OPERATIONS REPORT ON
AIRBORNE GEOPHYSICAL SURVEY
IN THE
PROJECT WOLF AREA, ONTARIO
FOR
CANADIAN OCCIDENTAL PETROLEUM LTD.

BY

KENTING EARTH SCIENCES LIMITED, OTTAWA

PROJECT NO. 81058
TABLE OF CONTENTS

1. INTRODUCTION 1
2. INSTRUMENTATION 2
3. PRESENTATION AND PROCESSING OF DATA 5

ACCOMPANYING THIS REPORT:

Appendices
A - KENTING DIGITAL SURVEY SYSTEM
B - AIRBORNE DIGITAL DATA FORMAT
C - DATA PROCESSING FLOWCHART

Maps
1 ea. - Total Field isomagnetic contour map
2 ea. - Totem VLF Profile maps
2 ea. - Totem VLF Total Field contour maps

All at a scale of 1:20,000 (approximately)
1. INTRODUCTION

This report pertains to the operations on a combined airborne magnetometer and VLF-electromagnetometer survey carried out in the Project Wolf area of Ontario for Canadian Occidental Petroleum Ltd. The survey was flown on June 2, 1981 by Kenting Earth Sciences Limited geophysically equipped Canso aircraft (registration C-FJJG) based at Sudbury, Ontario.

Fourty-one traverses were flown in a north-south direction over the survey area at a spacing of 1320 feet. A mean terrain clearance of 150 to 200 feet was maintained throughout the survey. Geophysical data were acquired from a total of 224.1 line miles.

The following Kenting personnel were associated with this project:
2. INSTRUMENTATION

The Kenting Digital Survey System (XDSS) was used in the survey for data acquisition. A technical description and specifications of this unit appear in Appendix A to this report.

The airborne magnetometer was a Gulf fluxgate Mark III unit which measures total field intensity with a resolution of 1 gamma.

The VLF-EM system employed was the Totem 1A instrument manufactured by Herz Industries Ltd. and was tuned to transmitter station NAA, Cutler, Maine.
A Honeywell Radar altimeter provided terrain clearance measurements.

An AS-5 35mm continuous strip camera recorded the flight path.

All data were recorded every half second in digital form by the KDSS system. The format appears in Appendix B.

Analogue recordings, digital recording and film are flagged with numbered fiducial marks every five seconds to enable correlation.

A six channel Brush 260 analogue recording unit recorded the total field magnetometer and radar terrain clearance data in analogue form.

The quantities measured, format and scales on this recording are as follows, with the chart oriented such that fiducial numbers increase to the left.
<table>
<thead>
<tr>
<th>Channel No.</th>
<th>Parameter</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of Chart</td>
<td>Radar terrain clearance</td>
<td>0 - 300 feet</td>
</tr>
<tr>
<td>5</td>
<td>Total field</td>
<td>0 - 1000 gammas</td>
</tr>
<tr>
<td>4</td>
<td>Magnetometer</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>fiducials</td>
<td>increasing to left</td>
</tr>
</tbody>
</table>

All quantities increase upwards.

An overlapping dual channel Brush 110 10 inch analogue recorder recorded the Totem VLF data. With the chart oriented as above the format is as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of Chart Fiducials</td>
<td>increasing to left</td>
</tr>
<tr>
<td>Totem VLF total field</td>
<td>Zero 2.5 in from top 1&quot; = 10%</td>
</tr>
<tr>
<td>Totem VLF Quadrature</td>
<td>Zero 2.5 in from bottom 1&quot; = 10%</td>
</tr>
</tbody>
</table>
A time synchronized magnetic diurnal base station was run during the survey. The magnetometer was a Geometrics 803 and the data was logged by a XDSS. Total field magnetic readings were logged digitally every second and displayed on a 10 in. analogue chart moving at 30 cm/hour with a full scale of 100 gammas. Time is in each head scan of the digital recording and marked every 10 minutes on the analogue chart.

3. PRESENTATION AND PROCESSING OF DATA

The survey data are presented on a uncontrolled air-photo mosaic base at a scale of approximately 1:20,000. This mosaic was also used for visual navigation and flight path recovery.

The data from the two flight line directions are presented on separate maps. Aeromagnetic data is presented as contours at 10 gamma intervals only on the north-south set of lines; the Totem VLF is presented two ways: as profiles on flight lines of Total Field and Quadrature at a scale of 1 cm = 20% and as Total Field contours at an interval of 5%.
All digital data were examined and edited for spurious samples and noise.

