ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
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ASSESSMENT REPORT

describing

GEOPHYSICAL SURVEYS AND LINE CUTTING

at the

PANORAMA PROPERTY

Aussie 1-36   YC32751-YC32786

NTS 116/A4
Latitude 64°5'N, Longitude 137°52'W

in the

Dawson Mining District
Yukon Territory

prepared by

Archer, Cathro & Associates (1981) Limited

for

RHEA RESOURCES INC.

and

ATAC RESOURCES LTD.

by

W.A. Wengzynowski, P. Eng.
April 2007

TABLE OF CONTENTS

APPENDICES

FIGURES

INTRODUCTION

The Panorama property lies within the Yukon portion of the Tintina Gold Belt. It covers gold mineralization associated with a Cretaceous age intrusion of the Tombstone Plutonic Suite. The property is located 15 km east of the former Brewery Creek goldmine. ATAC Resources Ltd. owns the property (subject to a net smelter return royalty interest) and has optioned it to Rhea Resources Inc.

This report describes previous work plus results from geophysical surveys and linecutting that were done in 2006 under management of Archer, Cathro & Associates (1981) Limited on behalf of Rhea and ATAC. The 2006 work was done in three phases. From July 4 to 6 Geotech Limited conducted helicopter-borne Time-Domain Electromagnetic (VTEM) and magnetic surveys from Dawson City. Then, from August 9 to 28 linecutting was done by a four man crew from a helicopter supported fly camp on the property. Immediately following completion of the linecutting, an induced polarization survey was started by Aurora Geosciences Ltd. using the same camp. The induced polarization survey was terminated prematurely due to budgetary concerns. The author supervised the work and his Statement of Qualifications appears in Appendix I.

PROPERTY LOCATION, CLAIM DATA AND ACCESS

The Panorama property comprises 36 mineral claims located 75 km east of Dawson City in west-central Yukon, at latitude 64°05'N and longitude137°52'W on NTS map sheet 116/A4 as illustrated in Figure 1. The claims are registered with the Dawson Mining Recorder in the name of Archer Cathro, which holds them in trust for ATAC. Claim data are listed below while the locations of individual claims are illustrated on Figure 2.

Claim Name	Grant Number	Expiry Date*
Aussie 1-36	YC32751 – YC32786	May 28, 2010

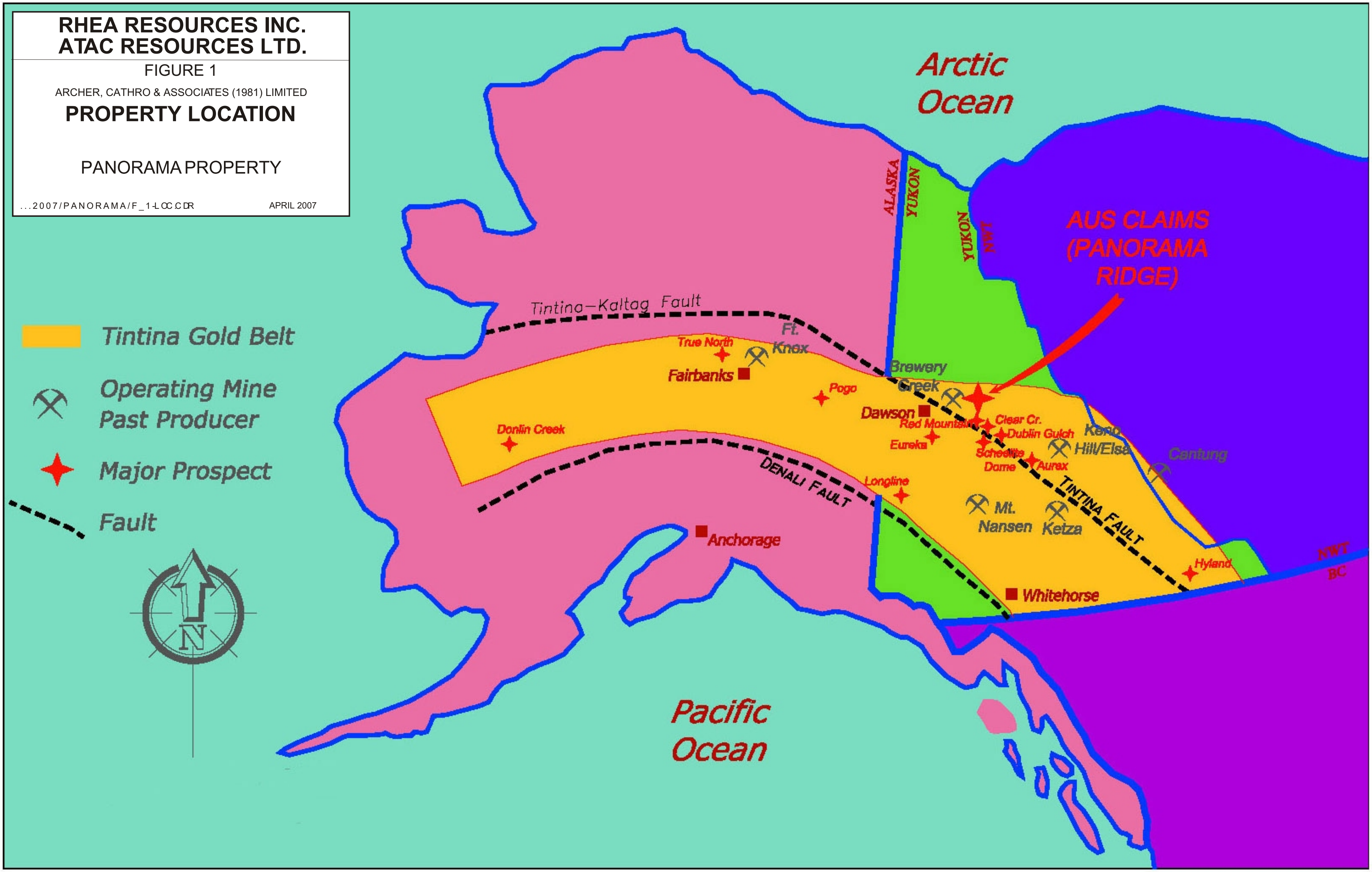
*Expiry date does not include 2006 work that has not yet been filed for assessment credit.

During 2006, crews and equipment were mobilized and demobilized to and from the property with helicopters operated by Fireweed Helicopters Ltd. The former Brewery Creek mine site, located 15 km to the west, was used as a temporary staging area. The VTEM survey was done with an Astar 350 B2 operated by Trans North Helicopters from its base in Dawson City.

HISTORY

The property was originally staked as the Aus 1-32 claims in October 1987 to cover anomalous gold in soil discovered by Noranda Exploration Company Ltd. (Galambos, 1988). The soil anomalies resemble those Noranda had identified at the Brewery Creek property, which it was also exploring at that time.

Noranda completed a series of work programs between 1988 and 1990, which consisted of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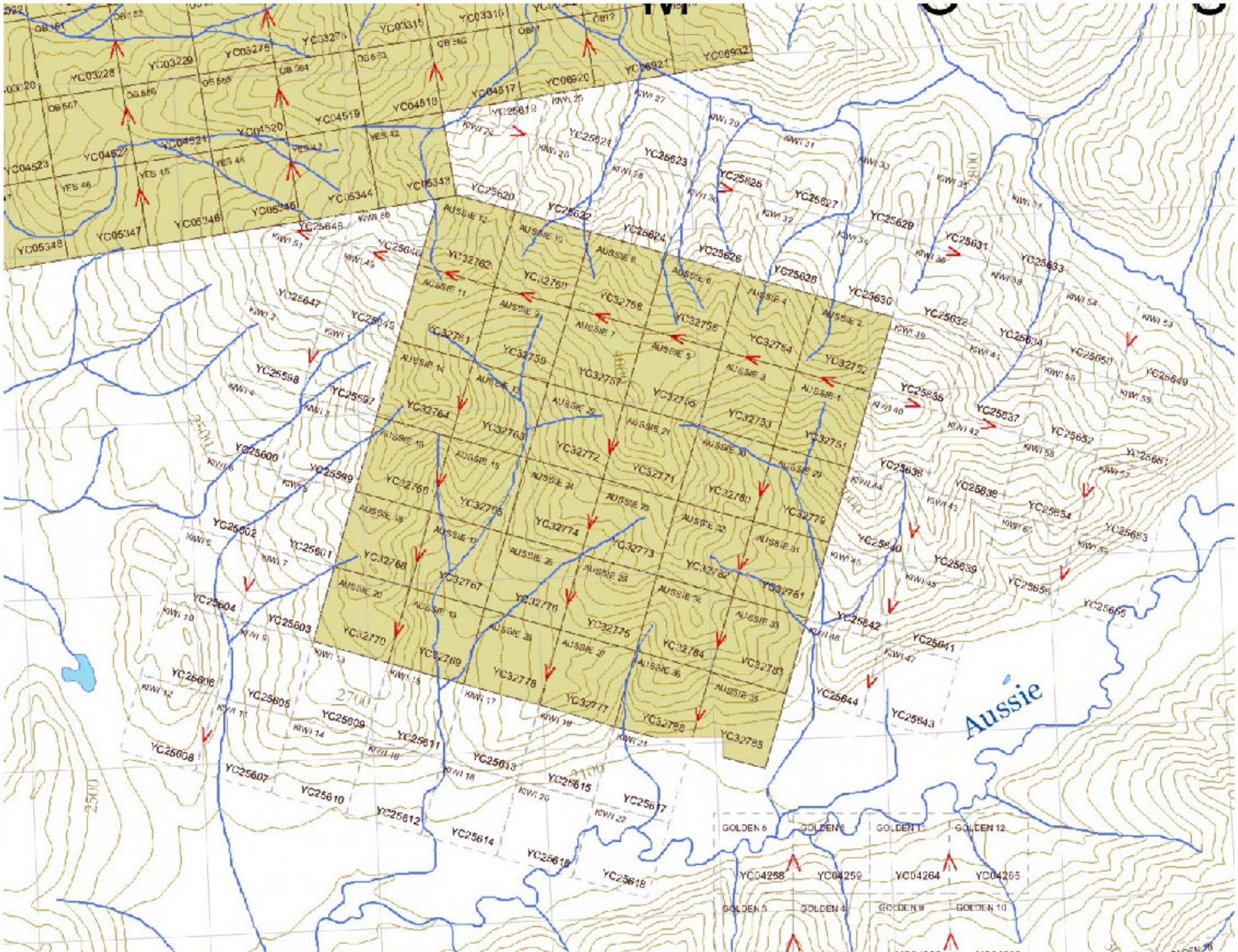
ATAC RESOURCES LTD.
FIGURE 1
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
PROPERTY LOCATION
PANORAMA PROPERTY
...2007/PANORAMA/F_1-LOC.CDR
APRIL 2007
Arctic Ocean
Pacific Ocean
AUS CLAIMS (PANORAMA RIDGE)
ALASKA
YUKON
YUKON
NWT
NWT
BC
Tintina–Kaltag Fault
DENALI FAULT
TINTINA FAULT
Tintina Gold Belt
Operating Mine Past Producer
Major Prospect
Fault
N
True North
Ft. Knox
Fairbanks
Pogo
Donlin Creek
Brewery Creek
Dawson
Red Mountain
Clear Cr.
Dublin Gulch
Keno Hill/Elsa
Eureka
Scheelite Dome
Aurex
Cantung
Longline
Mt. Nansen
Ketza
Hyland
Anchorage
Whitehorse



LEGEND

Elevation contour interval (500 feet)

Stream, creek, or river feature

Staking Direction

Placer Baselines

Mining District Boundaries

Claim Status

Active Quartz Claim

Active Placer Claim

Expired Claim

N

Projection: UTM
Zone: 8
Map Sheet: NTS 116A/4

1000 500 0 1000 2000 Metres

Modified after Yukon Mining Recorder pdf map sheet for NTS 116A/4

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FIGURE 2

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

CLAIM LOCATION

PANORAMA PROPERTY

...2007/PANORAMA/F_2-CLAIM.CDR APRIL 2007

51 line km of cut grid lines; geological mapping; prospecting; collection of 1150 soil and 187 rock samples; 68 line kilometre of magnetometer surveys; 16 line kilometre of IP surveys; and, 258 rock chip samples from seven Kubota backhoe trenches that totalled 836 m in length (Travis, 2004). This work outlined > 60 ppb gold in soils over an 800 by 1500 m area with a coincident arsenic-in-soil anomaly. Although the anomalies are largely underlain by a quartz monzonite intrusion, Noranda's main focus was on the intrusive-sediment contact. Its work discovered veins in hornfelsed sedimentary rocks, which returned values up to 3580 ppb gold from specimens and 1673 ppb from a 2 m trench sample.

In 1995 Orinoco Gold Inc. optioned the property from Hemlo Gold Mines Inc. to which Noranda had assigned its interest (Travis, 2004). Aurum Geological Consultants Inc. explored on behalf of Orinoco Gold later that year and attempted to locate zones of alteration and sheeted veining within the intrusion, which could host economic grade bulk tonnage gold mineralization. This program consisted of: 12 km of grid cut line; mapping; and collection of 431 soil samples, 48 rock specimens and 210 continuous trench chip samples taken from 364 m of trenches excavated by a Kubota backhoe. The soil lines were infill lines between the previously established Noranda grid lines, which were spaced 100 m apart. Results from the 1995 soil sampling program confirmed and better defined the anomalies.

In 1996 Orinoco Gold completed more Kubota trenching and percussion drilling. The Kubota trenching totalled 364 m and produced significant intervals of 1.66 g/t Au over 6.0 m and 8.4 g/t Au over 3.0 m in trench 5, and 4.9 g/t Au over 3.5 m in trench 6. Percussion drilling was performed in fall using a small helicopter portable rig. It was done instead of diamond drilling because of a lack of water at that time of year. The percussion drilling consisted of eight holes totalling 340 m. The drill holes are all located within a 100 m by 100 m area. An aquifer caused four of the eight holes to be abandoned short of their target depth. The 1996 drill results are summarized below, with hole lengths and significant intervals in feet (Travis, 2004).

Hole 96/H1 (85')	abandoned, no significant gold results
Hole 96/H2 (205')	180-205' returned 383 ppb Au
Hole 96/H3 (45')	abandoned, no significant gold results
Hole 96/H4 (205')	110-205' returned 268 ppb Au, including 110-135' of 313 ppb Au and 180-205' of 383 ppb Au
Hole 96/H5 (185')	25-185' returned 278 ppb Au, including 90-110' of 493 ppb Au
Hole 96/H6 (85')	abandoned, no significant gold results
Hole 96/H7 (205')	40-70' returned 1,199 ppb Au (including 40-45' of 4800 ppb Au) and 110-145' of 672 ppb Au
Hole 96/H8 (205')	5-15' of 688 ppb Au, 160-170' of 1901 ppb Au (including 160-165' of 3180 ppb Au) and 190-205' of 659 ppb Au

The Aus claims lapsed in 2003 and were immediately re-staked as Aussie 1-36 claims by H. Neugebauer and R. Allan. These individuals optioned the claims to ATAC which explored with more prospecting, soil sampling and hand trenching in 2004.

