ORECO MINES & ENERGY CORP.
Exploration Program - 1988
ASHIGAMI LAKE PROPERTY
Scadding Township
Sudbury Mining Division
Ontario

March 06, 1989.

Ralph P. Tilsley, P. Eng.
James E. Tilsley & Associates Ltd.
Consulting Geologists and Engineers
Gp. Box 115, R.R. #2
Aurora, Ontario, Canada
L4G 3G8
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY AND CONCLUSIONS</td>
<td>1</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>2</td>
</tr>
<tr>
<td>LOCATION AND ACCESS</td>
<td>3</td>
</tr>
<tr>
<td>CLIMATE</td>
<td>4</td>
</tr>
<tr>
<td>TOPOGRAPHY</td>
<td>4</td>
</tr>
<tr>
<td>LOCAL RESOURCES</td>
<td>5</td>
</tr>
<tr>
<td>PROPERTY</td>
<td>6</td>
</tr>
<tr>
<td>LIST OF CLAIMS</td>
<td>6</td>
</tr>
<tr>
<td>VEGETATION</td>
<td>6</td>
</tr>
<tr>
<td>HISTORY</td>
<td>7</td>
</tr>
<tr>
<td>GENERAL GEOLOGY</td>
<td>9</td>
</tr>
<tr>
<td>MINERALIZATION</td>
<td>12</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>18</td>
</tr>
<tr>
<td>RESERVES</td>
<td>18</td>
</tr>
<tr>
<td>GEOLOGY OF THE PROPERTY</td>
<td>19</td>
</tr>
<tr>
<td>QUARTZ VEINING</td>
<td>21</td>
</tr>
<tr>
<td>SAMPLING</td>
<td>22</td>
</tr>
<tr>
<td>GEOPHYSICAL SURVEYS</td>
<td>23</td>
</tr>
<tr>
<td>MAGNETIC SURVEY</td>
<td>25</td>
</tr>
<tr>
<td>VLF-EM SURVEY</td>
<td>26</td>
</tr>
<tr>
<td>REFERENCES</td>
<td></td>
</tr>
<tr>
<td>CERTIFICATES</td>
<td></td>
</tr>
</tbody>
</table>
### MAPS

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Scale</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology</td>
<td>1:1200</td>
<td>in pocket</td>
</tr>
<tr>
<td>Magnetometer Survey</td>
<td>1:1200</td>
<td></td>
</tr>
<tr>
<td>VLF-EM Survey - NAA</td>
<td>1:1200</td>
<td></td>
</tr>
</tbody>
</table>
SUMMARY AND CONCLUSIONS

Geological, magnetic, and electromagnetic surveys have been completed on the Ashigami Lake property of Oreco Mines & Energy Corp.

Geological mapping revealed conglomerates of the Bruce Formation, Quirke Lake Group, as well as arkoses and wackes of the Mississagi Formation, Hough Lake Group. No evidence of processes known to be related to mineralization were observed. Quartz veins were sampled and assayed for gold, but only 'nil' values were returned.

The magnetometer survey indicated a weak anomalous trend passing through claims S-865074 and S-865075 in an easterly direction. This feature is interpreted to be an offshoot of the Nipissing gabbroic dyke which is found just south of the property.

The evidence presented herein, combined with the results of the geochemical survey of November, 1987, do not indicate the presence of the mineralizing processes which are known to exist in the Scadding-Davis-Rathbun township area. Further exploration of the property is not recommended.
INTRODUCTION

During October, 1987, a base line was established along the southern boundary of the Oreco Mines & Energy Corp. Ashigami Lake property, which is situated in Scadding Township, Sudbury Mining Division, Ontario, northeast of the city of Sudbury. Profile lines were cut north from the base line at 200 foot intervals, with stations established every 50 feet.

A geochemical survey of the property was completed in November, 1987, and was previously reported. Geological, magnetic, and electromagnetic surveys were performed between August 15 and 31 of 1988. The results of the 1988 exploration program are discussed in this report, and maps with geological, magnetic, and electromagnetic data are appended.

Mapping of the property indicated two units of the Huronian Supergroup separated by a north-south fault. Samples were taken from quartz veins to test for the presence of gold.

Magnetic and electromagnetic surveys covered the property using an IGS-2 system manufactured by Scintrex of Concord, Ontario.

The information gathered to date does not indicate any areas of the property in which further exploration is recommended.
LOCATION AND ACCESS

The property consists of a group of three mining claims located in Scadding Township, Sudbury Mining Division, Ontario.

The claim group lies east of the Kukagami Lake Road, immediately south of the western arm of Ashigami Lake, in the unsubdivided portion of Scadding Township but adjoining Lot 5, Concession II.

Approximate co-ordinates:
46° 39' 00" N; 80° 36' 00" W:

The claim group can be reached from Sudbury Airport in about one hour via Highway 17 East to the Kukagami Lake Road, then 15km north through Awrey, Street and Scadding townships.

One then travels east by foot for 600m (1970 feet) from a point approximately 1.1km (3600 feet) south of the Scadding Gold Mine.
Scadding Mine
(Orofino Resources Limited)

ASHIGAMI LAKE CLAIM GROUP

ORECO MINES & ENERGY CORP.
Scadding Township
Sudbury Mining Division, Ontario

CLAIMS LOCATION MAP

Scale 1:20 000
CLIMATE

The area has a continental climate typical of central Canada. Precipitation totals approximately 860mm (34 inches) per annum, and is relatively well spread throughout the year. Snow accumulations of 700 to 1300mm (28 to 51 inches) are frequently observed in average winters, with first significant falls in late October or early November. Continuous snow cover can be expected from early December until mid-April in most years.

