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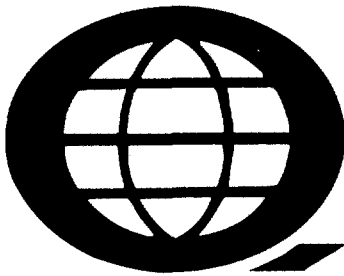
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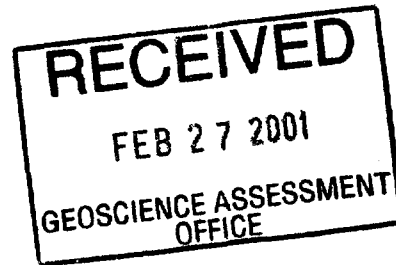
Quantec Geoscience Inc.

2.20054

Geophysical Survey Assessment Report



Quantec



***Regarding the
GRADIENT TDIP RESISTIVITY SURVEY
at the HALLIDAY PROPERTY,
Near Matachewan,
Northern Ontario
on behalf of
CANADIAN ARROW MINES LTD.***

QGI QGI QGI QGI QGI

Dr. P. Alikaj
D. MacGillivray
D. Eastcott
K Blackshaw
February, 2001
Project QG-128

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41P14NE2006 2.20954 MIDLOTHIAN 010C

1. INTRODUCTION

- **QGI Project No:** QG-128
- **Project Name:** Halliday Property
- **Survey Period:** August 30th to September 8th, 2000
- **Survey Type:** Gradient Time Domain Induced Polarization \ Resistivity Survey
- **Client:** Canadian Arrow Mines Ltd.
- **Client Address**
85 Pine Street South
Suite 104
P.O. Box 1756
Timmins, ON
P4N 7W9
- **Representatives:** Rainer Skeries, John Larche
- **Objectives:**

To locate and delineate potential disseminated to massive sulphide mineralized zones based on their IP and Resistivity signatures.

- **Report Type:** Assessment Report

2. GENERAL SURVEY DETAILS

2.1 LOCATION

- **Township:** Halliday and Midlothian
- **Province:** Ontario
- **Country:** Canada
- **Nearest Settlement:** Matachewan, ON
- **NTS Map Reference #:** 41 P/14

The property is located approximately 70km south of Timmins and 40 km west of Matachewan.

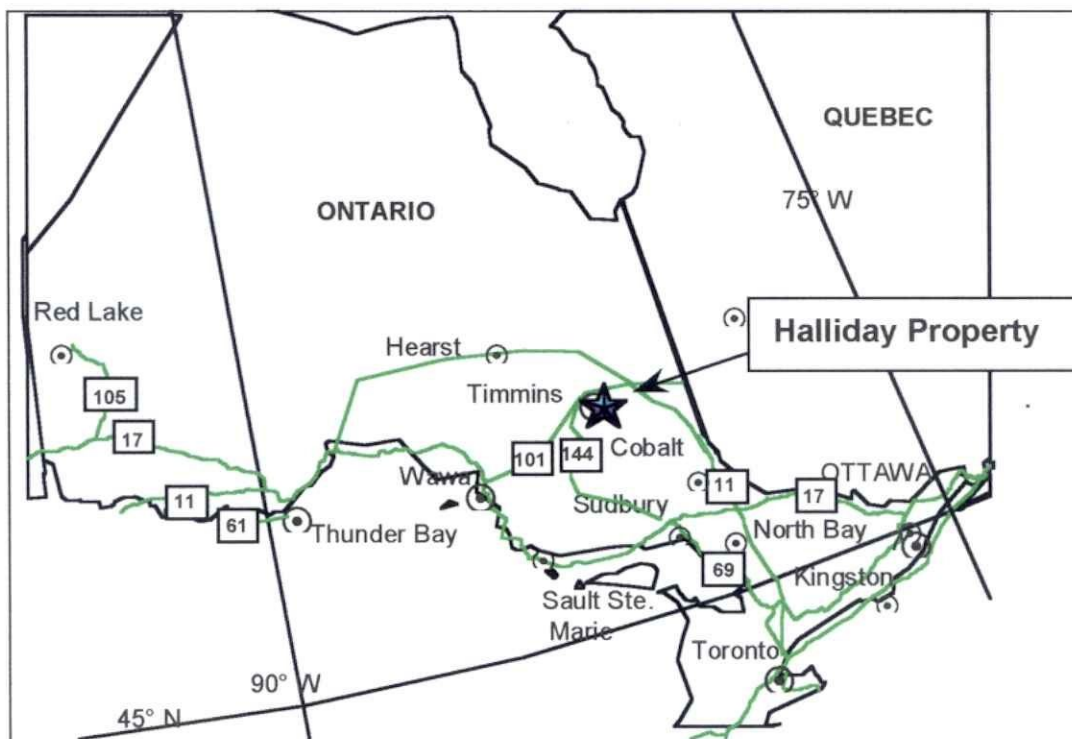


Figure 1: General Location of the Halliday Property.

2.2 PROPERTY TOPOGRAPHY AND VEGETATION:

The topography of the property is characterized by rolling hills separated by broad swamp areas. Topographic relief is less than 30m in hilly areas where outcrop exposure is up to 20%. Outcrop exposure decreases to the south and west

Overburden, consists of glacial sand, gravel and boulder outwash. Forest cover is extensive and heavy ranging from cedar, spruce and alder to birch, poplar and white pine in better drained areas. Logging has been limited, however, where present, is advancing from the west and north. A network of small creeks drain to the south, eventually reaching the Grassy River system.

2.3 ACCESS

- **Base of Operations:** Camp Matachewan, Matachewan
- **Mode of Access:** The grid was accessed by travelling 3km west of Matachewan on hwy 566 then proceeding west for 37km on a logging road to Cambell Lake. Numerous logging roads in the area provided access to most of the property, however a canoe was required for certain regions.

2.4 SURVEY GRID

- **Coordinate Reference System:** Local exploration grid
- **Established:** prior to survey execution
- **Line Direction:** N-000°
- **Line Separation:** 100 to 200 metres
- **Station Interval:** 25 metres
- **Method of Chaining:** Metric, Slope-Distance

2.5 CLAIMS

Canadian Arrow Mines owns 2 contiguous leases straddling the Halliday - Midlothian Township boundary. Details are as follows:

Halliday Twp. - **Lease No. 103655 (CLM 257)** covering 298.941 ha or 19 claim units, in the Porcupine Mining Division, and

Midlothian Twp. - **Lease No. 103654 (CLM 256)** covering 282.588 ha or 18 claim units, in the Larder lake Mining Division.

This core property has been expanded by optioning ⁵⁹72 peripheral claim units from Moneta Porcupine Mines Inc. as part of the Halliday Dome Project, of which the present survey covers portions of claims **1240743, 1240746 and 1240750.**

3. SURVEY WORK UNDERTAKEN

3.1 GENERALITIES

- **Survey Dates:** August 30th to September 8th, 2000
- **Survey Period:** 10 days
- **Survey Days (read time):** 7 days
- **Weather Days:** 1 days
- **Survey Coverage:** 20.400 Line-Kilometres

3.2 PERSONNEL

- **Project Supervisor:** Kevin Blackshaw, Timmins, ON
- **Project Manager:** David MacGillvray, Timmins, ON
- **Operators** Richard Chasse, Kirkland Lake, ON
- **Field Assistant:** Carmen Vuko, Kirkland Lake ON
Ardian Peshkepia, Toronto, ON
Dennis Pressault, Notre Dame du Nord, QB
Eric Hotvedt, Raymoure, ON

3.3 SURVEY SPECIFICATIONS

- **Array:** Gradient (see Figure 2)
- **AB (Tx dipole spacing)** 2600 metres
- **MN (Rx dipole spacing):** 25 metres
- **Sampling Interval:** 25 metres
- **Total Grids:** 1
- **Total Blocks:** 4
- **Approximate Arial Coverage:** approx. 4.0 km²

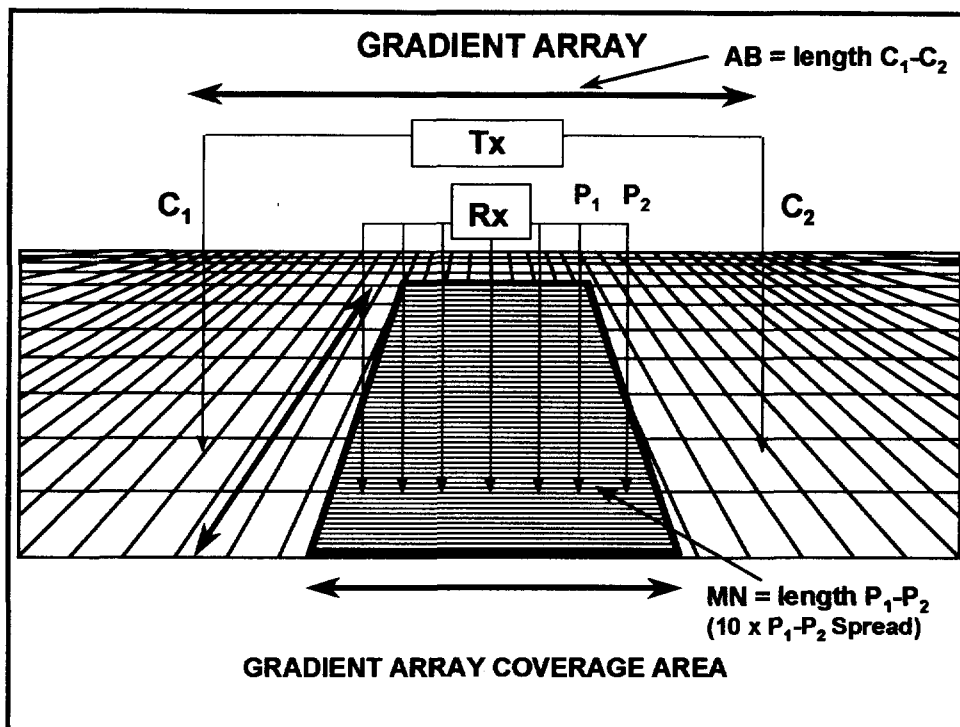


Figure 2: Gradient Array Layout

3.4 SURVEY COVERAGE

Reconnaissance IP:

20400 metres (see Table I)

LINE	SOUTHERN EXTENT	NORTHERN EXTENT	TOTAL (METRES)
2600M AB			
15+75W	6+50N	8+00N	150
15+00W	2+50S	6+50N	900
15+00W	8+00N	10+25N	225
13+00W	3+25S	3+25N	650
13+00W	4+50N	12+50N	800
11+00W	3+25S	10+25N	1350
9+00W	4+00S	11+00N	1500
7+00W	4+00S	6+50N	1050
7+00W	8+00N	11+00N	300
5+00W	4+00S	10+50N	1450
3+00W	4+00S	11+00N	1500
1+00W	4+00S	11+50N	1550
1+00E	1+25S	6+00N	725
3+00E	3+00S	6+00N	900
5+00E	1+00S	4+00N	500
5+00E	5+25N	6+00N	75
7+00E	4+00S	4+25N	825
9+00E	3+00S	6+00N	900
11+00E	3+00S	4+75N	775

13+00E	3+00S	6+75N	975
15+00E	3+00S	6+00N	900
17+00E	3+00S	6+00N	900
19+00E	3+00S	5+25N	825
Sub Total			19725
OVERLAP			
5+00W	2+00S	1+00N	300
3+00E	1+50S	1+50N	300
11+00E	4+00N	4+75N	75
Sub Total			675
TOTAL			20400

Table I: Reconnaissance TDIP Survey Coverage.