The magnetic data have been levelled using a manual adjustment method referring to crosslines and diurnal recordings where necessary. The data were then corrected by computer and the profile-contour intercepts machine drafted and contours fair-drawn by hand.

The Totem VLF data were rescaled, lightly filtered using a low pass frequency filter (cut-off 0.13, roll-off 0.16 cycles/sample) and the quadrature on north to south and east to west lines inverted to remove the flight direction effect of the aircraft. The data were then levelled using a simple statistical technique to estimate the position of the base line and drafted in profile and contour form. A general flow of processing is found in Appendix C.

Respectfully submitted,

E. John Wilson, B.Sc.
Chief Geophysicist
(Data Processing)
OPERATIONS REPORT ON
AIRBORNE GEOPHYSICAL SURVEY
IN THE
PROJECT WOLF AREA, ONTARIO
FOR
CANADIAN OCCIDENTAL PETROLEUM LTD.
BY
KENTING EARTH SCIENCES LIMITED, OTTAWA
PROJECT NO. 81058

KENTING EARTH SCIENCES LIMITED  •  380 HUNT CLUB ROAD, OTTAWA, ONTARIO K1G 3N3
Operations Report on
Airborne Geophysical Survey

In the
Project Wolf Area, Ontario

For
Canadian Occidental Petroleum Ltd.

By
Kenting Earth Sciences Limited, Ottawa

Project No. 81058

Received
May 4, 1982

Mining Lands Sec.

Ottawa, Canada

E. J. Wilson, B.Sc.
Chief Geophysicist
(Data Processing)
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. INSTRUMENTATION</td>
<td>2</td>
</tr>
<tr>
<td>3. PRESENTATION AND PROCESSING OF DATA</td>
<td>4</td>
</tr>
</tbody>
</table>

ACOMPANYING THIS REPORT:

- Appendices A - KENTING DIGITAL SURVEY SYSTEM
- B - AIRBORNE DIGITAL DATA FORMAT
- C - DATA PROCESSING FLOWCHART

Maps - 1 ea. - Totem VLF Profile map
- 1 ea. - Totem VLF Total Field contour map

All at a scale of 1:20,000 (approximately)

**RECEIVED**

MAY - 4 1982

MINING LANDS SECTION
OPERATIONS REPORT ON
AIRBORNE GEOPHYSICAL SURVEY
IN THE
PROJECT WOLF AREA, ONTARIO
FOR
CANADIAN OCCIDENTAL PETROLEUM LTD.

1. INTRODUCTION

This report pertains to the operations on a combined airborne magnetometer and VLF-electromagnetometer survey carried out in the Project Wolf area of Ontario for Canadian Occidental Petroleum Ltd. The survey was flown on July 15, 1981 by Kenting Earth Sciences Limited geophysically equipped Canso aircraft (registration C-FJJG) based at Sudbury, Ontario.

Thirty-four traverses were flown in an east-west direction over the survey area at a spacing of 1320 feet. A mean terrain clearance of 150 to 200 feet was maintained throughout the survey. Geophysical data were acquired from a total of 222.1 line miles.

The following Kenting personnel were associated with this project:

C. Twa - Pilot/Navigator
D. McFarlane - Pilot/Navigator
G. Rayner - Aircraft Engineer
D. Johnstone - Aircraft Engineer Assistant
I. MacDonald - Electronic Technician
R. Hakka - Data Compiler
E. J. Wilson - Chief Geophysicist (Data Processing)
2. INSTRUMENTATION

The Kenting Digital Survey System (KDSS) was used in the survey for data acquisition. A technical description and specifications of this unit appear in Appendix A to this report.

The airborne magnetometer was a Gulf fluxgate Mark III unit, which measures total field intensity with a resolution of 1 gamma.

The VLF-EM system employed was the Totem IA instrument manufactured by Herz Industries Ltd. and was tuned to transmitter station NAA, Cutler, Maine, U.S.A.

A Honeywell Radar altimeter provided terrain clearance measurements.

An AS-5 35mm continuous strip camera recorded the flight path.

All data were recorded every half second in digital form by the KDSS system. The format appears in Appendix B.

Analogue recordings, digital recording and film are flagged with numbered fiducial marks every five seconds to enable correlation.

