



## **Technical Report**

# **An Airborne Magnetic Gradient and Radiometric Survey in Minnesota, USA**

**Northern Minnesota  
2016**

**for**

**AngloGold Ashanti**



Sander Geophysics Limited  
260 Hunt Club Road  
Ottawa, ON Canada K1V 1C1

Tel: +1 613.521.9626  
Fax: +1 613.521.0215  
[www.sgl.com](http://www.sgl.com)



Martin Bates, Ph.D., P.Geo.

Lindsay Upiter, M.Sc.





## TABLE OF CONTENTS

<b>1.EXECUTIVE SUMMARY.....</b>	<b>1</b>
<b>2.INTRODUCTION.....</b>	<b>2</b>
Project Brief.....	3
<b>3.SURVEY AREA.....</b>	<b>4</b>
Survey Area Map.....	4
Survey Boundary.....	6
<b>4.SURVEY SPECIFICATIONS.....</b>	<b>7</b>
Data Recording.....	7
Technical Specifications.....	7
Flight Line Specifications.....	8
Survey Ground Speed.....	8
Terrain Clearance.....	8
<b>5.SURVEY EQUIPMENT.....</b>	<b>9</b>
Airborne Navigation and Data Acquisition System.....	9
Aerial and Ground Magnetometers.....	9
Magnetic Compensation System.....	9
Airborne Gamma-Ray Spectrometer System.....	9
Reference Station Acquisition System.....	10
Reference Station And Airborne Acquisition System GPS Receivers.....	10
Altimeters.....	10
Air Temperature Sensor.....	11
Survey Aircraft.....	11
Data Processing Hardware and Software.....	11
<b>6.SYSTEM TESTS.....</b>	<b>12</b>
Magnetometer System Tests.....	12
<i>Magnetometer Heading Test.....</i>	<i>12</i>
<i>Compensation Calibration.....</i>	<i>12</i>
<i>Instrumentation Lag.....</i>	<i>13</i>
Spectrometer System Tests.....	13
<i>Ground Calibration Pads Test.....</i>	<i>13</i>
<i>Attenuation Test.....</i>	<i>14</i>
<i>System Sensitivity.....</i>	<i>18</i>
<i>Cosmic and Aircraft Background.....</i>	<i>19</i>
<i>Radon Background Calibration.....</i>	<i>20</i>
<i>Ground Component.....</i>	<i>21</i>
<i>Pre- And Post-Flight Test Lines.....</i>	<i>22</i>
<i>Thorium Source Tests.....</i>	<i>24</i>
Altimeter System, Position And Digital Terrain Model Tests.....	27
<i>Radar And Laser Altimeter Calibration.....</i>	<i>27</i>
<i>Digital Terrain Model Test.....</i>	<i>28</i>
<b>7.FIELD OPERATIONS.....</b>	<b>29</b>

Reference Stations.....	30
Re-flights.....	30
Field Personnel.....	32
<b>8.DATA COMPILATION AND PROCESSING.....</b>	<b>33</b>
Magnetometer Data.....	34
<i>Lag Correction.....</i>	34
<i>Diurnal Correction.....</i>	34
<i>IGRF Correction.....</i>	35
<i>Height Correction.....</i>	35
<i>Levelling.....</i>	36
<i>Micro-Levelling.....</i>	36
<i>Gridding.....</i>	37
Processing of Measured Magnetic Gradients.....	39
<i>Raw Gradient Calculation.....</i>	39
<i>Lag Correction.....</i>	39
<i>Bias and Orientation Correction.....</i>	40
<i>Levelling.....</i>	41
<i>Gridding.....</i>	41
<i>Calculation of Enhanced Residual Magnetic Field.....</i>	42
Spectrometer Data.....	44
<i>Spectral Component Analysis.....</i>	44
<i>Standard Correction Coefficients.....</i>	46
<i>Dead-time correction.....</i>	50
<i>Calculation of effective height above ground level (AGL).....</i>	50
<i>Height Limit.....</i>	50
<i>Removal of cosmic radiation and aircraft background radiation.....</i>	50
Radon background corrections.....	51
<i>Stripping.....</i>	51
<i>Altitude attenuation correction.....</i>	52
<i>Conversion to radio element concentration and Dose Rate.....</i>	52
<i>Background Adjustments.....</i>	53
<i>Precipitation Adjustments.....</i>	53
<i>Micro-Levelling.....</i>	53
<i>Data gridding.....</i>	54
<i>Element Ratios.....</i>	54
<i>Ternary Radioelement Map.....</i>	54
Positional Data.....	56
Radar, Barometric, and Laser Altimeter Data.....	57
<b>9.FINAL PRODUCTS.....</b>	<b>58</b>
Magnetic Line Data Format.....	58
Magnetic Gradient Line Data Format.....	59
Radiometric Line Data Format.....	60
Digital Grids.....	62
Maps.....	63

## LIST OF FIGURES

Figure 1: Survey Area with the boundaries of the Main Block and Extension shown.....	4
Figure 2: Survey Area Flight Lines.....	5
Figure 3: Spectrometer attenuation test C-GSGL.....	16
Figure 4: Spectrometer attenuation test C-GSGV.....	17
Figure 5: Spectrometer attenuation test C-GSGW.....	17

Figure 6: Over water test line location at Lake Winnibigoshish, Minnesota, marked by the yellow line.....	20
Figure 7: Daily test line location near Grand Rapids, Minnesota, marked by the yellow line.....	22
Figure 8: Thorium test line results from all three aircraft.....	23
Figure 9: Thorium source test C-GSGL.....	25
Figure 10: Thorium source test C-GSGV.....	25
Figure 11: Thorium source test C-GSGW.....	26
Figure 12: Altimeter test C-GSGL.....	27
Figure 13: Altimeter test C-GSGV.....	28
Figure 14: Altimeter test C-GSGW.....	28
Figure 15: Magnetometer data processing flowchart.....	33
Figure 16: Area selected for additional microlevelling indicated by the black box.....	37
Figure 17: Magnetometer Gradiometer data processing chart.....	38
Figure 18: Spectrometer data processing flowchart.....	43
Figure 19: Spectral components 0 to 9.....	45
Figure 20: Spectral components 10 to 16 and 60.....	46
Figure 21: Positional data processing flowchart.....	56

## LIST OF TABLES

Table 1: Simplified Survey Boundaries – Main Block (WGS-84, UTM 15N).....	6
Table 2: Simplified Survey Boundaries – Extension (WGS-84, UTM 15N).....	6
Table 3: Flight line specifications.....	8
Table 4: Heading test result summary.....	12
Table 5: Magnetic compensation calibration tests and results.....	13
Table 6: Spectrometer stripping ratios C-GSGL.....	14
Table 7: Spectrometer stripping ratios C-GSGV.....	14
Table 8: Spectrometer stripping ratios C-GSGW.....	14
Table 9: Spectrometer calibration test data C-GSGL.....	15
Table 10: Spectrometer calibration test data C-GSGV.....	15
Table 11: Spectrometer calibration test data C-GSGW.....	15
Table 12: Spectrometer attenuation coefficients C-GSGL.....	16
Table 13: Spectrometer attenuation coefficients C-GSGV.....	16
Table 14: Spectrometer attenuation coefficients C-GSGW.....	16
Table 15: Spectrometer system sensitivities C-GSGL.....	18
Table 16: Spectrometer system sensitivities C-GSGV.....	18
Table 17: Spectrometer system sensitivities C-GSGW.....	18
Table 18: Cosmic coefficients for C-GSGL.....	19
Table 19: Cosmic coefficients for C-GSGV.....	19
Table 20: Cosmic coefficients for C-GSGW.....	19
Table 21: Radon correction coefficients C-GSGL.....	21
Table 22: Radon correction coefficients C-GSGV.....	21
Table 23: Radon correction coefficients C-GSGW.....	21
Table 24: Spectrometer ground component coefficients C-GSGL.....	21
Table 25: Spectrometer ground component coefficients C-GSGV.....	22
Table 26: Spectrometer ground component coefficients C-GSGW.....	22
Table 27: Approximate aircraft parking locations.....	29

Table 28: Locations of reference stations.....	30
Table 29: Re-flight list.....	30
Table 30: Survey field crew.....	32
Table 31: Gradient biases.....	40
Table 32: C-GSGW Spectrometer processing parameters.....	47
Table 33: C-GSGL Spectrometer processing parameters.....	48
Table 34: C-GSGV Spectrometer processing parameters.....	49
Table 35: Ellipsoid parameters for WGS-84.....	57
Table 36: Magnetic line data channels and format.....	58
Table 37: Magnetic gradient line data channels and format.....	59
Table 38: Radiometric line data channels and format.....	60
Table 39: Delivered digital grids.....	62
Table 40: Delivered maps, hard copy and digitally (xx refers to sheets 01 through 07).....	63
Table 41: Delivered maps, hard copy and digitally (sheets East and West).....	63

## LIST OF PICTURES

Picture 1: Typical scenery in northern Minnesota.....	2
Picture 2: Bald eagle in the survey area.....	2
Picture 3: Local scenery in northern Minnesota.....	4
Picture 4: View of the survey area of northern Minnesota from the survey aircraft.....	6
Picture 5: Preparing the aircraft for a survey flight.....	8
Picture 6: Reference station REF1 setup with sensor in the background.....	10
Picture 7: Preparing the aircraft for a survey flight.....	29

## Appendix

- I. Sander Geophysics Company Profile
- II. Planned Survey Lines
- III. Flown Survey Lines
- IV. Survey Equipment List
- V. Survey Aircraft
- VI. Heading Test Results
- VII. Compensation Calibration Test Results
- VIII. Lag Test Results
- IX. Cosmic & Aircraft Background Calibration
- X. Radon Calibration
- XI. Weekly Reports
- XII. Low Pass Filter Charts
- XIII. Background Adjustments
- XIV. Scaling Adjustments
- XV. Maps

## 1. EXECUTIVE SUMMARY

Sander Geophysics Limited (SGL) conducted a fixed-wing high resolution aeromagnetic gradient and gamma-ray spectrometric survey in northern Minnesota for AngloGold Ashanti. Please refer to *Appendix I* for a Company Profile of SGL.

The survey was flown using three of SGL's Cessna Grand Caravan 208B, registrations C-GSGW, C-GSGL, C-GSGV. Production flights commenced on September 28, 2016 and data acquisition was completed on January 7, 2017. A total of 71 flights were flown, 33 flights with C-GSGW (1002-1034), 24 flights with C-GSGL (2001-2024), and 14 flights with C-GSGV (3002-3015) during the survey to complete the planned 52,093 line kilometres. The survey operations were conducted from Grand Rapids-Itasca County Airport (KGPZ), Grand Rapids, Minnesota.

The traverse lines are oriented parallel to UTM North and spaced at 100 m, while the control lines are oriented parallel to UTM East and spaced at 1,000 m. A drape surface was created taking into account the terrain and the performance of the aircraft at the modelled altitudes and estimated temperature. The survey was flown with a target clearance of 100 m above ground level and a target average ground speed of 110 knots.

## 2. INTRODUCTION

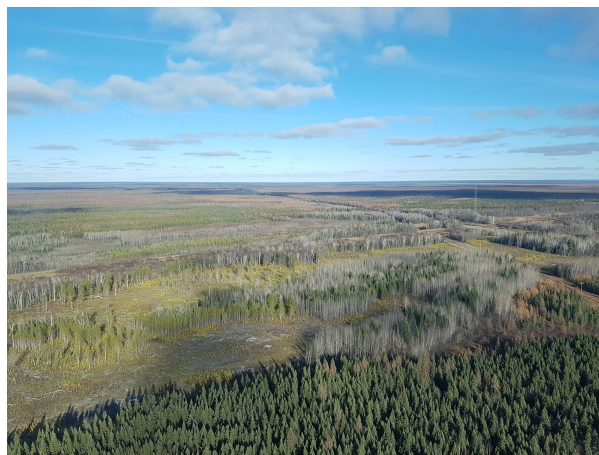
This report describes the survey that Sander Geophysics Limited (SGL) flew for AngloGold Ashanti in the fall and early winter of 2016/2017 in northern Minnesota.

Magnetic gradiometry and radiometric data were gathered during this survey. The instruments used to collect the data are described in this report as well as the tests performed to ensure optimal data quality.

The Field Operations section contains all information relating to operations at the survey location including the airport used, reference station coordinates and any problems encountered during the survey. Re-flights are listed as well as field crew members.

The Digital Data Compilation section details all processing performed from data acquisition to final product creation.

One page colour maps of all the survey data types which are included in the appendices, give a meaningful overview of the extensive data gathered.



*Picture 1: Typical scenery in northern Minnesota*



*Picture 2: Bald eagle in the survey area*

The following Project Brief gives a quick reference of the details of the survey.

## Project Brief

<b>Survey Title</b>	An Airborne Magnetic Gradient and Radiometric Survey in Minnesota, USA
Client:	AngloGold Ashanti
Survey Location:	northern Minnesota
Survey Start Date:	September 28, 2016
Survey End Date:	January 7, 2017
Contact & Technical Inspector:	<a href="mailto:KMartin@AngloGoldAshanti.com">Keith Martin (KMartin@AngloGoldAshanti.com)</a>
Field Office Location:	Grand Rapids, Minnesota
Airport Used:	Grand Rapids-Itasca County Airport (KGPZ)
Aircraft Type:	Cessna Grand Caravan 208B
Total line kilometres:	52,093
<b>Survey Flying Particulars</b>	
Traverse Lines	
Line numbers:	Main Block: 1001 to 2194, Extension: 3193-3302
Line direction:	parallel to UTM North
Line spacing:	100 m
Control Lines	
Line numbers:	Main Block: 101-160, Extension: 328-341
Line direction:	parallel to UTM East
Line spacing:	1,000 m
Survey Altitude:	smoothed drape with target height of 100 m above ground.
Digital Terrain Source:	SRTM ( <a href="http://earthexplorer.usgs.gov">http://earthexplorer.usgs.gov</a> )
Number of Flights (numbers):	71
Aircraft Target Ground Speed	110 knots
<b>Data</b>	
General Survey Base Parking Location (WGS-84):	N47:12:43.51 W093:30:54.43 366m
Base Station Locations (WGS-84)	REF1: N47:12:13.5800 W093:31:14.2000 420.00m REF2: N47:57:09.2432 W093:45:07.8871 351.37m
Delivery Datum:	WGS-84
Projection:	UTM 15N

### 3. SURVEY AREA

The region is covered by forests and a network of lakes and rivers. The terrain is relatively flat for most of the survey area, varying from approximately 340 m to approximately 575 m above mean sea level (MSL). There is some human presence in the block including small towns, cottages, farms and hunting camps, and significant human presence in the cities surrounding the block. The weather in the region varied over the course of the survey. In October, clear skies and temperatures around 5°C were common. After a break in operations during the hunting season, snow was a common occurrence as were temperatures below -10°C.



Picture 3: Local scenery in northern Minnesota

#### Survey Area Map

The survey, although defined as two separate areas ("Main" and "Extension"), was flown as a single contiguous block. Figure 1 shows the geographical location of the survey area. The planned survey lines are illustrated in Figure 2 and listed in Appendix II. Some lines near the town of Cook were excluded from the survey plan.

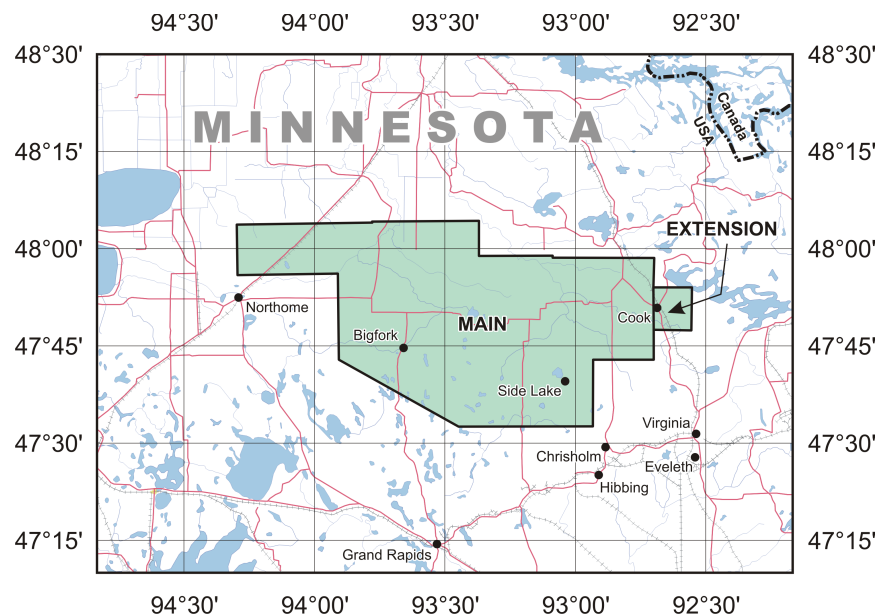


Figure 1: Survey Area with the boundaries of the Main Block and Extension shown.



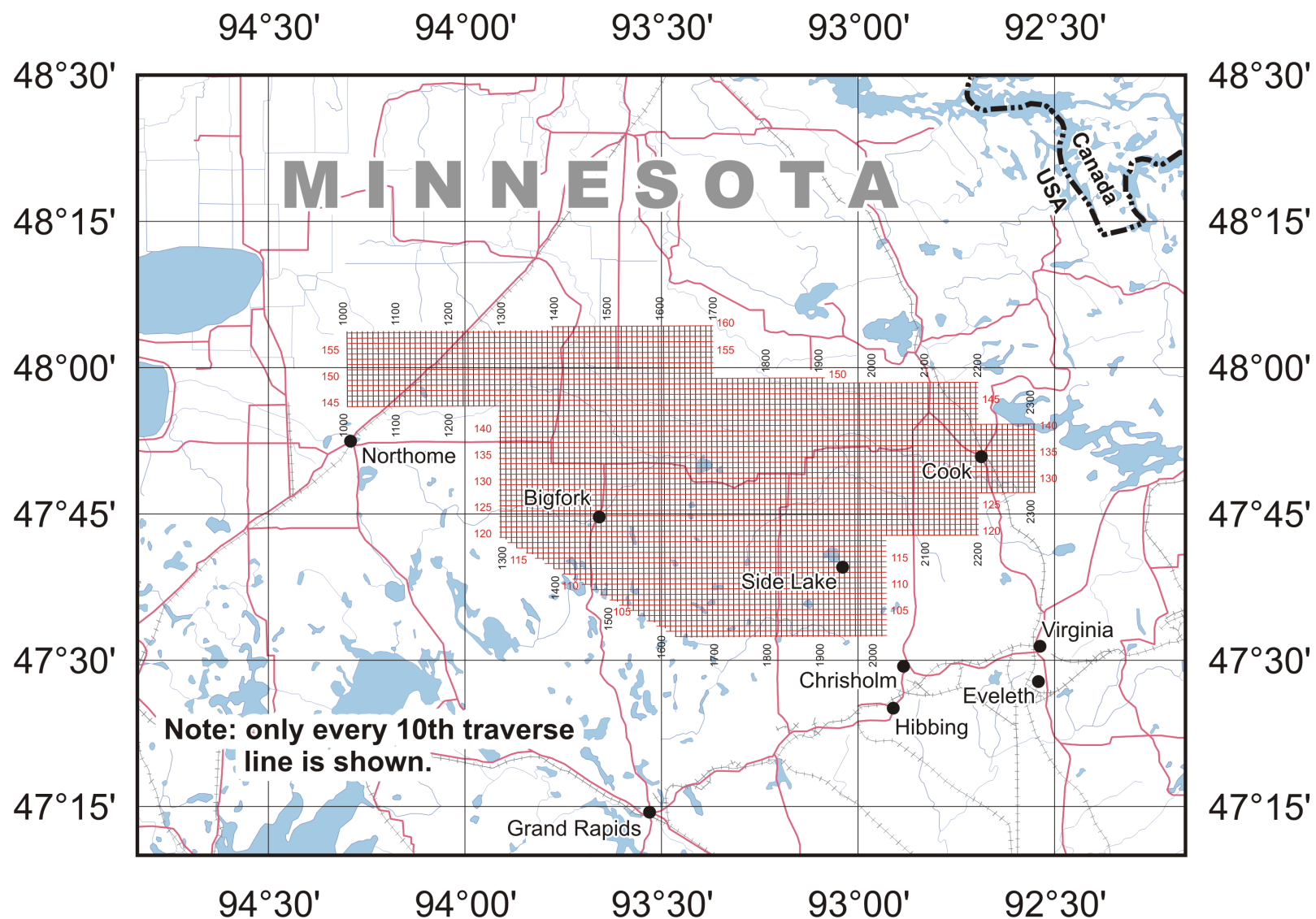


Figure 2: Survey Area Flight Lines

## Survey Boundary

The blocks are bounded by the coordinates provided in *Tables 1* and *2*.

*Table 1: Simplified Survey Boundaries – Main Block (WGS-84, UTM 15N)*

Easting (m)	Northing (m)
403299.3381	5324200.9318
441999.3432	5324200.9322
441999.3432	5324500.9322
472459.3473	5324523.9326
472459.3474	5314498.9312
493524.3503	5314498.9315
493524.3503	5313928.9314
522552.3542	5313928.9318
522552.3546	5284802.9278
505099.3522	5284802.9276
505099.3525	5265700.925
466299.3472	5265700.9245
431999.3423	5285200.9268
431999.3421	5309800.9301
403299.3382	5309800.9299

*Table 2: Simplified Survey Boundaries – Extension (WGS-84, UTM 15N)*

Easting (m)	Northing (m)
522383.9196	522383.9196
522561.1659	522561.1659
533373.1948	533373.1948
533284.5716	533284.5716
522472.5428	522472.5428



*Picture 4: View of the survey area of northern Minnesota from the survey aircraft*

## 4. SURVEY SPECIFICATIONS

### Data Recording

In the aircraft:

- GPS positional data (time, latitude, longitude, altitude and raw range from each satellite being tracked) 10 readings per second (10 Hz);
- Altitude as measured by the barometric altimeter at 10 readings per second (10 Hz);
- Terrain clearance as measured by the radar altimeter at 10 readings per second (10 Hz);
- Terrain clearance as measured by the laser rangefinder at 3.3 readings per second (3.3 Hz);
- Total magnetic field recorded at 160 readings per second (160 Hz) from the port wingtip sensor (Mag1), the starboard wingtip sensor (Mag2) and the tail stinger sensor (Mag3);
- Airborne spectrometer data recorded in windowed and 256 channel spectral format at 1 reading per second (1 Hz);
- Outside air temperature at 10 readings per second (10 Hz);

At the base and remote magnetic/GPS reference stations:

- Total magnetic field at 11 readings per second (11 Hz);
- GPS positional data (time, latitude, longitude, and raw range from each satellite being tracked) at 10 readings per second (10 Hz).

### Technical Specifications

The following technical specifications were adhered to:

- The noise level of the airborne magnetometer may not exceed 0.10 nT, using a normalized 4<sup>th</sup> difference, for a distance greater than 1000m cumulatively along a line.
- The noise level of the ground magnetometer may not exceed an envelope of +/- 0.10 nT for a period of three (3) minutes or more while on line.
- No traverse line data will be accepted within 5 minutes of those periods where the change in diurnal field exceeds 20nT per 20 minute chord. No data will be accepted where the diurnal exhibits non-linear variation of 10nT over 10 minutes. No line data will be accepted where the base station recorded magnetometer instrument noise levels are in excess of 2nT for periods longer than 10 minutes or more, or where the base station has ceased to function for periods of 10 minutes or more.
- Horizontal deviation from theoretical lines must not exceed 20 m for a distance greater than 1 km and not greater than 50 m in any instance, subject to safety considerations.
- Vertical deviation from planed drape surface must not exceed 10 m for a distance greater than 2 km and not greater than 30 m in any instance, subject to safety considerations.
- Accuracy of the position of the aircraft must not exceed 1 m in X, Y, or Z after differential correction.
- Data gaps must not exceed 0.5 sec in any of time, airborne or ground GPS xyz, or airborne magnetometer
- Thorium peak drift must not exceed 12Kev and the FWHM of the Thorium peak for the system must not exceed 7% as measured during stabilization.
- The airborne magnetometer Figure of Merit (FOM) must not exceed 1.5 nT with all equipment operating

## Flight Line Specifications

The survey area flight line specifications are listed in the following table. The line direction is with respect to the UTM zone reference frame.

*Table 3: Flight line specifications*

	Line Direction	Line Spacing (m)
Traverse Lines	parallel to UTM North	100
Control Lines	parallel to UTM East	1,000

## Survey Ground Speed

The survey target average ground speed was 110 knots.

## Terrain Clearance

A pre-planned drape surface was prepared for the survey to guide the aircraft over the topography in a consistent manner, as close to the minimum clearance as possible. The drape surface was prepared with digital elevation model (DEM) data obtained from the Shuttle Radar Topography Mission (<http://srtm.usgs.gov/>) for the area in question. The DEM included an extension beyond the survey boundary to allow the aircraft to achieve the drape clearance before coming on line.

The drape surface created used a climb and descent rate of 375 ft/nm at sea level and 350 ft/nm at an altitude of 533 m above sea level (ASL). Interpolation or extrapolation was used to calculate climb and descent rates for the smooth surface for all locations. The temperature component used for the calculation was based on published weather history. The gentle drape surface created was below the maximum climbing and descending capabilities of the survey aircraft and guided the aircraft as close to the target height above the terrain as possible in all locations whilst retaining reasonable safety margins. Initially the target height was set at 60 m, but was raised to 100 m after a reconnaissance flight revealed the presence of many tall trees in the survey area. The drape was artificially raised to achieve clearances of 1000' over the towns of Northome and Bigfork and the area with a high density of cottages around the lakes near Side Lake. Other farms and cottages were overflown at 500' as per the pilots discretion, resulting in some parts of lines flown above the target drape. This approach was adopted as the best compromise between flying a consistent survey height and flying as low as possible. In order to minimise the impact of the town of Cook on survey height, several control lines were truncated at their eastern end. However, during the survey, an extension including Cook was added to the survey area. The drape was raised to achieve 1000' clearance over Cook, but to minimise the difference in survey altitude along the Main and Extension Block boundary and in the Extension, the drape was prepared for the traverse line direction only (ie. north-south). This approach was made possible by the flat terrain of the Extension and the removal of a couple of control lines.



*Picture 5: Preparing the aircraft for a survey flight*

## 5. SURVEY EQUIPMENT

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

### Airborne Navigation and Data Acquisition System

#### *Sander Geophysics Data Acquisition System (SGDAS)*

The SGDAS is the latest version of airborne navigation and data acquisition computers developed by SGL. It is the data gathering core for all the different types of survey data. The computer incorporates an altimeter analog to digital converter and a NovAtel GPS multi-frequency receiver (see the GPS Receivers section below for the details) which automatically provides the UTC time base for the recorded data. The system acquires the different data streams from the sensors and receives and processes GPS signals from the GPS antenna. Navigation information from the navigation side of the computer guides the pilots along the pre-planned flight path in all three dimensions. Profiles of the incoming data are displayed in real-time to the pilots for continuous monitoring. The data are recorded in database format on redundant solid-state data storage modules. The AIRGrav system incorporates an additional data acquisition system; Gravity DAS (GDAC). The GDAC controls the AIRGrav system records the data collected, and includes a separate user interface.

### 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 20,000 to 100,000 nT with a sensor noise of less than 0.0005 nT. The airborne sensor was mounted in a fibreglass stinger extending from the tail of the aircraft. The system included two additional sensors, housed in each wingtip pod. Total magnetic field measurements were recorded at 160 Hz in the aircraft, then later down sampled to 10 Hz in the processing. The ground systems recorded magnetic data at 11 Hz.

### Magnetic Compensation System

#### *Sander Geophysics AIRComp*

SGL's own hardware and software system, AIRComp, was used to remove the effects of the aircraft and its manoeuvres from the recorded magnetic data. This system records the magnetic field measured by up to 4 cesium magnetometers, as well as the three axis output of a fluxgate magnetometer. These data are recorded for post-processing. Calibration of the magnetic effects of the aircraft is carried out as described in section 6, System Tests. Coefficients to be used for compensation are derived by processing the calibration flight data. The compensation coefficients are applied to data recorded during normal survey operations to produce compensated magnetic data.

### Airborne Gamma-Ray Spectrometer System

#### *Exploranium GR820 with crystal detector packs GPX-1024*

The Exploranium spectrometer system includes an on-board computer for real-time signal processing and analysis, allowing automatic gain control for individual crystals using the natural thorium peak, and multi-channel recording and analysis. The system utilizes a NaI(Tl) detector volume of 58.8 L consisting of 12 downward-looking and 2 upward-looking parallelepiped crystals of 4.2 L each, housed in three detector packs. Data were recorded in 256 channel spectral mode and windowed data mode at an interval of 1 Hz.

## Reference Station Acquisition System

### *Sander Geophysics SGRef*

The SGRef reference (ground) station is a dual reference station. One half consists of a data acquisition computer with a cesium magnetometer interface and frequency counter to process the signal from the magnetometer sensor and from the GNSS receiver (see the GNSS and GPS Receivers section below for the details). The other half contains only a GNSS receiver. These two halves operate independently of each other. The time base (UTC) of both the ground and airborne systems is automatically provided by the GNSS receiver, ensuring proper merging of both data sets. All data are displayed on an LCD flat panel monitor. The magnetic data, sampled at 11 Hz and the GNSS data, sampled at 10 Hz, are recorded on solid state data storage modules. The entire reference data acquisition system was set for automatic, unattended recording. The noise level of the reference station magnetometer is less than 0.1 nT. An SGREF was established at REF1.

### *Sander Geophysics MSGRef*

The MSGRef (mini SGRef) consists of a data acquisition computer and a GNSS receiver (see the GPS Receivers section below for the details). All data are displayed on an LCD flat panel monitor. The GNSS data, sampled at 10 Hz, are recorded on the internal hard drive of the computer and the removable hard drive simultaneously for transfer to the processing computers in the field office. The entire reference data acquisition system is fully automatic and was set for unattended recording. An MSGRef was established at REF2.



*Picture 6: Reference station REF1 setup with sensor in the background*

## Reference Station And Airborne Acquisition System GPS Receivers

### *NovAtel OEMV-3 receiver board*

The NovAtel OEMV-3, multi-frequency GNSS (Global Navigation Satellite System) receiver is configurable up to 72 channels with the tracking of GPS (L1, L2, L5), GLONASS (L1, L2), SBAS, and L-band satellites and signals. It provides averaged position and raw range information of all satellites in view. GNSS positional data are recorded at 10 Hz.

## Altimeters

### *SGLas-P - Riegl LD90-31K-HiP Laser Rangefinder*

The Riegl laser altimeter uses a single optical laser beam to measure distance to the ground. It is effective over water and is eye safe. This profilometer has a range of 1500 m, a resolution of 0.01 m with an accuracy of 5 cm and a 3.3 Hz data rate.



*TRT ERT 530A Digital Radar Altimeter*

The TRT uses radio wave echoing to determine the height above ground. It will generally “see through” foliage to some degree depending on the density of the vegetation. The TRT radar altimeter has a resolution of 0.5 m, an accuracy of 1%, a range of 1 to 2,440 m and a 10 Hz data rate.

*Bendix/King KRA-10A Radar Altimeter*

The Bendix-King radar altimeter has a resolution of 0.5 m, an accuracy of 5% increased to 1% after calibration using test data acquired over a flat surface, a range of 6 to 760 m, and a 10 Hz data rate. This system is employed as a backup system and not actively employed for survey guidance.

*Sensotec Digital Barometric Pressure Sensor*

The barometric pressure sensor measures static pressure to an accuracy of  $\pm 4$  m and resolution of 2 m over a range up to 30,000 ft above sea level. The barometric altimeter data is sampled at 10 Hz.

**Air Temperature Sensor***Omega RTD-805 Outside Air Temperature Probe*

The outside air temperature is measured at 10 Hz with a resolution of 0.1 °C. The temperature sensor has a range of  $\pm 100$  °C and an accuracy of  $\pm 0.2$  °C. The temperature sensor is mounted in an air inlet duct at the point where the wing strut attaches to the right hand wing.

**Survey Aircraft***Cessna 208B Grand Caravan (C-GSGL, C-GSGV, C-GSGW)*

The Cessna 208B Grand Caravan is an all metal, high wing single-engine aircraft powered by a Pratt & Whitney Canada PT6A-114A engine driving a constant speed, full feathering, reversible propeller. The aircraft has fixed gear, extendable flaps, manually adjustable trim tabs, full de-icing equipment, and sufficient avionics for instrument flying. The Grand Caravan is equipped with a rigid aluminum and composite material 3 m tail stinger designed to accommodate the magnetometer sensor. The belly of the aircraft has a 14 cm diameter glass opening allowing for the laser altimeter and video camera. The airframe has been extensively modified to reduce the magnetic signature of the aircraft by replacing ferromagnetic parts with those made from special non-magnetic stainless steel or aluminum. Several wiring changes have also been made to the electrical system to reduce the magnetic field variations around the aircraft. Other alterations have been made to the Grand Caravan allowing for gravity, spectrometer, LiDAR and methane sensing surveys. All survey modifications are certified to meet the requirements of the Canadian Aviation Regulations (CARs). A complete description of this survey aircraft is given in *Appendix V*.

**Data Processing Hardware and Software**

Compilation of the data was performed on high performance desktop and laptop computers optimized for data processing tasks. SGL’s proprietary geophysical software was used for data processing.

## 6. SYSTEM TESTS

### Magnetometer System Tests

#### **Magnetometer Heading Test**

A test was performed to measure the heading error of the magnetic system in the survey aircraft. The test was performed by flying a "cloverleaf" pattern over a known point at survey altitude. The cloverleaf consists of a pass over the known point orientated in all four directions of the traverse and control lines.

The heading tests were performed prior to the start of the survey, in Burns Lake, British Columbia, Canada by C-GSGL on July 15 2016, C-GSGV on July 19 2016 and C-GSGW on July 09 2016. The heading test flight lines were pre-planned, and reference ground magnetic data were obtained through the use of an SGL reference station set up nearby.

The results of the heading test are presented in *Appendix VI*, and a summary of the results is presented in *Table 4*. The heading error remains consistent through the duration of the survey, and is fully corrected in the normal airborne magnetic data during processing.

*Table 4: Heading test result summary*

Aircraft	Magnetometer 1		Magnetometer 2		Magnetometer 3	
	Average North-South Heading Error	Average East-West Heading Error	Average North-South Heading Error	Average East-West Heading Error	Average North-South Heading Error	Average East-West Heading Error
C-GSGL	1.14 nT	0.09 nT	1.07 nT	-0.02 nT	0.82 nT	0.38 nT
C-GSGV	0.71 nT	0.08 nT	0.88 nT	-0.42 nT	-0.16 nT	-0.36 nT
C-GSGW	0.16 nT	0.48 nT	0.36 nT	0.36 nT	0.01 nT	0.53 nT

#### **Compensation Calibration**

Compensation calibrations determine the magnetic influence of aircraft and its manoeuvres. During the compensation calibration flight, the aircraft performs sets of three pitches ( $\pm 5^\circ$ ), rolls ( $\pm 10^\circ$ ), and yaws ( $\pm 5^\circ$ ), while flying in the four flight line directions at high altitude over a magnetically quiet area. The coefficients calculated from the calibration are applied to the acquired magnetometer data to measure the effectiveness of the compensation system in mitigating the magnetic interference.

The total compensated signal noise resulting from the twelve manoeuvres, referred to as the Figure of Merit (FOM), is calculated from the maximum peak-to-peak value resulting from each manoeuvre. A new compensation calibration must be performed after any aircraft or system modifications that may affect the aircraft's magnetic field interference. Calibration flights were performed for all three aircraft at the start of the survey. Additional calibration flights were performed by aircraft C-GSGL on December 1, 2016 due to installation of a new magnetometer on the starboard side. *Table 5* shows the compensation calibration tests performed and the results. See *Appendix VII* for an illustration of the compensated and uncompensated data acquired during the compensation calibration.