GEOMORPHOLOGY AND VEGETATION

The property is situated within the Ogilvie Mountains physiographic region and covers an east-west trending ridge plus a series of south trending spurs and valleys. The most recent glaciation affected nearby valleys but did not cover the higher ridges. Local terrain is deeply weathered and outcrops are rare. The best exposures are on the ridge crest and along incised drainage channels. Local elevations range from 760 m in the valley bottoms to 1219 m atop the ridge. The north facing slopes are usually steepest and exhibit pervasive permafrost. The southeastern portion of the property is a forested marsh and features discontinuous permafrost. South facing slopes are relatively frost free.

Most of the property is below tree line, which is at approximately 1200 m. The valleys and hillsides are typically covered with new growth spruce, poplar, alder and willow. This vegetation is relatively thick but immature because it postdates a large fire that burned over the property in 1989. The upper slopes and ridge tops are characterized by fireweed, caribou moss, and buckbrush.

There is no surface water at higher elevations on the property; however two small creeks are located on the southwestern part of the property. These streams drain into the South Klondike River, a tributary of the Yukon River.

REGIONAL GEOLOGY

The Panorama property is situated within the western portion of Selwyn Basin about 25 km northeast of the Tintina Fault (Figure 3). Three regionally extensive northerly directed thrust faults (Robert Service, Tombstone and Dawson Thrusts) which surface northeast of the property, displaced large packages of Selwyn Basin during a Jurassic-Cretaceous compressional tectonic event (Duke, 1991). The Robert Service Thrust is the closest, coming to surface about 50 km northeast of the property. It forms one of the largest thrust sheets in the Canadian Cordillera extending eastward from the Dawson City area through the Keno Hill silver camp and into the Lansing area, a total distance of approximately 250 km. This thrust juxtaposes Upper Proterozoic Hyland Group rocks in the upper plate against Mississippian Keno Hill Quartzite and Triassic-Jurassic schists in the lower plate.

Selwyn Basin sedimentary rocks were deformed and intruded by granite plutons, during the waning stages of the Jurassic-Cretaceous compressional tectonic event. Three suites of intrusions are recognized: the 98 Ma Selwyn Suite, the 91-93 Ma Tombstone Plutonic Suite and the 64 Ma South Suite. The Tombstone Plutonic Suite intrusions are most abundant in the Panorama area and are distributed along a northwest trending arcuate belt that extends through Alaska and west-central Yukon. Exploration since the early 1990s has identified intrusive-hosted gold mineralization associated with several Tombstone Plutonic Suite intrusions. Geochemically, the intrusions exhibit a strong lithophile signature (Au, As, Bi, Sb, Hg, Pb, W, Sn and Mo). They are known to host low grade, bulk tonnage gold mineralization at Fort Knox, Brewery Creek, Dublin Gulch and elsewhere within the Tintina Gold Belt (Travis, 2004). Intrusive bodies comprising the Tombstone Plutonic Suite range in size from metre scale dykes to stocks several square kilometres in area. They are primarily granodiorite to quartz monzonite

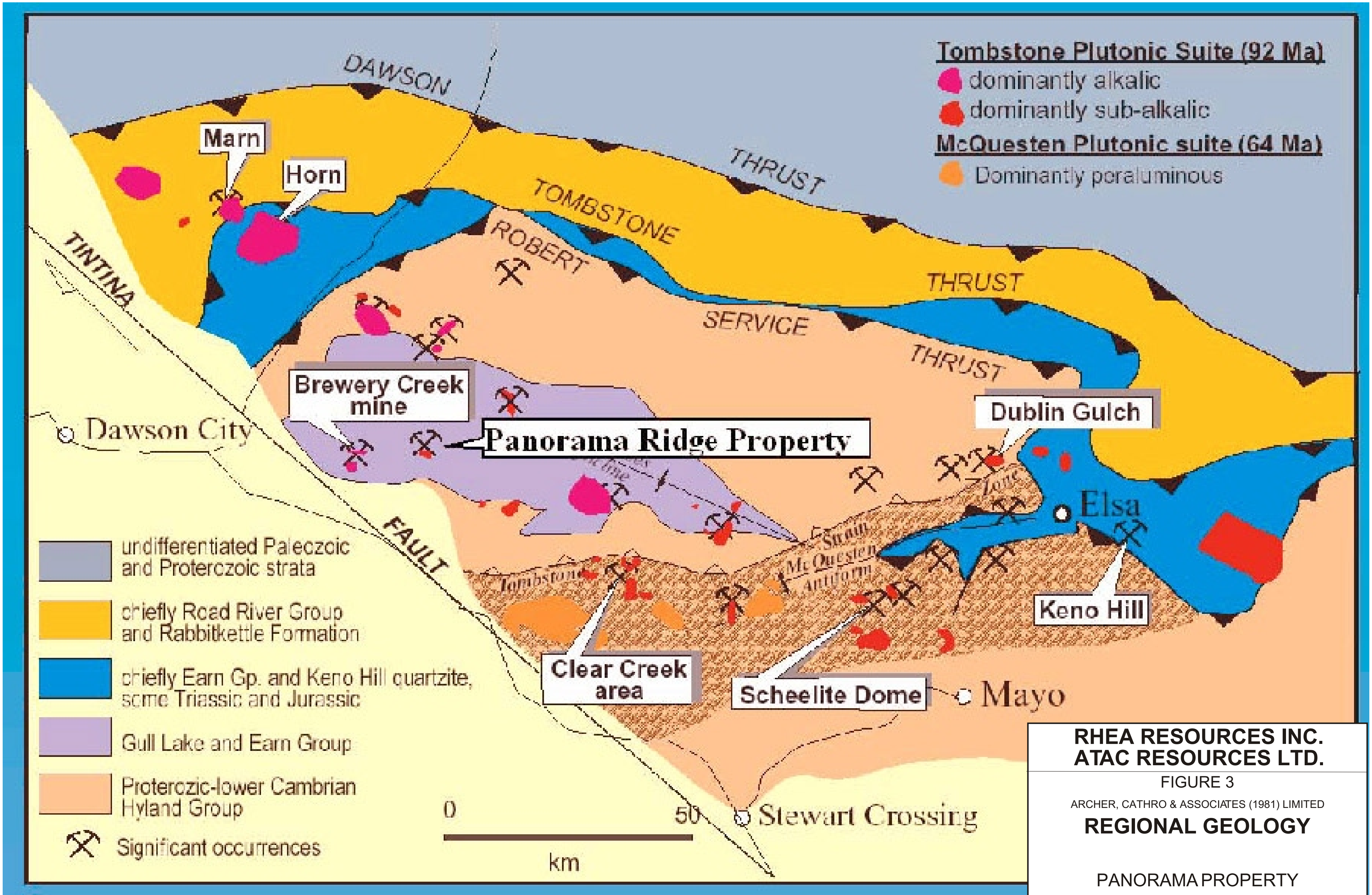

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FIGURE 3

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REGIONAL GEOLOGY

PANORAMA PROPERTY

...2007/PANORAMA/F_3-REG.CDR APRIL 2007

in composition, although bodies of granite, syenite and diorite are also found in the belt. At a number of the gold prospects, the gold is localized within the intrusions but at others, it extends into the adjacent wallrocks as veins, skarns or stockwork zones.

Regional metamorphism has imprinted a greenschist facies metamorphic mineral assemblage on rocks of the Selwyn Basin. Contact metamorphic aureoles around the intrusions consist of biotite hornfels and occasional skarns, which are enriched in iron and locally contain elevated precious and base metals (Travis, 2004). Often the larger intrusions have a low magnetic signature surrounded by an area of higher magnetic relief related to hornfelsed aureoles.

PROPERTY GEOLOGY AND MINERALIZATION

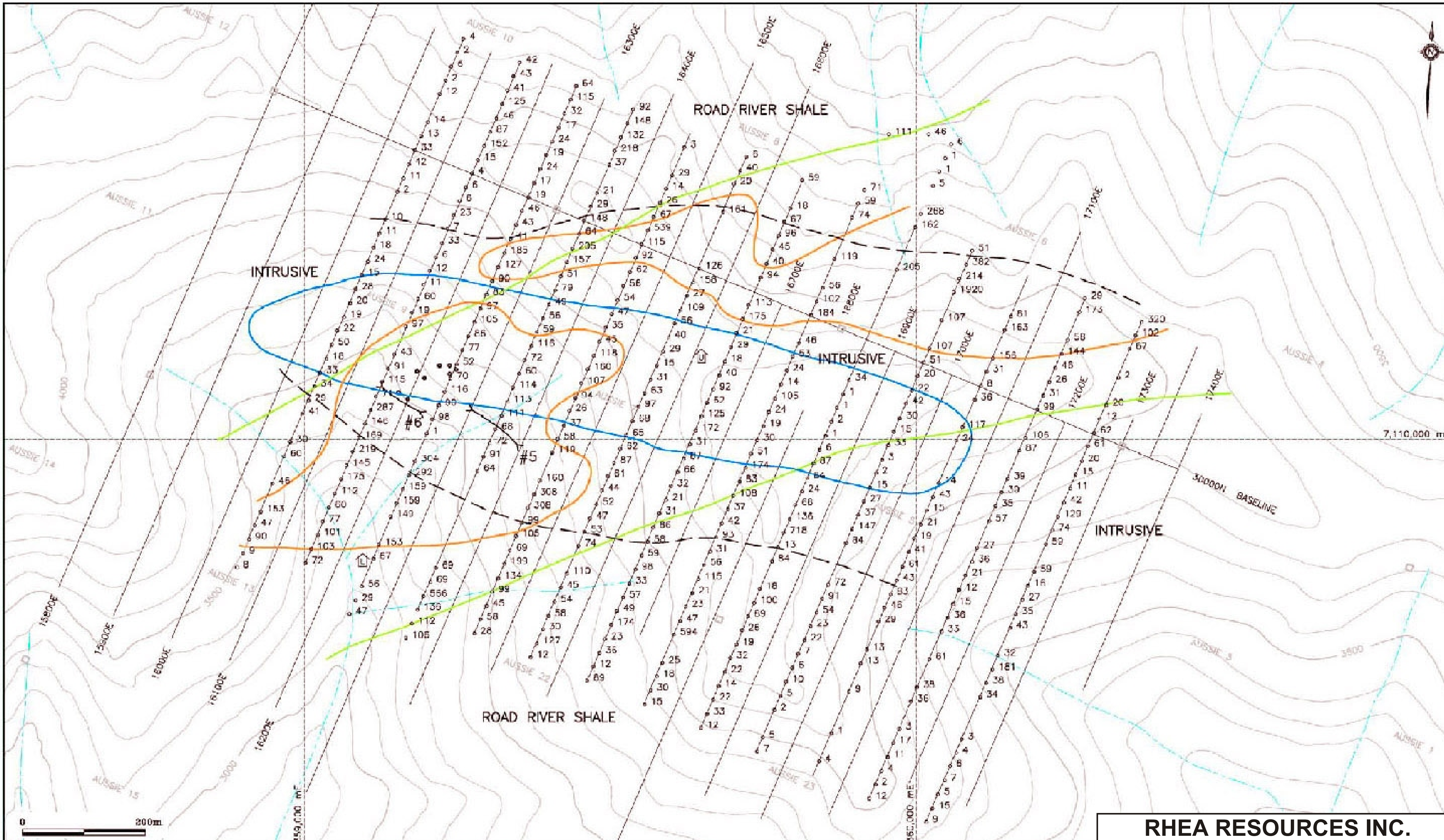
The property covers Tombstone Plutonic Suite intrusions that cut Ordovician-Silurian Road River Group fine grained siltstone, shale and chert (Figure 4). Most bedding in the sediments strikes 90 to 100° and dips steeply to the south. On the southern side of the intrusion, a finely laminated chert unit forms a resistive ridge creating an easily traced marker horizon.

The intrusions are elongated in an easterly direction subparallel to the trend of sedimentary bedding. The main body is lenticular in shape and has been traced for 4 km along strike with an average thickness of 500 m (Duke, 1991). It is medium grained, sparsely megacrystic quartz monzonite with a closely spaced joint set that approximately parallels its long axis, striking between 85 and 110°. Narrow, fine grained dykes of similar composition have been mapped on both the north and south sides of the main intrusion.

Most outcrops of resistant weathering, unaltered quartz monzonite are weakly anomalous in gold. A 110° trending altered and mineralized structure is marked by a shallow grassy depression. This structure has only been exposed in two trenches (95-8 & 9) where the extremely altered quartz monzonite exhibits regularly spaced, thin quartz veinlets with strong red iron-oxide stains. A chip sample taken by Orinoco Gold across part of this zone returned 11,971 ppb gold, 21.1 ppm silver, 18,376 ppm arsenic, 534 ppm bismuth and 105 ppm antimony over 1.0 m. Arsenopyrite and pyrite are found on the vein selvages and as dissemination in the wallrock. Limonite, green scorodite and other iron oxides are common in the more altered quartz monzonite. Locally stibnite was noted. Surprisingly, soil samples taken near the altered zone returned background to weakly anomalous levels of approximately 50 ppb Au. The lack of a pronounced soil geochemical anomaly reflecting the underlying mineralization is caused by a thick layer of old residual pod soil or loess that, if used as the medium for soil geochemistry, will not reliably reflect the bedrock geochemistry (Doherty, 2006).

SOIL GEOCHEMISTRY

A total of 421 soil samples were collected on grid lines in 1995 by Aurum Geological on behalf of Orinoco Gold (Doherty and VanRanden, 1995). The samples were collected with either 1 m soil augers or with shovels, depending on the nature of the soil. Efforts were made to collect the soil samples below the old pod soil, which does not appear to accurately reflect bedrock geochemical anomalies. Samples were generally collected at 60-70 cm depth and consisted of 350-450 grams of soil that was placed in Kraft bags.