A six channel Brush 260 analogue recording unit recorded the total field magnetometer and radar terrain clearance data in analogue form.

The quantities measured, format and scales on this recording are as follows, with the chart oriented such that fiducial numbers increase to the left.
<table>
<thead>
<tr>
<th>Channel No.</th>
<th>Parameter</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of Chart</td>
<td>Radar terrain clearance</td>
<td>0 - 300 feet</td>
</tr>
<tr>
<td>6</td>
<td>Total field</td>
<td>0 - 1000 gammas</td>
</tr>
<tr>
<td>5</td>
<td>Magnetometer</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fiducials increasing to left

All quantities increase upwards.

An overlapping dual channel Brush 110 10 inch analogue recorder recorded the Totem VLF data. With the chart oriented as above the format is as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top of Chart Fiducials</td>
<td>increasing to left</td>
</tr>
<tr>
<td>Totem VLF total field</td>
<td>Zero 2.5 in from top</td>
</tr>
<tr>
<td></td>
<td>1&quot; = 10%</td>
</tr>
<tr>
<td>Totem VLF Quadrature</td>
<td>Zero 2.5 in from bottom</td>
</tr>
<tr>
<td></td>
<td>1&quot; = 10%</td>
</tr>
</tbody>
</table>
A time synchronized magnetic diurnal base station was run during the survey. The magnetometer was a Geometrics 803 and the data was logged by a KDSS. Total field magnetic readings were logged digitally every second and displayed on a 10 in. analogue chart moving at 30 cm/hour with a full scale of 200 gammas. Time is in each head scan of the digital recording and marked every 10 minutes on the analogue chart.

3. PRESENTATION AND PROCESSING OF DATA

The survey data are presented on a uncontrolled airphoto mosaic base at a scale of approximately 1:20,000. This mosaic was also used for visual navigation and flight path recovery.

The Totem VLF is presented two ways: as profiles on flight lines of Total Field and Quadrature at a scale of 1 cm = 20% and as Total Field contours at an interval of 5%.

All digital data were examined and edited for spurious samples and noise.

The Totem VLF data were rescaled, lightly filtered using a low pass frequency filter (cut-off 0.13, roll-off 0.16 cycles/sample) and the quadrature on west to east lines inverted to remove the flight direction effect of the aircraft. The data were then levelled using a simple statistical technique to estimate the position of the base line and drafted in profile and contour form. A general flow of processing is found in Appendix C.

Respectfully submitted,

[Signature]
E. John Wilson, B.Sc.
Chief Geophysicist
(Data Processing)
The Kenting Digital Survey System (KDSS) is an integrated data acquisition system developed by Kenting Earth Sciences Limited to meet the increasingly sophisticated requirements for digital airborne mineral exploration.

The system replaces discrete instruments with integrated hardware under the control of a mini computer. It replaces the analogue window spectrometer with an improved digital analysis technique and incorporates a proton magnetometer with technologically current processing circuitry. In addition, all geophysical instruments which are compatible in a multi-parameter survey, together with navigation systems can be readily integrated into the KDSS.

The system not only acquires data, operates and monitors all sub-systems such as magnetometers, gamma ray spectrometers, E.M. units, radar altimeters, Doppler, but it performs computations in real time while surveying is underway.

The KDSS is a software controlled system, the basic hardware is therefore an extremely flexible recording system. It can be used to collect and record data, as a magnetic tape copying system or as a spectrum analyser. The system's function is limited only by the non-existence of a suitable program.

The KDSS has been designed with the operator in mind. Programs are stored on magnetic tape cassettes. Programs, which determine the system's function can be loaded or changed in a matter of seconds thereby directing the system to assume specific tasks.

Two identical output tape decks are incorporated to enhance data security. Data is recorded on each tape simultaneously.

Data reliability is increased by the use of read after write heads in each recording unit. Each bit of recorded data is checked against the data stored in the computer's buffer for conformance. If any data does not conform the complete data block is rechecked up to six times for each track. Each tape deck is completely independent in its operation from the other. All recording is done serially on one track only. With four tracks available, assuming a sample rate of 1 second, tape capacity is 8 (4 x 2) hours.

The application of mini computer technology has enabled Kenting Earth Sciences to add new dimensions to data collection and processing.

Typical KDSS features which will assure new efficiency levels in airborne data recording:

1) All system commands are inputted through a standard electronic keyboard thus controlling all components.