Table 5: Magnetic compensation calibration tests and results

Date	Flight	Mag1 FOM (nT)	Mag2 FOM (nT)	Mag3 FOM (nT)	Used for Flights
October 15, 2016	2001	0.89	0.98	0.81	2001-2011
December 5, 2016	2013	0.68	0.67	0.45	2012-2024
October 24, 2016	3002	1.28	1.60	1.20	3002-3015
September 30, 2016	1004	1.07	1.17	1.05	1002-1034

### Instrumentation Lag

The lag in the magnetic data is a function of two components, a static lag due to signal processing and a speed-dependent dynamic lag due to the physical offset of the magnetometer and the GPS antenna. Both elements of the lag are well-known. The wing tip sensors are 1.1 m behind the GPS sensor as measured down the long axis of the aircraft. The tail sensor is 12.0 m (C-GSGW) or 12.1 m (C-GSGV & C-GSGL) behind the GPS sensor. A 0.244 s static lag correction due to signal processing, plus a dynamic lag correction for the tail sensor and two wing tip sensors were applied to each data point. The actual correction, applied to each data point, depends on the instantaneous velocity of the aircraft, and varies between 0.04 s and 0.06 s. The aircraft speed dependent dynamic lag was calculated using SGL's Dynlag software.

The lag tests were flown prior to the survey in British Columbia on August 1, 2016 for C-GSGL, August 12, 2016 for C-GSGV, and August 1, 2016 for C-GSGW. The results are shown in *Appendix VIII*.

## Spectrometer System Tests

### Ground Calibration Pads Test

The stripping ratios for the gamma-ray spectrometer were determined in Ottawa before the aircraft departed on June 17, 2016 for C-GSGL, July 4, 2016 for C-GSGV, and June 23, 2016 for C-GSGW. The GSC calibration pads, which are stored at the SGL hangar in Ottawa, were used. The tests were performed with the detectors installed in survey configuration on board the aircraft, except the packs that would eventually go inside C-GSGL were tested inside C-GSGW. Each detector was tested separately and the test results were averaged to create stripping ratios for this system. See *Tables 6 to 8* for a list of stripping ratios.

The following procedure was carried out:

- Cesium stabilization
- Thorium stabilization
- 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 6: Spectrometer stripping ratios C-GSGL*

Thorium into Uranium ( $\alpha$ )	0.2345
Thorium into Potassium ( $\beta$ )	0.3877
Uranium into Potassium ( $\gamma$ )	0.6909
Uranium into Thorium ( $\alpha$ )	0.0402
Potassium into Thorium ( $\beta$ )	0.0000
Potassium into Uranium ( $\gamma$ )	0.0031

*Table 7: Spectrometer stripping ratios C-GSGV*

Thorium into Uranium ( $\alpha$ )	0.2669
Thorium into Potassium ( $\beta$ )	0.4150
Uranium into Potassium ( $\gamma$ )	0.7635
Uranium into Thorium ( $\alpha$ )	0.0485
Potassium into Thorium ( $\beta$ )	0.0000
Potassium into Uranium ( $\gamma$ )	0.0066

*Table 8: Spectrometer stripping ratios C-GSGW*

Thorium into Uranium ( $\alpha$ )	0.2639
Thorium into Potassium ( $\beta$ )	0.3900
Uranium into Potassium ( $\gamma$ )	0.7591
Uranium into Thorium ( $\alpha$ )	0.0456
Potassium into Thorium ( $\beta$ )	0.0000
Potassium into Uranium ( $\gamma$ )	0.0068

### **Attenuation Test**

The exponential height attenuation coefficients for two spectrometers were calculated using data acquired during pre-survey test flights over the GSC test range at Breckenridge, Quebec. C-GSGW flew the test on June 17, 2016 with a set of packs that were later installed in C-GSGL, and again on June 23, 2016 with packs that would remain in C-GSGW. C-GSGV flew the test during a previous survey in British Columbia, Canada on September 24, 2016 along a portion of a line that runs close to the north shore of Nechako Reservoir. This line was chosen for its relatively strong and uniform concentrations (1.47% K, 0.96 ppm U, 3.17 ppm Th) established whilst flying the line earlier in that same survey with the pre-calibrated system installed in C-GSGL. The calibration flights were carried out from approximately 100 m to 430 m mean terrain clearance at 30 m intervals. A series of background measurements were made by flying the same altitudes over the Ottawa River for the tests performed at Breckenridge, Quebec or Nechako Reservoir for the test performed in British Columbia to determine the background due to cosmic radiation, radon decay products in the air and the radioactivity of the aircraft and equipment. Results of this test are given in *Tables 9 to 11*.

After correction for background and stripping, the variation in count rate with effective height was used to determine the attenuation coefficients shown in *Tables 12 to 14*. Results of the attenuation test are shown in *Figures 3 to 5*.

Table 9: Spectrometer calibration test data C-GSGL

Altitude at STP (m)	Total Counts (cps)	Potassium (cps)	Uranium (cps)	Thorium (cps)
132.8	1597.60	170.9	10.34	46.15
146.28	1457.30	151.8	8.79	42.10
158.12	1340.30	137.8	8.82	39.43
171.56	1214.50	119.9	7.66	36.62
196.52	1013.80	93.6	7.07	30.46
221.96	850.70	76.9	4.97	25.40
248.3	705.80	62.6	3.91	21.07
272.09	603.10	50.8	2.32	18.97
299.7	492.60	40.2	3.33	14.32
340.07	371.20	28.2	1.29	11.96
381.18	285.80	19.3	3.11	7.76
422.76	214.00	15.3	1.25	6.01

Table 10: Spectrometer calibration test data C-GSGV

Altitude at STP (m)	Total Counts (cps)	Potassium (cps)	Uranium (cps)	Thorium (cps)
57.65	1694.60	213.4	19.37	30.76
73.59	1510.90	184.8	16.61	27.45
99.85	1263.90	147.5	13.30	23.16
126.1	1045.50	118.1	10.10	19.72
151.29	887.30	93.8	9.22	16.03
176.75	739.60	74.7	7.81	13.59
199.88	633.00	61.5	5.93	12.24
224.68	534.40	50.3	5.24	10.35
252.04	445.10	40.7	3.98	8.47
277.73	374.90	32.3	3.42	7.66
324.31	275.00	22.7	2.81	5.22
382.51	189.70	14.7	1.67	3.46

Table 11: Spectrometer calibration test data C-GSGW

Altitude at STP (m)	Total Counts (cps)	Potassium (cps)	Uranium (cps)	Thorium (cps)
136.4	1613.30	174.4	10.46	48.44
151.07	1461.30	157.4	9.33	40.34
162.88	1343.90	141.2	9.85	37.54
177.03	1225.20	122.5	8.59	36.03
204.04	1013.60	100.1	5.16	30.59
227.84	856.50	81.7	4.82	24.99
256.58	703.20	62.7	4.71	20.34
280.52	583.50	51.7	2.69	18.09
306.96	487.20	42.1	1.83	15.13
348.31	367.60	28.2	1.53	11.99
391.4	279.40	20.6	1.82	8.43
431.57	211.00	13.7	1.54	6.60

Table 12: Spectrometer attenuation coefficients C-GSGL

	Coefficients (m <sup>-1</sup> )
TC	-0.007096
K	-0.008837
U	-0.008124
Th	-0.006799

Table 13: Spectrometer attenuation coefficients C-GSGV

	Coefficients (m <sup>-1</sup> )
TC	-0.006766
K	-0.008315
U	-0.007392
Th	-0.006612

Table 14: Spectrometer attenuation coefficients C-GSGW

	Coefficients (m <sup>-1</sup> )
TC	-0.006924
K	-0.008569
U	-0.007456
Th	-0.006584

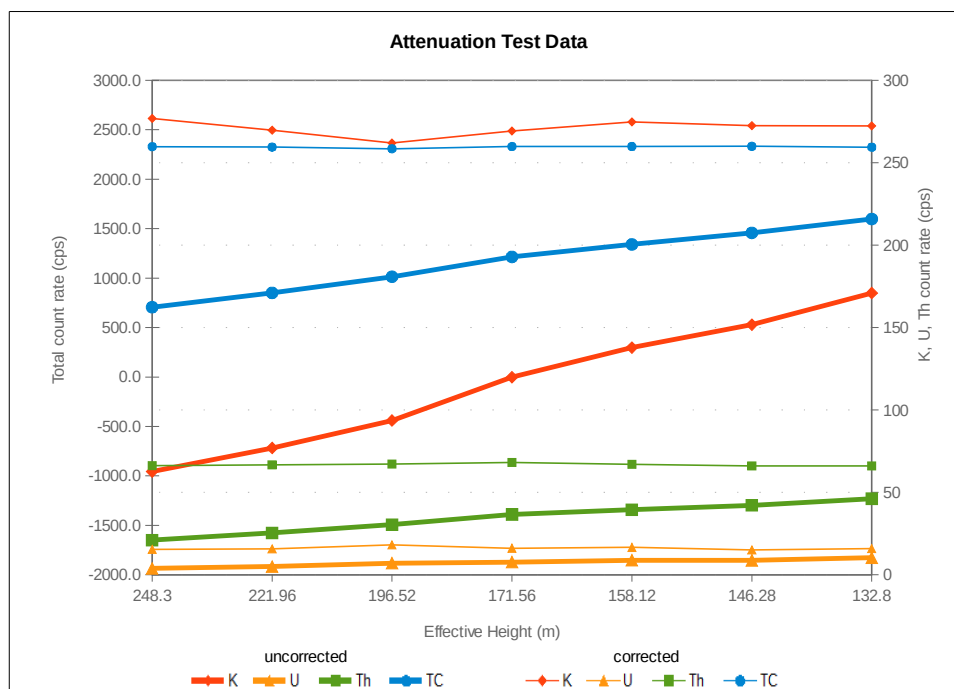


Figure 3: Spectrometer attenuation test C-GSGL

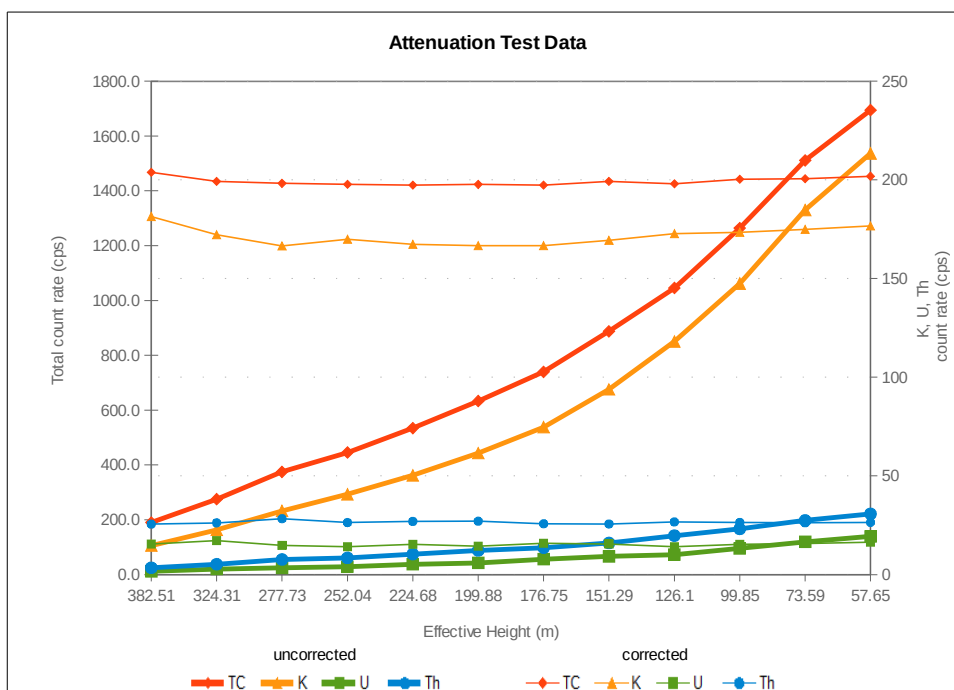


Figure 4: Spectrometer attenuation test C-GSGV

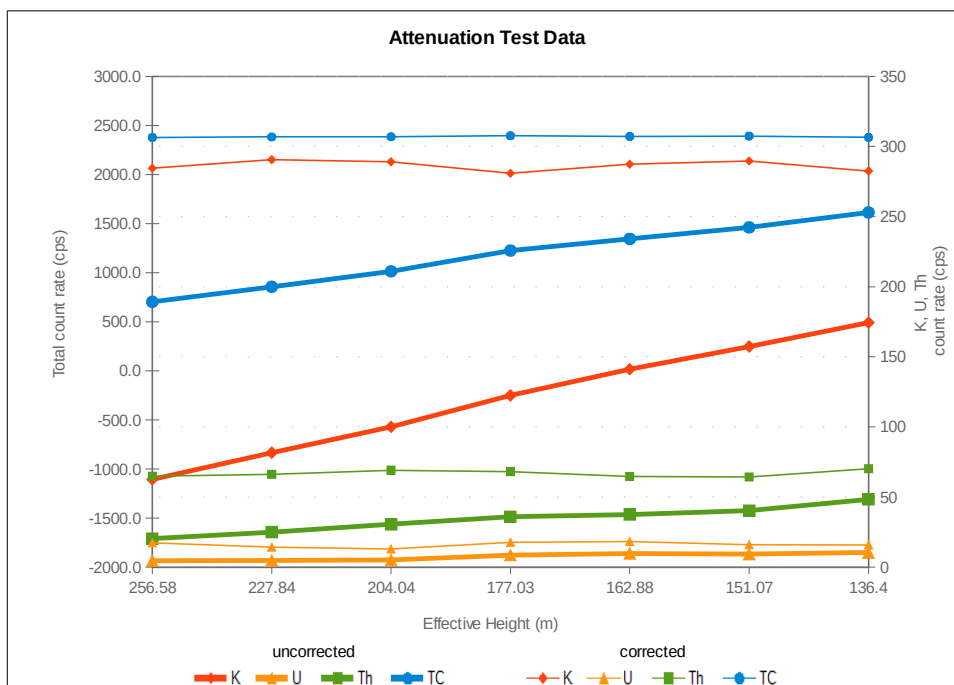


Figure 5: Spectrometer attenuation test C-GSGW

### System Sensitivity

A pre-survey test flight was carried out over the GSC test range at Breckenridge, Quebec on June 17, 2016 by C-GSGW with a set of packs that would later be installed in C-GSGL, and again on June 23, 2016 with the packs that would stay in C-GSGW. 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 (see attenuation coefficients above).

The ground measurements made using an Exploranium portable gamma-ray spectrometer, were acquired at 32 different sites along the 10 km length of the calibration range. Measurements were also made using 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 for 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 measured ground concentrations.

For C-GSGV the system sensitivities were estimated by flying two passes of a survey line flown earlier during a survey conducted in British Columbia by C-GSGL and matching the collected data. The results are presented in *Tables 15 to 17*.

*Table 15: Spectrometer system sensitivities C-GSGL*

	Average counts at 80 m (cps)	Ground Concentrations	Sensitivities
Potassium	271.0	2.21 %	122.65 cps/%
Equivalent Uranium	16.1	1.11 ppm	14.54 cps/ppm
Equivalent Thorium	66.8	8.87 ppm	7.53 cps/ppm

*Table 16: Spectrometer system sensitivities C-GSGV*

	Average counts at 80 m (cps)	Ground Concentrations	Sensitivities
Potassium	171.5	1.46 %	117.86 cps/%
Equivalent Uranium	15.4	1.06 ppm	14.43 cps/ppm
Equivalent Thorium	26.5	3.04 ppm	8.71 cps/ppm

*Table 17: Spectrometer system sensitivities C-GSGW*

	Average counts at 80 m (cps)	Ground Concentrations	Sensitivities
Potassium	286.9	2.22%	129.4cps/%
Equivalent Uranium	15.4	1.05ppm	14.70cps/ppm
Equivalent Thorium	67.1	9.22ppm	7.28cps/ppm

### **Cosmic and Aircraft Background**

A cosmic and aircraft background test was performed with all three aircraft on November 03, 2016, near Grand Rapids, Minnesota. The test flight consisted of flying at heights of 6500 feet to 12500 feet above ground level at 1000 foot intervals, recording approximately 5 minute of data at each altitude for C-GSGL, C-GSGV, and C-GSGW. Coefficients are determined by linear regression of cosmic counts versus each spectral window as described in the IAEA Report 323 (1991). *Tables 18 to 20* lists the computed cosmic and aircraft background coefficients. The cosmic test results are shown in *Appendix IX*.

*Table 18: Cosmic coefficients for C-GSGL*

	Cosmic Stripping Factor	Aircraft Background
Total	0.6297	119.7629
Potassium	0.0401	16.797
Uranium	0.0298	5.3194
Thorium	0.0354	0
Upward	0.0052	0.3975

*Table 19: Cosmic coefficients for C-GSGV*

	Cosmic Stripping Factor	Aircraft Background
Total	0.7309	118.0379
Potassium	0.0411	18.4934
Uranium	0.0343	3.0148
Thorium	0.0412	0
Upward	0.0056	0.3855

*Table 20: Cosmic coefficients for C-GSGW*

	Cosmic Stripping Factor	Aircraft Background
Total	0.7587	99.9643
Potassium	0.0438	17.5531
Uranium	0.0352	2.2865
Thorium	0.0416	0
Upward	0.0061	0.0158

### **Radon Background Calibration**

Radon background was monitored through the use of two 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 over water data acquired over Lake Winnibigoshish just south of the survey area (Figure 6).



Figure 6: Over water test line location at Lake Winnibigoshish, Minnesota, marked by the yellow line.

The cosmic and background corrected data from each of the up (ur), thorium (Tr), potassium (Kr) and total (Ir) windows are plotted against the counts in the uranium (Ur) window for each over water line flown. The coefficients determined for this survey are presented in *Tables 21 to 23*. Linear regressions of these plots provide the radon coefficients to be used in the radiometric data processing are shown in *Appendix X*.



Table 21: Radon correction coefficients C-GSGL

	<i>a</i>	<i>b</i>
Total	13.6498	36.9264
Potassium	0.8116	2.9633
Thorium	0.0762	8.2446
Upward	0.1626	0.5579

Table 22: Radon correction coefficients C-GSGV

	<i>a</i>	<i>b</i>
Total	14.348	38.022
Potassium	0.8068	2.8432
Thorium	0.0816	7.8831
Upward	0.1777	0.367

Table 23: Radon correction coefficients C-GSGW

	<i>a</i>	<i>b</i>
Total	12.7622	57.2562
Potassium	0.7523	3.7056
Thorium	0.0557	8.1497
Upward	0.1663	0.3124

### Ground Component

The ground component coefficients are used to quantify the response of the upward looking detector to radiation from the ground using the technique described in IAEA Report 323. This involves computing two coefficients based on the counts in the uranium and thorium windows as follows:

$$u_g = a_1 U_g + a_2 T_g$$

where:  $u_g$  is the upward window count from the ground  
 $U_g$  is the downward uranium window count  
 $T_g$  is the downward thorium window count  
 $a_1$  and  $a_2$  are the ground coefficients

The ground component coefficients used for this project are listed in *Tables 24 to 26*.

Table 24: Spectrometer ground component coefficients C-GSGL

<i>a</i> <sub>1</sub> (uranium)	<i>a</i> <sub>2</sub> (thorium)
0.0287	0.0095

Table 25: Spectrometer ground component coefficients C-GSGV

$a_1$ (uranium)	$a_2$ (thorium)
0.0316	0.0084

Table 26: Spectrometer ground component coefficients C-GSGW

$a_1$ (uranium)	$a_2$ (thorium)
0.0292	0.0093

**Pre- And Post-Flight Test Lines**

Overland test lines were flown at survey height and survey speed at the beginning and end of all production flights over a line northeast of Grand Rapids (Figure 7). Corrected thorium data for the test lines were generally within +/- 10% of the average, see Figure 8, but were lower after the mid-survey break due to significant precipitation including snow. The results for C-GSGL are also less consistent due to variation in the system sensitivity especially during the cold spell after the break.

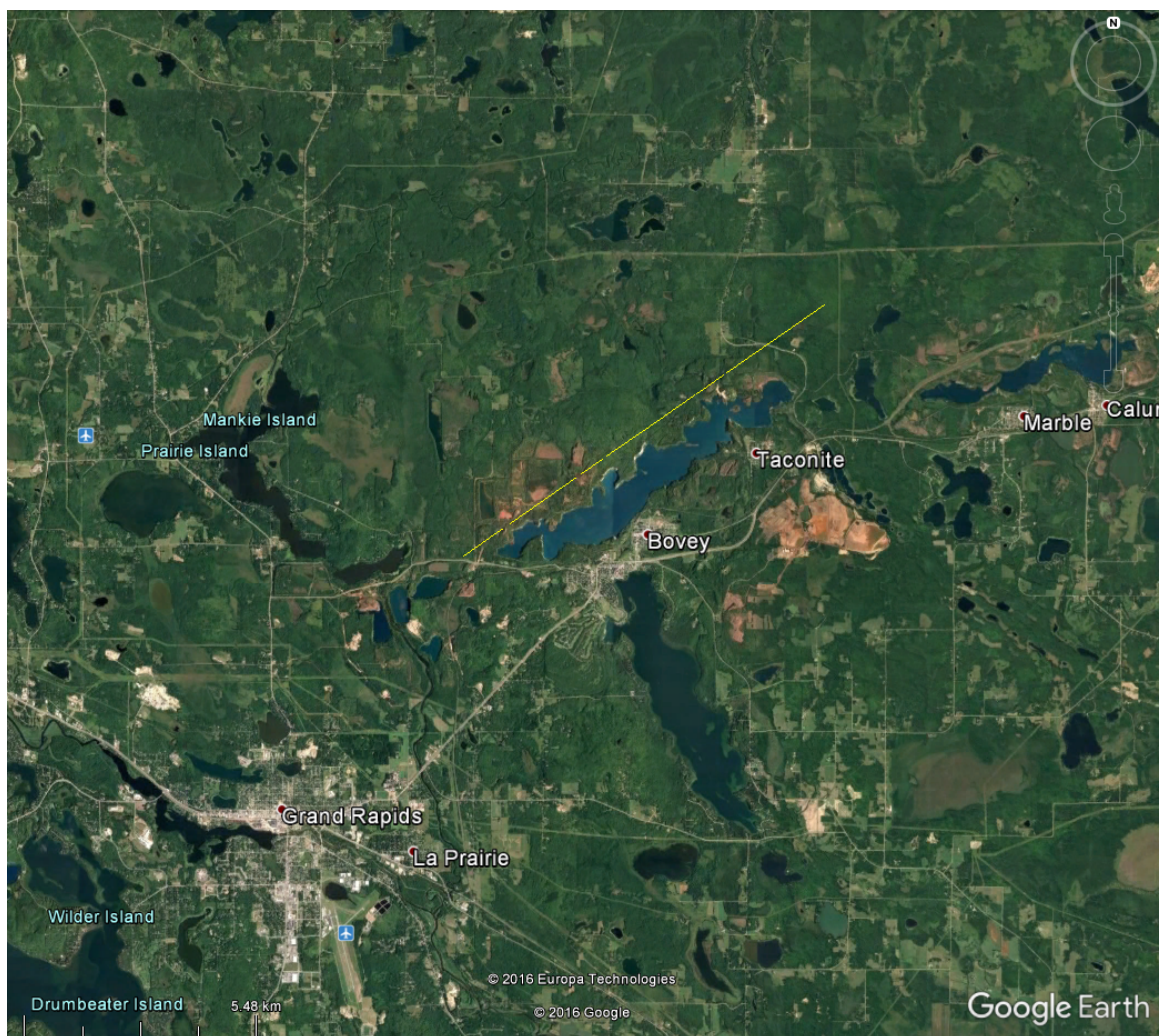


Figure 7: Daily test line location near Grand Rapids, Minnesota, marked by the yellow line.

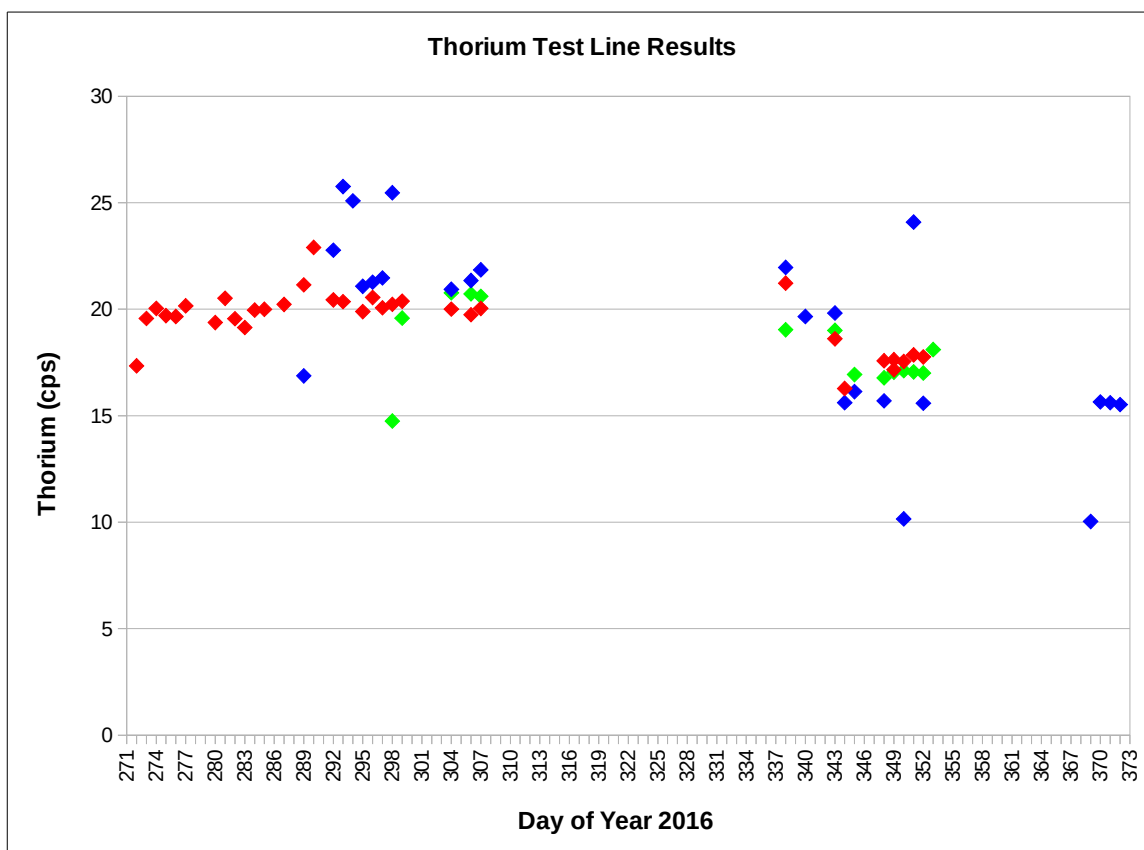


Figure 8: Thorium test line results from all three aircraft (red for C-GSGW, blue for C-GSGL and green for C-GSGV)

**Thorium Source Tests**

Thorium source tests were performed at the start and end of each production day. A source was positioned beneath each crystal pack and data from the thorium and background windows were recorded for 300 seconds during each test. Recorded data were dead-time and background corrected and statistics were compiled. Thorium source test results were generally well within  $\pm 5\%$  of the mean value (see *Figures 9 to 11*) that indicates the systems were operating correctly. Source tests for the system installed in C-GSGL were lower than expected for flights 2014 to 2020, coinciding with a period of extreme cold weather and heavy snow. It appears the conditions impacted the sensitivity of the system in C-GSGL but the other two systems were not affected. The changes in sensitivity are accounted for in the data processing by the same scale factors that adjust the survey data for the effects of precipitation.

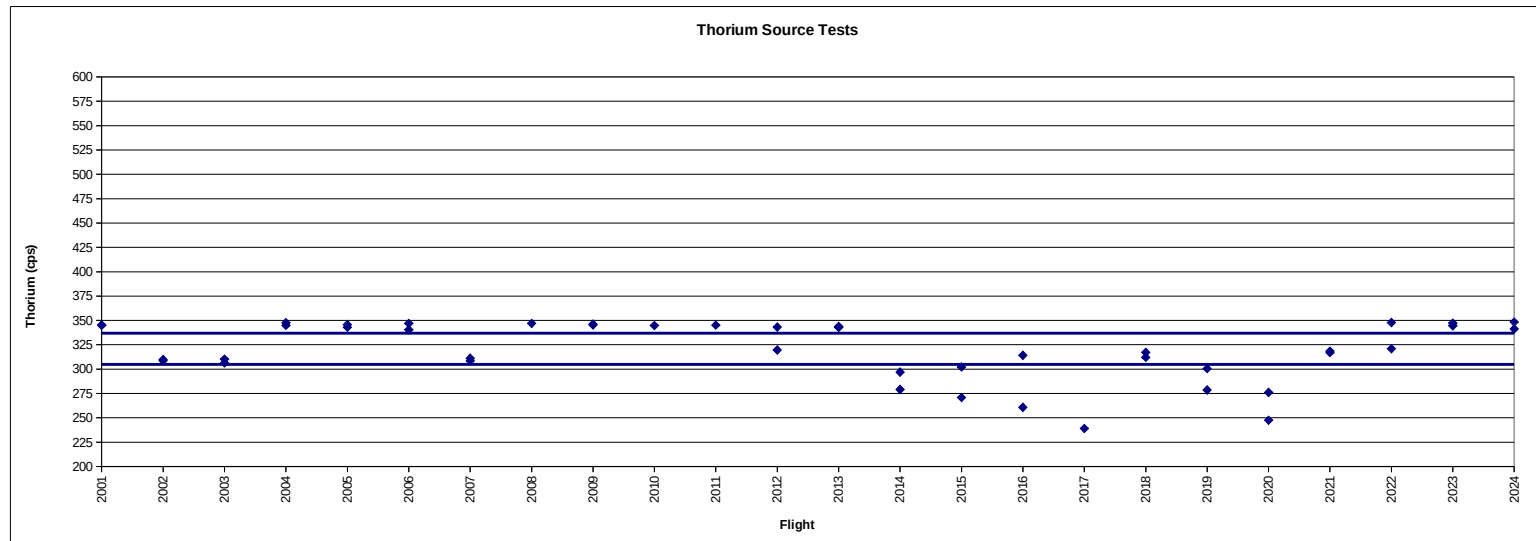


Figure 9: Thorium source test C-GSGL

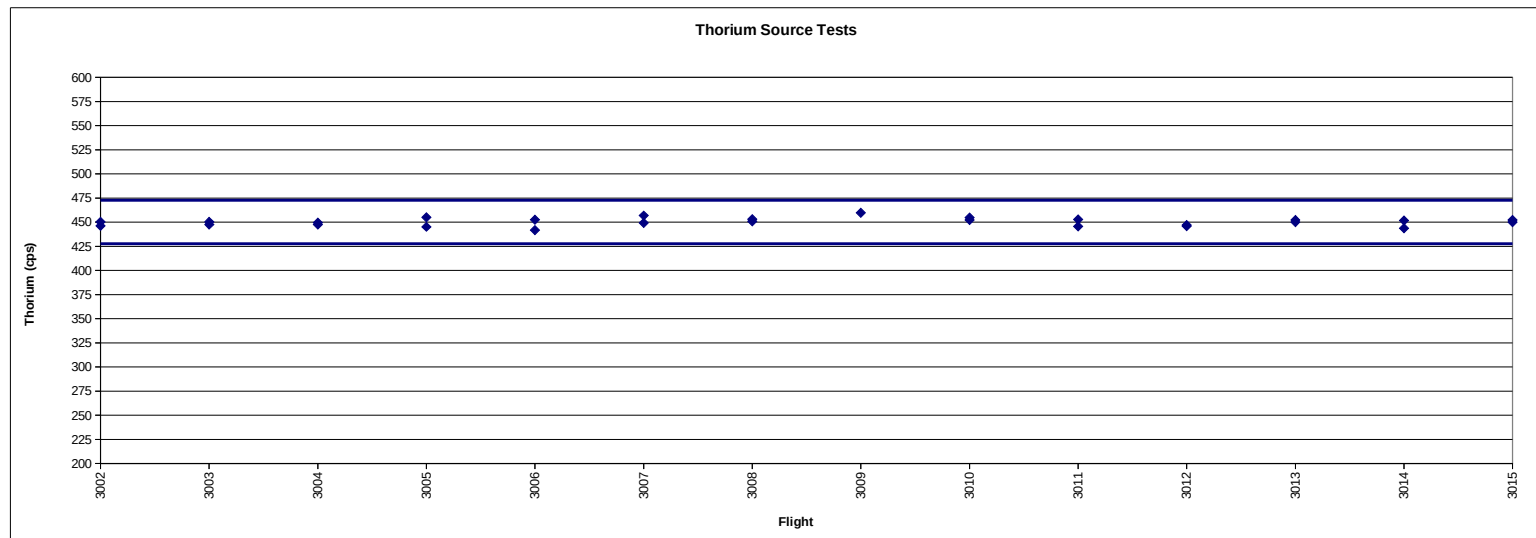


Figure 10: Thorium source test C-GSGV

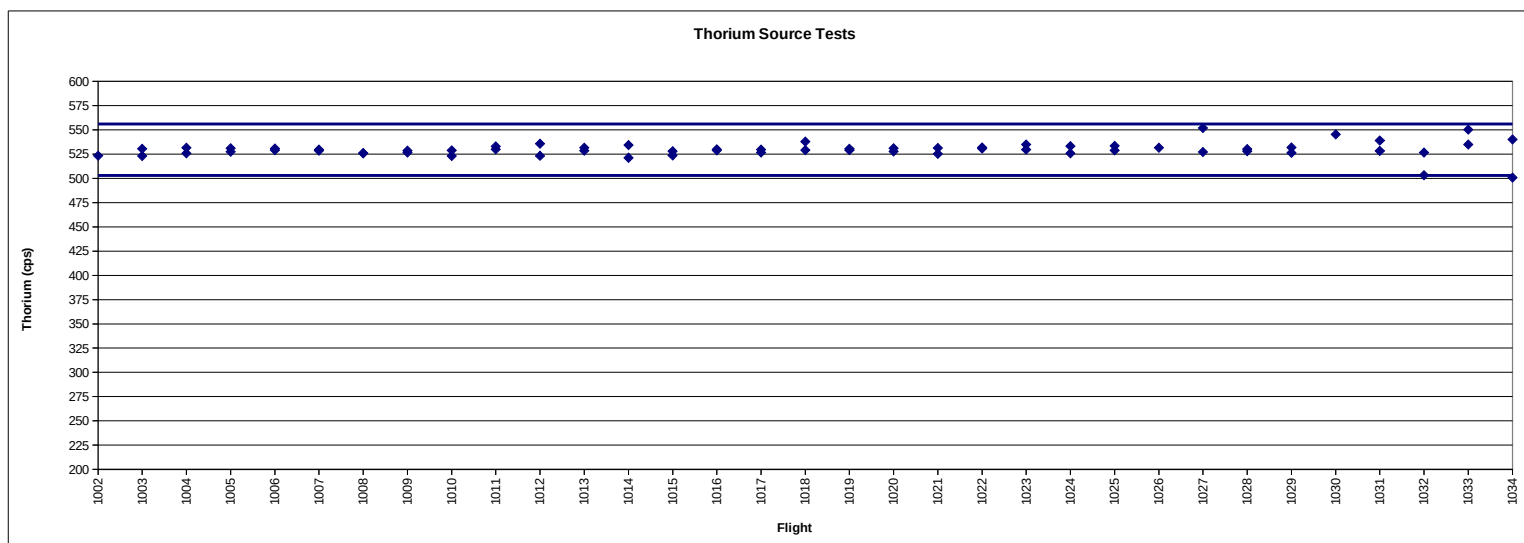


Figure 11: Thorium source test C-GSGW

## Altimeter System, Position And Digital Terrain Model Tests

### Radar And Laser Altimeter Calibration

A test flight to calibrate the radar and laser altimeters was flown with C-GSGL on July 25 2016, C-GSGV on July 19 2016, and C-GSGW on May 12 2016. The tests for C-GSGL and C-GSGV were flown over the runway at Smithers Airport, British Columbia, while the test for C-GSGW was flown over the runway at the Ottawa International Airport. Five passes were conducted over the runway at heights from 0 to 300 m above ground at intervals of 60 m. The altimeter values were compared to the post-flight differentially corrected GPS altitude information for calibration. An ideal altimeter would yield a slope of 1 and an intercept of 0. The TRT radar altimeter slope was 0.9903 with an intercept of 1.8448 m for C-GSGL, 1.0103 with an intercept of 0.4249 m for C-GSGV, and 0.991 with an intercept of 1.004 m for C-GSGW. The laser altimeter slope was 1.0023 with an intercept of 0.0038 m for C-GSGL, 1.0056 with an intercept of -0.4501 m for C-GSGV, and 1.0015 with an intercept of -0.0294 m for C-GSGW. The Bendix/King radar altimeter slope was 1.0308 with an intercept of 1.5100 m for C-GSGL, 0.9535 with an intercept of -2.8859 m for C-GSGV, and 1.0848 with an intercept of 0.4301 m for C-GSGW. These results are well within the expected accuracy of the altimeters. The results from this test are used to recalibrate the King altimeters to an accuracy of 1%. Please refer to *Figures 12 to 14* which illustrates the results of the altimeter test.