LEGEND

- 3000 — Elevation Contour (Interval= 100 feet)
- Creek
- Lower & Upper Camp Sites (Approx. Location)
- Corner Post of Aussie Claims (approx. Location)
- Geological Contact (between Quartz Monzonite Intrusive & Road River Shale)
- Mag Low
- Trench
- Drill Hole
- 1995 Soil Grid
- 594 Soil Sample Location (with Au in ppb)
- Gold Soil Anomaly (Generalized)
- Bi, As & Sb Anomaly Trend

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FIGURE 4

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PROPERTY GEOLOGY

PANORAMA PROPERTY

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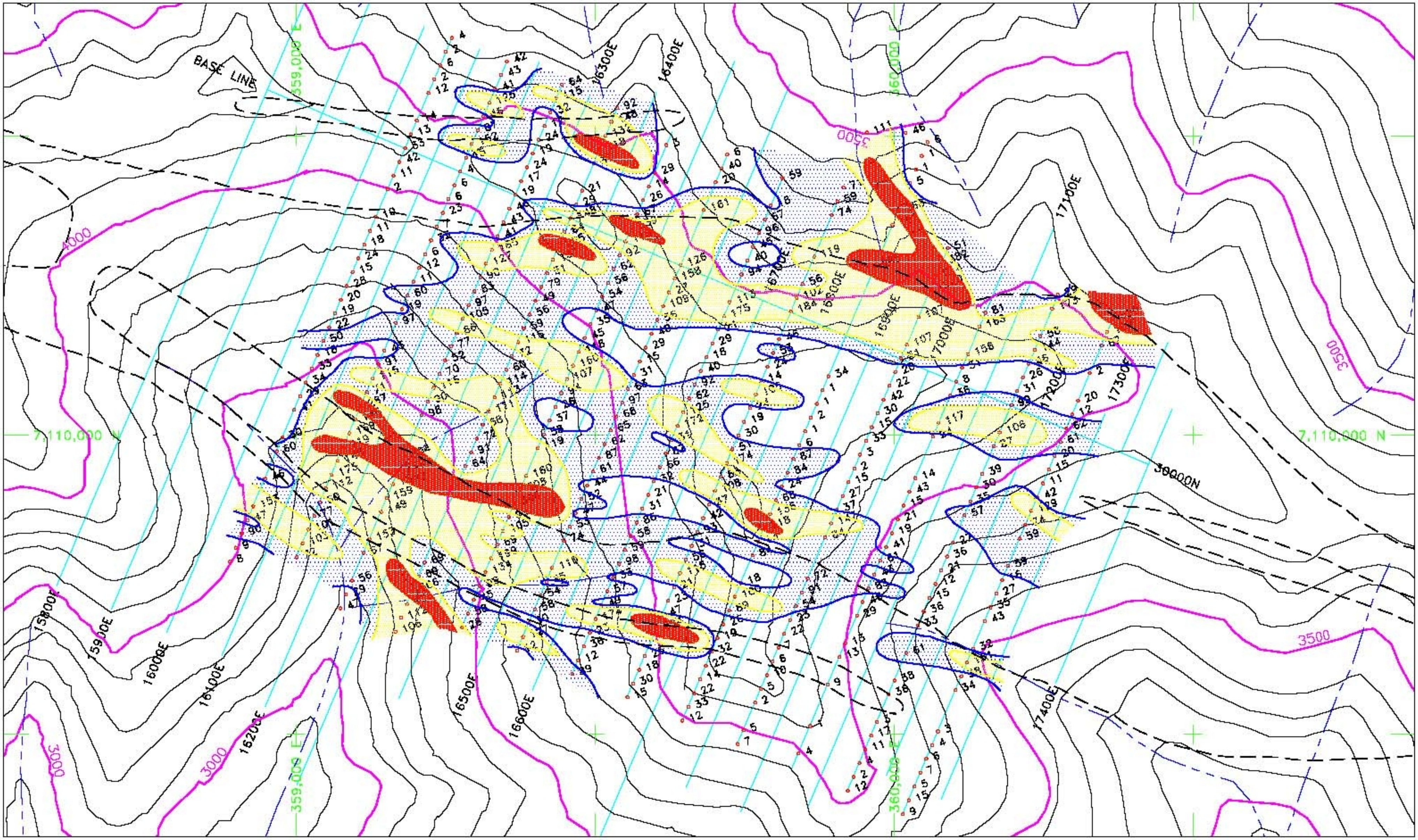

LEGEND

1500	elevation contour interval (100 feet)
o—o—o—o	1995 soil grid line
o	Soil Sample Location
106	AU ppb
— — —	granodiorite, quartz monzonite

Au > 50 ppb

Au > 100 ppb

Au > 200 ppb

UTM N TN mN

0 100 200 300 400

METRES

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FIGURE 5

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1995 SOIL GEOCHEMISTRY
GOLD

PANORAMA PROPERTY

...2007/PANORAMA/F_5-GOLD.CDR APRIL 2007

Min-En Laboratories Ltd. in Vancouver analyzed samples for gold and 31 other elements. Screen fraction analysis was done on twenty-four samples using the -35, -80, and -200 mesh fractions. The results showed the gold values reported for each size fraction were very similar.

The 1995 soil sample results for gold, arsenic, bismuth and antimony are plotted in Figures 5 to 8 respectively. Coincident anomalous areas for gold, arsenic, bismuth and antimony were defined on the northeastern and southwestern flanks of the main intrusive body. High gold values were obtained in the vicinity of some soil anomalies from both rock grab samples and chip samples collected from trenches (Figure 9).

2006 LINECUTTING AND GEOPHYSICAL SURVEYS

Noranda conducted IP and ground magnetic surveys in 1989 and 1990 (Duke, 1990). The IP survey chargeability anomalies are related to the contact between intrusive and hornfels rock. Both chargeability and resistivity plan maps show a quiet central zone that corresponds with the main quartz monzonite intrusion. Parts of these anomalies were trenched by Noranda and locally produced significant gold anomalies (Figure 9). The magnetic survey outlined a low over the centre of the intrusion where the recessive altered zone hosts gold mineralization.

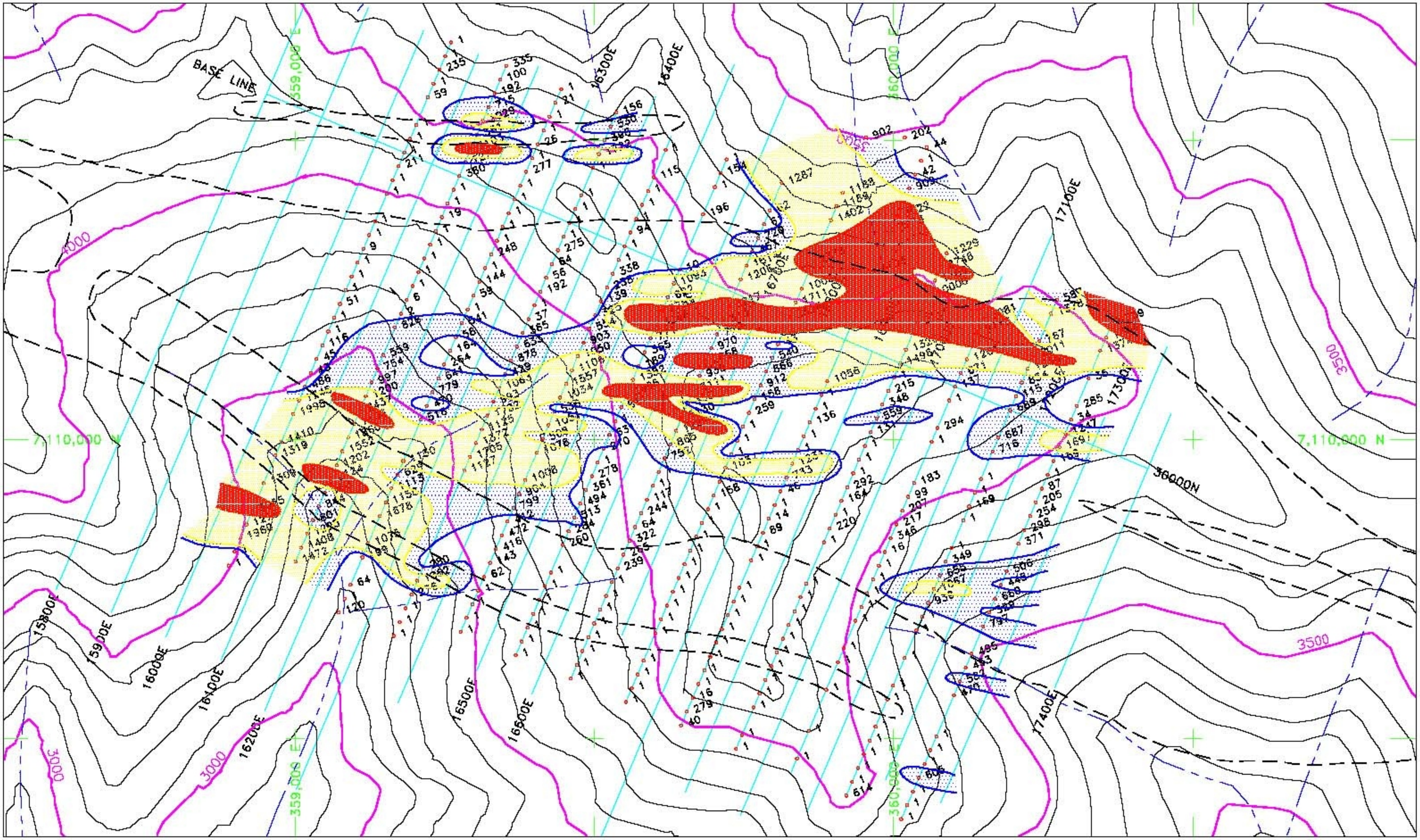
In 2006, two of the 1990 Noranda IP lines were re-surveyed by Aurora Geosciences Ltd. of Whitehorse (Figures 10 and 11). Both lines 6300E and 6600E had conductive area at their south and north ends, just outside of the intrusion. Details concerning this survey appear in Appendix II.

In 1996 an airborne geophysical survey was conducted by the government in the Brewery Creek Area (Sandor, 1996). This survey covered the Panorama property and other nearby gold prospects including Brewery Creek to the west and Ida/Oro to the east. Each of these intrusive hosted gold targets appears on the geophysical maps as strong "bull's eye" positive magnetic anomalies. The Panorama anomaly is particularly prominent indicating that a thin veneer of hornfels covers much of the quartz monzonite intrusion.

In 2006 Geotech Limited flew airborne magnetic and VTEM surveys over the Panorama property. A report describing these surveys appears in Appendix III. The results of the Geotech surveys have not yet been interpreted but they did confirm the magnetic anomalies (Figure 12) and outlined conductors along the margins of the main intrusion (Figure 13).

CONCLUSIONS AND RECOMMENDATIONS

The Panorama property hosts gold mineralization within and adjacent to an intrusion belonging to the Tombstone Plutonic Suite, which is associated with many of the gold deposits within the Tintina Gold Belt including the nearby Brewery Creek Deposit. Geochemical surveys show that a gold depleted poddy soil horizon masks some bedrock anomalies but that deeper soil sampling can successfully identify these zones. The highest gold values from soil are derived from the main intrusion or from the hornfelsed sedimentary rocks directly adjacent to it. A similar pattern



LEGEND

1500	elevation contour interval (100 feet)
	1995 soil grid line
	Soil Sample Location
106	AS ppm
	granodiorite, quartz monzonite
	As > 500 ppm
	As > 1000 ppm
	As > 2000 ppm

UTM N TN mN

0 100 200 300 400

METRES

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FIGURE 6

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1995 SOIL GEOCHEMISTRY ARSENIC

PANORAMA PROPERTY

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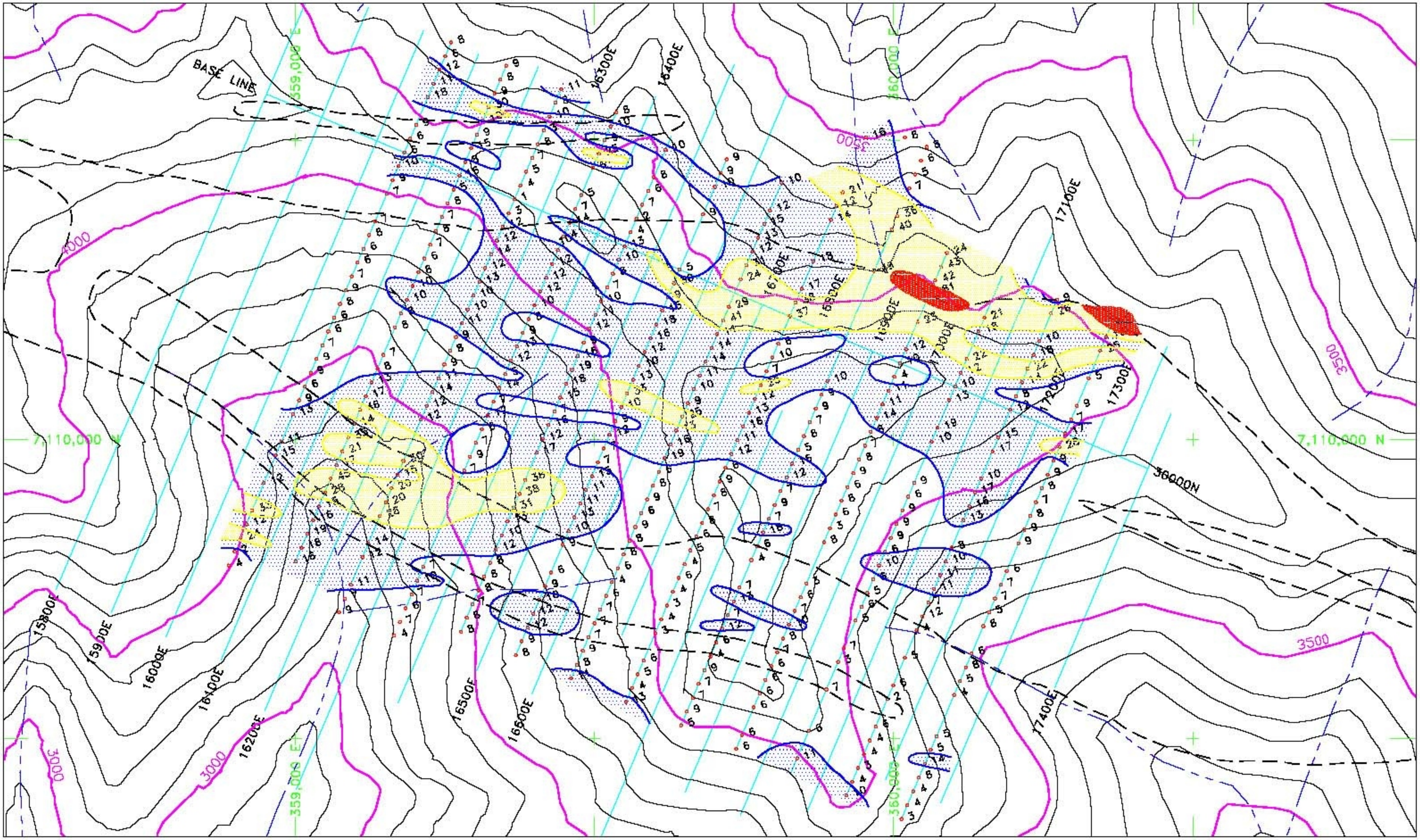

LEGEND

1500 elevation contour interval (100 feet)