Summer-time maximum temperatures may exceed 30°C and winter minimums in the range of -40°C are not uncommon in January and February. Mean summer maximums are approximately 23°C and mean summer minimums about 12°C. Winter mean maximums are in the range of -7°C and mean minimums -21°C.

TOPOGRAPHY

The Ashigami Lake property has an elevation of approximately 280m (925') above sea level. Within Scadding Township, the land rises to approximately 335m (1100'). In general, the surface is rolling, with occasional abrupt hillocks of bedrock, especially along lake shores where low cliffs are common. Relief is usually less than 30m (100'). Although there are two low-lying swampy areas crossing the property from north to south, the greater part of the claim group is relatively dry.

The Ashigami Lake claim group drains southward into Timmins
Creek to the Wanapitei River. The Wanapitei River flows southward into the French River and eventually Georgian Bay.

LOCAL RESOURCES

Sudbury is a city with a population of approximately ninety thousand. There is a long history of mining and smelting with a skilled work force in both mining and the related support functions. Men, equipment, supplies, and services are all available locally.

Medical facilities are excellent, with several clinics and hospitals in the city.

Rail, highway, and air transportation are excellent to southern Ontario and points east and west of Sudbury.

The claims are forested with several varieties of pine, spruce, balsam fir, cedar, and assorted deciduous species. Some of the timber is merchantable, and evidence of a reforestation program is found along line 8E in claim S-865074.

Industrial power is now available at the Orofino Resources Limited mill site which lies within 1600m of the Ashigami Lake claims. Local transmission lines, carrying both hydro and telephone cables, follow the Kukagami Lake Road.
PROPERTY

The property consists of three mining claims in the unsub-divided portion of Scadding Township immediately south of the western arm of Ashigami Lake. The surface and mining rights are vested in the Crown and controlled by the company under terms of an agreement with Mr. P.A.R. Brown, who is the registered holder of the mineral rights by virtue of staking.

LIST OF CLAIMS

S-865074 to S-865076 inclusive

VEGETATION

The property is forested with jackpine, birch, poplar and oak in open park-like stands on higher ground, and black spruce in swamps. There are two areas of open grassy ground on the property, including one in the eastern third of claim S-865074 and another in the central parts of claims S-865075 and S-865076.
HISTORY

The mineral potential of the Sudbury area was first indicated in 1856 during surveying for subdivision of northeastern Ontario. The discovery of copper was brought to the attention of Alexander Murray who was mapping in the region for the Geological Survey of Canada, but it was not until 1883 when the railway reached the area that development began at the Murray Mine. The first production of ore from the area was in 1886 from the Copper Cliff Mine. The ores were thought to contain only copper until smelting difficulties resulted in test work that identified nickel to be present in approximately equal amounts.

Sudbury became the prime source of the world's nickel supply and maintained that position until after World War II. Copper has been the most important co-product of the Sudbury ores through the years. In addition, the Sudbury nickel-copper ores currently provide sufficient platinum group metals to maintain Canada as the world's third largest producer. Outside the Sudbury Basin proper, in the Huronian sediments, and in addition to mineralization associated with the Sudbury Event-related offset dykes, the metal of most interest has been gold. Gold was first discovered in the area east of the Sudbury Basin during the surveying that was indirectly responsible for discovery of the copper-nickel ores within the basin. The literature suggests that the first gold discovery was made in
the fall of 1891 (Ontario Bureau of Mines, 1892, p. 237).

In the area east of the basin and south of Lake Wanapitei, gold mineralization is hosted by Huronian sediments and Nipissing gabbro. The nearest significant deposits are located in Falconbridge Township (Falcon Mine) and in Scadding Township (Orofino Resources Limited, Scadding Mine).

Evidence of previous work on the property is found in claim S-865074 where a 40m long trench has been dug down to the Bruce Formation conglomerates.

The area was prospected for radioactive minerals during the uranium rush in the 1950s following the discovery of the uraniferous conglomerates at Elliot Lake. Subsequently the area including the Ashigami Lake claim group was covered by an airborne magnetic and electromagnetic survey done by Kennco Explorations (Canada) Ltd. in 1968. The claims were also included in an airborne magnetometer, electromagnetometer, and radiometric survey done by Gulf Minerals Canada Ltd. in 1972. Reconnaissance magnetic and VLF-EM surveys covered the property in 1984 with several areas of anomalous magnetic responses and conductivity being indicated.

The claims were optioned from P.A.R. Brown by Oreco Mines & Energy Corp. in January of 1987.
GENERAL GEOLOGY

Reconnaissance geological mapping in the Sudbury area was done as early as 1853 when Alexander Murray conducted river and lakeshore traverses that included the Wanapitei River and parts of the shoreline of Lake Wanapitei. Bell and Barlow worked in the Sudbury Basin beginning in 1888 and included part of the Wanapitei Lake area in their map published in 1891. Collins worked to the south of Lake Wanapitei in 1912 and reported his results in 1914. It was not until 1921, when Quirke mapped Scadding Township as part of his regional study, that a geological compilation covering the claims which make up the Oreco Mines & Energy Corp. group was completed. Fairbairn mapped Scadding Township as part of his 1938 Ashigami Lake project. Cooke et al., prepared the Falconbridge sheet in 1946 and revised Quirke's 1922 map. Thomson mapped Scadding and Maclennan townships during the 1956 to 1959 field seasons but did not re-map those areas covered by Fairbairn in 1938. Thomson reported his findings and presented a compilation in 1961 (ODM Geological Report No.2 and Map No. 2009). The most recent study of the area is based on field work by Dressler and assistants in 1977 and 1978 described in Ontario Geological Survey Report 213.

