YEIP
05-053
2005

AURORA GEOSCIENCES LTD.

GEOLOGICAL AND GEOPHYSICAL CONSULTANTS
YELLOWKNIFE, NT, CANADA
WHITEHORSE, YT, CANADA

SIGNET MINERALS INC.

PROSPECTING, SCINTILOMETER AND GRAVITY SURVEYS AT THE CURIE PROPERTY, NORTHEASTERN YUKON TERRITORY

YMIP 05-053

Claim Name	Record Number
BOHR 1 - 48	YC39970 - YC40017
PLANCK 1 - 64	YC41418-YC41481
BETA 1 - 48	YC41482 - YC41529
GAMMA 1 - 36	YC41530 - YC41565
FERMI 1 - 48	YC41566 - YC41613
GEIGER 1 - 16	YC41614 - YC41629
CURIE 1 - 16 CURIE 17 - 48 CURIE 57 - 76 CURIE 49 - 56 CURIE 77 - 399 CURIE 401	YC38921 - YC38936 YC39624 - YC39655 YC39656 - YC39675 YC41630 - YC41637 YC41638 - YC41956 YC41957
GROUT 1 - 268	YC41958 - YC42225

By
Phil Jackson, B.Sc. P. Geoph.
and
Derek Torgerson, B.Sc.

Aurora Geosciences Ltd
108 Gold Road
Whitehorse, Yukon, Y1A 2W3

Location: 65° 13' N, 134° 50' W
NTS: 106 E 02
Mining District: Mayo, YT
Date: January 31, 2006

SUMMARY

Aurora Geosciences Ltd conducted a prospecting and gravity survey on the Curie Property for Signet Minerals Inc. to locate the source of extensive uranium and copper soil and stream sediment geochemical anomalies identified in government regional geochemical surveys and by previous claim holders in the area. The region is recognized as prospective for Olympic Dam-type Iron-Oxide Copper-Gold (IOCG) or unconformity-related uranium targets. The gravity survey should assist in determining if such targets exist at depth. The surveys were centred on a NNW trending Proterozoic inlier flanked on both sides by lower Paleozoic rocks. Iron oxide breccias intrude the Proterozoic rocks within the inlier.

The gravity survey was conducted to cover an area including and surrounding the historical Deer Uranium Showings. The survey was performed with an automated gravimeter and station locations and elevations were measured with a differential GPS system. The data, collected at 131 stations, was corrected for instrument drift using drift checks at a base station prior to and after each day's survey. Latitude, elevation (Free Air, Bouguer Slab and Bullard-B) and terrain corrections were also applied to the gravity data. The Bouguer Anomaly data collected during this survey were inverted to investigate the density, depth and shape of the source body or bodies creating the observed field.

The central gravity feature on the property is a 3.2 mGal anomaly coincident with the Deer Showing and extending southwest of that location. The anomaly consists of a sub-circular central high with a WNW trending arm at the northwest corner of the anomaly. The anomaly is defined by the 131 gravity stations surrounding it and is closed off in all directions except to the north. The Bouguer high appears to be a subsidiary feature on a regional gravity plateau covering the eastern half of the survey area.

The gravity results do not indicate the presence of a single high-density feature in the area. Instead, the large density high enclosing material less than 3.00 g/cm^3 could be caused by a mass of iron metasomatized rock. Within this larger mass, the smaller high-density sources could indicate the presence of hematite or magnetite breccias.

The prospecting program returned significantly anomalous uranium values from rock samples collected in the area of the Deer 1 Showing. In particular, two samples returned 7.40% U (9.02% U_3O_8) and 46.3% U (54.3% U_3O_8).

Recommendations for future work on the property are to:

1. Conduct an airborne magnetic and electromagnetic survey over the full property position.
2. Stake additional claims to cover the northern gravity anomaly.
3. Expand the gravity survey to north to close-off the anomaly and expand it eastward to cover the claim package.
4. More prospecting, geological mapping and rock and soil sampling over the complete property package.
5. 3,000 m of diamond drilling to test the gravity anomalies at depth.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

Aurora Geosciences Ltd. was retained by Marksmen Resources Ltd. to perform prospecting, scintillometer and gravity surveys at the Curie Property, north of Mayo, central Yukon Territory. The Curie property was optioned by Markmen from 37999 Yukon Inc. in the spring of 2005. In the fall of 2005, the principals behind Marksmen Resources created a new company called Signet Minerals Inc. The mineral exploration properties of Marksmen where then transferred to Signet.

The 2005 work program was conducted to trace uraniferous hematite breccias at depth and to locate the source of uranium, copper and gold geochemical anomalies on the Curie property. The program was conducted in two phases. The first phase of the program consisted of prospecting, scintillometer and gravity surveying and was conducted from July 30 to August 10, 2005. The second phase of the program consisted of additional prospecting and gravity surveying, as well as claim staking. The second phase of the program was conducted from September 9 to September 19, 2005. The program involved the evaluation of three historical showings on the property and the collection of gravity readings at 90 stations. This report describes the survey, data processing and results, and contains an interpretation of the data.

2.0 LOCATION AND ACCESS

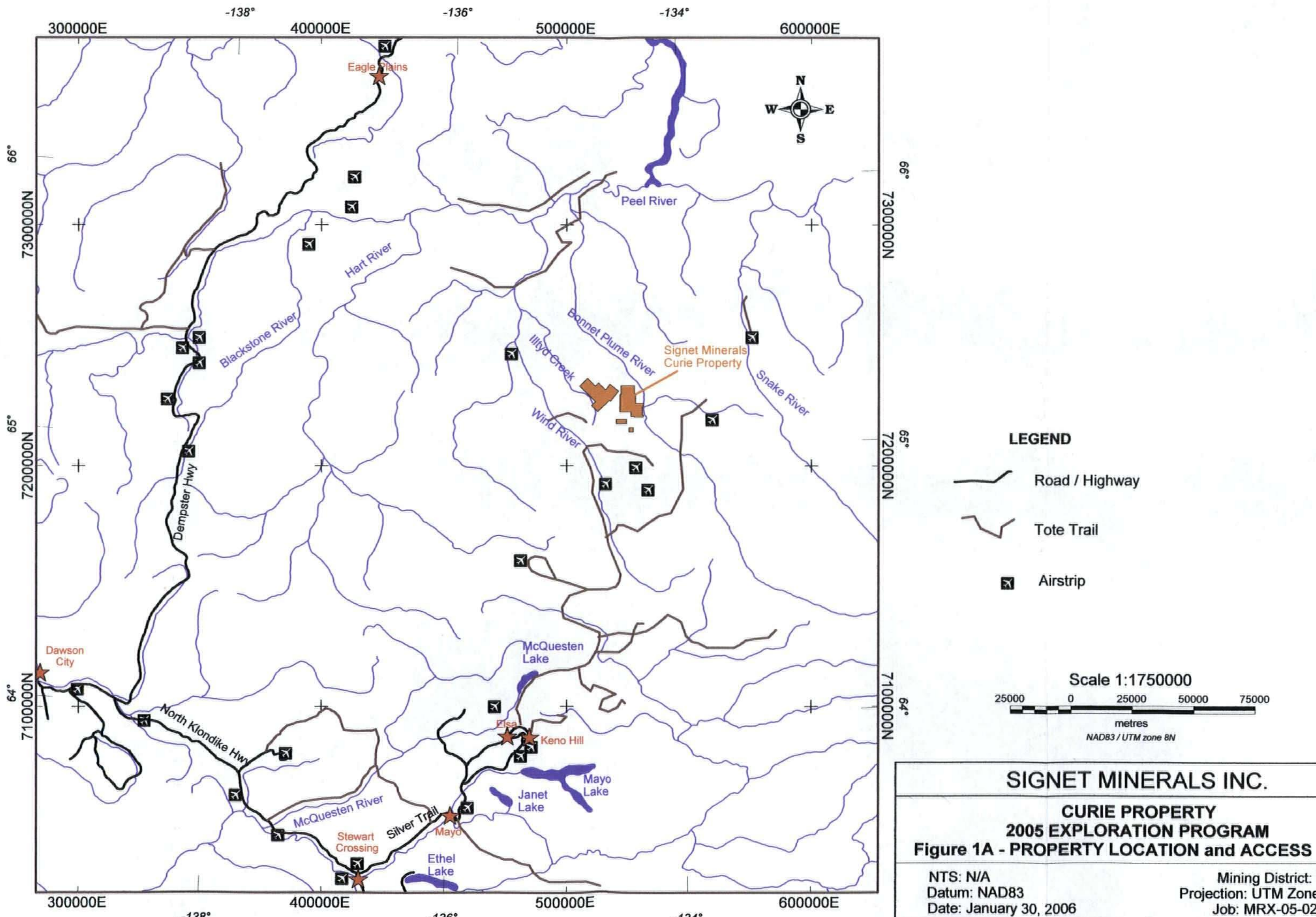
The Curie Property is located 190 km NNE of Mayo and 260 km NE of Dawson City, Yukon Territory. The property is centered at 65° 13' N, 134° 50' W in north-central Yukon Territory (Figure 1). The Curie claims are located in the Wernecke Mountains on NTS map sheets 106E01 and 106E02. The property is quite remote, however there are a number of airstrips and lakes in the general area allowing access to the region by fixed wing aircraft, floatplane or helicopter from the towns of Mayo or Dawson.

The town of Mayo is located 380 km by road from the city of Whitehorse. Travel between Whitehorse and Mayo is by the North Klondike Highway and then north on the Silver Trail Highway. Dawson City is located 520 km north of Whitehorse, on the North Klondike Highway. Both the North Klondike Highway and the Silver Trail Highway are paved roads and are generally in good condition.

SIGNET MINERALS INC.
CURIE PROPERTY
LOCATION MAP

Figure 1 January 9, 2006

AURORA GEOSCIENCES LTD



SIGNET MINERALS INC.

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 1A - PROPERTY LOCATION and ACCESS MAP

NTS: N/A	Mining District: N/A
Datum: NAD83	Projection: UTM Zone 8N
Date: January 30, 2006	Job: MRX-05-02-YT

AURORA GEOSCIENCES LTD.

3.0 CLAIM STATUS

The Curie Property consists of 928 Quartz Claims staked in accordance with the Yukon Quartz Mining Act in the Mayo Mining District[1] (Figure 2) The claims have not been surveyed and expiry dates are as listed in the table below:

Table 1. Claim Information

Claim Name	Record Number	Expiry Date
BOHR 1 - 48	YC39970 - YC40000 YC41401 - YC41417	14 Oct 2006
PLANCK 1 - 64	YC41418-YC41481	14 Oct 2006
BETA 1 - 48	YC41482 - YC41529	14 Oct 2006
GAMMA 1 - 36	YC41530 - YC41565	14 Oct 2006
FERMI 1 - 48	YC41566 - YC41613	14 Oct 2006
GEIGER 1 - 16	YC41614 - YC41629	14 Oct 2006
CURIE 1 - 16 CURIE 17 - 48 CURIE 57 - 76 CURIE 49 - 56 CURIE 77 - 399 CURIE 401	YC38921 - YC38936 YC39624 - YC39655 YC39656 - YC39675 YC41630 - YC41637 YC41638 - YC41956 YC41957	09 Dec 2010 19 Sept 2006 19 Sept 2006 14 Oct 2006 14 Oct 2006 14 Oct 2006
GROUT 1 - 268	YC41958 - YC42225	14 Oct 2006

The CURIE 1 to 16 claims are owned 100% by 37999 Yukon Inc. These claims are subject to an agreement with Signet Minerals Inc., whereby Signet has option to earn 100% interest in the property by making payments totaling $50,000 to 37999, issuing a total of 250,000 shares to 37999 and completing $500,000 exploration work on the property according to the following schedule:

1 Claim information from Mayo Mining Recorder on Jan 02, 2006.

Date	Option Payment	Shares	Exploration $
On signing	$12,500	50,000	Nil
December 31, 2005	Nil	50,000	$50,000
December 31, 2006	$10,000	50,000	$100,000
December 31, 2007	$12,500	50,000	$100,000
December 31, 2008	$15,000	50,000	$250,000
Totals	**$50,000**	**250,000**	**$500,000**

Upon earning 100% interest in the Curie 1 to 16 claims Signet will be required to pay to 37999 a 2.0% Net Smelter Royalty (NSR) on any future mineral production from the property. Signet can purchase fifty percent (50%) of the royalty from 37999 for a cash payment of $2,500,000. The property is also subject to a three (3) kilometer area of influence such that any claims acquired by staking within the area of influence will become part of the property.

The BOHR, PLANCK, BETA, GAMMA, FERMI, GEIGER, GROUT, CURIE 49 to 56, CURIE 77 to 399 and CURIE 401 claims are owned 100% by Signet Minerals Inc. At the time of writing this report the CURIE 17 to 48 and 57 to 76 claims were owned 100% by Marksman Resources. These claims are to be transferred to Signet Minerals Inc. A portion of these claims fall within the 3 km area of influence.

4.0 HISTORY

The Wernecke Mountains region of Yukon has an extensive exploration history. Claim staking records in the area date back to 1910 when claims were first staked in the Quartet Lakes area. There is no record of mineral exploration in the region until the 1970s. Since then, there has been extensive amount of prospecting, geological mapping, geochemical and geophysical surveys, trenching, pitting and diamond drilling in the search for gold, copper, uranium, lead, zinc and coal.

In June, 1975 the Wernecke Joint Venture (Standard Oil Co. of B.C. Ltd., Aquitaine Co, of Canada Ltd., and Messrs L & H Clay) discovered a uranium showing on the North slope of Quartet Mountain and staked the Wernecke claims. Later that year they conducted a program consisting of reconnaissance soil sampling, geological mapping, airborne and ground radiometric surveys. The program identified hard, black, vitreous crystalline masses of brannerite with traces of thorite and uranothorite up to several inches in diameter in a distinctive light pink to buff banded zone up to fifty feet thick in sedimentary rocks. A contour airborne radiometric survey flown around Quartet Mountain at elevation intervals of 500 feet identified a distinct radiometric anomaly on the North Slope of the mountain. The program recommended further prospecting to determine the origin and extent of radioactivity and located the source of mineralized float.

Also in 1975, Cyprus Anvil Mining Corporation conducted soil sampling programs on the Chloe claims 5 km west of Kiwi Lake and at the Gremlin Claims, 5 km south of Kiwi Lake. The Chloe claims were staked to cover an area anomalous lead and zinc in stream sediments. The program returned a significant lead and zinc soil anomaly in the valley bottom on the north side of the claim group and at the western edge of the claims. The soil sampling program on the Gremlin claims returned anomalous values for copper with two values being 8,000 and 15,000 ppm copper. Further soil sampling, hand trenching, Induced Polarization surveying and detailed geological mapping were recommended at both properties.

In 1976, A. Harman & Associates staked the MTR claims northeast of the Wernecke claims. The claims were sold to New Minex Resources Ltd and later that year they conducted a soil sampling and prospecting program. The results returned two areas of weakly anomalous U308 geochemistry and a coincident uranium-copper anomaly. They recommended a follow-up program consisting of detailed prospecting and scintillometer surveys to determine the source and extent of the soil geochemistry anomalies.

Also in 1976, the Fairchild Joint Venture (Mountaineer Mines Ltd and Pan Ocean Oil Ltd) staked the Loon and Wolf claims approximately 10 km north of Quartet Lakes. In 1977, they conducted a program of geological mapping, prospecting, stream sediment sampling and hand trenching. The program discovered brannerite crystals in interbedded white quartzite/pale green phyllite. A float sample containing brannerite assayed 5% U3O8. The stream sediment sampling program returned only one anomalous value from 18 samples.

In 1977, The Fairchild Joint Venture conducted a program of soil sampling and scintillometer prospecting on the Fox, Deer, Frog, and Mosquito claims, west of Kiwi Lake in the area of the current Curie claims. A total of 217 stream sediment samples and 512 soil samples were collected from the Fox Creek area. Stream sediment values ranged from <0.5 ppm to greater than 400 ppm uranium. Anomalous or highly anomalous stream sediment values were returned from all but two of the major tributaries flowing northerly into Mosquito Creek. The main body of Mosquito Creek yielded anomalous or highly anomalous stream sediment values over most of its length. Soil results ranged from <0.5 ppm to 90 ppm uranium and defined an anomalous area that was 915 m long on the northwest side of the Fox Creek valley starting approximately 1219 m upstream from the mouth of the creek.

In 1978, the Joint Venture carried out an extensive exploration program on their Kiwi Lake holdings that at that time comprised 937 mineral claims around Kiwi Lake. The program consisted of geological mapping, prospecting, geochemical surveying, magnetometer, spectrometer and alpha-nuclear surveys, bulldozer trenching and diamond drilling. A total of 650 m of diamond drilling was completed in 8 holes with 199 water samples, 74 silt samples and 41 soil samples being collected over the claim area.

Also in 1978, Scylla Corporation staked the A and B claim blocks south and south west of Kiwi Lake, respectively. In the summer they conducted a program of airborne radiometric surveying, scintillometer prospecting, diamond drilling and blast trenching. The airborne spectrometer survey indicated a number of areas (15+) to be of interest. Scintillometer and conventional prospecting follow-up of these areas, however failed to locate any significant mineralization. Two trenches were completed on the claim block but no significant uranium occurrences were located.

In 1979, the Fairchild Joint Venture conducted additional diamond drilling (1549 m in 17 holes) with down hole gamma logging, extensive bulldozer trenching, scintillometer prospecting, magnetic, electromagnetic, spectrometer, and alpha nuclear radon ground surveys. The program identified the Deer No. 1 showing, located near the top of Deer Mountain, to be a high-grade uranium occurrence. Trenching and diamond drilling at this showing returned high-grade uranium mineralization in a chlorite rich horizon that was 1.5 to 3 m thick. The ground surveys identified radon anomalies and radiometric U/Th highs the south slope of Deer Mountain. The bulldozer trenching on this slope, however, failed to locate any uranium showings. Trenching at the Deer No. 2 showing, on the north slope of Deer Mountain identified breccia diatreme rocks containing large brannerite crystals in alteration haloes in an area of strong radioactivity confined to erratically distributed hot spots. The Deer No. 2 breccia showing, however was of limited extent. No further work was done and the properties were later allowed to lapse.

In 1982, The Wernecke Joint Venture staked the Demon claims to cover the Gremlin copper-cobalt occurrence formerly held by Cyprus Anvil Mining Corp. Exploration work that year consisted of detailed mapping and chip sampling. The chip samples returned values of up to 3.85% Cu, 11.2 ppm Ag, 396 ppb Au, and 1.1 lb/ton Co. Wernecke Breccia samples typically contained 3 to 20 percent disseminated platy specular hematite, up to 2% pyrite and up to 0.5% chalcopyrite. However, no zones of anomalous radioactivity or economic concentrations of metals were discovered. The property was later allowed to lapse.

In 1992, Westmin Resources Ltd. staked the Slab and Hoover claims, located approximately 15 km South of Quartet Lakes, and conducted a program of geological mapping, prospecting, soil and rock sampling. The properties were acquired to evaluate breccia bodies in the area for Olympic-Dam style Cu, U, Au, and Ag mineralization. At the Slab Property 132 lithogeochemical, 38 rock, 17 rock chip and 5 soil samples were collected. Values of up to 3.52% copper, and 7310 ppb gold were returned from rock grab samples.

At the Hoover Property, Westmin collected 55 lithogeochemical, 38 rock grab and 9 rock chip samples. The rock chip sampling returned values up to 4.0% copper and 300-400 ppb Gold and a grab sample returned 20.2 g/t gold and 2.24% copper. Based on these encouraging results, Westmin expanded the Slab property by staking an additional 124 claims and the Hoover by staking an additional 114 claims to link the two claim blocks.

In 1993, Archer Cathro and Associates conducted a field program of geochemical sampling and geological mapping on the Kiwi Property located 3 km south of Kiwi Lake and adjacent to the Demon Claims. The program was designed to determine the source of lead – zinc soil and stream sediment anomalies in the area and to evaluate the potential of to host sedimentary-exhalative deposits. A total of 205 rock, 95 stream sediment and 684 soil samples were collected. Thirty three of the rock samples returned values greater than 400 ppm Pb and 1000 ppm Zn, with the highest values being 0.38% Pb and 4.33% Zn. The soil sampling identified three lead–zinc soil anomalies (>251 ppm Pb, >551 ppm Zn) of greater than 1 Km^2 on the property. They recommended additional geological mapping, rock, soil and stream sediment sampling to be conducted on the property.

In 1994, Westmin partnered up with Newmont Exploration Ltd. to form the Fairchild Joint Venture to explore the Slats and Hoover claims. The joint venture conducted a program consisting of geological mapping, prospecting, soil sampling, stream sediment sampling, and an airborne geophysical survey. Highlights of the program include a sample of breccia returning values of 930 ppb gold and 5170 ppm copper. The joint venture recommended a follow-up program consisting of geological mapping, geochemical sampling, geophysical surveys including Induced Polarization, magnetics and VLF-EM, to be followed by diamond drilling, however no further work was done on the property. At some time later, the property was sold to Breakwater Resources Ltd, which later turned it over to NVI Mining Ltd, a wholly owned subsidiary.

In 1995, Pamicon Developments Ltd conducted a diamond drill program (850 m in 5 holes) on the Anthea claims. Highlights of the program include assay results of >10000 ppm copper, 145 ppb gold, and 471 ppm cobalt. There is no record of any further work on the property. The claims are currently in good standing.

5.0 REGIONAL GEOLOGY

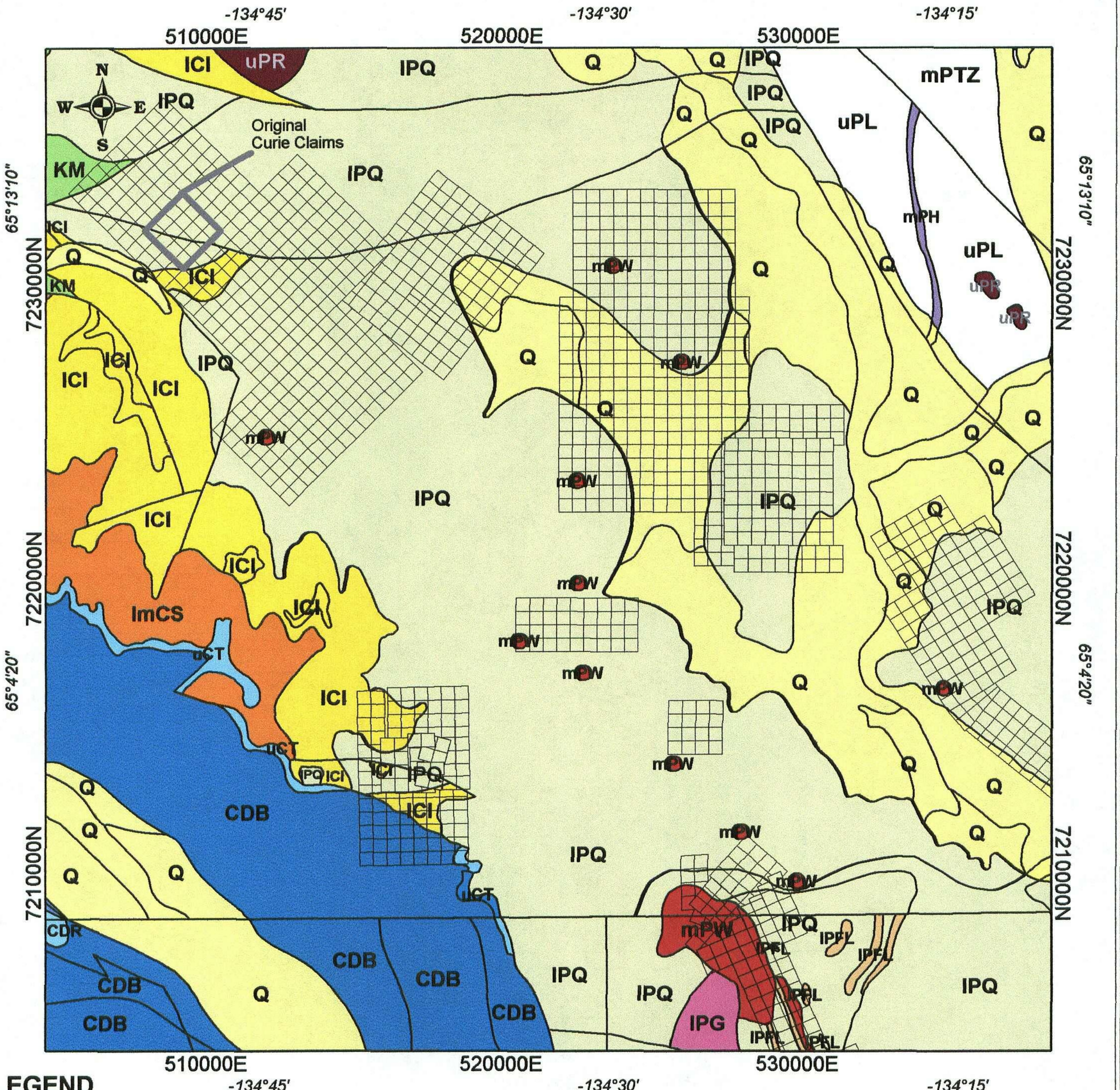
The geology in the area of the Curie Property is summarized by Gordey and Makepiece (2003). Formations in the area of the property are shown in Figure 3 and summarized in Table 2 below.

Table 2. Curie Area Regional Stratigraphy
(After Gordey & Makepiece (2003))

Formation (Age)	**Description**
Shublik Formation **(TrS)** (Triassic)	Shale, siltstone and sandstone; silty bioclastic limestone.
Tuttle Formation **(ICT)** Carboniferous	Chert granule to pebble conglomerate, sandstone with subordinate siltstone and shale; minor coal.
Ford Lake Formation **(uDPF1)** (Upper Devonian to Permian)	Black silty pyritic shale and siltstone with lesser sandstone, conglomerate & silty limestone
Imperial Formation **(uDI)** (Upper Devonian)	Shale and siltstone overlain by lithic sandstone and siltstone in sharply graded beds.
Road River Group **(CDR1)** (Cambrian to Devonian)	Calcareous black shale and limestone.
Bouvette Formation **(CDB1)** (Upper Cambrian)	Dolomite and limestone; minor argillaceous limestone, limestone conglomerate, and black shale; dolostone.
Slats Creek Formation **(lmCS1)** (Lower Cambrian)	Turbiditic, quartz sandstone with minor shale and siltstone, quartzite pebble and cobble conglomerate and limestone; argillite with minor quartzite and limestone.
Illtyd Group **(ICI1)** (Lower Cambrian)	Fine crystalline limestone; medium crystalline dolomite.
Quartet Group **(lPQ)** (Proterozoic)	Shale, finely laminated siltstone, and fine grained sandstone; minor interbedded orange weathering dolostone near top of formation.

The property is located in the Richardson Fault Array and is centered on a horst of Illtyd and older Quartet Group rocks bounded by north-northwest trending normal faults on the west and east flanks. Folding along axes with similar trends are also mapped on a regional scale.

The Curie Property covers an 800 by 1800 m heterolithic diatreme breccia containing angular fragments of Quartet Group wallrock in a fine matrix. The outer margins of the



LEGEND

Q	Quaternary Suite Sand and Gravel
KM	Upper Cretaceous Monster Suite Conglomerate
CDR	Cambrian to Devonian Road River - Richardson Suite Shale
CDB	Upper Cambrian to Lower Devonian Bouvette Suite Dolomite and Limestone
uCT	Upper Cambrian Taiga Suite Limestone and Dolostone
lmCS	Lwr. and Mid. Cambrian Slats Creek Suite Sandstone and Siltstone
lCI	Lwr. Cambrian Illtyd Suite Limestone and Dolostone
uPR	Upper Proterozoic Rapitan Suite Sandstone and Siltstone
uPL	Upper Proterozoic Little Dal Suite Dolomite
mPW	Middle Proterozoic Hematitic and Dolomitic Wernecke Breccias
mPTZ	Middle Proterozoic Tsezotene Suite Shale
mPH	Middle Proterozoic Hart River Suite Diorite and Gabbro Sills and Dikes
lPQ	Lower Proterozoic Quartet Suite Shale and Siltsone
lPG	Lower Proterozoic Gillespie Lake Suite Dolostone

Scale 1:200000

2500 0 2500 5000

metres

NAD83 / UTM zone 8N

SIGNET MINERALS INC.