2) All data is displayed in the aircraft via a Cathode Ray Tube.

3) Exact time is recorded (to 1 second intervals) generated by a stable time base crystal clock.

4) Magnetic tape remaining in cassettes is monitored and a warning is issued as supply becomes critical.

5) Allows operator to type onto tape various verbal messages — data pertinent to flight path recovery, topography etc.

6) Information normally written on to the mag tape includes:
   - Operator identification
   - Time
   - Date
   - Camera interval in seconds
   - Flight time number and direction
   - Camera frame number
KENTING DIGITAL SURVEY SYSTEM SPECIFICATIONS

ELECTRICAL REQUIREMENTS
Voltage — 28 VDC
Power — 400 WATTS

PHYSICAL DIMENSIONS
19" rack mounting
40 kg

PROCESSOR
CPU — Fabritek MP-12 Microprocessor
Core Memory — Random Access, 4K 12 bit words

INTERFACES
All interfacing TTL compatible, a) altimeter averaging over the sample interval, b) heading recording c) strip and frame cameras.

KEYBOARD
Standard alpha-numeric, typewriter style, key pad 64 ASCII characters.

CATHODE RAY TUBE
Cybernex, 32 characters per line
16 lines per page

SPECTROMETER
256 Channels
Maximum counts — 4,096 per channel

DETECTOR PACKAGE
Manufacturer — The Harshaw Chemical Company, Division of Kewanee Oil Company.
16" x 4" x 4", NaI crystals, coupled to 3½" low noise photomultiplier tubes, packaged in groups of four, available in multiples thereof. Single assembly resolution — less than 9.5%. Heated package maintained at 35°C ± 1°C, 24 hours/day. Each P.M. tube is interfaced to an amplifier co-ax driver. This amplifier is incorporated within the driver network cap. Coupled to each co-ax driver is a variable gain amplifier to permit balancing of individual assemblies. All variable gain amplifiers are connected to a summing amplifier in which pulses are shaped and system gain is adjusted. An input terminal is provided to permit the injection of pulses from a nuclear pulse generator.

SYSTEM RESOLUTION
Better than 12%.
Max Dead Time — 12 microseconds
Max. Difference between energy increments 0.35 KEV. Total spectrum is available at a connector to facilitate spectrum display on an oscilloscope.
Window programming by digital logic.
The window positions may be automatically adjusted to a calibration source if desired.
The count from each window is displayed on a CRT screen.

MAGNETOMETER
Recording resolution — 0.1 gamma
Reading precision — 0.1 gamma
Operation is synchronized to data system.

ELECTROMAGNETIC SYSTEM
Provision is made for the installation of any required E.M. system.
Noise level: Dependent on system selected.

ALTIMETER:
Dual Honeywell HG7502AC02
Accuracy + 2% at 400 ft.
Resolution 5 ft.

PULSE HEIGHT ANALYSIS
Pulses are shaped in a special circuit for best A/D resolution.
Pulses are unipolar
Analogue to Digital Converter — Wilkinson Ramp type 12 bit BCD.

LINEARITY
Integral — Better than 0.075% over 99% of full scale.
Differential — Less than 1% deviation from mean channel width over 99% of full scale.

POSITIONING EQUIPMENT
Doppler, VLF or any other method of positioning can be incorporated.

ANCILLARY RECORDING CAPABILITY
16 analogue channels, resolution to 1 part in 16,000, 3 accumulator channels 0-999 counts per channel.

CAMERA
Any continuous strip or frame camera. Kenting provides AS-5 strip, PSC Mark VII and Automax Il Frame cameras.

CONTROL LOGIC
Computer buffered. Almost any conceivable survey system or combination of systems can be accommodated.
APPENDIX B
AIRBORNE DIGITAL DATA FORMAT

Tape 9 track 800 BPI. ASCII code (8 Bit) Job No. 81058

One file per flight
Tape block types
Data distinguished by first two bytes being B0B016

Dummy binary zeros substituted for missing data distinguished by first
two bytes being 000016

Message ASCII character string blocked out with binary zeros,
distinguished by first two bytes being AAAB16

Short data blocks at ends of lines are filled out to 774 bytes with
binary zeros.

File structure
File header first block
Job No., Tape No., File No., Flight No.
End of file - a file mark

Data Block Organization (general)

Block Header Char 1-18
Char 1-7 = BLK No. (reset for every line)
7-11 = Line No.
12 = Line direction
13-18 = Time xx hrs., xx mins., xx secs.