The geology of the Wanapitei Lake area is summarized in the following table from Dressler (1982) and applies to the portions of Scadding Township within and adjacent to the property.
TABLE OF LITHOLOGIC UNITS FOR THE LAKE WANAPITEI AREA.

**PHANEROZOIC**

**CENOZOIC**

**QUATERNARY**

**RECENT**
- Swamp, lake, and stream deposits.

**PLEISTOCENE**
- Glacial and glaciofluviul sand and gravel deposits.

**UNCONFORMITY**

**PRECAMBRIAN**

**LATE PRECAMBRIAN**

**MAFIC INTRUSIVE ROCKS**

- Olivine diabase.

**INTRUSIVE CONTACT**

**MIDDLE PRECAMBRIAN**

**SUDBURY NICHEL INTRUSIVE**

- Sublayer, norite, transition zone norite, micropegmatite, granitic rock.

**INTRUSIVE CONTACT**

**WHITEWATER GROUP**

**ONAPING FORMATION**

- Tuff, quartzite breccia.

**SUDBURY EVENT**

- Explosive volcanism or meteorite impact; Sudbury-type brecciation.

**MIPISSING INTRUSIVE ROCKS**

- Gabbro, granophyre, granitic dike rock, pegmatite, quartz-plagioclase porphyry.

**INTRUSIVE CONTACT**

**HURONIAN SUPERGROUP**

**COBALT GROUP**

**LORRAIN FORMATION**

- Arkose, subarkose, subarkosic wacke, quartz wacke, arenite.

**GOWANDA FORMATION**

- Wacke, arkose, conglomerate.

**QUKE LAKE GROUP**

**SERPENT FORMATION**

- Arkose, arkosic wacke, calcareous arkose, minor conglomerate.

**ESPLANOLA FORMATION**

- Calcareous siltstone, limestone, calcareous wacke.

**BRUCE FORMATION**

- Conglomerate, pebbly wacke, minor arkose, wacke.

**NOUG LAKE GROUP**

**MISSISAGI FORMATION**

- Arkose, subarkose, arkosic wacke, subarkosic wacke, conglomerate, and silty wacke.

**UNCONFORMITY**

**EARLY PRECAMBRIAN**

**MAFIC INTRUSIVE ROCKS**

- Diabase, glomeroporphyritic diabase, porphyritic diabase.

**INTRUSIVE CONTACT**

**FELIC PLUTONIC ROCKS**

- Granodiorite, diorite, migmatite.

**INTRUSIVE CONTACT**

**METAVOLCANICS AND METASEDIENTS**

**METASEDIGMENTS**

- Wacke, arkose, gneisses, ironstone, ferruginous chert.

**METAVOLCANICS**

**FELIC METAVOLCANICS**

**MAFIC AND INTERMEDIATE METAVOLCANICS**

- Mafic and intermediate metavolcanics, amphibolite, dacite.
Scadding Township lies just to the east of the eastern end of the Sudbury Basin structure. The property is approximately seven miles east of the rim of the basin at the village of Boland's Bay. The Sudbury Basin is generally thought to have resulted from impact of an asteroid-sized body (1 to 3km in diameter) at about 1850Ma before present. The Wanapitei structure, currently occupied by Lake Wanapitei, is also believed to be caused by an impact event at about 37Ma before present.

There is no evidence that either of these impact events directly influenced mineralization within the claim group under consideration.

The area has been glaciated during Pleistocene time. Deposits of till, outwash sands and gravels, and clay and silt cover much of the bedrock inland from Lake Wanapitei. Depth of overburden is generally less than 1.5m (5 feet) on higher ground but may be considerably thicker in intervening till and glacial outwash-filled swales and swampy areas. The last ice advance was from the north with most striae indicating a direction ten to twenty degrees east of true north.

Consolidated rocks of the area range in age from Early Precambrian to Late Precambrian. The sedimentary rocks are dominated by Huronian Supergroup clastic and carbonate formations, and igneous rocks by Nipissing Intrusive gabbro and related phases.

The Huronian rocks mapped in the area of the property
include Espanola Formation limestones, Serpent Formation arkosic sediments, and Bruce Formation conglomerates, minor arkoses and wackes, of the Quirke Lake Group, as well as conglomerates, arkoses, and silty wackes of the Mississagi Formation, Hough Lake Group. The Huronian sediments are cut by gabbros assigned to the Nipissing intrusive suite.

The Bruce Formation rocks that are mapped on the Ashigami Lake property are in fault contact with clastic sediments of the Mississagi Formation of the Hough Lake Group in the eastern section of the block. North of the property is a northeasterly trending splay off the McLaren Lake Fault, while a northwesterly trending fault marking the contact between the Bruce Formation sediments and the Nipissing gabbros is located approximately 600m (1970 feet) south of the claim group.

MINERALIZATION

Gold and base metal mineralization in the Scadding-Rathbun-Davis township area is observed in three, probably-related environments.

One type of mineralization appears to be related to the emplacement of quartz-carbonate veins and veinlets in fractures in and adjacent to fault zones within sedimentary rocks.

