BRITISH COLUMBIA

Ministry of Energy & Mines
Energy & Minerals Division
Geological Survey Branch

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)]	**TOTAL COST**
Assessmnt Rpt - Rayfield River Property Airborne Gamma-ray Spectrometric and Magnetic Surveys	$31,019.26

AUTHOR(S) Agnes Koffyberg, P.Geol. SIGNATURE(S)

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S) N/A YEAR OF WORK 2006

STATEMENT OF WORK - CASH PAYMENT EVENT NUMBER(S)/DATE(S) 4123189 (2007/01/19)

PROPERTY NAME Rayfield River Property

CLAIM NAME(S) (on which work was done) 527378, 527379, 527658, 527662, 528272, 531667, 531674, 531689, 531698, 532208, 532209, 532210, 532211, 532212, 532213, 532215, 532216, 532217, 532218, 532219, 532220

COMMODITIES SOUGHT Copper, Gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN

MINING DIVISION Clinton NTS BCGS 092P.025 & 035

LATITUDE 51 ° 18 ' 48 " LONGITUDE 121 ° 05 ' 20 " (at centre of work)

OWNER(S)

1) Candorado Operating Company Ltd 2) Al Harvey

MAILING ADDRESS

#305 - 478 Bernard Avenue Lagoon Ct

Kelowna, BC V1Y 6N7 Clinton, BC V0K 1K0

OPERATOR(S) [who paid for the work]

1) Candorado Operating Company Ltd 2)

MAILING ADDRESS

#305 - 478 Bernard Avenue Lagoon Ct

Kelowna, BC V1Y 6N7 Clinton, BC V0K 1K0

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Nicola Group rocks, Upper Triassic, Lower Jurassic, syenites, monzonites, Quesnel Trough, alkaline intrusions, copper, gold, porphyry

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS 528, 859, 1723, 2135, 19927

(OVER)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne	409 line kilometres		31,019.26
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST	31,019.26

ASSESSMENT REPORT

on the

Airborne Gamma-ray Spectrometric
And Magnetic Surveys

RAYFIELD RIVER PROPERTY

CLINTON MINING DIVISION, BC

BCGS 92P.025, 92P.035

NTS:	92/P3, P6
LATITUDE:	51° 18' 48" N
LONGITUDE:	121° 05' 20" W
OWNER:	Candorado Operating Company Ltd./Allen D. Harvey
OPERATOR:	Candorado Operating Company Ltd.
CONSULTANTS:	Discovery Consultants
AUTHOR:	A. Koffyberg, P.Geol.
DATE:	April 30, 2007

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1.0 SUMMARY

A high resolution aeromagnetic and airborne gamma-ray spectrometric geophysical survey was flown over the Rayfield River Property ("Property"), comprising 21 mineral titles as shown in Table 1. The work was partnered by Geoscience BC, Natural Resources Canada's Targeted Geoscience Initiative (TG13) and Candorado Operating Company Ltd ("Candorado"). Candorado funded the survey.

In total, 409 line-kilometres were flown over the Property, including a 1 km zone around the Property.

Project management was undertaken by the Geological Survey of Canada (GSC). The fixed-wing airborne survey work was contracted out to Sander Geophysics Limited, which performed the work from September 16 to October 23, 2006.

The Property is situated within the Cariboo Plateau, and is located approximately 20 km east of 70 Mile House. Access to this area is by traveling east from 70 Mile House along Green Lake road, then along South Green Lake road, then further south along various logging roads to the Property.

Geologically, the Property lies within the Quesnel Trough, which in this area consists of Nicola Group marine sediments and arc-derived volcanic rocks with associated high-level, coeval alkalic intrusions. Much is this area is mantled by younger plateau basalts of the Chilcotin Group. The Quesnel Trough hosts many alkalic porphyry copper-gold occurrences and producing mines (Copper Mountain, Mount Polley, Galore Creek, Mount Milligan) and is of regional metallogenic significance.

2.0 LOCATION AND ACCESS

The Property is centred at latitude 51° 19' N and longitude 121° 05' W, which is physiographically within the Cariboo Plateau. Figure 1 shows the regional location of the Property.

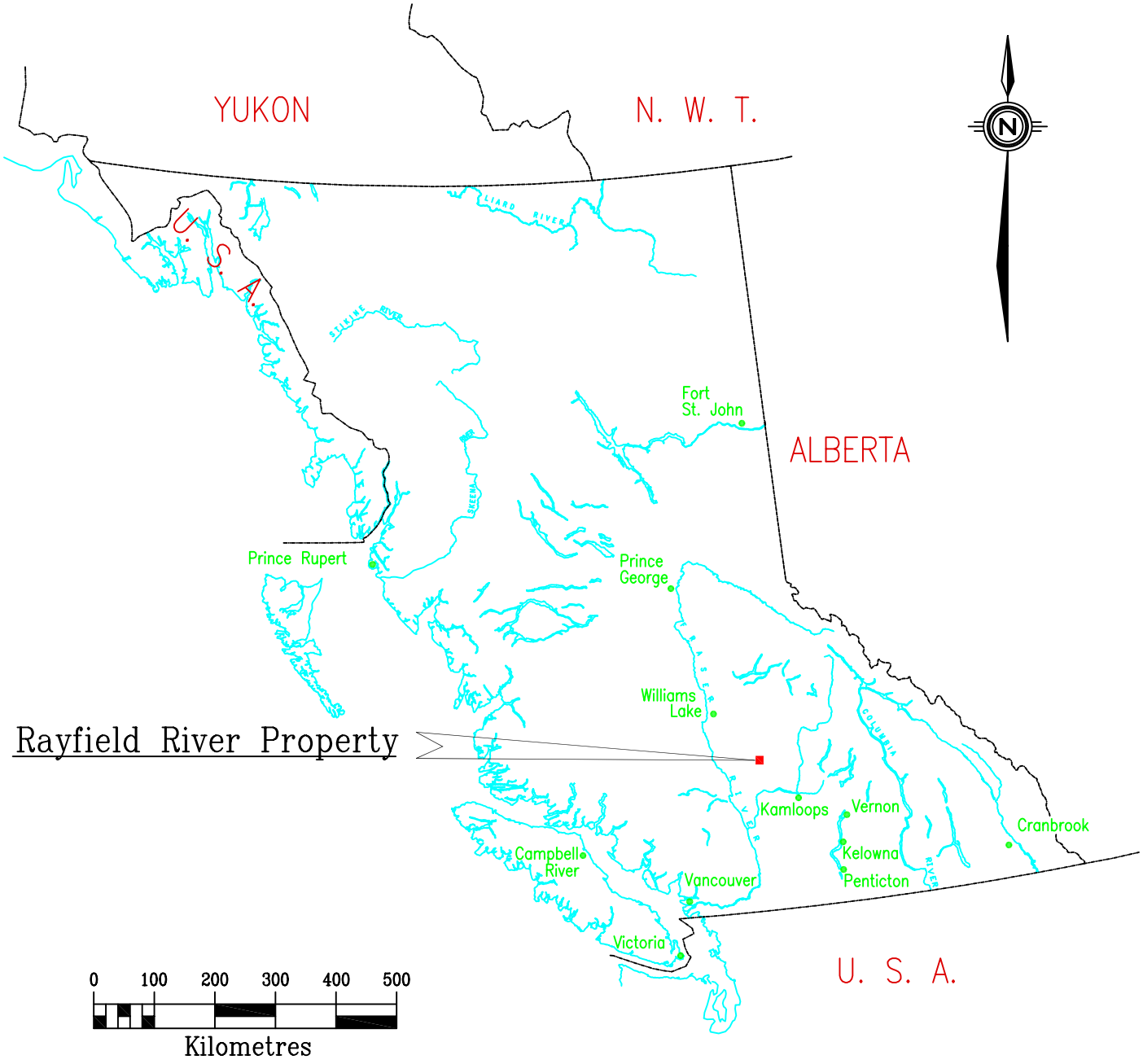
The Property is located 20 kilometres east of the town of 70 Mile House. The Property lies on both sides of the Rayfield River and extends from Crater Lake in the north to the Bonaparte River in the south.

Access to the north part of the Property is east from 70 Mile House along Green Lake road for 24 km, then southeast for 2.5 km on the Egan-Bonaparte Road, then for 3 km on various logging roads. Alternate access to the south part of the Property is heading south of the town of Clinton on Hwy 97, then northeast on Loon Lake road for 40 km, then along various logging roads to the Bonaparte River. Numerous forestry roads and dirt trails cross the Property and are useable by foot or 4-wheel-drive vehicle.

3.0 TOPOGRAPHY

Elevations on the Property range from 1000 m to 1200 m above sea level. The landforms are generally subdued, as a gently rolling upland plateau. A few small hills rise 30 m to 90 m above the plateau surface. The Rayfield River forms a deeply incised gorge through the flat-lying area. Moderately thick glacial deposits cover most of the plateau, and rock exposures are limited to knolls and the steep sides of the river valley. There are numerous stagnant swamps and shallow lakes as a result of poor drainage. The main drainage is via the Rayfield River, which cuts north-south across the centre of the Property. It flows south to the Bonaparte River, in the southern part of the Property. This river drains south into the Fraser River.

Most of the flat lying area is sparsely covered by pine and aspen, while the slightly lower wetter areas have predominately fir, spruce and willow. Grassy areas are also present.

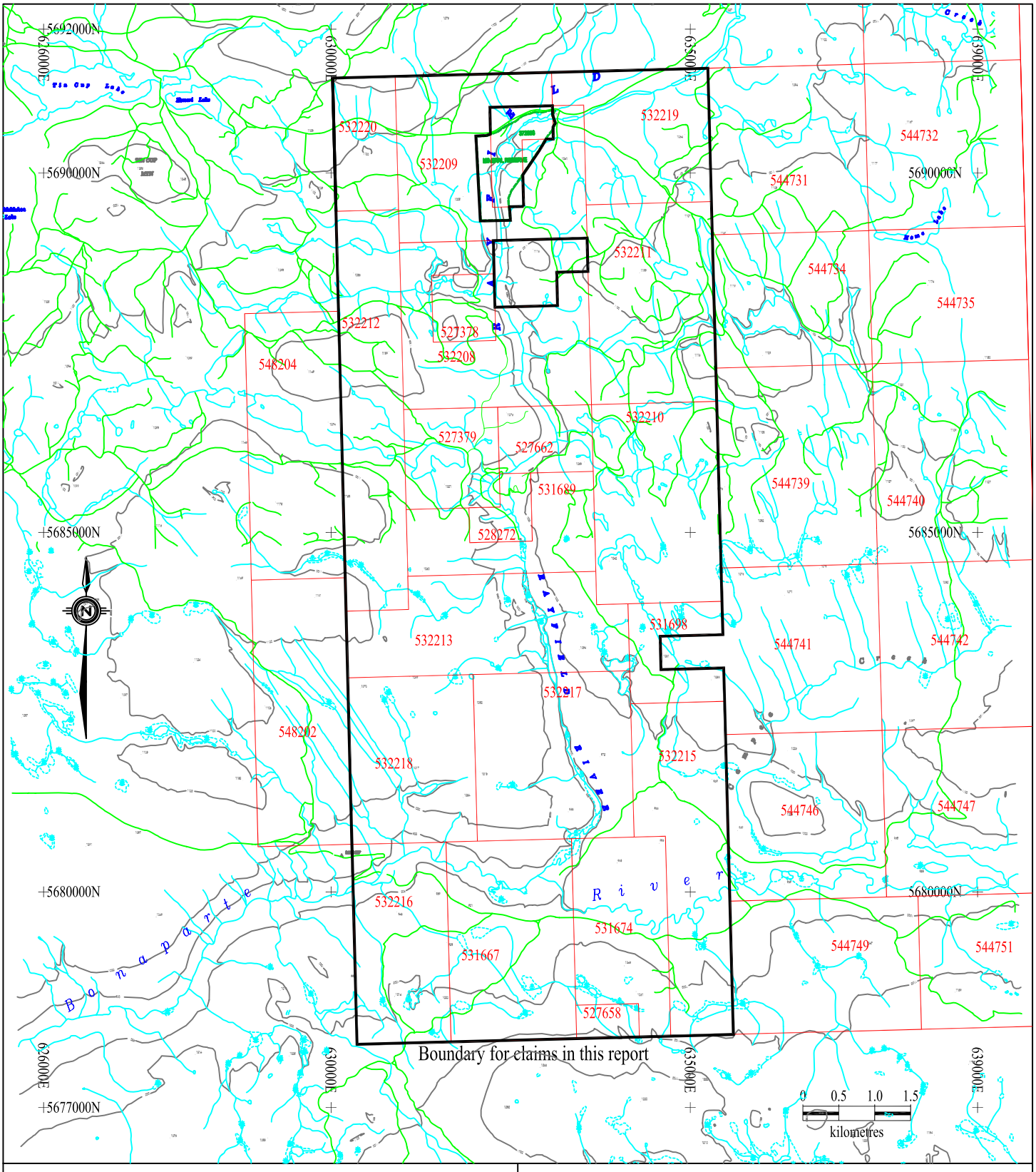


DISCOVERY Consultants	Candorado Operating Company Limited
Rayfield River Property	Property Location Map

Date:	Project:	Scale:	N.T.S.:	Mining Div:	Figure:
April 1, 2007	693	1:10,000,000	092P SW	Clinton	1

4.0 PROPERTY

The Property consists of 21 Mineral Title Online titles, for a total of 6,810.47 hectares. Nine of these tenures are recorded in the name of Allen Daniel Harvey, and 12 of the mineral tenures are recorded in the name of Candorado Operating Company Limited. Candorado has optioned the MTO claims from Allen Harvey in an option agreement. Figure 2 show the location of the claims. Table 1 lists the details of the claim tenures.



DISCOVERY Consultants

Candorado Operating Company Limited

Rayfield River Project

Claim Location Map

Date:	April 1, 2007	Project:	693	Scale:	1:75000	N.T.S.:	092P.035/025	Mining Div:	Clinton	Figure:	2

Table 1: Title Description * Expiry date is dependent on the acceptance of this report

Title Name	Tenure No.	Area (ha)	Registered Owner	Expiry*
BORNITE 1	527378	80.78	Allen Daniel Harvey	2008.02.10
BORNITE 2	527379	181.83	Allen Daniel Harvey	2008.02.10
X GROUP	527658	40.47	Allen Daniel Harvey	2008.02.11
BORNITE	527662	121.21	Allen Daniel Harvey	2008.02.11
RAYFIELD FELDSPAR	528272	60.62	Allen Daniel Harvey	2008.02.15
X GROUP 2	531667	485.52	Allen Daniel Harvey	2008.04.10
X GROUP 3	531674	323.67	Allen Daniel Harvey	2008.04.10
RAYFIELD COPPER 3	531689	242.49	Allen Daniel Harvey	2008.04.10
OWEN 2	531698	141.50	Allen Daniel Harvey	2008.04.10
RAYFIELD 10	532208	424.13	Candorado Operating Company Limited	2008.04.16
RAYFIELD 11	532209	504.67	Candorado Operating Company Limited	2008.04.16
RAYFIELD 12	532210	484.94	Candorado Operating Company Limited	2008.04.16
RAYFIELD 13	532211	484.67	Candorado Operating Company Limited	2008.04.16
RAYFIELD 14	532212	484.81	Candorado Operating Company Limited	2008.04.16
RAYFIELD 15	532213	485.10	Candorado Operating Company Limited	2008.04.16
RAYFIELD 16	532215	485.40	Candorado Operating Company Limited	2008.04.16
RAYFIELD 17	532216	364.14	Candorado Operating Company Limited	2008.04.16
RAYFIELD 18	532217	505.49	Candorado Operating Company Limited	2008.04.16
RAYFIELD 19	532218	404.39	Candorado Operating Company Limited	2008.04.16
RAYFIELD 20	532219	343.15	Candorado Operating Company Limited	2008.04.16
RAYFIELD 21	532220	161.49	Candorado Operating Company Limited	2008.04.16

5.0 HISTORY

The area covered by the Property has been staked numerous times since the 1950s. In 1963, Kennco Explorations (Western) Ltd. held the Pat Group of claims on the west side of the Rayfield River and conducted a small soil sampling program testing for copper and molybdenum along with geological mapping. In 1966, a geochemical and magnetometer survey was carried out by Cominco Ltd. on the east side of the Rayfield River on what was then known as the I.D.S. claims. Mr. C. Dansey re-staked the area as the BD claims and carried out a small program of bulldozer trenching. He subsequently optioned the claims to Amax Exploration Inc.

Amax Exploration Inc. carried out a large exploration program from 1968 to 1970. Anomalous copper values in soils along a seven mile stretch along the Rayfield River in 1968 led them to continue with a program of geological mapping, soil sampling, magnetometer and induced polarization (IP) surveys and a drill program. They detected a very large area of weak copper mineralization (plus 0.1% Cu). This led to a drill program of 31 percussion holes totalling 1748 m (5735 feet) in 1970. The holes averaged 61 m (200 ft) in depth on a 300 square metre (1000 square foot) grid. Results were 0.05% to 0.1% Cu over an area 450 m by 2130 m lying parallel to the Rayfield River and on the west side of it. The best copper intersection was 0.42% Cu over 6.1 m.

In 1989, the area was staked by Mr. P. Ziebart as the Rayfield 1 to 7 claims for the Vernon Exploration Group, and subsequently optioned to Brenda Mines Ltd. Discovery Consultants, on behalf of Brenda Mines Ltd., carried out the 1989 exploration program, which consisted of 34 km of IP and resistivity surveys, and geological mapping. The IP survey delineated five zones of increased chargeability, four of these having a correspondingly suppressed resistivity. A subsequent eight-hole diamond drill program totalling 1141 m in the same year tested these geophysical targets. Results from this drill program were 0.18% Cu (71 ppb Au) across 33.9 m; 0.14% Cu (30 ppb Au) over 66.7 m; 0.13% Cu (55 ppb Au) over 13.8 m. The best hole (6) resulted in 0.13% Cu (35 ppb Au) across 164 m. Wynne (1990) concluded that the copper-gold ratios were within the normal range of a

copper-gold alkaline porphyry, and that the drilling confirmed the existence of a major alkaline porphyry system.

The claims lapsed in the 1990s. In 2006, Mr. A. Harvey acquired the mineral cell titles online on ground covering the Rayfield River prospect. A few months later, Candorado acquired the mineral cell titles online on land adjoining the ground acquired by Mr. Harvey. Mr Harvey has granted an option on his mineral cell titles, which together with Candorado's titles, forms the current Property.

6.0 GEOLOGY

6.1 Regional Geology

The Property is located within the Quesnel Trough, a belt of island arc volcanic rocks and sedimentary rocks belonging to the Quesnel Terrane in the Intermontane Belt. The Quesnel Terrane is a marine basin that formed at the Triassic continental margin and consists of Jurassic to Tertiary volcanic and sedimentary rocks. The Upper Triassic to Lower Jurassic Nicola Group rocks consist mainly of volcanic rocks (volcanic breccia, tuff and basalt) stratigraphically overlain by sedimentary rocks (siltstone, sandstone, basalt, tuff, conglomerate, volcanic breccia, chert and dacite). Plutonic rocks, consisting of undersaturated syenites, monzonites, diorites and gabbros, are believed to be coeval with the Nicola Group rocks. The emplacement of these plutons took place in Early Jurassic and show close spatial and temporal affinities with the Upper Triassic to Lower Jurassic Nicola volcanic rocks. These alkaline plutons occur as breccias and small stocks, and are commonly porphyritic. The Nicola volcanic and intrusive rocks are crosscut by slightly younger large granodiorites, diorites and monzodiorites of the Thuya and Takomkane batholiths. Both alkaline and calc-alkaline intrusions are host to porphyry type copper-gold and copper-molybdenum mineralization. A cap of Miocene to Pliocene basaltic flows and related sediments of the Chilcotin Group unconformably overlies older rocks in this area.

6.2 Property Geology

The Property is situated over a 65 km^2 'window', which exposes underlying older rock through the Chilcotin plateau basalts. These basalts are mainly massive, flat-lying olivine basalts. The underlying rocks consist of quartz monzonite, granodiorite and syenite intrusives thought to be related to the Late Triassic or Early Jurassic Thuya batholith. The main body of the Thuya batholith lies to the east of the Property.

Several phases of the syenitic pluton have been mapped. There are two main intrusive phases, one a leucocratic syenite in the south central part of the Property, and the other, an amphibole syenite covering much of the rest of the Property. The contact between these units is a syenite unit that is likely transitional between the two. Further out is a zone of diorite. In addition, there are a few dykes of syenitic composition as well as a small pegmatitic syenite in the southwest part of the Property.

6.3 Mineralization and Alteration

Visible copper mineralization is widespread but more abundant near the transitional unit. Copper sulphides consist of chalcopyrite, bornite and chalcocite, occurring as fracture fill, as disseminations and in veinlets. Copper oxides are also abundant, occurring primarily as malachite and cuprite. Malachite occurs on feldspar veinlets, on fractures and as disseminations replacing mafic minerals. Native copper is also present. The mineralization system is somewhat unusual for a BC porphyry in consisting of predominately copper oxides.

Alteration includes potassium feldspar, epidote, chlorite, sericite and hematite.

Structurally, the intrusive shows foliation, faulting and feldspar veining. Foliation is moderately to well developed throughout the leucocratic syenite and parallels lithological contacts within the intrusives. It varies from a near vertical dip at the outer margins, to about 45˚NE near the center of the core. This suggests that the leucocratic core dips in a north-east direction beneath the amphibole syenite unit.

In strongly fractured areas, the feldspar veinlet patterns have several common orientations, though none predominates. The most widespread veinlet set is a sheeted set of grey feldspar veinlets trending NNW and dipping 40-60˚W.

7.0 WORK COMPLETED

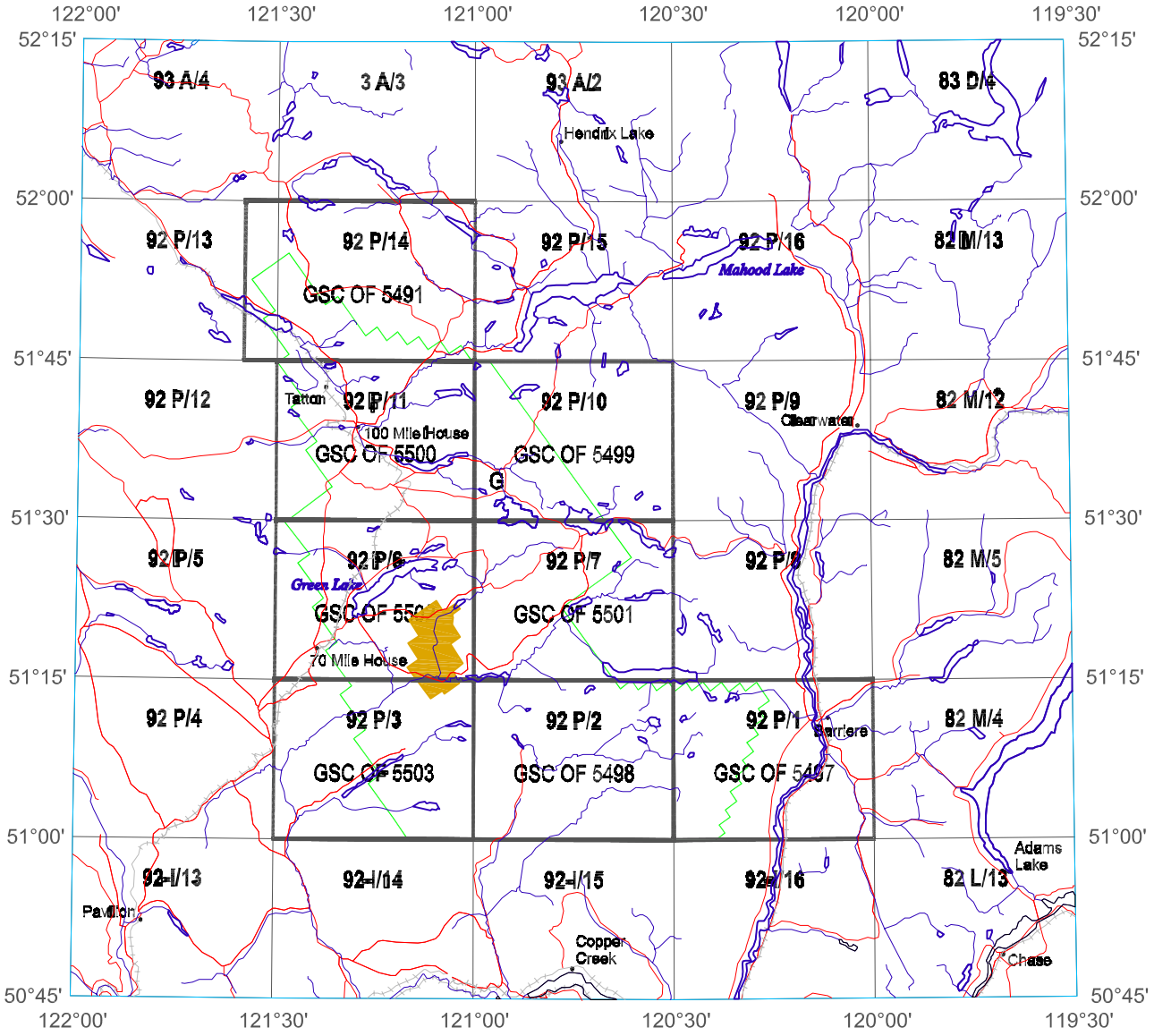
The fixed-wing airborne geophysical survey was carried out by Sanders Geophysics Limited (SGL) during the period of September 16 to October 23, 2006. The survey, consisting of a Gamma-ray spectrometric and magnetic survey, was conducted as a partnership with Geoscience BC, National Resources Canada and Candorado Operating Company Ltd. Candorado funded the survey. Project management was undertaken by the Geological Survey of Canada (GSC), which included the work as part of a larger airborne survey over the Bonaparte Lake area.

Figure 3 shows the extent of the complete airborne survey and the location of the survey over the Property. This area is included in the GSC Open Files 5502 and 5503 (2007). Flight lines flown over the Property and the surrounding area are shown on Figure 4. The 1000 series flight lines are the standard 400-m spacing lines – flown over much of the regional survey, while the 2000 series flight lines are the in-fill lines, providing more detailed coverage. The traverse lines, oriented at N52˚E were flown at 200-m spacing.

Some reconnaissance lines were flown at a NNE orientation. Control lines were flown at 500-metre intervals at right angles to the main survey lines, but are not shown on the maps in this report.

In total, 409 line-kilometres were flown over the Property, including a 1 km zone around the Property. This buffer zone is needed for interpretation of data on the Property.

All lines were flown at a nominal attitude of 125 m above a drape surface, which was designed to take into account the digital terrain model and the performance of the aircraft at that attitude. The fixed-wing aircraft used in the survey was a Britten-Norman Islander BN2B-21, which is a high-wing, twin engine short take off



NATIONAL TOPOGRAPHICAL SYSTEM REFERENCE AND GEOPHYSICAL MAP INDEX

2006 Airborne Geophysical Survey Area

Rayfield Airborne Geophysical Survey Area

DISCOVERY Consultants

Candorado Operating Company Limited

Rayfield River Property

Airborne Geophysical Survey

Date:	Project:	Scale:	N.T.S.:	Mining Div:	Figure:
April 1, 2007	693	none	92P,93A	Cariboo, Clinton	3

and landing aircraft.

Survey Equipment

Sander Geophysics provided the equipment for the airborne survey. The following descriptions are taken from Kaplon, 2007. This report in its entirety is given in Appendix 1.

Aerial and Ground Magnetometers

Geometrics G-822A

Both the ground and airborne systems used a non-oriented (strap-down) optically-pumped cesium split-beam sensor. These magnetometers have a sensitivity of 0.005 nT and a range of 15,000 to 100,000 nT with a sensor noise of less than 0.02 nT. The airborne sensor was mounted in a fibreglass stinger installed on the tail of the aircraft. Total magnetic field measurements were recorded at an interval of 0.1 second in the aircraft and in the ground systems. The base station for the ground magnetometer was located at the 108 Mile Ranch airport.

Automatic Aeromagnetic Digital Compensator

RMS AADCII, RMS AADCIV

The RMS AADCII and AADCIV compensators are fully automatic, 27-term compensator systems which utilize a 3-axis fluxgate magnetometer for heading information and provide a complete real-time compensation of the aircraft manoeuvre noise. Magnetic data is output through the serial port at 0.1 s intervals, with a resolution of 0.001 nT.

Gamma Ray Spectrometer System

Exploranium GR820 with Crystal Detector Packs GPX-1024/256 (3 packs, 14 crystals)

The spectrometer system includes an on-board computer for real-time signal processing and analysis, which allows automatic gain control for individual crystals using the natural thorium peak, and multi-channel recording and analysis. The system utilized a (Tl) NaI detector volume of 58.8 litres consisting of 12 downward-looking and two upward-looking parallelepipedic crystals of 4.2 l each, housed in two detector packs. Data was recorded in 256 channel spectral mode and windowed

data mode at an interval of 1 s.

Real-Time Differential GPS

Canadian-wide DGPS (CDGPS-C)

The CDGPS receiver provides real-time differential GPS for the NavDAS on-board navigation system. The differential data set was relayed via a geosynchronous satellite serving different regions of Canada to the aircraft where the receiver optimized the corrections for the current location.

Airborne Navigation and Data Acquisition System

Sander NavDAS

The NavDAS is the latest version of airborne navigation and data acquisition computers developed by SGL. It displays all incoming data on a flat panel screen for real-time monitoring. The data is recorded on a solid-state internal hard drive and copied to a removable hard drive post-mission for transfer of data to the field office. The computer incorporates a magnetometer coupler, an altimeter analogue to digital converter and a 12-channel, dual-frequency GPS receiver NovAtel Millennium which automatically provides the UTC time base for the recorded data. In addition to providing essential post-mission positional data, the NavDAS computer processes user-received GPS or real-time differentially corrected GPS (RDGPS) data and compares the data to the coordinates of a theoretical flight plan in order to guide pilots along the desired survey line in three dimensions.

Ground Data Acquisition System

SGL GND-ACQ

The ground data acquisition computer is a portable PC-Pentium with a Sander Cesium Magnetometer Frequency Counter to process the signal from the magnetometer sensor and from the GPS receiver. The noise level of the base station magnetometer is less than 0.1 nT. The time base (UTC) of both the ground and airborne systems is automatically provided by the GPS receiver, ensuring proper merging of both data sets. All data is displayed on a LCD flat panel monitor and printed on a line printer during each flight. The magnetic and GPS data, sampled every 0.1 s, are recorded on the internal hard drive of the computer in the same format as the airborne data. After each flight the data were transferred using

a removable hard drive to the processing computers in the field office. The entire ground data acquisition system is fully automatic and was set for unattended recording and printing.

Ground Station GPS Receiver

Millennium PowerPack OEM3, 12-channel, dual-frequency (base)

Millennium Standard OEM3, 12-channel, dual-frequency (remote)

The NovAtel Millennium, 12-channel, dual-frequency receiver forms an integral part of the SGL GND-ACQ system. It provides averaged position and raw range information of all satellites in view, sampled every 0.1 s. The comparative navigation data supplied during all production flights allows for post-processed differential GPS (DGPS) corrections for every survey flight.

Airborne Video System

Costar CV 950N camera with iCAM 1Ux19

Integrated Geoscience Inc. Digital Flight Path Video Camera System

The video camera is mounted in the floor of the aircraft and oriented to look vertically below while in flight. The video image has incorporated an intervalometer and fiducial marking system required for flight path verification. The video information was recorded digitally on a 40 Gb IOMEGA USB 2.0/FireWire External Portable Hard Drive in AVI format.

Altimeters

King KRA-10A Radar Altimeter

The King radar altimeter measures height above ground to a resolution of 0.5 m and an accuracy of 1% over a range up to 2,500 ft. The radar altimeter data is sampled at 4 Hz. *TRT Digital Radar Altimeter ERT-530A* The TRT radar altimeter measures height above ground to a resolution of 0.5 m and an accuracy of 1% over a range up to 2,500 m. The radar altimeter data is sampled at 4 Hz.

Sander Digital Barometric Pressure Sensor

The barometric pressure sensor measures static pressure to an accuracy of ± 4 m and resolution of 2 m over a range up to 9,000 m above sea level. The barometric altimeter data is sampled at 4 Hz.

Data Recording

The following parameters were recorded during the course of the survey:

In the aircraft:
- GPS positional data: (time, latitude, longitude, altitude and raw range from each satellite being tracked) recorded at intervals of 0.1 s;
- Total magnetic field: recorded at intervals of 0.1 s;
- Altitude as measured by the barometric altimeter at intervals of 0.25 s;
- Terrain clearance as measured by the radar altimeter at intervals of 0.25 s;
- Continuous video images of the terrain passing below the aircraft with line number, direction, time and position synchronously impressed on the images.

At the base and remote magnetic/GPS ground stations:
- Total magnetic field: recorded at intervals of 0.1 s;
- GPS positional data: (time, latitude, longitude, and raw range from each satellite being tracked): recorded at intervals of 0.1 s.

Data compilation including editing and filtering, quality control, and final data processing was performed at SGL head office in Ottawa. The final levelling of magnetic data was performed by the GSC. The plan maps with GPS corrected UTM coordinates are shown on Figures 5 to 13 at a scale of 1:20,000, and include the various types of radiometric data as well as the magnetic data.

