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OPERATIONS REPORT

for

LAC DES ISLES MINES LTD.

Horizontal Magnetic Gradient &
Matrix VLF-EM Airborne Survey

Sunday Lake Project
Thunder Bay, ON

File: B486

November 3, 2019

Requested by
Kevin Stevens
Consulting Geologist

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1. INTRODUCTION

1.1. EXECUTIVE SUMMARY

This report describes the specifications and parameters of an airborne geophysical survey carried out for:

LAC DES ISLES MINES LTD.

556 Tenth Ave.
Thunder Bay, ON
P7B 2R2

Attention: Dave Benson, Exploration Manager
Phone: 907-623-8005
Email: davebenson@nap.com

The survey was performed by:

TERRAQUEST LTD.,

301-2900 John Street
Markham ON, Canada
L3R 5G3

Phone: 905-477-2800 ext. 31
Email: cb@terraquest.ca

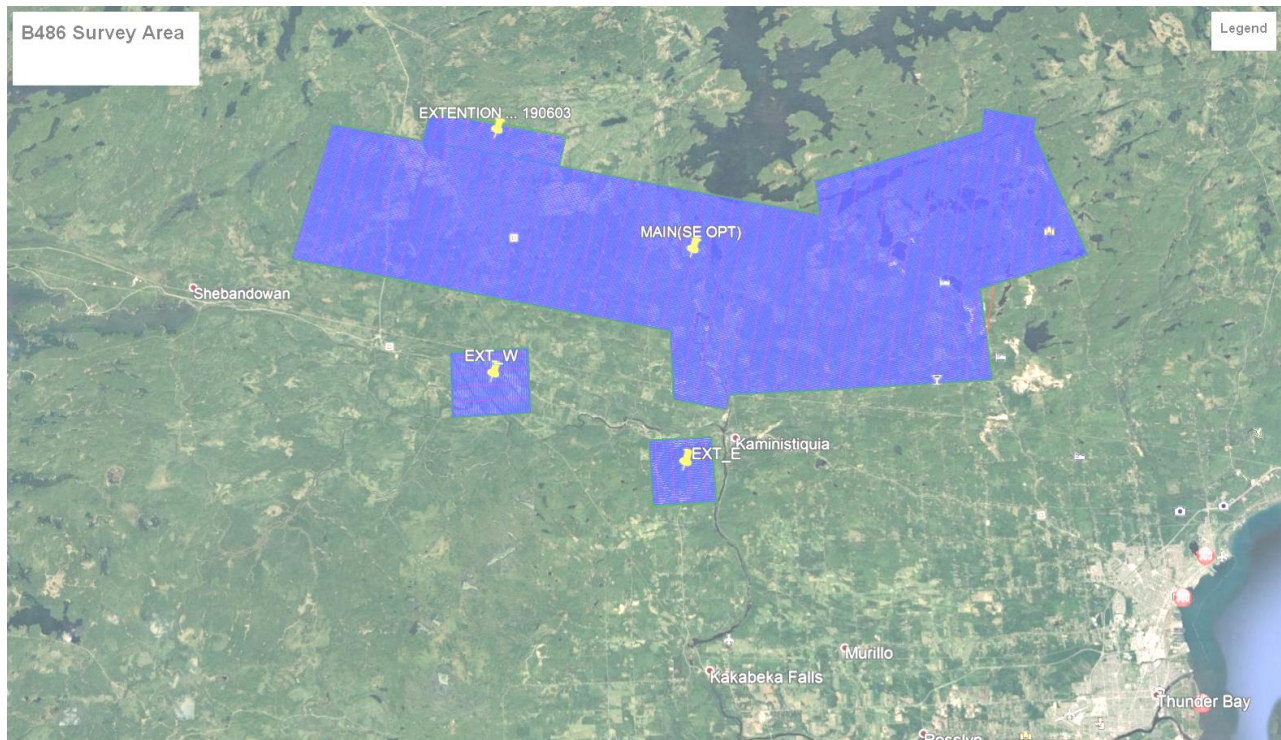
The purpose of this survey is to collect geophysical data that can be used to prospect directly for economic minerals that are characterized by anomalous magnetic or conductive responses. Secondly, the geophysical patterns can be used indirectly for exploration by mapping the geology in detail, including faults, shear zones, folding, alteration zones and other structures. The data are carefully processed and contoured to produce grid files and maps that show distinctive patterns of the geophysical parameters.

To obtain this data, the area was systematically traversed by aircraft carrying geophysical equipment along parallel flight lines. The lines are oriented to intersect the geology and structure so as to provide optimum contour patterns of the geophysical data.

1.2. LOCATION

The Sunday Lake Project is located approximately 28 kilometres northwest of Thunder Bay, Ontario, just north of the village of Kaministiquia located on route 102, and route #17 to Upsala cuts through the western edge of the survey. Route #589 through Lappe can be used to access the eastern part of the survey block

The survey area is irregular in shape with 19 corners with maximum east-west dimension of 54 km and a variable north-south dimension of 10 to 15 km. The centre of the survey is approximately 48°38' N and 89°35' W. Two small non-contiguous blocks are included with this survey, an 8 x 8 km block immediately southwest of Kaministiquia, and a 9x9 km block mid way to Shabaqua Corners along highway 102.



2. SURVEY SPECIFICATIONS

2.1. LINES AND DATA

Parameter	Specification
Aircraft Speed	mean 58.3 m/sec 209.9 km/hr
Magnetic & VLF Sampling Interval	5.8 m (10Hz)
Flight-line Interval all Blocks	100 metres
Flight-line Direction Main Block	105/285 degrees
Flight-Line Direction East Block	090/270 degrees
Flight-Line Direction West Block	000/180 degrees
Control-line Interval all Blocks	1000 metres
Control-line Direction Main Block	015/195 degrees
Control Line Direction East Block	000/180 degrees
Control Line Direction West Block	090/270 degrees
Mean Terrain Clearance Main/East/West Blocks	91.8 / 123.3 / 137.5 metres

2.2. SURVEY KILOMETRAGE

B486: SUNDAY L. PROJECT – UPDATED FLIGHT PLANNING (190427)						
	LINE	LINE	TIE	TIE	Total NLIN	Total LKM
BLOCK	NLIN	LKM	NLIN	LKM		
EAST BLOCK	42	168.4	4	17.1	46	185.5
WEST BLOCK	51	222.4	4	20.1	55	242.4
MAIN BLOCK	245	6211.1	52	630.1	297	6841.3
NORTHERN EXTENSION	23	219.5	9	20.7	32	240.2
Grand Total	361	6821.4	69	688.0	430	7509.4

2.3. SURVEY OUTLINE

The corner coordinates were supplied by the client and used to create the navigation files.

2.4. NAVIGATION SPECIFICATIONS

The satellite navigation system was used to ferry to the survey and to survey along each line. The survey coordinates were supplied by the client and were used to establish the survey boundaries and flight lines. The flight path guidance accuracy is variable depending upon the number and condition (health) of the satellites employed. With WAAS real time correction the accuracy was for the most part better than 3 metres.

The following are the navigation files used for the Sunday Lake Project, B486. These files include survey corner coordinates in WGS84 projection Zone 16N, line spacing, line direction, master line and other navigational parameters for the **Main Block**, **West Block**, **East Block** and the **Northern Extension to the Main Block**

```
0 MAIN_SE      MAIN BLOCK
1 U 273
2 305407 5381662 AREA CORNER 1
2 305492 5386289 AREA CORNER 2
2 280584 5392927 AREA CORNER 3
2 283337 5402605 AREA CORNER 4
2 316119 5393793 AREA CORNER 5
2 316104 5396259 AREA CORNER 6
2 327877 5399254 AREA CORNER 7
2 328230 5400913 AREA CORNER 8
2 331714 5399971 AREA CORNER 9
2 331444 5398923 AREA CORNER 10
2 331759 5397620 AREA CORNER 11
2 333748 5389809 AREA CORNER 12
2 326222 5387886 AREA CORNER 13
2 326220 5381642 AREA CORNER 14
2 316101 5381642 AREA CORNER 15
2 309049 5381739 AREA CORNER 16
2 308771 5380774 AREA CORNER 17
2 305407 5381662 AREA CORNER 18
3 316101 5381642 COR1 WAYPOINT 1
4 245 NUMBER OF LINES
5 100.0 SPACING, m
8 75 MAX CROSS TRACK, m
9 0 0 0 DELTA X/Y/Z
10 1 LOG FPR EVERY 1 SECS
11 0.9996000000 0.0 0.0 K0, X/Y SHIFT
14 0 LINES EXTENDED BEYOND AREA
16 10 FIRST LINE NUMBER
17 316101.0 5381642.0 105.0 MASTER POINT, HEADING
18 316101.0 5381642.0 15.0 TIE LINE MASTER POINT, HEADING
19 1000.0 0 TIE LINE SPACING, LINE EXTENSION, m
20 WGS-84 6378137.0 298.257223563 22 ELLIPSOID
21 0 NO EQUATORIAL CROSSING, N HEMISPHERE
30 20 9600 N 1 8 RS-232 PORT 2 INCOMING FORMAT
31 20 9600 N 1 8 RS-232 PORT OUTGOING FORMAT
38 0 METRIC SYSTEM
41 0.00 SYSTEM LAG, Secs.
```


*Operations Report for Lac des Iles Mines Ltd.
Horizontal Magnetic Gradient & Matrix VLF-EM Airborne Survey, Sunday Lake, ON*

80 0.00 PLANNED ALTITUDE, m
83 0 GPS ALTITUDE FOR VERTICAL BAR
84 0.00 0.00 ALTITUDE COEFFICIENT, OFFSET
85 100 MAX VERTICAL BAR SCALE
102 UTM UTM X/Y SCALE

0 EXT_W **WEST BLOCK**

1 U 273
2 291049 5381379 AREA CORNER 1
2 291049 5385736 AREA CORNER 2
2 296064 5385736 AREA CORNER 3
2 296064 5381379 AREA CORNER 4
2 291049 5381379 AREA CORNER 5
3 291049 5381379 COR1 WAYPOINT 1
4 51 NUMBER OF LINES
5 100.0 SPACING, m
8 75 MAX CROSS TRACK, m
9 0 0 0 DELTA X/Y/Z
10 1 LOG FPR EVERY 1 SECS
11 0.9996000000 0.0 0.0 K0, X/Y SHIFT
14 0 LINES EXTENDED BEYOND AREA
16 10 FIRST LINE NUMBER
17 291049.0 5381379.0 0.0 MASTER POINT, HEADING
18 291049.0 5381379.0 90.0 TIE LINE MASTER POINT, HEADING
19 1000.0 0 TIE LINE SPACING, LINE EXTENSION, m
20 WGS-84 6378137.0 298.257223563 22 ELLIPSOID
21 0 NO EQUATORIAL CROSSING, N HEMISPHERE
30 20 9600 N 1 8 RS-232 PORT 2 INCOMING FORMAT
31 20 9600 N 1 8 RS-232 PORT OUTGOING FORMAT
38 0 METRIC SYSTEM
41 0.00 SYSTEM LAG, Secs.
80 0.00 PLANNED ALTITUDE, m
83 0 GPS ALTITUDE FOR VERTICAL BAR
84 0.00 0.00 ALTITUDE COEFFICIENT, OFFSET
85 100 MAX VERTICAL BAR SCALE
102 UTM UTM X/Y SCALE

0 EXT_E **EAST BLOCK**

1 U 273
2 303611 5374769 AREA CORNER 1
2 303611 5379036 AREA CORNER 2
2 307623 5379036 AREA CORNER 3
2 307623 5374769 AREA CORNER 4
2 303611 5374769 AREA CORNER 5
3 303611 5374769 COR1 WAYPOINT 1
4 42 NUMBER OF LINES
5 100.0 SPACING, m
8 75 MAX CROSS TRACK, m
9 0 0 0 DELTA X/Y/Z
10 1 LOG FPR EVERY 1 SECS
11 0.9996000000 0.0 0.0 K0, X/Y SHIFT
14 0 LINES EXTENDED BEYOND AREA
16 10 FIRST LINE NUMBER
17 303611.0 5374769.0 90.0 MASTER POINT, HEADING
18 303000.0 5374769.0 0.0 TIE LINE MASTER POINT, HEADING
19 1000.0 0 TIE LINE SPACING, LINE EXTENSION, m
20 WGS-84 6378137.0 298.257223563 22 ELLIPSOID
21 0 NO EQUATORIAL CROSSING, N HEMISPHERE
30 20 9600 N 1 8 RS-232 PORT 2 INCOMING FORMAT
31 20 9600 N 1 8 RS-232 PORT OUTGOING FORMAT

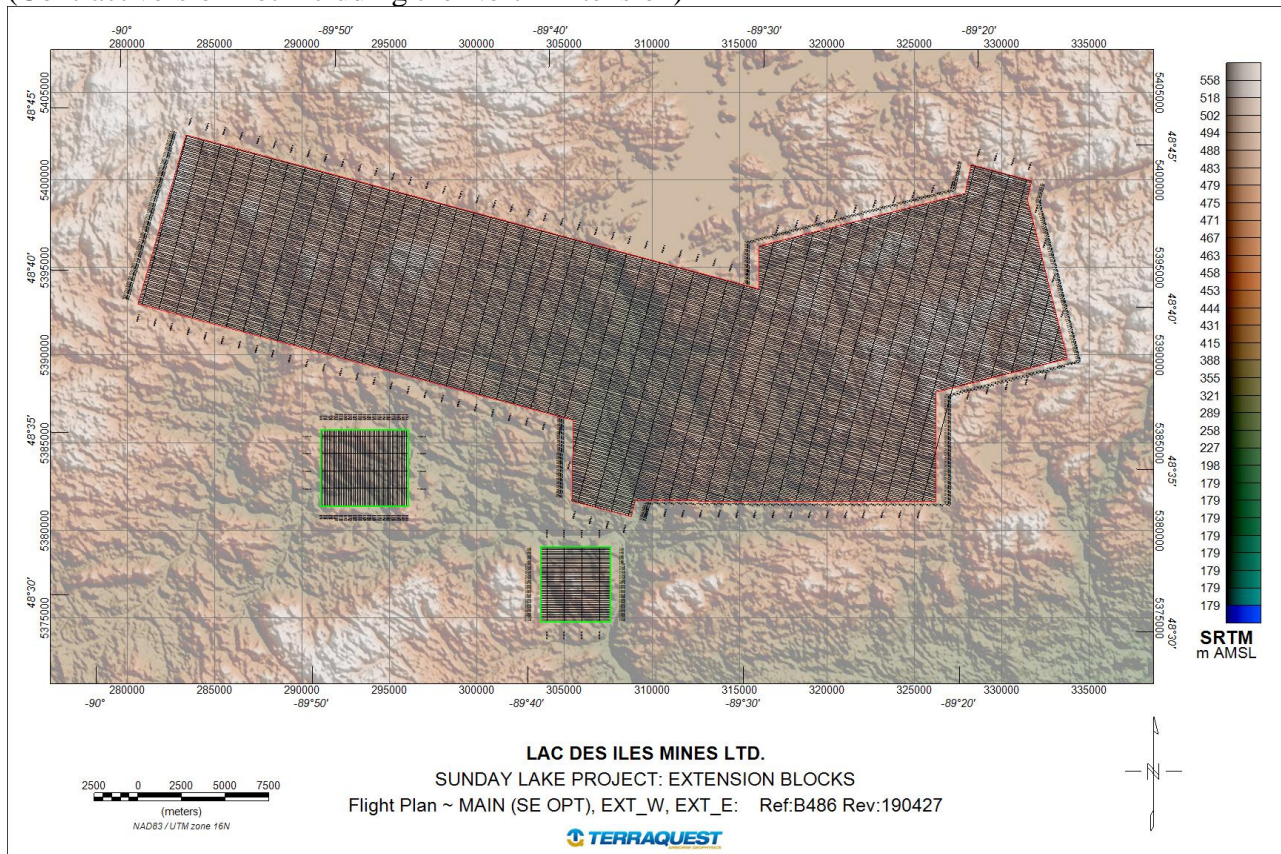
38 0 METRIC SYSTEM
 41 0.00 SYSTEM LAG, Secs.
 80 0.00 PLANNED ALTITUDE, m
 83 0 GPS ALTITUDE FOR VERTICAL BAR
 84 0.00 0.00 ALTITUDE COEFFICIENT, OFFSET
 85 100 MAX VERTICAL BAR SCALE
 102 UTM UTM X/Y SCALE

0 MEXT **NORTHERN EXTENSION TO MAIN BLOCK**

1 U 273
 2 289496 5400926 AREA CORNER 1
 2 290114 5403164 AREA CORNER 2
 2 299307 5400702 AREA CORNER 3
 2 298747 5398492 AREA CORNER 4
 2 289496 5400926 AREA CORNER 5
 3 316101 5381642 COR1 WAYPOINT 1
 4 23 NUMBER OF LINES
 5 100.0 SPACING, m
 8 75 MAX CROSS TRACK, m
 9 0 0 0 DELTA X/Y/Z
 10 1 LOG FPR EVERY 1 SECS
 11 0.9996000000 0.0 0.0 K0, X/Y SHIFT
 14 0 LINES EXTENDED BEYOND AREA
 16 5010 FIRST LINE NUMBER
 17 316101.0 5381642.0 105.0 MASTER POINT, HEADING
 18 316101.0 5381642.0 15.0 TIE LINE MASTER POINT, HEADING
 19 1000.0 0 TIE LINE SPACING, LINE EXTENSION, m
 20 WGS-84 6378137.0 298.257223563 22 ELLIPSOID
 21 0 NO EQUATORIAL CROSSING, N HEMISPHERE
 30 20 9600 N 1 8 RS-232 PORT 2 INCOMING FORMAT
 31 20 9600 N 1 8 RS-232 PORT OUTGOING FORMAT
 38 0 METRIC SYSTEM
 41 0.00 SYSTEM LAG, Secs.
 80 0.00 PLANNED ALTITUDE, m
 83 0 GPS ALTITUDE FOR VERTICAL BAR
 84 0.00 0.00 ALTITUDE COEFFICIENT, OFFSET
 85 100 MAX VERTICAL BAR SCALE

2.5. PLANNED NAVIGATIONAL FLIGHT PATH

(Contract version not including the North Extension)



2.6. TOLERANCES - REFLIGHT

1. Traverse Line Interval

Re-flights would take place if the cross-track deviation of the final differentially corrected flight path from the preplanned flight path is greater than 25 metres over a distance greater than 1 kilometre.