CURIE PROPERTY
2005 EXPLORATION PROGRAM
FIGURE 3 - REGIONAL GEOLOGY

NTS: 106E02	Mining District: Mayo
Datum: NAD83	Projection: UTM Zone 8N
Date: January 2, 2006	Job: MRK-05-01-YT

AURORA GEOSCIENCES LTD.

intrusion are irregular and the wallrock contacts are gradational. The breccia pipe hosts two distinct types of mineralization. An early massive magnetite-hematite-jasper-quartz phase with minor disseminated chalcopyrite in the matrix. It occurs in an irregular zone about 30 m across in the northern part of the diatreme. Coarsely crystalline brannerite with quartz and pink K feldspar, occurs at the east edge of the core of the pipe. Although staked for uranium, no assays are reported in the Yukon Minfile.

6.0 2005 EXPLORATION PROGRAM AND EQUIPMENT

The crews mobilized to the property for the first phase of the program on July 30th and arrived on site on August 1st, 2005. This phase of field work was completed on August 8th and the crew returned to Whitehorse on August 10th. The crew mobilized to the property for the second phase of the exploration program on September 9th and returned on the 19th. Survey logs for the exploration programs are included in Appendix B. For the first phase of the program the crew was equipped with a 4-person camp, including 2 - 12'x14' tents, kitchen gear, a 1000 Kva generator and a Satellite phone. For the second phase of the program the crew operated from a hotel in Dawson. The crew, survey parameters and equipment for each of the components of the program are described below.

6.1 PROSPECTING

The prospecting was conducted by Derek Torgerson and Jane Wei. They collected 27 rock grab, 5 soil and 3 stream sediment samples. While prospecting the crew collected Scintillometer readings on their traverses. The scintillometer readings were recorded at approximately 20 m to 50 m intervals. The location of the readings are shown in Figures 5 through 9. The crew was equipped with the following instrument:

<u>Scintillometer:</u> MiniScint UG130 Portable 5 Channel Threshold Scintillometers

6.2 SCINTILLOMETER SURVEY SPECIFICATIONS

The scintillometer readings was conducted according to the following specifications:

<u>Parameters read:</u> TC1 - Total Count 1 – Energy > 0.08 MeV
TC2 - Total Count 2 – Energy > 0.4 MeV
KUT - Potassium + Uranium + Thorium – Energy > 1.36 MeV
UT - Uranium + Thorium – Energy > 1.66 MeV
T - Thorium - Energy > 2.46 MeV

<u>Sample Rate:</u> Counts were sampled at a 1 second interval.

<u>Other:</u> Station coordinates were recorded with non-differential GPS receivers along traverse lines

6.3 GRAVITY SURVEY SPECIFICATIONS AND FIELD PROCEDURE

The initial gravity survey was performed in two phases by the following personnel:

August survey:

Carla Kennedy	Geophysicist
Bernard Stehelin	Technician

September survey:

Phil Jackson	Geophysicist
Tobius Schoettler	Field assistant / Geologist

The crews was equipped with the following instruments and equipment:

Gravimeter:	Scintrex CG-5
GPS base:	Trimble 4000 SSE Antenna 12619 (dual frequency / no ground plane)
GPS rover:	Trimble Pro-XRS
Other:	Impulse laser range finder (ALG22) P-1.2GHz laptop & colour printer 2 - VHF radios

The gravity surveys were conducted according the following specifications with exceptions as noted:

Instrument preparation: August & September surveys:
The gravimeter was levelled on a concrete slab and warmed up for a period of 48 hours to stabilize. Thereafter, the instrument was cycled for approximately 24 hours, taking readings for 120 seconds every 10 minutes. Based on this calibration, no change to the instrument drift constants were undertaken. The instrument remained under power at all times throughout the survey operation.

Horizontal survey datum: NAD 1983 (Canada) with all data projected in UTM Zone 8N coordinates.

Vertical survey datum: Mean sea level (EGM96 (Global)) with all heights in meters.

Station marking:	Stations were marked with flagged nails.
GPS base station:	The Geodetic Survey of Canada Whitehorse Base Station was used due to equipment problems experienced with the grid GPS base station.
Gravity base station:	August survey: Two separate gravity base stations were used. The first was used for the first three days and was located on a hill south east of camp. The other was located at camp. Both stations were marked with a post and flagged. The nominal gravity base station datum used for all drift corrections was 5232.129 mGal. September survey: The gravity base station located in camp used for the August survey was occupied again and used as the datum for the extension. The nominal gravity base station datum used for all drift corrections was 5232.129 mGal
Gravity readings:	Readings were stacked for 60 s. One reading was taken at each station if the standard deviation was less than 50 µGals. If the gravity readings exceeded this threshold, at least three repeat measurements were collected.
Drift corrections:	August survey: Drift check-in readings were conducted prior to and after each day's survey. Check-in readings were taken at the gravity base station. Readings at the hill station are denoted as Line 99 / Station 99. Readings at the camp base station are denoted as Line 98 / Station 98. Please note that the gravity base station changed throughout the survey from the hill station to the camp station to save time. The data was then interpolated into one file. September survey: Drift check-in readings were conducted prior to and after each day's survey at a minimum. Camp base readings are denoted as Line 99 / Station 99
Base GPS:	The base station GPS receiver was cycled using a 10 s epoch (reading interval) as an optimum compromise between memory requirements and rover acquisition time. PDOP masks were set to <6.0, elevation mask to > 2^0 and signal to noise (SNR) ratio mask was set to >2.0 at the base station receiver. All elevation readings were corrected for base GPS

antenna height. The base antenna was rigidly mounted on a tripod throughout the survey.

Rover GPS: Antenna was placed on the gravity survey station hub and elevations were corrected for rover antenna height. A minimum of 3 measurements of 15 readings were taken per station survey and these measurements were averaged to determine the final station location. The rover elevation, mask was set higher than corresponding base station mask to ensure that all rover measurements had matching base station satellite records.

Near station terrain corrections: Terrain within 20 m of the survey station was surveyed with the laser rangefinder in 6-60^0 sectors. Because of the extreme topography near many stations, some of the terrain measurements are estimates.

6.4 GRAVITY DATA PROCESSING AND REDUCTIONS

Gravity data processing included the following steps and procedures:

1. *GPS processing.* The GPS data was processed with Trimble Pathfinder Office (2.90) using carrier phase and code processing. The Geodetic Survey of Canada Whitehorse GPS base station location was used as the reference position for all station measurements and the antenna heights of the rover was checked daily and used in the corrections. The data was exported in UTM NAD 83 (Zone 8N) coordinates with elevations in meters above mean sea level with a geoid model EGM96/Global.

2. *Position merge.* The gravity data was merged with the GPS data based on common line / station coordinates of readings in each data set.

3. *Drift corrections.*
   August survey:
   Daily drift files were created from the check-in measurements. . Drift corrections were applied by linear interpolation between the nearest-in-time check-in measurements prior to and after the field reading.

   September survey:
   Daily drift files were created from the check-in measurements. The nominal gravity base station reference value from the August survey was used in all corrections. Drift corrections were applied by linear interpolation between the nearest-in-time check-in measurements prior to and after the field reading.

4. *Latitude correction.* The latitude correction was applied by calculating the linear

gradient in the latitude effect at the centre of the survey area and removing the latitude effect calculated relative to this point. The central point used in the latitude calculation was 509219E 7230450N at a latitude of 65.2^0 N. The effect of the declination between UTM Grid North and True North was removed by adjusting the distance north of the central point using the measured declination of 0.3^0 E.

5. *Elevation corrections.* Free Air, Bouguer Slab and Bullard-B corrections were applied using mean sea level (z=0 m) and a density of 2.67 g/cm^3.

6. *Near station terrain corrections.* The terrain effect from topography within 20 m of the station was removed using the measurements described above and by applying the sector equation. An assumed density of 2.67 g/cm^3 was used.

7. *Far station terrain corrections.* A digital terrain model was created from the Geodetic Survey of Canada NTS topographic sheet 106 E/02 by extracting the coordinates of contour line segment end points and gridding this data using a 20 m cell size. The DTM extends from 504800E 7226600N to 513900E 7234600N and encompasses an area at least 3 km from any station in the survey area. The far station terrain corrections were applied with an exclusion distance of 20 m to complement the near station terrain corrections applied with direct terrain measurements within 20 m of the station. The far station terrain correction algorithm calculates the gravity effect of a flat-topped prism with dimensions equal to the node spacing.

8. *Plotting.* The final gravity data spreadsheet after all corrections and plan maps at 1:20,000 are attached. Plan maps include the Bouguer Anomaly map showing the colour contoured reduced gravity data (Figure 10) and the Bouguer Anomaly together with topography contours (Figure 11). Figure 12 illustrates model results, including the observed gravity data (a), the gravity data predicted by the best-fit model (b) and the difference between the observed and predicted gravity (c). Figure 12 (d) through (i) illustrates perspective views of the final model. Digital copies of these plots are included in the digital archive on CD-ROM.

7.0 GEOCHEMICAL ANALYTICAL PROCEDURE

The samples were sent to Saskatchewan Research Council (SRC) in Saskatoon for processing. A total of 27 rock, 5 soil and 3 stream sediment samples were collected in the 2005 program. All samples were handled in a secure manner and placed in sealed poly bags and in sealed 5 gallon containers for shipment to the lab. Geochemical Analytical Certificates are included in Appendix D and sample descriptions are included in Appendix C.

The analytical procedure for the soil and stream sediment samples consisted of drying the samples then sieving to -180 um. Two digestions of the 0.5 grams of the –180 um material were then run; one in aqua-regia solution, the other in a tri-acid for total digestion. Each of the two digestions was then analyzed by the SRC Uranium Exploration Major and Trace Element Package, which involved an ICP analysis.

The analytical procedure for the rock samples consisted of drying the sample then crushing and pulverizing. The pulverized material was then run with 2 digestions and analyzed by ICP as with the soil and stream sediment analysis. Rock samples returning greater than 500 ppm uranium were assayed for uranium.

8.0 GRAVITY MEASUREMENT ERROR

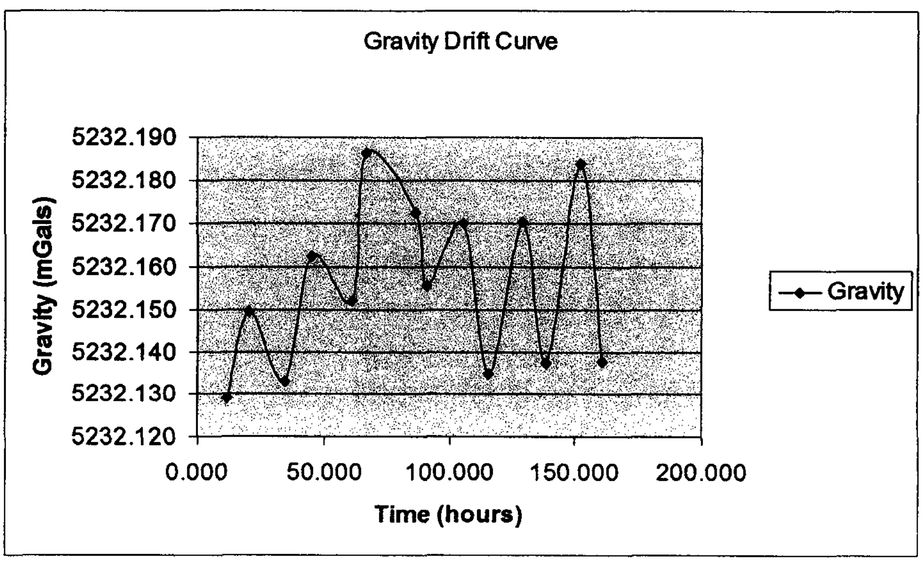
This section describes the sources of error present in the data and estimates the overall error in the Bouguer Anomaly after the application of all standard reductions.

8.1 Measurement error

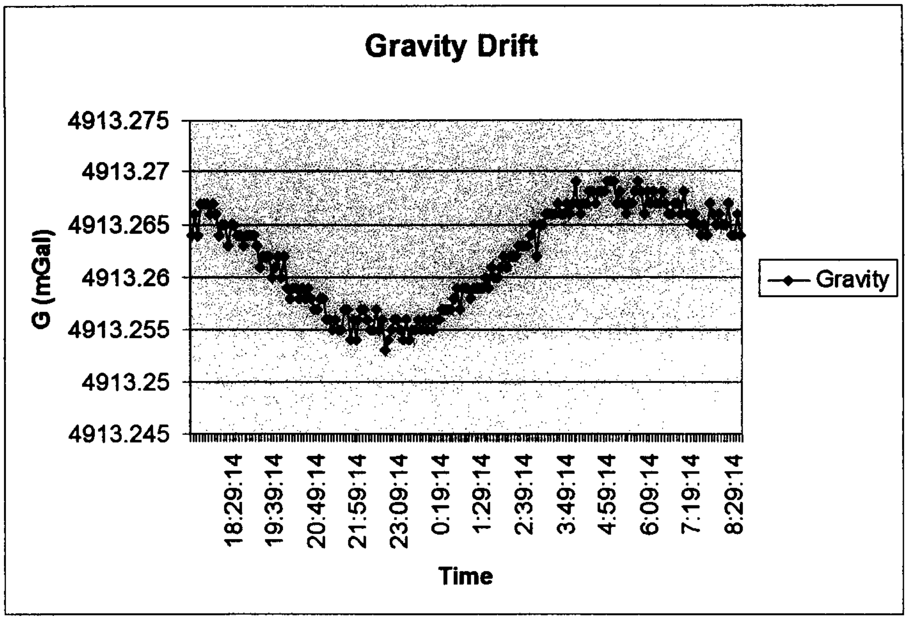
Each gravity reading was stacked 60 times and, if the reading standard deviation exceeded 50 μGal, the reading was repeated three times and averaged. The discrepancies between repeat readings at noisy stations rarely exceeded 20 μGal and this value is taken as a measure of raw measurement error.

8.2 Instrument drift

August survey:
The gravimeter had an average daily drift in the order of 40 μGal. Although the drift curve below does not demonstrate a linear drift, the daily variance was minimal and therefore the gravimeter is considered stable within an acceptable tolerance throughout the entire survey. The drift curve for the project at the survey area base station is shown below for reference.



September survey:
The gravimeter was linear throughout the survey with an average daily drift in the order of 50 μGal. The drift curve from the instrument preparation is shown below for reference.



There were no tares or temperature excursions noted in the data. Due to windy conditions and soft ground several base station readings had a standard deviation higher than 50 μGal. Error due to incorrectly estimated drift is estimated at no more than 10 μGal.

The September 2005 gravity data was merged with the August 2005 gravity data. In addition to the gravity base station the operator occupied two other previously surveyed gravity stations from August 2005. The drift corrected gravity values repeated to within 100 μGal, allowing successful merging of the data sets

8.3 Elevation error

In addition to repeat GPS measurements taken during the course of the survey the GPS indicated elevations of the gravity stations were checked against the indicated elevations of these points on the digital elevation model. It should be noted that the DTM with which these points were compared did not incorporate the GPS elevations themselves but relied upon contour map elevations. Maximum discrepancies in the order of ± 5 m were noted between the GPS indicated stations elevations and the interpolated elevations of the gravity stations derived from the digital topographic maps. This too suggests that the GPS-derived gravity station elevations are correct. Error in elevation is estimated at no more than ± 50 cm (0.100 mGal).

8.4 Latitude correction error

The latitude correction error is assumed to be negligible given the assumed horizontal accuracy of the station locations (± 50 cm).

8.5 Terrain correction

The operator made a concerted effort to ensure that the ground around each gravity stations was flat for at least 2 meters, however the following points were not ideal due to the steep topography: Station 3 ,8, 31, and 56. The operator made a concerted effort to accurately estimate the terrain near each station but some of the stations were located in very steep topography where areas were obscured and therefore were estimated. Errors in far station terrain corrections are due to three sources. These include the effect of the simplified geometry of each DTM node (flat topped prism) and the node size (20 m); errors in the topographic maps from which the DTM was constructed; and round-off error. Errors introduced by the first source are likely minimal given the great distance between the sources (nodes) and the gravity stations. Errors in the topographic maps would likely create small local anomalies - largely single station anomalies in this case. Round-off error is likely not significant as the processing is performed with double precision float variable and rounding errors should in general cancel as there is as much chance of rounding up as rounding down in any calculation. As an approximation, far station terrain corrections errors are assumed to be no more than 5% of the applied far station terrain correction, averaging 57 µGal.

8.6 Global error estimate

The error in the Bouguer Anomaly from all sources is the sum of the errors in each correction and is estimated to be about 200 µGal.

9.0 GRAVITY INVERSION

The gravity data was modelled using the University of British Columbia Geophysical Inversion Facility Grav3D software package. This section describes the inversion methodology and the parameters used to invert and interpret the gravity data.

Starting with a model of the earth consisting of rectangular prism elements (a finite element mesh) with varying dimensions and initial densities, Grav3D iteratively adjusts the densities of each element until the forward modelled response matches the observed gravity within the bounds of measurement error. The program uses a forward modelling subprogram to model the gravity response for a given model, computes the differences between the forward modelled data and the observed data, and adjusts the density of each node using a sensitivity matrix which encapsulates the contribution of each node to the observed gravity at a given station. At a given station for a given difference between observed and modelled gravity, the adjustment is calculated by adjusting the density of each node by an amount scaled from the sensitivity matrix.

10.0 RESULTS

Proterozoic Wernecke Breccias in the Yukon have been explored for copper, gold and uranium since the association was established between these rocks and correlative Proterozoic rocks in Australia. The latter host the Olympic Dam Cu-Au-U Deposit and other deposits of lesser tonnage, all hosted by iron-oxide breccias in Proterozoic rocks. The results of the 2005 exploration program are discussed below.

10.1 PROSPECTING PROGRAM RESULTS

The prospecting program was conducted over an eight day period and focused mainly around the historic Deer 1 and Deer 2 showings. There is very little outcrop exposed on the property, however there is abundant loose regolith and scree that appears to be very proximal to the source. The property has been mapped by previous workers and their work is shown on Figure 13.

The sampling program returned 10 samples with greater than 500 ppm uranium, including two grab samples with 7.40% U (9.02% U_3O_8) and 46.3% U (54.3% U_3O_8). These float boulder samples of hydrothermally altered quartz-feldspar-chlorite veined, fine-grained sediments with carnotite mineralization near trenches at the Deer 1 showing. This mineralization was not observed in outcrop. These results are considered extremely anomalous.

A stream sediment sample collected below the West Deer Showing (CUR05STR-03) returned a highly anomalous value of 148 ppm uranium as compared to 22 and 33 ppm for the other 2 stream sediment samples. The soil samples did not return any significantly anomalous results.

10.2 SCINTILLOMETER SURVEY RESULTS

The scintillometer was used more as a prospecting tool, rather than conducting a systematic gridded survey. It was used to help the field crew to locate areas of anomalous radiometric readings to allow them to focus their prospecting and sampling activity. The results show the area around the Deer 1 Showing to be anomalous for K, U and Th. As well, there are a few scattered Th anomalies north of the Deer 2 showing and south of the Deer 1 Showing. In each of these areas the crew collected a number of samples and, as discussed above, the Deer 1 Showing returned samples with abundant uranium and thorium content.

10.3 GRAVITY SURVEY RESULTS

The setting, exploration history and geophysical response of the Olympic Dam Deposit is described by Roberts and Hudson (1983). The deposit is characterized by coincident total magnetic field and gravity highs. The former is attributed to the magnetite phase of the mineralization while the latter is likely caused by iron oxides and overlying barite. Sulphide mineralization consisting of pyrite-chalcopyrite-bornite-chalcocite is also readily detectible with induced polarization and resistivity surveys. Classic Olympic Dam mineralization would be expected to produce strong coincident total magnetic field and gravity highs with weaker associated chargeability highs. Depending upon the tenor of the sulphide mineralization and the degree of alteration, apparent resistivity lows may be associated with the chargeability highs.

The central gravity feature on the property is a 3.2 mGal anomaly coincident with the Deer Showing and extending southwest of that location. The anomaly consists of a sub-circular central high with a WNW trending arm at the northwest corner of the anomaly. The anomaly is defined by the 131 gravity stations surrounding it and is closed off in all directions. The Bouguer high appears to be a subsidiary feature on a regional gravity plateau covering the eastern half of the survey area.

The Bouguer Anomaly data collected during this survey were inverted to investigate the density, depth and shape of the source body or bodies creating the observed field. The gravity modelling was confined to the area bounded by 505000E 7226000N to 514000E 7235000N. The regional field was removed by subtracting 5393.00 mGal from the data set; this is the average background value in the centre of the map, off the main anomaly. The gravity measurements were assigned an estimated average measurement error of 0.200 mGal.

For the model, topography was gridded using 100 m cells in the area covered by the gravity data and this topography grid was used to truncate the mesh, thereby incorporating surface topography into the final model. Modelling was conducted to fit the 129 points within the model area rather than attempting to fit a grid derived from this data. The model employed grid cells 100 m x 100 m in plan and 50 m thick near surface. The inversion was conducted with default (1.0) chi-factors, default α's and with default z_0 and β coefficients to counteract depth insensitivity. Reference and initial models consisted of cells with a zero density contrast.

The inversion fitted all the data within 0.5 mGal except for stations 122 and 117, the latter being an anomalous single station low. Figure 12 illustrates model results, including the observed gravity data (a), the gravity data predicted by the best-fit model (b) and the difference between the observed and predicted gravity (c).

Figure 12 (d) through (i) illustrates perspective views of the final model. The solid shown encloses all material with density greater than 0.06 g/cm^3 above background (ie. greater than 2.73 g/cm^3 relative to average crustal density of 2.67 g/cm^3). The inversion results suggest that the source is a vertically persistent, possibly bowl-shaped body with numerous small shallow sources of high density (>3.20 g/cm^3) embedded within it. The results do not indicate the presence of a single high density feature in the area. Instead, the large density high enclosing material less than 3.00 g/cm^3 could be caused by a mass of iron metasomatized rock. Within this larger mass, the high smaller high density sources could indicate the presence of hematite or magnetite breccias.

A digital archive is appended to this report as a CD-ROM and contains the gravity data in Excel and Geosoft data base format. The archive also contains all raw GPS and gravity data, near station terrain measurements, the digital terrain model used in the corrections and a digital copy of the maps.

11.0 CONCLUSIONS AND RECOMMENDATIONS

The 2005 exploration program returned significantly anomalous uranium values from rock samples collected in the area of the Deer 1 Showing. In particular, two samples returned 7.40% U (9.02% U_3O_8) and 46.3% U (54.3% U_3O_8). The scintillometer survey was helpful to direct the crew with their prospecting and sampling. It identified the Deer 1 Showing area as being significantly anomalous for K, U and Th. As was discovered by previous explorers in the area there are a number of high-grade surface showings in the region. The goal of the program was to determine the source of the uranium mineralization and to look for a possible Olympic Dam-type Iron-Oxide Copper-Gold (IOCG) target or unconformity-related uranium target deeper in the system. The gravity survey should assist in determining if such targets exists at depth.

Figures 10 and 11 (Back pocket) are Bouguer Anomaly maps showing the colour contoured reduced gravity data (Figure 10) and the Bouguer Anomaly together with topography (Figure 11). Figure 12 illustrates model results, including the observed gravity data (a), the gravity data predicted by the best-fit model (b) and the difference between the observed and predicted gravity (c). Figure 12 (d) through (i) illustrates perspective views of the final model. The solid shown encloses all material with density greater than 0.06 g/cm^3 above background (ie. greater than 2.73 g/cm^3 relative to average crustal density of 2.67 g/cm^3). The inversion results suggest that the source is a vertically persistent, possibly bowl-shaped body with numerous small shallow sources of high density (>3.20 g/cm^3) embedded within it. The results do not indicate the presence of a single high density feature in the area. Instead, the large density high enclosing material less than 3.00 g/cm^3 could be caused by a mass of iron metasomatized rock. Within this larger mass, the high smaller high density sources could indicate the presence of hematite or magnetite breccias.

Recommendations for future work on the property are to:

5 Conduct an airborne magnetic and electromagnetic survey over the full property position.
6 Stake additional claims to cover the northern gravity anomaly.
7 Expand the gravity survey to north to close-off the anomaly and expand it eastward to cover the claim package.
8 More prospecting, geological mapping and rock and soil sampling over the complete property package.
9 3,000 m of diamond drilling to test the gravity anomalies at depth.

Respectfully submitted,
AURORA GEOSCIENCES LTD.

Phil Jackson B.Sc. P.Geoph.
Geophysicist

And

Scott Casselman, B.Sc.
Geologist

12.0 STATEMENT OF EXPENDITURES

Gravity Survey and Prospecting Expenditures

Data Compilation – Scott Casselman – 19 hours @ $69.55		$1,321.45
Field Crew Wages (July 30 to Aug 10)		
- Derek Torgrerson	- 12 days @ $428.00	5,136.00
- Carla Kennedy	- 12 days @ $428.00	5,136.00
- Jane Xie	- 12 days @ $347.75	4,173.00
- Bernard Stehlin	- 12 days @ $347.75	4,173.00
(Sept 9 to 19, partial – 2 person gravity crew)		
- Phil Jackson	- 5 days @ $428.00	2,140.00
- Tobias Schoettler	- 5 days @ $347.75	1,738.75
Truck rental	- 6 days @ $107.00	642.00
Groceries		1,427.57
Camp rental (incl phone, gen, etc)	- 7 days @ $128.40	898.80
Gravity meter rental	- 17 days @ $350.00	5,950.00
Differential GPS rental	- 17 days @ $180.00	3,060.00
Room and board (Sept 9 to 19, partial)		2,897.65
Supplies		133.60
Fuel	- Jet B and Avgas	1,716.25
Sample shipment		72.29
Sample Analysis – SRK Labs		1,721.50
Helicopter Charter		2,586.48
Fixed Wing Charter		2,777.75
Expediting		690.15
Aurora Project Administration charges		500.00
Report Writing - Aurora Geosciences Ltd		5,350.00
Total exploration costs		**$ 54,242.24**

Claim Staking Expenditures

(Sept 9 to 19, partial – 2 person staking crew)		
- Warren Kapaniuk	- 5 days @ $374.50	1,872.50
- Casey Adshead	- 5 days @ $374.50	1,872.50
(Sept 27 to Oct 9 – 4 person staking crew)		
- Phil Jackson	- 17 days @ $374.50	6,366.50
- Warren Kapaniuk	- 5 days @ $374.50	1,872.50
- Casey Adshead	- 17 days @ $374.50	6,366.50
- Ed Able	- 15 days @ $374.50	5,617.50
Truck rental	- 3 days @ $107.00	321.00
Trailer rental		160.50
Truck fuel and mileage charges		3,011.64
Fuel	- Jet B and Avgas	5,149.64
Claim posts	- 130 @ $3.50	9,322.41
Supplies		940.66
Room and Board		10,289.21
Helicopter Charter		135,202.49
Fixed Wing Charter		44,170.41
Aurora Project Administration charges		8,919.20
Fuel mobilization charges – T. Wood from Dawson		1,155.60
Filing Fees		10,008.00
Total claim staking costs		$ **252,618.76**

13.0 REFERENCES

Archer, A. R., 1976. Report on Soil Geochemistry, Geology and Radiometric Surveys, Wernecke 1-82 Claims. Yukon Government Assessment Report # 090099.

Baknes, M. E., Caulfield, D. A., Stammers, M. A., 1993. 1993 Summary Report on the Slab 1-208 Claims. Yukon Government Assessment Report # 093181.