3.5 INSTRUMENTATION

- **Receiver:** Iris Elrec IP-10 (10 channels)
- **Transmitter:** Phoenix IPT-2B (15 kW / 300 - 1200V output)
Phoenix IPT-1 (2.5 kW / 75 - 1200V output)
- **Power Supply:** Phoenix MG-19 (10KVA, 120V, 3 phase, 400 Hz) motor generator (30KVA, 120V, 3 phase) motor generator
Phoenix MG-3 (2.5KVA, 60V, 3 phase, 400 Hz) motor generator

3.6 PARAMETERS

- **Input Waveform:** 0.0625 Hz square wave at 50% duty cycle (4 seconds On/Off)
- **Receiver Decay Sampling:** twenty chargeability windows, IRIS IP-10 Cole-Cole mode specifications (see Table III)
- **Measured Parameters:**
 - 1) Chargeability in millivolts/Volt. Total Chargeability is calculated over the total integration period of 20 to 3850 ms.
 - 2) Primary Voltage in millivolts and Input Current in amperes for Resistivity calculation according to the gradient array geometry factor (Appendix C).

Slice	Duration (msec)	Start (msec)	End (msec)	Mid-Point (msec)
T _d	20	0	20	10
T ₁	40	20	60	40
T ₂	50	60	110	85
T ₃	60	110	170	140
T ₄	70	170	240	205
T ₅	80	240	320	280
T ₆	90	320	410	365
T ₇	100	410	510	460
T ₈	110	510	620	565
T ₉	120	620	740	680
T ₁₀	140	740	880	810
T ₁₁	160	880	1040	960
T ₁₂	180	1040	1220	1130
T ₁₃	200	1220	1420	1320
T ₁₄	220	1420	1640	1530
T ₁₅	250	1640	1890	1765
T ₁₆	280	1890	2170	2030
T ₁₇	320	2170	2490	2330
T ₁₈	380	2490	2870	2680
T ₁₉	450	2870	3320	3095
T ₂₀	530	3320	3850	3585
Total T_n	3850			

Table III: IRIS IP-10 Decay Curve Sampling (Cole-Cole mode)

3.7 MEASUREMENT ACCURACY AND REPEATABILITY

- **Chargeability:** generally ± 0.4 mV/V but acceptable to ± 1.0 mV/V.
- **Resistivity:** less than 5% cumulative error from Primary voltage and Input current measurements.

3.8 DATA PRESENTATION

- **Maps:** Posted contoured plan maps of Total Chargeability and Apparent Resistivity (1:5000 scale)
- **Digital:**
 - Raw data: IP-10 digital dump file (Appendix D).
 - Processed data: Geosoft .XYZ format.

using the following format:

Column 1 = Station/Line (X Position), in meters
 Column 2 = Station/Line (Y Position), in meters
 Column 3 = Total Chargeability, in mV/V
 Column 4 = Apparent Resistivity, in Ω -m
 Column >5 = TDIP Spectral Estimates (M, Tau @ c=0.25) IP-10 Cole-cole Mode

4. RESULTS AND INTERPRETATION

4.1 OVERVIEW

4.1.1 Property Geology¹

The property lies in the east central portion of the Halliday Dome, a large Archean volcanic complex that underlies much of Sothman, Halliday and Midlothian Townships. The southern periphery consists of ultramafic flows and sills. Conglomerate (Timiskaming) and graphitic shales overlie the dome to the north. The property itself is underlain by volcanoclastic rocks primarily of dacitic to rhyodacitic composition. Multiple epiclastic cycles (3 recognized to date) of ash to lapilli to block tuffs and breccia sequences are separated by more massive units, and strike east westerly to east northeast (035°) across the property with near vertical dips. Although faulting is not well documented, shearing appears to be widespread generally trending east northeast. Several tuff units are known to host local concentrations of base metal sulphides, primarily sphalerite with subordinate galena and chalcopyrite locally with a high precious metal content. This mineralization is often associated with intercalated cherty horizons and intense sericite, less carbonatization, and local chlorite alteration. Pyrite is common and widespread. To the north a marcasite rich graphitic unit follows the contact to Timiskaming type sediments cutting across the property. Scattered mafic dykes of variable composition are found throughout the area.

4.1.2 Previous Work

1933 P.H. Silams:

Prospecting, trenching and sampling of a 6-20 foot wide shear zone trending N75E. Located between Campbell Lake and the eastern boundary of Halliday Twp. Assays returned a low gold content in addition to 9 oz/t Ag and 2.5% Cu. Zinc mineralization was also noted in this area.

1950-52 Lamothe:

Coarse brecciated rhyolites were blasted and prospected in the general area. W.S. Savage (1952) sampled pits reporting assays of up to \$6.00 per ton Au and 2% Zn. Zinc mineralization was reported to occur in breccia interstices.

1954 Sylvanite Gold Mines:

Investigated quartz-carbonate alteration zones in Timiskaming sediments in the northern portion of the property.

1964 Halliday Mines:

Completed geological and ground magnetometer surveys on a 24 claim unit block covering the area west of Campbell Lake. Four diamond drill holes were completed –three north of McLennan Lake and one at the southeast end of Campbell Lake. No gold bearing zones were discovered.

1. *Property Geology and Previous Work compiled by R Skieries, CAM (ref. personal communication, 02/2001)*

- 1965 Stairs Mining and Exploration:
Completed 3 diamond drill holes – 2 under Bowl Lake and one under the south end of Campbell Lake for a total footage of 1331 ft. Target was a pyrite-slate-graphite zone crossing the northern portion of the present property.
- 1964-66 Ontario Department Of Mines:
The ODM completed geological mapping of Halliday and Midlothian Twps. (O.D.M. Geol. Rept. #79, 1970, by E.G. Bright).
- 1967-68 Texas Gulf Inc.:
Completed an airborne EM survey covering Sothman and Halliday Twps. A pyritic and graphitic slate horizon was outlined and drilled in western Halliday.
- 1968-1970 J.P. Larche/A. Rousseau:
Prospected and staked sphalerite bearing rhyolite breccias. Exposed several zinc showings in Campbell, Teddy and Patricia Lake areas.
- 1970-1972 Canadian Arrow Mines Ltd.:
Optioned 35 claims in Halliday, completing ground magnetics and EM, geological, soil geochemical and IP surveys. Initial follow-up diamond drilling with 6 holes totaling 3043 ft. Later drilling added another 7 holes with a footage of 1074 ft.
- 1971-1972 Glen Copper Ltd.:
Completed IP surveys and drilled 8 holes (4124 ft.) on an option south and southwest of Patricia Lake in Midlothian Twp.
- 1972-1973 Newmont Mining Ltd.:
Optioned an expanded property and completed ground magnetics, broadside EM, detailed HLEM, and geological mapping as well as check gravity and seismic work over sulphide mineralization. Limited follow-up diamond drilling in 4 drill holes totaling
- 1975-1976 Teck Corporation:
Carried out geological mapping and stripping.
- 1977-1978 Falconbridge Copper:
A program consisting of local geological mapping, trenching/stripping (7 areas), gradient IP, and diamond drilling was completed primarily on a new zone SE of Teddy Lake. Seven holes totaling 3952 ft. were drilled.

- 1981-1982 Norcen:
Property was part of a large regional program. AEM coverage included all of Halliday, western Midlothian and eastern Sothman Townships. Defined EW conductor south of Campbell Lake. Property brought to lease.
- 1982 Norcan Energy Res.:
Brought property to lease.
- 1982-1983 Chevron:
Work immediately adjoining lands to leases. Drilled 10 holes totaling 1357m NW of Radio Lake.
- 1987-1988 Goldteck:
Intensely worked property immediately to west, northwest and north (Stairs Mine property) of leases. Completed linecutting, soil geochemistry, geophysics (mag, res and sp, airborne), trenching/sampling, geological mapping, as well as de-watering, rehab, mapping and sampling of Stairs Mine, diamond drilling (94 holes - 19,673.7m).
- 1994 Inco:
Sampled showings.

4.2 GEOPHYSICAL RESULTS AND INTERPRETATION

The Gradient IP/Resistivity survey at the Halliday property was designed to outline the IP and Resistivity signatures of possible concentrations of base metal sulphides. Based on the types of mineralization, and geological structures and mentioned above, IP anomalies associated with either low or high resistivity signatures are the object of this geophysical interpretation.

The IP/Resistivity survey was carried out with a gradient array of spacing $AB = 2600\text{m}$ and $MN = 25\text{m}$, line separation of 200m and station spacing of 25m . The array specifications, as compared to previous electrical surveys on this property, provides increased lateral resolution, thereby improving the accuracy of target locations, and deeper exploration (up to $\sim 400\text{m}$ from surface).

The Total Chargeability plan map of the property presents a sinuous regional trend generally running east-northeast west-southwest. Within this trend a series of axes running mostly east-westerly to east-northeast, and in some cases southeast-northwest, are outlined. The anomalous values of $Mt = 15\text{-}39\text{ mV/V}$ are located over a background of $8\text{-}12\text{ mV/V}$. The Apparent Resistivity plan map is characterized by a broad variation, from $\sim 300\text{ Ohm.m}$ to over $25,000\text{ Ohm.m}$, with elongated features running east-northeast west-southwest, paralleling the regional chargeability trend. The ultramafic flows and sills to the southern part of the grid are characterized by high resistivity anomalies/background. In general, low resistivity values were obtained near the north margin of the grid, where mostly conglomerate and graphitic shales overlie the Archean volcanic complex. A resistivity trough is obtained in between these two units running east-northeast west-southwest, probably reflecting a regional fault. (See the interpretation plan map).

The interpretation plan map presents the axes of the Chargeability anomalies and indicates the nature of resistivity signature (high or low), associated with each. Where absent, there is no resistivity signature which correlates with the Chargeability on that line. More than 10 major axes connecting

individual anomalies following both the predominant strike, and following oblique directions, delineating potential splay features, are interpreted. The length of the Chargeability anomalies varies from 250-500m on strike and from 25-100m in width. The general dip of the IP/Resistivity targets should be near vertical. The selected IP targets may be associated with:

- Concentrated (massive, semi-massive or veinlet) sulphides. In this case the resistivity signatures which correlate with the Chargeability anomalies are low.
- Disseminated sulphides or magnetite. The Resistivity signature association may be:
 - o Low due to lithology or alteration such as brecciation, chloritization, argillization, etc.
 - o High due to silicification or the presence of more compact lithological units
 - o No correlation with IP.
- Marcasite rich graphitic unit, which are presently understood to occur near the northern limits of the IP survey coverage. In this case low resistivity signatures are associated with Chargeability anomalies.