2. Terrain Clearance:

Initially a computer-generated drape surface was planned to guide the terrain clearance at 50-70 metres, but once on site it was discovered that the topographic relief disrupted the laminar flow of the unusually strong winds at this time of the year, creating strong low level turbulence. Unfortunately, these conditions impacted the safety of the aircraft and crew, forcing them to increase the terrain clearance. Furthermore, complaints from cottagers and permanent residents plus several communication towers presented concerns for low level flight. Attempts were made to lower the terrain clearance locally, but this resulted in a non-uniform drape surface which negatively impacts data processing (see Data Processing section 7.3). For these reasons, the

resulting survey mean terrain clearances are 91.8 metres, 123.3 metres and 137.5 metres for the Main, East and West Blocks respectively.

3. Diurnal Variation:

Diurnal activity during survey data acquisition was limited to less than 3 nT non-linear deviations from a 1-minute chord.

4. GPS Data:

GPS data included at least 4 satellites for navigation and flight path recovery. There were no significant gaps in any of the digital data including GPS and magnetic data.

5. Radio Transmission:

The aircraft pilot makes no radio transmission that interferes with magnetic response.

6. Sample Interval:

A reflight is required if the sample interval along one or more of the survey lines exceeds 10 metres over a cumulative total of 1000 metres.

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3. AIRBORNE GEOPHYSICAL EQUIPMENT

3.1. SURVEY AIRCRAFT

The Cessna U206, registration C-GGLS, owned and operated by Terraquest Ltd. was the survey aircraft for B486. This aircraft is approved by the Canadian Ministry of transport and has a certification for specialty flying that includes airborne geophysical surveys. This aircraft is maintained by a regulatory AMO facility, Enterprise Air Ltd. in Oshawa, ON. Extensive maintenance was performed prior to this survey to significantly reduce the magnetic interference from electrical sources.

The aircraft has been specifically modified with long-range fuel cells to provide up to 7 hours of range, outboard tanks, tundra tires, cargo door, and avionics as well as an array of sensors to carry out airborne geophysical surveys.



3.2. EQUIPMENT OVERVIEW

The primary airborne geophysical equipment includes three high sensitivity cesium vapour magnetometers and a Matrix Total Field frequency specific VLF-EM system. Ancillary support equipment includes a tri-axial fluxgate magnetometer, radar altimeter, barometric altimeter, GPS receiver with a real-time correction service, and a navigation system. The navigation system

comprises a left/right indicator for the pilot and a screen showing the survey area, planned flight lines, and the real time flight path. All data were collected and stored by the data acquisition system. The following is a summary of the equipment specifications:

Aircraft	Cessna U206 / C-GGLS
Equipment:	
Magnetometers	Scintrex CS-2&3 Cesium Vapour
3-axis Fluxgate Magnetometer	Billingsley TFM100-LN
VLF-EM (proprietary)	Magenta Matrix Frequency Specific VLF-EM
GPS Receiver	Hemisphere R230 with WAAS real time correction
Radar Altimeter	King KRA 10A
Barometric Altimeter	Sensym LX18001AN
Acquisition	RMS Instruments DAARC 500
Navigation	AgNav Inc. P151 Linav system
Specifications:	
Lateral Sensor separation	13.21 metres
Longitudinal Sensor separation	8.87 metres
FOM	<1.5 nT
Sensitivity	0.001 nT

The 13.75 volts aircraft power is converted to 27.5 volts DC for the geophysical equipment by an ABS power supply.

3.3. EQUIPMENT SPECIFICATIONS

1. Magnetics:

Three high-resolution cesium vapour magnetometers, manufactured by Scintrex, were installed in the tail stinger and two wing tips extensions; the transverse separation was 13.21 metres and the longitudinal separation was 8.87 metres.

Cesium Vapour Magnetometer	(mounted in tail stinger and wing tip extensions)
Manufacturer	Scintrex
Models	CS-2, CS-3
Resolution	0.001 nT counting at 0.1 per second
Sensitivity	+/- 0.005 nT
Dynamic Range	15,000 to 100,000 nT
Fourth Difference	0.02 nT

2. Data Acquisition & Magnetic Compensation System

DAS & Compensation	Combined
Model	DAARC 500
Manufacturer	RMS Instruments
Operating System	QNX 6.3 or greater
Time	104 MHz temperature compensated crystal clock

Front End Magnetic Processing	Resolution 0.32pT; system noise <0.1pT; sample rate 160, 640, 800m or 1280 Hz
Front End - Fluxgate	I/F module; oversampling, self-calibrating 16 bit A/D converter
Compensation	Improvement Ratio (total field) 10-20 typical
Input Serial	8 isolated RS232 channels; ASCII & Binary formats
Input Analog	16 bit, self-calibrating A/D conv.
Input Events	Four latched event inputs
Raw Data Logging	At front end sampling rate, 1 MB buffer
Output/Recording	Rate 10, 20 or 40 Hz; Serial up to 115.2 kbps; Recording media 1 GB Flash; 80 GB Hard Drive; Flash disk via USB; Display
Front Panel Indicators	8 LEDs for mag input; 2 LEDs for Front End status

3. Navigation System

Navigation System	
Model	P151
Manufacturer	AgNav Inc.
Operating System	Linex
Microprocessor	CPU Pentium based
Ports	RS232 for all devices
Graphic Display	Colour Screen
Pilot Display	P202: position, left/right, navigational info

4. Real-Time Correction GPS Receiver

GPS Differential Receiver	
Model	R120
Manufacturer	Hemisphere
Output	NMEA string, PPS
Channels	12 Channel DGPS, internal L-band
Position Update	0.5 second for navigation
Correction Service	Real time correction service WAAS
Sample Rate	Up to 10hz, set at 5 hz

5. Magenta Digital, Frequency Specific VLF-EM System

The Matrix VLF-EM System by Magenta is a newly developed digital, frequency specific VLF-EM system. The sensor consists of 3 orthogonal coils mounted in the tail stinger which are coupled with a receiver-console. The Matrix VLF-EM System measures the total field (the vector sum of all coils). The data are recorded on three VLF frequencies: Cutler Maine NAA frequency 24.0 kHz, La Moure North Dakota NML frequency 25.2 kHz and Seattle, WA NLK frequency 24.8 kHz, which yield outputs of Total Field, Vertical and Planar Ellipticities, azimuth to transmitter and Tilt Angle.

VLF – EM	Source field
Model	Matrix
Manufacturer	Magenta Ltd.
Primary Source	Magnetic field component radiated from government VLF radio transmitters
Parameters Measured	Total Field (Conductivity), Vertical and Planar Ellipticities, Azimuth to Transmitter and Tilt Angle
Frequency Range	Cutler (24.0 kHz), La Moure (25.2 kHz) and Seattle (24.8 kHz)
Gain	Constant gain setting
Filtering	No filtering

6. Tri-Axial Fluxgate Magnetic Sensor

The fluxgate tri-axial magnetometer was mounted in the rear of the aircraft cabin to monitor aircraft manoeuvre and magnetic interference. This was used to compensate the high sensitivity data in real time.

Tri-Axial Fluxgate Magnetic Sensor	(for compensation, mounted in mid-section of tail stinger)
Model	TFM100-LN
Manufacturer	Billingsley Magnetics
Description	Low noise miniature triaxial fluxgate magnetometer
Axial Alignment	> Orthogonality > +/- 0.5 degree
Accuracy	< +/- 0.75% of full scale (0.5% typical)
Field Measurement	+/- 100,000 nanotesla
Linearity	< +/- 0.0035% of full scale
Sensitivity	100 microvolt/nanotesla
Noise	< 14 picotesla RMS/–Hz @ 1 Hz

7. Radar Altimeter

Radar Altimeter	
Model	KRA-10A
Manufacturer	King
Serial Number	071-1114-00
Accuracy	5% up to 2,500 feet
Calibrate Accuracy	1%
Output	Analog for pilot, converted to digital for data acquisition

8. Barometric Altimeter

Barometric Altimeter	
Model	LX18001AN
Manufacturer	Sensym Inc.
Source	Coupled to aircraft barometric system

4. BASE STATION EQUIPMENT

4.1. BASE STATION MAGNETOMETER / GPS RECEIVER

The magnetometer was similar to the type used in the aircraft, a cesium magnetometer manufactured by Scintrex. The magnetometer processor was a KMAG manufactured by Kroum VS Instruments and the data logger was a PDA by Archer. The counter was powered by a 10VAC 50/60 Hz to 30VDC 3.0 amp power supply with an internal 12VDC fan. The logging software SDAS-1 was written by Kroum VS Instrument Ltd. specifically for handheld pc hardware. It supports real time graphics with selectable windows (uses two user selectable scales, coarse and fine). Time recorded was taken from the base GPS receiver. Magnetic data was logged at 1Hz. Data collection was by RS232 recording ASCII string and stored on flash card.

Magnetometer Type	Cesium Vapour
Model	CS-3
Manufacturer	Scintrex Ltd.
Sensitivity	0.022 nT / vHz@1Hz
Resolution	0.001 nT
Dynamic Range	15,000 – 120,000 nT
GPS model	GPS 18
GPS manufacturer	Garmin

5. TESTS AND CALIBRATIONS

5.1. MAGNETIC FIGURE OF MERIT

Compensation calibration tests were performed to determine the magnetic influence of aircraft maneuvers and the effectiveness of the aircraft compensation method. The aircraft flew a square pattern in the four survey directions at a high altitude over a magnetically quiet area and performed pitches ($\pm 5^\circ$), rolls ($\pm 10^\circ$) and yaws ($\pm 5^\circ$). The sum of the maximum peak-to-peak residual noise amplitudes in the total compensated signal resulting from the twelve maneuvers is referred to as the FOM. The FOM was flown on May 11, 2019 and the values for this survey were 0.75 nT, 0.91 nT and 0.47 nT for the Left, Right and Tail sensors respectively (see Appendix II).

5.2. MAGNETIC LAG

Evaluation of the magnetic lag factor was accomplished by comparing survey data flown over a series of distinct magnetic anomalies in opposing directions. The measured lag was 0.3 seconds for the wingtip sensors and 0.50 seconds for the tail sensor. The results are presented in the following table:

C-GGLS : LAG TEST						
WINGTIP SENSORS (TF1, TF2)						
LINE	DIR		Reference Anomaly			
			A	B	C	
S160	160°	FIDUCIAL	62221.2	62206.6	62200.5	
		X	678658.8	678323.5	678180.2	
		Y	5153914.8	5154819.5	5155184.1	
		SPEED (S ₁)	68.0	64.6	64.1	
S340	340°	FIDUCIAL	62362.2	62380.2	62387.6	
		X	678642.3	678319.8	678176.0	
		Y	5153938.1	5154855.7	5155223.0	
		SPEED (S ₂)	55.8	53.2	53.6	
		DELTA (apparent directional seperation, metres)	28.6	36.4	39.1	
		LAG (secs) *	0.2	0.3	0.3	AVG LAG 0.3
TAIL SENSOR (TF3)						
LINE	DIR		Reference Anomaly			
			A	B	C	
S160	160°	FIDUCIAL	62221.4	62206.8	62200.7	
		X	678663.1	678328.3	678184.9	
		Y	5153901.9	5154807.6	5155172.2	
		SPEED (S ₁)	68.0	64.6	64.1	
S340	340°	FIDUCIAL	62362.4	62380.4	62387.8	
		X	678638.6	678316.4	678172.1	
		Y	5153948.6	5154865.7	5155232.9	
		SPEED (S ₂)	55.8	53.2	53.6	
		DELTA (apparent directional seperation, metres)	52.7	59.3	62.0	
		LAG (secs) *	0.4	0.5	0.5	AVG LAG 0.5

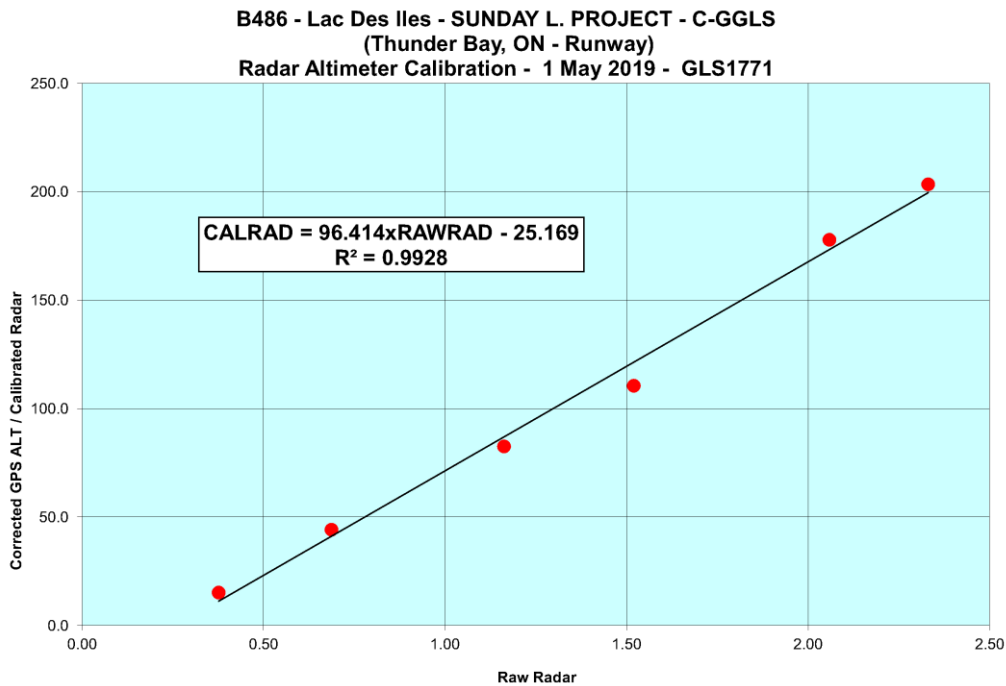
* Lag factor calculated as LAG = DELTA/(S1+S2)

5.3. RADAR CALIBRATION

C-GGLS: RADAR CALIBRATION DATA SUMMARY						
Calibration performed: Thunder Bay, ON (01 May 2019, GLS1771)						
					INTERCEPT	-25.1690
					SLOPE	96.413882
LINE	RAW RADAR	GPS ALT	CORRECTED GPS ALT	RAW RADAR	CALIBRATED RADAR	ERROR *
Ground Ref		197.0	0.0			
S10100	0.3763	212.1	15.1	0.3763	11.1	-4.0
S10200	0.6871	241.1	44.1	0.6871	41.1	-3.0
S10300	1.1625	279.5	82.5	1.1625	86.9	4.4
S10400	1.5200	307.5	110.5	1.5200	121.4	10.9
S10500	2.0589	374.8	177.8	2.0589	173.3	-4.5
S10600	2.3311	400.4	203.4	2.3311	199.6	-3.8

* Error estimated as (Calibrated Radar) - (Corrected GPS Alt)

Imperial Units		
LINE	GPS_ALT (ft)	CAL_RAD (ft)
S10100	49.5	36.5
S10200	144.7	134.8
S10300	270.7	285.1
S10400	362.5	398.2
S10500	583.3	568.7
S10600	667.3	654.8



6. LOGISTICS

6.1. PERSONNEL

The contractor supplied the following properly qualified and experienced personnel to carry out the survey and to reduce, compile and report on the data:

Survey:	Pilots	Nathanael Walton Alexis Desbois Xavier Pichot Mez
	Operator	David Salvatori
	Electronics Technologist	James Bursey
	Office QC Processor	Allen Duffy
Office:	Final Processing	Allen Duffy John Charlton Brian Sargent
	Manager	Charles Barrie

6.2. FLIGHT REPORTING

The aircraft and crew arrived in Thunder Bay airport (CYQT) April 24, 2019, unloaded the airplane, and the crew loaded the survey navigation files. The following day they set up the base station and performed the first FOM to discover some new magnetic noise had entered the system. This was resolved after 15 days of intensive investigation, after which an exceptionally clean FOM was achieved on May 11th.