Darney, R and Ikona, C. K., 1976. Geochemical Report on the MTR 9-16, 25-32, 39-49 Mineral Claims. Yukon Government Assessment Report # 090172.

________, Yeager, D., R. Yorston, Stammers, M. and Ikona, C., 1978. Summary Report on the Kiwi Lake Holdings in the Fairchild Project Area, NTS 106E1 and 2. Yukon Government Assessment Report # 090440.

Dean, P., 1975. 1975 Exploration Report, Chloe Mineral Claim Group. Yukon Government Assessment Report # 090051.

Eaton, W. D., 1982. Wernecke Joint Venture (WJV) Diamond Drill Report, IGOR 1-26 Claims. Yukon Government Assessment Report # 091445.

Gordey, S.P. and A.J. Makepeace (1999) Yukon Digital Geology, Open File D3826. Geological Survey of Canada: CD-ROM.

Hulstein, R., 1994. Assessment Report on the 1993 Geological and Geochemical Investigation of the Kiwi Property, KL 1-196. Yukon Government Assessment Report # 093197.

Ikona, C. K. and Yeager, D., 1978. Geological and Geochemical Report on the Fox Creek Area, Including DEER, FROG, MOSQUITO, CLAM Claim Groups. Yukon Government Assessment Report # 090365.

Klatt, H. M., Stammers, M. A., 1994. 1994 Geological and Geochemical Assessment Report on the Arch 1-24 Claims. Yukon Government Assessment Report # 093233.

LaFehr, T.R. (1991a) Standardization in gravity reduction. Geophysics Vol. 56, No. 8. pp 1170-1178.

LaFehr, T.R. (1991b) An exact solution for the gravity curvature (Bullard B) correction. Geophysics Vol. 56, No. 8. pp 1179-1184.

Longman, I.M. (1959) Formulas for computer the tidal accelerations due to the moon and the sun. Journal of Geophysical Research Vol. 64 No. 12.

Pamicon Developments Ltd, 1995. 1995 Assessment on Diamond Drilling on the Anthea 1-66 Mineral Claims. Yukon Government Assessment Report # 093439.

Roberts, D.E. and G.R.T. Hudson (1983). The Olympic Dam Copper-Uranium-Gold Deposit, Roxy Downs, South Australia. Economic Geology Vol. 78 No. 5 p799-822.

Stammers, M. A., 1992. 1992 Geochemical Report on the Slab 1-82 Mineral Claims. Yukon Government Assessment Report # 093119.

Telford, W.M., L.P. Geldart and R.E. Sheriff (1990) Applied Geophysics (2nd Edition) New York: Cambridge University Press.

Touborg, J. F. and Chan, A. K., 1980. Report on 1979 Season Faairchild Uranium Program. Yukon Government Assessment Report # 090648.

White, P. S., 1979. Geological, Geophysical and Physical Work Report for Representation on the A 1-56 and B 1-38 Claim Group.

Whitman, W.W. (1991) A microgal approximation for the Bullard B - earth's curvature - gravity correction. Geophysics Vol.56 No. 12 pp 1980-1985.

R. Yorston, Yeager, D. and Ikona, C., 1977, Assessment Report on the Loon 1-12 and Wolf 1-60 Mineral Claims. Yukon Government Assessment Report # 090286.

APPENDIX A

CERTIFICATES OF QUALIFICATIONS

Statement of Qualifications

I, Scott Casselman, residing at 33 Firth Road, Whitehorse, Yukon Territory, Y1A 4R5, certify that:

1) I graduated from Carleton University in Ottawa, Ontario with a Bachelor of Science Degree in Geology in 1985.

2) I am a geologist employed by Aurora Geosciences Ltd. of Whitehorse, Yukon Territory.

3) I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, Registration No. 20032.

4) I supervised the fieldwork described in this report on the Curie Property between July 30 and September 19, 2005.

Dated this __th day of ___________, 2006, at Whitehorse, Yukon Territory.

Scott G. Casselman, BSc., P.Geo.

APPENDIX B

SURVEY LOG

AURORA GEOSCIENCES LTD.

CURIE GEOLOGY & GRAVITY

JOB: MRX-05-02-YT CURIE
MARKSMAN RESOURCES LTD.

Period: July 30th -August 10th , 2005

Personnel:
Derek Torgerson Geologist Crew Chief
Carla Kennedy Geophysicist
Jane Xie Field Assistant
Bernard Stehlin Field Assistant
Jack Kodwat Sr Driver

Sat July 30 05 Mobe

Mobed from Whitehorse to McQueston Lake with DT, CK, JX, BS, and JK Left Whitehorse at 5:30 am arrived at McQueston Lk at 12:00 pm. Raining at McQueston and no plane waiting for us. Waited and tried to track down pilot till 4:00 pm. Found that Big Salmon Air was weathered in, in Mayo YT. Returned to Mayo, stayed at Bedrock Hotel.

Sun July 31 05 Mobe

Met Dave Young at Bedrock motel at 7:00 am. Drove to Mayo airport to do weather check. Weather found to be to poor for flying. Decided to wait till 10:00 am and check again. Checked weather at 9:45 am, it had improved enough to fly. Moved mobe location to Mayo. Had first load of gear in air at 11:00 am. Cloudy and overcast all day. Dave Young flew 3 trips to Kiwi lake, at 3 hours turn around per trip. Returned to Bedrock hotel at 7:00 pm. Met Dave Young after his final trip, returned to Bedrock Hotel 10:30 pm.

Mon Aug 1 05 Mobe

Sunny Day. First flight out by Dave Young at 8:00 am. Bought more Av Gas from Mayo Airport 386 L at 1.52 / L. Sent Dave for second load at 11:00 am. BS stayed with Dave Young to help load and fuel. JK to McQueston Lake to haul drums back to Whitehorse. DT, CK, JX to airport to meet Trans North Helicopter Pilot. DT dropped off at Curie camp 1:00 pm. CK, JX to Kiwi Lake to load slings of gear. DT, CK, JX and BS in camp and set up by 7:00 pm. Dave Young 3 trips, for a total of 6 trips. Trans North 3.2 hours and 170 L of fuel.

Tues Aug 2 05 Gravity & Geology

Clear and sunny in day, rain in evening. BS & CK gravity 11 points. JX & DT located Deer 1 Showing, rock and soil samples collected.

Wed Aug 3 05 Gravity & Geology
Clear and sun in morning, rain in afternoon and overnight. BS & CK 18 gravity points. JX & DT Scintillometer survey, rock sampling, exposed radioactive source at Deer 1 showing.

Thurs Aug 4 05 Gravity & Geology
Rain most of day. BS & CK gravity 11 points. JX & DT continued with scint survey of Deer 1 showing, and rock sampling around showing.

Fri Aug 5 05 Gravity & Geology
Clear day. BS & CK technical problems with GPS base station, 5 gravity points. Will continue survey using Whitehorse base station. JX & DT mapping, prospecting around Deer 1 showing; moved to Deer 2 showing, unable to locate significant source of radioactivity. Samples collected.

Sat Aug 6 05 Gravity & Geology
Cloudy and rain, more rain at end of day. BS & CK 20 gravity points. JX & DT scint. prospecting for Deer 2 showing unable to locate. Samples collected

Sun Aug 7 05 Gravity & Geology
Overcast day, significant smoke in sky, rain overnight. BS & CK 15 gravity points. JX & DT moved to search for West Deer showing, scint. prospecting. No significant radioactivity found. Samples collected.

Mon Aug 8 05 Gravity & Geology
Clear day, smoke beginning to clear. BS & CK 10 gravity points. JX & DT scint. Prospecting of trenches at south base of Deer Mtn, samples collected. Confirmed demobe arrangements with TNTA and BSA. TNTA to begin demobe to Kiwi Lk at 6:00 am Tues morning. BSA to arrive at Kiwi Lk at 7:30 am to fly gear to Mayo. Amanda to meet crew in Mayo with truck. Begin to tear down camp.

Tues Aug 9 05 Demobe
Clear sunny day. Helicopter arrived at Curie camp 5:45 am. Demobe to Kiwi lk with TNTA 2.4 hours. 4 trips to mayo with Big Salmon Air. All crew out, met Amanda; set up wall tent at Bedrock hotel Mayo.

Wed Aug 10 05 Demobe
Dave Young demobe from Kiwi Lk to Mayo, 3 trips. Bought 99 litres of Av. Gas from Mayo airport. Drove home to Whitehorse.

Survey Days: 7.0 days
Standby Days: 0.0 days
Mobe/Demobe: 5.0 days

Period: September 9th - 19, 2005

Personnel:
Phil Jackson Geophysicist Crew Chief
Warren Kapaniuk Staker / IP Tech
Casey Adshead Staker / IP Tech
Tobius Schoettler Geologist

Fri Sept 09, 05 Mobe
Mobed from Whitehorse to Dawson City. Only a four man crew rather than five. Meet with fireweed pilot, plan set for Curie job in the morning. Crew staying at Eldorado Hotel.

Sat Sept 10, 05 - Curie -
Attempt made to get to curie job. Weather and fog too bad in mountains. Crew grounded in Dawson due to bad weather. Bad weather anticipated for Sunday and clearing on Monday, so plan switched to complete shell creek job first. - weather - scattered cloud with fog

Sun Sept 11, 05 Work on another project in the Dawson area. Helicopter has a forced landing. Crew is OK. Will not be able to go to Curie for a few days.

Mon Sept 12, 05 Work on another project in the Dawson area.

Tues Sept 13, 05 Work on another project in the Dawson area. Helicopter is repaired and ready to begin working on Curie project.

Wed Sept 14, 05- Curie -
Morning fog, late start but made it out to Curie by ~11am. Some gravity and staking completed, anticipate two more days of work, but will try to add geology work into program on third day.

Thurs Sept 15,05 - Curie -
More morning fog, out to Curie by driving to top of dome and picked up by heli there. Out by 9:30. Good productive day. All gravity points completed, and all but one staking line completed. Will do detail grav and geology tomorrow. Only one staker required to finish one line and do some tagging.

Fri Sept 16, 05 - Curie -
WK & CA get curie staking notarized in Dawson & buy 50 more staking

posts. WK completes staking/tagging at Curie, PJ & CA complete more grav stations and some detail readings where possible. TS prospects showings. Overcast with some light rain in late afternoon. Some difficulty on fly home, flight + 2hrs. Back in Dawson by 8:30.

Sat Sept 17, 05 Work on another project in the Dawson area.

Sun Sept 18, 05 Work on another project in the Dawson area.

Mon Sept 19, 05 - demobe -
PJ records Prosperity claims. PJ & MP demobe to Whitehorse.

Survey Days:	3 for Curie; 2 for Shell Creek; 1 for Prosperity; 1 for Hart River
Standby Days:	1 for Curie; 1 for Prosperity
Mobe/Demobe:	2.0 days

APPENDIX C

SAMPLE DESCRIPTIONS

CURIE PROPERTY
ROCK SAMPLE NOTES

			Scintillometer Reading on Sample					
Sample	NAD83 UT	NAD83 UT	TC1	TC2	K	U	T	Description
R01	509142	7230680	320	41	6	4	2	Metamorphized green/grey siltstone; argillite
R02	509178	7230797	159	30	6	6	3	Green/grey siltstone gradually graded to shale
R03	509325	7231191	201	41	10	8	4	Darkgreen, metamorphized siltstone; iron rich; trace feldspar growth
R04	509558	7231822	158	38	6	4	3	Highly metamorphized blue/green siltstone; trace feldspar growth
R05	509553	7231817	248	53	12	11	3	Weathered siltstone bedrock; iron rich (possibly hematite weathering)
R06	509685	7232016	310	63	12	10	6	Chloritic schist w. bedding (siltstone) in bedrock; feldspar vein
R07	509688	7232002	7503	5063	1070	987	304	Carnotite crystallization on chloritic schist
R08	509695	7232012	871	199	32	27	13	Chloritic, highly altered siltstone; feldspar growth (crushed/weathered)
R09	509649	7232009	195	48	8	6	3	Quartz vein with hematite mineralization; layered with siltstone
R10	509690	7232000	415	141	20	18	8	Chloritic schist; quartz crystals in vugs, altered (crushed/weathered) feldspar, and hematite mineralization
R11	509677	7231983	1655	793	115	90	27	Chloritic and quartzite banded siltstone; feldspar alteration
R12	509712	7232016	1423	972	183	156	58	Metamorphized chloritic siltstone w. feldspar veining; possible hematite mineralization in feldspar;alteration around veining
R13	509711	7232022	2365	1183	230	202	52	Quartz vein in chloritic siltstone; feldspar and hematite growth associated w. quartz vein
R14	509722	7232016	362	138	21	17	9	Quartz vein in chloritic siltstone; abundant feldspar and trace hematite w. brown weathering; possible biotite;
R15	509670	7232020	1310	527	81	49	20	Chloritic banded siltstone w. quartzite bands; feldspar mineralization
R16	509672	7232021	672	251	61	28	10	Chloritic banded siltstone w. quartz veining; feldspar, trace hematite, and green mineralization; possible brannerite mineralization
R17	509674	7232019	8409	5043	861	666	232	Chloritic schist w. quartz veining, feldspar and carnotite
R18	509683	7232029	581	146	27	22	8	Chloritic schist w. quartz veining; feldspar and hematite
R19	509438	7232841	138	40	7	6	3	Breccia of sedimentary clasts; malachite and irredescent (peacock) pyrite
R20	509653	7232115	151	42	10	7	2	Chlorite rich clast breccia w. feldspar and hematite mineralization
R21	509277	7232866	181	59	12	10	4	Breccia w. trace hematite mineralization; quartz and sandstone clasts; sandstone matrix; staining on clast surfaces vugs
R22	509282	7232831	138	46	5	7	4	Breccia w. trace hematite mineralization; quartz clasts and sandstone matrix; vugs
R23	509283	7232829	153	48	12	5	2	Highly metamorphized, chloritic rich, (likely siltstone); malachite mineralization
R24	508470	7232146	264	32	7	5	2	Breccia w. chloritic metamorphized siltstone clasts
R25	508475	7232150	289	35	6	6	3	Breccia; quartz clasts; sandstone matrix; hematite mineralization
R26	508336	7232284	304	33	8	5	3	Weathered breccia; siltstone and quartz clasts;trace hematite; sandstone matrix
R27	507870	7231901	304	35	8	5	2	Iron and chlorite rich breccia in bedrock; quartz clasts

CURIE PROPERTY
SOIL SAMPLE NOTES

			SCINTILLOMETER READING on SAMPLE				
Sample	NAD83 UTME	NAD83 UTMN	TC1	TC2	K	U	T
SS01	509554	7231815	369	56	10	7	8
SS02	509684	7232015	311	58	8	6	3
SS03	509690	7231997	472	85	12	11	5
SS04	509434	7231409	363	53	9	5	8
SS05	509113	7230612	343	22	3	5	2

CURIE PROPERTY
STREAM SEDIMENT SAMPLE NOTES

Sample	NAD83 UTME	NAD83 UTMN	SCINTILOMETER READING on SAMPLE					Description
			TC1	TC2	K	U	T	
STR01	509460	72231407	359	55	14	7	3	Stream at base of Deer Mountain (south side)
STR02	508509	7231951	358	47	10	9	2	Deer Creek
STR03	508312	7232057	372	78	14	13	5	West Deer Creek

APPENDIX D

GEOCHEMICAL ANALYTICAL CERTIFICATES

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 12

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Column Header Details

Silver in ppm (Ag)
Aluminum in wt % (Al2O3)
Barium in ppm (Ba)
Berylium in ppm (Be)
Calcium in wt % (CaO)

Cadmium in ppm (Cd)
Cerium in ppm (Ce)
Cobalt in ppm (Co)
Chromium in ppm (Cr)
Copper in ppm (Cu)

Dyspmnosium in ppm (Dy)
Erbium in ppm (Er)
Europium in ppm (Eu)
Iron in wt % (Fe2O3)
Gallium in ppm (Ga)

Gadolinium in ppm (Gd)
Hafnium in ppm (Hf)
Holmium in ppm (Ho)
Potassium in wt % (K2O)
Lanthanum in ppm (La)

Lithium in ppm (Li)
Magnesium in wt % (MgO)
Manganese in wt % (MnO)
Molybdenum in ppm (Mo)
Sodium in wt % (Na2O)

Niobium in ppm (Nb)
Neodymium in ppm (Nd)
Nickel in ppm (Ni)
Phosphorus in wt % (P2O5)
Lead in ppm (Pb)

Praseodymium in ppm (Pr)
Scandium in ppm (Sc)
Samarium in ppm (Sm)
Tin in ppm (Sn)
Strontium in ppm (Sr)

Tantalum in ppm (Ta)
Terbium in ppm (Tb)
Thorium in ppm (Th)
Titanium in wt % (TiO2)
Uranium in ppm (U, ICP)

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 12

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Column Header Details

Vanadium in ppm (V)
Tungsten in ppm (W)
Yttrium in ppm (Y)
Ytterbium in ppm (Yb)
Zinc in ppm (Zn)

Zirconium in ppm (Zr)

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 12

Report No: 05-801
Date: September 13, 2005

ICP6.3R Partial Digestion

Column Header Details

Silver in ppm (Ag)
Arsenic in ppm (As)
Bismuth in ppm (Bi)
Cobalt in ppm (Co)
Copper in ppm (Cu)

Germanium in ppm (Ge)
Mercury in ppm (Hg)
Molybdenum in ppm (Mo)
Nickel in ppm (Ni)
Lead in ppm (Pb)

Antimony in ppm (Sb)
Selenium in ppm (Se)
Tellurium in ppm (Te)
Uranium in ppm (U, ICP)
Vanadium in ppm (V)

Zinc in ppm (Zn)
Boron by Fusion in ppm (B)

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 9

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ag ppm	Al2O3 wt %	Ba ppm	Be ppm	CaO wt %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Fe2O3 wt %	Ga ppm	Gd ppm	Hf ppm
CG515/LS4/BM	0.2	17.6	2240	2.1	4.93	0.6	169	18	117	2	3.2	2.9	2.8	6.91	21	6.2	4.0
CUR05SS-01 -180UM	0.2	13.5	729	1.8	0.48	<0.2	98	9	67	26	1.6	1.9	1.4	7.09	19	3.8	4.0
CUR05SS-02 -180UM	<0.2	20.6	405	2.0	1.02	<0.2	174	5	42	3	2.5	1.4	2.2	1.79	19	8.7	1.6
CUR05SS-04 -180UM	<0.2	13.1	787	1.9	1.05	<0.2	112	8	54	32	4.2	2.6	1.8	4.03	17	6.3	3.0
CUR05SS-05 -180UM	<0.2	14.8	883	2.3	0.85	<0.2	106	9	65	18	3.3	2.2	1.9	4.95	17	6.0	3.0
CUR05STR-01 -180UM	0.3	21.0	1090	4.1	0.70	0.2	129	12	84	64	3.9	2.8	2.0	5.26	25	7.5	2.7
CUR05STR-02 -180UM	0.2	18.1	963	3.3	0.93	<0.2	162	12	64	35	3.8	2.4	2.5	5.18	22	8.4	3.0
CUR05STR-03 -180UM	0.6	1.06	268	0.3	4.49	0.4	7	2	8	16	<0.2	<0.2	0.2	0.38	2	1.4	<0.5
CUR05STR-03 -180UM R	0.6	1.05	267	0.3	4.48	0.3	7	2	7	16	<0.2	<0.2	0.2	0.38	2	1.5	<0.5

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 9

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ho ppm	K2O wt %	La ppm	Li ppm	MgO wt %	MnO wt %	Mo ppm	Na2O wt %	Nb ppm	Nd ppm	Ni ppm	P2O5 wt %	Pb ppm	Pr ppm	Sc ppm	Sm ppm	Sn ppm
CG515/LS4/BM	1.1	3.14	94	29	2.80	0.075	1	3.25	8	66	21	0.671	18	19	11	9.2	4
CUR05SS-01 -180UM	0.9	2.19	50	30	1.36	0.089	1	1.01	5	38	26	0.835	18	10	10	6.3	<1
CUR05SS-02 -180UM	0.4	1.19	97	23	2.12	0.029	1	8.44	<1	74	58	0.561	7	20	5	11.2	<1
CUR05SS-04 -180UM	1.3	2.20	65	31	1.35	0.065	<1	1.58	4	50	23	0.172	11	12	10	7.6	<1
CUR05SS-05 -180UM	1.2	2.45	77	41	1.44	0.077	<1	1.20	5	57	25	0.153	14	15	11	8.8	<1
CUR05STR-01 -180UM	1.1	3.85	76	57	1.89	0.119	1	1.04	1	57	32	0.139	26	15	16	9.2	1
CUR05STR-02 -180UM	1.0	3.11	104	51	1.73	0.143	1	1.10	1	77	34	0.135	12	20	13	11.7	2
CUR05STR-03 -180UM	<0.4	0.202	7	2	0.264	0.231	16	0.09	<1	6	2	0.323	3	2	<1	1.2	<1
CUR05STR-03 -180UM R	<0.4	0.198	7	2	0.264	0.232	15	0.09	<1	6	3	0.320	3	2	<1	1.0	<1

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 9

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Sr ppm	Ta ppm	Tb ppm	Th ppm	TiO2 wt %	U, ICP ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm
CG515/LS4/BM	1130	<1	0.6	14	0.985	<2	130	<1	21	2.1	82	142
CUR05SS-01 -180UM	81	<1	<0.3	19	0.412	<2	125	<1	12	2.0	70	107
CUR05SS-02 -180UM	66	<1	1.7	23	0.079	7	51	<1	12	1.1	18	58
CUR05SS-04 -180UM	138	<1	0.7	15	0.379	3	97	<1	20	2.5	71	91
CUR05SS-05 -180UM	149	<1	0.5	15	0.385	5	122	<1	19	2.2	74	85
CUR05STR-01 -180UM	154	<1	0.9	23	0.226	22	109	<1	27	3.0	115	97
CUR05STR-02 -180UM	139	<1	0.9	19	0.209	33	84	<1	28	2.3	83	72
CUR05STR-03 -180UM	187	1	0.3	3	0.027	148	10	<1	4	0.3	67	6
CUR05STR-03 -180UM R	186	<1	<0.3	3	0.028	155	11	<1	4	0.3	62	5

Total Digestion: A 0.125 g pulp is gently heated in a mixture of HF/HNO3/HClO4 until dry and the residue is dissolved in dilute HNO3.
The standard is CG515.

Marksman Resources
Attention:
PO #/Project:
Samples: 9

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Report No: 05-801
Date: September 13, 2005

ICP6.3R Partial Digestion

Sample Number	Ag ppm	As ppm	Bi ppm	Co ppm	Cu ppm	Ge ppm	Hg ppm	Mo ppm	Ni ppm	Pb ppm	Sb ppm	Se ppm	Te ppm	U, Fl. ppm	V ppm	Zn ppm	B ppm
CG515/LS4/BM	<0.1	12.6	0.7	38.9	47.6	0.3	<0.2	12.7	47.6	24.0	0.7	0.6	0.7	33.6	101	194	95
CUR05SS-01 -180UM	<0.1	7.9	1.9	7.2	22.3	0.4	<0.2	1.2	15.5	12.9	1.5	1.3	1.4	2.86	37.0	50.5	50
CUR05SS-02 -180UM	<0.1	2.8	<0.2	3.5	2.5	<0.2	<0.2	<0.1	34.7	5.52	<0.2	<0.2	<0.2	8.83	9.4	12.7	16
CUR05SS-04 -180UM	<0.1	3.5	0.7	5.7	28.3	<0.2	<0.2	0.5	14.8	5.03	0.5	<0.2	1.1	4.57	22.1	48.0	66
CUR05SS-05 -180UM	<0.1	5.0	1.0	6.4	15.8	<0.2	<0.2	0.5	17.3	9.17	<0.2	<0.2	0.8	6.85	30.5	51.8	59
CUR05STR-01 -180UM	<0.1	5.7	1.7	9.5	59.4	<0.2	<0.2	1.2	24.1	11.2	0.8	0.5	2.1	25.2	16.0	86.8	81
CUR05STR-02 -180UM	<0.1	2.3	0.5	8.4	32.3	<0.2	<0.2	0.7	21.7	4.67	0.7	<0.2	1.3	36.1	11.9	51.8	43
CUR05STR-03 -180UM	0.1	1.8	<0.2	1.8	15.5	<0.2	<0.2	15.4	2.3	1.98	2.9	3.2	1.3	146	4.6	51.6	15
CUR05STR-03 -180UM R	0.1	2.0	<0.2	1.8	16.2	0.2	<0.2	16.3	2.4	2.03	2.8	3.6	<0.2	155	4.6	53.4	13

Partial Digestion: A 1.00 g pulp is digested with 2.25 ml of 9:1 HNO3:HCl for 1 hour at 95C.
The standard is LS4.
Boron: A 0.1 gram pulp is fused at 650 C in a mixture of Na2O2/Na2CO3.

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 3

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ag ppm	Al2O3 wt %	Ba ppm	Be ppm	CaO wt %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Fe2O3 wt %	Ga ppm	Gd ppm	Hf ppm
CG515/LS4/BH	0.3	17.9	2350	2.4	5.07	0.7	147	18	122	2	3.0	2.4	2.5	7.49	22	5.0	4.0
CUR05SS-03 -180UM	0.3	19.3	1080	3.7	1.43	0.3	160	10	80	12	6.7	2.7	2.5	4.24	29	9.7	2.3
CUR05SS-03 -180UM R	0.2	20.0	1110	3.7	1.44	0.5	164	11	79	11	6.9	2.7	2.6	4.38	29	10.0	2.0

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 3

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ho ppm	K2O wt %	La ppm	Li ppm	MgO wt %	MnO wt %	Mo ppm	Na2O wt %	Nb ppm	Nd ppm	Ni ppm	P2O5 wt %	Pb ppm	Pr ppm	Sc ppm	Sm ppm	Sn ppm
CG515/LS4/BH	1.3	3.14	82	30	2.84	0.078	1	3.15	7	63	20	0.671	16	18	11	9.2	4
CUR05SS-03 -180UM	1.1	3.00	85	45	3.56	0.044	1	3.01	<1	69	113	0.869	119	25	12	12.7	1
CUR05SS-03 -180UM R	1.2	3.06	87	46	3.91	0.047	1	3.14	<1	70	115	0.872	121	26	12	12.8	<1

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 3

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Sr ppm	Ta ppm	Tb ppm	Th ppm	TiO2 wt %	U, ICP ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm
CG515/LS4/BH	1180	<1	0.6	12	1.02	3	141	<1	21	2.0	83	137
CUR05SS-03 -180UM	74	<1	1.1	21	0.261	760	113	<1	23	2.3	24	104
CUR05SS-03 -180UM R	75	<1	1.1	24	0.268	760	114	<1	25	2.5	26	105

Total Digestion: A 0.125 g pulp is gently heated in a mixture of HF/HNO3/HClO4 until dry and the residue is dissolved in dilute HNO3.
The standard is CG515.

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 3

Report No: 05-801
Date: September 13, 2005

ICP6.3R Partial Digestion

Sample Number	Ag ppm	As ppm	Bi ppm	Co ppm	Cu ppm	Ge ppm	Hg ppm	Mo ppm	Ni ppm	Pb ppm	Sb ppm	Se ppm	Te ppm	U, ICP ppm	V ppm	Zn ppm	B ppm
CG515/LS4/BH	<0.1	10.7	0.6	41.5	48.5	<0.2	<0.2	13.5	52.3	25.2	0.6	0.7	0.5	34.2	98.1	208	96
CUR05SS-03 -180UM	<0.1	7.5	0.2	8.3	9.1	<0.2	<0.2	0.1	52.1	111	<0.2	<0.2	<0.2	740	13.5	20.6	27
CUR05SS-03 -180UM R	<0.1	7.2	0.2	7.9	9.0	<0.2	<0.2	0.1	53.3	116	<0.2	0.2	0.3	750	13.5	19.5	23

Partial Digestion: A 1.00 g pulp is digested with 2.25 ml of 9:1 HNO_3:HCl for 1 hour at 95C.
The standard is LS4.
Boron: A 0.1 gram pulp is fused at 650 C in a mixture of Na_2O_2/Na_2CO_3.