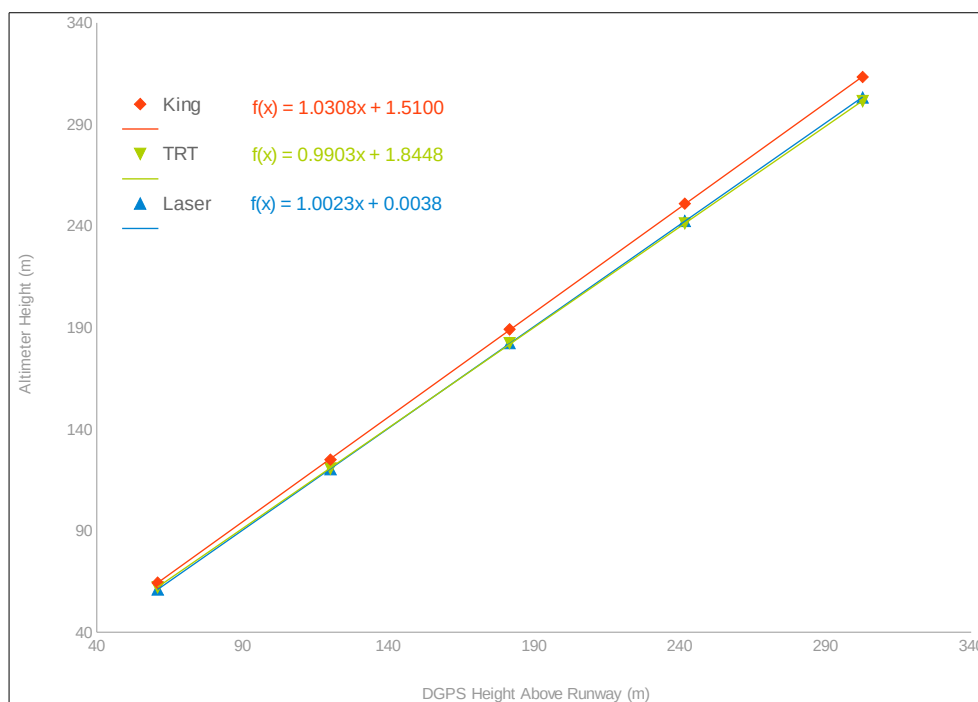


Figure 12: Altimeter test C-GSGL

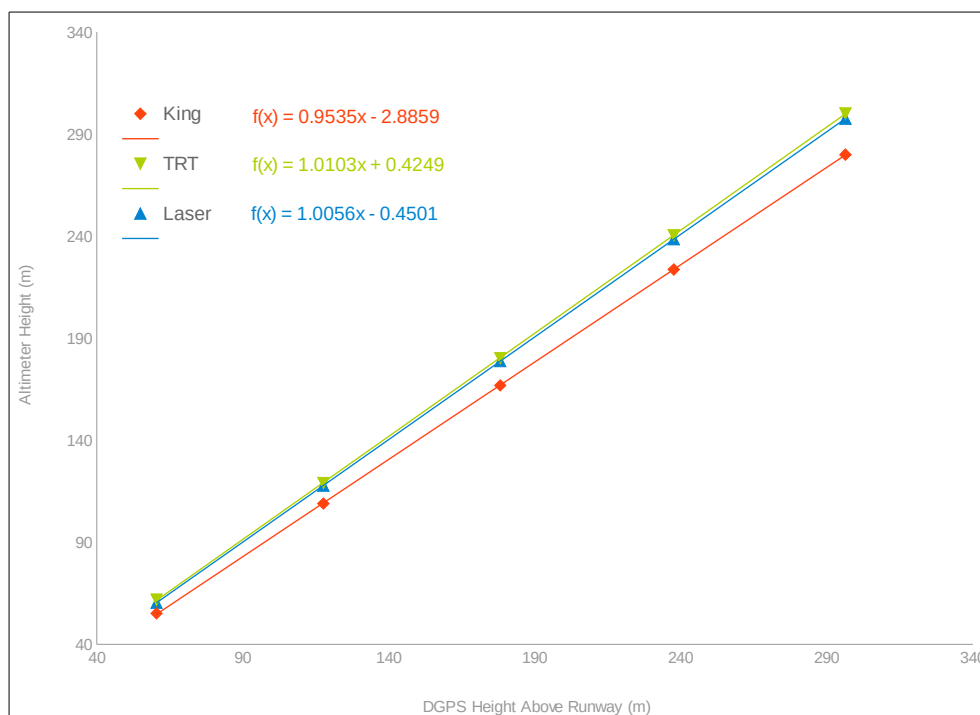


Figure 13: Altimeter test C-GSGV

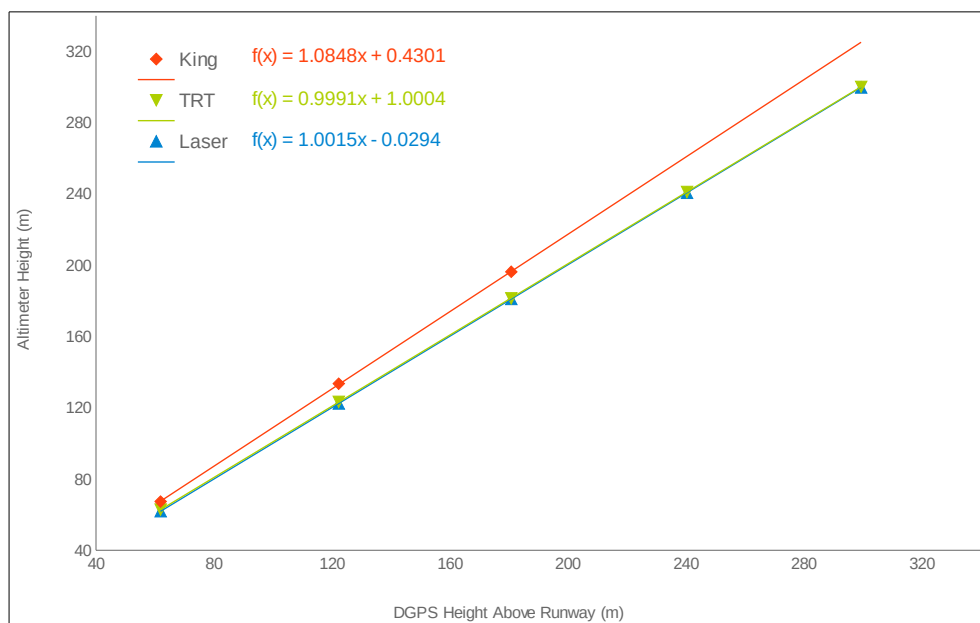


Figure 14: Altimeter test C-GSGW

### Digital Terrain Model Test

Prior to the commencement of production flying the drapage model was tested on September 19, 2016 prior to flying the calibration compensation test. This test involves flying over the survey area at the flying height indicated by the flying surface. The radar altimeter value is then compared to the planned terrain clearance, and the calculated terrain (GPS altitude minus radar altitude) is compared to the model terrain. Any discrepancies indicate either a problem with the terrain model or a datum conversion error. This test verified that the system functioned properly and that the terrain model was correct.



## 7. FIELD OPERATIONS

Operations were conducted from Grand Rapids-Itasca County Airport (KGPZ), Grand Rapids, Minnesota. The survey required 71 production flights, from September 28, 2016 to January 7, 2017.

Mobilization of the SGL crew and equipment to Minnesota began with the arrival of the Caravan C-GSGW on September 12, 2016. The second survey aircraft, Caravan C-GSGL, arrived in Grand Rapids on October 13. The third survey aircraft, Caravan C-GSGV, arrived in Grand Rapids on October 21. The field office was set up in the Timberlake Lodge Hotel where the crew were staying and a small maintenance area was established in a room in the Itasca County Emergency Services building (the old terminal) with access to the ramp where the aircraft were parked at the airport. The Grand Rapids-Itasca County Airport features one main hard surfaced runway of 1,754 m and a hangar was available from Airways Aviation Centre for maintenance or defrosting when required. Mobilization was completed on September 23, 2016, with the first combined magnetometer and GPS reference station designated as REF1 installed at a private property less than a kilometre from the airport. On November 3, upon shutdown for hunting season, 65% of the survey had been flown. Weather conditions upon re-start at the end of November were poor with overcast skies and snow. On October 3, 2016 a second "remote" ground station designated REF2 was set up at a hunting camp north of Grand Rapids. By Christmas 97% of the survey had been flown, and after the holiday season, the last survey flight took place on January 7, 2017. Demobilization started immediately and was completed on January 14, 2017. A listing of theoretical flight lines and their coordinates is given in *Appendix II*. Coordinates and times of the actual lines flown are listed in *Appendix III*. The Weekly Reports are in *Appendix XI*.



Picture 7: Preparing the aircraft for a survey flight

When not survey flying the aircraft were parked next to the Itasca County Emergency Services building or the Airways Aviation Centre hangar. Each survey flight departed and returned to either of these locations. Table 27 shows the approximate position of the aircraft parking locations in the WGS-84 datum.

Table 27: Approximate aircraft parking locations

Parking Location	Latitude	Longitude	Elevation (m)
Terminal	N47°12'43.51	W093°30'54.43	366
Hangar	N47°12'47.65	W093°30'57.24	366

## Reference Stations

The first reference station was set-up on private property near the airport on September 23 and the second at a hunting camp north of Grand Rapids on October 3. *Table 28* shows the WGS-84 coordinates of the reference stations.

*Table 28: Locations of reference stations*

Station #	Location	Latitude	Longitude	Elevation
REF1	House near Airport	N47°12'13.944	W093°31'13.581	388.44 m
REF2	Hunting Camp	N47°57'08.971	W093°45'07.557	351.64 m

The positions of all reference station GPS antennae were differentially corrected using data from four International GPS Service (IGS) reference stations: ALGO (Algonquin, Canada); BREW (Washington, USA); NLIB (Iowa, USA); and DUBO (Lac Du Bonnet, Canada), using data recorded on days 326, 327, 328 and 329 of 2016.

## Re-flights

*Table 29* shows a list of re-flights and the reasons they were required.

*Table 29: Re-flight list*

Original Flight		Re-Flights		
Line	Flight	Line	Flight	Reason
1699.00	3010	1699.01	1031	Line flown short
1191.00	3003	1191.01	2022	Diurnal activity
1172.00	3003	1172.01	2022	Diurnal activity
1193.00	3003	1193.01	2022	Diurnal activity
1192.00	3003	1192.01	2022	Diurnal activity
1201.00	3003	1201.01	2022	Diurnal activity
1205.00	3003	1205.01	2022	Diurnal activity
1213.00	3003	1213.01	2022	Diurnal activity
1215.00	3003	1215.01	2022	Diurnal activity
1217.00	3003	1217.01	2022	Diurnal activity
1230.00	3003	1230.01	2022	Diurnal activity
1231.00	3003	1231.01	2022	Diurnal activity
1236.00	3003	1236.01	2022	Diurnal activity
1248.00	3003	1248.01	2022	Diurnal activity
1250.00	3003	1250.01	2022	Diurnal activity
1375.00	1023	1375.01	2022	Diurnal activity
1377.00	1023	1377.01	2022	Diurnal activity
1367.00	1023	1367.01	2022	Diurnal activity
1381.00	1023	1381.01	2022	Diurnal activity
1392.00	1023	1392.01	2022	Diurnal activity
1384.00	1023	1384.01	2022	Diurnal activity
1394.00	1023	1394.01	2022	Diurnal activity
1396.00	1023	1396.01	2022	Diurnal activity
1394.00	1023	1394.02	2022	Diurnal activity
1390.00	1023	1390.01	2022	Diurnal activity
1373.00	1023	1373.01	2023	Diurnal activity

Original Flight		Re-Flights		
Line	Flight	Line	Flight	Reason
1390.01	2022	1390.02	2023	Diurnal activity
1371.00	1023	1371.01	2023	Diurnal activity
1386.00	1023	1386.01	2023	Diurnal activity
1400.00	1023	1400.01	2023	Diurnal activity
1573.01	2022	1573.02	2023	Diurnal activity
1576.00	2022	1576.01	2023	Diurnal activity
1578.00	2022	1578.01	2023	Diurnal activity
1580.01	2022	1580.02	2023	Diurnal activity
1191.01	2022	1191.02	2024	Diurnal activity
1172.01	2022	1172.02	2024	Diurnal activity
1193.01	2022	1193.02	2024	Diurnal activity
1205.01	2022	1205.02	2024	Diurnal activity
1213.01	2022	1213.02	2024	Diurnal activity
1215.01	2022	1215.02	2024	Diurnal activity
1217.01	2022	1217.02	2024	Diurnal activity
1231.01	2022	1231.02	2024	Diurnal activity
1207.00	3003	1207.01	2024	Diurnal activity
1180.00	3003	1180.01	2024	Diurnal activity
1209.00	3003	1209.01	2024	Diurnal activity
1184.00	3003	1184.01	2024	Diurnal activity
1186.00	3003	1186.01	2024	Diurnal activity
1225.00	3003	1225.01	2024	Diurnal activity
1229.00	3003	1229.01	2024	Diurnal activity
1244.00	3003	1244.01	2024	Diurnal activity
1233.00	3003	1233.01	2024	Diurnal activity
1365.00	1023	1365.01	2024	Diurnal activity
1375.01	2022	1375.02	2024	Diurnal activity
1377.01	2022	1377.02	2024	Diurnal activity
1729.00	3008	1729.01	2024	Azimuth data
1722.01	3008	1722.02	2024	Azimuth data
1723.01	3008	1723.02	2024	Azimuth data
1728.00	3008	1728.01	2024	Azimuth data
1731.00	3008	1731.01	2024	Azimuth data
1730.00	3008	1730.01	2024	Azimuth data

## Field Personnel

Table 30 shows a list of SGL technical personnel who participated in the field operations.

*Table 30: Survey field crew*

	Name	Dates in Field	
		Arrival	Departure
Operations Manager	Al Pritchard	N/A	N/A
Crew Chief	Keith Wells	09/14/2016	11/06/2016
		11/18/2016	12/07/2016
Crew Chief / Data Processor	Mike McManus	11/18/2016	12/20/2016
		01/02/2017	01/14/2017
Data Processor	Diana Kuiper	09/24/2016	10/30/2016
Data Processor	Oteng Matsetse	10/18/2016	11/06/2016
Data Processor	Lindsay Upiter	11/22/2016	12/20/2016
Pilot	Adam Dalziel	09/14/2016	09/23/2016
Pilot	Karlo Pavlicevic	09/14/2016	10/09/2016
		11/19/2016	12/19/2016
Pilot	Randall Forwell	09/22/2016	11/05/2016
		11/19/2016	12/19/2016
Pilot	Bret Curtis	10/08/2016	10/26/2016
Pilot	Nikhil Behl	10/13/2016	11/05/2016
Pilot	Tomo Nishimura	10/13/2016	11/04/2016
Pilot	Jason Thomas	10/17/2016	11/04/2016
		11/19/2016	12/18/2016
Pilot	Matt Lemay	10/21/2016	11/05/2016
Pilot	André Lafontaine	10/21/2016	11/05/2016
Pilot	Kevin Michaud	11/19/2016	12/19/2016
		01/02/2017	01/12/2017
Pilot	Marianne Durette	11/19/2016	12/19/2016
		01/02/2017	01/12/2017
Pilot	Alex Faulkner	11/19/2016	12/20/2016
AME	Nathan Shirey	09/21/2016	11/06/2016
		01/02/2017	01/13/2017
AME	Dwayne Bailey	10/20/2016	11/06/2016
		11/15/2016	12/20/2016
AME	Branden Lachapelle	11/15/2016	12/13/2016

## 8. DATA COMPILATION AND PROCESSING

### MAGNETOMETER DATA PROCESSING

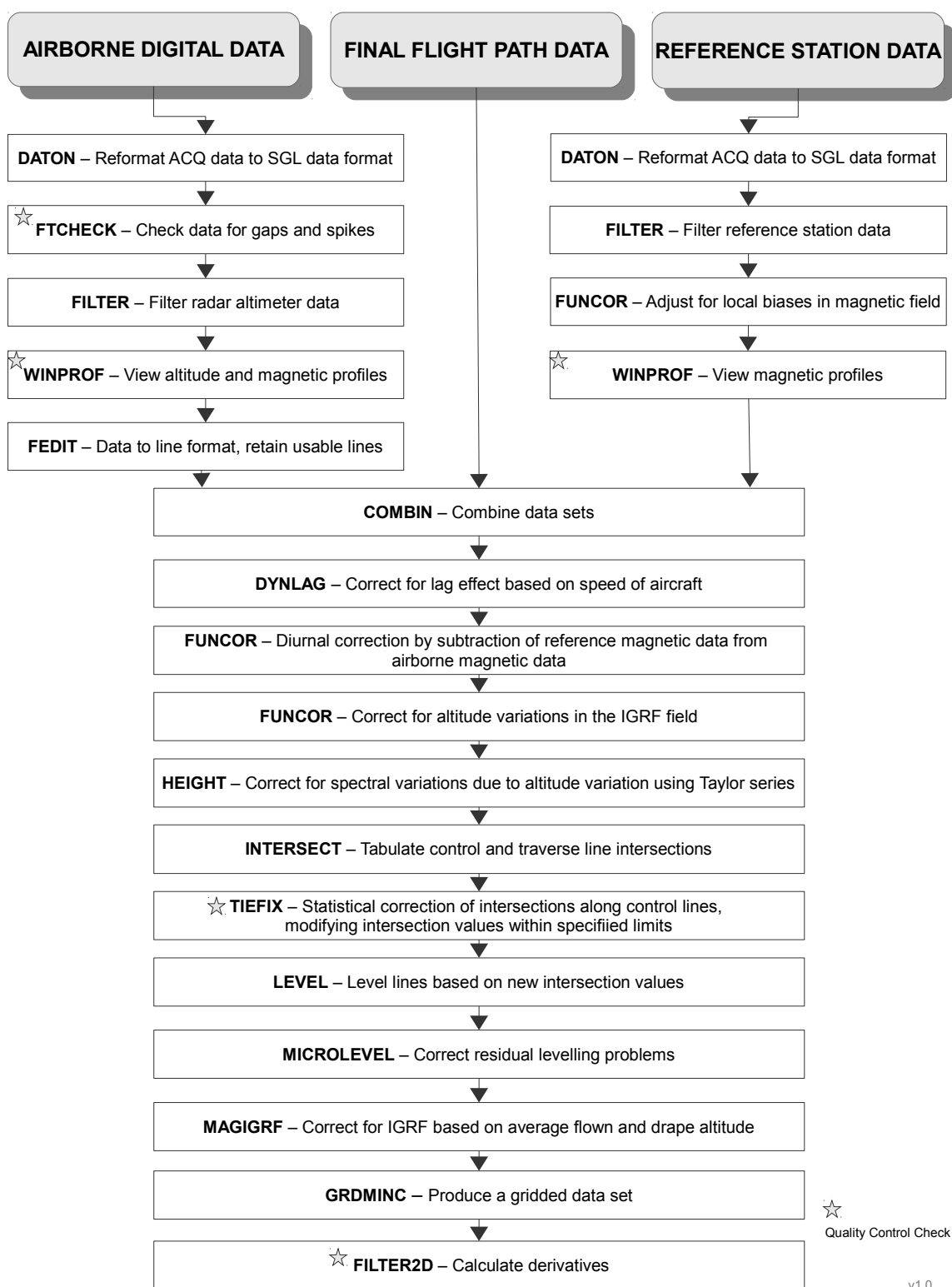


Figure 15: Magnetometer data processing flowchart

## Magnetometer Data

A magnetic data flowchart is presented in *Figure 15*. Airborne magnetic measurements were made using an array of three magnetometers: Mag1 (port wing tip), Mag2 (starboard wingtip) and Mag3 (tail stinger). The primary sensor is Mag3, and the data from that sensor only is used to produce a standard magnetic anomaly map of the survey area. Data from all three sensors are used to calculate magnetic gradients and to create an enhanced magnetic anomaly map, described in the next section of this report below. The rest of this section describes processing applied to the Mag3 sensor only.

### Lag Correction

The airborne magnetometer were recorded at 160 Hz, and down sampled to 10 Hz for processing. All magnetic data were plotted and checked for any spikes or noise. A lag correction was applied to the Mag3 data to reference it to the GPS antenna located on the roof of the aircraft cabin. A dynamic lag correction equivalent to the offset between the antenna and the tail magnetic sensor was applied to the tail sensor for all three aircraft as follows:

- C-GSGW 12.0 m
- C-GSGL 12.1 m
- C-GSGV 12.1 m

The lag correction is applied to each data point dependent on the instantaneous velocity of the aircraft, so for example when flying exactly at the target speed of 110 Knots, or 57 m/s, the correction is for an offset of 12.1 m is  $12.1/57 = 0.21$  s. The aircraft speed dependent dynamic lag was calculated using SGL's Dynlag software.

### Diurnal Correction

Ground magnetometer data were recorded at a rate of 11Hz at two different reference stations during the survey designated as REF1 and REF2. Neither reference station operated for the entire duration of the project, but REF2 operated for most flights after it was installed on October 3<sup>rd</sup> and generally provided the cleanest data with the least interference. Data from each station was inspected for cultural interference and edited where necessary. All reference station magnetometer data were filtered using a 121 point low pass filter (see *Appendix XII*) to remove any high frequency signal, but retain the low frequency diurnal variations. A correction for the International Geomagnetic Reference Field (IGRF) year 2015 model was extrapolated for all ground magnetometer data using the fixed reference station location and the recorded date of each flight. The mean value of each the reference station is calculated and subtracted to remove any bias from the local anomalous field as follows:

- REF1 -36.724 nT
- REF2 106.319 nT

A further adjustment was made by comparing data recorded simultaneously at the different stations to remove residual offsets between the stations, using data from REF1 as the primary base line. The correction applied is as follows:

- REF2 -6.757 nT

Both reference stations are located within or very close to the survey area, and analysis of data at intersections and subsequent levelling corrections indicated that an effective diurnal correction can be achieved by direct subtraction of the ground reference data from the airborne data. REF2, located within the survey area, was used to apply a diurnal correction to data from most flights. For flights 1002 to 1007 and parts of flights 1008, 1014, 1031 and 2021 it was necessary to use

data from REF1 located outside the survey area at the base of operations. Probably due to the presence of nearby ironstone formations, the amplitudes of diurnal events recorded at REF1 were significantly higher than those observed at REF2. To avoid over-corrections of the airborne data the amplitudes of the magnetic data from REF1 were reduced by a factor of  $\times 0.2$  determined by comparison of data from the two stations.

### **IGRF Correction**

The airborne magnetometer data were corrected for the IGRF using the location, altitude, and date of each point. IGRF values were calculated using the year 2015 model. The altitude data used for the IGRF corrections are GPS heights above the WGS-84 ellipsoid.

### **Height Correction**

Although the survey was consistently flown using a drape surface, small variations in survey height from line to line and at intersections between traverse and control lines still result in mismatches in the magnetic data. This occurs for two reasons: first, due to the change in the IGRF value in the vertical direction, and second a more significant effect that results in differences in the spectral content of airborne magnetic data where the survey height above ground was inconsistent. At low clearances, even relatively small differences in survey height may result in significant changes in spectral content of the magnetic data. In addition, in order to fly as low as possible, the drape surface was not adjusted for the many small towns and farms in the survey area. This resulted in some inconsistency in survey altitude where the aircraft had to pull up over buildings to maintain 1000' clearance. Amplitude of magnetic signal drops off with height at an exponential rate proportional to the frequency of the signal, so that high frequency signal in particular changes rapidly with small changes in altitude close to the ground. Correcting for such changes using traditional levelling methods can be challenging since there is no way to properly extrapolate corrections from miss-ties at intersections due to altitude differences. Therefore, there is an advantage to correcting the airborne data for height variation before attempting levelling.

In order to correct magnetic data for variations in survey altitude, we first need to define a consistent surface that will be used as a reference height. This can be a surface of constant height with respect to the ellipsoid or a drape surface. The drape surface approach has the advantage of retaining as much of the recorded signal content as possible whilst achieving consistency of height at intersections and smoothly varying heights between adjacent lines, therefore the drape approach was adopted. The difference between the drape reference surface and the recorded altitude is the height difference to be accounted for.

To correct the airborne data for survey height, two corrections were applied. The first correction accounts for the change in the IGRF with height and is applied as part of the overall IGRF correction described above. The correction is approximately equal to  $0.028\text{nT/m}$ .

The second correction accounts for the variation in spectral content. The magnetic field intensity that would have been recorded at the different altitude was predicted based on a Taylor expansion that sums the derivatives of the field as follows:

$$T + (T' h)/1! + (T'' h^2)/2! + (T''' h^3)/3! + (T'''' h^4)/4! + \dots$$

where,

- T is the total magnetic intensity (TMI) at any given point,
- T' is the first vertical derivative of the TMI, T'' is the second vertical derivative etc.,
- 1! is the first vertical derivative of the TMI, T'' is the second vertical derivative etc. is the factorial of 1, 2! is the factorial of 2 etc.

The series is infinite, but in practise there is no need to calculate the factors beyond the 4th derivative, and in this case only the first two derivatives were required since deviations from the drape surface were not great.

### **Levelling**

Intersections between control and traverse lines were determined by a program which extracts the magnetic, altitude, and x and y values of the traverse and control lines at each intersection point. Each control line was adjusted by a constant value to minimize the intersection differences, calculated as follows:

$\sum |i - a|$  summed over all traverse lines

where,

- $i$  = (individual intersection difference),
- $a$  = (average intersection difference for that traverse line).

Adjusted control lines were further corrected locally to minimize any residual diurnal effects on the control line. Traverse line levelling was carried out by a program that interpolates and extrapolates levelling values for each point based on the two closest levelling values. After traverse lines have been levelled, the control lines are matched to them. This ensures that all intersections tie perfectly and permits the use of all data in the final products.

CLEVEL provides a curved correction using a function similar to spline interpolation. A third degree polynomial is used to interpolate between two intersections and the two values and two derivatives are chosen to determine the polynomial. CLEVEL is an improved method as it allows intersection points to be preserved with no mismatch and interpolation is smooth with the first derivative continuously approaching the same value from both sides of the intersection points.

The levelling procedure was verified through inspection of Total Magnetic Intensity (TMI) and vertical derivative grids, plotting profiles of corrections along lines, and examining levelling statistics to check for steep correction gradients. Corrections at individual intersections were adjusted to remove residual diurnal or height related artifacts and to reduce correction gradients as much as possible.

### **Micro-Levelling**

Micro-levelling was applied to remove any residual diurnal effects from the data. This was achieved by using directional filters to identify and remove artifacts that are long wavelengths parallel to survey lines and short wavelengths perpendicular to survey lines. A limit of  $\pm 0.50$  nT was set for all micro-levelling corrections. An additional mircolevel correction of  $\pm 0.20$  nT was applied to one selected area as show in *Figure 16*.



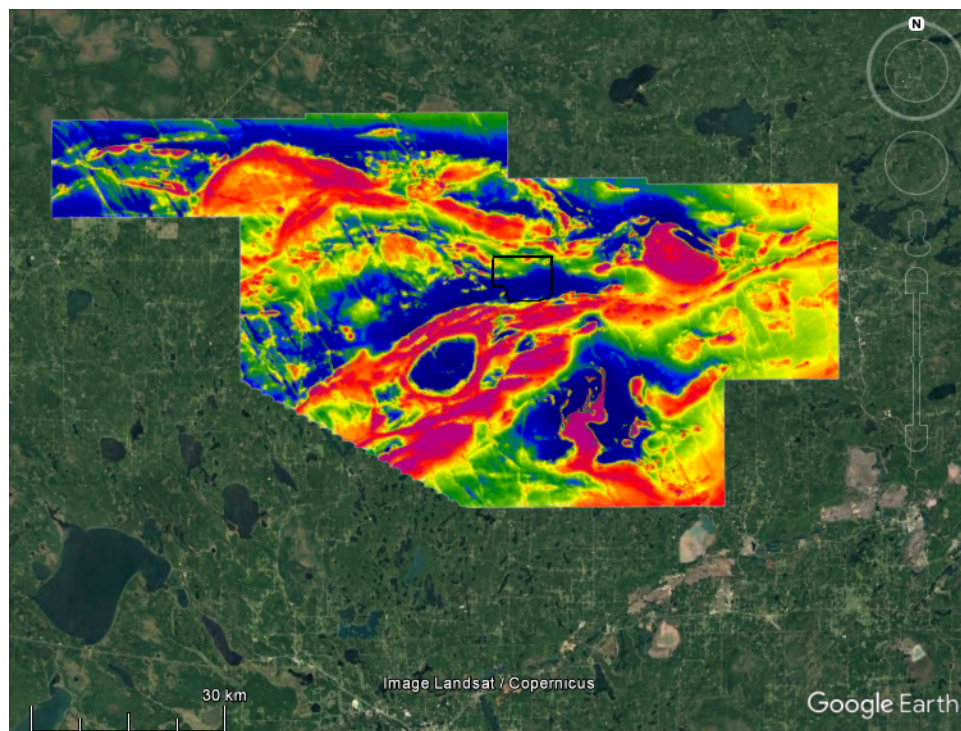


Figure 16: Area selected for additional microlevelling indicated by the black box.

### **Gridding**

The grid of the residual magnetic field was made using a minimum curvature algorithm to create a two-dimensional grid equally sampled in the 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 20 m grid cell size appropriate for survey lines spaced at 100 m. The grids are projected in UTM zone 15 North with respect to the WGS-84 datum.

## MAGNETOMETER GRADIOMETER DATA PROCESSING

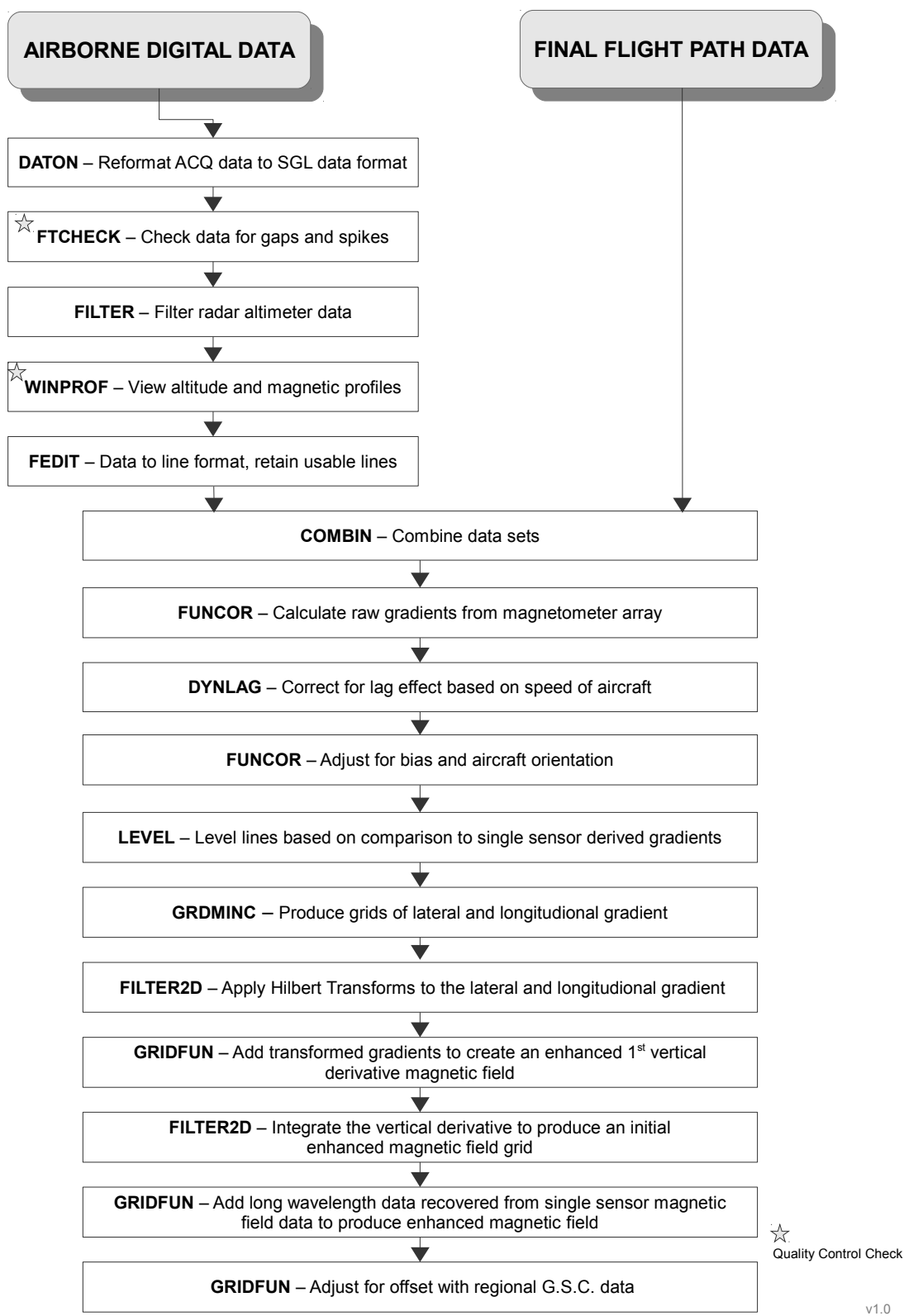


Figure 17: Magnetometer Gradiometer data processing chart

## Processing of Measured Magnetic Gradients

A magnetic gradient data flowchart is presented in *Figure 17*. The measured lateral and longitudinal gradients provide an improved rendition of the shorter wavelengths in magnetic field than the total magnetic field measured by the tail sensor MAG3 alone. This is because the direction and amplitude of the field's total horizontal gradient can be determined using the two measured gradients, providing information regarding the behaviour of the magnetic field in between traverse lines. The array of magnetometers employed is illustrated in *Figure 16*.

### Raw Gradient Calculation

Initially, the magnetic gradients are derived with respect to the aircraft frame. The across-aircraft gradient data is derived from the difference in total magnetic intensity recorded at the wingtip sensors MAG1 and MAG2 divided by the separation of the magnetometers across the wings as follows,

$$\text{Mag2-Mag1/lateral separation}$$

where the lateral separation for each survey aircraft are as follows:

- C-GSGW 19.2 m
- C-GSGL 19.0 m
- C-GSGV 19.1 m

The along-aircraft gradient is derived from all sensors, being the difference in total magnetic intensity between the mean value of the wingtip sensors Mag1 and Mag2 and the tail sensor Mag3 divided by the longitudinal separation along the aircraft body as follows,

$$(((\text{Mag2}+\text{Mag1})/2) - \text{Mag3}) / \text{longitudinal separation between Mag1/2 and Mag3}$$

where the longitudinal separation for each survey aircraft are as follows:

- C-GSGW 10.9 m
- C-GSGL 11.0 m
- C-GSGV 11.0 m

### Lag Correction

Lag corrections were applied to the magnetic gradients to reference the data to the GPS antenna located on the roof of the aircraft cabin.

A dynamic lag correction equivalent to the following offsets as measured along the long axis of the aircraft from the GPS antenna to the line between Mag1 and Mag2 was applied to the lateral gradients for each aircraft as follows:

- C-GSGW 1.1 m
- C-GSGL 1.1 m
- C-GSGV 1.1 m

A dynamic lag correction equivalent to the following offsets as measured along the long axis of the aircraft from the GPS antenna to the point that lies half way from the line between Mag1 and

Mag2 and the tail sensor Mag3 was applied to the longitudinal gradients for each aircraft as follows:

- C-GSGW 6.6 m
- C-GSGL 6.6 m
- C-GSGV 6.6 m

The lag correction is applied to each data point dependent on the instantaneous velocity of the aircraft, so for example when flying exactly at the target speed of 110 Knots, or 57 m/s, the correction is equal to the offset listed above divided by 57. The aircraft speed dependent dynamic lag was calculated using SGL's Dynlag software.

### **Bias and Orientation Correction**

Due to the different properties of the magnetic sensors employed on the aircraft, there is an inherent directional bias in the horizontal gradients. By comparing data flown in opposite directions along the test line, and from adjacent lines, the biases were estimated and applied as listed in *Table 31*.