1995 soil grid line

Soil Sample Location

106 Bi ppm

granodiorite, quartz monzonite

Bi ≥ 10 ppm

Bi ≥ 20 ppm

Bi ≥ 50 ppm

UTM N TN mN

0 100 200 300 400

METRES

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FIGURE 7

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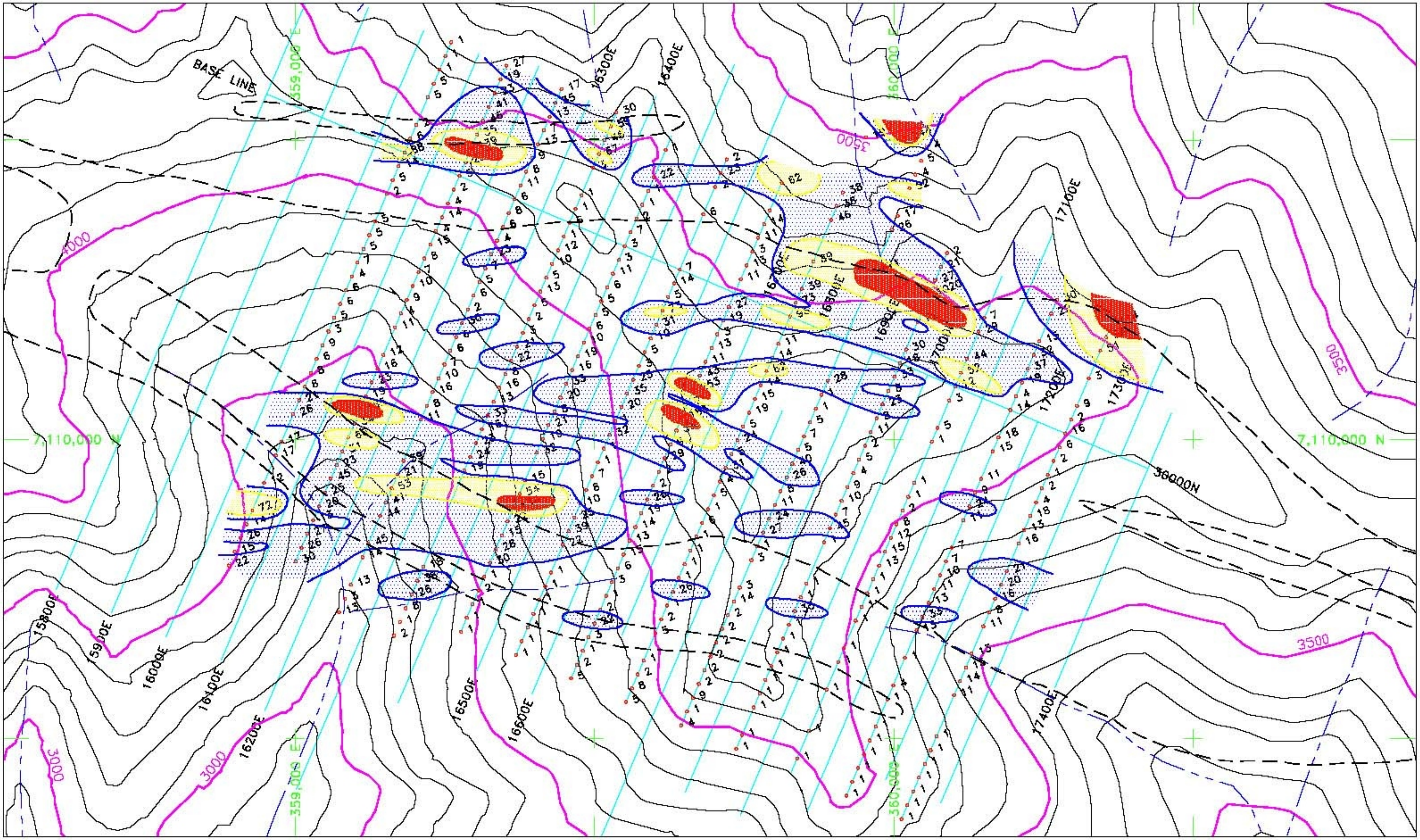
1995 SOIL GEOCHEMISTRY
BISMUTH

PANORAMA PROPERTY

...2007/PANORAMA/F_7-BISMUTH.CDR APRIL 2007



LEGEND

1500	elevation contour interval (100 feet)
	1995 soil grid line
	Soil Sample Location
106	SB ppm
	granodiorite, quartz monzonite
	Sb > 20 ppm
	Sb > 50 ppm
	Sb > 100 ppm

UTM N TN mN

0 100 200 300 400

METRES

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FIGURE 8

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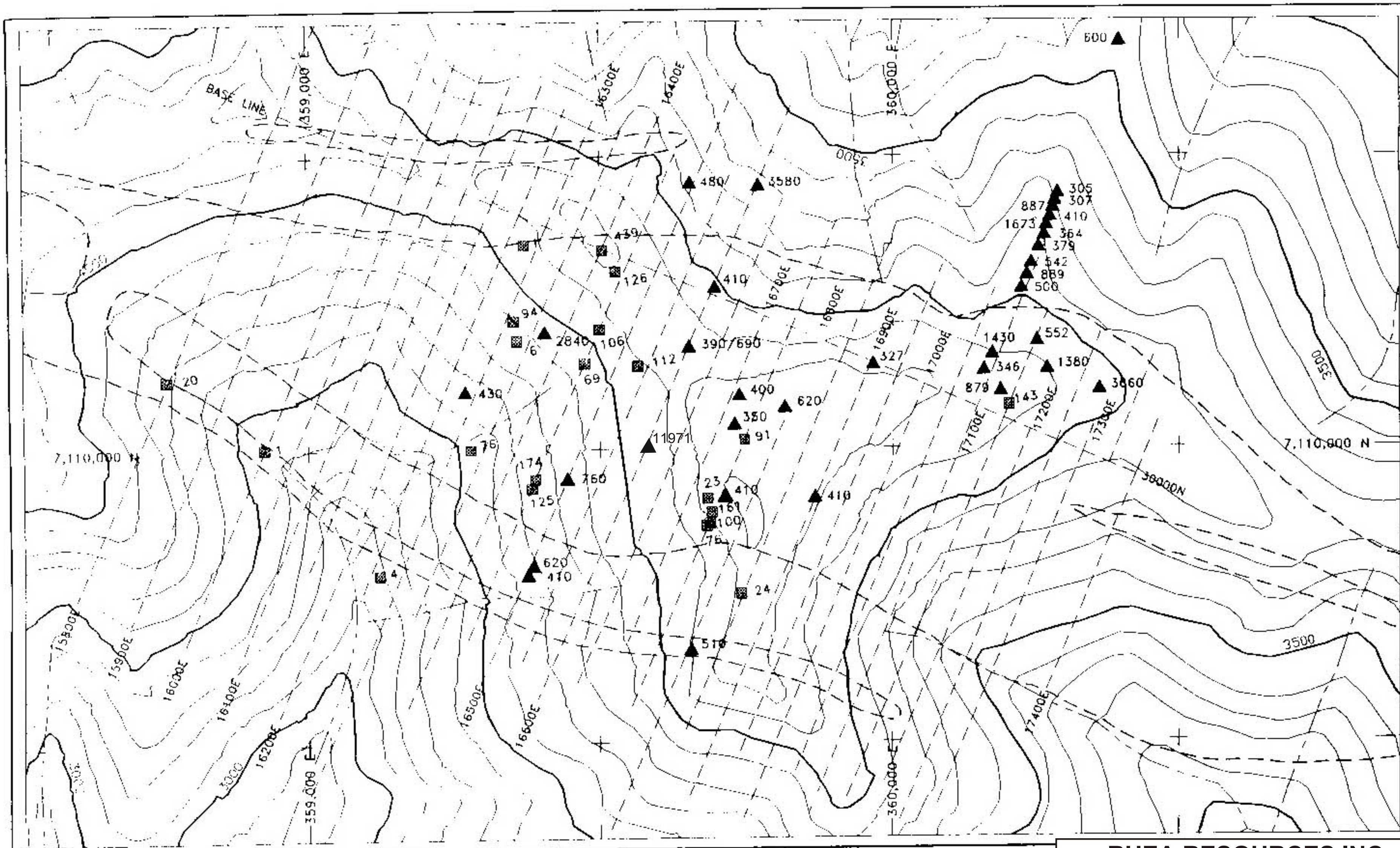
1995 SOIL GEOCHEMISTRY ANTIMONY

PANORAMA PROPERTY

...2007/PANORAMA/F_8-ANTIMONY.CDR APRIL 2007



LEGEND

	elevation contour Interval (100 feet)		intrusive contact
	1995 soil grid line		
106	1995 Aurum Rock Sample Location AU ppb		
106	1988, 1990, 1991 Noranda Rock Sample Location AU ppb		

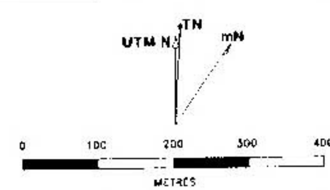


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FIGURE 9

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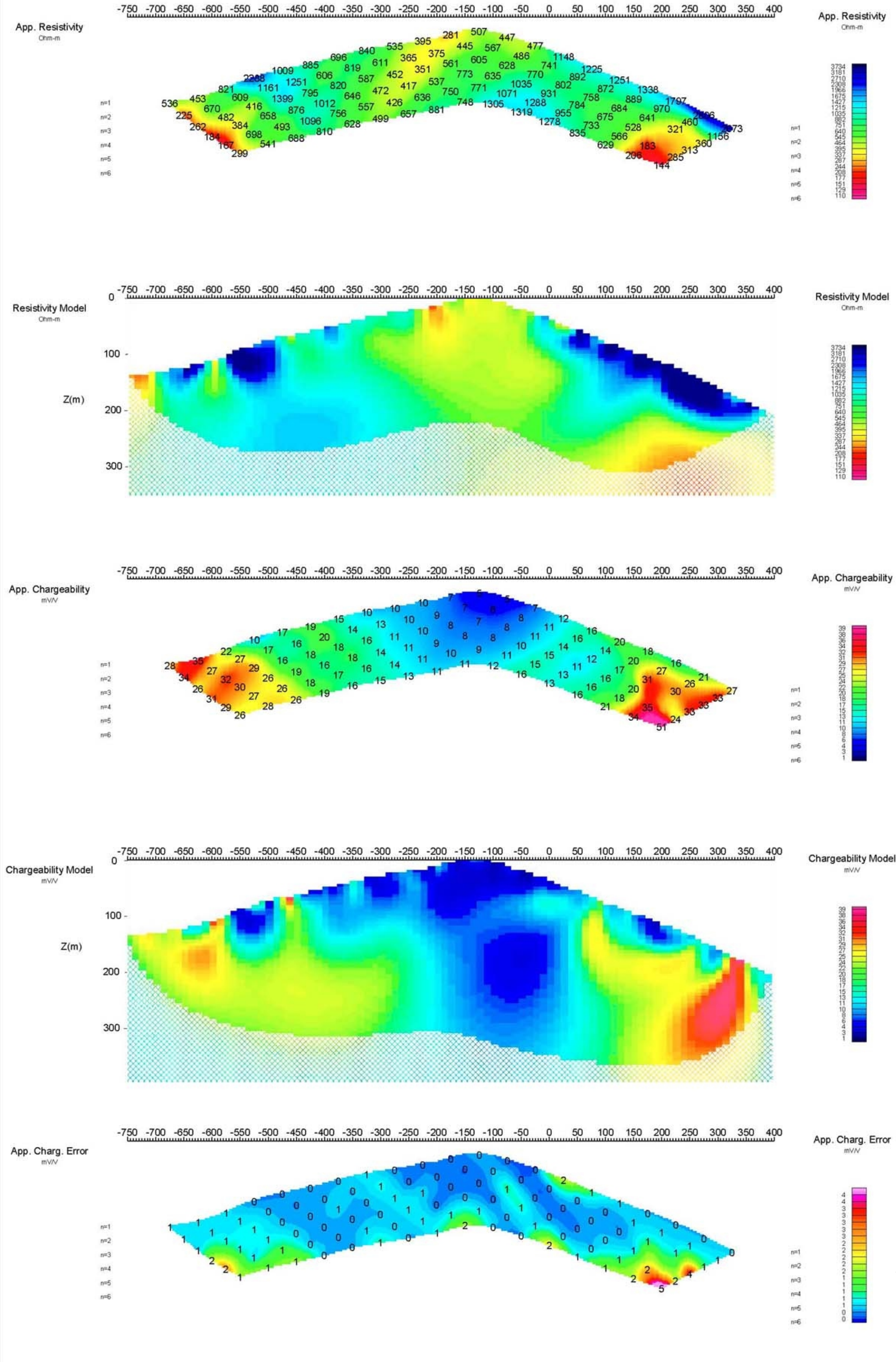
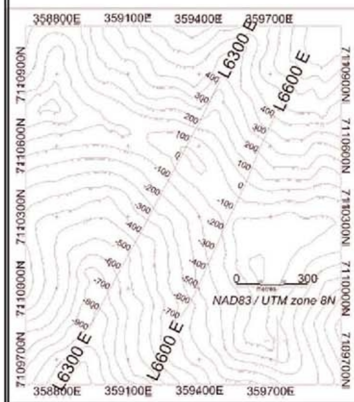
ROCK GEOCHEMISTRY GOLD

PANORAMA PROPERTY

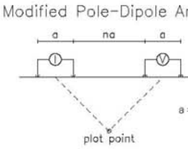
...2007/PANORAMA/F_9-R-LCC.CDR APRIL 2007

COMPOSITE SECTION
L6600





INDUCED POLARIZATION



STATIONARY ELECTRODE AT 750S (MOVING N)
RECEIVER: IRIS ELRECPRO
TRANSMITTER: GDD Tx-II 3.6kW
DATA FILE: PANORAMA 2006 IP.xyz
DATES SURVEYED: SEPT.08-SEPT.14 2006