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 4

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ag ppm	Al2O3 wt %	Ba ppm	Be ppm	CaO wt %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Fe2O3 wt %	Ga ppm	Gd ppm	Hf ppm
CG515/LS4/BM	0.2	17.5	2220	2.1	4.85	0.5	167	18	116	3	3.4	2.7	2.9	6.98	18	6.2	4.7
CUR05R-06	0.3	30.2	2200	4.0	0.27	1.2	27	13	129	1	1.2	1.2	0.6	2.79	57	3.0	4.4
CUR05R-18	0.3	18.6	241	1.2	0.38	<0.2	71	10	92	6	4.0	3.0	1.2	1.51	11	5.1	1.6
CUR05R-18 R	0.2	18.9	247	1.3	0.40	<0.2	74	10	95	6	5.7	3.6	1.6	1.55	10	7.8	1.1

SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 4

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ho ppm	K2O wt %	La ppm	Li ppm	MgO wt %	MnO wt %	Mo ppm	Na2O wt %	Nb ppm	Nd ppm	Ni ppm	P2O5 wt %	Pb ppm	Pr ppm	Sc ppm	Sm ppm	Sn ppm
CG515/LS4/BM	1.2	3.15	95	31	2.79	0.074	1	3.24	9	62	22	0.662	19	18	11	9.3	3
CUR05R-06	<0.4	6.81	14	38	4.42	0.019	1	2.83	4	9	106	0.139	21	3	39	2.6	4
CUR05R-18	0.5	0.946	35	21	1.66	0.026	1	7.71	2	23	40	0.094	46	8	2	6.2	1
CUR05R-18 R	0.7	0.984	37	21	1.71	0.027	1	7.80	2	33	40	0.093	45	9	2	8.2	<1

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 4

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Sr ppm	Ta ppm	Tb ppm	Th ppm	TiO2 wt %	U, ICP ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm
CG515/LS4/BM	1120	<1	0.7	14	1.01	2	134	<1	21	2.2	82	145
CUR05R-06	72	<1	<0.3	32	0.341	211	233	<1	8	1.3	11	142
CUR05R-18	46	<1	1.1	59	0.183	581	27	<1	19	2.2	12	50
CUR05R-18 R	53	<1	1.0	62	0.177	588	27	<1	20	2.4	13	49

Total Digestion: A 0.125 g pulp is gently heated in a mixture of HF/HNO3/HClO4 until dry and the residue is dissolved in dilute HNO3.
The standard is CG515.

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 4

Report No: 05-801
Date: September 13, 2005

ICP6.3R Partial Digestion

Sample Number	Ag ppm	As ppm	Bi ppm	Co ppm	Cu ppm	Ge ppm	Hg ppm	Mo ppm	Ni ppm	Pb ppm	Sb ppm	Se ppm	Te ppm	U, ICP ppm	V ppm	Zn ppm	B ppm
CG515/LS4/BM	<0.1	11.1	0.2	40.2	48.4	0.3	<0.2	13.4	49.1	23.7	0.6	0.8	0.8	34.5	97.2	206	95
CUR05R-06	<0.1	4.3	<0.2	12.7	1.1	<0.2	<0.2	0.2	58.2	19.7	<0.2	<0.2	0.4	197	9.7	7.4	16
CUR05R-18	<0.1	3.7	0.4	9.9	4.1	<0.2	<0.2	0.5	24.8	45.5	0.2	<0.2	<0.2	526	4.8	8.0	20
CUR05R-18 R	<0.1	3.5	0.3	9.6	4.1	<0.2	<0.2	0.4	26.1	43.8	0.2	0.3	<0.2	504	4.7	8.4	19

Partial Digestion: A 0.5 g pulp is digested with 2.25 ml of 9:1 HNO3:HCl for 1 hour at 95 C.
The standard is LS4.
Boron: A 0.1 gram pulp is fused at 650 C in a mixture of Na2O2/Na2CO3.

SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 17

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ag ppm	Al2O3 wt %	Ba ppm	Be ppm	CaO wt %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Fe2O3 wt %	Ga ppm	Gd ppm	Hf ppm
CG515/LS4/BL	0.2	17.2	2240	2.1	4.94	1.2	165	18	116	3	3.2	2.8	2.9	7.05	19	6.2	4.6
CUR05R-01	0.2	3.14	183	0.4	0.17	0.2	36	2	173	4	1.8	1.0	0.9	1.62	5	3.3	2.4
CUR05R-02	0.2	15.2	605	2.4	0.04	<0.2	149	11	124	10	3.0	2.2	2.1	4.02	17	7.2	4.3
CUR05R-03	0.2	17.9	882	3.3	0.76	<0.2	99	18	96	2	2.5	2.4	1.5	7.40	20	5.6	2.7
CUR05R-04	0.2	21.4	1210	2.9	0.24	0.2	51	11	103	4	1.0	1.6	0.9	4.75	22	3.5	3.8
CUR05R-05	0.3	20.3	1110	2.7	0.22	<0.2	83	15	89	7	1.9	2.4	1.1	5.33	24	5.0	3.8
CUR05R-09	<0.2	3.14	15	14.0	0.28	<0.2	5	1	242	3	<0.2	0.6	0.3	5.37	1	1.0	1.1
CUR05R-19	0.3	17.7	116	1.3	4.14	<0.2	283	3	110	3170	3.9	2.6	3.3	1.10	21	9.5	2.3
CUR05R-20	<0.2	16.1	407	1.2	0.18	<0.2	97	4	107	3	0.7	1.5	1.1	3.37	11	3.8	2.1
CUR05R-21	0.2	13.2	36	0.5	2.19	<0.2	52	5	119	3	0.6	1.4	1.1	6.77	16	2.9	2.7
CUR05R-22	0.2	13.1	58	1.0	4.40	<0.2	167	2	112	2	3.0	2.5	2.3	3.34	12	7.5	2.5
CUR05R-23	0.2	16.3	53	1.4	0.47	<0.2	42	13	121	4300	1.0	1.1	0.5	1.78	23	2.2	2.9
CUR05R-24	0.3	19.6	241	1.7	0.18	<0.2	224	11	97	7	1.3	1.1	2.3	4.43	26	7.7	4.0
CUR05R-25	0.2	15.8	103	0.5	3.36	<0.2	312	6	112	3	1.8	2.4	3.2	5.45	9	9.0	2.6
CUR05R-26	<0.2	16.3	56	1.0	0.37	<0.2	182	4	98	3	1.4	1.7	2.1	5.99	14	6.7	2.8
CUR05R-27	0.5	2.15	402	0.6	25.4	0.9	23	11	11	27	<0.2	0.6	0.7	4.76	4	2.2	1.0
CUR05R-27 R	0.6	2.17	402	0.5	25.8	0.5	23	11	10	28	<0.2	0.4	0.7	4.75	3	2.4	1.1

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 17

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ho ppm	K2O wt %	La ppm	Li ppm	MgO wt %	MnO wt %	Mo ppm	Na2O wt %	Nb ppm	Nd ppm	Ni ppm	P2O5 wt %	Pb ppm	Pr ppm	Sc ppm	Sm ppm	Sn ppm
CG515/LS4/BL	1.1	3.23	93	31	2.71	0.075	1	3.28	9	65	21	0.673	19	18	11	9.2	4
CUR05R-01	0.5	1.19	15	12	0.302	0.005	<1	0.02	7	18	4	0.137	6	4	2	4.2	<1
CUR05R-02	1.0	4.12	72	33	0.826	0.016	<1	1.24	11	67	16	0.044	4	17	9	10.6	4
CUR05R-03	0.8	3.03	54	66	2.30	0.224	1	0.53	<1	42	45	0.133	9	11	12	7.2	<1
CUR05R-04	0.5	4.69	25	26	1.66	0.032	<1	1.01	5	19	26	0.145	2	5	15	3.2	2
CUR05R-05	0.6	4.24	42	29	2.17	0.034	<1	0.85	1	33	37	0.142	2	9	14	5.8	1
CUR05R-09	<0.4	0.055	3	2	0.322	0.005	<1	1.54	<1	2	9	0.175	2	<1	<1	0.9	<1
CUR05R-19	1.3	1.66	162	9	2.48	0.182	4	7.86	1	115	8	0.131	2	30	16	16.2	<1
CUR05R-20	<0.4	1.63	40	23	1.06	0.024	<1	5.57	2	37	18	0.076	2	9	7	6.7	1
CUR05R-21	0.4	0.055	30	17	1.67	0.102	1	6.72	2	20	28	0.167	3	5	6	3.5	<1
CUR05R-22	0.8	0.059	98	5	0.682	0.193	1	7.44	2	69	3	0.144	3	17	8	10.7	<1
CUR05R-23	0.4	0.612	14	19	1.84	0.036	3	8.65	<1	15	27	0.123	3	3	12	3.2	<1
CUR05R-24	0.9	2.95	127	32	4.48	0.029	1	4.31	7	89	46	0.139	3	23	11	11.7	3
CUR05R-25	1.0	0.069	184	21	3.98	0.350	<1	8.23	6	123	7	0.199	3	31	9	16.1	<1
CUR05R-26	0.7	0.138	107	15	1.36	0.085	<1	8.39	3	72	15	0.217	2	18	3	10.4	<1
CUR05R-27	<0.4	0.634	11	3	14.0	1.28	<1	0.06	3	6	1	0.072	685	2	2	<0.5	<1
CUR05R-27 R	<0.4	0.632	11	2	14.0	1.33	<1	0.06	4	6	2	0.076	685	2	2	<0.5	<1

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 17

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Sr ppm	Ta ppm	Tb ppm	Th ppm	TiO2 wt %	U, ICP ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm
CG515/LS4/BL	1110	<1	0.6	13	1.01	2	136	<1	19	2.2	83	153
CUR05R-01	11	<1	0.6	7	0.272	<2	26	<1	10	1.1	15	79
CUR05R-02	41	<1	0.6	18	0.420	<2	62	<1	21	2.1	50	126
CUR05R-03	121	<1	0.7	16	0.142	2	82	<1	21	2.2	161	52
CUR05R-04	78	<1	<0.3	21	0.306	2	86	<1	12	2.1	15	115
CUR05R-05	84	<1	0.4	19	0.171	<2	80	<1	20	2.2	14	108
CUR05R-09	9	<1	<0.3	<1	0.110	<2	95	<1	2	0.6	7	1
CUR05R-19	30	<1	1.5	16	0.220	4	60	<1	23	2.3	11	91
CUR05R-20	87	<1	0.3	9	0.180	4	45	<1	5	1.2	15	72
CUR05R-21	36	<1	0.4	41	0.274	4	96	<1	6	1.3	18	57
CUR05R-22	36	<1	0.9	13	0.165	16	40	<1	20	2.3	10	68
CUR05R-23	50	<1	0.8	12	0.207	<2	83	<1	5	1.4	17	89
CUR05R-24	18	<1	0.5	17	0.275	<2	92	<1	8	1.8	18	129
CUR05R-25	16	<1	1.1	15	0.170	<2	40	<1	18	2.1	24	61
CUR05R-26	23	<1	0.5	15	0.204	<2	63	<1	7	1.3	27	61
CUR05R-27	30	<1	0.9	3	0.009	9	4	<1	7	0.7	289	15
CUR05R-27 R	30	<1	0.7	3	0.018	9	6	<1	7	0.6	287	16

Total Digestion: A 0.125 g pulp is gently heated in a mixture of HF/HNO3/HClO4 until dry and the residue is dissolved in dilute HNO3.
The standard is CG515.

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 17

Report No: 05-801
Date: September 13, 2005

ICP6.3R Partial Digestion

Sample Number	Ag ppm	As ppm	Bi ppm	Co ppm	Cu ppm	Ge ppm	Hg ppm	Mo ppm	Ni ppm	Pb ppm	Sb ppm	Se ppm	Te ppm	U, Fl. ppm	V ppm	Zn ppm	B ppm
CG515/LS4/BL	<0.1	12.3	0.7	38.7	47.9	0.2	<0.2	13.3	47.5	24.3	0.7	0.7	0.6	31.7	101	196	17
CUR05R-01	<0.1	0.7	<0.2	1.2	2.5	<0.2	<0.2	0.7	3.5	4.21	0.6	0.2	0.4	0.89	7.9	10.9	39
CUR05R-02	<0.1	1.5	<0.2	8.1	7.1	<0.2	<0.2	0.3	12.0	2.41	1.6	<0.2	0.6	1.18	5.7	35.7	49
CUR05R-03	<0.1	0.9	0.5	15.2	0.5	<0.2	<0.2	<0.1	35.6	2.05	0.9	<0.2	1.1	2.41	14.6	128	37
CUR05R-04	<0.1	1.5	0.5	9.6	3.5	<0.2	<0.2	0.2	21.2	1.27	1.2	<0.2	1.1	1.88	8.2	12.4	30
CUR05R-05	<0.1	1.4	0.8	12.2	7.0	<0.2	<0.2	<0.1	28.9	1.41	0.7	0.3	1.2	2.08	9.4	11.2	27
CUR05R-09	<0.1	1.1	<0.2	0.6	2.3	<0.2	<0.2	0.7	7.7	1.27	<0.2	<0.2	0.3	0.66	17.9	4.5	2
CUR05R-19	0.1	0.7	17.9	1.5	3130	<0.2	<0.2	3.8	4.7	0.97	5.0	<0.2	<0.2	2.90	4.6	10.1	116
CUR05R-20	<0.1	0.5	<0.2	4.3	2.7	<0.2	<0.2	0.2	15.2	1.69	0.3	<0.2	<0.2	4.78	8.0	11.7	28
CUR05R-21	<0.1	5.5	0.3	5.7	1.5	<0.2	<0.2	0.1	22.1	1.97	1.5	<0.2	<0.2	2.18	28.9	12.8	2
CUR05R-22	<0.1	3.2	<0.2	1.6	2.0	<0.2	<0.2	0.8	2.2	2.02	6.0	<0.2	<0.2	7.01	12.0	9.2	2
CUR05R-23	0.1	1.2	21.3	12.2	4290	<0.2	<0.2	2.4	23.3	2.44	0.6	0.2	0.9	2.24	38.2	14.9	100
CUR05R-24	<0.1	2.1	0.7	8.2	6.4	<0.2	<0.2	<0.1	32.2	1.54	0.7	0.3	0.6	1.35	24.6	12.9	35
CUR05R-25	0.1	5.4	3.5	5.1	3.1	<0.2	<0.2	0.3	5.4	2.08	4.4	<0.2	0.4	2.03	15.9	18.6	2
CUR05R-26	0.1	2.1	0.8	4.1	1.7	<0.2	<0.2	0.2	11.7	1.46	<0.2	<0.2	<0.2	2.42	15.6	20.6	3
CUR05R-27	0.5	89.1	<0.2	9.1	26.7	<0.2	<0.2	<0.1	1.5	570	62.0	<0.2	<0.2	0.20	0.9	261	13
CUR05R-27 R	0.5	89.9	<0.2	9.1	27.0	<0.2	<0.2	0.2	1.5	575	64.6	<0.2	<0.2	0.20	1.0	265	13

Partial Digestion: A 1.00 g pulp is digested with 2.25 ml of 9:1 HNO3:HCl for 1 hour at 95C.
The standard is LS4.
Boron: A 0.1 gram pulp is fused at 650 C in a mixture of Na2O2/Na2CO3.

SRC Geoanalytical Laboratories

125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8

Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources

Attention:

PO #/Project:

Samples: 12

Report No: 05-801

Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ag ppm	Al2O3 wt %	Ba ppm	Be ppm	CaO wt %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Dy ppm	Er ppm	Eu ppm	Fe2O3 wt %	Ga ppm	Gd ppm	Hf ppm
CG515/LS4/BM	0.3	17.6	2200	2.1	4.88	0.6	167	18	121	3	3.3	2.6	2.9	6.99	20	6.1	4.3
CUR05R-08	0.2	28.9	1610	3.4	0.46	0.4	49	16	124	7	20.3	10.6	2.5	4.16	41	13.4	4.3
CUR05R-10	<0.2	22.2	578	1.7	2.35	<0.2	167	20	106	9	11.7	6.6	3.1	3.96	30	14.1	1.1
CUR05R-11	0.2	24.5	2210	4.3	0.20	1.5	24	7	91	<1	19.9	11.3	3.9	2.55	27	11.0	2.0
CUR05R-13	0.3	14.3	187	1.3	0.94	<0.2	42	6	147	3	41.9	20.1	6.6	5.67	<1	23.1	<0.5
CUR05R-14	<0.2	11.9	58	0.6	0.35	<0.2	52	4	186	3	11.6	5.2	2.0	1.37	4	9.7	<0.5
CUR05R-15	0.2	22.1	1830	3.5	0.18	0.7	89	7	79	1	16.0	8.7	3.2	2.21	32	11.2	2.8
CUR05R-16	0.2	4.30	212	0.6	0.15	<0.2	4	6	177	15	8.3	4.9	1.1	1.17	6	4.0	<0.5
CUR05R-12	<0.2	8.69	353	1.1	2.32	<0.2	164	3	161	13	49.6	24.9	8.5	2.29	<1	32.1	<0.5
CUR05R-17	9.2	2.42	2980	1.3	0.72	1.0	<1	11	206	103	68.0	54.6	14.8	1.18	<1	8.6	<0.5
CUR05R-07	570	2.32	15000	6.3	2.65	N/D	<1	21	98	171	407	360	101	1.38	<1	67.6	<0.5
CUR05R-07 R	570	2.33	15000	6.4	2.63	N/D	<1	22	97	172	406	351	102	1.40	<1	69.4	<0.5

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 12

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Ho ppm	K2O wt %	La ppm	Li ppm	MgO wt %	MnO wt %	Mo ppm	Na2O wt %	Nb ppm	Nd ppm	Ni ppm	P2O5 wt %	Pb ppm	Pr ppm	Sc ppm	Sm ppm	Sn ppm
CG515/LS4/BM	1.1	3.16	92	31	2.80	0.074	1	3.22	8	65	21	0.667	20	18	11	9.1	4
CUR05R-08	3.4	5.28	24	85	7.61	0.051	3	2.80	6	27	232	0.292	108	12	30	11.5	3
CUR05R-10	1.7	1.74	91	69	8.79	0.043	1	5.29	<1	73	248	1.79	35	19	8	14.5	1
CUR05R-11	2.7	5.62	16	48	4.32	0.029	<1	0.97	7	17	115	0.129	249	17	24	11.4	3
CUR05R-13	5.6	0.375	20	20	1.47	0.041	4	6.98	2	42	42	0.545	396	23	8	24.3	<1
CUR05R-14	1.6	0.203	27	10	0.708	0.017	1	6.27	<1	30	23	0.156	44	8	2	9.7	<1
CUR05R-15	2.4	5.05	50	37	3.58	0.021	<1	1.15	7	41	95	0.114	155	18	23	12.6	2
CUR05R-16	0.9	0.525	4	17	2.36	0.017	<1	0.28	<1	6	67	0.092	85	5	3	5.6	1
CUR05R-12	7.6	0.965	83	8	0.616	0.026	4	2.66	1	94	35	1.68	366	38	8	33.5	<1
CUR05R-17	<0.4	0.116	18	21	2.12	0.020	2	0.09	1	<1	53	0.447	12100	168	3	50.6	<1
CUR05R-07	<0.4	0.342	13	48	2.53	0.030	15	0.11	7	<1	131	1.52	119000	1002	13	331	1
CUR05R-07 R	<0.4	0.340	14	47	2.53	0.030	17	0.11	6	<1	130	1.52	118000	1011	13	327	2

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 12

Report No: 05-801
Date: September 13, 2005

ICP6.3 Total Digestion

Sample Number	Sr ppm	Ta ppm	Tb ppm	Th ppm	TiO2 wt %	U, ICP ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm
CG515/LS4/BM	1110	<1	0.7	14	0.975	2	132	<1	21	2.2	82	135
CUR05R-08	64	<1	2.9	68	0.508	2600	208	<1	76	8.4	27	184
CUR05R-10	46	<1	2.0	331	0.146	560	97	<1	40	3.5	25	38
CUR05R-11	68	<1	3.9	42	0.669	5410	189	<1	71	8.9	11	203
CUR05R-13	50	<1	7.1	227	0.687	6120	48	<1	115	14.2	17	78
CUR05R-14	26	<1	2.6	29	0.138	850	12	<1	31	4.0	11	32
CUR05R-15	64	<1	3.8	35	0.495	3700	168	<1	54	7.4	9	166
CUR05R-16	10	<1	1.5	14	0.171	1900	29	<1	25	3.3	13	39
CUR05R-12	34	<1	8.9	257	0.657	7040	42	<1	181	17.1	18	83
CUR05R-17	77	1	20.1	217	0.067	74000	26	<1	146	17.9	10	19
CUR05R-07	574	31	40.0	1300	0.181	463000	107	<1	689	126	25	<1
CUR05R-07 R	571	27	42.2	1320	0.176	462000	106	<1	683	131	27	<1

Total Digestion: A 0.125 g pulp is gently heated in a mixture of HF/HNO3/HClO4 until dry and the residue is dissolved in dilute HNO3.
The standard is CG515.

SRC Geoanalytical Laboratories
125 - 15 Innovation Blvd., Saskatoon, Saskatchewan, S7N 2X8
Tel: (306) 933-8118 Fax: (306) 933-5656 Email: geochem@src.sk.ca

Marksman Resources
Attention:
PO #/Project:
Samples: 12

Report No: 05-801
Date: September 13, 2005

ICP6.3R Partial Digestion

Sample Number	Ag ppm	As ppm	Bi ppm	Co ppm	Cu ppm	Ge ppm	Hg ppm	Mo ppm	Ni ppm	Pb ppm	Sb ppm	Se ppm	Te ppm	U, ICP ppm	V ppm	Zn ppm	B ppm
CG515/LS4/BM	<0.1	14.3	<0.2	40.4	49.5	<0.2	<0.2	13.1	50.5	24.5	0.6	0.7	0.7	34.5	99.2	209	89
CUR05R-08	<0.1	117	0.8	8.9	7.1	0.4	0.2	2.8	230	99.5	1.2	0.2	<0.2	1840	32.9	20.9	18
CUR05R-10	<0.1	40.7	1.1	15.4	9.6	<0.2	<0.2	1.1	155	33.7	<0.2	2.4	0.4	548	23.2	21.8	5
CUR05R-11	<0.1	21.1	<0.2	8.9	<0.1	0.9	<0.2	0.6	71.0	209	1.7	<0.2	<0.2	4640	20.4	5.6	16
CUR05R-13	<0.1	17.1	2.4	5.3	0.5	1.7	<0.2	1.4	41.0	324	1.3	1.1	<0.2	5670	13.7	11.3	10
CUR05R-14	<0.1	9.2	2.3	7.3	2.7	<0.2	<0.2	1.1	21.5	43.0	0.8	0.2	<0.2	825	4.6	8.0	8
CUR05R-15	<0.1	6.1	<0.2	6.3	<0.1	1.1	<0.2	0.4	51.3	153	1.0	0.7	<0.2	3650	17.8	5.1	3
CUR05R-16	<0.1	7.9	0.3	4.0	13.8	0.5	<0.2	0.9	41.3	82.7	0.9	<0.2	<0.2	1860	9.7	4.4	8
CUR05R-12	<0.1	24.3	4.1	5.5	9.7	2.2	0.3	2.2	33.1	302	3.7	0.5	<0.2	6150	11.9	11.3	34
CUR05R-17	1.4	72.9	24.6	6.7	92.5	2.1	0.3	2.7	52.7	11900	13.9	9.4	<0.2	71000	25.5	10.9	20
CUR05R-07	<0.1	279	202	17.6	144	2.3	0.4	12.3	105	101000	48.2	5.1	<0.2	450000	101	21.1	22
CUR05R-07 R	<0.1	276	199	17.4	142	2.4	0.6	12.0	107	105000	38.5	5.6	<0.2	460000	100	20.6	25

Partial Digestion: A 0.5 g pulp is digested with 2.25 ml of 9:1 HNO_3:HCl for 1 hour at 95C.
The standard is LS4.
Boron: A 0.1 gram pulp is fused at 650 C in a mixture of Na_2O_2/Na_2CO_3.

APPENDIX E

GRAVITY SURVEY THEORY

GRAVITY SURVEY THEORY

Gravity survey theory is well summarized in Telford *et. al.* (1990). This section describes aspects of gravity survey theory pertinent to the project described in this report.

Gravity surveys measure gravitational acceleration. The force of gravity on between two objects is:

$$F = \frac{GM_1 M_2}{r^2}$$

where **F** is the force, G is the universal gravitational constant, M_1 and M_2 are the masses of the two objects and **r** is the distance between them. When the force is normalized against a test mass, the result is the gravitational acceleration (a) due to the second mass:

$$a = \frac{F}{M_1} = \frac{GM_2}{r^2}$$

The acceleration of the test mass is then due to the distribution of the second mass. In the case of a gravity survey, the second mass is the earth and the distribution of mass therein. Explicitly:

$$a = G\int \frac{d \bullet r}{r^3} dv$$

where d is the density, **r** is the radial vector to the mass element and **a** is the acceleration. Gravitational acceleration is measured in Galileos (Gals) where 1 Gal is an acceleration of 1.0 cm/s^2. Average overall gravitational acceleration is 980 Gals and the gravitational acceleration due to targets of interest in the earth's crust are in the order of 10^{-3} (1 milliGal (mGal)) to 10^{-6} (1 microGal (mGal)). Thus a high precision gravity survey measures gravitational acceleration to approximately 1 part in 1 billion.

Gravity meter function

The Scintrex Autograv gravimeter contains a small test mass suspended by a zero-length fused quartz spring. An electrostatic system is used to maintain the test mass in a constant position where the spring response is linear. Charges are placed on a pair of plates to maintain the test mass in a constant location and the size of this charge (voltage on the plates) will vary with the gravitational force on the test mass. The voltage is converted into a measure of the gravitational acceleration by normalizing the force by the mass of the test mass.

The spring response is a function of force, temperature, air pressure, the inclination of the spring relative to the earth's gravitational field and a slow change in spring constant (instrument drift). Since the force of gravity on the test mass is the quantity to be measured, the remaining influences must be mitigated. The temperature in the spring housing is maintained at a constant value in excess of 45^0 C by a thermostatically controlled heating element. This avoids drift due to changes in temperature. The effect of air pressure is minimal provided the instrument is not operated over a wide range of elevations and changes due to weather are not significant. Instrument inclination may vary during the course of a measurement because of tripod settling. The Autograv measures the vertical component of the gravity field and as the housing moves off true vertical, the apparent gravity acting on the test mass is reduced. At angles near the vertical, this effect is small and linear, and electronic compensation using a sensitive tilt sensor is used to correct the gravity data for this effect. Instrument drift cannot be totally removed through instrument design but the Autograv eliminates much of the instrument drift by using a correction algorithm. Repeated measurements over a minimum 24 hour period are used to determine an average linear daily drift and this value is extrapolated to determine the drift at any measurement time within 90 days of the last calibration. This drift value may change over time and the remnant instrument drift is removed by a procedure discussed in a following section.

The gravitational acceleration measured by the gravimeter is not a direct measure of true local gravitational acceleration but is relative to an instrument constant and to the range of acceleration in which the measurement was taken. Gravitational acceleration measured by the gravimeter can be leveled to the Geological Survey of Canada gravity control network by the addition or subtraction of an instrument specific constant determined in the field by taking a gravity reading at a GSC control point and computing a static shift.