Data Block Format C-FJG Record Length 774
Data Format 6 scans 21 channels at .5 second scan rate
For each scan

<table>
<thead>
<tr>
<th>CHANNEL NO.</th>
<th>LOCATION</th>
<th>CONTENTS</th>
<th>CHANNEL TYPE</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-6</td>
<td>Fiducial</td>
<td>Digital</td>
<td>.5 second</td>
</tr>
<tr>
<td>2</td>
<td>7-12</td>
<td>&quot;</td>
<td>&quot;</td>
<td>not used</td>
</tr>
<tr>
<td>3</td>
<td>13-18</td>
<td>not used</td>
<td>Magnetometer</td>
<td>1 gamma</td>
</tr>
<tr>
<td>4</td>
<td>19-24</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>25-30</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>31-36</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>37-42</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>43-48</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>49-54</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>55-60</td>
<td>Not used</td>
<td>Analog 0</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>61-66</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>67-72</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>73-78</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>79-84</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>85-90</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>91-96</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>97-102</td>
<td>&quot;</td>
<td>&quot;</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>103-108</td>
<td>Altimeter</td>
<td>&quot;</td>
<td>8</td>
</tr>
<tr>
<td>19</td>
<td>109-114</td>
<td>Total Field</td>
<td>Totem VLF9</td>
<td>.05%</td>
</tr>
<tr>
<td>20</td>
<td>115-120</td>
<td>Quadrature</td>
<td>Totem VLF10</td>
<td>.05%</td>
</tr>
<tr>
<td>21</td>
<td>121-126</td>
<td>not used</td>
<td>&quot;</td>
<td>11</td>
</tr>
</tbody>
</table>

First character in analogue channel indicates sign, followed by 5
Characters of amplitude
NOTE

400' Surface Rights Reservation
around all Lakes and Rivers
Ministry of Natural Resources

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS

FILE.

RECIPIENT

MAY 4 1982

LAWYER SECTION

Type of Survey(s) AIRBORNE MAGNETOMETER
Township or Area ALIMEL & MACKELGAN
Claim Holder(s) CORNER BAY EXPLORATIONS LTD
Survey Company KENTING EARTH SCIENCES
Author of Report E. J. WILSON
Address of Author 380 HUNT CLUB RD. OTTAWA
Covering Dates of Survey JUNE 2, 1981
Total Miles of Line Cut

SPECIAL PROVISIONS
CREDITS REQUESTED

<table>
<thead>
<tr>
<th>Days per claim</th>
<th>Geophysical</th>
<th>Electromagnetic</th>
<th>Magnetometer</th>
<th>Radiometric</th>
<th>Other</th>
<th>Geological</th>
<th>Geochemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTER 40 days (includes line cutting) for first survey.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTER 20 days for each additional survey using same grid.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Days per claim</th>
<th>Magnetometer</th>
<th>Electromagnetic</th>
<th>Radiometric</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTER 10 days per claim</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DATE: FEB 16 62 SIGNATURE: S. BURJESS
Author of Report or Agent

Res. Geol. Qualifications 2.1048

Previous Surveys

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

TOTAL CLAIMS 50.
<table>
<thead>
<tr>
<th><strong>SELF POTENTIAL</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument</td>
<td>Range</td>
</tr>
<tr>
<td>Survey Method</td>
<td></td>
</tr>
<tr>
<td>Corrections made</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RADIOMETRIC</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Values measured</td>
<td></td>
</tr>
<tr>
<td>Energy windows (levels)</td>
<td></td>
</tr>
<tr>
<td>Height of instrument</td>
<td>Background Count</td>
</tr>
<tr>
<td>Size of detector</td>
<td></td>
</tr>
<tr>
<td>Overburden</td>
<td>(type, depth – include outcrop map)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>OTHERS (SEISMIC, DRILL WELLelogging etc.)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of survey</td>
<td></td>
</tr>
<tr>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td></td>
</tr>
<tr>
<td>Parameters measured</td>
<td></td>
</tr>
<tr>
<td>Additional information (for understanding results)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>AIRBORNE SURVEYS</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of survey(s)</td>
<td>Magnetometer</td>
</tr>
<tr>
<td>Instrument(s)</td>
<td>Gulf Fluxgate Mark III</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1 gamma</td>
</tr>
<tr>
<td>Aircraft used</td>
<td>Canso (reg. C-F156)</td>
</tr>
<tr>
<td>Sensor altitude</td>
<td>150-200'</td>
</tr>
<tr>
<td>Navigation and flight path recovery method</td>
<td>A&lt;.5 35mm continuous strip camera recorded the flight path</td>
</tr>
<tr>
<td>Aircraft altitude</td>
<td>150-200'</td>
</tr>
<tr>
<td>Line Spacing</td>
<td>1/4 mi</td>
</tr>
<tr>
<td>Miles flown over total area</td>
<td>12.5 mi</td>
</tr>
<tr>
<td>Over claims only</td>
<td>all listed</td>
</tr>
</tbody>
</table>
MINING CLAIMS TRAVERSED