The survey was flown in 33 flights (1777-1809) from May 13th to June 11th and, in total, consisted of 1 day calibration, 2 scheduled aircraft maintenance days, 17 unscheduled maintenance days, 1.5 mob/demob days, 0.5 set-up days, 16.5 survey production days, 1 day testing, 7.5 standby weather days and 1 day for training. On the 11th day of June the survey was completed and the demob was approved by the client and accomplished.

Significant deviations were made to the aircraft terrain clearance on this survey primarily due to powerful near-surface turbulence created by the topographic effect on consistently strong winds plus complaints from local inhabitants and presence of towers, all affecting the safety criteria of the survey (see Section 2.6.2).

The team made every effort to maintain efficiency while collecting VLF-EM data by flying control lines when VLF transmitters were scheduled to be offline to maximize coverage. Also the survey was flown in an “every-other” line mode and the fill-in lines were planned as much as possible for different days such that VLF-off days would not be on adjacent lines (see section 7.5.1).

During the survey, the pilot maintained daily personal, aircraft and preflight safety reports. The base station and airborne data were monitored throughout the survey and recorded by precise notes of each flight. At the end of each flight day the flight report and data were uploaded to the project geophysicist who performed quality control on the raw and compensated survey data. Additionally, the geophysicist transcribed the operator notes and entered quality control notes into a spreadsheet in excel. From this spreadsheet periodic and summary reports were automatically generated. Detailed Flight and Line Lists in Appendix 9.3 show statistics for all flights each day.

A Summary of flight and production statistics appears below.

All survey personnel crew adopted and worked under the Terraquest Ltd. Health, Safety and Environmental Protection Manual (which include Site Specific Safety Plan and Emergency Response Plan) along with guidelines from the IAGSA safety and security standards.

6.3. BASE OF OPERATIONS

Terraquest's base of operations was at Thunder Bay Airport (CYQT). The base station (combined high sensitivity magnetic and GPS) was set up at a secure location at the airport.

The crew's accommodations were the responsibility and cost of Terraquest. The crew stayed at the Airline Hotel, 698 Arthur Street West, Thunder Bay.

SUMMARY OF FLIGHT AND PRODUCTION

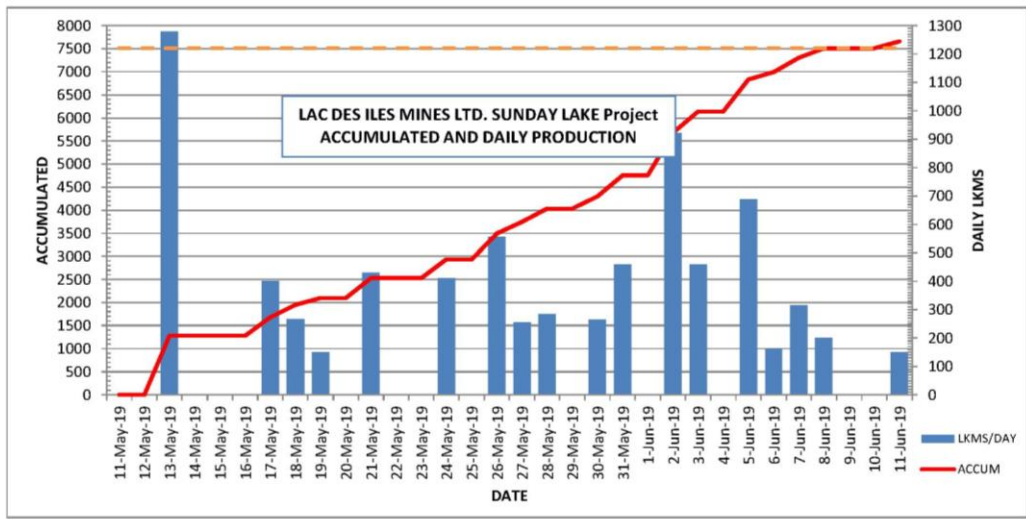
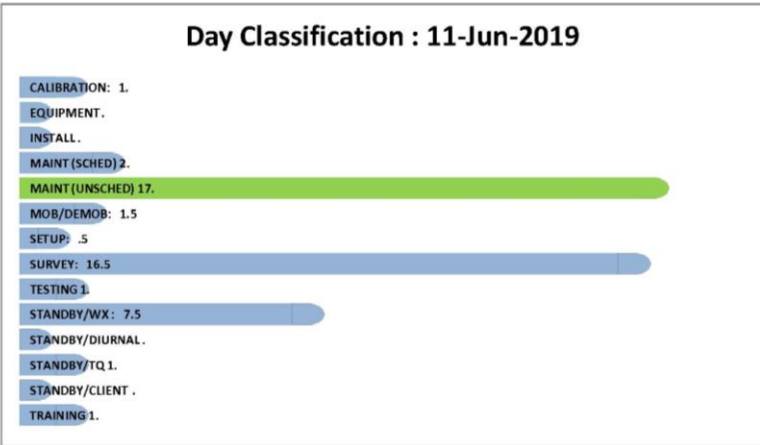


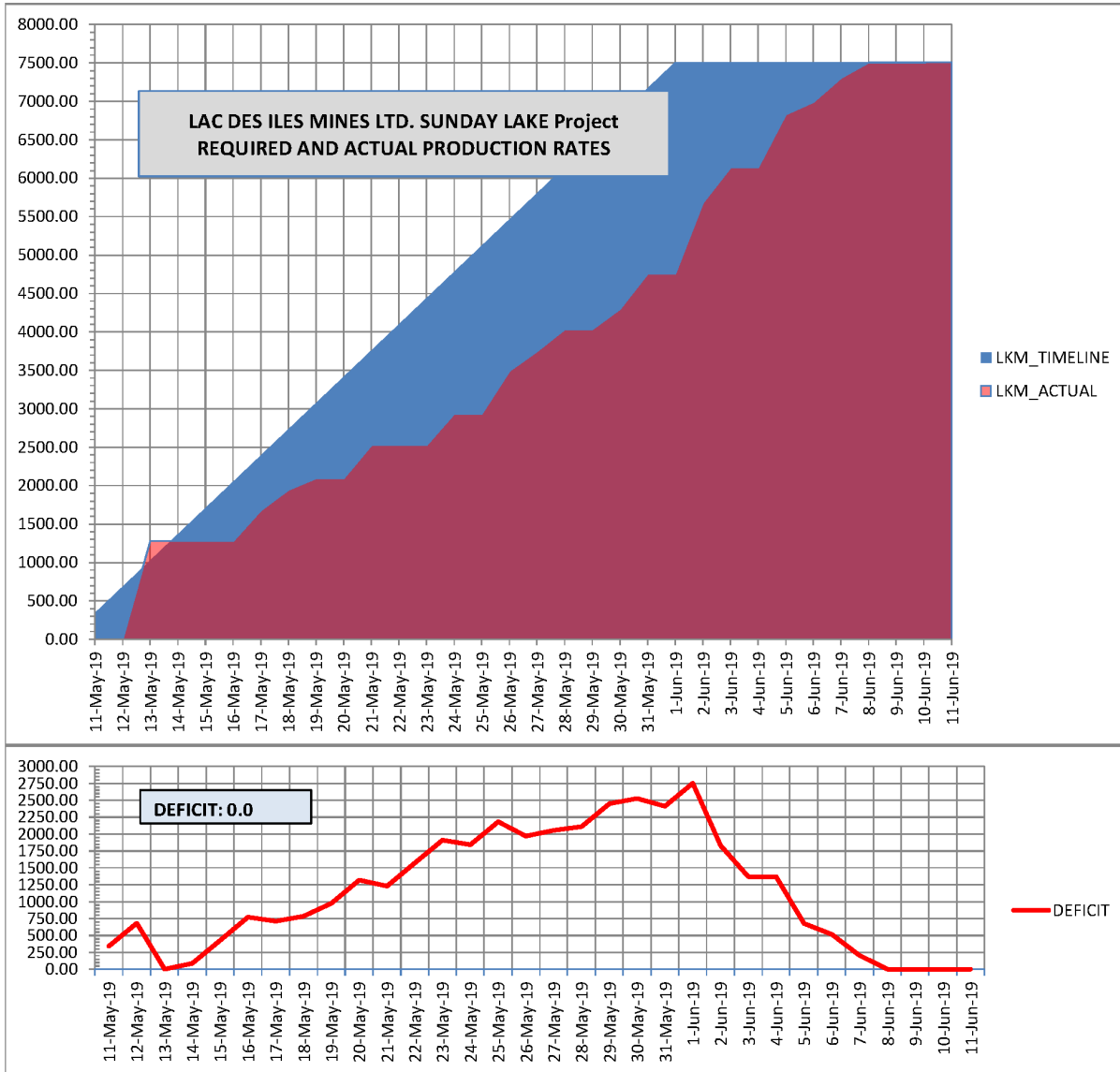
PROJECT REF B486 /LAC DES ILES MINES LTD. /SUNDAY LAKE: SPRING 2019

CURRENT STATUS:	11-Jun-19		C-GGLS				
TOTAL DAYS	INSTALL/SET-UP	HIATUS	OPS DAYS	LKM/DAY	COMPL (%)	TOTAL FLT TIME	TOTAL PRD TIME
49	17		32	234.7	100.00%	93:16:00	35:59:16

OVERALL PRODUCTION SUMMARY:							
	Summary Date				REMAIN	COMPL (%)	REFLT
	11-Jun-19		11-Jun-19				
	PLAN	FLOWN	PLAN	FLOWN			
	NLIN	LKMS	NLIN	LKMS			
TOTAL	430	7509.5	430	7509.5		100.00%	146.71
LINE	361	6821.5	361	6821.5		100.00%	
TIE	69	688.0	69	688.0		100.00%	
BORDER							

C-GGLS	
DAY CLASS SUMMARY	
CALIBRATION	1.0
EQUIPMENT	
INSTALL	
MAINT (SCHED)	2.0
MAINT (UNSCHED)	17.0
MOB/DEMOB	1.5
SETUP	0.5
SURVEY	16.5
TESTING	1.0
STANDBY/WX	7.5
STANDBY/DIURNAL	
STANDBY/TQ	1.0
STANDBY/CLIENT	
TRAINING	1.0
TOTAL	49.0





7. DATA PROCESSING

7.1. DATA QUALITY CONTROL / PRELIMINARY PLOTS

The field data were examined in the evening after each flight by a geophysicist to inspect the data for quality control and tolerances. All data were approved and checked for continuity and integrity. Magnetic data were corrected for diurnal to produce preliminary plots.

7.2. DIGITAL TERRAIN MODEL

The radar altimeter data were subtracted from the GPS altitude to produce a Digital Terrain Model. The resulting data were microlevelled to remove line-to-line imperfections in the data. The final grids were created using bi-directional Akima spline interpolation at a cell size of 25 metres.

7.3. FINAL MAGNETIC DATA PROCESSING

1. Lag Correction of Total Magnetic Field

The evaluation of the magnetic lag factor was accomplished by acquiring survey data flown in opposite directions over a series of distinct magnetic anomalies. The measured factors were 0.5 seconds for the tail Mag and 0.3 seconds for the wing tips.

2. Diurnal Data and Diurnal Corrections of the Total Magnetic Field

Magnetic data from the Diurnal Base Station were scrutinized for spurious readings (data spikes) and any obvious cultural interference. Any such features were manually removed and the data re-interpolated (Akima spline) to maintain a continuous record. A low-pass filter (60 fid cut-off wavelength) was applied to the edited diurnal record. The resulting data was used to pre-level (diurnally correct) the measured TMI data for the Tie lines prior to implementing Tie-Traversal intersection leveling. Traversal line data were not pre-leveled with Diurnal Base Station to avoid the risk of contaminating the airborne data with any remaining imperfections in the base station record.

3. Total Magnetic Field Tie-Traversal Line Intersection Levelling

As noted in previous sections, environmental conditions combined with absolute navigational obstacles (communication towers, etc) necessitated the aircraft's departure from a controlled drape surface. These conditions resulted in some altitude miss-ties at Tie-Traversal line intersections (i.e. large differences in terrain clearance at intersection points) and, in some cases, reduced line-to-line data continuity (due to varying terrain clearance). Since these would negatively impact the intersection and subsequent leveling procedures, magnetic variability due to terrain clearance was reduced by pre-treating data with a correction based on local vertical magnetic gradient multiplied by terrain clearance deviation. This correction, though relatively mild, enhanced the subsequent leveling procedures.

The lag corrected, pre-treated (altitude correction) data were refined using tie-line levelling. Using the Geosoft Oasis implementation of this procedure, an initial table of tie-traverse line intersection differences is compiled (together with supporting ancillary parameters such as local gradient, etc.) and intersection data is loaded into the processing databases. In a series of iterative levelling passes, outlier intersection values are either disabled or modified to refine and finalize the overall result.

4. The Magnetic Field Micro-Levelling

Minor levelling imperfections may still exist in the gradient enhanced intersection levelled data, most likely due to incomplete removal of diurnal influences in sections of lines between intersection points. These errors are removed by application of mild micro-levelling procedure whereby highly directional filtering identifies and removes residual noise correlated with the line direction.

5. Calculated Vertical Derivative

The first Vertical Derivative was calculated using a 2D FFT operator on the Total Field data grid. Unwanted, high frequency “ringing” in the resulting 1VD grid was minimized by concurrent application of an 8th order Butterworth low pass filter with a cut-off keyed to the line spacing.

6. Analytic Signal

The Analytic Signal, which is derived from the three orthogonal magnetic gradients, has the advantage of producing body centric anomalies - regardless of magnetic inclination - with source edges mapped out by the function’s maxima. Additionally, approximate source depth may be estimated by measuring individual anomaly widths at half amplitude.

7. Horizontal Gradients

Terraquest solves the spatial mathematical relationship of the three total field measurements (left, right and tail) by using the accurate location of the three magnetic sensors in space to directly calculate the East-West and North-South gradients, referenced to geographic north, at each point along the survey line.

Both gradients were then median-leveled to remove bias; followed by mild micro-leveling to remove any remaining imperfections. Following this, the transverse and longitudinal gradients were gridded using a bi-directional Akima algorithm and a cell size of 25 metres. The measured transverse and longitudinal gradients provide an improved rendition of the shorter wavelengths in magnetic field than the residual magnetic field measured by the tail sensor alone. This is because the direction and amplitude of the field’s total horizontal gradient can be determined using the 2 measured gradients, providing information regarding the behaviour of the magnetic field in-between traverse lines. Thus, it is useful to incorporate the gradient data in the preparation of the residual magnetic field grid

8. Reconstructed Total Field (RTF)

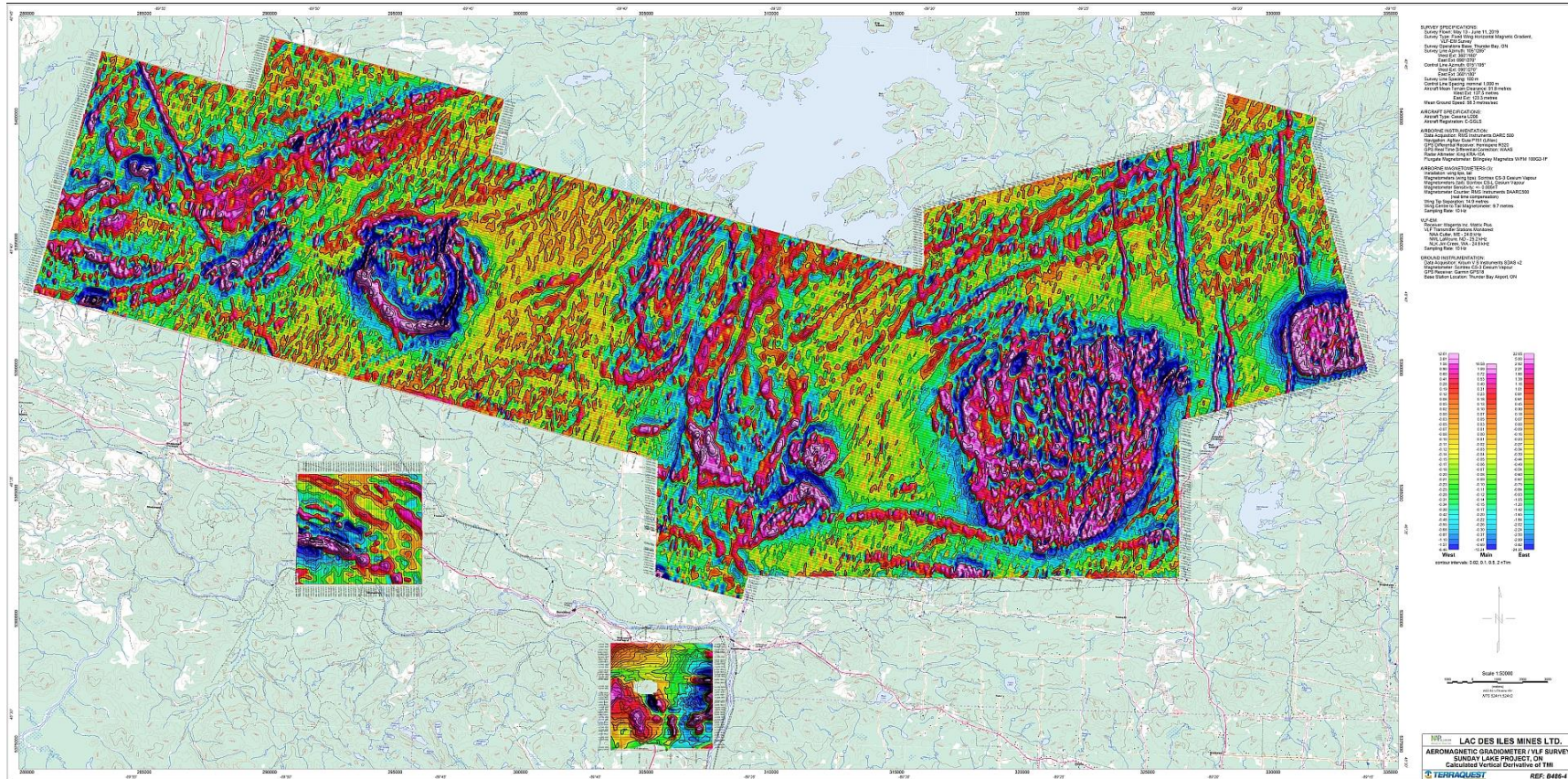
Data grids of the measured horizontal gradients were used to generate the Reconstructed Total Magnetic Field using the 2D FFT process described by J. B. Nelson (Nelson, 1994)*. This product (RTF) has the advantage of being un-affected by magnetic diurnal activity, though longer magnetic spatial wavelengths are not represented due to measurement resolution limitations in the magnetometers. The resulting data units (expressed as pseudo nanoTesla) are not true nT; approximate conversion to true nT may be accomplished by application of scaling factor if required. Using the calculated Reconstructed Total Field data grid, a "RTF" Geosoft database channel is created by performing a grid look-up ("grid sample") for each data point in the production database.

