ASSESSMENT REPORT

RECONNAISSANCE INDUCED POLARIZATION
AND MAGNETOMETER SURVEY

ON THE

CAS 1 AND 2 MINERAL CLAIMS

KEMESS CREEK AREA
OMINECA M.D.
N.T.S. 94E/2

LATITUDE: 57° 06' NORTH
LONGITUDE: 126° 53' WEST

BY

David L. Cooke, Ph.D., P.Eng.
D. L. COOKE & ASSOCIATES LTD.
811 - 675 WEST HASTINGS STREET
VANCOUVER, B.C., V6B 1N2

Report Date: December 4, 1991

Date Work Done: September 5 - 7, 1991

Claim on which work was done

<table>
<thead>
<tr>
<th>Claim</th>
<th>Units</th>
<th>Record Number</th>
<th>Record Month</th>
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<tbody>
<tr>
<td>Cas #2</td>
<td>18</td>
<td>12845</td>
<td>December</td>
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**APPENDICES:**
- APPENDIX I - STATEMENT OF EXPENDITURES
- APPENDIX II - STATEMENT OF QUALIFICATIONS
- APPENDIX III - LOGISTICAL REPORT: INDUCED POLARIZATION AND MAGNETOMETER SURVEYS, CAS CLAIMS, OMINECADA M.D. BY SCOTT GEOPHYSICS LTD.

**ILLUSTRATIONS:**
- FIGURE 1 - LOCATION MAP; CAS MINERAL CLAIMS
- FIGURE 2 - CLAIM MAP; CAS MINERAL CLAIMS
SUMMARY

The Cas 1 and 2 mineral claims cover an area probably underlain by Takla volcanic rocks which has the potential to host porphyry copper-gold mineralization. Nearly three kilometres of reconnaissance induced polarization and magnetometer surveys were done along a north-south line during the period September 5 - 7, 1991 by Scott Geophysics Ltd. to evaluate the mineral potential of the Cas 1 and 2 claims.

The induced polarization survey did not define any area of strong chargeability response. The resistivity response was moderately weak throughout. The flat nature of the I.P. responses may be due to deep glacial cover masking the volcanic bedrock. The magnetic profile was also generally flat, with a slight rise near the southern end of the survey line.

A more detailed program of induced polarization and magnetometer surveys is recommended to further evaluate the copper and gold potential of the Cas 1 and 2 mineral claims. The survey lines should be oriented in the east-west direction and electrode separations utilized to gain deep penetration. Such a survey should be accompanied by soil sampling and trenching.

INTRODUCTION

The Cas 1 and 2 mineral claims cover a part of the area previously covered by the Ark 1 and 4 claims. Soil geochemistry was done on east-west lines over the northeastern part of the property (Bell, 1985). Although scattered gold anomalies were trenched, bedrock was not reached at depths of 3 - 4 metres (Sorbara, 1985).

The Cas 1 and 2 mineral claims were staked to cover an area believed to contain Takla volcanic rocks and possible coeval alkaline intrusions north of Thutade Lake. The objective is to search for porphyry-copper gold mineralization similar to that which occurs in the nearby Kemess Creek, deposit of El Condor Resources Ltd., located on the northeast side of Thutade Lake. The geophysical reconnaissance work is considered to be the first pass at quickly assessing the porphyry potential of the property.

Reconnaissance geophysical work was done on the Cas 1 and 2, Cas 3, and Cas 4 and 5 Groups of Claims on a contract basis by Scott Geophysics Ltd., operating from the El Condor base camp on Kemess Creek. A copy of the Logistical Report by Scott Geophysics Ltd., including I.P. pseudosections and magnetic profiles, is attached as Appendix III and forms an integral part of this assessment report.
1991 EXPLORATION PROGRAM

The 1991 exploration work consisted of a north-south line, 2.85 kilometres in length, of reconnaissance induced polarization and magnetometer surveys, which was run in a northerly direction across the Cas 2 claim from the southeast corner of the Cas 2 claim.

PROPERTY, LOCATION AND ACCESS

The property is comprised of two mineral claims, held in the name of David L. Cooke, of Surrey, B.C.