*Table 31: Gradient biases*

<b>Aircraft</b>	<b>Lateral Bias (nT/m)</b>	<b>Longitudinal Bias (nT/m)</b>	<b>Range of Flight Numbers</b>
C-GSGW	-5.75	0.00	1002-1002
C-GSGW	-5.77	0.00	1003-1003
C-GSGW	-5.88	0.12	1004-1005
C-GSGW	-5.62	0.11	1006-1009
C-GSGW	-5.77	0.11	1010-1011
C-GSGW	-5.90	0.11	1012-1013
C-GSGW	-5.88	-0.14	1014-1019
C-GSGW	-5.83	0.10	1020-1020
C-GSGW	-5.80	0.00	1021-1022
C-GSGW	-5.80	-0.02	1023-1023
C-GSGW	-5.80	-0.06	1024-1027
C-GSGW	-5.95	-0.40	1028-1028
C-GSGW	-5.75	-0.10	1029-1030
C-GSGW	-5.77	0.00	1031-1031
C-GSGW	-5.83	-0.31	1032-1033
C-GSGW	-6.00	-0.51	1034-1999
C-GSGL	-1.10	-1.90	2001-2002
C-GSGL	-1.20	-1.98	2003-2003
C-GSGL	-1.23	-2.10	2004-2004
C-GSGL	-1.60	-1.85	2005-2007
C-GSGL	-1.15	-2.05	2008-2008
C-GSGL	-1.10	-2.20	2009-2009
C-GSGL	-1.25	-2.10	2010-2010
C-GSGL	-1.20	-1.99	2011-2011
C-GSGL	-1.70	-1.99	2012-2012
C-GSGL	-1.60	-2.25	2013-2013

C-GSGL	-2.35	-1.70	2014-2015
C-GSGL	-1.65	-2.30	2016-2016
C-GSGL	-1.65	-2.32	2017-2017
C-GSGL	-1.60	-2.30	2018-2018
C-GSGL	-1.57	-2.26	2019-2019
C-GSGL	-1.67	-2.32	2020-2020
C-GSGL	-1.57	-2.45	2021-2022
C-GSGL	-1.60	-2.50	2023-2023
C-GSGL	-1.60	-2.46	2024-2999
C-GSGV	-1.70	4.41	3002-3002
C-GSGV	-1.68	4.45	3003-3006
C-GSGV	-0.25	5.70	3007-3007
C-GSGV	-0.15	5.70	3008-3011
C-GSGV	-0.15	5.70	3013-3013
C-GSGV	0.00	5.82	3012-3014
C-GSGV	0.00	6.02	3015-3999

The across and along the aircraft gradients provide lateral and longitudinal gradients with respect to the survey lines so that positive gradients are eastward and northward respectively. It was determined that application of yaw corrections did not provide a significant improvement in consistency in the gradients, so no corrections for aircraft attitude were applied.

Further line by line bias adjustments were made by employing single value zero order shifts to the measured gradients by comparing them to lateral and longitudinal horizontal gradients derived from the residual magnetic field calculated from the tail sensor Mag3 as described in the previous section. The tail sensor derived horizontal gradients with respect to survey line direction are easily calculated in the space domain from the gridded residual magnetic field.

### **Levelling**

Lateral and longitudinal gradients were “levelled” to gradients derived from the tail sensor Mag3 to account for minor bias variations that occur along a survey line. This is in part due to the fact that pitch and roll of the aircraft are not accounted for since no measured vertical gradient was acquired. Levelling was achieved by applying a 8 second low pass filter to the difference between the tail sensor Mag3 derived gradients and measured lateral gradients equivalent to 456 m at average survey speed, and by applying a 10 second low pass filter equivalent to 570 m to the difference of the longitudinal gradients. The differences are applied to the measured gradients. This process combines the longer wavelength data that is well sampled and represented by the Mag3 derived gradients for wavelengths of four times the survey line spacing or longer (ie. 1km or more) with the detailed short wavelength gradients best represented by the measured gradients, and helps to reconcile minor line-by-line differences not accounted for by the DC bias corrections alone.

### **Gridding**

Grids of the lateral and longitudinal gradients were made using a minimum curvature algorithm to create a two-dimensional grid equally sampled in the 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). A cell size of 25 m was employed.

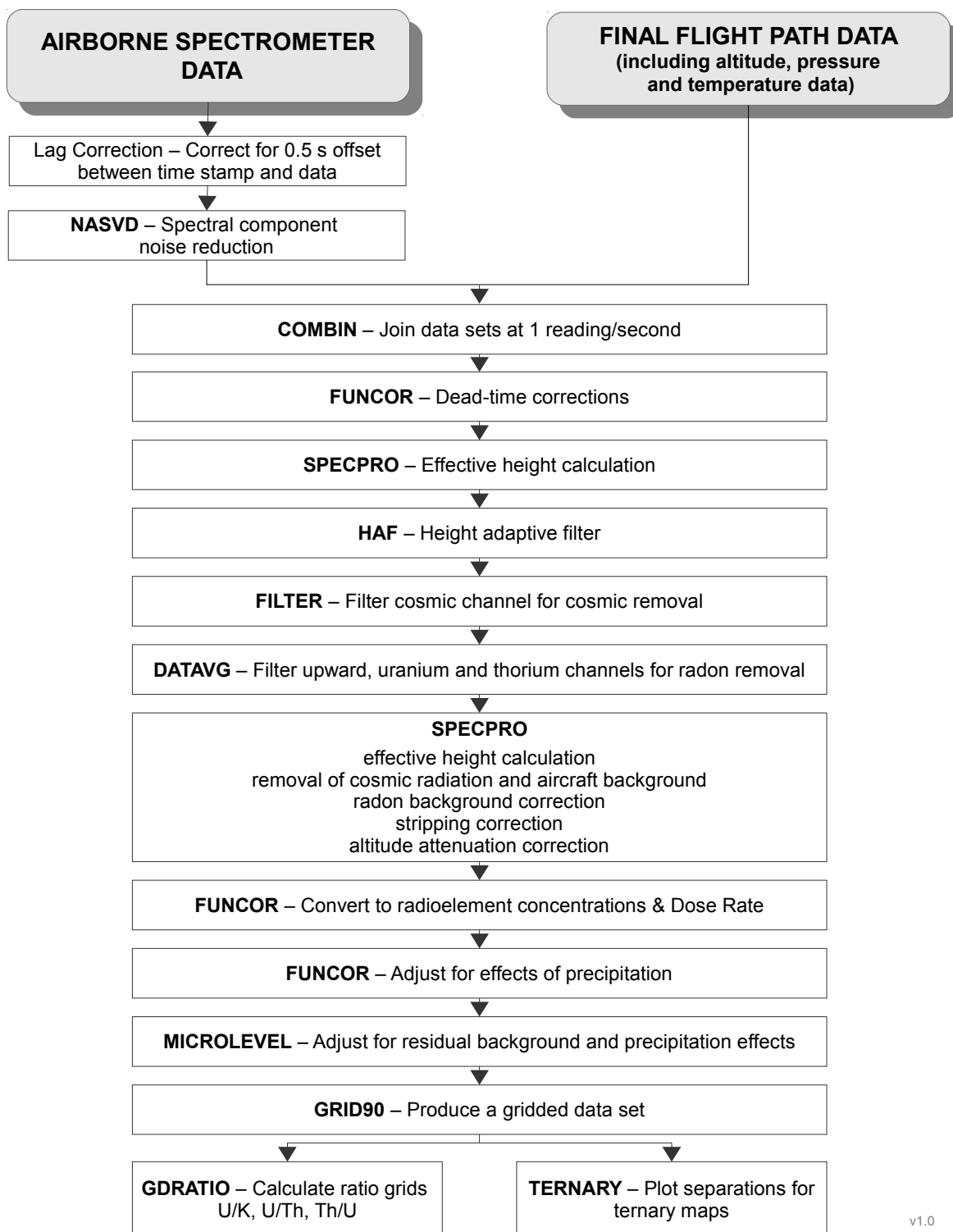
***Calculation of Enhanced Residual Magnetic Field***

The two levelled horizontal gradients, lateral gradient and longitudinal, can be utilized to create a first vertical derivative using the Hilbert transform relationship (Nabighian, M.N. 1984, Geophysics v.49 p.780-786). Once the Hilbert transform is been applied to the lateral and longitudinal gradients, the outputs are summed to create a first vertical derivative grid. The first vertical derivation was then integrated to create a gradient-enhanced residual magnetic field.

However the integrated gradient enhanced residual magnetic field does not contain the long wavelength signal that is well sampled and retained in the single sensor residual magnetic field data. To account for this the long wavelength magnetic anomaly must be recovered. This was achieved by analysis of the difference between these two versions of the residual magnetic field and a low pass filter is applied to the difference to isolate the missing long wavelengths that can then be added to the integrated residual magnetic field. A 2nd order Butterworth filter with a cut off of 2 km was found to match the two residual field well whilst retaining the enhancement of the short wavelengths from the measured gradients.

All grids generated during this procedure are created with a cell size of 25 m.

## SPECTROMETER DATA PROCESSING



v1.0

Figure 18: Spectrometer data processing flowchart

## Spectrometer Data

A spectrometer data flowchart is presented in *Figure 18*.

The data were recorded at 1 Hz in asynchronous mode, and subsequently interpolated to 1 Hz synchronous data on the exact second. A 0.5 second offset correction was applied to all data to correct for the time delay between the 1.0 second period over which the data is recorded and the time stamp that is assigned at the end of the period.

### ***Spectral Component Analysis***

Raw 256 channel spectrometer data were analyzed using noise adjusted singular value decomposition (NASVD; J. Hovgaard and R L. Grasty paper 98; Geophysics and Geochemistry at the Millennium, Proceedings of the 4<sup>th</sup> Decennial International Conference on Mineral Exploration, 1997). Normalization with respect to the count rate is achieved by dividing each measured spectrum 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 low order components, and variation due to noise is accounted for by the higher order components. Spectra are reconstructed from the low order signal only components, and the count rates in the standard windows are recalculated.

Through such an analysis, it was determined that components higher than order 16 contained only variation due to noise except for component 60, thus only components 0 to 16 and 60 were used in the final data.

*Figures 19 and 20* shows charts of the NASVD components employed.



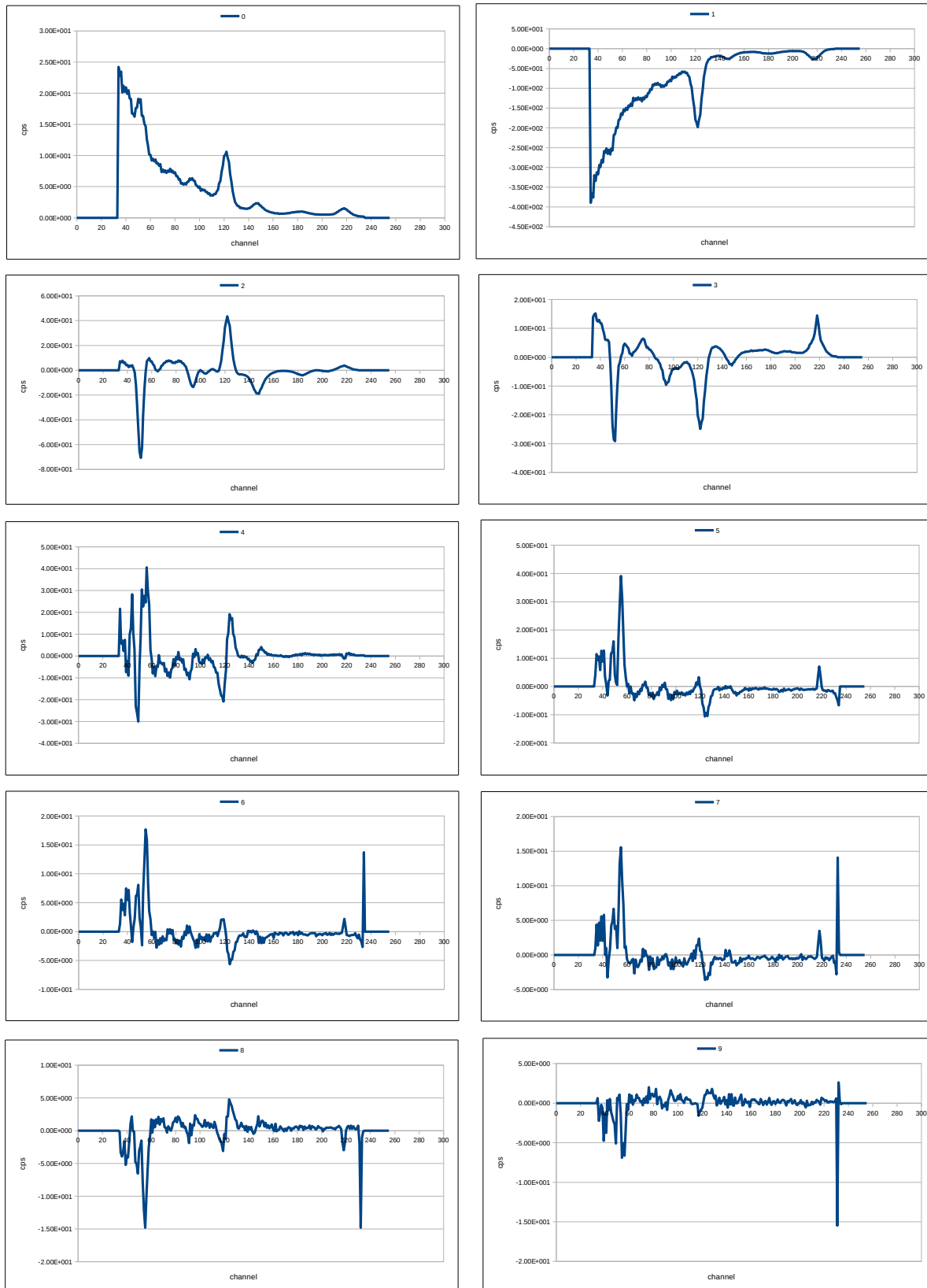


Figure 19: Spectral components 0 to 9

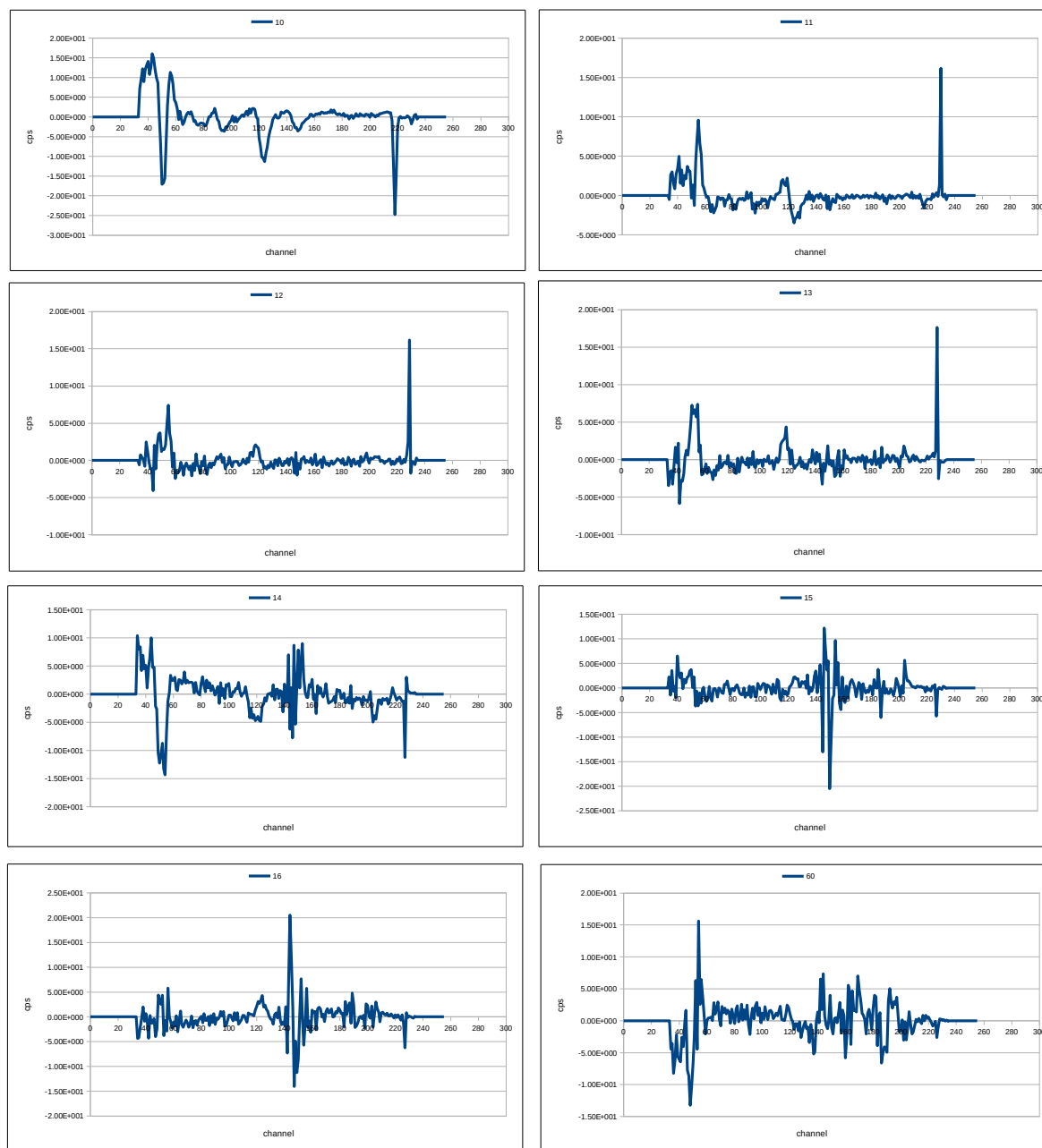


Figure 20: Spectral components 10 to 16 and 60

### Standard Correction Coefficients

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 gamma-ray spectroscopy processing parameters as applied to the systems employed in each of the three survey aircraft are shown in Tables 32 to 34.

Table 32: C-GSGW Spectrometer processing parameters

Spectrometer Processing Parameters		
Window	Cosmic Stripping Ratio (b)	Aircraft Background (a)
Total	0.7587	89.96
Potassium	0.0438	17.55
Uranium	0.0352	2.29
Thorium	0.0416	0.00
Upward	0.0048	0.00
Radon Component	a	b
Total (I <sub>r</sub> )	12.7614	40.2761
Potassium (K <sub>r</sub> )	0.7523	1.7059
Thorium (T <sub>r</sub> )	0.0557	0.8498
Up (u <sub>r</sub> )	0.1663	0.3128
Ground Component	a <sub>1</sub>	a <sub>2</sub>
Up (u <sub>g</sub> )	0.029236	0.009308
Stripping Ratios	Contribution on the Ground	Effective Height Adjustment (m <sup>-1</sup> )
α	0.2639	0.00049
β	0.3900	0.00065
γ	0.7591	0.00069
a	0.0456	N/A
b	0.0000	N/A
g	0.0068	N/A
Attenuation Coefficients (m <sup>-1</sup> )		
Total	-0.006924	
Potassium	-0.008569	
Uranium	-0.007456	
Thorium	-0.006584	
Sensitivities		
Potassium	129.2447 cps/%	
Uranium	14.7027 cps/eU ppm	
Thorium	7.2769 cps/eTh ppm	

Table 33: C-GSGL Spectrometer processing parameters

Spectrometer Processing Parameters		
Window	Cosmic Stripping Ratio (b)	Aircraft Background (a)
Total	0.6297	79.76
Potassium	0.0401	16.80
Uranium	0.0298	2.60
Thorium	0.0284	0.00
Upward	0.0052	0.00
Radon Component	a	b
Total (I <sub>r</sub> )	13.6479	6.1257
Potassium (K <sub>r</sub> )	0.8116	0.3787
Thorium (T <sub>r</sub> )	0.0762	0.0145
Up (u <sub>r</sub> )	0.1626	0.0300
Ground Component	a <sub>1</sub>	a <sub>2</sub>
Up (u <sub>g</sub> )	0.028738	0.009462
Stripping Ratios	Contribution on the Ground	Effective Height Adjustment (m <sup>-1</sup> )
α	0.2345	0.00049
β	0.3877	0.00065
γ	0.6909	0.00069
a	0.0402	N/A
b	0.0000	N/A
g	0.0031	N/A
Attenuation Coefficients (m <sup>-1</sup> )		
Total	-0.007096	
Potassium	-0.008837	
Uranium	-0.008124	
Thorium	-0.006799	
Sensitivities		
Potassium	122.6500 cps/%	
Uranium	14.5400 cps/eU ppm	
Thorium	7.5300 cps/eTh ppm	

Table 34: C-GSGV Spectrometer processing parameters

Spectrometer Processing Parameters		
Window	Cosmic Stripping Ratio (b)	Aircraft Background (a)
Total	0.6809	103.04
Potassium	0.0411	18.49
Uranium	0.0343	3.01
Thorium	0.0412	0.00
Upward	0.0048	0.00
Radon Component	a	b
Total (I <sub>r</sub> )	14.3483	2.0254
Potassium (K <sub>r</sub> )	0.8068	0.5433
Thorium (T <sub>r</sub> )	0.0816	0.2826
Up (u <sub>r</sub> )	0.1777	0.3673
Ground Component	a <sub>1</sub>	a <sub>2</sub>
Up (u <sub>g</sub> )	0.031636	0.008378
Stripping Ratios	Contribution on the Ground	Effective Height Adjustment (m <sup>-1</sup> )
α	0.2669	0.00049
β	0.4150	0.00065
γ	0.7635	0.00069
a	0.0485	N/A
b	0.0000	N/A
g	0.0066	N/A
Attenuation Coefficients (m <sup>-1</sup> )		
Total	-0.006766	
Potassium	-0.008315	
Uranium	-0.007392	
Thorium	-0.006612	
Sensitivities		
Potassium	117.8600 cps/%	
Uranium	14.4300 cps/eU ppm	
Thorium	8.7100 cps/eTh ppm	

**Dead-time correction**

The system live time was 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 not receive a dead-time correction as it is processed by separate circuitry in a GR820 spectrometer. The dead-time correction was applied to each window in both the upward and downward looking detector data using the following equation:

$$N = \frac{n}{t}$$

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).

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

A 67-point low pass filter (see *Appendix XII*) was applied to 10 Hz radar altimeter data, a low pass filter with a cosine roll off from 4.2 to 4.7 seconds was applied to 10 Hz barometric altimeter data, and a 199 point running average was applied to the temperature data. The barometric altimeter data was 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:

$$h_e = h \times \frac{273.15}{T + 273.15} \times \frac{P}{101.325}$$

where,  $h_e$  = the effective height  
 $h$  = the observed radar altitude in metres  
 $T$  = the observed air temperature in degrees Celsius and  
 $P$  = the observed barometric pressure in kPa.

**Height Limit**

Data collected at a terrain clearance greater than 300 m are considered unreliable due to the low count rates in this survey area and consequent low signal to noise ratio. Radiometric data recorded at a higher height than 300 m were nulled, and in the case of Uranium the limit was set to 250m.

**Removal of cosmic radiation and aircraft background radiation**

A 67-point low pass filter (see *Appendix XII*) is applied to 1 Hz 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 equation:

$$N = a + b C$$

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.

## Radon background corrections

A low pass filter with a cosine tapered ramp between 15 and 25 data points is applied to 1 Hz downward uranium, downward thorium and upward uranium count data for the purposes of the radon correction only. The radon component in the uranium window is calculated using the radon coefficients determined from the survey data using the following equation:

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

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 component 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 uranium upward window and the potassium, thorium and total count downward windows are calculated from  $U_r$  using the following equations:

$$\begin{aligned} u_r &= a_u U_r + b_u \\ K_r &= a_K U_r + b_K \\ T_r &= a_T U_r + b_T \\ I_r &= a_I U_r + b_I \end{aligned}$$

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.

## 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:

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

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,
- $\alpha$ ,  $\beta$ , and  $\gamma$  = the forward stripping ratios, and
- $a$ ,  $b$  and  $g$  = the reverse stripping ratios.

$\alpha$ ,  $\beta$ , and  $\gamma$  are adjusted for effective height (as calculated above) by standard factors given in *Tables 32 to 34 Spectrometer Processing Parameters*.

#### **Altitude attenuation correction**

This correction normalizes the data to a constant terrain clearance of 100 m 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,  $h_o$ ,
- $N_m$  = the background corrected, stripped count rate at effective height  $h$ ,
- $\mu$  = the attenuation coefficient for that window,
- $h_o$  = the nominal survey altitude, and
- $h$  = the effective height.

The effective height was determined in as described above.

#### **Conversion to radio element concentration and Dose Rate**

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" using the following equation:

$$C = \frac{N}{S}$$

- 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 ( $^{214}\text{Bi}$  for uranium,  $^{208}\text{Th}$  for thorium).

The Air Absorbed Dose Rate (AADR) is calculated as follows:

$$\begin{aligned}\text{AADR} = & 13.1 \times \text{Concentration of Potassium (\%)} \\ & + 5.43 \times \text{Concentration of Uranium (ppm)} \\ & + 2.69 \times \text{Concentration of Thorium (ppm)}\end{aligned}$$

The units of AADR are nano-gray per hour (nGy/h)

### **Background Adjustments**

After standard corrections were applied, variations in background level were still apparent on some lines. These were adjusted manually and the corrections applied are listed in *Appendix XIII*.

### **Precipitation Adjustments**

The survey spanned a considerable period during which ground conditions changed as a result of significant precipitation. To account for this, adjustments are made by applying scale factors to the element concentrations determined through inspection of grids of single radioelements and their relative ratios (see below) to remove artifacts due to the changes in apparent radioactivity levels. The sensitivity of the system employed in C-GSGL was also inconsistent during a period of extreme cold, and this is also accounted for by these adjustments.

The correction involved scaling of concentration levels for entire flights due to higher than normal precipitation during preceding days. The scale factors were determined by inspection of gridded data.

All the scaling adjustments applied are listed in *Appendix XIV*.

### **Micro-Levelling**

Micro-levelling was applied to remove any residual background or precipitation effects from the data. This was achieved by using directional filters to identify and remove artifacts that are long wavelengths parallel to survey lines and short wavelengths perpendicular to survey lines. The following limits were set for the micro-levelling corrections:

- Total Count +/- 50 cps
- Potassium +/- 0.15 %
- Uranium +/- 0.3 ppm
- Thorium +/- 0.15 ppm

### **Data gridding**

The grids of dose rate, total count, potassium concentration, equivalent uranium concentration and equivalent thorium concentration were made using a minimum curvature algorithm to create a two-dimensional grid equally sampled in the 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 20 m grid cell size appropriate for survey lines spaced at 100 m.

### **Element Ratios**

The ratios of equivalent uranium/equivalent thorium, equivalent uranium/potassium and equivalent thorium/potassium are calculated from the final grids of concentrations. It is necessary to eliminate the effect of concentration values that are too low to provide a reliable result. Therefore, data is nulled where the concentration of potassium falls below 0.10 ppm which are considered to be areas of water or swamp. In addition, data is screened so that ratios are only determined where both the numerator and denominator are equivalent to 100 cps. Where the concentrations fall below this threshold for any given cell in the grid, the area under consideration is expanded to include cells up to a maximum of 500 m in a radius around the cell under consideration so as to meet the minimum count rate requirement. If the minimum levels are not reached by this method, the data is considered too weak to determine a ratio and are left as null.

### **Ternary Radioelement Map**

The ternary radioelement map is generated along the lines described in the IAEA-TECDOC-1363 "Guidelines for radioelement mapping using gamma ray spectrometry data" (IAEA 2003). The ternary map is a colour composite image in which the relative concentrations of potassium, equivalent uranium and equivalent thorium determine the colour hue whilst the overall intensity of the hue is determined by the total radioactivity.

Total Radioactivity ( $TR$ ) is calculated as follows:

$$TR = K + eU + \frac{eTh}{4}$$

where  $K$  is expressed as a percentage and  $eU$  and  $eTh$  are expressed in ppm.

Total radioactivity is split into five levels that together span the full range of values from zero to the maximum total radioactivity encountered. The intensity of the colours used increases for each higher level of total radioactivity.

Relative concentrations of each radioelement are calculated as follows:

$$K_n = \frac{K}{(K + eU + eTh/4)}$$

$$U_n = \frac{U}{(K + eU + eTh/4)}$$

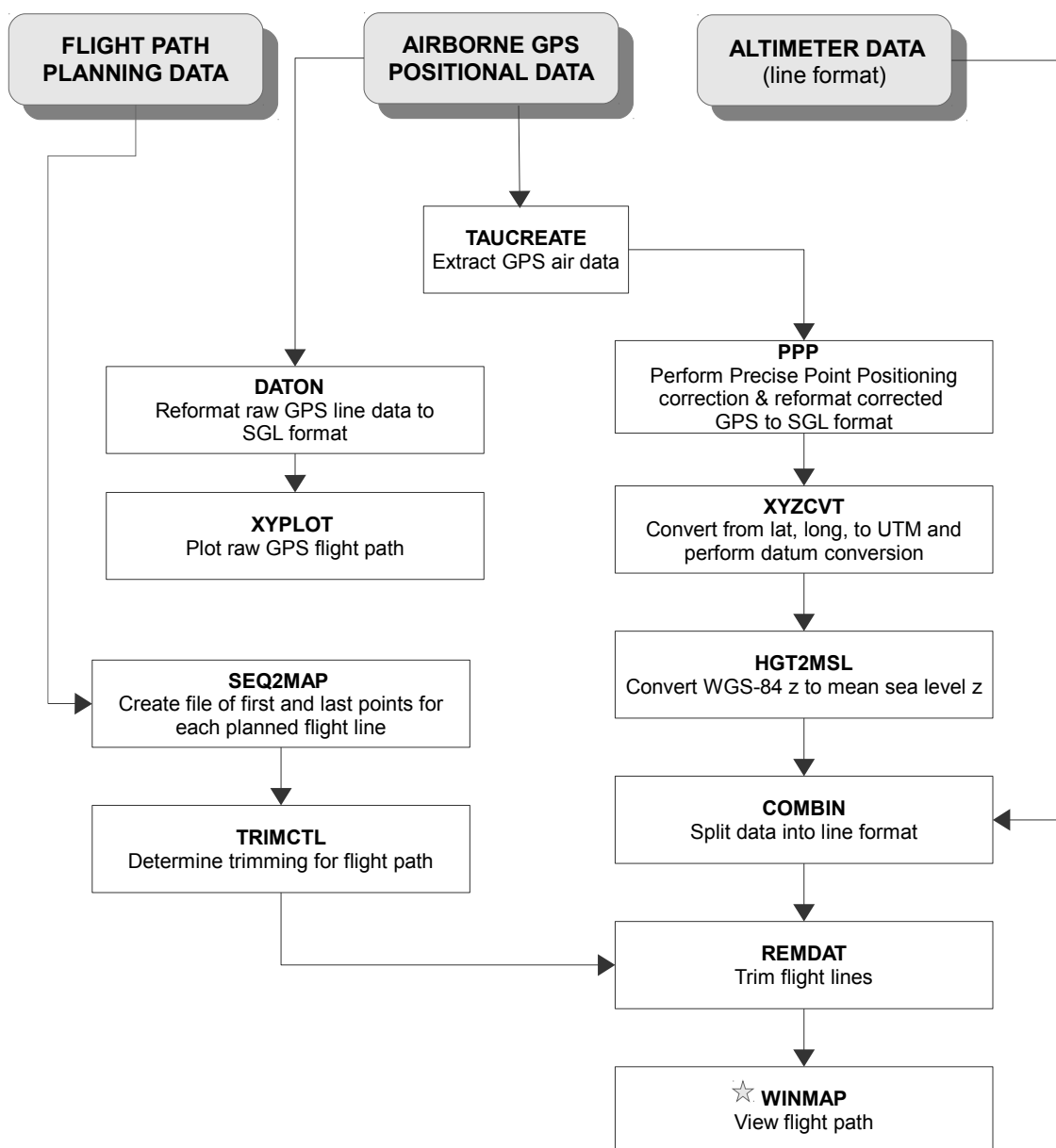
$$Th_n = \frac{(Th/4)}{(K + eU + eTh/4)}$$

This normalizes the data with respect to average crustal concentrations. Each relative concentration is expressed as a percentage of the total radioactivity, and together they sum up to 100%. The relative saturation of magenta, cyan and yellow is determined by the percentage of relative concentration of potassium, uranium and thorium respectively. For example, 100% potassium will be represented by pure magenta. Within each level of total radioactivity the full range of possible colours is assigned to achieve an equal area distribution so that all colours appear in equal abundance on the ternary image. This approach preserves the most detailed resolution of the data in the ternary image.

## Positional Data

A positional data flowchart is presented in *Figure 21*. A number of programs were executed for the compilation of navigation data in order to reformat and recalculate positions from raw 10 Hz range data obtained from the moving (airborne) receivers using combinations of L1 and L2 phase signal.

### POSITIONAL DATA PROCESSING



☆ Quality Control Check

v1.1

Figure 21: Positional data processing flowchart

Accurate locations of the GPS antenna were determined through Precise Point Positioning (PPP) corrections using the algorithm developed by the Natural Resources Canada (NRCAN) (<http://webapp.geod.nrcan.gc.ca/geod/tools-outils/ppp.php>) adapted to run under SGL's suite of software. This technique provides a final receiver location with an accuracy of better than 5 cm.

Positional data (x, y, z) were recorded and all data processing was performed and delivered in the datum WGS-84 datum. Please see *Table 35* for the ellipsoid parameters for this datum.

*Table 35: Ellipsoid parameters for WGS-84*

Ellipsoid	WGS-84
Semi-major axis	6378137.0
1/flattening	298.257223563

The survey is located within UTM zone 15N so all located data and grids are provided in this projection.

Elevation data were recorded relative to the GRS-80 ellipsoid and transformed to orthometric "mean sea level" (MSL) height using the EGM2008 model.

## **Radar, Barometric, and Laser Altimeter Data**

The barometric altimeter was recorded at a rate of 10 Hz and used in the calculation of effective height for spectrometer data processing (see above) but was not used for positional purposes because of the availability of more accurate GPS altitudes.

The laser altimeter recorded terrain clearance at 3.3 Hz. Even though the laser altimeter can record returns up to 1500 m above the ground with a high degree of certainty, laser data dropouts occurred while flying over the extreme mountainous parts of the survey area. The laser data also shows the effects of the tree cover in many places, with groups or individual trees apparent; variable penetration between the trees results in a high frequency variation of recorded altitude. The raw laser data were processed with an iterative de-spiking routine to remove the effects of the trees

The terrain clearance was measured by the TRT radar altimeter and the King radar altimeter at 10 Hz. The TRT and King radar altimeter data were filtered to remove high-frequency noise using a 67-point low pass filter. The final data were plotted and inspected for quality. In general the radar altimeter penetrates the canopy of groups of trees less than the laser as it records the first return within the footprint of its signal.

A digital elevation model (DEM) was derived by subtracting the laser altimeter data from the GPS altitude with respect to mean sea level. Sections of poor laser data due to locally weak reflectivity from the surface or the effects of clouds and where laser data is missing due to high clearances above the laser's limit were replaced using TRT radar data. In some instances the absence of TRT radar required that the King radar data be used instead. Water surfaces often provide inconsistent returns from the altimeters depending on surface conditions, therefore some of the larger lakes were flattened. The DEM is provided as grids with a 20 m cell size.

## 9. FINAL PRODUCTS

### Magnetic Line Data Format

A listing of the data channels delivered in ASCII format with a sampling rate of 10 Hz can be found in *Table 36*.

*Table 36: Magnetic line data channels and format*

Title	Units	Field Length	Null	Description
LINE	-	8	-	Line Number XXXX.YY where XXXX is line number and YY is segment number
FLT	-	6	-	Flight Number
YEAR	-	5	-	Year
DOY	-	5	-	Day of year
TIME	s	10	*	Fiducial Seconds Past Midnight UTC
UTM-X	m	11	*	X coordinate, WGS-84 UTM ZONE 15N
UTM-Y	m	11	*	Y coordinate, WGS-84 UTM ZONE 15N
UTM-Z	m	10	*	GPS Elevation (above WGS-84 Ellipsoid)
MSL-Z	m	10	*	GPS Elevation (above Mean Sea Level)
LAT	degree	13	*	Latitude, WGS-84
LONG	degree	13	*	Longitude, WGS-84
ALT	m	11	*	Processed Altimeter
CLEAR	m	11	*	Clearance (Height above ground)
TER	m	11	*	Processed DEM (Above Mean Sea Level)
UNCOMP-3	nT	11	*	Raw Total Magnetic Field for tail sensor
COMP-3	nT	11	*	Compensated Total Magnetic Field for tail sensor
COMPLAG-3	nT	11	*	Compensated, Lag Corrected Total Magnetic Field for tail sensor
DIURNAL	nT	11	*	Diurnal Magnetic Field From Reference Station
IGRF	nT	11	*	Local IGRF field
DCMAG-3	nT	11	*	Compensated, Lag and Diurnal Corrected Magnetic Anomaly for tail sensor
IGRFMAG-3	nT	11	*	Compensated, Lag, Diurnal and IGRF Corrected Magnetic Anomaly for tail sensor
CTAYLOR-3	nT	11	*	Upward continued compensated, Lag, Diurnal and IGRF Corrected Magnetic Anomaly for tail sensor
LEVDMAG-3	nT	11	*	Levelled Anomalous Magnetic Field for tail sensor
FINALMAG-3	nT	11	*	Microlevelled Anomalous Magnetic Field for tail sensor

## Magnetic Gradient Line Data Format

A listing of the data channels delivered in ASCII format with a sampling rate of 10 Hz can be found in *Table 37*.