Scale 1:5000

50 0 50 100 150 200 250 300
metres

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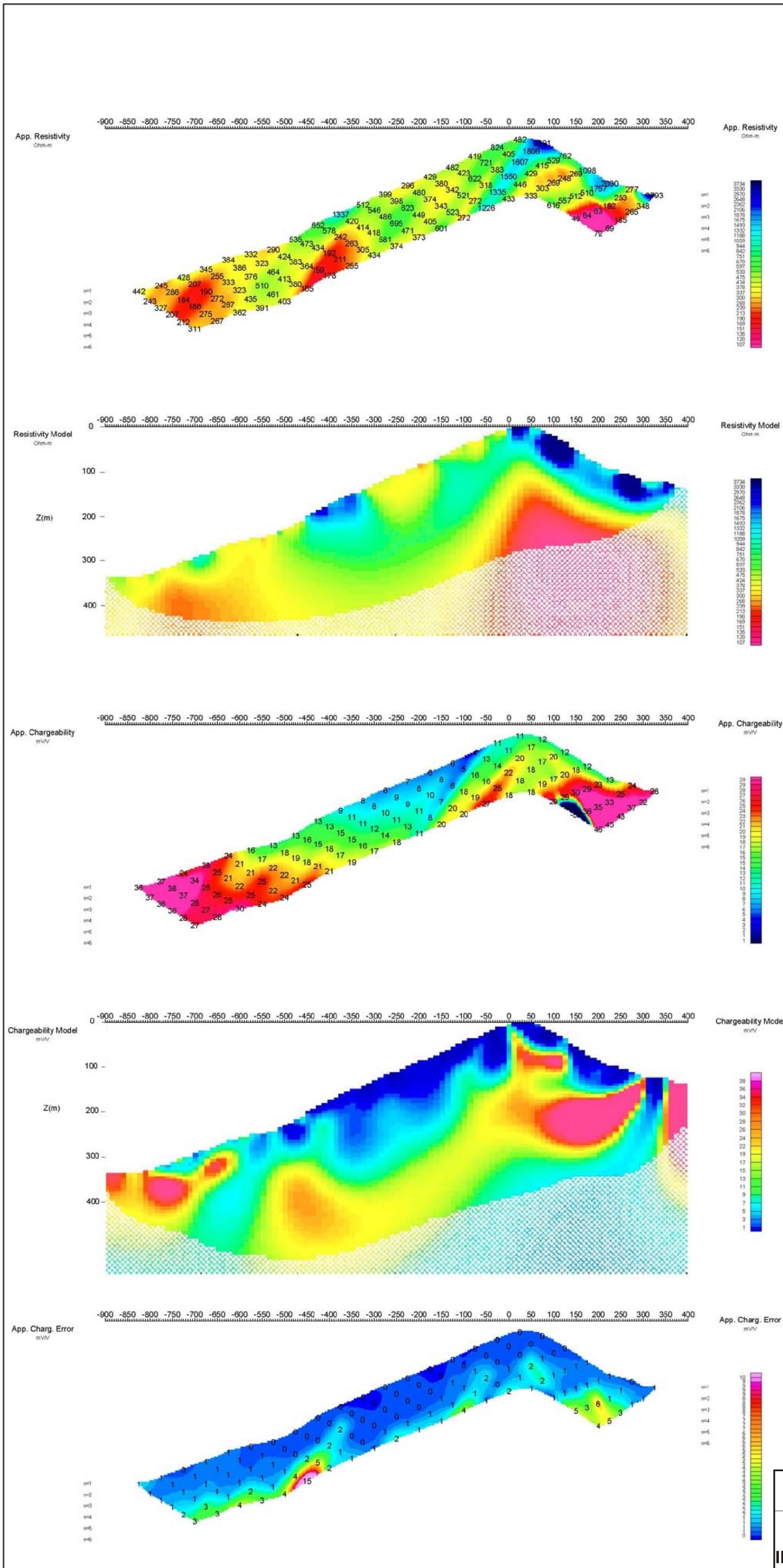
FIGURE 10

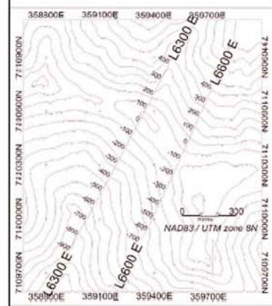
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

INDUCED POLARIZATION SURVEY
LINE 6600
PANORAMA PROPERTY

...2007/PANORAMA/F10-P6600.CDR   APRIL 2007

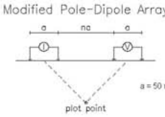
COMPOSITE SECTION
L6300





INDUCED POLARIZATION

Modified Pole-Dipole Array



STATIONARY ELECTRODE AT 960S (MOVING N)
RECEIVER: IRIS ELRECPRO
TRANSMITTER: GDD Tx-II 3.6kW
DATA FILE: PANORAMA 2006 IP.xyz
DATES SURVEYED: SEPT 08-SEPT 14 2006

Scale 1:5000

50 0 50 100 150 200 250 300
metres

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FIGURE 11

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

INDUCED POLARIZATION SURVEY
LINE 6300
PANORAMA PROPERTY

...2007/PANORAMA/F114R6300.CDR APRIL 2007

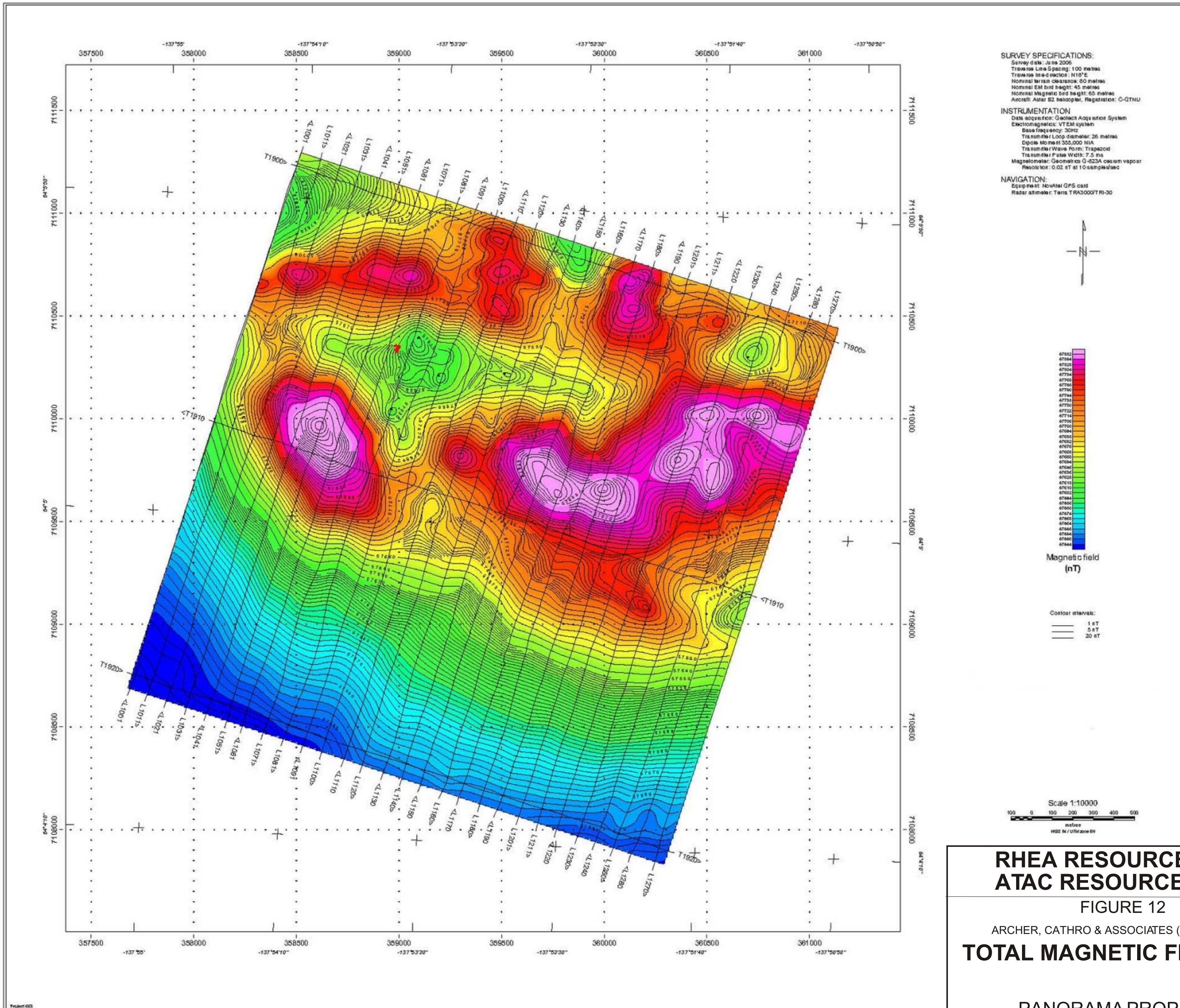

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FIGURE 12

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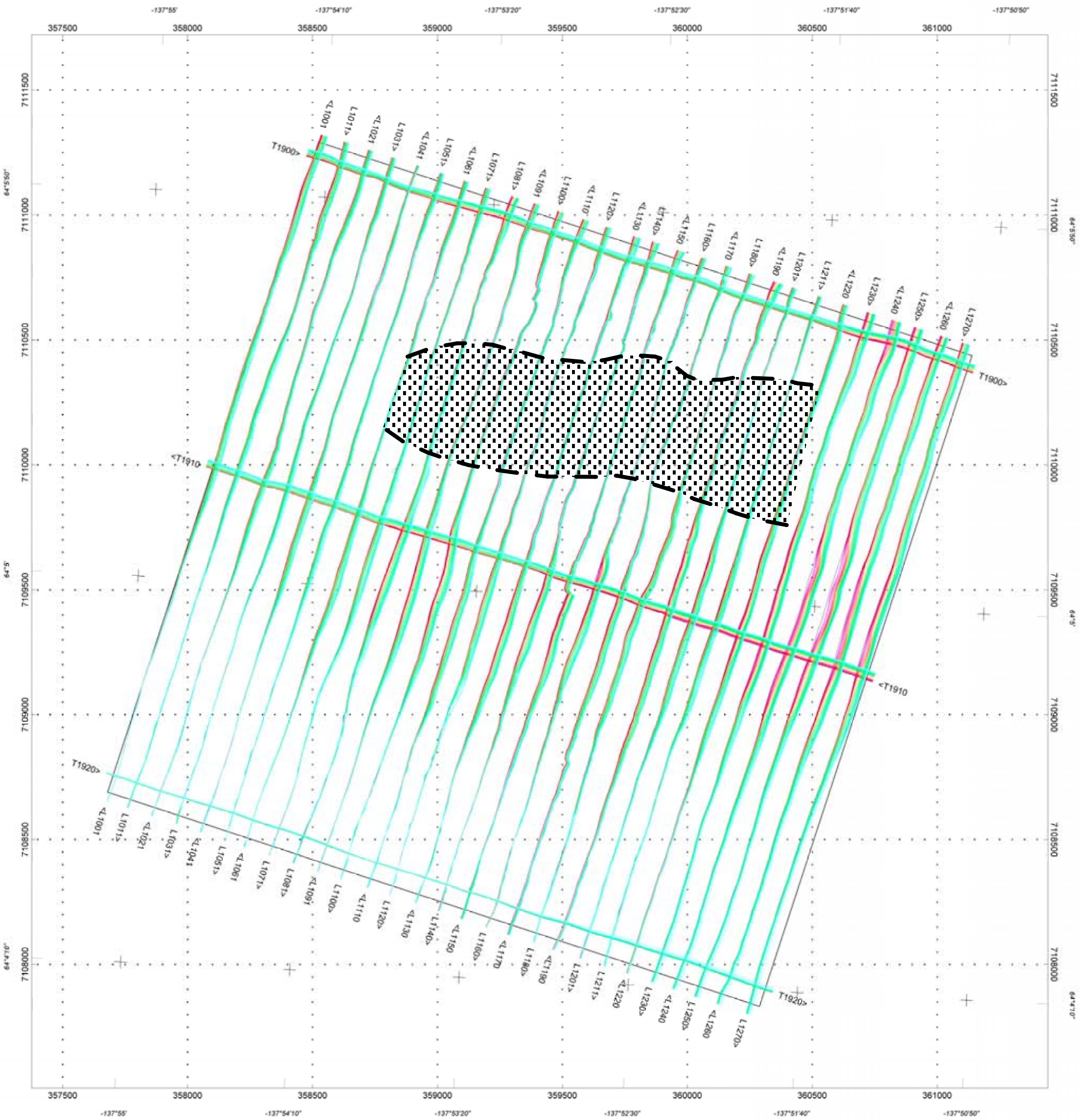
TOTAL MAGNETIC FIELD MAP

PANORAMA PROPERTY

...2007/PANORAMA/F12-MAG.CDR APRIL 2007



SURVEY SPECIFICATIONS:
Survey date: May - July 2006
Traverse Line Spacing: 100 metres
Traverse line direction: N18°E
Nominal terrain clearance: 80 metres
Nominal EM bird height: 45 metres
Nominal Magnetic bird height: 45 metres
Aircraft: Astar B2 helicopter, Registration: C-GTNU

INSTRUMENTATION
Data acquisition: Geotech Acquisition System
Electromagnetics: VTEM system
Base frequency: 30Hz
Transmitter Loop diameter: 26 metres
Dipole Moment 355,000 NIA
Transmitter Wave Form: Trapezoid
Transmitter Pulse Width: 7.5 ms
Magnetometer: Geometrics G-823A cesium vapour
Resolution: 0.02 nT at 10 samples/sec

NAVIGATION:
Equipment: NovAtel GPS card
Radar altimeter: Terra TRA3000/TRI-30

Quartz monzonite

Profiles scale 1 mm = 0.1 pV/A/m^4
(Linear between +/- 0.2 pV/A/m^4
logarithmic above 0.2 pV/A/m^4)

0.22 ms
0.26 ms
0.30 ms
0.35 ms
0.41 ms
0.48 ms
0.57 ms
0.68 ms
0.81 ms
0.96 ms
1.13 ms
1.34 ms
1.60 ms
1.90 ms
2.24 ms
2.66 ms
3.18 ms
3.78 ms
4.46 ms
5.30 ms
6.34 ms

RHEA RESOURCES INC.
ATAC RESOURCES LTD.

FIGURE 13
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

VTEM CONDUCTOR
PANORAMA PROPERTY

0 0.5 1 1.5 km

FILE: ...2007/PANORAMA/F14-VTEM.WOR
DATE: APRIL 2007

is seen at deposits comprising the former Brewery Creek Mine. Geophysical results confirm geological and geochemical observations.

Further exploration at the Panorama property should consist of diamond drilling to test altered zones within the main intrusion and hornfels zones developed along the contacts between this main intrusion and the sedimentary country rocks. The drill holes within the intrusion should explore for higher grade, structurally controlled zones similar to those intersected in the excavator trenches and percussion holes. Due to possible water supply problems, the holes should be drilled as early in summer as practical.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

B. Wengzynowski

W.A Wengzynowski., P. Eng.

