WMC International Limited

Americas Division - Exploration

KIRKLAND LAKE WEST PROJECT
(4043)

Report on Geophysical Exploration
1993-1994

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December 15, 1994



42A01SW2027 om94-070 EBY

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Location

The Kirkland Lake West Project is located 20 kilometres WSW of Kirkland Lake in Burt, Eby, Bompas, and Grenfell Townships (Figure 1). The centre of the project is located at approximately longitude 80 18' and latitude 48 04' on NTS map sheet 42A/1.

Access:

The property can be accessed from a network of old logging roads which can be reached from the Eby West (Pothole) road on the east or the Swastika Tree Nursery Road on the west.

Claim Status:

The property consists of 43 claims (237 units) covering 3792 hectares (Table 1, Figure 2, and Figure 4). All claims are 100% owned by WMC International Limited (formerly Westminer Canada Limited) with the exception of 2 claims (10 units) which are under option from Stewart Carmichael.

Regional Geology:

The property is in the southwestern Abitibi Greenstone belt of the Superior Province. It lies 20 kilometres WSW and along strike of the famous gold deposits located at Kirkland Lake. Combined the Kirkland Lake deposits have produced more than 24 million ounces of gold (Meyer, 1992).

The geology of the Kirkland Lake area (Figure 3) has been most recently described by Jensen and Langford, 1985 who concentrated on the stratigraphy of the area and Hodgson et. al., 1990 who concentrated on the structure of the area. The stratigraphic nomenclature of Jensen and Langford, 1985 is used in this report.

The area is generally underlain by Archean ultramafic to mafic volcanic rocks of the Kinojevis and Larder Lake Groups. The Timiskaming Group, which consists of both late sedimentary and alkalic volcanic rocks unconformably overlies the Abitibi volcanics and is spatially related to the Larder Lake-Cadillac "Break". The Abitibi volcanics and Timiskaming Group rocks are intruded by various Archean aged felsic to intermediate granitic to syenitic rocks. The Archean rocks are locally unconformably overlain by embayments of flat lying Proterozoic sediments of the Gowganda Formation. The Gowganda Formation consists of conglomerates, wackes, and siltstones of glaciogenic origin.

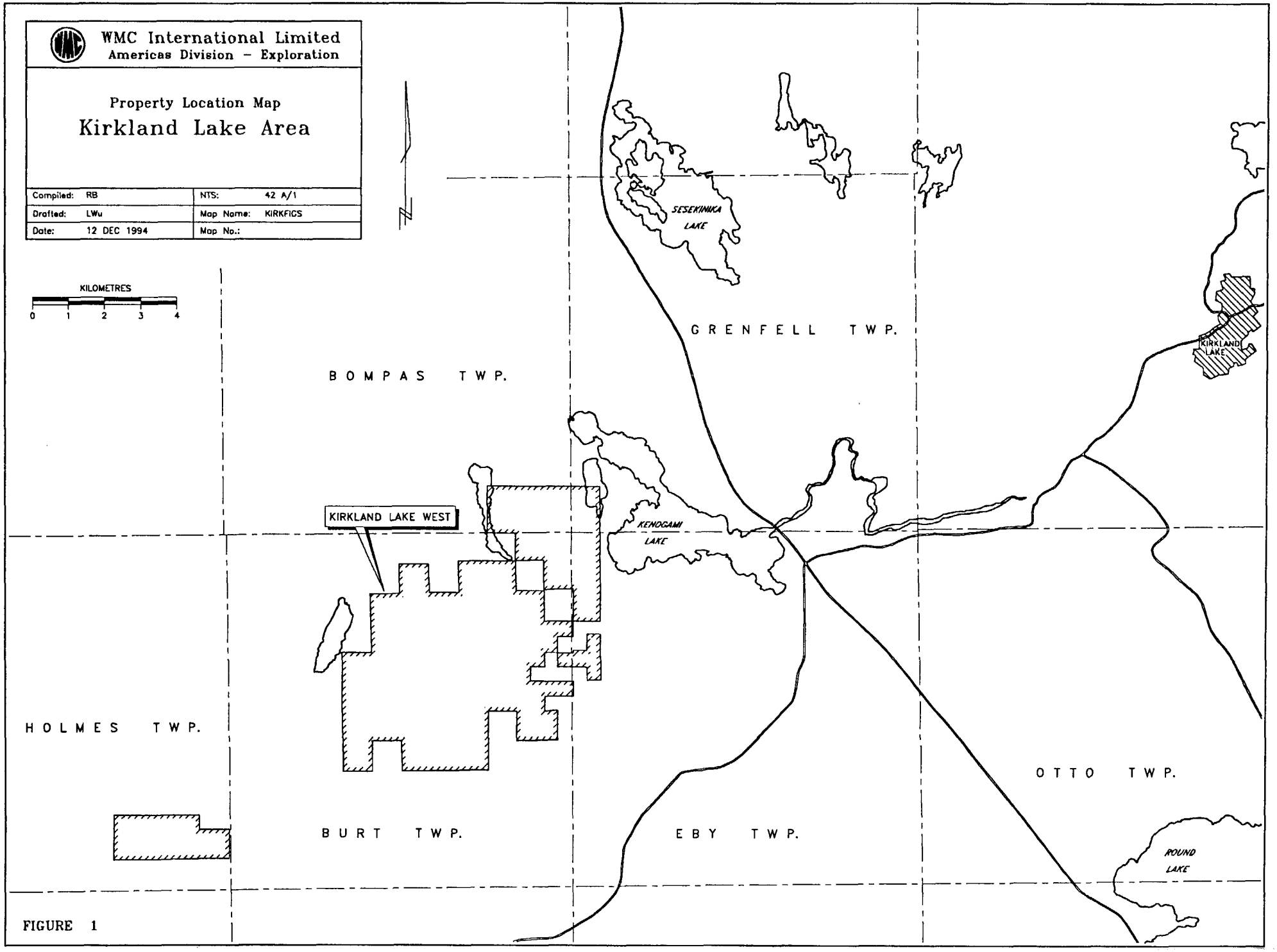

WMC International Limited
Americas Division – Exploration
Property Location Map
Kirkland Lake Area
Compiled: RB
NTS: 42 A/1
Drafted: LWu
Map Name: KIRKFIGS
Date: 12 DEC 1994
Map No.:
KILOMETRES
0 1 2 3 4
SESEKINIKA LAKE
GRENFELL TWP.
KIRKLAND LAKE
BOMPAS TWP.
KIRKLAND LAKE WEST
KENOGAMI LAKE
HOLMES TWP.
OTTO TWP.
BURT TWP.
EBY TWP.
ROUND LAKE

FIGURE 1

KIRKLAND LAKE WEST PROPERTY
CLAIM LIST

CLAIM NUMBER	UNITS	HECTARES	TOWNSHIP
1187011	4	64	BURT
1187013	6	96	BURT
1200479	8	128	BURT
1200480	8	128	BURT
1200481	8	128	BURT
1200483	8	128	BURT
1200484	4	64	BURT
1200486	8	128	BURT
1200487	4	64	BURT
1200488	8	128	BURT
1200609	8	128	BURT
1200610	8	128	EBY
1200611	8	128	BURT
1200612	2	32	BURT
1200613	2	32	BURT
1200614	2	32	BURT
1200615	8	128	BURT
1200616	2	32	BURT
1200617	1	16	BURT
1200618	4	64	BURT
1200619	8	128	BURT
1200620	8	128	BURT
1200621	8	128	BURT
1200622	4	64	BURT
1200623	1	16	BURT
1200624	2	32	BURT
1200625	8	128	BURT
1200626	8	128	BURT
1200627	8	128	BURT
1200628	6	96	BURT
1200629	2	32	BURT
1200630	4	64	BURT
1200631	1	16	EBY
1200632	3	48	EBY
1200634	1	16	BURT
1200635	6	96	HOLMES
1200636	6	96	HOLMES
1200637	6	96	HOLMES
1200638	4	64	HOLMES
1200961	12	192	BOMPAS
1200962	12	192	BOMPAS, GRENFELL
1200999	4	64	BURT
1202820	4	64	EBY
43 claims	237	3792	

Table 1

The Archean rocks have generally been metamorphosed to greenshist facies and suffered several periods of ductile, cleavage forming deformation. Archean stratigraphy dips moderately to steeply and is complexly folded and faulted. The Larder Lake-Cadillac Break is an important regional-scale deformation zone which is spatially related to large gold deposits from Matachewan (Ont.) to Val D'Or (Que.). The Kirkland Lake gold deposits are hosted by quartz-veins in a parallel structure (the Kirkland Lake Main Break) less than 2km from the Larder Lake-Cadillac Break.

Local Geology:

The project area is covered mainly by the Proterozoic Gowganda Formation. It has been mapped by Moore, 1966 and more recently by Jensen, 1988. The Gowganda Formation generally consists of glaciogenic conglomerate, wacke, and siltstone. It strikes north with shallow dips to the east and west. It unconformably overlies Archean basement.

Of main interest is the geology of the underlying Archean rocks. If the Gowganda Formation is not extremely thick (<100m) the Archean rocks could effectively be tested by geophysics and drilling from surface. The Larder Lake-Cadillac Break projects onto the property and can be traced by mapping deformation in the Proterozoic rocks (Powell and Hodgson, 1992). Other deformation zones were also mapped in similar fashion.

Target and Exploration Rationale:

The Archean rocks beneath the Proterozoic cover have an extremely good chance of hosting a large gold deposit given the proximity to the Larder Lake-Cadillac Break. The Proterozoic cover has hindered effective exploration of this very high potential area. A combination of geophysical and geological methods can assist in defining potential gold-hosting structures beneath the cover.

Previous Work

A compilation of previous work has shown that the area received examination by Billiton in 1983-1987 as well some work by Chevron in 1986-1988. All other work has been in the surrounding area which is not covered by Proterozoic sediments.

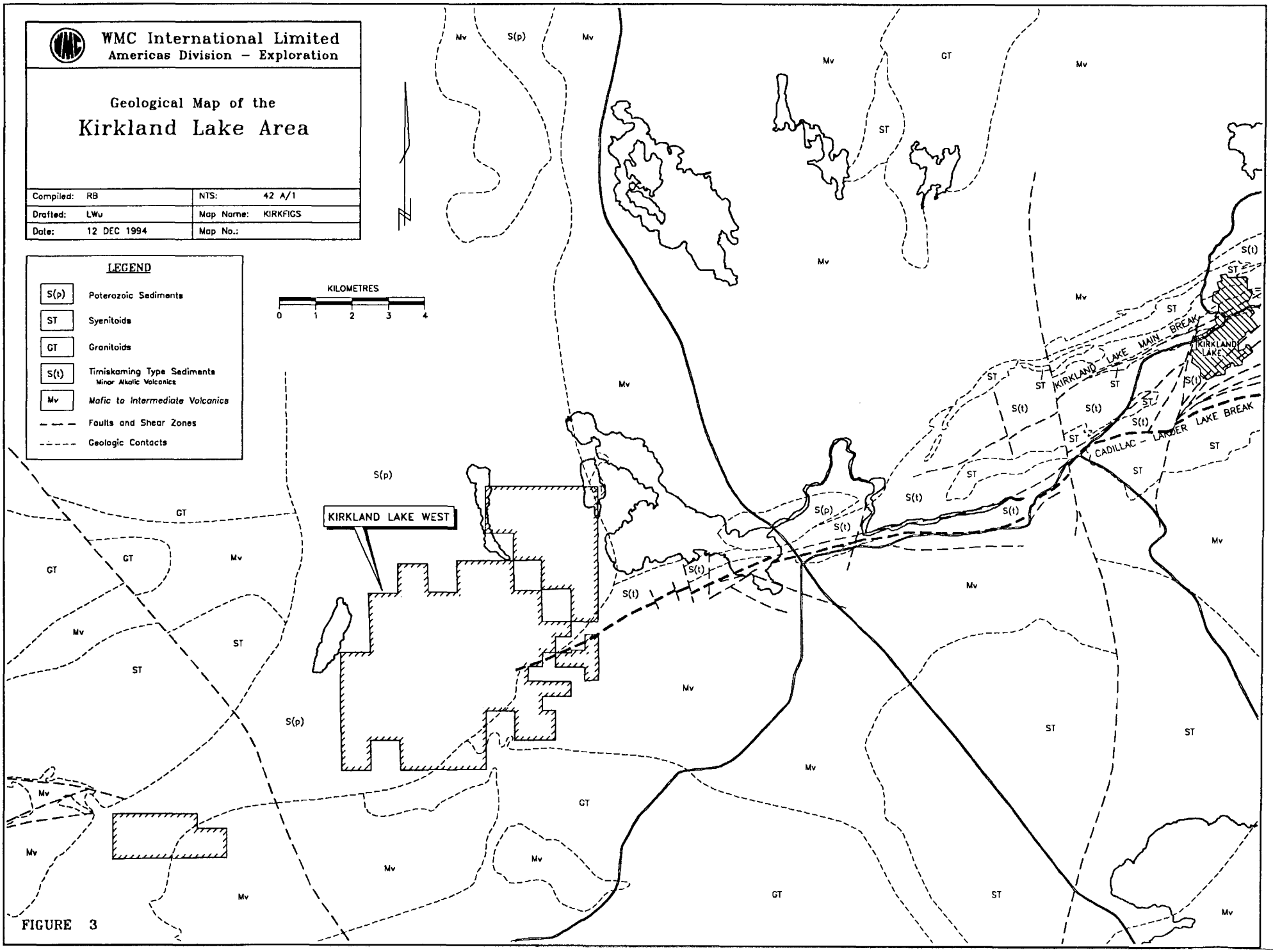

WMC International Limited
Americas Division – Exploration
Geological Map of the
Kirkland Lake Area
Compiled: RB
NTS: 42 A/1
Drafted: LWu
Map Name: KIRKFIGS
Date: 12 DEC 1994
Map No.:
LEGEND
S(p) Poterozoic Sediments
ST Syenitoids
GT Granitoids
S(t) Timiskaming Type Sediments
Minor Alkalic Volcanics
Mv Mafic to Intermediate Volcanics
Faults and Shear Zones
Geologic Contacts
KILOMETRES
0 1 2 3 4
KIRKLAND LAKE WEST
KIRKLAND LAKE MAIN BREAK
CADILLAC – LARDER LAKE BREAK
KIRKLAND LAKE

FIGURE 3

Work by Billiton

Billiton performed an airborne magnetic and VLF survey, then drilled 8 reverse circulation holes (total 365m) and two diamond drill holes (total 230m).

RC-drilling

The RC holes were drilled to find windows of the Archean rocks under till. The program was unsuccessful at finding windows. Critically, however, the RC drilling showed that a deep overburden valley along the Englehart River has greater than 130m of till covering the Proterozoic cover, making this area almost impossible to explore. This overburden valley is located just to the west of the Property.

Diamond Drilling

Billiton drilled 2 diamond drill holes near the eastern edge of the Proterozoic cover as follows:

B84-1 (170, -60, EOH=114m)
0-14m - O/B
14-35m - Huronian Sediments
35-59m - Timiskaming Conglomerate
59-96m - Porphyritic Trachytic Tuff with minor carbonate veining and weak sericite alteration.
96-114m- Timiskaming siltstone and conglomerate with weak sericite and fuchsite alteration.
NO ASSAYS REPORTED

B84-2 (170, -60, EOH=116m)
0-4m -O/B
4-116m -Huronian sediments interbedded greywacke and conglomerate
NO ASSAYS REPORTED

Work by Chevron

Chevron did work on the NE-part of the Billiton ground. They made a rough map and sampled minor quartz-veins in the Huronian. A soil geochemistry survey was also completed. Both the lithogeochemistry and soil geochemistry produced no significant anomalies. Chevron drilled two diamond drill holes near the eastern edge of the cover sequence as follows:

K86-1 (155, -45, 198m)
0-8m -O/B
8-136m -Huronian conglomerate, siltstone, greywacke
136-142m -Diabase dyke
142-172m -Archean? lithic wacke and tuff
172m-198m-Basic volcanic with varioles and pillows
NO ASSAYS REPORTED

K86-2 (155, -45, 200m)
0-22m -O/B
22-64.5m -Huronian sediments
64.5-200m-Diabase
NO ASSAYS REPORTED

Geophysical Exploration Work by WMC International Limited

In November and December of 1993, a 26km reconnaissance grid was established with lines approximately every 1km and stations picketed at 25m along the lines (Figures 4 and 5). Gridding was completed by Natives Exploration Services of Chibougamau, Quebec. Subsequently, in July 1994, an additional 4.1 km of gridding was established by Mineral Exploration Services of Kirkland Lake, Ontario. Grid lines are compiled on Figures 2 and 4.

Geophysical follow-up, using magnetics, gravity, vertical electrical sounding (VES), and dipole-dipole IP/resistivity surveys was completed over the Kirkland Lake West reconnaissance grid with the purpose of:

- determining the thickness of Huronian Gowganda Fm cover rocks,
- testing for subtle, anomalous magnetic signatures over the zone of the inferred western extension of the Cadillac-Larder and Kirkland Lake-Main Breaks.
- mapping a gravity gradient possibly associated with the Cadillac-Larder Break through the grid area, and
- testing for polarizable sources at depth, beneath Huronian cover rocks.

Geophysical surveying was completed by contract data acquisition crews in two phases:

KIRKLAND LAKE WEST PROJECT

GEOPHYSICAL SURVEYS COMPLETED

PHASE 1
January/February 1994

METHOD	line km	L95E	L105E	L115E	L125E	L129E	L139+25E	L143E	BL 36N
magnetics (total field)	26.1	X	X	X	X		X		X
gravity (Bouguer 2.67 gm/cc)	26.1	X	X	X	X		X		X
vertical electrical sounding (VES)	5 soundings	X	X	X	X		X		
dipole-dipole IP/resistivity (a=100m, n=1 to 6)	9.5			X	X				

PHASE 2
'August 1994

magnetics (total field)	7					X	X	X	
dipole-dipole IP/resistivity (a=100m, n=1 to 6)	7					X	X	X	

Table 2

- Phase I completed by Mertens MacNeil Geophysical Ground Surveys Ltd. in January and February 1994, and

- Phase 2 completed by Tandem Geophysics Inc. in August 1994.

A breakdown of lines surveyed with each method during each phase is presented in Table 2.

Brief logistics and technical reports by the contractors are included in Appendix B. Survey Instrument Specifications are presented in Appendix C.

Significant geophysical features are summarized on an interpretation and compilation plan in Figure 5.

VES Survey

Five vertical electrical soundings were completed using the expanding Schlumberger array, with a north-south oriented a/2 electrode spread ranging between 2 and 1024m. Sounding points are plotted on Figure 5.

Each sounding was inverted to a best-fit depth-resistivity model, using PC based, 1-D inversion program RESIXIP written by Interpex Limited of Golden, Colorado, USA.

Best fit inversion results are presented for individual soundings in Figures 6a through e, and in geoelectric section **A-A'** on the inset in Figure 5.

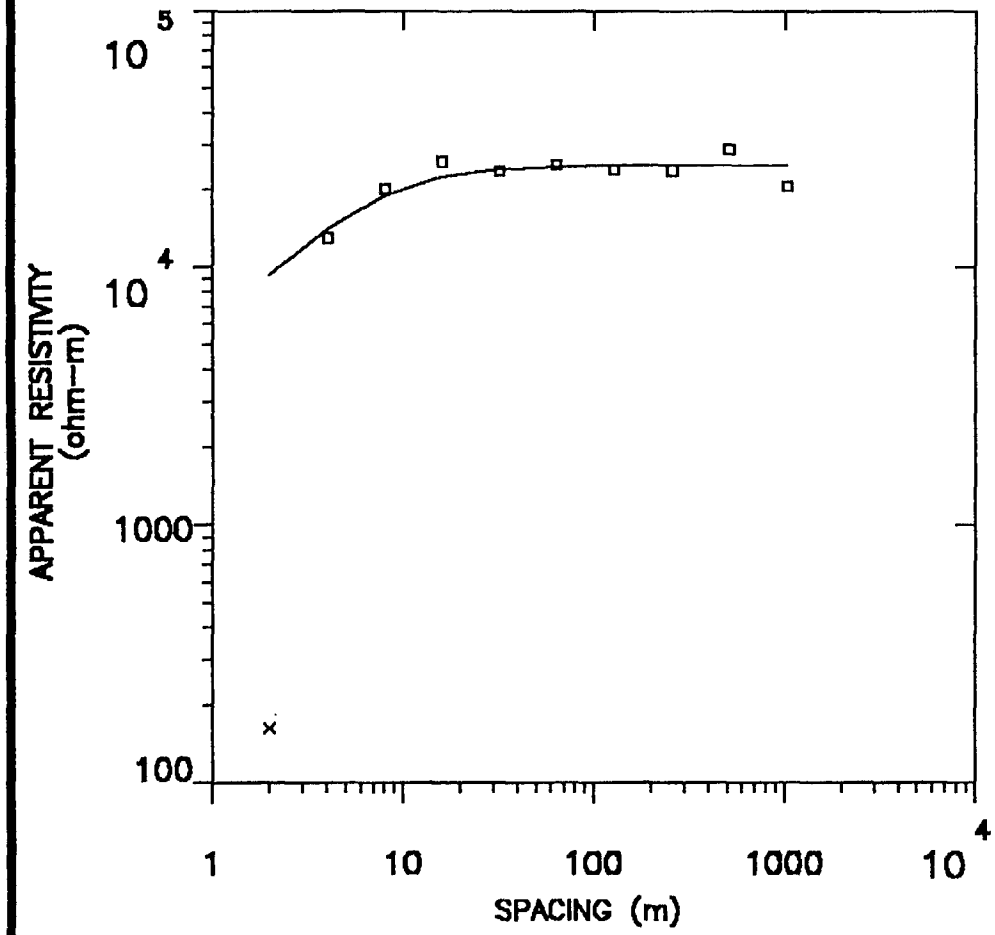
The soundings successfully defined a lower, high resistivity layer which increases in depth-to-top, from <10m at 70N on L135+25E, to >500m at 40N along L95N. Assuming a significant resistivity contrast between steeply dipping Achean lithologies and overlying, horizontally stratified Huronian Gowganda Fn, the sounding results imply a step-like thickening of Huronian cover towards the west.

Magnetic Survey

Magnetic Survey profiles were completed at 25m station intervals along all lines, and were helpful in defining the position of a NW trending diabase dyke striking through the grid.

Total intensity magnetic profiles and data postings are plotted in Figure 7.

The position of the NW striking diabase dyke is summarized in Figure 5 along trend BB'. A kink in the dyke, inferred between L105E and L115E, marks its possible offset by



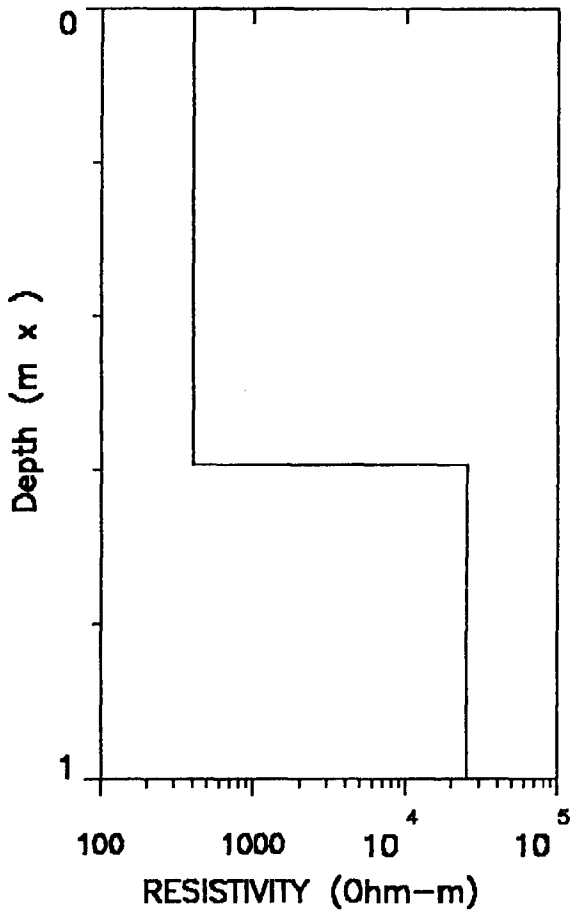
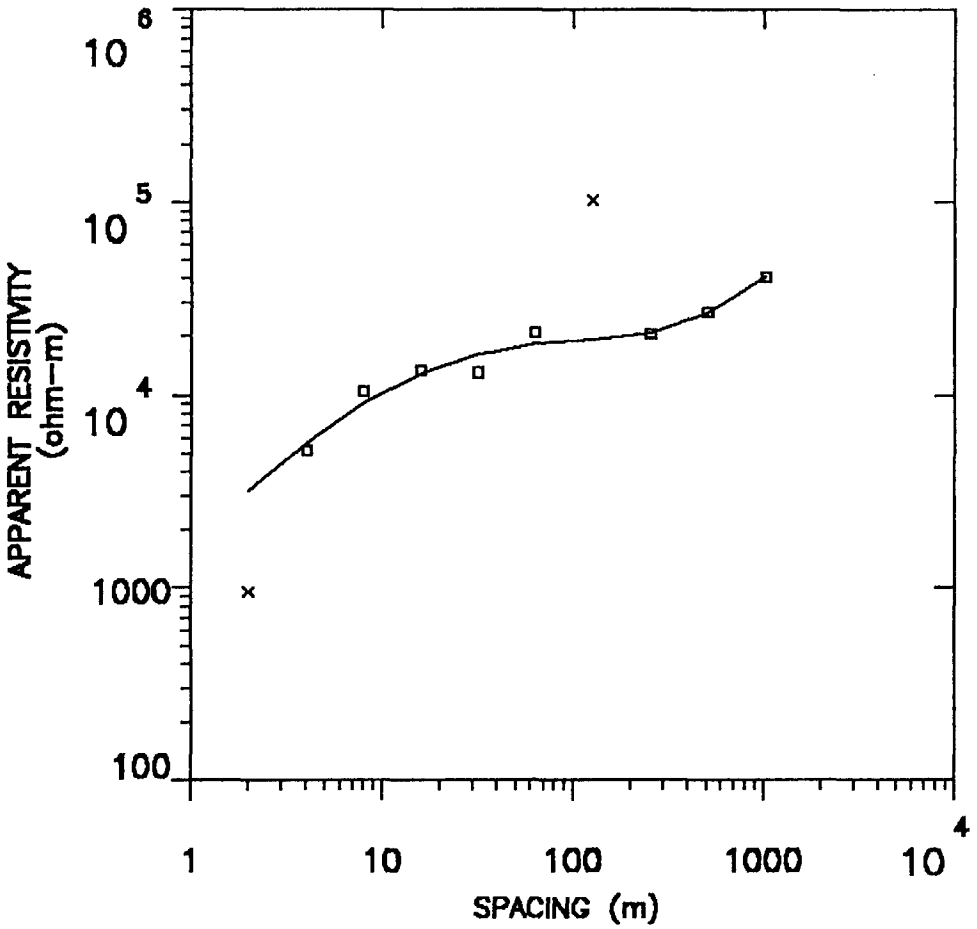


Plate: 1

for: Kirkland Lake West Project	Resistivity Sounding
by: Westminer	Burt Twp, Ontario Line 95+00E 40+00N
Data Set: KIRK95 / Date: Jan 24/94	
Equipment: IPT-1/IPV-4 / Sounding: 1	Azimuth: 0.00 Deg NORTH

FIGURE 6a



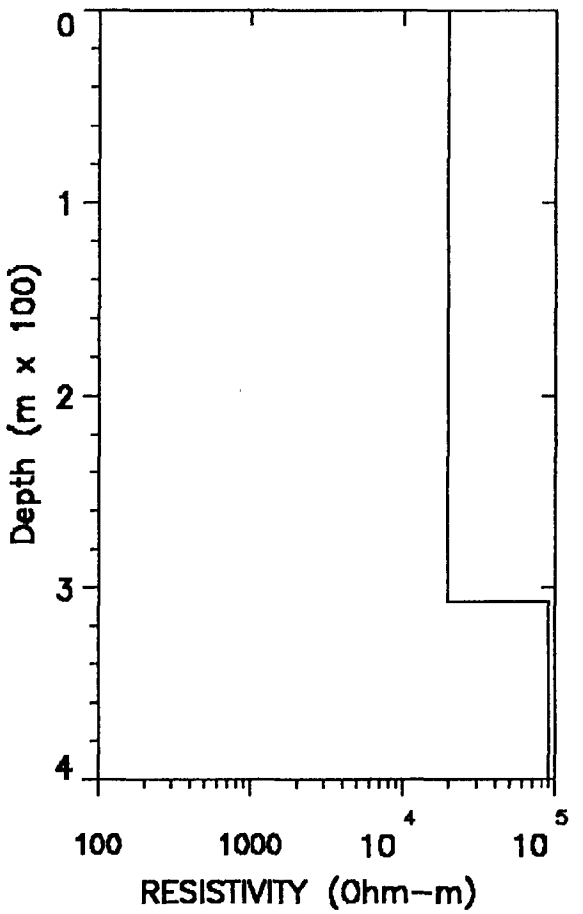


Plate: 2

for: Kirkland Lake West Project	Resistivity Sounding
by: Westminer	Burt Twp, Ontario Line 105+00E 40+00N
Data Set: KIRK105 / Date: Jan 24/94	
Equipment: IPT-1/IPV-4 / Sounding: 2	Azimuth: 0.00 Deg NORTH

FIGURE 6b

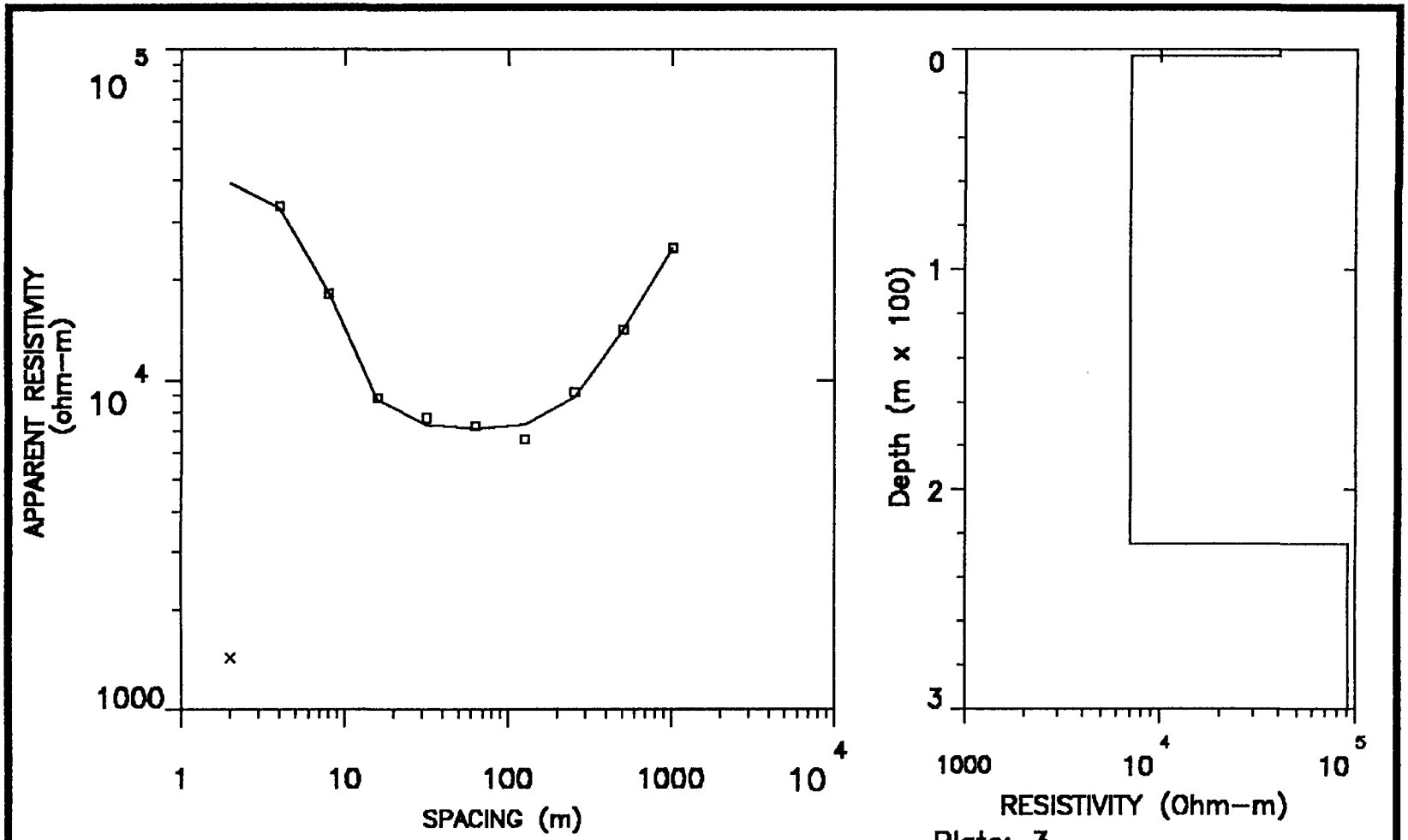
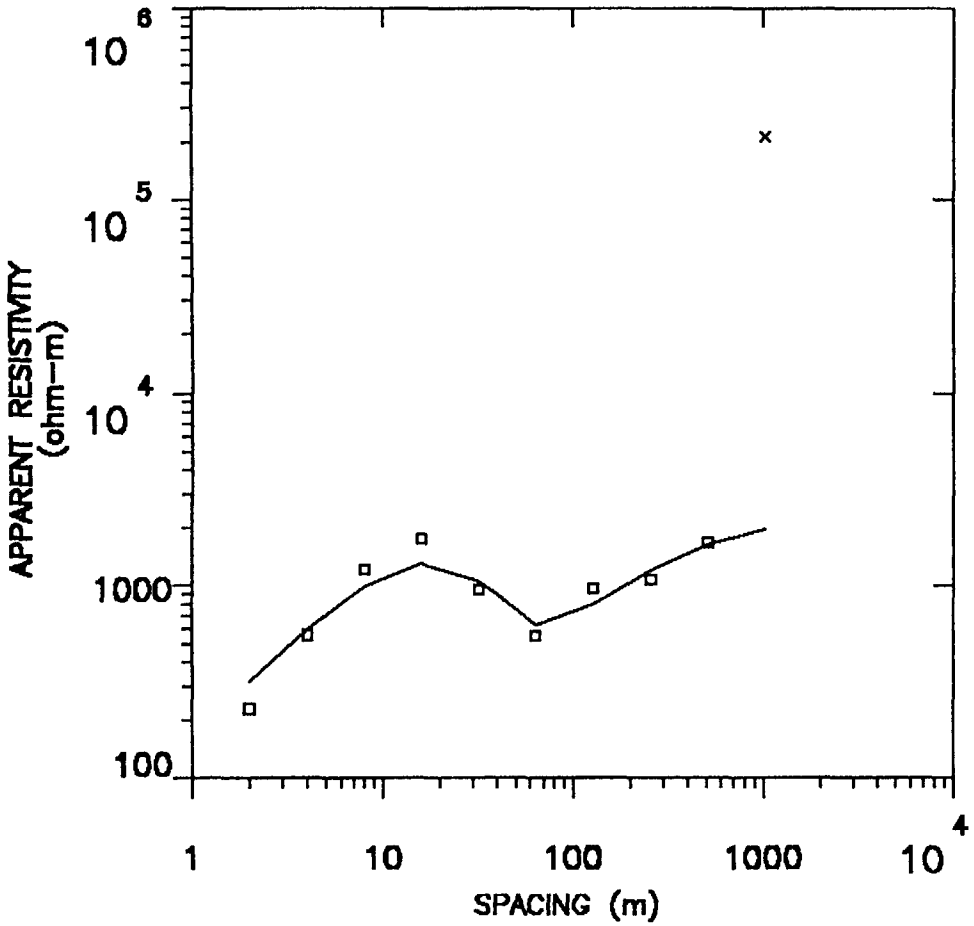