* Reference: Nelson, J.B., 1994, Leveling total-field aeromagnetic data with measured horizontal gradients: *Geophysics*, 59, 1166-1170

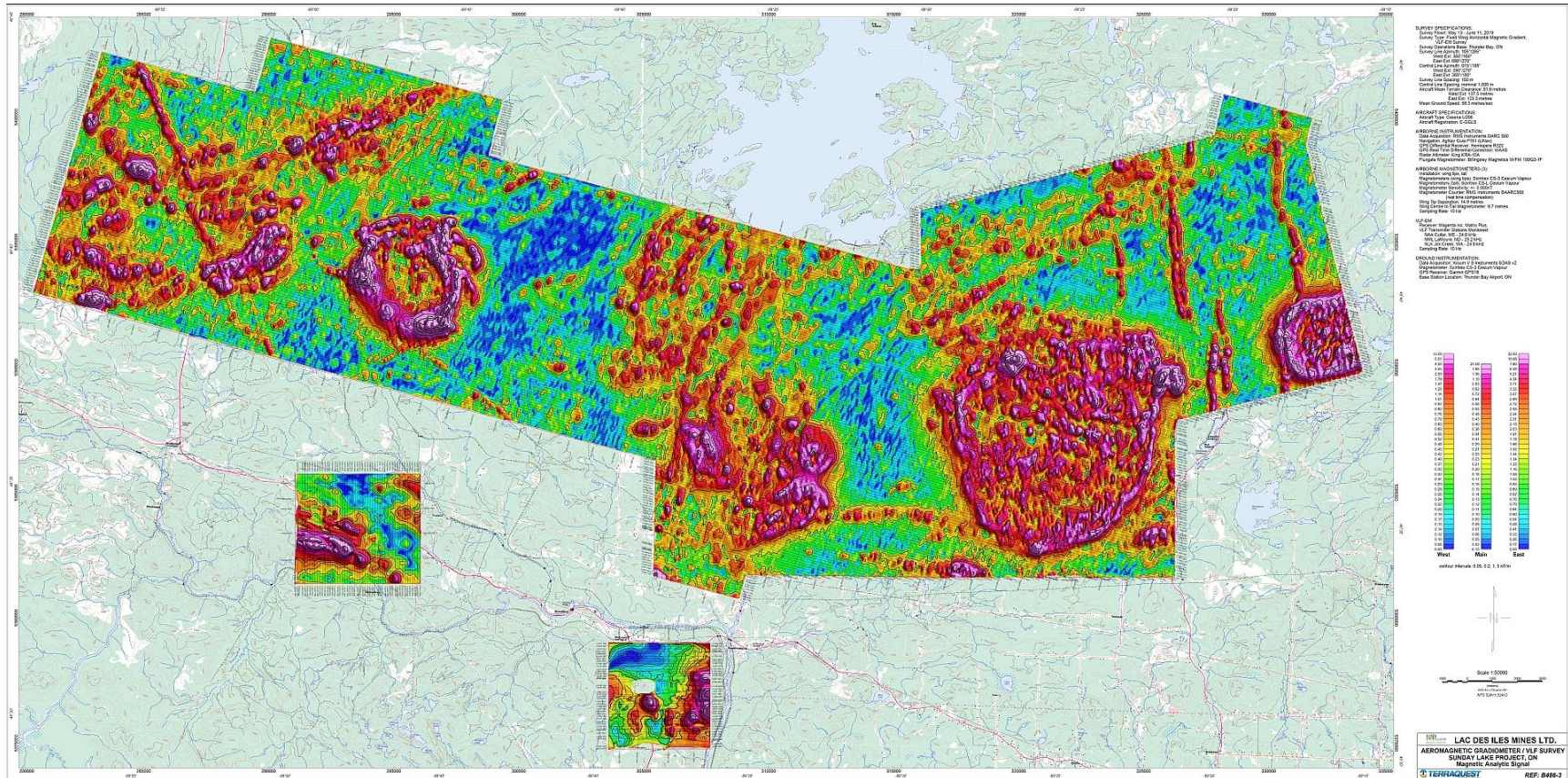
9. Grids

Magnetic data grids were created using bi-directional data interpolation at a cell size of 25 metres.

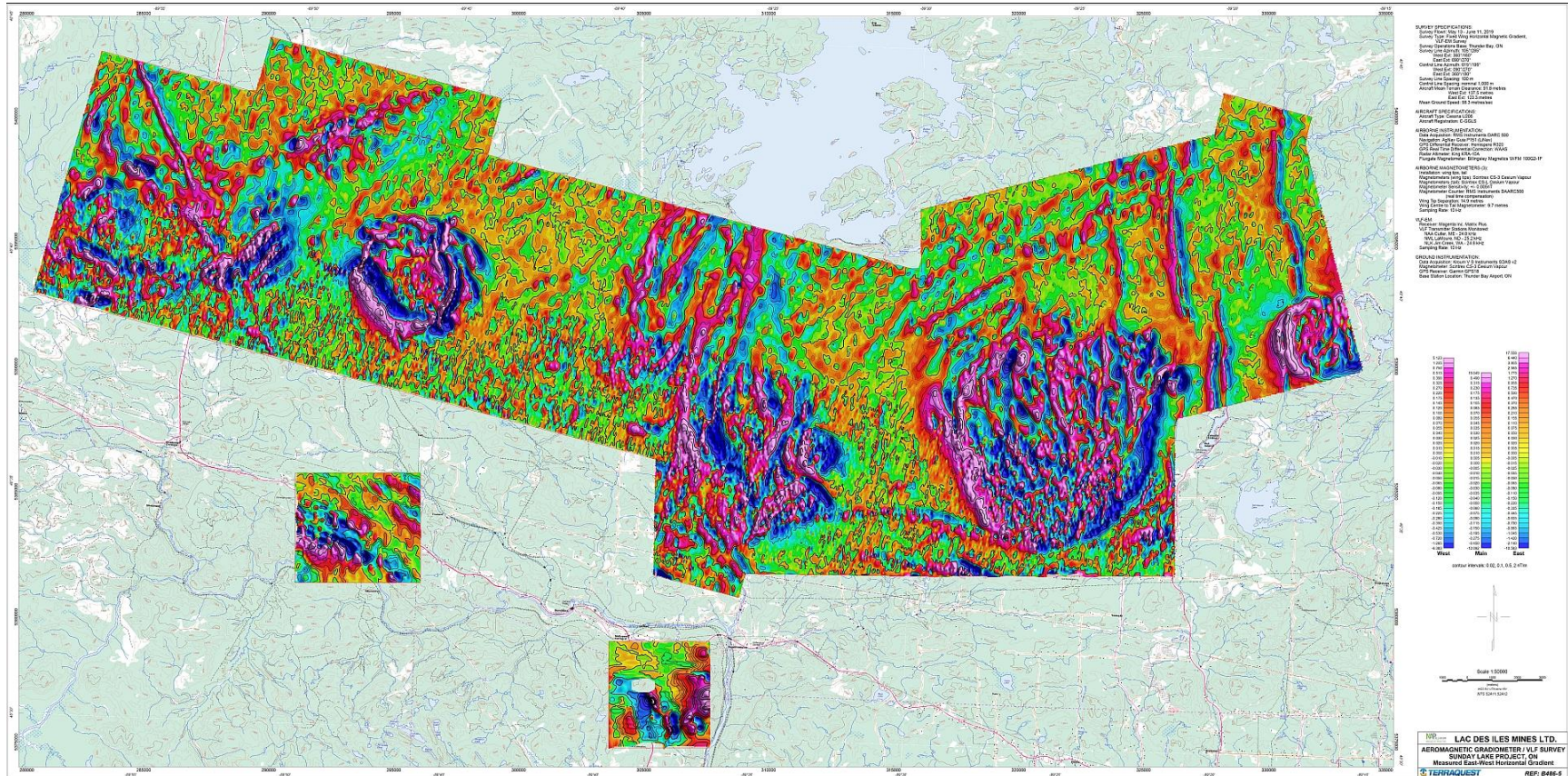
2. Calculated Vertical Derivative



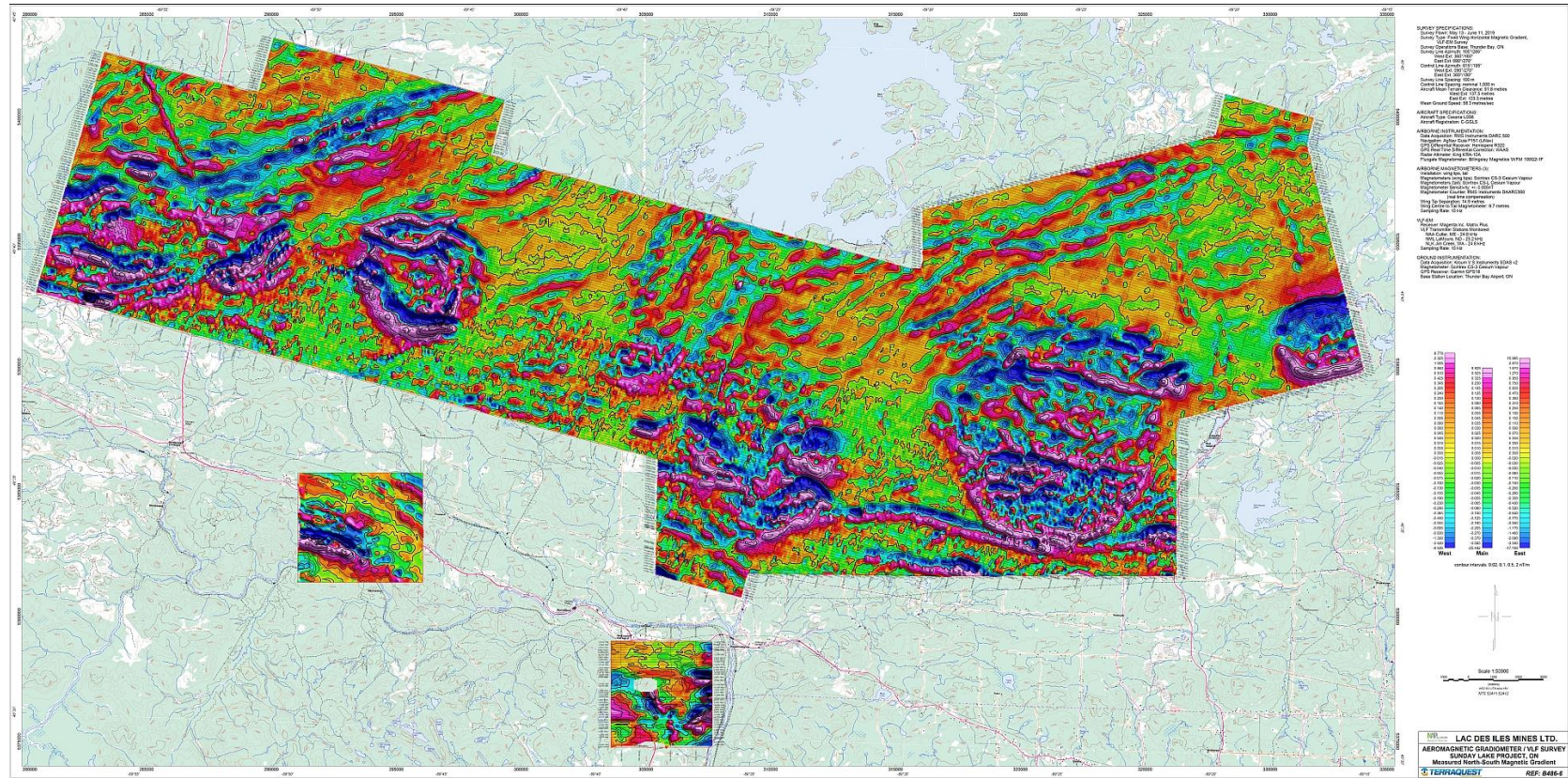
3. Analytic Signal



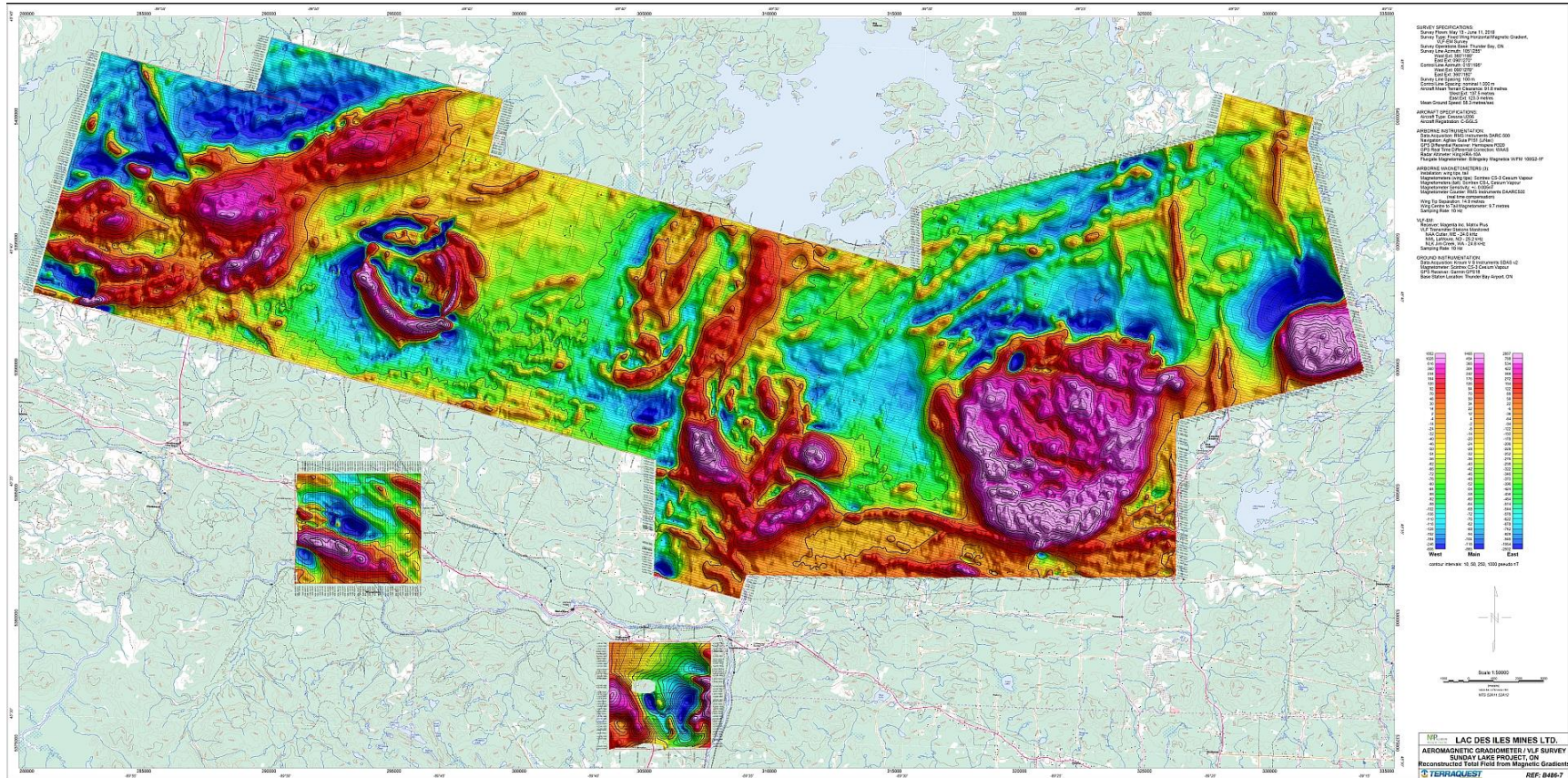
4. Measured Horizontal East-West Gradient



5. Measured Horizontal North-South Gradient



6. Reconstructed Total Field



7.5. FINAL ELECTROMAGNETIC DATA PROCESSING

1. Matrix VLF-EM Monitoring

VLF-EM data were captured using a Magenta Inc. Matrix Digital VLF receiver. This instrument is capable of simultaneously monitoring up to four VLF frequencies, recording amplitude (secondary field), transmitter station azimuth (relative to aircraft orientation), vertical and planar ellipticities and field tilt angle. For this project, the following VLF transmitters were monitored:

- Station NAA: Cutler, Maine – 24.0 kHz
- Station NML: La Moure, North Dakota – 25.2 kHz
- Station NLK: Jim Creek, Washington – 24.8 kHz

Transmitter power, distances and azimuths relative to the survey block are illustrated the Figure on the next page. Transmitter stations are nominally shut down for scheduled maintenance as follows: NAA Cutler, Maine on Mondays, NML LaMoure, North Dakota on parts of Wednesdays, and NLK Seattle, Washington progressively throughout Wednesday such that there is generally always some signal. Deviations to this schedule are not uncommon.