S608047
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
Ontario Ministry of Natural Resources

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ON LANDS SECTION

FILE

REC 4-1-1982

Type of Survey(s) AIRBORNE Y.L.F. E.M
Township or Area ASHLER & MACKEICAN
Claim Holder(s) CORNER BAY EXPLORATIONS LTD.
Survey Company KENTING NATH SCIENCES
Survey Company Address: 380 Hunt Club Rd. Ottawa
Surveyurvey Covering Dates of Survey JUNE 2, 1981
Total Miles of Line Cut

SPECIAL PROVISIONS CREDITS REQUESTED

Geophysical
- Electromagnetic
- Magnetometer
- Radiometric
- Other
Geological
Geochemical

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

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

Magnetometer
Electromagnetic 10 Radiometric

DATE: Feb 13, 1982 SIGNATURE: S. Brunelle for
Number of Report or Agent

Prevos Surveys

Res. Geol. Qualifications

Previous Surveys

File No. Type Date Claim Holder

TOTAL CLAIMS 50

MINING CLAIMS TRAVERSED

(List numerically)

S.08025

(cont.)
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) Totem IA (NAA) Cutler
(specify for each type of survey)
Accuracy _________________________________________________________________
Aircraft used ___________________________
Sensor altitude ________________
Navigation and flight path recovery method ____________________________
Strip camera recorded the flight path __________________________
Aircraft altitude ________________ Line Spacing ________________
Miles flown over total area ________________ Over claims only ___________________
All listed ___________________________
MINING CLAIMS TRAVERSED (CONT.)

5608047
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
Ministry of Natural Resources

GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL
TECHNICAL DATA STATEMENT

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)  AIRBORNE V.L.F.- E.M.
Township or Area  AYLMER & MACKELCAND
Claim Holder(s)  CORNER BAY EXPLORATIONS LTD
Survey Company  KENTING EARTH SCIENCES
Author of Report  F. J. WILSON
Address of Author  38O HUNT CLUB ROAD, OTTAWA
Covering Dates of Survey  JULY 15 1981
Total Miles of Line Cut

SPECIAL PROVISIONS
CREDITS REQUESTED

Geophysical
- Electromagnetic
- Magnetometer
- Radiometric
- Other

Geological
Geochemical

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

Magnetometer  Electromagnetic  Radiometric

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

DAYS per claim

DATE:  Feb 1982  SIGNATURE:  [Signature]

Res. Geol. Qualifications

Previous Surveys
File No. Type Date Claim Holder

MINING CLAIMS TRAVERSED
List numerically

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

TOTAL CLAIMS  50
**SELF POTENTIAL**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey Method</td>
<td></td>
</tr>
<tr>
<td>Corrections made</td>
<td></td>
</tr>
</tbody>
</table>

**RADIOMETRIC**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Values measured</th>
<th>Energy windows (levels)</th>
<th>Height of instrument</th>
<th>Size of detector</th>
<th>Overburden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Background Count: (type, depth – include outcrop map)

**OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)**

<table>
<thead>
<tr>
<th>Type of survey</th>
<th>Instrument</th>
<th>Accuracy</th>
<th>Parameters measured</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional information (for understanding results)

**AIRBORNE SURVEYS**

<table>
<thead>
<tr>
<th>Type of survey(s)</th>
<th>Instrument(s)</th>
<th>Accuracy</th>
<th>Aircraft used</th>
<th>Sensor altitude</th>
<th>Navigation and flight path recovery method</th>
<th>Aircraft altitude</th>
<th>Line Spacing</th>
<th>Miles flown over total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>V.L.F. - E.M.</td>
<td>Totem 1A</td>
<td>(NAA) Cutler</td>
<td>Comsa (reg. C-FJS6)</td>
<td>150-200'</td>
<td>AS-5 35 mm continuous strip camera recorded the flightpath</td>
<td>150-200'</td>
<td>1/4 mi</td>
<td>12-5 mi</td>
</tr>
</tbody>
</table>
MINING CLAIMS TRAVERSED (CONT.)