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APPENDIX I

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, William A. Wengzynowski, geological engineer, with business addresses in Vancouver, British Columbia and Whitehorse, Yukon Territory and residential address at 301 Fairway Drive, North Vancouver, British Columbia, V7G 1L4 do hereby certify that:

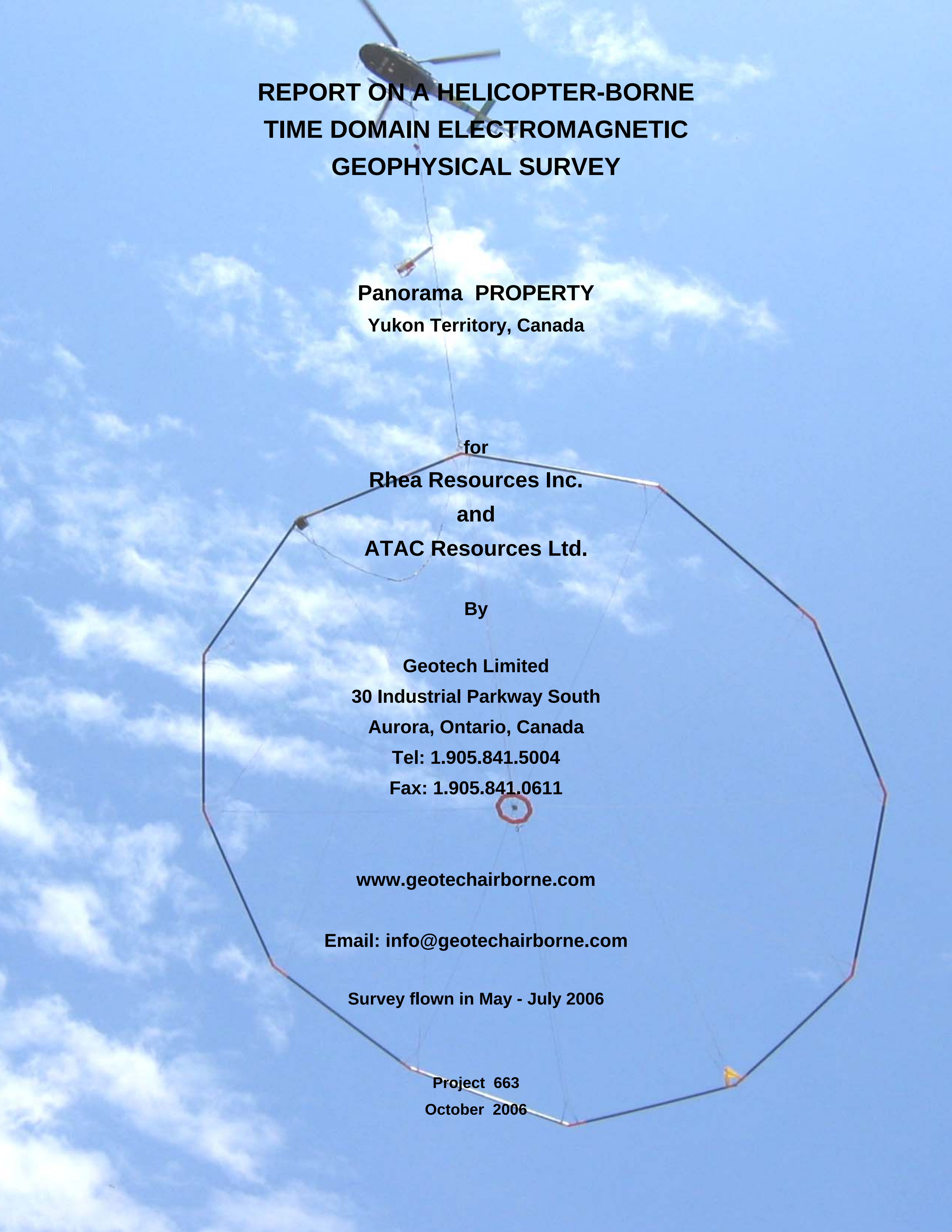
1. I am the President of Archer, Cathro & Associates (1981) Limited.
2. I graduated from the University of British Columbia in 1993 with a B.A.Sc in Geological Engineering, Option l, mineral and fuel exploration.
3. I registered as a Professional Engineer in the Province of British Columbia on December 12, 1998 (Licence Number 24119).
4. From 1983 to present, I have been actively engaged in mineral exploration in the Yukon Territory, Northwest Territories, northern British Columbia and Mexico.
5. I have supervised the fieldwork reported herein.

B. Wengzynowski

William A. Wengzynowski, B.A.Sc., P. Eng.

APPENDIX II

GEOTECH LTD. VTEM SURVEY REPORT



REPORT ON A HELICOPTER-BORNE TIME DOMAIN ELECTROMAGNETIC GEOPHYSICAL SURVEY

Panorama PROPERTY

Yukon Territory, Canada

for

Rhea Resources Inc.

and

ATAC Resources Ltd.

By

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Email: info@geotechairborne.com

Survey flown in May - July 2006

Project 663

October 2006

TABLE OF CONTENTS

APPENDICES

REPORT ON A HELICOPTER-BORNE

TIME DOMAIN ELECTROMAGNETIC SURVEY

Panorama Property, Yukon Territory, Canada

Executive Summary

During the period of May 20th to July 8th, 2006, Geotech Limited carried out a helicopter-borne geophysical survey for Strategic Metals Ltd. over ten blocks located in the Yukon Territory, Canada, including **Panorama Property**.

Principal geophysical sensors included a versatile time domain electromagnetic system (VTEM) and a cesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 2750.77 line-km. were flown, including 93 line-km. for **Panorama Property**.

In-field data processing involved quality control and compilation of data collected during the acquisition stage, using the in-field processing centre established at survey bases. Preliminary and final data processing, including generation of final digital data products was done at the office of Geotech Limited in Aurora, Ontario.

The processed survey results are presented as total magnetic field grid and electromagnetic stacked profiles.

Digital data includes all electromagnetic and magnetic products plus positional, altitude and raw data.

1. INTRODUCTION

1.1. General Considerations

These services are the result of the Agreement made between Geotech Limited and Strategic Metals Ltd., to perform a helicopter-borne geophysical survey over the multiple blocks, located in Yukon Territory, Canada, including **Panorama Property.**

2750.77 line-km of geophysical data were acquired during the survey.

The survey coordinates for **Panorama Property** are as shown in Appendix A.

The crew was based in various locations in Yukon Territory for the acquisition phase of the survey, as shown in Section 2 of this report.

The helicopter was obtained from TransNorth Helicopters for the duration of the survey. Multiple fuel caches were arranged.
Survey flying was completed on July 8th, 2006. Preliminary data processing was carried out daily during the acquisition phase of the project. Final data presentation and data archiving was completed in the Aurora office of Geotech Limited in November 2006.

1.2. Survey and System Specifications

The **Panorama Property** survey block was flown at a nominal traverse line spacing of 100 metres.
Tie lines were flown perpendicular to traverse lines at approximately 1300 metres, as shown in Section 2 of this report.
Where suitable, survey lines were extended beyond original block boundary to reach the minimum length of 3 km.

Where possible, the helicopter maintained a mean terrain clearance of 80 metres, which translated into an average height of 45 meteres above ground for the bird-mounted VTEM system and 45 metres for the magnetic sensor.

The survey was flown using an Astar B2 helicopter, registration C-GTNU, operated by TransNorth Helicopters Limited. Details of the survey specifications may be found in Section 2 of this report.

1.3. Data Processing and Final Products

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Limited.

Database, grid and maps of final products were presented to Rhea Resources Inc. and ATAC Resources Ltd.

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set.

1.4. Topographic Relief

The **Panorama Property** survey block location is shown on the location map (Appendix A). It is just north of a river and approximately 75 km. E of Dawson City.

Topographically, the block exhibits a rugged mountainous relief, with an elevation range of 650 metres to 1340 metres above sea level. The survey area sits on a ridge and slopes downward in a southerly direction to the river. The high point is in the easterly section of the area.

2. DATA ACQUISITION

2.1. *Survey Area*

The survey block (see location map, Appendix A) and general flight specifications are as follows:

Survey areas	Line /Tie spacing (m)	Line /Tie - km	Line / Tie direction	Line number	Line KM
Panorama	100	84.0	N18E	1000 - 1270	93.0
	1300	9.0	N72W	1900 - 1920	

Table 1 - Survey block

The survey block boundary is shown in Appendix B.

2.2. *Survey Operations*

Survey operations were based in several locations in the Yukon Territory for the acquisition phase of the survey, including Dawson City for the **Panorama Property.** The following table shows the timing of the various flights.

Panorama Property was flown along with other blocks in the same vicinity.

Date	Flights	Production	Block	Crew location	REMARK
20-May		0		Whitehorse	Mobilization to Whitehorse
21-May		0		Whitehorse	Assembly of system
22-May		0		Whitehorse	Helicopter installation, test flight
23-May		0		Teslin	Mobilization to Teslin - no production
24-May		0		Teslin	No production due to weather
25-May	1,2,3	109.5	BAR	Teslin	
26-May	4, 1, 2	161.09	BAR, CONVERT	Teslin	
27-May	7,8	95.62	CONVERT	Teslin	flying aborted – due to weather
28-May	9	18.83	BAR	Teslin	flying aborted – due to weather
29-May		0		Watson Lake	move to Watson lake, prepare fuel cache
30-May	10, 11, 12	118.74	SIM	Watson Lake	
31-May	13, 14, 15	109.46	SIM, 4C	Watson Lake	
01-Jun	16, 17, 18	87.97	4C	Watson Lake	flying aborted – due to rough terrain
02-Jun	19	5.38	SIM	Ross River	Re-flight
03-Jun	20	91.37	TIDD	Ross River	flying aborted – due to weather
04-Jun		0		Ross River	No production due to weather
05-Jun	21, 22, 23	270.54	TIDD	Ross River	
06-Jun	24, 25, 26	194.78	TIDD	Ross River	flying aborted – due to weather
07-Jun	27, 28, 29	269.91	TIDD	Ross River	
08-Jun	30,31	92.81	TIDD	Ross River	rough terrain
09-Jun		0		Ross River	
21-Jun		0		Mayo	Ferry flights, move fuel to MARG
22-Jun		0		Mayo	No production due to weather
23-Jun	1, 2	84.68	MARG	Mayo	flying aborted – due to weather
24-Jun	3,4,5	158.36	MARG	Mayo	
25-Jun	6,7	123.1	MARG	Mayo	
26-Jun		0		Dawson City	No production due to weather
27-Jun		0		Dawson City	No production due to weather
28-Jun	1,2,3	111	MIC	Dawson City	flying aborted – due to weather
29-Jun	3,4	139.51	MIC, MAG	Dawson City	
30-Jun	5,6,7	115.74	MAG	Dawson City	flying aborted – due to weather
01-Jul	7,8	101.59	CN	Dawson City	
02-Jul	9	76.63	CN	Dawson City	flying aborted – due to weather
03-Jul	10, 11	121.16	CN	Dawson City	
04-Jul	1,2	66	PAN	Dawson City	
05-Jul	3	3	PAN	Dawson City	Test flights
06-Jul	4	24	PAN	Dawson City	
07-Jul		0			helicopter inspection
08-Jul		0		Burwash	Burwash Block cancelled due to rough topo

Table 2 - Survey schedule

2.3. Flight Specifications

The nominal EM sensor terrain clearance was 45 m (EM bird height above ground, i.e. helicopter is maintained 80 m above ground). Nominal survey speed was 80 km/hour. The data recording rates of the data acquisition was 0.1 second for electromagnetics and magnetometer, 0.2 second for altimeter and GPS. This translates to a geophysical reading about every 2 metres along flight track. Navigation was assisted by a GPS receiver and data acquisition system, which reports GPS co-ordinates as latitude/longitude and directs the pilot over a pre-programmed survey grid.

The operator was responsible for the monitoring of the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer.

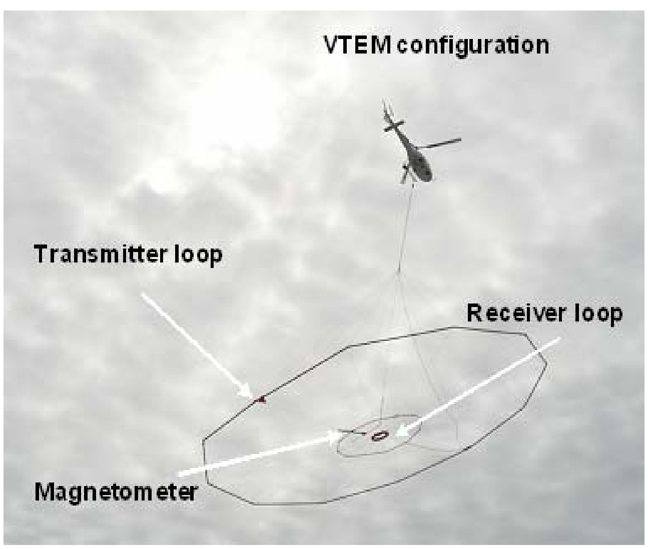
2.4. *Aircraft and Equipment*

2.4.1. Survey Aircraft

An Astar B2 helicopter, registration C-GTNU - owned and operated by TransNorth Helicopters Ltd. was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Geotech Ltd.

2.4.2. Electromagnetic System

The electromagnetic system was a Geotech Versatile Time Domain EM (VTEM) system. The layout of the configuration used for this survey is as indicated in Figure 1 below.



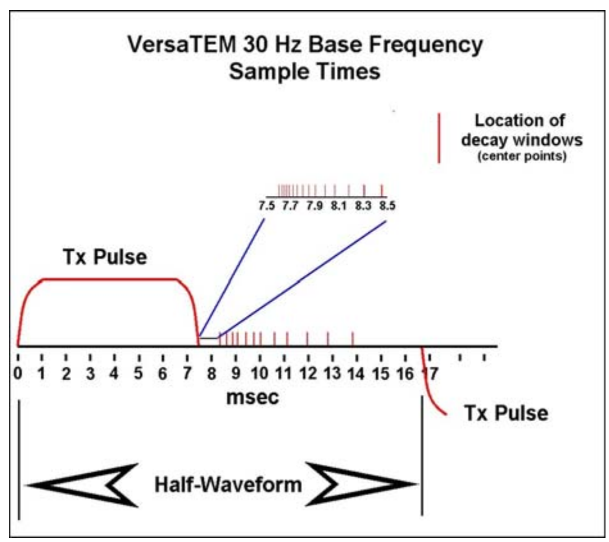


Figure 1 - VTEM Configuration

Figure 2 - VTEM sample times

Receiver and transmitter coils are concentric and Z-direction oriented.

The receiver decay recording scheme is shown diagrammatically in Figure 2.

Twenty-six measurement gates were used in the range from 130 μs to 7540 μs, as shown in the following table.

VTEM Decay Sampling scheme (Microseconds)			
Time gate	**Start**	**End**	**Width**
130	120	140	20
150	140	160	20
170	160	180	20
190	180	205	25
220	205	240	35
260	240	280	40
300	280	325	45
350	325	380	55
410	380	445	65
480	445	525	80
570	525	625	100
680	625	745	120
810	745	885	140
960	885	1045	160
1130	1045	1235	190
1340	1235	1470	235
1600	1470	1750	280
1900	1750	2070	320
2240	2070	2450	380
2660	2450	2920	470
3180	2920	3480	560
3780	3480	4120	640
4460	4120	4880	760
5300	4880	5820	940
6340	5820	6860	1040
7540	6860	8220	1360

Table 3 - VTEM decay sampling scheme

Transmitter coil diameter was 26 metres, the number of turns was 4.
Transmitter pulse repetition rate was 30 Hz.
Peak current was 167 A.
Duty cycle was 37%.
Peak dipole moment was 355,000 NIA.

Receiver coil diameter was 1.2 metre, the number of turns was 100.
Receiver effective area was 113 m^2
Wave form – trapezoid.
Recording sampling rate was 10 samples per second.

The EM bird was towed 35 m below the helicopter.

2.4.3. Airborne magnetometer

The magnetic sensor utilized for the survey was a Geometrics optically pumped cesium vapour magnetic field sensor, mounted in a separate bird towed at the same altitude as the EM sensor. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds. The magnetometer sends the measured magnetic field strength as nanoTeslas to the data acquisition system via the RS-232 port.

2.4.4. Ancillary Systems

2.4.4.1. Radar Altimeter

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit.