The survey was flown in a manner that ensures as much as possible that adjacent lines do not have the same VLF Transmitter-off day (see discussion in section 6.2), this ensures that there no significant gaps in the recorded VLF data since the long wavelength of the VLF signal readily crosses three or more survey lines.

The actual “times-off” of each transmitter signal for each survey line throughout the survey period is documented in the Line Listing in the Appendix 9.3.

2. Matrix VLF-EM Processing

Field Amplitude was processed and presented separately for each of the frequencies. Processing of the raw amplitude data consisted of the following:

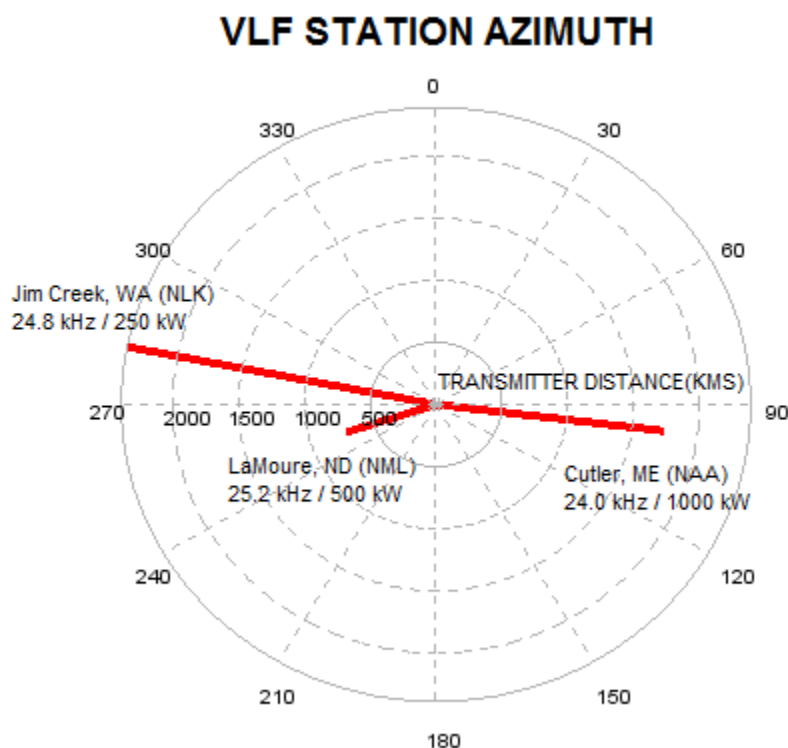
- Mask out any embedded “off-line” data
- Noise reduction filtering using non-linear Naudy filtering (5 pt filter width)
- Lag correction (correction factor = -0.25 sec)
- Initial levelling (mean subtraction)
- Fine levelling (micro-levelling)
- Application of bias offsets such that finalised data ranged positive

The finalised conductivity data for each channel were presented as a series of colour images of total field strength (amplitude). Conductor axes and other VLF anomalous features (topographic effects, conductive lake sediments, etc.) are mapped by “hot” colours (orange → red → magenta) as peak centric lineaments.

A High-Pass filter was applied to the final conductivity map in order to enhance the location of the conductor axes and presented as a separate channel in the database and final map.

The orientation and distances of the primary fields are located on the legend of each Matrix VLF-EM Total Field conductivity map. The final grids were created using Minimum Curvature data interpolations at a cell size of 25 m.

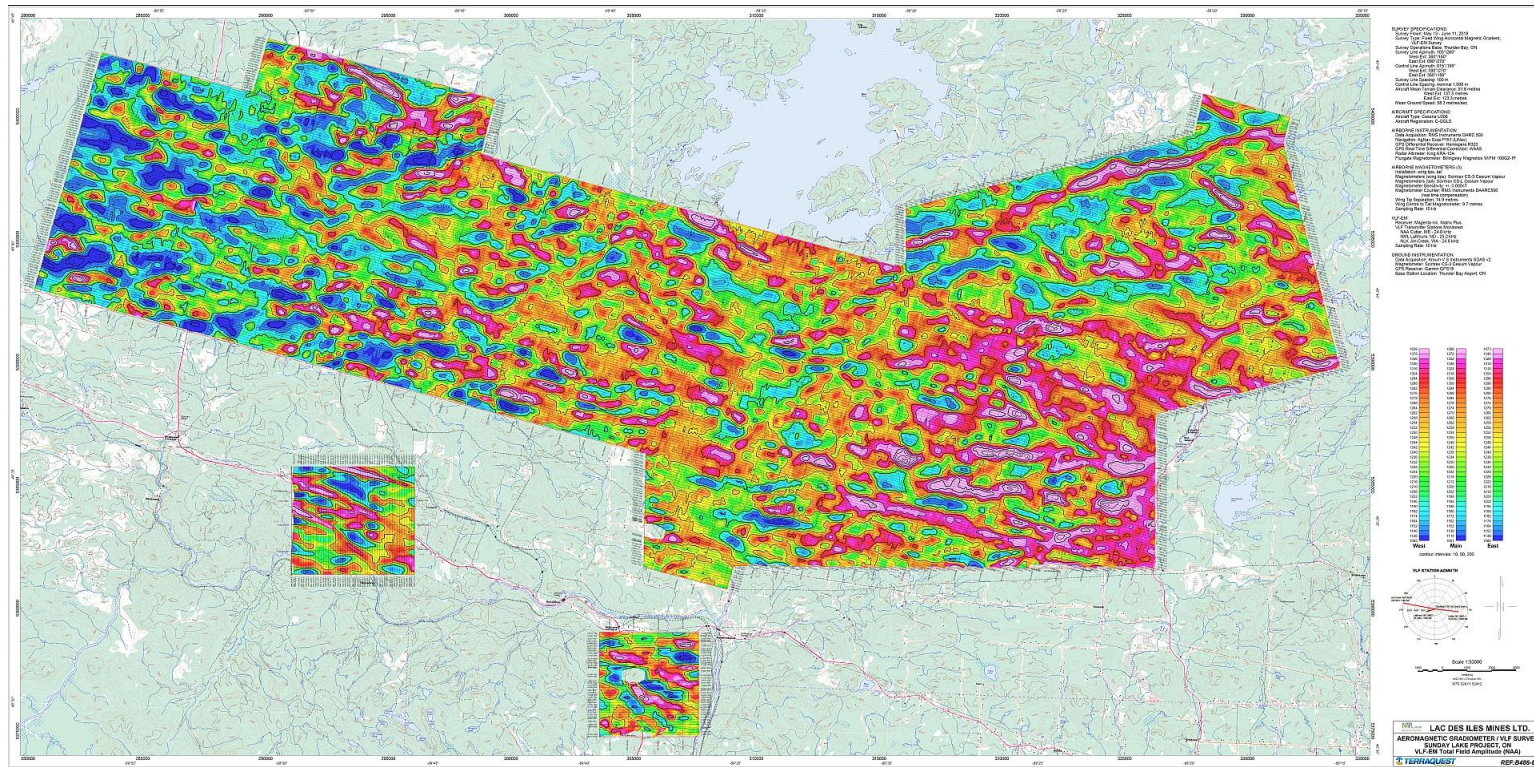
VLF STATION AZIMUTH - B486 Survey



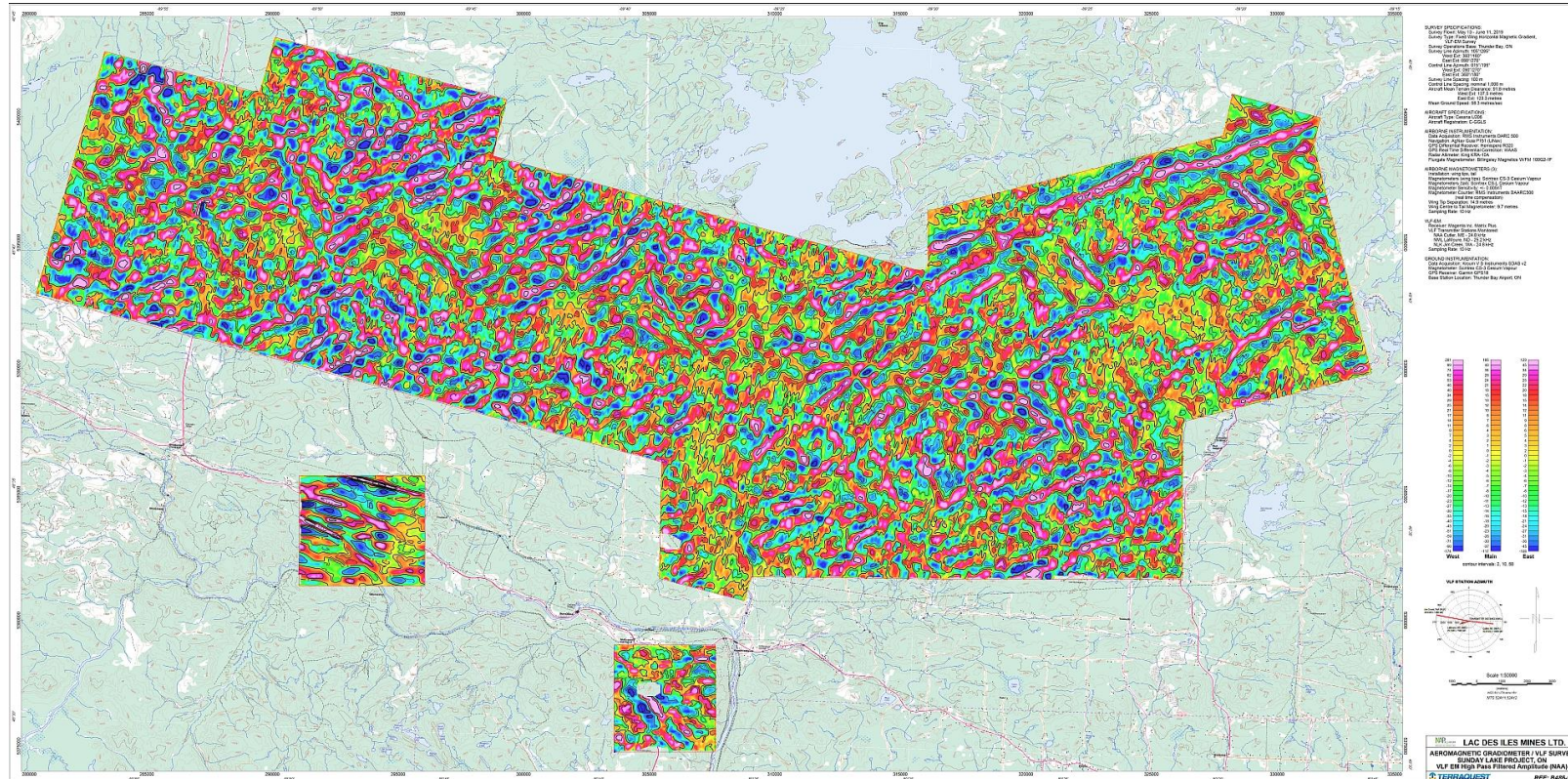
Comment: The Matrix VLF-EM conductivity data in this survey display excellent correlation with magnetic, lithological and structural trends across the survey area, accordingly this EM data set would be a good candidate for inversion modeling to create resistivity products. Where the conductivity products are successful in mapping structure, resistivity products have the potential to map lithologies independently from magnetic properties.

7.6. VLF-EM DATA MAPS

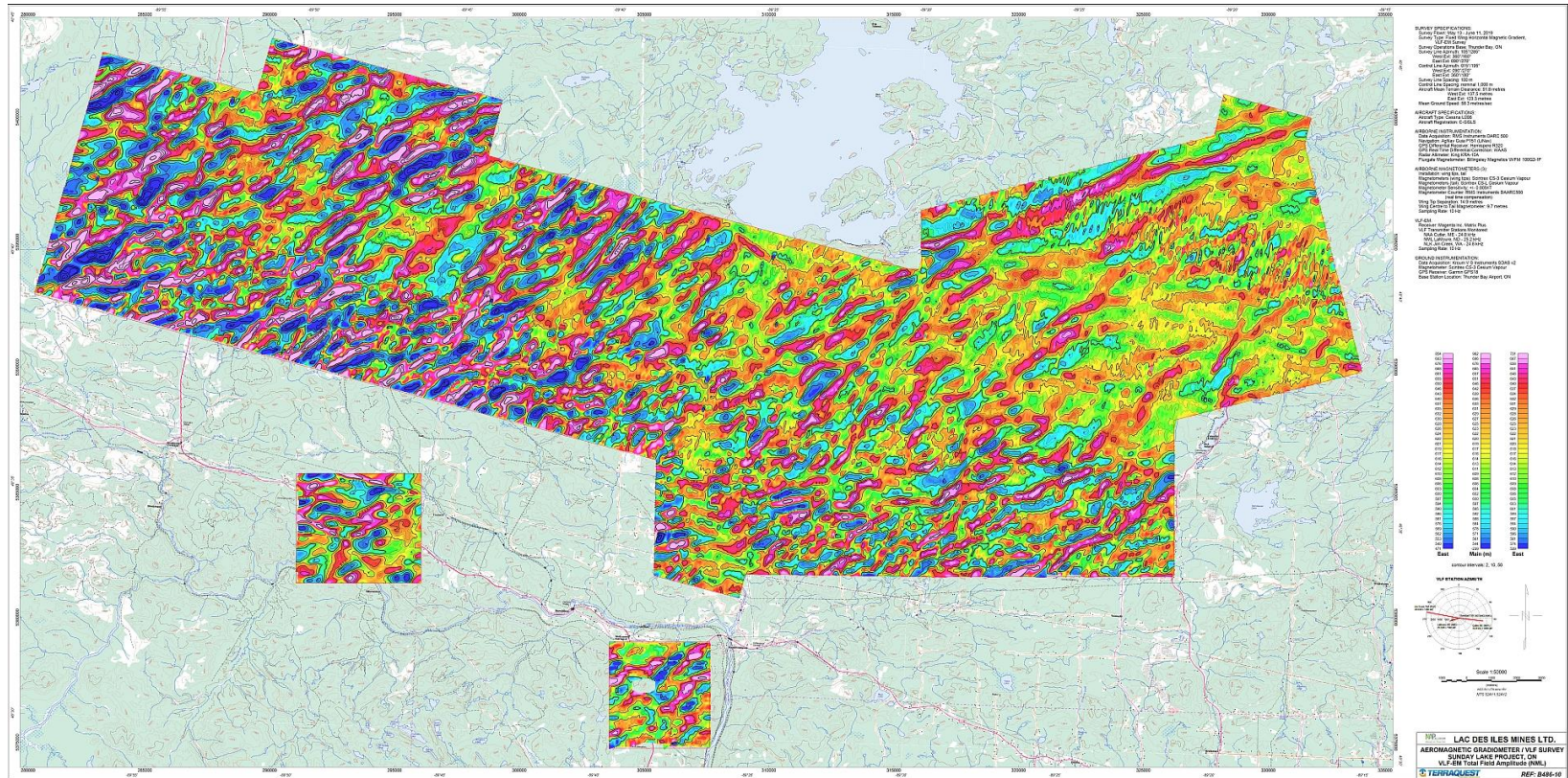
1. Amplitude of the Secondary Total Field Strength (NAA, Cutler, ME)