5608047
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
Dear Sir:

We have received reports and maps for a Geophysical Airborne (Electromagnetic and Magnetometer) survey submitted on Mining Claims S 608025 et al, in the Townships of Aylmer and Mackelcan.

However, we have not received duplicate reports and maps. Please submit these to this office. Upon receipt of the above mentioned material a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1316

J. Skura/amc

cc: Corner Bay Explorations Ltd.
    V Toronto, Ontario

cc: Kenting Earth Sciences Ltd.
    Ottawa, Ontario
June 8, 1983

Corner Bay Explorations Ltd.
1611 - 25 Adelaide Street, East
Toronto, Ontario
MSC 1Y2

Dear Sirs:

RE: Airborne Geophysical (Electromagnetic and Magnetometer) Survey submitted on Mining Claims S608025 et al in the Townships of Aylmer and Mackalcan

Enclosed are the plans, in duplicate, for the above-mentioned survey. Please have the author of the report date and sign each map and return them to this office.

For further information, please contact Mr. F.W. Matthews at 416/965-1380.

Yours very truly,

E.F. Anderson
Director
Land Management Branch
Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

R. Pichette:mc
Encl.

cc: Mining Recorder
Sudbury, Ontario

cc: Kanting Earth Sciences Ltd
380 Hunt Club Road
Ottawa, Ontario
K1G 3N3
Attention: S. Brunelle
Mining Lands Comments

To: Geophysics

Comments

☑ Approved  ☐ Wish to see again with corrections  Date:  May 11, 83  Signature: [Signature]

To: Geology - Expenditures

Comments

☐ Approved  ☐ Wish to see again with corrections  Date:  Signature:

To: Geochemistry

Comments

☑ Approved  ☐ Wish to see again with corrections  Date:  Signature:

☑ To: Mining Lands Section, Room 6462, Whitney Block.  (Tel: 5-1380)

1983 (81/10)
June 21, 1983

Mr. E.F. Anderson, Director
Land Management Branch
Ministry of Natural Resources
Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3

Dear Mr. Anderson:

Re: Airborne Geophysical (Electromagnetic and Magnetometer) Survey submitted on Mining Claims S608025 et al in the Townships of Aylmer and Mackelcan

Enclosed are the plans, duly signed by the author of the report.

Sincerely yours,

S. Brunelle

RECEIVED
JUN 23 1983
MINING LANDS SECTION
### Airborne Mag & V.L.F. North/South Lines

**CORNER BAY EXPLORATIONS LTD.**

**Address:**

1611 - 25 Adelaide St. E., Toronto

**Survey Company:**

Kenting Earth Sciences Ltd.

**Date of Survey (from & to):**

2/6/81

**Total Miles of Line Cut:**

51

---

### Special Provisions

<table>
<thead>
<tr>
<th>For first survey:</th>
<th>Geophysical</th>
<th>Days per Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter 40 days. (This includes line cutting)</td>
<td>Electromagnetic</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Magnetometer</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Radiometric</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Geological</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Geochemical</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For each additional survey: using the same grid</th>
<th>Geophysical</th>
<th>Days per Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter 20 days (for each)</td>
<td>Electromagnetic</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Magnetometer</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Radiometric</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Geological</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Geochemical</td>
<td>37</td>
</tr>
</tbody>
</table>

**Complete reverse side and enter totals here.**

---

### Airborne Credits

<table>
<thead>
<tr>
<th>Days per Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electromagnetic</td>
</tr>
<tr>
<td>Magnetometer</td>
</tr>
<tr>
<td>Radiometric</td>
</tr>
</tbody>
</table>

---

### Expenditures (Excludes Power Stripping)

<table>
<thead>
<tr>
<th>Type of Work Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophysical</td>
</tr>
<tr>
<td>Electromagnetic</td>
</tr>
<tr>
<td>Magnetometer</td>
</tr>
<tr>
<td>Radiometric</td>
</tr>
</tbody>
</table>