*Table 37: Magnetic gradient line data channels and format*

Title	Units	Field Length	Null	Description
LINE	-	8	-	Line number XXXX.YZ where XXXX is line number, Y is the segment number and Z is re-flight number
FLIGHT	-	6	-	Flight number
DAY	-	5	-	Day of the year
TIME	s	10	-	UTC time after midnight
WGS-X	m	11	*	X coordinate, WGS-84 UTM zone 15N
WGS-Y	m	11	*	Y coordinate, WGS-84 UTM zone 15N
WGS-Z	m	10	*	Height above WGS-84 ellipsoid
MSL-Z	m	10	*	Height above mean sea level
LAT	degree	16	*	Latitude WGS-84
LONG	degree	16	*	Longitude WGS-84
RA	m	11	*	Radar altimeter
CLEAR	m	9	*	Clearance (Height above ground)
TER	m	9	*	Processed DEM (Above Mean Sea Level)
UNCOMP-1	nT	11	*	Raw Total Magnetic Field for Port sensor
COMP-1	nT	11	*	Compensated Total Magnetic Field for Port sensor
UNCOMP-2	nT	11	*	Raw Total Magnetic Field for Starboard sensor
COMP-2	nT	11	*	Compensated Total Magnetic Field for Starboard sensor
UNCOMP-3	nT	11	*	Raw Total Magnetic Field for tail sensor
COMP-3	nT	11	*	Compensated Total Magnetic Field for tail sensor
COMPLAG-3	nT	11	*	Compensated, Lag Corrected Total Magnetic Field for tail sensor
DIURNAL	nT	11	*	Diurnal Magnetic Field From Reference Station
IGRF	nT	11	*	Local IGRF field
DCMAG-3	nT	11	*	Compensated, Lag and Diurnal Corrected Magnetic Anomaly for tail sensor
IGRFMAG-3	nT	11	*	Compensated, Lag, Diurnal and IGRF Corrected Magnetic Anomaly for tail sensor
CTAYLOR-3	nT	11	*	Upward continued compensated, Lag, Diurnal and IGRF Corrected Magnetic Anomaly for tail sensor
LEVLMAG-3	nT	11	*	Levelled Anomalous Magnetic Field for tail sensor
FINALMAG-3	nT	11	*	Microlevelled Anomalous Magnetic Field for tail sensor
RAWLATGRAD	nT/m	13	*	Compensated Lateral Magnetic Gradient
RAWLONGGRAD	nT/m	13	*	Compensated Longitudinal Magnetic Gradient
CORLATGRAD	nT/m	13	*	Compensated, Lag Corrected, Lateral Magnetic Gradient
CORLONGGRAD	nT/m	13	*	Compensated, Lag Corrected, Longitudinal Magnetic Gradient
LEVLATGRAD	nT/m	13	*	Levelled Lateral Magnetic Gradient

Title	Units	Field Length	Null	Description
LEVLONGGRAD	nT/m	13	*	Levelled Longitudinal Magnetic Gradient
EN_MAG	nT	11	*	Enhanced Anomalous Magnetic Field

## Radiometric Line Data Format

A listing of the data channels delivered in ASCII format with a sampling rate of 1 Hz can be found in *Table 38*.

*Table 38: Radiometric line data channels and format*

Title	Units	Field Length	Null	Description
LINE	-	8	-	Line number XXXX.YZ where XXXX is line number, Y is the segment number and Z is re-flight number
FLIGHT	-	6	-	Flight number
DAY	-	5	-	Day of the year
TIME	s	10	-	UTC time after midnight
WGS-X	m	11	*	X coordinate, WGS-84 UTM zone 15N
WGS-Y	m	11	*	Y coordinate, WGS-84 UTM zone 15N
WGS-Z	m	10	*	Height above WGS-84 ellipsoid
MSL-Z	m	10	*	Height above mean sea level
LAT	degree	16	*	Latitude WGS-84
LONG	degree	16	*	Longitude WGS-84
RA	m	11	*	Radar altimeter
BA_ALT	m	11	*	Barometric altimeter
TER	m	11	*	Processed DEM (above Mean Sea Level)
TEMP	°C	11	*	Temperature
EFF	m	11	*	Effective height
R_LIVE	msec	8	*	Livetime
R_COS	counts/s	10	*	Recorded cosmic count
R_UP_U	counts/s	10	*	Recorded up-looking uranium count
R_TOT	counts/s	10	*	Recorded total count
R_POT	counts/s	10	*	Recorded potassium count
R_U	counts/s	10	*	Recorded uranium count
R_TH	counts/s	10	*	Recorded thorium count
CR_TOTUL	counts/s	10	*	Corrected total count (unlimited)
CR_POTUL	counts/s	10	*	Corrected potassium count (unlimited)
CR_URUL	counts/s	10	*	Corrected uranium count (unlimited)
CR_THUL	counts/s	10	*	Corrected thorium count (unlimited)
CR_POTCUL	%	12	*	Corrected potassium concentration (unlimited)
CR_URACUL	ppm	12	*	Corrected uranium concentration (unlimited)
CR_THCUL	ppm	12	*	Corrected thorium concentration (unlimited)
DOSEUL	nGy/hr	12	*	Total air absorbed dose rate (unlimited)
CR_TOT	counts/s	10	*	Corrected total count limited to 300 meters above ground and zeroed in low count areas



Title	Units	Field Length	Null	Description
CR_POT	counts/s	10	*	Corrected potassium count limited to 300 meters above ground and zeroed in low count areas
CR_URA	counts/s	10	*	Corrected uranium count limited to 250 meters above ground and zeroed in low count areas
CR_TH	counts/s	10	*	Corrected thorium count limited to 300 meters above ground and zeroed in low count areas
CR_POTC	%	12	*	Corrected potassium concentration limited to 300 meters above ground and zeroed in low count areas
CR_URAC	ppm	12	*	Corrected uranium concentration limited to 250 meters above ground and zeroed in low count areas
CR_THC	ppm	12	*	Corrected thorium concentration limited to 300 meters above ground and zeroed in low count areas
DOSE	nGy/hr	12	*	Total air absorbed dose rate limited to 250 meters above ground and zeroed in low count areas
DOWNI	counts	array	*	256-channel gamma-ray spectrum interpolated to 1 Hz, downward-facing crystals
UPI	counts	array	*	256-channel gamma-ray spectrum interpolated to 1 Hz, upward-facing crystals
NASVD_DNI	counts	array	*	256-channel gamma-ray spectrum interpolated to 1 Hz, noise reduced downward-facing crystals

## Digital Grids

The following are provided as digital grids:

Formats:	Grid Exchange (GXF) & XYZ (XYZ)
Datum:	WGS-84
Projection:	UTM 15N

Table 39: Delivered digital grids

Grid File Name	Units	Grid Cell Size (m)	Description
DoseU	nGy/hr	20	Total air absorbed dose rate (unlimited)
PotassiumU	%	20	Potassium (unlimited)
UraniumU	ppm	20	Equivalent Uranium (unlimited)
ThoriumU	ppm	20	Equivalent Thorium (unlimited)
Dose	nGy/hr	20	Total air absorbed dose rate limited to 250 meters above ground and zeroed in low count areas
Potassium	%	20	Potassium limited to 300 meters above ground and zeroed in low count areas
Uranium	ppm	20	Equivalent Uranium limited to 250 meters above ground and zeroed in low count areas
Thorium	ppm	20	Equivalent Thorium limited to 300 meters above ground and zeroed in low count areas
Ratio_UT	ppm/ppm	20	Equivalent Uranium / Equivalent Thorium ratio limited to 250 meters above ground
Ratio_UK	ppm/%	20	Equivalent Uranium / Potassium ratio limited to 250 meters above ground
Ratio_TK	ppm/%	20	Equivalent Thorium / Potassium ratio limited to 300 meters above ground
MAG	nT	20	Magnetic Anomaly of main block
MAG_ext	nT	20	Magnetic Anomaly of extension block
FVM	nT/km	20	First Vertical Derivative of Magnetic Anomaly of main block
FVM_ext	nT/km	20	First Vertical Derivative of Magnetic Anomaly of extension block
DEM	m	20	Digital Elevation Model of main and extension blocks
Enhanced_Mag	nT	25	Gradient enhanced Anomalous Magnetic Field
Enhanced_FVD	nT	25	Gradient derived First Vertical Derivative of the Anomalous Magnetic Field

## Maps

The following products are provided as paper maps and digitally. See *Appendix XV* for report size maps.

Datum:	WGS-84
Projection:	UTM 15N
Map Scale:	1:50,000

*Table 40: Delivered maps, hard copy and digitally (xx refers to sheets 01 through 07)*

Map Name	Description
AMF xx	Anomalous Magnetic Field
DTM xx	Digital Terrain Model
ADR xx	Air Absorbed Dose Rate
TNY xx	Ternary Map

Datum:	WGS-84
Projection:	UTM 15N
Map Scale:	1:100,000

*Table 41: Delivered maps, hard copy and digitally (sheets East and West)*

Map Name	Description
AMF East	Anomalous Magnetic Field, East map sheet
AMF West	Anomalous Magnetic Field, West map sheet
DTM East	Digital Terrain Model, East map sheet
DTM West	Digital Terrain Model, West map sheet
ADR East	Air Absorbed Dose Rate, East map sheet
ADR West	Air Absorbed Dose Rate, West map sheet
TNY East	Ternary Map, East map sheet
TNY West	Ternary Map, West map sheet





## Appendix I







# COMPANY PROFILE

## ABOUT US

Sander Geophysics Limited (SGL) provides worldwide airborne geophysical surveys for petroleum and mineral exploration, and geological and environmental mapping. Services offered include high resolution airborne gravity, magnetic, electromagnetic, and radiometric surveys, using fixed-wing aircraft and helicopters.



*SGL head office in Ottawa, Canada*

Dr. George W. Sander (1924–2008) founded SGL in 1956 to provide ground geophysical surveys. The first airborne surveys were performed as early as 1958, and by 1967 airborne geophysical surveys were the company's main focus. Operations have expanded steadily since SGL was founded more than 50 years ago. The company is led by co-Presidents Luise Sander and Stephan Sander.

## WORLDWIDE OPERATIONS

SGL's head office and aircraft maintenance hangar are located at the International Airport in Ottawa, Canada. Sander Geophysics has operated on every continent including Antarctica, over diverse conditions ranging from the tropics to deserts, mountains and offshore.

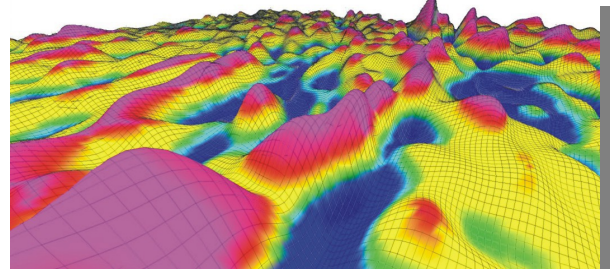
Facilities at the head office include a state of the art data processing department with an integrated digital cartographic department and a fully equipped electronics workshop for research, development and production of geophysical instruments. A Transport Canada Approved Maintenance Organization (AMO) for fixed-wing aircraft and helicopters allows most aircraft maintenance and modifications to be performed in-house.

## SERVICES

### AIRBORNE SURVEYS

- **Gravity (AIRGrav)**
- **Magnetic Total Field**
- **Magnetic Gradient**
- **Electromagnetic**
- **Gamma-ray Spectrometer**
- **Scanning LiDAR**

SGL offers gravity surveys with **AIRGrav** (Airborne Inertially Referenced Gravimeter), which was designed specifically for the unique characteristics of the airborne environment and is the highest resolution airborne gravimeter available. **AIRGrav** can be flown in an efficient survey aircraft during normal daytime conditions and is routinely flown in combination with magnetometer systems in SGL's airplanes and helicopters.



*AIRGrav data: 3d image of the first vertical derivative of terrain corrected Bouguer gravity*

### DATA PROCESSING

Immediate data processing is part of SGL's standard quality control procedure, and provides clients with rapid results for evaluation while a survey is in progress. Sander Geophysics offers a full range of data enhancement programs and integrated interpretation services by experienced geoscientists. Available products in digital and/or hard copy include:

- **Contour, colour or shaded relief maps of any parameter or combination of parameters**
- **NASVD processed gamma-ray spectrometer data**
- **Filtered line or grid products such as vertical or horizontal gradients, frequency slices,**

high/low-pass or band-pass filtered, amplitude of the analytic signal, reduction to the pole, upward or downward continuation

- **Computed depth to basement**
- **Calculated digital terrain models**
- **Two- or three-dimensional modelling**
- **Cultural editing**
- **Complete geophysical interpretative reports**

## ■ ENVIRONMENTAL MONITORING

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

## HEALTH & SAFETY

Sander Geophysics is a founding and active executive 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 has developed and implemented a Safety Management System (SMS) and comprehensive Health, Safety and Environment (HSE) policies that govern all aspects of company operations. Safety initiatives include:

- **Project-specific Aviation Risk Analysis (ARA) and Personnel Risk Analysis (PRA) for all surveys**
- **Real-time satellite tracking of SGL aircraft**
- **HSE and first aid training for all field personnel**
- **Low-level flight and aircraft simulator training for pilots**
- **Advanced safety training appropriate to the survey location, such as water-egress, wilderness survival, etc.**

SGL's excellent safety record reflects the quality and experience of its survey crews. This, combined with management's ongoing commitment to safety, helps to ensure that Sander Geophysics is a safe and reliable choice for airborne geophysical surveys.

## PERSONNEL

Sander Geophysics has over 160 experienced permanent employees, including geophysicists, software and hardware engineers, aircraft maintenance engineers and pilots.

## AIRCRAFT

SGL owns and operates seventeen aircraft, including eight Cessna Grand Caravans and a Twin Otter all equipped for geophysical surveys.

The Grand Caravans have been modified to allow the installation of a tri-axial magnetic gradiometer system. The company's fleet also includes three all composite Diamond DA42 Twin Stars, modified for gravity and horizontal magnetic gradient surveys, and two AS350 B3 helicopters equipped for gravity, magnetic and radiometric surveys. Extensive modifications have been made to all of the survey aircraft to accommodate geophysical instruments and to reduce the aircraft's magnetic field. Typical Figures of Merit (FOM) for Sander Geophysics' fixed-wing aircraft are less than 1 nT. The company's aircraft are flown and maintained by licensed and experienced permanent employees of Sander Geophysics.



SGL aircraft

## RESEARCH & DEVELOPMENT

Nearly one-third of the company's resources are devoted to developing new and more efficient instrumentation for airborne geophysical surveying, and to further refine its full suite of software for geophysical data processing.





## Appendix II





**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
C0101.0	N47:32.73	W093:27.86	N47:32.79	W092:55.89	21.65	40.10
C0102.0	N47:33.27	W093:29.22	N47:33.33	W092:55.89	22.57	41.80
C0103.0	N47:33.80	W093:30.66	N47:33.87	W092:55.89	23.54	43.60
C0104.0	N47:34.34	W093:32.11	N47:34.41	W092:55.89	24.51	45.40
C0105.0	N47:34.87	W093:33.47	N47:34.95	W092:55.89	25.43	47.10
C0106.0	N47:35.40	W093:34.91	N47:35.49	W092:55.89	26.40	48.90
C0107.0	N47:35.93	W093:36.27	N47:36.03	W092:55.89	27.32	50.60
C0108.0	N47:36.47	W093:37.72	N47:36.57	W092:55.88	28.29	52.40
C0109.0	N47:37.00	W093:39.16	N47:37.11	W092:55.88	29.27	54.20
C0110.0	N47:37.53	W093:40.52	N47:37.65	W092:55.88	30.18	55.90
C0111.0	N47:38.06	W093:41.97	N47:38.19	W092:55.88	31.16	57.70
C0112.0	N47:38.59	W093:43.33	N47:38.73	W092:55.88	32.07	59.40
C0113.0	N47:39.12	W093:44.78	N47:39.27	W092:55.88	33.05	61.20
C0114.0	N47:39.65	W093:46.22	N47:39.81	W092:55.88	34.02	63.00
C0115.0	N47:40.18	W093:47.59	N47:40.35	W092:55.88	34.94	64.70
C0116.0	N47:40.71	W093:49.04	N47:40.89	W092:55.88	35.91	66.50
C0117.0	N47:41.24	W093:50.41	N47:41.43	W092:55.88	36.83	68.20
C0118.0	N47:41.77	W093:51.85	N47:41.97	W092:55.88	37.80	70.00
C0119.0	N47:42.30	W093:53.22	N47:42.51	W092:55.88	38.71	71.70
C0120.0	N47:42.83	W093:54.43	N47:43.02	W092:41.88	48.97	90.70
C0121.0	N47:43.37	W093:54.44	N47:43.56	W092:41.87	48.97	90.70
C0122.0	N47:43.91	W093:54.45	N47:44.10	W092:41.87	48.97	90.70
C0123.0	N47:44.45	W093:54.46	N47:44.64	W092:41.87	48.97	90.70
C0124.0	N47:44.99	W093:54.47	N47:45.18	W092:41.86	48.97	90.70
C0125.0	N47:45.53	W093:54.48	N47:45.72	W092:41.86	48.97	90.70
C0126.0	N47:46.07	W093:54.49	N47:46.26	W092:41.86	48.97	90.70
C0127.0	N47:46.61	W093:54.50	N47:46.80	W092:41.85	48.97	90.70
C0128.0	N47:47.15	W093:54.51	N47:47.34	W092:41.85	48.97	90.70
C0129.0	N47:47.69	W093:54.52	N47:47.88	W092:41.85	48.97	90.70
C0130.0	N47:48.23	W093:54.53	N47:48.42	W092:41.85	48.97	90.70
C0131.0	N47:48.77	W093:54.53	N47:48.96	W092:41.84	48.97	90.70
C0132.0	N47:49.31	W093:54.54	N47:49.50	W092:41.84	48.97	90.70
C0133.0	N47:49.85	W093:54.55	N47:50.04	W092:41.84	48.97	90.70
C0134.0	N47:50.39	W093:54.56	N47:50.58	W092:41.83	48.97	90.70
C0135.0	N47:50.93	W093:54.57	N47:51.13	W092:43.51	47.84	88.60
C0136.0	N47:51.47	W093:54.58	N47:51.67	W092:43.51	47.84	88.60
C0137.0	N47:52.01	W093:54.59	N47:52.20	W092:41.82	48.97	90.70
C0138.0	N47:52.55	W093:54.60	N47:52.74	W092:41.82	48.97	90.70
C0139.0	N47:53.09	W093:54.61	N47:53.28	W092:41.82	48.97	90.70
C0140.0	N47:53.63	W093:54.62	N47:53.82	W092:41.81	48.97	90.70
C0141.0	N47:54.17	W093:54.63	N47:54.36	W092:41.81	48.97	90.70
C0142.0	N47:54.71	W093:54.64	N47:54.90	W092:41.81	48.97	90.70
C0143.0	N47:55.25	W093:54.65	N47:55.44	W092:41.80	48.97	90.70
C0144.0	N47:55.79	W093:54.66	N47:55.98	W092:41.80	48.97	90.70
C0145.0	N47:56.11	W094:17.72	N47:56.52	W092:41.80	64.47	119.40

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
C0146.0	N47:56.65	W094:17.73	N47:57.06	W092:41.79	64.47	119.40
C0147.0	N47:57.19	W094:17.75	N47:57.60	W092:41.79	64.47	119.40
C0148.0	N47:57.73	W094:17.76	N47:58.14	W092:41.79	64.47	119.40
C0149.0	N47:58.27	W094:17.77	N47:58.68	W092:41.79	64.47	119.40
C0150.0	N47:58.81	W094:17.79	N47:59.24	W093:05.10	48.81	90.40
C0151.0	N47:59.34	W094:17.80	N47:59.75	W093:22.07	37.42	69.30
C0152.0	N47:59.88	W094:17.81	N48:00.29	W093:22.08	37.42	69.30
C0153.0	N48:00.42	W094:17.83	N48:00.83	W093:22.08	37.42	69.30
C0154.0	N48:00.96	W094:17.84	N48:01.37	W093:22.08	37.42	69.30
C0155.0	N48:01.50	W094:17.85	N48:01.91	W093:22.09	37.42	69.30
C0156.0	N48:02.04	W094:17.87	N48:02.45	W093:22.09	37.42	69.30
C0157.0	N48:02.58	W094:17.88	N48:02.99	W093:22.10	37.42	69.30
C0158.0	N48:03.12	W094:17.89	N48:03.53	W093:22.10	37.42	69.30
C0159.0	N48:03.66	W094:17.91	N48:04.07	W093:22.10	37.42	69.30
C0160.0	N48:04.48	W093:46.76	N48:04.61	W093:22.11	16.52	30.60
T1001.0	N47:56.05	W094:17.68	N48:03.83	W094:17.87	7.78	14.40
T1002.0	N47:56.05	W094:17.60	N48:03.83	W094:17.79	7.78	14.40
T1003.0	N47:56.06	W094:17.52	N48:03.83	W094:17.71	7.78	14.40
T1004.0	N47:56.06	W094:17.44	N48:03.83	W094:17.63	7.78	14.40
T1005.0	N47:56.06	W094:17.36	N48:03.83	W094:17.55	7.78	14.40
T1006.0	N47:56.06	W094:17.28	N48:03.83	W094:17.47	7.78	14.40
T1007.0	N47:56.06	W094:17.20	N48:03.83	W094:17.39	7.78	14.40
T1008.0	N47:56.06	W094:17.12	N48:03.83	W094:17.31	7.78	14.40
T1009.0	N47:56.06	W094:17.03	N48:03.83	W094:17.23	7.78	14.40
T1010.0	N47:56.06	W094:16.95	N48:03.83	W094:17.15	7.78	14.40
T1011.0	N47:56.06	W094:16.87	N48:03.83	W094:17.07	7.78	14.40
T1012.0	N47:56.06	W094:16.79	N48:03.84	W094:16.99	7.78	14.40
T1013.0	N47:56.06	W094:16.71	N48:03.84	W094:16.91	7.78	14.40
T1014.0	N47:56.07	W094:16.63	N48:03.84	W094:16.83	7.78	14.40
T1015.0	N47:56.07	W094:16.55	N48:03.84	W094:16.74	7.78	14.40
T1016.0	N47:56.07	W094:16.47	N48:03.84	W094:16.66	7.78	14.40
T1017.0	N47:56.07	W094:16.39	N48:03.84	W094:16.58	7.78	14.40
T1018.0	N47:56.07	W094:16.31	N48:03.84	W094:16.50	7.78	14.40
T1019.0	N47:56.07	W094:16.23	N48:03.84	W094:16.42	7.78	14.40
T1020.0	N47:56.07	W094:16.15	N48:03.84	W094:16.34	7.78	14.40
T1021.0	N47:56.07	W094:16.07	N48:03.84	W094:16.26	7.78	14.40
T1022.0	N47:56.07	W094:15.99	N48:03.84	W094:16.18	7.78	14.40
T1023.0	N47:56.07	W094:15.91	N48:03.84	W094:16.10	7.78	14.40
T1024.0	N47:56.07	W094:15.83	N48:03.85	W094:16.02	7.78	14.40
T1025.0	N47:56.08	W094:15.75	N48:03.85	W094:15.94	7.78	14.40
T1026.0	N47:56.08	W094:15.67	N48:03.85	W094:15.86	7.78	14.40
T1027.0	N47:56.08	W094:15.59	N48:03.85	W094:15.78	7.78	14.40
T1028.0	N47:56.08	W094:15.51	N48:03.85	W094:15.70	7.78	14.40
T1029.0	N47:56.08	W094:15.43	N48:03.85	W094:15.62	7.78	14.40
T1030.0	N47:56.08	W094:15.35	N48:03.85	W094:15.54	7.78	14.40

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1031.0	N47:56.08	W094:15.27	N48:03.85	W094:15.46	7.78	14.40
T1032.0	N47:56.08	W094:15.19	N48:03.85	W094:15.38	7.78	14.40
T1033.0	N47:56.08	W094:15.11	N48:03.85	W094:15.30	7.78	14.40
T1034.0	N47:56.08	W094:15.03	N48:03.85	W094:15.22	7.78	14.40
T1035.0	N47:56.08	W094:14.95	N48:03.86	W094:15.13	7.78	14.40
T1036.0	N47:56.08	W094:14.87	N48:03.86	W094:15.05	7.78	14.40
T1037.0	N47:56.09	W094:14.79	N48:03.86	W094:14.97	7.78	14.40
T1038.0	N47:56.09	W094:14.71	N48:03.86	W094:14.89	7.78	14.40
T1039.0	N47:56.09	W094:14.63	N48:03.86	W094:14.81	7.78	14.40
T1040.0	N47:56.09	W094:14.55	N48:03.86	W094:14.73	7.78	14.40
T1041.0	N47:56.09	W094:14.46	N48:03.86	W094:14.65	7.78	14.40
T1042.0	N47:56.09	W094:14.38	N48:03.86	W094:14.57	7.78	14.40
T1043.0	N47:56.09	W094:14.30	N48:03.86	W094:14.49	7.78	14.40
T1044.0	N47:56.09	W094:14.22	N48:03.86	W094:14.41	7.78	14.40
T1045.0	N47:56.09	W094:14.14	N48:03.86	W094:14.33	7.78	14.40
T1046.0	N47:56.09	W094:14.06	N48:03.87	W094:14.25	7.78	14.40
T1047.0	N47:56.09	W094:13.98	N48:03.87	W094:14.17	7.78	14.40
T1048.0	N47:56.10	W094:13.90	N48:03.87	W094:14.09	7.78	14.40
T1049.0	N47:56.10	W094:13.82	N48:03.87	W094:14.01	7.78	14.40
T1050.0	N47:56.10	W094:13.74	N48:03.87	W094:13.93	7.78	14.40
T1051.0	N47:56.10	W094:13.66	N48:03.87	W094:13.85	7.78	14.40
T1052.0	N47:56.10	W094:13.58	N48:03.87	W094:13.77	7.78	14.40
T1053.0	N47:56.10	W094:13.50	N48:03.87	W094:13.69	7.78	14.40
T1054.0	N47:56.10	W094:13.42	N48:03.87	W094:13.60	7.78	14.40
T1055.0	N47:56.10	W094:13.34	N48:03.87	W094:13.52	7.78	14.40
T1056.0	N47:56.10	W094:13.26	N48:03.87	W094:13.44	7.78	14.40
T1057.0	N47:56.10	W094:13.18	N48:03.87	W094:13.36	7.78	14.40
T1058.0	N47:56.10	W094:13.10	N48:03.88	W094:13.28	7.78	14.40
T1059.0	N47:56.10	W094:13.02	N48:03.88	W094:13.20	7.78	14.40
T1060.0	N47:56.11	W094:12.94	N48:03.88	W094:13.12	7.78	14.40
T1061.0	N47:56.11	W094:12.86	N48:03.88	W094:13.04	7.78	14.40
T1062.0	N47:56.11	W094:12.78	N48:03.88	W094:12.96	7.78	14.40
T1063.0	N47:56.11	W094:12.70	N48:03.88	W094:12.88	7.78	14.40
T1064.0	N47:56.11	W094:12.62	N48:03.88	W094:12.80	7.78	14.40
T1065.0	N47:56.11	W094:12.54	N48:03.88	W094:12.72	7.78	14.40
T1066.0	N47:56.11	W094:12.46	N48:03.88	W094:12.64	7.78	14.40
T1067.0	N47:56.11	W094:12.38	N48:03.88	W094:12.56	7.78	14.40
T1068.0	N47:56.11	W094:12.30	N48:03.88	W094:12.48	7.78	14.40
T1069.0	N47:56.11	W094:12.22	N48:03.88	W094:12.40	7.78	14.40
T1070.0	N47:56.11	W094:12.14	N48:03.89	W094:12.32	7.78	14.40
T1071.0	N47:56.11	W094:12.06	N48:03.89	W094:12.24	7.78	14.40
T1072.0	N47:56.12	W094:11.98	N48:03.89	W094:12.16	7.78	14.40
T1073.0	N47:56.12	W094:11.89	N48:03.89	W094:12.08	7.78	14.40
T1074.0	N47:56.12	W094:11.81	N48:03.89	W094:11.99	7.78	14.40
T1075.0	N47:56.12	W094:11.73	N48:03.89	W094:11.91	7.78	14.40

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1076.0	N47:56.12	W094:11.65	N48:03.89	W094:11.83	7.78	14.40
T1077.0	N47:56.12	W094:11.57	N48:03.89	W094:11.75	7.78	14.40
T1078.0	N47:56.12	W094:11.49	N48:03.89	W094:11.67	7.78	14.40
T1079.0	N47:56.12	W094:11.41	N48:03.89	W094:11.59	7.78	14.40
T1080.0	N47:56.12	W094:11.33	N48:03.89	W094:11.51	7.78	14.40
T1081.0	N47:56.12	W094:11.25	N48:03.89	W094:11.43	7.78	14.40
T1082.0	N47:56.12	W094:11.17	N48:03.90	W094:11.35	7.78	14.40
T1083.0	N47:56.12	W094:11.09	N48:03.90	W094:11.27	7.78	14.40
T1084.0	N47:56.13	W094:11.01	N48:03.90	W094:11.19	7.78	14.40
T1085.0	N47:56.13	W094:10.93	N48:03.90	W094:11.11	7.78	14.40
T1086.0	N47:56.13	W094:10.85	N48:03.90	W094:11.03	7.78	14.40
T1087.0	N47:56.13	W094:10.77	N48:03.90	W094:10.95	7.78	14.40
T1088.0	N47:56.13	W094:10.69	N48:03.90	W094:10.87	7.78	14.40
T1089.0	N47:56.13	W094:10.61	N48:03.90	W094:10.79	7.78	14.40
T1090.0	N47:56.13	W094:10.53	N48:03.90	W094:10.71	7.78	14.40
T1091.0	N47:56.13	W094:10.45	N48:03.90	W094:10.63	7.78	14.40
T1092.0	N47:56.13	W094:10.37	N48:03.90	W094:10.55	7.78	14.40
T1093.0	N47:56.13	W094:10.29	N48:03.90	W094:10.46	7.78	14.40
T1094.0	N47:56.13	W094:10.21	N48:03.91	W094:10.38	7.78	14.40
T1095.0	N47:56.13	W094:10.13	N48:03.91	W094:10.30	7.78	14.40
T1096.0	N47:56.14	W094:10.05	N48:03.91	W094:10.22	7.78	14.40
T1097.0	N47:56.14	W094:09.97	N48:03.91	W094:10.14	7.78	14.40
T1098.0	N47:56.14	W094:09.89	N48:03.91	W094:10.06	7.78	14.40
T1099.0	N47:56.14	W094:09.81	N48:03.91	W094:09.98	7.78	14.40
T1100.0	N47:56.14	W094:09.73	N48:03.91	W094:09.90	7.78	14.40
T1101.0	N47:56.14	W094:09.65	N48:03.91	W094:09.82	7.78	14.40
T1102.0	N47:56.14	W094:09.57	N48:03.91	W094:09.74	7.78	14.40
T1103.0	N47:56.14	W094:09.49	N48:03.91	W094:09.66	7.78	14.40
T1104.0	N47:56.14	W094:09.41	N48:03.91	W094:09.58	7.78	14.40
T1105.0	N47:56.14	W094:09.32	N48:03.91	W094:09.50	7.78	14.40
T1106.0	N47:56.14	W094:09.24	N48:03.92	W094:09.42	7.78	14.40
T1107.0	N47:56.14	W094:09.16	N48:03.92	W094:09.34	7.78	14.40
T1108.0	N47:56.15	W094:09.08	N48:03.92	W094:09.26	7.78	14.40
T1109.0	N47:56.15	W094:09.00	N48:03.92	W094:09.18	7.78	14.40
T1110.0	N47:56.15	W094:08.92	N48:03.92	W094:09.10	7.78	14.40
T1111.0	N47:56.15	W094:08.84	N48:03.92	W094:09.02	7.78	14.40
T1112.0	N47:56.15	W094:08.76	N48:03.92	W094:08.93	7.78	14.40
T1113.0	N47:56.15	W094:08.68	N48:03.92	W094:08.85	7.78	14.40
T1114.0	N47:56.15	W094:08.60	N48:03.92	W094:08.77	7.78	14.40
T1115.0	N47:56.15	W094:08.52	N48:03.92	W094:08.69	7.78	14.40
T1116.0	N47:56.15	W094:08.44	N48:03.92	W094:08.61	7.78	14.40
T1117.0	N47:56.15	W094:08.36	N48:03.92	W094:08.53	7.78	14.40
T1118.0	N47:56.15	W094:08.28	N48:03.93	W094:08.45	7.78	14.40
T1119.0	N47:56.15	W094:08.20	N48:03.93	W094:08.37	7.78	14.40
T1120.0	N47:56.15	W094:08.12	N48:03.93	W094:08.29	7.78	14.40

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1121.0	N47:56.16	W094:08.04	N48:03.93	W094:08.21	7.78	14.40
T1122.0	N47:56.16	W094:07.96	N48:03.93	W094:08.13	7.78	14.40
T1123.0	N47:56.16	W094:07.88	N48:03.93	W094:08.05	7.78	14.40
T1124.0	N47:56.16	W094:07.80	N48:03.93	W094:07.97	7.78	14.40
T1125.0	N47:56.16	W094:07.72	N48:03.93	W094:07.89	7.78	14.40
T1126.0	N47:56.16	W094:07.64	N48:03.93	W094:07.81	7.78	14.40
T1127.0	N47:56.16	W094:07.56	N48:03.93	W094:07.73	7.78	14.40
T1128.0	N47:56.16	W094:07.48	N48:03.93	W094:07.65	7.78	14.40
T1129.0	N47:56.16	W094:07.40	N48:03.93	W094:07.57	7.78	14.40
T1130.0	N47:56.16	W094:07.32	N48:03.93	W094:07.49	7.78	14.40
T1131.0	N47:56.16	W094:07.24	N48:03.94	W094:07.41	7.78	14.40
T1132.0	N47:56.16	W094:07.16	N48:03.94	W094:07.32	7.78	14.40
T1133.0	N47:56.16	W094:07.08	N48:03.94	W094:07.24	7.78	14.40
T1134.0	N47:56.17	W094:07.00	N48:03.94	W094:07.16	7.78	14.40
T1135.0	N47:56.17	W094:06.92	N48:03.94	W094:07.08	7.78	14.40
T1136.0	N47:56.17	W094:06.83	N48:03.94	W094:07.00	7.78	14.40
T1137.0	N47:56.17	W094:06.75	N48:03.94	W094:06.92	7.78	14.40
T1138.0	N47:56.17	W094:06.67	N48:03.94	W094:06.84	7.78	14.40
T1139.0	N47:56.17	W094:06.59	N48:03.94	W094:06.76	7.78	14.40
T1140.0	N47:56.17	W094:06.51	N48:03.94	W094:06.68	7.78	14.40
T1141.0	N47:56.17	W094:06.43	N48:03.94	W094:06.60	7.78	14.40
T1142.0	N47:56.17	W094:06.35	N48:03.94	W094:06.52	7.78	14.40
T1143.0	N47:56.17	W094:06.27	N48:03.94	W094:06.44	7.78	14.40
T1144.0	N47:56.17	W094:06.19	N48:03.95	W094:06.36	7.78	14.40
T1145.0	N47:56.17	W094:06.11	N48:03.95	W094:06.28	7.78	14.40
T1146.0	N47:56.18	W094:06.03	N48:03.95	W094:06.20	7.78	14.40
T1147.0	N47:56.18	W094:05.95	N48:03.95	W094:06.12	7.78	14.40
T1148.0	N47:56.18	W094:05.87	N48:03.95	W094:06.04	7.78	14.40
T1149.0	N47:56.18	W094:05.79	N48:03.95	W094:05.96	7.78	14.40
T1150.0	N47:56.18	W094:05.71	N48:03.95	W094:05.88	7.78	14.40
T1151.0	N47:56.18	W094:05.63	N48:03.95	W094:05.79	7.78	14.40
T1152.0	N47:56.18	W094:05.55	N48:03.95	W094:05.71	7.78	14.40
T1153.0	N47:56.18	W094:05.47	N48:03.95	W094:05.63	7.78	14.40
T1154.0	N47:56.18	W094:05.39	N48:03.95	W094:05.55	7.78	14.40
T1155.0	N47:56.18	W094:05.31	N48:03.95	W094:05.47	7.78	14.40
T1156.0	N47:56.18	W094:05.23	N48:03.95	W094:05.39	7.78	14.40
T1157.0	N47:56.18	W094:05.15	N48:03.96	W094:05.31	7.78	14.40
T1158.0	N47:56.18	W094:05.07	N48:03.96	W094:05.23	7.78	14.40
T1159.0	N47:56.18	W094:04.99	N48:03.96	W094:05.15	7.78	14.40
T1160.0	N47:56.19	W094:04.91	N48:03.96	W094:05.07	7.78	14.40
T1161.0	N47:56.19	W094:04.83	N48:03.96	W094:04.99	7.78	14.40
T1162.0	N47:56.19	W094:04.75	N48:03.96	W094:04.91	7.78	14.40
T1163.0	N47:56.19	W094:04.67	N48:03.96	W094:04.83	7.78	14.40
T1164.0	N47:56.19	W094:04.59	N48:03.96	W094:04.75	7.78	14.40
T1165.0	N47:56.19	W094:04.51	N48:03.96	W094:04.67	7.78	14.40

