRID
HLEM SURVEY
440 HERTZ
NTS: 53 B/08 DATE: JUNE 1998
SURVEY BY: M. G & G. F
BASELINE AZIMUTH: 330 Deg.
IPTEC/LONE PINE EXPLORATION SERVICES LTD.
LEGEND

INSTRUMENT: MAXMIf
FREQUENCY: 1760 Hertz
INPHASE: TOP OF LINE
QUADRATURE: BOTTOM OF LINE.

ROMIOS GOLD RESOURCES INC.
LUNDMARK LAKE GRID NORTH EXTENSION
HLEM SURVEY
1760 Hertz

NTS: 53 B/08
DATE: JUNE 1998
SURVEY BY: M.G. A.
BASELINE AZIMUTH: 330 Deg

Map No. 0198-L-115
IPTEC/LONE PINE EXPLORATION SERVICES LTD.
TOTAL FIELD MAGNETICS

- **M2** Moderate Magnetic High 59100 - 59200 nT
- **MH1** Magnetic High 59200 - 59500 nT
- **MVH1a** Magnetic Very High > 59500 nT

**HLEM**

- **H1** Strong Conductivity Thickness
- **H2** Questionable Response

**VLF**

- **V1** Strong VLF In & Out Phase X-Over
- **V2** Weak VLF

ROMIOS GOLD RESOURCES INC.
LUNDMARK-AKOW LAKE PROPERTY, ON
LUNDMARK NORTH EXTENSION
NTS: 52 B/16

GEOPHYSICAL COMPILATION MAP
TOTAL FIELD MAGNETICS
VERY LOW FREQUENCY (VLF) ELECTROMAGNETICS
HORIZONTAL LOOP ELECTROMAGNETICS

Map Scale: 1 cm = 50 metres

Interpretation: IPTEC AND Vickers, June 98

Scale: 1:5000

(metres)