8.0 DISCUSSION and CONCLUSIONS

A series of 1:20,000 maps (Figures 5 – 13) show the airborne data. Interpretation of the geophysical data was done by R. Shives of the GSC. Four priority 1 targets on the Property were selected based on profiles of the thorium to potassium ratio and the magnetics. Four priority 2 targets were also interpreted. The targets are given in Table 2:

Table 2: Interpreted Anomalous Geophysical Targets

			NAD 83 UTM Zone 10		
Anomaly	**Flight Line**	**Fiducial**	**Easting**	**Northing**	
Priority 1 Targets					
R1	2066	75	632092	5685796	
	1142	613	632057	5685518	
	2065	52	632198	5685340	centre
	1141	298	632369	5685252	
	2064	72	632583	5685151	
	1140	592	632723	5685025	
R2	1137	296	633477	5684095	
	2060	34	633670	5683953	
	1136	585	633811	5683838	centre
	2059	105	634014	5683728	
R4	1138	638	630859	5682561	
	2061	48	630917	5682355	centre
	1137	247	630999	5682189	
	2060	84	631134	5682026	
R5	2057	57	632139	5681280	
	1133	255	632320	5681183	centre
	2056	75	632537	5681081	
	1132	627	632570	5680881	
Priority 2 Targets					
1			631820	5689855	
2			630915	5681615	
3			635465	5682550	
4			634460	5678805	

9.0 RECOMMENDATIONS

The geophysical targets generated by the airborne survey should be ground evaluated by a field examination. Examination should include rock sampling if outcrop is present. The targets should also be evaluated with a soil sampling program to test the copper and gold geochemistry of the underlying rock. If the results of surface sampling are encouraging, then these areas should be explored by diamond drilling.

Respectfully submitted,

Original Signed by Author

Agnes Koffyberg, P. Geol.
Discovery Consultants
Vernon, BC
April 30, 2007

10.0 REFERENCES

British Columbia Department of Energy, Mines and Petroleum Resources. Annual Reports 1966 – p. 135, 1967 – p. 127, 1968 – p. 159

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Miles, W.F., Shives, R.B.K., Carson, J., Buckle, J. Dumont, R., and Coyle, M., Airborne Gamma-ray Spectrometric and Magnetic Surveys over the Bonaparte Lake area (NTS 092P), South Central British Columbia, Geological Fieldwork 2006, Paper 2007-01, p. 375-376.

Wynne, F.L. (1990) Assessment Report on Exploration on the Rayfield 1 and 3 Claims, Clinton Mining Division, BC; Assessment report 19927.

11.0 STATEMENT OF COSTS

1.	Professional Services		
	W.R. Gilmour, P.Geo (April 2007)		
	Report writing, data compilation		
	1.0 days @ $600/day	$600.00	
	A. Koffyberg, P.Geol (March - April, 2007)		
	Report writing		
	28.0 hours @ $67.50/hr	1,890.00	
	R. Shives, geophysicist (April 2007)		
	Airborne survey interpretation		
	4 days @ $ 700/day	2800.00	
			5290.00
2.	Personnel - Office		
	Drafting	750.00	
	Data Compilation	200.00	
	Secretarial	250.00	
			1,200.00
3.	Expenses		
	Office	300.00	
	Communications	50.00	
	Maps	400.00	
			750.00
4.	Contracting - Geoscience BC		
	409 line-kilometres at $ 58.14 line-km		23,779.26
	Total Exploration Expenditures:		**$31,019.26**

12.0 STATEMENT OF QUALIFICATIONS

I, Agnes Koffyberg, P.Geol. of 639 Welke Road, Kelowna, BC V1W 2M9

DO HEREBY CERTIFY that:

1. I am a geologist in mineral exploration and am employed by Discovery Consultants, Vernon, BC.

2 I graduated with a B.Sc. degree in combined Geological Sciences/Chemistry from the Brock University in 1987. In addition, I have obtained a M.Sc. in Geology from the University of Alberta in 1994.

3. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta, registration number M60148.

4. I have worked as a geologist for a total of 10 years since graduation from university.

5. This report is based upon knowledge of the Property gained from a review of existing industry and government reports.

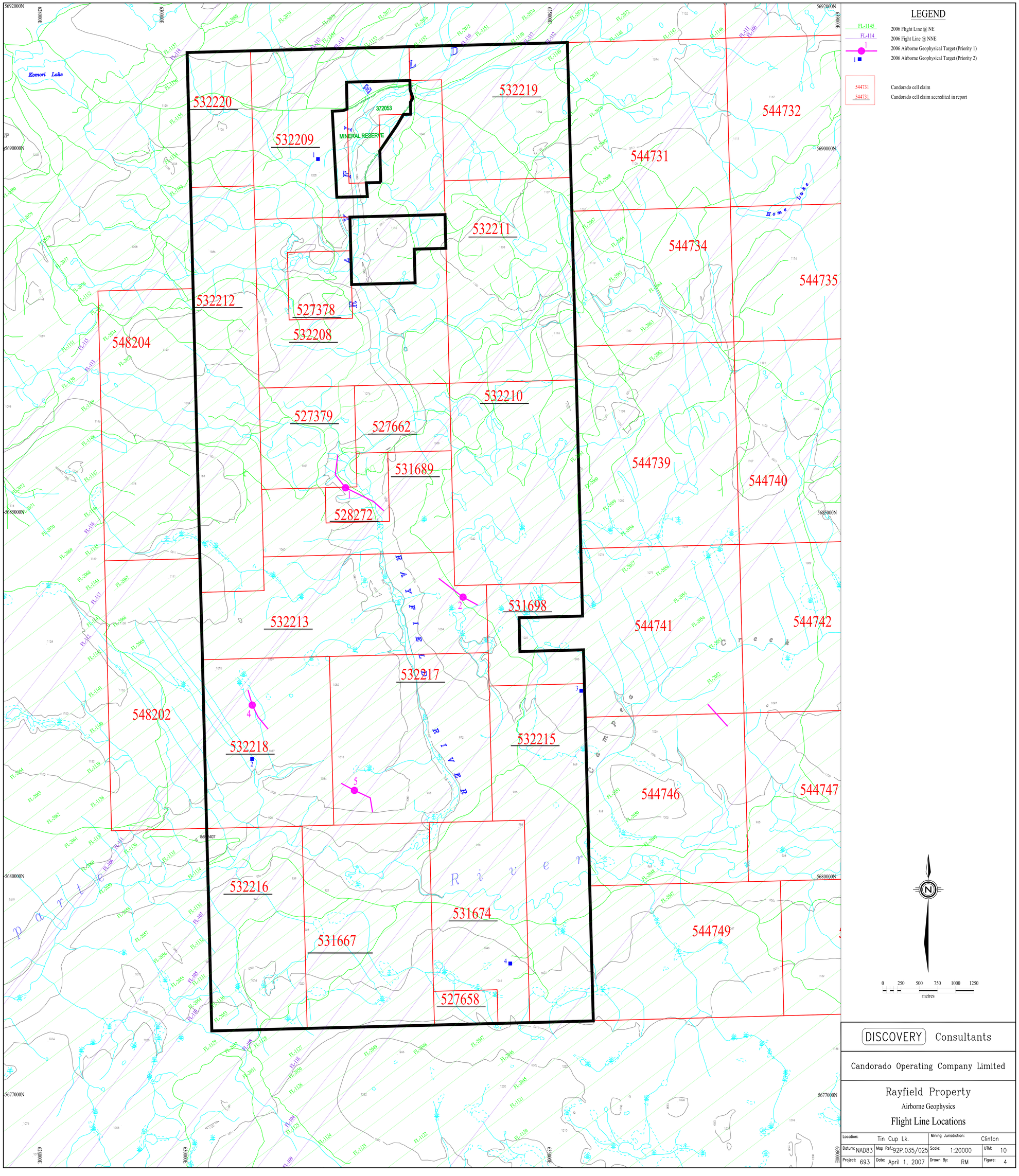
Dated this thirtieth day of April, 2007 in Vernon, BC.

Signature of

Original Signed by Author

Agnes Koffyberg, P.Geol.

APPENDIX



LEGEND

- FL-1145 — 2006 Flight Line @ NE
- FL-114 — 2006 Fight Line @ NNE
- 2006 Airborne Geophysical Target (Priority 1)
- 2006 Airborne Geophysical Target (Priority 2)
- 544731 — Candorado cell claim
- 544731 — Candorado cell claim accredited in report

0 250 500 750 1000 1250
metres

DISCOVERY Consultants

Candorado Operating Company Limited

Rayfield Property

Airborne Geophysics

Flight Line Locations

Location: Tin Cup Lk.		Mining Jurisdiction: Clinton	
Datum: NAD83	Map Ref: 92P.035/025	Scale: 1:20000	UTM: 10
Project: 693	Date: April 1, 2007	Drawn By: RM	Figure: 4

Project Report

Fixed-wing Airborne
Gamma-ray Spectrometric and Magnetic Survey
Bonaparte River area, British Columbia – 2006

Geological Survey of Canada
Contract No. 23390-071501/001/SQ

Sander Geophysics Limited

Prepared by

Rafael J. Kaplon, M.Eng.
February 2007

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APPENDICES

I. INTRODUCTION

Sander Geophysics Limited (SGL) conducted a high-sensitivity fixed-wing airborne magnetic and gamma-ray spectrometric survey for Geological Survey of Canada in the Bonaparte River area, in the south-central part of the province of British Columbia (see *Figure 1 - Map of Survey Area).* The survey was flown from September 16 to October 23, 2006 .

Please refer to *Appendix I* for a Company Profile of Sander Geophysics Limited.

The total size of the survey was 14,443 line kilometres (see *Appendix II*). A total of 29 production flights were performed using survey aircraft Britten-Norman Islander BN2B, registration C-GSGX. The survey operations were conducted from 108 Mile Ranch airport located in the northern part of the survey area.

The traverse and control lines in the main survey area (Bonaparte) were flown, respectively, at 400 m and 2,500 m spacings. The traverse lines in the infill area (Rayfield), held by industry partners, were flown at 400 m spacing and four additional control lines in the infill area were flown at 500 m spacing. Traverse lines were oriented at N52^{o}E and control lines at N142^{o}E. All lines were flown at a nominal altitude of 125 m above a drape surface which was designed to take into account the digital terrain model and the performance of the aircraft at that altitude. The average survey flying speed (indicated air speed) was 220 km/hour.

Picture 1: Survey Area – North Thompson River

Picture 2: Satellite View of Survey Area

II. SURVEY AREA

The survey area is situated in the south-central part of the province of British Columbia extending over a distance of approximately 127 km in the SE-NW direction and 64 km in the SW-NE direction (see survey location map *Figure 1*). The survey area covers a mainly forested and hilly area with numerous valleys and lakes and with elevations ranging from approximately 630 m to 1880 m above sea level (ASL).

Coordinates of all flown survey lines are listed in *Appendix III*. The following coordinates delineate the survey area:

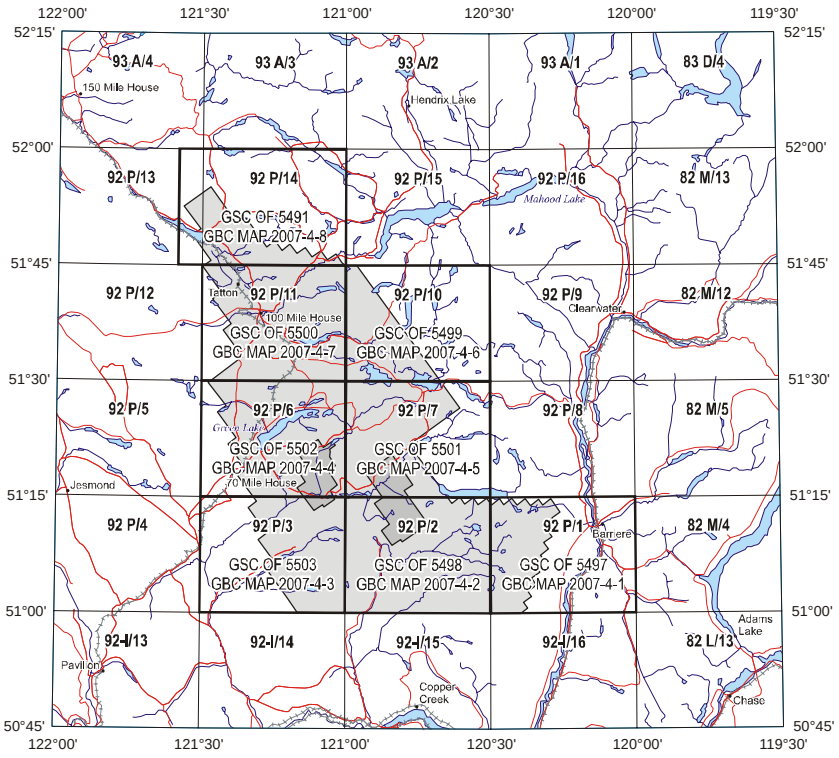
Table 1: Geographical Coordinates of Survey Area (datum NAD-83, UTM Zone 10N)

Corner	Latitude	Longitude		Corner	Latitude	Longitude
1	50:59.21º N	120:23.46º W		18	51:37.35º N	121:23.97º W
2	50:59.41º N	121:09.11º W		19	51:40.65º N	121:27.91º W
3	51:05.28º N	121:15.95º W		20	51:41.44º N	121:26.15º W
4	51:06.12º N	121:14.13º W		21	51:44.74º N	121:30.07º W
5	51:09.59º N	121:18.19º W		22	51:45.54º N	121:28.31º W
6	51:10.40º N	121:16.43º W		23	51:48.83º N	121:32.25º W
7	51:13.69º N	121:20.28º W		24	51:49.63º N	121:30.49º W
8	51:14.48º N	121:18.55º W		25	51:52.58º N	121:34.02º W
9	51:17.77º N	121:22.43º W		26	51:55.07º N	121:28.50º W
10	51:18.56º N	121:20.70º W		27	51:50.23º N	121:22.72º W
11	51:21.87º N	121:24.57º W		28	51:51.00º N	121:20.98º W
12	51:22.65º N	121:22.86º W		29	51:47.85º N	121:17.15º W
13	51:25.95º N	121:26.78º W		30	51:45.17º N	120:58.11º W
14	51:26.72º N	121:25.07º W		31	51:26.64º N	120:36.35º W
15	51:29.83º N	121:28.77º W		32	51:21.93º N	120:46.85º W
16	51:33.08º N	121:21.60º W		33	51:14.60º N	120:38.40º W
17	51:36.55º N	121:25.74º W		34	51:14.17º N	120:15.78º W

Picture 3: Survey Aircraft parked at 108 Mile Ranch Airport

Figure 1: Map of Survey Area

Location Map - Carte de Localisation



NATIONAL TOPOGRAPHICAL SYSTEM REFERENCE AND GEOPHYSICAL MAP INDEX
SYSTÈME NATIONAL DE RÉFÉRENCE CARTOGRAPHIQUE ET INDEX DES CARTES GÉOPHYSIQUES

III. SURVEY EQUIPMENT

SGL provided the following instrumentation for this survey (see *Appendix IV* for further details):

Aerial and Ground Magnetometers
Geometrics G-822A

Both the ground and airborne systems used a non-oriented (strap-down) optically-pumped caesium split-beam sensor. These magnetometers have a sensitivity of 0.005 nT and a range of 15,000 to 100,000 nT with a sensor noise of less than 0.02 nT. The airborne sensor was mounted in a fibreglass stinger installed on the tail of the aircraft. Total magnetic field measurements were recorded at an interval of 0.1 sec in the aircraft and in the ground systems.

Automatic Aeromagnetic Digital Compensator
RMS AADCII
RMS AADCIV

The RMS AADCII and AADCIV compensators are fully automatic, 27-term compensator systems which utilize a 3-axis fluxgate magnetometer for heading information and provide a complete real-time compensation of the aircraft manoeuvre noise. Magnetic data is output through the serial port at 0.1 s intervals, with a resolution of 0.001 nT.

Gamma Ray Spectrometer System
Exploranium GR820 with Crystal Detector Packs GPX-1024/256 (3 packs, 14 crystals)

The spectrometer system includes an on-board computer for real-time signal processing and analysis, which allows automatic gain control for individual crystals using the natural thorium peak, and multi-channel recording and analysis. The system utilized a (Tl)NaI detector volume of 58.8 L consisting of 12 downward-looking and two upward-looking parallelepipedic crystals of 4.2 L each, housed in two detector packs. Data was recorded in 256 channel spectral mode and windowed data mode at an interval of 1 s.

Real-Time Differential GPS
Canadian-wide DGPS (CDGPS-C)

The CDGPS receiver provides real-time differential GPS for the NavDAS on-board navigation system. The differential data set was relayed via a geosynchronous satellite serving different regions of Canada to the aircraft where the receiver optimized the corrections for the current location.

Airborne Navigation and Data Acquisition System
Sander NavDAS

The NavDAS is the latest version of airborne navigation and data acquisition computers developed by SGL. It displays all incoming data on a flat panel screen for real-time monitoring. The data is recorded on a solid-state internal hard drive and copied to a

removable hard drive post-mission for transfer of data to the field office. The computer incorporates a magnetometer coupler, an altimeter analogue to digital converter and a 12-channel, dual-frequency GPS receiver NovAtel Millennium which automatically provides the UTC time base for the recorded data. In addition to providing essential post-mission positional data, the NavDAS computer processes user-received GPS or real-time differentially corrected GPS (RDGPS) data and compares the data to the coordinates of a theoretical flight plan in order to guide pilots along the desired survey line in three dimensions.

Ground Data Acquisition System

SGL GND-ACQ

The ground data acquisition computer is a portable PC-Pentium with a Sander Cesium Magnetometer Frequency Counter to process the signal from the magnetometer sensor and from GPS receiver. The noise level of the base station magnetometer is less than 0.1 nT. The time base (UTC) of both the ground and airborne systems is automatically provided by the GPS receiver, ensuring proper merging of both data sets. All data is displayed on a LCD flat panel monitor and printed on a line printer during each flight. The magnetic and GPS data, sampled every 0.1 sec, are recorded on the internal hard drive of the computer in the same format as the airborne data. After each flight the data were transferred using a removable hard drive to the processing computers in the field office. The entire ground data acquisition system is fully automatic and was set for unattended recording and printing.

Ground Station GPS Receiver

Millennium PowerPack OEM3, 12-channel, dual-frequency (base)
Millennium Standard OEM3, 12-channel, dual-frequency (remote)

The NovAtel Millennium, 12-channel, dual-frequency receiver forms an integral part of the SGL GND-ACQ system. It provides averaged position and raw range information of all satellites in view, sampled every 0.1 s. The comparative navigation data supplied during all production flights allows for post-processed differential GPS (DGPS) corrections for every survey flight.

Airborne Video System

Costar CV 950N camera with iCAM 1Ux19
Integrated Geoscience Inc. Digital Flight Path Video Camera System

The video camera is mounted in the floor of the aircraft and oriented to look vertically below while in flight. The video image has incorporated an intervalometer and fiducial marking system required for flight path verification. The video information was recorded digitally on a 40Gb IOMEGA USB 2.0/FireWire External Portable Hard Drive in AVI format.

Altimeters

King KRA-10A Radar Altimeter

The King radar altimeter measures height above ground to a resolution of 0.5 m and an accuracy of 1% over a range up to 2,500 ft. The radar altimeter data is sampled at 4 Hz.

TRT Digital Radar Altimeter ERT-530A

The TRT radar altimeter measures height above ground to a resolution of 0.5 m and an accuracy of 1% over a range up to 8,192 ft. The radar altimeter data is sampled at 4 Hz.

Sander Digital Barometric Pressure Sensor

The barometric pressure sensor measures static pressure to an accuracy of ± 4 m and resolution of 2 m over a range up to 30,000 ft above sea level. The barometric altimeter data is sampled at 4 Hz.

Survey Aircraft

Britten-Norman Islander BN-2B (registration C-GSGX)

The Islander BN-2B is an all metal, high wing, twin-engine aircraft powered by two turbo-charged engines that drive constant speed with fully feathering propellers. The aircraft has fixed non-retractable tricycle landing gear, extendable flaps and manually adjustable trim tabs on the primary controls for all three flight axes. The aircraft is equipped with full de-icing equipment and sufficient avionics for instrument flying. The aircraft has a rigid aluminium and composite material 2.5 m tail stinger designed to accommodate a magnetometer sensor and wiring. There is a camera hole in the belly of the aircraft and provision for numerous other survey and navigation systems. The airframe has been extensively modified to reduce the magnetic signature of the aircraft. Ferromagnetic parts have been replaced with those made from special non-magnetic stainless steel or aluminium materials. Several wiring changes have also been made to the electrical system to reduce magnetic field variations around the aircraft. See *Appendix V* for more information on the aircraft.

Data Processing Hardware and Software

Processing was performed on high performance desktop computers optimized for processing tasks. SGL's proprietary geophysical software was used for data processing.

IV. SURVEY SPECIFICATIONS

Data Recording

The following parameters were recorded during the course of the survey:

In the aircraft:

- GPS positional data: (time, latitude, longitude, altitude and raw range from each satellite being tracked) recorded at intervals of 0.1 s;
- Total magnetic field: recorded at intervals of 0.1 s;
- Altitude as measured by the barometric altimeter at intervals of 0.25 s;
- Terrain clearance as measured by the radar altimeter at intervals of 0.25 s;
- Continuous video images of the terrain passing below the aircraft with line number, direction, time and position synchronously impressed on the images.

At the base and remote magnetic/GPS ground stations:

- Total magnetic field: recorded at intervals of 0.1 s;
- GPS positional data: (time, latitude, longitude, and raw range from each satellite being tracked): recorded at intervals of 0.1 s.

Technical Specifications

The data quality control was performed on a daily basis, after each flight.

The following technical specifications were adhered to:

- *Positional Data* - Aircraft location determined to within 5 m in X, Y, and Z after differential correction.
- *Airborne Magnetometer Data* - The noise envelope not to exceed 0.1 nT.
- *Figure of Merit from Magnetometer Compensation test* - less than 1.5 nT.
- *Geomagnetic Diurnal Variation* - Airborne survey data not acceptable when gathered during magnetic storms or short-term disturbances of magnetic activity at the ground station that exceed 3.0 nT (peak to peak) deviation from a long chord equivalent to a period of one minute for each base station.
- *Flying Speed* – The average ground speed for the survey aircraft, flying traverse or control lines will be limited to a range between 200 kph and 270 kph.
- *Altitude* – 125m mean terrain clearance except in areas where Transport Canada regulations prevent flying at this altitude. Traverse lines and control lines must be flown at the same altitude at points of intersection with tolerances limited to +/- 30m. The survey altitude must be controlled according to the pre-defined smooth drape surface.
- *Precipitation Limitations* – Varying ground moisture conditions affect the airborne radioactivity measurements. No survey flying should be undertaken during or for 3 hours after measurable precipitation. In the event of heavy precipitation yielding more than 2 cm of ground soaking rain, flying should be suspended for at least 12 hours after end of precipitation or until soil returns to its “normal” moisture level.
- *Radar Altimeter* – minimal accuracy of 2%, minimum range of 0-800 m.

- *Barometric Altimeter* - minimal accuracy of 2%.
- *Flight Path Following*

Traverse lines:
- azimuth: 52º
- spacing: 400 m
- minimum over-fly distance: 500 m
- allowed minimum allowed separation: 300 m
- allowed maximum separation of 500 m.

Control Lines:
- azimuth: 142º
- spacing: 2500 m
- minimum over-fly distance: 500 m

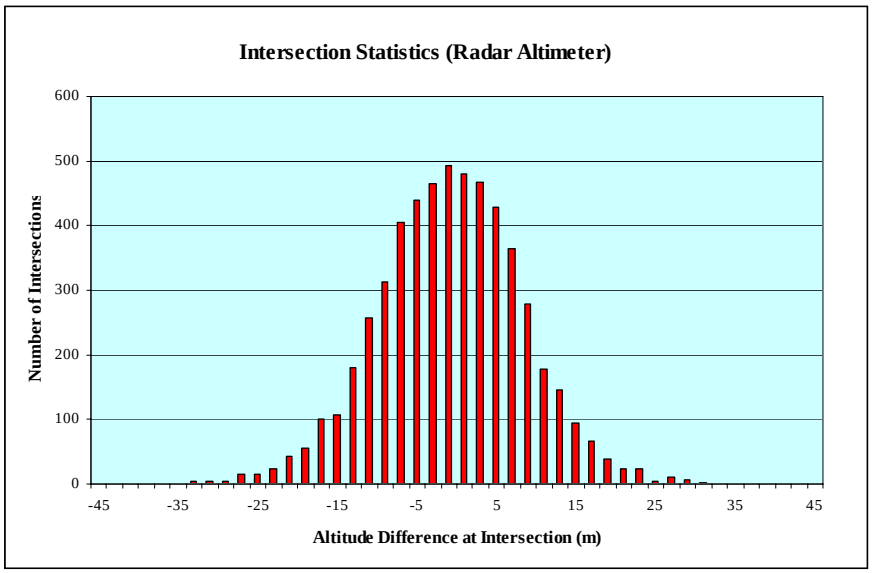
Please refer to *Appendix VI* for a list of lines reflown for deviations from survey specifications.

Flying Altitude

The survey block was flown using a smooth flyable drape surface with a minimum terrain clearance of 125 m. The drape surface calculated with a maximum slope of 5% was prepared and provided by the Geological Survey of Canada.

The altitude tolerance along the survey lines and at points of intersection between traverse and control lines was limited to ±30 m. A histogram showing the actual intersection differences achieved is shown in *Figure 2*. The standard deviation of the differences was 9.19 m. Almost all of the 5,546 intersections were inside the ±30 m tolerance envelope with only 0.38% of the total being outside.

Figure 2: Intersection Statistics (Radar Altimeter)



V. SYSTEM TESTS

Magnetometer System Calibration

Calibration of the magnetometer system in the aircraft was carried out by flying a cloverleaf heading error test over the GSC magnetic calibration range at Bourget, Ontario and comparing the aircraft magnetometer readings to the GSC's ground magnetometer. *Table 2* below summarises the results of Bourget test.

Table 2: Aeromagnetic survey system calibration at Bourget calibration range

AEROMAGNETIC SURVEY SYSTEM CALIBRATION AT BOURGET, ONTARIO			
Aircraft type:	Britten-Norman Islander BN2B	*Date:*	14-Jul-2006
Registration:	C-GSGX	*Height flown*	500 feet
Organization:	Sander Geophysics Limited	*Magnetometer type:*	GEOMETRICS G-822A
Pilot:	Dave Vipond	*Compensator:*	RMS AADCII
Co-pilot:		*Sampling rate:*	0.1 sec
Operator:	N/A	*Data acquisition system:*	Sander ADAC computer

		Aircraft readings over crossroad		Observatory diurnal reading (nT)				Error Value	Variation from
Flight line		Time	Total field	Previous Min	Subs. Min	Interpolated	Calculated		
Number	Direction	GMT	T1	T2	T3	T4	T5	T6	Average
101.01	N	19:06:06	54912.05	55473.20	55474.70	55473.35	54917.35	-5.3	0.6
101.02	S	19:24:52	54932.07	55493.80	55495.00	55494.84	54938.84	-6.8	-0.8
1001.01	E	18:57:22	54908.32	55470.20	55469.30	55469.87	54913.87	-5.5	0.4
1001.02	W	19:31:48	54926.93	55492.30	55488.90	55489.58	54933.58	-6.6	-0.7
101.03	N	19:16:59	54925.06	55486.10	55487.30	55487.28	54931.28	-6.2	-0.3
101.04	S	19:35:44	54918.88	55481.20	55481.60	55481.49	54925.49	-6.6	-0.7
1001.03	E	19:10:23	54920.12	55481.00	55481.60	55481.23	54925.23	-5.1	0.8
1001.04	W	19:42:25	54919.53	55481.70	55479.30	55480.70	54924.70	-5.2	0.8
Average North-South Heading Error:				0.93	nT		Total :	-47.4	
Average East-West Heading Error:				0.58	nT		Average:	-5.9	

Compensation Test

Magnetometer compensation tests determine the magnetic influence of aircraft manoeuvres and the effectiveness of the RMS compensator to mitigate these effects. The aircraft performed sets of three pitches (±5°), rolls (±10°) and yaws (±5°), while flying in each of the four flight line directions at an altitude of approximately 8,000 feet, over a magnetically quiet area. A solution to compensate for the noise generated by the manoeuvres was determined by the AADC and the solution was tested, by repeating the same set of manoeuvres. The total compensated signal noise that results from the twelve manoeuvres, referred to as the Figure of Merit (FOM), was calculated from the maximum peak-to-peak value resulting from each manoeuvre.

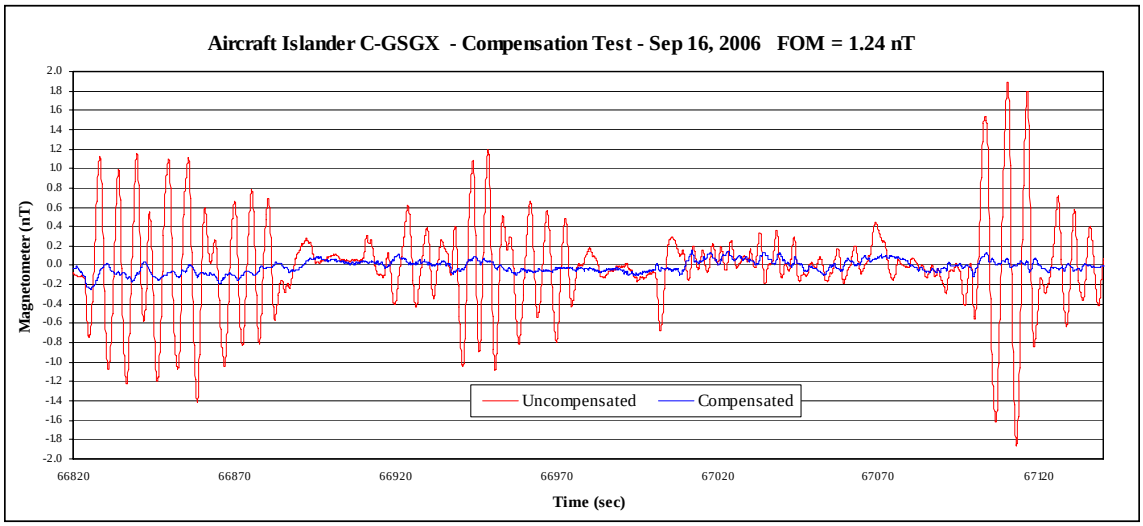
The magnetometer compensation flights were performed over a magnetically quiet area located approximately 85 km NW of the 108 Mile Ranch airport.

The results of the compensation test are shown in *Table 3* and the traces are presented in *Figure 3.*

Table 3: Summary of Compensation Flights

Aircraft	Date	Location	FOM (nT)	Used in flights
Islander C-GSGX	Sep 16, 2006	85 km NW of 108 Mile Ranch	1.24	002-033

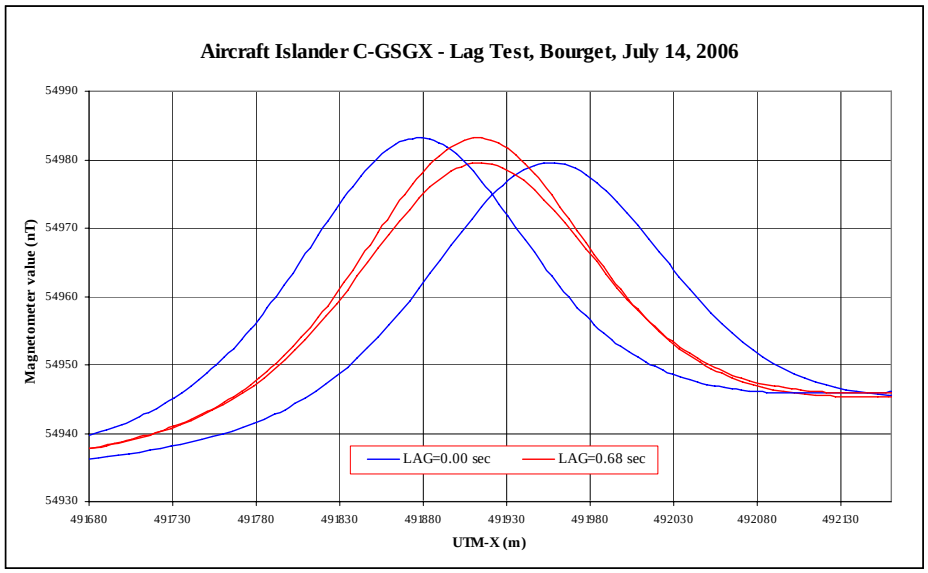
Figure 3: Aircraft Islander C-GSGX – Compensation Test, September 16, 2006



Instrumentation Lag

The magnetometer system lag is a combination of two factors: 1) the time difference between when a magnetic reading is sensed, and when that value is received by the data acquisition system, and 2) the time taken for the magnetometer sensor to arrive at the location of the GPS antenna. The second factor is defined by the physical displacement of the GPS antenna and the magnetometer sensor and the speed of the aircraft. The lag value for the survey aircraft has been determined to be 0.68 seconds. *Figure 4* shows graph of the lag test performed as part of the heading tests at Bourget.

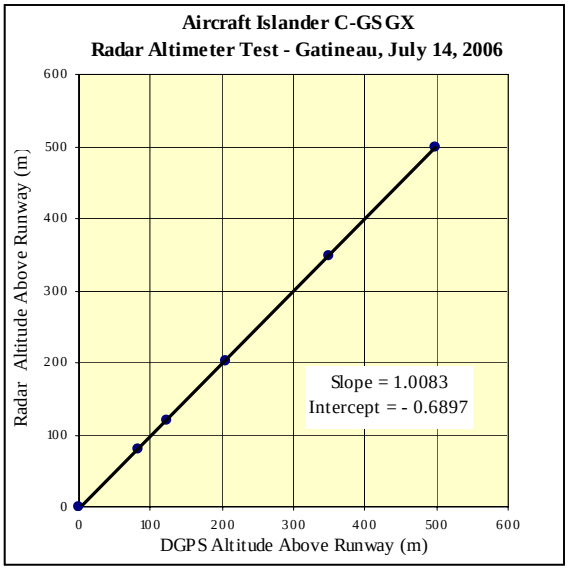
Figure 4: Aircraft Islander C-GSGX - Lag Test at Bourget calibration range



Radar Altimeter Calibration

The TRT radar altimeter system in the survey aircraft was calibrated by performing test flight prior to mobilization to the survey location. The radar altimeter calibration flight consisted of 5 passes over the Gatineau airport runway at a range of five altitudes. The resulting radar altitude was plotted against the differential GPS altitude. The plot of the radar calibration test would ideally yield a slope of 1.0 and an intercept of zero. The altimeter has acceptable linearity within the expected error ranges. Non-zero intercept values were corrected for in data processing. The results of radar altimeter test are shown in *Figure 5* below.