Plate: 3

for: Kirkland Lake West Project	Resistivity Sounding
by: Westminer	Burt Twp, Ontario Line 115+00E 40+00N
Data Set: KIRK115 / Date: Jan 24/94	
Equipment: IPT-1/IPV-4 / Sounding: 3	Azimuth: 0.00 Deg NORTH

FIGURE 6c



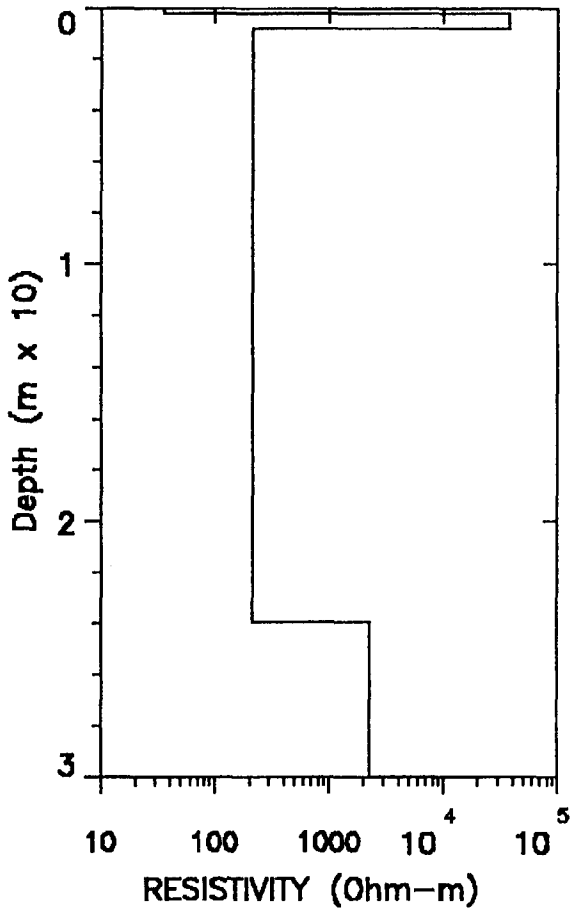
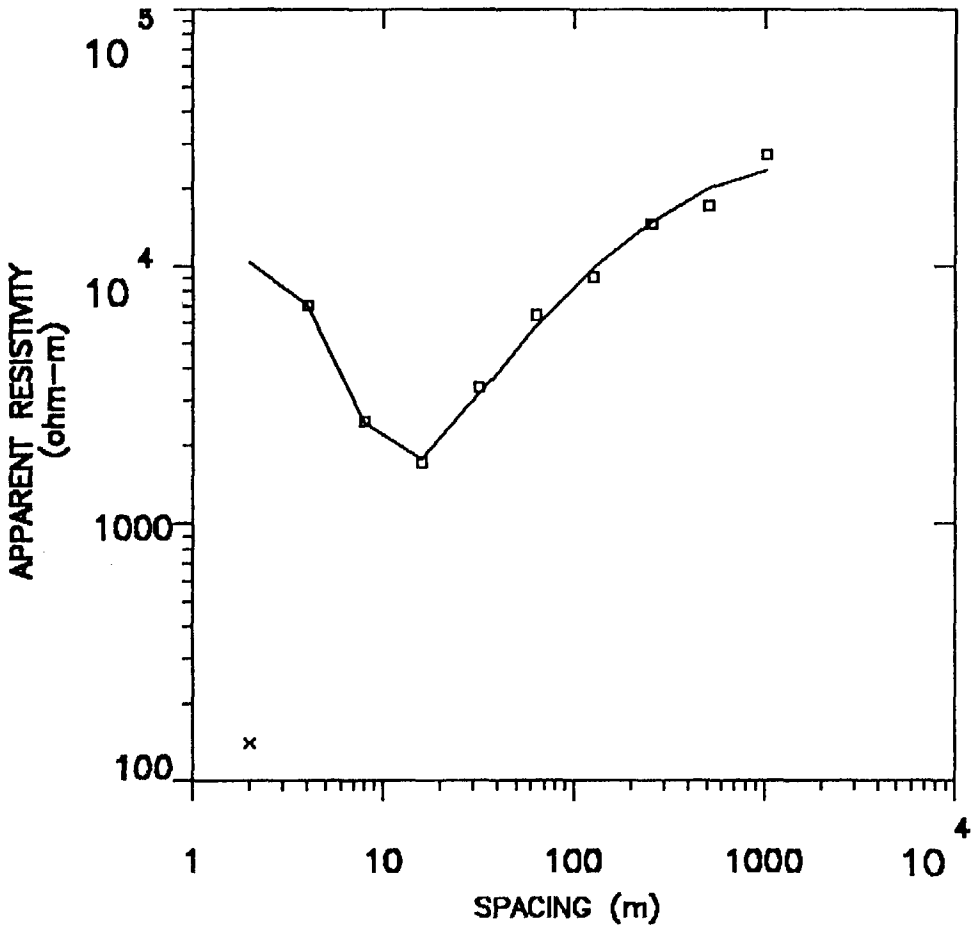


Plate: 4

for: Kirkland Lake West Project	Resistivity Sounding
by: Westminer	Burt Twp, Ontario Line 125+00E 40+00N
Data Set: KIRK125 / Date: Jan 24/94	
Equipment: IPT-1/IPV-4 / Sounding: 4	Azimuth: 0.00 Deg NORTH

FIGURE 6d



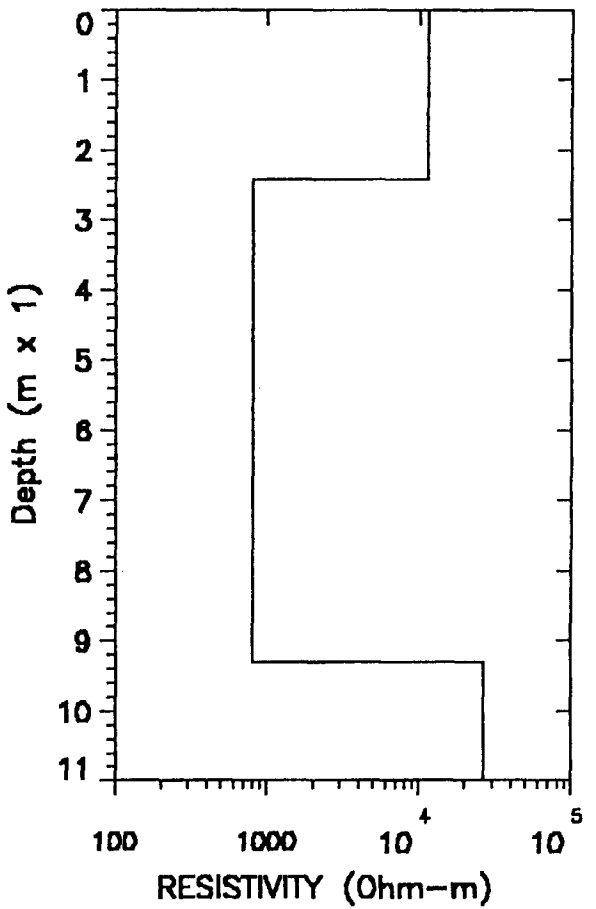


Plate: 5

for: Kirkland Lake West Project	Resistivity Sounding
by: Westminer	Burt Twp, Ontario
Data Set: KIRK139 / Date: Jan 24/94	Line 139+25E 70+00N
Equipment: IPT-1/IPV-4 / Sounding: 5	Azimuth: 0.00 Deg NORTH

FIGURE 6e

the Kirkland-Main Break.

Other than the dyke, no subtly anomalous signatures were noted along the inferred extension of the targeted breaks.

Gravity Survey

Gravity stations were read at 50m intervals along surveyed lines. Survey lines were optically leveled, and tied to elevations along BL36N. Gravity data was reduced to Bouguer anomaly using a slab density of 2.67 gm/cc. Terrain corrections were not applied to the Bouguer data.

Bouguer gravity profiles and posted Bouguer values are plotted in Figure 8, and, elevation profiles and posted values in Figure 9.

The north flank of the gravity gradient defines the inferred position of the Cadillac-Larder Break, and is interpreted to result from the density contrast between fault contacted, Archean ultra-mafic rocks (estimated density 2.96 gm/cc) to the south, and Timmiskaming sedimentary rocks (estimated density 2.8 gm/cc) to the north.

Steepest gradient locations, and the inferred location of the Cadillac-Larder Break are summarized as trend **CC'** in Figure 5.

Dipole-Dipole IP/Resistivity Survey

Five lines of dipole-dipole IP/resistivity were completed using dipole spacings of 100m and n levels 1 through 6.

Difficulties were encountered establishing satisfactory electrode contacts during Phase 1 (winter) surveying, along sections of L115E and L125E. Poor electrode contact was mainly due to very thin (<10cm), frozen overburden cover over bedrock. Phase 2 (summer) surveying along L129E, L139+25E and L143E presented no serious problems with electrode contact.

Pseudosections for all lines surveyed are presented in Figures 10a through e.

Significant IP/resistivity anomalies are summarized on Figure 5 and include:

- **D:** a discrete high resistivity, coincident high phase anomaly at 50N along L129E. The anomaly appears to top out at n=5, at an estimated depth of 120m.

- **EE':** a wide zone of high resistivity and coincident elevated phase IP background correlatable between L115E and L125E. The anomaly is likely due to a wide, weakly sulphidic ultramafic unit in the Archean, and/or, the basal tillite unit in the Huronian Gowganda Fn.

- **FF':** a zone of low resistivity due to thickening of overburden spatially coincident with the inferred trace of the Cadillac-Larder Break.

Conclusions:

The geophysical methods applied in combination, were useful in defining the depth of Huronian cover rocks, and, the probable extension of the Kirkland Lake-Main, and Cadillac-Larder Breaks onto the project area.

Recommendations:

Further work is warranted as follows:

- Drill test the discrete high resistivity and coincident phase high anomaly on L129E to verify the polarizable source.

- Drill test the steepest gravity gradient along L115E and possibly L105N to confirm the hypothesized extension of the Cadillac-Larder Break, and test for gold anomalism.

References

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Powell, W.G. and Hodgson, C.J. 1992. Deformation of the Gowganda Formation, Matachewan area, Ontario, by post-Early Proterozoic reactivation of the Archean Larder Lake - Cadillac break, with implications for gold exploration. Can. J. Earth Sci. 29, 1580-1589

KIRKLAND LAKE WEST PROJECT
(4043)

APPENDIX A

PROJECT MANAGEMENT
AND
LIST OF CONTRACTORS

APPENDIX A

Project Management and List of Contractors

Project Managers:

Geological: WMC International Limited - Rex Brommecker

Geophysical: WMC International Limited - Roman Tykajlo
22 Gurdwara Road
Nepean, Ontario
K2E 8A2

Linecutting / Gridding Contractors:

Natives Exploration Services - Sam R. Bosum
PO Box 334
Chibougamau, Quebec
G8P 2K7

Mineral Exploration Services - Thomas J. Obradovich
75 Balsam Ave.
Kirkland Lake, Ont.
P2N 1W7

Geophysical Contractors:

Mertens and McNeil Geophysical Ground Surveys Ltd. -Ron Mertens
Box 1682
Guelph, Ontario
N1H 6Z9

Tandem Geophysics Inc. -Ron Mertens
Box 1682
Guelph, Ontario
N1H 6Z9

KIRKLAND LAKE WEST PROJECT
(4043)

APPENDIX B

LOGISTICAL & TECHNICAL REPORTS:

MERTENS MACNEIL GROUND GEOPHYSICAL SURVEYS LTD.

TANDEM GEOPHYSICS INC.

Mertens MacNeil
Geophysical Ground Surveys Ltd.

LOGISTICAL & TECHNICAL REPORT

WESTMINER CANADA LTD

Exploration Division

PROJECT:

Induced Polarization Survey
Schlumberger Soundings
Magnetometer Survey
Gravity Survey

Kirkland Lake West

Kirkland Lake, Ontario

February / 1994

Box 1682, Guelph Ontario N1H 6Z9 • Box 1083, Sydney Nova Scotia B1P 6J7

Mertens MacNeil
Geophysical Ground Surveys Ltd.

LOGISTICAL & TECHNICAL REPORT

Mertens & MacNeil Geophysical Ground Surveys Ltd. was contracted to carry out a Magnetometer, Induced Polarization and Gravity surveys on this project.

Magnetometer Survey:

1) Total Survey: 26.150 km.
2) Reading Interval: 25 meters
3) Base Station Interval: 20 sec
4) Data to disk in Geosoft Format
5) Equipment: EDA Omni for Base Station and Field readings

Induced Polarization Survey

1) Total Survey: 9.5 km.
2) Equipment: Receiver- Phoenix IPV-4
   Transmitter- Phoenix IPT-1
   Power Source- 3.0 kw
3) Spread: "a" = 100 meters
4) Separations: "n" = 1 to 6
5) Frequency: 1.0 hz
6) Phase Shift in milliradians
7) Data and Plots in Geosoft Format
   Colour plots were provided

Gravity

1) Meter: La Coste Rhomberg Ser.# G642

2) Reading Interval: 50 Meters

3) Base Station: 3600N - 2750E

4) Density: 2.67

Schlumberger:

1) Equipment: as per I.P. survey

2) AB/2 - 2,4,8,16,32,64,128,256,512,1024

3) 5 Arrays

Survey Stations: All stations are in relation to the 3600N baseline.

Mobilization:

The crew travelled to Kirkland Lake, Ontario by truck. The grid was accessed by truck and snowmobile from a motel in Kirkland Lake, Ontario.

Accommodation:

Motel in the Kirkland Lake, Ontario.

Crew:

Ron Mertens
RR # 5
Belwood, Ont

Jack MacNeil
Box 1682
Guelph, Ont

Dave Gouthro
Frenchvale, N.S.

Kirk Morrison
Sydney, N.S.

Kevin MacKenzie
Sydney, N.S.

Shaun MacDonald
Toronto, N.S.

Alan MacDonald
Sydney
N.S.

If further information is required please call or write:

Ron Mertens
Mertens & MacNeil
Box 1682
Guelph, Ontario
N1H 6Z9
Phone: 519-856-4431
Fax: 519-837-2268

Report by;

Ron Mertens

LOGISTICAL & TECHNICAL REPORT

WMC INTERNATIONAL LIMITED

Exploration Division

PROJECT:

Induced Polarization Survey
Magnetometer Survey

Kirkland Lake West

Kirkland Lake, Ontario

August / 1994

LOGISTICAL & TECHNICAL REPORT

TANDEM GEOPHYSICS INC. was contracted to carry out a Magnetometer and Induced Polarization Survey at the Kirkland Lake West Project.

Magnetometer Survey:

1) Total Survey: 7.0 km.
2) Reading Interval: 25 meters
3) Base Station Interval: 20 sec
4) Data to disk in Geosoft Format
5) Equipment: EDA Omni for Base Station and Field readings

Induced Polarization Survey

1) Total Survey: 7.0 km.
2) Equipment: Receiver- Phoenix IPV-4
   Transmitter- Phoenix IPT-1
   Power Source- 3.0 kw
3) Spread: "a" = 100 meters
4) Separations: "n" = 1 to 6
5) Frequency: 1.0 hz
6) Phase Shift in milliradians
7) Data and Plots in Geosoft Format
   Colour plots were provided

Mobilization:

The crew travelled to Kirkland Lake, Ontario by truck. The grid was accessed by truck from a motel in Kirkland Lake, Ontario.

Accommodation:

Motel in the Kirkland Lake, Ontario.

Crew:

Ron Mertens RR # 5 Belwood, Ont	Jack MacNeil Box 1682 Guelph, Ont
Dave Gouthro Frenchvale, N.S.	Kirk Morrison Sydney, N.S.
Kevin MacKenzie Sydney, N.S.	Kevin Morrison Sydney, N.S.

If further information is required please call or write:

Ron Mertens
TANDEM GEOPHYSICS INC.
Box 1682
Guelph, Ontario
N1H 6Z9
Phone: 519-856-4431
Fax: 519-837-2268

Report by:

Ron Mertens

KIRKLAND LAKE WEST PROJECT
(4043)

APPENDIX C

Survey Instrument Specifications:
total field magnetic survey
VES and dipole-dipole IP/resistivity survey

SCINTREX

EDA Omni Geophysical System

Brief Description

When you require more flexible geophysical techniques in order to find the increasingly more elusive anomalous targets, Scintrex offers you the EDA Omni System. This system enables you to design your own unique instrument whether it is for complete Magnetic surveys, VLF Electromagnetic surveys or a combination of these techniques.



At the heart of the Omni System is the Omni System Control Console which is common to all Omni System applications. This customized approach gives you the ability to select the following options for your instrument:

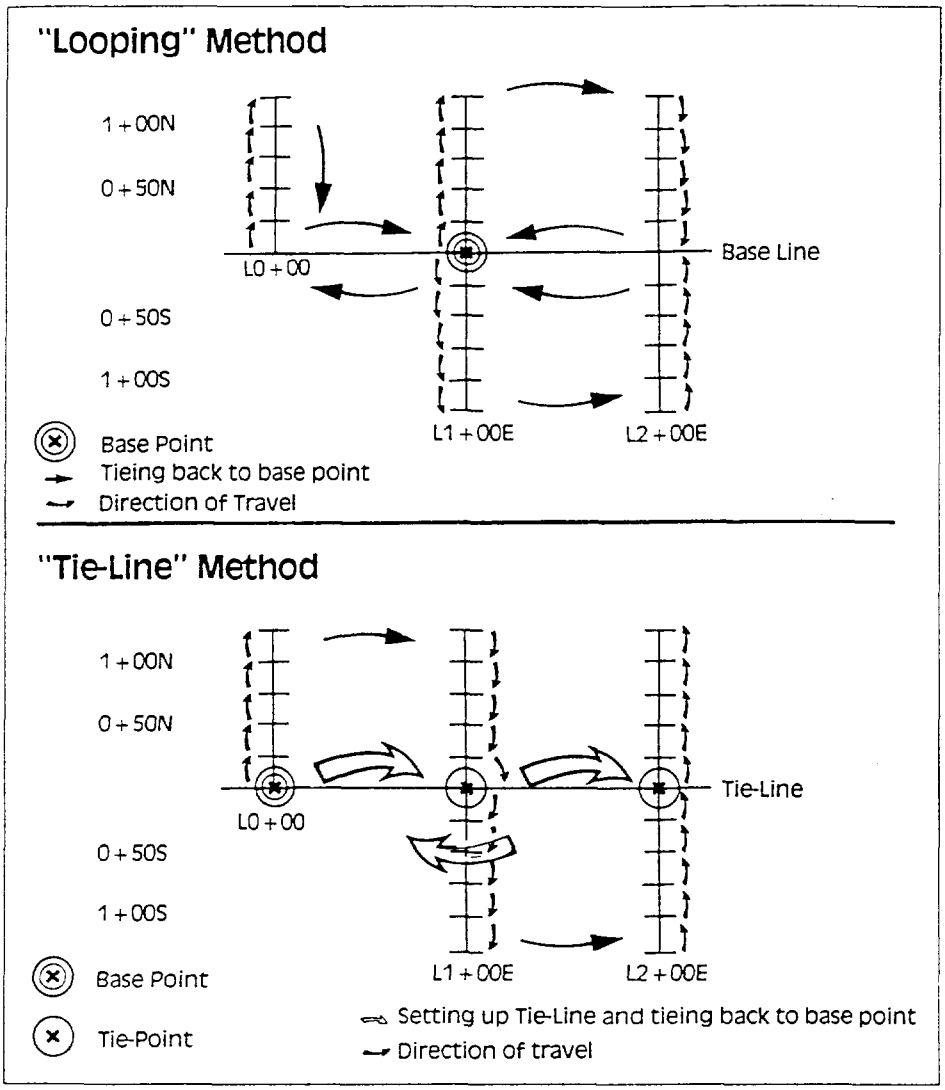
- Portable Field and Base Station Magnetometer
- True Simultaneous Gradiometer
- Portable Field and Base Station VLF Electromagnetic Receiver
- Two Probe, VLF Resistivity
- Non-Orientation, VLF Resistivity

Applications

Since the Omni System capabilities are so versatile, the data collected and recorded by the instrument can be applied to a variety of earth sciences including:

- mineral exploration
- geological mapping
- groundwater exploration
- groundwater contamination
- civil engineering
- geotechnical studies
- archaeology

Features



The "Tie-Line" feature available in all OMNI configurations provides a significant cost savings by allowing diurnal corrections to be made internally by one instrument without the need of a dedicated base station instrument

Rapid Data Recall

With a few keystrokes, you can instantly recall data from memory to the digital display by record number or in sequence. Scanning through the memory of a particular parameter is also possible.

Wide Range of Data Output Capabilities

The ability to efficiently transfer and present data in an interpretable format is important to the success of any survey or project.

The Omni System accomodates a wide selection of data output options, from simple listings of data and profile plots on a printer, to integrated software programs for computer plotting and modelling. The Omni System can transfer uncorrected, corrected or filtered magnetic and VLF data to most computers and printers with a RS-232C serial port.

Two Types of Formats available - data can be output from the Omni System in two format types. For ready to use data, the columnarized data dump format is the most suitable for direct hard copy printer outputs. For data which is to be further used with computer plotting or analysis software packages, you can select the fixed ASCII CPU dump format.

Profile Plot Outputs - Since VLF as well as magnetic data is often easier to interpret as a profile plot, data that the Omni System collects, can be presented in this analog format at a vertical scale best suited for data presentation. You can selectively output in analog and/or digital format the following:

- the magnetic total field strength
- the magnetic vertical gradient
- the VLF in-phase
- the VLF out-of-phase (quadrature)
- the VLF total field strength

Data Presentation - The grid co-ordinates under which the Omni System collects the data can be output in the standard Cartesian format (using positive and negative signs) or with the more familiar N,S,E,W compass descriptors.

Editing Capabilities - Prior to data transfer, you can program your Omni System to transfer a designated block of data, denoted by start and end points. Data can be separated into files that are best suited for survey or plotting conditions.

Pause Feature - You may stop the transfer of data at any time and resume where it left off, when it is more convenient. The Omni System will continue to pause until you press any one of keys on the keypad.

Choice of Data Outputs - The Omni System outputs data in a choice of formats, depending on the operating mode:

- corrected magnetic total field data
- uncorrected magnetic total field data
- magnetic base station data
- magnetic gradient field data
- corrected VLF field strength data
- uncorrected VLF field strength data
- VLF base station data
- corrected "Tie-Line" data
- uncorrected "Tie-Line" data

The Omni System can also transfer VLF data from all 3 VLF frequencies simultaneously or sequentially.

Features

Omni System Features

Each Omni System incorporates the following features:

Flexibility of the Omni System

You can select your own options to customize your unit to suit your specific geophysical needs.

Microprocessor Controlled

Gives you a choice of three fully protected data storage modes:

- spot record, for readings without grid co-ordinates (random samples)
- multi-record, for multiple readings at one station
- auto-record, for automatic update of station position

Complete Data Protection

The internal lithium battery assures you of complete data protection for up to 5 years.

Measures and Records in Memory

Measurement and recording in memory of the following magnetic field data for each reading:

- total field magnitude
- true gradient of the total field
- applied base station value
- statistical error
- signal strength
- decay rate

Measurement and recording in memory of the following VLF data for each field reading:

- vertical in-phase
- vertical quadrature (out-of-phase)
- total field strength
- total dip angle
- primary field direction
- apparent resistivity
- phase angle
- signal-to-noise ratio
- operator quality



The OMNI system configured as a MAG/VLF simplifies geophysical surveys by combining Magnetic and VLF EM techniques.

Records Survey Data

Records the following survey data for each magnetic and/or VLF reading:

- time of measurement and date
- grid co-ordinates
- direction of travel along grid lines
- natural and cultural features

Measures up to 3 VLF Transmitting Stations

The Omni System can measure up to 3 VLF transmitting stations and provides more complete coverage of an anomaly regardless of the orientation of the transmitter with respect to the survey grid or the anomaly itself.

Electronic Notebook

The internal Electronic Notebook enables you to record natural and cultural features that are unique to each grid location. This feature eliminates the need for a field notebook and provides additional information that can assist in interpreting recorded data.

Automatic Correction Using The Omni System's Unique "Tie-Line" Technique

The "Tie-Line" algorithm used exclusively by the Omni System allows for the self correction of atmospheric magnetic variations and variations in the primary field from the VLF transmitter(s). The instrument is able to store 'looping' or 'tie line' data in a separate memory at the beginning of each survey and then subsequently stores total field readings in a second memory along with the field readings of the tie point(s). At the end of each survey day the Omni System will then merge these two memories to automatically correct the total field data for diurnal variations.

The Omni System in the "Tie-Line" mode can:

- Store looping or tie line data, 3 ways:

  1. Using one looping base point
  2. Using one "Tie-Line" comprising a number of tie points, or
  3. Using multiple tie lines.

- Store up to 100 tie points in one survey area or divide these points into extensions of survey areas as needed.

- Store tie points or tie lines for the duration of the survey.

- Calculate the drift between established tie points, to readily see variations in the Earth's magnetic field.

Omni System Benefits

Only One Instrument Needed for Magnetometer, Gradiometer, VLF and VLF Resistivity Surveying

The Omni incorporates the capabilities of a "Tie-Line" magnetometer and simultaneous Gradiometer system with the ability to measure VLF magnetic and electric fields.

Only one complete Omni System is needed to record all of the following geophysical parameters:

1. The total magnetic field
2. The simultaneous gradient of the total magnetic field.
3. The VLF magnetic field including:
   - the vertical in-phase
   - the vertical quadrature
   - the total field strength
   - the total dip
4. The VLF electric field, including:
   - the phase angle
   - apparent resistivity

A complete Omni System can, at each location, calculate and record in less than 8 seconds, four VLF magnetic field parameters from three different transmitters, a magnetic total field reading and a simultaneous magnetic gradient reading. In addition, it can also measure and record two VLF electric field parameters from three different transmitters.

Upgrade your Unit at any Time

Since the Omni System is based on a modular design, you can upgrade your system at any time. This built-in flexibility allows you to purchase an Omni System with only the surveying equipment that you need for now but does not limit you to one application. When your surveying needs grow, so can your Omni System.

Saves you Time

The Omni System with the unique 3-coil VLF Sensor does not require orientation of the VLF Sensor head toward the transmitter station. This simplifies VLF field procedures and saves considerable survey time. The operator does not need to orient the sensor head toward the first, selected transmitting station and then re-orient towards the second or third transmitting station.

The non-orientation technique is the first of its kind, and this provides the Omni System with many additional benefits. These benefits include:

- When you use the Omni System as both a magnetometer and VLF base station, you only need one instrument instead of three, to record data automatically from 3 VLF transmitting stations.

- When you use the Omni System with the Non-orientation VLF-Resistivity option, you can record automatically from 3 different stations the phase angle and apparent resistivity without having to re-orient any of the three electrodes. You can also use the Omni System with the conventional, two electrode method.

The Omni System quickly responds with a one-key operation. For example, if you must complete a magnetometer/gradiometer and three frequency VLF survey using the Omni System, you automatically measure the magnetometer, simultaneous gradiometer and three VLF frequency data by pressing only one key. Using another combined system, up to 5 different steps may be required. Such as, the operator would have to take one magnetic reading; then another sequential magnetic reading to calculate the gradient; orient the VLF sensor to the first VLF transmitter and then take a reading; orient the VLF sensor to the second transmitter, take a new reading and then repeat the same procedure for the third frequency. The Omni System one-key operation takes less than 8 seconds; a significantly shorter time period than the 5 step operation of other combined systems.

Since the Omni System saves all of the field data in memory and has many output capabilities, the elimination of the field notebook and also the transciption errors that can occur saves you a considerable amount of time.

Diurnal corrections, using the time saving "tie-line" method, can be done automatically by the Omni System eliminating hours of manual and tedious calculations. You can then directly transfer the corrected data to a computer for further data processing.

Higher Productivity System

Combined Magnetometer/VLF systems are inherently faster than conventional methods whereby two different operators collected magnetometer and VLF data from separate instruments.

Because of its unique user-friendly design, the Omni System provides higher field productivity for the user. The increased productivity originates from its two-microprocessor approach which significantly reduces calculation time and also from the non-orientation VLF technique.

Sensitive to Weak VLF Signals

The Omni System's ability to obtain repeatable readings from weak signals offers a number of benefits:

- It extends the use of VLF on to countries where its use was previously marginal.
- It enables you to increase the number of frequencies with which you can operate.
- It reduces your need for portable VLF transmitters
- It improves the quality of your readings in rugged terrains, such as the deep valleys of the North American Rockies.

The Omni System's digital signal processing removes the modulation in the received signals. This technique helps stabilize too weak signals much greater than the conventional phase-locked loop method.

Ability to receive weaker signals (20nA/m) and a background noise reduction algorithm are among the reasons why the Omni System can obtain repeatable readings from signals which had previously been too weak to record.

Features

OMNI-PLUS Tie-line MAG/VLF R22K Ser #428150
TOTAL FIELD DATA (uncorrected)
& GRADIENT

Reference field: 56000.0
Datum subtracted: 0.0Date 13 DEC 88
Operator: 5000
Records: 10
Bat: 17.5 Volt Lithium: 3.48 Volt
Last time update: 12/13 9:50:00
Start of print: 12/13 14:34:01

Line 0+00 E Date 13 DEC 88 #2

POSITION	FIELD	ERR	DRIFT	TIME	DS	CULT	GRADIENT
0+80 N	56779.9	.04	0.0	11:38:55	88		1.1
0+90 N	56769.6	.04	0.0	11:39:33	88		1.2
1+00 N	56747.1	.05	0.0	11:40:10	88		2.1
1+10 N	56627.4	.05	0.0	11:41:47	88		1.7
1+20 N	56418.6	.08	0.0	11:42:30	88	PIPE	-13.8
1+30 N	56616.1	.07	0.0	11:43:36	88		-41.0
1+40 N	56733.7	.05	0.0	11:44:28	88		6.2
1+50 N	56765.6	.04	0.0	11:45:08	88		1.9
1+60 N	56764.9	.05	0.0	11:45:47	88		1.1
1+70 N	56767.2	.04	0.0	11:46:26	88		0.7

OMNI-PLUS Tie-line MAG/VLF R22K Ser #428150
VLF TOTAL FIELD DATA (uncorrected)

Date 13 DEC 88
Operator: 5000
Records: 10
Bat: 17.5 Volt Lithium: 3.48 Volt

Last time update: 12/13 9:50:00
Start of print: 12/13 14:35:51

Line 0+00 E Date 13 DEC 88 24.0 #2

POSITION	I/P	QUAD	T.FLD	TILT	TIME		CULT	S	DIR	4-FRA	5-FRA
0+80 N	20.2	-5.4	71.14	61.0	11:38:55		55		7.0		
0+90 N	28.2	-7.6	73.45	67.6	11:39:33		44		11.7		
1+00 N	41.6	-10.2	78.82	79.3	11:40:10		43		0.6		
1+10 N	68.2	-13.7	98.68	85.3	11:41:47		43		-16.4	-36.0	
1+20 N	86.9	-6.8	202.4	84.3	11:42:30	PIPE	52		-14.4	-22.7	-29.4
1+30 N	-101.3	12.2	202.0	84.3	11:43:36		59		-9.5	-4.0	-13.4
1+40 N	-81.1	21.7	95.17	81.7	11:44:28		59		-14.2	3.6	-0.2
1+50 N	-53.6	15.8	77.03	76.9	11:45:08		59		-22.2	10.0	6.8
1+60 N	-40.7	13.4	68.07	74.7	11:45:47		49		-24.3	14.4	12.2
1+70 N	-34.6	11.7	63.02	71.4	11:46:26		49		-16.9	12.5	13.4

Typical sample of data output from the OMNI system

Sealed, User Friendly Keypad

Protects your Omni System from water and dust and allows for easy operation and reliability.

Digital Display

Distinctly shows data which can sometimes be unclear with analog or audio-nulled systems.

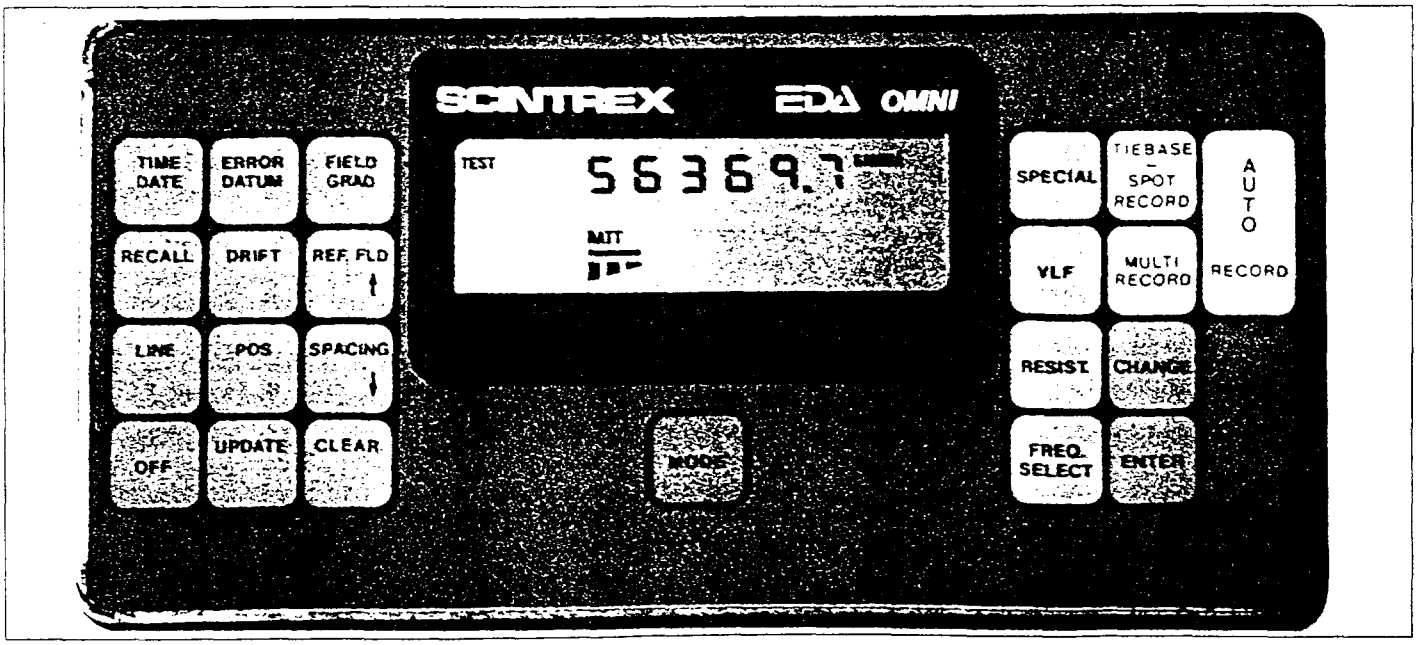
Display Descriptors

Monitor the signal strength and decay rate of the magnetic total field and/or the quality of all three VLF transmitter signals being measured.

Power Supply Options

You can choose from the following power supply options:

- Non-magnetic rechargeable sealed lead acid battery
- Non-magnetic rechargeable sealed lead acid battery belt
- Alkaline battery belt
- 12V DC power source for base station operation



Omni System Benefits

More System Benefits

- Display descriptors monitor the status of the primary battery source used.
- Output of grid co-ordinates with the designated compass bearing, using N, S, E, W descriptors.
- Audio feedback to confirm every keystroke
- Decimal spacing of 12.5 (metres or feet) for intermediate station intervals
- The ability to clear an unwanted last reading
- Two keystrokes to record data in memory - the first verifies the grid co-ordinate; the second puts it into memory.