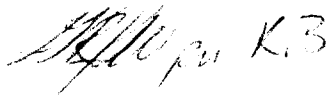
An interesting fact to be mentioned is the location of the strongest IP axes which either lie directly over or close to the interpreted regional fault delineated by a low resistivity lineament as shown on the interpretation plan map. These IP anomalies take the first priority in further exploration for massive to semi-massive sulphides hosting base metals on this property. Furthermore, the apparent splay features, outlined by IP anomaly axes may be targets of interest in exploration for disseminated to massive sulphides hosting base metals and precious metals mineralization. Some of the IP anomalies delineated in the results are explained by sulphide mineralization known to exist from previous work, for example the one on L 1100W @ 760N etc.

5. CONCLUSIONS AND RECOMMENDATIONS

The Gradient IP/Resistivity survey at the Halliday Property has successfully identified several targets and signatures associated with concentrated sulphides, scattered sulphide/magnetite and marcasite rich graphitic units. Based on the interpretation plan map of IP/Resistivity parameters, several important chargeability anomalies in axes running east-northeast west-southwest, east west and east-southeast west-northwest are defined. The most important anomalies should be considered those that are over or close to the interpreted regional fault. The areas over apparent splay features are also of interest in the exploration for sulphides associated with precious metals.

We recommend that these results be combined with the existing Geoscience database and the findings carefully considered prior to drill-testing.

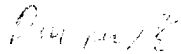
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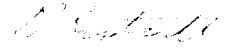
Kevin Blackshaw
Operations Manager



Dr. Perparim Alikaj, Ph.D.
Senior Research Geophysicist



David MacGillivray
Project Manager



David Eastcott.
Technical Services

Porcupine, ON

APPENDIX A

STATEMENT OF QUALIFICATIONS

I, Perparim Alikaj, declare that:

1. I am a consulting geophysicist with residence in Toronto, Ontario and am presently employed in this capacity with Quantec Geoscience Ltd of Waterdown, Ontario.
2. I obtained a Bachelor's Degree in Geophysics from Polytechnic University of Tirana, Albania in spring 1974, a M.Sc. Degree in Applied Geophysics in 1990 and a Ph.D. also in Applied Geophysics in 1995 from the same University.
3. I have practiced my profession continuously since December 1974 in Albania and since 1991 in Canada.
4. I obtained from the Polytechnic University of Tirana, Albania the titles Associate Professor in 1995 and "Full Professor" in 1999.
5. I am a member of the Prospectors and Developers Association of Canada, Canadian Exploration Geophysicists, Society of Exploration Geophysicist, European Association of Geoscientists & Engineers.
6. I have no interest, nor I expect to receive any interest, direct or indirect in the properties or securities of **Canadian Arrow Mines Ltd.**
7. I reviewed this report as regards the survey results, their interpretation and analyzed the scientific aspects of the data based on the data provided by the field crew. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Waterdown, Ontario
February, 2001



Dr. Perparim Alikaj, Ph.D.
Senior Research Geophysicist

STATEMENT OF QUALIFICATIONS

I, David Eastcott, hereby declare that:

1. I am a geophysical technologist with residence in South Porcupine, Ontario and am presently employed in this capacity with Quantec Geoscience Ltd. of Waterdown, Ontario.
2. I have practiced my profession continuously since 1996, in Canada, the United States, Mexico and Mongolia.
3. I have no interest, nor do I expect to receive any interest in the properties or securities of **Canadian Arrow Mines Ltd.**
4. I am the co-author of logistics portion of this report, and prepared the final map products included. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Porcupine
February, 2001



David Eastcott
Staff Geophysicist, QGI

STATEMENT OF QUALIFICATIONS

I, David MacGillivray, declare that:

1. I am a geophysical operator, with residence in Porcupine, ON, and am currently employed by Quantec Geoscience Inc. of Waterdown, Ontario.
2. I have continuously been employed in this field since August of 1996 in Canada, Cuba, Mexico, Mongolia and Panama.
3. I have no interest, nor do I expect to receive any interest in the properties or securities of **Canadian Arrow Mines Ltd.**
4. I was the project manager and was responsible for the data acquisition, validation and plotting in the field. I am the author of this logistical report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Porcupine, Ontario
February, 2001

David MacGillivray
Geophysical Operator

APPENDIX B

PRODUCTION LOG

QUANTEC GEOSCIENCE INC.
101 King Street
Porcupine, Ontario
(705) - 235 - 2166

Client: Canadian Arrow Mines Ltd.
Client Representative: Rainer Skeries
Project Supervisor: Jeff Warne & Kevin Blackshaw
Project Manager: David MacGillivray
Project #: QG - 128
Project Title: Halliday Property
Project Location: Halliday & Midlothian Twp., Matachewan, ON.
Survey Type: IP/Resistivity
Sampling Interval: 25 metres
Survey Date: August 30th to September 8th, 2000

Date	Description	Block	Line	Min Ex- tent	Max Ex- tent	Total Survey (metres)
	Phase 1					
30-Aug	Assembled equipment & crew, mob Timmins to Matachewan, established base of operations, Located grid and dropped off quad and trailer					
31-Aug	Established 2600m AB on line 9+00W (11+00S & 15+00N), 7.0 amps	1				
	Began Gradient Survey	1	9+00W	11+00N	4+00S	1500
	5th man helped setting up AB and equip, began work on AB for block 2	1	11+00W	3+25S	3+50N	675
	Total Survey					2175
01-Sep	Gradient Survey	1	11+00W	3+50N	10+25N	675
	Returned to Matachewan in morning to rent 8hp motor for the boat George left for us	1	15+00W	10+25N	8+00N	225
	Rental 4x4 quad broke down, gear shift broke	1	15+75W	8+00N	6+50N	150
	Rental 4x4 quad broke down, gear shift broke	1	15+00W	6+50N	2+50S	900
	5th man helped surveying around the lakes	1	13+00W	3+25S	3+25N	650
	Total Survey					2600
02-Sep	Gradient Survey	1	13+00W	4+50N	12+50N	800
	Slow going due to the amount of lakes on this section of the grid, Rented another quad in K.L.	1	7+00W	11+00N	8+00N	300
	5th man helped with surveying the lakes					
	Total Survey					1100

03-Sep	Heavy rain, survey suspended, removed quad from the grid and returned it to kirkland lake					
04-Sep	Gradient Survey	1	7+00W	6+50N	4+00S	1050
	Removed ab & equipment from block 1	1	5+00W	4+00S	10+50N	<u>1450</u>
	5th man installed AB for block 2					
	Total Survey					2500
05-Sep	Changed to block 2, AB 2350m on line 1+00E @ 6+50S & 17+00N, In 6.3 amps	2				
	Gradient Survey	2	3+00W	11+00N	4+00S	1500
	Overlap	2	5+00W	2+00S	1+00N	300
	5th man installed ab for block 3	2	1+00W	4+00S	11+50N	1550
	Overlap	2	1+00E	6+00N	1+25S	725
	Total Survey					4375
06-Sep	Changed to block 3, AB 2500m on line 7+00W @ 10+00S & 15+00N, In 5.8 amps	3				
		3	3+00E	3+00S	6+00N	900
		3	5+00E	6+00N	5+25N	75
		3	5+00E	4+00N	1+00S	500
	5th man installed ab for block 4	3	7+00E	4+00S	4+25N	825
		3	9+00E	6+00N	3+00S	900
	Total Survey					3900
07-Sep	Changed to block 4, AB 2500m on line 13+00W @ 10+00S & 15+00N, In 4.8 Amps	4				
	Overlap	4	11+00E	3+25N	4+75N	150
	5th man removed ab cable from block 3	4	13+00E	6+75N	3+00S	975
		4	15+00E	3+00S	6+00N	900
		4	17+00E	6+00N	3+00S	900
	Total Survey					3750
08-Sep	Removed AB cable and equipment from the grid					
	Demob Matachewan to Timmins					

APPENDIX C

THEORETICAL BASIS AND SURVEY PROCEDURES

GRADIENT REALSECTION INDUCED POLARIZATION SURVEY

The "RealSection" survey design uses multiple gradient arrays - with variable depths of investigation controlled by successive changes in array size/geometry. The method of data acquisition and the "RealSection" presentation are based on the specifications developed by Dr. Perparim Alikaj, of the Polytechnic University of Tirana, Albania, over the course of approx. 20 years of application. This technique has been further developed for application in Canada during the past six years, in association with Mr. Dennis Morrison, president of Quantec IP Inc.

The Gradient Array measurements are unique in that they best represent a bulk average of the surrounding physical properties within a relatively focused sphere of influence, roughly equal to the width of the receiver dipole, penetrating vertically downward from surface to great depths. These depth of penetration and lateral resolution characteristics are showcased when presented in plan, however through the use of multiple-spaced and focused arrays, the advantages of the gradient array are further highlighted when the IP/Resistivity data are fully developed in cross-section, using RealSections.

The resistivity is among the most variable of all geophysical parameters, with a range exceeding 10^6 . Because most minerals are fundamentally insulators, with the exception of massive accumulations of metallic and submetallic ores (electronic conductors) which are rare occurrences, the resistivity of rocks depends primarily on their porosity, permeability and particularly the salinity of fluids contained (ionic conduction), according to Archie's Law. In contrast, the chargeability responds to the presence of polarizable minerals (metals, submetallic sulphides and oxides, and graphite), in amounts as minute as parts per hundred. Both the quantity of individual chargeable grains present, and their distribution within subsurface current flow paths are significant in controlling the level of response. The relationship of chargeability to metallic content is straightforward, and the influence of mineral distribution can be understood in geologic terms by considering two similar, hypothetical volumes of rock in which fractures constitute the primary current flow paths. In one, sulphides occur predominantly along fracture surfaces. In the second, the same volume percent of sulphides are disseminated throughout the rock. The second example will, in general, have significantly lower intrinsic chargeability.