Gold is present in the native state, usually on the margins of the veins and veinlets that we have inspected in the area. Visible gold appears to be in relatively large grains of one to
thirty milligrams and to be randomly distributed in the quartz-carbonate veins and veinlet systems. Assays of samples we have taken from the vein-type showings indicate that there is also some fine gold that is not likely to be visible in hand specimen, but the limited data that are available suggest that the greater part of the metal is present in relatively coarse grains.

Chloritization associated with the fault-controlled quartz-carbonate vein systems may be even more pervasive than carbonate addition. Both gabbros and sediments appear strongly chloritized in all locations where precious metal values are reported. In some exposures of quartz-carbonate mineralization, original rock forming minerals have been totally replaced by chlorite so that identification of the host rock becomes difficult in hand specimens.

The second type of mineralization is typified by the auriferous zones of the Scadding Mine on the Orofino Resources Limited property in Lots 5 and 6, Concession II, Scadding Township. These mineralized zones are described as 'breccia pipes' which are characterized by strong chloritic alteration which may make up 40% to 50% of the rock, with quartz in veins and veinlets and as part of coarsely recrystallized quartz-plagioclase groundmass. Minor carbonate, biotite, rounded apatite, and detrital zircons are also present. The auriferous breccias contain pyrite, chalcopyrite, pyrrhotite, arsenopyrite,
magnetite, galena, minor silver, and very low palladium. (Martens et al., OGS Misc. Paper 91, 1979, pp 111-113.)

Not all quartz-carbonate vein systems or known breccia pipes are metal-bearing. Neither is there an obvious relationship between the intensity of chloritization and base or precious metal values.

It is postulated by Martins et al., (op. cit., 1979.) that the base and precious metals are derived in part from the Serpent Formation subgreywacke and siltstones with enrichment by solutions originating in the Nipissing gabbro. This interpretation suggests that the areas of the property most favourable for development of both vein-type and breccia mineralization would lie near the Serpent Formation arkosic to silty sediments. The silt content of the sediments is considered by Martins to be important as a metal source. The lower energy environment of deposition characteristic of the Espanola Formation is observed to be more conducive to fine sediment deposition than the generally higher energy, near-shore environment characteristic of the Serpent Formation arkosic clastic sediments. Martins suggests that the best areas for prospecting for the breccia type mineralization is near the Espanola Formation - Serpent Formation contact. Such a contact is terminated by a northeasterly trending fault only 100m (330 feet) from the northwestern corner of claim S-865076.

A third deposit type in the area contains copper-nickel, gold, and platinum group metals mineralization. It is related
to the Wanapitei intrusion, a ring shaped, Nipissing gabbro-
norite sheet centered on Portage Bay, Lake Wanapitei. The
deposit is described by Rowell and Edgar, 1986, (Econ. Geol. 
Vol. 81, 1272-1277). This mineral occurrence is located about 
five miles from the north boundary of the Ashigami Lake claim 
group at the south end of Rathbun Lake, near the northern margin 
of the intrusion as exposed in Rathbun Township. The sulphide 
mineralization is reported to be associated with extensive 
fracturing of the gabbro-norite and north-northwest trending 
faulting. The mineralized zone strikes at 135° which is perpen-
dicular to the margin of the intrusive and dips at 60° to the 
north. Massive sulphides were observed along a strike length of 
14m and varied in width from 0.3m to 0.6m. Disseminated 
mineralization around the massive 'core' gave a total 
mineralized width of about 3.0m.

This mineralization is of interest in that it is inter-
preted to have resulted from hydrothermal activity centered on 
the fractured gabbro-norite, and remarkable in that it is one of 
the few known cases where platinum group metals are found in 
this sort of mineralization environment.

The minerals identified in the study by Rowell and Edgar 
include chalcopyrite and pyrite which make up 55% and 40%, 
respectively, of the total sulphide content of the zone. 
Present in 'accessory' amounts are millerite, violarite, 
magnetite, goethite, pyrrhotite, covellite, and molybdenite.
Platinum group minerals identified by these authors include merenskyite, kotulskite, temagamite, michenerite, and rare sperrylite.

The grade of the sulphide zone is not properly established by the sampling information available. Dressler, 1982, (OGS Report 213, pp 100-101 - quoting Koulomazine, 1955, and Ogden, 1957) reports the massive sulphides returned values as follows: Cu, 5.51 to 19.92%; Ag, 0.17 to 1.978 oz./ton; Ni, 0.11 to 2.86%; Pt, 0.088 to 1.08 oz./ton; Au, 0.002 to 0.36 oz./ton; Pd, 0.17 to 0.98 oz./ton.

Dressler’s sampling of the massive sulphides returned:
Cu, 10.2%; Ag, 2.22 oz./ton; Ni, 0.14%; Pt, 0.056 oz./ton.

Disseminated mineralization (grab sample) from southwest of the shaft returned: Cu, 1.31%; Ni, 0.29%; Pt, 0.07 oz./ton; and Pd, 0.16 oz./ton. (Dressler, 1982, op. cit. pp 101).

The origin of mineralization in Scadding, Rathbun and Davis townships appears related more or less directly to emplacement of the gabbronorite intrusive bodies. It is postulated by Martins that metals were collected syngenetically in the silty phases of the Serpent Formation sediments, and in the Serpent - Espanola transition rocks. Further, he suggests that the metals were remobilized by solutions generated or mobilized by the gabbronorite intrusions, and concentrated locally in veins and breccia pipes. He concedes that metal was also introduced directly from the gabbronorite.