The Omni Magnetometer unit measures and stores in memory the Earth's magnetic field at the touch of a key. This precise instrument is able to do the following:

- identify and store the location and the time of each measurement
- compute the statistical error of the reading
- store the decay and strength of the signal that you are measuring

Provides Data-Protected Readings

The Omni Magnetometer is packaged in a compact, lightweight and rugged housing and is able to measure and store the following set of information:

- total field magnitude
- time of measurement
- grid co-ordinates
- direction of travel
- statistical error of readings
- signal strength and rate of decay

Increases Productivity

The Omni Magnetometer significantly increases survey productivity as:

- it can read and store a measurement in only 3 seconds.
- data is highly repeatable so a second measurement is usually not required.
- it calculates statistical error for each measurement which indicates whether an additional reading is required.

All of these benefits permit you to cover more ground and gather more data than would be otherwise possible.



OMNI MAG configuration used for measurement of total field magnetics

Omni System Benefits

Excellent Data Quality and Repeatability

The Omni System provides users with unparalleled data quality and repeatability. The 3-orthogonal coil sensor that the Omni System uses improves the data reliability over the conventional two-coil method as it provides a more complete calculation of both the in-phase and out-of-phase parameters. This difference becomes even more important in measuring large anomalies.

The 3-coil sensor method provides consistently high data quality unrelated to the operator's ability to orient the sensor for optimum coupling with the transmitting station. The higher data quality that the Omni System obtains with weak signals is enhanced even further when signals are stronger. Additional features, such as greater channel selectivity, atmospheric noise reduction and better immunity to spikes, improve even more the Omni System's capability to obtain repeatable data.

No Need to Take Multiple Readings

The Omni System's magnetic component uses four leading-edge design features to eliminate the need to take multiple readings, these are:

- Signal Processing Technique
- Constant Energy Polarization that maintains equal energy to the sensor
- Processing Sensitivity to $\pm$ 0.02 gamma
- Automatic Fine Tuning which uses the previous reading as the base for the next reading.

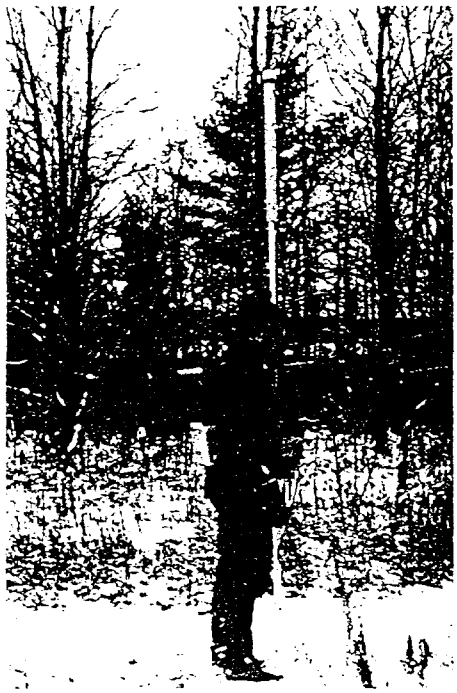
The "Tie-Line" Advantage

Not only does the Omni System eliminate hours of manual correction of data, it also gives you the flexibility of choosing the most appropriate tie-line method best suited for the survey, depending on the size and character of the grid. You can choose from:

- a single base point,
- a single tie-line,
- multiple tie-lines, or
- a random scattering of tie-points.

The self-correcting "Tie-Line" feature can remove base station requirements from some surveys. The "Tie-Line" data can be recalled even if it was stored on different days.

You can program the Omni System to automatically remove a designated datum from field data and by removing this coarse, background value, plotting and interpreting the magnetic field data is made easier. The Omni System can also automatically calculate the desired diurnal drift measured between consecutive tie-point readings.



Environmentally sealed design of the OMNI permits use in all weather conditions

Operate Your Omni System in any Environment

The Omni System is completely water proof and dust proof. The fully sealed housing console ensures that you can perform your surveying needs during adverse weather conditions.

A Variety of Software Programs Available

Although the Omni System can transfer data directly to a serial printer, most computers require some initial handshaking prior to actual data transfer. Scintrex provides such handshaking programs for many computers including IBM PS-2/ IBM PC (AT and XT), Compaq, Macintosh and compatible systems.

In addition to handshaking software, we can provide you with plotting, profiling, contouring and modelling programs available from certain software houses. Packages for use with the Omni System include:

- Mapping systems that allow you to post and plot many of the geophysical parameters available, in a plan-profile or contoured format.

- Cartographic quality large-scale and real-location plan maps, complete with custom map surrounds, legends, scale bars, etc., that can be produced in a matter of minutes on most dot-matrix printers or small and larger-scale plotters. Standard graphics screen previewing is available prior to plotting.

- Software that allows you to present the data in 2 or 3-D perspective plots, through a full menu and/or command driven system interface in which you can select different colours, sizes, scales, angles etc. For example, you can create shaded relief maps and colour image plotting on common high resolution printers, including grey-scale support on laser printers.

- Interactive filtering and modelling programs that are used to determine the possible geometry and physical characteristics of the sources of magnetic anomalies, such as the MAGMOD program.

- Autocad and image-processing capabilities.

Through new software interface programs, you can use the Omni System as a field unit together with other integrated magnetometer/VLF systems (such as the Scintrex IGS-2) or with other microprocessor based base station magnetometers.

The Omni System as a Base Station Magnetometer

The Omni Base Station Magnetometer effectively measures and stores in its memory the daily fluctuations of the Earth's magnetic field. The Omni can automatically correct total field data of other Omni units in just a few minutes.

Records Magnetic Field Activity

The magnetic field activity is recorded in the following format:

- time of measurement
- magnitude of total field
- difference from the reference field value
- difference from the previous reading
- sequential record number

Automatically Corrects Data

The Omni in the base station mode can automatically correct magnetic field data for both diurnal variations and reference field values. It can also correct total field data stored in:

- another Omni System used as a field magnetometer
- another Omni System used as a field gradiometer

This is ideal when you want to remove diurnal errors sufficiently to make use of the full 0.1 gamma resolution of the Omni System.

Automatic Drift Calculations

The Omni automatically calculates the difference between each reading and its programmed reference field. If at the end of the survey day you find that the reference field is incorrect, you can re-select a new one and the Omni System can instantly re-calculate the drift. The drift calculation can be presented in either digital and/or profile plot format. It can also be simultaneously output to a compatible printer so you can visually verify the activity of the field.

Calculates Differential Field Variations

The Omni calculates the difference between the current reading and the previous one to a resolution of 0.1 gamma. This features assists you in ascertaining the degree of activity that is occurring such as a magnetic storm or active conditions.

Stores Approximately 55 Hours Of Continuous Unattended Monitoring

The Base Station mode enables you to store up to 20,000 sets of readings which is the equivalent to approximately 55 hours of unattended monitoring at a 10 second sampling interval. You can program the cycling time at any interval between 5 seconds and 60 minutes in 1 second increments.

Outputs and Stores Data At the Same Time

The Omni can simultaneously output data in digital or ASCII format to your choice of data collection units at the same time it stores the data in memory.

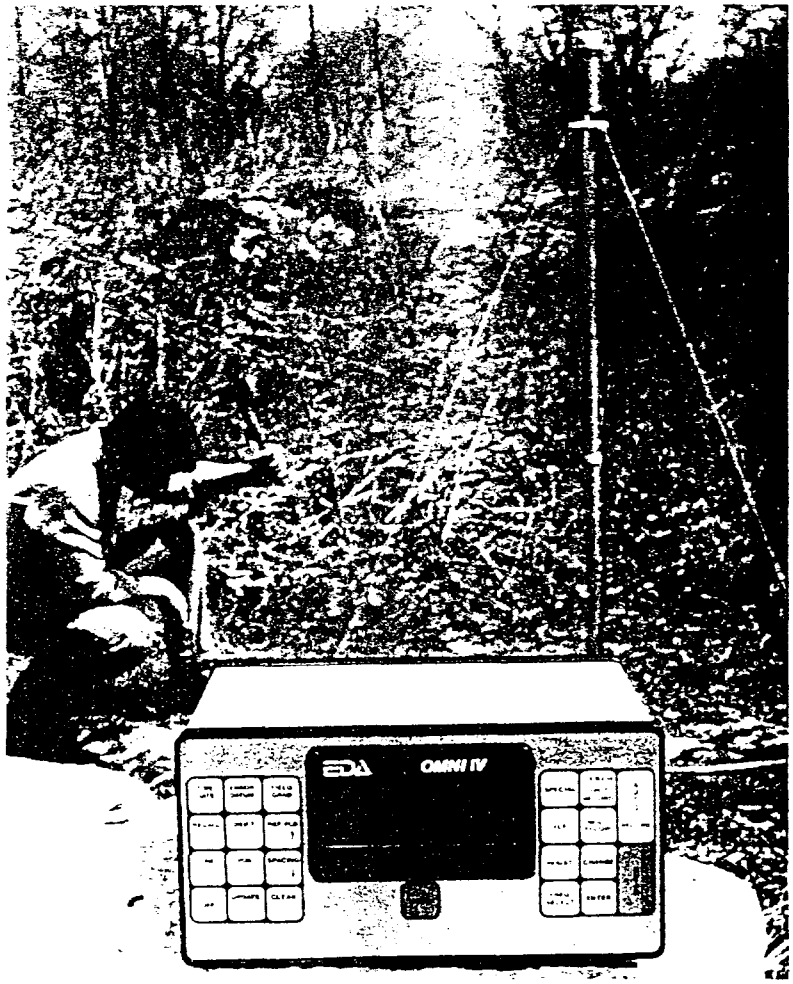
Synchronize Real Time Clocks

The Omni System real time clocks can be synchronized to the nearest second.

Magnetic Base Station Accessories Kit

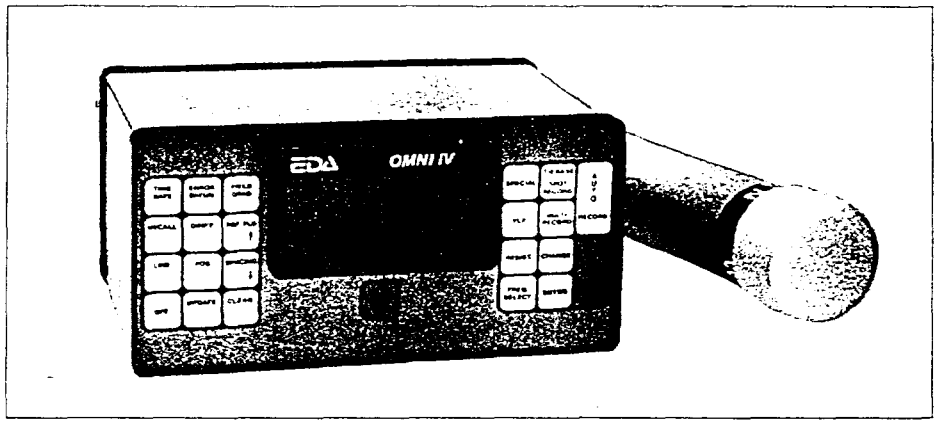
Sensor Extension Cable - This 30 metre cable enables you to place the Omni in a sheltered environment such as a tent, and position the magnetic sensor up to 30 meters away. This capability aids in eliminating possible cultural interference.

Rope Joiner - The rope joiner enables the sensor staff to be supported by ropes when it is being used as a base station sensor.



Magnetic diurnal corrections are automatically made by using an OMNI MAG as a base station magnetometer

The Omni System as a Portable Field Magnetometer



OMNI MAG electronics console with total field magnetic sensor

Simplifies Fieldwork

The Omni makes surveys easier to conduct because:

- the electronic notepad eliminates the need to write down field data. The Omni simultaneously stores time, field measurements, grid co-ordinates when you press any one of the three record keys.
- you are able to clear the unwanted last reading.
- the Omni automatically calculates the difference between the current reading and previous one.
- you can remove the coarse magnetic field value or data from the field data to simplify plotting of the field results.
- the Omni automatically calculates diurnal corrections.

The flexibility of the Omni System offers the following choices:

- if you use the Omni as a field magnetometer or as a gradiometer, the total field data can be corrected using the unique "Tie-Line" or "Looping" method.
- if you use one Omni as a base station, it will correct the total field magnetic data in:
  - an Omni set-up as a field magne tometer
  - an Omni set-up as a gradiometer

Unparalled Repeatability of Data

The Omni provides you with unparallelled data repeatability. This is a result of four leading edge design features that eliminates the need for taking multiple readings:

- Signal Processing Technique
- Constant Energy Polarization that maintains equal energy to the sensor
- Processing sensitivity to $\pm$ 0.02 gamma
- Automatic Fine Tuning which uses the previous reading as the base for the next

Saves You Time

The error analysis feature is a great time saver as the calculation of the statistical error of each reading lets you make an on-the-spot decision whether or not you should store the reading.

The Omni System also saves you time-consuming steps as it can:

- automatically assign a record number which you can also use to identify readings measured off of the grid.
- take more than one reading at one point without updating the current station number.
- according to the programmed station interval, automatically update your station position without having to program each station coordinate. The Omni magnetometer also provides a decimal digit for intermediate station intervals of 12.5 metres.
- rapidly recall readings either by record number or in sequence.

Tolerates Higher Gradients

The ability to tolerate local higher gradients of up to 6000 gammas per metre (field proven), is possible due to a sophisticated signal processing method and to a miniature sensor design using a highly optimized sensor geometry.

A Variety of Power Supply Options

You can choose from the following power supply options:

- non-magnetic rechargeable sealed lead-acid battery or belt
- heavy duty rechargeable battery
- alkaline battery belt
- 12V DC power source

Specifications

OMNI System Specifications

Operating Environment -40C to +55C; 0-100% relative humidity; weatherproof

Power Supply Non-magnetic rechargeable sealed lead-acid battery or belt; alkaline battery belt; or 12V DC power source option for base station operation.

Battery Life 1,700 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings.

Weights and Dimensions

Instrument Console
3.8 kg, 122 x 246 x 210 mm

VLF Sensor Head
0.9 kg, 140 dia. x 130 mm

VLF Electronics Module
1.7 kg, 280 x 190 x 75 mm

Standard Rechargeable Battery
1.8 kg, 138 x 95 x 75 mm

Standard Rechargeable Battery Belt
1.8 kg, 540 x 100 x 40 mm

Heavy Duty Rechargeable Battery
2.0 kg, 138 x 115 x 75 mm

Alkaline Battery Belt
1.2 kg, 540 x 100 x 40 mm

Magnetometer Sensor
1.2 kg, 56mm dia. x 200mm

Gradient Sensor
(0.5m separation - standard)
2.1 kg, 56mm dia. x 790mm

Gradient Sensor
(1.0m separation - optional)
2.2 kg, 56mm dia. x 1300mm

Display
Custom designed, rugged liquid crystal display with an operating temperature range from -40C to +55C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.

Magnetometer Component Specifications

Dynamic Range 18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.

Tuning Method Tuning value is calculated accurately using a specially developed tuning algorithm.

Automatic Fine Tuning ±15% relative to ambient field strength of last stored value

Display Resolution 0.1 gamma

Statistical Error Resolution
0.01 gamma

Absolute Accuracy ± 1 gamma at 50,000 gammas at 23C • ±2 gamma over total temperature range

Memory Capacity

Standard Memory Capacity 1300 data blocks (48K) or 5200 data blocks (128K)

Total Field or Gradient 100 data blocks

Base Station 4000 data blocks (48K) or 16,000 data blocks (128K)

RS-232C Serial I/O Interface Variable baud rate from 300 to 9600 baud, 8 data bits, 2 stop bits, no parity

Gradient Tolerance 6,000 gammas per metre (field proven)

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

Sensor Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.

Gradient Sensors 0.5 metre sensor separation (standard) normalized to gammas/metre. Optional 1.0 metre sensor separation available.

Sensor Cable Remains flexible in temperature range specified including strain relief connector

Cycling Time (Base Station)
Programmable from 5 seconds up to 60 minutes in 1 second increments.

VLF Component Specifications

Frequency Tuning Range 15 to 30 kHz in 100 Hz increments with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 28.5 kHz.

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

Recorded VLF Magnetic Parameters
Vertical in-phase, vertical quadrature (out-of-phase), total field strength (or optional horizontal amplitude), dip angle

Channel Separation 80 dB at 600 Hz frequency separation

Standard Memory Capacity 1300 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings

SCINTREX

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L4K 1B5

Telephone: (416) 669-2280
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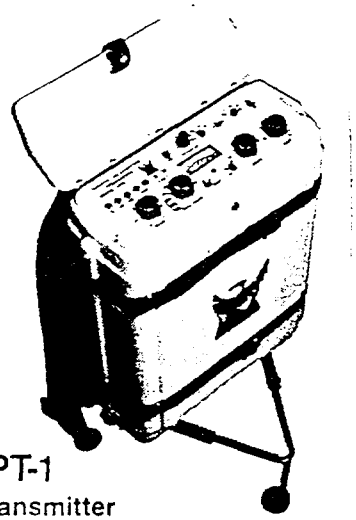
IPT-1



Variable Frequency Transmitter for:
TIME DOMAIN AND PHASE IP
TDEM - FDEM - CSAMT

- Stable: Excellent Current Regulation
- Lightweight / Portable
- Wide Selection of Power Sources
- Low Cost

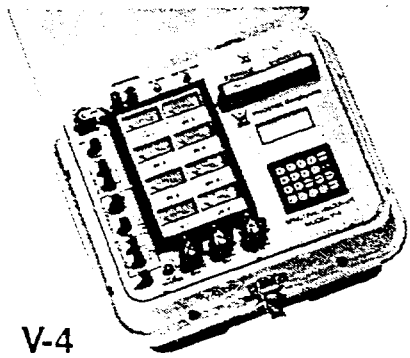
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GEOPHYSICS



IPT-1

Transmitter

Uses 50/60 Hz or 400 Hz Motor generators
DC-8192 Hz, DC-4 Hz versions
Drives grounded dipoles or inductive loads
For spectral IP, CSAMT, TDEM



V-4

Universal Receiver

8 channels, auto gain / DC offset
Solid state memory, computer interface
Spectral IP, time domain IP, CSAMT

TEM #4

A NEW DIMENSION IN INSTRUMENTATION

PHOENIX

Cost-effectiveness through multiple functions: five controlled-source geophysical techniques plus generalized data acquisition/processing/control in a rugged, battery-powered, portable package.



The Turbo V4 is an upgraded version of the V4 receiver, with a new, high-performance CPU board.

The Turbo V4 processor is 50 times faster than the original V4 processor, and features 12 times as much ROM/RAM memory for stored programs and data.

Programs for the Turbo V4 are written in high-level languages; the data processing is therefore much more efficient and intelligent than on the old CPU, which used assembler language only.

Also, the new CPU is programmable*. Users can develop their own programs in FORTRAN or C language using the IBM PC (or compatible), then download them into the V4. This capability means the V4 will remain up-to-date for years, and can be matched precisely to the user's applications.

* Optional.

SPECIFICATIONS

Analog Section

Number of channels	2, 4, 6 or 8 (in pairs)
Dynamic range	± 10 volts
Frequency range	1024 sec to 4 kHz (SIP); 4 sec to 4 kHz (CSAMT) in binary or 2/3 binary steps.
Input impedance	More than 100 megohms at low frequencies.
Powerline filtering	Triple notch 40 db powerline filter for 1/3/5 harmonics of 50/60 Hz. Switchable in/out.
Other filtering	Bad sample rejection; offset adjustment; programmable anti-alias filters; slope correction (TDIP) all under processor and/or manual control.
Gain	Automatic or manual control, range of 1 to 640.
DC offset	Processor controlled DC offset control, range: ± 2.5 volts.
Calibration	Manual external calibration; processor-controlled, internal calibration with built-in calibration/test signals: 1/128 Hz to 4 kHz ± 5 v, 200 ohm impedance; 50% or 100% duty cycle.
Sensitivity	Sufficient for stand alone controlled source applications.

Digital Section

Processor/CPU board	32/16 bit NS32C016 with NS32081 maths coprocessor. Clock rate 6-10 MHz. Programmable interrupt controller with 16 request lines. MULTIBUS interface. DIN connectors. On-board real time clock.
Monitor firmware	Monitor firmware interfaces to National 32000 series software development tools. Also provides run time environment, terminal handler, debugger execute module, floating point support module and interrupt handler.
Applications firmware	Initially offered with geophysical applications firmware, for IP in time, frequency, or phase domain; spectral IP; resistivity; and CSAMT. Other offerings (such as FDEM) may become available from time to time. The user may develop proprietary applications in FORTRAN 77, PASCAL or C on VAX, IBM PC or compatibles and download into the V4.
CPU board memory	Up to 576 Kbyte RAM + 320 Kbyte ROM.
Serial I/O	Optional RS-232 port with selectable baud rate. Can drive RS-232 printer.
Parallel I/O	8 bit port with max 1/2 MHz transfer rate. For vest-pocket printer or external computer.
Timing	Internal crystal clock; processor-controlled resetting for synchronized operation with transmitters. Optional external precision clock.
A-D conversion	16-bit resolution, 12.5 kHz conversion rate.

Mechanical

Weight	approx. 13 kg
Dimensions	32 × 36 × 27 cm high
Case	resilient, tough PVC alloy
Connectors	3 multipin connectors for analog inputs, 2 of which have power for external sensors.

Environmental

Operating temperature	−10°C to +50°C (−20°C with LCD heater)
Storage temperature	−50°C to +60°C
Humidity	Splashproof, may be operated in light rain
Shock and vibration	Suitable for transport in bush vehicles.

Battery

12 v / 6 Ah rechargeable battery. Nominal 10 h continuous operation at +20°C. Provision for external 12V battery supply.

Inputs

Signal channel	Three multipin connectors for 8 analog inputs. (6 + 1 + 1)
Battery	Multipin connector for external battery or for charging of the internal battery @ 12 V, approx 1.2 A.
Remote clock signal	Optional input.
Current Monitor	Twin plugs for RF modulated signal from transmitter (for real-time deconvolution)

Outputs

Analog meters	Eight analog meters
Display	16 char × 4 lines LCD
Analog outputs	8 outputs for analog recorders, etc. ±5V range. (Optional)
External isolated transmitter drive	Via special purpose isolated RF link.
Calibration signal	Twin connectors

Switches and Controls

Keyboard	20-key alphanumeric/command keypad (waterproof).
On/off	2 position rotary.
Meter Mode	2 position toggle, AC or DC
Battery test	2 position toggle.
Input Select	2 position rotary

Note : Specifications subject to change. Customized configurations are available.

		MT*	AMT*	CSAMT	IP TIME DOMAIN	IP PHASE/ FREQUENCY DOMAIN	RESISTIVITY	EM TIME * DOMAIN	EM FREQUENCY DOMAIN	DATA ACQUISITION CONTROL	USER-PROGRAMMABLE FUNCTION
Geophysical Applications	OIL & GAS			•	•	•	•		•	•	•
	GROUND WATER			•			•		•	•	•
	METALLIC MINERALS			•	•	•	•		•	•	•
	GEOTHERMAL EXPLORATION			•			•		•	•	•
	HAZARDOUS WASTE			•	•	•	•		•	•	•
	ENGINEERING GEOPHYSICS			•			•		•	•	•
General Applications	SCIENTIFIC RESEARCH & TRAINING			•	•	•	•		•	•	•
	INDUSTRIAL			•	•	•	•		•	•	•
	MILITARY			•	•	•	•		•	•	•

*Not implemented

PHOENIX Geophysics Limited

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TELEPHONE: (416) 491-7340 FAX: (416) 491-7378
TELEX: 06-986856 CABLE: PHEXCO TORONTO

KIRKLAND LAKE WEST PROJECT
(4043)

APPENDIX D

TABLES OF EXPENDITURES

APPENDIX D

TABLE OF EXPENDITURES

Contractor's Costs:	
• gridding/linecutting Phase 1	5,784.00
• gridding/linecutting Phase 2	2,000.00
• geophysical data acquisition Phase 1	38,615.00
• geophysical data acquisition Phase 2	8,400.00
Geophysical Supervision:	
• geophysicist - 160 hrs @ 27.50/hr =	4,400.00
Drafting	
• draftsman - 45 hrs @ 20.50/hr =	922.50
TOTAL COSTS*	60,121.50

*all costs are net of GST

KIRKLAND LAKE WEST PROPERTY
WORK PERFORMED PER CLAIM

CLAIM NUMBER	UNITS	HECTARES	# LINE KMS	WORK DONE
1187011	4	64		
1187013	6	96		
1200479	8	128	0.80	$1,522
1200480	8	128	0.80	$1,522
1200481	8	128	2.40	$4,566
1200483	8	128		
1200484	4	64		
1200486	8	128	1.60	$3,044
1200487	4	64	0.80	$1,522
1200488	8	128		
1200609	8	128		
1200610	8	128	3.20	$6,088
1200611	8	128	0.75	$1,427
1200612	2	32	0.85	$1,617
1200613	2	32		
1200614	2	32		
1200615	8	128	3.10	$5,898
1200616	2	32		
1200617	1	16	0.35	$666
1200618	4	64	0.80	$1,522
1200619	8	128	2.40	$4,566
1200620	8	128	2.40	$4,566
1200621	8	128	0.80	$1,522
1200622	4	64	2.00	$3,805
1200623	1	16	0.40	$761
1200624	2	32		
1200625	8	128	1.60	$3,044
1200626	8	128	1.60	$3,044
1200627	8	128	1.60	$3,044
1200628	6	96	0.80	$1,522
1200629	2	32	0.20	$381
1200630	4	64	0.80	$1,522
1200631	1	16		
1200632	3	48		
1200634	1	16		
1200635	6	96		
1200636	6	96		
1200637	6	96		
1200638	4	64		
1200961	12	192		
1200962	12	192	0.05	$95
1200999	4	64		
1202820	4	64	1.50	$2,854
43 claims	237	3792	31.6	$60,121

KIRKLAND LAKE WEST PROJECT

(4043)

APPENDIX E

CERTIFICATE OF QUALIFICATION

Certificate of Qualification

I, Rex Brommecker, of the City of Nepean, Province of Ontario, do hereby certify that:

1. I am a geologist residing at 35 Rideaucrest Drive, Nepean, Ontario.

2. I am a graduate of the University of Waterloo having received a Bachelor of Science in Applied Earth Science in 1988.

3. I am a graduate of Queens University having received a Master of Science in Geology in 1991.

4. I have been a practicing geologist since 1988.

5. I have been an employee of Westminer Canada Ltd./WMC International Ltd. since 1991.

6. I supervised and performed geological work covered by this report.

Rex Brommecker
Project Geologist

Certificate of Qualification

I, Roman Tykajlo, of the City of Nepean, Province of Ontario, do hereby certify that:

1) I am a geophysicist with WMC International Limited, residing at 74 Stonebriar Drive, Nepean, Ontario, K2G 5X9.

2) I am a graduate of Lakehead University with an Honours Bachelor of Science degree in Geology/Physics (1978).

3) I have been practising my profession since graduation.

4) I am a member of:
   Society of Exploration Geophysicists (SEG)
   Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA)

5) I supervised the work relevant to this study from January 1, 1994 to December 15, 1994.

Dated at the City of Nepean, this 15th day of December, 1994

Roman Tykajlo, H.BSc, P.Geol.

REPORT ON THE 1994 DRILLING PROGRAM ON THE KIRKLAND LAKE WEST PROJECT (4043)

Prepared by: Rex Brommecker
Date: January 27, 1995



42A01SW2027 om94-070 EBY

Summary

Five diamond drill holes (KLW-94-01 to KLW-94-05) were completed on the Kirkland Lake West Property for a combined length of 1273m in the fall of 1994. Holes KLW-94-01 and KLW-94-03 tested deep I.P. anomalies. Holes KLW-94-02 and KLW-94-05 tested the extension of the Cadillac-Larder Lake Break. KLW-94-04 was a stratigraphic hole.

Every hole intersected Archean rocks between 30m and 330m vertical depth. No assays exceeded 66ppb Au. The best alteration and shearing was intersected at the bottom of hole KLW-94-05. Hole KLW-94-02 was drilled south of the Cadillac-Larder Lake Break. KLW-94-05 was drilled close to, but north of the Break. The conductivity of the I.P. targets could not easily be explained.

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Location

The Kirkland Lake West Project is 20 kilometres WSW of Kirkland Lake in Burt, Eby, Bompas, and Grenfell Townships (fig. 1). The centre of the project is located at approximately longitude 80° 18' and latitude 48° 04' on NTS map sheet 42A/1.

Access

The property can be accessed from a network of old logging roads which can be reached from the Eby West (Pothole) road on the east or the Swastika Tree Nursery Road on the west.

Claim Status

The property consists of 43 claims (237 units) covering 3792 hectares (table 1 and Map in pocket). All claims are 100% owned by WMC International Limited (formerly Westminer Canada Ltd.) with the exception of 2 claims (10 units) which are under option from Stewart Carmichael.

Regional Geology

The property is in the southwestern Abitibi Greenstone belt of the Superior Province. It lies 20 kilometres WSW and along strike of the famous gold deposits located at Kirkland Lake. Combined the Kirkland Lake deposits produced more than 24 million ounces of gold (Meyer, 1992).

The geology of the Kirkland Lake area (fig. 2) has been most recently described by Jensen and Langford, 1985 who concentrated on the stratigraphy of the area and Hodgson et al., 1990 who concentrated on the structure of the area. The stratigraphic nomenclature of Jensen and Langford, 1985 is used in this report.

The area is generally underlain by Archean ultramafic to mafic volcanic rocks of the Kinojevis and Larder Lake Groups. The Timiskaming Group, which consists of both late sedimentary and alkalic volcanic rocks unconformably overlies the Abitibi volcanics and is spatially related to the Larder Lake-Cadillac "Break". The Abitibi volcanics and Timiskaming Group rocks are intruded by various Archean aged felsic to intermediate granitic to syenitic rocks. The Archean rocks are locally unconformably overlain by embayments of flat lying Proterozoic sediments of the Gowganda Formation. The Gowganda Formation consists of conglomerate, wacke, arkose, and siltstone of glaciogenic origin.

The Archean rocks have generally been metamorphosed to greenshist facies and suffered several periods of ductile, cleavage forming deformation. Archean stratigraphy dips moderately to steeply and is complexly folded and faulted. The Larder Lake-Cadillac break is an important regional-scale deformation zone which is spatially related to large gold deposits from Matachewan (Ont.) to Val d'Or (Que.). The Kirkland Lake gold deposits are hosted by quartz-veins in a parallel structure (the Kirkland Lake Main Break) less than 2km from the Larder Lake-Cadillac Break.