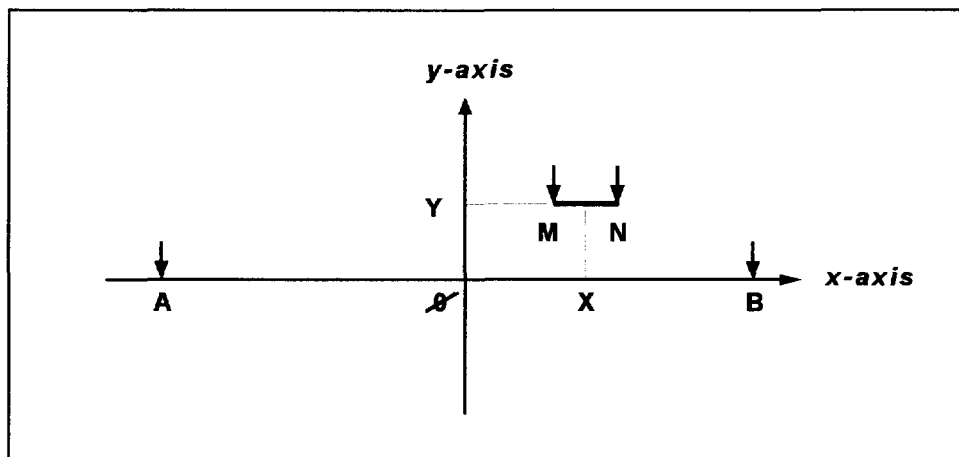


Figure B1: Gradient array configuration

Using the diagram in Figure B1 for the gradient array electrode configuration and nomenclature:¹, the gradient array apparent resistivity is calculated:

where: the origin 0 is selected at the center of AB
 the geometric parameters are in addition to $a = AB/2$ and $b = MN/2$
 X is the abscissa of the mid-point of MN (positive or negative)
 Y is the ordinate of the mid-point of MN (positive or negative)

Gradient Array Apparent Resistivity:

$$\rho_a = K \frac{VP}{I} \text{ ohm - metres}$$

$$\text{where: } K = \frac{2\pi}{(AM^{-1} - AN^{-1} - BM^{-1} + BN^{-1})}$$

$$AM = \sqrt{(a + x - b)^2 + y^2}$$

$$AN = \sqrt{(a + x + b)^2 + y^2}$$

$$BM = \sqrt{(x - b - a)^2 + y^2}$$

$$BN = \sqrt{(x + b - a)^2 + y^2}$$

Using the diagram in Figure B2 for the Total Chargeability:

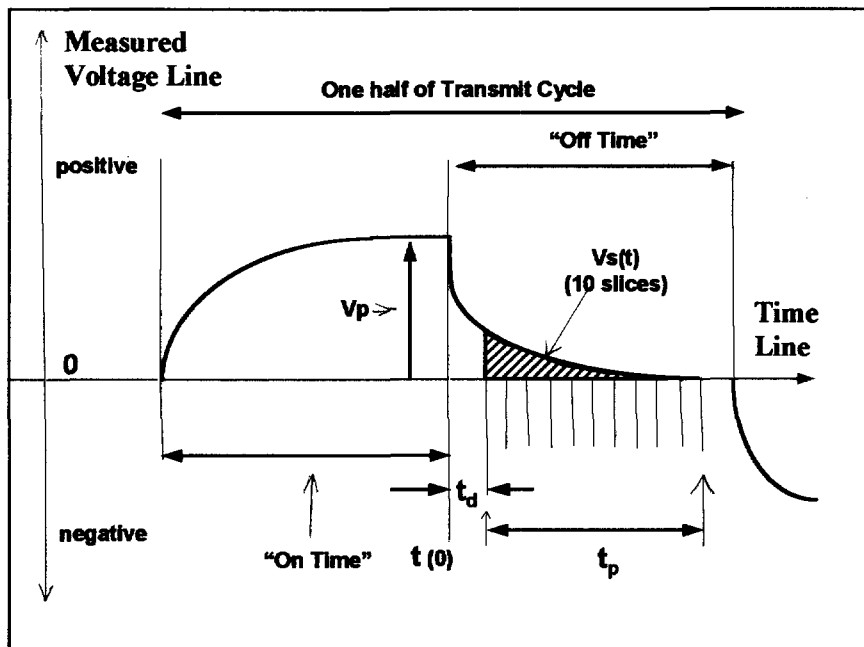


Figure B2: The measurement of the time-domain IP effect

¹ From Terraplus\BRGM, IP-6 Operating Manual, Toronto, 1987.

the total apparent chargeability is given by:

Total Apparent Chargeability:²

$$M_T = \frac{1}{t_p V_p} \sum_{i=1 \text{ to } 10} \int_{t_i}^{t_{i+1}} V_s(t) dt \quad \text{millivolts per volt}$$

where t_i , t_{i+1} are the beginning and ending times for each of the chargeability slices,

More detailed descriptions on the theory and application of the IP/Resistivity method can be found in the following reference papers:

Cogan, H., 1973, Comparison of IP electrode arrays, *Geophysics*, 38, p 737 - 761.

Langore, L., Alikaj, P., Gjovreku, D., 1989, Achievements in copper sulphide exploration in Albania with IP and EM methods, *Geophysical Prospecting*, 37, p 925 - 941.

² From Telford, et al., *Applied Geophysics*, Cambridge U Press, New York, 1983..

APPENDIX D

INSTRUMENT SPECIFICATIONS

Iris ELREC 10 Receiver

(From Iris ELREC 10 Operating Manual)

Weather proof case

Dimensions:	31.0 cm x 21.0 cm x 25.0 cm
Weight:	9.0 kg (with internal battery)
Operating temperature:	-30°C to 70°C
Storage:	(-30°C to 50°C)
Power supply:	1 x 12.0 V external battery (30 hr. @ 20°C) or 2 x 6.0 V NiCad rechargeable (20 hr. @ 25°C) or 10
Input channels:	10 Mohm
Input impedance:	up to 1000 volts
Input over voltage protection:	10 V maximum on each dipole
Input voltage range:	15 V maximum sum over ch. 1 to 10
SP compensation:	Automatic ± 15 V with linear drift correction
Noise rejection:	100 dB common mode rejection (for $R_s = 0$) automatic stacking
Primary voltage resolution:	1 μ V after stacking
accuracy:	0.3% typically; maximum 1 over whole temperature range
Secondary voltage windows:	up to 20 windows; preset window specs for Cole- Cole parameter analysis.
Sampling rate:	10 ms
Synchronization accuracy:	10 ms, minimum 40 μ V
Chargeability resolution:	0.1 mV/V
accuracy:	typically 0.6%. maximum 2% of reading ± 1 mV/V for $V_p > 10$ mV
Battery test:	manual and automatic before each measurement
Grounding resistance:	0.1 to 100 kohm
Memory capacity:	3200 records, 1 dipole/record
Data transfer:	serial link @ 300 to 19200 baud

IRIS IP 10 Dump File Format

Channel: 1 Date: 08/10/1999 11:13:34
Spacing (foot): XP : 0 li.P: 4800 D : -100 XA : 2600 XB
: -5000 l.AB: 3200
Rs: 0.15 kohm

M1/5	:	M6/10	:	M11/15	:	M16/20	:
39.10	:	17.24	:	0.00	:	0.00	:
33.94	:	14.22	:	0.00	:	0.00	:
30.77	:	11.53	:	0.00	:	0.00	:
27.85	:	9.24	:	0.00	:	0.00	:
22.61	:	7.65	:	0.00	:	0.00	:

Sp: 40.92 mV
In: 8200.00 mA Rho: 804.35 ohm.m #: 10
Vp: 42.880 mV Mg: 13.74 mV/V Q: 0.22
mV/V
Tau: 0.000 s Mcc: 0.00 mV/V rms: 0.00
%

Channel: 2 Date: 08/10/1999 11:13:34
Spacing (foot): XP : -100 li.P: 4800 D : -100 XA : 2600
XB : -5000 l.AB: 3200
Rs: 0.20 kohm

M1/5	:	M6/10	:	M11/15	:	M16/20	:
37.92	:	16.77	:	0.00	:	0.00	:
32.89	:	13.69	:	0.00	:	0.00	:
29.70	:	11.13	:	0.00	:	0.00	:
27.15	:	8.93	:	0.00	:	0.00	:
21.93	:	7.43	:	0.00	:	0.00	:

Sp: -144.83 mV
In: 8200.00 mA Rho: 806.64 ohm.m #: 10
Vp: 42.071 mV Mg: 13.31 mV/V Q: 0.30
mV/V
Tau: 0.000 s Mcc: 0.00 mV/V rms: 0.00
%

APPENDIX D

INSTRUMENT SPECIFICATIONS

Phoenix IP Transmitter Model IPT-2B

Power Sources:	Phoenix MG-19 (10KVA, 120V, 3 phase, 400 Hz) motor generator (30KVA, 120V, 3 phase) motor generator Phoenix MG-1, 2 or 3 can also be used, but will generate ½ the voltage
Output Voltage:	To 1400V in four ranges of resp. 250-375V, 420-630V, 650-975V, 935-1400V. Voltage is continuously variable $\pm 20\%$ from each nominal step value.
Output Power:	Maximum continuous output power is 10KW. Absolute maximum output power is 15KW.
Maximum Current:	15 Amps
Ammeter Ranges:	30m A, 100m A, 1A, 3A, 10A and 30A full scale.
Meter Display:	A meter function switch selects the display of current level, regulation status, input frequency, output voltage, control battery voltage or line voltage
Current regulation:	The change in output current is less than 0.2% for a 10% change in input voltage or electrode impedance. Regulation is achieved by feedback to the alternator of the motor generator unit.
Output waveform (Standard):	Either DC, single frequency, two frequencies simultaneously, or time domain (50% duty cycle). Frequencies of 0.078, 0.156, 0.313, 1.25, 2.5 and 5.0 Hz are standard, whereas 0.062, 0.125, 0.25, 1.0, 2.0 and 4.0 Hz are optionally available. The simultaneous transmission mode has 0.313 and 5.0 Hz as standard, whereas 0.156 and 2.5 Hz are optional.
Output waveform IPT-2B option:	9 frequencies in binary progression: 1/16 - 1/32 - 1/16 - 1/8 - 1/4 - 1/2 - 1 2 and 4, with variable duty cycle. Selectable to one of four values: 0.25, 0.5, 0.75, and 1. <u>NOTE:</u> Duty cycle = 1 is the operation equal to the standard frequency domain cycling, i.e. Full On, except for a 50m sec. gap at each half cycle.
Operating Temperature:	-40°C to +60°C
Frequency Stability:	$\pm 1\%$ from -40°C to +60°C is standard. A precision time base is optionally available for coherent detection and phase IP measurements.
Transient Protection:	Current is turned off automatically if it exceeds 150% full scale or is less than 5% full scale.
Thermal Protection:	Unit is fan-forced cooled. Thermostat turns transmitter off at 65°C and turns back on at 55°C internal temperature.

Dimensions: 46 x 46 x 32 cm (18 x 18 x 13 in)

Weight: 45 kg

Shipping Weight: 56 kg

APPENDIX D

INSTRUMENT SPECIFICATIONS

Phoenix IP Transmitter Model IPT-1

Power Sources:	Phoenix MG-3 (2.5KVA, 60V, 3 phase, 400 Hz) motor generator
Output Voltage:	75 to 1200V in 5 steps. 75 - 150 - 300 - 600 - 1200V Voltage is continuously variable $\pm 20\%$ from each nominal step value.
Output Power:	Maximum continuous output power is 2.5KW.
Maximum Current:	10 Amps
Ammeter Ranges:	50m A, 100m A, 500mA, 1A, 3A, and 10A full scale.
Meter Display:	A meter function switch selects the display of current level, regulation status, input frequency, output voltage, line voltage
Current regulation:	The change in output current is less than 0.2% for a 10% change in input voltage or electrode impedance. Regulation is achieved by feedback to the alternator of the motor generator unit.
Output waveform:	Either DC, single frequency, two frequencies simultaneously, or time domain (50% duty cycle). Frequencies of 0.078, 0.156, 0.313, 1.25, 2.5 and 5.0 Hz are standard, whereas 0.062, 0.125, 0.25, 1.0, 2.0 and 4.0 Hz are optionally available. The simultaneous transmission mode has 0.313 and 5.0 Hz as standard, whereas 0.156 and 2.5 Hz are optional.
Operating Temperature:	-40°C to + 60°C
Frequency Stability:	$\pm 1\%$ from -40°C to +60°C is standard. A precision time base is optionally available for coherent detection and phase IP measurements.
Transient Protection:	Current is turned off automatically if it exceeds 150% full scale or is less than 5% full scale.
Dimensions:	18cm x 40cm x 53cm
Weight:	4 kg

APPENDIX E

LISTS OF MAPS

• **Plan Maps at scale of 1:5000**

2600 metre AB	
1. Posted/Contoured Total Chargeability	QG-128-PLAN-CHG-1
2. Posted/Contoured Apparent Resistivity	QG-128-PLAN-RES-1
3. Posted/Contoured Interpretation over Total Chargeability	QG-128-INT-CHG-1
4. Posted/Contoured Interpretation over Apparent Resistivity	Qg-128-INT-RES-1
TOTAL PLANS	4

TOTAL PLANS= 2

APPENDIX F



MAPS AND SECTIONS

Transaction Number (office use) W0160.00043 Assessment Files Research Imaging



41P14NE2006 2.20954 MIDLOTHIAN

900

Use form 0240.