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1166.0	N47:56.19	W094:04.43	N48:03.96	W094:04.59	7.78	14.40
T1167.0	N47:56.19	W094:04.34	N48:03.96	W094:04.51	7.78	14.40
T1168.0	N47:56.19	W094:04.26	N48:03.96	W094:04.43	7.78	14.40
T1169.0	N47:56.19	W094:04.18	N48:03.96	W094:04.35	7.78	14.40
T1170.0	N47:56.19	W094:04.10	N48:03.97	W094:04.26	7.78	14.40
T1171.0	N47:56.19	W094:04.02	N48:03.97	W094:04.18	7.78	14.40
T1172.0	N47:56.19	W094:03.94	N48:03.97	W094:04.10	7.78	14.40
T1173.0	N47:56.20	W094:03.86	N48:03.97	W094:04.02	7.78	14.40
T1174.0	N47:56.20	W094:03.78	N48:03.97	W094:03.94	7.78	14.40
T1175.0	N47:56.20	W094:03.70	N48:03.97	W094:03.86	7.78	14.40
T1176.0	N47:56.20	W094:03.62	N48:03.97	W094:03.78	7.78	14.40
T1177.0	N47:56.20	W094:03.54	N48:03.97	W094:03.70	7.78	14.40
T1178.0	N47:56.20	W094:03.46	N48:03.97	W094:03.62	7.78	14.40
T1179.0	N47:56.20	W094:03.38	N48:03.97	W094:03.54	7.78	14.40
T1180.0	N47:56.20	W094:03.30	N48:03.97	W094:03.46	7.78	14.40
T1181.0	N47:56.20	W094:03.22	N48:03.97	W094:03.38	7.78	14.40
T1182.0	N47:56.20	W094:03.14	N48:03.97	W094:03.30	7.78	14.40
T1183.0	N47:56.20	W094:03.06	N48:03.98	W094:03.22	7.78	14.40
T1184.0	N47:56.20	W094:02.98	N48:03.98	W094:03.14	7.78	14.40
T1185.0	N47:56.20	W094:02.90	N48:03.98	W094:03.06	7.78	14.40
T1186.0	N47:56.21	W094:02.82	N48:03.98	W094:02.98	7.78	14.40
T1187.0	N47:56.21	W094:02.74	N48:03.98	W094:02.90	7.78	14.40
T1188.0	N47:56.21	W094:02.66	N48:03.98	W094:02.82	7.78	14.40
T1189.0	N47:56.21	W094:02.58	N48:03.98	W094:02.73	7.78	14.40
T1190.0	N47:56.21	W094:02.50	N48:03.98	W094:02.65	7.78	14.40
T1191.0	N47:56.21	W094:02.42	N48:03.98	W094:02.57	7.78	14.40
T1192.0	N47:56.21	W094:02.34	N48:03.98	W094:02.49	7.78	14.40
T1193.0	N47:56.21	W094:02.26	N48:03.98	W094:02.41	7.78	14.40
T1194.0	N47:56.21	W094:02.18	N48:03.98	W094:02.33	7.78	14.40
T1195.0	N47:56.21	W094:02.10	N48:03.98	W094:02.25	7.78	14.40
T1196.0	N47:56.21	W094:02.02	N48:03.98	W094:02.17	7.78	14.40
T1197.0	N47:56.21	W094:01.94	N48:03.99	W094:02.09	7.78	14.40
T1198.0	N47:56.21	W094:01.85	N48:03.99	W094:02.01	7.78	14.40
T1199.0	N47:56.21	W094:01.77	N48:03.99	W094:01.93	7.78	14.40
T1200.0	N47:56.22	W094:01.69	N48:03.99	W094:01.85	7.78	14.40
T1201.0	N47:56.22	W094:01.61	N48:03.99	W094:01.77	7.78	14.40
T1202.0	N47:56.22	W094:01.53	N48:03.99	W094:01.69	7.78	14.40
T1203.0	N47:56.22	W094:01.45	N48:03.99	W094:01.61	7.78	14.40
T1204.0	N47:56.22	W094:01.37	N48:03.99	W094:01.53	7.78	14.40
T1205.0	N47:56.22	W094:01.29	N48:03.99	W094:01.45	7.78	14.40
T1206.0	N47:56.22	W094:01.21	N48:03.99	W094:01.37	7.78	14.40
T1207.0	N47:56.22	W094:01.13	N48:03.99	W094:01.29	7.78	14.40
T1208.0	N47:56.22	W094:01.05	N48:03.99	W094:01.20	7.78	14.40
T1209.0	N47:56.22	W094:00.97	N48:03.99	W094:01.12	7.78	14.40
T1210.0	N47:56.22	W094:00.89	N48:03.99	W094:01.04	7.78	14.40



**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1211.0	N47:56.22	W094:00.81	N48:04.00	W094:00.96	7.78	14.40
T1212.0	N47:56.22	W094:00.73	N48:04.00	W094:00.88	7.78	14.40
T1213.0	N47:56.22	W094:00.65	N48:04.00	W094:00.80	7.78	14.40
T1214.0	N47:56.23	W094:00.57	N48:04.00	W094:00.72	7.78	14.40
T1215.0	N47:56.23	W094:00.49	N48:04.00	W094:00.64	7.78	14.40
T1216.0	N47:56.23	W094:00.41	N48:04.00	W094:00.56	7.78	14.40
T1217.0	N47:56.23	W094:00.33	N48:04.00	W094:00.48	7.78	14.40
T1218.0	N47:56.23	W094:00.25	N48:04.00	W094:00.40	7.78	14.40
T1219.0	N47:56.23	W094:00.17	N48:04.00	W094:00.32	7.78	14.40
T1220.0	N47:56.23	W094:00.09	N48:04.00	W094:00.24	7.78	14.40
T1221.0	N47:56.23	W094:00.01	N48:04.00	W094:00.16	7.78	14.40
T1222.0	N47:56.23	W093:59.93	N48:04.00	W094:00.08	7.78	14.40
T1223.0	N47:56.23	W093:59.85	N48:04.00	W094:00.00	7.78	14.40
T1224.0	N47:56.23	W093:59.77	N48:04.00	W093:59.92	7.78	14.40
T1225.0	N47:56.23	W093:59.69	N48:04.01	W093:59.84	7.78	14.40
T1226.0	N47:56.23	W093:59.61	N48:04.01	W093:59.76	7.78	14.40
T1227.0	N47:56.23	W093:59.53	N48:04.01	W093:59.67	7.78	14.40
T1228.0	N47:56.24	W093:59.45	N48:04.01	W093:59.59	7.78	14.40
T1229.0	N47:56.24	W093:59.36	N48:04.01	W093:59.51	7.78	14.40
T1230.0	N47:56.24	W093:59.28	N48:04.01	W093:59.43	7.78	14.40
T1231.0	N47:56.24	W093:59.20	N48:04.01	W093:59.35	7.78	14.40
T1232.0	N47:56.24	W093:59.12	N48:04.01	W093:59.27	7.78	14.40
T1233.0	N47:56.24	W093:59.04	N48:04.01	W093:59.19	7.78	14.40
T1234.0	N47:56.24	W093:58.96	N48:04.01	W093:59.11	7.78	14.40
T1235.0	N47:56.24	W093:58.88	N48:04.01	W093:59.03	7.78	14.40
T1236.0	N47:56.24	W093:58.80	N48:04.01	W093:58.95	7.78	14.40
T1237.0	N47:56.24	W093:58.72	N48:04.01	W093:58.87	7.78	14.40
T1238.0	N47:56.24	W093:58.64	N48:04.01	W093:58.79	7.78	14.40
T1239.0	N47:56.24	W093:58.56	N48:04.02	W093:58.71	7.78	14.40
T1240.0	N47:56.24	W093:58.48	N48:04.02	W093:58.63	7.78	14.40
T1241.0	N47:56.24	W093:58.40	N48:04.02	W093:58.55	7.78	14.40
T1242.0	N47:56.24	W093:58.32	N48:04.02	W093:58.47	7.78	14.40
T1243.0	N47:56.25	W093:58.24	N48:04.02	W093:58.39	7.78	14.40
T1244.0	N47:56.25	W093:58.16	N48:04.02	W093:58.31	7.78	14.40
T1245.0	N47:56.25	W093:58.08	N48:04.02	W093:58.23	7.78	14.40
T1246.0	N47:56.25	W093:58.00	N48:04.02	W093:58.14	7.78	14.40
T1247.0	N47:56.25	W093:57.92	N48:04.02	W093:58.06	7.78	14.40
T1248.0	N47:56.25	W093:57.84	N48:04.02	W093:57.98	7.78	14.40
T1249.0	N47:56.25	W093:57.76	N48:04.02	W093:57.90	7.78	14.40
T1250.0	N47:56.25	W093:57.68	N48:04.02	W093:57.82	7.78	14.40
T1251.0	N47:56.25	W093:57.60	N48:04.02	W093:57.74	7.78	14.40
T1252.0	N47:56.25	W093:57.52	N48:04.02	W093:57.66	7.78	14.40
T1253.0	N47:56.25	W093:57.44	N48:04.02	W093:57.58	7.78	14.40
T1254.0	N47:56.25	W093:57.36	N48:04.03	W093:57.50	7.78	14.40
T1255.0	N47:56.25	W093:57.28	N48:04.03	W093:57.42	7.78	14.40

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1256.0	N47:56.25	W093:57.20	N48:04.03	W093:57.34	7.78	14.40
T1257.0	N47:56.25	W093:57.12	N48:04.03	W093:57.26	7.78	14.40
T1258.0	N47:56.26	W093:57.04	N48:04.03	W093:57.18	7.78	14.40
T1259.0	N47:56.26	W093:56.96	N48:04.03	W093:57.10	7.78	14.40
T1260.0	N47:56.26	W093:56.87	N48:04.03	W093:57.02	7.78	14.40
T1261.0	N47:56.26	W093:56.79	N48:04.03	W093:56.94	7.78	14.40
T1262.0	N47:56.26	W093:56.71	N48:04.03	W093:56.86	7.78	14.40
T1263.0	N47:56.26	W093:56.63	N48:04.03	W093:56.78	7.78	14.40
T1264.0	N47:56.26	W093:56.55	N48:04.03	W093:56.70	7.78	14.40
T1265.0	N47:56.26	W093:56.47	N48:04.03	W093:56.61	7.78	14.40
T1266.0	N47:56.26	W093:56.39	N48:04.03	W093:56.53	7.78	14.40
T1267.0	N47:56.26	W093:56.31	N48:04.03	W093:56.45	7.78	14.40
T1268.0	N47:56.26	W093:56.23	N48:04.03	W093:56.37	7.78	14.40
T1269.0	N47:56.26	W093:56.15	N48:04.04	W093:56.29	7.78	14.40
T1270.0	N47:56.26	W093:56.07	N48:04.04	W093:56.21	7.78	14.40
T1271.0	N47:56.26	W093:55.99	N48:04.04	W093:56.13	7.78	14.40
T1272.0	N47:56.26	W093:55.91	N48:04.04	W093:56.05	7.78	14.40
T1273.0	N47:56.27	W093:55.83	N48:04.04	W093:55.97	7.78	14.40
T1274.0	N47:56.27	W093:55.75	N48:04.04	W093:55.89	7.78	14.40
T1275.0	N47:56.27	W093:55.67	N48:04.04	W093:55.81	7.78	14.40
T1276.0	N47:56.27	W093:55.59	N48:04.04	W093:55.73	7.78	14.40
T1277.0	N47:56.27	W093:55.51	N48:04.04	W093:55.65	7.78	14.40
T1278.0	N47:56.27	W093:55.43	N48:04.04	W093:55.57	7.78	14.40
T1279.0	N47:56.27	W093:55.35	N48:04.04	W093:55.49	7.78	14.40
T1280.0	N47:56.27	W093:55.27	N48:04.04	W093:55.41	7.78	14.40
T1281.0	N47:56.27	W093:55.19	N48:04.04	W093:55.33	7.78	14.40
T1282.0	N47:56.27	W093:55.11	N48:04.04	W093:55.25	7.78	14.40
T1283.0	N47:56.27	W093:55.03	N48:04.04	W093:55.17	7.78	14.40
T1284.0	N47:56.27	W093:54.95	N48:04.04	W093:55.08	7.78	14.40
T1285.0	N47:56.27	W093:54.87	N48:04.05	W093:55.00	7.78	14.40
T1286.0	N47:56.27	W093:54.79	N48:04.05	W093:54.92	7.78	14.40
T1287.0	N47:56.27	W093:54.71	N48:04.05	W093:54.84	7.78	14.40
T1288.0	N47:42.81	W093:54.39	N48:04.05	W093:54.76	21.25	39.35
T1289.0	N47:42.81	W093:54.31	N48:04.05	W093:54.68	21.25	39.35
T1290.0	N47:42.81	W093:54.23	N48:04.05	W093:54.60	21.25	39.35
T1291.0	N47:42.81	W093:54.15	N48:04.05	W093:54.52	21.25	39.35
T1292.0	N47:42.81	W093:54.07	N48:04.05	W093:54.44	21.25	39.35
T1293.0	N47:42.81	W093:53.99	N48:04.05	W093:54.36	21.25	39.35
T1294.0	N47:42.81	W093:53.91	N48:04.05	W093:54.28	21.25	39.35
T1295.0	N47:42.78	W093:53.83	N48:04.05	W093:54.20	21.27	39.40
T1296.0	N47:42.75	W093:53.75	N48:04.05	W093:54.12	21.31	39.46
T1297.0	N47:42.72	W093:53.67	N48:04.05	W093:54.04	21.34	39.51
T1298.0	N47:42.69	W093:53.59	N48:04.05	W093:53.96	21.37	39.57
T1299.0	N47:42.66	W093:53.51	N48:04.05	W093:53.88	21.40	39.63
T1300.0	N47:42.63	W093:53.43	N48:04.06	W093:53.80	21.43	39.69

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1301.0	N47:42.60	W093:53.35	N48:04.06	W093:53.72	21.46	39.74
T1302.0	N47:42.57	W093:53.27	N48:04.06	W093:53.64	21.49	39.80
T1303.0	N47:42.28	W093:53.18	N48:04.06	W093:53.55	21.79	40.35
T1304.0	N47:42.28	W093:53.10	N48:04.06	W093:53.47	21.79	40.35
T1305.0	N47:42.28	W093:53.02	N48:04.06	W093:53.39	21.79	40.35
T1306.0	N47:42.28	W093:52.94	N48:04.06	W093:53.31	21.79	40.35
T1307.0	N47:42.28	W093:52.86	N48:04.06	W093:53.23	21.79	40.35
T1308.0	N47:42.28	W093:52.78	N48:04.06	W093:53.15	21.79	40.35
T1309.0	N47:42.28	W093:52.70	N48:04.06	W093:53.07	21.79	40.35
T1310.0	N47:42.28	W093:52.62	N48:04.06	W093:52.99	21.79	40.35
T1311.0	N47:42.28	W093:52.54	N48:04.06	W093:52.91	21.79	40.35
T1312.0	N47:42.27	W093:52.46	N48:04.06	W093:52.83	21.80	40.37
T1313.0	N47:42.24	W093:52.38	N48:04.06	W093:52.75	21.83	40.42
T1314.0	N47:42.21	W093:52.30	N48:04.06	W093:52.67	21.86	40.48
T1315.0	N47:42.18	W093:52.22	N48:04.06	W093:52.59	21.89	40.54
T1316.0	N47:42.15	W093:52.14	N48:04.07	W093:52.51	21.92	40.59
T1317.0	N47:42.12	W093:52.06	N48:04.07	W093:52.43	21.95	40.65
T1318.0	N47:42.09	W093:51.98	N48:04.07	W093:52.35	21.98	40.71
T1319.0	N47:42.06	W093:51.90	N48:04.07	W093:52.27	22.01	40.77
T1320.0	N47:41.75	W093:51.81	N48:04.07	W093:52.19	22.33	41.35
T1321.0	N47:41.75	W093:51.73	N48:04.07	W093:52.11	22.33	41.35
T1322.0	N47:41.75	W093:51.65	N48:04.07	W093:52.02	22.33	41.35
T1323.0	N47:41.75	W093:51.57	N48:04.07	W093:51.94	22.33	41.35
T1324.0	N47:41.75	W093:51.49	N48:04.07	W093:51.86	22.33	41.35
T1325.0	N47:41.75	W093:51.41	N48:04.07	W093:51.78	22.33	41.35
T1326.0	N47:41.75	W093:51.33	N48:04.07	W093:51.70	22.33	41.35
T1327.0	N47:41.75	W093:51.25	N48:04.07	W093:51.62	22.33	41.35
T1328.0	N47:41.75	W093:51.17	N48:04.07	W093:51.54	22.33	41.35
T1329.0	N47:41.75	W093:51.09	N48:04.07	W093:51.46	22.33	41.35
T1330.0	N47:41.73	W093:51.01	N48:04.07	W093:51.38	22.35	41.39
T1331.0	N47:41.70	W093:50.93	N48:04.07	W093:51.30	22.38	41.45
T1332.0	N47:41.67	W093:50.85	N48:04.07	W093:51.22	22.41	41.50
T1333.0	N47:41.64	W093:50.77	N48:04.08	W093:51.14	22.44	41.56
T1334.0	N47:41.61	W093:50.69	N48:04.08	W093:51.06	22.47	41.62
T1335.0	N47:41.58	W093:50.61	N48:04.08	W093:50.98	22.50	41.68
T1336.0	N47:41.55	W093:50.53	N48:04.08	W093:50.90	22.53	41.73
T1337.0	N47:41.52	W093:50.45	N48:04.08	W093:50.82	22.56	41.79
T1338.0	N47:41.22	W093:50.37	N48:04.08	W093:50.74	22.87	42.35
T1339.0	N47:41.22	W093:50.29	N48:04.08	W093:50.66	22.87	42.35
T1340.0	N47:41.22	W093:50.21	N48:04.08	W093:50.58	22.87	42.35
T1341.0	N47:41.22	W093:50.13	N48:04.08	W093:50.49	22.87	42.35
T1342.0	N47:41.22	W093:50.05	N48:04.08	W093:50.41	22.87	42.35
T1343.0	N47:41.22	W093:49.97	N48:04.08	W093:50.33	22.87	42.35
T1344.0	N47:41.22	W093:49.89	N48:04.08	W093:50.25	22.87	42.35
T1345.0	N47:41.22	W093:49.81	N48:04.08	W093:50.17	22.87	42.35

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1346.0	N47:41.22	W093:49.73	N48:04.08	W093:50.09	22.87	42.35
T1347.0	N47:41.22	W093:49.65	N48:04.08	W093:50.01	22.87	42.36
T1348.0	N47:41.19	W093:49.57	N48:04.08	W093:49.93	22.90	42.41
T1349.0	N47:41.16	W093:49.49	N48:04.08	W093:49.85	22.93	42.47
T1350.0	N47:41.13	W093:49.40	N48:04.09	W093:49.77	22.96	42.53
T1351.0	N47:41.10	W093:49.32	N48:04.09	W093:49.69	22.99	42.58
T1352.0	N47:41.07	W093:49.24	N48:04.09	W093:49.61	23.02	42.64
T1353.0	N47:41.04	W093:49.16	N48:04.09	W093:49.53	23.06	42.70
T1354.0	N47:41.01	W093:49.08	N48:04.09	W093:49.45	23.09	42.76
T1355.0	N47:40.69	W093:49.00	N48:04.09	W093:49.37	23.41	43.35
T1356.0	N47:40.69	W093:48.92	N48:04.09	W093:49.29	23.41	43.35
T1357.0	N47:40.69	W093:48.84	N48:04.09	W093:49.21	23.41	43.35
T1358.0	N47:40.69	W093:48.76	N48:04.09	W093:49.13	23.41	43.35
T1359.0	N47:40.69	W093:48.68	N48:04.09	W093:49.04	23.41	43.35
T1360.0	N47:40.69	W093:48.60	N48:04.09	W093:48.96	23.41	43.35
T1361.0	N47:40.69	W093:48.52	N48:04.09	W093:48.88	23.41	43.35
T1362.0	N47:40.69	W093:48.44	N48:04.09	W093:48.80	23.41	43.35
T1363.0	N47:40.69	W093:48.36	N48:04.09	W093:48.72	23.41	43.35
T1364.0	N47:40.69	W093:48.28	N48:04.09	W093:48.64	23.41	43.35
T1365.0	N47:40.68	W093:48.20	N48:04.09	W093:48.56	23.42	43.38
T1366.0	N47:40.65	W093:48.12	N48:04.09	W093:48.48	23.45	43.44
T1367.0	N47:40.62	W093:48.04	N48:04.10	W093:48.40	23.49	43.49
T1368.0	N47:40.59	W093:47.96	N48:04.10	W093:48.32	23.52	43.55
T1369.0	N47:40.56	W093:47.88	N48:04.10	W093:48.24	23.55	43.61
T1370.0	N47:40.53	W093:47.80	N48:04.10	W093:48.16	23.58	43.66
T1371.0	N47:40.50	W093:47.72	N48:04.10	W093:48.08	23.61	43.72
T1372.0	N47:40.47	W093:47.64	N48:04.10	W093:48.00	23.64	43.78
T1373.0	N47:40.16	W093:47.55	N48:04.10	W093:47.92	23.95	44.35
T1374.0	N47:40.16	W093:47.47	N48:04.10	W093:47.84	23.95	44.35
T1375.0	N47:40.16	W093:47.39	N48:04.10	W093:47.76	23.95	44.35
T1376.0	N47:40.16	W093:47.31	N48:04.10	W093:47.68	23.95	44.35
T1377.0	N47:40.16	W093:47.23	N48:04.10	W093:47.60	23.95	44.35
T1378.0	N47:40.16	W093:47.15	N48:04.10	W093:47.51	23.95	44.35
T1379.0	N47:40.16	W093:47.07	N48:04.10	W093:47.43	23.95	44.35
T1380.0	N47:40.16	W093:46.99	N48:04.10	W093:47.35	23.95	44.35
T1381.0	N47:40.16	W093:46.91	N48:04.10	W093:47.27	23.95	44.35
T1382.0	N47:40.16	W093:46.83	N48:04.10	W093:47.19	23.95	44.35
T1383.0	N47:40.13	W093:46.75	N48:04.10	W093:47.11	23.98	44.40
T1384.0	N47:40.10	W093:46.67	N48:04.10	W093:47.03	24.01	44.46
T1385.0	N47:40.07	W093:46.59	N48:04.11	W093:46.95	24.04	44.52
T1386.0	N47:40.04	W093:46.51	N48:04.11	W093:46.87	24.07	44.57
T1387.0	N47:40.01	W093:46.43	N48:04.11	W093:46.79	24.10	44.63
T1388.0	N47:39.98	W093:46.35	N48:04.51	W093:46.72	24.53	45.44
T1389.0	N47:39.95	W093:46.27	N48:04.51	W093:46.64	24.56	45.49
T1390.0	N47:39.63	W093:46.18	N48:04.51	W093:46.55	24.89	46.10

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1391.0	N47:39.63	W093:46.10	N48:04.51	W093:46.47	24.89	46.10
T1392.0	N47:39.63	W093:46.02	N48:04.51	W093:46.39	24.89	46.10
T1393.0	N47:39.63	W093:45.94	N48:04.51	W093:46.31	24.89	46.10
T1394.0	N47:39.63	W093:45.86	N48:04.51	W093:46.23	24.89	46.10
T1395.0	N47:39.63	W093:45.79	N48:04.51	W093:46.15	24.89	46.10
T1396.0	N47:39.63	W093:45.71	N48:04.52	W093:46.07	24.89	46.10
T1397.0	N47:39.63	W093:45.63	N48:04.52	W093:45.99	24.89	46.10
T1398.0	N47:39.63	W093:45.55	N48:04.52	W093:45.91	24.89	46.10
T1399.0	N47:39.63	W093:45.47	N48:04.52	W093:45.83	24.89	46.10
T1400.0	N47:39.62	W093:45.39	N48:04.52	W093:45.75	24.90	46.12
T1401.0	N47:39.59	W093:45.31	N48:04.52	W093:45.67	24.93	46.18
T1402.0	N47:39.56	W093:45.22	N48:04.52	W093:45.59	24.96	46.23
T1403.0	N47:39.53	W093:45.14	N48:04.52	W093:45.51	24.99	46.29
T1404.0	N47:39.50	W093:45.06	N48:04.52	W093:45.43	25.03	46.35
T1405.0	N47:39.47	W093:44.98	N48:04.52	W093:45.35	25.06	46.40
T1406.0	N47:39.44	W093:44.90	N48:04.52	W093:45.27	25.09	46.46
T1407.0	N47:39.41	W093:44.82	N48:04.52	W093:45.19	25.12	46.52
T1408.0	N47:39.10	W093:44.74	N48:04.52	W093:45.10	25.43	47.10
T1409.0	N47:39.10	W093:44.66	N48:04.52	W093:45.02	25.43	47.10
T1410.0	N47:39.10	W093:44.58	N48:04.52	W093:44.94	25.43	47.10
T1411.0	N47:39.10	W093:44.50	N48:04.52	W093:44.86	25.43	47.10
T1412.0	N47:39.10	W093:44.42	N48:04.52	W093:44.78	25.43	47.10
T1413.0	N47:39.10	W093:44.34	N48:04.52	W093:44.70	25.43	47.10
T1414.0	N47:39.10	W093:44.26	N48:04.52	W093:44.62	25.43	47.10
T1415.0	N47:39.10	W093:44.18	N48:04.53	W093:44.54	25.43	47.10
T1416.0	N47:39.10	W093:44.10	N48:04.53	W093:44.46	25.43	47.10
T1417.0	N47:39.10	W093:44.02	N48:04.53	W093:44.38	25.43	47.10
T1418.0	N47:39.08	W093:43.94	N48:04.53	W093:44.30	25.46	47.14
T1419.0	N47:39.05	W093:43.86	N48:04.53	W093:44.22	25.49	47.20
T1420.0	N47:39.02	W093:43.78	N48:04.53	W093:44.14	25.52	47.26
T1421.0	N47:38.99	W093:43.70	N48:04.53	W093:44.06	25.55	47.31
T1422.0	N47:38.96	W093:43.62	N48:04.53	W093:43.98	25.58	47.37
T1423.0	N47:38.93	W093:43.54	N48:04.53	W093:43.90	25.61	47.43
T1424.0	N47:38.90	W093:43.46	N48:04.53	W093:43.82	25.64	47.48
T1425.0	N47:38.87	W093:43.38	N48:04.53	W093:43.74	25.67	47.54
T1426.0	N47:38.57	W093:43.29	N48:04.53	W093:43.65	25.97	48.10
T1427.0	N47:38.57	W093:43.21	N48:04.53	W093:43.57	25.97	48.10
T1428.0	N47:38.57	W093:43.13	N48:04.53	W093:43.49	25.97	48.10
T1429.0	N47:38.57	W093:43.05	N48:04.53	W093:43.41	25.97	48.10
T1430.0	N47:38.57	W093:42.97	N48:04.53	W093:43.33	25.97	48.10
T1431.0	N47:38.57	W093:42.89	N48:04.53	W093:43.25	25.97	48.10
T1432.0	N47:38.57	W093:42.81	N48:04.53	W093:43.17	25.97	48.10
T1433.0	N47:38.57	W093:42.73	N48:04.53	W093:43.09	25.97	48.10
T1434.0	N47:38.57	W093:42.65	N48:04.54	W093:43.01	25.97	48.10
T1435.0	N47:38.57	W093:42.57	N48:04.54	W093:42.93	25.98	48.11

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1436.0	N47:38.54	W093:42.49	N48:04.54	W093:42.85	26.01	48.17
T1437.0	N47:38.51	W093:42.41	N48:04.54	W093:42.77	26.04	48.22
T1438.0	N47:38.48	W093:42.33	N48:04.54	W093:42.69	26.07	48.28
T1439.0	N47:38.45	W093:42.25	N48:04.54	W093:42.61	26.10	48.34
T1440.0	N47:38.42	W093:42.17	N48:04.54	W093:42.53	26.13	48.39
T1441.0	N47:38.38	W093:42.09	N48:04.54	W093:42.45	26.16	48.45
T1442.0	N47:38.35	W093:42.01	N48:04.54	W093:42.37	26.19	48.51
T1443.0	N47:38.04	W093:41.93	N48:04.54	W093:42.29	26.51	49.10
T1444.0	N47:38.04	W093:41.85	N48:04.54	W093:42.21	26.51	49.10
T1445.0	N47:38.04	W093:41.77	N48:04.54	W093:42.12	26.51	49.10
T1446.0	N47:38.04	W093:41.69	N48:04.54	W093:42.04	26.51	49.10
T1447.0	N47:38.04	W093:41.61	N48:04.54	W093:41.96	26.51	49.10
T1448.0	N47:38.04	W093:41.53	N48:04.54	W093:41.88	26.51	49.10
T1449.0	N47:38.04	W093:41.45	N48:04.54	W093:41.80	26.51	49.10
T1450.0	N47:38.04	W093:41.37	N48:04.54	W093:41.72	26.51	49.10
T1451.0	N47:38.04	W093:41.29	N48:04.54	W093:41.64	26.51	49.10
T1452.0	N47:38.04	W093:41.21	N48:04.54	W093:41.56	26.51	49.10
T1453.0	N47:38.02	W093:41.13	N48:04.54	W093:41.48	26.53	49.13
T1454.0	N47:37.99	W093:41.05	N48:04.55	W093:41.40	26.56	49.19
T1455.0	N47:37.96	W093:40.97	N48:04.55	W093:41.32	26.59	49.25
T1456.0	N47:37.93	W093:40.89	N48:04.55	W093:41.24	26.62	49.30
T1457.0	N47:37.90	W093:40.81	N48:04.55	W093:41.16	26.65	49.36
T1458.0	N47:37.87	W093:40.73	N48:04.55	W093:41.08	26.68	49.42
T1459.0	N47:37.84	W093:40.65	N48:04.55	W093:41.00	26.71	49.47
T1460.0	N47:37.81	W093:40.57	N48:04.55	W093:40.92	26.74	49.53
T1461.0	N47:37.50	W093:40.48	N48:04.55	W093:40.84	27.05	50.10
T1462.0	N47:37.50	W093:40.40	N48:04.55	W093:40.76	27.05	50.10
T1463.0	N47:37.51	W093:40.32	N48:04.55	W093:40.67	27.05	50.10
T1464.0	N47:37.51	W093:40.24	N48:04.55	W093:40.59	27.05	50.10
T1465.0	N47:37.51	W093:40.16	N48:04.55	W093:40.51	27.05	50.10
T1466.0	N47:37.51	W093:40.08	N48:04.55	W093:40.43	27.05	50.10
T1467.0	N47:37.51	W093:40.00	N48:04.55	W093:40.35	27.05	50.10
T1468.0	N47:37.51	W093:39.92	N48:04.55	W093:40.27	27.05	50.10
T1469.0	N47:37.51	W093:39.84	N48:04.55	W093:40.19	27.05	50.10
T1470.0	N47:37.51	W093:39.76	N48:04.55	W093:40.11	27.05	50.10
T1471.0	N47:37.48	W093:39.68	N48:04.55	W093:40.03	27.08	50.16
T1472.0	N47:37.45	W093:39.60	N48:04.55	W093:39.95	27.11	50.21
T1473.0	N47:37.42	W093:39.52	N48:04.55	W093:39.87	27.14	50.27
T1474.0	N47:37.39	W093:39.44	N48:04.55	W093:39.79	27.17	50.33
T1475.0	N47:37.36	W093:39.36	N48:04.56	W093:39.71	27.20	50.38
T1476.0	N47:37.33	W093:39.28	N48:04.56	W093:39.63	27.24	50.44
T1477.0	N47:37.30	W093:39.20	N48:04.56	W093:39.55	27.27	50.50
T1478.0	N47:36.97	W093:39.12	N48:04.56	W093:39.47	27.59	51.10
T1479.0	N47:36.97	W093:39.04	N48:04.56	W093:39.39	27.59	51.10
T1480.0	N47:36.97	W093:38.96	N48:04.56	W093:39.31	27.59	51.10

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1481.0	N47:36.97	W093:38.88	N48:04.56	W093:39.22	27.59	51.10
T1482.0	N47:36.97	W093:38.80	N48:04.56	W093:39.14	27.59	51.10
T1483.0	N47:36.97	W093:38.72	N48:04.56	W093:39.06	27.59	51.10
T1484.0	N47:36.97	W093:38.64	N48:04.56	W093:38.98	27.59	51.10
T1485.0	N47:36.98	W093:38.56	N48:04.56	W093:38.90	27.59	51.10
T1486.0	N47:36.98	W093:38.48	N48:04.56	W093:38.82	27.59	51.10
T1487.0	N47:36.98	W093:38.40	N48:04.56	W093:38.74	27.59	51.10
T1488.0	N47:36.96	W093:38.32	N48:04.56	W093:38.66	27.60	51.12
T1489.0	N47:36.93	W093:38.24	N48:04.56	W093:38.58	27.63	51.18
T1490.0	N47:36.90	W093:38.16	N48:04.56	W093:38.50	27.67	51.24
T1491.0	N47:36.87	W093:38.08	N48:04.56	W093:38.42	27.70	51.29
T1492.0	N47:36.84	W093:38.00	N48:04.56	W093:38.34	27.73	51.35
T1493.0	N47:36.81	W093:37.92	N48:04.56	W093:38.26	27.76	51.41
T1494.0	N47:36.78	W093:37.84	N48:04.56	W093:38.18	27.79	51.46
T1495.0	N47:36.75	W093:37.76	N48:04.56	W093:38.10	27.82	51.52
T1496.0	N47:36.44	W093:37.68	N48:04.56	W093:38.02	28.13	52.10
T1497.0	N47:36.44	W093:37.60	N48:04.57	W093:37.94	28.13	52.10
T1498.0	N47:36.44	W093:37.52	N48:04.57	W093:37.86	28.13	52.10
T1499.0	N47:36.44	W093:37.44	N48:04.57	W093:37.78	28.13	52.10
T1500.0	N47:36.44	W093:37.36	N48:04.57	W093:37.69	28.13	52.10
T1501.0	N47:36.44	W093:37.28	N48:04.57	W093:37.61	28.13	52.10
T1502.0	N47:36.44	W093:37.20	N48:04.57	W093:37.53	28.13	52.10
T1503.0	N47:36.44	W093:37.12	N48:04.57	W093:37.45	28.13	52.10
T1504.0	N47:36.44	W093:37.04	N48:04.57	W093:37.37	28.13	52.10
T1505.0	N47:36.44	W093:36.96	N48:04.57	W093:37.29	28.13	52.10
T1506.0	N47:36.42	W093:36.88	N48:04.57	W093:37.21	28.16	52.15
T1507.0	N47:36.39	W093:36.80	N48:04.57	W093:37.13	28.19	52.20
T1508.0	N47:36.36	W093:36.72	N48:04.57	W093:37.05	28.22	52.26
T1509.0	N47:36.33	W093:36.64	N48:04.57	W093:36.97	28.25	52.32
T1510.0	N47:36.30	W093:36.56	N48:04.57	W093:36.89	28.28	52.37
T1511.0	N47:36.27	W093:36.48	N48:04.57	W093:36.81	28.31	52.43
T1512.0	N47:36.24	W093:36.40	N48:04.57	W093:36.73	28.34	52.49
T1513.0	N47:36.21	W093:36.32	N48:04.57	W093:36.65	28.37	52.54
T1514.0	N47:35.91	W093:36.23	N48:04.57	W093:36.57	28.67	53.10
T1515.0	N47:35.91	W093:36.15	N48:04.57	W093:36.49	28.67	53.10
T1516.0	N47:35.91	W093:36.07	N48:04.57	W093:36.41	28.67	53.10
T1517.0	N47:35.91	W093:35.99	N48:04.57	W093:36.33	28.67	53.10
T1518.0	N47:35.91	W093:35.91	N48:04.57	W093:36.24	28.67	53.10
T1519.0	N47:35.91	W093:35.83	N48:04.57	W093:36.16	28.67	53.10
T1520.0	N47:35.91	W093:35.75	N48:04.57	W093:36.08	28.67	53.10
T1521.0	N47:35.91	W093:35.67	N48:04.58	W093:36.00	28.67	53.10
T1522.0	N47:35.91	W093:35.59	N48:04.58	W093:35.92	28.67	53.10
T1523.0	N47:35.91	W093:35.51	N48:04.58	W093:35.84	28.68	53.11
T1524.0	N47:35.87	W093:35.43	N48:04.58	W093:35.76	28.71	53.17
T1525.0	N47:35.84	W093:35.35	N48:04.58	W093:35.68	28.74	53.23