2.4.4.2. GPS Navigation System

The navigation system used was a Geotech PC based navigation system utilizing a NovAtel's WAAS enable OEM4-G2-3151W GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and an NovAtel GPS antenna mounted on the helicopter tail.
The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

2.4.4.3. Digital Acquisition System

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. Contents and update rates were as follows:

DATA TYPE	SAMPLING
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
Radar Altimeter	0.2 sec

Table 4 - Sampling Rates

2.4.5. Base Station

A combine magnetometer/GPS base station was utilized on this project. A Geometrics Cesium vapour magnetometer was used as a magnetic sensor with a bench sensitivity of 0.002 nT. The base station records the magnetic field together with the GPS time at 1 Hz on a base station computer. The base station magnetometer sensor was installed away from electric transmission lines and moving ferrous objects such as motor vehicles. The magnetometer base station’s data was backed-up to the data processing computer at the end of each survey day.

3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

Field

Crew chiefs / Operators: Graeme Lille, Calin Cosma, Brad Marsh

The survey pilot and the mechanic engineer were employed directly by the helicopter operator – TransNorth Helicopters.

Pilots:	Stephen Soubliere,
Mechanical Engineer:	Margo Hager

Office

Data Processing:	Harish Kumar
Data Processing / Reporting:	George Lev
Data Technician:	Maria Jagodkin

Final data processing at the office of Geotech Limited in Aurora, Ontario was carried out under the supervision of Andrei Bagrianski, Data Processing Manager.

Overall management of the survey was carried out from the Aurora office of Geotech Ltd. by Edward Morrison, President.

4. DATA PROCESSING AND PRESENTATION

4.1. *Flight Path*

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the UTM coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM eastings (x) and UTM northings (y).

4.2. *Electromagnetic Data*

A three stage digital filtering process was used to reject major sferic events and to reduce system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events. The filter used was a 16 point non-linear filter.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 20 metres. This filter is a symmetrical 1 sec. linear filter.

The results are presented as stacked profiles of EM voltages for the gate times, in logarithmic scale.

Generalized modeling results of the VTEM system, written by Geophysicist Roger Barlow, are shown in Appendix C.

The VTEM output voltage of the receiver coil is shown in Appendix D.

4.3. Magnetic Data

The processing of the magnetic data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aeromagnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations.

Tie line levelling was carried out by adjusting intersection points along the traverse lines. A micro-levelling procedure was then applied. This technique is designed to remove persistent low-amplitude components of flight-line noise remaining after tie line levelling.

The corrected magnetic data was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of approximately 0.2 cm. at the mapping scale. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

5. DELIVERABLES

5.1. Survey Report

The survey report describes the data acquisition, processing, and final presentation of the survey results.

The survey report is provided in two paper copies and digitally in WORD format.

5.2. Maps

Final maps were produced at a scale of 1:10,000 for the **Panorama Property**. The coordinate/projection system used was the WGS84, UTM zone 8 north. All maps show the flight path trace. Latitude and longitude are also noted on maps.

The following maps are presented to Rhea Resources Inc. and ATAC Resources Ltd. on paper as results of the helicopter-borne geophysical survey carried out over the **Panorama Property.**

- Total Magnetic Field contours and colour images
- Logarithmic scale VTEM profiles, Time Gates 0.22 - 6.34 ms

5.3. Gridded Data

Total Magnetic Field grid is provided to Rhea Resources Inc. and ATAC Resources Ltd. in Geosoft GRD format. Grid cell size was adjusted to suit the parameters of the individual block.

For traverse line spacing of 100 metres, 10 m grid cell size was used.

5.4. Digital Data

There are three (3) main directories,

Data contains a database, grid and maps, as described below.

Report contains a copy of the report in WORD format and appendices in PDF format.

VTEM_fp_GoogleEarth contains kmz file containing flightpath of the Panorama Property.
Free version of Google Earth software can be downloaded from,
http://earth.google.com/download-earth.html

- Database in Geosoft GDB format, containing the following channels:

X:	X positional data (metres – WGS84, utm zone 8 north)
Y:	Y positional data (metres – WGS84, utm zone 8 north)
Z:	GPS antenna elevation (metres - ASL) (on the tail of the helicopter)
Gtime1:	GPS time (seconds of the day)
Radar:	Helicopter terrain clearance from radar altimeter (metres - AGL)
DEM:	Digital elevation model (metres)
Mag1:	Raw Total Magnetic field data (nT)
Basemag:	Base station magnetic data (nT)
Mag2:	Total Magnetic field base station corrected data (nT)
Mag3:	Levelled Total Magnetic field data (nT)
C130f:	Raw 130 microsecond time channel ($pV/A/m^4$)
C150f:	Raw 150 microsecond time channel ($pV/A/m^4$)
C170f:	Raw 170 microsecond time channel ($pV/A/m^4$)
C190f:	Raw 190 microsecond time channel ($pV/A/m^4$)
C220f:	Raw 220 microsecond time channel ($pV/A/m^4$)
C260f:	Raw 260 microsecond time channel ($pV/A/m^4$)
C300f:	Raw 300 microsecond time channel ($pV/A/m^4$)
C350f:	Raw 350 microsecond time channel ($pV/A/m^4$)
C410f:	Raw 410 microsecond time channel ($pV/A/m^4$)
C480f:	Raw 480 microsecond time channel ($pV/A/m^4$)
C570f:	Raw 570 microsecond time channel ($pV/A/m^4$)
C680f:	Raw 680 microsecond time channel ($pV/A/m^4$)

C810f:	Raw 810 microsecond time channel ($pV/A/m^4$)
C960f:	Raw 960 microsecond time channel ($pV/A/m^4$)
C1130f:	Raw 1130 microsecond time channel ($pV/A/m^4$)
C1340f:	Raw 1340 microsecond time channel ($pV/A/m^4$)
C1600f:	Raw 1600 microsecond time channel ($pV/A/m^4$)
C1900f:	Raw 1900 microsecond time channel ($pV/A/m^4$)
C2240f:	Raw 2240 microsecond time channel ($pV/A/m^4$)
C2660f:	Raw 2660 microsecond time channel ($pV/A/m^4$)
C3180f:	Raw 3180 microsecond time channel ($pV/A/m^4$)
C3780f:	Raw 3780 microsecond time channel ($pV/A/m^4$)
C4460f:	Raw 4460 microsecond time channel ($pV/A/m^4$)
C5300f:	Raw 5300 microsecond time channel ($pV/A/m^4$)
C6340f:	Raw 6340 microsecond time channel ($pV/A/m^4$)
C7540f:	Raw 7540 microsecond time channel ($pV/A/m^4$)
PLinef:	Power line monitor (linear trend removed)

- Grids in Geosoft GRD format, as follow,

  pan_magfin: Total Magnetic field (nT)

  A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information.

- Maps at 1:10,000 scale in Geosoft MAP format, as follow,

  pan_magfin: Total Magnetic Field image and contours

  PAN_EM_LP: Logarithmic scale profiles, Time Gates 0.22 – 6.34 ms

- ASCII file VTEM_WaveForm.xyz in Geosoft format containing the following channel:

  Volt: output voltage of the receiver coil (volts, sampling rate 20 microseconds)

- A *readme.txt* file describing the content of digital data, as described above.

6. CONCLUSIONS

A versatile time domain electromagnetic helicopter-borne geophysical survey has been completed over 10 blocks located in the Yukon Territory, Canada, including **Panorama Property.**

Total survey line coverage is 2750.77 line kilometres, including 93 line-km. for the **Panorama Property.** The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as colour contour maps and stacked profiles.

Final data processing at the office of Geotech Limited in Aurora, Ontario was carried out under the supervision of Andrei Bagrianski, Data Processing Manager.

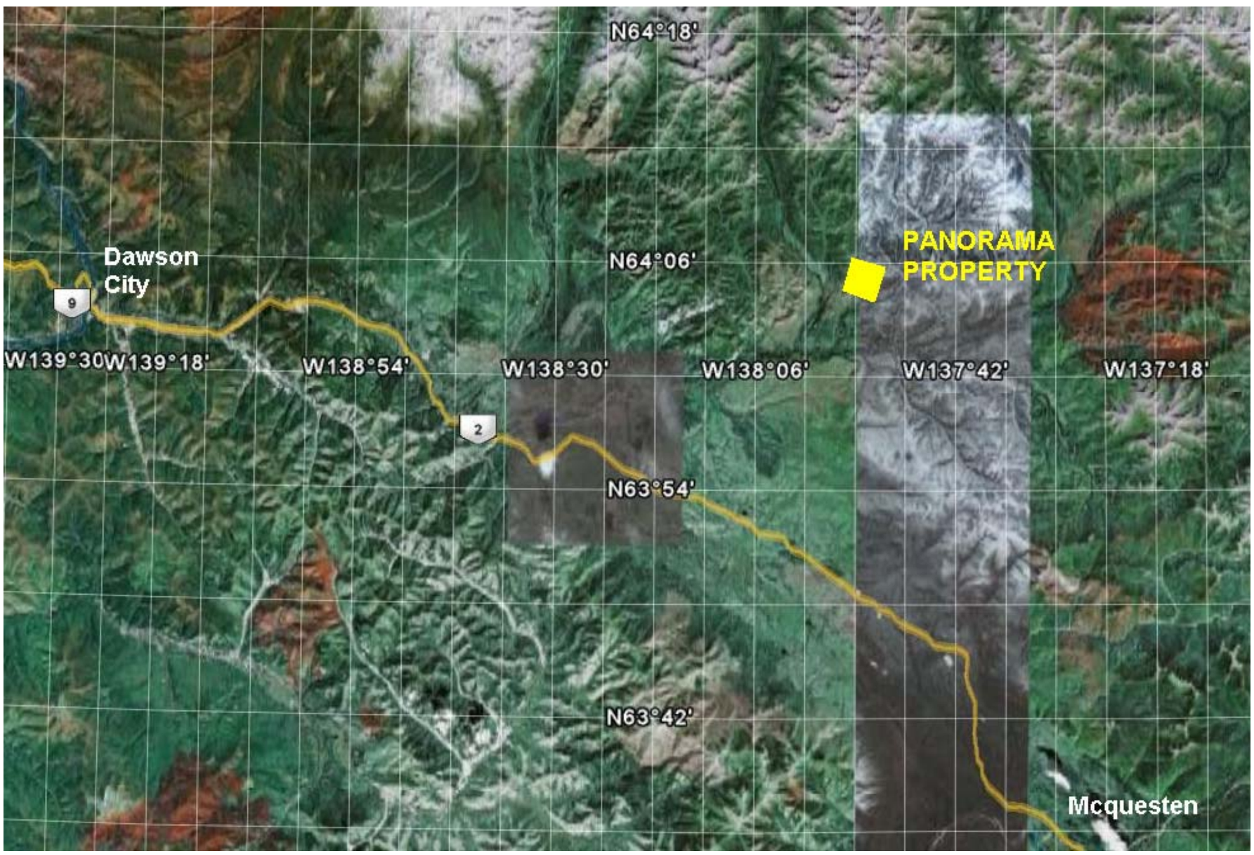
Respectfully submitted,

Marta Orta
on behalf of

George Lev
Geotech Limited
November 8, 2006

APPENDIX A

SURVEY BLOCK LOCATION MAP



APPENDIX B

SURVEY BLOCK COORDINATES

(WGS 84, UTM zone 8N)

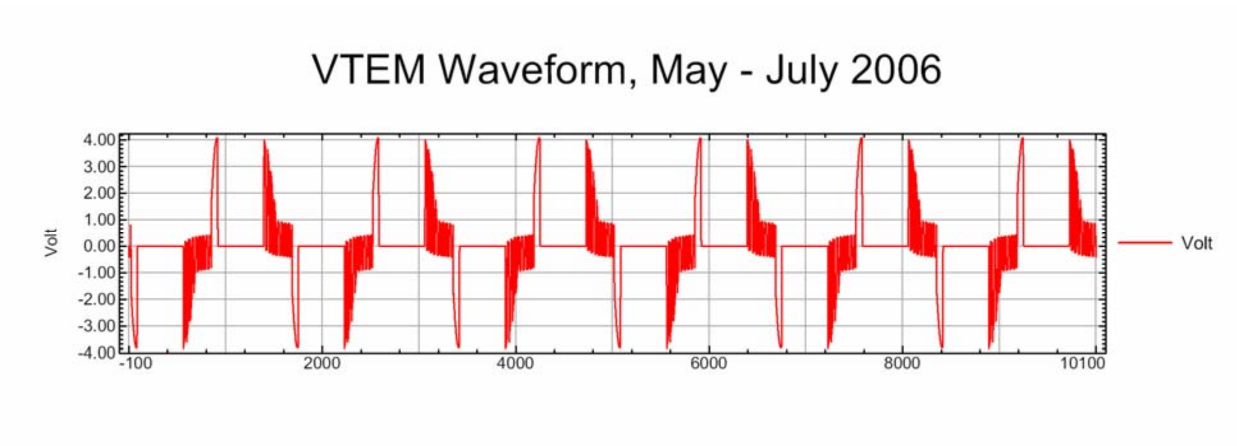
PANORAMA	
358523.8	7111293.3
361139.5	7110437.7
360288.6	7107832.2
357680.1	7108690.1

APPENDIX C

General Modeling Results of the VTEM Stysem

APPENDIX D

VTEM WAVE FORM



GENERALIZED MODELING RESULTS OF THE VTEM SYSTEM

Introduction

The VTEM system is based on a concentric or central loop design, whereby, the receiver is positioned at the centre of a 26.1 metres diameter transmitter loop that produces a dipole moment up to 625,000 NIA at peak current. The wave form is a bi-polar, modified square wave with a turn-on and turn-off at each end. With a base frequency of 30 Hz, the duration of each pulse is approximately 7.5 milliseconds followed by an off time where no primary field is present.

During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary field is created by mutual induction and measured by the receiver at the centre of the transmitter loop.

Measurements are made during the off-time, when only the secondary field (representing the conductive targets encountered in the ground) is present.

Efficient modeling of the results can be carried out on regularly shaped geometries, thus yielding close approximations to the parameters of the measured targets. The following is a description of a series of common models made for the purpose of promoting a general understanding of the measured results.

Variation of Plate Depth

Geometries represented by plates of different strike length, depth extent, dip, plunge and depth below surface can be varied with characteristic parameters like conductance of the target, conductance of the host and conductivity/thickness and thickness of the overburden layer.

Diagrammatic models for a vertical plate are shown in figures A and G at two different depths, all other parameters remaining constant. With this transmitter-receiver geometry, the classic **M** shaped response is generated. Figure A shows a plate where the top is near surface. Here, amplitudes of the duel peaks are higher and symmetrical with the zero centre positioned directly above the plate. Most important is the separation distance of the peaks. This distance is small when the plate is near surface and widens with a linear relationship as the plate (depth to top) increases. Figure G shows a much deeper plate where the separation distance of the peaks is much wider and the amplitudes of the channels have decreased.

Variation of Plate Dip

As the plate dips and departs from the vertical position, the peaks become asymmetrical. Figure B shows a near surface plate dipping 80º. Note that the direction of dip is toward the high shoulder of the response and the top of the plate remains under the centre minimum.