2.20954

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

Name	Canadian Arrow Mines Ltd.	Client Number	116326
Address	104 - 85 Pine St. S.	Telephone Number	705-264-2296
	Timmins, ON P4N 2K1	Fax Number	705-267-7490
Name	Moneta Porcupine Mines Inc.	Client Number	171667
Address	104 - 85 Pine St. S.	Telephone Number	705-264-2296
	Timmins, ON P4N 2K1	Fax Number	705-267-7490

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

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

Work Type	Realsection IP survey, linecutting	Office Use	
		Commodity	
		Total \$ Value of Work Claimed	35,642
		NTS Reference	
Date Work Performed	From 15 7 2000 To 20 02 2001		
Global Positioning System Data (if available)	Township/Area Halliday/Midlothian	Mining Division	L. Lake / Porcupine
	M or G-Plan Number G-976/G-3884	Resident Geologist District	Timmins

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

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

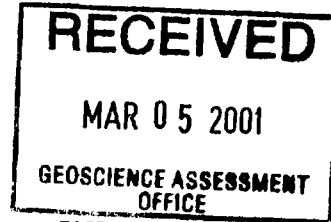
Name	Quantec Geoscience Ltd.	Telephone Number	705-235-2106
Address	101 King St., PO Box 580 Porcupine ON, P0N 1C0	Fax Number	705-235-2255
		Telephone Number	
		Fax Number	
Name		Telephone Number	
Address		Fax Number	

4. Certification by Recorded Holder or Agent

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

Signature of Recorded Holder or Agent		Date	Feb 28, 2001
Agent's Address	C/O PO Box 1756, Timmins, ON, P4N 7W9	Telephone Number	705-264-2296
		Fax Number	705-267-7490

0241 (03/97)



MAR 05 '01 15:21

7052677490

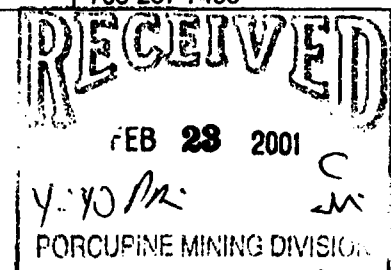
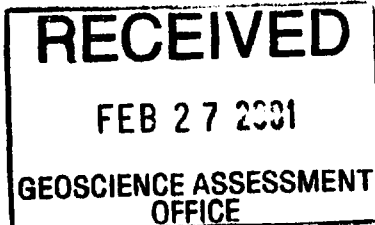
PAGE. 02

4. Certification by Recorded Holder or Agent

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

Signature of Recorded Holder or Agent		Date	Feb. 21, 2001
Agent's Address	C/O PO Box 1756, Timmins, ON, P4N 7W9	Telephone Number	705-264-2296
		Fax Number	705-267-7490

0241 (03/97)

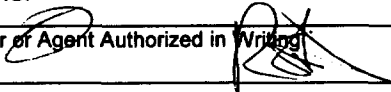


5. **Work to be recorded and distributed.** Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form.

W0160.00043

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work Performed on this Claim or other Mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date
1 L. ML 103654 (Midlothian Twp.)	282.588	14,435.2 (40.5%)	0	14,392.6	42.6
2 P. ML 103655 (Halliday Twp.)	298.941	19,567.8 (54.9%)	0	19,567.8	0
3 L 1240748	4		1600		
4 L 1240749	6		2400		
5 L 1240750	7	712.9 (2.0%)	2800		0
6 P 1238665	16		6400		
7 P 1238666	2		800		
8 P 1238667	4		1600		
9 P 1240742	12		4800		
10 P 1240743	11	249.5 (0.7%)	4400		0
11 P 1240744	8		3200		
12 P 1240745	6		2400		
13 P 1240746	8	677.2 (1.9%)	3200		0
14 P 1240747	5		2000		
15					
16					
17					
18					
Column Totals	89	35,642.6	35,600	33,960	42.54

I, Rainer Skeries (Print Full Name), do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.

Signature of Recorded Holder or Agent Authorized in Writing  Date Feb 21, 2001

6. **Instructions for cutting back credits that are not approved.**

Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- 3. Credits are to be cut back equally over all claims listed in this declaration; or
- 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

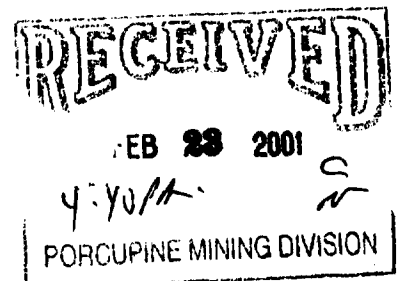
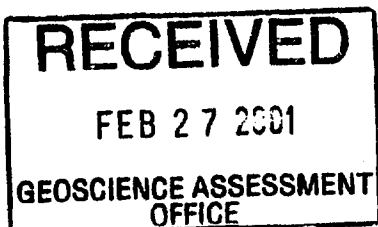
P 1240744

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, Followed by option number 2 if necessary.

For Office Use Only

Received Stamp	Deemed Approved Date	Date Notification Sent
	Date Approved	Total Value of Credit Approved
	Approved for Recording by Mining Recorder (Signature)	

0241 (03/97)





Ontario

Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use) W0160.00043

Personal information collected on this form is obtained under the authority of subsection 6 (1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to a Provincial Mining Recorder, Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Table with 4 columns: Work Type, Units of work, Cost Per Unit of work, Total Cost. Rows include Realsection IP survey, Linecutting, Consulting, Report/plots, Associated Costs (maps), Transportation Costs, Food and Lodging Costs, and Total Value of Assessment Work.

RECEIVED FEB 27 2001 GEOSCIENCE ASSESSMENT OFFICE

Calculations of Filing Discounts:

- 1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work.

TOTAL VALUE OF ASSESSMENT WORK x 0.50 = Total \$ value of worked claimed.

Note: - Work older than 5 years is not eligible for credit. - A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification.

Certification verifying costs:

I, Rainer Skeries, do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying

Declaration of Work form as Director/Consulting Geologist I am authorized to make this certification. (recorded holder, agent, or state company position with signing authority)

Signature [Signature] Date Feb 21, 2001

0212 (03/97) FEB 23 2001 4:40 PM MINING DIVISION

March 22, 2001

CANADIAN ARROW MINES LIMITED
104-85 PINE STREET S.
TIMMINS, Ontario
P4N-2K1

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9845
Fax: (877) 670-1555

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

Dear Sir or Madam:

Submission Number: 2.20954

Status

Subject: Transaction Number(s): W0160.00043 Approval

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

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

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

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

Yours sincerely,



ORIGINAL SIGNED BY
Lucille Jerome
Acting Supervisor, Geoscience Assessment Office
Mining Lands Section

Work Report Assessment Results

Submission Number: 2.20954

Date Correspondence Sent: March 22, 2001

Assessor: LUCILLE JEROME

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W0160.00043	1240750	HALLIDAY, MIDLOTHIAN	Approval	March 22, 2001

Section:
14 Geophysical IP

Correspondence to:
Resident Geologist
South Porcupine, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):
Rainer Skeries
TIMMINS, ONTARIO, CANADA

CANADIAN ARROW MINES LIMITED
TIMMINS, Ontario

MONETA PORCUPINE MINES INC.
TIMMINS, Ontario



Date / Time of Issue Mar 22 2001 11:43h Eastern

TOWNSHIP / AREA PLAN

MIDLOTHIAN G-3684

ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division Larder Lake
Land Titles/Registry Division TIMISKAMING
Ministry of Natural Resources District KIRKLAND LAKE

TOPOGRAPHIC

- Administrative Boundaries
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- Cliff, Pit and Pile
- Contour
- Contour - Approx. Auxiliary Depression
- Shaft
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Hydro Line
- Communication Line
- Wooded Area
- Monument - Geodetic, Historical, Horiz. Control

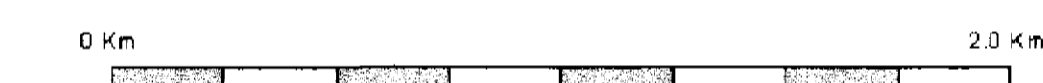
LAND TENURE

- Freehold Patent**
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only
- Leasehold Patent**
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only
- Licence of Occupation**
 - Leased Specified
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only
- Land Use Permit
- Order in Council
- Water, Power, Lease Agreement

LAND TENURE WITHDRAWALS

- 1234** Areas Withdrawn from Disposition Mining Act Withdrawal Types
 - Wsm Surface and Mining Rights Withdrawn
 - Ws Surface Rights Only Withdrawn
 - Wm Mining Rights Only Withdrawn
- Order in Council Withdrawal Types
 - Wsm Surface and Mining Rights Withdrawn
 - Ws Surface Rights Only Withdrawn
 - Wm Mining Rights Only Withdrawn