Figure 5: Figure 5: Aircraft Islander C-GSGX - Radar Altimeter Test



Stationary Aircraft GPS Position Test

The stationary aircraft GPS position test was carried out on Sep 16, 2006 with the survey aircraft parked on the tarmac of the 108 Mile Ranch airport. During the test the geophysical systems in the aircraft and at the ground station were operating and recording. The results of the stationary aircraft GPS position test are shown in *Figures 6, 7 and 8.*

Figure 6: Stationary Aircraft GPS Position Test (Easting)

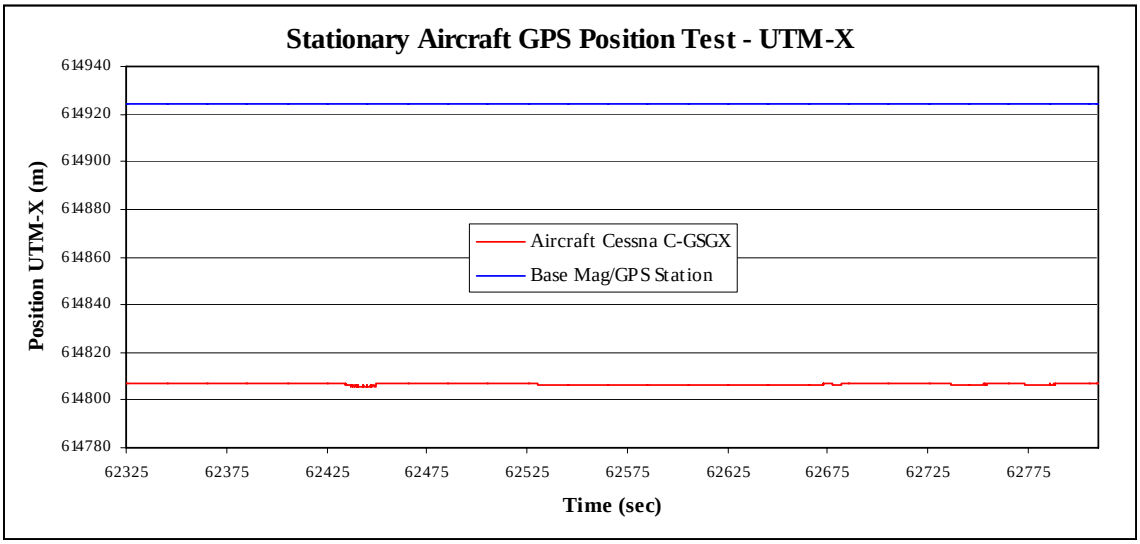


Figure 7: Stationary Aircraft GPS Position Test (Northing)

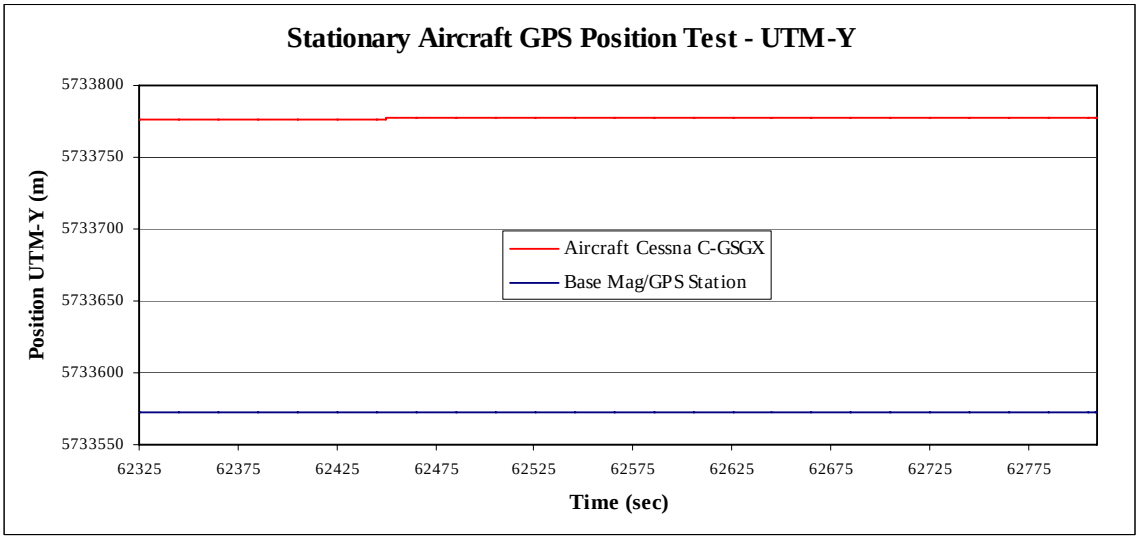
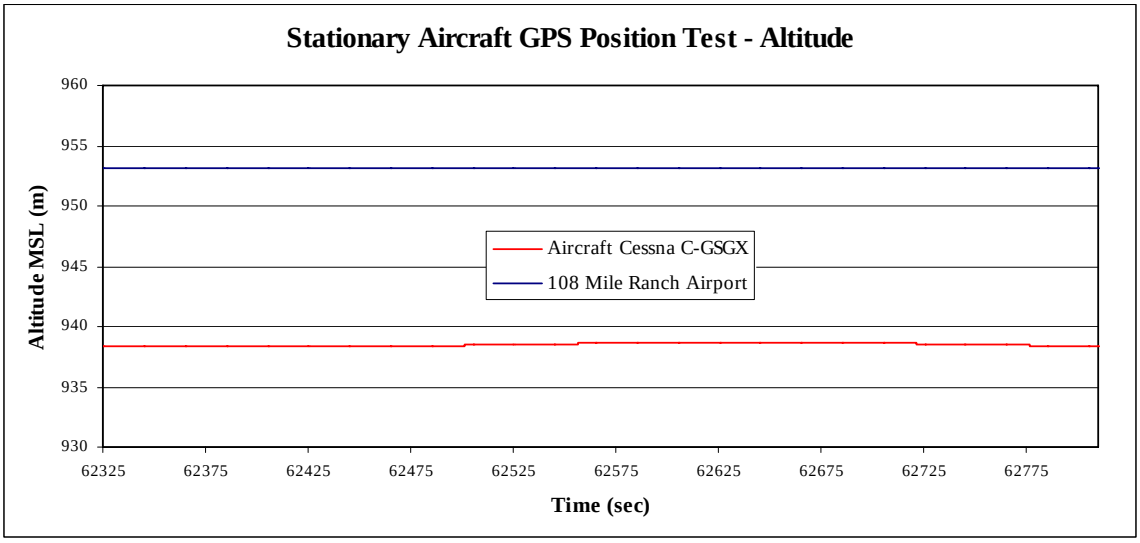


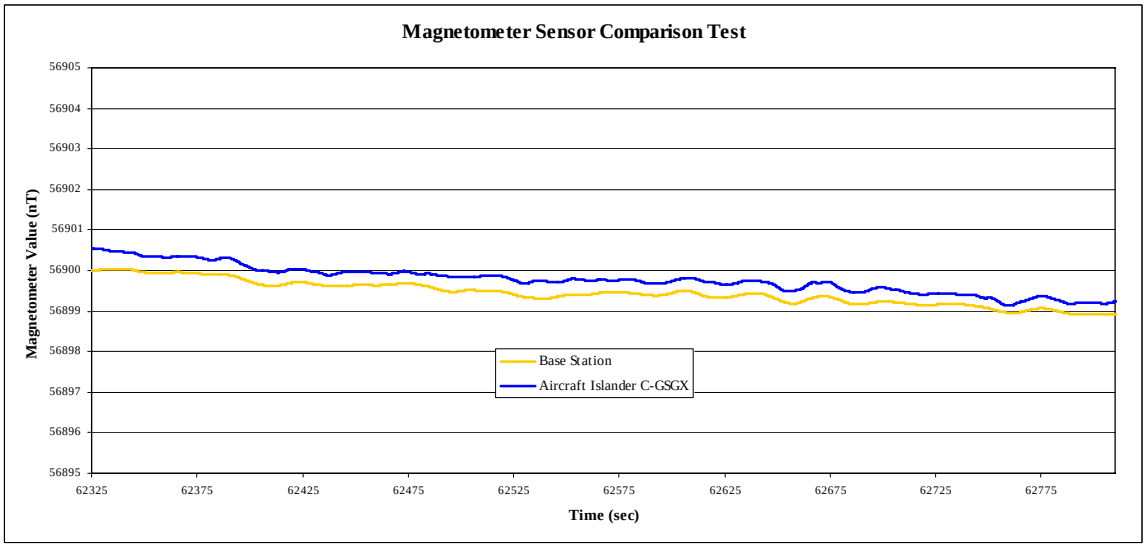
Figure 8: Stationary Aircraft GPS Position Test (Altitude)



Magnetometer Sensor Comparison Test

The magnetometer sensor comparison test was carried out as part of the stationary aircraft GPS position test. The correlation of the total magnetic field values recorded with the survey system in the aircraft and with the system at the ground station was very good as shown in *Figure 9.*

Figure 9: Magnetometer Sensor Comparison Test



Stripping Ratios

The stripping ratios for the gamma-ray spectrometer were determined on July 10, 2006, before the aircraft departed for the survey using the GSC calibration pads which are stored at the SGL hangar in Ottawa. The tests were performed with the crystal packs installed in survey configuration onboard the aircraft. Each crystal pack was tested separately and the test results were averaged to create stripping ratios for this system. See *Table 4* for a list of stripping ratios.

The following procedure was carried out:

- Cesium stabilization carried out.
- Thorium stabilization carried out.
- Pre-pads source test, one thorium source below pack.
- Stabilization on thorium taken off.
- Pads test carried out in order: background, potassium (six minutes recording each).
- Re-stabilize on thorium.
- Stabilization on thorium taken off.
- Pads test carried out in order: uranium, thorium, and background (six minutes recording each).
- Stabilization on thorium put on.
- Post-pads source test, one thorium source below pack.

Table 4: Stripping Ratios

Stripping Ratios	
Thorium into Uranium (Alpha)	0.2302
Thorium into Potassium (Beta)	0.3795
Uranium into Potassium (Gamma)	0.6699
Uranium into Thorium (A)	0.0394
Potassium into Thorium (B)	0.0000
Potassium into Uranium (G)	0.0035

Attenuation Coefficients

The exponential height attenuation coefficients for the spectrometer were calculated from land test lines flown at the end of flight 032 on Oct 23, 2007. The test lines were flown in range of altitudes from approximately 125 m to 250 m mean terrain clearance at 25 m intervals. Results of this test are given in *Table 5*.

Table 5: Spectrometer Calibration Test Data

Spectrometer Calibration Test Data				
Altitude at STP (m)	Total counts (cps)	Potassium (cps)	Uranium (cps)	Thorium (cps)
257.62	437.0	44.951	3.307	8.781
229.67	539.6	56.712	5.087	10.621
205.55	668.8	67.741	9.384	11.496
179.88	763.8	83.731	9.174	13.253
153.96	885.3	103.523	8.731	16.041
127.03	1039.2	126.999	9.227	19.496

After correction for background and stripping, the variation in count rate with effective height was used to determine the attenuation coefficients shown in *Table 6*.

Table 6: Attenuation Coefficients

Attenuation Coefficients	
Total	-0.006567
Potassium	-0.007961
Uranium	-0.007411
Thorium	-0.005934

Spectrometer System Sensitivity

A pre-survey test flight was carried out over the GSC test range at Breckenridge, Quebec on July 12th, 2006. The test flight served to determine system sensitivities through comparison of airborne data with data acquired on the ground, as well as to determine the variation of the window counts with aircraft altitude (attenuation coefficients, see above).

The ground measurements were made with an Exploranium portable gamma-ray spectrometer. Measurements were acquired at 32 different sites along the 10 km length of the calibration range. Measurements were also made with the portable spectrometer on the Ottawa River to determine background radiation due to cosmic radiation, radon decay products in the air and any radioactivity of the equipment. The background was subtracted from the ground measurements and the ground concentrations of potassium, uranium and thorium were determined by calibration of the portable spectrometer using the GSC calibration pads located at Ottawa Airport.

The sensitivities of the airborne system to potassium, equivalent uranium, and equivalent thorium were calculated by dividing the average count rates corrected to an effective height of 80 m above ground by the ground concentrations of the test range. Results are presented in *Table 7a*.

Table 7a: System Sensitivities

System Sensitivities – Breckenridge Test, spectrometer S/N 8250			
	Average counts at 80 m (cps)	Ground Concentrations	Sensitivities
Potassium	179.5228	1.7381 %	103.2856 cps / %
Equivalent Uranium	12.6201	1.1908 ppm	10.5983 cps / ppm
Equivalent Thorium	42.7492	7.2696 ppm	5.8806 cps / ppm

Due to the fact that data recorded during first two flights contained spikes in the cosmic channel, the spectrometer S/N 8250 was replaced with spectrometer S/N 8254.

In order to determine new set of sensitivity coefficients for the Spectrometer System one of the survey lines (line 1290) was flown on Oct 02, 2006 by Sander Geophysics and then, 40 minutes later by Fugro Ltd. The new sensitivity coefficients were calculated using concentrations measured by the Fugro system on line 1290 and are shown in *Table 7b*.

Table 7b: System Sensitivities

System Sensitivities – Test on Line 1290, spectrometer S/N 8254			
	Average counts at 125 m (cps)	Concentrations Line 1290 -Fugro	Sensitivities
Potassium	101.4022	0.993408 %	102.075079 cps / %
Equivalent Uranium	8.3470	0.961527 ppm	8.680983 cps / ppm
Equivalent Thorium	15.0936	2.903602 ppm	5.198233 cps / ppm

Cosmic and Aircraft Background

A cosmic and aircraft background test flight was performed on Sep 29, 2006, in the vicinity of 108 Mile Ranch airport. The test lines were flown at a range of altitudes from 5000 ft to 9000 ft above sea level at 500 ft intervals, recording data for a few minutes at each level. Coefficients are determined by linear regression of cosmic counts versus each spectral window as described in the IAEA Report 323 (1991). *Table 8* lists the computed cosmic and aircraft background coefficients.

Table 8: Cosmic Coefficients

Cosmic Coefficients		
	Cosmic Coefficient	Aircraft Background
Total	0.8687	10.43
Potassium	0.0479	4.13
Uranium	0.0410	0.00
Thorium	0.0416	0.22
Upward	0.0048	0.07

Radon Corrections

Radon background was monitored through the use of upward looking detectors. Coefficients relating the count rate in the uranium window from the upward detectors to the count rate in the potassium, uranium, thorium and total count windows from the downward facing detectors were determined using several water test lines flown over Canim lake north-east of 108 Mile House.

The cosmic and background corrected data from each of the Up, Thorium, Potassium and Total windows are plotted against the counts in the Uranium window for each water line flown. Linear regressions of these plots provide the radon coefficients to be used in the radiometric data processing. The coefficients determined for this survey are presented in *Table 9*.

Table 9: Radon Correction Coefficients

Radon Correction Coefficients	
Constants	Values
$I_r = A_I U_r + B_I$	13.5554 U_r + 18.5937
$K_r = A_K U_r + B_K$	0.7197 U_r + 1.9932
$T_r = A_T U_r + B_T$	0.0508 U_r + 0.5824
$u_r = A_u U_r + B_u$	0.1200 U_r + 0.0000

Ground Component Coefficients

The ground component coefficients are used to quantify the response of the upward looking detector to radiation from the ground. For this project, a modified version of the technique described in IAEA Report 323 was followed. This involves computing two separate coefficients based on the counts in the uranium and thorium windows. The ground component coefficients used for this project are listed in *Table 10*.

Table 10: Ground Component Coefficients

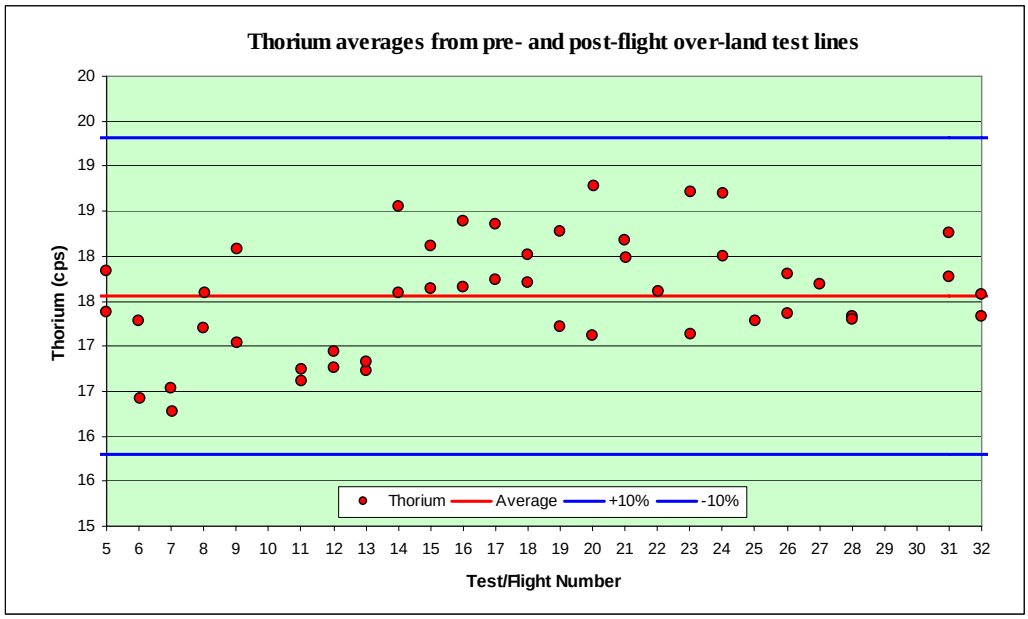
Ground Component Coefficients	
A1 (uranium)	A2 (thorium)
0.0171	0.0104

Pre- and Post-Flight Test Lines

Over-water and over-land test lines were flown at survey height and survey speed at the beginning and end of almost all production flights.

Corrected thorium data for the test lines were within +/-10% of the mean value (*Figure 10*) therefore no correction for changes in ground conditions was considered necessary.

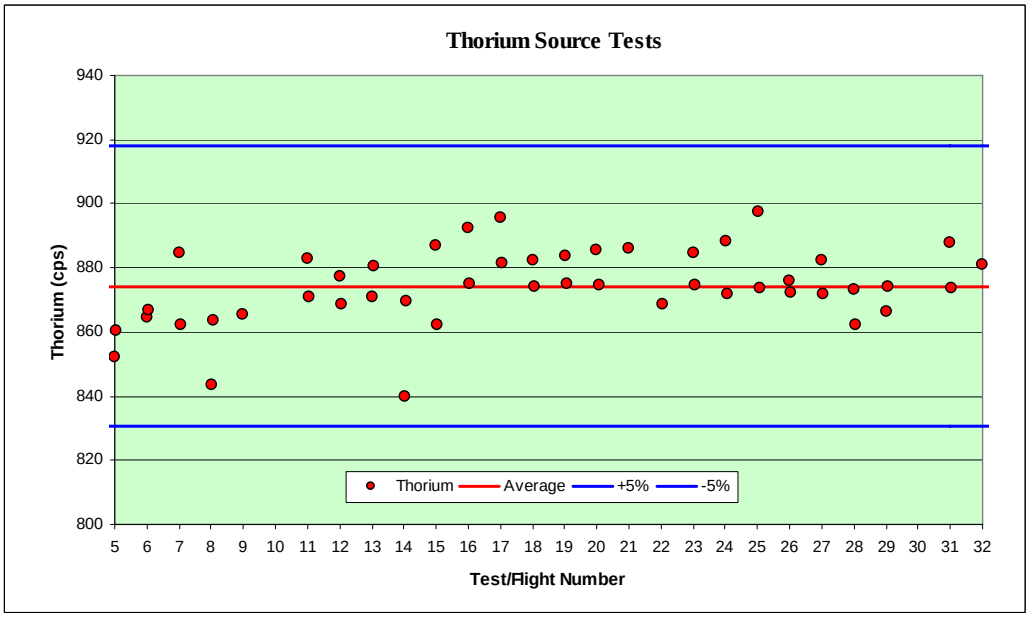
Figure 10: Test Line Averages



Source Tests

Thorium, uranium and background source tests were performed at the start and end of each production day. A source was positioned beneath each crystal pack. Uranium, thorium, and background windows were averaged and recorded for 120 seconds during each test. Recorded data was dead time and background corrected before the statistics were compiled. Thorium source test results were well within +/-5% of the mean value which indicates that the system was operating correctly.

Figure 11: Thorium Source Tests



VI. FIELD OPERATIONS

Survey operations were conducted from 108 Mile Ranch airport (CZML). The main field office was established at Red Coach Inn hotel at 108 Mile House.

Two combined base magnetic/GPS ground stations were set up at the 108 Mile Ranch airport. The magnetometer sensors of both stations were located approximately 250 m south-east from the airport terminal building. The GPS antennas were located approximately 220 m south-east of the airport terminal building. The data acquisition computers were located in a special box located half way between magnetometer sensors and GPS antennas.

The position of GPS antenna of both ground stations was determined precisely by applying differential corrections with respect to the following International Geodetic Reference Stations: PENTICTON (DRAO), CHILLIWACK (CHWK), WILLIAMS LAKE (WILL) and WHISTLER (WSLR). The calculations were performed using 48 hours of continuous data recorded at each station. The calculated final positions of GPS antenna of both ground stations are shown in *Table 11*.

Table 11: Positions of GPS antenna of MAG/GPS Ground Stations

Positions of GPS antenna of MAG/GPS Ground Stations				
Name	**Location**	**Latitude**	**Longitude**	**Elevation**
GND1	108 Mile Ranch airport	N63:45:24.73758	W068:30:42.53282	95.8527 m
GND2	108 Mile Ranch airport	N63:45:21.66778	W068:30:40.39651	89.7686 m

The weather during the first part of the survey (second half of September) was unusually wet with frequent rain showers and fog, especially in early morning. Also the temperatures during that period were lower than seasonal average. The weather during the month of October was mostly sunny and dry. Please refer to the Weekly Reports in *Appendix IX* for a description of the weather each day.

Field Personnel

The following technical personnel of Sander Geophysics Ltd. participated in the survey:

Project Manager:	Reed Archer
Party Chief\Geophysicist:	Andreas Prokoph (Sep 09 – Oct 15, 2006) Rick Bailey (Oct 15 – Oct 27, 2006)
Geophysicist:	David Marchant
Pilots:	John Johnston Chris Kiff
Aircraft Maintenance Engineer:	John Sevenhuysen

VII. DIGITAL DATA COMPILATION

Data compilation including editing and filtering, quality control, and final data processing was performed at SGL head office in Ottawa. The final levelling of magnetic data was performed by the GSC.

Magnetometer Data

The airborne magnetometer data, recorded at 10 Hz, were plotted and checked for spikes and noise. A 0.68 s lag correction was applied to all data to correct for the time delay between detection and recording of the airborne data.

Ground magnetometer data were inspected for cultural interference and edited where necessary. All ground station magnetometer data were then filtered using a 67-point low pass filter (*Appendix V*) to remove any high frequency noise.

Considering the long wavelength features of the diurnal for the period of this survey and the good distribution of tie lines (2500m), the levelling by tie lines was sufficient to remove the diurnal variations. Therefore, the airborne magnetic data edited, (checked for spikes) were used as input for the tie levelling.

As part of the levelling procedure, intersections between control and traverse lines were determined. The airborne magnetic data were then levelled using many iterations in order to distribute the misfit error on line and tie and then ensure the gridding using traverses and tie lines. The anomalous intersections were removed and were not used in the calculation of the levelling model to apply on traverse and tie lines.

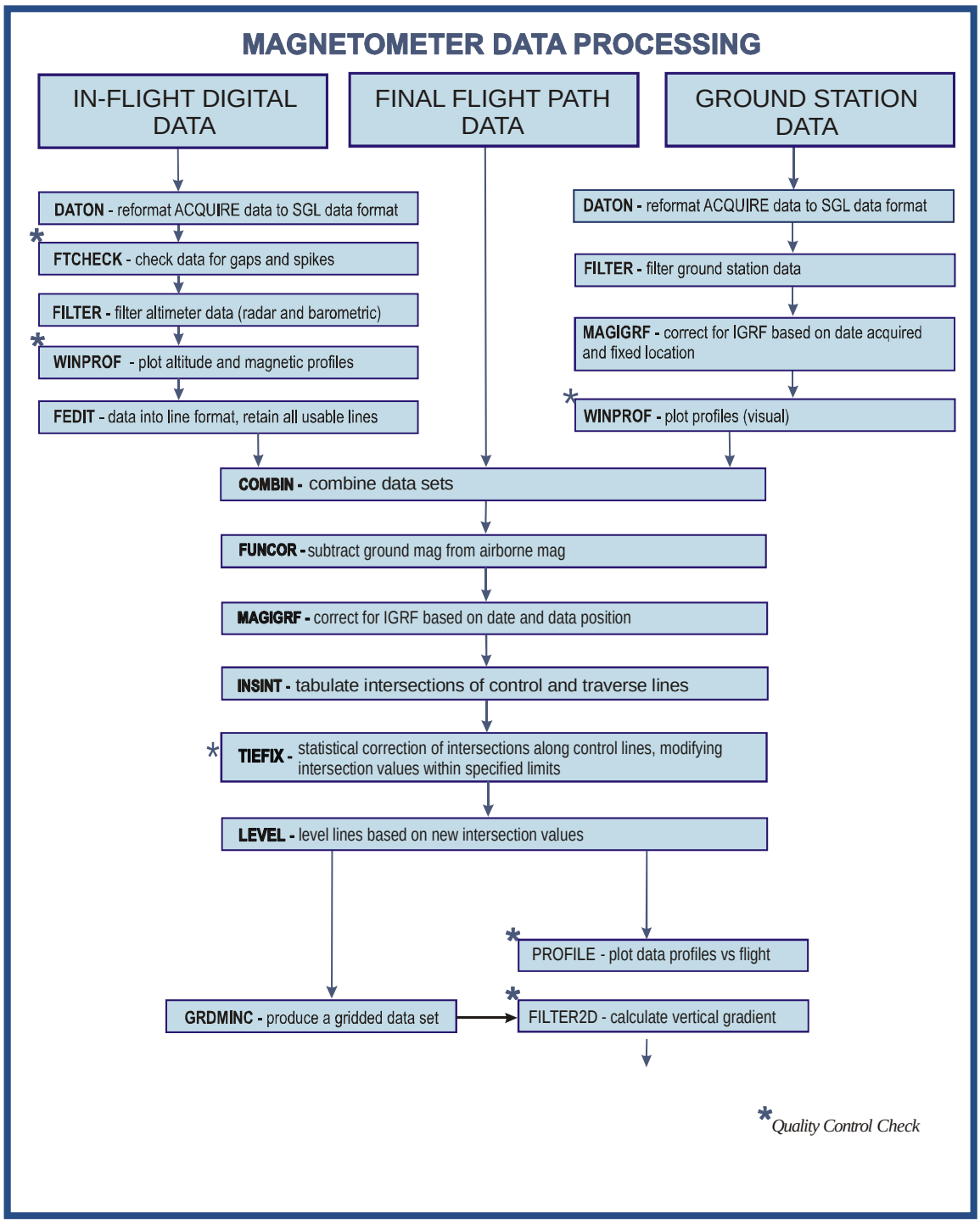
The levelling procedure was checked by inspection of the total magnetic intensity and the second vertical derivative of the total magnetic intensity. Levelling statistics were also examined to ensure that steep correction gradients were minimized and the tie line levelling profile were plotted to ensure a good distribution of the correction.

The airborne magnetometer data were IGRF corrected at the location of each point, at date 2006.75 and at constant altitude of 1330 m. The corrections were calculated using the IGRF 2005 model.

The magnetic data were interpolated onto a regular grid using a minimum curvature algorithm to create a two-dimensional grid equally incremented in x and y directions. The algorithm produces a smooth grid by iteratively solving a set of difference equations minimizing the total second horizontal derivative, while attempting to honour the input data (Briggs, I.C, 1974, Geophysics, v 39, no. 1).

The final grids of the magnetic data were created with 100 m grid cell size appropriate for survey lines spaced at 400 m. The final gridding process was performed by the GSC and use traverse and tie line with priority to the traverse line.

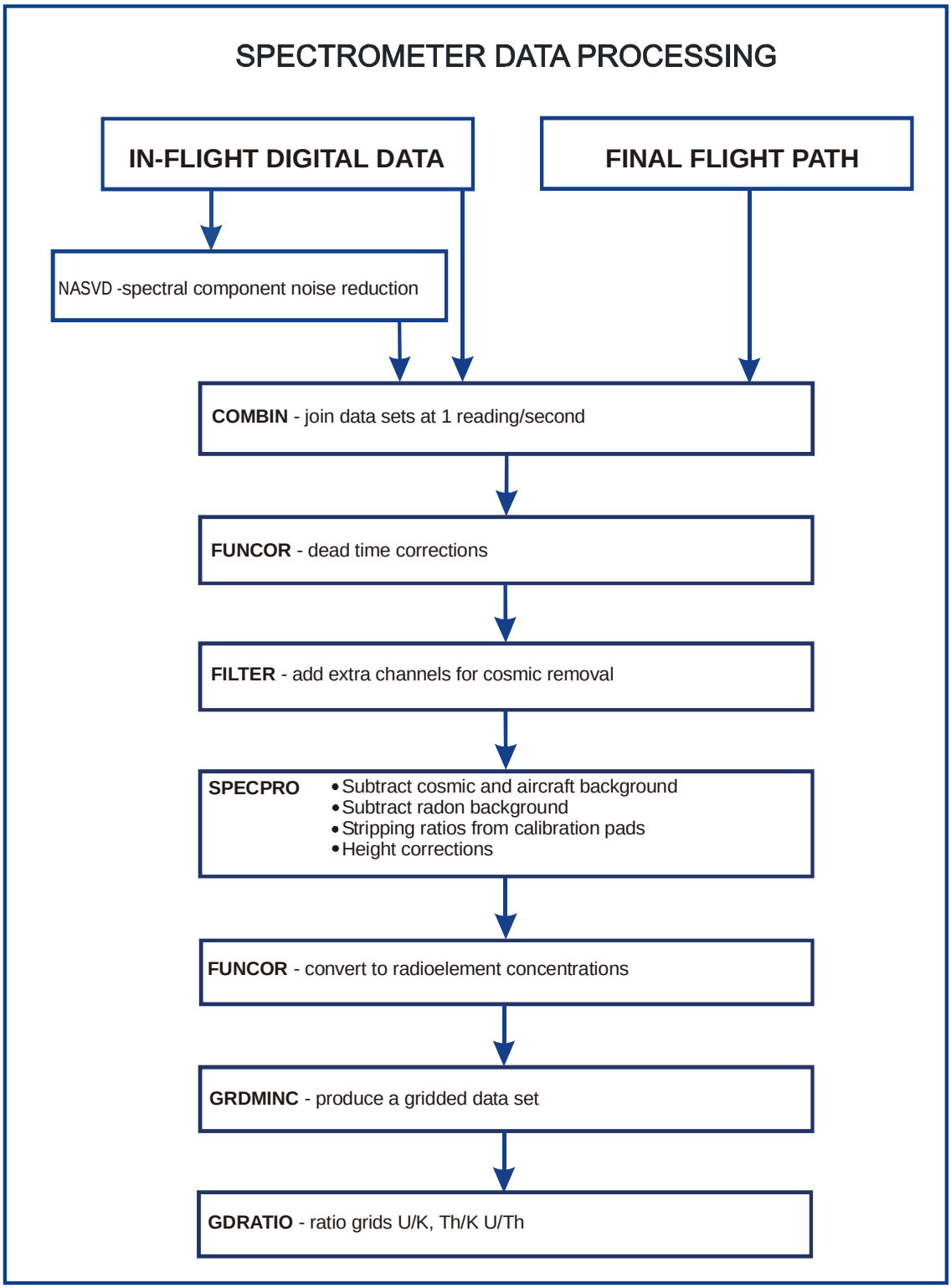
Figure 12: Standard SGL Magnetometer Data Processing



Radiometric Data

Figure 13 below offers a summary of the spectrometer data compilation process used.

Figure 13: Spectrometer Data Processing Chart



Spectral Component Analysis

Raw 256 channel spectrometer data were analysed using the noise adjusted singular value decomposition (NASVD; J. Hovgaard and R L. Grasty paper 98; Geophysics and Geochemistry at the Millennium, Proceedings of the 4th Decennial International Conference on Mineral Exploration, 1997). Normalization with respect to the count rate is achieved by dividing each measured spectra by the square root of the best fit of the mean spectra, i.e. component zero. The NASVD method determines the components in order of significance with respect to the amount of variance in the data they describe. Each component is a spectrum with 256 channels. In theory, there are as many components as there are channels. Variation in the signal is accounted for by the first components to be identified, and variation due to noise is accounted for by the higher order components. Inspection of the components allows us to determine which components describe the signal. It also facilitates the discarding of the noise components. Spectra are then reconstructed from the signal only components, and the count rates in the standard windows are recalculated.

Through such an analysis, the results suggest that components higher than order 8 for downward-looking channels and higher than 4 for upward-looking channels contained only variation due to noise.

All spectrometer data were corrected as documented in the Geological Survey of Canada Open File No. 109 and the IAEA report “Airborne gamma-ray spectrometer surveying; Technical Report Series No. 323 (International Atomic Energy Agency, Vienna).

The complete set of parameters used for processing the spectrometer data is shown in Table 14 below.