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1526.0	N47:35.81	W093:35.27	N48:04.58	W093:35.60	28.77	53.28
T1527.0	N47:35.78	W093:35.19	N48:04.58	W093:35.52	28.80	53.34
T1528.0	N47:35.75	W093:35.11	N48:04.58	W093:35.44	28.83	53.40
T1529.0	N47:35.72	W093:35.03	N48:04.58	W093:35.36	28.86	53.45
T1530.0	N47:35.69	W093:34.95	N48:04.58	W093:35.28	28.89	53.51
T1531.0	N47:35.38	W093:34.87	N48:04.58	W093:35.20	29.21	54.10
T1532.0	N47:35.38	W093:34.79	N48:04.58	W093:35.12	29.21	54.10
T1533.0	N47:35.38	W093:34.71	N48:04.58	W093:35.04	29.21	54.10
T1534.0	N47:35.38	W093:34.63	N48:04.58	W093:34.96	29.21	54.10
T1535.0	N47:35.38	W093:34.55	N48:04.58	W093:34.88	29.21	54.10
T1536.0	N47:35.38	W093:34.47	N48:04.58	W093:34.79	29.21	54.10
T1537.0	N47:35.38	W093:34.39	N48:04.58	W093:34.71	29.21	54.10
T1538.0	N47:35.38	W093:34.31	N48:04.58	W093:34.63	29.21	54.10
T1539.0	N47:35.38	W093:34.23	N48:04.58	W093:34.55	29.21	54.10
T1540.0	N47:35.38	W093:34.15	N48:04.58	W093:34.47	29.21	54.10
T1541.0	N47:35.36	W093:34.07	N48:04.58	W093:34.39	29.23	54.14
T1542.0	N47:35.33	W093:33.99	N48:04.58	W093:34.31	29.26	54.19
T1543.0	N47:35.30	W093:33.91	N48:04.58	W093:34.23	29.29	54.25
T1544.0	N47:35.27	W093:33.83	N48:04.58	W093:34.15	29.32	54.31
T1545.0	N47:35.24	W093:33.75	N48:04.59	W093:34.07	29.35	54.36
T1546.0	N47:35.21	W093:33.67	N48:04.59	W093:33.99	29.38	54.42
T1547.0	N47:35.18	W093:33.59	N48:04.59	W093:33.91	29.42	54.48
T1548.0	N47:35.15	W093:33.51	N48:04.59	W093:33.83	29.45	54.53
T1549.0	N47:34.84	W093:33.43	N48:04.59	W093:33.75	29.75	55.10
T1550.0	N47:34.84	W093:33.35	N48:04.59	W093:33.67	29.75	55.10
T1551.0	N47:34.84	W093:33.27	N48:04.59	W093:33.59	29.75	55.10
T1552.0	N47:34.84	W093:33.19	N48:04.59	W093:33.51	29.75	55.10
T1553.0	N47:34.84	W093:33.11	N48:04.59	W093:33.43	29.75	55.10
T1554.0	N47:34.84	W093:33.03	N48:04.59	W093:33.34	29.75	55.10
T1555.0	N47:34.84	W093:32.95	N48:04.59	W093:33.26	29.75	55.10
T1556.0	N47:34.85	W093:32.87	N48:04.59	W093:33.18	29.75	55.10
T1557.0	N47:34.85	W093:32.79	N48:04.59	W093:33.10	29.75	55.10
T1558.0	N47:34.84	W093:32.71	N48:04.59	W093:33.02	29.75	55.10
T1559.0	N47:34.81	W093:32.63	N48:04.59	W093:32.94	29.78	55.16
T1560.0	N47:34.78	W093:32.55	N48:04.59	W093:32.86	29.81	55.22
T1561.0	N47:34.75	W093:32.47	N48:04.59	W093:32.78	29.84	55.27
T1562.0	N47:34.72	W093:32.39	N48:04.59	W093:32.70	29.88	55.33
T1563.0	N47:34.69	W093:32.31	N48:04.59	W093:32.62	29.91	55.39
T1564.0	N47:34.66	W093:32.23	N48:04.59	W093:32.54	29.94	55.44
T1565.0	N47:34.63	W093:32.15	N48:04.59	W093:32.46	29.97	55.50
T1566.0	N47:34.31	W093:32.07	N48:04.59	W093:32.38	30.29	56.10
T1567.0	N47:34.31	W093:31.99	N48:04.59	W093:32.30	30.29	56.10
T1568.0	N47:34.31	W093:31.91	N48:04.59	W093:32.22	30.29	56.10
T1569.0	N47:34.31	W093:31.83	N48:04.59	W093:32.14	30.29	56.10
T1570.0	N47:34.31	W093:31.75	N48:04.59	W093:32.06	30.29	56.10



**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1571.0	N47:34.31	W093:31.67	N48:04.60	W093:31.98	30.29	56.10
T1572.0	N47:34.31	W093:31.59	N48:04.60	W093:31.90	30.29	56.10
T1573.0	N47:34.31	W093:31.51	N48:04.60	W093:31.81	30.29	56.10
T1574.0	N47:34.31	W093:31.43	N48:04.60	W093:31.73	30.29	56.10
T1575.0	N47:34.31	W093:31.35	N48:04.60	W093:31.65	30.29	56.10
T1576.0	N47:34.30	W093:31.27	N48:04.60	W093:31.57	30.31	56.13
T1577.0	N47:34.27	W093:31.19	N48:04.60	W093:31.49	30.34	56.18
T1578.0	N47:34.24	W093:31.11	N48:04.60	W093:31.41	30.37	56.24
T1579.0	N47:34.21	W093:31.03	N48:04.60	W093:31.33	30.40	56.30
T1580.0	N47:34.18	W093:30.95	N48:04.60	W093:31.25	30.43	56.35
T1581.0	N47:34.15	W093:30.87	N48:04.60	W093:31.17	30.46	56.41
T1582.0	N47:34.12	W093:30.79	N48:04.60	W093:31.09	30.49	56.47
T1583.0	N47:34.09	W093:30.71	N48:04.60	W093:31.01	30.52	56.52
T1584.0	N47:33.78	W093:30.62	N48:04.60	W093:30.93	30.83	57.10
T1585.0	N47:33.78	W093:30.55	N48:04.60	W093:30.85	30.83	57.10
T1586.0	N47:33.78	W093:30.47	N48:04.60	W093:30.77	30.83	57.10
T1587.0	N47:33.78	W093:30.39	N48:04.60	W093:30.69	30.83	57.10
T1588.0	N47:33.78	W093:30.31	N48:04.60	W093:30.61	30.83	57.10
T1589.0	N47:33.78	W093:30.23	N48:04.60	W093:30.53	30.83	57.10
T1590.0	N47:33.78	W093:30.15	N48:04.60	W093:30.45	30.83	57.10
T1591.0	N47:33.78	W093:30.07	N48:04.60	W093:30.36	30.83	57.10
T1592.0	N47:33.78	W093:29.99	N48:04.60	W093:30.28	30.83	57.10
T1593.0	N47:33.78	W093:29.91	N48:04.60	W093:30.20	30.83	57.10
T1594.0	N47:33.75	W093:29.83	N48:04.60	W093:30.12	30.86	57.15
T1595.0	N47:33.72	W093:29.75	N48:04.60	W093:30.04	30.89	57.21
T1596.0	N47:33.69	W093:29.67	N48:04.60	W093:29.96	30.92	57.26
T1597.0	N47:33.66	W093:29.59	N48:04.60	W093:29.88	30.95	57.32
T1598.0	N47:33.63	W093:29.51	N48:04.60	W093:29.80	30.98	57.38
T1599.0	N47:33.60	W093:29.43	N48:04.61	W093:29.72	31.01	57.43
T1600.0	N47:33.57	W093:29.35	N48:04.61	W093:29.64	31.04	57.49
T1601.0	N47:33.54	W093:29.27	N48:04.61	W093:29.56	31.07	57.55
T1602.0	N47:33.24	W093:29.18	N48:04.61	W093:29.48	31.37	58.10
T1603.0	N47:33.24	W093:29.10	N48:04.61	W093:29.40	31.37	58.10
T1604.0	N47:33.24	W093:29.02	N48:04.61	W093:29.32	31.37	58.10
T1605.0	N47:33.24	W093:28.94	N48:04.61	W093:29.24	31.37	58.10
T1606.0	N47:33.24	W093:28.87	N48:04.61	W093:29.16	31.37	58.10
T1607.0	N47:33.24	W093:28.79	N48:04.61	W093:29.08	31.37	58.10
T1608.0	N47:33.24	W093:28.71	N48:04.61	W093:29.00	31.37	58.10
T1609.0	N47:33.24	W093:28.63	N48:04.61	W093:28.91	31.37	58.10
T1610.0	N47:33.24	W093:28.55	N48:04.61	W093:28.83	31.37	58.10
T1611.0	N47:33.24	W093:28.47	N48:04.61	W093:28.75	31.38	58.12
T1612.0	N47:33.21	W093:28.39	N48:04.61	W093:28.67	31.41	58.17
T1613.0	N47:33.18	W093:28.31	N48:04.61	W093:28.59	31.44	58.23
T1614.0	N47:33.15	W093:28.23	N48:04.61	W093:28.51	31.47	58.29
T1615.0	N47:33.12	W093:28.15	N48:04.61	W093:28.43	31.50	58.34

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1616.0	N47:33.09	W093:28.07	N48:04.61	W093:28.35	31.53	58.40
T1617.0	N47:33.05	W093:27.99	N48:04.61	W093:28.27	31.56	58.46
T1618.0	N47:33.02	W093:27.91	N48:04.61	W093:28.19	31.59	58.51
T1619.0	N47:32.71	W093:27.82	N48:04.61	W093:28.11	31.91	59.10
T1620.0	N47:32.71	W093:27.74	N48:04.61	W093:28.03	31.91	59.10
T1621.0	N47:32.71	W093:27.66	N48:04.61	W093:27.95	31.91	59.10
T1622.0	N47:32.71	W093:27.58	N48:04.61	W093:27.87	31.91	59.10
T1623.0	N47:32.71	W093:27.50	N48:04.61	W093:27.79	31.91	59.10
T1624.0	N47:32.71	W093:27.43	N48:04.61	W093:27.71	31.91	59.10
T1625.0	N47:32.71	W093:27.35	N48:04.61	W093:27.63	31.91	59.10
T1626.0	N47:32.71	W093:27.27	N48:04.61	W093:27.55	31.91	59.10
T1627.0	N47:32.71	W093:27.19	N48:04.61	W093:27.46	31.91	59.10
T1628.0	N47:32.71	W093:27.11	N48:04.62	W093:27.38	31.91	59.10
T1629.0	N47:32.69	W093:27.03	N48:04.62	W093:27.30	31.93	59.14
T1630.0	N47:32.66	W093:26.95	N48:04.62	W093:27.22	31.96	59.20
T1631.0	N47:32.63	W093:26.87	N48:04.62	W093:27.14	31.99	59.25
T1632.0	N47:32.63	W093:26.79	N48:04.62	W093:27.06	31.99	59.25
T1633.0	N47:32.63	W093:26.71	N48:04.62	W093:26.98	31.99	59.25
T1634.0	N47:32.63	W093:26.63	N48:04.62	W093:26.90	31.99	59.25
T1635.0	N47:32.63	W093:26.55	N48:04.62	W093:26.82	31.99	59.25
T1636.0	N47:32.63	W093:26.47	N48:04.62	W093:26.74	31.99	59.25
T1637.0	N47:32.63	W093:26.39	N48:04.62	W093:26.66	31.99	59.25
T1638.0	N47:32.63	W093:26.31	N48:04.62	W093:26.58	31.99	59.25
T1639.0	N47:32.63	W093:26.23	N48:04.62	W093:26.50	31.99	59.25
T1640.0	N47:32.63	W093:26.15	N48:04.62	W093:26.42	31.99	59.25
T1641.0	N47:32.63	W093:26.07	N48:04.62	W093:26.34	31.99	59.25
T1642.0	N47:32.63	W093:25.99	N48:04.62	W093:26.26	31.99	59.25
T1643.0	N47:32.64	W093:25.91	N48:04.62	W093:26.18	31.99	59.25
T1644.0	N47:32.64	W093:25.83	N48:04.62	W093:26.10	31.99	59.25
T1645.0	N47:32.64	W093:25.75	N48:04.62	W093:26.01	31.99	59.25
T1646.0	N47:32.64	W093:25.67	N48:04.62	W093:25.93	31.99	59.25
T1647.0	N47:32.64	W093:25.59	N48:04.62	W093:25.85	31.99	59.25
T1648.0	N47:32.64	W093:25.51	N48:04.62	W093:25.77	31.99	59.25
T1649.0	N47:32.64	W093:25.43	N48:04.62	W093:25.69	31.99	59.25
T1650.0	N47:32.64	W093:25.35	N48:04.62	W093:25.61	31.99	59.25
T1651.0	N47:32.64	W093:25.27	N48:04.62	W093:25.53	31.99	59.25
T1652.0	N47:32.64	W093:25.19	N48:04.62	W093:25.45	31.99	59.25
T1653.0	N47:32.64	W093:25.11	N48:04.62	W093:25.37	31.99	59.25
T1654.0	N47:32.64	W093:25.03	N48:04.62	W093:25.29	31.99	59.25
T1655.0	N47:32.64	W093:24.95	N48:04.62	W093:25.21	31.99	59.25
T1656.0	N47:32.64	W093:24.87	N48:04.62	W093:25.13	31.99	59.25
T1657.0	N47:32.64	W093:24.79	N48:04.62	W093:25.05	31.99	59.25
T1658.0	N47:32.64	W093:24.71	N48:04.62	W093:24.97	31.99	59.25
T1659.0	N47:32.64	W093:24.63	N48:04.62	W093:24.89	31.99	59.25
T1660.0	N47:32.64	W093:24.55	N48:04.62	W093:24.81	31.99	59.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1661.0	N47:32.64	W093:24.47	N48:04.63	W093:24.73	31.99	59.25
T1662.0	N47:32.64	W093:24.39	N48:04.63	W093:24.65	31.99	59.25
T1663.0	N47:32.64	W093:24.31	N48:04.63	W093:24.56	31.99	59.25
T1664.0	N47:32.64	W093:24.24	N48:04.63	W093:24.48	31.99	59.25
T1665.0	N47:32.64	W093:24.16	N48:04.63	W093:24.40	31.99	59.25
T1666.0	N47:32.64	W093:24.08	N48:04.63	W093:24.32	31.99	59.25
T1667.0	N47:32.64	W093:24.00	N48:04.63	W093:24.24	31.99	59.25
T1668.0	N47:32.64	W093:23.92	N48:04.63	W093:24.16	31.99	59.25
T1669.0	N47:32.64	W093:23.84	N48:04.63	W093:24.08	31.99	59.25
T1670.0	N47:32.64	W093:23.76	N48:04.63	W093:24.00	31.99	59.25
T1671.0	N47:32.64	W093:23.68	N48:04.63	W093:23.92	31.99	59.25
T1672.0	N47:32.64	W093:23.60	N48:04.63	W093:23.84	31.99	59.25
T1673.0	N47:32.64	W093:23.52	N48:04.63	W093:23.76	31.99	59.25
T1674.0	N47:32.64	W093:23.44	N48:04.63	W093:23.68	31.99	59.25
T1675.0	N47:32.64	W093:23.36	N48:04.63	W093:23.60	31.99	59.25
T1676.0	N47:32.64	W093:23.28	N48:04.63	W093:23.52	31.99	59.25
T1677.0	N47:32.64	W093:23.20	N48:04.63	W093:23.44	31.99	59.25
T1678.0	N47:32.64	W093:23.12	N48:04.63	W093:23.36	31.99	59.25
T1679.0	N47:32.65	W093:23.04	N48:04.63	W093:23.28	31.99	59.25
T1680.0	N47:32.65	W093:22.96	N48:04.63	W093:23.20	31.99	59.25
T1681.0	N47:32.65	W093:22.88	N48:04.63	W093:23.11	31.99	59.25
T1682.0	N47:32.65	W093:22.80	N48:04.63	W093:23.03	31.99	59.25
T1683.0	N47:32.65	W093:22.72	N48:04.63	W093:22.95	31.99	59.25
T1684.0	N47:32.65	W093:22.64	N48:04.63	W093:22.87	31.99	59.25
T1685.0	N47:32.65	W093:22.56	N48:04.63	W093:22.79	31.99	59.25
T1686.0	N47:32.65	W093:22.48	N48:04.63	W093:22.71	31.99	59.25
T1687.0	N47:32.65	W093:22.40	N48:04.63	W093:22.63	31.99	59.25
T1688.0	N47:32.65	W093:22.32	N48:04.63	W093:22.55	31.99	59.25
T1689.0	N47:32.65	W093:22.24	N48:04.63	W093:22.47	31.99	59.25
T1690.0	N47:32.65	W093:22.16	N48:04.63	W093:22.39	31.99	59.25
T1691.0	N47:32.65	W093:22.08	N48:04.63	W093:22.31	31.99	59.25
T1692.0	N47:32.65	W093:22.00	N48:04.63	W093:22.23	31.99	59.25
T1693.0	N47:32.65	W093:21.92	N48:04.63	W093:22.15	31.99	59.25
T1694.0	N47:32.65	W093:21.84	N47:59.24	W093:22.03	26.59	49.25
T1695.0	N47:32.65	W093:21.76	N47:59.24	W093:21.95	26.59	49.25
T1696.0	N47:32.65	W093:21.68	N47:59.24	W093:21.87	26.59	49.25
T1697.0	N47:32.65	W093:21.60	N47:59.24	W093:21.79	26.59	49.25
T1698.0	N47:32.65	W093:21.52	N47:59.24	W093:21.71	26.59	49.25
T1699.0	N47:32.65	W093:21.44	N47:59.24	W093:21.63	26.59	49.25
T1700.0	N47:32.65	W093:21.36	N47:59.24	W093:21.55	26.59	49.25
T1701.0	N47:32.65	W093:21.28	N47:59.24	W093:21.47	26.59	49.25
T1702.0	N47:32.65	W093:21.21	N47:59.24	W093:21.39	26.59	49.25
T1703.0	N47:32.65	W093:21.13	N47:59.24	W093:21.31	26.59	49.25
T1704.0	N47:32.65	W093:21.05	N47:59.24	W093:21.23	26.59	49.25
T1705.0	N47:32.65	W093:20.97	N47:59.24	W093:21.14	26.59	49.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1706.0	N47:32.65	W093:20.89	N47:59.24	W093:21.06	26.59	49.25
T1707.0	N47:32.65	W093:20.81	N47:59.24	W093:20.98	26.59	49.25
T1708.0	N47:32.65	W093:20.73	N47:59.24	W093:20.90	26.59	49.25
T1709.0	N47:32.65	W093:20.65	N47:59.24	W093:20.82	26.59	49.25
T1710.0	N47:32.65	W093:20.57	N47:59.24	W093:20.74	26.59	49.25
T1711.0	N47:32.65	W093:20.49	N47:59.24	W093:20.66	26.59	49.25
T1712.0	N47:32.65	W093:20.41	N47:59.24	W093:20.58	26.59	49.25
T1713.0	N47:32.65	W093:20.33	N47:59.24	W093:20.50	26.59	49.25
T1714.0	N47:32.65	W093:20.25	N47:59.24	W093:20.42	26.59	49.25
T1715.0	N47:32.65	W093:20.17	N47:59.24	W093:20.34	26.59	49.25
T1716.0	N47:32.65	W093:20.09	N47:59.24	W093:20.26	26.59	49.25
T1717.0	N47:32.65	W093:20.01	N47:59.24	W093:20.18	26.59	49.25
T1718.0	N47:32.65	W093:19.93	N47:59.24	W093:20.10	26.59	49.25
T1719.0	N47:32.66	W093:19.85	N47:59.24	W093:20.02	26.59	49.25
T1720.0	N47:32.66	W093:19.77	N47:59.24	W093:19.94	26.59	49.25
T1721.0	N47:32.66	W093:19.69	N47:59.24	W093:19.86	26.59	49.25
T1722.0	N47:32.66	W093:19.61	N47:59.24	W093:19.78	26.59	49.25
T1723.0	N47:32.66	W093:19.53	N47:59.24	W093:19.70	26.59	49.25
T1724.0	N47:32.66	W093:19.45	N47:59.24	W093:19.62	26.59	49.25
T1725.0	N47:32.66	W093:19.37	N47:59.24	W093:19.54	26.59	49.25
T1726.0	N47:32.66	W093:19.29	N47:59.24	W093:19.46	26.59	49.25
T1727.0	N47:32.66	W093:19.21	N47:59.24	W093:19.38	26.59	49.25
T1728.0	N47:32.66	W093:19.13	N47:59.24	W093:19.30	26.59	49.25
T1729.0	N47:32.66	W093:19.05	N47:59.24	W093:19.21	26.59	49.25
T1730.0	N47:32.66	W093:18.97	N47:59.24	W093:19.13	26.59	49.25
T1731.0	N47:32.66	W093:18.89	N47:59.24	W093:19.05	26.59	49.25
T1732.0	N47:32.66	W093:18.81	N47:59.24	W093:18.97	26.59	49.25
T1733.0	N47:32.66	W093:18.73	N47:59.25	W093:18.89	26.59	49.25
T1734.0	N47:32.66	W093:18.65	N47:59.25	W093:18.81	26.59	49.25
T1735.0	N47:32.66	W093:18.57	N47:59.25	W093:18.73	26.59	49.25
T1736.0	N47:32.66	W093:18.49	N47:59.25	W093:18.65	26.59	49.25
T1737.0	N47:32.66	W093:18.41	N47:59.25	W093:18.57	26.59	49.25
T1738.0	N47:32.66	W093:18.33	N47:59.25	W093:18.49	26.59	49.25
T1739.0	N47:32.66	W093:18.26	N47:59.25	W093:18.41	26.59	49.25
T1740.0	N47:32.66	W093:18.18	N47:59.25	W093:18.33	26.59	49.25
T1741.0	N47:32.66	W093:18.10	N47:59.25	W093:18.25	26.59	49.25
T1742.0	N47:32.66	W093:18.02	N47:59.25	W093:18.17	26.59	49.25
T1743.0	N47:32.66	W093:17.94	N47:59.25	W093:18.09	26.59	49.25
T1744.0	N47:32.66	W093:17.86	N47:59.25	W093:18.01	26.59	49.25
T1745.0	N47:32.66	W093:17.78	N47:59.25	W093:17.93	26.59	49.25
T1746.0	N47:32.66	W093:17.70	N47:59.25	W093:17.85	26.59	49.25
T1747.0	N47:32.66	W093:17.62	N47:59.25	W093:17.77	26.59	49.25
T1748.0	N47:32.66	W093:17.54	N47:59.25	W093:17.69	26.59	49.25
T1749.0	N47:32.66	W093:17.46	N47:59.25	W093:17.61	26.59	49.25
T1750.0	N47:32.66	W093:17.38	N47:59.25	W093:17.53	26.59	49.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1751.0	N47:32.66	W093:17.30	N47:59.25	W093:17.45	26.59	49.25
T1752.0	N47:32.66	W093:17.22	N47:59.25	W093:17.37	26.59	49.25
T1753.0	N47:32.66	W093:17.14	N47:59.25	W093:17.29	26.59	49.25
T1754.0	N47:32.66	W093:17.06	N47:59.25	W093:17.20	26.59	49.25
T1755.0	N47:32.66	W093:16.98	N47:59.25	W093:17.12	26.59	49.25
T1756.0	N47:32.66	W093:16.90	N47:59.25	W093:17.04	26.59	49.25
T1757.0	N47:32.66	W093:16.82	N47:59.25	W093:16.96	26.59	49.25
T1758.0	N47:32.66	W093:16.74	N47:59.25	W093:16.88	26.59	49.25
T1759.0	N47:32.66	W093:16.66	N47:59.25	W093:16.80	26.59	49.25
T1760.0	N47:32.66	W093:16.58	N47:59.25	W093:16.72	26.59	49.25
T1761.0	N47:32.66	W093:16.50	N47:59.25	W093:16.64	26.59	49.25
T1762.0	N47:32.66	W093:16.42	N47:59.25	W093:16.56	26.59	49.25
T1763.0	N47:32.66	W093:16.34	N47:59.25	W093:16.48	26.59	49.25
T1764.0	N47:32.66	W093:16.26	N47:59.25	W093:16.40	26.59	49.25
T1765.0	N47:32.66	W093:16.18	N47:59.25	W093:16.32	26.59	49.25
T1766.0	N47:32.66	W093:16.10	N47:59.25	W093:16.24	26.59	49.25
T1767.0	N47:32.67	W093:16.02	N47:59.25	W093:16.16	26.59	49.25
T1768.0	N47:32.67	W093:15.94	N47:59.25	W093:16.08	26.59	49.25
T1769.0	N47:32.67	W093:15.86	N47:59.25	W093:16.00	26.59	49.25
T1770.0	N47:32.67	W093:15.78	N47:59.25	W093:15.92	26.59	49.25
T1771.0	N47:32.67	W093:15.70	N47:59.25	W093:15.84	26.59	49.25
T1772.0	N47:32.67	W093:15.62	N47:59.25	W093:15.76	26.59	49.25
T1773.0	N47:32.67	W093:15.54	N47:59.25	W093:15.68	26.59	49.25
T1774.0	N47:32.67	W093:15.46	N47:59.25	W093:15.60	26.59	49.25
T1775.0	N47:32.67	W093:15.38	N47:59.25	W093:15.52	26.59	49.25
T1776.0	N47:32.67	W093:15.31	N47:59.25	W093:15.44	26.59	49.25
T1777.0	N47:32.67	W093:15.23	N47:59.25	W093:15.36	26.59	49.25
T1778.0	N47:32.67	W093:15.15	N47:59.25	W093:15.27	26.59	49.25
T1779.0	N47:32.67	W093:15.07	N47:59.25	W093:15.19	26.59	49.25
T1780.0	N47:32.67	W093:14.99	N47:59.25	W093:15.11	26.59	49.25
T1781.0	N47:32.67	W093:14.91	N47:59.25	W093:15.03	26.59	49.25
T1782.0	N47:32.67	W093:14.83	N47:59.25	W093:14.95	26.59	49.25
T1783.0	N47:32.67	W093:14.75	N47:59.26	W093:14.87	26.59	49.25
T1784.0	N47:32.67	W093:14.67	N47:59.26	W093:14.79	26.59	49.25
T1785.0	N47:32.67	W093:14.59	N47:59.26	W093:14.71	26.59	49.25
T1786.0	N47:32.67	W093:14.51	N47:59.26	W093:14.63	26.59	49.25
T1787.0	N47:32.67	W093:14.43	N47:59.26	W093:14.55	26.59	49.25
T1788.0	N47:32.67	W093:14.35	N47:59.26	W093:14.47	26.59	49.25
T1789.0	N47:32.67	W093:14.27	N47:59.26	W093:14.39	26.59	49.25
T1790.0	N47:32.67	W093:14.19	N47:59.26	W093:14.31	26.59	49.25
T1791.0	N47:32.67	W093:14.11	N47:59.26	W093:14.23	26.59	49.25
T1792.0	N47:32.67	W093:14.03	N47:59.26	W093:14.15	26.59	49.25
T1793.0	N47:32.67	W093:13.95	N47:59.26	W093:14.07	26.59	49.25
T1794.0	N47:32.67	W093:13.87	N47:59.26	W093:13.99	26.59	49.25
T1795.0	N47:32.67	W093:13.79	N47:59.26	W093:13.91	26.59	49.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1796.0	N47:32.67	W093:13.71	N47:59.26	W093:13.83	26.59	49.25
T1797.0	N47:32.67	W093:13.63	N47:59.26	W093:13.75	26.59	49.25
T1798.0	N47:32.67	W093:13.55	N47:59.26	W093:13.67	26.59	49.25
T1799.0	N47:32.67	W093:13.47	N47:59.26	W093:13.59	26.59	49.25
T1800.0	N47:32.67	W093:13.39	N47:59.26	W093:13.51	26.59	49.25
T1801.0	N47:32.67	W093:13.31	N47:59.26	W093:13.43	26.59	49.25
T1802.0	N47:32.67	W093:13.23	N47:59.26	W093:13.34	26.59	49.25
T1803.0	N47:32.67	W093:13.15	N47:59.26	W093:13.26	26.59	49.25
T1804.0	N47:32.67	W093:13.07	N47:59.26	W093:13.18	26.59	49.25
T1805.0	N47:32.67	W093:12.99	N47:59.26	W093:13.10	26.59	49.25
T1806.0	N47:32.67	W093:12.91	N47:59.26	W093:13.02	26.59	49.25
T1807.0	N47:32.67	W093:12.83	N47:59.26	W093:12.94	26.59	49.25
T1808.0	N47:32.67	W093:12.75	N47:59.26	W093:12.86	26.59	49.25
T1809.0	N47:32.67	W093:12.67	N47:59.26	W093:12.78	26.59	49.25
T1810.0	N47:32.67	W093:12.59	N47:59.26	W093:12.70	26.59	49.25
T1811.0	N47:32.67	W093:12.51	N47:59.26	W093:12.62	26.59	49.25
T1812.0	N47:32.67	W093:12.43	N47:59.26	W093:12.54	26.59	49.25
T1813.0	N47:32.67	W093:12.35	N47:59.26	W093:12.46	26.59	49.25
T1814.0	N47:32.67	W093:12.28	N47:59.26	W093:12.38	26.59	49.25
T1815.0	N47:32.67	W093:12.20	N47:59.26	W093:12.30	26.59	49.25
T1816.0	N47:32.67	W093:12.12	N47:59.26	W093:12.22	26.59	49.25
T1817.0	N47:32.67	W093:12.04	N47:59.26	W093:12.14	26.59	49.25
T1818.0	N47:32.67	W093:11.96	N47:59.26	W093:12.06	26.59	49.25
T1819.0	N47:32.67	W093:11.88	N47:59.26	W093:11.98	26.59	49.25
T1820.0	N47:32.67	W093:11.80	N47:59.26	W093:11.90	26.59	49.25
T1821.0	N47:32.67	W093:11.72	N47:59.26	W093:11.82	26.59	49.25
T1822.0	N47:32.67	W093:11.64	N47:59.26	W093:11.74	26.59	49.25
T1823.0	N47:32.67	W093:11.56	N47:59.26	W093:11.66	26.59	49.25
T1824.0	N47:32.67	W093:11.48	N47:59.26	W093:11.58	26.59	49.25
T1825.0	N47:32.67	W093:11.40	N47:59.26	W093:11.50	26.59	49.25
T1826.0	N47:32.67	W093:11.32	N47:59.26	W093:11.41	26.59	49.25
T1827.0	N47:32.67	W093:11.24	N47:59.26	W093:11.33	26.59	49.25
T1828.0	N47:32.67	W093:11.16	N47:59.26	W093:11.25	26.59	49.25
T1829.0	N47:32.67	W093:11.08	N47:59.26	W093:11.17	26.59	49.25
T1830.0	N47:32.68	W093:11.00	N47:59.26	W093:11.09	26.59	49.25
T1831.0	N47:32.68	W093:10.92	N47:59.26	W093:11.01	26.59	49.25
T1832.0	N47:32.68	W093:10.84	N47:59.26	W093:10.93	26.59	49.25
T1833.0	N47:32.68	W093:10.76	N47:59.26	W093:10.85	26.59	49.25
T1834.0	N47:32.68	W093:10.68	N47:59.26	W093:10.77	26.59	49.25
T1835.0	N47:32.68	W093:10.60	N47:59.26	W093:10.69	26.59	49.25
T1836.0	N47:32.68	W093:10.52	N47:59.26	W093:10.61	26.59	49.25
T1837.0	N47:32.68	W093:10.44	N47:59.26	W093:10.53	26.59	49.25
T1838.0	N47:32.68	W093:10.36	N47:59.26	W093:10.45	26.59	49.25
T1839.0	N47:32.68	W093:10.28	N47:59.26	W093:10.37	26.59	49.25
T1840.0	N47:32.68	W093:10.20	N47:59.26	W093:10.29	26.59	49.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1841.0	N47:32.68	W093:10.12	N47:59.26	W093:10.21	26.59	49.25
T1842.0	N47:32.68	W093:10.04	N47:59.26	W093:10.13	26.59	49.25
T1843.0	N47:32.68	W093:09.96	N47:59.26	W093:10.05	26.59	49.25
T1844.0	N47:32.68	W093:09.88	N47:59.26	W093:09.97	26.59	49.25
T1845.0	N47:32.68	W093:09.80	N47:59.26	W093:09.89	26.59	49.25
T1846.0	N47:32.68	W093:09.72	N47:59.26	W093:09.81	26.59	49.25
T1847.0	N47:32.68	W093:09.64	N47:59.26	W093:09.73	26.59	49.25
T1848.0	N47:32.68	W093:09.56	N47:59.26	W093:09.65	26.59	49.25
T1849.0	N47:32.68	W093:09.48	N47:59.26	W093:09.57	26.59	49.25
T1850.0	N47:32.68	W093:09.40	N47:59.26	W093:09.48	26.59	49.25
T1851.0	N47:32.68	W093:09.32	N47:59.26	W093:09.40	26.59	49.25
T1852.0	N47:32.68	W093:09.25	N47:59.26	W093:09.32	26.59	49.25
T1853.0	N47:32.68	W093:09.17	N47:59.26	W093:09.24	26.59	49.25
T1854.0	N47:32.68	W093:09.09	N47:59.27	W093:09.16	26.59	49.25
T1855.0	N47:32.68	W093:09.01	N47:59.27	W093:09.08	26.59	49.25
T1856.0	N47:32.68	W093:08.93	N47:59.27	W093:09.00	26.59	49.25
T1857.0	N47:32.68	W093:08.85	N47:59.27	W093:08.92	26.59	49.25
T1858.0	N47:32.68	W093:08.77	N47:59.27	W093:08.84	26.59	49.25
T1859.0	N47:32.68	W093:08.69	N47:59.27	W093:08.76	26.59	49.25
T1860.0	N47:32.68	W093:08.61	N47:59.27	W093:08.68	26.59	49.25
T1861.0	N47:32.68	W093:08.53	N47:59.27	W093:08.60	26.59	49.25
T1862.0	N47:32.68	W093:08.45	N47:59.27	W093:08.52	26.59	49.25
T1863.0	N47:32.68	W093:08.37	N47:59.27	W093:08.44	26.59	49.25
T1864.0	N47:32.68	W093:08.29	N47:59.27	W093:08.36	26.59	49.25
T1865.0	N47:32.68	W093:08.21	N47:59.27	W093:08.28	26.59	49.25
T1866.0	N47:32.68	W093:08.13	N47:59.27	W093:08.20	26.59	49.25
T1867.0	N47:32.68	W093:08.05	N47:59.27	W093:08.12	26.59	49.25
T1868.0	N47:32.68	W093:07.97	N47:59.27	W093:08.04	26.59	49.25
T1869.0	N47:32.68	W093:07.89	N47:59.27	W093:07.96	26.59	49.25
T1870.0	N47:32.68	W093:07.81	N47:59.27	W093:07.88	26.59	49.25
T1871.0	N47:32.68	W093:07.73	N47:59.27	W093:07.80	26.59	49.25
T1872.0	N47:32.68	W093:07.65	N47:59.27	W093:07.72	26.59	49.25
T1873.0	N47:32.68	W093:07.57	N47:59.27	W093:07.64	26.59	49.25
T1874.0	N47:32.68	W093:07.49	N47:59.27	W093:07.55	26.59	49.25
T1875.0	N47:32.68	W093:07.41	N47:59.27	W093:07.47	26.59	49.25
T1876.0	N47:32.68	W093:07.33	N47:59.27	W093:07.39	26.59	49.25
T1877.0	N47:32.68	W093:07.25	N47:59.27	W093:07.31	26.59	49.25
T1878.0	N47:32.68	W093:07.17	N47:59.27	W093:07.23	26.59	49.25
T1879.0	N47:32.68	W093:07.09	N47:59.27	W093:07.15	26.59	49.25
T1880.0	N47:32.68	W093:07.01	N47:59.27	W093:07.07	26.59	49.25
T1881.0	N47:32.68	W093:06.93	N47:59.27	W093:06.99	26.59	49.25
T1882.0	N47:32.68	W093:06.85	N47:59.27	W093:06.91	26.59	49.25
T1883.0	N47:32.68	W093:06.77	N47:59.27	W093:06.83	26.59	49.25
T1884.0	N47:32.68	W093:06.69	N47:59.27	W093:06.75	26.59	49.25
T1885.0	N47:32.68	W093:06.61	N47:59.27	W093:06.67	26.59	49.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1886.0	N47:32.68	W093:06.53	N47:59.27	W093:06.59	26.59	49.25
T1887.0	N47:32.68	W093:06.45	N47:59.27	W093:06.51	26.59	49.25
T1888.0	N47:32.68	W093:06.37	N47:59.27	W093:06.43	26.59	49.25
T1889.0	N47:32.68	W093:06.30	N47:59.27	W093:06.35	26.59	49.25
T1890.0	N47:32.68	W093:06.22	N47:59.27	W093:06.27	26.59	49.25
T1891.0	N47:32.68	W093:06.14	N47:59.27	W093:06.19	26.59	49.25
T1892.0	N47:32.68	W093:06.06	N47:59.27	W093:06.11	26.59	49.25
T1893.0	N47:32.68	W093:05.98	N47:59.27	W093:06.03	26.59	49.25
T1894.0	N47:32.68	W093:05.90	N47:59.27	W093:05.95	26.59	49.25
T1895.0	N47:32.68	W093:05.82	N47:59.27	W093:05.87	26.59	49.25
T1896.0	N47:32.68	W093:05.74	N47:59.27	W093:05.79	26.59	49.25
T1897.0	N47:32.68	W093:05.66	N47:59.27	W093:05.71	26.59	49.25
T1898.0	N47:32.68	W093:05.58	N47:59.27	W093:05.63	26.59	49.25
T1899.0	N47:32.68	W093:05.50	N47:59.27	W093:05.54	26.59	49.25
T1900.0	N47:32.68	W093:05.42	N47:59.27	W093:05.46	26.59	49.25
T1901.0	N47:32.68	W093:05.34	N47:59.27	W093:05.38	26.59	49.25
T1902.0	N47:32.68	W093:05.26	N47:59.27	W093:05.30	26.59	49.25
T1903.0	N47:32.68	W093:05.18	N47:59.27	W093:05.22	26.59	49.25
T1904.0	N47:32.68	W093:05.10	N47:59.27	W093:05.14	26.59	49.25
T1905.0	N47:32.68	W093:05.02	N47:58.73	W093:05.06	26.05	48.25
T1906.0	N47:32.68	W093:04.94	N47:58.73	W093:04.98	26.05	48.25
T1907.0	N47:32.68	W093:04.86	N47:58.73	W093:04.90	26.05	48.25
T1908.0	N47:32.68	W093:04.78	N47:58.73	W093:04.82	26.05	48.25
T1909.0	N47:32.68	W093:04.70	N47:58.73	W093:04.74	26.05	48.25
T1910.0	N47:32.68	W093:04.62	N47:58.73	W093:04.66	26.05	48.25
T1911.0	N47:32.68	W093:04.54	N47:58.73	W093:04.58	26.05	48.25
T1912.0	N47:32.68	W093:04.46	N47:58.73	W093:04.50	26.05	48.25
T1913.0	N47:32.68	W093:04.38	N47:58.73	W093:04.42	26.05	48.25
T1914.0	N47:32.68	W093:04.30	N47:58.73	W093:04.34	26.05	48.25
T1915.0	N47:32.68	W093:04.22	N47:58.73	W093:04.26	26.05	48.25
T1916.0	N47:32.68	W093:04.14	N47:58.73	W093:04.18	26.05	48.25
T1917.0	N47:32.68	W093:04.06	N47:58.73	W093:04.10	26.05	48.25
T1918.0	N47:32.68	W093:03.98	N47:58.73	W093:04.02	26.05	48.25
T1919.0	N47:32.68	W093:03.90	N47:58.73	W093:03.94	26.05	48.25
T1920.0	N47:32.68	W093:03.82	N47:58.73	W093:03.86	26.05	48.25
T1921.0	N47:32.68	W093:03.74	N47:58.73	W093:03.77	26.05	48.25
T1922.0	N47:32.68	W093:03.66	N47:58.73	W093:03.69	26.05	48.25
T1923.0	N47:32.68	W093:03.58	N47:58.73	W093:03.61	26.05	48.25
T1924.0	N47:32.68	W093:03.50	N47:58.73	W093:03.53	26.05	48.25
T1925.0	N47:32.68	W093:03.42	N47:58.73	W093:03.45	26.05	48.25
T1926.0	N47:32.68	W093:03.34	N47:58.73	W093:03.37	26.05	48.25
T1927.0	N47:32.68	W093:03.27	N47:58.73	W093:03.29	26.05	48.25
T1928.0	N47:32.68	W093:03.19	N47:58.73	W093:03.21	26.05	48.25
T1929.0	N47:32.68	W093:03.11	N47:58.73	W093:03.13	26.05	48.25
T1930.0	N47:32.68	W093:03.03	N47:58.73	W093:03.05	26.05	48.25