IMPORTANT NOTICES

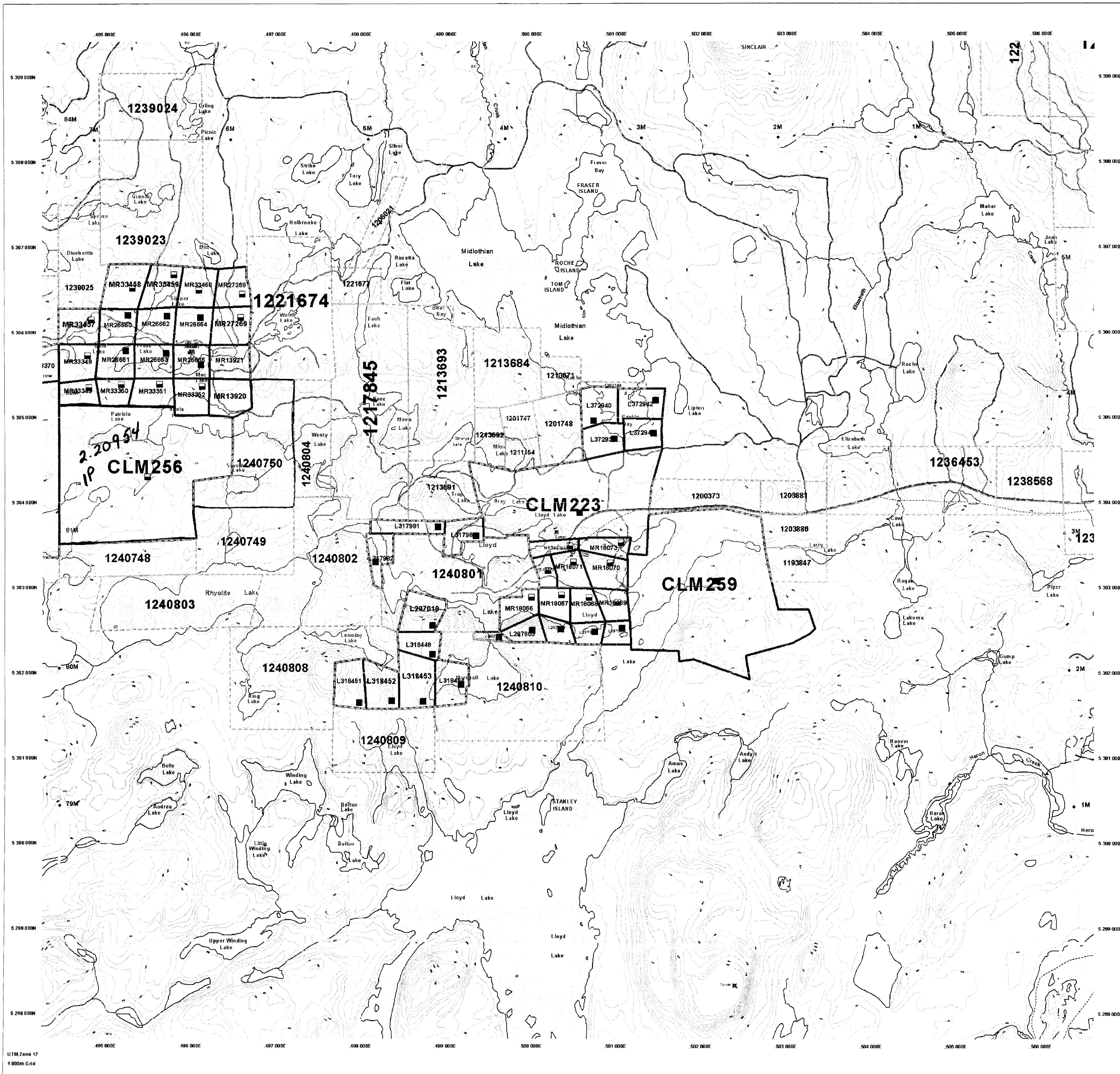


LAND TENURE WITHDRAWAL DESCRIPTIONS

Identifier	Type	Date	Description
WLL-P1715	Wsm	Jan 1 2001	SEC 35 WLL-P1715 99 ONT MAY 13 09 MMS 600 METRES FROM WATERS EDGE)

IMPORTANT NOTICES

Areas under which special regulations, limitations or conditions exist that affect normal prospecting, staking and mineral development activities.



UTM Zone 17
1 000m Grid

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Lands Titles or Registry Office, or the Ministry of Natural Resources.

The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations

Contact Information:
Provincial Mining Recorders' Office Toll Free
Water Green Mine Centre Tel: 1 (800) 415-9645
233 Ramsey Lake Road Fax: 1 (877) 670-1444
Sudbury, ON P3E 6B5
Home Page: www.gov.on.ca/MNDM/MINES/LANDS/ntsmppg.htm

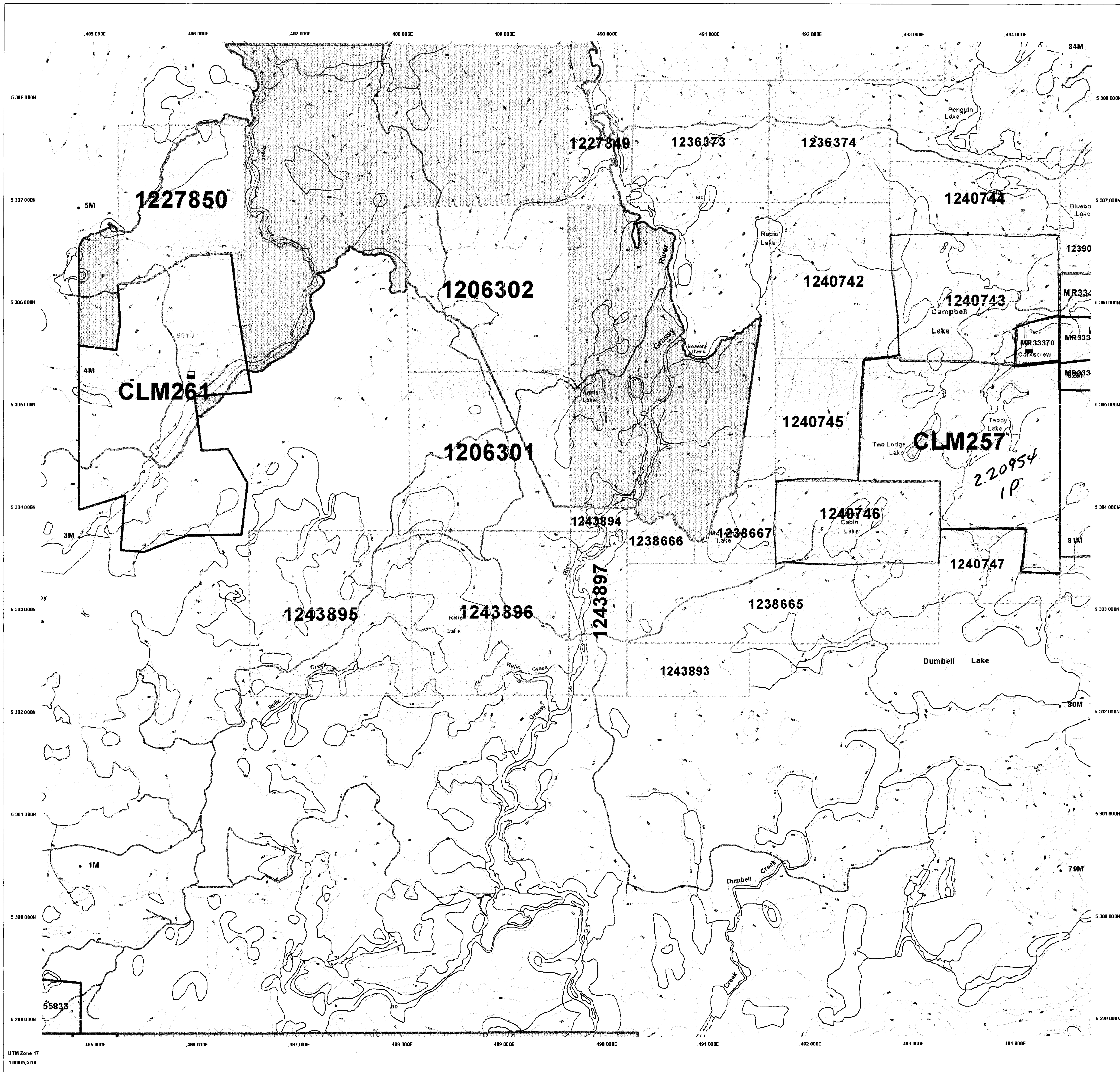
Map Datum: NAD 83
Projection: UTM (6 degree)
Topographic Data Source: Land Information Ontario
Mining Land Tenure Source: Provincial Mining Recorders' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to staking mining claims may not be illustrated.



Date / Time of Issue Mar 22 2001 11:37h Eastern
TOWNSHIP / AREA HALLIDAY PLAN
HALLIDAY G-0976

ADMINISTRATIVE DISTRICTS / DIVISIONS
Mining Division Porcupine
Land Titles/Registry Division SUDBURY
Ministry of Natural Resources District TIMMINS



TOPOGRAPHIC

- Administrative Boundary
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- City, Pt and Pile
- Contour - Approx. Auxiliary Depression
- Shaft
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Hydro Line
- Communication Line
- Wooded Area
- Monument - Cadastral, Historical, Horiz. Control

LAND TENURE

- Freehold Patent**
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only
- Leasehold Patent**
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only
- Licence of Occupation**
 - Uses not Specified
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only
- Land Use Permit**
- Order in Council**
- Water Power Lease Agreement**
- Mining Claim**

LAND TENURE WITHDRAWALS

- 1234** Area Withdrawn from Disposition Mining Act Withdrawal Types
 - Wsm Surface and Mining Rights Withdrawal
 - Wm Surface Rights Only Withdrawal
 - Wm Mining Rights Only Withdrawal
 - Order in Council Withdrawal Types
 - Wsm Surface and Mining Rights Withdrawal
 - Wm Surface Rights Only Withdrawal
 - Wm Mining Rights Only Withdrawal

IMPORTANT NOTICES



LAND TENURE WITHDRAWAL DESCRIPTIONS

Monitor	Type	Date	Description
4264	Wsm	Jan 1 2001	Sec. 35 W.-LL - P1639 07/05/99 M+S
9013	Wsm	Jan 1 2001	WP-3598 SLP1.0398 M.R.O.
4173	Wsm	Jan 1 2001	SEC. 35 W.-LL - C159499 MAY 0799 M+S

IMPORTANT NOTICES

Areas under which special regulations, limitations or conditions exist that affect normal prospecting, staking and mineral development activities.

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigation, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Lands Titles or Registry Office, or the Ministry of Natural Resources.