<table>
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<td>Cas 1</td>
<td>15</td>
<td>12844</td>
<td>December 13, 1990</td>
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<tr>
<td>Cas 2</td>
<td>18</td>
<td>12845</td>
<td>December 13, 1990</td>
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The Cas 1 and 2 mineral claims are located at the north end of Thutade Lake, in the southern part of the Toodoggonie River gold camp, 280 kilometres north of Smithers, B.C. Cascadero Falls and the head of the Finlay River lie within the western boundary of the property. The claims are situated 11 kilometres northwest of the Kemess Creek porphyry copper-gold deposit of El Condor Resources Ltd.

The relief on the property is moderate, and elevation ranges from 1,100 metres on the Finlay River to 1,224 metres in the northeast corner of the Cas 1 claim. Vegetation consists of scarce growths of jackpine, spruce and fir.

Access to the property is by the Omineca mine road to the Finlay River some 360 kilometres northwest of Fort St. James, B.C. An alternate access route is by fixed or rotary-winged aircraft from Smithers. The Omineca road passes the Sturdee River airstrip, approximately 20 kilometres to the northwest of the Cas 1 and 2 mineral claims.

REGIONAL GEOLOGY AND MINERALIZATION

Regionally, the Toodoggonie area lies in the northern part of the Quesnel Trough - a narrow belt of Triassic volcanic terrain containing calc-alkaline to alkaline intrusions and forming the backbone of British Columbia. The Quesnel Trough hosts producing alkaline porphyry copper-gold deposits such as Copper Mountain, Ingerbelle and Afton, as well as other deposits at or near the feasibility stage such as Mt. Poley, QR and Mt. Milligan.
High level epithermal quartz-gold-silver veins are the common deposits being mined by Cheni Gold Mines Inc. in the Toodoggone area. These deposits are hosted by the Takla and Toodoggone volcanic rocks of Triassic and Jurassic ages. However, in the southern part of the Toodoggone area, where erosion has reached below high level gold veins, subvolcanic stocks and plugs of monzonite are exposed. Porphyry copper-gold and copper-zinc-silver skarns are associated with these intrusive rocks.

The regional geology map of the Toodoggone River map sheet shows the area of the claims to be underlain mainly by the Takla volcanic rocks south of the Black Lake granite intrusion (Gabrielse, 1976). Disseminated porphyry copper-gold mineralization, in association with alkaline intrusions (monzonite porphyry), occurs on the Kemess Creek claims of El Condor Resources Ltd. at the northeast corner of Thutade Lake.

The monzonite stocks and plugs which occur in the southern part of the Toodoggone area lie along northwest and northeast fault structures. The intrusions appear to be satellitic to the Black Lake batholith and are marked by abundant magnetite and variable amounts of pyrite and chalcopyrite. The adjacent Takla volcanic rocks are also mineralized with disseminated sulphides and by quartz vein stockworks containing pyrite and chalcopyrite.

PROPERTY GEOLOGY

No rock outcrops have been found on the Cas 1 and 2 mineral claims. The area of the claims appear to be covered by extensive river gravels and glacial material. Trenching by previous operators failed to penetrate the gravels to bedrock in two areas.

DISCUSSION OF GEOPHYSICAL SURVEY

The north-south reconnaissance magnetic profile and pseudosections for chargeability and resistivity appear as "Line 1/Road A" in the Logistical Report by Scott Geophysics Ltd. (Appendix III). The chargeability pseudosections appear very flat with a slight increase in chargeability from 2 to 8 milliseconds with depth. The resistivity has a similar horizontal pattern which may be due to stream gravels and deep glacial overburden. However, there is a slight positive magnetic profile in the vicinity of 300 to 700 metres north, which may be due to a buried intrusive body.
The north-south orientation of this reconnaissance line is probably not the best because the regional structural grain is north to northwest. Geophysical lines placed in an east-west direction may be more useful in further evaluation of the property.

CONCLUSIONS AND RECOMMENDATIONS

1. A single north-south reconnaissance induced polarization and magnetometer line across the Cas 2 mineral claim failed to indicate the presence of strongly anomalous conditions on the claim. A slight magnetic high at the southern part of the line may be due to an intrusive body buried below deep glacial cover and stream gravels.