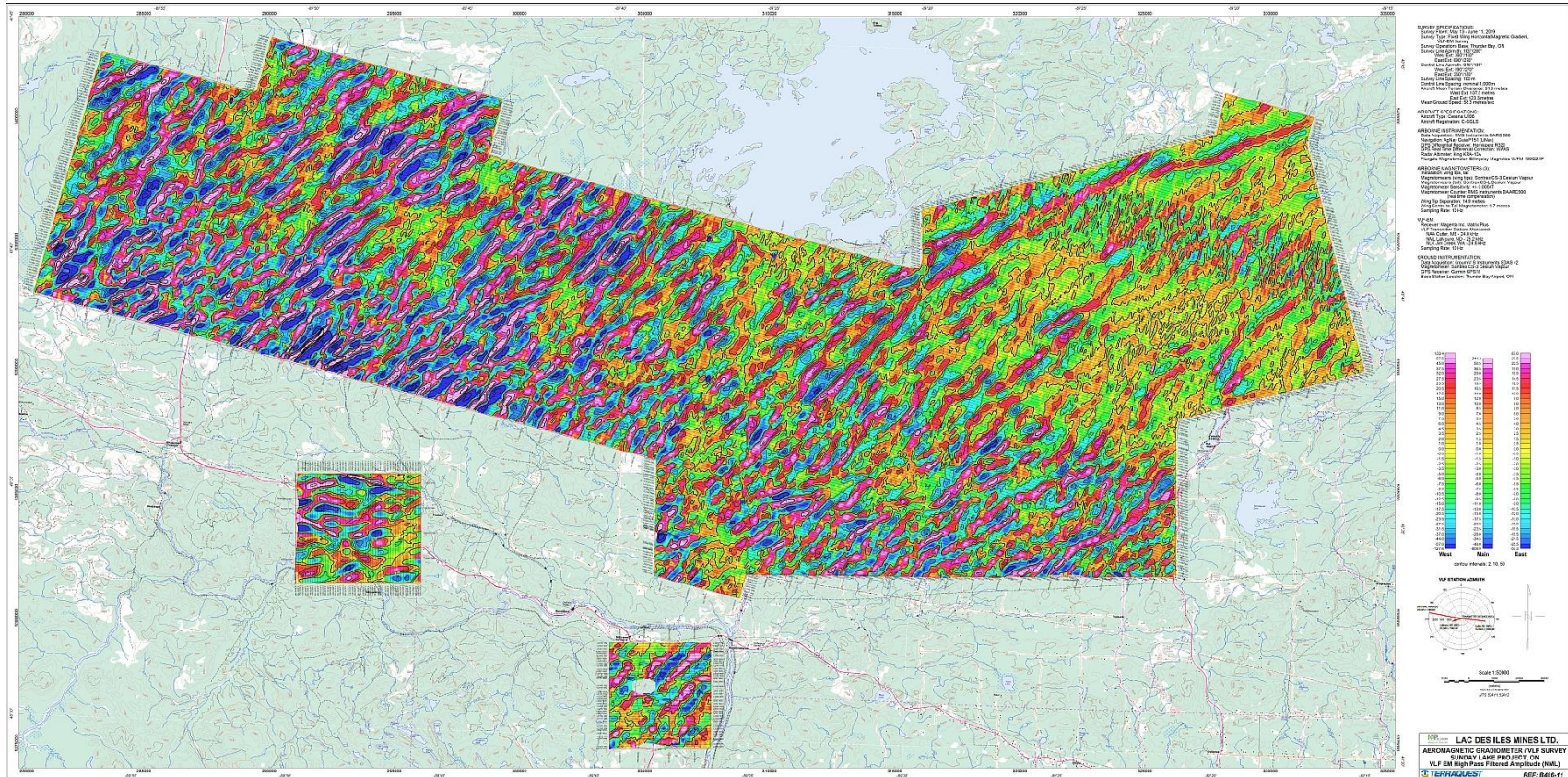
2. High-Pass Filter of the Secondary Total Field Strength (NAA, Cutler, ME)



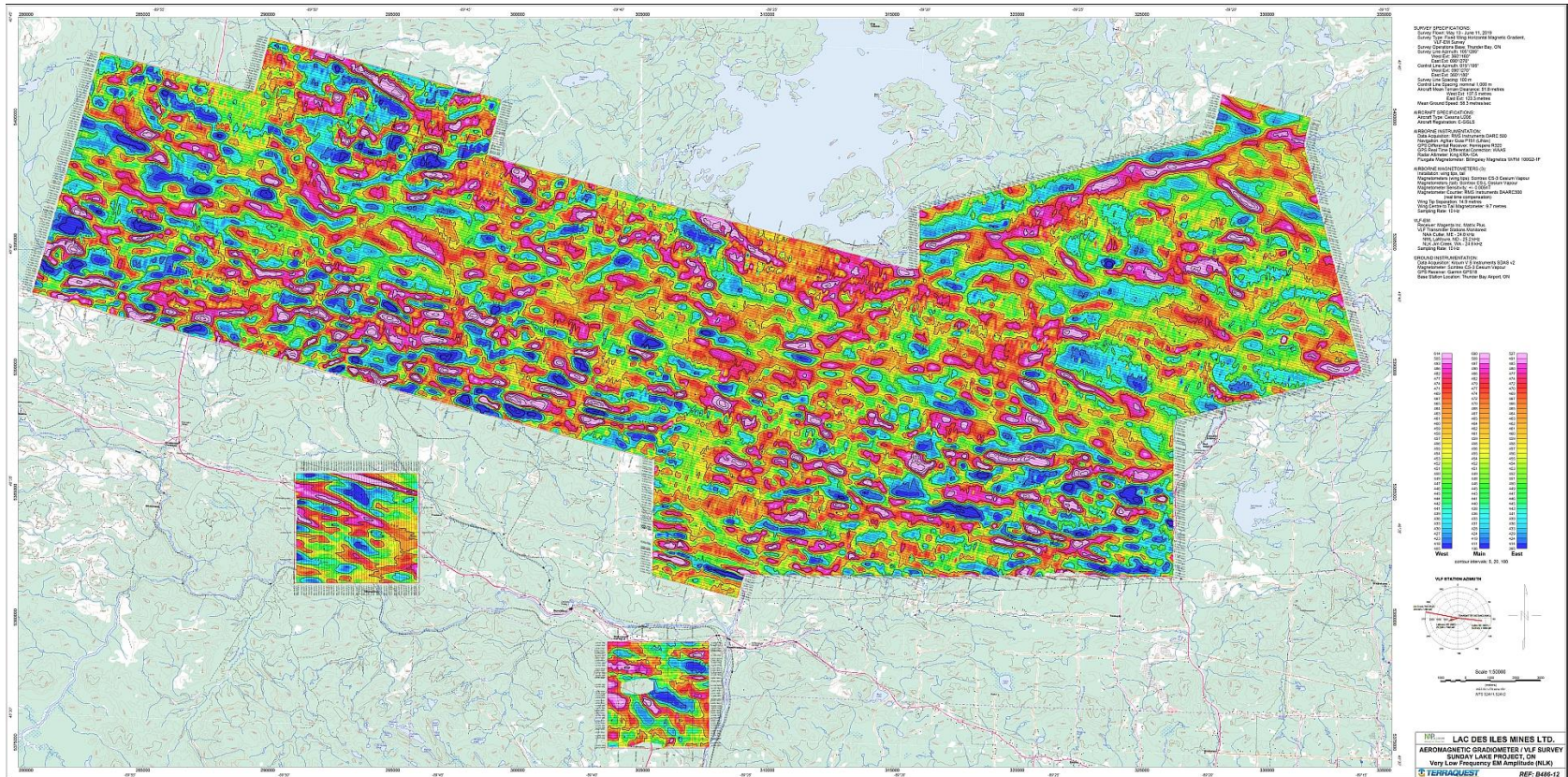
3. Amplitude of the Secondary Total Field Strength (NML, La Moure, ND)



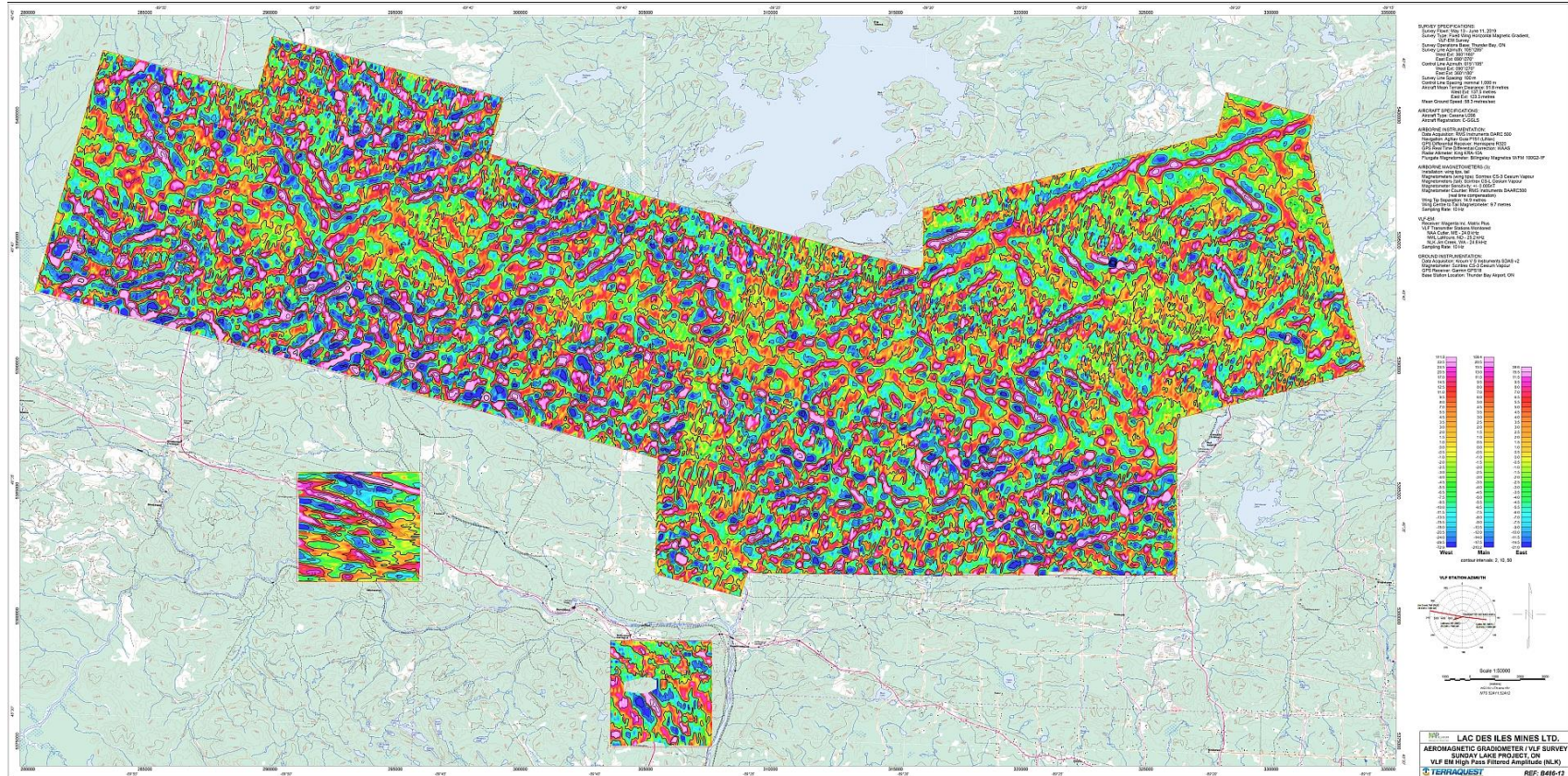
4. High-Pass Filter of the Secondary Total Field Strength (NML, La Moure, ND)



5. Amplitude of the Secondary Total Field Strength (NLK, Jim Creek, WA)



6. High Pass Filter of the Secondary Total Field Strength (NLK, Jim Creek, WA)



7.7. LIST OF FINAL PRODUCTS

A complete list of all final products is listed in the ReadMe file Appendix 9.4. All products including this Report are contained on an Archive DVD.

The following maps were produced in digital format in Low Resolution for the Operations Report, and High Resolution for the Database and Plotted Maps at 1:50,000 scale (2 copies):

1. Digital Terrain Model
2. Total Magnetic Intensity
3. Analytic Signal
4. Calculated Vertical Derivative of Total Magnetic Intensity
5. Measured Magnetic Horizontal Gradient - East-West
6. Measured Magnetic horizontal Gradient - North-South
7. Reconstructed Total Magnetic Field
8. Amplitude of the Secondary Total VLF-EM Field (NAA, Cutler, ME)
9. High Pass Filter of Total VLF-EM Field (NAA, Cutler, ME)
10. Amplitude of the Secondary Total VLF-EM Field (NML, La Moure, ND)
11. High Pass Filter of Total VLF-EM Field (NML, La Moure, ND)
12. Amplitude of the Secondary Total VLF-EM Field (NLK, Jim Creek, WA)
13. High Pass Filter of Total VLF-EM Field (NLK, Jim Creek, WA)

- Digital grid archives in GEOSOFT
- Two copies of all final maps plotted on glossy film
- JPEG format of maps
- Digital Profile Archives in GEOSOFT GDB format (compatible with 4.1 or higher)
- Operations Report in PDF format
- Readme.txt

8. SUMMARY

An airborne, high sensitivity, horizontal magnetic gradient and Matrix VLF-EM survey was performed over the Sunday Lake Project located approximately 28 km north of Thunder Bay, Ontario. The survey was comprised of a **Main Block** and two small **East** and **West Blocks** flown with a mean terrain clearances of respectively 91.8 metres, 123.3 metres and 137.5 metres. The traverse line interval was 100 metres and control line intervals were 1000 metres. The aircraft mean speed was 209.9 km/hr (58.3 m/sec) with a data sample rate of 10 Hz, the equivalent data points are approximately 5.8 metres along the flight lines. The base of operations was at Thunder Bay International Airport (CYQT); a high sensitivity magnetic and a GPS base station was setup at a quiet and secure area at the airport. Throughout the survey this base station recorded the diurnal magnetic activity and was synchronized to the airborne data using GPS time.


The data were subjected to final processing to produce a digital archive and two glossy colour copies of the following maps:

- a) **Digital Terrain Model** with Flight Path
- b) **Magnetics:** Total Magnetic Intensity of tail sensor, Analytic Signal, Calculated Vertical Derivative, Measured Horizontal Gradients (East-West and North-South), Reconstructed Total Magnetic Field
- c) **MATRIX VLF-EM:** Amplitude of the Secondary Total Field from i) NAA, Cutler, ME, ii) NML, La Moure, ND and iii) NLK, Jim Creek, WA, and High-Pass Filter Products from all three frequencies.

The data has been archived as Geosoft database (GDB), GRID, and .JPEG formats; this report is included in the archive report in PDF format.

High resolution horizontal gradient magnetic data have provided a detailed data set which can be used to improve the magnetic mapping. The Matrix VLF-EM conductivity products show good correlation with both magnetic and geologic trends and have been successful in identifying and mapping the structural fabric across the survey area. Based on the merit of this data, additional inversion processing of the EM data is recommended to obtain resistivity products in order to potentially map lithologies independently from their magnetic properties.

Respectfully Submitted,


Charles Barrie, M.Sc., P. Geo.
Vice President
Terraquest Ltd.



9. APPENDICES

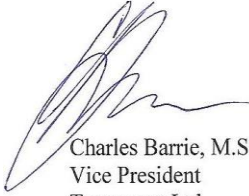
9.1. APPENDIX I - CERTIFICATE OF QUALIFICATION


I, Charles Q. Barrie, certify that I:

- 1) am registered as a Fellow with the Geological Association of Canada, as P. Geo. with the Association of Professional Geoscientists of Ontario and work professionally as a geologist,
- 2) hold an Honours degree in Geology from McMaster University, Canada, obtained in 1977,
- 3) hold an M.Sc. in Geology from Dalhousie University, Canada, obtained in 1980,
- 4) am a member of the Prospectors and Developers Association of Canada,
- 5) am a member of the Canadian Institute of Mining, Metallurgy and Petroleum,
- 6) have worked as a geologist for thirty-nine years,
- 7) am employed by and am a co-owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys for thirty-four years, and
- 8) have prepared this operations and specifications report pertaining to airborne data collected by Terraquest Ltd.

Markham, Ontario, Canada

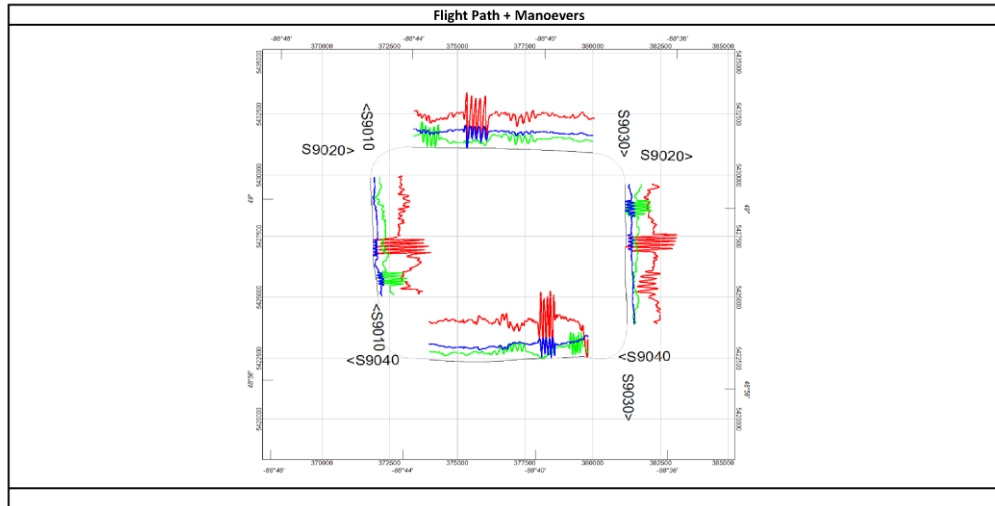
Signed


Charles Barrie, M.Sc., P. Geo.
Vice President
Terraquest Ltd.