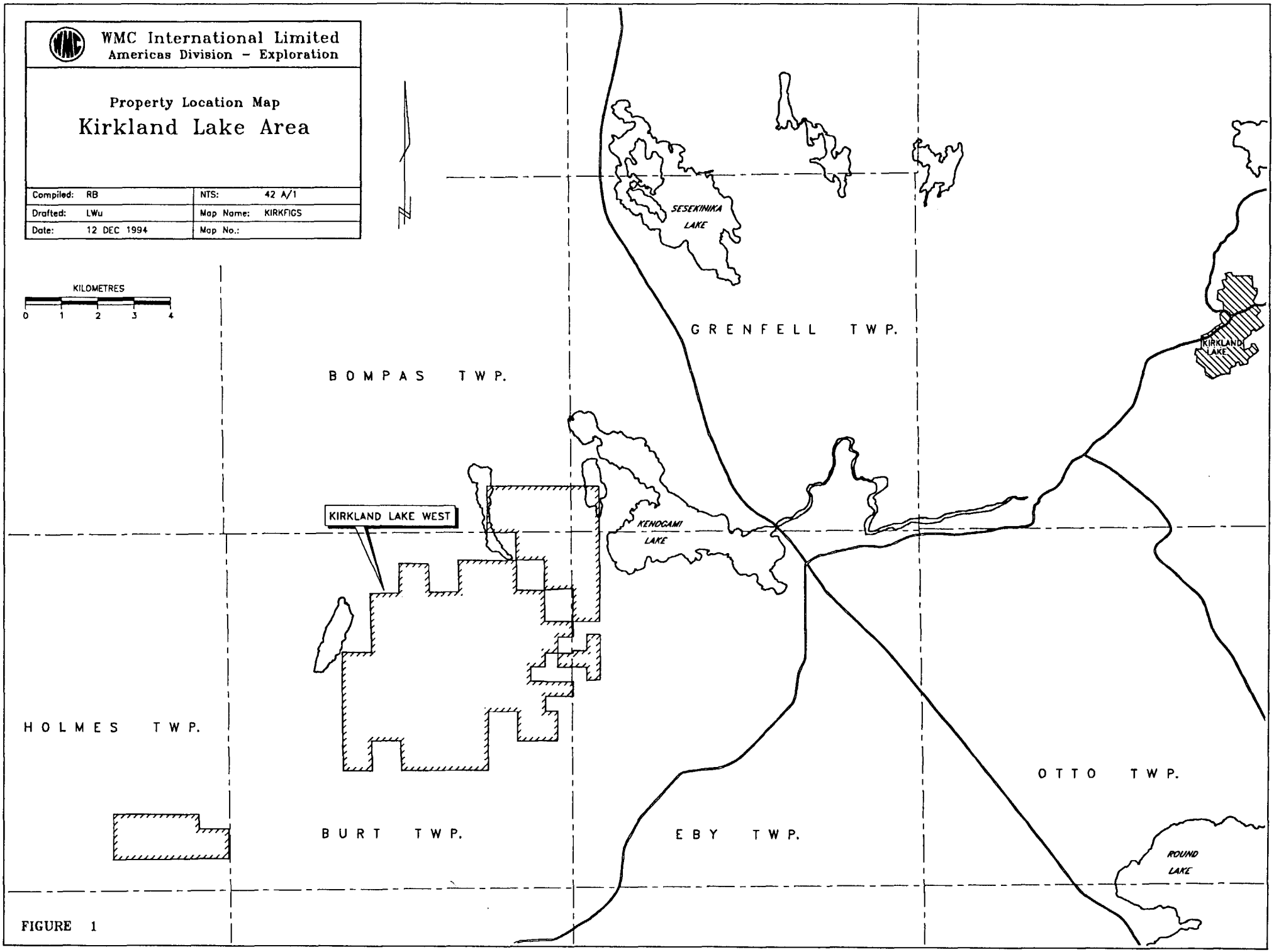

WMC International Limited
Americas Division - Exploration
Property Location Map
Kirkland Lake Area
Compiled: RB
NTS: 42 A/1
Drafted: LWu
Map Name: KIRKFIGS
Date: 12 DEC 1994
Map No.:
KILOMETRES
0 1 2 3 4
SESEKINIKA LAKE
GRENFELL TWP.
KIRKLAND LAKE
BOMPAS TWP.
KIRKLAND LAKE WEST
KENOGAMI LAKE
HOLMES TWP.
OTTO TWP.
BURT TWP.
EBY TWP.
ROUND LAKE

FIGURE 1

KIRKLAND LAKE WEST PROPERTY
CLAIM LIST

CLAIM NUMBER	UNITS	HECTARES	TOWNSHIP
1187011	4	64	BURT
1187013	6	96	BURT
1200479	8	128	BURT
1200480	8	128	BURT
1200481	8	128	BURT
1200483	8	128	BURT
1200484	4	64	BURT
1200486	8	128	BURT
1200487	4	64	BURT
1200488	8	128	BURT
1200609	8	128	BURT
1200610	8	128	EBY
1200611	8	128	BURT
1200612	2	32	BURT
1200613	2	32	BURT
1200614	2	32	BURT
1200615	8	128	BURT
1200616	2	32	BURT
1200617	1	16	BURT
1200618	4	64	BURT
1200619	8	128	BURT
1200620	8	128	BURT
1200621	8	128	BURT
1200622	4	64	BURT
1200623	1	16	BURT
1200624	2	32	BURT
1200625	8	128	BURT
1200626	8	128	BURT
1200627	8	128	BURT
1200628	6	96	BURT
1200629	2	32	BURT
1200630	4	64	BURT
1200631	1	16	EBY
1200632	3	48	EBY
1200634	1	16	BURT
1200635	6	96	HOLMES
1200636	6	96	HOLMES
1200637	6	96	HOLMES
1200638	4	64	HOLMES
1200961	12	192	BOMPAS
1200962	12	192	BOMPAS, GRENFELL
1200999	4	64	BURT
1202820	4	64	EBY
43 claims	237	3792	

Table 1

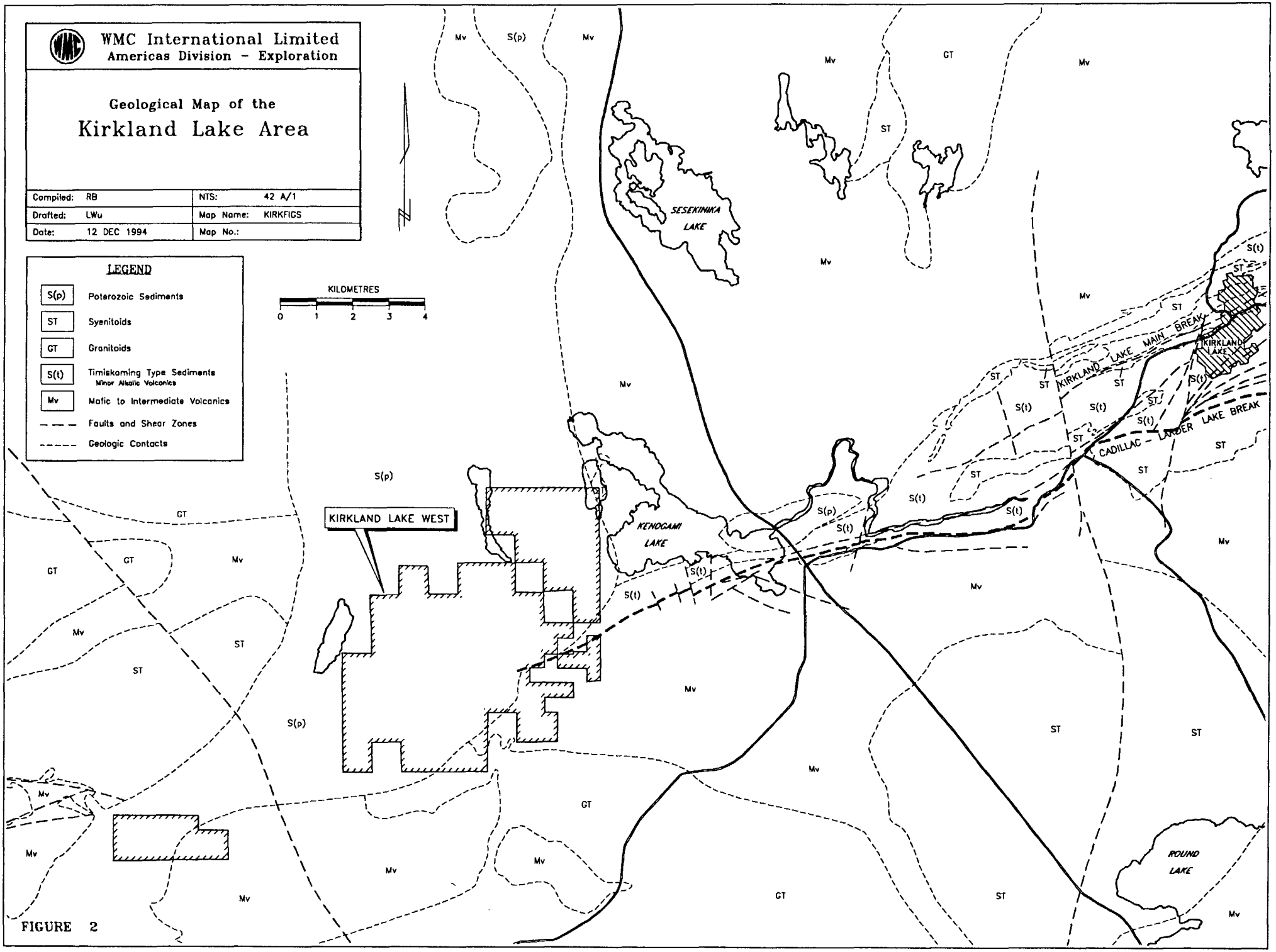

WMC International Limited
Americas Division - Exploration
Geological Map of the
Kirkland Lake Area
Compiled: RB
NTS: 42 A/1
Drafted: LWu
Map Name: KIRKFIGS
Date: 12 DEC 1994
Map No.:
LEGEND
S(p) Proterozoic Sediments
ST Syenitoids
GT Granitoids
S(t) Timiskaming Type Sediments
Minor Alkalic Volcanics
Mv Mafic to Intermediate Volcanics
Faults and Shear Zones
Geologic Contacts
KILOMETRES
0 1 2 3 4
KIRKLAND LAKE WEST
SESEKINIKA LAKE
KENOGAMI LAKE
ROUND LAKE
KIRKLAND LAKE MAIN BREAK
CADILLAC - LARDER LAKE BREAK
KIRKLAND LAKE

FIGURE 2

Local Geology

The project area is covered mainly by the Proterozoic Gowganda Formation. It has been mapped by Moore, 1966 and more recently by Jensen, 1988. The Gowganda Formation generally consists of glaciogenic conglomerate, wacke, and siltstone. It strikes north with shallow dips to the east and west. It unconformably overlies Archean basement.

Of main interest is the geology of the underlying Archean rocks. If the Gowganda Formation is not extremely thick (< 100m) the Archean rocks could effectively be tested by geophysics and drilling from surface. The Larder Lake-Cadillac Break projects onto the property and can be traced by mapping deformation in the Proterozoic rocks (Powell and Hodgson, 1992). Other deformation zones were also mapped in similar fashion.

Target and Rationale

The Archean rocks beneath the Proterozoic cover have an extremely good chance of hosting a large gold deposit given the proximity to the Larder Lake-Cadillac Break. The Proterozoic cover has hindered effective exploration of this very high potential area. A combination of innovative geophysical and geological methods will define potential gold-hosting structures beneath the cover.

Previous Work

A compilation of previous work has shown that the area has only received examination by Billiton in 1983-1987 as well some work by Chevron in 1986-1988. All other work has been in the surrounding area which is not covered by Proterozoic sediments.

Work by Billiton

Billiton performed a good airborne magnetic and VLF survey. They then drilled 8 reverse circulation holes (total 365m) and two diamond drill holes (total 230m).

The RC holes were supposed to find windows of the Archean under the till. RC was unsuccessful at finding any windows. Critically, however, the RC drilling showed that a deep overburden valley along the Englehart River has greater than 130m of till covering the Proterozoic cover, making this area almost impossible to explore. This overburden valley is located just to the west of the Property.

Billiton drilled 2 diamond drill holes near the eastern edge of the Proterozoic cover as follows:

B84-1 (170, -60, EOH=114m)
0-14m - O/B
14-35m - Huronian Sediments
35-59m - Timiskaming Conglomerate
59-96m - Porphyritic Trachytic Tuff with minor carbonate veining and weak sericite alteration.
96-114m- Timiskaming siltstone and conglomerate with weak sericite and fuchsite alteration.
No Assays Reported

B84-2 (170, -60, EOH=116m)
0-4m -O/B
4-116m -Huronian sediments interbedded greywacke and conglomerate
No Assays Reported

Work by Chevron

Chevron did work on the NE-part of the Billiton ground. They made a rough map and sampled minor quartz-veins in the Huronian. They also did a soil geochemistry survey. Both the lithogeochemistry and soil geochemistry produced no significant anomalies. Chevron also drilled two diamond drill holes near the eastern edge of the cover sequence as follows:

K86-1 (155, -45, 198m)
0-8m -O/B
8-136m -Huronian conglomerate, siltstone, greywacke
136-142m -Diabase dyke
142-172m -Archean? lithic wacke and tuff
172m-198m-Basic volcanic with varioles and pillows
No Assays Reported

K86-2 (155, -45, 200m)
0-22m -O/B
22-64.5m -Huronian sediments
64.5-200m-Diabase
No Assays Reported

Previous Work by WMC International Ltd.

The table following summarises the work previously done by WMC International Ltd.

TABLE 2 Previous work by WMC International Ltd.

DATE	WORK	AMOUNT
1993 Nov.-Dec.	Grid Cutting	26 km
1994 Jan.-Feb.	Magnetic Survey	26.1 km
1994 Jan.-Feb.	Gravity	26.1 km
1994 Jan.-Feb.	Vertical Electrical Sounding	5
1994 Jan.-Feb.	I.P.-survey	9.5 km
1994 July	Grid Cutting	4.1 km
1994 July	Geological Mapping	30.1 km
1994 August	Magnetic Survey	7 km
1994 August	I.P.-survey	7 km

The 1994 Drilling Program by WMC International Limited

Five diamond drill holes (KLW-94-01 to KLW-94-05) were completed for a combined length of 1273m in 1994. Holes KLW-94-01 and KLW-94-03 tested deep I.P. anomalies. Holes KLW-94-02 and KLW-94-05 tested the extension of the Cadillac-Larder Lake Break. KLW-94-04 was a stratigraphic hole. The holes were drilled by Heath and Sherwood Drilling from October 21 to November 15, 1994. BQ-size core was recovered from hole KLW-94-01 whereas NQ-size core was recovered from the four subsequent holes. Drill hole locations are shown on Map #1 in the rear pouch. Drill sections can also be found in the rear pouch. Logs are provided in appendix IV and a cost breakdown is given in appendix VI. Summary logs are as follows:

Hole KLW-94-01
Location L129+00E, 52+00N, Dip 55, Azimuth 160, Length 388.92m.
0-3.32m overburden
3.32-190.2m Gowganda siltstone and wacke
190.2-192.49m Gowganda conglomerate
192.49-284.95m Timiskaming conglomerate, wacke, and siltstone, variably sheared and sericitised
284.95-285.29m Fault Breccia
285.29-336.11m Timiskaming conglomerate, wacke, and siltstone, variably sheared and sericitised
336.11-388.92m Timiskaming conglomerate, wacke, siltstone, and alkalic tuffs, only very weak alteration and shearing observed

No significant zones of sulphides or veining were intersected.

Hole KLW-94-02
Location L115+00E, 33+00N, Dip 60, Azimuth 345, Length 369.72m.
0-16.1m overburden
16.1-182.86m Gowganda siltstone, wacke, and arkose
182.86-251.75m Mafic volcanic cut by numerous quartz-calcite veins
251.75-254.56m Intense shear zone
254.56-369.72m Coarse-grained mela-gabbro with quartz-calcite veins, up to 1% pyrite

Trace to 2% pyrite was locally intersected in weakly altered Archean rocks

Hole KLW-94-03
Location L115+00E, 27+00N, Dip 85, Azimuth 160, Length 38.4m.
0-4.28m overburden
4.28-30.6m Gowganda siltstone, wacke, and arkose
30.6-34.95m Gowganda conglomerate
34.95-38.4m Unaltered mafic volcanic

Trace to 2% pyrite in amygdules in the mafic volcanic rocks. No significant veining or alteration in Archean rocks.

Hole KLW-94-04
Location UTM 552920mE, 5324575mN, Dip 90, Azimuth 000, Length 78.03m.
0-3m overburden
3-50.6m Gowganda siltstone, wacke, and arkose
50.6-50.75m Gowganda conglomerate
50.75-51.3m Foliated Timiskaming conglomerate
51.3-78.03m Timiskaming alkalic tuff, weakly altered

No significant sulphides or veining in the Archean rocks.

Hole KLW-94-05
Location L105+00E, 30+25N, Dip 60, Azimuth 345, Length 398.07m.
0-6.12m overburden
6.12-386.13m Gowganda siltstone, wacke, and arkose
386.13-387.25m Fault zone (Proterozoic)
387.25-398.07m Strongly sheared Timiskaming conglomerate which is strongly sericitised, ankeritised, and fuchsitised.

1-3% pyrite at end of hole. Hole was shut down due to technical difficulties. Casing was left in to allow continuation of the hole.

Conclusions:

Every hole intersected Archean rocks between 30m and 330m vertical depth. No assays exceed 66ppb Au. The best alteration and shearing was intersected at the bottom of hole KLW-94-05. KLW-94-02 was drilled south of the Cadillac-Larder Lake Break. KLW-94-05 was drilled close to, but north of the Break. The conductivity of the I.P. targets could not easily be explained

Recommendations:

1) Continue hole KLW-94-05 to end outside of the alteration and shearing.
2) Drill a section across the Cadillac-Larder Lake Break

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Appendix I: Certificate of Qualification

Appendix I: Certificate of Qualification

I, Rex Brommecker, of the City of Nepean, Province of Ontario, do hereby certify that:

1. I am a geologist residing at 35 Rideaucrest Drive, Nepean, Ontario.

2. I am a graduate of the University of Waterloo having received a Bachelor of Science in Applied Earth Science in 1988.

3. I am a graduate of Queens University having received a Master of Science in Geology in 1991.

4. I have been a practicing geologist since graduation.

5. I am a member of the:
   Geological Association of Canada
   Prospectors and Developers Association of Canada

6. I have been an employee of Westminer Canada Ltd./WMC International Ltd. since 1991.

7. I supervised and performed geological work covered by this report.



Rex Brommecker
Project Geologist

Appendix III: CODES USED IN DRILL LOG

Appendix III: CODES USED IN DRILL LOG

ROCK CODES

Sedimentary Rocks

O/B	- Overburden (mainly Quaternary Till)
Sc	- Conglomerate
Sw	- Wacke
Ssl	- Siltstone
Sag	- Argillite
Sct	- Polymictic conglomerate (Timiskaming)
Swt	- Wacke or grit (Timiskaming)
Sant	- Arenite (Timiskaming)
Scp	- Conglomerate (Proterozoic- Gowganda)
Swp	- Wacke (Proterozoic- Gowganda)
Ark	- Arkose (Proterozoic- Gowganda)
Sslp	- Siltstone (Proterozoic- Gowganda)
Sagp	- Argillite and siltstone (Proterozoic- Gowganda)

Volcanic Rocks

e-Upx	- Pyroxenitic komatiite
Mv	- Mafic volcanic
Mtb	- Tholeiitic basalt
Mtbm	- Mg-rich tholeiitic basalt
Mcab	- Calc-alkaline basalt
Iak	- Intermediate alkalic volcanic rock
Fv	- Felsic volcanic
Fak	- Alkalic felsic volcanic

Intrusive Rocks

i-Upx	- Pyroxenite
Mg	- Gabbro
Mgq	- Quartz gabbro
Mgm	- Matachewan Diabase
DT	- Diorite
GD	- Granodiorite
MO	- Monzonite, Monzodiorite
AG	- Monzogranite
G	- Granite
ST	- Syenatoid

Rocks of Uncertain Protolith

U	- Ultramafic rock
M	- Mafic rock
I	- Intermediate rock
F	- Felsic rock

Alteration Products and Veins

ak-s	- ankerite-sericite rock
ak-fu	- ankerite-fuchsite rock

Alteration Products and Veins (continued)

ak-s-fu	- ankerite-sericite-fuchsite rock
q-vn	- Quartz vein
q-ab-vn	- Quartz-albite vein
q-ak-bx	- Quartz-ankerite breccia
q-fu-vn	- Quartz-fuchsite vein

PRIMARY FEATURES

fg	- fine grained
mg	- medium grained
cg	- coarse grained
p(a)	- porphyritic (amphiboles)
x	- spinifex
rx	- random spinifex
pl	- pillowed
am	- amygdaloidal
mt	- primary magnetite

ALTERATION, SULPHIDE, AND VEIN MINERALOGY ABBREVIATIONS

ab	- albite
ak	- ankerite
as	- arsenopyrite
c	- chlorite
cc	- carbonaceous/graphitic
cp	- chalcopyrite
ep	- epidote
fu	- fuchsite
gn	- galena
h	- hematite
l	- calcite
lx	- leucoxene
mo	- molybdenite
po	- pyrrhotite
py	- pyrite
q	- quartz
s	- sericite
sil	- silicified
sp	- sphalerite
sul	- sulphides

STRUCTURAL CODES

bx	- breccia
ft	- fault
v	- vein
wsh	- weakly sheared
msh	- moderately sheared
ssh	- strongly sheared
S0	- bedding
S1	- first foliation
S2	- second cleavage
frac	- fracture

* All distances given are in metres

Appendix IV: DRILL LOGS

KLW-94-01

HOLE NUMBER:	KLW-94-01			
GRID LOCATION:	L129+00E	52+00N	**CLAIM NUMBER:**	1200615
SURVEY LOCATION (UTM):	552743mE	5325223mN	**ELEVATION:**	335m
CORE SIZE:	BQ		**LENGTH:**	388.92m
BEARING:	160		**DIP:**	53
START:	21/10/94		**FINISH:**	26/10/94
CORE STORED AT:	Kirkland Lake Industrial Plaza		**CASING:**	Left In
DRILLING CONTRACTOR:	Heath and Sherwood			
LOGGED BY:	Rex Brommecker		**LOG COMPLETED:**	28/10/94
SIGNED:				

TESTS

TYPE:	**ACID**				
DEPTH:	0	**DIP:**	53	**BEARING:**	160
DEPTH:	91.44	**DIP:**	53	**BEARING:**	160
DEPTH:	182.88	**DIP:**	53	**BEARING:**	160
DEPTH:	274.32	**DIP:**	51	**BEARING:**	160
DEPTH:	365.76	**DIP:**	50	**BEARING:**	160

KLW-94-01

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
0	3.32	0/B											
3.32	6.75	Sslp						0.5	q				Massive Gowganda siltstone Grey, no dropstones
6.75	12.95	Sslp				tr.	py	2	q-h	12.95 9.8	S0 v	85 25	as above but minor q-h-veining veins 0.2-1.0 cm wide probably a weak deformation zone
12.95	13.46	Swp											Bed of grey Gowganda wacke No grain gradation or sorting Grain size 0.2-0.5mm, silt matrix
13.46	20.55	Swp/Sslp	bedding sand-dyke										Bedded wacke and siltstone, grey, Beds 2-20cm, sand-dykes and syn-sed. deformation contorted,
20.55	25	Sslp											As Sslp above
25	25.5	Swp								25.5	S0	45	Massive bed of Swp, grey Weak fining up-hole, Irregular lower contact, Grain size .5-2mm,
25.5	27.45	Sslp											Sslp as above
27.45	29.7	Swp/Sslp	bedding sand-dyke										as Swp/Sslp above
29.7	44.8	Swp											Swp, grey, two massive units separated by 10cm siltstone, lower unit slightly finer grained,
44.8	49.35	Swp/Sslp	bedding sand-dykes							44.8 45.8	S0 S0	40 35	Bedded Swp-Sslp, grey, bedding 1-20cm, locally contorted, minor sand-dykes,1-1cm granite drop-stone,
49.35	55.24	Swp											Massive grey Swp, grains average .5-1mm,
55.24	56.09	Swp		c	ft			5	q-c	55.24	ft	45	Stongly fractured, Swp-grey, 4cm q-c-vn,
56.09	65.43	Swp											Swp as above
65.43	69.43	Swp/Sslp	bedding					2	q-h	68.3	v	25	Swp/Sslp as above but minor hematitic veining.
69.43	69.73	Ark								69.3	S0	35	Two 10cm beds of reddish Swp, grains .5-1mm, Arkose
69.73	71.93	Swp/Sslp						2	q-h	71	v	45	as Swp/Sslp above
71.93	76.5	Swp/Sslp											as Swp/Sslp above but no hematitic veining
76.5	78.9	Swp						2	q-c-l	76.9	v	50	Swp, grey, grain size .5-1mm, slight q-c-l veining, pink calcite
78.9	81	Swp/Sslp								79.77	S0	50	as Swp/Sslp above
81	88.22	Sslp								80.5	S0	50	Sslp, massive grey,
88.22	89.22	Sslp						2	q-h	88.25	v	25	Sslp with minor q-h-vns
89.22	92.5	Sslp											Sslp, massive grey,

KLW-94-01

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
92.5	93.27	Swp											Typical Swp
93.27	95.82	Sslp											Typical Sslp
95.82	103.12	Swp/(Sslp)	Bedded							95.85 103	S0 S0	40 50	Swp, massive grey, .5-1mm grains, Wacke with 10% siltstone beds, some centimetric bedding, Bedding generally >10cm,
103.12	104.9	Sslp											as above
104.9	105.4	Swp											as above
105.4	108.32	Sslp											as above
108.32	111.26	Swp/(Sslp)	Bedded							111.2	S0	45	as above,1cm granite dropstone at 111m
111.26	114.04	Sslp											as above
114.04	115.25	Swp											as above
115.25	118.35	Sslp											as above
118.35	119	Sslp			ft			3	l-q				Sslp brecciated with numerous fine q-l-stringers, also many chloritic fractures, may be minor fault zone, very "late",
119	120.9	Sslp											typical Sslp
120.9	121.95	Sslp			ft			3	l-q				Sslp brecciated with numerous fine q-l-stringers, also many chloritic fractures, may be very late fault as above
121.95	144.63	Sslp											typical Sslp
144.63	150.63	Swp/(Sslp)	Bedded					1	l-q				mainly massive fine wacke, locally grading into siltstone, grey, 1cm granite dropstone at 150.6m,
150.63	151.9	Ark/(Sslp)	Bedded			tr.	py						Reddish arkosic wacke, 10-30cm beds, interbedded typical grey siltstone, arkose contains trace to 1% detrital pyrite, grain size in arkose .6-1mm, generally better sorted than wacke, grains are subrounded,
151.9	155.88	Sslp											typical Sslp
155.88	156.88	Ark				tr.	py						Reddish arkosic wacke, grain saize 1-2mm with 4 granite clasts >1cm, moderately sorted, subrounded clasts,
156.88	160.1	Sslp/(Ark)	Bedded										10% 1-3cm beds of arkose interbedded with typical massive grey siltsone,
160.1	160.23	Sslp	Bedded							160.2	S0	50	Reddish finely laminated siltstone,
160.23	161	Ark	Bedded			1	py						Reddish arkose, moderately sorted, grains ave. 1mm and subrounded, pyrite clearly detrital, minor thin siltstone interbeds,

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FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
161	171.2	Sslp											typical Sslp
171.2	172.64	Swp											typical Swp
172.64	173.34	Swp/(Sslp)	Bedded										typical Swp/(Sslp) as above
173.34	174.46	Sslp											typical Sslp
174.46	175.55	Swp/(Sslp)	Bedded										typical Swp/(Sslp)
175.55	178.61	Sslp											typical Sslp
178.61	182.51	Swp											typical mawssive Swp
182.51	190.2	Sslp/(Swp)	Bedded Varved?							184.7	S0	60	Sslp 70% and Swp 30%, thinly 2-10mm laminated, grey, abundant dropstones 1-40cm, minor reworked wacke interbeds, appears varved?,
190.2	192.49	Scp											Conglomerate with many large clasts of Timiskaming, 80% Timiskaming clasts, 20% other in fine sand matrix, generally greyish colour,
192.49	193.7	Sslt		s				50	q-ak	192.5	v	10	Fine grained sericitic rock, q-ak vein at low core angle, appears bedded, beige
193.7	224.1	Swt		(s)				1	q-ak	196 212 224	S1 S1 S0	5 5 15	Timiskaming wacke, grain size ave 1-3mm, occassional pebble >1cm, beige/grey, foliated, 1% jasper clasts, 1% fuchsite clasts, mafic volc. clasts 30%, felsic volc. clasts 30%, Other seds etc. 35%, generally rounded-flattened clasts, locally moderately sericitised, bedding rare, very thick bedding,
224.1	226.38	Sct		s		tr.	py	2	q-ak	224.15 225	v S1	15 15	Timiskaming conglomerate, well foliated, clasts from 1-10cm, subrounded, sand-sized matrix, trace jasper and fuchsite clasts,
226.38	261.2	Swt		(s)				1	q-ak	245 245	S0 S1	5 5	as Swt above but sericitization decreases down hole,
261.2	262.1	Sslt		(s)				1	q-ak	262.1 262.1	S0 S1	10 10	Weakly sericitized siltstone, 30cm beds, beige,
262.1	266.9	Swt		(s)									Swt as above
266.9	271.57	Sct		(s)						270	S1	20	Sct as above
271.57	284.95	Swt		(s)				1	q-ak-c	280	S1	40	Swt as above
284.95	285.29	Fault			ft	tr.	py	1	q-ak-c				Chloritic fault breccia/gouge, Green/grey, rock-flour supported, angular fragments, chloritic matrix, late fault,

KLW-94-01

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
285.29	289.28	Sslp		s		tr.	py	10	c-q-ak	287	v	15	Sslt, very sericitic siltstone, strongly broken by chloritic veins, beige,
289.28	291.94	Swt/Sslt	bedded	(s)		tr.	py			290.2	S0/S1	12	Mixed bedded Swt and Sslt, grey, beds 1-10cm, only slightly sericitic,
291.94	295.25	Swt		(s)									as Swt above
295.25	298.9	Sct		(s)						295.6	S0/S1	25	Sct as above
298.9	299.95	Swt		(s)									as Swt above
299.95	300.99	Sct		(s)						300.4	S1	25	as Sct above
300.99	308.15	Swt		(s)									as Swt above
308.15	309.52	Sslt		(s)		tr.	py	1	c-q-ak	309	S0/S1	30	Grey to beige bedded siltstone, 1cm shear,
309.52	315.77	Swt		(s)									as Swt above
315.77	317.5	Swt		s-c	wsh	1	py	5	c-q	316.5	S1	50	Beige wacke cut by numerous thin chloritic veins, pyrite both in veinlets and dissem., possible weak shear zone
317.5	326.44	Swt											typical grey Swt
326.44	326.94	Swt		s				1	q-c				Sericitized beige Swt
326.94	329.73	Fak											Alkalic tuff, no bedding, light grey, matrix 1-3mm angular fragments, matrix 30% mafic- 60% felsic/int, large white porphyritic .5cm crystals of "leucite?", "leucite?" has a hexagonal outline in places and locally the rims are altered to a pinkish shade, tuff has about 10% of the "leucite?" porphyroblasts, rare exotic fragments, likely not an intrusion given it's location between two different sed. units,
329.73	332.25	Sct		(s)						330.5	S1	45	Grey Sct pebble conglomerate, standard Timiskaming clast population, moderate foliation, pebbles .5-1cm,
332.25	336.11	Swt		(s)						332.3	S0/S1	35	typical Swt, bedded uphole
336.11	338.34	Fak								336.11	S1	50	Alkalic tuff as above, with more and larger porphyroblasts near up-hole contact, tops down-hole?
338.34	340.86	Swt								341	S1	45	typical Swt,
340.86	341.52	Swt		c	ft			1	c-q	341.52	S1(ft)	40	brecciated and chloritised Swt, gouge down-hole contact,
341.52	343.57	Sslt		(s)		tr.	py	2	c-q				Typical Sslt, minor c-q veining and brecciation,

KLW-94-01

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
343.57	344.07	Fak/Swt/Sslt		(s)						344.07	S0/S1	45	Approx.1- 10cm beds of intercalated tuff, wacke and siltstone,
344.07	349.3	Swt		(s)									Typical Swt
349.3	349.52	Sct		s									Sericitized Sct,
349.52	349.85	Sslt		(s)									Typical Sslt
349.85	351.15	Sct								349.85	S0/S1	40	Swt, uphole contact has rip-up clasts of siltstone, slight fining down-hole, erosive uphole contact also evident, TOPS DOWN-HOLE
351.15	351.6	Sslt											Typical Sslt, grey
351.6	354	Swt											Typical Swt, locally pebbly
354	360.85	Fak						1	q-ak				Typical Fak
360.85	370.84	Swt								365	S1	45	Typical Swt
370.84	372.16	Fak											Fak, more abundant "porphyroblasts" up-hole, therefore facing down-hole,
372.16	376.65	Swt											Typical Swt
376.65	377.73	Fak						2	q-ak	377	S1	45	Typical Fak
377.73	383.38	Swt											Typical Swt, generally only weak foliation,
383.38	388.92	Swt/Fak								385	S0/S1	20	Interbedded Swt and Fak, beds generally 10-100cm, Tuffs in this section are difficult to pick out from Swt, Swt more heterolithic with trace jasper, tuffs generally more angular and just volcanic fragments, generally no significant alteration, no significant veins, weak foliation,

KLW-94-01

FROM	TO	COMMENTS	SAMPLE	Au (PPB)	Ag (PPM)	As (PPM)	Cu (PPM)	Mo (PPM)	Pb (PPM)	Zn (PPM)
6.75	12.95	slightly veined Gowganda, 2% q-h veins, tr.py.	411801	3	-5	4.5		-5		149
55.24	55.74	4cm q-c-vn, fractured wallrock	411802	8	-5	3.8		-5		80
65.43	69.43	2% q-h-vns	411803	5	-5	4.1		2		73
69.43	71.93	2% q-h-vns	411804	4	-5	2.6		-5		128
76.5	78.9	2% q-c-l-vns	411805	4	-5	1.3		2		-5
88.22	89.22	2% q-h-vns	411806	-5	-5	3.3		-5		113
118.35	119	3% l-q-fault	411807	5	-5	3.8		-5		109
120.9	121.95	3% l-q-fault	411808	4	-5	5.2		2		-5
160.32	160.94	1-2% detrital py	411809	-5	-5	3.3		-5		191
190.2	192.49	tillite intervals	411810							
190.2	192.49	timiskaming boulders in tillite	411811	-5	0.1	-5	58	3	1	53
192.49	193.7	2cm q-ak-vn parallel to core axis in fine grained sericitic siltstone	411812	-5	0.1	-5	97	9	5	50
193.7	196.9	weakly sericitised Swt	411813	-5	0.1	-5	44	3	3	55
196.9	199.95	as prev.	411814	14	0.2	-5	87	2	2	46
199.95	203	as prev.	411815	-5	0.1	-5	35	2	1	49
203	206.04	as prev.	411816	2	0.1	-5	21	2	1	63
206.04	209.09	as prev.	411817	10	0.1	-5	110	2	1	111
224.1	226.38	tr. py, 2% q-ak, in Sct-s	411818	-5	0.1	-5	92	3	1	123
241.22	241.57	tr. py in Swt	411819	7	0.1	-5	50	2	2	45
STAND		HR-9	411820	1618	0.3	439	10	17	52	10
261.2	262.1	Sslt with 2% q-ak vns	411821	7	0.1	-5	51	3	2	90
267	270.05	tr. py in Sct	411822	-5	0.1	-5	74	2	1	100
284.95	285.29	chloritic fault gouge	411823	43	0.3	-5	228	26	6	100
285.29	286.91	c-q-ak-vns in Sslt-s	411824	-5	0.1	-5	59	2	1	87
286.91	289.28	as prev.	411825	5	0.1	-5	87	5	2	58
289.28	290.8	Swt/Sslt, tr. py	411826	-5	0.1	-5	38	3	1	66
299.95	300.53	Sct-s	411827	-5	0.1	-5	43	2	1	55
308.92	309.52	Sslt-s	411828	-5	0.1	-5	73	4	2	56
315.77	317.5	Swt-s-c-1%py	411829	34	0.1	21	52	2	2	74
326.44	326.94	Swt-s	411830	36	0.1	13	7	2	4	51
326.94	329.73	Fak	411831	9	0.1	13	11	2	11	108
329.73	332.24	Sct-s	411832	12	0.1	-5	61	1	1	63
336.11	338.34	Fak-foliated, minor q-vns	411833	2	0.1	-5	6	2	1	91
340.86	341.52	Swt-c, with c-q vns+ gouge	411834	3	0.1	-5	27	3	1	101
341.52	343.57	Sslt-s, minor q-vns and bx	411835	9	0.1	-5	102	2	1	69
349.3	349.52	Sct-s, tr. py	411836	10	0.1	-5	53	5	2	41
356.16	357.66	Fak-2% q-ak vns	411837	-5	0.1	-5	6	2	1	88
365.54	365.88	1cm q-c-vnlt in Swt	411838	-5	0.1	-5	66	2	1	89
376.65	377.73	Fak-2% q-ak vns	411839	-5	0.1	-5	70	2	1	74
STAND		HR-9	411840	1803	0.3	437	10	18	51	7
388	388.92	last meter, unaltered	411841	5	0.1	-5	106	1	1	57

KLW-94-02

HOLE NUMBER:	KLW-94-02				
GRID LOCATION:	L115+00	33+00N		**CLAIM NUMBER:**	1200620
SURVEY LOCATION (UTM):	551500mE	5323300mN		**ELEVATION:**	328m
CORE SIZE:	NQ		**LENGTH:**	369.72	
BEARING:	345		**DIP:**	60	
START:	28/10/94		**FINISH:**	03/11/94	
CORE STORED AT:	Kirkland Lake Industrial Plaza		**CASING:**	Left In	
DRILLING CONTRACTOR:	Heath and Sherwood				
LOGGED BY:	Rex Brommecker		**LOG COMPLETED:**	11/11/94	
SIGNED:					

TESTS

TYPE:	ACID				
DEPTH:	0	**DIP:**	60	**BEARING:**	345
DEPTH:	91.44	**DIP:**	59	**BEARING:**	345
DEPTH:	182.88	**DIP:**	59	**BEARING:**	345
DEPTH:	274.32	**DIP:**	60	**BEARING:**	345
DEPTH:	365.76	**DIP:**	59	**BEARING:**	345

KLW-94-02

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
0	16.1	O/B											
16.1	17.27	Sslp											Fine grained, massive, grey, Gowganda siltstone,
17.27	18	Swp											Massive, grey, Gowganda wacke
18	22.24	Sslp											
22.24	22.9	Swp											
22.9	23.81	Sslp/Ark				tr.	py			23	S0	55	Siltstone with 20% interbedded pinkish arkose beds, arkose beds .5-3cm thick, arkose is sand-sized and sorted, trace pyrite found as detrital grains in arkose, one dropstone (sediment)
23.81	25.7	Sslp											
25.7	26.56	Sslp/Ark				tr.	py			26.5	S0	45	as Sslp/Ark above
26.56	37.25	Sslp											3% thin wacke beds
37.25	38.78	Swp											
38.78	47.35	Sslp											3% thin wacke bedws
47.35	47.77	Sslp-ft		c	ft			1	c-h	47.55	frac	15	mildly fractured siltstone with 1% c-h veinlets, minor fault
47.77	50.17	Sslp											
50.17	50.77	Swp-ft			ft			10	carb	50.17	ft	20	Brecciated Swp with 10% carbonate veinlets, carbonate only fizzes when powdered and often slightly pinkish, carbonate could be rhodochrosite, possibly some barite in veins, often forms angular breccia,
50.77	54.98	Swp/(Ark)											20% sandy arkose beds 5-10cm thick,
54.98	55.3	Swp-ft			ft			10	carb				as Swp-ft above
55.3	55.55	vn			v			100	carb	55.3	v	40	white to pink carbonate vein, white calcite, pink rhodochrosite?, possibly minor barite,
55.55	66.5	Swp/(Sslp)						1	l-h				also rare arkosic beds,
66.5	73.9	Swp/Ark						1	l	73.9	S0	45	medium grained wacke and arkose, numerous siltstone rip-ups, base appears erosive, meter scale bedding, moderate sorting and rounding,
73.9	83.22	Sslp				tr	cp	1	l-cp	77.5	v	5	Sslp with narrow 1-5mm calcite-quartz veinlets with trace chalcopyrite,
83.22	83.62	Swp-ft-vn			ft-v	tr	h	50	carb-h	83.5	v/ft	5	50% fractured Swp, 50% l-h vein, brecciated with angular fragments,
83.62	88.1	Swp						1	q-l				
88.1	88.7	Swp/Ark						1	q-l	88.7	S0	70	interbedded wacke and arkose, beds .5-2cm,