2. Further work which is recommended to evaluate the claims should consist of more detailed induced polarization and magnetometer survey, along east-west lines over the Cas 1 and 2 claims. Soil geochemistry and trenching are also recommended to determine if gold anomalies are reflecting buried bedrock sources.

Report By:

D. L. COOKE AND ASSOCIATES LTD.

David L. Cooke, Ph.D., P.Eng.

December 4, 1991
REFERENCES

Barr, D. A., 1978:

Bell, M., 1985:

Carter, N. D., 1971:

Diakow, L. J., Panteleyev, A., Schroeter, T. G., 1985:
BCMEMPR, Geology of the Toodoggone River Area, Pelim. Map 61.

Gabrielse, H., et al, 1976:
Geology of the Toodoggone River (93E) and Ware West-Half (94); Geol. Surv. Can. Open File 483.

Sorbara, J. P., 1986:
Report on the Ark 1 - 7 Claims, Omineca M.D., for Ark Energy Ltd.
APPENDIX I

STATEMENT OF 1991 EXPENDITURES
CAS 1 AND 2 MINERAL CLAIMS

(As per Invoice 9139101 from Scott Geophysics Ltd., Appendix III)
(Cas 1, 2, 3, 4 & 5 Mineral Claims)

INDUCED POLARIZATION
Peter Kryszkiewicz: 4 days @ $140 .... $560.00
Martin Makulowich: 4 days @ $140 .... 560.00
Scott Benson: 4 days @ $140 .... 560.00 $1,680.00

I.P. EQUIPMENT: 3 days @ $1,075; 1 day @ $755 .... 3,980.00

MAGNETOMETER
7.3 Line Kilometres @ $80/km ........ $584.00
Maps, Vellum, etc. ..................... 60.00 644.00

DOMICILE
Meals, Accommodation, Oil, Gas: 3 days @ $360 .. 1,080.00

Sub Total .... $7,384.00
7% GST ....... 516.88

Total Invoice - Scott Geophysics Ltd. ......... $7,900.88

EXPENDITURES ALLOCATED TO CAS 1 AND 2 MINERAL CLAIMS

I.P. & Magnetometer
2.8 / 7.3 x $7,900.88 ......................... $3,030.48

REPORT
D. L. Cooke: 1 1/2 days @ $350 .... $525.00
7% GST ................................. 36.75
Typing and Reproductions ..................... 125.00 686.75

TOTAL EXPENDITURES $3,717.23
APPENDIX II

STATEMENT OF QUALIFICATIONS

I, DAVID LAWRENCE COOKE, of the Municipality of Surrey in the Province of British Columbia, hereby certify:

1. That I am a Consulting Geologist, residing at 10667 Arbutus Wynd, Surrey, B.C., V3R 0B5, with a business office at 811 - 675 West Hastings Street, Vancouver, B.C., V6B 1N2.

2. That I graduated with a B.Sc. degree in Geology from the University of New Brunswick in 1959, and with M.A. and Ph.D. degrees in Geology from the University of Toronto in 1961 and 1966 respectively.

3. That I have practised my profession as an exploration geologist from 1959 to the present time in Canada, the U.S.A., Mexico, the Caribbean and South America.

4. That I have been a registered member in good standing of the Association of Professional Engineers of the Province of British Columbia since 1971.

5. That I have personal knowledge of the Cas and numerous other mineral claims in the Toodoggone River and Kemess Creek areas, and that I am the author of this report on the Cas 1 and 2 mineral claims.

DAVID L. COOKE, PH.D., P.ENG.

December 4, 1991
KEMESS CREEK AREA

CLAIM MAP
CAS MINERAL CLAIMS
OMINECA M.D. N.T.S. 94 E/2

Date: NOV/91 1:50,000
D.L.COOKE & ASSOCIATES LTD. Fig. 2
APPENDIX III

LOGISTICAL REPORT

INDUCED POLARIZATION AND MAGNETOMETER SURVEYS

CAS CLAIMS

BY

ALAN SCOTT, GEOPHYSICIST

SCOTT GEOPHYSICS LTD.