As the dip increases, the aspect ratio (Min/Max) decreases and this aspect ratio can be used as an empirical guide to dip angles from near 90º to about 30º. The method is not sensitive enough where dips are less than about 30º. Figure E shows a plate dipping 45º and, at this angle, the minimum shoulder starts to vanish. In Figure D, a flat lying plate is shown, relatively near surface. Note that the twin peak anomaly has been replaced by a symmetrical shape with large, bell shaped, channel amplitudes which decay relative to the conductance of the plate.

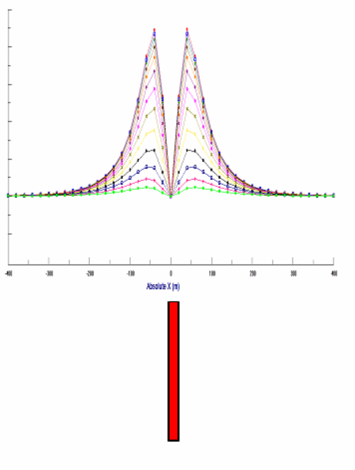
Figure H shows a special case where two plates are positioned to represent a synclinal structure. Note that the main characteristic to remember is the centre amplitudes are higher (approximately double) compared to the high shoulder of a single plate. This model is very representative of tightly folded formations where the conductors were once flat lying.

Variation of Prism Depth

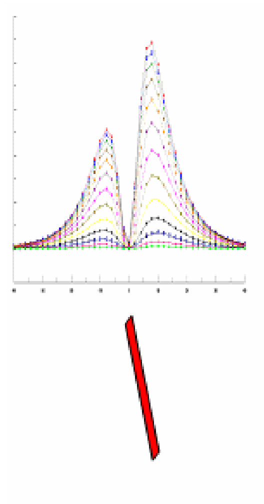
Finally, with prism models, another algorithm is required to represent current on the plate. A plate model is considered to be infinitely thin with respect to thickness and incapable of representing the current in the thickness dimension. A prism model is constructed to deal with this problem, thereby, representing the thickness of the body more accurately.

Figures C, F and I show the same prism at increasing depths. Aside from an expected decrease in amplitude, the side lobes of the anomaly show a widening with deeper prism depths of the bell shaped early time channels.

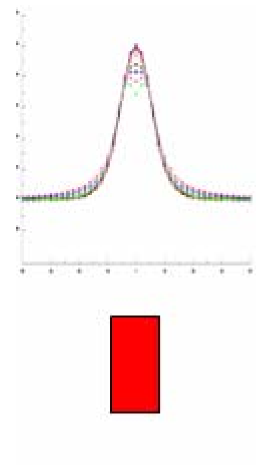
A



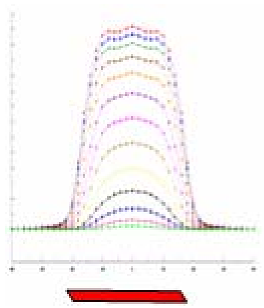
B



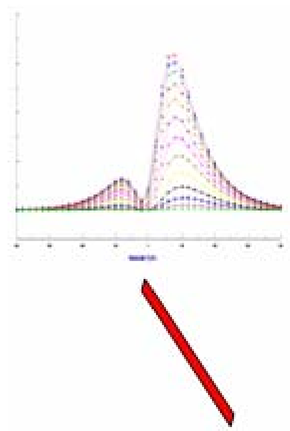
C



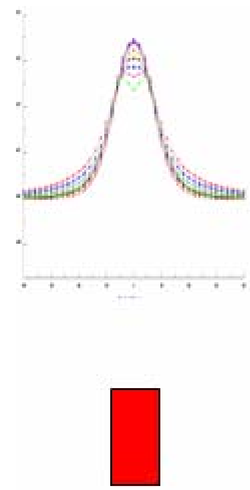
D



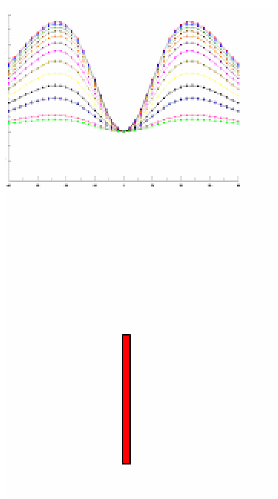
E



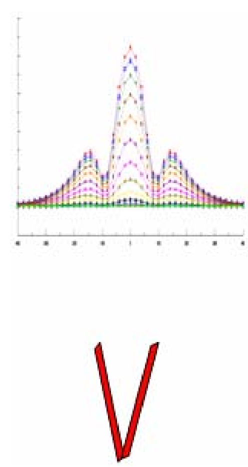
F



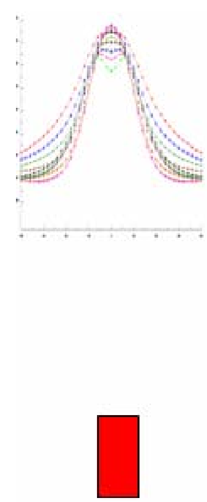
G



H



I



General Modeling Concepts

A set of models has been produced for the Geotech VTEM® system with explanation notes (see models A to I above). The reader is encouraged to review these models, so as to get a general understanding of the responses as they apply to survey results. While these models do not begin to cover all possibilities, they give a general perspective on the simple and most commonly encountered anomalies.

When producing these models, a few key points were observed and are worth noting as follows:

- For near vertical and vertical plate models, the top of the conductor is always located directly under the centre low point between the two shoulders in the classic **M** shaped response.
- As the plate is positioned at an increasing depth to the top, the shoulders of the **M** shaped response, have a greater separation distance.
- When faced with choosing between a flat lying plate and a prism model to represent the target (broad response) some ambiguity is present and caution should be exercised.
- With the concentric loop system and Z-component receiver coil, virtually all types of conductors and most geometries are most always well coupled and a response is generated (see model H). Only concentric loop systems can map this type of target.

The modelling program used to generate the responses was prepared by PetRos Eikon Inc. and is one of a very few that can model a wide range of targets in a conductive half space.

General Interpretation Principals

Magnetics

The total magnetic intensity responses reflect major changes in the magnetite and/or other magnetic minerals content in the underlying rocks and unconsolidated overburden. Precambrian rocks have often been subjected to intense heat and pressure during structural and metamorphic events in their history. Original signatures imprinted on these rocks at the time of formation have, in most cases, been modified, resulting in low magnetic susceptibility values.

The amplitude of magnetic anomalies, relative to the regional background, helps to assist in identifying specific magnetic and non-magnetic rock units (and conductors) related to, for example, mafic flows, mafic to ultramafic intrusives, felsic intrusives, felsic volcanics and/or sediments etc. Obviously, several geological sources can produce the same magnetic response. These ambiguities can be reduced considerably if basic geological information on the area is available to the geophysical interpreter.

In addition to simple amplitude variations, the shape of the response expressed in the wave length and the symmetry or asymmetry, is used to estimate the depth, geometric parameters and magnetization of the anomaly. For example, long narrow magnetic linears usually reflect mafic flows or intrusive dyke features. Large areas with complex magnetic patterns may be produced by intrusive bodies with significant magnetization, flat lying magnetic sills or sedimentary iron formation. Local isolated circular magnetic patterns often represent plug-like igneous intrusives such as kimberlites, pegmatites or volcanic vent areas.

Because the total magnetic intensity (TMI) responses may represent two or more closely spaced bodies within a response, the second derivative of the TMI response may be helpful for distinguishing these complexities. The second derivative is most useful in mapping near surface linears and other subtle magnetic structures that are partially masked by nearby higher amplitude magnetic features. The broad zones of higher magnetic amplitude, however, are severely attenuated in the vertical derivative results. These higher amplitude zones reflect rock units having strong magnetic susceptibility signatures. For this reason, both the TMI and the second derivative maps should be evaluated together.

Theoretically, the second derivative, zero contour or colour delineates the contacts or limits of large sources with near vertical dip and shallow depth to the top. The vertical gradient map also aids in determining contact zones between rocks with a susceptibility contrast, however, different, more complicated rules of thumb apply.

Concentric Loop EM Systems

Concentric systems with horizontal transmitter and receiver antennae produce much larger responses for flat lying conductors as contrasted with vertical plate-like conductors. The amount of current developing on the flat upper surface of targets having a substantial area in this dimension, are the direct result of the effective coupling angle, between the primary magnetic field and the flat surface area. One therefore, must not compare the amplitude/conductance of responses generated from flat lying bodies with those derived from near vertical plates; their ratios will be quite different for similar conductances.

Determining dip angle is very accurate for plates with dip angles greater than 30º. For angles less than 30º to 0º, the sensitivity is low and dips can not be distinguished accurately in the presence of normal survey noise levels.

A plate like body that has near vertical position will display a two shoulder, classic **M** shaped response with a distinctive separation distance between peaks for a given depth to top.

It is sometimes difficult to distinguish between responses associated with the edge effects of flat lying conductors and poorly conductive bedrock conductors. Poorly conductive bedrock conductors having low dip angles will also exhibit responses that may be interpreted as surfacial overburden conductors. In some situations, the conductive response has line to line continuity and some magnetic correlation providing possible evidence that the response is related to an actual bedrock source.

The EM interpretation process used, places considerable emphasis on determining an understanding of the general conductive patterns in the area of interest. Each area has different characteristics and these can effectively guide the detailed process used.

The first stage is to determine which time gates are most descriptive of the overall conductance patterns. Maps of the time gates that represent the range of responses can be very informative.

Next, stacking the relevant channels as profiles on the flight path together with the second vertical derivative of the TMI is very helpful in revealing correlations between the EM and Magnetics.

Next, key lines can be profiled as single lines to emphasize specific characteristics of a conductor or the relationship of one conductor to another on the same line. Resistivity Depth sections can be constructed to show the relationship of conductive overburden or conductive bedrock with the conductive anomaly.

APPENDIX III

AURORA GEOSCIENCES LTD. INDUCED POLARIZATION SURVEY REPORT

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MEMORANDUM

To: Doug Eaton and Bill Wengzynowski
Archer, Cathro & Associates (1981) Ltd.

Date: 26 Oct 06

From: Jacob Moeller
jacobmoe@gmail.com

Re: Panorama 2006 geophysical surveys – preliminary report

This memorandum is a preliminary report describing an induced polarization / resistivity (IP) survey conducted at the Panorama Property, Dawson Mining District, Yukon. The IP survey (2.45 line-km), along with line-chaining (9.2 line-km), was conducted from September 8th to September 14th, 2006.

Only10% of the grid was surveyed and 40% chained, as the crew demobilized early as per your instructions.

a. Crew and equipment.

The survey was conducted by the following personnel:

Jacob Moeller	Crew chief
Cody Woodman	
Terry Creamer	
Christien Ducharme	

The crew was equipped with the following instruments and equipment:

IP receiver	1	Iris Elrec Pro s/n 2315-2758300063-165
IP transmitter	1	GDD TxII 3.6 kW s/n Tx242
	1	Honda 5Kw generator
IP equipment	1	Repair tools & spare IP parts
	6 km	18 gauge wire
		100 m IP cables
	4	VHF handheld radios
	1	VHF base radio
		Georeels & spools, Speedy winders and spools, stainless steel electrodes
Other	3	Non-differential GPS receivers
	1	Laptop with Geosoft IP package
	1	GlobalStar satellite phone with data package
	1	Laptop with Geosoft (IP package)
	1	1 Ton Truck

b. Survey specifications.

The IP survey was conducted according to the following specifications:

Array	Expanding pole-dipole
Dipole spacing	50 m
Tx	Time domain, 50% duty cycle, reversing polarity, 0.125 Hz.
Separations read	N=1 to 6.
Rx sampling	20 channels, semi-logarithmic channel widths. Stacked minimum 15 times per reading.
Rx error	5 mV/V or less, otherwise repeated several times
Grid registration	Handheld GPS points every 200 m (nominal) and line-ends averaged 30 s or until estimated accuracy < 10 m, whichever was longer. All coordinates in NAD83 UTM Zone 8N.

c. Data processing.

IP

Data were downloaded nightly from the receiver and imported into the Geosoft Oasis Montaj IP package. Every reading was inspected and readings with high error or which did not repeat were rejected from the dataset. Repeat readings that were not rejected were then averaged using a weighted average based on the error. Corrections for the effect of a proximal infinite electrode were applied. GPS points were dumped from the handheld units and coordinates for the stations determined by linear interpolation between GPS points. Topographic data were extracted from a digital elevation model. Pseudosections of apparent resistivity, apparent chargeability and the standard deviation of the apparent chargeability were then produced, draped over the topographic data.

Data were formatted for entry into the UBC 2D DCIP package and inversions were run. Errors of 5%+0.001 were added to the resistivity data (voltage normalized by the current) for the resistivity inversions. For the chargeability inversions the standard deviation +0.2 mV/V was used as the error. The following table details parameters of the inversions.

Resistivity inversion parameters

Line	Chi Factor	DOI model (Ohm-m)	DOI cutoff	Comments
L6300	1	10000	0.2	
L6600	1	10000	0.2	

Chargeability inversion parameters

Line	Chi Factor	DOI model (mV/V)	DOI cutoff	Comments
L6300	2	100	0.2	
L6600	1	100	0.2	

d. Products.

The following data files are appended to the digital version of this report

Data\Panorama 2006 IP.xyz Data\Panorama 2006 IP.gdb	Final data in Geosoft database and ASCII xyz format.
Data\Panorama GPS.txt	Non-differential GPS locations with estimated accuracy < 10 m. NAD83,

	UTM Zone 8N.
Figures\L6300.pdf & L6300.jpg Figures\L6600.pdf & L6600.jpg	Pseudosections of apparent resistivity, chargeability and error in apparent chargeability, along with recovered models of resistivity and chargeability, in PDF and JPEG formats. Scale = 1: 5000.
Inversion Images\L6300 dc model.jpg Inversion Images\L6300 dc predicted.jpg Inversion Images\L6300 IP model.jpg Inversion Images\L6300 IP predicted.jpg Similarly L6600.	Inversion models with convergence curves. Inversion observed and predicted data.
Raw	A folder with all the raw instrument dump files.
Panorama 2006 IP Preliminary Report.pdf	A PDF of this report.
ACA-06-04-YT Panorama IP Survey Log.pdf	A daily survey log.

e. Preliminary results

- Both lines 6300E and 6600E had conductive areas at the start (S. end) and the end (N. end) of the lines, partly coincident with chargeable zones - the chargeability-high anomalies extend up into the near-surface resistive area. These anomalies are open to the north and south

- Anomalies at the north end of line 6300E are not contiguous and appear to be three distinct bodies.

f. Grid notes

Lines 5500E, 5600E, 5700E, 5800E, 6300E, 6400E, 6500E, 6600E and the sections north of the base line of lines 5900E and 6000E, were all chained by the IP crew. Lines 6100E, 6200E, the sections of 5900E and 6000E south of the base line, and all lines from 6700E to 7300E, remain unchained.

It is not recommended that lines 6700E to 7100E, north of the baseline, be surveyed because extensive talus would make satisfactory electrode placement impossible. Also, the ground is too steep on those sections of lines to safely carry heavy loads of wire.

Respectfully submitted,
AURORA GEOSCIENCES LTD.

Jacob Moeller, B.sc
Geophysical technician