KLW-94-02

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
88.7	89.02	Sslp											
89.02	100.2	Swp											
100.2	101.9	Sslp/Ark								100.2	S0	65	interbedded siltstone and arkose, minor wacke, beds .5-2cm,
101.9	103	Sslp											lower 10cm contains 20% .2-1cm arkose "balls", these balls are sometimes flattened along bedding
103	105.06	Swp						1	q-l				
105.06	106	Sslp						2	l-h				
106	106.5	Swp/Ark						1	q-l	106	S0	60	
106.5	108.2	Sslp						2	l-h				lower 20cm has arkose "balls"
108.2	110.7	Swp/Sslp/Ark						1	l-h				numerous shale rip-up clasts in wacke, often very disrupted arkose beds,
110.7	113.6	Sslp						1	l-h				
113.6	115.15	Swp											
115.15	119.2	Swp/Sslp/Ark											
119.2	123.75	Sslp-ft		h	ft			10	l-h				network of veinlets forms angular breccia, fault
123.75	129.6	Sslp											
129.6	134	Swp											
134	134.26	Swp/Sslp/Ark								134	S0	55	
134.26	137.5	Sslp											
137.5	138.22	Swp											
138.22	138.39	Swp/Sslp/Ark								138.3	S0	80	
138.39	140.96	Sslp											
140.96	141.14	Swp											
141.14	142.6	Swp/Sslp/Ark											
142.6	143.04	Sslp											
143.04	143.76	Swp											
143.76	144.6	Swp/Sslp/Ark								144	S0	75	
144.6	150.98	Sslp											
150.98	152.64	Swp											
152.64	161.95	Sslp						1	l-q-h				
161.95	165	Swp						1	l-q-h				
165	168.97	Sslp						2	l-q-h				
168.97	174.42	Swp											Grey, fine laminations at 30 degrees to core axis,
174.42	176.09	Sslp						1	l-q-h				
176.09	176.3	Swp											Graded: fining upwards,
176.3	176.4	Swp/Sslp/Ark								176.4	S0	70	Arkose beds .5cm thick
176.4	176.64	Sslp											Pebbly siltstone, 10% pebble-sized angular clasts: mostly plutonic,
176.64	176.9	Sslp											typical grey siltstone,

KLW-94-02

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
176.9	177.3	Swp/Sslp/Ark			sh					177	S0	40	Numerous rip-ups and deformed arkose beds, syn-sedimentary shear?
177.3	182.86	Sslp						1	q-h	182.86	S0	45	Sharp contact with Archean, slightly blocky at contact,
182.86	184.24	Mv				tr	py	5	l-q	183.5	v	45	Grey-green mafic volcanic, fine to medium grained, colour index suggests Mg-tholeiite,
184.24	185.73	sh-Mv		c-l	sh	1	py	10	q-l	185	S1	45	Grey-green schistose mafic-volcanic, l-q-veinlets are strung out along foliation, weak chlorite-calcite alteration,
185.73	210.2	Mv	am			tr	py	5	l-q				Grey-green mafic volcanic, probably Mg-tholeiite, fine to medium grained, anomalously veined with numerous .2-1cm wide l-q-veinlets of all orientations, about 2% quartz-calcite filled .2-.8cm amygdules,
210.2	210.61	sh-Mv		l-ep	sh	tr	py	10	l-ep	210.3	S1	40	mainly calcite minor epidote vein filling in weak shear,
210.61	228.3	Mv	am	l		tr	py	5	l-q				generally undeformed Mv as described above
228.3	230.16	Mv	p(a)	(s)				5	l-q				fine-grained, light grey Mv, 10% 2-5mm amphibole phenocrysts, weakly sericitised,
230.16	232	Mv	cg-am	(s)				2	q-l				grey, coarse grained, weakly altered
232	234.91	sh-Mv	cg-am	s-ak-(l)	sh	tr tr	py fu	10	q-ak-l	232 232 232.5	S1 v v	35 35 5	grey to buff altered and sheared mafic volcanic, shearing is moderate and sericitisation is confined near quartz ankerite veins, stretched amygdules visible at 232.4,
234.91	236.44	sh-Mv		s-ak-(l)	sh	tr tr	py fu	10	q-ak-l	235 235.3	S1 v	40 40	sheared mafic volcanic, grey to buff colour, most veins at good core angle,
236.44	240.9	Mv		l-(s)				5	l-q	239 240.9	S1 S1/v	40 15	grey Mv, weakly sericitised,
240.9	242.62	Mv		l				5	l-q				grey Mv with q-l veining,
242.62	243.02	ft-bx		l	ft			10	l-q	242.75	ft	15	angular breccia formed from mafic volcanic and quartz with calcite cement, low core angle indicates it may be late N-S fault,

KLW-94-02

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
243.02	251.75	Mv	am	l				5	l-q				grey, fine to medium-grained Mv, minor 2-8mm chlorite?-filled amygdules,
251.75	254.56	sh-cg-Mg	cg	l-c-t	sh	tr	py	30	l-q	252	S1	40	white to grey, strongly sheared and locally brecciated coarse grained gabbro, undeformed equivalent described below, strong foliation with 30% l-q-vns,
254.56	271.57	cg-Mg	cg	l		1	py	10	l-q	259.8	v	10	grey-green mottled coarse-grained gabbro, equigranular 4-6mm crystals, 50% mafic minerals 50% feldspars, strong calcite alteration, minor epidote alt., 2-3 quartz-calcite-pyrite veinlets at low core angle (see samples), veins and alteration decrease down-hole,
271.57	293.6	cg-Mg	cg			tr	py	2	l-q				gabbro as above but no significant veins or alteration,
293.6	295.04	Mgm	mg										grey-black, medium-grained, equigranular, undeformed/unfoliated, mela-gabbro composition, probably Matachewan swarm "diabase",
295.04	296.57	cg-Mg	cg	s-l		tr	py	5	l-q				grey to beige coarse-grained gabbro, 1-2cm zones of wispy sericitisation, moderately fractured and weak cleavage,
296.57	301.45	cg-Mg	cg					2	l-q				coarse-grained gabbro, no significant veins or alteration,
301.45	304.15	Mgm	mg							304	ft	75	Matachewan diabase as above, 5cm fault gouge at 304.0
304.15	307.42	cg-Mg	cg							306	S1	35	cg-Mg as above, local weak shear,
307.42	307.82	l-q-vn						80	l-q	307.42	v	35	15cm solid vein and then vein-wallrock breccia, no sulfides observed, minor chlorite alteration around vein,
307.82	308.28	cg-Mg	cg										
308.28	308.48	Mgm											chilled margins
308.48	331.01	cg-Mg	cg					1	l-q	313.8	S1/v	30	cg-Mg as above
331.01	331.29	Mgm											chilled margins
331.29	369.72	cg-Mg	cg					1	l-q				minor local q-l-vns with chloritic selvages and tr. py

KLW-94-02

FROM	TO	COMMENTS	SAMPLE	Au (PPB)	Ag (PPM)	As (PPM)	Cu (PPM)	Mo (PPM)	Pb (PPM)	Zn (PPM)
47.35	47.77	chloritic fractures and veinlets-fault in Sslp	411842	9	-5	4.1		-5		133
50.17	50.77	10% carb. veins in Swp	411843	-5	-5	3.3		2		-5
54.98	55.3	as prev.	411844	8	-5	-5		-5		-5
55.3	55.55	carb. vein	411845	3	-5	1.5		-5		-5
64.02	64.37	1cm l-h-vn	411846	7	-5	2.6		-5		-5
66.5	68.48	Swp/Ark, tr. detrital py.	411847	-5	-5	2		-5		-5
77.2	78.03	2% l-cp veins, tr. cp	411848	-5	-5	2.6		-5		96
83.22	83.62	50% Swp, 50% carb-h vein	411849	-5	-5	2.7		-5		-5
106	106.5	SWp/Ark, 1% q-l	411850	9	-5	3.2		-5		-5
107.9	108.2	Tr. cpy in .5cm q-h-vnlt	411851	8	-5	4.8		-5		147
119.2	119.8	Sslp-ft-10% l-q-h-vns	411852	66	-5	4.1		-5		141
121.25	122.4	as prev.	411853							
122.4	123.75	as prev.	411854	6	-5	2.8		-5		176
165	167.62	Sslp-2% q-l-h	411855	5	-5	11		5		134
176.4	176.64	Pebbly Sslp, sample to Stu	411856							
176.9	177.3	syn-sed shear	411857	9	-5	4.6		-5		178
181.66	182.86	Sslp at unconformity	411858							
182.86	184.24	Mv, 5% q-l vnlts	411859	19	0.1	-5	43	1	1	85
STAND		HR-9	411860	1747	0.4	433	10	17	53	8
184.24	185.73	sh-Mv, 10% q-l-vnlts, tr. py	411861	10	0.1	-5	25	2	10	70
185.73	186.17	Mv, 5% q-l-vnlts	411862	-5	0.1	-5	6	1	6	65
186.17	190.53	as prev. but Box chip (BC)	411863	-5	0.1	-5	7	2	1	52
190.53	194.85	as prev. (BC)	411864	2	0.1	-5	13	2	1	47
194.85	199.3	as prev. (BC)	411865	17	0.1	-5	13	2	1	51
199.3	203.5	as prev. (BC)	411866	3	0.1	-5	10	2	1	43
203.5	207.7	as prev. (BC)	411867	-5	0.1	-5	26	1	19	47
209.09	210.2	Mv, 5% q-l-vnlts in Mv	411868	-5	0.1	-5	8	1	1	45
210.2	210.61	sh-Mv, 10% l-ep-vnlts	411869	-5	0.1	-5	15	2	1	36
210.61	212.14	Mv, 5% q-l-vns	411870	-5	0.1	-5	47	1	1	53
212.14	216.4	as prev. (BC)	411871	7	0.2	-5	43	2	1	52
216.4	220.78	as prev. (BC)	411872	29	0.1	-5	59	3	1	64
220.78	224.96	as prev. (BC)	411873	-5	0.1	-5	16	2	1	49
224.96	226.45	as prev.	411874	-5	0.1	-5	51	2	1	50
226.45	227.38	as prev.	411875	-5	0.1	-5	67	1	1	44
227.38	228.3	as prev. but tr. py.	411876	-5	0.1	-5	110	2	1	54
228.3	230.16	Mv-(s)	411877	-5	0.1	-5	66	2	1	76
230.16	232	cg-Mv-(s)	411878	-5	0.1	-5	23	2	1	76
232	233.48	sh-cg-Mv-ak-s, tr. fu,py	411879	-5	0.1	-5	62	2	1	61
STAND		HR-9	411880	1872	0.4	425	10	17	55	7
233.48	234.91	sh-cg-Mv-ak-s, tr. py,fu	411881	-5	0.1	-5	75	2	1	59
234.91	236.44	sh-Mv-ak-s, tr. py	411882	-5	0.1	-5	124	2	1	46
236.44	238.15	Mv-(s)-l	411883	-5	0.1	-5	79	2	1	51
238.15	240.9	Mv-(s)-l (chip)	411884	-5	0.1	-5	26	2	1	45

KLW-94-02

FROM	TO	COMMENTS	SAMPLE	Au (PPB)	Ag (PPM)	As (PPM)	Cu (PPM)	Mo (PPM)	Pb (PPM)	Zn (PPM)
240.9	242.62	Mv-l	411885	-5	0.1	-5	6	4	1	40
242.62	243.02	ft-bx-l	411886	-5	0.1	-5	8	2	1	45
243.02	246.19	Mv-l (chip)	411887	10	0.1	-5	8	4	1	40
246.19	250.45	Mv-l (BC)	411888	-5	0.1	-5	6	2	1	44
250.45	251.75	Mv-l, slight shearing on down-hole section	411889	3	0.1	-5	248	3	1	44
251.75	252.66	cg-Mg-l-c-t, tr. py	411890	-5	0.1	-5	48	2	1	54
252.66	254.56	as prev.	411891	3	0.1	-5	55	2	4	77
254.56	256.2	cg-Mg-l	411892	7	0.1	-5	75	2	1	117
256.2	259.06	cg-Mg-l, 1% py, (chip)	411893	-5	0.1	-5	93	2	1	156
259.06	260.51	cg-Mg-l, 1% py, 3cm q-l-vn at 10 to CA	411894	9	0.1	-5	114	2	1	116
260.51	263.4	cg-Mg-l, 1% py along low CA fracture (chip)	411895	5	0.1	-5	82	2	1	70
263.4	264.87	as prev.	411896	10	0.2	55	77	2	1	411
264.87	267.1	cg-Mg-l, 5% q-l-vn, (chip)	411897	5	0.1	29	83	2	1	68
267.1	271.57	cg-Mg-l, 3% q-l-vns (BC)	411898	10	0.1	46	87	1	2	71
271.57	275.75	as prev. (BC)	411899	10	0.1	27	152	2	1	65
STAND		HR-9	411900	1749	0.3	442	9	18	51	8
295.04	296.57	cg-Mg-s, 5% q-l-vns, tr. py	411901	9	0.1	-5	43	2	1	75
307.42	307.82	80% q-l-vn, no sulfides	411902	-5	0.1	-5	13	3	1	36
313.5	313.9	5cm q-l-vn with tr. py in cg-Mg	411903	3	0.1	-5	77	2	1	91
328.86	329.51	20% q-l-vn with chloritic selvage, low CA, tr. p	411904	-5	0.1	-5	80	2	4	115
334.63	335.23	as prev.	411905	-5	0.1	-5	86	3	1	89
343.85	344.25	as prev.	411906	26	0.2	-5	107	2	1	204
350.7	351.1	as prev.	411907	41	0.1	-5	96	3	1	72
358.89	359.54	as prev.	411908	14	0.1	-5	85	2	1	71
364.6	364.95	as prev.	411909	2	0.1	-5	76	2	1	69
368.76	369.72	cg-Mg, last meter	411910	3	0.1	-5	110	1	1	47

KLW-94-03

HOLE NUMBER:	KLW-94-03				
GRID LOCATION:	L115+00E	27+00N		**CLAIM NUMBER:**	1200625
SURVEY LOCATION (UTM):	551500mE	5322700mN		**ELEVATION:**	332m
CORE SIZE:	NQ		**LENGTH:**	38.4	
BEARING:	160		**DIP:**	85	
START:	03/11/94		**FINISH:**	04/11/94	
CORE STORED AT:	Kirkland Lake Industrial Plaza		**CASING:**	Removed	
DRILLING CONTRACTOR:	Heath and Sherwood				
LOGGED BY:	Rex Brommecker		**LOG COMPLETED:**	12/11/94	
SIGNED:					

TESTS

TYPE:	**ACID**				
DEPTH:	0	**DIP:**	88	**BEARING:**	160
DEPTH:	22.86	**DIP:**	85	**BEARING:**	160
DEPTH:	38.4	**DIP:**	85	**BEARING:**	160

KLW-94-03

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
0	4.28	O/B											
4.28	18.57	Sslp											grey, massive, siltstone typical of the Gowganda,
18.57	22.75	Swp								22.75	S0	70	grey, massive wacke, coarsens down-hole, basal part clasts sub-angular and 1-2mm,
22.75	23.66	Sslp											as Sslp above
23.66	23.83	Swp											massive wacke, 1-2 mm grains,
23.83	28.89	Sslp								26.5	S0	70	grey siltstone with 2% reddish, disrupted arkosic laminations, laminations 2-3mm thick, 4 cm granitic dropstone at 25.80, siltstone also displays very fine laminations 1-4mm, laminations usually disrupted, syn-sed deformation, siltstone becomes buff-coloured down-hole,
28.89	29.19	Scp				1	py						red arkosic conglomerate,
29.19	29.34	Sslp											massive grey siltstone,
29.34	29.64	Scp				1	py						red arkosic conglomerate,
29.64	30.6	Sslp/Ark								29.7	S0	65	laminated grey siltstone and red arkose, laminations 2-8mm, abundant (2%) dropstones,
30.6	34.95	Scp				1	py						grey, mafic dominated conglomerate, clasts .5-5cm, matrix supported,
34.95	35.63	Mv						1	q-l				grey mafic volcanic boulder,
35.63	35.65	Sslp/Swp								35.63	S0	60	typical Gowganda siltstone and wacke bed, wacke at base, grey,
35.65	38.4	Mv	am	(l)		1	py	1	q-l				mafic volcanic (archean), sparse (1%) quartz-calcite filled amygdules, not significantly altered or foliated,

KLW-94-03

FROM	TO	COMMENTS	SAMPLE	Au (PPB)	Ag (PPM)	As (PPM	Cu (PPM)	Mo (PPM	Pb (PPM)	Zn (PPM)
29.05	29.19	Arkosic Conglomerate	411911							
29.34	29.64	Arkosic Conglomerate	411912							
30.6	33	Tillite top part	411913							
33	34.97	Tillite basal part	411914							
34.97	35.63	Mv, 1% q-l-vns	411915	-5	0.1	-5	46	1	1	68
35.7	36.94	Mv-am, 2% q-l-vns, tr. py	411916	2	0.1	-5	49	2	5	61
36.94	38.4	as prev.	411917	-5	0.1	-5	51	1	1	72

KLW-94-04

HOLE NUMBER:	KLW-94-04				
GRID LOCATION:	ROAD BY CREEK			**CLAIM NUMBER:**	1200615
SURVEY LOCATION (UTM):	552920	5324575		**ELEVATION:**	320m
CORE SIZE:	NQ		**LENGTH:**	78.03	
BEARING:	0		**DIP:**	90	
START:	05/11/94		**FINISH:**	06/11/94	
CORE STORED AT:	Kirkland Lake Industrial Plaza		**CASING:**	Removed	
DRILLING CONTRACTOR:	Heath and Sherwood				
LOGGED BY:	Rex Brommecker		**LOG COMPLETED:**	13/11/94	
SIGNED:					

TESTS

TYPE:	**ACID**				
DEPTH:	0	**DIP:**	90	**BEARING:**	0
DEPTH:	48.77	**DIP:**	89	**BEARING:**	0
DEPTH:	78.02	**DIP:**	88	**BEARING:**	0

KLW-94-04

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
0	3	O/B											
3	8.5	Swp											typical massive grey wacke, grain size .5-1mm,
8.5	12.86	Sslp											typical grey siltstone,
12.86	14.16	Swp-ft			ft	tr	cp	5	q-h-l	13.2	v	30	wacke brecciated by q-h-l veinlets, vuggy from 14.0-14.16, angular breccia, probably influence of late N-S fault,
14.16	16.7	Swp						1	q-l				
16.7	17.07	Swp-ft			ft			3	l-q	17	v	5	angular fault breccia at low CA, veining is calcite/quartz
17.07	19.97	Swp											massive, grey
19.97	31.5	Sslp						1	q-h				massive, grey
31.5	32.32	Swp											massive, grey
32.32	37.56	Sslp/Swp/Ark				tr	py	2	q-l	33.3	S0	60	bedded to laminated, 60% Sslp, 20% Swp, 20% Ark, beds 2-10mm, 1% pebble sized-generally granitic dropstones, unit is generally grey with red arkose beds,
37.56	41.03	Sslp/Swp/Ark-		h		tr tr	cp py	3	q-l-h	40 40.5	S0 v	60 5	as above but reddish due to intense hematisation, cp found in l-q-vnlt, py as detrital in ark, downward coarsening arkose bed at 37.70- pebbly at base,
41.03	48	Sslp/Swp/Ark				tr.	py	1	q-l	45	S0	65	as unaltered Sslp/Swp/Ark above arkose beds often lensoid, arkose often coarsens downward and does not erode lower beds,
48	48.24	Scp											grey pebbly siltstone
48.24	50.6	Sslp/Swp/Ark				tr.	py						as Sslp/Swp/Ark above
50.6	50.75	Scp											grey pebble conglomerate
50.75	51.3	Sct				tr.	cp			51	S1	30	well folliated beige-green-grey Timiskaming conglomerate, contains 2cm jasper clast, clasts 1-10cm, clast support,

KLW-94-04

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHIDES % AND TYPE		VEINS % AND TYPE		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
51.3	74.98	Fak		(ak)-(s)				4	ak-q	63 66	S1 v	20 10	mauve alkalic tuff, 10% 4-8mm feldspar porphyroblasts, 5% 4-10mm mafic fragments, all fragments angular and in a fine mauve matrix, minor quartz-ankerite veinlets up to 2cm wide with strong sericitic halos, no significant sulfides,
74.98	75.9	Mgm											Fine-grained Matachewan dyke with chilled margins, contacts at 5 degrees to CA
75.9	78.03	Fak		(ak)-(s)				3	ak-q	77 77	S1 v	15 30	as Fak above q-ak veins are at high angle to the foliation,

KLW-94-04

FROM	TO	COMMENTS	SAMPLE	Au (PPB)	Ag (PPM)	As (PPM)	Cu (PPM)	Mo (PPM)	Pb (PPM)	Zn (PPM)
12.86	14.16	Swp-ft with 5% q-h-l vns, tr. cp	411918	5	-5	3.7		-5		116
16.7	17.07	Swp-ft with 3% l-q-vns	411919	-5	-5	2.3		5		67
STANDA		HR-9	411920							
37.56	39.51	Sslp/Swp/Ark-h, tr. py,cp	411921	4	-5	2.8		3		109
39.51	41.03	as prev.	411922	8	-5	3.3		-5		109
48	48.24	Scp-layered tillite	411923							
50.6	50.75	Scp- basal layered tillite	411924							
50.75	51.3	foliated Sct, tr. cp	411925	29	0.1	-5	122	2	1	38
54.28	54.78	Fak-(ak)-(s), 1cm q-ak vein, 4% q-ak	411926	9	0.1	-5	26	2	3	40
54.78	56.69	Fak-(ak)-(s), 5% q-ak-vns	411927	3	0.1	-5	22	1	2	44
62.79	63.3	as prev.	411928	9	0.1	-5	16	1	5	38
65.85	66.37	1cm ak-q-vn in Fak	414953	9	0.1	-5	43	1	5	34
72.2	72.6	as prev.	411929	10	0.1	-5	19	1	3	40
76.83	78.03	as prev.	411930	3	0.1	-5	23	1	3	47

KLW-94-05

HOLE NUMBER:	KLW-94-05				
GRID LOCATION:	L105+00E	30+25N		**CLAIM NUMBER:**	1200619
SURVEY LOCATION (UTM):	550500mE	5323025mN		**ELEVATION:**	328m
CORE SIZE:	NQ		**LENGTH:**	398.07	
BEARING:	345		**DIP:**	60	
START:	8/11/94		**FINISH:**	15/11/94	
CORE STORED AT:	Kirkland Lake Industrial Plaza		**CASING:**	Left in	
DRILLING CONTRACTOR:	Heath and Sherwood				
LOGGED BY:	Rex Brommecker		**LOG COMPLETED**	20/11/94	
SIGNED:					

TESTS

TYPE:	**ACID**				
DEPTH:	0	**DIP:**	61	**BEARING:**	345
DEPTH:	91.44	**DIP:**	60	**BEARING:**	345
DEPTH:	182.88	**DIP:**	61	**BEARING:**	345
DEPTH:	274.32	**DIP:**	57	**BEARING:**	345
DEPTH:	365.76	**DIP:**	55	**BEARING:**	345

KLW-94-05

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHI % AND		VEINS % AND		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
0	6.12	O/B											
6.12	7.16	Sslp											grey, massive, siltstone
7.16	7.56	Sslp/Swp								7.5	S0	50	laminated 1-10mm, grey siltstone and grey wacke,10% dropstones from 3-10mm,
7.56	8.72	Sslp											grey, massive, siltstone,
8.72	10.97	Swp											grey, much syn-sed. deformation, wispy-flame-like siltstone interlayers,
10.97	18.44	Ark		(h)		tr	py	1	q-h				brown arkose, sand-sized with 5% large 3-7mm clasts, Pebbly base,
18.44	19.23	Sslp/Swp/Ark											laminated 1-10mm, siltstone, wacke, and arkose, 5% dropstones from 3-10mm,
19.23	19.83	Sslp											grey, massive, siltstone,
19.83	20.06	Sslp/Swp/Ark											as laminated Sslp/Swp/Ark above, synsedimentary slump fold in arkose bed,
20.06	21.38	Sslp											grey, massive, siltstone,
21.38	23	Swp											grey, massive, wacke
23	25.6	Sslp/Swp/Ark								23.35	S0	50	as laminated Sslp/Swp/Ark above,
25.6	29.26	Sslp											grey siltstone, shale rip-ups at base,
29.26	30.7	Ark		(h)		tr	py						as brown arkose above, pebbly base,
30.7	33.3	Sslp											grey, massive, siltstone,
33.3	35.25	Swp											grey, massive, wacke
35.25	43.5	Ark											brown arkose, sand sized,
43.5	48.84	Sslp											grey, massive, siltstone,
48.84	49.44	Sslp	balls										siltstone with 5% brown arkose balls suspended within,
49.44	54.74	Sslp/Swp/Ark											wacke and arkose generally laminated 2-10mm, siltstone beds 2mm-20cm, 5% pebble dropstones, one 5cm granite dropstone at 50.45,
54.74	55.24	Ark											brown arkose, sand sized,
55.24	56.54	Sslp/Swp/Ark											laminated 2-10mm siltstone, wacke, and arkose, 5% pebble-sized dropstones,
56.54	56.2	Sslp											
56.2	57.01	Sslp/Swp/Ark								57	S0	55	as Sslp/Swp/Ark above,
57.01	59.68	Sslp											minor laminated sections
59.68	61.34	Swp											wacke with dropstone pebble and disrupted siltstone,
61.34	61.7	Sslp/Swp/Ark											as Sslp/Swp/Ark above,

KLW-94-05

FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHI % AND		VEINS % AND		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
61.7	64.13	Sslp											massive grey
64.13	66.84	Sslp/Swp/Ark											Siltstone beds vary from 5mm-50cm, wacke and arkose are generally laminated 2-10mm, 3% dropstone pebbles in laminated sections,
66.84	69.62	Sslp											Massive, grey,
69.62	70.12	Ark											light brown arkose,
70.12	71.05	Sslp											Massive, grey,
71.05	71.63	Ark											light brown arkose,
71.63	74.08	Sslp											
74.08	74.55	Swp											grey, sand-sizes, coarsens downward,
74.55	74.68	Sslp/Swp/Ark											Siltstone, wacke, and arkose laminated 2-10mm, 3% dropstones,
74.68	80.15	Sslp											grey, local laminations,
80.15	81.16	Sslp/Swp/Ark											as Sslp/Swp/Ark above
81.16	83.8	Sslp											
83.8	84.88	Swp											numerous siltstone rip-ups
84.88	84.97	Sslp/Swp/Ark								85	S0	50	as Sslp/Swp/Ark above
84.97	97.34	Sslp											massive grey siltstone,
97.34	98.92	Ark											light brown with shale rip-ups,
98.92	108.05	Sslp											massive grey siltstone,
108.05	109.33	Swp											grey, wacke,
109.33	113.4	Sslp											siltstone, chaotically mixed with wacke near lower contact
113.4	116.36	Swp											grey, wacke, chaotically mixed with siltstone near upper contact, lower contact sharp with siltstone,
116.36	124.1	Sslp											grey, siltstone, some wacke "mixed" near base,
124.1	133.57	Swp								133.57	S0	60	grey, wacke, coarsening towards base, sharp lower contact, coarse sand sized (1-2mm) in general,
133.57	143.57	Sslp											grey, massive, siltstone,
143.57	150.77	Swp											grey, massive, .5-1mm grains,
150.77	155.76	Swp	cg										grey-brown, coarsens downward, grains 1-3mm,
155.76	160.75	Sslp											
160.75	161.67	Swp											
161.67	166.04	Sslp											minor <10cm Sslp/Swp/Ark aections,
166.04	166.52	Sslp/Swp/Ark											1-10mm laminations, 3% pebble size dropstones,
166.52	166.8	Sslp											

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FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHI % AND		VEINS % AND		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
166.8	167.47	Swp											Coarsening towards the base, silty with arkose "balls" at top,
167.47	169	Sslp											arkose "balls" at base,
169	170.13	Ark											light brown,
170.13	171.3	Sslp											50cm beds, some arkose "balls",
171.3	171.72	Sslp/Swp/Ark											1-10mm laminations, 3% pebble size dropstones
171.72	173.52	Sslp											
173.52	174.7	Swp											
174.7	177.1	Sslp/Swp/Ark											1mm-300mm beds, 1% pebble-sized dropstones,
177.1	180.95	Swp											
180.95	184.03	Ark		h		tr	cp	2	q-h	184.03 181	S0 v	65 25	brown, medium to coarse sand, minor q-h-vns with cp near top,
184.03	185	Sslp											
185	187.86	Sslp/Swp/Ark											as Sslp/Swp/Ark above
187.86	202.55	Sslp											grades into Swp below,
202.55	212.34	Swp											
212.34	212.54	Sslp/Swp/Ark											
212.54	218.24	Sslp											locally laminated
218.24	219.9	Ark											grey-brown, coarsening down-hole,
219.9	222.5	Sslp/Swp/Ark								220.3	S0	50	beds 1-100mm, 1% pebble-sized dropstones,
220.5	225.85	Sslp											
225.85	226.85	Sslp/Swp/Ark			folded					225.9 226.4 226.8	S0 S0 S0	35 2 70	complete fold nose, upper beds are overturned (grading observed) lower beds are upright (grading observed), no cleavage, good fold axis, beds 1-100mm, 2% pebble-sized dropstones,
226.85	245.83	Sslp						2	q-h	228.9	v	30	3% disrupted arkose and wacke beds, local laminations, 228.7-229.7 has 5% q-h-vns,
245.83	250	Swp											grey, 30cm-1m beds,
250	266.4	Sslp											
266.4	270.85	Swp		h		tr tr	py cp	3	q-l-h	266.7	v	25	wacke, grey-brownish/red due to hematisation along veins, 3% q-l-h vns throughout section, cp observed in larger veins, also pink carbonate,
270.85	271.15	Sslp											
271.15	272	Sslp/Swp/Ark											
272	275.82	Sslp											local development of arkose "balls",

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FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHI % AND		VEINS % AND		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
275.82	276.35	Sslp		h		tr	py	3	q-l-h	276.1	v	30	hematised brown siltstone,
276.35	277.3	Ark		h		tr	py	3	q-l-h				hematised brown arkose,
277.3	277.9	Sslp											grey, massive,
277.9	278.35	Sslp/Swp/Ark								278	S0	45	
278.35	280.8	Sslp											
280.8	282.93	Sslp/Swp/Ark											
282.93	292.45	Sslp											
292.45	294.04	Ark											grey-brown arkose coarsening downward,
294.04	295.2	Sslp/Swp/Ark											
295.2	297.48	Sslp											grey, massive
297.48	298	Sslp/Swp											grey laminated 1-10mm siltstone and wacke,
298	306.9	Sslp											grey siltstone, 5% minor isolated wacke and arkose beds,
306.9	321	Swp		h		tr	py	5	q-h	314.5 315.5 316.2	v v v	25 15 30	grey, wacke, coarsens downward, about 5% quartz-hematite veins, veins have hematitic selvages, solid quartz-chlorite vein from 315.47-315.77
321	322.12	Sslp/Swp/Ark								321.5	S0	60	typical
322.12	328.7	Sslp								328.4	v	25	minor local Swp laminations, 10% pink q-l-vns from 328.3-328.7
328.7	334.8	Sslp											grey, massive
334.8	343.27	Sslp/Swp/Ark						2	q-l	337.1 342	S0 v	55 30	typical Sslp/Swp/Ark, laminated, minor zones of late vuggy pink q-l-vns,
342.27	346.65	Sslp						2	q-l	344.8	v	35	grey siltstone with minor pink q-l-vns,
346.65	348.5	Sslp/Swp/Ark								348	S0	50	typical Sslp/Swp/Ark, laminated
348.5	350.55	Sslp											grey, coarsens down into wacke,
350.55	351.25	Swp				tr	py	15	q-l	350.65	v	25	coarsens down into pebbly base, about 15% pink q-l-vns,
351.25	362.8	Sslp/Swp/Ark				tr	py	2	q-l	360 360 360	v S0 >S0:v	40 50 70	laminated 1-10mm siltstone, wacke, and arkose, arkose locally normally graded, 2% generally granitic dropstones from 0.5-30cm, 361.5-362 shows strong recumbant folding (syn-sedimentary?), generally 2% pink q-l-vns, contacts sharp,
362.8	372.08	Sslp											massive, grey
372.08	373.78	Sslp/Swp								273	S0	55	laminated grey, wacke, and siltstone, beds 1-10mm,
373.78	375.3	Ark				tr	py	2	q-l				brown Arkose, fine-medium sand,

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FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHI % AND		VEINS % AND		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
375.3	376.36	Sslp/Swp/Ark											laminated siltstone, wacke, and arkose, laminations from 1-200mm, 1% pebble sized dropstones,
376.36	376.65	Scp				tr	py						pink, sorted, clasts 4-6mm in size, subrounded, mainly granitoid clasts,
376.65	377.5	Sslp/Swp/Ark								377	S0	50	laminated 1-20mm siltstone, wacke, and arkose, 2% pebble-sized dropstones, some thicker-bedded arkose and wacke coarsen downward,
377.5	378.5	Sslp											massive, grey,
378.5	380.82	Sslp/Swp/Ark											as Sslp/Swp/Ark above,
380.82	381.12	Ark				tr	py	2	q-l				medium grained arkose, slightly hematised along 1cm pink q-l vnlt, tr. py in and around veinlet,
381.12	381.77	Sslp/Swp/Ark											minor faulting,
381.77	382.53	Sslp											grey siltstone,
382.53	382.86	Sslp/Swp/Ark											
382.86	383.7	Scp				tr	py	5	q-l	383	v	20	conglomerate made up mostly of 1-20cm granite clasts, subrounded, moderate sorting, minor faulting and pink q-l-vns,
383.7	384.7	Scp/Sslp-ft			ft	tr	py	60	q-l	384.48	v	5	conglomerate as above and laminated siltstone, cut by large low CA pink q-l-vn, trace pyrite found in and around the vein, section from 384.48-384.6 is Sct without vein,
384.7	386.13	Sslp/Swp/Ark						2	q-l	385.5 385.9	S0 ft	45 15	laminated 1-10mm, faulting increases down-hole, jasper dropstone at 385.75,
386.13	387.25	Sslp/Swp-ft			ft			2	q-l	387.25	ft	15	extremely faulted, brittle, mainly laminated grey siltstone and wacke, lower contact is a sharp fault with Timiskaming sediments, fault filled with 2mm l-vn, probably late N-S fault,

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FROM	TO	ROCK CODE	PRIMARY FEATURES	ALTERATION CODES	STRUCT. CODES	SULPHI % AND		VEINS % AND		LOCATION	STRUCTURE	CORE ANGLE	COMMENTS
387.25	388	sh-Sct		s-ak-fu	sh	tr	py	2	q-l	388	S1 S2	30 5	strongly sheared and altered Timiskaming conglomerate, sericitised and ankeritised, some clasts replaced to fuchsite, some clasts to sericite and sulphides, two strong foliations, S1 is flattening and penetrative, S2 crenulates S1, clasts 1-10cm, clast assemblage typical of Tim., 1% jasper clasts, difficult to recognise primary lithologies of clasts due to extensive alteration, buff to
388	388.36	sh-Swt		s-ak-fu	sh								grey-green in general, buff to grey coloursed Timiskaming wacke, sheared, matrix is strongly altered to sericite, generally medium sand-sized grey clasts,
388.36	393.23	sh-Sct		s-ak-fu	sh	tr	py	2	q-l	391 391	S1 S2	60 10	as sh-Sct above
393.23	393.4	sh-Sct-ft		s-ak-fu	sh-ft	tr	py	50	q-l	393.25	v	35	late vuggy pink q-l-vn cutting sh-Sct,
393.4	393.9	sh-Sct		s-ak-fu	sh	tr	py	2	q-l				as sh-Sct above
393.9	394.52	sh-Sct-ft		s-ak-fu	sh-ft	tr	py	60	q-l				late vuggy pink q-l-vn breccia cutting sh-Sct
394.52	396.4	sh-Sct		s-ak-fu	sh	tr	py	5	q-l	395.15	v	35	as Sct above
396.4	397	sh-Sct-ft		s-ak-fu	sh	tr	py	50	q-l				late vuggy pink q-l-vn breccia cutting sh-Sct
397	398.07	sh-Sct		s-ak-fu	sh	1	py	2	q-l	397.6 397.6	S1 S2	45 2	as sh-Sct above, more pyrite at bottom of hole appears to replace certain clasts, pyrite is fine and streaky