The following describes corrections which were applied to the spectrometer data:

Table 12: Spectrometer Data Processing Parameters

Spectrometer Processing Parameters		
Spectrometer EXPLORANIUM, model GR-820, S/N 8254, 12 DOWN & 2 UP		
WINDOW	COSMIC STRIPPING (B)	AIRCRAFT (A)
Total	0.7406	117.34
Potassium	0.0410	21.13
Uranium	0.0309	5.02
Thorium	0.0394	0.00
Upward	0.0051	1.05
RADON COMPONENT	A	B
Total (I_r)	12.9419	1.6887
Potassium (K_r)	0.7053	-1.3540
Thorium (T_r)	0.0622	0.1700
UP (u_r)	0.1735	-0.1635
GROUND COMPONENT	A1	A2
UP (u_g)	0.0107	0.0170
STRIPPING RATIOS (GR820)	INCREASE IN HEIGHT (per metre)	INCREASE IN HEIGHT (per metre)
alpha	0.2302	0.00049
beta	0.3795	0.00065
gamma	0.6699	0.00069
a	0.0394	
b	0.0000	
g	0.0035	
ATTENUATION COEFFICIENTS		
Total	-0.007007	
Potassium	-0.008735	
Uranium	-0.008399	
Thorium	-0.006858	
SENSITIVITIES		
Potassium	102.4068 cps per %	
Uranium	8.4778 eU ppm	
Thorium	5.1710 eTh ppm	

1) Dead time correction

The system live time is recorded by the spectrometer and represents the time that the system was available to accept incoming gamma radiation pulses. Live time is reduced, and dead time increased, as count rates increase and the time taken by the spectrometer to process measured pulses increases. The cosmic channel does receive a dead-time correction as it is processed by separate circuitry in a GR820 spectrometer. The dead-time correction is applied to each window in both the upward and downward looking detector data using the following equation:

$N = n / t$

Where: N = the corrected count rate in each channel
n = the raw count recorded in each second
t = the recorded live time (fraction of a second).

2) Calculation of effective height above ground level (AGL)

A 21-point low pass filter (*Appendix V*) is applied to 4Hz radar altimeter data, and a 131-point low pass filter (*Appendix V*) is applied to 4Hz barometric altimeter data. The barometric altimeter data are then converted to equivalent pressure and used with the digitally recorded temperature to convert the radar altimeter data to effective height at standard pressure and temperature (STP) as follows:

$$h_e = h \times \frac{273.15}{T + 273.15} \times \frac{P}{1013.25}$$

where: h_e = the effective height
h = the observed radar altitude in metres
T = the observed air temperature in degrees Centigrade, and
P = the observed barometric pressure in millibars.

3) Height adaptive filter

By convention, data collected at a terrain clearance greater than 300m are considered unreliable due to the low count rates and consequent low signal to noise ratio. The maximum terrain clearance for this project was 166m based on the calculated effective height. Thus no height adaptive filtering was required.

4) Removal of cosmic radiation and aircraft background radiation

A low pass filter with a cosine tapered ramp between 15 and 25 points is applied to 1Hz Cosmic data to reduce statistical noise. Cosmic radiation and aircraft background radiation are removed from each spectral window using the cosmic coefficients and aircraft background values determined from test flight data using the following the equation:

$N = a + bC$

where: N = the combined cosmic and aircraft background in each spectral window,
a = the aircraft background in the window,
b = the cosmic stripping factor for the window, and
C = the cosmic channel count.

5) Radon background corrections

A low pass filter with a cosine tapered ramp between 3 and 8 points is applied to 1Hz downward uranium, downward thorium and upward uranium count data for the purposes of the radon correction only. The upward uranium count channel is then filtered with a 15-point

$$U_r = \frac{u - a_1 U - a_2 T + a_2 b_T - b_u}{a_u - a_1 - a_2 a_T}$$

filter to smooth it further before the radon correction. The radon component in the uranium window is calculated using the radon coefficients determined from the survey data using the following equation:

where: U_r = the radon background measured in the downward uranium window,
u = the filtered observed count in the upward uranium window,
U = the filtered observed count in the downward uranium window,
T = the filtered observed count in the downward thorium window,
a_1 and a_2 = the ground coefficients,
a_u and b_u = the radon coefficients for uranium,
a_T and b_T = the radon coefficients for thorium.

The radon counts in the total count, potassium and thorium downward windows are then calculated from U_r using the following equations:

$u_r = a_u U_r + b_u$
$K_r = a_K U_r + b_K$
$T_r = a_T U_r + b_T$
$I_r = a_I U_r + b_I$

Where U_r is the radon component in the upward uranium window, K_r, U_r, T_r and I_r are the radon components in the various windows of the downward detectors, and a and b are the radon calibration coefficients.

6) Stripping

The stripping ratios for the spectrometer system are determined experimentally. The stripped count rates for the potassium, uranium and thorium downward windows are calculated using the following equations:

$$N_K = \frac{n_{Th}(\alpha\gamma - \beta) + n_U(\alpha\beta - \gamma) + n_K(1 - a\alpha)}{A}$$

$$N_U = \frac{n_{Th}(g\beta - \alpha) + n_U(1 - b\beta) + n_K(b\alpha - g)}{A}$$

$$N_{Th} = \frac{n_{Th}(1 - g\gamma) + n_U(b\gamma - a) + n_K(ag - b)}{A}$$

where A has the value:

$$A = 1 - g\gamma - a(\gamma - gb) - b(\beta - \alpha\gamma)$$

and where

n_K, n_U and n_{Th} = the unstripped potassium, uranium and thorium downward windows counts,

N_K, N_U and N_{Th} = the stripped potassium, uranium and thorium downward windows counts,

α, β, and γ = the forward stripping ratios, and

a, b and g = the reverse stripping ratios.

α, β, and γ are adjusted for effective height (as calculated above) by standard factors given in *Table 14.*

7) Altitude attenuation correction

This correction normalizes the data to a constant terrain clearance of 125m above ground level (AGL) at standard temperature and pressure (STP). Attenuation coefficients for each of the downward windows were determined from test flights. The measured count rate is related to the actual count rate at the nominal survey altitude by the equation:

$$N_s = N_m(e^{\mu(h_o - h)})$$

where: N_s = the count rate normalized to the nominal survey altitude, h_o,
N = the background corrected, stripped count rate at effective height h,
μ = the attenuation coefficient for that window,
h_o = the nominal survey altitude, and
h = the effective height.

The effective height was determined in step 2.

8) Conversion to radio element concentration

Sensitivities are determined experimentally from the test flight data. The units of the count rates in each spectral window are converted to "Apparent Radio Element Concentrations" suing the following equation:

$C = N / S$

where: C = the concentration of the element(s)
N = the count rate for the window after correction for dead time, background, stripping and attenuation
S = the broad source sensitivity for the window.

Potassium concentration is expressed as a percentage and equivalent uranium and thorium as parts per million of the accepted standards. Uranium and thorium are described as "equivalent" since their presence is inferred from gamma-ray radiation from daughter elements (^{214}Bi for uranium, ^{208}Tl for thorium).

9) Data gridding

A minimum curvature gridding algorithm was considered most appropriate in order to preserve detail in the data. The method generates a 2-dimensional grid, equally incremented in x and y, from randomly placed data points. The algorithm (I.C.Briggs, 1974, Geophysics, v 39, no. 1) produces a smooth grid by iteratively solving a set of difference equations that minimize the total second horizontal derivative and attempt to honour input data. Spectrometer data within cells are combined with a cosine weighting function before the minimum curvature surface is fitted.

The radiometric data were interpolated to a 100m grid cell size appropriate for survey lines spaced at 400m. Both control and test lines were not included in the grids.

Radar Altimeter Data

The terrain clearance measured by the radar altimeter in metres was recorded at 4 Hz. The data were filtered to remove high frequency noise using a 21-point filter (see Appendix V). The final data were plotted and inspected for quality.

Positional Data

A number of programs were executed for the compilation of navigation data in order to reformat and recalculate positions in differential mode. SGL's GPS data processing package, GPSoft was used to calculate DGPS positions from raw range data obtained from the moving (airborne) and stationary (ground) receivers. The GPS data were processed using a number of different signal combinations resulting in multiple position solutions for each flight. The various solutions were automatically ranked based on accuracy and smoothness and the best solution for each individual line was selected. This automatic selection process results in accuracy of greater than 1 m and good coherency between survey lines.

The general data flow of GPSoft is illustrated in *Figure 14.*

Positional data (X, Y, Z) were recorded in the WGS-84 datum. All processing was performed using data in the WGS-84 datum. Positional data is provided in x, y locations in the UTM projection zone 10N.

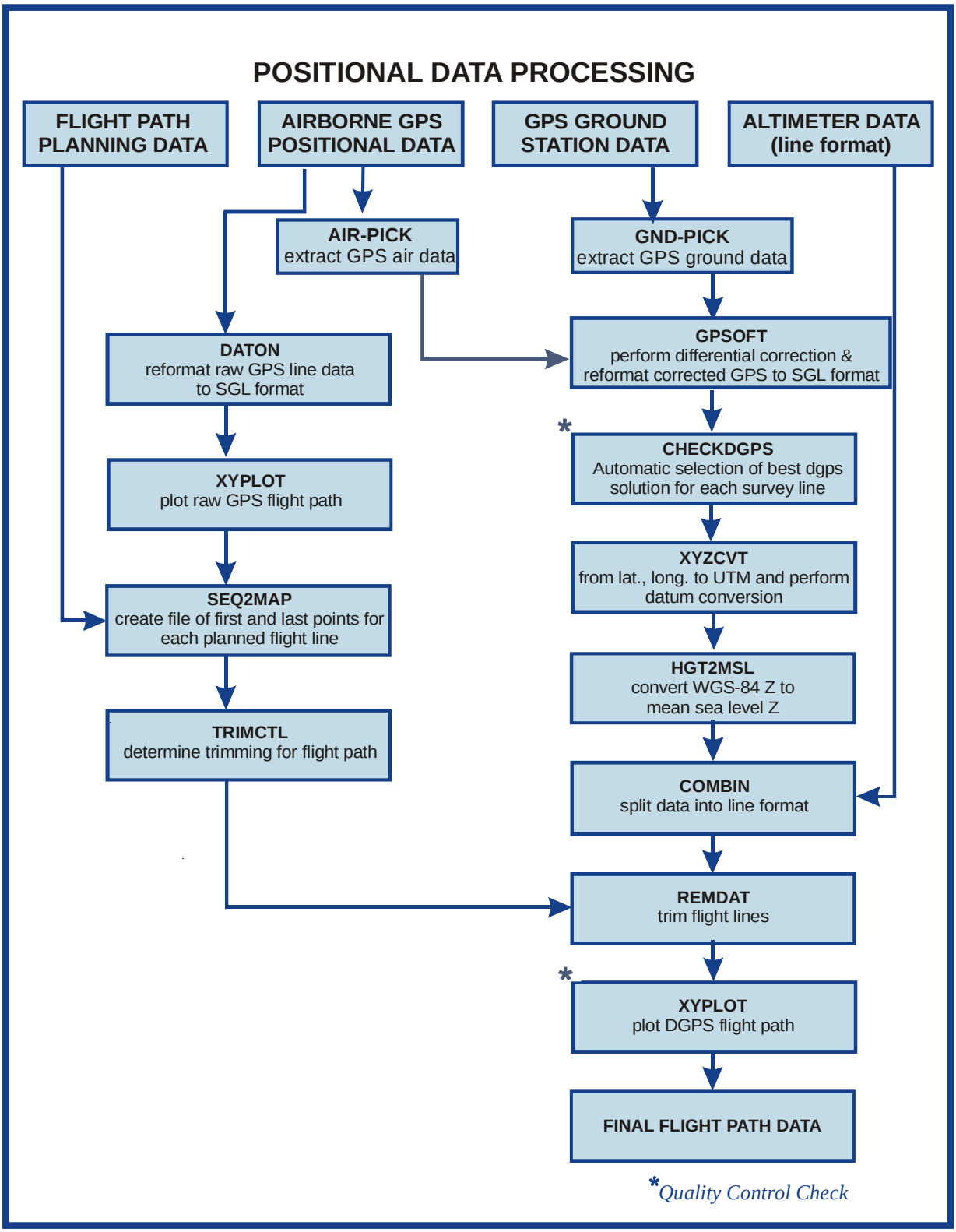
Parameters for WGS-84 used are:

Ellipsoid:	GRS-80
Semi-major axis:	6378137.0
1/flattening:	298.257

Picture 4: 108 Mile Ranch Airport Facilities

Picture 5: GPS Antenna of the Base Station at 108 Mile Ranch Airport

Figure 14: Positional Data Processing



VIII. FINAL PRODUCTS

Digital Data

Table 13: Magnetometer Line Data (Format: ASCII, Sampling rate: 0.1 sec)

No.	Name	Description	Format	Units
1	LINE	Line number	F7.0	
2	FLIGHT	Flight number	F4.0	
3	DATE	Date (format: YYYYMMDD)	F9.0	
4	TIME	Time	F9.2	sec
5	P_EAST	UTM Easting, NAD-83, Zone 10N	F9.1	m
6	P_NORTH	UTM Northing, NAD-83, Zone 10N	F10.1	m
7	RALT	Radar altimeter	F6.1	m
8	BALT	Barometric Altimeter	F7.1	m
9	GPSZ	DGPS altitude	F8.1	m
10	GPSZ-MSL	DGPS altitude MSL	F8.1	m
11	DEMLEV	Digital terrain model	F7.1	m
12	SURFACE	Target drape elevation	F7.1	m
13	MAGUNCOMP	Uncompensated magnetic total field	F10.3	nT
14	RMAGCOM	Raw compensated, unlagged magnetic total field	F10.3	nT
15	MAGRAW	Raw compensated, lagged magnetic total field	F10.3	nT
16	DIURNAL	Diurnal (base magnetic total field)	F10.3	nT
17	DIURNCOR	Diurnal correction	F10.3	nT
18	DIURN-RES	Diurnal residual used for correction	F9.3	nT
19	MAGLEV	Levelled total magnetic field	F10.3	nT
20	IGRF	IGRF correction * (see note below)	F10.3	nT
21	MAGRES	Final residual total magnetic field	F10.3	nT
22	LONG	Longitude	F13.7	deg
23	LAT	Latitude	F12.7	deg

Table 14: Spectrometer Line Data (Format: ASCII, Sampling rate: 1.0 sec)

No.	Name	Description	Format	Units
1	LINE	Line Number	A7	
2	FLIGHT	Flight Number	A4	
3	DATE	Date YYYYMMDD	F9.0	
4	TIME	Time	F9.2	Sec
5	P_EAST	Utm Easting, Nad-83	F9.1	M
6	P_NORTH	Utm Northing, Nad-83	F10.1	M
7	RALT	Radar Altimeter	F6.1	M
8	BALT	Barometric Altimeter	F7.1	M
9	GPSZ	DGPS Altyitude	F8.1	M
10	GPSZ-MSL	DGPS Altitude MSL	F8.1	M
11	DEMLEV	Digital Terrain Model	F7.1	M
12	SURFACE	Target Drape Elevation	F7.1	M
13	TEMP	Temperature	F6.1	Deg C
14	BARO_PR	Atmospheric Pressure	F7.3	kP
15	R_LIVE	Livetime	F7.3	Msec
16	R_COS	Recorded Cosmic Count	F7.1	Cts/s
17	R_UP	Recorded Up-Looking Uranium Count	F6.2	Cts/s
18	R_TOT	Recorded Total Count	I6	Cts/s
19	R_POT	Recorded Potassium Count	F7.2	Cts/s
20	R_URA	Recorded Uranium Count	F7.2	Cts/s
21	R_THO	Recorded Thorium Count	F7.2	Cts/s
22	R_RDN	Computed Radon Background	F7.2	Cts/s
23	F_TADR	Total Count As Air Absorbed Dose Rate	F7.2	n/Gy/h
24	F_NADR	Computed Air Absorbed Dose Rate	F7.2	n/Gy/h
25	F)TOT	Corrected Total Count	I6	Ct/s
26	F)POT	Corrected Potassium Concentration	F6.2	%
27	F_URA	Corrected Uranium Concentration	F6.2	ppm
28	F_THO	Corrected Thorium Concentration	F6.2	ppm
29	F_RUT	Unbiased Ratio F-URA/F_THO	F6.2	
30	F_RUK	Unbiased Ratio F-URA/F_POT	F6.2	ppm/%
31	F_RTK	Unbiased Ratio F-THO/F_POT	F6.2	ppm/%
32	LONG	Longitude	F13.7	deg
33	LAT	Latitude	F12.7	deg

Grid Files

All grids are referred to NAD-83 in the Universal Transverse Mercator (UTM) projection Zone 10North. Coordinates are in metres, grid cell size is 100 m, and format is Geosoft binary.

1. ADRBON-G.grd - Natural Air Absorbed Dose Rate
2. POTBON-G.grd - Potassium
3. URABON-G.grd - Uranium
4. THOBON-G.grd - Thorium
5. RUTBON-G.grd - Ratio Uranium/Thorium
6. RUKBON-G.grd - Ratio Uranium/Potassium
7. RTKBON-G.grd - Ratio Thorium/Potassium
8. TMIBON-G.grd - Residual Total Magnetic
9. FVMBON-G.grd - First Vertical Derivative of TMI

Maps (scale 1:50,000)

Five copies of all 8 NTS maps for the following 10 products:

1. Natural Air Absorbed Dose Rate (colour with flight lines and topographical base)
2. Potassium (colour with flight lines and topographical base)
3. Uranium (colour with flight lines and topographical base)
4. Thorium (colour with flight lines and topographical base)
5. Ratio Uranium/Thorium (colour with flight lines and topographical base)
6. Ratio Uranium/Potassium (colour with flight lines and topographical base)
7. Ratio Thorium/Potassium (colour with flight lines and topographical base)
8. Residual Total Magnetic Intensity (colour with contours, flight lines and topographical base)
9. First Vertical Derivative of TMI (shaded colour with flight lines and topographical base)

Digital Video Images

One digital video file for each survey line (see *Appendix VIII* for list of video files)

GPS data in RINEX2 format:

1. GPS flight path data recorded during each survey flight
2. GPS base station 1 data
3. Ephemeris data from the corresponding day

Project Report

Five printed copies and 1 digital file in PDF format

IX. PROJECT SUMMARY

SURVEY LOCATION	
Survey Title:	Fixed-wing Airborne Gamma-ray Spectrometric and Magnetic Survey – Bonaparte River area, British Columbia
Survey Area Location:	Bonaparte River area, British Columbia
Survey Duration:	September 16 – October 23, 2006
Client:	Geological Survey of Canada Natural Resources Canada
Address:	615 Booth Street, Ottawa, Ont., K1A 0E9
Client Contacts:	Maurice Coyle, Ottawa, Tel: 613-995-0753 E-mail: MCoyle@NRCan.gc.ca
Field Office Location:	Hotel Red Coach Inn, 100 Mile House, B.C.
Airport Used:	108 Mile Ranch, B. C.

SURVEY SPECIFICATIONS		
Magnetic field (IGRF 2000 model):		
Total Field:	58142 nT	
Inclination:	82.5º	
Declination:	-32.6º	
Horizontal/Vertical Datum	NAD-83	
Raw Recorded Data:	WGS-84	
Delivered Data:	NAD-83	
Line Direction:	Traverse: 52º	Control: 142º
Line Spacing:	Traverse: 400 m	Control: 2,500 m
Total lkm Flown:	14,443 lkm	
Average Survey Speed:	220 km/h	
Survey Altitude:	minimum 125 m (above drape)	
Survey Flight Numbers:	001-033	

SURVEY AIRCRAFT AND EQUIPMENT	
Aircraft Used:	Britten-Norman Islander BN2B (reg. C-GSGX)
Radar Altimeter:	Sensor Systems Inc. TRT
Barometric Sensor:	Sander BA 012
Magnetometer (Air):	Geometrics G-822A Caesium
Magnetometer (Base Ground Station 1):	Geometrics G-822A Caesium
Magnetometer (Base Ground Station 2):	Geometrics G-822A Caesium
GPS Receiver (Air):	NovAtel Millennium, 12-channel, dual-frequency
Real Time DGPS Receiver (Air):	Canada-wide Differential GPS (CDGPS-C)
GPS Receiver (Base Ground Station 1):	NovAtel Millennium, 12-channel, dual-frequency
GPS Receiver (Base Ground Station 2):	NovAtel Millennium, 12-channel, dual-frequency

FIELD PERSONNEL	
Party Chief\Geophysicist:	Andreas Prokoph Rick Bailey
Geophysicist:	David Marchant
Pilots:	John Johnston Chris Kiff
Aircraft Maintenance Engineers:	John Sevenhuysen

PROBLEMS AND SOLUTIONS

Problem: Spikes recorded on cosmic data during flights 001 and 002.

Solution: Faulty Spectrometer S/N 8250 was replaced with Spectrometer S/N 8254 and used for all remaining survey flights.

DATA PROCESSING				
PROCESSING FILE LOCATION:				
PROCESSING	COMPUTER	DIRECTORY	DONE	COMPILED BY
Altimeter Data	P4-47	G:\GSC___06.BC\ALT	X	Rafael J. Kaplon
DGPS Data	P4-47	G:\GSC___06.BC\DGPS	X	Rafael J. Kaplon
Ground Mag Data	P4-47	G:\GSC___06.BC\GND	X	Rafael J. Kaplon
Air Mag Data	P4-47	G:\GSC___06.BC\MAG	X	Rafael J. Kaplon
DEM Data	P4-47	G:\GSC___06.BC\XYZ	X	Rafael J. Kaplon
MAJOR PROCESSING ITEMS				
MASTER CORNER FILE:		..\PLAN\BON.MCF		
UTM ZONE:		10N		
IGRF REMOVED:		Yes (IGRF05), Date: 2006.75, Alt. 1330 m		
INSINT:		Yes		
TIEFIX:		Yes		
ADJUSTCTL:		Yes (35 Intersections, max dev. 65.00)		
SHORTFIX:		No		
CTL FILE TO ADJUST INTERSECTIONS:		Faint1.ctl		
MOVINT:		Yes		
DECORRUGATION / MICROLEVELLING FILTER:		No		

FINAL PRODUCTS	
DIGITAL LINE DATA	1. Bonaparte-Magnetometer-Line-Data.XYZ 2. Bonaparte-Spectrometer-Line-Data.XYZ
GRIDS Format: Geosoft, Binary	1. ADRBON-G.grd - Natural Air Absorbed Dose Rate (nGy/h) 2. POTBON-G.grd - Potassium (%) 3. URABON-G.grd - Uranium (ppm) 4. THOBON-G.grd - Thorium (ppm) 5. RUTBON-G.grd - Ratio Uranium/Thorium 6. RUKBON-G.grd - Ratio Uranium/Potassium (ppm/%) 7. RTKBON-G.grd - Ratio Thorium/Potassium (ppm/%) 8. TMIBON-G.grd - Residual Total Magnetic Intensity (nT) 9. FVMBON-G.grd - First Vertical Derivative of TMI (nT/m)
MAPS, scale 1:50,000 - printed on paper	1. ADR (colour with flight lines and topographical base) – 40 maps 2. POT (colour with flight lines and topographical base) – 40 maps 3. URA (colour with flight lines and topographical base) – 40 maps 4. THO (colour with flight lines and topographical base) – 40 maps 5. RUT (colour with flight lines and topographical base) – 40 maps 6. RUK (colour with flight lines and topographical base) – 40 maps 7. RTK (colour with flight lines and topographical base) – 40 maps 8. TRN (colour with flight lines and topographical base) – 40 maps 9. TMI (colour with contours, flight lines and topographical base) – 40 maps 10. FVM (shaded colour with flight lines and topographical base) – 40 maps
MAPS, scale 1 :50,000 - digital files in PS and PDF format	1. ADR – 80 files 2. POT – 80 files 3. URA – 80 files 4. THO – 80 files 5. RUT – 80 files 6. RUK – 80 files 7. RTK – 80 files 8. TRN – 80 files 9. TMI – 80 files 10. FVM – 80 files
DIGITAL VIDEO IMAGES	Video images of flight path from 33 survey flights – 19 DVDs
GPS data in RINEX2 format	1. GPS flight path data recorded during each survey flight 2. GPS base station 1 data 3. Ephemeris data from the corresponding day
PROJECT REPORT	5 printed copies and 1 digital file in PDF format

Appendix I

Sander Geophysics

Company Profile

SANDER GEOPHYSICS
COMPANY PROFILE

Sander **G**eophysics **L**imited (SGL) specializes in high resolution airborne surveys for petroleum and mineral exploration, and environmental mapping. The company carries out airborne gravity, magnetic, electromagnetic and radiometric surveys worldwide using fixed-wing aircraft and helicopters.

HISTORY

SGL was founded in 1956. The first airborne surveys were performed as early as 1958, and by 1967 airborne geophysical surveying had become the mainstay of the company. Operations have continued and expanded under the same ownership since 1956.

WORLDWIDE OPERATIONS

The company's head office and aircraft maintenance hangar are located at the International Airport in Ottawa, Canada. SGL also has operational bases strategically located around the world.

Sander Geophysics' head office and hangar

Sander Geophysics maintains a fully-equipped electronics workshop for research, development and production of geophysical instruments. SGL has a state-of-the-art data processing department and a fully digital cartographic department. Sander Geophysics is also an Approved Maintenance Organization (AMO), which allows us to perform all required aircraft maintenance and modifications.

PERSONNEL

Sander Geophysics has over 100 experienced full-time employees, including geophysicists, software and hardware engineers, aircraft maintenance engineers and pilots.

Department

- Data Processing and Software Development: Luise Sander
- Engineering and Development: Stephen Ferguson
- Aeronautical Operations: Malcolm Imray
- Geophysical Operations: Stephan Sander / Reed Archer
- Cartographic Services: Yves Collins
- Administration and Accounts: Patrick Wu
- Sales and Marketing Malcolm Argyle

SGL's founder and Chairman, Dr. G. W. Sander, is still closely involved in all aspects of the company's operations.

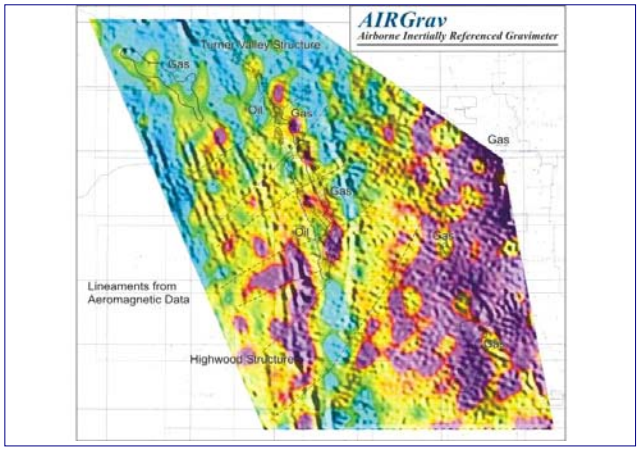
SERVICES

The company specializes in airborne surveys using the following methods: gravity, magnetic total field, magnetic gradient, electromagnetic and radiometric. Surveys are performed using SGL's specially modified airplanes or helicopters. A standard product on all of our surveys is a digital elevation model (DEM) derived from a laser scanner (LIDAR) or a combination of radar and laser profiler data.

Sander Geophysics offers gravimetric surveying with AIRGrav (Airborne Inertially Referenced Gravimeter). AIRGrav was designed specifically for the unique characteristics of the airborne environment, and is the highest resolution airborne gravimeter available. In addition, AIRGrav can be flown in an efficient survey aircraft during normal daytime conditions. AIRGrav is routinely flown in combination with magnetometer and/or gamma-ray spectrometer systems in the company's airplanes and helicopters.

SGL also provides environmental monitoring services using gamma-ray spectrometers and specialized processing to detect and quantify natural and anthropogenic radiation.

SANDER GEOPHYSICS
260 Hunt Club Road, Ottawa, Ontario K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com



First Vertical Derivative (FVD) of the Terrain Corrected Bouguer Gravity with Shadow of the FVD of the Total Magnetic Intensity

Immediate data processing is part of our standard quality control procedure, and provides our clients with rapid results for evaluation while the survey is in progress. SGL offers a full range of data enhancement programs and provides complete interpretational services by experienced geoscientists. Available products include:

- Vertical gradient contour and colour maps
- Shaded relief maps of any parameter
- NASVD processed gamma-ray spectrometer data
- Frequency slices - high/low-pass or band-pass filtered
- Calculated digital terrain models
- Amplitude of the analytic signal
- Reduction-to-the-pole
- Upward or downward continuation
- Three-dimensional modeling

SAFETY

Sander Geophysics is a founding member of the International Airborne Geophysics Safety Association (IAGSA) which promotes the safe operation of helicopters and fixed-wing aircraft on airborne geophysical surveys.

SGL is proud of its perfect safety record, and attributes its safe operations to the quality and experience of its field crews and flight operations crew, combined with management's ongoing commitment to safety.

AIRCRAFT

SGL owns and operates twelve geophysical aircraft, including seven Cessna Grand Caravans, all equipped for geophysical surveys. Three of the Grand Caravans have been modified to allow the installation of a tri-axial magnetic gradiometer system, consisting of two wingtip magnetometers to measure the horizontal gradient, and two vertically separated, tail boom mounted magnetometers to measure the vertical gradient. SGL also has an AS350-B3 helicopter equipped for gravity, magnetic and radiometric surveys. The B3 is a modern, high powered helicopter suitable for operating in areas of high altitude and steep terrain. Extensive modifications have been made to all of SGL's survey aircraft to reduce their magnetic effect. Typical Figures of Merit for SGL's fixed-wing aircraft are less than 1 nT. All of SGL's aircraft are flown and maintained by permanent employees of Sander Geophysics.

SGL's AS350-B3 helicopter

RESEARCH & DEVELOPMENT

SGL is dedicated to research and development. Nearly one-third of the company's resources are devoted to developing new and more efficient instrumentation for airborne geophysical surveying. In addition, the company has an ongoing program of designing, developing and refining a full suite of software for geophysical data processing.