9.2. APPENDIX II - MAGNETIC FIGURE OF MERIT (FOM)

B486-LAC DES ISLES MINES LTD. - Sunday L. Project / 2019			
Magnetic Figure of Merit Analysis (SRCDAT:111635, GLS1775)			
Job Ref:	B486	Date:	11-May-19
Aircraft:	C-GGLS		
Location:	Thunder Bay, ON		



FOM Index : Sensor 1												
Calculation note: Residual noise was isolated using a 101 pt Hanning high pass convolution filter with a subsequent low-pass filter (1.0 fid cutoff) applied to reduce non-related HF noise. Individual min-max values determined from the maximum consecutive peak-to-trough residual noise amplitude within each manoeuvre group												
LINE	DIR	TRAV FLG	PITCH		ROLL		YAW		P	R	Y	Σ
			MAX	MIN	MAX	MIN	MAX	MIN				
9010	N	FB	0.0171	-0.0266	0.0495	-0.0196	0.0029	-0.0570	0.0437	0.0690	0.0599	0.1726
9020	E		0.0104	-0.0411	0.0363	-0.0349	0.0033	-0.0348	0.0515	0.0712	0.0380	0.1607
9030	S	FB	-0.0152	-0.0606	0.0363	-0.0135	0.0928	0.0314	0.0454	0.0498	0.0614	0.1567
9040	W		0.0290	-0.0468	0.0469	-0.0801	0.0479	-0.0125	0.0757	0.1270	0.0604	0.2631
Σ									0.2163	0.3171	0.2197	0.7531
Full FOM Index :									0.7531			
Eq. Traverse FOM Index (Σ Trav x 2) :									0.6586			

FOM Index : Sensor 2												
LINE	DIR	TRAV FLG	PITCH		ROLL		YAW		P	R	Y	Σ
			MAX	MIN	MAX	MIN	MAX	MIN				
9010	N	FB	0.0282	-0.0194	0.0494	-0.0206	0.0208	-0.0570	0.0475	0.0701	0.0778	0.1954
9020	E		0.0081	-0.0527	0.0661	-0.0370	0.0516	-0.0782	0.0608	0.1031	0.1298	0.2937
9030	S	FB	-0.0102	-0.0562	0.0652	0.0044	0.1039	0.0292	0.0461	0.0608	0.0747	0.1816
9040	W		0.0349	-0.0320	0.0409	-0.0647	0.0566	-0.0097	0.0669	0.1056	0.0663	0.2388
Σ									0.2214	0.3396	0.3486	0.9096
Full FOM Index :									0.9096			
Eq. Traverse FOM Index (Σ Trav x 2) :									0.7541			

FOM Index : Sensor3												
LINE	DIR	TRAV FLG	PITCH		ROLL		YAW		P	R	Y	Σ
			MAX	MIN	MAX	MIN	MAX	MIN				
9010	N	FB	0.0213	-0.0237	0.0305	-0.0027	0.0119	-0.0409	0.0450	0.0333	0.0528	0.1310
9020	E		-0.0133	-0.0360	0.0236	-0.0085	0.0142	-0.0409	0.0226	0.0322	0.0551	0.1099
9030	S	FB	-0.0142	-0.0523	0.0405	0.0195	0.0782	0.0414	0.0381	0.0210	0.0368	0.0958
9040	W		0.0146	-0.0313	0.0009	-0.0433	0.0331	-0.0081	0.0459	0.0442	0.0413	0.1314
Σ									0.1516	0.1306	0.1859	0.4681
Full FOM Index :									0.4681			
Eq. Traverse FOM Index (Σ Trav x 2) :									0.4536			

9.3. APPENDIX III - FIELD OPERATIONS SUMMARY

1. Survey Diary

AC	DATE	COUNT	CLASS (by half day)		LKMS	ACCUM	COMMENT
C-GGLS	24-Apr-19	1	MOB/DEMOB	MOB/DEMOB			GLS1766,1767: ferry from Oshawa to Thunderbay
C-GGLS	25-Apr-19	2	SETUP	CALIBRATION			Noisy Base station location; out of spec FOM CAL
C-GGLS	26-Apr-19	3	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	27-Apr-19	4	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	28-Apr-19	5	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	29-Apr-19	6	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	30-Apr-19	7	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	1-May-19	8	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	2-May-19	9	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	3-May-19	10	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	4-May-19	11	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	5-May-19	12	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	6-May-19	13	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	7-May-19	14	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	8-May-19	15	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	9-May-19	16	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	10-May-19	17	MAINT (UNSCHED)	MAINT (UNSCHED)			Diagnose/Fix noise sources on C-GGLS + fix misc other problems
C-GGLS	11-May-19	18	MAINT (UNSCHED)	CALIBRATION			Successful FOM (solution matrix 2)
C-GGLS	12-May-19	19	TESTING	TESTING			VLF test flight (verify no interference)
C-GGLS	13-May-19	20	SURVEY	SURVEY	1278.99	1279.0	GLS1777, GLS1778; No diurnal data (Sensor failure)
C-GGLS	14-May-19	21	STANDBY/TQ	STANDBY/TQ			GLS1779(?)
C-GGLS	15-May-19	22	TRAINING	TRAINING			TRAINING: GLS1780, GLS1781, GLS1782
C-GGLS	16-May-19	23	SURVEY	SURVEY			Nate Walton departs for Toronto
C-GGLS	17-May-19	24	SURVEY	SURVEY	400.21	1679.2	GLS1783, GLS1784
C-GGLS	18-May-19	25	SURVEY	SURVEY	267.06	1946.3	GLS1785, GLS1786
C-GGLS	19-May-19	26	MAINT (SCHED)	MAINT (UNSCHED)	149.87	2096.1	
C-GGLS	20-May-19	27	MAINT (UNSCHED)	SURVEY			GLS1787
C-GGLS	21-May-19	28	MAINT (UNSCHED)	SURVEY	430.55	2526.7	GLS1788
C-GGLS	22-May-19	29	STANDBY/WX	STANDBY/WX			
C-GGLS	23-May-19	30	STANDBY/WX	STANDBY/WX			
C-GGLS	24-May-19	31	SURVEY	SURVEY	409.97	2936.6	GLS1789
C-GGLS	25-May-19	32	STANDBY/WX	STANDBY/WX			
C-GGLS	26-May-19	33	SURVEY	SURVEY	557.26	3493.9	GLS1790, GLS1791
C-GGLS	27-May-19	34	SURVEY	SURVEY	255.61	3749.5	GLS1792
C-GGLS	28-May-19	35	SURVEY	SURVEY	285.24	4034.8	GLS1793; ferry to Sioux Lookout for maintenance
C-GGLS	29-May-19	36	MAINT (SCHED)	MAINT (SCHED)			
C-GGLS	30-May-19	37	MAINT (SCHED)	SURVEY	264.87	4299.6	Return from Sioux Lookout; survey flight in afternoon GLS1796
C-GGLS	31-May-19	38	SURVEY	SURVEY	458.58	4758.2	GLS1797, GLS1798
C-GGLS	1-Jun-19	39	STANDBY/WX	STANDBY/WX			
C-GGLS	2-Jun-19	40	SURVEY	SURVEY	922.34	5680.6	GLS1799, GLS1800
C-GGLS	3-Jun-19	41	SURVEY	SURVEY	460.09	6140.6	GLS1801
C-GGLS	4-Jun-19	42	STANDBY/WX	STANDBY/WX			
C-GGLS	5-Jun-19	43	SURVEY	SURVEY	689.25	6829.9	GLS1802, GLS1803
C-GGLS	6-Jun-19	44	SURVEY	STANDBY/WX	161.49	6991.4	GLS1804
C-GGLS	7-Jun-19	45	SURVEY	SURVEY	313.69	7305.1	GLS1805, GLS1806
C-GGLS	8-Jun-19	46	SURVEY	SURVEY	200.45	7505.5	GLS1807, GLS1808
C-GGLS	9-Jun-19	47	STANDBY/WX	STANDBY/WX			
C-GGLS	10-Jun-19	48	STANDBY/WX	STANDBY/WX			
C-GGLS	11-Jun-19	49	SURVEY	MOB/DEMOB	150.72	7656.2	GLS1809 (Antenna Reflights); Survey ends: demob

9.4. APPENDIX IV – README

1. MAIN BLOCK

TERRAQUEST Data Archive Documentation
=====

TERRAQUEST reference : B486

Client: Lac des Iles Mines Ltd.
Project: Sunday Lake Project - MAIN BLOCK
Type: Horizontal Gradient Magnetics/MATRIX-VLF
Aircraft Type: Cessna 206
Aircraft ID: C-GGLS
Operations: Summer, 2019
Survey Base: Thunder Bay, ON
Archive Version: 190815
Prepared By: Allen Duffy

1. Data Organisation:

```
\---B486_MAIN
+---DATA
|       B486ARC_MAIN_190815.gdb
|
\---GRIDS
      AMP1_FNL.grd
      AMP1_FNL.grd.gi
      AMP1_FNL_HP.grd
      AMP1_FNL_HP.grd.gi
      AMP2_FNL.grd
      AMP2_FNL.grd.gi
      AMP2_FNL_HP.grd
      AMP2_FNL_HP.grd.gi
      AMP3_FNL.grd
      AMP3_FNL.grd.gi
      AMP3_FNL_HP.grd
      AMP3_FNL_HP.grd.gi
      ANSIGFNL.grd
      ANSIGFNL.grd.gi
      HGEWFNL.grd
      HGEWFNL.grd.gi
      HGNSFNL.grd
      HGNSFNL.grd.gi
      MAGFNL.grd
      MAGFNL.grd.gi
      RTF.grd
      RTF.grd.gi
      VDVFNL.grd
      VDVFNL.grd.gi
```

2. Database Contents: MAG/VLF (B486ARC_MAIN_190815.gdb) -

Data sampled at 10Hz ...

X_UTM_WIN	: UTM Easting - WGS84, UTM Zone 16N (metres)
Y_UTM_WIN	: UTM Northing - WGS84, UTM Zone 16N (metres)
DATE	: Flight Date (DD/MM/YYYY format - ASCII)
Flight	: Flight Number
FID	: Fiducial (UTC seconds)
TIME	: UTC TIME (hh:mm:ss.ss format)
RADAR	: Aircraft clearance (m AGL)

*Operations Report for Lac des Iles Mines Ltd.
Horizontal Magnetic Gradient & Matrix VLF-EM Airborne Survey, Sunday Lake, ON*

ALT : WGS84 Altitude (metres AMSL)
DTMFNL : Final Digital Terrain Model (m AMSL)
LAT : Latitude (decimal degrees)
LON : Longitude (decimal degrees)
DIUEDIT : Base Station Diurnal data (nT)
VMX : Fluxgate X component (nT)
VMY : Fluxgate Y component (nT)
VMZ : Fluxgate Z component (nT)
TF1UNC : Raw measured TMI (nT) - Left Wing
TF2UNC : Raw measured TMI (nT) - Right Wing
TF3UNC : Raw measured TMI (nT) - Tail
TF1CMP : Compensated, measured TMI (nT) - Left Wing
TF2CMP : Compensated, measured TMI (nT) - Right Wing
TF3CMP : Compensated, measured TMI (nT) - Tail
TF1CMPEDIT : Compensated, measured TMI - Spikes Removed (nT) - Left Wing
TF2CMPEDIT : Compensated, measured TMI - Spikes Removed (nT) - Right Wing
TF3CMPEDIT : Compensated, measured TMI - Spikes Removed (nT) - Tail
MAGFNL : Final, corrected measured TMI (nT) - Tail
HGEWFNL : Final, corrected, lagged East-West mag gradient (nT/m)
HGNSFNL : Final, corrected, lagged North-South mag gradient (nT/m)
SER06_AMP1 : MATRIX/VLF Amplitude - NAA
SER06_AMP2 : MATRIX/VLF Amplitude - NML
SER06_AMP3 : MATRIX/VLF Amplitude - NLK
SER06_DIR1 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NAA
SER06_DIR2 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NML
SER06_DIR3 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NLK
SER06_EP1 : MATRIX/VLF Ellipticity (Planar) - NAA
SER06_EP2 : MATRIX/VLF Ellipticity (Planar) - NML
SER06_EP3 : MATRIX/VLF Ellipticity (Planar) - NLK
SER06_EV1 : MATRIX/VLF Ellipticity (Vertical) - NAA
SER06_EV2 : MATRIX/VLF Ellipticity (Vertical) - NML
SER06_EV3 : MATRIX/VLF Ellipticity (Vertical) - NLK
SER06_TLT1 : MATRIX/VLF Tilt - NAA
SER06_TLT2 : MATRIX/VLF Tilt - NML
SER06_TLT3 : MATRIX/VLF Tilt - NLK
AMP1_FNL : Final, levelled, lagged Amplitude - NAA
AMP2_FNL : Final, levelled, lagged Amplitude - NML
AMP3_FNL : Final, levelled, lagged Amplitude - NLK
AMP1_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NAA
AMP2_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NML
AMP3_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NLK
IP1_LAG_ML : Processed InPhase - NAA
QD1_LAG_ML : Processed Quadrature - NAA
IP2_LAG_ML : Processed InPhase - NML
QD2_LAG_ML : Processed Quadrature - NML
IP3_LAG_ML : Processed InPhase - NLK
QD3_LAG_ML : Processed Quadrature - NLK

3. Data Grids

Grids prepared using Bi-Directional (Akima) spline with a 25m grid cell size.

DTMFNL.grd : Digital Terrain Model (m AMSL)
AMP1_FNL.grd : Final, levelled, lagged Amplitude - NAA
AMP1_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NAA
AMP2_FNL.grd : Final, levelled, lagged Amplitude - NML
AMP2_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NML
AMP3_FNL.grd : Final, levelled, lagged Amplitude - NLK
AMP3_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NLK
ANSIGFNL.grd : Analytic Signal (calculated from MAGFNL)
HGEWFNL.grd : East-West mag gradient (nT/m)
HGNSFNL.grd : North-South mag gradient (nT/m)
MAGFNL.grd : Final, corrected measured Total Magnetic Intensity (nT) - Tail
RTF.grd : Reconstructed Total Magnetic Field (from measured gradients)
VDVFNL.grd : Calculated First Vertical Magnetic Derivative (nT/m)

2. WEST BLOCK

TERRAQUEST Data Archive Documentation
=====

TERRAQUEST reference : B486

Client: Lac des Iles Mines Ltd.
Project: Sunday Lake Project - WEST BLOCK
Type: Horizontal Gradient Magnetism/MATRIX-VLF
Aircraft Type: Cessna 206
Aircraft ID: C-GGLS
Operations: Summer, 2019
Survey Base: Thunder Bay, ON
Archive Version: 190816
Prepared By: Allen Duffy

1. Data Organisation:

```
\---B486_WEST
+---DATA
|      B486ARC_WEST_190816.gdb
|
\---GRIDS
      AMP1_FNL.grd
      AMP1_FNL.grd.gi
      AMP1_FNL_HP.grd
      AMP1_FNL_HP.grd.gi
      AMP2_FNL.grd
      AMP2_FNL.grd.gi
      AMP2_FNL_HP.grd
      AMP2_FNL_HP.grd.gi
      AMP3_FNL.grd
      AMP3_FNL.grd.gi
      AMP3_FNL_HP.grd
      AMP3_FNL_HP.grd.gi
      ANSIGFNL.grd
      ANSIGFNL.grd.gi
      HGEWFNL.grd
      HGEWFNL.grd.gi
      HGNSFNL.grd
      HGNSFNL.grd.gi
      MAGFNL.grd
      MAGFNL.grd.gi
      RTF.grd
      RTF.grd.gi
      VDVFNL.grd
      VDVFNL.grd.gi
```

2. Database Contents: MAG/VLF (B486ARC_WEST_190816.gdb) -

Data sampled at 10Hz ...

```
X_UTM_WIN      : UTM Easting - WGS84, UTM Zone 16N (metres)
Y_UTM_WIN      : UTM Northing - WGS84, UTM Zone 16N (metres)
DATE           : Flight Date (DD/MM/YYYY format - ASCII)
Flight         : Flight Number
FID            : Fiducial (UTC seconds)
TIME           : UTC TIME (hh:mm:ss.ss format)
RADAR          : Aircraft clearance (m AGL)
ALT            : WGS84 Altitude (metres AMSL)
DTMFNL        : Final Digital Terrain Model (m AMSL)
LAT            : Latitude (decimal degrees)
LON            : Longitude (decimal degrees)
DIUEDIT       : Base Station Diurnal data (nT)
VMX            : Fluxgate X component (nT)
VMY            : Fluxgate Y component (nT)
```