In any case, the gabbronorite intrusion appears to play an
important role in the three types of base and precious metal mineralized zones described in the area of the claims. We have observed gold-bearing quartz veins cutting chloritized gabbro about five miles northeast of the Oreco Mines & Energy Corp. property and interpret data from that location to suggest that the mineralizing event is at least late stage Nipissing. The mineralized breccia pipes on the adjoining Orofino Resources Limited claims are described as 'Sudbury breccias' and it is suggested by W. Meyer (personal communication 1987) that much of the brecciation in the Scadding Township area is related to the Sudbury Event (meteor impact) dated at approximately 1850Ma. The Nipissing intrusive is dated at about 2150Ma which suggests that the mineralized breccias in Scadding Township are more likely related to activity during intrusion of the gabbronorite and pre-date the Sudbury Event by a significant time. We suggest that the Nipissing intrusive may have been emplaced at a shallow depth in the crust, and that the breccia 'pipes' in Huronian sediments are related to gas brecciation which is not uncommonly observed to accompany shallow level intrusion, particularly those emplaced into wet sediments, such as could be expected in this location. Further, it seems reasonable to assume that those (gas) breccias related to the Sudbury Event are likely to be unmineralized, given that the time of development would be measured in minutes rather than millenia.

The exploration problem would then lie in differentiating
between fluidization breccias caused by intrusion of the gabbro-norite and those that were caused by explosive degassing related to the Sudbury impact event. Since there is no evidence that rocks of Sudbury Nickle Irruptive affinity are present in the immediate area of the claims, it can be assumed that there have been no widespread mineralization events since emplacement of the Nipissing gabbro-norite. Late Precambrian olivine diabase dikes are present in the township. However, there is no evidence that these dikes have applied sufficient energy to the environment to develop notable concentrations of metals.

PRODUCTION

There has been no recorded production of metals from the Ashigami Lake property.

RESERVES

There are no known mineral reserves on the property.
GEOLOGY OF THE PROPERTY

The Ashigami Lake claim group of Oreco Mines & Energy Corp. was mapped between August 20 and 31 of 1988. Two distinct lithological units were mapped, namely the conglomerates of the Bruce Formation, Quirke Lake Group, and the arkoses and wackes of the Mississagi Formation, Hough Lake Group.

Bruce Formation conglomerates were exposed in the eastern half of claim S-865074 and in the northwestern corner of claim S-865076. These conglomerates are matrix dominated with quartzose and arkosic pebbles. The amount of matrix is variable, ranging from as low as 60% in the trench on L4E at 4+50N, to 99% at L4E and the baseline. The matrix is soft, fine-grained wacke, with a light greenish-grey fresh surface. The rock fragments are subangular to well-rounded and between 1mm and 15cm in size. In exposures where the pebbles are primarily quartzose such as on L4E at 5N, the weathered surface is rough because the pebbles are more resistant than the matrix.

The sediments of the Mississagi Formation are exposed extensively along the eastern margin of the claim group on lines 22, 24 and 26 east. Compositionally, an 'average' outcrop of the Mississagi Formation on L24E at 1N contained approximately 60% quartz, 25% feldspar, and 5% biotite as part of the 15% matrix. The sediment would thus be classified as a sub-arkosic wacke. Arkosic members are exposed in claim S-865076 on L24E between 15+50N and 18+50N. Outcrops are generally found to have
a buff to grey weathered surface and light grey to greenish fresh surface, with grains up to 0.5mm in diameter. Some chloritization was noted in several exposures, including L23+75E at 4N and L26E at 2+50N. In some exposures, such as on L26E at 2+50N, in claim S-865075, resistant quartz pebbles are found on the weathering surface of the outcrop, indicating a quartz pebble conglomerate within the Mississagi Formation sediments. Where exposed, this conglomerate consists of small quartz pebbles up to 2cm in diameter set in a fine-grained wacke matrix. Extensive alteration and/or sulphide mineralization was not observed in the Huronian sediments. Traces of pyrite were noted at 5N on line 20E and in the conglomerate at 4E on the base line.

The contact between the two sedimentary units is not exposed and thus not well known. However, its location can be narrowed by deduction to lie between L14E and L18E, and is probably related to the north-south fault just east of L16E in claim S-865075 which swings slightly to the northeast in claim S-865076.

Structurally, most outcrops are massive, although bedding was noted at several locations to trend between 240° and 305°. Individual layers are between 0.5m and 1.0m in thickness. Dips are steep to the north and inclined at between 65° and 90°.

Two north-south fault trends are seen to cut the property, and are expressed on the surface as low-lying swampy areas.
Distinct quartz veins are quite infrequent on the Ashigami Lake property of Oreco Mines & Energy Corp. The most common occurrence of quartz on the property is in irregular veinlets and patches found in the eastern third of claim S-865075.

A bedrock knob on L24E at 7+50N is cut by several grey to black quartz veins (likely due to the presence of tourmaline). The veins trend approximately 065° and range in thickness from 3cm to 10cm.

An exposure of quartz approximately 1m x 4m in size was observed at the edge of the swamp on L24E at 3+75N. Its trend is approximately 220°/90°. Within the quartz are bands of a hard pink siliceous sediment. The quartz at this outcrop appears very massive and white, with no visible sulphides.