SEPTEMBER 18, 1991
LOGISTICAL REPORT

INDUCED POLARIZATION AND MAGNETOMETER SURVEYS

CAS CLAIMS
OMINECA AREA, BRITISH COLUMBIA

on behalf of

D.L. COKE & ASSOCIATES LTD.
811 - 675 West Hastings Street
Vancouver, B.C. V6B 1N2

Field work completed: September 5 to 7, 1991

by

Alan Scott, Geophysicist
SCOTT GEOPHYSICS LTD.
4013 West 14th Avenue
Vancouver, B.C. V6R 2X3

September 18, 1991
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**Appendix**

- Sketch Map showing location of survey lines: rear of report
- Production Report: rear of report
- Statement of Qualifications: rear of report

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<td>Induced Polarization and Resistivity Pseudosections (1:5000)</td>
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<td>Magnetometer Survey: Data Summaries</td>
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<td>Induced Polarization Survey: raw data dumps and operator notes</td>
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**Accompanying maps**

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(originals, vellums, plus three blackline copies of each)
1. INTRODUCTION

Induced polarization/resistivity and magnetometer surveys were conducted over portions of the Cas Claims, Omineca Area, B.C., within the period September 5-7, 1991. The work was conducted by Scott Geophysics Ltd. on behalf of D.L. Cooke & Associates Ltd.

The pole dipole electrode array was used on the induced polarization survey, with "a" spacing of 25 and 75 meters at "n" separations of 1 and 2. The current electrode location with respect to the potential electrodes is indicated on the pseudosections.

Total field magnetometer readings were taken at 25 meter intervals on all lines surveyed with induced polarization.

This report describes the instrumentation and procedures, and presents the results of the present survey.

2. CLAIMS LOCATION AND ACCESS

The Cas Claims are located approximately both to the east and west of Thutade Lake. Access to the survey area is via the Cheni Mine Road.

3. SURVEY GRID AND SURVEY COVERAGE

A total of 7.3 line kilometers of induced polarization and magnetometer survey were completed on the Cas Claims. The lines were chained and flagged at the same time as the IP survey was performed. Details of lines surveyed are given in the production report.

4. PERSONNEL

Ken Moir, geophysical technician, was the party chief on the survey.
5. INSTRUMENTATION

A Scintrex IPR11 time domain receiver, and a Scintrex 10 kw TSQ4 transmitter, were used for the induced polarization survey. Readings were taken using a 2 second alternating square wave. The chargeability for the eighth slice is the value that has been plotted on the accompanying plans and pseudosections (M7; 690 to 1050 milliseconds after shutoff; midpoint at 870 milliseconds).

A Scintrex IGS-MP4 total field magnetometer was used for the magnetometer survey. A Scintrex MP3 total field magnetometer was used as a fixed base station. The base station cycled at a 15 second interval, and all magnetometer readings were corrected for diurnal drift with reference to the base station.

The survey data was archived, processed, and plotted using a Toshiba 3200 microcomputer running Scintrex Soft II and proprietary software. All chargeability responses were analyzed for their spectral characteristics (cole-cole intrinsic chargeability, time constant, and frequency dependence) using Johnson's curve matching procedure (Scintrex Soft II). In areas of low amplitude chargeability response, the spectral parameters are often relatively poorly defined.

6. RECOMMENDATIONS

A preliminary examination of the results of the induced polarization survey on the Cas Claims indicates the presence of a moderate to strong chargeability high at the west end of Line 4 that merits further investigation.

A detailed interpretation of these geophysical survey results, and correlation to geological and geochemical information, is required before any specific recommendations could be made.

Respectfully Submitted,

[Signature]

Alan Scott, Geophysicist
D.L. Cooke & Associates Ltd.
CAS Claims, Okinawa Roca

IP/mag survey run
Location Sketch

Scott Geophysics Ltd. Sept/41
1:50,000
Work on the above project is now complete, and the following charges are due per our verbal agreement of July 23, 1991. The rates are the same as for the work done on behalf of Rio on the adjacent Nor Property, for which we used the TSQ4 transmitter (which is charged at an additional $80/survey day). As agreed, the $360/day camp charges have been credited to Rio (for use of their camp), and I have charged you for one travel day.