Factors affecting gravity readings

The gravitational acceleration at any point is a function of the earth's mass distribution relative to the gravimeter, the distribution of other extraterrestrial masses and the earth's centrifugal force. The sun and moon exert gravitational forces on the earth evident in the tides and the acceleration due to these sources must be removed to yield the gravitational acceleration due to the earth alone. The elevation of the instrument above the ground surface exerts a strong control on the gravitational acceleration. The closer the gravimeter is to masses within the earth, the greater the gravitational acceleration. If mass lies above the gravimeter, however, this will tend to reduce the gravitational acceleration by exerting an upwards force on the test mass. Both effects must be considered. Finally, the centrifugal force of the earth's rotation exerts an upwards force on the test mass in a gravimeter, thereby reducing the earth's gravitational acceleration. This effect varies with latitude and must be removed from gravitational acceleration data. A number of standard corrections are performed to eliminate external sources of acceleration, thereby producing measurements of gravitational acceleration due solely to sources within the earth's crust. The following corrections are commonly applied to the raw gravity data:

1. Drift correction

2. Latitude correction

3. Elevation correction

4. Terrain corrections

These are discussed in turn.

Drift correction

Repeated gravity readings at a single station show temporal variations caused by solar and lunar gravity (tides), spring hysteresis and atmospheric pressure. Tidal variation is in the order of 30 to 300 mGal per day, instrument drift is in the order of 20 to 200 mGal per day and pressure variations are generally negligible unless there are thunderstorms nearby. In addition to these variations, gravimeters occasionally suffer *tares* or large shifts in base level due to mechanical shock.

To remove the effect of these temporal variations on the final gravity data, the operator establishes one or more gravity base stations and assigns fixed values of the raw gravity to these stations. Prior to, after, and if possible, at several times during each survey day, the operator will reoccupy a gravity base station and take several readings. The difference between the check-in readings and the fixed value (datum) is the instrument drift at the check-in time; this is subtracted from the raw gravity to correct for instrument drift. If tidal corrections are performed with appropriate formulas described below and if there are no tares, the remnant instrument drift is linear and of small amplitude. Consequently, the amount of drift at any station can be calculated by linearly interpolating the drift between bracketing base station measurements using the measurement times of the bracketing base station readings and the measurement time at the field station. A minimum of three base station measurements are required during a long survey day but a gravity base station reading before and after the field readings will suffice on a short day. Large changes in drift indicate that a tares has occurred and the stations between the check-in measurements bracketing the tares must be re-surveyed.

The Autograv calculates tidal drift by applying Longman's (1959) formula taking the gravity station latitude and the reading time as inputs. Because the tidal effects are uniform over large areas at any given time, the Autograv uses a single average latitude value in this calculation. During the same correction, instrument drift is also removed by applying a linear drift correction using constants determined through a cycling experiment described later in this report. Despite this latter correction, there is a small amount of remnant linear instrument drift which must be removed by linear interpolation of drift measured at the gravity base stations during the survey day.

Latitude correction

Variation in gravitational acceleration due to latitude arises from flattening of the geoid (ie. an increase in distance from the centre of the earth moving towards the equator) and from the effect of centrifugal force when approaching the equator. Both tend to reduce the gravitational acceleration when moving from the poles to the equator. The latitude effect in mGal per km is given by:

$$\Delta G_{Lat} = 0.813 \sin 2\theta - 1.78x10^{-3} \sin 4\theta$$

Latitude effect varies with north-south distance and is greatest at mid-latitudes and least at both the poles and the equator. On small grids, latitude variations are removed by calculating the latitude effect at the centre of the grid and correcting the gravity readings by a variable amount based on their north-south distance from the central station.

Elevation correction

Three elevation corrections are required. The Free Air effect compensates for the decrease in gravitational attraction resulting from an increase in elevation or, equivalently, an increase in distance from the centre of the earth. Gravity data are normally reduced to an elevation datum below that of the survey. In this case, the Free Air corrected gravity (DG_{FA}) is given by:

$$\Delta G_{FA} = 0.3086 * z$$

where z is the elevation of the gravity station above the survey datum. The Bouguer slab correction is next applied to compensate for the upward correction of the material above the gravity survey elevation datum. Were the gravity readings taken on this datum, the material above it would attract the test mass and reduce the measured gravity. The correction is applied by calculating the gravitational effect of an infinite horizontal slab with a thickness equal to the elevation of the gravity station above the datum. Explicitly, this correction (DG_B) is:

$$\Delta G_B = -0.0419 \rho z$$

where r is the Bouguer density and z is the station elevation. The average crustal density of 2.67 g/cm^3 is normally used in the Bouguer corrected. Finally, an additional correction is necessary to account for the finite nature of the crustal slab used in the Bouguer correction. Obviously a correction based on an infinite horizontal slab is valid only for small elevations above the survey datum and in cases where there is a large variation in topography, the Bouguer correction must itself be corrected for the effect of a finite, curved slab. This correction, the Bullard B correction, is well described by Whitman (1991) and LaFehr(1991b). It is applied to correct the gradient in the Bouguer gravity for the effect of the earth's curvature. The method is applied by using look up tables and applying Bullard-B corrections appropriate to the elevation of the gravity station above mean sea level (LaFehr 1991b). The combined Free Air, Bouguer and Bullard B corrections are combined in a single elevation correction during data processing. Figure GR-1 illustrates the effect of these corrections.

Some controversy exists concerning the selection of Bouguer density values for the elevation corrections. It has been common practice to adjust the density value away from the average crustal density value in order to minimize effects apparently caused by topography. If an incorrect density were used, the gravity profiles should either follow topography (in the case where the density is too low) or show a negative correlation with topography where the density selected were too high. LaFehr (1991a) recommends the use of the average crustal density (2.67 g/cm^3) in all reductions and the examination of the gravity data to determine the significance of anomalies which are associated with topographic anomalies. This procedure has been followed in performing the elevation corrections described in this report.

Terrain corrections

Terrain corrections are applied to correct the Bouguer gravity for the upwards gravitational attraction of masses above the station elevation and for the reduction in gravitational acceleration due to an absence of mass in a depression or valley extending below the station elevation. Both of these corrections reduce the elevation corrected gravity. Consequently, terrain corrections are always positive and are added to the gravity data. Terrain corrections are often applied using different algorithms in several zones surrounding the gravity station. The most accurate terrain measurements and algorithms are commonly used for the topography close to the station (near station terrain correction - NSTC) and both the density of data and the accuracy of the approximation algorithms can be decreased at greater distances from the gravity station. Far station terrain corrections are usually applied with digital terrain models (DTMs). A fine DTM and more accurate algorithm is used to calculate terrain effect to within a few kilometres of the gravity station and a coarser DTM and less accurate gravitational approximation algorithm is used at greater distances. LaFehr (1990) recommends terrain corrections be taken to a distance of 160 km surrounding a gravity station and this practice is often used for regional surveys with sparsely spaced stations.

Near station terrain corrections are commonly applied with the sector equation or Kane's Method. This method is based on calculating the gravitational effect of a mass which can be approximated using the equation for the gravitational attraction of a right cylinder. The method is applied using differences in terrain elevation measured in several zones defined by radial distances. Aurora commonly employs standard zones of 2-20 m, 20-50 m and 50-200 m. Each zone is further subdivided into 6 - 60^0 sectors. The gravitational acceleration caused by the excess or deficit mass can be calculated by considering the effect of a pie shaped slice of topography defined by inner and outer radii (**r_i** and **r_o**) and the angle subtended by the slice **q**. If **r** is the density, the gravitational effect of that slice **g** $_i$ is given by:

$$g_i = \gamma\rho\theta\left\{(r_o - r_i) + \left(\Delta z^2 + r_i^2\right)^{0.5} - \left(\Delta z^2 + r_o^2\right)^{0.5}\right\}$$

where **g** is the universal gravitational constant and **Dz** is the difference in elevation between that of the sector and that of the station. The terrain effect is the sum of individual terrain corrections in each sector and zone. The NSTC is performed with elevation difference measurements taken by the operator in the field with a clinometer or laser range finder. Visibility limits near station terrain corrections to a distance of about 200 m surrounding the station.

At greater distances, the terrain correction is generally made with DTMs. These consist of an array of nodes to which elevations in metres above mean sea level are assigned. The vast majority of DTM's employ a rectangular distribution of nodes although it is also possible to construct DTM's with triangular node distributions. In general the nodes are uniformly distributed so that each node is square and each node can be considered as an upright prism with a height above mean sea level.

The terrain correction at a gravity station is performed by determining the elevation difference between the top of each node and the gravity station, and then calculating the gravitational effect of the node element. In this calculation, the height of the node element is the difference in elevation between the gravity station and the node top. It is immaterial whether the top of the node is above or below the gravity station as the correction is always positive.

The gravitational effect of the right prism centred at each node can be calculated using a variety of different methods, each of which incorporates some limiting assumptions. The geometry of these methods is sketched in Figure GR-2. Methods commonly applied in order of increasing accuracy include the line mass, Kane's Method, the flat topped right prism approximation (Nagy's Method) and the inclined top right prism method.

At great distances from a station, the dimensions of a node are negligible in comparison to the distance between the node centre and the gravity station. Under these conditions, the gravitational effect of the node-prism can be approximated by a line of mass at a distance r, with cross sectional area s, density r and height h as:

$$\Delta g = G\rho s\left(\frac{1}{r} - \frac{1}{\sqrt{r^2 + h^2}}\right)$$

A better approximation is to consider each node as a small sector defined by distances to the near and far sides (r_i and r_o), by an elevation difference Dz, and by the angle which the node subtends at the distance r from the station to the centre of the node (angle q). With these inputs, the sector equation can be used to calculate the gravitational effect of the node prism (Kane's Method).

A further improvement is to consider the node as a flat-topped rectangular prism at a distance r and at relative coordinates (x,y,z). The coordinates of the prism corner furthest from the gravity station are (x_2, y_2, z_1) and the coordinates of the prism corner nearest the gravity station are (x_1, y_1, z_2). The gravitational attraction of the prism is then:

$$\Delta g = G\rho \left\| x \ln(y + r) + y \ln(x + r) - z \arcsin\left(\frac{z^2 + y^2 + yr)}{(y + r)(y^2 + z^2)^{1/2}}\right) \Big|_{z_1}^{z_2} \Big|_{y_1}^{y_2} \Big|_{x_1}^{x_2} \right.$$

This relation (Nagy's Method) is used to perform the terrain correction with flat topped prisms. This provides the most accurate, readily calculable approximation to the terrain correction for a topography approximated with a digital terrain model.

One slight approximation remains in the terrain effect calculation. Nagy's Method assumes that the prism has a flat top whereas a more accurate approximation to the true topography would be to construct prisms with inclined tops whose slopes (angle and direction) are determined by the relative elevations of surrounding nodes. This method is numerically challenging and prone to instability; consequently it has not be implemented in the available software.

Upon completion of the terrain corrections, the resulting corrected gravity data is is commonly referred to as the Bouguer Anomaly.

Bouguer adjustment

The raw gravity readings are made relative to an internal instrument range. The values are correct *relative* to each other across a grid but the absolute values must be levelled to the National Gravity Network. This is performed by re-occupying a government (GSC) gravity station, taking a measurement and then computing a correction factor required to level the survey data to the national network. The field data are then leveled to the national datum by the addition or subtraction of the constant. Care must be taken to apply only those corrections used on the government data to the raw survey data before computing the shift constant. In many cases, GSC data has not been corrected for terrain effect.

Residual anomaly

The Bouguer anomaly data contains features caused by density variations at various depths. The gravity anomaly caused by a source at an economic depth has a relatively high spatial frequency anomaly since it arises from a shallow source. The Bouguer anomaly from a larger crustal feature at depth will produce a higher amplitude and lower spatial frequency anomaly. It is common practice to estimate a "regional" Bouguer anomaly due to large scale features not of economic interest and to remove the regional from the Bouguer data, leaving the residual Bouguer anomaly. If properly performed, the residual Bouguer anomaly would be that portion of the gravity field due solely to shallow sources of economic interest.

There are several approaches used in calculating the regional Bouguer anomaly. A simple method is to apply a spatial low-cut filter to the data, removing long wavelength features in the process. In small surveys, regional gradients are sometimes visually estimated and removed from profile data. A third approach is based on the expected signal to noise ratio of the survey. The gravitational effect of the sought-after target can be calculated using modeling software. Given the range of observed drifts, the apparent error in elevations and other sources of error, it is also possible to determine an expected overall accuracy of the gravity survey readings. The gravitational response of the target can then be upward continued until the detectible response falls below the apparent noise level. In other words, the target could not be detected from noise at this height. The gravity data, upward continued to this elevation, can be taken as an estimate of the regional field. The upward continued data is then subtracted from the Bouguer anomaly and the residual data is then largely free from the effect of large, deep sources.

APPENDIX F

INVERSION THEORY

Forward modelling

For a series of observations **d** = (d_1, d_2, d_3,... d_i)^T, and a model with M cells each with a density **r** = (r_1, r_2, r_3,... r_i)^T, the value of the gravity at a given station can be written as the sum of the contributions from the various elements:

$$d_i = \sum_{j=1}^{M} \rho_j G_{ij}$$

where G_{ij} describes the gravitational effect of a prismatic element j to the observation at point i. The gravitational effect of a rectangular prism element is calculated using Nagy's (1966) method. Consider a flat-topped rectangular prism at a distance r and at relative coordinates (x,y,z). The coordinates of the prism corner furthest from the gravity station are (x_2, y_2, z_1) and the coordinates of the prism corner nearest the gravity station are (x_1, y_1, z_2). The gravitational attraction of the prism is then:

$$\Delta g = G\rho \left\| x \ln(y + r) + y \ln(x + r) - z \arcsin\left(\frac{z^2 + y^2 + yr)}{(y + r)(y^2 + z^2)^{1/2}}\right) \Big|_{z_1}^{z_2} \Big|_{y_1}^{y_2} \Big|_{x_1}^{x_2} \right.$$

The matrix **G** is the sensitivity matrix describing the geometric portion of the gravity contribution of each mesh cell to each of the observation points. In vector notation, a set of observations (d) can be forward modeled by the following relation:

$$d = \mathbf{G}\rho$$

The Grav3D subprogram GZFOR3D generates the sensitivity matrix which in turn can be used to rapidly forward model the gravitational response for a given density model defined by the vector r.

Inversion methodology

The inversion problem can be framed as follows: For a given set of observations, find a model which:

1. Replicates the observed data within the bounds of measurement error.

2. Differs as little as possible from a reference model incorporating whatever is known about the local geology and is smooth in three dimensions.

To achieve this end, a model objective function is defined which incorporates these conditions. Grav3D incorporates an objective function defined as follows:

$$\phi_m = \alpha_s \int_V w_s w^2(z)(\rho - \rho_o)dv + \alpha_x \int_V w_x \left(\frac{\partial w(z)(\rho - \rho_o)}{\partial x}\right)^2 dv +$$
$$\alpha_y \int_V w_y \left(\frac{\partial w(z)(\rho - \rho_o)}{\partial y}\right)^2 dv + \alpha_z \int_V w_z \left(\frac{\partial w(z)(\rho - \rho_o)}{\partial z}\right)^2 dv$$

where w_x, w_y, w_s, and w_z are spatially dependent weighting functions and a_x, a_y, a_z, and a_s are coefficients affecting the relative importance of the three different components fo the objective function. The reference model is r_0 and the closeness of the reference model to the final model is controlled by w_s. The weighting functions w_x, w_y, and w_z can be used to constrain the final solution to one which is more intense or attenuated in one or another dimension. Finally, w(z) is a depth weighing function which is used to counteract the natural insensitivity of the kernel function G with depth. Unchecked, any solution would show most of its variability near surface regardless of the other weighting functions. To overcome this, w(z) is defined in the form:

$$w(z) = (z + z_0)^{-\frac{\beta}{2}}$$

where b and z_0 are defined to ensure that the model generates features at depth. The model objective function in an optimum solution will stabilize around some constant value, indicating convergence. This value will not (and should not) be close to zero unless by coincidence the modeller were to specify a reference model which is almost an exact fit to the data.

Having defined a measure of model acceptability, it is necessary to define a measure of misfit which naturally must be minimized in an acceptable solution. The model norm is calculated as follows:

$$\phi_d = \left\| W_d (d - d^{obs}) \right\|^2$$

where d is the value at a station predicted by the model, and W_d is a diagonal matrix whose elements are the inverse of the standard deviation in the given reading d^{obs}. The inverse problems can then be restated as follows:

1. Minimize f_m and

2. Minimize f_d to a level determined by the error in the data.

The threshold for f_d in perfectly weighted data would be the number of readings in the data set (N). Since this value may be too tight for noisy data, a chi-factor is defined which is normally 1.0 but can be increased to set the threshold high enough to allow convergence to a minimum value of f_d.

Depth weighting

Because there is no unique solution to a gravity problem and because the gravitational effect of mass at depth falls off with the square of the distance, inversion models in an unconstrained algorithm consist of small and flat source masses near the surface. It has been found through experimentation that the decay of the gravitational contribution of elements at depth follows a function in the form $(z+z_0)^2$. To remove the effect of depth weighting, we define the w(z) as shown in the previous section. Since w(z) is squared in each term for f_m, it can be expected that for b=2, the effect of depth decay would be compensated completely. In practice however, the inversion produces reasonable models for b $\leq$ 2.0 and at b $\geq$ 2.0 the algorithm has been noted to deteriorate in some examples. As a result, the default value of b=1.9 is used in most inversions. The value of z_0 can be determined by matching the function with the field produced by a column of cells directly beneath the observation point. This is the procedure followed automatically in Grav3D.

Effect of the regional anomaly

Bouguer Anomaly data can be both positive and negative, depending upon the datum selected. It is important to remove the regional field before beginning the inversion in order to isolate the response due solely to the anomalous mass. A data set which exclusively portrays the response of local anomalous masses will invert to yield a model which is most sensitive to the geometry and density of the local anomalous masses. In particular, the sign of the data can matter. Best results with Grav3D generally occur when the polarity of the density is constrained to either entirely negative or positive density values. In order to due this, care must be taken when defining and removing the regional field to ensure that this datum shift does not unintentionally bias the data. Two general procedures are employed. First, the long wavelength regional field should be remove through prediction and subtraction, low cut spatial filtering or upward continuation and subtraction. Secondly, it is worthwhile to boost all anomalous observed gravity values above zero for a positive gravity anomaly and to depress them below zero for a negative gravity anomaly before inverting the data. This will generate a minimum of large scale deep features created to replicate a residual regional field. For a positive gravity anomaly, positivity may be invoked, restricting the modelling to generating only densities above zero. Similarly, negativity may be invoked in the case of inverting negative gravity anomalies.

APPENDIX G

GRAVITY MEASUREMENTS & REDUCTIONS

CURIE PROPERTY
GRAVITY MEASUREMENTS AND REDUCTIONS

Station	UTME_NAD83	UTMN_NAD83	Z	Grav	SD	Time	Latitude	FreeAir	Bouguer	Bull-B	NearStn	DTM1-Inner	Final
1	510462.4	7229970.2	1055.374	5183.459	0.424	124153	0.300	325.688	-118.124	1.151	0.102	2.760	5395.337
2	510741.8	7229879.4	1010.887	5192.919	0.071	131344	0.357	311.960	-113.145	1.119	0.087	1.978	5395.276
3	510945.5	7229855.4	963.698	5201.634	0.033	132400	0.373	297.397	-107.863	1.082	0.222	2.530	5395.375
4	511188.2	7229822.8	878.130	5216.812	0.008	140800	0.394	270.991	-98.286	1.013	0.076	3.749	5394.749
5	511448.7	7229676.6	925.207	5206.974	0.005	144200	0.485	285.519	-103.555	1.052	0.234	3.748	5394.457
6	511732.6	7229451.8	974.484	5195.175	0.016	151500	0.625	300.726	-109.070	1.091	0.239	5.578	5394.363
7	511529.1	7229197.4	1149.783	5159.472	0.068	164303	0.781	354.823	-128.691	1.215	0.285	6.582	5394.468
8	511380.5	7229368.4	1073.007	5176.243	0.080	171335	0.675	331.130	-120.098	1.164	0.263	5.287	5394.664
9	510916.7	7229381.0	851.484	5219.345	0.028	180009	0.666	262.768	-95.304	0.990	0.069	5.382	5393.916
10	510622.0	7229695.0	1005.717	5193.064	0.026	192600	0.471	310.364	-112.566	1.115	0.150	2.308	5394.906
11	510206.2	7229658.5	1028.175	5187.837	0.123	193627	0.492	317.295	-115.080	1.131	0.122	2.617	5394.415
12	509874.0	7230217.5	984.267	5196.545	0.018	112400	0.146	303.745	-110.165	1.099	0.191	3.508	5395.068
13	509621.4	7230334.5	899.857	5212.843	0.024	114400	0.073	277.696	-100.718	1.032	0.280	2.971	5394.177
14	509389.0	7230512.9	817.029	5229.032	0.020	120300	-0.038	252.135	-91.447	0.960	0.087	2.431	5393.159
15	509238.6	7230857.2	832.639	5226.561	0.011	131000	-0.251	256.952	-93.194	0.973	0.082	2.236	5393.359
16	509337.2	7231144.0	870.145	5219.271	0.029	133200	-0.428	268.527	-97.392	1.006	0.125	2.754	5393.862
17	509441.8	7231411.1	938.278	5205.940	0.010	135700	-0.593	289.553	-105.018	1.062	0.117	3.435	5394.496
18	509547.2	7231698.1	1061.717	5180.525	0.023	145100	-0.770	327.646	-118.834	1.155	0.249	5.125	5395.097
19	509584.1	7232006.6	1219.921	5146.041	0.011	160200	-0.960	376.468	-136.541	1.260	0.248	8.619	5395.134
20	509688.0	7232004.8	1241.271	5141.169	0.026	162900	-0.959	383.056	-138.931	1.272	0.284	8.783	5394.675
22	509486.9	7232566.5	1187.145	5154.051	0.018	171700	-1.306	366.353	-132.873	1.240	0.319	6.367	5394.151
23	509249.8	7232673.1	1179.540	5154.228	0.016	174400	-1.373	364.006	-132.022	1.235	0.204	6.832	5393.111
24	508703.8	7232693.0	1050.618	5181.553	0.014	180900	-1.387	324.221	-117.592	1.147	0.182	4.351	5392.476
25	508461.3	7232505.2	975.866	5198.058	0.015	183000	-1.272	301.152	-109.225	1.092	0.160	3.592	5393.557
26	508488.2	7232215.5	878.520	5217.360	0.010	185300	-1.093	271.111	-98.330	1.013	0.131	3.391	5393.583
27	508505.3	7231980.2	817.775	5229.051	0.015	191400	-0.947	252.365	-91.531	0.960	0.066	3.759	5393.724
28	508657.3	7231719.4	856.540	5222.403	0.016	193100	-0.786	264.328	-95.869	0.994	0.113	2.937	5394.120
29	508918.7	7231540.3	904.049	5213.269	0.008	194800	-0.674	278.990	-101.187	1.035	0.143	2.900	5394.476
30	510433.6	7230261.9	1097.499	5173.232	0.044	135216	0.120	338.688	-122.839	1.181	0.069	5.129	5395.581
31	510527.0	7230613.3	1054.647	5183.376	0.009	141300	-0.097	325.464	-118.043	1.150	0.057	3.546	5395.454
32	510546.5	7230971.2	1065.228	5180.311	0.022	143500	-0.318	328.729	-119.227	1.158	0.193	4.168	5395.015
33	510784.7	7230976.4	1027.770	5189.946	0.020	150200	-0.320	317.170	-115.035	1.131	0.135	2.076	5395.103
34	510802.3	7231274.5	1089.278	5177.630	0.011	152600	-0.504	336.151	-121.919	1.175	0.138	3.126	5395.798
35	510442.8	7231288.7	1049.953	5185.007	0.006	155300	-0.514	324.015	-117.517	1.147	0.148	3.175	5395.461
36	510198.0	7231163.7	983.640	5197.530	0.037	161200	-0.438	303.551	-110.095	1.098	0.117	2.831	5394.594
37	509959.2	7231041.5	928.399	5208.345	0.007	163100	-0.363	286.504	-103.912	1.054	0.222	2.541	5394.391
38	509721.0	7230932.0	893.632	5215.039	0.029	165200	-0.296	275.775	-100.021	1.026	0.152	2.330	5394.006

CURIE PROPERTY
GRAVITY MEASUREMENTS AND REDUCTIONS

Station	UTME_NAD83	UTMN_NAD83	Z	Grav	SD	Time	Latitude	FreeAir	Bouguer	Bull-B	NearStn	DTM1-Inner	Final
39	509478.6	7230800.2	856.179	5222.233	0.017	171200	-0.215	264.217	-95.829	0.994	0.112	2.205	5393.715
40	509209.1	7230663.1	814.959	5229.743	0.005	172900	-0.132	251.496	-91.215	0.958	0.073	2.163	5393.086
41	509093.2	7230908.6	816.987	5229.277	0.088	152257	-0.284	252.122	-91.442	0.960	0.080	2.434	5393.147
42	508996.7	7231237.6	899.231	5213.251	0.014	155400	-0.487	277.503	-100.648	1.031	0.093	2.220	5392.963
43	508686.0	7232221.6	864.309	5220.797	0.015	164700	-1.096	266.726	-96.739	1.001	0.182	4.445	5395.315
44	509033.4	7232325.5	922.205	5207.134	0.105	173009	-1.159	284.592	-103.219	1.050	0.327	5.739	5394.464
45	508951.3	7230878.8	812.924	5230.045	0.063	104005	-0.266	250.868	-90.988	0.956	0.073	2.310	5393.000
46	508809.3	7231196.8	882.297	5216.822	0.018	111000	-0.463	272.277	-98.752	1.017	0.060	2.110	5393.070
47	508647.4	7231412.0	837.859	5224.896	0.010	113000	-0.596	258.563	-93.779	0.978	0.093	2.324	5392.480
48	508477.7	7231622.7	814.498	5228.876	0.013	114800	-0.727	251.354	-91.164	0.958	0.060	2.543	5391.900
49	508254.5	7231878.7	802.235	5233.708	0.027	120700	-0.885	247.570	-89.791	0.947	0.095	2.774	5394.417
50	508060.8	7232114.3	858.698	5222.262	0.011	123100	-1.032	264.994	-96.111	0.996	0.085	2.629	5393.824
51	507938.3	7232373.2	945.110	5204.976	0.010	130100	-1.192	291.661	-105.783	1.068	0.086	3.070	5393.886
52	507693.0	7232270.3	940.260	5205.342	0.040	135813	-1.129	290.164	-105.240	1.064	0.327	3.105	5393.633
53	507439.9	7232096.5	944.249	5204.203	0.006	141700	-1.023	291.395	-105.686	1.067	0.272	2.968	5393.196
54	507183.8	7232059.1	912.378	5210.287	0.008	144100	-1.000	281.560	-102.119	1.042	0.097	1.896	5391.762
55	506998.7	7231904.0	938.125	5205.228	0.027	145900	-0.905	289.505	-105.001	1.062	0.163	2.173	5392.226
56	506839.0	7231663.7	851.702	5220.288	0.017	152200	-0.757	262.835	-95.328	0.990	0.098	3.528	5391.654
57	506732.6	7231406.9	761.559	5236.439	0.014	154400	-0.599	235.017	-85.239	0.909	0.142	3.964	5390.634
59	507230.5	7231085.9	714.952	5245.656	0.009	164500	-0.399	220.634	-80.022	0.866	0.116	3.681	5390.533
60	507710.4	7231043.1	749.654	5240.512	0.010	173600	-0.371	231.343	-83.906	0.898	0.077	2.424	5390.977
61	507958.3	7230941.0	752.297	5240.686	0.021	180100	-0.307	232.159	-84.202	0.901	0.050	1.822	5391.108
62	508237.8	7230897.2	796.927	5232.949	0.007	182800	-0.279	245.932	-89.197	0.942	0.095	1.750	5392.192
63	508494.5	7230825.1	807.456	5231.859	0.060	185047	-0.234	249.181	-90.376	0.951	0.063	1.941	5393.385
64	508849.0	7230735.0	786.717	5234.720	0.080	191814	-0.177	242.781	-88.054	0.933	0.042	2.181	5392.425
65	508817.5	7230534.7	776.381	5236.815	0.040	101700	-0.054	239.591	-86.898	0.923	0.122	2.113	5392.614
66	508510.9	7230537.6	757.429	5240.610	0.012	103400	-0.056	233.743	-84.776	0.905	0.094	1.827	5392.347
67	508549.3	7230236.7	742.290	5243.170	0.055	110845	0.130	229.071	-83.082	0.891	0.074	1.974	5392.228
68	508699.1	7230050.8	747.036	5241.498	0.034	113100	0.245	230.535	-83.613	0.896	0.084	2.162	5391.807
69	508890.9	7229791.8	759.454	5237.621	0.025	120200	0.405	234.368	-85.003	0.907	0.092	2.191	5390.581
70	509142.8	7229570.3	798.808	5231.697	0.008	122500	0.543	246.512	-89.408	0.944	0.057	2.128	5392.474
71	509370.8	7229435.9	859.629	5220.951	0.093	124801	0.627	265.282	-96.215	0.997	0.079	2.485	5394.204
72	509655.3	7229268.6	920.802	5208.179	0.008	131600	0.731	284.159	-103.062	1.048	0.102	2.562	5393.719
73	509967.3	7229272.1	967.867	5199.423	0.045	134800	0.730	298.684	-108.330	1.086	0.159	2.667	5394.418
74	509913.3	7229525.4	995.621	5193.951	0.017	141100	0.573	307.249	-111.436	1.108	0.190	2.799	5394.433
75	509686.2	7229820.5	976.251	5197.682	0.024	143300	0.390	301.271	-109.268	1.092	0.133	3.030	5394.331
76	509426.9	7229996.7	937.088	5205.381	0.085	150444	0.281	289.185	-104.885	1.061	0.088	3.007	5394.118