KLW-94-05

FROM	TO	COMMENTS	SAMPLE	Au (PPB)	Ag (PPM)	As (PPM)	Cu (PPM)	Mo (PPM)	Pb (PPM)	Zn (PPM)
10.97	11.4	Ark, 3% q-l-h-vns, tr. py	411931	-5	-5	2.1		2		-5
36.26	36.48	3% q-l-vns, tr. cp in Ark	411932	5	-5	1.6		-5		-5
373.78	375.3	Brown Ark, tr. py, chip.	411933	5	-5	1.3		-5		-5
376.36	376.65	Gravel	411934							
380.82	381.12	Arkose, tr. py in and around pink q-l-vn	411935	-5	-5	2.5		-5		-5
382.86	383.7	Scp, also 384.48-384.6 added,	411936							
383.7	384.7	Scp/Sslp-ft (q-l-vn), tr. py in q-l-vn, (removed 384.48-384.6)	411937	6	-5	1.8		-5		-5
386.13	387.25	Sslp/Swp/Ark-ft	411938	5	-5	1.6		3		70
387.25	388	sh-Sct-s-ak-fu, tr. py	411939	21	0.1	-5	10	4	2	26
STAND		HR-9	411940	1790	0.3	445	10	18	54	9
388	388.36	sh-Swt-s-ak	411941	-5	0.1	-5	6	4	1	50
388.36	388.92	sh-Sct-s-ak-fu, tr. py	411942	14	0.1	-5	9	2	1	35
388.92	390.33	sh-Sct-s-ak-fu, tr. py	411943	-5	0.1	-5	8	2	1	48
390.33	391.97	as prev.	411944	9	0.1	-5	8	3	1	48
391.97	393.23	as prev.	411945	10	0.1	-5	5	1	1	42
393.23	393.4	50% sh-Sct-ft, 50% pink q-l-vn, tr. py	411946	2	0.1	-5	15	1	1	28
393.4	393.9	sh-Sct-s-ak-fu, tr. py	411947	33	0.1	-5	6	2	1	40
393.9	394.55	60% pink q-l-vns, 40% sh-Sct-ft, tr. py	411948	3	0.1	-5	15	2	2	18
394.55	396.4	sh-Sct-ak-s-fu, tr. py	411949	14	0.1	-5	7	2	1	38
396.4	397	50% sh-Sct-s-ak-fu-ft, tr. py., 50% pink-q-l-vn breccia,	411950	17	0.1	-5	10	3	1	23
397	397.58	sh-Sct-s-ak-fu, tr. py	414951	15	0.1	18	12	2	3	35
397.58	398.07	sh-Sct-s-ak-fu, 1% pyrite (clast replacement),	414952	39	0.1	33	19	8	4	46
180.95	181.3	50% q-h-vns in Ark, tr. cp,py in vns and dissem.	414954	-5	-5	2.2		1		-5
228.7	229.7	5% q-h-vns in Sslp	414955	-5	-5	4.2		3		139
266.4	267.73	5% q-l-h-vns in Swp tr. py, cp	414956	-5	-5	2.9		-5		69
270.05	270.85	as prev.	414957	6	-5	3.4		3		111
275.82	276.35	Sslp-h, 3% q-l-h-vns, tr. py	414958	-5	-5	3.8		3		-5
276.35	277.3	Ark-h, 3% q-l-h-vns, tr. py	414959	4	-5	1.2		-5		-5
314.4	314.6	2cm, q-h-vn, in Swt, tr. py	414960	8	-5	-5		1		-5
315.47	315.77	q-c-h-vn, solid in Swt, tr. py	414961	4	-5	0.9		3		-5
316.16	316.42	3cm q-h-vn in Swt. tr. py	414962	4	-5	-5		1		-5
320.07	320.35	as prev.	414963	-5	-5	1.1		4		-5
328.3	328.7	10% pink q-l-vns in Sslp	414964	-5	-5	2.8		-5		-5
341.95	342.35	10% pink q-l-vn (vuggy)	414965	-5	-5	3.9		2		154
344.8	344.88	100% pink q-l-vn (vuggy), whole core	414966	5	-5	16		-5		-5
350.55	351.25	Swp with 15% pink q-l-vns, tr. py,	414967	-5	-5	2		-5		84
356	356.62	10% pink q-l-vns	414968	8	-5	4.2		-5		90
359.64	360.38	10% q-l-vns, tr. cp,	414969	7	-5	2		3		94
362.6	362.8	1cmX.3cm blotch of pyrite,	414970	3	-5	2.5		-5		-5

Appendix V: Assay Certificates

Established 1928

Swastika Laboratories

A Division of TSL/Assayers Inc.

Assaying - Consulting - Representation

Geochemical Analysis Certificate

4W-3002-RG1

Company: **WMC INTERNATIONAL LIMITED** Date: NOV-24-94
Project: 4043
Attn: R. Brommecker

We hereby certify the following Geochemical Analysis of 67 Core/Rock samples submitted NOV-21-94 by R. Brommecker.

Sample Number		Au PPB	Au Check PPB	Ag PPM	As PPM	Cu PPM	Mo PPM	Pb PPM	Zn PPM
CR-102409		Nil	-	0.1	<5	32	2	13	46
CR-102026		31	-	0.7	16	64	10	90	138
CR-102027		39	41	0.2	12	43	5	31	39
CR-102028		105	-	0.3	7	822	237	13	17
CR-411811		Nil	-	0.1	<5	58	3	1	53
CR-411812		Nil	-	0.1	<5	97	9	5	50
CR-411813		Nil	-	0.1	<5	44	3	3	55
CR-411814		14	-	0.2	<5	87	2	2	46
CR-411815		Nil	-	0.1	<5	35	2	1	49
CR-411816		2	-	0.1	<5	21	2	1	63
CR-411817		10	-	0.1	<5	110	2	1	111
CR-411818		Nil	-	0.1	<5	92	3	1	123
CR-411819		7	-	0.1	<5	50	2	2	45
CR-411820	Control	1618	1646	0.3	439	10	17	52	10
CR-411821		7	-	0.1	<5	51	3	2	90
CR-411822		Nil	-	0.1	<5	74	2	1	100
CR-411823		43	38	0.3	<5	228	26	6	100
CR-411824		Nil	-	0.1	<5	59	2	1	87
CR-411825		5	-	0.1	<5	87	5	2	58
CR-411826		Nil	-	0.1	<5	38	3	1	66
CR-411827		Nil	-	0.1	<5	43	2	1	55
CR-411828		Nil	-	0.1	<5	73	4	2	56
CR-411829		34	55	0.1	21	52	2	2	74
CR-411830		36	-	0.1	13	7	2	4	51
CR-411831		9	-	0.1	13	11	2	11	108
CR-411832		12	-	0.1	<5	61	1	1	63
CR-411833		2	-	0.1	<5	6	2	1	91
CR-411834		3	-	0.1	<5	27	3	1	101
CR-411835		9	-	0.1	<5	102	2	1	69
CR-411836		10	-	0.1	<5	53	5	2	41

One assay ton portion used.

Certified by Denis Chanto

P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 FAX (705) 642-3300

Established 1928

Swastika Laboratories

A Division of TSL/Assayers Inc.

Assaying - Consulting - Representation

Geochemical Analysis Certificate

4W-3002-RG1

Company: WMC INTERNATIONAL LIMITED
Project: 4043
Attn: R. Brommecker

Date: NOV-24-94

We hereby certify the following Geochemical Analysis of 67 Core/Rock samples submitted NOV-21-94 by R. Brommecker.

Sample Number		Au PPB	Au Check PPB	Ag PPM	As PPM	Cu PPM	Mo PPM	Pb PPM	Zn PPM
CR-411837		Nil	-	0.1	<5	6	2	1	88
CR-411838		Nil	-	0.1	<5	66	2	1	89
CR-411839		Nil	-	0.1	<5	70	2	1	74
CR-411840	Control	1803	-	0.3	437	10	18	51	7
CR-411841		5	-	0.1	<5	106	1	1	57
CR-411859		19	17	0.1	<5	43	1	1	85
CR-411860	Control	1747	1882	0.4	433	10	17	53	8
CR-411861		10	-	0.1	<5	25	2	10	70
CR-411862		Nil	-	0.1	<5	6	1	6	65
CR-411863		Nil	-	0.1	<5	7	2	1	52
CR-411864		2	-	0.1	<5	13	2	1	47
CR-411865		17	-	0.1	<5	13	2	1	51
CR-411866		3	-	0.1	<5	10	2	1	43
CR-411867		Nil	Nil	0.1	<5	26	1	19	47
CR-411868		Nil	-	0.1	<5	8	1	1	45
CR-411869		Nil	-	0.1	<5	15	2	1	36
CR-411870		Nil	-	0.1	<5	47	1	1	53
CR-411871		7	-	0.2	<5	43	2	1	52
CR-411872		29	27	0.1	<5	59	3	1	64
CR-411873		Nil	-	0.1	<5	16	2	1	49
CR-411874		Nil	-	0.1	<5	51	2	1	50
CR-411875		Nil	-	0.1	<5	67	1	1	44
CR-411876		Nil	Nil	0.1	<5	110	2	1	54
CR-411877		Nil	-	0.1	<5	66	2	1	76
CR-411878		Nil	-	0.1	<5	23	2	1	76
CR-411879		Nil	-	0.1	<5	62	2	1	61
CR-411880	Control	1872	1869	0.4	425	10	17	55	7
CR-411881		Nil	-	0.1	<5	75	2	1	59
CR-411882		Nil	-	0.1	<5	124	2	1	46
CR-411883		Nil	-	0.1	<5	79	2	1	51

One assay ton portion used.

Certified by Denis Chartier

P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 FAX (705) 642-3300

Established 1928

Swastika Laboratories

A Division of TSL/Assayers Inc.

Assaying - Consulting - Representation

Geochemical Analysis Certificate

4W-3002-RG1

Company: WMC INTERNATIONAL LIMITED
Project: 4043
Attn: R. Brommecker

Date: NOV-24-94

We hereby certify the following Geochemical Analysis of 67 Core/Rock samples submitted NOV-21-94 by R. Brommecker.

Sample Number	Au PPB	Au Check PPB	Ag PPM	As PPM	Cu PPM	Mo PPM	Pb PPM	Zn PPM
CR-411884	Nil	-	0.1	<5	26	2	1	45
CR-411885	Nil	-	0.1	<5	6	4	1	40
CR-411886	Nil	-	0.1	<5	8	2	1	45
CR-411887	10	10	0.1	<5	8	4	1	40
CR-411888	Nil	-	0.1	<5	6	2	1	44
CR-411889	3	-	0.1	<5	248	3	1	44
CR-411890	Nil	-	0.1	<5	48	2	1	54

One assay ton portion used.

Certified by Denis Christie

P.O. Box 10, Swastika, Ontario P0K 1T0
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Geochemical Analysis Certificate

4W-3003-RG1

Company: WMC INTERNATIONAL LIMITED
Project: 4043
Attn: R. Brommecker

Date: NOV-24-94

We hereby certify the following Geochemical Analysis of 53 Rock/Core samples submitted NOV-21-94 by R. Brommecker.

Sample Number	Au PPB	Au Check PPB	Ag PPM	As PPM	Cu PPM	Mo PPM	Pb PPM	Zn PPM
CR-411891	3	-	0.1	<5	55	2	4	77
CR-411892	7	-	0.1	<5	75	2	1	117
CR-411893	Nil	-	0.1	<5	93	2	1	156
CR-411894	9	-	0.1	<5	114	2	1	116
CR-411895	5	-	0.1	<5	82	2	1	70
CR-411896	10	7	0.2	55	77	2	1	411
CR-411897	5	-	0.1	29	83	2	1	68
CR-411898	10	-	0.1	46	87	1	2	71
CR-411899	10	-	0.1	27	152	2	1	65
CR-411900 Control	1749	1725	0.3	442	9	18	51	8
CR-411901	9	-	0.1	<5	43	2	1	75
CR-411902	Nil	-	0.1	<5	13	3	1	36
CR-411903	3	-	0.1	<5	77	2	1	91
CR-411904	Nil	-	0.1	<5	80	2	4	115
CR-411905	Nil	-	0.1	<5	86	3	1	89
CR-411906	26	-	0.2	<5	107	2	1	204
CR-411907	41	38	0.1	<5	96	3	1	72
CR-411908	14	-	0.1	<5	85	2	1	71
CR-411909	2	-	0.1	<5	76	2	1	69
CR-411910	3	-	0.1	<5	110	1	1	47
CR-411915	Nil	-	0.1	<5	46	1	1	68
CR-411916	2	-	0.1	<5	49	2	5	61
CR-411917	Nil	-	0.1	<5	51	1	1	72
CR-411920 Control	1855	-	0.3	438	9	17	55	8
CR-411925	29	-	0.1	<5	122	2	1	38
CR-411926	9	-	0.1	<5	26	2	3	40
CR-411927	3	-	0.1	<5	22	1	2	44
CR-411928	9	-	0.1	<5	16	1	5	38
CR-411929	10	9	0.1	<5	19	1	3	40
CR-411930	3	-	0.1	<5	23	1	3	47

One assay ton portion used.

Certified by Denis Santo

P.O. Box 10, Swastika, Ontario P0K 1T0
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Swastika Laboratories
A Division of TSL/Assayers Inc.
Established 1928
Assaying - Consulting - Representation

Geochemical Analysis Certificate

4W-3003-RG1

Company: WMC INTERNATIONAL LIMITED
Project: 4043
Attn: R. Brommecker

Date: NOV-24-94

We hereby certify the following Geochemical Analysis of 53 Rock/Core samples submitted NOV-21-94 by R. Brommecker.

Sample Number	Au PPB	Au Check PPB	Ag PPM	As PPM	Cu PPM	Mo PPM	Pb PPM	Zn PPM
CR-411939	21	-	0.1	<5	10	4	2	26
CR-411940 Control	1790	-	0.3	445	10	18	54	9
CR-411941	Nil	-	0.1	<5	6	4	1	50
CR-411942	14	-	0.1	<5	9	2	1	35
CR-411943	Nil	-	0.1	<5	8	2	1	48
CR-411944	9	-	0.1	<5	8	3	1	48
CR-411945	10	-	0.1	<5	5	1	1	42
CR-411946	2	-	0.1	<5	15	1	1	28
CR-411947	33	-	0.1	<5	6	2	1	40
CR-411948	3	3	0.1	<5	15	2	2	18
CR-411949	14	-	0.1	<5	7	2	1	38
CR-411950	17	-	0.1	<5	10	3	1	23
CR-414951	15	-	0.1	18	12	2	3	35
CR-414952	39	-	0.1	33	19	8	4	46
CR-414953	9	-	0.1	<5	43	1	5	34
CR-102329	17	-	0.1	<5	85	1	1	143
CR-102330	10	-	0.1	<5	128	1	1	62
CR-102331	7	-	0.1	<5	119	1	1	59
CR-102332	Nil	-	0.1	18	108	1	1	56
CR-102333	7	5	0.1	54	27	1	1	53
CR-102334	3	-	0.1	219	19	3	2	14
CR-102335	Nil	-	0.1	14	18	2	8	38
CR-102336	17	14	0.1	1	92	2	1	48

One assay ton portion used.

Certified by Dean Swastika

P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 FAX (705) 642-3300

ACTLABS

ACTIVATION LABORATORIES LTD

JAN 09 1995

Invoice No.: 7348
Work Order: 7420
Invoice Date: 29-DEC-94
Date Submitted: 01-DEC-94
Your Reference: 4043G10
Account Number: W004

W C INTERNATIONAL LIMITED
2
GURDWARA RD
NEPEAN, ONTARIO
K E 8A2
ATTENTION: DIANA CAMPBELL

CERTIFICATE OF ANALYSIS

I AA package, elements and detection limits:

AU	2.	PPB	AG	5.	PPM	AS	0.5	PPM	BA	50.	PPM
R	0.5	PPM	CA	1.	%	CO	1.	PPM	CR	5.	PPM
S	1.	PPM	FE	0.01	%	HF	1.	PPM	HG	1.	PPM
IR	5.	PPB	MO	1.	PPM	NA	0.01	%	NI	20.	PPM
PB	5.	PPM	SB	0.1	PPM	SC	0.1	PPM	SE	5.	PPM
N	100.	PPM	SR	500.	PPM	TA	0.5	PPM	TH	0.2	PPM
U	0.5	PPM	W	1.	PPM	ZN	50.	PPM	LA	0.5	PPM
CE	3.	PPM	ND	5.	PPM	SM	0.1	PPM	EU	0.2	PPM
B	0.5	PPM	YB	0.2	PPM	LU	0.05	PPM			

REPORT 7348B - INAA
7348C - FIRE ASSAY

PLEASE NOTE: SAMPLES 411920, 411934, 411853 WERE MISSING

CERTIFIED BY :

David Hoffman

DR. ERIC L. HOFFMAN

1336 SANDHILL DRIVE, ANCASTER, ONTARIO, CANADA L9G 4V5 • TEL: 905-648-9611 • FAX: 905-648-9613

Activation Laboratories Ltd. Work Order: 7420 Report: 7348

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	MO PPM	NA %	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SN PPM	SR PPM	TA PPM	TH PPM
CR 411801A	3	<5	4.5	710	<0.5	<1	26	170	2	5.63	4	<1	<5	<1	2.99	<31	95	0.4	19	<3	<100	<500	<0.5	11
CR 411801B	5	<5	4.8	570	<0.5	2	23	150	1	4.80	5	<1	<5	<1	3.16	45	110	0.4	16	<3	<100	<500	<0.5	9.0
CR 411802	8	<5	3.8	310	<0.5	<1	17	97	<1	3.78	5	<1	<5	<1	2.16	<20	60	0.2	10	<3	<100	<500	<0.5	4.4
CR 411803	5	<5	4.1	450	<0.5	1	21	140	<1	4.59	4	<1	<5	2	2.92	<21	66	0.3	15	<3	<100	<500	<0.5	7.6
CR 411804	4	<5	2.6	550	<0.5	<1	27	160	2	5.78	5	<1	<5	<1	2.25	<21	100	0.3	17	<3	<100	<500	<0.5	11
CR 411805	4	<5	1.3	320	1.6	<1	9	72	<1	1.65	4	<1	<5	2	2.34	<20	42	0.2	5.0	<3	<100	<500	1.9	4.8
CR 411806	<2	<5	3.3	450	<0.5	<1	23	140	1	4.93	4	<1	<5	<1	2.96	<22	90	0.4	16	<3	<100	<500	<0.5	10
CR 411807	5	<5	3.8	460	<0.5	2	23	140	3	5.04	4	<1	<5	<1	1.85	<20	89	0.4	16	<3	<100	<500	<0.5	9.3
CR 411808	4	<5	5.2	470	<0.5	2	22	130	2	4.34	5	<1	6	2	2.74	<21	80	0.3	14	<3	<100	<500	1.7	8.2
CR 411809	<2	<5	3.3	520	<0.5	3	29	350	2	5.53	4	<1	<5	<1	3.33	<32	<15	0.4	19	<3	<100	<500	<0.5	5.8
CR 411842	9	<5	4.1	580	<0.5	1	31	180	2	6.22	4	<1	<5	<1	3.16	140	63	0.4	19	<3	<100	<500	<0.5	12
CR 411843	<2	<5	3.3	520	2.4	3	18	150	2	3.53	5	<1	<5	2	4.15	<24	70	0.3	16	<3	<100	<500	<0.5	9.4
CR 411844	8	<5	<0.5	360	<0.5	4	15	140	<1	2.88	5	<1	<5	<1	5.31	<26	60	<0.1	19	<3	<100	<500	<0.5	8.0
CR 411845	3	<5	1.5	<50	20	26	3	18	<1	0.99	<1	<1	<5	<1	0.47	<20	<15	<0.1	54	<3	<100	<500	<0.5	1.0
CR 411846	7	<5	2.6	460	2.1	4	13	110	<1	2.93	6	<1	<5	<1	3.74	<20	88	0.4	11	<3	<100	<500	<0.5	6.1
CR 411847	<2	<5	2.0	440	1.8	<1	17	120	2	2.92	7	<1	<5	<1	3.08	<20	93	0.3	10	<3	<100	<500	<0.5	6.8
CR 411848	<2	<5	2.6	370	<0.5	2	22	130	<1	4.18	4	<1	<5	<1	3.93	<21	51	0.3	15	<3	<100	<500	<0.5	6.6
CR 411849	<2	<5	2.7	390	2.5	<1	17	90	<1	2.05	4	<1	<5	<1	3.74	<26	57	0.5	9.8	<3	<100	<500	<0.5	5.0
CR 411850	9	<5	3.2	570	<0.5	2	24	240	2	5.45	5	<1	<5	<1	3.14	100	70	0.6	17	<3	<100	<500	<0.5	9.7
CR 411851	8	<5	4.8	630	<0.5	<1	27	160	1	5.64	5	<1	<5	<1	3.72	<30	99	0.5	19	<3	<100	<500	<0.5	9.2
CR 411852	66	<5	4.1	730	<0.5	<1	30	220	6	6.66	5	<1	<5	<1	1.91	<21	170	0.8	25	<3	<100	<500	<0.5	16
CR 411854	6	<5	2.8	680	<0.5	<1	31	190	7	6.67	4	<1	<5	<1	1.07	<20	140	0.8	23	<3	<100	<500	1.4	12
CR 411855	5	<5	11	620	<0.5	<1	34	200	4	5.88	5	<1	<5	5	2.59	<26	150	2.2	25	<3	<100	<500	<0.5	14
CR 411857	9	<5	4.6	980	<0.5	<1	26	170	<1	5.35	4	<1	<5	<1	3.02	<24	110	0.6	18	<3	<100	<500	<0.5	12
CR 411918	5	<5	3.7	890	<0.5	<1	20	160	2	4.12	4	<1	<5	<1	3.12	<25	95	0.4	13	<3	<100	<500	<0.5	8.6
CR 411919	<2	<5	2.3	360	<0.5	<1	12	110	<1	2.55	4	<1	<5	5	3.49	81	22	<0.1	9.5	<3	<100	<500	<0.5	4.5
CR 411921	4	<5	2.8	520	<0.5	2	22	250	2	5.40	4	<1	<5	3	3.19	130	59	0.6	19	<3	<100	<500	<0.5	7.4
CR 411922	8	<5	3.3	410	<0.5	2	23	210	1	5.43	4	<1	<5	<1	3.23	100	58	0.5	19	<3	<100	<500	<0.5	7.6
CR 411931	<2	<5	2.1	360	2.4	<1	7	66	<1	1.46	4	<1	<5	2	2.27	<20	50	0.4	3.9	<3	<100	<500	<0.5	5.0
CR 411932	5	<5	1.6	310	2.0	<1	9	57	<1	1.69	2	<1	<5	<1	2.63	<20	49	0.2	4.8	<3	<100	<500	<0.5	4.2
CR 411933	5	<5	1.3	150	1.3	<1	11	88	<1	2.40	5	<1	<5	<1	3.07	<20	39	0.4	6.2	<3	<100	<500	<0.5	6.6
CR 411935	<2	<5	2.5	280	1.7	<1	27	84	<1	2.93	3	<1	<5	<1	2.58	85	48	0.3	6.5	<3	<100	<500	<0.5	6.3
CR 411937	6	<5	1.8	250	9.8	10	10	41	<1	1.73	1	<1	<5	<1	1.06	<20	25	0.3	12	<3	<100	<500	<0.5	3.7
CR 411938	5	<5	1.6	470	<0.5	3	21	170	2	4.82	4	<1	<5	3	1.50	<20	100	0.7	15	<3	<100	<500	<0.5	6.3
CR 414954	<2	<5	2.2	370	3.7	<1	9	60	<1	1.68	3	<1	<5	1	1.78	<20	48	0.3	4.3	<3	<100	<500	<0.5	3.7
CR 414955	<2	<5	4.2	560	<0.5	<1	20	130	<1	4.06	5	<1	<5	3	3.33	<23	69	0.4	13	<3	<100	<500	<0.5	7.1
CR 414956	<2	<5	2.9	400	2.3	<1	15	100	<1	2.86	7	<1	<5	<1	3.37	<22	49	0.3	10	<3	<100	<500	<0.5	5.5
CR 414957	6	<5	3.4	530	<0.5	<1	14	140	<1	3.17	4	<1	<5	3	2.84	<20	82	0.3	9.7	<3	<100	<500	1.2	5.9
CR 414958	<2	<5	3.8	460	<0.5	<1	15	130	<1	2.80	6	<1	<5	3	3.64	<23	81	<0.1	13	<3	<100	<500	1.5	7.0
CR 414959	4	<5	1.2	370	1.9	<1	5	59	<1	1.22	3	<1	<5	<1	2.02	60	61	0.1	3.3	<3	<100	<500	<0.5	4.0
CR 414960	8	<5	<0.5	180	2.3	<1	3	45	<1	0.87	3	<1	<5	1	2.04	<20	29	0.2	2.0	<3	<100	<500	<0.5	3.4
CR 414961	4	<5	0.9	130	3.0	<1	5	32	<1	0.97	2	<1	<5	3	1.22	<20	22	0.2	3.3	<3	<100	<500	<0.5	2.2
CR 414962	4	<5	<0.5	220	2.3	<1	3	56	<1	1.01	3	<1	<5	1	2.02	<20	32	0.2	2.3	<3	<100	<500	<0.5	4.0
CR 414963	<2	<5	1.1	150	2.7	<1	5	44	<1	0.80	2	<1	<5	4	1.21	51	33	0.1	1.5	<3	<100	<500	1.0	2.6
CR 414964	<2	<5	2.8	310	5.8	9	17	110	1	3.80	3	<1	<5	<1	2.16	<20	59	0.4	13	<3	<100	<500	<0.5	7.4

Activation Laboratories Ltd. Work Order: 7420 Report: 7348

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	MO PPM	NA %	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SN PPM	SR PPM	TA PPM	TH PPM
CR 414965	<2	<5	3.9	230	3.5	3	25	300	<1	5.79	4	<1	<5	2	2.64	<22	41	0.3	19	<3	<100	<500	<0.5	7.7
CR 414966	5	<5	16	150	22	16	7	32	<1	1.88	<1	<1	<5	<1	0.17	<20	47	0.3	6.8	<3	<100	<500	<0.5	2.9
CR 414967	<2	<5	2.0	150	7.3	5	11	93	<1	2.06	3	<1	<5	<1	1.93	84	<15	0.4	7.8	<3	<100	<500	<0.5	4.3
CR 414968	8	<5	4.2	510	2.2	3	14	160	2	4.14	4	<1	8	<1	1.86	<20	140	0.5	20	<3	<100	<500	<0.5	14
CR 414969	7	<5	2.0	270	3.1	3	14	130	2	4.02	5	<1	<5	3	1.77	100	99	0.3	14	<3	<100	<500	<0.5	10
CR 414970	3	<5	2.5	470	<0.5	<1	25	150	2	4.78	4	<1	<5	<1	1.66	<20	140	0.5	14	<3	<100	<500	<0.5	12

Activation Laboratories Ltd. Work Order: 7420 Report: 7348

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
CR 411801A	4.0	<1	149	28	59	20	4.2	1.2	<0.5	2.4	0.35	29.35
CR 411801B	3.5	<1	131	24	52	25	4.0	1.2	<0.5	2.0	0.32	30.56
CR 411802	1.5	2	80	11	25	10	2.0	0.7	<0.5	1.4	0.23	27.33
CR 411803	2.7	<1	73	27	53	17	3.7	1.0	0.7	2.1	0.34	27.26
CR 411804	3.7	2	128	29	63	21	4.4	1.3	0.8	2.5	0.40	25.76
CR 411805	1.6	<1	<50	14	29	8	1.4	0.5	<0.5	0.9	0.17	29.60
CR 411806	3.7	<1	113	33	66	24	4.4	1.1	<0.5	2.0	0.33	26.54
CR 411807	3.4	<1	109	24	52	23	3.9	1.1	0.8	2.2	0.32	29.16
CR 411808	2.6	<1	<50	45	88	30	4.9	1.3	<0.5	1.9	0.30	26.13
CR 411809	<0.5	<1	191	35	68	30	5.4	1.6	<0.5	2.2	0.31	26.93
CR 411842	4.4	<1	133	45	83	28	5.4	1.4	0.8	2.1	0.38	33.03
CR 411843	2.0	<1	<50	25	56	20	4.4	1.7	<0.5	2.3	0.34	22.41
CR 411844	2.6	<1	<50	87	180	55	8.4	2.0	<0.5	2.4	0.46	25.98
CR 411845	<0.5	<1	<50	40	90	37	6.4	2.1	1.4	7.2	1.15	29.43
CR 411846	1.7	<1	<50	24	51	19	3.4	0.9	<0.5	1.7	0.25	27.64
CR 411847	2.4	<1	<50	47	92	31	4.3	1.0	<0.5	1.5	0.28	31.41
CR 411848	1.4	<1	96	29	61	23	3.9	1.0	<0.5	2.0	0.30	28.46
CR 411849	1.7	<1	<50	18	34	12	2.5	0.7	<0.5	1.4	0.22	30.03
CR 411850	2.8	<1	<50	34	68	31	4.8	1.4	<0.5	2.0	0.36	31.54
CR 411851	4.2	<1	147	32	71	19	4.8	1.3	<0.5	2.3	0.37	27.32
CR 411852	5.7	<1	141	78	160	50	7.2	1.9	<0.5	3.4	0.52	26.76
CR 411854	7.0	<1	176	66	130	44	5.9	1.5	<0.5	2.5	0.41	32.36
CR 411855	3.5	<1	134	80	150	56	7.8	2.1	<0.5	2.4	0.46	30.56
CR 411857	3.1	<1	178	34	69	22	4.9	1.3	0.6	2.2	0.31	32.36
CR 411918	3.3	<1	116	27	56	18	3.6	1.0	<0.5	1.7	0.21	25.61
CR 411919	<0.5	<1	67	6.5	16	9	3.1	1.1	<0.5	1.5	0.24	29.85
CR 411921	2.3	<1	109	31	63	25	4.8	1.4	0.6	2.2	0.33	36.04
CR 411922	1.4	<1	109	27	54	21	4.5	1.3	<0.5	2.2	0.41	29.42
CR 411931	2.0	5	<50	12	24	10	1.6	0.4	<0.5	1.0	0.16	25.86
CR 411932	1.2	<1	<50	14	29	9	1.9	0.6	<0.5	0.9	0.16	29.17
CR 411933	3.0	<1	<50	13	29	6	1.9	0.5	<0.5	1.3	0.21	28.14
CR 411935	3.0	<1	<50	14	31	11	2.0	0.6	<0.5	0.8	0.15	26.11
CR 411937	1.5	2	<50	10	26	9	3.4	1.1	0.7	4.3	0.65	33.22
CR 411938	1.9	<1	70	4.2	12	<5	1.2	0.4	<0.5	1.5	0.26	24.52
CR 414954	1.8	4	<50	17	32	9	2.1	0.6	<0.5	0.9	0.17	27.62
CR 414955	2.6	<1	139	26	53	20	3.7	1.0	<0.5	1.7	0.25	28.26
CR 414956	2.6	<1	69	22	44	14	3.3	1.0	<0.5	1.5	0.27	28.12
CR 414957	1.7	<1	111	19	42	15	2.8	0.9	<0.5	1.1	0.22	29.17
CR 414958	2.6	5	<50	26	59	23	4.0	1.0	<0.5	1.9	0.22	27.52
CR 414959	1.2	<1	<50	9.4	22	6	1.3	0.4	<0.5	0.9	0.15	29.70
CR 414960	1.3	<1	<50	5.8	14	6	0.9	0.4	<0.5	0.7	0.12	26.28
CR 414961	0.5	5	<50	44	84	33	3.8	1.0	<0.5	0.4	0.07	28.42
CR 414962	1.4	<1	<50	6.1	14	<5	0.9	0.5	<0.5	0.8	0.14	33.71
CR 414963	<0.5	5	<50	4.9	11	5	0.7	0.3	<0.5	0.5	0.09	30.08
CR 414964	2.9	<1	<50	44	98	35	4.8	1.3	0.6	2.7	0.43	27.97

Activation Laboratories Ltd. Work Order: 7420 Report: 7348

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
CR 414965	3.0	<1	154	24	56	20	3.8	1.1	<0.5	2.5	0.36	27.16
CR 414966	1.5	<1	<50	22	52	15	3.7	1.1	0.6	4.1	0.22	33.79
CR 414967	2.2	<1	84	16	37	13	2.6	0.7	<0.5	2.0	0.32	26.92
CR 414968	5.4	<1	90	55	110	38	6.1	1.7	<0.5	2.7	0.47	28.64
CR 414969	3.8	3	94	28	65	21	3.9	1.1	0.6	2.3	0.35	29.02
CR 414970	6.4	<1	<50	14	33	13	2.8	1.0	0.9	2.2	0.30	27.83

Activation Laboratories Ltd. Work Order: 7420 Report: 7348B

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	MO PPM	NA PPM	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SN %	SR %	TA PPM	TH PPM
CR 102029	1450	10	21	330	<1	<1	8	38	4	2.32	2.1	<1	<5	200	2350	<50	85	7.0	4.9	<5	<0.01	<0.05	<1	3.6
CR 102030	54	<5	19	480	<1	3	19	150	11	4.66	7.6	<1	<5	54	38700	<50	170	9.9	24	<5	<0.01	<0.05	2	1.6

Activation Laboratories Ltd. Work Order: 7420 Report: 7348B

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
CR 102029	5.8	32	104	24	34	7	2.2	1.0	<0.5	0.91	0.08	29.71
CR 102030	2.9	59	151	73	100	32	6.1	2.5	1.1	2.80	0.44	27.96

Activation Laboratories Ltd. Work Order: 7420 Report: 7348C

SAMPLE DESCRIPTION	AU
	PPB
102029	1223
102030	47

09

Appendix VI: Cost Breakdown of Drilling

Appendix VI: Cost Breakdown of Drilling

Contractors Costs	
Drilling and Mobilisation	$69,489.78
Assays	$2973.00
Transportation	
Gas	$867.65
Accommodation	$1390.00
Food	$1381.36
Core Facility Rental	$1950.00
Geology	
Core Logging, Report Writing, Drill Supervision	
1 Geologist X 315 hrs @ $27.50/hr =	$8662.50
1 Geologist X 45 hrs @ $27.50/hr=	$1237.50
Technical	
Core Splitting etc.	
Technician X 107.5hrs @ $20.00/hr =	$2150.00
Drafting	
Draftsman X 75 hrs @ $20.50/hr =	$1537.50
TOTAL COSTS=	$91,639.29

G-3602

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

	Description	Order No.	Date	Disposition	File
(R)	SEC. 36/80	W9/86	24/01/86	M + S	
	SEC. 35/90	0-L-27/95	95.11.01	M&S	

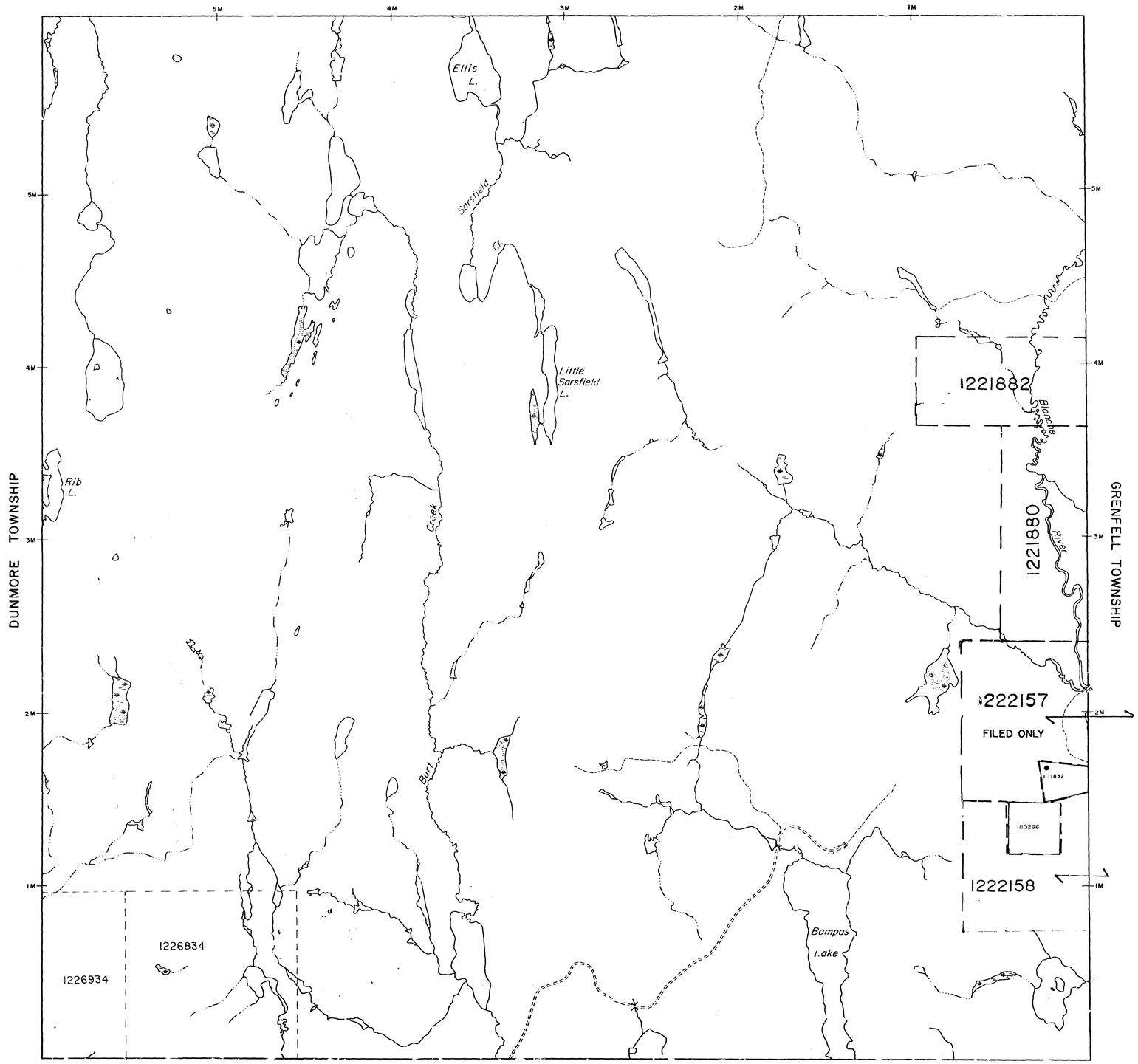
LEE TOWNSHIP

DUNMORE TOWNSHIP

GRENFELL TOWNSHIP

BURT TOWNSHIP

BOWMAN TWP.



LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◓
" MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◨
" , MINING RIGHTS ONLY	◧
LICENCE OF OCCUPATION	▼
ORDER IN COUNCIL	OC
RESERVATION	(R)
CANCELLED	⊗
SAND & GRAVEL	(S)

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970 CHAP. 380, SEC. 63, SUBSEC. 1

500 0 1000 Metres

10 0 10 20 30 40 50 60 70 Chains

500 0 1000 2000 4000 5000 Feet

SCALE 1:20 000

DATE OF ISSUE
JUN 18 1998
PROVINCIAL RECORDING OFFICE - SUDBURY

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP...AREA FALLS WITHIN THE
PLONSKI FOREST MANAGEMENT UNIT

AND MAY BE SUBJECT TO FORESTRY ACTIVITY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT:

P.O. BOX 129
SWASTIKA, ONTARIO
P0K 1T0
705-642-3222.

TOWNSHIP

BOMPAS

M.N.R. ADMINISTRATIVE DISTRICT
KIRKLAND LAKE

MINING DIVISION
LARDER LAKE

LAND TITLES / REGISTRY DIVISION
TIMISKAMING

Ministry of Natural Resources — Ontario
Ministry of Northern Development and Mines

Date AUGUST, 1986
ARCHIVED MARCH 24/97

Number G-3605

G-3602

42A01SW2027 om94-070 MBY

200

THE TOWNSHIP OF HOLMES

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

Dunmore Twp.

Alma Twp.

Burt Twp.

Flavelle Twp.

Kenaja Cr.

Englehart R.

Chief L.

Galer L.

Middleton

Holmes L.

L.U.P.

1226820

1226876

1225108

1206082

1213844

1213851

1211613

1211614

1211615

1211616

1211612

1180158

1180159

1040777

1203307

LEGEND

PATENTED LAND	P
CROWN LAND SALE	C.S.
LEASES	L
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C

NOTES

400' Surface rights reservation around lakes rivers

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY

S.R.O. – SURFACE RIGHTS ONLY

M.+S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
(R) SEC. 36/80	W. 24/82	29/11/82	S.+M.R.	188522

DATE OF ISSUE

JUN 18 1998

PROVINCIAL RECORDING OFFICE - SUDBURY

PLAN NO.- M.224

ONTARIO

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP/AREA FALLS WITHIN THE-------- PLONSKI FOREST MANAGEMENT UNIT

AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 129 SWASTIKA, ONT. P0K 1T0 705-642-3222

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

ARCHIVED NOV. 18/91

ARCHIVED AUGUST 22, 1995

ARCHIVED ON JUNE 01/95

J.v.K.

42A01SW2027 om94-070 EBY 210

Ministry of Natural Resources
Ontario

Ministry of Northern Development and Mines

INDEX TO LAND DISPOSITION

PLAN

G-3212

TOWNSHIP

GRENFELL

M.N.R. ADMINISTRATIVE DISTRICT

KIRKLAND LAKE

MINING DIVISION

LARDER LAKE

LAND TITLES/REGISTRY DIVISION

TIMISKAMING

Scale 1:20 000

1000 Metres 0 1000 2000 Metres

1000 Feet 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 Feet

Contour Interval 10 Metres

SYMBOLS

Boundary
- Township, Meridian, Baseline
- Road allowance; surveyed
- shoreline
- Lot/Concession; surveyed
- unsurveyed
- Parcel; surveyed
- unsurveyed
- Right-of-way; road
- railway
- utility
- Reservation
- Cliff, Pit, Pile
- Contour
- Interpolated
- Approximate
- Depression
- Control point (horizontal)
- Flooded land
- Mine head frame
- Pipeline (above ground)
- Railway; single track
- double track
- abandoned
- Road; highway, county, township
- access
- trail, bush
- Shoreline (original)
- Transmission line
- Wooded area

DISPOSITION OF CROWN LANDS

Patent
- Surface & Mining Rights
- Surface Rights Only
- Mining Rights Only

Lease
- Surface & Mining Rights
- Surface Rights Only
- Mining Rights Only
- Licence of Occupation
- Order-in-Council — OC
- Cancelled
- Reservation
- Sand & Gravel

AREAS WITHDRAWN FROM DISPOSITION

MRO - Mining Rights Only
SRO - Surface Rights Only
M + S - Mining and Surface Rights

Description	Order No.	Date	Disposition	File

SAND AND GRAVEL

- GRAVEL FILE 127536
- GRAVEL FILE 127784
- M.T.C. GRAVEL PIT
- GRAVEL FILE 64647

PENDING APPLICATION FOR SURFACE RIGHTS UNDER THE PUBLIC LANDS ACT

- TCPL (PIPELINE) APPLICATION FOR RIGHT OF WAY

Surface Rights Withdrawn under Sec. 36,
The Mining Act R.S.O. 1980, ORDER NO. W-01/91/ONT
(Trans Canada Pipeline Right of Way and Buffer
Zone particularly 40.25 meters or 132 ft. on
either side of centre line of right of way)

SURFACE AND MINING RIGHTS WITHDRAWN FROM PROSPECTING, STAKING OUT, SALE OR LEASE SECTION, THE MINING ACT, RSO 1990
W-L-19/96 NER

PUBLIC ISSUE
JUN 17 1998
PROVINCIAL RECORDING OFFICE - SUDBURY

NOTES

ALL ISLANDS IN SESEKINIKA LAKE ARE WITHDRAWN FROM STAKING BY ORDER-IN-COUNCIL DATE DECEMBER 7, 1921

NOTICE OF FORESTRY ACTIVITY
THIS TOWNSHIP/AREA FALLS WITHIN THE TIMISKAMING MANAGEMENT UNIT AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 129
SWASTIKA, ONTARIO
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705-642-3222

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ARCHIVED JUNE 12, 1996

CIRCULATED AUG. 11, 1992 B.R.B.
~~ARCHIVED DECEMBER 12, 1994~~
~~ARCHIVED JUNE 01/95~~

Map base and land disposition drafting by Surveys and Mapping Branch, Ministry of Natural Resources.

The disposition of land, location of lot fabric and parcel boundaries on this index was compiled for administrative purposes only.

42A01SW2027 0894.070 EBY 220

GRENFELL TWP G-3212

M.334 BURT TWP. M.334

DATE OF ISSUE
JUN 18 1998
PROVINCIAL RECORDING OFFICE - SUDBURY

BURT TOWNSHIP

LARDER LAKE MINING DIVISION

DISTRICT OF TIMISKAMING

SCALE 40 CHAINS TO ONE INCH

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	CS
LEASES	(L)
LICENSE OF OCCUPATION	L.O.
LOCATED LAND	Loc.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
CANCELLED	C.

Mining & Surface rights withdrawn from staking out, prospecting Operations, Section 35 Mining Act R.S.O. 1980
Order No. NRW 24/82 Nov 29, 1982 1:40 pm

400' surface rights reservation along the shores of all lakes and rivers.

M.334 —N—

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

	Order No.	File	Date	Disposition
(R1)	W.7/74	104317	21/2/74	S.R.O.
(R2)	W.71/76	100581	15/12/76	S.R.O.
(R3)	NRW 33/79	139857	14/5/79	S.R.O.
(R4)	NRW 92/80	129365	9/7/80	S.R.O.
(R5)	W 29/82	180522	29/11/82	SR & MR

BOMPAS TWP.

1226875
1226818
1225106
1225107
1222036
1222037
1186625
1225174
1186629
1200619
Portage
3 Miles
Burt Lake
HIA53
AREA WITHDRAWN FROM STAKING SECTION 42 MINING ACT
FILE 164556
TOWER SITE
S.R.O. RESERVED
CABIN SITE
S.R.O.
TNR Res. 2
Est No 2698
File 104748
Engelhart River
Gravel File: 186049
D.H.O. PIT 1315
1226693
1226692
1226691
1226690
15906
16723
13767
15268
13768
38686
38685

VI
V
IV
III
II
I

EBY TWP.

HOLMES TWP.

12 11 10 9 8 7 6 5 4 3 2 1

GROSS TWP.

COPY OF THIS MYLAR ARCHIVED AUG 23/93
ARCHIVED ON JUNE 01/95

NOTICE OF FORESTRY ACTIVITY

THIS TOWNSHIP / AREA FALLS WITHIN THE _____ PLONSKI FOREST MANAGEMENT UNIT


AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT: P.O. BOX 129
SWASTIKA, ONT.
POK 1TO
705-642-3222

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

M.334 BURT TWP. M.334

42A01SW2027 om94-070 EBY 230



42A01SW2027 OM94-070 EBY

240

FIGURE 2

WMC INTERNATIONAL LIMITED
AMERICAS DIVISION - EXPLORATION

KIRKLAND LAKE WEST

CLAIM MAP

DRAWN by: Rez & Pam	DATE: AUG. 1994	PLAN NO.
WORK by: Rez & Pam	SCALE: 1:20 000	4043-08-02
	N.T.S.: 42A/1	

BOMPAS TWP.

BURT TWP.

Bompas

Lake

Burt

Lake

1200961

1200962

1200999

1200609

1200610

1200611

1200487

1200613

1200612

1187013

1202820

1200615

1200488

1200486

1187011

1200618

1200630

1200616

1200617

1200614

1200623

1200634

1200631

1200632

BL 36+00

BL 36+00

1200479

1200480

1200481

1200619

1200620

1200621

1200622

1200629

1200624

1200484

1200483

1200627

1200626

1200625

1200628

L95+00

L105+00

L115+00

L125+00

L143+00

L139+25

BURT TWP.

EBY TWP.

Scale: 1:10000

200 0 200 400 600

(metres)

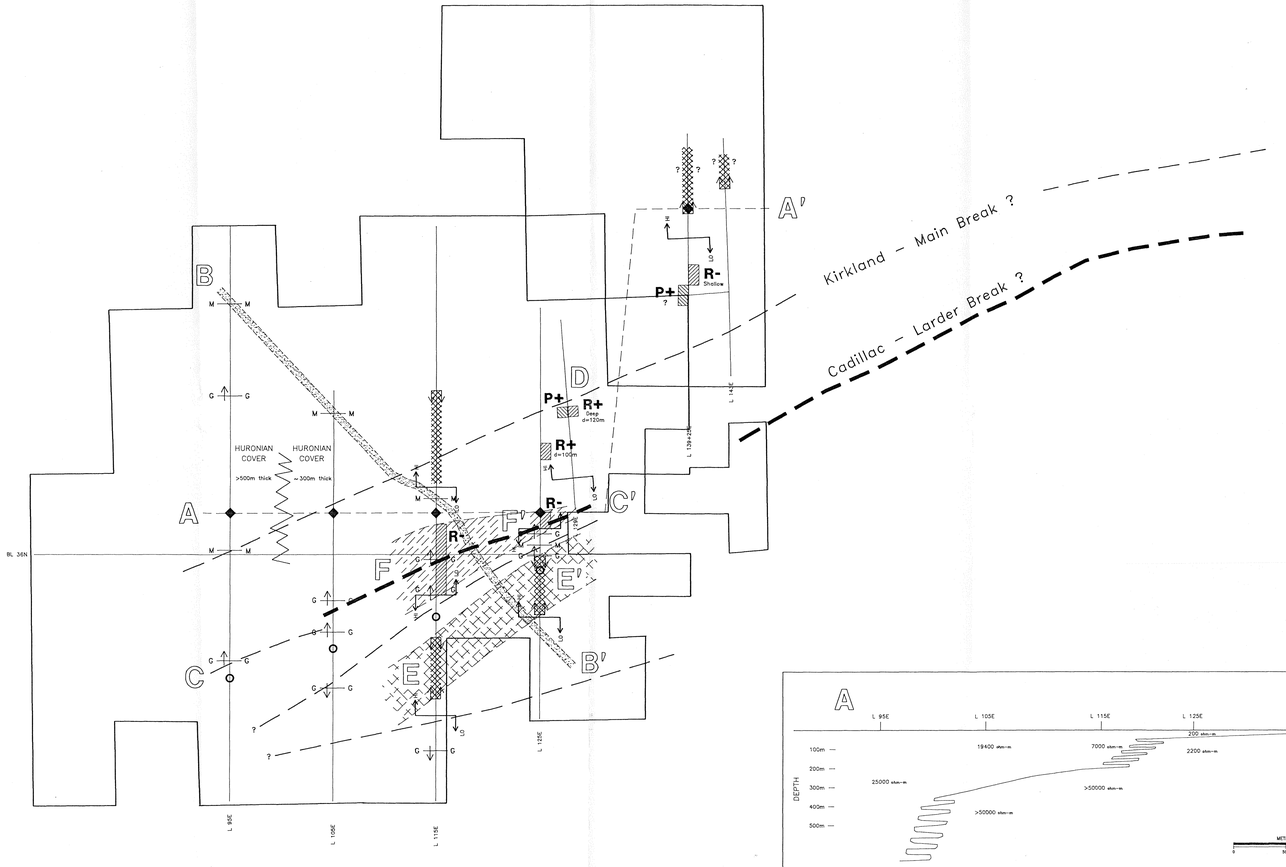
WMC International Limited
Americas Division – Exploration

KIRKLAND LAKE WEST PROJECT
Claim Map

COMPILED: RB, PC	SCALE: 1:10000	PN: 4043	
DRAFTED: RT, PC	REVISION:	PLAN: 4043GRID	
DATE: 8 DEC 94	DATE:	MAP No.:	

FIGURE 4

42A01SW2027 cm94-070 EBY 250



WMC International Limited
Americas Division - Exploration

Kirkland Lake West Project

Interpretation of Geophysical Data

		DATE
Compiled:	RT	JAN 1994
Drafted:	LWu	29 SEP 94
Revised:		30 NOV 94

SCALE
1 : 20000

METRES
0 200 400 600 800 1000

NTS: 42 A/1
PN: 4043

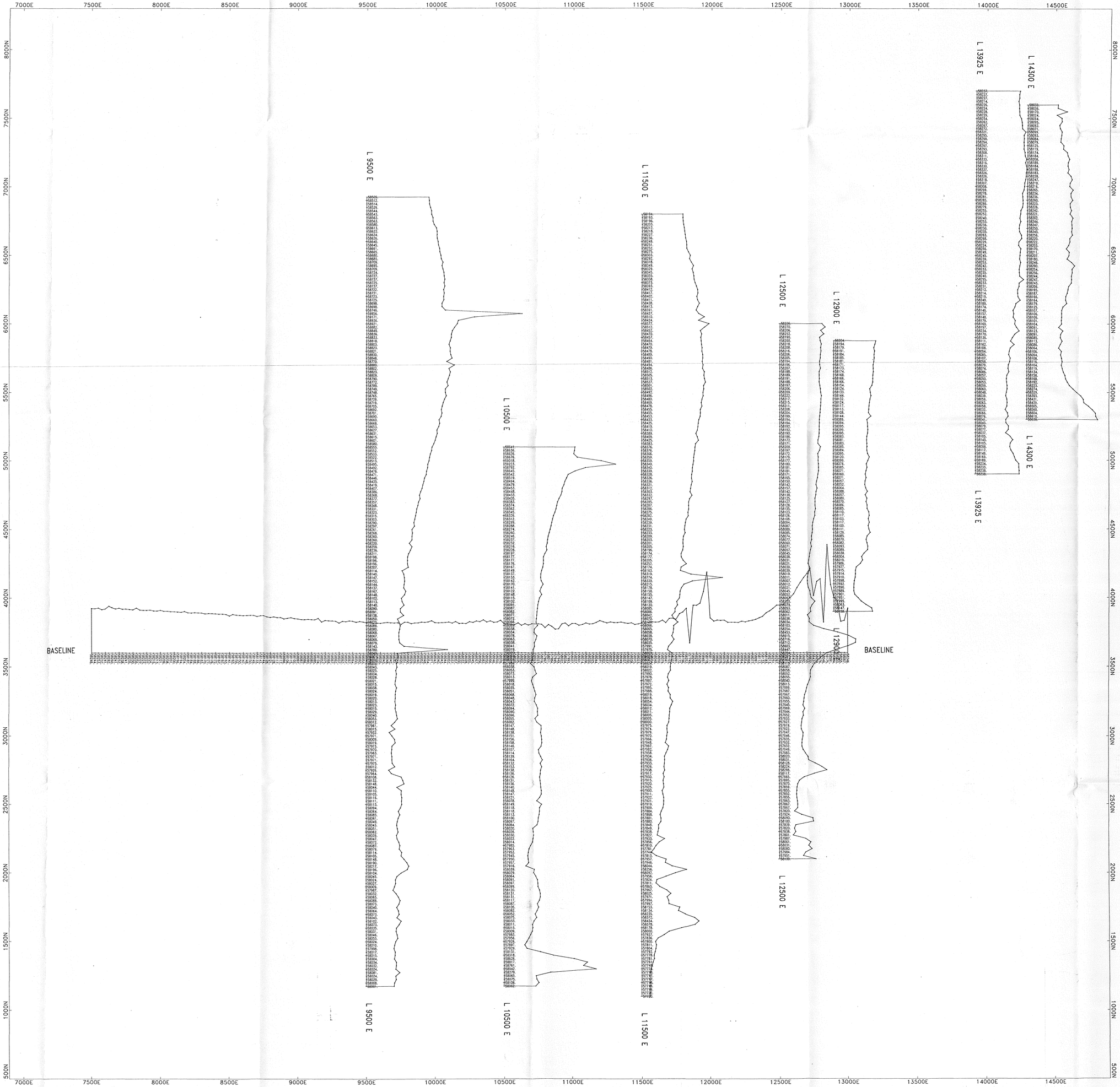
File: KIRKPHYS
Plan:

LEGEND

- Centre of Vertical Electrical Sounding (VES)
- R+ Resistivity High
- R- Resistivity Low
- Resistivity Contact
- P+ Discrete Phase IP High
- Elevated Phase IP and High Resistivity Background
- M — M Magnetic Anomaly Axis Along Profile
- G — G Gravity Profile Inflection Point (direction of down gradient shown)
- Gravity Maxima
- A — A' Interpreted VES Section Line
- Inferred Magnetic Dyke

FIGURE 5

42A01NW2027 gm94-070 KNY



Scale 1:10000

200 0 200 400 600

(meters)

profile plot scale = 200nT/cm
profile base level = 57600 nT
field instrument: EDA OMNI
base station instrument: EDA OMNI

WMC International Limited
KIRKLAND LAKE WEST PROJECT BURT TOWNSHIP, ONTARIO NTS 42-A-1
TOTAL MAGNETIC INTENSITY SURVEY
Data Profiles and Postings
WMC – Ottawa – rt – November 1994

FIGURE 7

42A01NW0027 0004 270 BRW

42A015NW2027 OM94-070 KBY 280

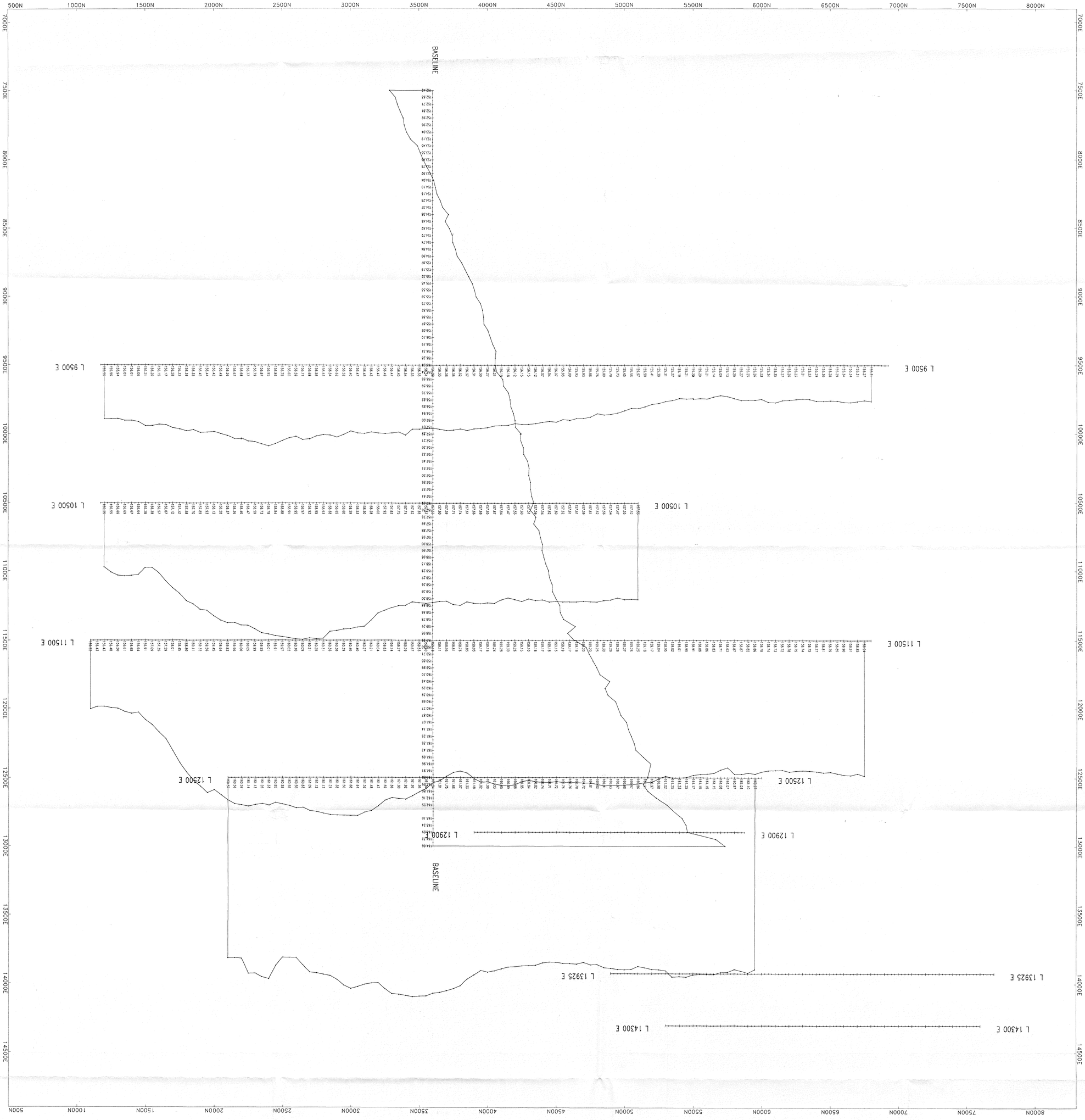


FIGURE 8

WMC International Limited

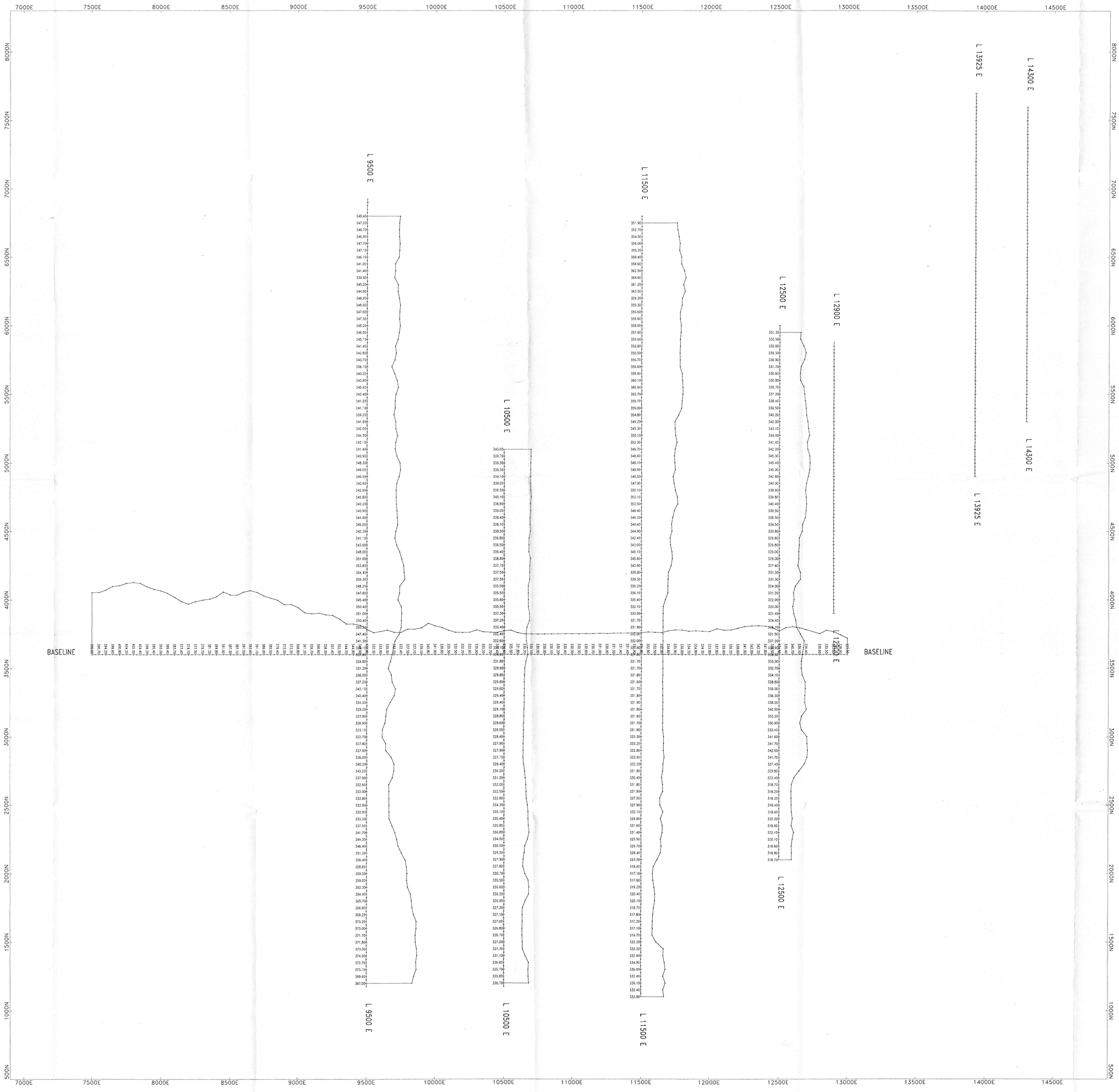
KIRKLAND LAKE WEST PROJECT
BURT TOWNSHIP, ONTARIO
NTS 42-A-1

BOUGUER GRAVITY SURVEY
(2.67 gm/cc)
Data Profiles and Postings

WMC – Ottawa – rt – November 1994

profile plot scale 0.2mgal/cm
profile base level = 154 mgal relative
Instrument: LaCoste & Romberg serial#G642

Scale 1:10000
200 0 200 400 600
(meters)



Scale 1:10000

200 0 200 400 600

(meters)

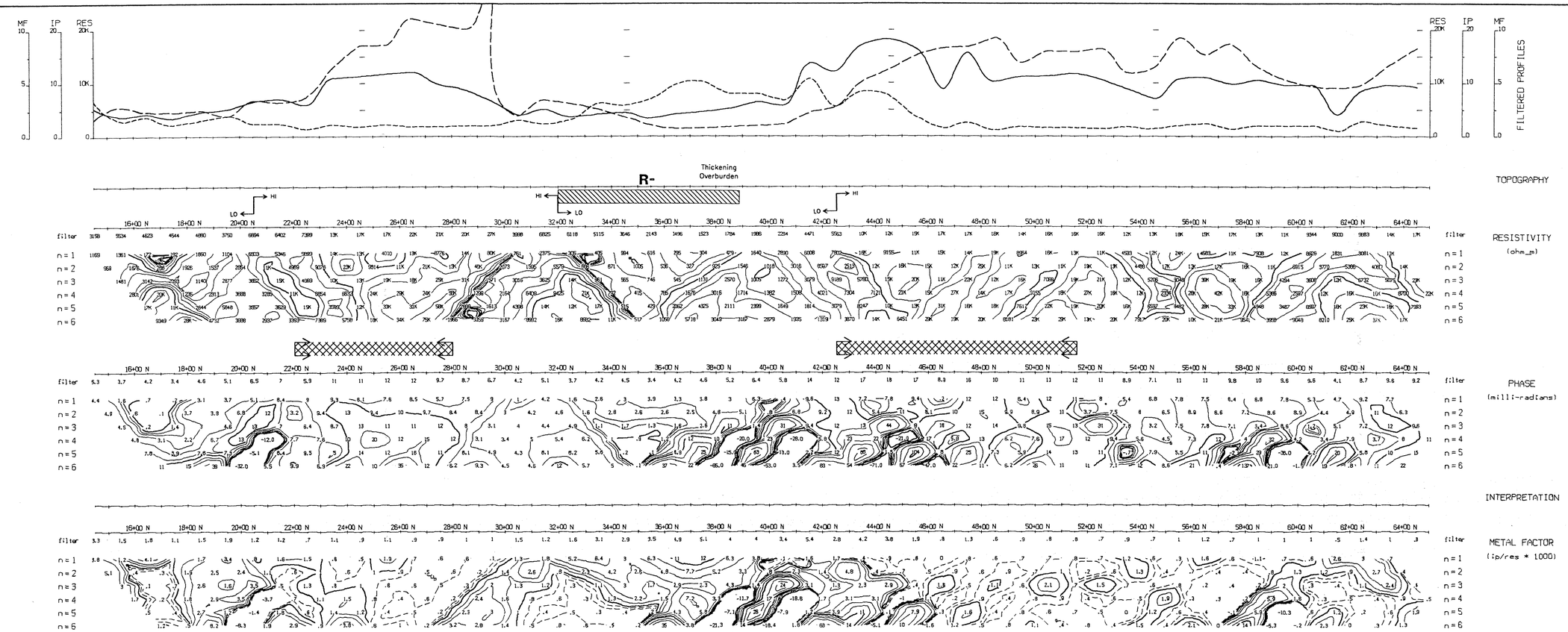
profile plot scale = 20m/cm
profile base level = 300m relative elevation

WMC International Limited
KIRKLAND LAKE WEST PROJECT BURT TOWNSHIP, ONTARIO NTS 42-A-1
ELEVATION SURVEY
Data Profiles and Postings
WMC – Ottawa – rt – November 1994

FIGURE 9

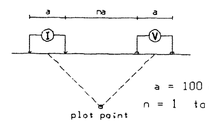
290

42A13NE2027 0014-070 REV



Line 11500 E

Dipole-Dipole Array



Filtered Profiles

	filter
Resistivity	*
Polarization	* *
Metal Factor	* * *
	* * * *

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instruments: IPT1,TURBO IPV-4
Frequency: 1.0 Hz.
Operator: J.M.N.

LEGEND

- R+ — Resistivity High
- R- — Resistivity Low
- P+ — Phase IP High
- Elevated Phase IP & High Resistivity Background
- HI / LO — Resistivity Contact

WESTMINER CANADA LTD.