Thirdly, a large rock knob on line 22E between 3+50N and 6+00N is cut by a massive, white quartz vein which has an azimuth of 220° and a dip to the north of 45°. The vein has a true thickness of 20cm over most of the exposure, but no sulphide minerals or other evidence of mineralizing processes are observed.
Samples were taken from the quartz veins at 4N on Line 22E and from 3+75N on Line 24E. The initial grab samples (averaging 9kg) were first jaw crushed to a 1/4" product and then put through a rolls crusher where they were reduced to a -20 mesh pulp. The pulp was passed through a 20 mesh sieve in order to determine if coarse gold was present. Both samples had no coarse gold to report. A 500g sample of the -20 mesh material was then sent to Wawa Assaying Inc., where it was pulverized by a puck-style pulverizer to nominal 200 mesh size. After passing through a 200 mesh wire cloth, the entire +200 mesh part of each sample was assayed, as were two 1 A.T. cuts of the -200 mesh fraction.

All three cuts from both samples returned 'nil' gold assays.
GEOPHYSICAL SURVEYS

The geophysical surveys employed a Scintrex IGS-2 (Integrated Geophysical System) fitted with sensors and processing circuits to permit collection of total field magnetic and vertical magnetic gradient data (MP-4), and to measure three components of the VLF-magnetic field (VLF-4). The system includes a solid state memory in which measurements are stored in ASCII 7 bit, no parity format. Data retrieval is by RS-232C serial interface to digital printer, modem, microcomputer, or cassette tape recorder.

Both the IGS-2 field unit and the magnetic base station have solid state memories expanded to 48 kilobytes. This permits readings at up to 800 field stations before data dump is required. The magnetic base station is usually operated by an automotive 12 volt battery, which provides ample, steady, and reliable power. The expanded memory allows magnetic field measurements to be recorded each two or three seconds for continuous periods of ten to twelve hours.

The field magnetic data are microprocessor corrected for diurnal variation using a pre-programmed routine resident in the memory of the IGS-2 field unit referenced to continuous magnetic records obtained by an MP-3 proton magnetometer operating in base station mode, time synchronized with the IGS-2/MP-4 field unit. Resolution is 0.1nT.

Three components of the VLF magnetic field are recorded at
each survey station. One, two, or three navigation station signals can be received and vertical in-phase, vertical quadrature, and horizontal amplitude of the magnetic component of the VLF electromagnetic field can be read sequentially in less than one minute.

At the end of each field day during the surveys, all data was recovered in hard copy on a dot matrix digital printer. When hard copy had been obtained and verified, the solid state memories of the magnetic base station and the field unit were erased in preparation for the next survey day.

The magnetic base station was set up on the flagged trail which leads to the property from Kukagami Lake Road. The sensor was situated approximately 800 feet west of the southwest corner of the grid. Magnetic data are presented on a map sheet drawn at a scale of 1:1200, chosen to permit plotting of closely-spaced measurements. Both the corrected total magnetic field determinations and vertical magnetic gradient data are shown on the plans. The total magnetic field data are plotted on the east side of the lines and the magnetic gradient to the west. The total field is in the order of 58 000nT (base field). The first and second digits of the total magnetic field are normally omitted. Only the last three digits are plotted, unless the field is changing from below 58 000nT to above 58 000nT (or vice versa).

The VLF-EM survey sheet has the vertical in-phase component determinations plotted to the west of the lines and the vertical
MAGNETIC SURVEY

The magnetic survey of the Ashigami Lake property was designed to indicate any areas of bedrock which may contain magnetic sulphide mineralization, namely pyrrhotite, as well as to provide detailed structural information about the rocks which underlie the claim group. A total of 654 readings was taken at 25 foot intervals along profiles lines which were spaced at 200 feet.

The survey indicated two zones in which the total magnetic field exceeded 58,000nT. These can be interpreted as a single anomalous trend which has been offset approximately 600 feet to the north by a fault in claim S-865074. Between L8E and L18E the axis is roughly east-west, after which it turns southeast and crosses the property boundary at L22E. On line 20E at 2+25N in claim S-865075, a maximum value of 59,165nT is attained, eclipsing the base field by 1,165nT. On most profile lines, however, the peak is rarely in excess of 58,000nT. Prospecting of the outcrops in the area of the total field peak did not reveal any information which might explain this anomaly. The anomalous trend is interpreted to reflect a gabbroic dyke which intersects the Huronian sediments in this area. Such a dyke may be an offshoot of the Nipissing intrusive which is found 500m (1640 feet) south of the property.
The two sedimentary units mapped on the property did not show a marked difference in magnetic response.

VLF-EM SURVEY

A VLF-EM survey was completed over the property using signals from the transmitting station in Cutler, Maine (NAA), which broadcasts at a frequency of 24.0kHz.

The data from the survey did not outline any trends which might be clearly interpreted as a conductive axis. Only localized, near-surface conductors were indicated.
REFERENCES

Dressler, Burkhard O.

Fairbairn, H.W.
1939: Geology of the Ashigami Lake Area, Ontario Department of Mines, Volume 48, 1939, Accompanied by Map 48m (Ashigami Lake Area).

Martins, J.M., et al

Pye, E.G., et al, (Editors)
1984: The Geology and Ore Deposits of the Sudbury Structure, Ontario Geological Survey, Special Volume 1, 603 p. Accompanied by Map 2491, at a scale of 1:50 000, Map NL-16/17-AM Sudbury, at a scale of 1:1 000 000, and 3 charts.