Appendix II

Planned Survey Lines

Planned Survey Lines (WGS-84)
Magnetic/Spectrometric Survey – Bonaparte River - 2006

Line Number	Start		End		Length	
	Lat	Long	Lat	Long	NM	Km
C0100.00	N50:59.08	W121:08.35	N51:05.32	W121:15.62	7.75	14.36
C0101.00	N50:59.07	W121:05.70	N51:09.58	W121:17.94	13.05	24.17
C0102.00	N50:58.94	W121:02.90	N51:13.68	W121:20.07	18.29	33.88
C0103.00	N50:59.08	W121:00.42	N51:17.79	W121:22.23	23.23	43.02
C0104.00	N50:58.99	W120:57.67	N51:21.87	W121:24.34	28.39	52.57
C0105.00	N50:59.07	W120:55.13	N51:26.00	W121:26.54	33.42	61.88
C0106.00	N50:59.00	W120:52.41	N51:29.91	W121:28.48	38.35	71.02
C0107.00	N50:59.10	W120:49.88	N51:30.71	W121:26.74	39.21	72.61
C0108.00	N50:59.01	W120:47.13	N51:31.51	W121:25.01	40.31	74.65
C0109.00	N50:59.09	W120:44.59	N51:32.32	W121:23.27	41.19	76.28
C0110.00	N50:59.01	W120:41.86	N51:36.61	W121:25.66	46.60	86.31
C0111.00	N50:59.12	W120:39.35	N51:40.72	W121:27.84	51.56	95.50
C0112.00	N50:59.01	W120:36.59	N51:44.83	W121:30.03	56.79	105.18
C0113.00	N50:59.10	W120:34.06	N51:48.92	W121:32.20	61.74	114.35
C0114.00	N50:59.04	W120:31.36	N51:52.65	W121:33.95	66.43	123.03
C0115.00	N50:59.12	W120:28.82	N51:53.45	W121:32.20	67.31	124.66
C0116.00	N50:59.02	W120:26.08	N51:54.25	W121:30.44	68.40	126.67
C0117.00	N50:59.79	W120:24.32	N51:55.05	W121:28.69	68.42	126.71
C0118.00	N51:00.55	W120:22.56	N51:50.99	W121:21.14	62.39	115.55
C0119.00	N51:02.05	W120:21.64	N51:14.96	W120:36.37	15.91	29.46
C0119.10	N51:22.57	W120:45.14	N51:48.16	W121:15.08	31.70	58.70
C0120.00	N51:03.55	W120:20.70	N51:14.88	W120:33.64	13.97	25.86
C0120.10	N51:23.35	W120:43.39	N51:47.72	W121:11.87	30.18	55.89
C0121.00	N51:05.20	W120:19.95	N51:14.79	W120:30.89	11.82	21.88
C0121.10	N51:24.14	W120:41.63	N51:47.30	W121:08.68	28.67	53.10
C0122.00	N51:06.70	W120:19.01	N51:14.71	W120:28.15	9.87	18.27
C0122.10	N51:24.92	W120:39.88	N51:46.86	W121:05.46	27.14	50.27
C0123.00	N51:08.20	W120:18.09	N51:14.81	W120:25.61	8.13	15.06
C0123.10	N51:25.70	W120:38.12	N51:46.45	W121:02.29	25.66	47.52
C0124.00	N51:09.85	W120:17.32	N51:14.70	W120:22.84	5.97	11.06
C0124.10	N51:26.49	W120:36.37	N51:46.01	W120:59.09	24.14	44.71
C0125.00	N51:11.34	W120:16.39	N51:14.61	W120:20.10	4.01	7.43
C0126.00	N51:12.99	W120:15.62	N51:14.71	W120:17.57	2.11	3.90
C0201.00	N51:10.95	W120:44.31	N51:19.04	W120:53.67	10.01	18.54
C0202.00	N51:11.11	W120:43.97	N51:19.20	W120:53.32	10.01	18.54
C0203.00	N51:11.26	W120:43.62	N51:19.36	W120:52.97	10.01	18.54
C0204.00	N51:11.42	W120:43.27	N51:19.52	W120:52.62	10.01	18.54
T1001.00	N50:59.03	W120:26.13	N51:00.65	W120:22.50	2.81	5.21
T1002.00	N50:59.20	W120:26.33	N51:00.83	W120:22.70	2.81	5.21
T1003.00	N50:59.38	W120:26.53	N51:01.01	W120:22.89	2.82	5.22
T1004.00	N50:59.55	W120:26.73	N51:01.18	W120:23.09	2.82	5.22
T1005.00	N50:59.73	W120:26.92	N51:02.14	W120:21.53	4.17	7.73
T1006.00	N50:59.12	W120:28.88	N51:02.32	W120:21.74	5.53	10.24
T1007.00	N50:59.30	W120:29.07	N51:02.49	W120:21.94	5.52	10.23
T1008.00	N50:59.47	W120:29.27	N51:02.66	W120:22.15	5.52	10.21
T1009.00	N50:59.65	W120:29.46	N51:03.62	W120:20.58	6.88	12.74
T1010.00	N50:59.04	W120:31.41	N51:03.80	W120:20.78	8.23	15.24
T1011.00	N50:59.22	W120:31.60	N51:03.98	W120:20.97	8.23	15.24
T1012.00	N50:59.40	W120:31.79	N51:04.15	W120:21.17	8.22	15.23
T1013.00	N50:59.58	W120:31.98	N51:04.33	W120:21.36	8.22	15.23
T1014.00	N50:59.76	W120:32.18	N51:05.28	W120:19.83	9.56	17.70
T1015.00	N50:59.14	W120:34.14	N51:05.45	W120:20.03	10.92	20.23

T1016.00	N50:59.32	W120:34.33	N51:05.63	W120:20.23	10.91	20.21
T1017.00	N50:59.49	W120:34.53	N51:05.80	W120:20.44	10.91	20.20
T1018.00	N50:59.67	W120:34.72	N51:06.76	W120:18.88	12.26	22.71
T1019.00	N50:59.05	W120:36.69	N51:06.94	W120:19.08	13.63	25.24
T1020.00	N50:59.23	W120:36.88	N51:07.11	W120:19.28	13.63	25.24
T1021.00	N50:59.41	W120:37.08	N51:07.28	W120:19.48	13.62	25.23
T1022.00	N50:59.58	W120:37.28	N51:07.46	W120:19.68	13.62	25.22
T1023.00	N50:59.76	W120:37.48	N51:08.40	W120:18.16	14.94	27.67
T1024.00	N50:59.15	W120:39.41	N51:08.58	W120:18.36	16.29	30.16
T1025.00	N50:59.33	W120:39.60	N51:08.75	W120:18.55	16.29	30.17
T1026.00	N50:59.50	W120:39.80	N51:08.93	W120:18.75	16.29	30.17
T1027.00	N50:59.68	W120:40.00	N51:09.11	W120:18.95	16.29	30.17
T1028.00	N50:59.06	W120:41.97	N51:10.05	W120:17.42	19.00	35.18
T1029.00	N50:59.23	W120:42.17	N51:10.23	W120:17.61	19.00	35.18
T1030.00	N50:59.41	W120:42.36	N51:10.40	W120:17.81	19.00	35.18
T1031.00	N50:59.59	W120:42.56	N51:10.58	W120:18.01	18.99	35.18
T1032.00	N50:59.76	W120:42.76	N51:11.54	W120:16.44	20.36	37.70
T1033.00	N50:59.15	W120:44.71	N51:11.72	W120:16.64	21.72	40.22
T1034.00	N50:59.33	W120:44.90	N51:11.90	W120:16.83	21.71	40.21
T1035.00	N50:59.50	W120:45.09	N51:12.07	W120:17.03	21.71	40.21
T1036.00	N50:59.68	W120:45.29	N51:12.25	W120:17.23	21.71	40.20
T1037.00	N50:59.07	W120:47.24	N51:13.20	W120:15.69	24.41	45.20
T1038.00	N50:59.24	W120:47.43	N51:13.37	W120:15.89	24.40	45.19
T1039.00	N50:59.42	W120:47.63	N51:13.55	W120:16.09	24.40	45.18
T1040.00	N50:59.60	W120:47.82	N51:13.72	W120:16.29	24.39	45.17
T1041.00	N50:59.77	W120:48.02	N51:13.90	W120:16.49	24.39	45.17
T1042.00	N50:59.15	W120:49.98	N51:14.07	W120:16.69	25.75	47.69
T1043.00	N50:59.33	W120:50.17	N51:14.25	W120:16.89	25.75	47.69
T1044.00	N50:59.51	W120:50.37	N51:14.42	W120:17.09	25.75	47.68
T1045.00	N50:59.68	W120:50.57	N51:14.60	W120:17.29	25.74	47.68
T1046.00	N50:59.08	W120:52.49	N51:14.01	W120:19.22	25.75	47.69
T1047.00	N50:59.25	W120:52.69	N51:14.18	W120:19.42	25.75	47.69
T1048.00	N50:59.43	W120:52.89	N51:14.36	W120:19.62	25.75	47.69
T1049.00	N50:59.60	W120:53.10	N51:14.53	W120:19.82	25.75	47.69
T1050.00	N50:59.77	W120:53.30	N51:13.92	W120:21.78	24.39	45.18
T1051.00	N50:59.14	W120:55.27	N51:14.10	W120:21.98	25.78	47.74
T1052.00	N50:59.32	W120:55.47	N51:14.28	W120:22.18	25.77	47.73
T1053.00	N50:59.49	W120:55.67	N51:14.45	W120:22.38	25.77	47.73
T1054.00	N50:59.67	W120:55.87	N51:14.63	W120:22.58	25.77	47.72
T1055.00	N50:59.06	W120:57.78	N51:14.03	W120:24.53	25.76	47.71
T1056.00	N50:59.24	W120:57.99	N51:14.20	W120:24.73	25.76	47.71
T1057.00	N50:59.41	W120:58.19	N51:14.38	W120:24.93	25.76	47.71
T1058.00	N50:59.59	W120:58.39	N51:14.55	W120:25.13	25.76	47.71
T1059.00	N50:59.76	W120:58.59	N51:14.73	W120:25.32	25.76	47.72
T1060.00	N50:59.14	W121:00.54	N51:14.13	W120:27.26	25.78	47.75
T1061.00	N50:59.32	W121:00.74	N51:14.30	W120:27.46	25.78	47.75
T1062.00	N50:59.49	W121:00.94	N51:14.48	W120:27.66	25.78	47.75
T1063.00	N50:59.67	W121:01.14	N51:14.66	W120:27.86	25.78	47.75
T1064.00	N50:59.05	W121:03.07	N51:14.04	W120:29.83	25.77	47.72
T1065.00	N50:59.23	W121:03.26	N51:14.22	W120:30.03	25.76	47.71
T1066.00	N50:59.41	W121:03.45	N51:14.40	W120:30.23	25.75	47.69
T1067.00	N50:59.59	W121:03.64	N51:14.57	W120:30.42	25.75	47.68
T1068.00	N50:59.77	W121:03.83	N51:14.75	W120:30.62	25.74	47.67
T1069.00	N50:59.00	W121:06.09	N51:14.13	W120:32.60	25.97	48.10
T1070.00	N50:59.18	W121:06.29	N51:14.31	W120:32.80	25.97	48.10

T1071.00	N50:59.35	W121:06.49	N51:14.48	W120:33.00	25.97	48.10
T1072.00	N50:59.53	W121:06.69	N51:14.66	W120:33.20	25.97	48.10
T1073.00	N50:59.70	W121:06.89	N51:14.83	W120:33.40	25.97	48.10
T1074.00	N50:59.11	W121:08.78	N51:14.22	W120:35.36	25.93	48.02
T1075.00	N50:59.28	W121:08.98	N51:14.40	W120:35.56	25.93	48.03
T1076.00	N50:59.46	W121:09.18	N51:14.57	W120:35.75	25.94	48.03
T1077.00	N50:59.63	W121:09.39	N51:14.75	W120:35.95	25.94	48.04
T1078.00	N50:59.81	W121:09.59	N51:14.93	W120:36.15	25.94	48.05
T1079.00	N50:59.98	W121:09.79	N51:14.32	W120:38.10	24.59	45.54
T1080.00	N51:00.15	W121:09.99	N51:14.49	W120:38.30	24.59	45.53
T1081.00	N51:00.33	W121:10.19	N51:14.67	W120:38.50	24.59	45.53
T1082.00	N51:00.50	W121:10.39	N51:14.84	W120:38.70	24.59	45.53
T1083.00	N51:00.68	W121:10.59	N51:15.02	W120:38.90	24.59	45.53
T1084.00	N51:00.85	W121:10.79	N51:15.19	W120:39.11	24.58	45.53
T1085.00	N51:01.03	W121:10.99	N51:15.37	W120:39.31	24.58	45.53
T1086.00	N51:01.20	W121:11.20	N51:15.55	W120:39.51	24.58	45.53
T1087.00	N51:01.38	W121:11.40	N51:15.72	W120:39.71	24.58	45.53
T1088.00	N51:01.55	W121:11.60	N51:15.89	W120:39.91	24.58	45.53
T1089.00	N51:01.73	W121:11.80	N51:16.07	W120:40.11	24.58	45.53
T1090.00	N51:01.90	W121:12.00	N51:16.25	W120:40.31	24.58	45.53
T1091.00	N51:02.08	W121:12.20	N51:16.42	W120:40.51	24.58	45.52
T1092.00	N51:02.25	W121:12.40	N51:16.60	W120:40.71	24.58	45.52
T1093.00	N51:02.43	W121:12.60	N51:16.77	W120:40.91	24.57	45.51
T1094.00	N51:02.60	W121:12.79	N51:16.95	W120:41.11	24.57	45.51
T1095.00	N51:02.78	W121:12.99	N51:17.12	W120:41.32	24.57	45.50
T1096.00	N51:02.95	W121:13.19	N51:17.30	W120:41.52	24.57	45.50
T1097.00	N51:03.13	W121:13.39	N51:17.47	W120:41.72	24.56	45.49
T1098.00	N51:03.31	W121:13.59	N51:17.65	W120:41.92	24.56	45.49
T1099.00	N51:03.48	W121:13.79	N51:17.82	W120:42.12	24.56	45.48
T1100.00	N51:03.66	W121:13.99	N51:18.00	W120:42.32	24.56	45.48
T1101.00	N51:03.83	W121:14.19	N51:18.17	W120:42.52	24.55	45.47
T1102.00	N51:04.01	W121:14.38	N51:18.35	W120:42.72	24.55	45.47
T1103.00	N51:04.18	W121:14.58	N51:18.52	W120:42.92	24.55	45.46
T1104.00	N51:04.36	W121:14.78	N51:18.70	W120:43.13	24.54	45.46
T1105.00	N51:04.54	W121:14.98	N51:18.87	W120:43.33	24.54	45.45
T1106.00	N51:04.71	W121:15.18	N51:19.05	W120:43.53	24.54	45.45
T1107.00	N51:04.89	W121:15.38	N51:19.22	W120:43.73	24.54	45.44
T1108.00	N51:05.06	W121:15.58	N51:19.40	W120:43.93	24.53	45.44
T1109.00	N51:05.24	W121:15.78	N51:19.57	W120:44.13	24.53	45.43
T1110.00	N51:06.23	W121:14.19	N51:19.75	W120:44.33	23.14	42.85
T1111.00	N51:06.40	W121:14.39	N51:19.92	W120:44.54	23.14	42.86
T1112.00	N51:06.58	W121:14.60	N51:20.10	W120:44.74	23.14	42.86
T1113.00	N51:06.75	W121:14.80	N51:20.27	W120:44.94	23.14	42.86
T1114.00	N51:06.92	W121:15.01	N51:20.45	W120:45.14	23.15	42.87
T1115.00	N51:07.10	W121:15.21	N51:20.62	W120:45.34	23.15	42.87
T1116.00	N51:07.27	W121:15.42	N51:20.80	W120:45.54	23.15	42.87
T1117.00	N51:07.44	W121:15.62	N51:20.97	W120:45.74	23.15	42.88
T1118.00	N51:07.61	W121:15.83	N51:21.15	W120:45.95	23.15	42.88
T1119.00	N51:07.79	W121:16.03	N51:21.32	W120:46.15	23.16	42.88
T1120.00	N51:07.96	W121:16.24	N51:21.50	W120:46.35	23.16	42.89
T1121.00	N51:08.13	W121:16.44	N51:21.67	W120:46.55	23.16	42.89
T1122.00	N51:08.31	W121:16.65	N51:21.85	W120:46.75	23.16	42.89
T1123.00	N51:08.48	W121:16.85	N51:26.71	W120:36.46	31.24	57.86
T1124.00	N51:08.65	W121:17.06	N51:26.89	W120:36.66	31.24	57.86
T1125.00	N51:08.83	W121:17.27	N51:27.06	W120:36.86	31.24	57.86

T1126.00	N51:09.00	W121:17.47	N51:27.24	W120:37.06	31.25	57.87
T1127.00	N51:09.17	W121:17.68	N51:27.41	W120:37.27	31.25	57.87
T1128.00	N51:09.34	W121:17.88	N51:27.59	W120:37.47	31.25	57.87
T1129.00	N51:09.52	W121:18.08	N51:27.76	W120:37.67	31.25	57.87
T1130.00	N51:10.50	W121:16.53	N51:27.94	W120:37.87	29.88	55.34
T1131.00	N51:10.67	W121:16.73	N51:28.11	W120:38.07	29.88	55.34
T1132.00	N51:10.84	W121:16.94	N51:28.29	W120:38.27	29.88	55.34
T1133.00	N51:11.02	W121:17.14	N51:28.46	W120:38.48	29.88	55.34
T1134.00	N51:11.19	W121:17.34	N51:28.64	W120:38.68	29.88	55.34
T1135.00	N51:11.36	W121:17.55	N51:28.81	W120:38.88	29.88	55.34
T1136.00	N51:11.54	W121:17.75	N51:28.99	W120:39.08	29.88	55.34
T1137.00	N51:11.71	W121:17.96	N51:29.16	W120:39.29	29.88	55.35
T1138.00	N51:11.88	W121:18.16	N51:29.34	W120:39.49	29.88	55.35
T1139.00	N51:12.06	W121:18.36	N51:29.51	W120:39.69	29.88	55.35
T1140.00	N51:12.23	W121:18.57	N51:29.69	W120:39.89	29.89	55.35
T1141.00	N51:12.41	W121:18.77	N51:29.86	W120:40.09	29.89	55.35
T1142.00	N51:12.58	W121:18.98	N51:30.04	W120:40.30	29.89	55.35
T1143.00	N51:12.75	W121:19.18	N51:30.21	W120:40.50	29.89	55.35
T1144.00	N51:12.93	W121:19.38	N51:30.39	W120:40.70	29.89	55.35
T1145.00	N51:13.10	W121:19.59	N51:30.56	W120:40.90	29.89	55.35
T1146.00	N51:13.27	W121:19.79	N51:30.74	W120:41.11	29.89	55.35
T1147.00	N51:13.45	W121:20.00	N51:30.91	W120:41.31	29.89	55.35
T1148.00	N51:13.62	W121:20.20	N51:31.09	W120:41.51	29.89	55.35
T1149.00	N51:14.59	W121:18.66	N51:31.26	W120:41.71	28.53	52.84
T1150.00	N51:14.77	W121:18.86	N51:31.44	W120:41.91	28.53	52.84
T1151.00	N51:14.94	W121:19.07	N51:31.61	W120:42.12	28.54	52.85
T1152.00	N51:15.11	W121:19.27	N51:31.79	W120:42.32	28.54	52.85
T1153.00	N51:15.28	W121:19.48	N51:31.96	W120:42.52	28.54	52.85
T1154.00	N51:15.46	W121:19.68	N51:32.14	W120:42.72	28.54	52.85
T1155.00	N51:15.63	W121:19.89	N51:32.31	W120:42.93	28.54	52.86
T1156.00	N51:15.80	W121:20.10	N51:32.49	W120:43.13	28.54	52.86
T1157.00	N51:15.98	W121:20.30	N51:32.66	W120:43.33	28.54	52.86
T1158.00	N51:16.15	W121:20.51	N51:32.84	W120:43.53	28.54	52.86
T1159.00	N51:16.32	W121:20.71	N51:33.01	W120:43.74	28.54	52.86
T1160.00	N51:16.50	W121:20.92	N51:33.19	W120:43.94	28.55	52.87
T1161.00	N51:16.67	W121:21.12	N51:33.36	W120:44.14	28.55	52.87
T1162.00	N51:16.84	W121:21.33	N51:33.54	W120:44.35	28.55	52.87
T1163.00	N51:17.02	W121:21.53	N51:33.71	W120:44.55	28.55	52.87
T1164.00	N51:17.19	W121:21.74	N51:33.88	W120:44.75	28.55	52.88
T1165.00	N51:17.36	W121:21.94	N51:34.06	W120:44.95	28.55	52.88
T1166.00	N51:17.54	W121:22.15	N51:34.23	W120:45.16	28.55	52.88
T1167.00	N51:17.71	W121:22.35	N51:34.41	W120:45.36	28.55	52.88
T1168.00	N51:18.69	W121:20.79	N51:34.58	W120:45.56	27.18	50.34
T1169.00	N51:18.86	W121:21.00	N51:34.76	W120:45.77	27.18	50.34
T1170.00	N51:19.04	W121:21.20	N51:34.93	W120:45.97	27.18	50.34
T1171.00	N51:19.21	W121:21.41	N51:35.11	W120:46.17	27.19	50.35
T1172.00	N51:19.38	W121:21.61	N51:35.28	W120:46.37	27.19	50.35
T1173.00	N51:19.55	W121:21.82	N51:35.46	W120:46.58	27.19	50.35
T1174.00	N51:19.73	W121:22.03	N51:35.63	W120:46.78	27.19	50.36
T1175.00	N51:19.90	W121:22.23	N51:35.81	W120:46.98	27.19	50.36
T1176.00	N51:20.07	W121:22.44	N51:35.98	W120:47.19	27.19	50.36
T1177.00	N51:20.24	W121:22.65	N51:36.16	W120:47.39	27.20	50.37
T1178.00	N51:20.42	W121:22.85	N51:36.33	W120:47.59	27.20	50.37
T1179.00	N51:20.59	W121:23.06	N51:36.51	W120:47.80	27.20	50.37
T1180.00	N51:20.76	W121:23.27	N51:36.68	W120:48.00	27.20	50.38

T1181.00	N51:20.94	W121:23.47	N51:36.86	W120:48.20	27.20	50.38
T1182.00	N51:21.11	W121:23.68	N51:37.03	W120:48.41	27.20	50.38
T1183.00	N51:21.28	W121:23.89	N51:37.21	W120:48.61	27.21	50.39
T1184.00	N51:21.45	W121:24.09	N51:37.38	W120:48.81	27.21	50.39
T1185.00	N51:21.63	W121:24.30	N51:37.56	W120:49.02	27.21	50.39
T1186.00	N51:21.80	W121:24.50	N51:37.73	W120:49.22	27.21	50.39
T1187.00	N51:22.78	W121:22.94	N51:37.90	W120:49.42	25.84	47.86
T1188.00	N51:22.95	W121:23.15	N51:38.08	W120:49.63	25.85	47.86
T1189.00	N51:23.12	W121:23.36	N51:38.25	W120:49.83	25.85	47.87
T1190.00	N51:23.30	W121:23.57	N51:38.43	W120:50.03	25.85	47.87
T1191.00	N51:23.47	W121:23.78	N51:38.60	W120:50.24	25.85	47.88
T1192.00	N51:23.64	W121:23.98	N51:38.78	W120:50.44	25.85	47.88
T1193.00	N51:23.81	W121:24.19	N51:38.95	W120:50.64	25.86	47.89
T1194.00	N51:23.98	W121:24.40	N51:39.13	W120:50.85	25.86	47.89
T1195.00	N51:24.16	W121:24.61	N51:39.30	W120:51.05	25.86	47.90
T1196.00	N51:24.33	W121:24.81	N51:39.48	W120:51.25	25.86	47.90
T1197.00	N51:24.50	W121:25.02	N51:39.65	W120:51.46	25.87	47.91
T1198.00	N51:24.67	W121:25.23	N51:39.83	W120:51.66	25.87	47.91
T1199.00	N51:24.85	W121:25.44	N51:40.00	W120:51.86	25.87	47.92
T1200.00	N51:25.02	W121:25.65	N51:40.18	W120:52.07	25.87	47.92
T1201.00	N51:25.19	W121:25.85	N51:40.35	W120:52.27	25.88	47.93
T1202.00	N51:25.36	W121:26.06	N51:40.52	W120:52.48	25.88	47.93
T1203.00	N51:25.53	W121:26.27	N51:40.70	W120:52.68	25.88	47.93
T1204.00	N51:25.71	W121:26.48	N51:40.87	W120:52.88	25.88	47.94
T1205.00	N51:25.88	W121:26.69	N51:41.05	W120:53.09	25.89	47.94
T1206.00	N51:26.88	W121:25.07	N51:41.22	W120:53.29	24.48	45.33
T1207.00	N51:27.05	W121:25.28	N51:41.40	W120:53.50	24.48	45.34
T1208.00	N51:27.22	W121:25.50	N51:41.57	W120:53.70	24.49	45.35
T1209.00	N51:27.39	W121:25.71	N51:41.75	W120:53.90	24.50	45.37
T1210.00	N51:27.56	W121:25.92	N51:41.92	W120:54.11	24.50	45.38
T1211.00	N51:27.73	W121:26.14	N51:42.10	W120:54.31	24.51	45.39
T1212.00	N51:27.90	W121:26.35	N51:42.27	W120:54.52	24.51	45.40
T1213.00	N51:28.07	W121:26.56	N51:42.45	W120:54.72	24.52	45.41
T1214.00	N51:28.24	W121:26.77	N51:42.62	W120:54.92	24.53	45.42
T1215.00	N51:28.41	W121:26.99	N51:42.79	W120:55.13	24.53	45.44
T1216.00	N51:28.58	W121:27.20	N51:42.97	W120:55.33	24.54	45.45
T1217.00	N51:28.75	W121:27.41	N51:43.14	W120:55.54	24.55	45.46
T1218.00	N51:28.92	W121:27.63	N51:43.32	W120:55.74	24.55	45.47
T1219.00	N51:29.09	W121:27.84	N51:43.49	W120:55.94	24.56	45.48
T1220.00	N51:29.26	W121:28.05	N51:43.67	W120:56.15	24.56	45.49
T1221.00	N51:29.43	W121:28.27	N51:43.84	W120:56.35	24.57	45.50
T1222.00	N51:29.60	W121:28.48	N51:44.02	W120:56.56	24.58	45.52
T1223.00	N51:29.77	W121:28.69	N51:44.19	W120:56.76	24.58	45.53
T1224.00	N51:33.22	W121:21.71	N51:44.36	W120:56.97	19.03	35.24
T1225.00	N51:33.39	W121:21.92	N51:44.54	W120:57.17	19.03	35.24
T1226.00	N51:33.56	W121:22.12	N51:44.71	W120:57.37	19.03	35.24
T1227.00	N51:33.74	W121:22.33	N51:44.89	W120:57.58	19.03	35.24
T1228.00	N51:33.91	W121:22.54	N51:45.06	W120:57.78	19.03	35.24
T1229.00	N51:34.09	W121:22.74	N51:45.24	W120:57.99	19.03	35.24
T1230.00	N51:34.26	W121:22.95	N51:45.41	W120:58.19	19.03	35.24
T1231.00	N51:34.43	W121:23.15	N51:45.59	W120:58.40	19.03	35.24
T1232.00	N51:34.61	W121:23.36	N51:45.76	W120:58.60	19.03	35.24
T1233.00	N51:34.78	W121:23.56	N51:45.94	W120:58.81	19.03	35.24
T1234.00	N51:34.95	W121:23.77	N51:45.33	W121:00.76	17.69	32.77
T1235.00	N51:35.13	W121:23.97	N51:45.50	W121:00.96	17.69	32.77

T1236.00	N51:35.30	W121:24.18	N51:45.68	W121:01.16	17.70	32.77
T1237.00	N51:35.47	W121:24.39	N51:45.85	W121:01.37	17.70	32.77
T1238.00	N51:35.65	W121:24.59	N51:46.03	W121:01.57	17.70	32.78
T1239.00	N51:35.82	W121:24.80	N51:46.20	W121:01.77	17.70	32.78
T1240.00	N51:36.00	W121:25.00	N51:46.38	W121:01.98	17.70	32.78
T1241.00	N51:36.17	W121:25.21	N51:45.76	W121:03.95	16.34	30.27
T1242.00	N51:36.34	W121:25.41	N51:45.93	W121:04.16	16.34	30.27
T1243.00	N51:36.52	W121:25.62	N51:46.11	W121:04.36	16.34	30.27
T1244.00	N51:37.48	W121:24.08	N51:46.28	W121:04.57	15.00	27.78
T1245.00	N51:37.65	W121:24.29	N51:46.46	W121:04.77	15.00	27.78
T1246.00	N51:37.83	W121:24.50	N51:46.63	W121:04.98	15.00	27.78
T1247.00	N51:38.00	W121:24.70	N51:46.81	W121:05.18	15.00	27.79
T1248.00	N51:38.17	W121:24.91	N51:46.18	W121:07.16	13.65	25.27
T1249.00	N51:38.35	W121:25.12	N51:46.36	W121:07.36	13.65	25.28
T1250.00	N51:38.52	W121:25.32	N51:46.53	W121:07.57	13.65	25.28
T1251.00	N51:38.69	W121:25.53	N51:46.71	W121:07.77	13.65	25.28
T1252.00	N51:38.87	W121:25.74	N51:46.89	W121:07.97	13.66	25.29
T1253.00	N51:39.04	W121:25.95	N51:47.06	W121:08.18	13.66	25.29
T1254.00	N51:39.21	W121:26.15	N51:47.24	W121:08.38	13.66	25.30
T1255.00	N51:39.39	W121:26.36	N51:46.61	W121:10.36	12.30	22.77
T1256.00	N51:39.56	W121:26.57	N51:46.78	W121:10.57	12.30	22.77
T1257.00	N51:39.73	W121:26.77	N51:46.96	W121:10.78	12.29	22.77
T1258.00	N51:39.91	W121:26.98	N51:47.13	W121:10.99	12.29	22.76
T1259.00	N51:40.08	W121:27.19	N51:47.30	W121:11.20	12.29	22.76
T1260.00	N51:40.25	W121:27.39	N51:47.47	W121:11.41	12.29	22.76
T1261.00	N51:40.42	W121:27.60	N51:47.64	W121:11.62	12.29	22.75
T1262.00	N51:40.60	W121:27.81	N51:47.03	W121:13.58	10.94	20.27
T1263.00	N51:41.57	W121:26.26	N51:47.20	W121:13.78	9.59	17.75
T1264.00	N51:41.74	W121:26.46	N51:47.38	W121:13.99	9.59	17.75
T1265.00	N51:41.92	W121:26.67	N51:47.55	W121:14.20	9.59	17.75
T1266.00	N51:42.09	W121:26.87	N51:47.73	W121:14.40	9.58	17.75
T1267.00	N51:42.26	W121:27.08	N51:47.90	W121:14.61	9.58	17.75
T1268.00	N51:42.44	W121:27.29	N51:48.07	W121:14.82	9.58	17.75
T1269.00	N51:42.61	W121:27.49	N51:47.46	W121:16.77	8.24	15.26
T1270.00	N51:42.78	W121:27.70	N51:47.63	W121:16.98	8.24	15.26
T1271.00	N51:42.96	W121:27.91	N51:47.81	W121:17.18	8.24	15.26
T1272.00	N51:43.13	W121:28.11	N51:47.98	W121:17.39	8.24	15.26
T1273.00	N51:43.30	W121:28.32	N51:48.15	W121:17.60	8.24	15.26
T1274.00	N51:43.48	W121:28.53	N51:48.33	W121:17.80	8.24	15.26
T1275.00	N51:43.65	W121:28.73	N51:48.50	W121:18.01	8.24	15.26
T1276.00	N51:43.83	W121:28.94	N51:48.67	W121:18.22	8.24	15.26
T1277.00	N51:44.00	W121:29.15	N51:48.85	W121:18.42	8.24	15.26
T1278.00	N51:44.17	W121:29.35	N51:49.02	W121:18.63	8.24	15.26
T1279.00	N51:44.35	W121:29.56	N51:49.20	W121:18.84	8.24	15.26
T1280.00	N51:44.52	W121:29.77	N51:49.37	W121:19.04	8.24	15.26
T1281.00	N51:44.69	W121:29.97	N51:49.54	W121:19.25	8.24	15.26
T1282.00	N51:45.67	W121:28.41	N51:49.72	W121:19.46	6.88	12.73
T1283.00	N51:45.84	W121:28.61	N51:49.89	W121:19.67	6.87	12.73
T1284.00	N51:46.02	W121:28.82	N51:50.06	W121:19.87	6.87	12.73
T1285.00	N51:46.19	W121:29.03	N51:50.24	W121:20.08	6.87	12.73
T1286.00	N51:46.36	W121:29.23	N51:50.41	W121:20.29	6.87	12.73
T1287.00	N51:46.54	W121:29.44	N51:50.58	W121:20.49	6.87	12.73
T1288.00	N51:46.71	W121:29.65	N51:50.76	W121:20.70	6.87	12.73
T1289.00	N51:46.88	W121:29.85	N51:50.93	W121:20.91	6.87	12.73
T1290.00	N51:47.06	W121:30.06	N51:50.32	W121:22.86	5.53	10.25

T1291.00	N51:47.23	W121:30.27	N51:50.49	W121:23.06	5.54	10.25
T1292.00	N51:47.41	W121:30.47	N51:50.67	W121:23.27	5.54	10.25
T1293.00	N51:47.58	W121:30.68	N51:50.84	W121:23.47	5.54	10.25
T1294.00	N51:47.75	W121:30.89	N51:51.01	W121:23.68	5.54	10.25
T1295.00	N51:47.93	W121:31.09	N51:51.19	W121:23.89	5.54	10.25
T1296.00	N51:48.10	W121:31.30	N51:51.36	W121:24.09	5.54	10.26
T1297.00	N51:48.27	W121:31.51	N51:51.54	W121:24.30	5.54	10.26
T1298.00	N51:48.45	W121:31.72	N51:51.71	W121:24.50	5.54	10.26
T1299.00	N51:48.62	W121:31.92	N51:51.88	W121:24.71	5.54	10.26
T1300.00	N51:48.79	W121:32.13	N51:52.06	W121:24.92	5.54	10.26
T1301.00	N51:49.77	W121:30.58	N51:52.23	W121:25.12	4.19	7.75
T1302.00	N51:49.94	W121:30.79	N51:52.41	W121:25.33	4.19	7.76
T1303.00	N51:50.11	W121:31.00	N51:52.58	W121:25.54	4.19	7.77
T1304.00	N51:50.28	W121:31.21	N51:52.75	W121:25.74	4.20	7.77
T1305.00	N51:50.45	W121:31.42	N51:52.93	W121:25.95	4.20	7.78
T1306.00	N51:50.63	W121:31.63	N51:53.10	W121:26.15	4.20	7.78
T1307.00	N51:50.80	W121:31.84	N51:53.28	W121:26.36	4.21	7.79
T1308.00	N51:50.97	W121:32.05	N51:53.45	W121:26.57	4.21	7.79
T1309.00	N51:51.14	W121:32.26	N51:53.62	W121:26.77	4.21	7.80
T1310.00	N51:51.31	W121:32.47	N51:53.80	W121:26.98	4.22	7.81
T1311.00	N51:51.48	W121:32.68	N51:53.97	W121:27.19	4.22	7.81
T1312.00	N51:51.66	W121:32.89	N51:54.15	W121:27.39	4.22	7.82
T1313.00	N51:51.83	W121:33.10	N51:54.32	W121:27.60	4.22	7.82
T1314.00	N51:52.00	W121:33.31	N51:54.49	W121:27.81	4.23	7.83
T1315.00	N51:52.17	W121:33.53	N51:54.67	W121:28.01	4.23	7.84
T1316.00	N51:52.34	W121:33.74	N51:54.84	W121:28.22	4.23	7.84
T1317.00	N51:52.52	W121:33.95	N51:55.01	W121:28.43	4.24	7.85
T2001.00	N51:09.26	W120:48.47	N51:11.73	W120:42.98	4.24	7.86
T2002.00	N51:09.43	W120:48.67	N51:11.90	W120:43.19	4.24	7.85
T2003.00	N51:08.82	W120:50.62	N51:12.08	W120:43.39	5.60	10.36
T2004.00	N51:08.99	W120:50.82	N51:12.25	W120:43.59	5.60	10.36
T2005.00	N51:09.17	W120:51.02	N51:12.43	W120:43.79	5.60	10.36
T2006.00	N51:09.34	W120:51.22	N51:12.60	W120:43.99	5.60	10.36
T2007.00	N51:09.52	W120:51.42	N51:12.78	W120:44.19	5.60	10.36
T2008.00	N51:09.69	W120:51.62	N51:12.95	W120:44.39	5.60	10.36
T2009.00	N51:09.87	W120:51.82	N51:13.12	W120:44.60	5.60	10.36
T2010.00	N51:10.04	W120:52.03	N51:13.30	W120:44.80	5.60	10.36
T2011.00	N51:10.22	W120:52.23	N51:13.47	W120:45.00	5.60	10.36
T2012.00	N51:10.39	W120:52.43	N51:13.65	W120:45.20	5.60	10.36
T2013.00	N51:10.57	W120:52.63	N51:13.82	W120:45.40	5.60	10.36
T2014.00	N51:11.52	W120:51.11	N51:14.00	W120:45.60	4.26	7.90
T2015.00	N51:11.69	W120:51.32	N51:14.17	W120:45.80	4.26	7.90
T2016.00	N51:11.87	W120:51.52	N51:14.35	W120:46.01	4.26	7.90
T2017.00	N51:12.04	W120:51.72	N51:14.52	W120:46.21	4.26	7.90
T2018.00	N51:12.21	W120:51.92	N51:14.70	W120:46.41	4.26	7.90
T2019.00	N51:12.39	W120:52.12	N51:14.87	W120:46.61	4.26	7.90
T2020.00	N51:12.56	W120:52.32	N51:15.05	W120:46.81	4.26	7.90
T2021.00	N51:12.74	W120:52.53	N51:15.22	W120:47.01	4.26	7.90
T2022.00	N51:12.91	W120:52.73	N51:15.40	W120:47.22	4.26	7.90
T2023.00	N51:13.09	W120:52.93	N51:15.57	W120:47.42	4.26	7.90
T2024.00	N51:13.26	W120:53.13	N51:15.75	W120:47.62	4.26	7.90
T2025.00	N51:13.44	W120:53.33	N51:15.92	W120:47.82	4.26	7.90
T2026.00	N51:13.61	W120:53.54	N51:16.91	W120:46.22	5.66	10.48
T2027.00	N51:13.79	W120:53.74	N51:17.08	W120:46.42	5.66	10.48
T2028.00	N51:13.96	W120:53.94	N51:17.26	W120:46.62	5.66	10.48