**Received:**

MAR 2 9 1982

**Calculation of Expenditure Days Credits**

<table>
<thead>
<tr>
<th>For Office Use Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Days Credits Recorded</td>
</tr>
<tr>
<td>Total Days Credits Recorded</td>
</tr>
</tbody>
</table>

---

**Certification Verifying Report of Work**

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

**Name and Rank of Official Certifying:**

S. Brunelle

**Address:**

1611 - 25 Adelaide St. E., Toronto

**Date:**

Feb. 18/82

---

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

47
Mining Claims - cont'd.

<table>
<thead>
<tr>
<th>Number</th>
<th>Exped. Days</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S608071</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td></td>
<td>73</td>
<td></td>
</tr>
</tbody>
</table>
HORIZONTAL CONTROL . . . . . BASED ON PHOTO LAYDOWN

SOLID LINE IS TOTAL FIELD SCALE 1:1 CM = 20%
DASHED LINE IS QUADRATURE SCALE 1:1 CM = 20%

TOTEM VLF EM PROFILES

MEAN TERRAIN CLEARANCE . . . . 150-200 FEET
TRAVERSE INTERVAL . . . . . . . . . . 1,320 FEET

N-S LINES

VLF PROFILE
AIRBORNE ELECTROMAGNETIC SURVEY
PROJECT WOLF AREA
ONTARIO
CANADIAN OCCIDENTAL PETROLEUM LIMITED
SCALE 1:20,000 (APPROX.)
IKETING EARTH SCIENCES LIMITED, OTTAWA

11, 29, 1970
PROJECT WOLF AREA
ONTARIO
CANADIAN OCCIDENTAL PETROLEUM LIMITED
SCALE 1:20,000 (APPROX.)
HORIZONTAL CONTROL... BASED ON PHOTO LAYOUT

CONTOUR INTERVAL: 5 PERCENT

MEAN TERRAIN CLEARANCE: 150-200 FEET

TRAVERSE INTERVAL: 1,320 FEET

VLF TOTAL FIELD AIRBORNE ELECTROMAGNETIC SURVEY

PROJECT WOLF AREA

ONTARIO

CANADIAN OCCIDENTAL PETROLEUM LIMITED

SCALE 1:20,000 (APPROX)

HENING EARTH SCIENCES LIMITED, OTTAWA

1:20,000
VERTICAL CONTROL BASED ON PHOTO LAYDOWN

SOLID LINE IS TOTAL FIELD SCALE IS 1 CM : 2000
DASHED LINE IS QUADRATURE SCALE IS 1 CM: 2000

TOTAL VLF EM PROFILES

MINIMUM TERRAIN CLEARANCE: 150-200 FEET
TRaverse INTERVAL: 1,320 FEET

VLF PROFILE AIRBORNE ELECTROMAGNETIC SURVEY F-LV
PROJECT WOLF AREA
ONTARIO
CANADIAN OCCIDENTAL PETROLEUM LIMITED
SCALE 1:20,000 (APPROX.)

KESL 8
1051

August 25, 1981
HORIZONTAL CONTROL BASED ON PHOTO LAYOUT

LEGEND
10 GAMMA CONTOUR
50 GAMMA CONTOUR
250 GAMMA CONTOUR
MAGNETIC LOW

MEAN TERRAIN CLEARANCE 150-200 FEET
TRAVERSE INTERVAL 1,320 FEET

TOTAL FIELD
AIRBORNE MAGNETOMETER SURVEY
PROJECT WOLF AREA
ONTARIO
CANADIAN OCCIDENTAL PETROLEUM LIMITED
SCALE 1:20,000 (APPROX.)
VLF TOTAL FIELD
AIRBORNE ELECTROMAGNETIC SURVEY
PROJECT WOLF AREA
ONTARIO
CANADIAN OCCIDENTAL PETROLEUM LIMITED
SCALE 1:20,000 (APPROX.)
HORIZONTAL CONTROL . . . . . . . BASED ON PHOTO LAYDOWN

CONTOUR INTERVAL . . . 5 PERCENT
MEAN TERRAIN CLEARANCE . . . . . 150-200 FEET
TRaverse INTERVAL . . . . . . . . . . 1,320 FEET

VLF TOTAL FIELD AIRBORNE ELECTROMAGNETIC SURVEY PROJECT WOLF AREA ONTARIO CANADIAN OCCIDENTAL PETROLEUM LIMITED SCALE 1:20,000 (APPROX.)