INDUCED POLARIZATION SURVEY

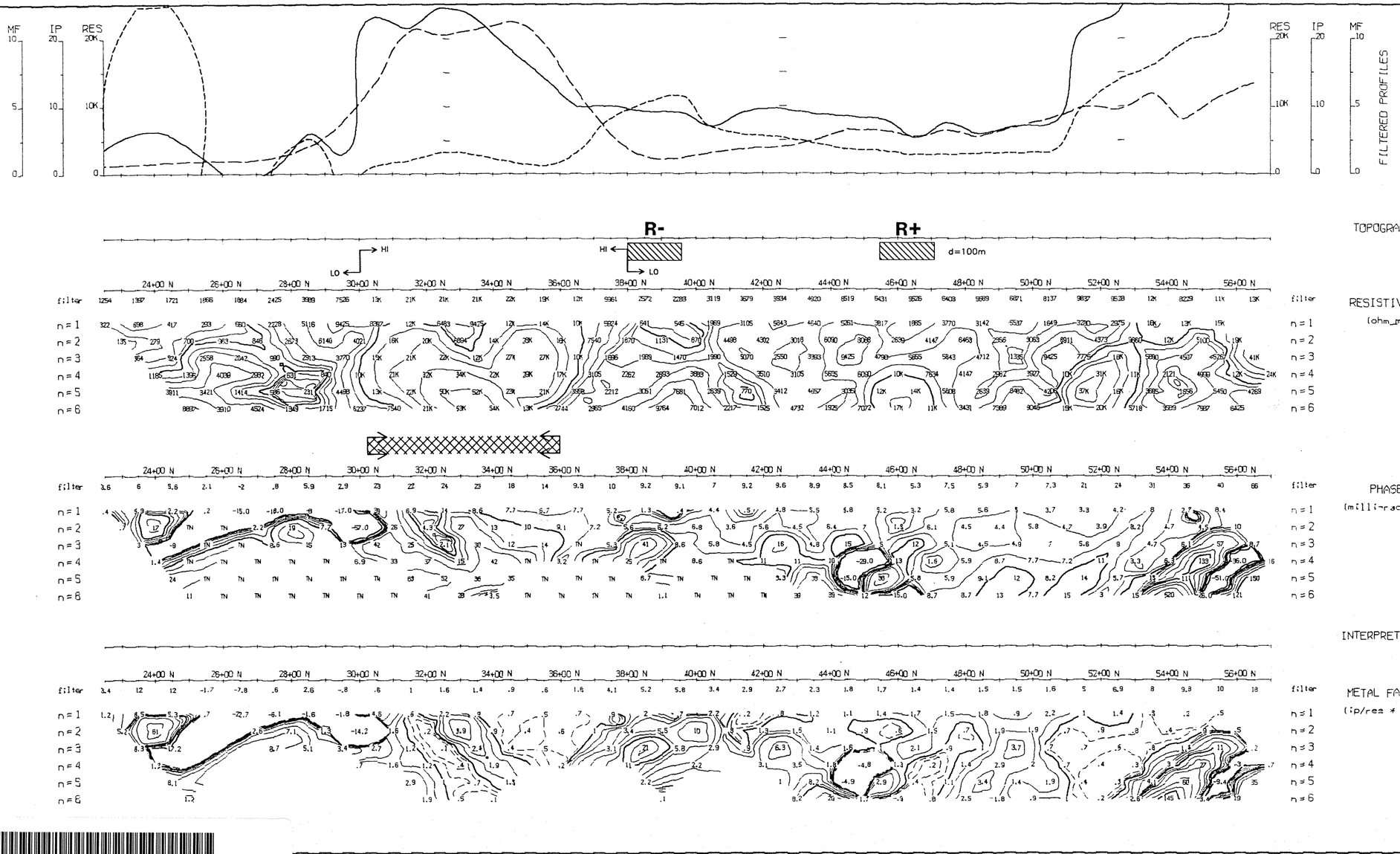
Kirkland Lake West Project,
Kirkland Lake, Ontario

Date: Jan \ 1994 N.T.S.

Scale: 1 : 10000 FIGURE 10a

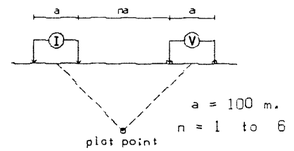
MERTENS & MacNEIL LTD.

42A01SW2027 om94-070 EBY



Line 12500 E

Dipole-Dipole Array



Filtered Profiles

	filter
Resistivity	*
Polarization	* *
Metal Factor	* * *
	* * * *

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instruments: IPT1, TURBO IPV-4
Frequency: 1.0 Hz.
Operator: J.M.N.

LEGEND

- **R+** Resistivity High
- **R-** Resistivity Low
- **P+** Phase IP High
- Elevated Phase IP & High Resistivity Background
- HI / LO Resistivity Contact

WESTMINER CANADA LTD.

INDUCED POLARIZATION SURVEY

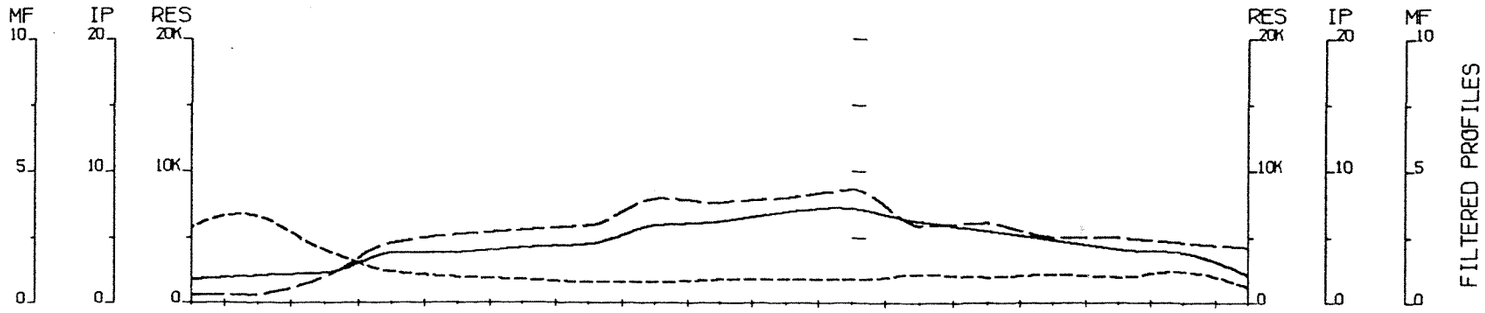
Kirkland Lake West Project,
Kirkland Lake, Ontario

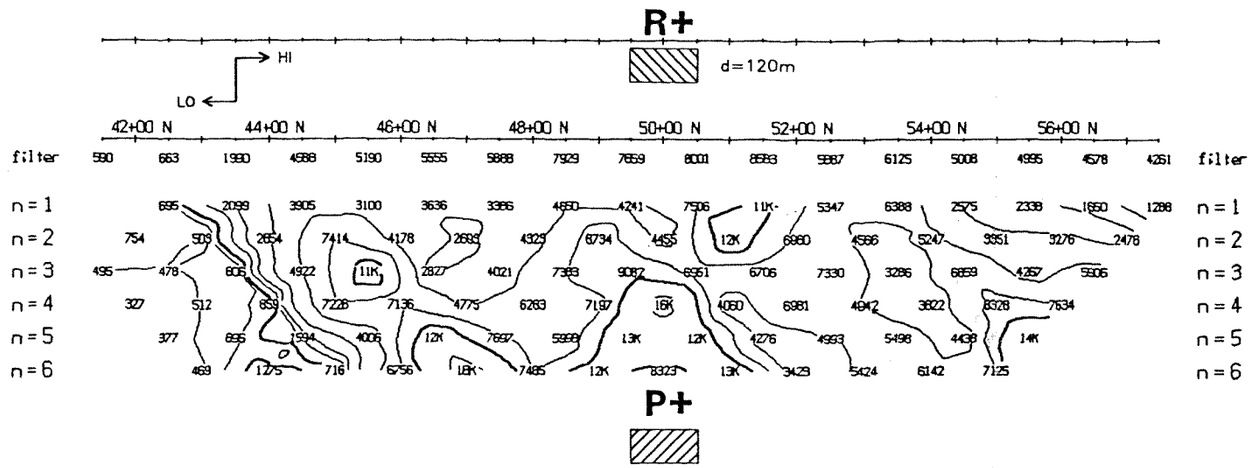
Date: Jan \ 1994 N.T.S.

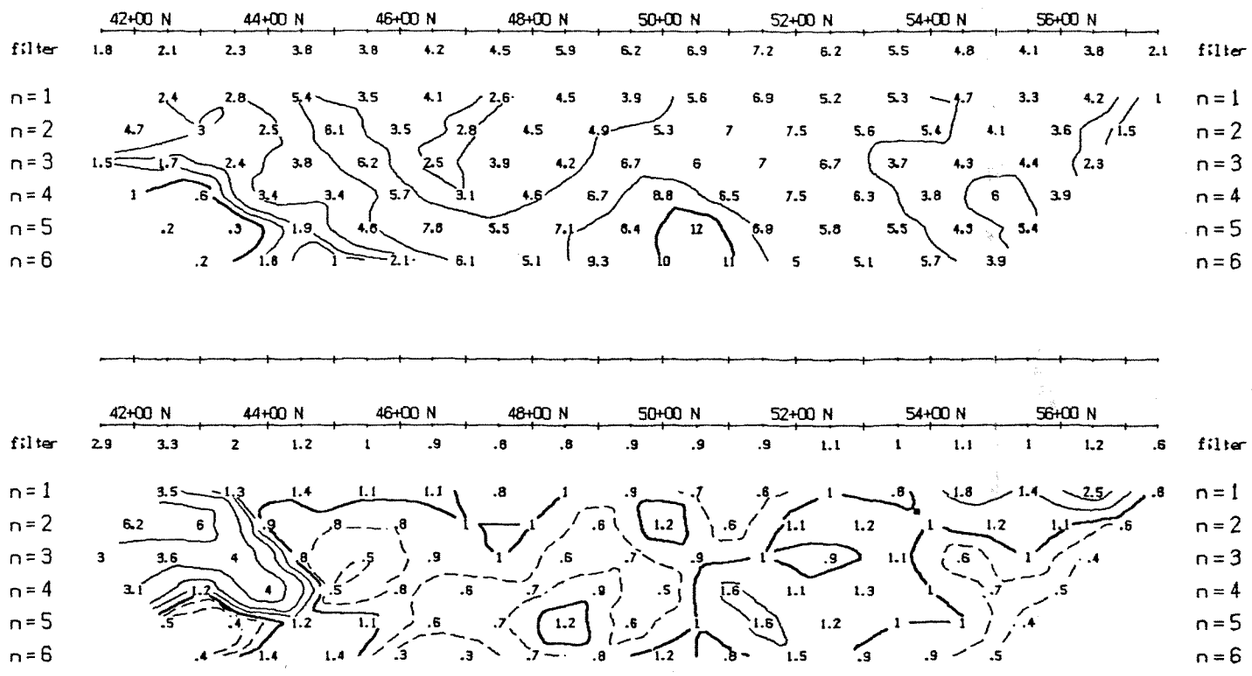
Scale: 1 : 10000 FIGURE 10b

MERTENS & MacNEIL LTD.

42A01SW2027 om94-070 EBY







TOPOGRAPHY

RESISTIVITY
(ohm_m)

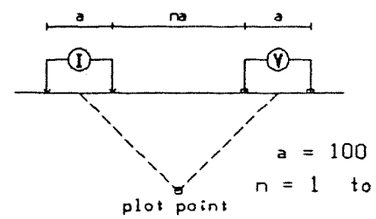
PHASE
(milli-radians)

INTERPRETATION

METAL FACTOR
(ip/res * 1000)

Line 12900 E

Dipole-Dipole Array



a = 100 m.
n = 1 to 6

Filtered Profiles

		filter
Resistivity	— — — —	*
Polarization	———	* *
Metal Factor	- - - - - - - -	* * *
		* * * *

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instruments: IPT1,TURBO IPV-4
Frequency: 1.0 Hz.
Operator: J.M.N.

LEGEND

- R+ Resistivity High
- R- Resistivity Low
- P+ Phase IP High
- Elevated Phase IP & High Resistivity Background
- HI / LO Resistivity Contact

WMC INTERNATIONAL LIMITED.

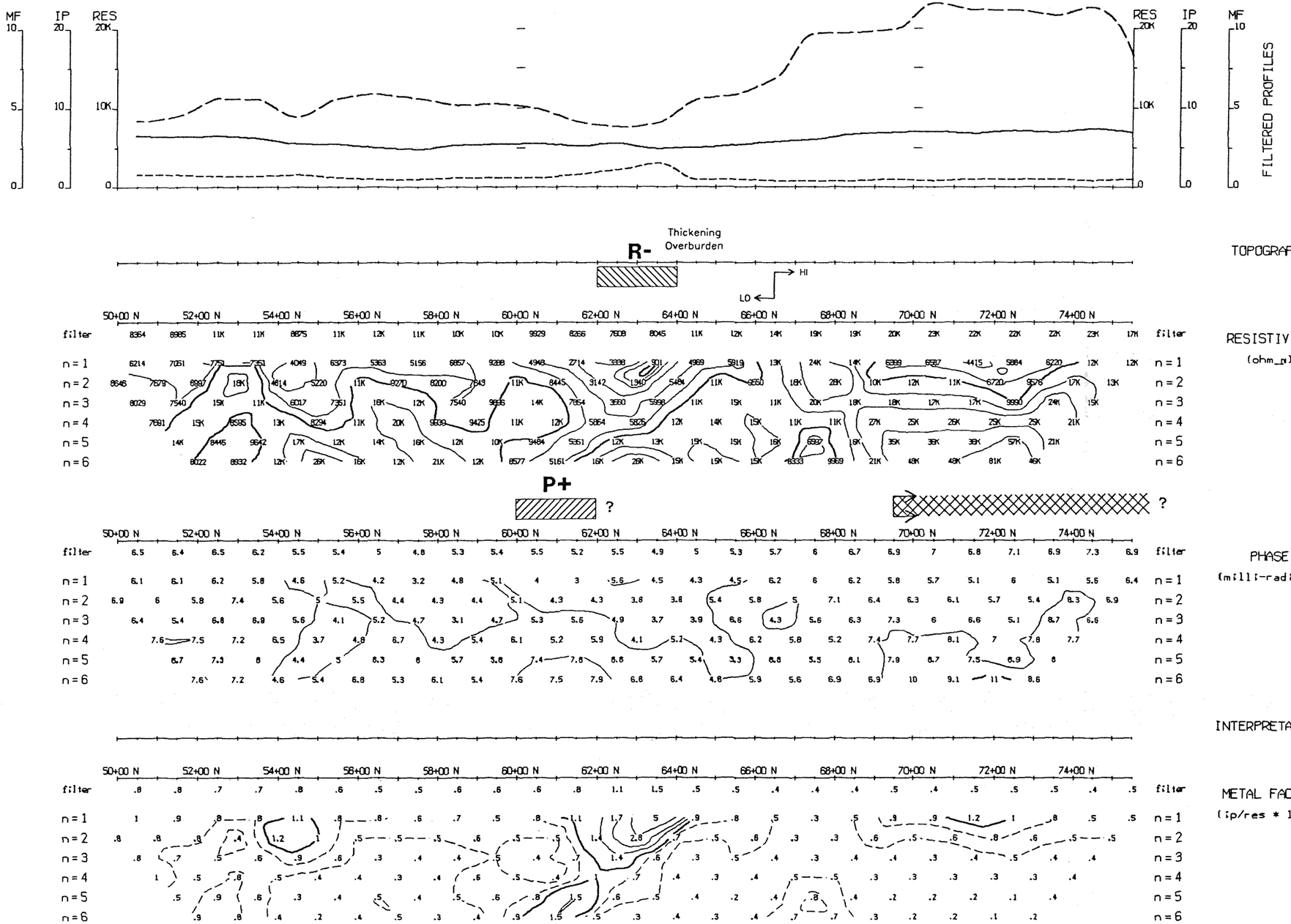
INDUCED POLARIZATION SURVEY

Kirkland Lake West Project,
Kirkland Lake, Ontario

Date: August\1994 N.T.S.

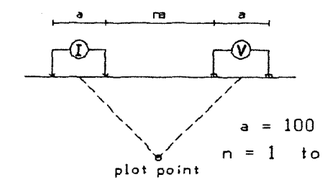
Scale: 1 : 10000 FIGURE 10c

MERTENS & MacNEIL LTD.



Line 13925 E

Dipole-Dipole Array



a = 100 m.
n = 1 to 6

Filtered Profiles

	filter
Resistivity	*
Polarization	* *
Metal Factor	* * *
	* * * *

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instruments: IPT1, TURBO IPV-4
Frequency: 1.0 Hz.
Operator: J.M.N.

LEGEND

- R+ Resistivity High
- R- Resistivity Low
- P+ Phase IP High
- Elevated Phase IP & High Resistivity Background
- HI / LO Resistivity Contact

WMC INTERNATIONAL LIMITED.

INDUCED POLARIZATION SURVEY

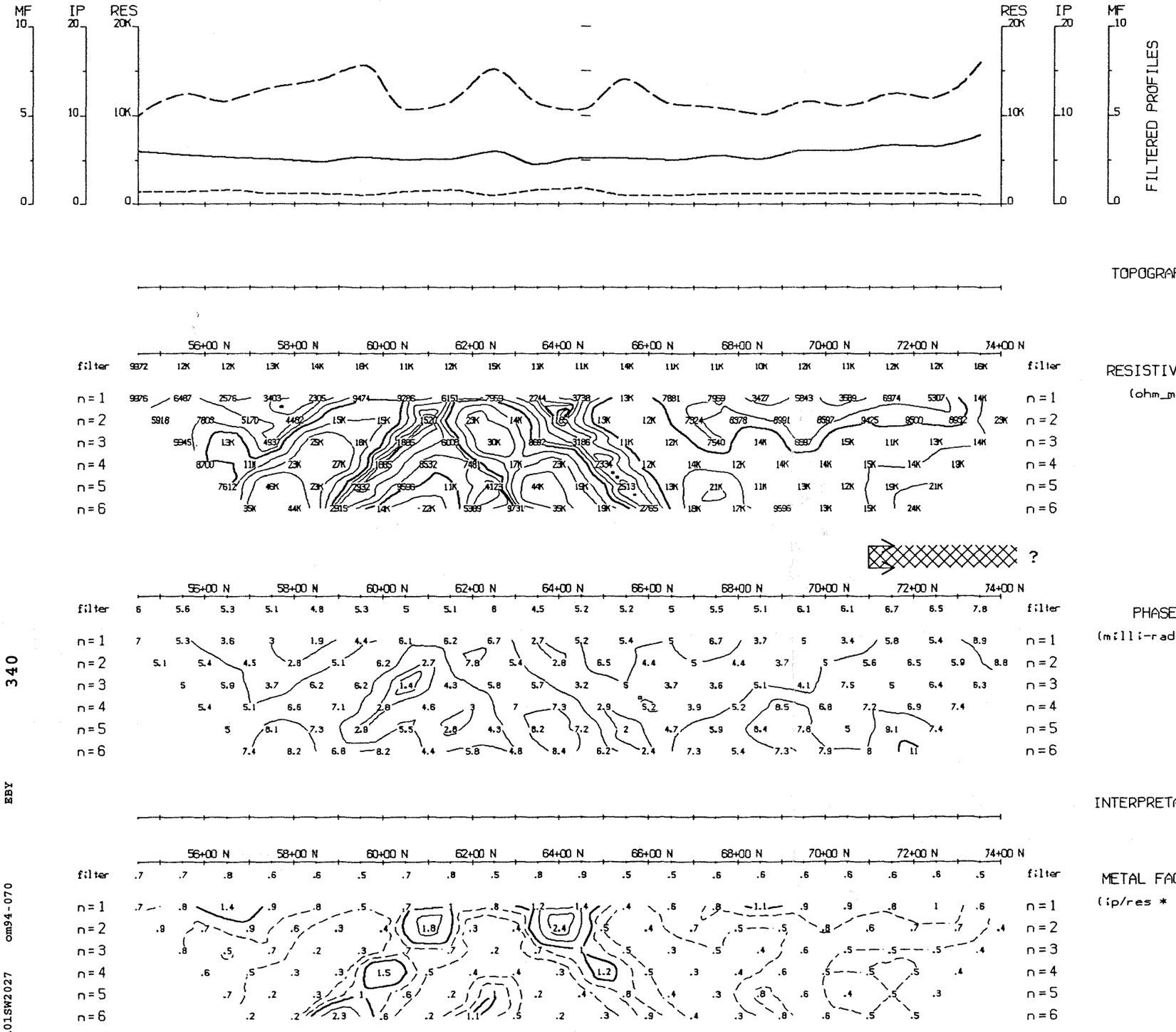
Kirkland Lake West Project,
Kirkland Lake, Ontario

Date: August\1994 N.T.S.

Scale: 1 : 10000 FIGURE 10d

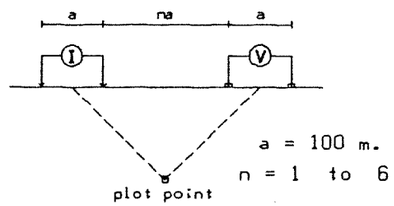
MERTENS & MacNEIL LTD.

42A01SW2027 om94-070 EBY



Line 14300 E

Dipole-Dipole Array



Filtered Profiles

		filter
Resistivity	———	*
Polarization	———	* *
Metal Factor	- - - - - - - -	* * *
		* * * *

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instruments: IPT1,TURBO IPV-4
Frequency: 1.0 Hz.
Operator: J.M.N.

LEGEND

- R+ Resistivity High
- R- Resistivity Low
- P+ Phase IP High
- Elevated Phase IP & High Resistivity Background
- HI / LO Resistivity Contact

WMC INTERNATIONAL LIMITED.

INDUCED POLARIZATION SURVEY

Kirkland Lake West Project,
Kirkland Lake, Ontario

Date: August\1994 N.T.S.

Scale: 1 : 10000 FIGURE 10e

MERTENS & MacNEIL LTD.

340
EBY
om94-070
42A01SW2027

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada

BOMPAS TWP.

BURT TWP.

Bompas Lake

Burt Lake

1200961

1200962

1200999

1200609

1200610

1200611

1200487

1200613

1187013

1200612

1200615

1202820

1200488

1200486

1187011

KLW94-01

1200618

1200630

1200614

KLW94-04

1200616

1200617

1200623

1200634

1200631

1200632

1200619

1200620

1200479

1200480

1200481

KLW94-02

1200621

KLW94-05

1200622

1200629

1200624

KLW94-03

1200484

1200483

1200627

1200626

1200625

1200628

BURT TWP.

EBY TWP.

BL 36+00

L95+00

L105+00

L115+00

L125+00

L142+00

TWP L139+25

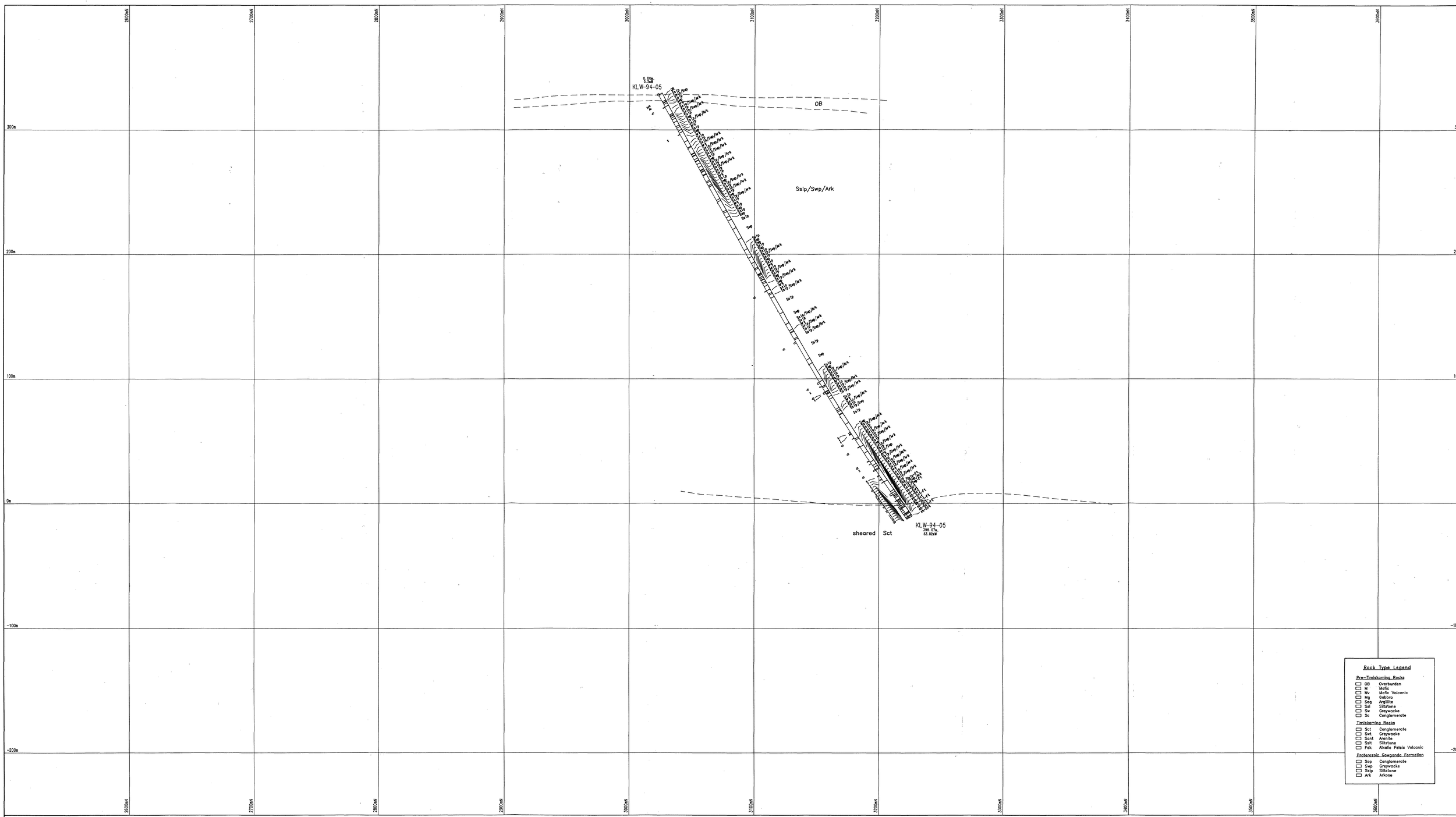
Scale: 1:10000

200 0 200 400 600

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Americas Division - Exploration

KIRKLAND LAKE WEST PROJECT
DDH Location Map

COMPILED: RB, PC	SCALE: 1:10000	FN:	4D-43
DRAFTED: RT, PC	REVISION: LWu	PLAN:	4D-43DDH
DATE: 8 DEC 94	DATE: 23 JAN 95	MAP No.:	



Rock Type Legend

Pre-Timiskaming Rocks

- OB Overburden
- M Mafic
- Mv Mafic Volcanic
- Mg Gabbro
- Sag Argillite
- Sal Siltstone
- Sw Greywacke
- Sc Conglomerate

Timiskaming Rocks

- Sct Conglomerate
- Swt Greywacke
- Sant Arenite
- Sslt Siltstone
- Fak Alkalic Felsic Volcanic

Proterozoic Gowganda Formation

- Srp Conglomerate
- Swp Greywacke
- Sslp Siltstone
- Ark Arkose

WMC International Limited
Americas Division - Exploration

KIRKLAND LAKE WEST PROJECT

1 : 1000 (metres)

0 25 50 75 100

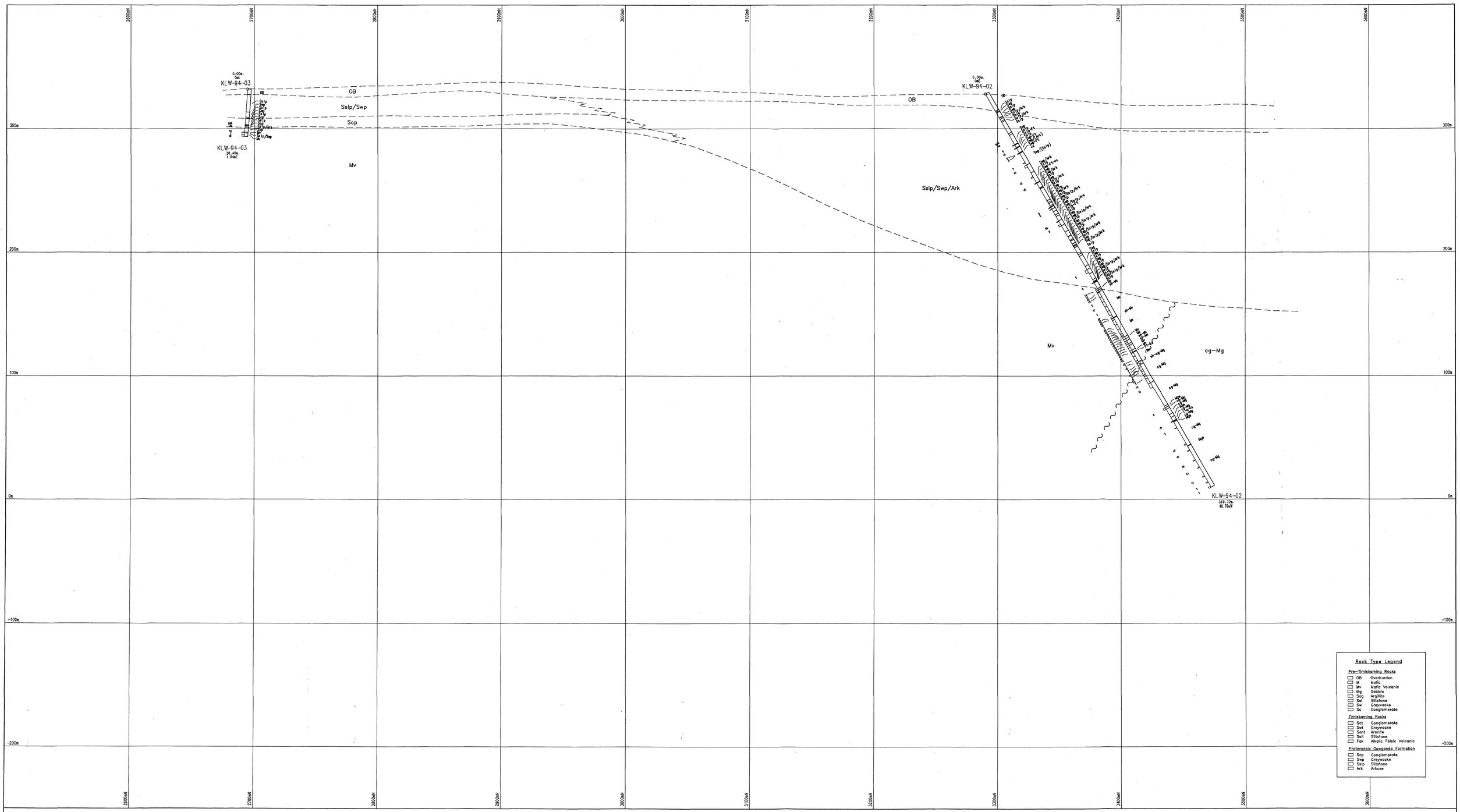
Geochemical Assays

DDH
Au ppb
1234 Au value in ppb
< a below detection limit

SECTION: 105+00E

DATE: JANUARY 1995 PN: 4043

42A01SW2027 cm94-070 SHT 360



Rock Type Legend

Pre-Timiskaming Rocks

OB	Overburden
M	Mafic
Mv	Mafic Volcanic
Mg	Gabbro
Sag	Argillite
Ssl	Siltstone
Sw	Greywacke
Sc	Conglomerate

Timiskaming Rocks

Sct	Conglomerate
Swt	Greywacke
Sarnt	Arenite
Sslt	Siltstone
Fak	Alkalic Felsic Volcanic

Proterozoic Cowganda Formation

Scp	Conglomerate
Swp	Greywacke
Sslp	Siltstone
Ark	Arkose

WMC International Limited
Americas Division – Exploration

KIRKLAND LAKE WEST PROJECT

1 : 1000 (metres)

0 25 50 75 100

Geochemical Assays

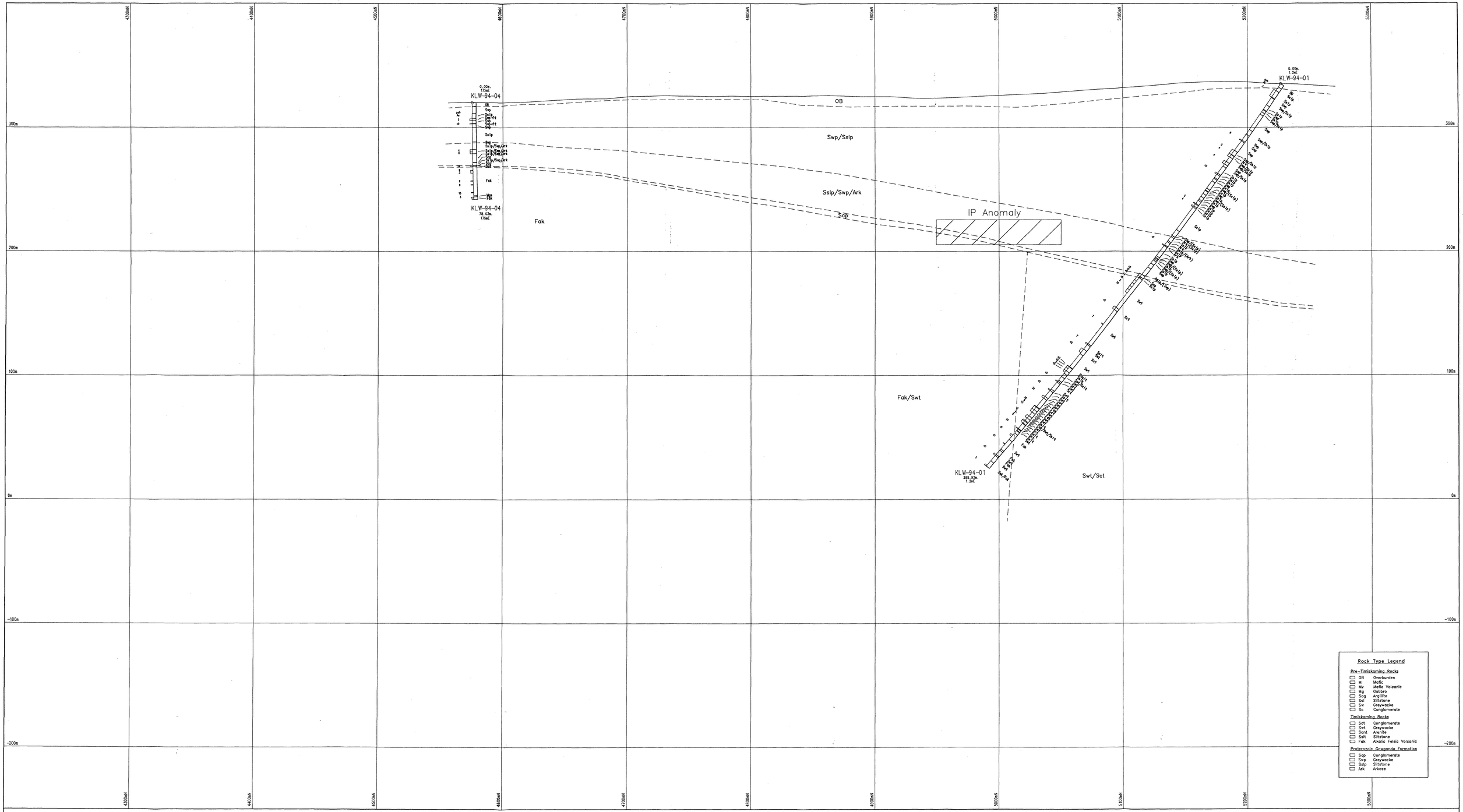
DDH
Au ppb
1234
< 5

Au value in ppb
below detection limit

SECTION: 115+00E

DATE: JANUARY 1995 PN: 4043

42A12NW2027 om94-070 ENV



Rock Type Legend

Pre-Timiskaming Rocks

OB	Overburden
M	Mafic
Mv	Mafic Volcanic
Mg	Gabbro
Sag	Argillite
Ssl	Siltstone
Sw	Greywacke
Sc	Conglomerate

Timiskaming Rocks

Sct	Conglomerate
Swt	Greywacke
Sant	Arenite
Sslt	Siltstone
Fak	Alkalic Felsic Volcanic

Proterozoic Gowganda Formation

Scp	Conglomerate
Swp	Greywacke
Sslp	Siltstone
Ark	Arkose

Geochemical Assays

DDH

Au ppb

1234 — Au value in ppb

< 0 — below detection limit

WMC International Limited

Americas Division - Exploration

KIRKLAND LAKE WEST PROJECT

1 : 1000 (metres)

0 25 50 75 100

SECTION: 129+00E

DATE: JANUARY 1995 PN: 4043

42AG13W2027 cm94-070 EXT 380