T2029.00	N51:14.14	W120:54.14	N51:17.43	W120:46.82	5.66	10.48
T2030.00	N51:15.10	W120:52.59	N51:17.61	W120:47.02	4.30	7.96
T2031.00	N51:15.28	W120:52.79	N51:17.78	W120:47.23	4.30	7.96
T2032.00	N51:15.45	W120:52.99	N51:17.96	W120:47.43	4.30	7.96
T2033.00	N51:15.63	W120:53.19	N51:18.13	W120:47.63	4.30	7.96
T2034.00	N51:15.80	W120:53.39	N51:18.31	W120:47.83	4.30	7.96
T2035.00	N51:15.98	W120:53.60	N51:18.48	W120:48.03	4.30	7.96
T2036.00	N51:16.15	W120:53.80	N51:18.66	W120:48.23	4.30	7.96
T2037.00	N51:16.33	W120:54.00	N51:18.83	W120:48.44	4.30	7.96
T2038.00	N51:16.50	W120:54.20	N51:19.00	W120:48.64	4.30	7.96
T2039.00	N51:16.68	W120:54.40	N51:19.18	W120:48.84	4.30	7.96
T2040.00	N51:16.85	W120:54.60	N51:19.35	W120:49.04	4.30	7.96
T2041.00	N51:17.02	W120:54.80	N51:19.53	W120:49.24	4.30	7.96
T2042.00	N51:17.20	W120:55.01	N51:19.70	W120:49.45	4.30	7.96
T2043.00	N51:17.37	W120:55.21	N51:19.88	W120:49.65	4.30	7.96
T2044.00	N51:17.55	W120:55.41	N51:20.05	W120:49.85	4.30	7.96
T2045.00	N51:13.75	W121:04.40	N51:20.23	W120:50.05	11.10	20.56
T2046.00	N51:13.93	W121:04.60	N51:20.40	W120:50.25	11.09	20.55
T2047.00	N51:13.29	W121:06.58	N51:15.19	W121:02.39	3.25	6.01
T2048.00	N51:13.47	W121:06.78	N51:15.37	W121:02.59	3.25	6.01
T2049.00	N51:13.64	W121:06.98	N51:15.54	W121:02.80	3.25	6.01
T2050.00	N51:13.81	W121:07.19	N51:15.71	W121:03.00	3.25	6.01
T2051.00	N51:13.99	W121:07.39	N51:16.63	W121:01.56	4.51	8.36
T2052.00	N51:14.16	W121:07.59	N51:16.80	W121:01.77	4.52	8.36
T2053.00	N51:14.34	W121:07.80	N51:16.98	W121:01.97	4.52	8.36
T2054.00	N51:14.51	W121:08.00	N51:17.15	W121:02.17	4.52	8.37
T2055.00	N51:14.68	W121:08.20	N51:17.33	W121:02.37	4.52	8.37
T2056.00	N51:14.86	W121:08.41	N51:17.50	W121:02.57	4.52	8.37
T2057.00	N51:15.03	W121:08.61	N51:17.68	W121:02.78	4.52	8.37
T2058.00	N51:15.21	W121:08.81	N51:17.85	W121:02.98	4.52	8.37
T2059.00	N51:15.38	W121:09.02	N51:18.03	W121:03.18	4.52	8.37
T2060.00	N51:15.55	W121:09.22	N51:18.20	W121:03.38	4.52	8.38
T2061.00	N51:15.73	W121:09.42	N51:18.38	W121:03.58	4.52	8.38
T2062.00	N51:15.90	W121:09.63	N51:19.28	W121:02.18	5.77	10.68
T2063.00	N51:16.08	W121:09.83	N51:19.45	W121:02.38	5.77	10.68
T2064.00	N51:16.25	W121:10.03	N51:19.63	W121:02.59	5.77	10.68
T2065.00	N51:17.16	W121:08.62	N51:19.80	W121:02.79	4.51	8.36
T2066.00	N51:17.33	W121:08.82	N51:19.97	W121:03.00	4.51	8.36
T2067.00	N51:17.51	W121:09.03	N51:20.19	W121:03.10	4.59	8.50
T2068.00	N51:17.68	W121:09.23	N51:20.44	W121:03.14	4.72	8.74
T2069.00	N51:17.85	W121:09.43	N51:20.69	W121:03.18	4.84	8.97
T2070.00	N51:18.03	W121:09.64	N51:20.94	W121:03.21	4.97	9.21
T2071.00	N51:18.20	W121:09.84	N51:21.19	W121:03.25	5.10	9.44
T2072.00	N51:18.38	W121:10.04	N51:21.92	W121:02.23	6.05	11.20
T2073.00	N51:19.34	W121:08.51	N51:22.09	W121:02.43	4.70	8.70
T2074.00	N51:19.52	W121:08.71	N51:22.27	W121:02.64	4.70	8.70
T2075.00	N51:19.69	W121:08.91	N51:21.58	W121:04.75	3.22	5.96
T2076.00	N51:19.86	W121:09.12	N51:21.75	W121:04.95	3.22	5.96
T2077.00	N51:20.04	W121:09.32	N51:21.92	W121:05.16	3.22	5.96
T2078.00	N51:20.21	W121:09.52	N51:22.10	W121:05.36	3.22	5.96
T2079.00	N51:20.39	W121:09.73	N51:22.27	W121:05.56	3.22	5.96
T2080.00	N51:20.56	W121:09.93	N51:22.45	W121:05.77	3.22	5.96

Total control line length = 2,059.67 km (1,112.67 NM)

Total traverse line length = 12,421.84 km (6,707.33 NM)

Total length of all lines = 14,481.51 km (7,819.48 NM)

Appendix III

Actual Survey Lines Flown

ACTUAL FLOWN SURVEY LINES (NAD-83, UTM Zone 10N)
Magnetic/Spectrometric Survey – Bonaparte River, B.C. - 2006

Line	Time		UTM-X		UTM-Y		Flt	Day	Year
	Start	End	Min	Max	Min	Max			
100.00	6399680	6421670	6217401	6305339	56498636	56612641	19	282	2006
101.00	6346300	6387730	6188405	6337147	56498395	56691067	19	282	2006
102.00	6267430	6324270	6161953	6369155	56497746	56766241	19	282	2006
103.00	6182860	6255610	6134481	6398760	56500204	56840557	19	282	2006
104.00	6077890	6161300	6108920	6430867	56499604	56916803	19	282	2006
105.00	5962990	6064560	6082226	6460507	56502133	56992252	19	282	2006
106.00	7257340	7372880	6058308	6492469	56501577	57064228	11	273	2006
107.00	6150270	6269400	6078295	6522090	56503985	57079358	11	273	2006
108.00	7205520	7323210	6098078	6554175	56503535	57094473	9	272	2006
109.00	5921650	6049360	6118219	6583637	56505975	57109628	9	272	2006
110.00	7478810	7623120	6088806	6615720	56505486	57188236	8	271	2006
111.00	6273650	6436260	6062366	6645496	56508024	57263683	8	271	2006
112.00	7798740	7960010	6035878	6677467	56507324	57338961	7	270	2006
113.00	6895070	7089750	6009272	6707219	56509762	57414311	7	270	2006
114.00	7488140	7696560	5987352	6739472	56509162	57483366	6	268	2006
115.00	6505150	6709200	6007568	6768956	56511631	57498533	6	268	2006
116.00	8274680	8476660	6027307	6800961	56510943	57513658	5	267	2006
117.01	7123260	7324490	6047419	6820892	56526144	57528814	32	296	2006
118.01	6574190	6777260	6135671	6840678	56541378	57455399	32	296	2006
119.00	7894790	7941600	6670703	6851366	56568515	56802318	5	267	2006
119.10	7743180	7839590	6206423	6563030	56942086	57404212	5	267	2006
120.00	7956470	7996100	6703092	6861296	56596363	56801722	5	267	2006
120.10	7632260	7722060	6243602	6582982	56957311	57397154	5	267	2006
121.00	8010290	8046000	6734851	6869159	56627392	56801169	5	267	2006
121.10	7531980	7616650	6280183	6602673	56972539	57390248	5	267	2006
122.00	8063070	8091520	6767192	6879130	56655212	56800530	5	267	2006
122.10	7426140	7507990	6317361	6622489	56987745	57383226	5	267	2006
123.00	8104580	8129360	6796486	6886937	56686201	56803227	5	267	2006
123.10	7330620	7407550	6354337	6642462	57002934	57376321	5	267	2006
124.00	8145950	8162890	6828720	6894567	56717166	56802570	5	267	2006
124.10	7234540	7306650	6391192	6662308	57018147	57369495	5	267	2006
125.00	8176530	8188990	6860874	6904852	56745005	56801883	5	267	2006
126.00	8206330	8212020	6890492	6912434	56775929	56804377	5	267	2006
201.00	8069660	8100550	6465836	6579394	56724150	56871738	18	281	2006
202.00	8030280	8059850	6469836	6583531	56727347	56874773	18	281	2006
203.00	7972730	8004320	6473739	6587605	56730393	56877817	18	281	2006
204.00	7930540	7961210	6477929	6591416	56733426	56881231	18	281	2006
1001.01	6797210	6807090	6799478	6841677	56511062	56543291	32	296	2006
1002.01	6821490	6829740	6797017	6839189	56514259	56546618	32	296	2006
1003.01	6846450	6856250	6794562	6836749	56517399	56549636	32	296	2006
1004.00	6724140	6732160	6792169	6834279	56520590	56552849	6	268	2006
1005.00	6755150	6769660	6789715	6851670	56523956	56571068	6	268	2006
1006.00	6828470	6843970	6767486	6849209	56511900	56574185	6	268	2006
1007.00	6864650	6883370	6765037	6846772	56515015	56577458	6	268	2006
1008.00	6900170	6915980	6762573	6844290	56518191	56580443	6	268	2006
1009.00	6936110	6959100	6760126	6861943	56521344	56599028	6	268	2006
1010.00	6977660	7001330	6737788	6859512	56509364	56602149	6	268	2006
1011.00	7018630	7046740	6735318	6857101	56512618	56605153	6	268	2006
1012.00	7065380	7089640	6732882	6854664	56515580	56608455	6	268	2006
1013.00	7109500	7137050	6730427	6852236	56518604	56611662	6	268	2006
1014.00	7154860	7182030	6727975	6869532	56521880	56629945	6	268	2006
1015.00	7199810	7234300	6705685	6867072	56509840	56632979	6	268	2006
1016.00	7251900	7282820	6703246	6864583	56513098	56636042	6	268	2006
1017.00	7302910	7337210	6700763	6862118	56516160	56639412	6	268	2006
1018.00	7356240	7391760	6698319	6879560	56519460	56657821	6	268	2006
1019.00	7406990	7450640	6676038	6877135	56507313	56661099	6	268	2006

1020.00	7110440	7149440	6673598	6874673	56510968	56664015	7	270	2006
1021.00	7167670	7210420	6671180	6872218	56513502	56667088	7	270	2006
1022.00	7224950	7265570	6668687	6869805	56516857	56670431	7	270	2006
1023.00	7290140	7335720	6666241	6886966	56520147	56688674	7	270	2006
1024.00	7354540	7402030	6643931	6884559	56508057	56691591	7	270	2006
1025.00	7425660	7473680	6641499	6882080	56511229	56694910	7	270	2006
1026.00	7490890	7538640	6639007	6879665	56514228	56698067	7	270	2006
1027.00	7561510	7609610	6636582	6877205	56517591	56701184	7	270	2006
1028.00	7630360	7687790	6614263	6894445	56505727	56719401	7	270	2006
1029.00	7710230	7766860	6611852	6892009	56509064	56722710	7	270	2006
1030.00	6455160	6512170	6609399	6889564	56511953	56725685	8	271	2006
1031.00	6531860	6589630	6606965	6887171	56515270	56728942	8	271	2006
1032.00	6608490	6668370	6604514	6904878	56518329	56747523	8	271	2006
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1253.00	6612400	6657140	6084179	6285527	57233131	57386966	28	293	2006
1254.00	6670500	6711950	6081708	6283106	57236440	57390049	28	293	2006
1255.00	6727490	6766760	6079262	6260636	57239589	57377968	28	293	2006
1256.00	6779700	6817090	6076841	6258208	57242658	57381205	28	293	2006
1257.00	6829350	6869540	6074365	6255770	57245889	57384428	28	293	2006
1258.00	6884020	6921880	6071928	6253308	57249201	57387622	28	293	2006
1259.00	6934970	6977400	6069449	6250821	57252279	57390663	28	293	2006
1260.00	6990110	7028360	6067014	6248391	57255342	57393793	28	293	2006
1261.00	7041750	7082840	6064560	6245934	57258602	57397006	28	293	2006
1262.00	7099070	7132780	6062122	6223552	57261720	57384737	28	293	2006
1263.00	7146050	7176600	6079548	6221110	57280024	57388132	28	293	2006
1264.00	7189330	7218240	6077103	6218655	57283147	57391272	28	293	2006
1265.00	7230570	7260530	6074675	6216186	57286429	57394328	28	293	2006
1266.00	7273370	7303760	6072233	6213744	57289693	57397417	28	293	2006
1267.00	7317830	7349280	6069769	6211266	57292707	57400725	28	293	2006
1268.00	7362980	7392800	6067353	6208810	57295825	57403779	28	293	2006
1269.00	6409360	6434130	6064909	6186576	57299254	57391998	29	294	2006
1270.00	6446870	6473180	6062433	6184145	57302280	57395030	29	294	2006
1271.00	6487790	6512480	6060023	6181682	57305386	57398216	29	294	2006
1272.00	6525770	6552190	6057550	6179239	57308555	57401387	29	294	2006
1273.00	6566710	6591880	6055126	6176768	57311924	57404684	29	294	2006
1274.00	6604800	6630430	6052675	6174344	57314801	57407691	29	294	2006
1275.00	6644780	6669570	6050248	6171920	57318114	57411043	29	294	2006
1276.00	6683340	6708530	6047782	6169460	57321393	57413968	29	294	2006
1277.00	6719930	6744760	6045358	6166970	57324418	57417152	29	294	2006
1278.00	6757870	6783840	6042903	6164573	57327464	57420299	29	294	2006
1279.00	6795130	6820050	6040469	6162117	57330682	57423509	29	294	2006
1280.00	6833200	6858830	6038023	6159656	57333745	57426690	29	294	2006
1281.00	6871140	6896430	6035610	6157215	57337060	57429858	29	294	2006
1282.00	6917340	6938890	6053069	6154750	57355576	57433122	29	294	2006
1283.01	7462100	7484870	6050617	6152336	57358612	57436090	32	296	2006
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1285.01	7392690	7415170	6045718	6147406	57364881	57442531	32	296	2006
1286.01	7359390	7379440	6043312	6144999	57368157	57445731	32	296	2006
1287.00	6371790	6392910	6040821	6142529	57371166	57448862	31	295	2006
1288.00	6404430	6427440	6038409	6140068	57374289	57451956	31	295	2006
1289.00	6442090	6462620	6035936	6137606	57377465	57455369	31	295	2006
1290.01	6476070	6495350	6033537	6115559	57380763	57443210	31	295	2006
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1297.00	6703520	6719460	6016370	6098432	57403146	57465318	31	295	2006
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1307.00	6992950	7005840	6011841	6074009	57449455	57497185	31	295	2006
1308.00	7021640	7035670	6009400	6071577	57452879	57500368	31	295	2006
1309.00	7063900	7076340	6006939	6069083	57455998	57503434	31	295	2006

1310.00	7092620	7106610	6004501	6066675	57459344	57506731	31	295	2006
1311.00	7121480	7134080	6002054	6064215	57462319	57509784	31	295	2006
1312.00	7150110	7164220	5999592	6061787	57465595	57513001	31	295	2006
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2004.00	6731490	6748220	6505849	6587601	56686940	56749093	18	281	2006
2005.00	6763670	6781590	6503433	6585165	56690237	56752540	18	281	2006
2006.00	6796270	6813540	6500989	6582714	56693288	56755598	18	281	2006
2007.00	6825800	6843570	6498536	6580268	56696524	56758824	18	281	2006
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2009.00	6883570	6901380	6493666	6575411	56702813	56765167	18	281	2006
2010.00	6913670	6929930	6491192	6572958	56706019	56768381	18	281	2006
2011.00	6941700	6958870	6488779	6570526	56709196	56771451	18	281	2006
2012.00	6970780	6987150	6486326	6568081	56712307	56774939	18	281	2006
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2014.00	7027890	7040200	6501058	6563217	56733233	56781058	18	281	2006
2015.00	7050900	7064790	6498579	6560768	56736734	56784210	18	281	2006
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2017.00	7099240	7112230	6493715	6555896	56743219	56790852	18	281	2006
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2020.00	7174860	7188110	6486354	6548553	56752706	56800323	18	281	2006
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2022.00	7227000	7239660	6481476	6543671	56758937	56806469	18	281	2006
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2024.00	7277750	7290150	6476589	6538808	56765349	56812798	18	281	2006
2025.00	7303650	7316290	6474179	6536376	56768386	56815810	18	281	2006
2026.00	7331450	7347720	6471741	6554947	56771717	56835241	18	281	2006
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2037.00	7618300	7631300	6464914	6528114	56821774	56870150	18	281	2006
2038.00	7644060	7656510	6462477	6525686	56825148	56873256	18	281	2006
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2049.00	6497550	6507540	6315236	6362893	56767869	56804214	19	282	2006
2050.00	6518100	6528870	6312764	6360439	56770861	56807527	19	282	2006

2051.00	6540850	6550820	6310327	6357828	56774178	56810734	19	282	2006
2052.00	6564860	6579430	6307889	6374329	56777646	56828148	19	282	2006
2053.00	6590540	6605000	6305437	6371861	56780702	56831347	19	282	2006
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2059.00	6753250	6767400	6290748	6357286	56799664	56850302	19	282	2006
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2062.00	6838350	6855930	6283433	6368266	56809203	56873856	19	282	2006
2063.00	6868530	6885760	6280971	6365815	56812257	56876975	19	282	2006
2064.00	6898710	6915880	6278523	6363335	56815448	56880078	19	282	2006
2065.00	6931660	6944990	6295104	6360889	56833138	56883372	19	282	2006
2066.00	6959350	6973290	6292620	6358432	56836346	56886511	19	282	2006
2067.00	6983730	6997870	6290196	6357155	56839263	56890537	19	282	2006
2068.00	7007380	7022070	6287729	6356600	56842475	56894999	19	282	2006
2069.00	7033160	7048270	6285287	6356036	56845633	56899801	19	282	2006
2070.00	7058100	7073520	6282837	6355468	56848856	56904351	19	282	2006
2071.00	7089930	7105080	6280385	6354870	56852052	56909152	19	282	2006
2072.00	7129960	7148510	6278601	6365741	56854420	56922225	19	282	2006
2073.00	7159320	7173230	6294532	6363348	56872976	56925336	19	282	2006
2074.00	7184240	7198690	6292078	6360988	56876092	56928520	19	282	2006
2075.00	7212160	7222150	6289625	6337271	56879235	56915573	19	282	2006
2076.00	7235710	7245580	6287159	6334834	56882322	56918741	19	282	2006
2077.00	7258420	7268390	6284700	6332404	56885551	56921923	19	282	2006
2078.00	7283660	7293510	6282266	6329964	56888591	56925118	19	282	2006
2079.00	7306870	7316940	6279798	6327539	56891826	56928189	19	282	2006
2080.00	7330140	7339940	6277376	6325108	56895182	56931515	19	282	2006

Appendix IV

List of Lines Reflown

Re-flights
Magnetic/Spectrometric Survey – Bonaparte River - 2006

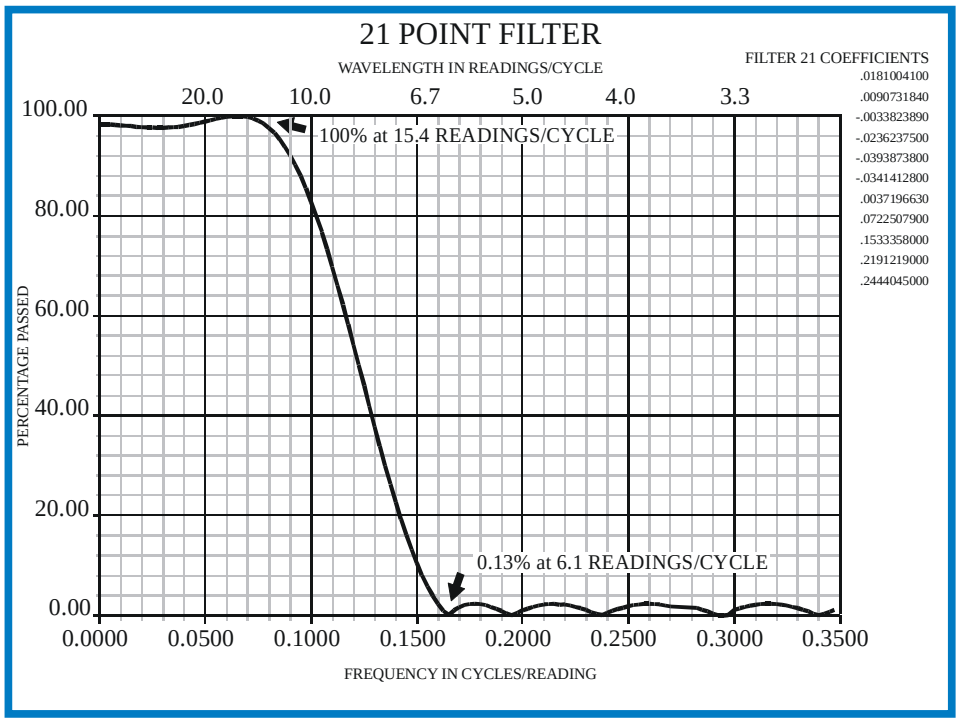
Line	Length (km)	Initial flight	Reason for reflight	Reflown in flight
117.00	72.61	002	Data exceed specifications	032
118.00	74.65	002	Data exceed specifications	032
1001.00	5.21	002	Data exceed specifications	032
1002.00	5.21	002	Data exceed specifications	032
1003.00	5.22	002	Data exceed specifications	032
1101.00	45.47	014	Data exceed specifications	032
1229.00	35.24	026	Gaps in GPS data	032
1230.00	35.24	026	Gaps in GPS data	032
1231.00	35.24	026	Gaps in GPS data	032
1232.00	35.24	026	Gaps in GPS data	032
1283.00	12.73	030	Base Station data not available	032
1284.00	12.73	030	Base Station data not available	032
1285.00	12.73	030	Base Station data not available	032
1286.00	12.73	030	Base Station data not available	032
Total	400.35			

Appendix V

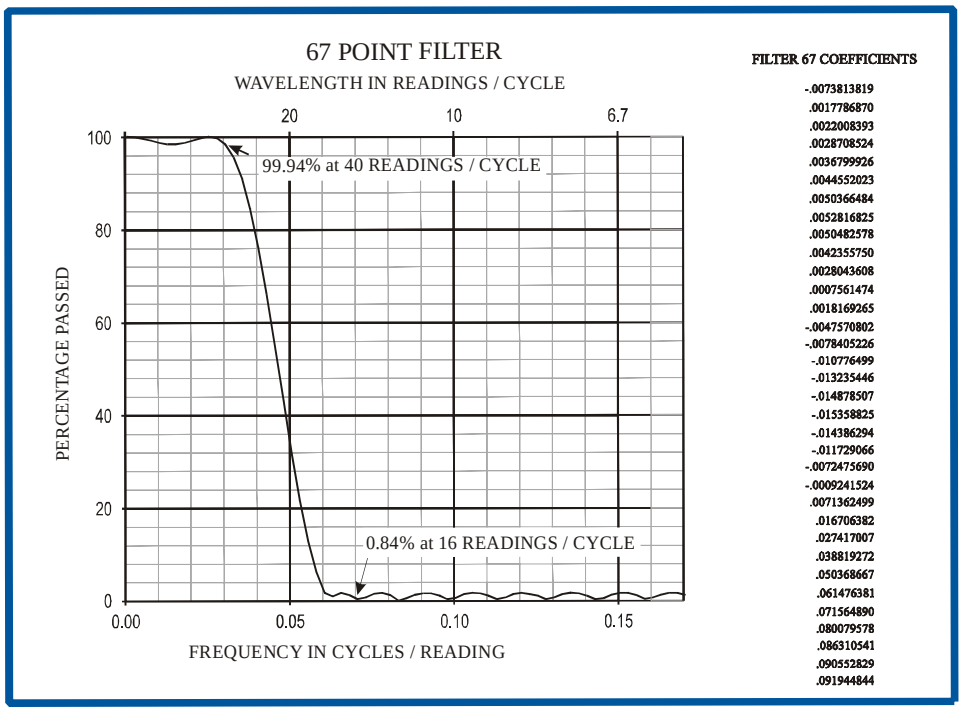
Filters

FILTERS USED IN DATA PROCESSING

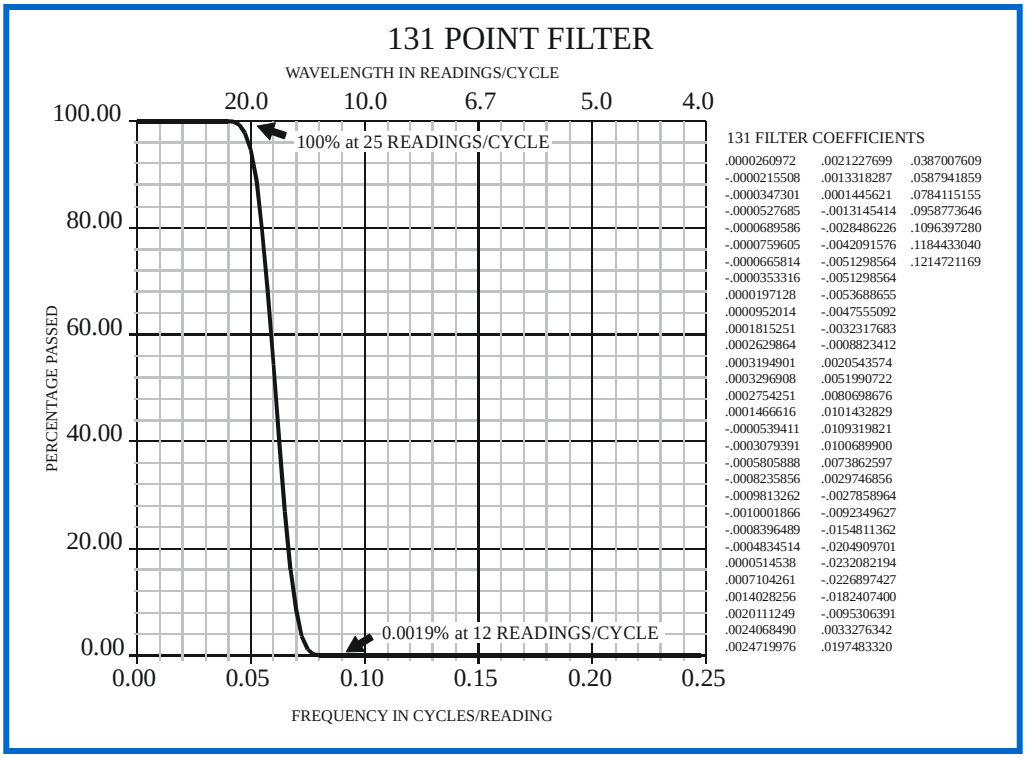
21-Point Filter



67-Point Filter



131-Point Filter



131 FILTER COEFFICIENTS

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-.0000527685	-.0013145414	.0958773646
-.0000689586	-.0028486226	.1096397280
-.0000759605	-.0042091576	.1184433040
-.0000665814	-.0051298564	.1214721169
-.0000353316	-.0051298564	
.0000197128	-.0053688655	
.0000952014	-.0047555092	
.0001815251	-.0032317683	
.0002629864	-.0008823412	
.0003194901	.0020543574	
.0003296908	.0051990722	
.0002754251	.0080698676	
.0001466616	.0101432829	
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-.0003079391	.0100689900	
-.0005805888	.0073862597	
-.0008235856	.0029746856	
-.0009813262	-.0027858964	
-.0010001866	-.0092349627	
-.0008396489	-.0154811362	
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.0000514538	-.0232082194	
.0007104261	-.0226897427	
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.0024719976	.0197483320	

Appendix VI

Survey Equipment List

Item Name	Make	Model	Serial Number
OFFICE			
Computer - P4	SGL	Desktop	P4-104
Computer - P4	SGL	Desktop	P4-103
Network Switch 5-port		DSS-5+	B209334000392
Printer	EPSON	P892a, Stylus Color 1520	3KDY120083
Printer	HP	PSC1315	CN41QF2095
Handheld Radio VHF	ICOM	IC-A5	2101801
Sat Phone (7569) 8816-3145-	MOTOROLA	MS1-20, Satellite Series 9505	300001001167190
Test Source Cesium		Cesium 137, 5.0 µC	CS07
Test Source Cesium		Cesium 137, 5.0 µC	CS11
Test Source Thorium		Thorium, 1.7 µC	TH08
Test Source Thorium		Thorium, 1.7 µC	TH12
Test Source Uranium		Uranium, 3.0 µC	U06
Test Source Uranium		Uranium, 3.0 µC	U08
GROUND STATION 1			
Ground station computer	SGL	input 12VDC	GND-59
Magnetometer Sensor	GEOMETRICS	G-822A	75129-C057
GPS Receiver	NovAtel	Millennium Standard OEM3, 12-ch	CGL97330063
GPS Antenna	NovAtel	SK600	NRK04030004
Power Distribution Box	SGL	110/220 VAC to 12 VDC	PODB12-02
GROUND STATION 2			
Ground station computer	SGL	input 12VDC	GND-52
Magnetometer Sensor	GEOMETRICS	G-822A	75305-C997
GPS Receiver	NovAtel	Millenium, ProPak-3	NGT01100020
GPS Antenna	NovAtel	SK600	NRK04090015
Power Supply	SGL	110 VAC to 12VVDC	QPS-001
Aircraft, registration C-GSGX	Britten-Norman	Islander, BN2B-21	596
Data acquisition computer CDAC	SGL		CPCI-03
Monitor LCD 6.4"	SGL	LS64PA30A	S06597875004
Keyboard	STELTH	860-DP-PS/2, with HulaPoint mouse	BAK032906011839
Miniterminal	Warner Power	ST/2000	420066
Magnetometer Sensor	GEOMETRICS	G-822A, cable 9'	75117-G733
Compensator	RMS	AADC II - dual input	9704808
Spectrometer *	EXPLORANIUM	GR-820 Spectrum Processor	8250
Spectrometer **	EXPLORANIUM	GR-820 Spectrum Processor	8254
Spectrometer detector A (5-pack)	EXPLORANIUM	GPX-1024/256, 5-pack	2669
Spectrometer detector B (5-pack)	EXPLORANIUM	GPX-1024/256, 5-pack	2670
Spectrometer detector C (4-pack)	EXPLORANIUM	GPX-1024/256, 4-pack	2609
GPS Receiver	NovAtel	OEM4g2-3.03-X2T	SVA05280062
GPS Antenna	NovAtel	L1/L2	31172
Transceiver INMARSAT	SkyWave	D+, DMR200L	DCC00783BFCF
CDGPS receiver	NovAtel		CDGPS-01
Video Recorder - digital	SGL	4CH MPE84	170400249
Video Camera	PANASONIC	TNC4604X, Colour CCD	619432
Video Monitor LCD 6.4"	SGL	SV-640-OEM	STL0507SV10376
Power Distribution Box	SGL	28/12V	PODB06
Back-up Battery	SGL		BUB012
Sat Phone 8816-2143-8365	MOTOROLA	MS1-20, Satellite Series 9505	300001001511430

Appendix VII

Survey Aircraft

Islander Britten-Norman BN2B

Registration C-GSGX

GEOPHYSICAL SURVEY AIRCRAFT

BRITTEN-NORMAN ISLANDER BN2B-21

Registration: C-GSGX	*Registration:* C-GSGR
Serial #: 596	*Serial #:* 2107

The BN-2B Islander is an all metal, high wing, twin-engine, short take-off and landing aircraft powered by two fuel injected engines which drive constant speed, fully feathering propellers. The aircraft has fixed tricycle landing gear, extendable flaps and manually adjustable trim tabs on the rudder and elevator. The aircraft is equipped with de-icing equipment and sufficient avionics for instrument flying. Because of its low takeoff speed, high wing, ample propeller clearance, and sturdy fixed landing gear, the Islander is capable of operating from relatively short and rough airstrips. Its excellent low speed capabilities enable it to safely contour much steeper terrain than most other fixed wing aircraft. Supplementary fuel can be added for trans-oceanic flight.