CURIE PROPERTY
GRAVITY MEASUREMENTS AND REDUCTIONS

Station	UTME_NAD83	UTMN_NAD83	Z	Grav	SD	Time	Latitude	FreeAir	Bouguer	Bull-B	NearStn	DTM1-Inner	Final
77	509207.7	7230194.7	889.382	5215.251	0.013	152700	0.158	274.463	-99.545	1.023	0.036	2.430	5393.815
78	509560.4	7231038.4	887.925	5215.860	0.019	170300	-0.362	274.014	-99.382	1.021	0.071	2.500	5393.722
79	509758.1	7231318.3	951.548	5203.309	0.007	173100	-0.535	293.648	-106.503	1.073	0.176	3.077	5394.245
80	509904.6	7231595.8	1035.936	5187.116	0.029	180300	-0.705	319.690	-115.949	1.137	0.465	4.127	5395.881
81	511127.7	7231163.9	1050.014	5185.114	0.025	105300	-0.435	324.034	-117.524	1.147	0.216	2.765	5395.318
82	511154.6	7230838.4	974.215	5200.485	0.021	112900	-0.234	300.643	-109.040	1.091	0.084	2.259	5395.287
83	511050.8	7230557.7	941.604	5207.217	0.009	115000	-0.061	290.579	-105.390	1.065	0.076	1.990	5395.475
84	510814.4	7230382.4	987.527	5198.992	0.033	121300	0.047	304.751	-110.530	1.101	0.071	1.937	5396.369
85	511210.4	7230313.8	916.181	5211.603	0.033	123600	0.091	282.733	-102.545	1.045	0.088	2.304	5395.319
86	511342.1	7230044.9	895.414	5214.530	0.008	130000	0.257	276.325	-100.220	1.028	0.107	3.207	5395.233
87	511025.9	7229569.1	868.692	5217.465	0.008	134700	0.550	268.078	-97.230	1.005	0.107	4.747	5394.722
88	510647.7	7229236.0	837.421	5221.958	0.007	141600	0.754	258.428	-93.730	0.978	0.114	5.057	5393.560
89	510392.1	7229015.8	817.528	5225.521	0.018	143500	0.890	252.289	-91.503	0.960	0.062	5.035	5393.253
90	510137.5	7228856.8	803.156	5228.625	0.012	145800	0.987	247.854	-89.894	0.948	0.102	4.516	5393.137
122	509476.1	7232790.0	1305.180	5121.980	0.023	131019	-1.444	402.779	-146.084	1.310	0.012	13.872	5392.423
123	509494.0	7233237.2	1160.830	5158.234	0.027	133853	-1.721	358.232	-129.928	1.223	0.016	7.976	5394.033
124	508851.9	7232924.0	1167.370	5156.915	0.062	135228	-1.529	360.250	-130.660	1.227	0.030	5.970	5392.203
125	508259.1	7233103.5	1187.250	5150.343	0.087	140216	-1.642	366.385	-132.885	1.240	0.126	7.747	5391.314
126	507523.7	7232476.0	1064.550	5176.918	0.080	141317	-1.257	328.520	-119.151	1.157	0.035	5.107	5391.330
127	507066.5	7233339.5	965.270	5198.179	0.031	142202	-1.792	297.882	-108.039	1.084	0.010	3.353	5390.678
128	506664.8	7232900.8	810.550	5229.957	0.025	143229	-1.522	250.136	-90.722	0.954	0.033	1.882	5390.718
129	506499.5	7232029.5	1069.040	5170.469	0.016	144305	-0.984	329.906	-119.654	1.161	0.072	8.153	5389.122
100	506441.2	7231066.7	704.460	5247.696	0.034	145509	-0.390	217.396	-78.848	0.856	0.009	1.985	5388.704
101	507270.6	7230350.4	720.660	5244.927	0.015	150923	0.055	222.396	-80.661	0.871	0.036	1.215	5388.840
102	508172.6	7229985.2	731.570	5243.926	0.022	152800	0.284	225.763	-81.882	0.881	0.023	1.335	5390.330
103	508329.8	7228984.7	751.880	5239.746	0.047	163146	0.902	232.030	-84.155	0.900	0.036	1.235	5390.694
104	511421.6	7228570.9	1238.870	5139.540	0.023	115259	1.168	382.315	-138.662	1.271	0.013	8.470	5394.115
105	512550.4	7229243.2	1389.930	5102.305	0.022	120410	0.756	428.932	-155.570	1.353	0.178	13.982	5391.936
106	512127.5	7229611.3	1220.610	5144.510	0.018	121507	0.527	376.680	-136.618	1.260	0.192	7.528	5394.079
107	510561.5	7229203.7	833.790	5222.515	0.044	122610	0.774	257.308	-93.323	0.974	0.155	5.157	5393.560
108	510986.8	7229499.2	861.120	5217.913	0.020	124002	0.593	265.742	-96.382	0.998	0.126	5.246	5394.235
109	512114.8	7230426.6	931.610	5206.813	0.057	125341	0.024	287.495	-104.272	1.057	0.028	3.403	5394.548
110	511797.6	7230557.8	1070.930	5179.937	0.021	130448	-0.058	330.489	-119.865	1.162	0.023	3.626	5395.314
111	511804.0	7231121.0	980.870	5199.091	0.015	131708	-0.406	302.696	-109.785	1.096	0.035	2.426	5395.153
112	512542.1	7231422.7	1241.320	5142.917	0.020	141711	-0.590	383.071	-138.936	1.272	0.069	5.075	5392.878
113	512743.2	7232533.2	1499.770	5081.172	0.064	142849	-1.275	462.829	-167.864	1.402	0.198	12.721	5389.183
114	512009.4	7233369.9	1111.860	5175.149	0.041	144031	-1.794	343.120	-124.446	1.191	0.019	2.466	5395.703

CURIE PROPERTY
GRAVITY MEASUREMENTS AND REDUCTIONS

Station	UTME_NAD83	UTMN_NAD83	Z	Grav	SD	Time	Latitude	FreeAir	Bouguer	Bull-B	NearStn	DTM1-Inner	Final
115	511637.2	7232391.0	1304.650	5128.573	0.018	145049	-1.191	402.615	-146.025	1.309	0.122	8.722	5394.125
116	511108.0	7231765.3	1272.040	5137.047	0.011	150052	-0.806	392.552	-142.375	1.291	0.035	6.339	5394.083
117	510794.5	7232016.5	1443.090	5089.170	0.020	151214	-0.962	445.338	-161.520	1.377	0.197	18.655	5392.254
118	511189.9	7232841.0	989.030	5196.391	0.059	152546	-1.470	305.215	-110.699	1.102	0.137	4.767	5395.443
119	510316.8	7233240.4	892.690	5216.019	0.038	154034	-1.720	275.484	-99.916	1.026	0.106	4.109	5395.108
120	510249.1	7232567.8	1160.840	5161.568	0.028	160553	-1.305	358.235	-129.929	1.223	0.230	6.485	5396.507
121	509765.4	7232061.2	1268.540	5134.036	0.041	161849	-0.993	391.471	-141.983	1.288	0.107	10.163	5394.089
44	509032.3	7232324.4	923.670	5207.119	0.085	164515	-1.158	285.045	-103.383	1.051	0.188	5.591	5394.451
78	509559.2	7231038.6	888.360	5215.867	0.052	165829	-0.362	274.148	-99.431	1.022	0.050	2.501	5393.794
134	507886.0	7233906.2	1059.790	5175.957	0.036	115925	-2.139	327.051	-118.618	1.154	0.072	7.087	5390.564
135	508890.4	7233975.7	1141.820	5157.022	0.018	121322	-2.179	352.366	-127.800	1.210	0.163	10.031	5390.814
136	509744.5	7234048.8	802.080	5231.774	0.054	122904	-2.221	247.522	-89.774	0.947	0.024	4.026	5392.299
137	512166.7	7228685.7	1393.180	5100.853	0.023	124452	1.099	429.935	-155.934	1.355	0.213	13.776	5391.298
138	511067.3	7228173.5	1252.300	5131.274	0.020	125549	1.412	386.460	-140.165	1.279	0.053	13.113	5393.426
139	509863.4	7228165.8	775.680	5234.436	0.019	130813	1.413	239.375	-86.819	0.922	0.014	2.892	5392.233
140	509239.0	7228555.0	759.720	5238.035	0.027	131809	1.170	234.450	-85.033	0.908	0.019	1.590	5391.138
133	510122.9	7228856.6	803.680	5228.554	0.025	135920	0.987	248.016	-89.953	0.948	0.128	4.474	5393.154
132	509904.7	7228706.5	788.860	5232.223	0.016	141701	1.079	243.442	-88.294	0.935	0.025	3.093	5392.503
131	509636.6	7228611.2	774.340	5235.417	0.017	143125	1.137	238.961	-86.669	0.921	0.112	2.281	5392.160
130	510478.3	7227506.8	791.030	5230.261	0.023	152357	1.822	244.112	-88.537	0.937	0.036	2.651	5391.281

APPENDIX H

GPS THEORY

GPS THEORY

Gravity station elevations must be surveyed in to at least ± 10 cm in order to produce gravity data accurate to ± 20 mGal. This can be achieved through spirit level, total station or global position system (GPS) surveys. GPS survey methods were used to determine the elevation of the survey stations in the survey described in this report and this section summarizes the measurement method.

The Navstar Global Positioning System consists of 26 low altitude satellites, a master controlling station in Colorado Springs, CO and three uplink stations in Hawaii, Ascension Island, Diego Garcia and Kwajalein in the western Pacific Ocean. The satellites circle the earth at an altitude of 20,200 km with 4 satellites (space vehicles of Svs) in each of 6 planes inclined at 55° to the equator. Two SV's are spares. Each SV contains an atomic clock and transceiver.

The GPS signal quite complicated and occupies a wide bandwidth in order to nullify jamming. The system fundamental frequency (f_0)is 10.23 MHz. Satellites transmit messages on two carrier frequencies:

L1 carrier - 1575.42 MHz (154 f_0) with a wavelength of 19 cm
L2 carrier- 1227.60 MHz (120 f_0) with a wavelength of 24 cm

Several signals are impressed on the carrier frequencies by amplitude modulation:

Name	Carrier (freq)	Description
Navigation message	L1 & L2 (1500 Hz)	Satellite status, ephemeris and clock corrections
P-Code	L1 (10.23 MHz)	Precision Code: Encrypted pseudorandom noise signal containing clock time signal (time of transmission). The encryption is unclassified and available for civilian use. Pseudorange accuracies with this code are in the order of 30 m.
Y-Code	L1 (10.23 MHz)	Encrypted P or Anti-spoofing (AS) Code: Encrypted pseudorandom noise signal containing clock time signal (time of transmission). The encryption is classified and this signal is for military use. Accuracy of the GPS system with this code is degraded to 100 m but military users can achieve psuedorange accuracies of better than 30 m by removing the encryption.
C/A-code	L1 and L2 (1.023 MHz)	Clear acquisition code: Non-encrypted clock time signal with pseudoranges accurate to ±100 m.

Positioning

GPS receivers contain an internal clock (oscillator) which is synchronized to GPS time. GPS time is the absolute time standard used for the entire GPS system and is expressed in coordinated universal time (UTC). Each SV has a clock synchronized to GPS time and transmitted clock errors are contained in the navigation message. The C/A and P or Y code transmissions contain the time of transmission from the satellite. Once the GPS receiver has 4 satellites in view, it can come up with a unique solution for the four variables in the position equation: x,y,z and t (time). The receiver generates a best-fit solution to GPS time and synchronizes the receiver clock to GPS time. The phase shift in time between the code signal picked up by the receiver and the internal receiver clock yields the transit time (time of receipt less time of transmission). This time, together with the known propagation velocity of the radio wave yields a pseudorange. The satellite navigation message transmits the satellite ephemeris - a precise description of the satellite's orbit and thus, its position. Using the ephemerides and pseudoranges, the location of the receiver can be calculated to an accuracy limited by the psuedorange accuracy and the relative geometry of the satellites. GPS positions are accurate to ± 30 m with P-Code and to ± 100 m with C/A Code.

Differential corrections

The accuracy of GPS positions can be improved by differential processing. A base station GPS is placed on a point whose geographic coordinates are accurately known. The base receiver then tracks the same satellites that are used by a nearby receiver (rover) which is being used to determine an unknown position. The base receiver computes the error in pseudoranges by comparing the apparent pseudorange from the SV's P or C/A code with the known pseudorange computed from the satellite ephemerides and the known base station position. The errors in satellite pseudoranges are then used in either real-time (via radio link) or post-acquisition processing of the rover's position. Differential correction can yield positions accurate to 0.50 m in x, y and z provided the PDOP is acceptable.

Dilution of precision

The accuracy of a GPS position depends upon both the accuracy of the pseudoranges and the distribution of the satellites relative to the receiver. If the SV's are clustered in one location in the sky, small changes in the pseudoranges will translate into large variations in the station coordinates. In particular, if the SV's are clustered overhead, the error in elevation will be increased. The effect of the SV distribution on the quality of the position measurement is quantified as the "dilution of precision" or DOP. DOP is further subdivided into horizontal (HDOP) and vertical (VDOP). A quantity which describes the overall accuracy of the position measurement considers the length of the error ellipse axes, the largest of which is quantified as the point dilution of precision (PDOP). In general, a PDOP less than 6.0 is considered desirable to achieve accuracies of ± 50 cm in a differential correction.

Carrier phase processing

GPS positions can be refined further by employing the short wavelength carrier phase to refine the position accuracy. In simplified terms, the method is as follows: A base receiver is set up at a known point and a rover is set up at the point whose position is to be determined. The two receivers then record data from at least 5 SV's in common view for periods of time which depend upon the method being used. Three techniques are in common use:

Static survey	Receivers record each base line for at least 45 minutes. Post processing uses the C/A code and the carrier phase shift to calculate base lines.
Fast static survey	Receivers record each base line for at least 5 minutes and use the P-Code and carrier phase shift to calculate base lines.
Kinematic survey	Both the base station and the rover are set up over a known point and, after a short initialization period, the rover is moved from point to point and base lines are measured for period of 30 to 60 seconds. Both receivers must maintain a lock on the same receivers.

Static surveys can achieve accuracies of 5 mm $\pm$ 5 ppm while Fast Static and kinematic surveys can achieve accuracies of 5 mm $\pm$ 10 ppm. Carrier phase processing requires that the receiver be capable of recording at least 1 carrier phase (single frequency receiver) but better results under a wider variety of operating conditions are possible using receivers capable of receiving both L1 and L2 carriers (dual frequency receivers). Carrier phase processing uses several techniques to measure base lines. Differentially corrected GPS positions are used to narrow down a range within which possible solutions to the base line equation may be found. Under optimum conditions this would involve a preliminary determination of distance to within 1 to 2 m. To further improve accuracy, the carrier phase difference (phase shift) between the two receivers is considered. The fraction of a wavelength phase difference between the two receivers can be determined very rapidly but the integer number of full wavelengths phase difference between the receivers cannot be readily determined with a single phase difference. This is referred to as the integer ambiguity. In addition, the method has to be able to correct itself if one of the receivers loses contact with one of the satellites and "loses its place" in the signal (cycle-slip). Finally, the processing must account for propagation error caused by unknown velocity variations within the ionosphere. Several methods are used together to remove external sources of error, resolve the integer ambiguity and correct for cycle-slip:

Single difference	Difference in phase between 2 receivers measuring the same satellite over the same interval (epoch). This removes the effect of satellite clock, orbital and atmospheric delays.
Double difference	Difference between 2 single differences. This removes the effect of receiver and satellite clock drift.
Triple difference	Difference over time between 2 double differences. This removes integer ambiguity and resolves cycle-slips.

Combinations of the differences for a large number of readings are solved for a best-fit solution using least-squares methods. Carrier phase processing generates one of several possible types of solutions depending upon the data available:

Float solution	Poor solution as the processor is unable to resolve the integer ambiguity. Errors in the order of 1 wavelength (19 to 24 cm) are possible.
Fixed solution	Good solution; one solution yields integer values significantly better than others. Errors less than 1 wavelength are possible.

Fixed solutions for dual frequency receivers fall into one of three types:

Wide Lane Fixed	Uses L1 and L2 differences, generating a base line solution using a wavelength of 86.2 cm. This is used in long base line surveys.
Narrow Lane Fixed	Uses combinations of L1 and L2 solutions generating a base line solution using a wavelength of 10.2 cm. This solution effectively removes ionospheric effects.
Ionospheric free solution	Best possible solution generated using L1 and L2 to achieve maximum possible accuracy.

Factors affecting GPS survey accuracy

The relative satellite geometry, signal status and elevation of the satellites above the horizon control the accuracy of a base line determination or of a position fix. Selective Availability (SA) is the military term for the deliberate dithering of the clock signals from the GPS satellites to degrade positional accuracy. A slow variation in position is caused by the introduction of error into the satellite ephemeris in the navigation message and a smaller and much more rapid position error is introduced into the code transmission. This latter effect causes significant errors in velocity determinations. The encryption of P-Code to Y-Code can affect Fast Static surveys since these use the P-Code to determine the starting position for a base line solution. The user range accuracy (URA) is a measure of the accuracy of a pseudorange. If this number is greater than 30 m, selective availability is probably in effect.

The signal to noise ratio (SNR) is a measure of the strength of the signal relative to background noise. An SNR of at least 6 is required for a decent positional fix or base line solution, common ranges are from 12 to 20.

A minimum of 5 visible (ie. detectable) satellites are required for carrier phase processing and for an accurate differential GPS position. A minimum of 4 SV's is required for routine positioning. A solution with more than 4 satellites is referred to as an over-determined 3D (OD3D) solution.

The relative geometry of the satellites exerts a strong influence on the accuracy of a solution. If all SV's are directly overhead, the generated position solution is relatively insensitive to horizontal error whereas a much tighter solution is possible if the satellites are spread across the sky. The point dilution of precision (PDOP) is a measure of the error in location caused by geometry. Values of 4 or less are good, 5 to 7 are acceptable and greater than 7 is considered very poor.

Multi-path errors are caused by SV signals reflecting off surfaces near the receiving antenna. Multipath errors are a major concern in both differential and carrier phase surveys where reflections near a base station receiver can significantly degrade the quality of the positions and base line solutions. Fortunately they are largely avoidable through care and attention in the field.

APPENDIX I

SCINTILLOMETER READINGS

CURIE PROPERTY
TRAVERSE SCINTILLOMETER SURVEY

Curie Property Traverse Scintillometer Readings

Station	NAD83 UTME	NAD83 UTMN	TC1	TC2	K	U	T
1	509117	7230617	110	40	5	5	5
2	509134	7230669	161	48	9	10	4
3	509166	7230785	156	47	9	9	5
4	509204	7230881	150	42	8	11	4
5	509233	7230963	121	37	10	10	7
6	509246	7231037	189	51	9	7	4
7	509270	7231102	204	42	7	8	7
8	509297	7231156	207	46	12	8	3
9	509363	7231252	214	51	10	7	11
10	509372	7231307	193	75	15	12	3
11	509381	7231394	248	76	15	13	4
12	509377	7231497	229	56	12	8	4
13	509433	7231541	266	77	12	8	6
14	509466	7231606	253	72	13	10	7
15	509420	7231644	264	81	15	12	4
16	509441	7231692	270	86	18	18	11
17	509526	7231701	296	78	17	16	9
18	509397	7231745	305	77	12	11	7
19	509296	7231812	264	60	18	13	8
20	509226	7231925	306	82	18	13	4
21	509245	7231959	296	75	15	11	4
22	509298	7231954	286	65	11	9	7
23	509393	7231957	254	60	9	9	6
24	509458	7231959	271	77	11	11	6
25	509549	7231990	233	64	10	14	5
26	509638	7232006	327	92	17	16	7
27	509673	7232002	770	249	40	23	14
28	509687	7232012	1713	682	104	80	34
29	509630	7232062	365	93	19	17	8
30	509613	7232070	379	89	15	11	7
31	509589	7232078	334	86	17	13	5
32	509568	7232103	326	74	15	11	7
33	509558	7232120	334	74	15	7	5
34	509527	7232146	307	66	15	15	4
35	509489	7232168	322	63	11	9	5
36	509467	7232200	291	60	14	11	5
37	509418	7232242	309	73	17	11	5
38	509364	7232273	303	80	16	10	5
39	509306	7232302	390	99	17	14	5
40	509243	7232293	286	77	17	12	7
41	509135	7232288	365	76	12	16	3
42	509089	7232322	269	80	16	12	6
43	508939	7232317	290	85	15	11	6
44	508752	7232269	300	77	17	11	3
45	508588	7232064	257	68	10	9	6
46	508678	7231832	237	70	18	8	6
47	508752	7231645	209	56	12	10	5
48	509006	7231331	225	70	14	11	6

CURIE PROPERTY
TRAVERSE SCINTILLOMETER SURVEY

Station	NAD83 UTME	NAD83 UTMN	TC1	TC2	K	U	T
49	509036	7231051	120	30	7	5	3
50	509484	7231614	230	79	17	10	6
51	509678	7232096	384	89	19	18	6
52	509698	7232192	312	82	19	14	7
53	509709	7232287	292	79	16	12	8
54	509674	7232366	338	75	16	16	6
55	509647	7232453	305	83	14	13	5
56	509604	7232517	243	63	13	13	5
57	509496	7232560	248	62	14	11	6
58	509431	7232580	249	66	15	14	8
59	509303	7232650	308	78	15	11	6
60	509196	7232703	218	64	19	10	6
61	509060	7232750	298	83	15	11	5
62	508864	7232747	323	82	13	10	5
63	509438	7232840	225	58	8	8	5
64	509533	7232957	240	66	11	8	6
65	509584	7232907	254	74	11	8	4
66	509623	7232720	172	50	8	7	5
67	509179	7231685	268	80	16	8	8
68	509156	7231691	284	93	17	10	7
69	509575	7232044	269	85	21	15	6
70	509618	7232068	284	100	15	14	7
71	509606	7232104	282	93	18	13	6
72	509648	7232140	282	75	16	14	8
73	509663	7232155	282	98	17	14	6
74	509653	7232115	299	108	12	8	7
75	509638	7232087	252	92	17	9	3
76	509627	7232024	305	104	19	13	9
77	509726	7232462	217	70	14	10	5
78	509666	7232536	215	64	17	11	5
79	509675	7232742	223	63	10	10	4
80	509709	7232822	252	71	12	11	5
81	509665	7232969	250	74	13	11	6
82	509607	7233070	257	86	10	11	9
83	509494	7233113	234	66	11	12	13
84	509546	7233043	233	81	14	13	5
85	509613	7233028	269	77	17	14	6
86	509614	7232903	281	82	11	10	6
87	509402	7232862	268	69	12	11	7
88	509200	7232895	268	80	14	14	5
89	508995	7232896	232	88	16	15	4
90	508860	7232934	220	62	13	10	6
91	508661	7233112	238	86	16	12	5
92	508537	7233327	166	58	11	10	5
93	509096	7232898	300	99	16	17	9
94	509239	7232859	215	70	14	9	5
95	509325	7232826	202	61	10	8	5
96	509168	7231176	128	50	10	7	4
97	509089	7231334	155	52	9	9	4
98	508982	7231453	209	64	14	9	6

CURIE PROPERTY
TRAVERSE SCINTILLOMETER SURVEY

Station	NAD83 UTME	NAD83 UTMN	TC1	TC2	K	U	T
99	508843	7231425	184	50	10	9	5
100	508656	7231722	219	53	12	7	6
101	508531	7231926	170	58	10	7	4
102	508432	7232031	170	66	11	9	5
103	508440	7232048	204	60	13	10	4
104	508356	7232029	227	81	14	15	5
105	508294	7232108	210	64	14	13	5
106	508324	7232071	230	69	11	10	8
107	508454	7232098	228	74	10	10	4
108	508404	7232096	228	71	13	10	4
109	508271	7232195	253	68	16	11	4
110	508414	7232123	264	82	19	11	7
111	508465	7232135	201	57	12	7	5
112	508470	7232177	204	60	23	11	5
113	508327	7232167	218	78	13	11	6
114	508244	7232257	224	63	18	10	5
115	508310	7232226	230	69	16	12	6
116	508406	7232170	232	81	16	12	4
117	508503	7232265	181	48	10	8	4
118	508438	7232213	201	80	10	10	5
119	508292	7232272	246	69	16	11	6
120	508260	7232328	200	63	11	9	5
121	508379	7232236	224	172	12	12	6
122	508457	7232288	232	71	16	13	5
123	508338	7232284	216	86	16	11	6
124	508291	7232392	191	56	15	11	5
125	508402	7232292	187	68	15	11	8
126	508374	7232353	185	54	11	8	4
127	508209	7232449	186	67	14	13	5
128	508075	7232446	174	54	10	16	4
129	507946	7232475	266	77	12	15	5
130	507936	7232362	189	53	12	10	5
131	507852	7232272	200	77	14	10	4
132	507864	7232212	215	76	15	12	4
133	507955	7232275	260	79	14	12	5
134	507944	7232192	225	79	14	6	5
135	507824	7232130	197	61	11	8	4
136	507893	7232015	194	68	15	10	4
137	507962	7232077	196	64	14	9	5
138	508015	7232213	190	67	12	9	4
139	508059	7232110	194	74	13	10	4
140	507976	7231986	205	69	16	8	4
141	507824	7231929	201	70	11	8	4
142	507946	7231917	196	72	13	10	7
143	508095	7231967	193	61	12	10	5
144	508188	7232144	209	57	11	10	3
145	508884	7231369	252	62	13	11	5
146	508906	7231440	302	63	10	6	5
147	508928	7231529	302	71	15	15	7
148	509048	7231494	279	106	13	9	3