Thompson, J.E.
I, James E. Tilsley, of the town of Aurora, Province of Ontario, hereby certify:

1. I am a Consulting Geologist and reside at 5 Steeplechase Avenue, Aurora, Ontario.

2. I am a graduate of Acadia University, 1959, B.A., Geology.

3. I am a member of The Association of Professional Engineers of Ontario, The Association of Professional Engineers of Manitoba, The Association of Professional Engineers of Nova Scotia, Chartered Engineers (Great Britain), and designated Consulting Engineer, Ontario Association of Professional Engineers, 1975.

4. I have been employed as a geologist since graduation, with consulting groups since 1964 and in private practice since 1980.

5. This report is based on geological, geochemical, and geophysical surveys carried out under my supervision, observations made while visiting the area during the past four years in the course of supervising an exploration program in the northeastern part of Scadding Township, current technical literature, and on the study of records relating to the property as available from the assessment files of the Ministry of Natural Resources, province of Ontario, maps and reports published by the Ontario Bureau of Mines, the Ontario Department of Mines, the Ontario Geological Survey, and the Geological Survey of Canada.

6. I have no interest, direct or indirect, in the properties or securities of Steel Investments Limited, Oreco Mines & Energy Corp., or any affiliates, nor do I expect to receive any such interest.

Dated at Aurora, Ontario this 06 March, 1989.
CERTIFICATE

I, Ralph P. Mueller, of the town of Newmarket, Province of Ontario, hereby certify:

1. I am a Project Geologist and reside at 438 Tecumseth St., Apt. 2, Newmarket, Ontario.

2. I am a graduate of McMaster University, 1988, B.Sc., Geology.

3. I have been employed as a geologist since graduation.

4. This report is based on my work and personal observations of the property in August of 1988, as well as information obtained from current technical literature, and reports published by the Ontario Department of Mines, Ontario Division of Mines, the Ontario Geological Survey, and the Geological Survey of Canada.

5. I have no interest, direct or indirect, in the properties or securities of Steel Investments Limited, Oreco Mines & Energy Corp. or any affiliates, nor do I expect to receive any such interest.

Dated at Aurora, Ontario this 06 day of March, 1989.

Ralph P. Mueller, B.Sc.
Ministry of Natural Resources

Report of Work
(geophysical, geological, geochemical and expenditures)

W8907-01A

Document No.

Edwin Jackson - P.A.R. BROWN

R.R. #1, Corbeil, Ont., POH 1K0

Survey Company
J.E. Tibble & Associates Ltd.

Date of Survey (from to)
15 08 88 30 08 88

Total Miles of line Cut

Type of Survey(s)
Geophysical, Electromagnetic, Magnetometer

Claim Holder(s)

Geological

Geophysical

Electromagnetic

Magnetometer

Radiometric

Other

Geological

Types of Work Performed

Calculation of Expenditure Days Credits

Total Expenditures Total Days Credits

$ + 15 = 

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

MINING LANDS SECTION

Airborne Credits
Note: Special provisions credits do not apply to Airborne Surveys.

Total number of mining claims covered by this report of work.

SUDBURY MINING DIV.

Received
FEB 16 1989

ASSESSMENT FILES OFFICE:

Received
FEB 21 1989

For Office Use Only

Total Days Recorded Date Recorded

For Office Use Only

The undersigned, having performed or witnessed the work described in this report of work, hereby certify that the facts set forth are correct and complete.

Edwin Jackson - P.A.R. BROWN

Date Certified
Feb. 15, 1988

Certified by (Signature)

Date Approved as Recorded
March 89

Branch Director

Signification Verifying Report of Work

Note: Special provisions credits do not apply to Airborne Surveys.

Total number of mining claims covered by this report of work.

Received
FEB 21 1989

MINING LANDS SECTION

Airborne Credits
Note: Special provisions credits do not apply to Airborne Surveys.

Total number of mining claims covered by this report of work.

SUDBURY MINING DIV.

Received
FEB 16 1989

ASSESSMENT FILES OFFICE:

Received
FEB 21 1989

For Office Use Only

Total Days Recorded Date Recorded

For Office Use Only

The undersigned, having performed or witnessed the work described in this report of work, hereby certify that the facts set forth are correct and complete.

Edwin Jackson - P.A.R. BROWN

Date Certified
Feb. 15, 1988

Certified by (Signature)
TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Geophysical, Electromagnetic, Magnetometer

Township or Area Scadding

Claim Holder(s) P.A.R. Brown

Survey Company James E. Tisley & Associates Ltd.

Author of Report R Mueller

Address of Author 5 Steeplechase Ave. Aurora, ON

Covering Dates of Survey August 1988 (linecutting to office)

Total Miles of Line Cut

MINING CLAIMS TRAVERSED
List numerically

<table>
<thead>
<tr>
<th>(prefix)</th>
<th>(number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>865074</td>
</tr>
<tr>
<td></td>
<td>865075</td>
</tr>
<tr>
<td></td>
<td>865076</td>
</tr>
</tbody>
</table>

SPECIAL PROVISIONS
CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.
ENTER 20 days for each additional survey using same grid.