The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations

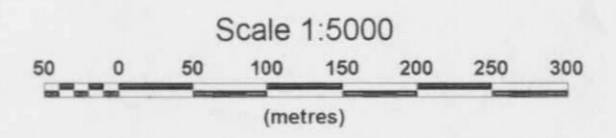
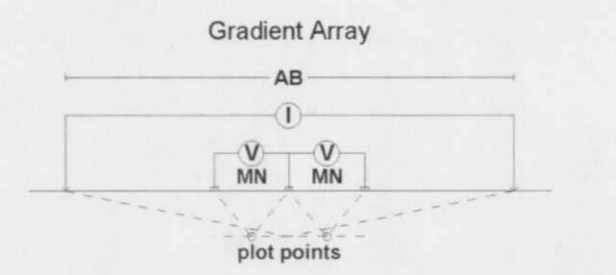
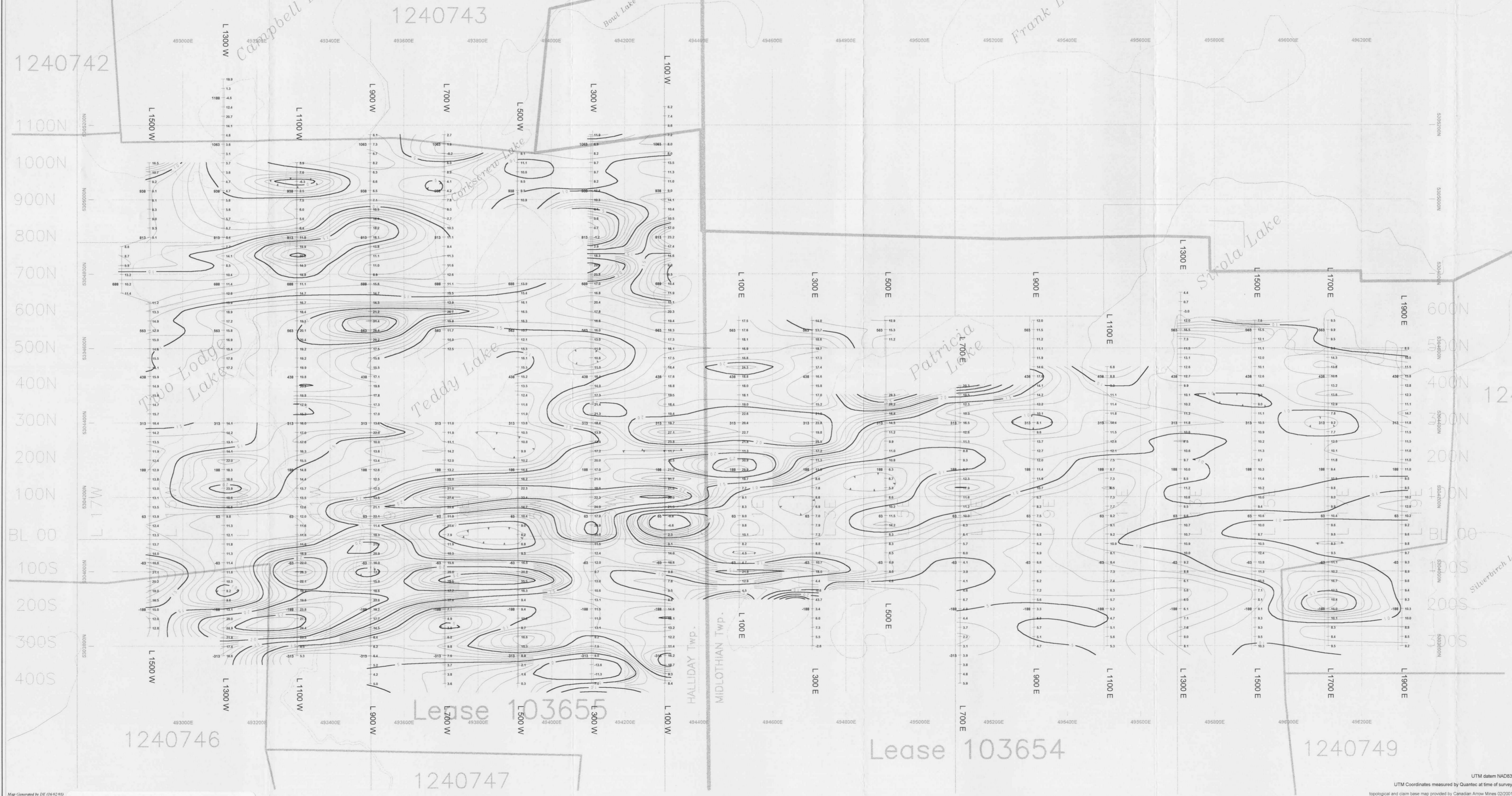
Contact Information:
Provincial Mining Recorders' Office Toll Free
What's New, M & M, C, and
933 Ramsey Lake Road
Sudbury, ON P3E 6B5
Home Page: www.gov.on.ca/MNDM/MINES/LANDS/mismopg.htm

Map Datum: NAD 83
Projection: UTM (6 degree)
Topographic Data Source: Land Information Ontario
Mining Land Tenure Source: Provincial Mining Recorders' Office

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HALLIDAY PROPERTY - TOTAL CHARGEABILITY (mV/V)



CANADIAN ARROW MINES LTD.
HALLIDAY PROPERTY
 Halliday & Midlothian Twp., Matachewan, ON

TIME DOMAIN IP SURVEY
 Gradient Array (AB= 2600 metres)
TOTAL CHARGEABILITY

Transmitter Frequency: 0.0625 Hz (50% duty cycle)
 Transmitter Current: 7.0 Amps
 Decay Curve: IP-10 Cole-Cole Semilogarithmic Windows
 20 Gates (40ms to 3830ms)
 Station Interval: 25 metres

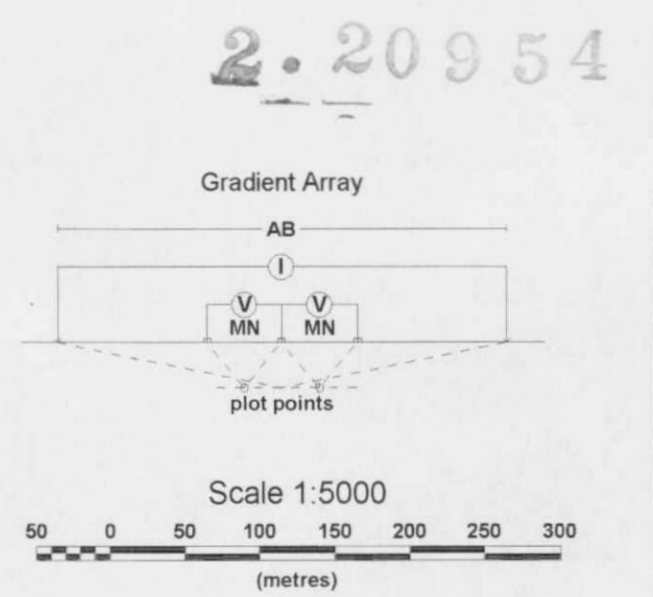
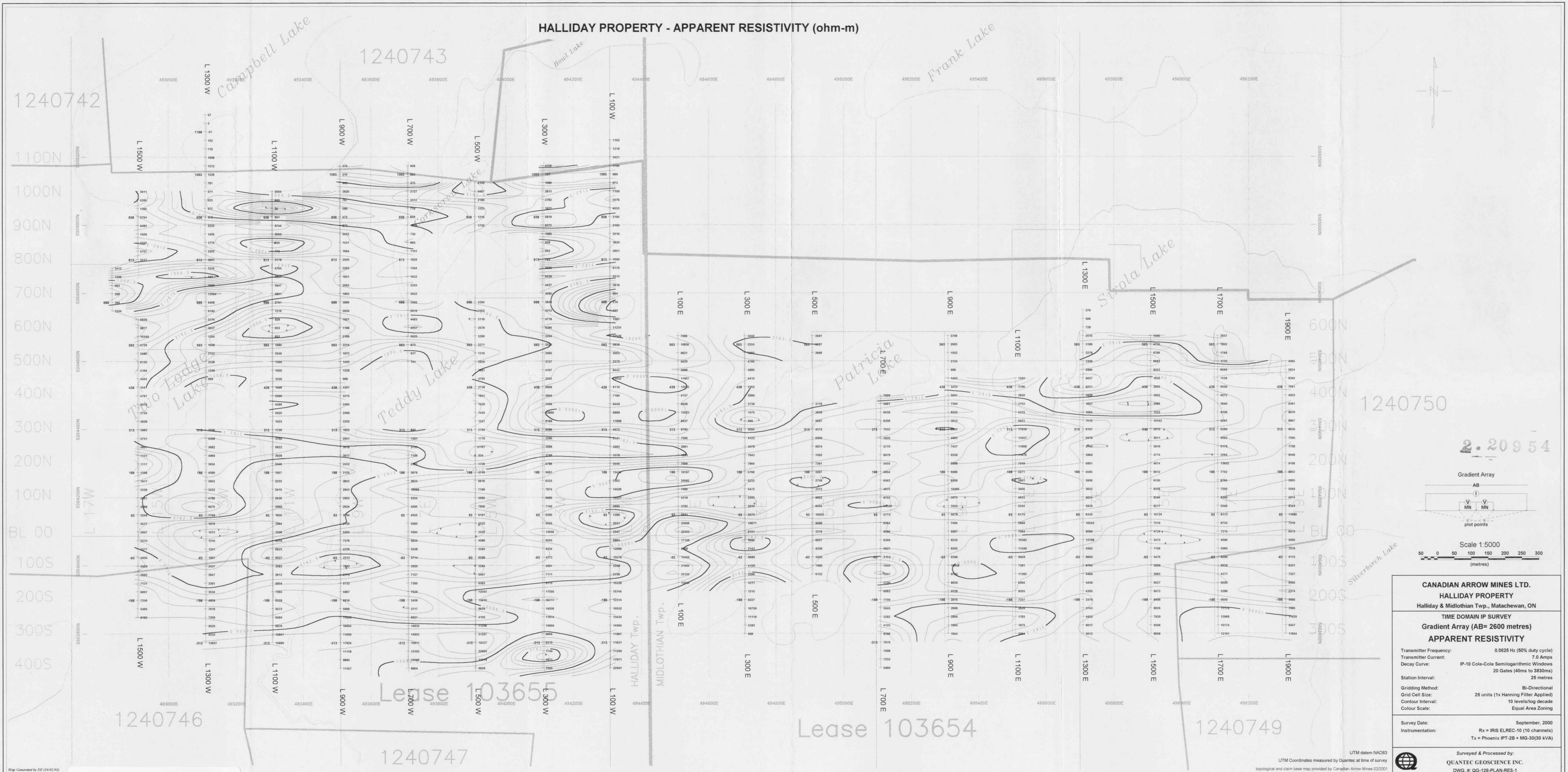
Gridding Method: Bi-Directional
 Grid Cell Size: 25 units (1x Hanning Filter Applied)
 Contour Interval: 1.5 mV/V
 Colour Scale: Equal Area Zoning

Survey Date: September, 2000
 Instrumentation: Rx = IRIS ELREC-10 (10 channels)
 Tx = Phoenix IPT-2B + MG-30(30 kVA)

UTM datum NAD83
 UTM Coordinates measured by Quantec at time of survey
 topological and claim base map provided by Canadian Arrow Mines 02/2001