CURIE PROPERTY
TRAVERSE SCINTILLOMETER SURVEY

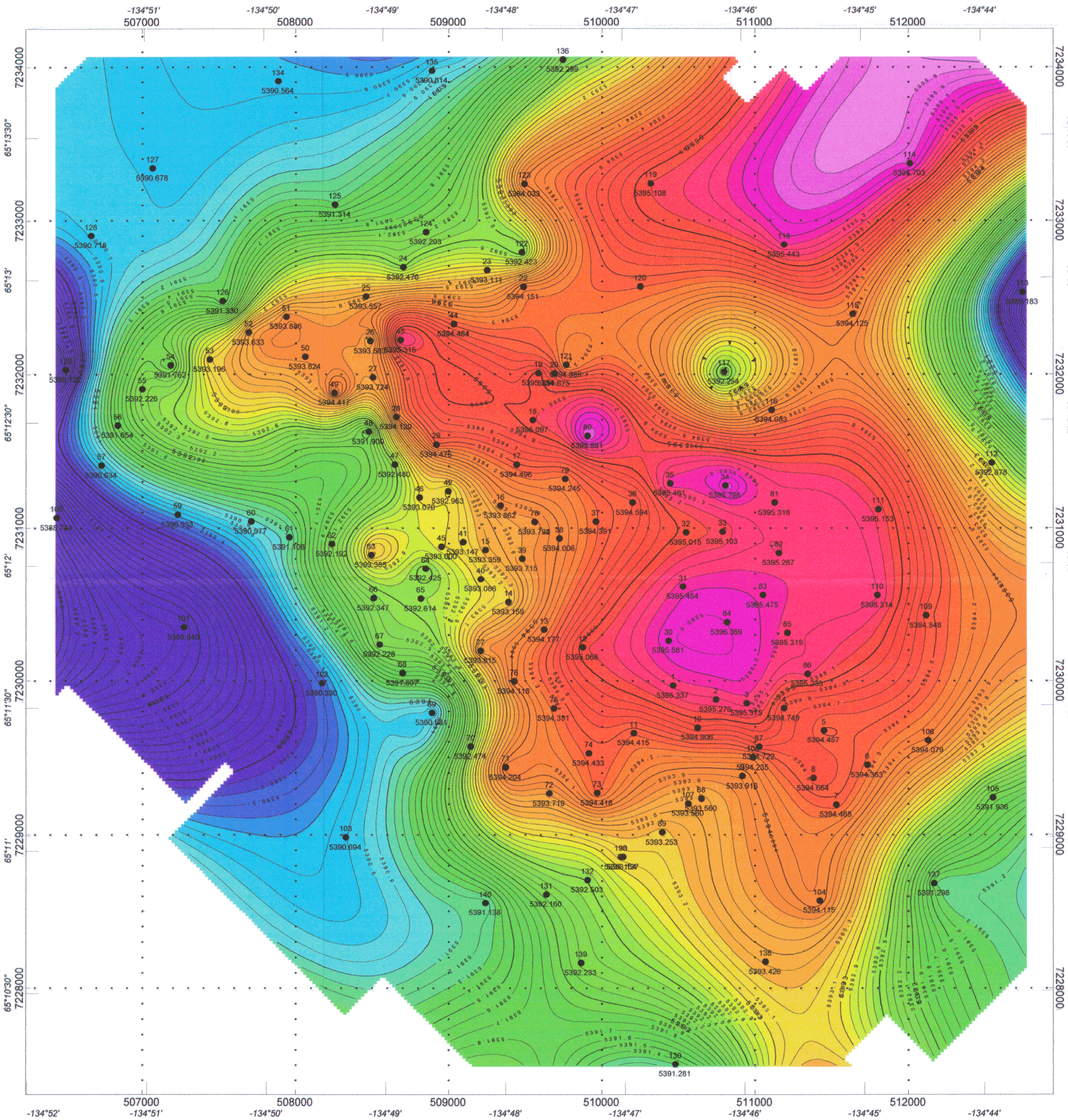
Station	NAD83 UTME	NAD83 UTMN	TC1	TC2	K	U	T
149	509031	7231401	252	60	15	9	4
150	509021	7231308	275	62	15	11	6
151	509109	7231215	264	52	11	6	4
152	509126	7231286	237	43	12	7	2
153	509172	7231399	367	68	18	12	6
154	509273	7231453	356	69	14	10	7
155	509374	7231399	302	67	14	11	6
			TC1	TC2	K	U	T
		Minimum	110	30	5	5	2
		Maximum	1713	682	104	80	34
		Average	259	76	14	11	6
		Standard Deviat	136	54	8	6	3

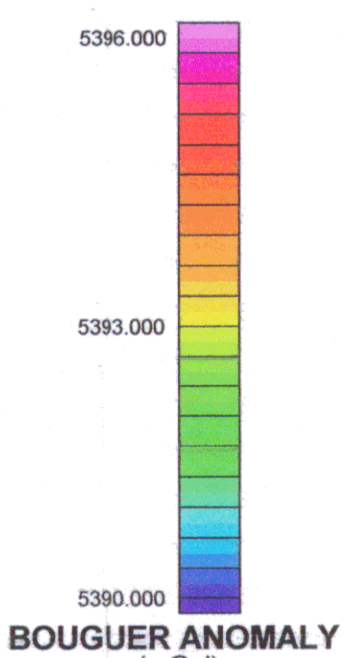
CURIE PROPERTY DEER 1 SHOWING GRID

Point	Line	Station	X	Y	TC1	TC2	K	U	T
L60S50W	-60	-50	509607	7231951	238	78	20	13	5
L60S40W	-60	-40	509616.7	7231950.9	263	90	15	13	6
L60S30W	-60	-30	509626.4	7231950.8	275	81	13	12	7
L60S20W	-60	-20	509636.1	7231950.7	272	70	14	13	5
L60S10W	-60	-10	509645.8	7231950.6	299	92	16	14	5
L60S0E	-60	0	509655.5	7231950.5	249	74	13	9	5
L60S10E	-60	10	509665.2	7231950.4	245	60	14	10	7
L60S20E	-60	20	509674.9	7231950.3	316	99	21	13	7
L60S30E	-60	30	509684.6	7231950.2	245	69	14	12	4
L60S40E	-60	40	509694.3	7231950.1	304	81	16	12	4
L60S50E	-60	50	509704	7231950	319	95	19	13	4
L40S50W	-40	-50	509616.2	7231975.33	278	54	15	16	7
L40S40W	-40	-40	509626.3	7231974.75	228	71	12	13	5
L40S30W	-40	-30	509636.3	7231974.17	252	78	15	11	5
L40S20W	-40	-20	509646.4	7231973.58	287	78	19	14	7
L40S10W	-40	-10	509656.5	7231973	267	78	17	12	7
L40S0E	-40	0	509666.6	7231972.42	320	99	15	13	9
L40S10E	-40	10	509676.7	7231971.83	311	93	16	13	6
L40S20E	-40	20	509686.8	7231971.25	300	86	15	13	5
L40S30E	-40	30	509696.8	7231970.67	296	86	13	15	6
L40S40E	-40	40	509706.9	7231970.08	262	80	17	10	6
L40S50E	-40	50	509717	7231969.5	309	93	17	17	5
L20S50W	-20	-50	509625.3	7231999.67	316	80	13	14	7
L20S40W	-20	-40	509635.8	7231998.6	343	104	19	15	7
L20S30W	-20	-30	509646.3	7231997.53	286	97	18	12	8
L20S20W	-20	-20	509656.7	7231996.47	327	97	18	13	8
L20S10W	-20	-10	509667.2	7231995.4	383	110	17	15	7
L20S0E	-20	0	509677.7	7231994.33	392	120	19	16	8
L20S10E	-20	10	509688.1	7231993.27	787	246	33	31	18
L20S20E	-20	20	509698.6	7231992.2	317	90	17	15	6
L20S30E	-20	30	509709.1	7231991.13	302	79	18	16	5
L20S40E	-20	40	509719.5	7231990.07	270	81	15	11	5
L20S50E	-20	50	509730	7231989	279	73	17	15	6
L0N50W	0	-50	509634.5	7232024	384	86	18	13	7
L0N40W	0	-40	509645.4	7232022.45	371	84	19	13	6
L0N30W	0	-30	509656.2	7232020.9	490	120	21	16	7
L0N20W	0	-20	509667.1	7232019.35	518	114	21	17	8
L0N10W	0	-10	509677.9	7232017.8	530	136	20	18	8
L0N0E	0	0	509688.8	7232016.25	733	199	35	19	7
L0N10E	0	10	509699.6	7232014.7	560	120	19	18	6
L0N20E	0	20	509710.5	7232013.15	463	108	26	14	9
L0N30E	0	30	509721.3	7232011.6	463	80	15	16	4
L0N40E	0	40	509732.2	7232010.05	397	79	19	13	9
L0N50E	0	50	509743	7232008.5	386	69	13	10	5
L20N50W	20	-50	509643.7	7232048.33	289	93	23	13	5
L20N40W	20	-40	509654.9	7232046.3	311	106	16	17	7
L20N30W	20	-30	509666.1	7232044.27	298	84	17	11	5
L20N20W	20	-20	509677.4	7232042.23	317	86	16	11	9
L20N10W	20	-10	509688.6	7232040.2	289	83	14	12	5
L20N0E	20	0	509699.8	7232038.17	346	84	19	13	8
L20N10E	20	10	509711.1	7232036.13	392	88	19	13	5

CURIE PROPERTY DEER 1 SHOWING GRID

Point	Line	Station	X	Y	TC1	TC2	K	U	T
L20N20E	20	20	509722.3	7232034.1	267	79	13	10	6
L20N30E	20	30	509733.5	7232032.07	243	65	15	10	4
L20N40E	20	40	509744.8	7232030.03	203	77	17	14	7
L20N50E	20	50	509756	7232028	253	76	11	10	7
L40N50W	40	-50	509652.8	7232072.67	261	84	18	15	5
L40N40W	40	-40	509664.5	7232070.15	330	109	20	14	8
L40N30W	40	-30	509676.1	7232067.63	303	85	19	12	10
L40N20W	40	-20	509687.7	7232065.12	289	90	16	11	10
L40N10W	40	-10	509699.3	7232062.6	300	76	14	13	7
L40N0E	40	0	509710.9	7232060.08	273	82	15	11	6
L40N10E	40	10	509722.5	7232057.57	252	69	13	11	6
L40N20E	40	20	509734.2	7232055.05	243	72	15	9	6
L40N30E	40	30	509745.8	7232052.53	306	74	16	14	6
L40N40E	40	40	509757.4	7232050.02	220	59	10	10	3
L40N50E	40	50	509769	7232047.5	231	67	16	9	4
L60N50W	60	-50	509662	7232097	304	97	18	15	7
L60N40W	60	-40	509674	7232094	321	100	23	14	9
L60N30W	60	-30	509686	7232091	229	94	15	20	8
L60N20W	60	-20	509698	7232088	298	90	17	13	7
L60N10W	60	-10	509710	7232085	270	93	13	13	6
L60N0E	60	0	509722	7232082	250	77	11	11	6
L60N10E	60	10	509734	7232079	224	67	16	12	5
L60N20E	60	20	509746	7232076	236	65	12	12	5
L60N30E	60	30	509758	7232073	237	67	13	11	7
L60N40E	60	40	509770	7232070	203	68	15	13	4
L60N50E	60	50	509782	7232067	222	72	16	11	5





LEGEND

CONTOURED BOUGUER ANOMALY

CONTOUR INTERVALS (mGal)

0.050

0.250

1.000

INSTRUMENT:	Scintrex Autograv CG-5
GRIDDING ALGORITHM:	Geosoft Rangrid
GRID CELL SIZE:	20 m
CORRECTED FOR:	Drift, Latitude, Elevation, Near station and Inner DTM Terrain
POST PROCESSING FILTERS:	None
DATA FILE:	CURIE_GRAV.gdb
OPERATORS:	PJ & CK
TOTAL STATIONS SURVEYED:	131

Scale 1:20000

250 0 250 500 750 1000 1250 1500

metres

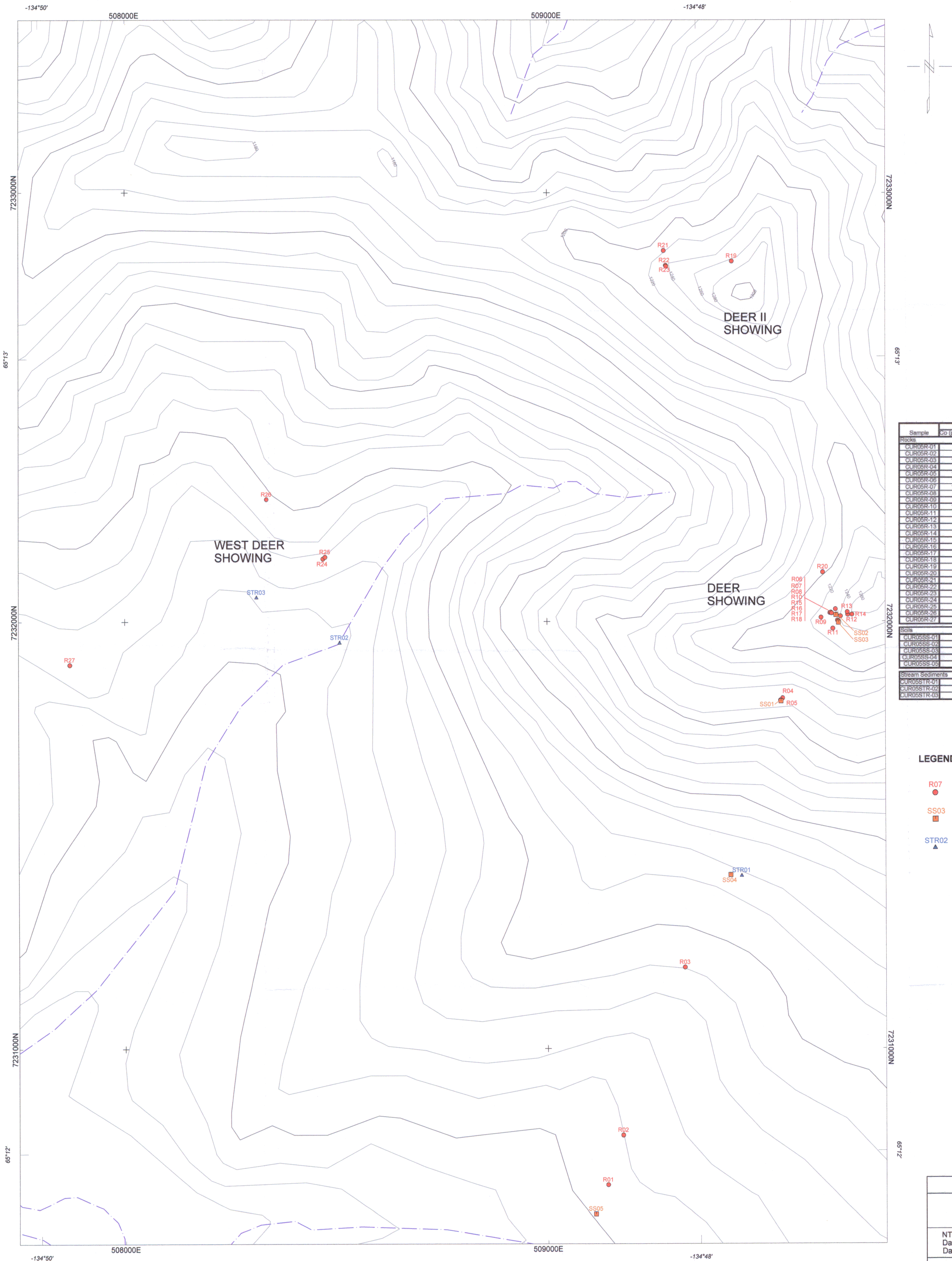
NAD83 / UTM zone 8N

SIGNET MINERALS INC.

CURIE PROJECT
2005 GRAVITY SURVEY
BOUGUER ANOMALY CONTOURS

YUKON TERRITORY, CANADA
NTS: 106 E/2
DATE SURVEYED: AUG. & SEPT. 2005
Figure 10 - Bouguer Anomaly Map
MAP NAME (DATE / DRAWN BY): CURIE_GRAV.map (26-SEPT-2005/PJ)

AURORA GEOSCIENCES LTD.



Sample	Partial Digestion Co (ppm)	Partial Digestion Cu (ppm)	Partial Digestion Pb (ppm)	Partial Digestion U (ppm)	Total Digestion Ba (ppm)	Total Digestion Fe2O3(%)	Total Digestion K2O (%)	Total Digestion U (ppm)	Assay U3O8 (%)
Rocks									
CUR05R-01	1.2	2.5	4.21		183	1.62	1.19	<2	
CUR05R-02	8.1	7.1	2.41		605	4.02	4.12	<2	
CUR05R-03	15.2	0.5	2.05		882	7.4	3.03	2	
CUR05R-04	9.6	3.5	1.27		1210	4.75	4.69	2	
CUR05R-05	12.2	7	1.41		1110	5.33	4.24	<2	
CUR05R-06	12.7	1.1	19.7	197	2200	2.79	6.81	211	
CUR05R-07	17.6	144	101000	450000	15000	1.38	0.342	463000	54.3
CUR05R-08	8.9	7.1	99.5	1840	1610	4.16	5.28	2600	
CUR05R-09	0.6	2.3	1.27		15	5.37	0.055	<2	
CUR05R-10	15.4	9.6	33.7	548	578	3.96	1.74	560	
CUR05R-11	8.9	<0.1	209	4640	2210	2.55	5.62	5410	
CUR05R-12	5.5	9.7	302	6150	353	2.29	0.965	7040	
CUR05R-13	5.3	0.5	324	5670	187	5.67	0.375	6120	
CUR05R-14	7.3	2.7	43	825	58	1.37	0.203	850	
CUR05R-15	6.3	<0.1	153	3650	1830	2.21	5.05	3700	
CUR05R-16	4	13.8	82.7	1860	212	1.17	0.525	1900	
CUR05R-17	6.7	92.5	11900	71000	2980	1.18	0.116	74000	9.02
CUR05R-18	9.9	4.1	45.5	526	241	1.51	0.946	581	
CUR05R-19	1.5	3130	0.97		116	1.1	1.66	4	
CUR05R-20	4.3	2.7	1.69		407	3.37	1.63	4	
CUR05R-21	5.7	1.5	1.97		36	6.77	0.055	4	
CUR05R-22	1.6	2	2.02		58	3.34	0.059	16	
CUR05R-23	12.2	4290	2.44		53	1.78	0.612	<2	
CUR05R-24	8.2	6.4	1.54		241	4.43	2.95	<2	
CUR05R-25	5.1	3.1	2.08		103	5.45	0.069	<2	
CUR05R-26	4.1	1.7	1.46		56	5.99	0.138	<2	
CUR05R-27	9.1	26.7	570		402	4.76	0.634	9	
Soils									
CUR05SS-01	7.2	22.3	12.9		729	7.09	2.19	<2	
CUR05SS-02	3.5	2.5	5.52		405	1.79	1.19	7	
CUR05SS-03	8.3	9.1	111	740	1080	4.24	3	760	
CUR05SS-04	5.7	28.3	5.03		787	4.03	2.2	3	
CUR05SS-05	6.4	15.8	9.17		883	4.95	2.45	5	
Stream Sediments									
CUR05STR-01	9.5	59.4	11.2		1090	5.26	3.85	22	
CUR05STR-02	8.4	32.3	4.67		963	5.18	3.11	33	
CUR05STR-03	1.8	15.5	1.98		268	0.38	0.202	148	

LEGEND

- R07 Rock Sample
- SS03 Soils Sample
- STR02 Stream Sediment Sample

Scale 1:5000

100 0 100 200 300 metres

NAD83 / UTM zone 8N

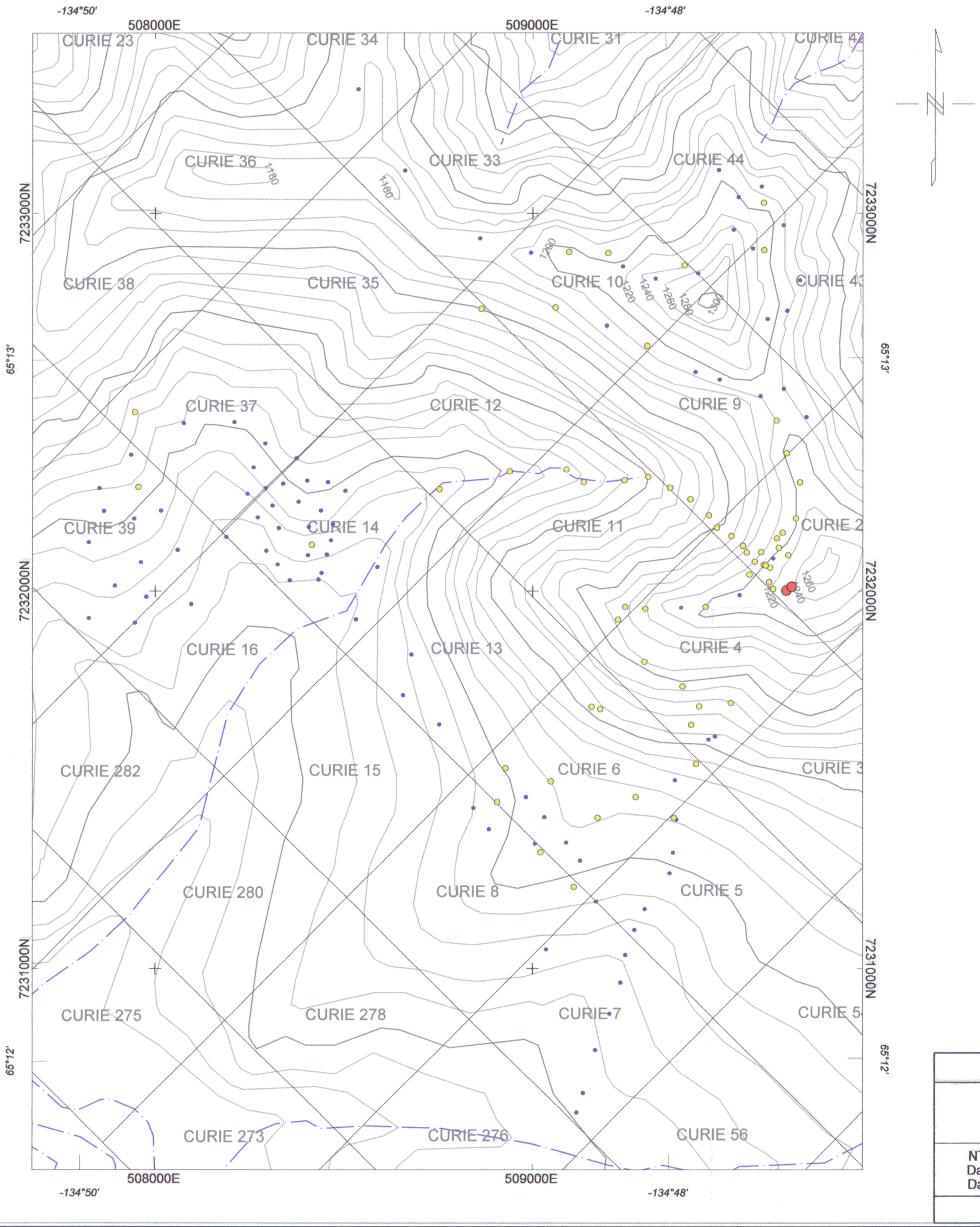
SIGNET MINERALS INC

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 4 - Sample Location Map

NTS: 106E02
Datum: NAD83
Date: January 06, 2006

Mining District: Mayo
Projection: UTM Zone 8N
Job: MRX-05-02-YT

Aurora Geosciences Ltd.



Total Count 1 Channel
Counts / s

●	> 531
●	395 - 531
●	259 - 395
•	< 259

Scale 1:10000

100 0 100 200 300 400 500 600

metres

NAD83 / UTM zone 8N

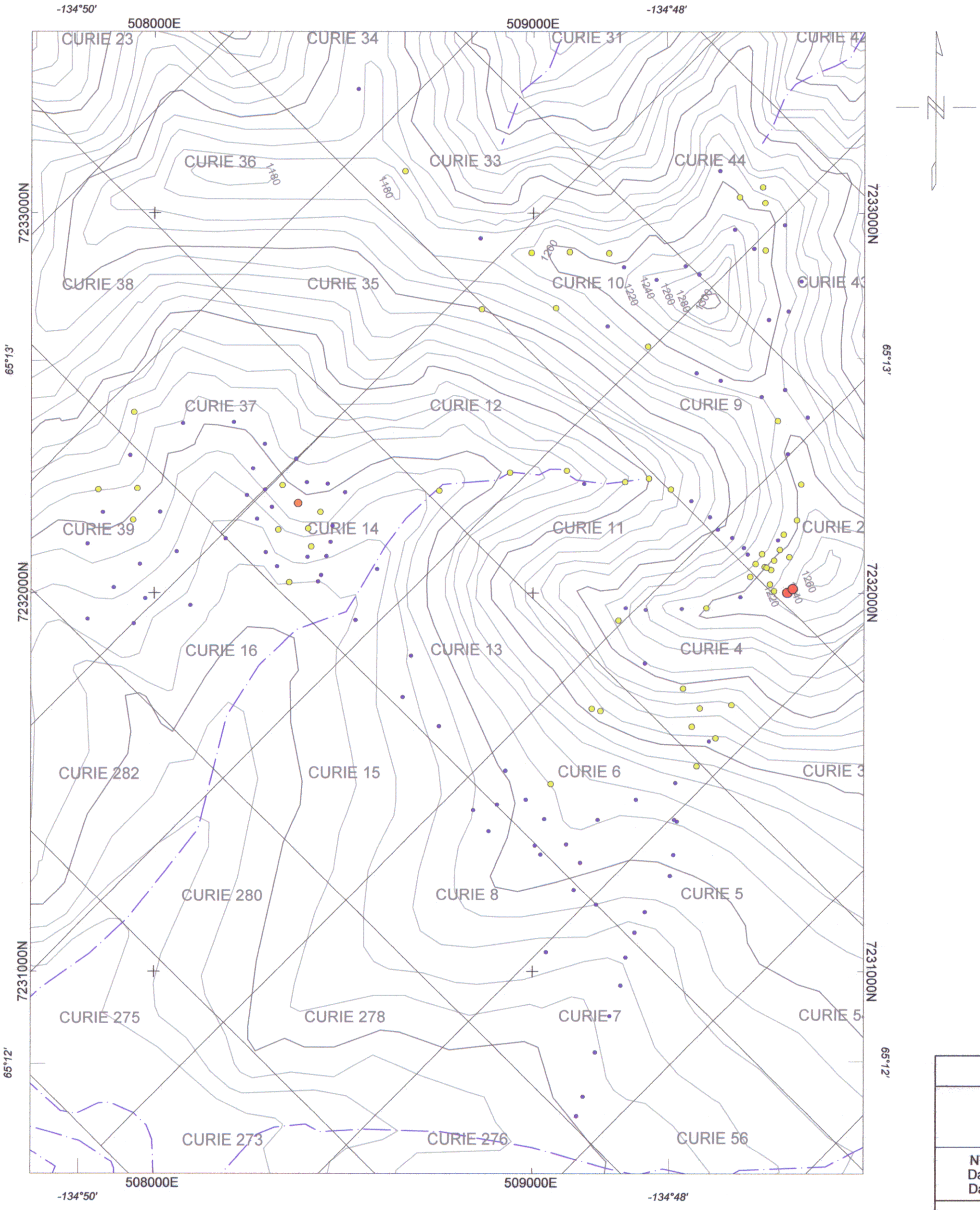
SIGNET MINERALS INC

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 5 - Scintillometer Survey TC1 Channel

NTS: 106E02
Datum: NAD83
Date: January 06, 2006

Mining District: Mayo
Projection: UTM Zone 8N
Job: MRK-05-02-YT

Aurora Geosciences Ltd.