Geophysical — Electromagnetic 20
— Magnetometer 20
— Radiometric
— Other
— Geological 20
— Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer Electromagnetic Radiometric

DATE: March 17, 1989 SIGNATURE: R Mueller
Author of Report or Agent

Res. Geol. Qualifications 2.12.27

Previous Surveys

<table>
<thead>
<tr>
<th>File No.</th>
<th>Type</th>
<th>Date</th>
<th>Claim Holder</th>
</tr>
</thead>
</table>

TOTAL CLAIMS 3
### GEOPHYSICAL TECHNICAL DATA

**GROUND SURVEYS** — If more than one survey, specify data for each type of survey

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Stations</td>
<td>654</td>
</tr>
<tr>
<td>Station interval</td>
<td>25 feet</td>
</tr>
<tr>
<td>Profile scale</td>
<td>Mag: 200ø</td>
</tr>
<tr>
<td>Contour interval</td>
<td>200 feet</td>
</tr>
<tr>
<td>Instrument</td>
<td>SciTrex 165-2</td>
</tr>
<tr>
<td>Accuracy — Scale constant</td>
<td>0.1ø</td>
</tr>
<tr>
<td>Diurnal correction method</td>
<td>MP-4 Base Station</td>
</tr>
<tr>
<td>Base Station check-in interval (hours)</td>
<td>3 seconds</td>
</tr>
<tr>
<td>Base Station location and value</td>
<td>300 m east of 10300/840 Base field 5800ø</td>
</tr>
</tbody>
</table>

**MAGNETIC**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument</td>
<td>SciTrex 165-2</td>
</tr>
<tr>
<td>Coil configuration</td>
<td></td>
</tr>
<tr>
<td>Coil separation</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>1 ø</td>
</tr>
<tr>
<td>Method</td>
<td>Fixed transmitter</td>
</tr>
<tr>
<td>Frequency</td>
<td>24.0 kHz</td>
</tr>
<tr>
<td>(specify V.L.F. station)</td>
<td>NAA- Cutler, Maine</td>
</tr>
<tr>
<td>Parameters measured</td>
<td>Vertical in phase, vertical quadrature, horizontal amplitude</td>
</tr>
</tbody>
</table>

**ELECTROMAGNETIC**

**GRAVITY**

**Induced Polarization**

**RESISTIVITY**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Scale constant</td>
<td></td>
</tr>
<tr>
<td>Corrections made</td>
<td></td>
</tr>
<tr>
<td>Base station value and location</td>
<td></td>
</tr>
<tr>
<td>Elevation accuracy</td>
<td></td>
</tr>
<tr>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Method — Time Domain</td>
<td></td>
</tr>
<tr>
<td>Parameters — On time</td>
<td></td>
</tr>
<tr>
<td>— Off time</td>
<td></td>
</tr>
<tr>
<td>— Delay time</td>
<td></td>
</tr>
<tr>
<td>— Integration time</td>
<td></td>
</tr>
<tr>
<td>— Frequency Domain</td>
<td></td>
</tr>
<tr>
<td>Parameters — Frequency Domain</td>
<td></td>
</tr>
<tr>
<td>— Frequency</td>
<td></td>
</tr>
<tr>
<td>— Range</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>Electrode array</td>
<td></td>
</tr>
<tr>
<td>Electrode spacing</td>
<td></td>
</tr>
<tr>
<td>Type of electrode</td>
<td></td>
</tr>
</tbody>
</table>
SELF POTENTIAL
Instrument ___________________________________________ Range __________
Survey Method __________________________________________
Corrections made ________________________________________

RADIOMETRIC
Instrument ____________________________________________
Values measured ________________________________________
Energy windows (levels) __________________________________
Height of instrument __________________________ Background Count ______
Size of detector ________________________________________
Overburden ____________________________________________
(type, depth — include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)
Type of survey _________________________________________
Instrument ____________________________________________
Accuracy _____________________________________________
Parameters measured ____________________________________
Additional information (for understanding results)

AIRBORNE SURVEYS
Type of survey(s) ______________________________________
Instrument(s) _________________________________________
(specify for each type of survey)
Accuracy _____________________________________________
(specify for each type of survey)
Aircraft used __________________________________________
Sensor altitude _________________________________________
Navigation and flight path recovery method
Aircraft altitude _________________________________________
Line Spacing __________________________________________
Miles flown over total area ____________________________
Over claims only ______________________________________
GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken.

Total Number of Samples
Type of Sample
Average Sample Weight
Method of Collection
Soil Horizon Sampled
Horizon Development
Sample Depth
Terrain
Drainage Development
Estimated Range of Overburden Thickness

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)
Mesh size of fraction used for analysis

General

ANALYTICAL METHODS
Values expressed in: per cent □
□ p. p. m. □
p. p. b. □
Cu, Pb, Zn, Ni, Co, Ag, Mo, As, (circle)
Others
Field Analysis (tests)
Extraction Method
Analytical Method
Reagents Used
Field Laboratory Analysis
No. (tests)
Extraction Method
Analytical Method
Reagents Used
Commercial Laboratory (tests)
Name of Laboratory
Extraction Method
Analytical Method
Reagents Used

General
Location Map

Key Map

Legend

1. Rough Lake Group
   Muskoka Formation
   a. Siltstone wacke
   b. Arkose
   c. Quartz pebble conglomerate

2. Burke Lake Group
   Bruce Formation
   Conglomerate
   a. Quartz pebble conglomerate
   b. Quartz sand and gravel
   c. Direction of glacial striae
   d. Logging road

3. Lake Huron Group
   Lake Superior Group
   a. Quartz vein
   b. Matrix 20-75%
   c. Plagioclase, pebbles/cobbles
   d. Quartz felsite vein

GEOLOGY

Oreco Mines & Energy Corp.
SCADINNG TWP., SUDBURY MINING DIVISION - ONTARIO
ASHIGAMI LAKE PROPERTY

Field work by R.P. MUELLER B.Sc. - August 1988
March 1989