The aircraft has an aluminum and composite 2.5 m tail stinger designed to accommodate the magnetometer sensor and wiring. The stinger can be easily removed and the aircraft returned to its original configuration. There is a camera hole in the belly and provisions for numerous other survey and navigation systems.

The electrical system has been modified to reduce the magnetic field variations around the aircraft.

SANDER GEOPHYSICS
260 Hunt Club Road, Ottawa, Ontario K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

BRITTEN NORMAN BN2B-21 SPECIFICATIONS

Crew capacity:	• 2 pilots, 1 operator (optional)		
Fuselage:	• semi-monocoque		
Wings:	• cantilever, high-wing		
	• outboard ailerons		
	• single-slotted inboard flaps		
Tail:	• conventional stabilizers		
	• elevator and rudder with trim tabs		
Powerplants:	• 2 Lycoming IO-540, 300 hp, six cylinder, horizontally-opposed air-cooled, fuel-injected, reciprocating engines		
	• Hartzell two-blade, fully-feathering, constant-speed propellers		
Systems:	• dual flight controls, IFR instruments and avionics		
	• full airframe and propeller de-icing		
	• 2-axis autopilot		
Dimensions:	• wing span	53 ft.	16.15 m
	• exterior length	35 ft. 8 in.	10.9 m plus stinger
	• exterior height	13 ft. 9 in.	4.18 m
	• interior usable length	15 ft. 2 in.	4.62 m
	• interior usable width	3 ft. 7 in.	1.09 m
	• interior height	4 ft. 2 in.	1.26 m
	• fuel capacity	189 US gallons	700 l usable
	• type of aviation fuel	100 LL Avgas	
Weights:	• empty	4,190 lbs	1,905 kg
	• maximum take off	6,600 lbs	3,000 kg
Performance:	(sea level, standard day, maximum take off weight)		
	• range at 60% power	760 nm	1,400 km plus reserve
	• cruise airspeed at 60% power	121 kt	224 km/hr
	• fuel flow at 60% power	25.5 US gallons/hr	97 l/hr
	• stall airspeed, landing config	40 kt	74 km/hr
	• service ceiling	17,200 ft.	5,242 m
	• minimum required runway length	2,000 ft.	610 m
	• two engine rate of climb	1,130 ft/min	345 m/min
	• maximum sustained climb gradient	700 ft/nm	115 m/km
	• single engine rate of climb	223 ft/min	69 m/min
Maximum endurance:	• 6 hours 40 minutes plus 45 minutes reserve at 60% power		
Engine overhaul:	• 2,000 hours		
Propeller overhaul:	• 2,000 hours or 5 years		

PROVISIONS FOR GEOPHYSICAL SURVEYING

- **Tail stinger,** 2.5 m long, 21 cm in diameter, capable of housing a 5.5 kg sensor
- **HF radio**
- **Video Camera Mount** with glass covered opening in aircraft belly
- **Two instrument racks,** standard 48 cm (19 inch) width
- **Radar altimeter,** 0-3,000 m
- **Electrical power capacity** 28 VDC at 140 amp
- **Provisions to mount a GPS receiver and antenna plus data link for real time corrections**
- **Provisions to mount gamma-ray spectrometer** with up to 42 litres (2560 in^3) of detector crystals

Appendix VIII

Summary of Video Coverage

MAGNETOMETER/SPECTROMETER SURVEY – BONAPARTE RIVER, 2006

VIDEO COVERAGE SUMMARY

			TIME				
			DATA		VIDEO		
DVD	LINE	FLIGHT	start	end	start	end	Video Filename
1	100.00	19	6399680	6421670	6388260	6423710	C0100.0F_019.avi
1	101.00	19	6346300	6387730	6324840	6388260	C0101.0B_019.avi
1	102.00	19	6267430	6324270	6256180	6324830	C0102.0F_019.avi
1	103.00	19	6182860	6255610	6161690	6256180	C0103.0B_019.avi
1	104.00	19	6077890	6161300	6066780	6161680	C0104.0F_019.avi
1	105.00	19	5962990	6064560	5931990	6065850	C0105.0B_019.avi
1	106.00	11	7257340	7372880	7231150	7376040	C0106.0F_011.avi
1	107.00	11	6150270	6269400	6117180	6270930	C0107.0B_011.avi
1	108.00	9	7205520	7323210	7176040	7325420	C0108.0F_009.avi
1	109.00	9	5921650	6049360	5905550	6052040	C0109.0B_009.avi
1	110.00	8	7478810	7623120	7457160	7624790	C0110.0F_008.avi
1	111.00	8	6273650	6436260	6248380	6439180	C0111.0B_008.avi
2	112.00	7	7798740	7960010	7773180	7963120	C0112.0F_007.avi
2	113.00	7	6895070	7089750	6860900	7092060	C0113.0B_007.avi
2	114.00	6	7488140	7696560	7454670	7699600	C0114.0F_006.avi
2	115.00	6	6505150	6709200	6457830	6712480	C0115.0B_006.avi
**	116.00	5	8274680	8476660	******	******	Not available
2	117.01	32	7123260	7324490	7079380	7327410	C0117.1F_032.avi
2	118.01	32	6574190	6777260	6538890	6779230	C0118.1B_032.avi
**	119.00	5	7894790	7941600	******	******	Not available
**	119.10	5	7743180	7839590	******	******	Not available
**	120.00	5	7956470	7996100	******	******	Not available
**	120.10	5	7632260	7722060	******	******	Not available
**	121.00	5	8010290	8046000	******	******	Not available
**	121.10	5	7531980	7616650	******	******	Not available
**	122.00	5	8063070	8091520	******	******	Not available
**	122.10	5	7426140	7507990	******	******	Not available
**	123.00	5	8104580	8129360	******	******	Not available
**	123.10	5	7330620	7407550	******	******	Not available
**	124.00	5	8145950	8162890	******	******	Not available
**	124.10	5	7234540	7306650	******	******	Not available
**	125.00	5	8176530	8188990	******	******	Not available
**	126.00	5	8206330	8212020	******	******	Not available
**	201.00	18	8069660	8100550	*******	*******	Not available
**	202.00	18	8030280	8059850	*******	*******	Not available
2	203.00	18	7972730	8004320	7962850	8004910	C0203.0f_018.avi

VIDEO COVERAGE SUMMARY

2	204.00	18	7930540	7961210	7920350	7962850	C0204.0B_018.avi
2	1001.01	32	6797210	6807090	6779240	6808170	T1001.1B_032.avi
2	1002.01	32	6821490	6829740	6808170	6830270	T1002.1f_032.avi
2	1003.01	32	6846450	6856250	6830270	6859850	T1003.1B_032.avi
2	1004.00	6	6724140	6732160	6712480	6733090	T1004.0F_006.avi
2	1005.00	6	6755150	6769660	6733090	6770030	T1005.0B_006.avi
2	1006.00	6	6828470	6843970	6770030	6844350	T1006.0F_006.avi
2	1007.00	6	6864650	6883370	6844350	6884060	T1007.0B_006.avi
2	1008.00	6	6900170	6915980	6884070	6916310	T1008.0F_006.avi
3	1009.00	6	6936110	6959100	6916310	6960090	T1009.0B_006.avi
3	1010.00	6	6977660	7001330	6960090	7002260	T1010.0F_006.avi
3	1011.00	6	7018630	7046740	7002270	7047530	T1011.0B_006.avi
3	1012.00	6	7065380	7089640	7047540	7090670	T1012.0F_006.avi
3	1013.00	6	7109500	7137050	7090670	7137880	T1013.0B_006.avi
3	1014.00	6	7154860	7182030	7137880	7182390	T1014.0F_006.avi
3	1015.00	6	7199810	7234300	7182390	7234710	T1015.0B_006.avi
3	1016.00	6	7251900	7282820	7234710	7283290	T1016.0F_006.avi
3	1017.00	6	7302910	7337210	7283290	7337850	T1017.0B_006.avi
3	1018.00	6	7356240	7391760	7337860	7392630	T1018.0F_006.avi
3	1019.00	6	7406990	7450640	7392640	7454660	T1019.0B_006.avi
3	1020.00	7	7110440	7149440	7092070	7151650	T1020.0f_007.avi
3	1021.00	7	7167670	7210420	7151650	7211010	T1021.0B_007.avi
3	1022.00	7	7224950	7265570	7211010	7266320	T1022.0f_007.avi
3	1023.00	7	7290140	7335720	7266320	7336680	T1023.0B_007.avi
3	1024.00	7	7354540	7402030	7336690	7402560	T1024.0f_007.avi
3	1025.00	7	7425660	7473680	7402560	7473990	T1025.0B_007.avi
3	1026.00	7	7490890	7538640	7474000	7539550	T1026.0f_007.avi
3	1027.00	7	7561510	7609610	7539560	7610240	T1027.0B_007.avi
3	1028.00	7	7630360	7687790	7610250	7690990	T1028.0f_007.avi
3	1029.00	7	7710230	7766860	7690010	7767940	T1029.0B_007.avi
3	1030.00	8	6455160	6512170	6439180	6513280	T1030.0f_008.avi
3	1031.00	8	6531860	6589630	6513280	6590050	T1031.0B_008.avi
3	1032.00	8	6608490	6668370	6590050	6668850	T1032.0f_008.avi
3	1033.00	8	6688130	6755410	6668850	6755870	T1033.0B_008.avi
4	1034.00	8	6770920	6836260	6755870	6837230	T1034.0f_008.avi
4	1035.00	8	6850230	6919670	6837230	6921370	T1035.0B_008.avi
4	1036.00	8	6934040	6999030	6921370	7000920	T1036.0f_008.avi
4	1037.00	8	7022150	7096950	7000920	7097220	T1037.0B_008.avi
4	1038.00	8	7113780	7185760	7097230	7186490	T1038.0f_008.avi
4	1039.00	8	7206520	7281160	7186490	7281830	T1039.0B_008.avi

VIDEO COVERAGE SUMMARY

4	1040.00	8	7294750	7367850	7281840	7369070	T1040.0f_008.avi
4	1041.00	8	7380940	7455290	7369070	7457160	T1041.0B_008.avi
4	1042.00	9	6073390	6149670	6052040	6150590	T1042.0f_009.avi
4	1043.00	9	6169460	6246980	6150590	6247430	T1043.0B_009.avi
4	1044.00	9	6266750	6342270	6247430	6342890	T1044.0f_009.avi
4	1045.00	9	6356560	6434100	6342890	6435670	T1045.0B_009.avi
4	1046.00	9	6450860	6527140	6435680	6528350	T1046.0f_009.avi
4	1047.00	9	6539620	6618420	6528360	6619320	T1047.0B_009.avi
4	1048.00	9	6637760	6713840	6619330	6714250	T1048.0f_009.avi
4	1049.00	9	6736980	6815820	6714250	6816000	T1049.0B_009.avi
4	1050.00	9	6833850	6904210	6816000	6905160	T1050.0f_009.avi
5	1051.00	9	6918470	6997050	6905160	6997620	T1051.0B_009.avi
5	1052.00	9	7009600	7083130	6997630	7083900	T1052.0f_009.avi
5	1053.00	9	7096460	7174290	7083900	7176040	T1053.0B_009.avi
5	1054.00	11	6298670	6374970	6270940	6377390	T1054.0f_011.avi
5	1055.00	11	6393110	6471790	6377390	6472840	T1055.0B_011.avi
5	1056.00	11	6490640	6565370	6472850	6566700	T1056.0f_011.avi
5	1057.00	11	6585370	6667480	6566700	6668020	T1057.0B_011.avi
5	1058.00	11	6679640	6756100	6668030	6757290	T1058.0f_011.avi
5	1059.00	11	6769600	6850390	6757290	6851570	T1059.0B_011.avi
5	1060.00	11	6868900	6944530	6851570	6945640	T1060.0f_011.avi
5	1061.00	11	6962630	7046430	6945640	7046750	T1061.0B_011.avi
5	1062.00	11	7061530	7136610	7046750	7137300	T1062.0f_011.avi
5	1063.00	11	7149570	7229260	7137300	7231150	T1063.0B_011.avi
5	1064.00	12	6498490	6577920	6404110	6579640	T1064.0f_012.avi
6	1065.00	12	6592010	6669560	6579650	6670080	T1065.0B_012.avi
6	1066.00	12	6683740	6762180	6670080	6762970	T1066.0f_012.avi
6	1067.00	12	6780180	6858660	6762970	6859490	T1067.0B_012.avi
6	1068.00	12	6871600	6950180	6859500	6954200	T1068.0f_012.avi
6	1069.00	12	6969230	7047660	6954210	7048800	T1069.0B_012.avi
6	1070.00	12	7065390	7144270	7048810	7145650	T1070.0f_012.avi
6	1071.00	12	7164160	7245620	7145650	7246230	T1071.0B_012.avi
6	1072.00	12	7259290	7337240	7246230	7337630	T1072.0f_012.avi
6	1073.00	12	7350120	7431160	7337630	7432980	T1073.0B_012.avi
6	1074.00	12	7450040	7529040	7432980	7529710	T1074.0f_012.avi
6	1075.00	12	7546630	7628080	7529720	7628580	T1075.0B_012.avi
6	1076.00	12	7640450	7718070	7628590	7718490	T1076.0f_012.avi
6	1077.00	12	7731630	7811950	7718490	7813730	T1077.0B_012.avi
6	1078.00	13	6047060	6124910	5970970	6126320	T1078.0f_013.avi
6	1079.00	13	6146920	6222030	6126320	6222840	T1079.0B_013.avi

VIDEO COVERAGE SUMMARY

6	1080.00	13	6236490	6307560	6222850	6308050	T1080.0f_013.avi
6	1081.00	13	6320270	6393550	6308050	6394430	T1081.0B_013.avi
6	1082.00	13	6414150	6487420	6394430	6487860	T1082.0f_013.avi
7	1083.00	13	6507420	6581340	6487860	6582030	T1083.0B_013.avi
7	1084.00	13	6594450	6667140	6582030	6667660	T1084.0f_013.avi
7	1085.00	13	6678680	6752780	6667670	6753720	T1085.0B_013.avi
7	1086.00	13	6771600	6844640	6753730	6845230	T1086.0f_013.avi
7	1087.00	13	6861510	6933590	6845230	6934600	T1087.0B_013.avi
7	1088.00	13	6946740	7020260	6934600	7020760	T1088.0f_013.avi
7	1089.00	13	7031390	7104340	7020770	7106070	T1089.0B_013.avi
7	1090.00	13	7124070	7196730	7106080	7197690	T1090.0f_013.avi
7	1091.00	13	7212150	7284810	7197690	7286410	T1091.0B_013.avi
7	1092.00	14	8346090	8418870	8273490	8419980	T1092.0f_014.avi
7	1093.00	14	8436000	8506250	8419980	8507750	T1093.0B_014.avi
7	1094.00	14	8522880	8595030	8507750	8596050	T1094.0f_014.avi
7	1095.00	14	8610720	8682000	8596050	8683070	T1095.0B_014.avi
7	1096.00	14	8694930	8767820	8683080	8768280	T1096.0f_014.avi
7	1097.00	14	8778610	8850250	8768280	8851670	T1097.0B_014.avi
7	1098.00	14	8867800	8942190	8851670	8943490	T1098.0f_014.avi
7	1099.00	14	8958190	9028560	8943490	9029550	T1099.0B_014.avi
7	1100.00	14	9043370	9117420	9029550	9117750	T1100.0f_014.avi
8	1101.01	32	6919530	6999240	6859850	7000790	T1101.1B_032.avi
8	1102.00	15	6401030	6475020	6342200	6476530	T1102.0f_015.avi
8	1103.00	15	6488460	6564670	6476540	6565260	T1103.0B_015.avi
8	1104.00	15	6578800	6654460	6565270	6654950	T1104.0f_015.avi
8	1105.00	15	6667060	6743530	6654960	6744320	T1105.0B_015.avi
8	1106.00	15	6759310	6833250	6744330	6834440	T1106.0f_015.avi
8	1107.00	15	6850590	6926010	6834440	6926590	T1107.0B_015.avi
8	1108.00	15	6938900	7014600	6926590	7014990	T1108.0f_015.avi
8	1109.00	15	7027280	7102220	7015000	7104040	T1109.0B_015.avi
8	1110.00	15	7120540	7190510	7104050	7191280	T1110.0f_015.avi
8	1111.00	15	7206200	7276520	7191280	7277340	T1111.0B_015.avi
8	1112.00	15	7290080	7361330	7277340	7361900	T1112.0f_015.avi
8	1113.00	15	7374380	7444510	7361910	7445400	T1113.0B_015.avi
8	1114.00	15	7460230	7529470	7445400	7530070	T1114.0f_015.avi
8	1115.00	15	7544940	7614710	7530070	7615280	T1115.0B_015.avi
8	1116.00	15	7627630	7698900	7615280	7700590	T1116.0f_015.avi
9	1117.00	16	6098230	6168780	6041680	6170340	T1117.0f_016.avi
9	1118.00	16	6183980	6255160	6170340	6256290	T1118.0B_016.avi
9	1119.00	16	6272830	6341510	6256290	6342240	T1119.0f_016.avi

VIDEO COVERAGE SUMMARY

9	1120.00	16	6360720	6431400	6342250	6432040	T1120.0B_016.avi
9	1121.00	16	6444890	6514890	6432040	6515320	T1121.0f_016.avi
9	1122.00	16	6527370	6596900	6515330	6597860	T1122.0B_016.avi
9	1123.00	16	6613410	6704240	6597860	6704740	T1123.0f_016.avi
9	1124.00	16	6719300	6813270	6704740	6813970	T1124.0B_016.avi
9	1125.00	16	6826220	6918620	6813970	6919030	T1125.0f_016.avi
9	1126.00	16	6931390	7027180	6919040	7028370	T1126.0B_016.avi
9	1127.00	16	7043430	7135830	7028370	7136320	T1127.0f_016.avi
9	1128.00	16	7151230	7243250	7136320	7243840	T1128.0B_016.avi
9	1129.00	16	7255480	7348970	7243840	7349440	T1129.0f_016.avi
9	1130.00	16	7362290	7452120	7349440	7453650	T1130.0B_016.avi
9	1131.00	17	6273920	6364850	6248590	6366040	T1131.0f_017.avi
10	1132.00	17	6379550	6469610	6366050	6470360	T1132.0B_017.avi
10	1133.00	17	6483000	6573770	6470360	6574140	T1133.0f_017.avi
10	1134.00	17	6586490	6677260	6574150	6678350	T1134.0B_017.avi
10	1135.00	17	6692340	6782010	6678360	6782460	T1135.0f_017.avi
10	1136.00	17	6798450	6887450	6782460	6888060	T1136.0B_017.avi
10	1137.00	17	6900020	6990640	6888060	6991200	T1137.0f_017.avi
10	1138.00	17	7003780	7093260	6991210	7094560	T1138.0B_017.avi
10	1139.00	17	7109270	7200640	7094560	7201330	T1139.0f_017.avi
10	1140.00	17	7217280	7306680	7201330	7308850	T1140.0B_017.avi
10	1141.00	20	5894240	5983920	5847170	5985120	T1141.0f_020.avi
10	1142.00	20	5997090	6089140	5985120	6089970	T1142.0B_020.avi
10	1143.00	20	6102350	6191950	6089970	6192580	T1143.0f_020.avi
10	1144.00	20	6207110	6296840	6192580	6297860	T1144.0B_020.avi
11	1145.00	20	6311290	6401440	6297860	6401860	T1145.0f_020.avi
11	1146.00	20	6415340	6507830	6401860	6508740	T1146.0B_020.avi
11	1147.00	20	6521180	6610770	6508740	6611560	T1147.0f_020.avi
11	1148.00	20	6624800	6716310	6611560	6716950	T1148.0B_020.avi
11	1149.00	20	6732180	6817210	6716950	6817630	T1149.0f_020.avi
11	1150.00	20	6829460	6919680	6817630	6920780	T1150.0B_020.avi
11	1151.00	20	6933480	7019850	6920780	7020610	T1151.0f_020.avi
11	1152.00	20	7033920	7119450	7020610	7120010	T1152.0B_020.avi
11	1153.00	20	7131490	7217570	7120020	7217930	T1153.0f_020.avi
11	1154.00	20	7238060	7326320	7217930	7327900	T1154.0B_020.avi
11	1155.00	21	6011830	6098070	5981290	6099170	T1155.0f_021.avi
11	1156.00	21	6112860	6197270	6099170	6197940	T1156.0B_021.avi
11	1157.00	21	6208760	6294520	6197940	6294890	T1157.0f_021.avi
12	1158.00	21	6307200	6392720	6294890	6393650	T1158.0B_021.avi
12	1159.00	21	6407660	6492540	6393660	6493160	T1159.0f_021.avi

VIDEO COVERAGE SUMMARY

12	1160.00	21	6505720	6590660	6493170	6591290	T1160.0B_021.avi
12	1161.00	21	6603470	6688190	6591290	6688670	T1161.0f_021.avi
12	1162.00	21	6700650	6785880	6688670	6786790	T1162.0B_021.avi
12	1163.00	21	6800750	6884950	6786800	6885660	T1163.0f_021.avi
12	1164.00	21	6899470	6982990	6885670	6983580	T1164.0B_021.avi
12	1165.00	21	6996580	7081040	6983580	7081490	T1165.0f_021.avi
12	1166.00	21	7092510	7177290	7081490	7178120	T1166.0B_021.avi
12	1167.00	21	7191380	7274020	7178120	7274850	T1167.0f_021.avi
12	1168.00	21	7287870	7367880	7274860	7370840	T1168.0B_021.avi
12	1169.00	22	8330580	8412510	8295740	8413830	T1169.0f_022.avi
12	1170.00	22	8425970	8505440	8413830	8509290	T1170.0B_022.avi
12	1171.00	22	8520810	8603300	8509290	8603780	T1171.0f_022.avi
13	1172.00	22	8616980	8699180	8603780	8700620	T1172.0B_022.avi
13	1173.00	23	5929080	6007830	5904220	6009070	T1173.0f_023.avi
13	1174.00	23	6022380	6102480	6009070	6103030	T1174.0B_023.avi
13	1175.00	23	6114760	6193760	6103030	6194210	T1175.0f_023.avi
13	1176.00	23	6204010	6287540	6194210	6288280	T1176.0B_023.avi
13	1177.00	23	6301380	6380450	6288280	6381600	T1177.0f_023.avi
13	1178.00	23	6392660	6474660	6381600	6475670	T1178.0B_023.avi
13	1179.00	23	6485930	6566330	6475670	6566850	T1179.0f_023.avi
13	1180.00	23	6577100	6658910	6566850	6659740	T1180.0B_023.avi
13	1181.00	23	6672030	6751620	6659750	6752750	T1181.0f_023.avi
13	1182.00	23	6764640	6844110	6752750	6844680	T1182.0B_023.avi
13	1183.00	23	6854150	6934070	6844680	6934580	T1183.0f_023.avi
13	1184.00	23	6945320	7026710	6934580	7027370	T1184.0B_023.avi
13	1185.00	23	7040280	7122500	7027370	7123780	T1185.0f_023.avi
13	1186.00	23	7135310	7215270	7123790	7216670	T1186.0B_023.avi
13	1187.00	24	6061490	6141350	6013730	6142280	T1187.0B_024.avi
14	1188.00	24	6154120	6234790	6142280	6235280	T1188.0f_024.avi
14	1189.00	24	6246120	6324280	6235280	6325180	T1189.0B_024.avi
14	1190.00	24	6338180	6417360	6326150	6417870	T1190.0f_024.avi
14	1191.00	24	6429300	6506750	6417870	6507240	T1191.0B_024.avi
14	1192.00	24	6522890	6601910	6508230	6602290	T1192.0f_024.avi
14	1193.00	24	6611200	6689410	6602290	6690270	T1193.0B_024.avi
**	1194.00	24	6705310	6785280	*******	*******	Not available
**	1195.00	24	6798910	6876250	*******	*******	Not available
**	1196.00	24	6887760	6968220	*******	*******	Not available
14	1197.00	24	6983460	7060350	7007190	7061000	T1197.0B_024.avi
14	1198.00	24	7075720	7154840	7061010	7155500	T1198.0F_024.avi
14	1199.00	24	7168700	7245080	7155500	7245720	T1199.0B_024.avi

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14	1200.00	24	7257680	7336660	7245730	7337120	T1200.0F_024.avi
14	1201.00	24	7349010	7427670	7337120	7428520	T1201.0B_024.avi
14	1202.00	24	7442360	7521820	7428520	7522800	T1202.0F_024.avi
14	1203.00	25	5854960	5932370	5810060	5933700	T1203.0B_025.avi
14	1204.00	25	5945350	6021490	5933700	6022210	T1204.0F_025.avi
14	1205.00	25	6038120	6116150	6022220	6116710	T1205.0B_025.avi
14	1206.00	25	6134540	6207110	6116710	6207680	T1206.0F_025.avi
14	1207.00	25	6219930	6292170	6207680	6293100	T1207.0B_025.avi
15	1208.00	25	6307020	6378800	6293100	6379370	T1208.0F_025.avi
15	1209.00	25	6392490	6466350	6379380	6466710	T1209.0B_025.avi
15	1210.00	25	6478640	6550030	6466720	6550530	T1210.0F_025.avi
15	1211.00	25	6565650	6641290	6550530	6642040	T1211.0B_025.avi
15	1212.00	25	6655280	6727360	6642040	6728310	T1212.0F_025.avi
15	1213.00	25	6741760	6814920	6728310	6815330	T1213.0B_025.avi
15	1214.00	25	6828480	6899610	6815330	6900110	T1214.0F_025.avi
15	1215.00	25	6914060	6988960	6900110	6989580	T1215.0B_025.avi
15	1216.00	25	7002060	7072890	6989590	7073830	T1216.0F_025.avi
15	1217.00	25	7088250	7163610	7073830	7164160	T1217.0B_025.avi
15	1218.00	25	7176190	7248170	7164160	7248720	T1218.0F_025.avi
**	1219.00	25	7260820	7332210	*******	*******	Not available
**	1220.00	25	7346500	7420680	*******	*******	Not available
15	1221.00	26	6005180	6080210	5944320	6081090	T1221.0B_026.avi
15	1222.00	26	6093970	6166930	6081100	6167480	T1222.0F_026.avi
15	1223.00	26	6180560	6254810	6167480	6256310	T1223.0B_026.avi
15	1224.00	26	6275850	6332630	6256310	6333290	T1224.0F_026.avi
15	1225.00	26	6345650	6402910	6333300	6403340	T1225.0B_026.avi
15	1226.00	26	6414160	6468470	6403340	6468890	T1226.0F_026.avi
15	1227.00	26	6481810	6539350	6468900	6540010	T1227.0B_026.avi
15	1228.00	26	6552300	6608420	6540010	6609200	T1228.0F_026.avi
15	1229.01	32	7758640	7813990	7746930	7815150	T1229.1F_032.avi
15	1230.01	32	7685640	7746200	7672180	7746920	T1230.1B_032.avi
16	1231.01	32	7612790	7670880	7600860	7672180	T1231.1F_032.avi
16	1232.01	32	7537080	7599620	7486820	7600860	T1232.1B_032.avi
16	1233.00	26	6906830	6965220	6894500	6965710	T1233.0B_026.avi
16	1234.00	26	6979770	7032590	6965720	7033090	T1234.0F_026.avi
16	1235.00	26	7049360	7103880	7033090	7104410	T1235.0B_026.avi
16	1236.00	26	7116820	7169230	7104420	7169650	T1236.0F_026.avi
16	1237.00	26	7182510	7236030	7169650	7236700	T1237.0B_026.avi
16	1238.00	26	7248080	7301330	7236710	7302260	T1238.0F_026.avi
16	1239.00	27	6191780	6248270	6175090	6249400	T1239.0B_027.avi

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16	1240.00	27	6261460	6315730	6249400	6365250	T1240.0F_027.avi
16	1241.00	28	5880590	5932830	5825740	5934330	T1241.0B_028.avi
16	1242.00	28	5951340	6000380	5934330	6000960	T1242.0F_028.avi
16	1243.00	28	6014280	6068220	6000960	6068660	T1243.0B_028.avi
16	1244.00	28	6083410	6126650	6068870	6127590	T1244.0F_028.avi
16	1245.00	28	6139980	6189820	6127590	6190370	T1245.0B_028.avi
16	1246.00	28	6204610	6248850	6190370	6249310	T1246.0F_028.avi
16	1247.00	28	6260390	6311540	6249310	6312520	T1247.0B_028.avi
16	1248.00	28	6324860	6364970	6312520	6365590	T1248.0F_028.avi
16	1249.00	28	6379140	6423420	6365590	6423990	T1249.0B_028.avi
16	1250.00	28	6438170	6479380	6423990	6480050	T1250.0F_028.avi
16	1251.00	28	6496410	6540350	6480050	6540800	T1251.0B_028.avi
16	1252.00	28	6555410	6596550	6540810	6597070	T1252.0F_028.avi
16	1253.00	28	6612400	6657140	6597080	6657830	T1253.0B_028.avi
16	1254.00	28	6670500	6711950	6657830	6712600	T1254.0F_028.avi
16	1255.00	28	6727490	6766760	6712600	6767160	T1255.0B_028.avi
16	1256.00	28	6779700	6817090	6767170	6818200	T1256.0F_028.avi
16	1257.00	28	6829350	6869540	6818200	6870090	T1257.0B_028.avi
17	1258.00	28	6884020	6921880	6870090	6922520	T1258.0F_028.avi
17	1259.00	28	6934970	6977400	6922520	6977930	T1259.0B_028.avi
17	1260.00	28	6990110	7028360	6977940	7028650	T1260.0F_028.avi
17	1261.00	28	7041750	7082840	7028650	7085450	T1261.0B_028.avi
17	1262.00	28	7099070	7132780	7085460	7133500	T1262.0F_028.avi
17	1263.00	28	7146050	7176600	7133510	7177170	T1263.0B_028.avi
17	1264.00	28	7189330	7218240	7177180	7219030	T1264.0F_028.avi
17	1265.00	28	7230570	7260530	7219030	7260990	T1265.0B_028.avi
17	1266.00	28	7273370	7303760	7260990	7304340	T1266.0F_028.avi
17	1267.00	28	7317830	7349280	7304340	7349720	T1267.0B_028.avi
17	1268.00	28	7362980	7392800	7349720	7393920	T1268.0F_028.avi
17	1269.00	29	6409360	6434130	6338630	6435250	T1269.0B_029.avi
17	1270.00	29	6446870	6473180	6435260	6473800	T1270.0F_029.avi
17	1271.00	29	6487790	6512480	6473800	6513090	T1271.0B_029.avi
17	1272.00	29	6525770	6552190	6513090	6552920	T1272.0F_029.avi
17	1273.00	29	6566710	6591880	6552920	6592320	T1273.0B_029.avi
17	1274.00	29	6604800	6630430	6592320	6630970	T1274.0F_029.avi
17	1275.00	29	6644780	6669570	6630970	6670370	T1275.0B_029.avi
17	1276.00	29	6683340	6708530	6670370	6709340	T1276.0F_029.avi
17	1277.00	29	6719930	6744760	6709340	6745540	T1277.0B_029.avi
17	1278.00	29	6757870	6783840	6745540	6784510	T1278.0F_029.avi
17	1279.00	29	6795130	6820050	6784510	6820600	T1279.0B_029.avi

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17	1280.00	29	6833200	6858830	6820600	6859680	T1280.0F_029.avi
17	1281.00	29	6871140	6896430	6859680	6897150	T1281.0B_029.avi
17	1282.00	29	6917340	6938890	6897160	6939440	T1282.0F_029.avi
17	1283.01	32	7462100	7484870	7449030	7486820	T1283.1F_032.avi
17	1284.01	32	7428710	7448520	7415930	7449020	T1284.1B_032.avi
17	1285.01	32	7392690	7415170	7380590	7415920	T1286.1B_032.avi
17	1286.01	32	7359390	7379440	7327410	7380580	T1285.1F_032.avi
17	1287.00	31	6371790	6392910	6301230	6393910	T1287.0B_031.avi
17	1288.00	31	6404430	6427440	6393910	6428190	T1288.0F_031.avi
17	1289.00	31	6442090	6462620	6428190	6463210	T1289.0B_031.avi
17	1290.01	31	6476070	6495350	6463210	6495880	T1290.0F_031.avi
17	1291.00	31	6509740	6526860	6495880	6527270	T1291.0B_031.avi
17	1292.00	31	6542670	6562230	6527270	6562720	T1292.0F_031.avi
17	1293.00	31	6575500	6592520	6562720	6592940	T1293.0B_031.avi
17	1294.00	31	6608580	6627930	6592940	6628490	T1294.0F_031.avi
17	1295.00	31	6640320	6656780	6628500	6657530	T1295.0B_031.avi
17	1296.00	31	6671650	6690660	6657540	6691280	T1296.0F_031.avi
17	1297.00	31	6703520	6719460	6691280	6719890	T1297.0B_031.avi
17	1298.00	31	6734940	6753860	6719890	6754590	T1298.0F_031.avi
17	1299.00	31	6767170	6783040	6754600	6783850	T1299.0B_031.avi
18	1300.00	31	6798230	6817510	6783850	6818340	T1300.0F_031.avi
18	1301.00	31	6830270	6842370	6818340	6843000	T1301.0B_031.avi
18	1302.00	31	6855560	6870430	6843000	6870870	T1302.0F_031.avi
18	1303.00	31	6882750	6895270	6870870	6895640	T1303.0B_031.avi
18	1304.00	31	6910140	6924390	6895640	6924900	T1304.0F_031.avi
18	1305.00	31	6937500	6950510	6924900	6950840	T1305.0B_031.avi
18	1306.00	31	6966030	6979980	6950850	6980420	T1306.0F_031.avi
18	1307.00	31	6992950	7005840	6980420	7006580	T1307.0B_031.avi
18	1308.00	31	7021640	7035670	7006580	7036470	T1308.0F_031.avi
18	1309.00	31	7063900	7076340	7036480	7076940	T1309.0B_031.avi
18	1310.00	31	7092620	7106610	7076950	7107270	T1310.0F_031.avi
18	1311.00	31	7121480	7134080	7107270	7134600	T1311.0B_031.avi
18	1312.00	31	7150110	7164220	7134600	7165240	T1312.0F_031.avi
18	1313.00	31	7181190	7193520	7165250	7194390	T1313.0B_031.avi
18	1314.00	31	7209540	7224340	7194400	7225040	T1314.0F_031.avi
18	1315.00	31	7238090	7250270	7225040	7250980	T1315.0B_031.avi
18	1316.00	31	7266000	7280670	7250990	7281520	T1316.0F_031.avi
18	1317.00	31	7294640	7306860	7281520	7307890	T1317.0B_031.avi
18	2001.00	18	6644930	6658740	6572230	6659990	T2001.0F_018.avi
18	2002.00	18	6672490	6684810	6660000	6685300	T2002.0B_018.avi