Total Count 2 Channel
Counts / s

●	> 184
●	130 - 184
●	76 - 130
•	< 76

Scale 1:10000

100 0 100 200 300 400 500 600
metres
NAD83 / UTM zone 8N

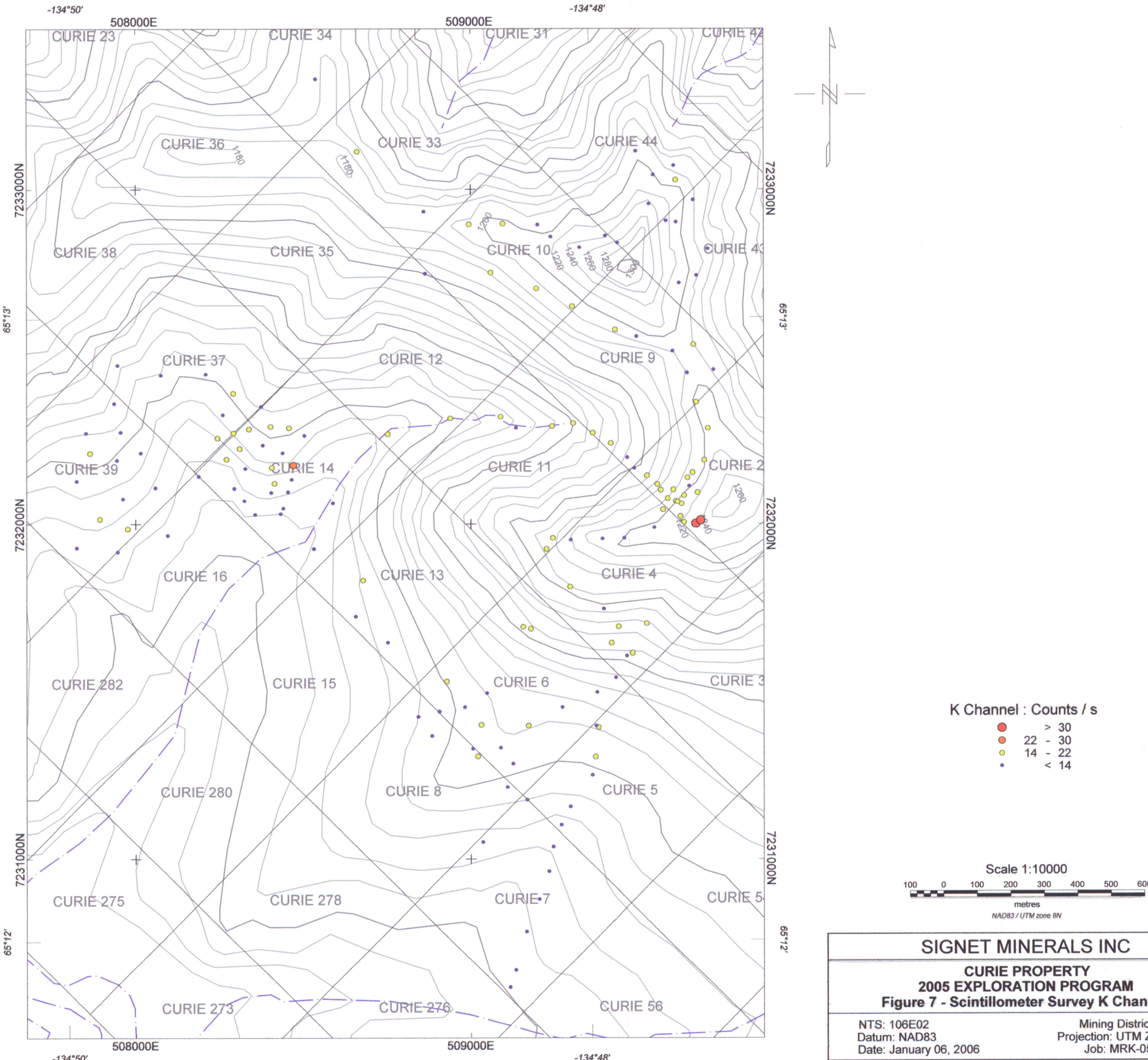
SIGNET MINERALS INC

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 6 - Scintillometer Survey TC2 Channel

NTS: 106E02
Datum: NAD83
Date: January 06, 2006

Mining District: Mayo
Projection: UTM Zone 8N
Job: MRK-05-02-YT

Aurora Geosciences Ltd.



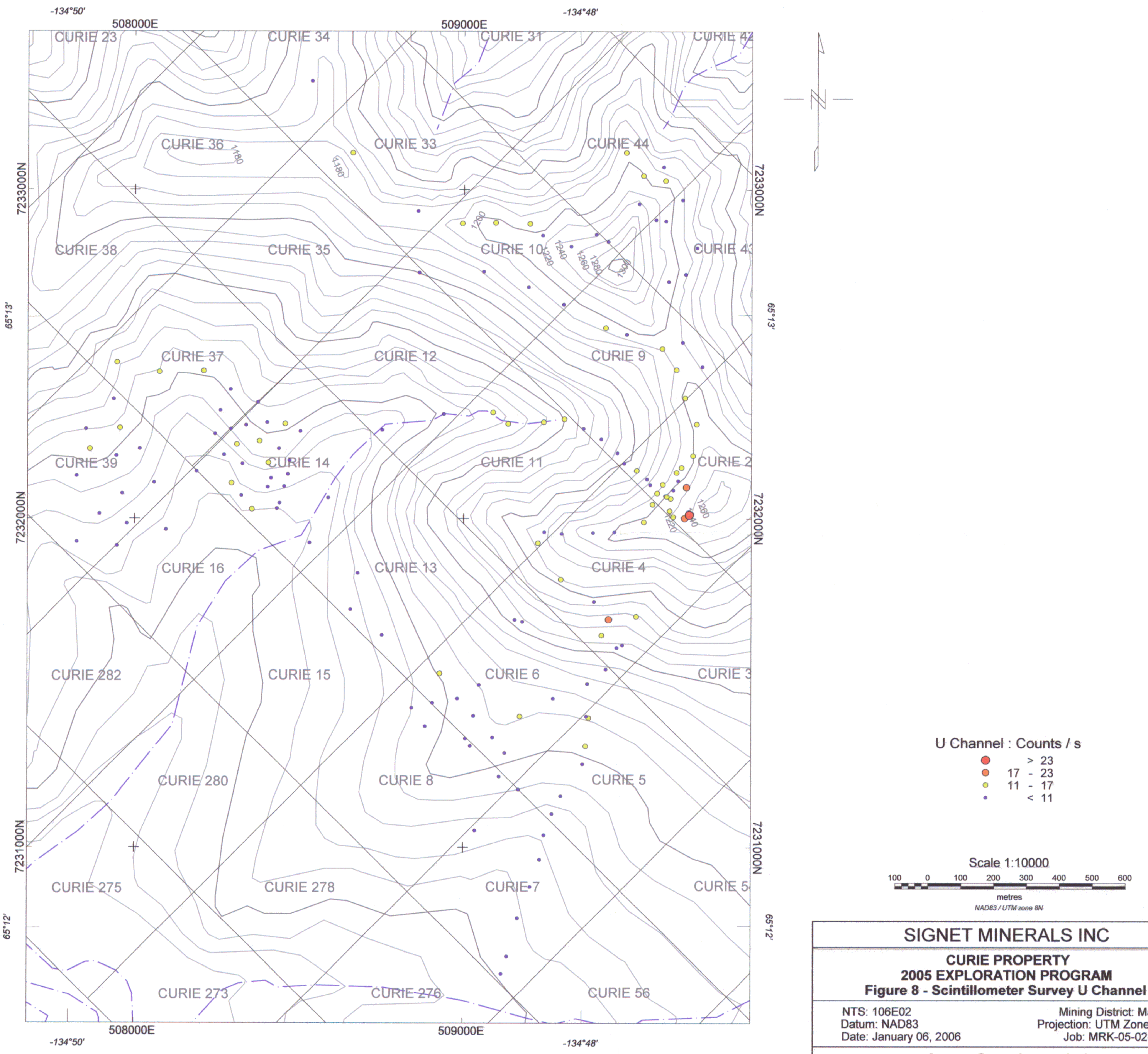
SIGNET MINERALS INC

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 7 - Scintillometer Survey K Channel

NTS: 106E02
Datum: NAD83
Date: January 06, 2006

Mining District: Mayo
Projection: UTM Zone 8N
Job: MRK-05-02-YT

Aurora Geosciences Ltd.

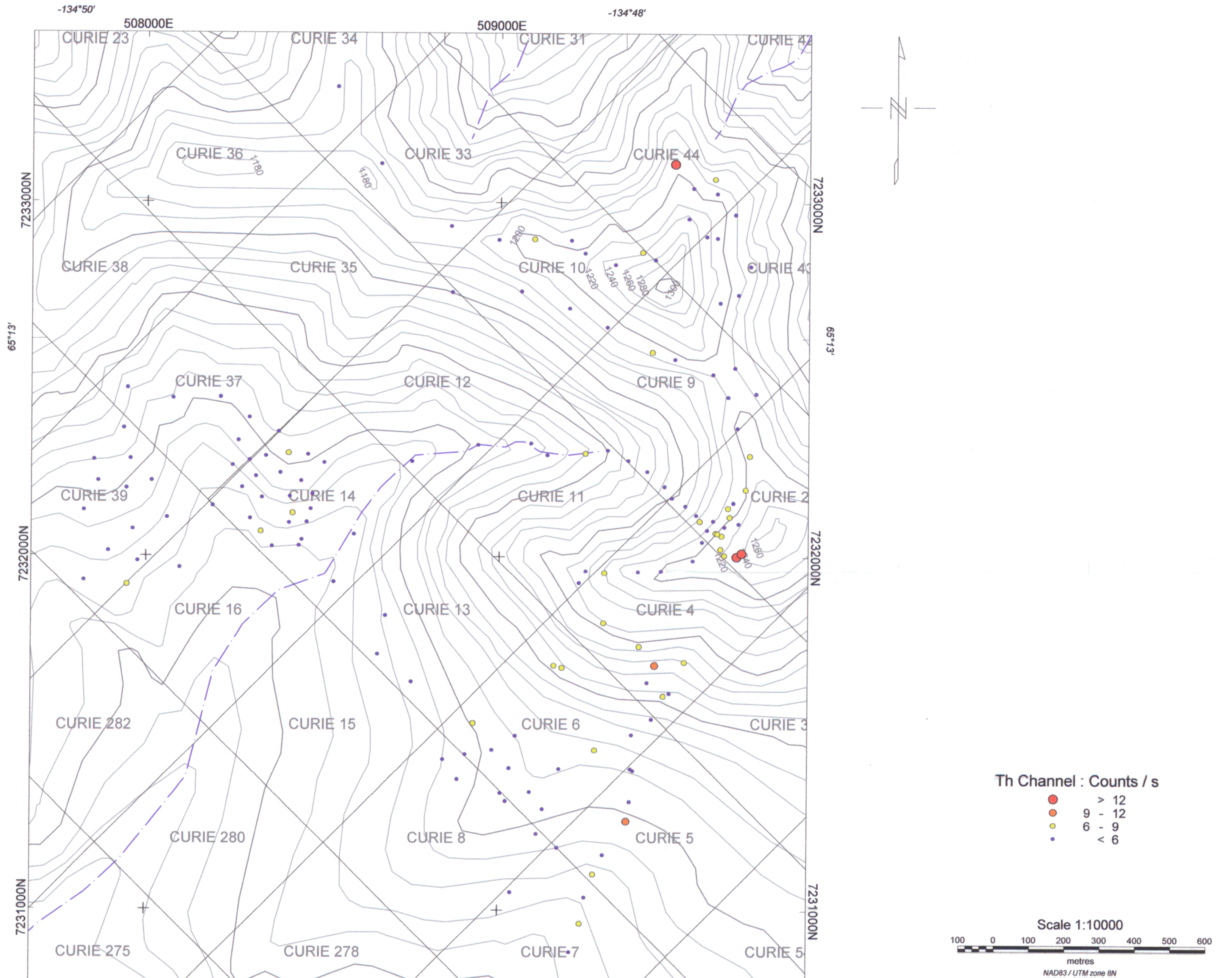


SIGNET MINERALS INC

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 8 - Scintillometer Survey U Channel

NTS: 106E02	Mining District: Mayo
Datum: NAD83	Projection: UTM Zone 8N
Date: January 06, 2006	Job: MRK-05-02-YT

Aurora Geosciences Ltd.

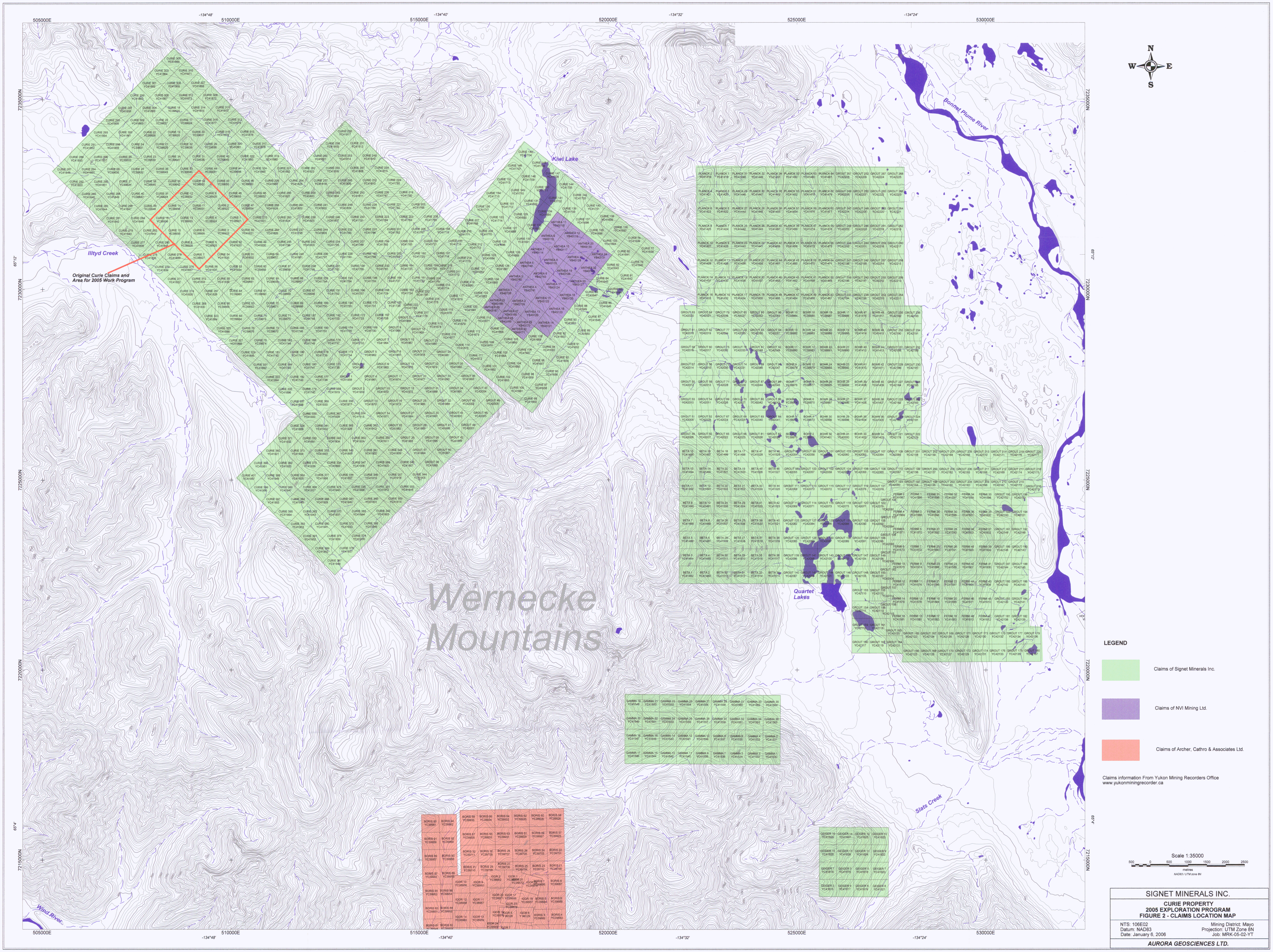


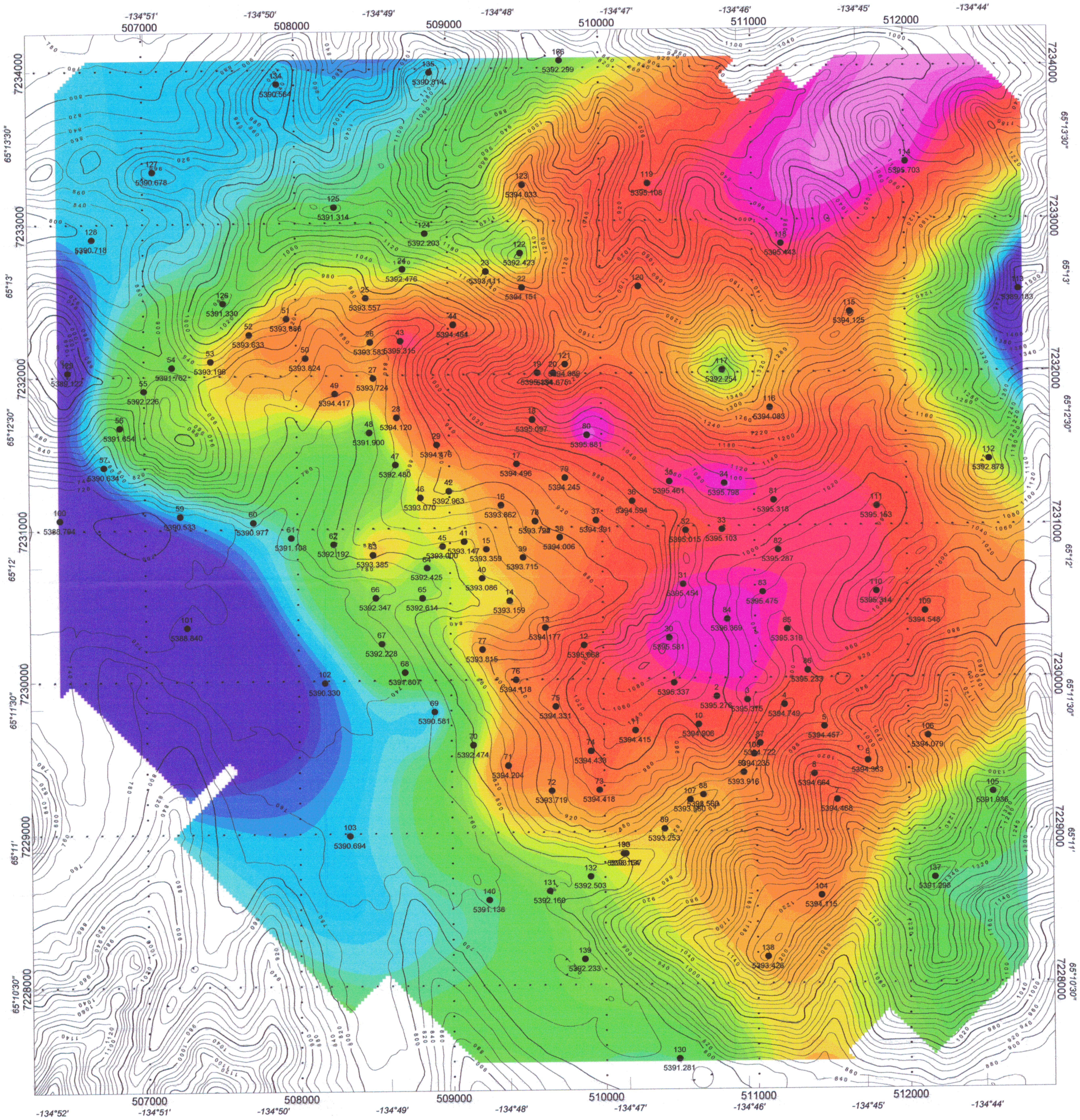
SIGNET MINERALS INC

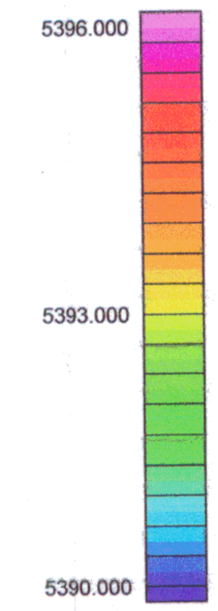
CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 9 - Scintillometer Survey Th Channel

NTS: 106E02	Mining District: Mayo
Datum: NAD83	Projection: UTM Zone 8N
Date: January 06, 2006	Job: MRK-05-02-YT

Aurora Geosciences Ltd.


Wernecke
Mountains
Kiwi Lake
Bonnet Plume River
Illtyd Creek
Original Curie Claims and
Area for 2005 Work Program
Quartet
Lakes
Slats Creek
Wind River
505000E
510000E
515000E
520000E
525000E
530000E
7235000N
7230000N
7225000N
7220000N
7215000N
-134°48'
-134°40'
-134°32'
-134°24'
65°12'
65°4'
N
S
E
W
LEGEND
Claims of Signet Minerals Inc.
Claims of NVI Mining Ltd.
Claims of Archer, Cathro & Associates Ltd.
Claims information From Yukon Mining Recorders Office
www.yukonminingrecorder.ca
Scale 1:35000
500 0 500 1000 1500 2000 2500
metres
NAD83 / UTM zone 8N
SIGNET MINERALS INC.
CURIE PROPERTY
2005 EXPLORATION PROGRAM
FIGURE 2 - CLAIMS LOCATION MAP
NTS: 106E02
Datum: NAD83
Date: January 6, 2006
Mining District: Mayo
Projection: UTM Zone 8N
Job: MRK-05-02-YT
AURORA GEOSCIENCES LTD.





BOUGUER ANOMALY
(mGal)

LEGEND

BOUGUER ANOMALY WITH TOPOGRAPHY CONTOURS

CONTOUR INTERVALS (meters)

20

100

500

INSTRUMENT:	Scintrex Autograv CG-5
GRIDDING ALGORITHM:	Geosoft Rangrid
GRID CELL SIZE:	20 m
CORRECTED FOR:	Drift, Latitude, Elevation, Near station and Inner DTM Terrain
POST PROCESSING FILTERS:	None
DATA FILE:	CURIE_GRAV.gdb
OPERATORS:	PJ & CK
TOTAL STATIONS SURVEYED:	131

Scale 1:20000

250 0 250 500 750 1000 1250 1500

metres

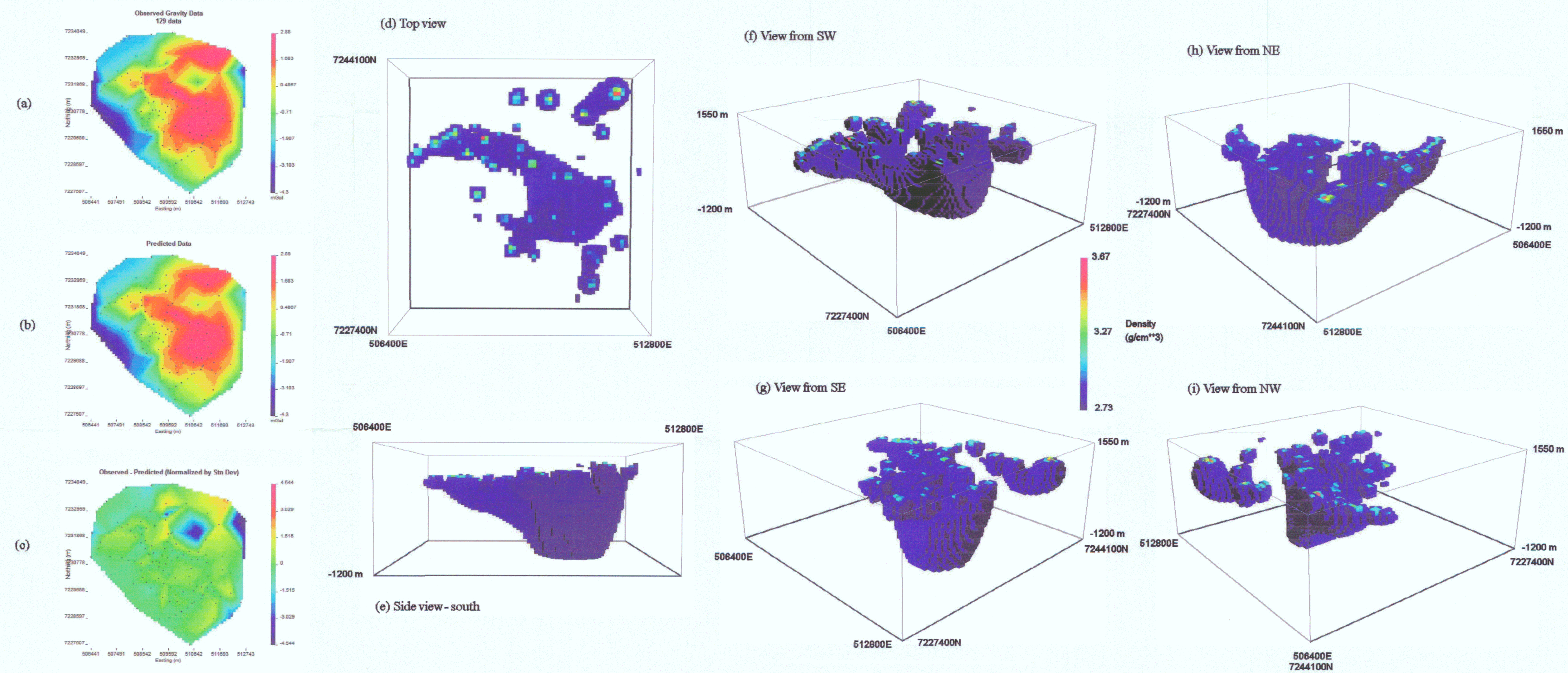
NAD83 / UTM zone 8N

SIGNET MINERALS INC.

CURIE PROJECT
2005 GRAVITY SURVEY
BOUGUER ANOMALY WITH TOPOGRAPHY CONTOURS

YUKON TERRITORY, CANADA
NTS: 106 E/2
DATE SURVEYED: AUG. & SEPT. 2005
Figure 11 - Bouguer Anomaly Map with Topography Contours
MAP NAME (Date / Drawn by): CURIE_GRAV_TOPO.map (18-JAN-2006/PJ)

AURORA GEOSCIENCES LTD.



SIGNET MINERALS INC.

CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 12 - Gravity Model Results and Perspective Views

NTS: 106E02
Datum: NAD83
Date: January 25, 2006

Mining District: Mayo
Projection: UTM Zone 8N
Job: MRX-05-02-YT

Aurora Geosciences Ltd.


CURIE CLAIM BOUNDARY
Gravity anomaly open to North
Mosquito Creek
Spaceship Creek
Owl Creek
Illtyd Creek
Deer Creek
Wounded Bear Creek
Fox Creek
Pool Creek
Gremlin Creek
Kiwi Lake
Twin Lakes
Anthea Claims
MOSQUITO
DEER 2
DEER 1
FROG
FOX
OWL
LEGEND
Gravity High Anomaly
Drill Hole
Soil Uranium Anomaly
Uranium Showing
Fault
C - Cambrian - Undivided Clastics and Carbonates
Bx - Pinguicula Group - Breccia
Bu - Wernecke Group - Undivided Sandstone and Shale occasional massive Quartzites
A2 - Fairchild Group - Interbedded Brown Weathering Dolomite and Black Shale, Massively Bedded Rusty Weathering Pyritic Shale
A1 - Fairchild Group - Grey Weathering Calcareous Siltstone, Interbedded Siltstone and Limestone, Minor Limestone and Quartzite
Silt Sample - Uranium
ppm
> 78.3
45.02 - 78.3
11.74 - 45.02
< 11.74
Water Sample - Uranium
ppb
> 3.66
2.23 - 3.66
0.8 - 2.23
< 0.8
Scale 1:20000
metres
NAD83 / UTM zone 8N
SIGNET MINERALS INC.
CURIE PROPERTY
2005 EXPLORATION PROGRAM
Figure 13 - Curie Property Compilation Map
NTS: 106E02
Datum: NAD83
Date: January 30, 2006
Mining District: Mayo
Projection: UTM Zone 8N
Job: MRX-05-02-YT
Aurora Geosciences Ltd.