*Operations Report for Lac des Iles Mines Ltd.
Horizontal Magnetic Gradient & Matrix VLF-EM Airborne Survey, Sunday Lake, ON*

VMZ : Fluxgate Z component (nT)
TF1UNC : Raw measured TMI (nT) - Left Wing
TF2UNC : Raw measured TMI (nT) - Right Wing
TF3UNC : Raw measured TMI (nT) - Tail
TF1CMP : Compensated,measured TMI (nT) - Left Wing
TF2CMP : Compensated,measured TMI (nT) - Right Wing
TF3CMP : Compensated,measured TMI (nT) - Tail
TF1CMPEDIT : Compensated,measured TMI - Spikes Removed (nT) - Left Wing
TF2CMPEDIT : Compensated,measured TMI - Spikes Removed (nT) - Right Wing
TF3CMPEDIT : Compensated,measured TMI - Spikes Removed (nT) - Tail
MAGFNL : Final, corrected measured TMI (nT) - Tail
HGEWFNL : Final, corrected, lagged East-West mag gradient (nT/m)
HGNSFNL : Final, corrected, lagged North-South mag gradient (nT/m)
SER06_AMP1 : MATRIX/VLF Amplitude - NAA
SER06_AMP2 : MATRIX/VLF Amplitude - NML
SER06_AMP3 : MATRIX/VLF Amplitude - NLK
SER06_DIR1 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NAA
SER06_DIR2 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NML
SER06_DIR3 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NLK
SER06_EP1 : MATRIX/VLF Ellipticity (Planar) - NAA
SER06_EP2 : MATRIX/VLF Ellipticity (Planar) - NML
SER06_EP3 : MATRIX/VLF Ellipticity (Planar) - NLK
SER06_EV1 : MATRIX/VLF Ellipticity (Vertical) - NAA
SER06_EV2 : MATRIX/VLF Ellipticity (Vertical) - NML
SER06_EV3 : MATRIX/VLF Ellipticity (Vertical) - NLK
SER06_TLT1 : MATRIX/VLF Tilt - NAA
SER06_TLT2 : MATRIX/VLF Tilt - NML
SER06_TLT3 : MATRIX/VLF Tilt - NLK
AMP1_FNL : Final, levelled, lagged Amplitude - NAA
AMP2_FNL : Final, levelled, lagged Amplitude - NML
AMP3_FNL : Final, levelled, lagged Amplitude - NLK
AMP1_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NAA
AMP2_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NML
AMP3_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NLK
IP1_LAG_ML : Processed InPhase - NAA
QD1_LAG_ML : Processed Quadrature - NAA
IP2_LAG_ML : Processed InPhase - NML
QD2_LAG_ML : Processed Quadrature - NML
IP3_LAG_ML : Processed InPhase - NLK
QD3_LAG_ML : Processed Quadrature - NLK

3. Data Grids

Grids prepared using Bi-Directional (Akima) spline with a 25m grid cell size.

DTMFNL.grd : Digital Terrain Model (m AMSL)
AMP1_FNL.grd : Final, levelled, lagged Amplitude - NAA
AMP1_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NAA
AMP2_FNL.grd : Final, levelled, lagged Amplitude - NML
AMP2_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NML
AMP3_FNL.grd : Final, levelled, lagged Amplitude - NLK
AMP3_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NLK
ANSIGFNL.grd : Analytic Signal (calculated from MAGFNL)
HGEWFNL.grd : East-West mag gradient (nT/m)
HGNSFNL.grd : North-South mag gradient (nT/m)
MAGFNL.grd : Final, corrected measured Total Magnetic Intensity (nT) - Tail
RTF.grd : Reconstructed Total Magnetic Field (from measured gradients)
VDVFNL.grd : Calculated First Vertical Magnetic Derivative (nT/m)

3. EAST BLOCK

TERRAQUEST Data Archive Documentation
=====

TERRAQUEST reference : B486

Client: Lac des Iles Mines Ltd.
Project: Sunday Lake Project - EAST BLOCK
Type: Horizontal Gradient Magnetism/MATRIX-VLF
Aircraft Type: Cessna 206
Aircraft ID: C-GGLS
Operations: Summer, 2019
Survey Base: Thunder Bay, ON
Archive Version: 190816
Prepared By: Allen Duffy

1. Data Organisation:

```
\---B486_EAST
+---DATA
|       B486ARC_EAST_190816.gdb
|
\---GRIDS
      AMP1_FNL.grd
      AMP1_FNL.grd.gi
      AMP1_FNL_HP.grd
      AMP1_FNL_HP.grd.gi
      AMP2_FNL.grd
      AMP2_FNL.grd.gi
      AMP2_FNL_HP.grd
      AMP2_FNL_HP.grd.gi
      AMP3_FNL.grd
      AMP3_FNL.grd.gi
      AMP3_FNL_HP.grd
      AMP3_FNL_HP.grd.gi
      ANSIGFNL.grd
      ANSIGFNL.grd.gi
      HGEWFNL.grd
      HGEWFNL.grd.gi
      HGNSFNL.grd
      HGNSFNL.grd.gi
      MAGFNL.grd
      MAGFNL.grd.gi
      RTF.grd
      RTF.grd.gi
      VDVFNL.grd
      VDVFNL.grd.gi
```

2. Database Contents: MAG/VLF (B486ARC_EAST_190816.gdb) -

Data sampled at 10Hz ...

```
X_UTM_WIN      : UTM Easting - WGS84, UTM Zone 16N (metres)
Y_UTM_WIN      : UTM Northing - WGS84, UTM Zone 16N (metres)
DATE           : Flight Date (DD/MM/YYYY format - ASCII)
Flight         : Flight Number
FID            : Fiducial (UTC seconds)
TIME           : UTC TIME (hh:mm:ss.ss format)
RADAR          : Aircraft clearance (m AGL)
ALT            : WGS84 Altitude (metres AMSL)
DTMFNL        : Final Digital Terrain Model (m AMSL)
LAT            : Latitude (decimal degrees)
LON            : Longitude (decimal degrees)
DIUEDIT       : Base Station Diurnal data (nT)
VMX            : Fluxgate X component (nT)
VMY            : Fluxgate Y component (nT)
```

*Operations Report for Lac des Iles Mines Ltd.
Horizontal Magnetic Gradient & Matrix VLF-EM Airborne Survey, Sunday Lake, ON*

VMZ : Fluxgate Z component (nT)
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 TF2UNC : Raw measured TMI (nT) - Right Wing
 TF3UNC : Raw measured TMI (nT) - Tail
 TF1CMP : Compensated,measured TMI (nT) - Left Wing
 TF2CMP : Compensated,measured TMI (nT) - Right Wing
 TF3CMP : Compensated,measured TMI (nT) - Tail
 TF1CMPEDIT : Compensated,measured TMI - Spikes Removed (nT) - Left Wing
 TF2CMPEDIT : Compensated,measured TMI - Spikes Removed (nT) - Right Wing
 TF3CMPEDIT : Compensated,measured TMI - Spikes Removed (nT) - Tail
 MAGFNL : Final, corrected measured TMI (nT) - Tail
 HGEWFNL : Final, corrected, lagged East-West mag gradient (nT/m)
 HGNSFNL : Final, corrected, lagged North-South mag gradient (nT/m)
 SER06_AMP1 : MATRIX/VLF Amplitude - NAA
 SER06_AMP2 : MATRIX/VLF Amplitude - NML
 SER06_AMP3 : MATRIX/VLF Amplitude - NLK
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 SER06_DIR3 : MATRIX/VLF Apparent Station Azimuth (referenced to Aircraft) - NLK
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 SER06_EP2 : MATRIX/VLF Ellipticity (Planar) - NML
 SER06_EP3 : MATRIX/VLF Ellipticity (Planar) - NLK
 SER06_EV1 : MATRIX/VLF Ellipticity (Vertical) - NAA
 SER06_EV2 : MATRIX/VLF Ellipticity (Vertical) - NML
 SER06_EV3 : MATRIX/VLF Ellipticity (Vertical) - NLK
 SER06_TLT1 : MATRIX/VLF Tilt - NAA
 SER06_TLT2 : MATRIX/VLF Tilt - NML
 SER06_TLT3 : MATRIX/VLF Tilt - NLK
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 AMP2_FNL : Final, levelled, lagged Amplitude - NML
 AMP3_FNL : Final, levelled, lagged Amplitude - NLK
 AMP1_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NAA
 AMP2_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NML
 AMP3_FNL_HP : Final, levelled, lagged, High Pass filtered Amplitude - NLK
 IP1_LAG_ML : Processed InPhase - NAA
 QD1_LAG_ML : Processed Quadrature - NAA
 IP2_LAG_ML : Processed InPhase - NML
 QD2_LAG_ML : Processed Quadrature - NML
 IP3_LAG_ML : Processed InPhase - NLK
 QD3_LAG_ML : Processed Quadrature - NLK

3. Data Grids

Grids prepared using Bi-Directional (Akima) spline with a 25m grid cell size.

DTMFNL.grd : Digital Terrain Model (m AMSL)
 AMP1_FNL.grd : Final, levelled, lagged Amplitude - NAA
 AMP1_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NAA
 AMP2_FNL.grd : Final, levelled, lagged Amplitude - NML
 AMP2_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NML
 AMP3_FNL.grd : Final, levelled, lagged Amplitude - NLK
 AMP3_FNL_HP.grd : Final, levelled, lagged, high pass filtered Amplitude - NLK
 ANSIGFNL.grd : Analytic Signal (calculated from MAGFNL)
 HGEWFNL.grd : East-West mag gradient (nT/m)
 HGNSFNL.grd : North-South mag gradient (nT/m)
 MAGFNL.grd : Final, corrected measured Total Magnetic Intensity (nT) - Tail
 RTF.grd : Reconstructed Total Magnetic Field (from measured gradients)
 VDVFNL.grd : Calculated First Vertical Magnetic Derivative (nT/m)

Additional Appendices:

The following appendices contains outstanding items required under ‘Technical Standards for Reporting Assessment Work’ guidelines; namely Section 8. Airborne Geophysical Survey Work.

Appendix A: Property Geology and Exploration History - 8. (vii)

Appendix B: Regional Geology - 8. (viii)

Appendix C: Flight Lines Over Claims – 8. (xv)

Appendix A: Property Exploration History - 8. (vii)

Limited exploration work has been completed on the Shabaqua Granitic Intrusion. Historic logging roads and trails must be used to access the property, and Non-Mining Land Tenure blocks overlap the northern section of the intrusion. 1401385 Ontario Inc. and Transition Metals Corp. currently hold claim cells within the Shabaqua Intrusion.

May 2019: Terraquest Ltd., contracted by North American Palladium, completed a Horizontal Magnetic Gradient & Matrix VLF-EM Airborne Survey that covered an area northwest of Thunder Bay, including the Shabaqua Intrusion.

September 2019: North American Palladium employees completed prospecting work on the property, collecting eight samples for geochemical analysis. Outcrops observed were dominantly felsic intrusive rocks related to the Shabaqua Intrusion, along with Archean metasediments and Nipigon Diabase.

Appendix B: Regional and Local Geology - 8. (viii)

Regional Geology

The claim group is located within the Quetico Subprovince (also termed the Quetico Basin) of the Superior Province in Ontario. Rocks of the Quetico Basin form a 1000 km east-west trending belt averaging 70 km in width - bounded to the north by the Wabigoon and Marmion Terranes and to the south by the Wawa Terrane (Percival, 2017). Turbiditic metasedimentary rocks dominant the Quetico Basin, along with minor iron formation, felsic intrusions, and mafic-ultramafic intrusions. These rocks are interpreted to have formed as an accretionary prism between the converging Wabigoon and Wawa Terranes (Percival, 1988).

Local Geology

The claim group is situated within the Shabaqua Granite Complex, part of a larger suite of granitic intrusions recognized as the Dog Lake Granite Chain (Kuzmich et al., 2012). This Granite Chain is host to six magnetite-bearing granitic intrusions, and can be identified through aeromagnetic surveys. These intrusions, from east to west, are Penasen Lake, White Lily, Barnum Lake, Trout Lake, Silver Falls, and Shabaqua intrusions. Kuzmich et al. (2012) have classified these granitic intrusions as varying from S-type to I-type granites based on petrologic and geochemical data.

The Shabaqua intrusion is the most poorly studied granitic complex within the Dog Lake Granite Chain. Host rocks vary in composition from Monzodiorite to Syenite, and are overlain by Archean metasedimentary rocks of the Quetico Basin and Nipigon Diabase related to the Mid-continent Rift.

References

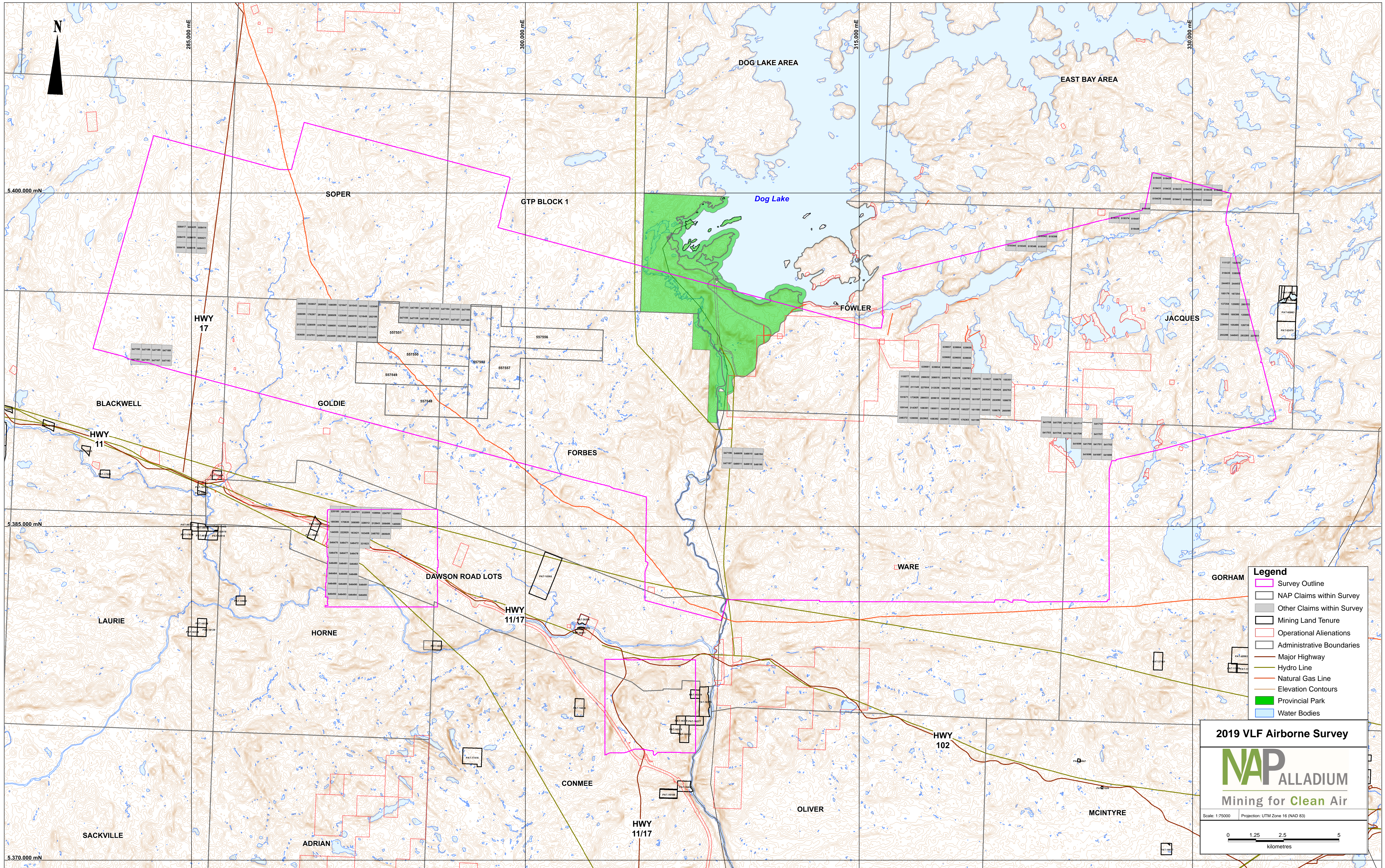
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Appendix C: Flight Lines Over Claims – 8. (xv)

The total line-kilometers flown for this survey are 7509.4 km. The total distance flown on NAP claims is 365 km over 7 claims.



Legend

- Survey Outline
- NAP Claims within Survey
- Other Claims within Survey
- Mining Land Tenure
- Operational Alienations
- Administrative Boundaries
- Major Highway
- Hydro Line
- Natural Gas Line
- Elevation Contours
- Provincial Park
- Water Bodies

2019 VLF Airborne Survey

NAP ALLADIUM

Mining for Clean Air

Scale: 1:75000 Projection: UTM Zone 16 (NAD 83)

0 1.25 2.5 5 kilometres