Operators and equipment
Sept 5-7: 3 survey days @ 1075 3225.00
towards mob/demob: 1 travel day @ 755 755.00

Meals, accommodations, gas and oil
Camp costs 3 days @ 360 1080.00

Field assistants (two operators included in sec 11.2)
Peter Kryszkiewicz: 4 days @ 140 560.00
Martin Makulowich: 4 days @ 140 560.00
Scott Benson: 4 days @ 140 560.00 6740.00

Charges for IP survey:
For mag survey (sec 11.3) 7.3 line kilometers @ 80/km 584.00

For additional presentation (section 11.5)
Transfer maps to vellums and make copies 60.00

Total Scott charges this invoice: 7384.00
Plus GST @ 7% 516.88

Total charges with GST: 7900.88
Less advance payment: 0.00

TOTAL THIS INVOICE: 7900.88

Regards,

Alan Scott

Encl. (production report)
**GEOPHYSICAL SURVEY PRODUCTION REPORT**

**IPR 11 SURVEY: pole dipole array, a=25 meters, n=1 to 4**

**Project No.: 9139 Client: D.L. Cooke & ASS'TS Area: CAS CLAIMS, C.MINECA AREA**

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<td>Sun</td>
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<td>travel</td>
</tr>
<tr>
<td>Mon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tues</td>
<td></td>
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<tr>
<td>Wed</td>
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<td></td>
</tr>
<tr>
<td>Thurs</td>
<td></td>
<td></td>
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<tr>
<td>Sept 5</td>
<td>Setup on Cas 2, complete ROADN, demobe.</td>
<td>2775 meters</td>
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<tr>
<td></td>
<td><strong>DUMP 91390101 MAG1</strong></td>
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<tr>
<td>Fri</td>
<td>Setup on Cas 4, complete ROADB, LINE3N.</td>
<td>2550 meters</td>
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<td>(road on map is way off – please see raw field notes)</td>
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<td><strong>02 MAG2</strong></td>
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<tr>
<td>Sat</td>
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<td>2000 meters</td>
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<td><strong>03 MAG3</strong></td>
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**Totals** 7325 meters

**Remarks:**

Sept 8, 9: demob

**Totals** (this wk) 7325 meters

**Totals** (to date) 7325 meters

**Personnel:**
- Ken Moir
- Mark Kachaluba
- Scott Benson
- Martin Makulowich
- Peter Kryszkiewicz

**Symbols:**
- r = receiver
- t = transmitter
- p = pots
- c = current
- s = standby
- m = mob/demob
- d = data proc.
- l = linecutting

Signed: [Signature]

Date: 01/18/91
Statement of Qualifications

for

Alan Scott, Geophysicist

of

4013 West 14th Avenue
Vancouver, B.C. V6R 2X3

I, Alan Scott, hereby certify the following statements regarding my qualifications, and my involvement in the program of work described in this report.

1. The work was performed by individuals sufficiently trained and qualified for its performance.

2. I have no material interest in the property under consideration in this report, nor in the company on whose behalf the work was performed.

3. I graduated from the University of British Columbia with a Bachelor of Science degree (Geophysics) in 1970, and with a Master of Business Administration degree in 1982.

4. I am a member of the B.C. Geophysical Society and of the Society of Exploration Geophysicists.

5. I have been practicing my profession as a Geophysicist in the field of Mineral Exploration since 1970.

Respectfully submitted,

[Signature]

Alan Scott
CASS CLAIMS, Omineca Area, B.C.
LINE: 3
INDUCED POLARIZATION SURVEY (Four-Dipole Array)
SCOTT GEOPHYSICS LTD.
Sept/91
Pulse Rate: 2 sec
current electrode west of potential electrodes
Line 3/station 0 at LCP for CAS 4 claim
Line 3/station 475E at Road B/station 150N

RESISTIVITY
(ohm-m)
3 3 3 3 3

CHARGEABILITY
(mgauss/m - 1/Hz)
3 3 3 3 3

METERS

D.L. COOKE & ASSOCIATES LTD.

CASS CLAIMS, Omineca Area, B.C.
MAGNETOMETER SURVEY
1 cm: 250 gammas
base level = 58000 gammas

DRAWN By: ors DATE: Sept/91
SCOTT GEOPHYSICS LTD.