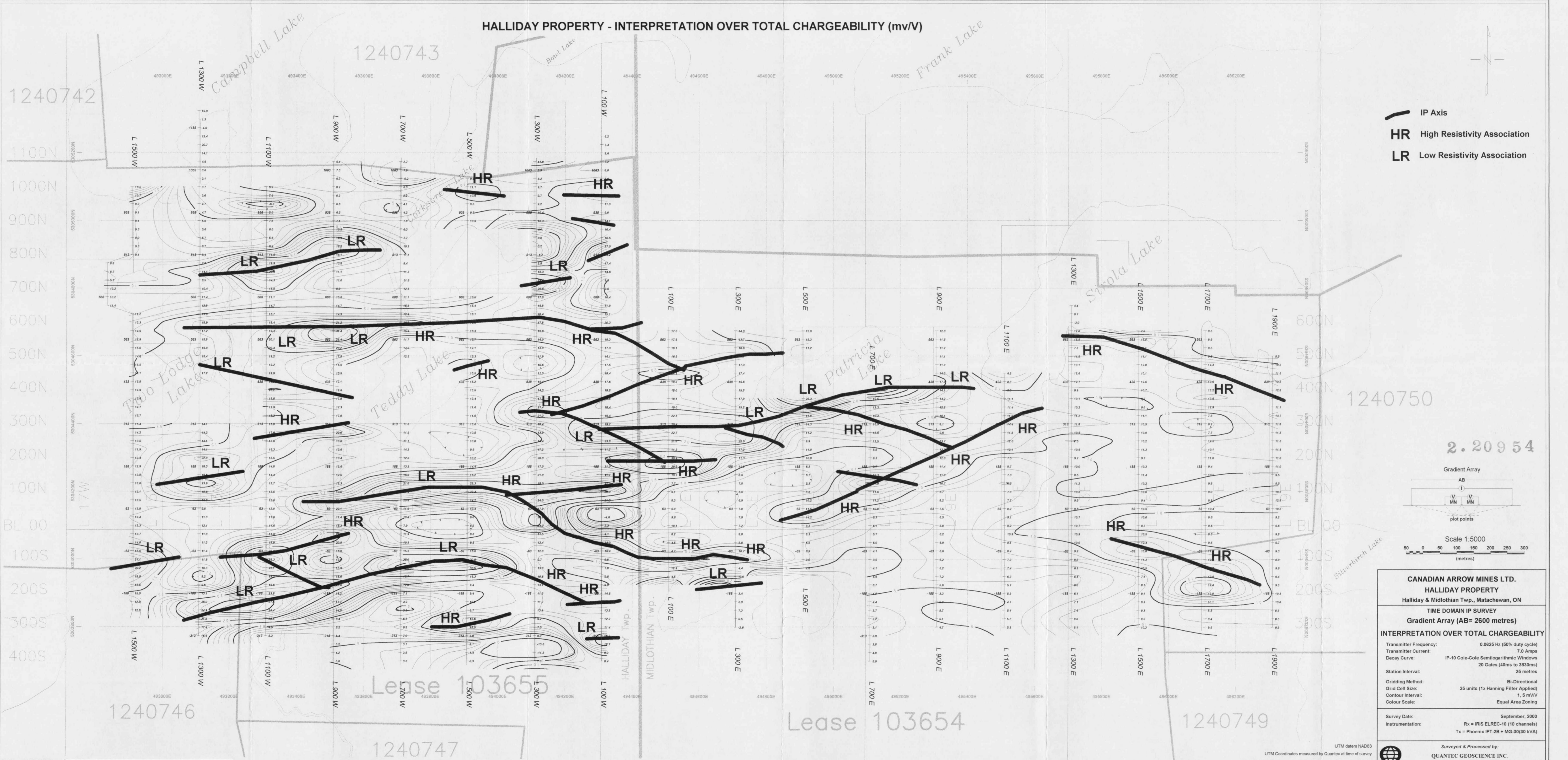
Surveyed & Processed by:
QUANTEC GEOSCIENCE INC.
 DWG. #: QG-128-PLAN-CHG-1

HALLIDAY PROPERTY - APPARENT RESISTIVITY (ohm-m)

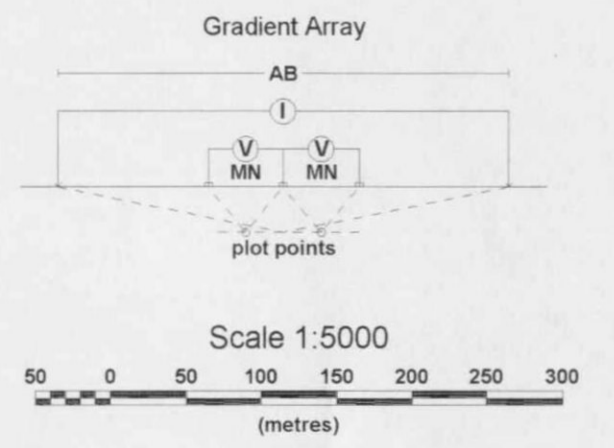


CANADIAN ARROW MINES LTD.	
HALLIDAY PROPERTY	
Halliday & Midlothian Twp., Matachewan, ON	
TIME DOMAIN IP SURVEY	
Gradient Array (AB= 2600 metres)	
APPARENT RESISTIVITY	
Transmitter Frequency:	0.0625 Hz (50% duty cycle)
Transmitter Current:	7.0 Amps
Decay Curve:	IP-10 Cole-Cole Semi-logarithmic Windows
Station Interval:	20 Gates (40ms to 3830ms)
Gridding Method:	25 metres
Grid Cell Size:	Bi-Directional
Contour Interval:	25 units (1x Hanning Filter Applied)
Colour Scale:	10 levels/10a decade
	Equal Area Zoning
Survey Date:	September, 2000
Instrumentation:	Rx = IRIS ELREC-10 (10 channels) Tx = Phoenix IPT-2B + MG-30(30 kVA)
UTM datum NAD83	
UTM Coordinates measured by Quatec at time of survey	
topological and claim base map provided by Canadian Arrow Mines 02/2001	
Surveyed & Processed by:	
QUATEC GEOSCIENCE INC.	
DWG. #: QG-128-PLAN-RES-1	

HALLIDAY PROPERTY - INTERPRETATION OVER TOTAL CHARGEABILITY (mv/V)



- IP Axis
- HR** High Resistivity Association
- LR** Low Resistivity Association



CANADIAN ARROW MINES LTD.
HALLIDAY PROPERTY
 Halliday & Midlothian Twp., Matachewan, ON

TIME DOMAIN IP SURVEY
 Gradient Array (AB = 2600 metres)

INTERPRETATION OVER TOTAL CHARGEABILITY

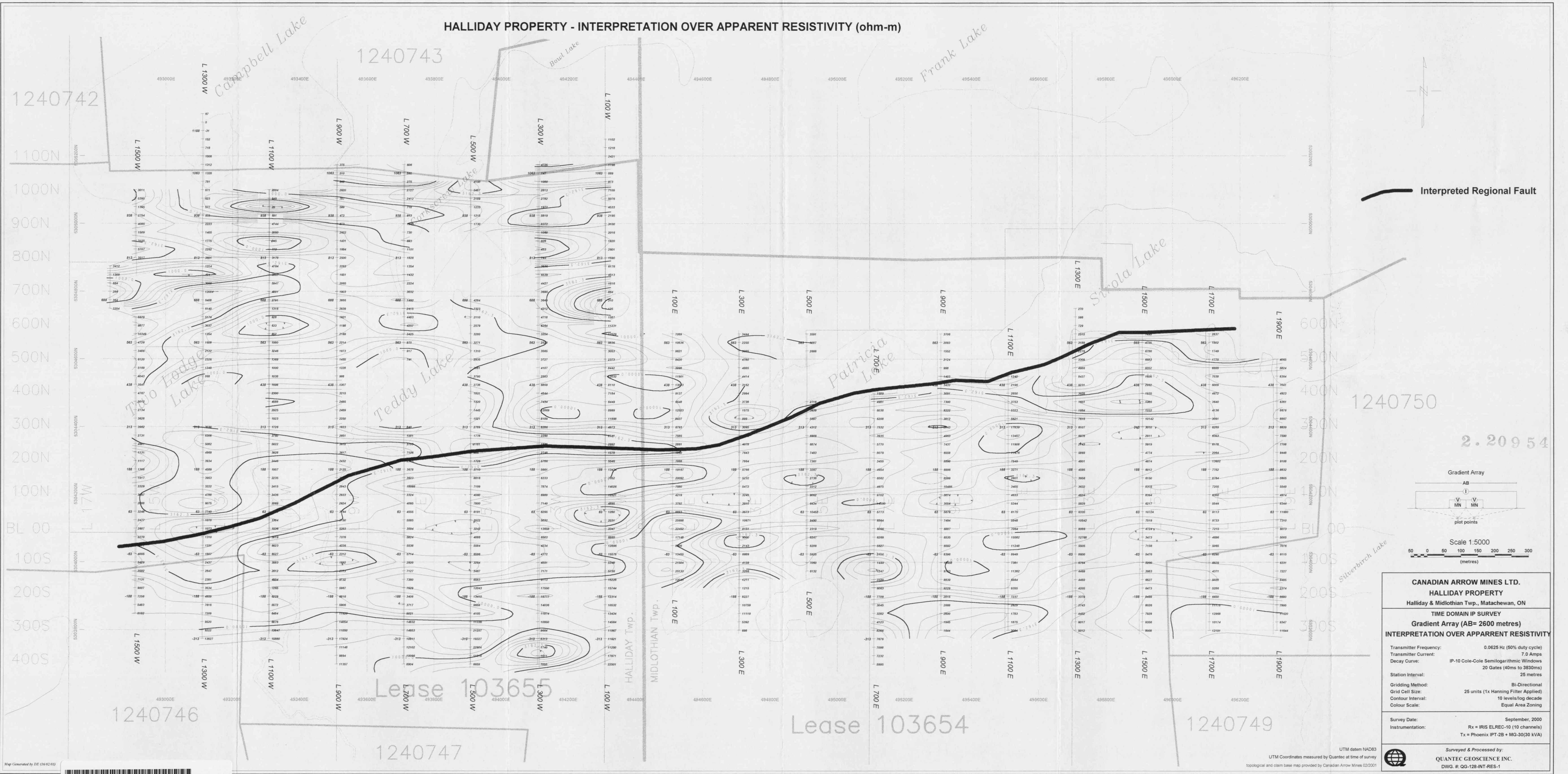
Transmitter Frequency:	0.0625 Hz (50% duty cycle)
Transmitter Current:	7.0 Amps
Decay Curve:	IP-10 Cole-Cole Semilogarithmic Windows
	20 Gates (40ms to 3830ms)
Station Interval:	25 metres
Gridding Method:	Bi-Directional
Grid Cell Size:	25 units (1x Hanning Filter Applied)
Contour Interval:	1.5 mV/V
Colour Scale:	Equal Area Zoning

Survey Date: September, 2000
 Instrumentation: Rx = IRIS ELREC-10 (10 channels)
 Tx = Phoenix IPT-ZB + MG-30(30 kVA)

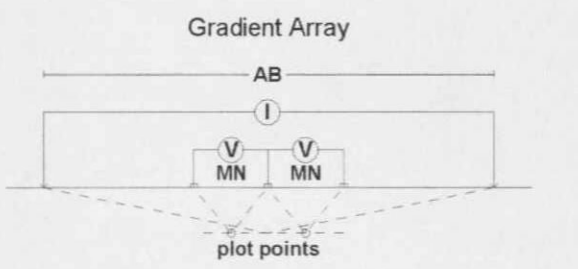
UTM datam NAD83
 UTM Coordinates measured by Quantec at time of survey
 topological and claim base map provided by Canadian Arrow Mines 02/2001

Surveyed & Processed by:
QUANTEC GEOSCIENCE INC.
 DWG. #: QG-128-INT-CHG-1

HALLIDAY PROPERTY - INTERPRETATION OVER APPARENT RESISTIVITY (ohm-m)



Interpreted Regional Fault



Scale 1:5000
0 50 100 150 200 250 300
(metres)

CANADIAN ARROW MINES LTD.
HALLIDAY PROPERTY
 Halliday & Midlothian Twp., Metchawin, ON

TIME DOMAIN IP SURVEY
 Gradient Array (AB= 2600 metres)
INTERPRETATION OVER APPARENT RESISTIVITY

Transmitter Frequency: 0.0625 Hz (50% duty cycle)
 Transmitter Current: 7.0 Amps
 Decay Curve: IP-10 Cole-Cole Semilogarithmic Windows
 20 Gates (40ms to 3830ms)

Station Interval: 25 metres

Gridding Method: Bi-Directional
 Grid Cell Size: 25 units (1x Hanning Filter Applied)
 Contour Interval: 10 levels/log decade
 Colour Scale: Equal Area Zoning

Survey Date: September, 2000
 Instrumentation: Rx = IRIS ELREC-10 (10 channels)
 Tx = Phoenix IPT-2B + MG-30(30 kVA)

UTM datum NAD83
 UTM Coordinates measured by Quantec at time of survey
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