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18	2003.00	18	6700340	6718350	6685300	6719040	T2003.0F_018.avi
18	2004.00	18	6731490	6748220	6719040	6748620	T2004.0B_018.avi
18	2005.00	18	6763670	6781590	6748620	6782250	T2005.0F_018.avi
18	2006.00	18	6796270	6813540	6782250	6814390	T2006.0B_018.avi
18	2007.00	18	6825800	6843570	6814390	6844070	T2007.0F_018.avi
18	2008.00	18	6855470	6871630	6844080	6872150	T2008.0B_018.avi
18	2009.00	18	6883570	6901380	6872160	6902050	T2009.0F_018.avi
18	2010.00	18	6913670	6929930	6902050	6930340	T2010.0B_018.avi
18	2011.00	18	6941700	6958870	6930350	6959500	T2011.0F_018.avi
18	2012.00	18	6970780	6987150	6959500	6987680	T2012.0B_018.avi
18	2013.00	18	6997400	7015050	6987690	7015550	T2013.0F_018.avi
18	2014.00	18	7027890	7040200	7015550	7040430	T2014.0B_018.avi
18	2015.00	18	7050900	7064790	7040430	7065200	T2015.0F_018.avi
18	2016.00	18	7074260	7086590	7065200	7086880	T2016.0B_018.avi
18	2017.00	18	7099240	7112230	7086880	7112610	T2017.0F_018.avi
18	2018.00	18	7123660	7136330	7112610	7136530	T2018.0B_018.avi
18	2019.00	18	7147970	7161450	7136530	7161940	T2019.0F_018.avi
18	2020.00	18	7174860	7188110	7161940	7189060	T2020.0B_018.avi
18	2021.00	18	7201640	7214590	7189060	7215220	T2021.0F_018.avi
18	2022.00	18	7227000	7239660	7215220	7240520	T2022.0B_018.avi
18	2023.00	18	7252800	7265380	7240530	7266150	T2023.0F_018.avi
18	2024.00	18	7277750	7290150	7266150	7290600	T2024.0B_018.avi
18	2025.00	18	7303650	7316290	7290600	7316970	T2025.0F_018.avi
18	2026.00	18	7331450	7347720	7316980	7348260	T2026.0B_018.avi
18	2027.00	18	7361190	7378940	7348260	7379330	T2027.0F_018.avi
18	2028.00	18	7389030	7405910	7379330	7406340	T2028.0B_018.avi
18	2029.00	18	7417030	7434620	7406340	7434850	T2029.0F_018.avi
18	2030.00	18	7444230	7456850	7434850	7457700	T2030.0B_018.avi
18	2031.00	18	7468460	7481880	7457700	7482150	T2031.0F_018.avi
18	2032.00	18	7491880	7504060	7482150	7504570	T2032.0B_018.avi
18	2033.00	18	7515570	7528740	7505430	7529030	T2033.0F_018.avi
**	2034.00	18	7539680	7552100	*******	*******	Not available
18	2035.00	18	7565890	7579190	7553060	7579750	T2035.0F_018.avi
18	2036.00	18	7592320	7604880	7579750	7605480	T2036.0B_018.avi
18	2037.00	18	7618300	7631300	7605480	7631750	T2037.0F_018.avi
18	2038.00	18	7644060	7656510	7631750	7657480	T2038.0B_018.avi
18	2039.00	18	7669620	7683270	7657480	7684060	T2039.0F_018.avi
19	2040.00	18	7696550	7708640	7684070	7709150	T2040.0B_018.avi
19	2041.00	18	7721140	7734400	7709160	7734990	T2041.0F_018.avi
19	2042.00	18	7746570	7759250	7735000	7759770	T2042.0B_018.avi

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19	2043.00	18	7771380	7784900	7759770	7785600	T2043.0F_018.avi
19	2044.00	18	7797980	7810680	7785610	7814860	T2044.0B_018.avi
19	2045.00	18	7836440	7870190	7817110	7871980	T2045.0B_018.avi
19	2046.00	18	7883440	7917320	7872840	7918640	T2046.0F_018.avi
19	2047.00	19	6454950	6464440	6425100	6465450	T2047.0F_019.avi
19	2048.00	19	6475720	6487250	6465460	6487560	T2048.0B_019.avi
19	2049.00	19	6497550	6507540	6488500	6508140	T2049.0F_019.avi
19	2050.00	19	6518100	6528870	6508150	6529280	T2050.0B_019.avi
19	2051.00	19	6540850	6550820	6529290	6552240	T2051.0F_019.avi
19	2052.00	19	6564860	6579430	6552240	6579870	T2052.0B_019.avi
19	2053.00	19	6590540	6605000	6579900	6605410	T2053.0F_019.avi
19	2054.00	19	6615680	6629570	6605420	6630400	T2054.0B_019.avi
19	2055.00	19	6644650	6658560	6630400	6659120	T2055.0F_019.avi
**	2056.00	19	6672150	6685730	*******	*******	Not available
**	2057.00	19	6698930	6713190	*******	*******	Not available
**	2058.00	19	6725100	6738740	*******	*******	Not available
**	2059.00	19	6753250	6767400	*******	*******	Not available
**	2060.00	19	6781690	6794690	*******	*******	Not available
**	2061.00	19	6808570	6822190	*******	*******	Not available
**	2062.00	19	6838350	6855930	*******	*******	Not available
**	2063.00	19	6868530	6885760	*******	*******	Not available
**	2064.00	19	6898710	6915880	*******	*******	Not available
**	2065.00	19	6931660	6944990	*******	*******	Not available
**	2066.00	19	6959350	6973290	*******	*******	Not available
**	2067.00	19	6983730	6997870	*******	*******	Not available
**	2068.00	19	7007380	7022070	*******	*******	Not available
**	2069.00	19	7033160	7048270	*******	*******	Not available
**	2070.00	19	7058100	7073520	*******	*******	Not available
**	2071.00	19	7089930	7105080	*******	*******	Not available
**	2072.00	19	7129960	7148510	*******	*******	Not available
**	2073.00	19	7159320	7173230	*******	*******	Not available
**	2074.00	19	7184240	7198690	*******	*******	Not available
**	2075.00	19	7212160	7222150	*******	*******	Not available
**	2076.00	19	7235710	7245580	*******	*******	Not available
**	2077.00	19	7258420	7268390	*******	*******	Not available
**	2078.00	19	7283660	7293510	*******	*******	Not available
**	2079.00	19	7306870	7316940	*******	*******	Not available
**	2080.00	19	7330140	7339940	*******	*******	Not available

VIDEO COVERAGE SUMMARY

Video File Naming Convention

TNNNN.SD_FLT.AVI or
CNNNN.SD_FLT.AVI

where:

T = Traverse Line
C = Control Line
NNNN = Line Number
S = Segment Number
D = Direction of flight: F = Forward (North or East), B = Backwards (South or West)
FLT = Flight number

Appendix IX

Weekly Reports

SGL WEEKLY PROGRESS REPORT No. 1 (Week of September 4th to September 10th 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	0	Km
Client:	GSC	**Production this week:**	0	Km
Aircraft:	C-GSGX	**Total Km remaining :**	14443	Km
		% Complete:	0	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
4 September	**Monday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A N/A N/A				
5 September	**Tuesday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A N/A N/A				
6 September	**Wednesday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A N/A N/A				
7 September	**Thursday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A N/A N/A				
8 September	**Friday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Clear. Travel from Saskatoon, SK to 100 Mile House, B.C.				
9 September	**Saturday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Rain. A. Prokoph and D. Marchant arrive at 100 Mile House, BC, begin mobilization				
10 September	**Sunday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet Cloudy Continue office and GND set-up at 108 Mile airport				
TOTAL					

Field Personnel:

	Names
Crew Chief	Andreas Prokoph
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff

Comments:

Mobilization started

Prepared by: Andreas Prokoph and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 2 (Week of September 11th to September 17th 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	258	Km
Client:	GSC	**Production this week:**	258	Km
Aircraft:	C-GSGX	**Total Km remaining :**	14185	Km
		% Complete:	1.8	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
11 September	**Monday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Clear. SGX arrives in 100 Mile House along with pilots John Johnston and Chris Cliff. Office and ground station set up continued.				
12 September	**Tuesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Clear. Compensation flight aborted due to faulty pulse light. AME John Sevenhuysen arrived in 100 Mile House.				
13 September	**Wednesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain. No flight due to weather. Ground station set up continued. Maintenance preformed on the aircraft.				
14 September	**Thursday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain. No flight due to weather. Ground station set up continued.				
15 September	**Friday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Snow. No flight due to weather.				
16 September	**Saturday**	001	2.6	None	-
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Clear. Compensation flight and drape testing.				
17 September	**Sunday**	002	2.5	C117 - C118, T1001 – T1003	258 km
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Clear. Production flight and drape testing. Flight cut short due to heavy winds in the block.				
TOTAL					

Field Personnel:

	Names
Crew Chief	Andreas Prokoph
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen

Comments:

Mobilization to 100 Mile House completed this week. Poor weather in area limited the amount of flying this week.

Prepared by: Andreas Prokoph and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 3 (Week of September 18th to September 24th 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	828	Km
Client:	GSC	**Production this week:**	570	Km
Aircraft:	C-GSGX	**Total Km remaining :**	13615	Km
		% Complete:	5.7	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
18September	**Monday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Heavy rain overnight, clearing up during the day, strong winds in afternoon No flight due to weather. Technician Lee Duncan arrived				
19September	**Tuesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. cloudy Replacing spectrometer and test flight with new spectrometer				
20 September	**Wednesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain. No flight due to weather.				
21 September	**Thursday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain. No flight due to weather. Pilot J. Johnston sick				
22 September	**Friday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds No flight due to sickness of pilot, Lee Duncan left for Ottawa				
23 September	**Saturday**	004	1.6	None	-
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Sunny in north/rain in south Production flight aborted due to low-lying clouds				
24 September	**Sunday**	005	4.9	C116, C119-126, C119.1-124.1	570 km
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds. Production flight.				
TOTAL					**570**

Field Personnel:

	Names
Crew Chief	Andreas Prokoph
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen
Technician	Lee Duncan

Comments:

Poor weather in area and spectrometer replacement limited the amount of flying this week.

Prepared by: Andreas Prokoph and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 4 (Week of September 25th October 1st 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	4523.9	Km
Client:	GSC	**Production this week:**	3695.9	Km
Aircraft:	C-GSGX	**Total Km remaining :**	9919.1	Km
		% Complete:	31.3	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
25 September	**Monday**	006	4.9	C115, C114, T1004-T1019	491.4
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds, morning fog Production flight				
26 September	**Tuesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain in morning, low clouds in afternoon No flight due to weather.				
27 September	**Wednesday**	007	4.5	C113, C112, T1020-T1029	514.0
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds, morning fog Production flight				
28 September	**Thursday**	008	5.2	C111, C110, T1030-T1041	676.9
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds, morning fog Production flight				
29 September	**Friday**	009,010	4.9,1.6	C109, C108, T1042-T1053	721.1, 0
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds Production flight and cosmic test flight				
30 September	**Saturday**	011	4.7	C107, C106, T1054-T1063	621.2
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Sunny, clouds in afternoon Production flight				
01 October	**Sunday**	012	5.2	T1064 - T1077	671.3
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds. Production flight. Visit by client, preliminary data delivery				
TOTAL					**3695.9**

Field Personnel:

	Names
Crew Chief	Andreas Prokoph
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen

Comments:

Good production this week.

Prepared by: Andreas Prokoph and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 5 (Week of October 2nd October 8th 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	8060.1	Km
Client:	GSC	**Production this week:**	3536.2	Km
Aircraft:	C-GSGX	**Total Km remaining :**	6382.9	Km
		% Complete:	55.8	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
02 October	**Monday**	013	5.0	T1078-T1091	650.5
Magnetic Activity:	Quiet.				
Weather:	Mix of sun and clouds				
Remarks:	Production flight + testline for calibration with Fugro, 50 h maintenance finished				
03 October	**Tuesday**	014	4.0	T1092-T1101	455.1
Magnetic Activity:	Quiet.				
Weather:	Sunny, morning frost				
Remarks:	Production flight, short due to technical problems				
04 October	**Wednesday**	015	5.0	T1102-T1116	663.8
Magnetic Activity:	Quiet.				
Weather:	Sunny, morning frost				
Remarks:	Production flight				
05 October	**Thursday**	016	5.1	T1117-T1130	717.7
Magnetic Activity:	Quiet.				
Weather:	Mix of sun and clouds, morning frost, overcast in afternoon				
Remarks:	Production flight				
06 October	**Friday**				
Magnetic Activity:	Quiet.				
Weather:	Rain in morning, strong wind in afternoon				
Remarks:	No production due to weather, pilot rest day				
07 October	**Saturday**	017	4.2	T1131-T1140	553.6
Magnetic Activity:	Unsettled				
Weather:	Sunny, morning frost				
Remarks:	Production flight, short due to turbulence				
08 October	**Sunday**	018	5.3	T2001 - T2046, C201-204	495.5
Magnetic Activity:	Quiet.				
Weather:	Sunny, morning frost				
Remarks:	Production flight.				
TOTAL			**28.6**		**3536.2**

Field Personnel:

	Names
Crew Chief	Andreas Prokoph
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen

Comments:

Good production this week.

Prepared by: Andreas Prokoph and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 6 (Week of October 9th to October 15th 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	12555.7	Km
Client:	GSC	**Production this week:**	4495.6	Km
Aircraft:	C-GSGX	**Total Km remaining :**	1887.3	Km
		% Complete:	86.9	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
09 October	**Monday**	019	5.0	T2047-T2080, C105-C100	498.7
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Sunny, morning frost Production flight				
10 October	**Tuesday**	020	5.2	T1141-T1154	760.3
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Sunny, strong winds in afternoon Production flight				
11 October	**Wednesday**	021,022	4.9, 1.8	T1155-T1168,T1169-T1172	737.9,201.4
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Sunny, morning frost Two production flights				
12 October	**Thursday**	023	4.7	T1173-T1186	705.4
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds, morning frost Production flight, R. Bailey arrives				
13 October	**Friday**	024	5.2	T1187-T1202	766.5
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of sun and clouds, morning frost, overcast in afternoon Production flight				
14 October	**Saturday**	025	5.3	T1203-T1220	825.4
Magnetic Activity: **Weather:** **Remarks:**	Unsettled Mix of sun and clouds, overcast in afternoon Production flight				
15 October	**Sunday**	N/A	N/A	N/A	0
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain in morning, drizzle in afternoon, overcast A. Prokoph leaves for Ottawa. Pilot rest day.				
TOTAL					**4495.6**

Field Personnel:

	Names
Crew Chief	Andreas Prokoph
Crew Chief	Rick Bailey
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen

Comments:

Good production this week. Rick Bailey replaced Andreas Prokoph as Crew Chief.

Prepared by: Rick Bailey and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 7 (Week of October 23th to October 29th 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	14443	Km
Client:	GSC	**Production this week:**	1887.3	Km
Aircraft:	C-GSGX	**Total Km remaining :**	0	Km
		% Complete:	100	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
23 October	**Monday**	032, 033			
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Mix of Sun and Clouds Re-flights and attenuation test with current spectrometer completed in flight 032. Attenuation test with old spectrometer completed in flight 033.				
24 October	**Tuesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet Raining in block. Intended re-flights complete. Awaiting permission from GSC to de-mobilize.				
25 October	**Wednesday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Clear in morning, cloudy with rain in afternoon. Aircraft engine was not reaching intended RPM while completing ground checks. Aircraft problem solved. Permission to de-mobilize granted by GSC.				
26 October	**Thursday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Cloudy/Rain Demobilization. Majority of equipment including data sent back to Ottawa via Canadian Freightways Ltd.				
27 October	**Friday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Cloudy. Snowed over night. Demobilization continued. Dave, John and Rick moved to Kamloops. Pilots waiting for good weather to depart 100 Mile House.				
28 October	**Saturday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Cloudy. Dave, John and Rick depart Kamloops. Pilots waiting for good weather to depart 100 Mile House.				
29 October	**Sunday**				
Magnetic Activity: **Weather:** **Remarks:**	N/A Cloudy. Pilots still waiting for good weather to depart 100 Mile House.				
TOTAL					

Field Personnel:

	Names
Crew Chief	Rick Bailey
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen

Comments:

Re-flights and attenuation tests completed with current and old spectrometer. Survey Block Complete. Crew demobilized. Aircraft departed 100 Mile House on Monday, October 30. This is the final weekly report.

Prepared by: Rick Bailey and Dave Marchant

SGL WEEKLY PROGRESS REPORT No. 7 (Week of October 16th to October 22nd 2006)

Block Name:	Bonaparte	**Planned Line Km:**	14443	Km
Line Spacing:	400 m / 2,500 m	**Km flown to date:**	14443	Km
Client:	GSC	**Production this week:**	1887.3	Km
Aircraft:	C-GSGX	**Total Km remaining :**	0	Km
		% Complete:	100	%

Date	Day	Flight No.	Flight Hours	Number of lines	Production Km
09 October	**Monday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain in morning, low level clouds in afternoon. No flight due to weather				
10 October	**Tuesday**	026	4.7	18	652.7
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Sunny, strong winds in afternoon Production flight.				
11 October	**Wednesday**				
Magnetic Activity: **Weather:** **Remarks:**	Quiet. Rain in block, cloudy. No Flight due to weather.				
12 October	**Thursday**	027	1.9	2	65.6
Magnetic Activity: **Weather:** **Remarks:**	Quiet Mix of Sun and clouds. Showers. Rain in block terminated flight early.				
13 October	**Friday**	028	5.3	28	665.2
Magnetic Activity: **Weather:** **Remarks:**	Quiet Mix of Sun and Clouds Production flight.				
14 October	**Saturday**	029,030	2.4, 1.6	14, 4	211.1, 50.9
Magnetic Activity: **Weather:** **Remarks:**	Quiet Foggy in morning, Sunny in afternoon Production flight. . Flight 029 terminated early due to RPM gauge failing during flight. RPM gauge fixed before Flight 030.				
15 October	**Sunday**	031	4.0	31	241.8
Magnetic Activity: **Weather:** **Remarks:**	Quiet Sunny, Clouds and Wind in afternoon Production flight.				
TOTAL			**19.9**	**97**	**1887.3**

Field Personnel:

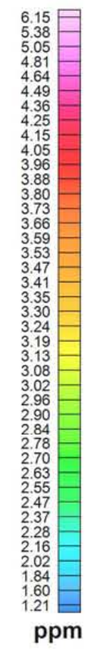
	Names
Crew Chief	Rick Bailey
Geophysicist	Dave Marchant
Pilot	John Johnston
Pilot	Chris Kiff
AME	John Sevenhuysen

Comments:

Survey Block Complete. Re-flights and tests remaining.

Prepared by: Rick Bailey and Dave Marchant

GEOLOGICAL SURVEY OF CANADA COMMISSION GÉOLOGIQUE DU CANADA



THORIUM

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

Compiled by the Central Canada Division of the Geological Survey of Canada, Ottawa, Ontario.

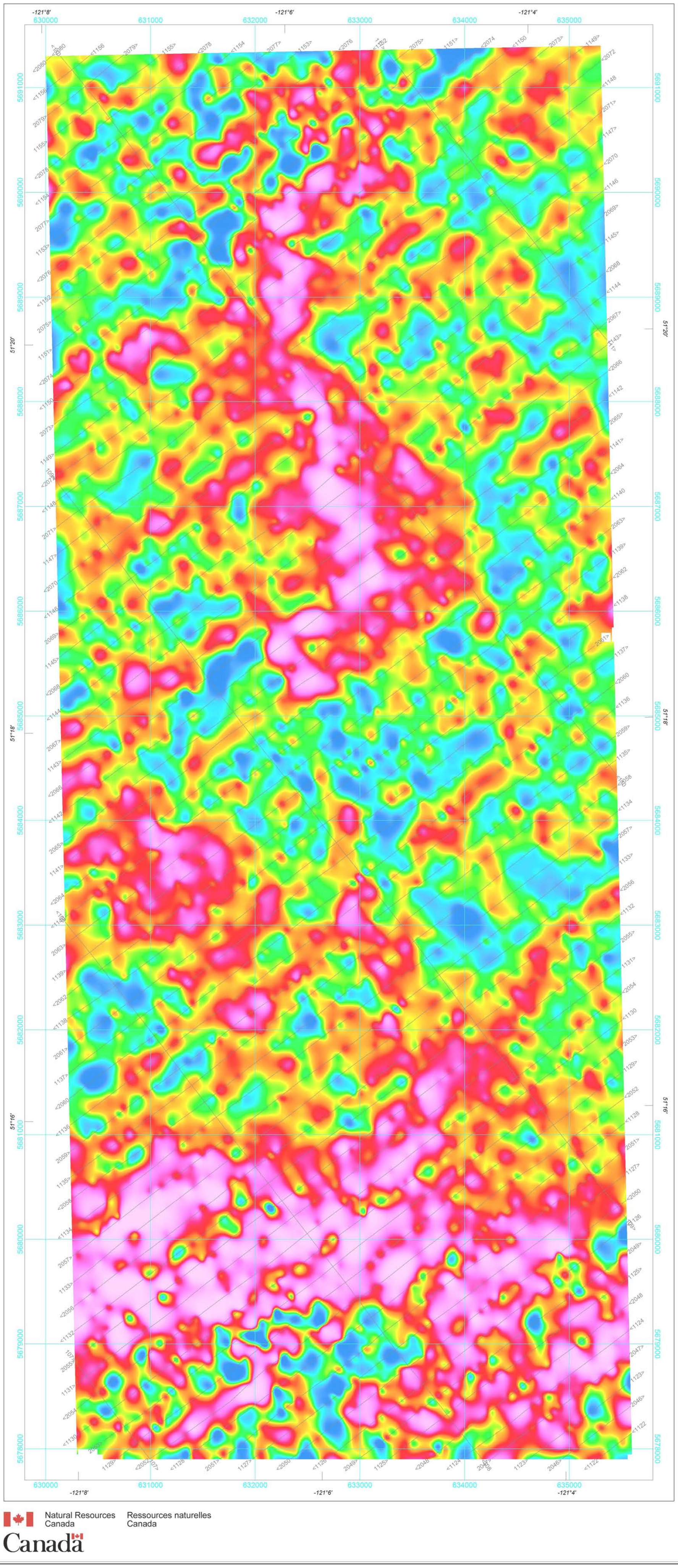
Natural Resources Canada Ressources naturelles Canada

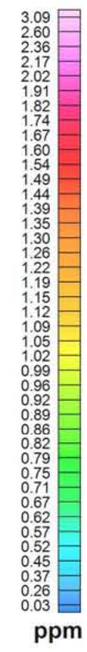
Canada

Figure 5

GEOLOGICAL SURVEY OF CANADA

COMMISSION GÉOLOGIQUE DU CANADA





URANIUM

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

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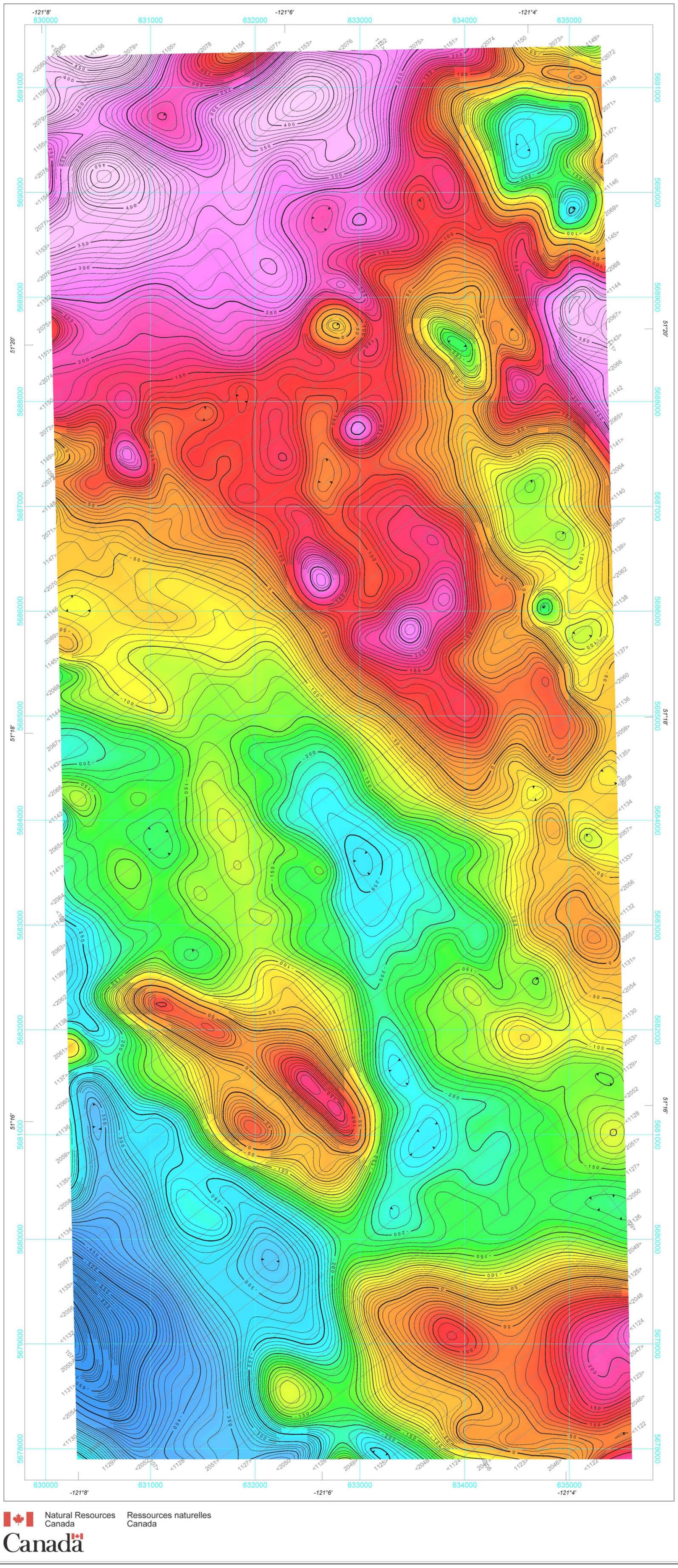
Figure 5

GEOLOGICAL SURVEY OF CANADA

COMMISSION GÉOLOGIQUE DU CANADA



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-166
-172
-177
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-190
-197
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-225
-238
-254
-281
-316
-364
-422
-601

nT

ISOMAGNETIC LINES

1000 nT .....

250 nT .....

50 nT .....

10 nT .....

Magnetic Depression .....

RESIDUAL TOTAL MAGNETIC FIELD

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

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Figure 5

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Canada

GEOLOGICAL SURVEY OF CANADA COMMISSION GÉOLOGIQUE DU CANADA

THORIUM / POTASSIUM

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

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Canada

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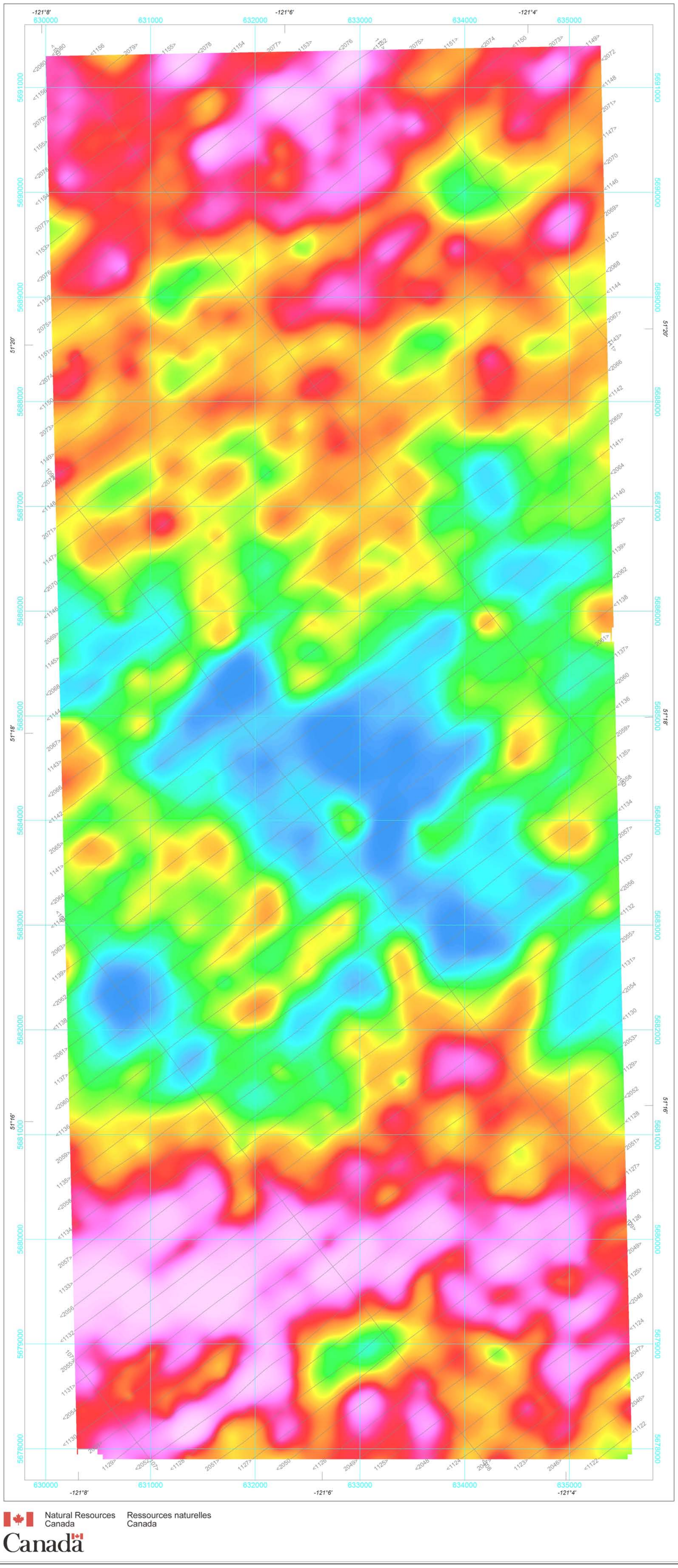
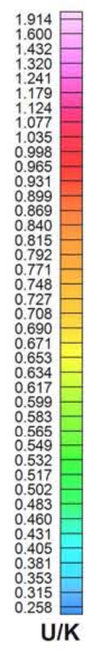
Figure 5

GEOLOGICAL SURVEY OF CANADA COMMISSION GÉOLOGIQUE DU CANADA





URANIUM / POTASSIUM

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

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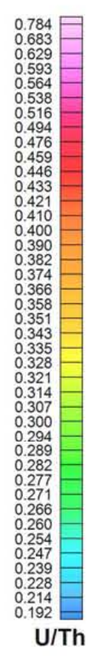
Figure 5

Natural Resources Canada Ressources naturelles Canada

Canada

GEOLOGICAL SURVEY OF CANADA COMMISSION GÉOLOGIQUE DU CANADA



URANIUM / THORIUM

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

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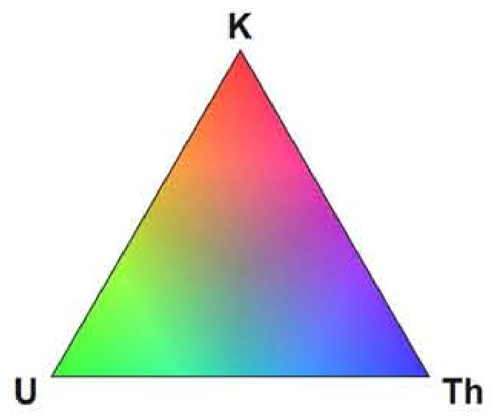
Natural Resources Canada Ressources naturelles Canada

Canada

Figure 5

GEOLOGICAL SURVEY OF CANADA   COMMISSION GÉOLOGIQUE DU CANADA



TERNARY
(URANIUM - THORIUM - POTASSIUM)

RAYFIELD BLOCK
SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

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Natural Resources Canada   Ressources naturelles Canada

Canada

Original Signed by

GEOLOGICAL SURVEY OF CANADA   COMMISSION GÉOLOGIQUE DU CANADA

3.51
3.02
2.82
2.71
2.63
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2.41
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1.87
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1.38
1.34
1.31
1.28
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1.15
1.11
1.07
1.02
0.96
0.91
0.86
0.80
0.70
%

POTASSIUM

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

Compiled by the Central Canada Division of the Geological Survey of Canada, Ottawa, Ontario.

Figure 5

GEOLOGICAL SURVEY OF CANADA

COMMISSION GÉOLOGIQUE DU CANADA

FIRST VERTICAL DERIVATIVE OF THE TOTAL MAGNETIC FIELD

RAYFIELD BLOCK

SOUTH-CENTRAL BRITISH COLUMBIA

CANDORADO OPERATING COMPANY LTD.

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 10N

Compiled by the Central Canada Division of the Geological Survey of Canada, Ottawa, Ontario.

Figure 5

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