**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1931.0	N47:32.68	W093:02.95	N47:58.73	W093:02.97	26.05	48.25
T1932.0	N47:32.68	W093:02.87	N47:58.73	W093:02.89	26.05	48.25
T1933.0	N47:32.68	W093:02.79	N47:58.73	W093:02.81	26.05	48.25
T1934.0	N47:32.68	W093:02.71	N47:58.73	W093:02.73	26.05	48.25
T1935.0	N47:32.68	W093:02.63	N47:58.73	W093:02.65	26.05	48.25
T1936.0	N47:32.68	W093:02.55	N47:58.73	W093:02.57	26.05	48.25
T1937.0	N47:32.68	W093:02.47	N47:58.73	W093:02.49	26.05	48.25
T1938.0	N47:32.68	W093:02.39	N47:58.73	W093:02.41	26.05	48.25
T1939.0	N47:32.68	W093:02.31	N47:58.73	W093:02.33	26.05	48.25
T1940.0	N47:32.68	W093:02.23	N47:58.73	W093:02.25	26.05	48.25
T1941.0	N47:32.68	W093:02.15	N47:58.73	W093:02.17	26.05	48.25
T1942.0	N47:32.68	W093:02.07	N47:58.73	W093:02.09	26.05	48.25
T1943.0	N47:32.68	W093:01.99	N47:58.73	W093:02.01	26.05	48.25
T1944.0	N47:32.68	W093:01.91	N47:58.73	W093:01.93	26.05	48.25
T1945.0	N47:32.68	W093:01.83	N47:58.73	W093:01.85	26.05	48.25
T1946.0	N47:32.68	W093:01.75	N47:58.73	W093:01.76	26.05	48.25
T1947.0	N47:32.68	W093:01.67	N47:58.73	W093:01.68	26.05	48.25
T1948.0	N47:32.68	W093:01.59	N47:58.73	W093:01.60	26.05	48.25
T1949.0	N47:32.68	W093:01.51	N47:58.73	W093:01.52	26.05	48.25
T1950.0	N47:32.68	W093:01.43	N47:58.73	W093:01.44	26.05	48.25
T1951.0	N47:32.68	W093:01.35	N47:58.73	W093:01.36	26.05	48.25
T1952.0	N47:32.68	W093:01.27	N47:58.73	W093:01.28	26.05	48.25
T1953.0	N47:32.68	W093:01.19	N47:58.73	W093:01.20	26.05	48.25
T1954.0	N47:32.68	W093:01.11	N47:58.73	W093:01.12	26.05	48.25
T1955.0	N47:32.68	W093:01.03	N47:58.73	W093:01.04	26.05	48.25
T1956.0	N47:32.68	W093:00.95	N47:58.73	W093:00.96	26.05	48.25
T1957.0	N47:32.68	W093:00.87	N47:58.73	W093:00.88	26.05	48.25
T1958.0	N47:32.68	W093:00.79	N47:58.73	W093:00.80	26.05	48.25
T1959.0	N47:32.68	W093:00.71	N47:58.73	W093:00.72	26.05	48.25
T1960.0	N47:32.68	W093:00.63	N47:58.73	W093:00.64	26.05	48.25
T1961.0	N47:32.68	W093:00.55	N47:58.73	W093:00.56	26.05	48.25
T1962.0	N47:32.68	W093:00.47	N47:58.73	W093:00.48	26.05	48.25
T1963.0	N47:32.68	W093:00.39	N47:58.73	W093:00.40	26.05	48.25
T1964.0	N47:32.68	W093:00.31	N47:58.73	W093:00.32	26.05	48.25
T1965.0	N47:32.68	W093:00.24	N47:58.73	W093:00.24	26.05	48.25
T1966.0	N47:32.68	W093:00.16	N47:58.73	W093:00.16	26.05	48.25
T1967.0	N47:32.68	W093:00.08	N47:58.73	W093:00.08	26.05	48.25
T1968.0	N47:32.68	W093:00.00	N47:58.73	W093:00.00	26.05	48.25
T1969.0	N47:32.68	W092:59.92	N47:58.73	W092:59.92	26.05	48.25
T1970.0	N47:32.68	W092:59.84	N47:58.73	W092:59.84	26.05	48.25
T1971.0	N47:32.68	W092:59.76	N47:58.73	W092:59.75	26.05	48.25
T1972.0	N47:32.68	W092:59.68	N47:58.73	W092:59.67	26.05	48.25
T1973.0	N47:32.68	W092:59.60	N47:58.73	W092:59.59	26.05	48.25
T1974.0	N47:32.68	W092:59.52	N47:58.73	W092:59.51	26.05	48.25
T1975.0	N47:32.68	W092:59.44	N47:58.73	W092:59.43	26.05	48.25

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T1976.0	N47:32.68	W092:59.36	N47:58.73	W092:59.35	26.05	48.25
T1977.0	N47:32.68	W092:59.28	N47:58.73	W092:59.27	26.05	48.25
T1978.0	N47:32.68	W092:59.20	N47:58.73	W092:59.19	26.05	48.25
T1979.0	N47:32.68	W092:59.12	N47:58.73	W092:59.11	26.05	48.25
T1980.0	N47:32.68	W092:59.04	N47:58.73	W092:59.03	26.05	48.25
T1981.0	N47:32.68	W092:58.96	N47:58.73	W092:58.95	26.05	48.25
T1982.0	N47:32.68	W092:58.88	N47:58.73	W092:58.87	26.05	48.25
T1983.0	N47:32.68	W092:58.80	N47:58.73	W092:58.79	26.05	48.25
T1984.0	N47:32.68	W092:58.72	N47:58.73	W092:58.71	26.05	48.25
T1985.0	N47:32.68	W092:58.64	N47:58.73	W092:58.63	26.05	48.25
T1986.0	N47:32.68	W092:58.56	N47:58.73	W092:58.55	26.05	48.25
T1987.0	N47:32.68	W092:58.48	N47:58.73	W092:58.47	26.05	48.25
T1988.0	N47:32.68	W092:58.40	N47:58.73	W092:58.39	26.05	48.25
T1989.0	N47:32.68	W092:58.32	N47:58.73	W092:58.31	26.05	48.25
T1990.0	N47:32.68	W092:58.24	N47:58.73	W092:58.23	26.05	48.25
T1991.0	N47:32.68	W092:58.16	N47:58.73	W092:58.15	26.05	48.25
T1992.0	N47:32.68	W092:58.08	N47:58.73	W092:58.07	26.05	48.25
T1993.0	N47:32.68	W092:58.00	N47:58.73	W092:57.99	26.05	48.25
T1994.0	N47:32.68	W092:57.92	N47:58.73	W092:57.91	26.05	48.25
T1995.0	N47:32.68	W092:57.84	N47:58.73	W092:57.83	26.05	48.25
T1996.0	N47:32.68	W092:57.76	N47:58.73	W092:57.74	26.05	48.25
T1997.0	N47:32.68	W092:57.68	N47:58.73	W092:57.66	26.05	48.25
T1998.0	N47:32.68	W092:57.60	N47:58.73	W092:57.58	26.05	48.25
T1999.0	N47:32.68	W092:57.52	N47:58.73	W092:57.50	26.05	48.25
T2000.0	N47:32.68	W092:57.44	N47:58.73	W092:57.42	26.05	48.25
T2001.0	N47:32.68	W092:57.36	N47:58.73	W092:57.34	26.05	48.25
T2002.0	N47:32.68	W092:57.29	N47:58.73	W092:57.26	26.05	48.25
T2003.0	N47:32.68	W092:57.21	N47:58.73	W092:57.18	26.05	48.25
T2004.0	N47:32.68	W092:57.13	N47:58.73	W092:57.10	26.05	48.25
T2005.0	N47:32.68	W092:57.05	N47:58.73	W092:57.02	26.05	48.25
T2006.0	N47:32.68	W092:56.97	N47:58.73	W092:56.94	26.05	48.25
T2007.0	N47:32.68	W092:56.89	N47:58.73	W092:56.86	26.05	48.25
T2008.0	N47:32.68	W092:56.81	N47:58.73	W092:56.78	26.05	48.25
T2009.0	N47:32.68	W092:56.73	N47:58.73	W092:56.70	26.05	48.25
T2010.0	N47:32.68	W092:56.65	N47:58.73	W092:56.62	26.05	48.25
T2011.0	N47:32.68	W092:56.57	N47:58.73	W092:56.54	26.05	48.25
T2012.0	N47:32.68	W092:56.49	N47:58.73	W092:56.46	26.05	48.25
T2013.0	N47:32.68	W092:56.41	N47:58.73	W092:56.38	26.05	48.25
T2014.0	N47:32.68	W092:56.33	N47:58.73	W092:56.30	26.05	48.25
T2015.0	N47:32.68	W092:56.25	N47:58.73	W092:56.22	26.05	48.25
T2016.0	N47:32.68	W092:56.17	N47:58.73	W092:56.14	26.05	48.25
T2017.0	N47:32.68	W092:56.09	N47:58.73	W092:56.06	26.05	48.25
T2018.0	N47:32.68	W092:56.01	N47:58.73	W092:55.98	26.05	48.25
T2019.0	N47:32.68	W092:55.93	N47:58.73	W092:55.90	26.05	48.25
T2020.0	N47:43.00	W092:55.84	N47:58.73	W092:55.82	15.74	29.15

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T2021.0	N47:43.00	W092:55.76	N47:58.73	W092:55.73	15.74	29.15
T2022.0	N47:42.99	W092:55.68	N47:58.73	W092:55.65	15.74	29.15
T2023.0	N47:42.99	W092:55.60	N47:58.73	W092:55.57	15.74	29.15
T2024.0	N47:42.99	W092:55.52	N47:58.73	W092:55.49	15.74	29.15
T2025.0	N47:42.99	W092:55.44	N47:58.73	W092:55.41	15.74	29.15
T2026.0	N47:42.99	W092:55.36	N47:58.73	W092:55.33	15.74	29.15
T2027.0	N47:42.99	W092:55.28	N47:58.73	W092:55.25	15.74	29.15
T2028.0	N47:42.99	W092:55.20	N47:58.73	W092:55.17	15.74	29.15
T2029.0	N47:42.99	W092:55.12	N47:58.73	W092:55.09	15.74	29.15
T2030.0	N47:42.99	W092:55.04	N47:58.73	W092:55.01	15.74	29.15
T2031.0	N47:42.99	W092:54.96	N47:58.73	W092:54.93	15.74	29.15
T2032.0	N47:42.99	W092:54.88	N47:58.73	W092:54.85	15.74	29.15
T2033.0	N47:42.99	W092:54.80	N47:58.73	W092:54.77	15.74	29.15
T2034.0	N47:42.99	W092:54.72	N47:58.73	W092:54.69	15.74	29.15
T2035.0	N47:42.99	W092:54.64	N47:58.73	W092:54.61	15.74	29.15
T2036.0	N47:42.99	W092:54.56	N47:58.73	W092:54.53	15.74	29.15
T2037.0	N47:42.99	W092:54.48	N47:58.73	W092:54.45	15.74	29.15
T2038.0	N47:42.99	W092:54.40	N47:58.73	W092:54.37	15.74	29.15
T2039.0	N47:42.99	W092:54.32	N47:58.73	W092:54.29	15.74	29.15
T2040.0	N47:42.99	W092:54.24	N47:58.73	W092:54.21	15.74	29.15
T2041.0	N47:42.99	W092:54.16	N47:58.73	W092:54.13	15.74	29.15
T2042.0	N47:42.99	W092:54.08	N47:58.73	W092:54.05	15.74	29.15
T2043.0	N47:42.99	W092:54.00	N47:58.73	W092:53.97	15.74	29.15
T2044.0	N47:42.99	W092:53.92	N47:58.73	W092:53.89	15.74	29.15
T2045.0	N47:42.99	W092:53.84	N47:58.73	W092:53.81	15.74	29.15
T2046.0	N47:42.99	W092:53.76	N47:58.73	W092:53.72	15.74	29.15
T2047.0	N47:42.99	W092:53.68	N47:58.73	W092:53.64	15.74	29.15
T2048.0	N47:42.99	W092:53.60	N47:58.73	W092:53.56	15.74	29.15
T2049.0	N47:42.99	W092:53.52	N47:58.73	W092:53.48	15.74	29.15
T2050.0	N47:42.99	W092:53.44	N47:58.73	W092:53.40	15.74	29.15
T2051.0	N47:42.99	W092:53.36	N47:58.73	W092:53.32	15.74	29.15
T2052.0	N47:42.99	W092:53.28	N47:58.73	W092:53.24	15.74	29.15
T2053.0	N47:42.99	W092:53.20	N47:58.73	W092:53.16	15.74	29.15
T2054.0	N47:42.99	W092:53.12	N47:58.73	W092:53.08	15.74	29.15
T2055.0	N47:42.99	W092:53.04	N47:58.73	W092:53.00	15.74	29.15
T2056.0	N47:42.99	W092:52.96	N47:58.73	W092:52.92	15.74	29.15
T2057.0	N47:42.99	W092:52.88	N47:58.73	W092:52.84	15.74	29.15
T2058.0	N47:42.99	W092:52.80	N47:58.73	W092:52.76	15.74	29.15
T2059.0	N47:42.99	W092:52.72	N47:58.73	W092:52.68	15.74	29.15
T2060.0	N47:42.99	W092:52.64	N47:58.73	W092:52.60	15.74	29.15
T2061.0	N47:42.99	W092:52.56	N47:58.73	W092:52.52	15.74	29.15
T2062.0	N47:42.99	W092:52.48	N47:58.73	W092:52.44	15.74	29.15
T2063.0	N47:42.99	W092:52.40	N47:58.73	W092:52.36	15.74	29.15
T2064.0	N47:42.99	W092:52.32	N47:58.73	W092:52.28	15.74	29.15
T2065.0	N47:42.99	W092:52.24	N47:58.73	W092:52.20	15.74	29.15

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T2066.0	N47:42.99	W092:52.16	N47:58.73	W092:52.12	15.74	29.15
T2067.0	N47:42.99	W092:52.08	N47:58.73	W092:52.04	15.74	29.15
T2068.0	N47:42.99	W092:52.00	N47:58.73	W092:51.96	15.74	29.15
T2069.0	N47:42.99	W092:51.92	N47:58.73	W092:51.88	15.74	29.15
T2070.0	N47:42.99	W092:51.84	N47:58.73	W092:51.80	15.74	29.15
T2071.0	N47:42.99	W092:51.76	N47:58.73	W092:51.71	15.74	29.15
T2072.0	N47:42.99	W092:51.68	N47:58.73	W092:51.63	15.74	29.15
T2073.0	N47:42.99	W092:51.60	N47:58.73	W092:51.55	15.74	29.15
T2074.0	N47:42.99	W092:51.52	N47:58.73	W092:51.47	15.74	29.15
T2075.0	N47:42.99	W092:51.44	N47:58.73	W092:51.39	15.74	29.15
T2076.0	N47:42.99	W092:51.36	N47:58.73	W092:51.31	15.74	29.15
T2077.0	N47:42.99	W092:51.28	N47:58.73	W092:51.23	15.74	29.15
T2078.0	N47:42.99	W092:51.20	N47:58.73	W092:51.15	15.74	29.15
T2079.0	N47:42.99	W092:51.12	N47:58.73	W092:51.07	15.74	29.15
T2080.0	N47:42.99	W092:51.04	N47:58.73	W092:50.99	15.74	29.15
T2081.0	N47:42.99	W092:50.96	N47:58.73	W092:50.91	15.74	29.15
T2082.0	N47:42.99	W092:50.88	N47:58.73	W092:50.83	15.74	29.15
T2083.0	N47:42.99	W092:50.80	N47:58.73	W092:50.75	15.74	29.15
T2084.0	N47:42.99	W092:50.72	N47:58.72	W092:50.67	15.74	29.15
T2085.0	N47:42.99	W092:50.64	N47:58.72	W092:50.59	15.74	29.15
T2086.0	N47:42.99	W092:50.56	N47:58.72	W092:50.51	15.74	29.15
T2087.0	N47:42.99	W092:50.48	N47:58.72	W092:50.43	15.74	29.15
T2088.0	N47:42.99	W092:50.40	N47:58.72	W092:50.35	15.74	29.15
T2089.0	N47:42.99	W092:50.32	N47:58.72	W092:50.27	15.74	29.15
T2090.0	N47:42.99	W092:50.24	N47:58.72	W092:50.19	15.74	29.15
T2091.0	N47:42.99	W092:50.16	N47:58.72	W092:50.11	15.74	29.15
T2092.0	N47:42.99	W092:50.08	N47:58.72	W092:50.03	15.74	29.15
T2093.0	N47:42.99	W092:50.00	N47:58.72	W092:49.95	15.74	29.15
T2094.0	N47:42.99	W092:49.92	N47:58.72	W092:49.87	15.74	29.15
T2095.0	N47:42.99	W092:49.84	N47:58.72	W092:49.79	15.74	29.15
T2096.0	N47:42.99	W092:49.76	N47:58.72	W092:49.70	15.74	29.15
T2097.0	N47:42.99	W092:49.68	N47:58.72	W092:49.62	15.74	29.15
T2098.0	N47:42.99	W092:49.60	N47:58.72	W092:49.54	15.74	29.15
T2099.0	N47:42.99	W092:49.52	N47:58.72	W092:49.46	15.74	29.15
T2100.0	N47:42.99	W092:49.44	N47:58.72	W092:49.38	15.74	29.15
T2101.0	N47:42.99	W092:49.36	N47:58.72	W092:49.30	15.74	29.15
T2102.0	N47:42.99	W092:49.28	N47:58.72	W092:49.22	15.74	29.15
T2103.0	N47:42.99	W092:49.20	N47:58.72	W092:49.14	15.74	29.15
T2104.0	N47:42.99	W092:49.12	N47:58.72	W092:49.06	15.74	29.15
T2105.0	N47:42.99	W092:49.04	N47:58.72	W092:48.98	15.74	29.15
T2106.0	N47:42.99	W092:48.96	N47:58.72	W092:48.90	15.74	29.15
T2107.0	N47:42.99	W092:48.88	N47:58.72	W092:48.82	15.74	29.15
T2108.0	N47:42.99	W092:48.80	N47:58.72	W092:48.74	15.74	29.15
T2109.0	N47:42.99	W092:48.72	N47:58.72	W092:48.66	15.74	29.15
T2110.0	N47:42.99	W092:48.64	N47:58.72	W092:48.58	15.74	29.15

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T2111.0	N47:42.99	W092:48.56	N47:58.72	W092:48.50	15.74	29.15
T2112.0	N47:42.99	W092:48.48	N47:58.72	W092:48.42	15.74	29.15
T2113.0	N47:42.99	W092:48.40	N47:58.72	W092:48.34	15.74	29.15
T2114.0	N47:42.99	W092:48.32	N47:58.72	W092:48.26	15.74	29.15
T2115.0	N47:42.99	W092:48.24	N47:58.72	W092:48.18	15.74	29.15
T2116.0	N47:42.99	W092:48.16	N47:58.72	W092:48.10	15.74	29.15
T2117.0	N47:42.99	W092:48.08	N47:58.72	W092:48.02	15.74	29.15
T2118.0	N47:42.99	W092:48.00	N47:58.72	W092:47.94	15.74	29.15
T2119.0	N47:42.99	W092:47.92	N47:58.72	W092:47.86	15.74	29.15
T2120.0	N47:42.99	W092:47.84	N47:58.72	W092:47.78	15.74	29.15
T2121.0	N47:42.99	W092:47.76	N47:58.72	W092:47.69	15.74	29.15
T2122.0	N47:42.99	W092:47.68	N47:58.72	W092:47.61	15.74	29.15
T2123.0	N47:42.99	W092:47.60	N47:58.72	W092:47.53	15.74	29.15
T2124.0	N47:42.99	W092:47.52	N47:58.72	W092:47.45	15.74	29.15
T2125.0	N47:42.98	W092:47.44	N47:58.72	W092:47.37	15.74	29.15
T2126.0	N47:42.98	W092:47.36	N47:58.72	W092:47.29	15.74	29.15
T2127.0	N47:42.98	W092:47.28	N47:58.72	W092:47.21	15.74	29.15
T2128.0	N47:42.98	W092:47.20	N47:58.72	W092:47.13	15.74	29.15
T2129.0	N47:42.98	W092:47.12	N47:58.72	W092:47.05	15.74	29.15
T2130.0	N47:42.98	W092:47.04	N47:58.72	W092:46.97	15.74	29.15
T2131.0	N47:42.98	W092:46.96	N47:58.72	W092:46.89	15.74	29.15
T2132.0	N47:42.98	W092:46.88	N47:58.72	W092:46.81	15.74	29.15
T2133.0	N47:42.98	W092:46.80	N47:58.72	W092:46.73	15.74	29.15
T2134.0	N47:42.98	W092:46.72	N47:58.72	W092:46.65	15.74	29.15
T2135.0	N47:42.98	W092:46.64	N47:58.72	W092:46.57	15.74	29.15
T2136.0	N47:42.98	W092:46.56	N47:58.72	W092:46.49	15.74	29.15
T2137.0	N47:42.98	W092:46.48	N47:58.72	W092:46.41	15.74	29.15
T2138.0	N47:42.98	W092:46.40	N47:58.72	W092:46.33	15.74	29.15
T2139.0	N47:42.98	W092:46.32	N47:58.72	W092:46.25	15.74	29.15
T2140.0	N47:42.98	W092:46.24	N47:58.72	W092:46.17	15.74	29.15
T2141.0	N47:42.98	W092:46.16	N47:58.72	W092:46.09	15.74	29.15
T2142.0	N47:42.98	W092:46.08	N47:58.72	W092:46.01	15.74	29.15
T2143.0	N47:42.98	W092:46.00	N47:58.72	W092:45.93	15.74	29.15
T2144.0	N47:42.98	W092:45.92	N47:58.72	W092:45.85	15.74	29.15
T2145.0	N47:42.98	W092:45.84	N47:58.72	W092:45.77	15.74	29.15
T2146.0	N47:42.98	W092:45.76	N47:58.72	W092:45.68	15.74	29.15
T2147.0	N47:42.98	W092:45.68	N47:58.72	W092:45.60	15.74	29.15
T2148.0	N47:42.98	W092:45.60	N47:58.72	W092:45.52	15.74	29.15
T2149.0	N47:42.98	W092:45.52	N47:58.72	W092:45.44	15.74	29.15
T2150.0	N47:42.98	W092:45.44	N47:58.72	W092:45.36	15.74	29.15
T2151.0	N47:42.98	W092:45.36	N47:58.72	W092:45.28	15.74	29.15
T2152.0	N47:42.98	W092:45.28	N47:58.72	W092:45.20	15.74	29.15
T2153.0	N47:42.98	W092:45.20	N47:58.72	W092:45.12	15.74	29.15
T2154.0	N47:42.98	W092:45.12	N47:58.72	W092:45.04	15.74	29.15
T2155.0	N47:42.98	W092:45.04	N47:58.71	W092:44.96	15.74	29.15

**MAIN BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T2156.0	N47:42.98	W092:44.96	N47:58.71	W092:44.88	15.74	29.15
T2157.0	N47:42.98	W092:44.88	N47:58.71	W092:44.80	15.74	29.15
T2158.0	N47:42.98	W092:44.80	N47:58.71	W092:44.72	15.74	29.15
T2159.0	N47:42.98	W092:44.72	N47:58.71	W092:44.64	15.74	29.15
T2160.0	N47:42.98	W092:44.64	N47:58.71	W092:44.56	15.74	29.15
T2161.0	N47:42.98	W092:44.56	N47:58.71	W092:44.48	15.74	29.15
T2162.0	N47:42.98	W092:44.48	N47:58.71	W092:44.40	15.74	29.15
T2163.0	N47:42.98	W092:44.40	N47:58.71	W092:44.32	15.74	29.15
T2164.0	N47:42.98	W092:44.32	N47:58.71	W092:44.24	15.74	29.15
T2165.0	N47:42.98	W092:44.24	N47:58.71	W092:44.16	15.74	29.15
T2166.0	N47:42.98	W092:44.16	N47:58.71	W092:44.08	15.74	29.15
T2167.0	N47:42.98	W092:44.08	N47:58.71	W092:44.00	15.74	29.15
T2168.0	N47:42.98	W092:44.00	N47:58.71	W092:43.92	15.74	29.15
T2169.0	N47:42.98	W092:43.92	N47:58.71	W092:43.84	15.74	29.15
T2170.0	N47:42.98	W092:43.84	N47:58.71	W092:43.76	15.74	29.15
T2171.0	N47:42.98	W092:43.76	N47:58.71	W092:43.67	15.74	29.15
T2172.0	N47:42.98	W092:43.68	N47:58.71	W092:43.59	15.74	29.15
T2173.0	N47:42.98	W092:43.60	N47:58.71	W092:43.51	15.74	29.15
T2174.0	N47:42.98	W092:43.52	N47:58.71	W092:43.43	15.74	29.15
T2175.0	N47:42.98	W092:43.44	N47:58.71	W092:43.35	15.74	29.15
T2176.0	N47:42.98	W092:43.36	N47:58.71	W092:43.27	15.74	29.15
T2177.0	N47:42.98	W092:43.28	N47:58.71	W092:43.19	15.74	29.15
T2178.0	N47:42.98	W092:43.20	N47:58.71	W092:43.11	15.74	29.15
T2179.0	N47:42.98	W092:43.12	N47:58.71	W092:43.03	15.74	29.15
T2180.0	N47:42.98	W092:43.04	N47:58.71	W092:42.95	15.74	29.15
T2181.0	N47:42.98	W092:42.96	N47:58.71	W092:42.87	15.74	29.15
T2182.0	N47:42.98	W092:42.88	N47:58.71	W092:42.79	15.74	29.15
T2183.0	N47:42.97	W092:42.80	N47:58.71	W092:42.71	15.74	29.15
T2184.0	N47:42.97	W092:42.72	N47:58.71	W092:42.63	15.74	29.15
T2185.0	N47:42.97	W092:42.64	N47:58.71	W092:42.55	15.74	29.15
T2186.0	N47:42.97	W092:42.56	N47:58.71	W092:42.47	15.74	29.15
T2187.0	N47:42.97	W092:42.48	N47:58.71	W092:42.39	15.74	29.15
T2188.0	N47:42.97	W092:42.40	N47:58.71	W092:42.31	15.74	29.15
T2189.0	N47:42.97	W092:42.32	N47:58.71	W092:42.23	15.74	29.15
T2190.0	N47:42.97	W092:42.24	N47:58.71	W092:42.15	15.74	29.15
T2191.0	N47:42.97	W092:42.16	N47:58.71	W092:42.07	15.74	29.15
T2192.0	N47:42.97	W092:42.08	N47:58.71	W092:41.99	15.74	29.15
T2193.0	N47:42.97	W092:42.00	N47:58.71	W092:41.91	15.74	29.15
T2194.0	N47:42.97	W092:41.92	N47:58.71	W092:41.83	15.74	29.15

Total control line length = 2520.19 nautical miles  
= 4667.40 kilometers.

Total traverse line length = 24758.55 nautical miles  
= 45852.83 kilometers.

Total length of all lines = 27278.74 nautical miles  
= 50520.23 kilometers.

**EXTENSION BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
C0328.0	N47:47.34	W092:42.01	N47:47.32	W092:33.20	5.94	11.00
C0329.0	N47:47.88	W092:42.01	N47:47.86	W092:33.20	5.94	11.00
C0330.0	N47:48.42	W092:42.01	N47:48.40	W092:33.19	5.94	11.00
C0331.0	N47:48.96	W092:42.00	N47:48.93	W092:33.19	5.94	11.00
C0332.0	N47:49.50	W092:42.00	N47:49.47	W092:33.18	5.94	11.00
C0333.0	N47:50.04	W092:42.00	N47:50.01	W092:33.18	5.94	11.00
C0334.0	N47:50.58	W092:41.99	N47:50.55	W092:33.17	5.94	11.00
C0337.0	N47:52.20	W092:41.98	N47:52.17	W092:33.16	5.94	11.00
C0338.0	N47:52.74	W092:41.98	N47:52.71	W092:33.15	5.94	11.00
C0339.0	N47:53.28	W092:41.98	N47:53.25	W092:33.15	5.94	11.00
C0340.0	N47:53.82	W092:41.97	N47:53.79	W092:33.14	5.94	11.00
C0341.0	N47:54.36	W092:41.97	N47:54.33	W092:33.14	5.94	11.00
T3193.0	N47:47.32	W092:41.97	N47:54.39	W092:41.93	7.07	13.10
T3194.0	N47:47.32	W092:41.89	N47:54.39	W092:41.85	7.07	13.10
T3195.0	N47:47.32	W092:41.81	N47:54.39	W092:41.77	7.07	13.10
T3196.0	N47:47.32	W092:41.73	N47:54.39	W092:41.69	7.07	13.10
T3197.0	N47:47.32	W092:41.65	N47:54.39	W092:41.61	7.07	13.10
T3198.0	N47:47.32	W092:41.57	N47:54.39	W092:41.53	7.07	13.10
T3199.0	N47:47.32	W092:41.49	N47:54.39	W092:41.45	7.07	13.10
T3200.0	N47:47.32	W092:41.41	N47:54.39	W092:41.37	7.07	13.10
T3201.0	N47:47.32	W092:41.33	N47:54.39	W092:41.29	7.07	13.10
T3202.0	N47:47.32	W092:41.25	N47:54.39	W092:41.21	7.07	13.10
T3203.0	N47:47.31	W092:41.17	N47:54.39	W092:41.13	7.07	13.10
T3204.0	N47:47.31	W092:41.09	N47:54.39	W092:41.05	7.07	13.10
T3205.0	N47:47.31	W092:41.01	N47:54.39	W092:40.97	7.07	13.10
T3206.0	N47:47.31	W092:40.93	N47:54.39	W092:40.89	7.07	13.10
T3207.0	N47:47.31	W092:40.85	N47:54.39	W092:40.81	7.07	13.10
T3208.0	N47:47.31	W092:40.77	N47:54.39	W092:40.73	7.07	13.10
T3209.0	N47:47.31	W092:40.69	N47:54.39	W092:40.65	7.07	13.10
T3210.0	N47:47.31	W092:40.61	N47:54.39	W092:40.57	7.07	13.10
T3211.0	N47:47.31	W092:40.53	N47:54.38	W092:40.49	7.07	13.10
T3212.0	N47:47.31	W092:40.45	N47:54.38	W092:40.41	7.07	13.10
T3213.0	N47:47.31	W092:40.37	N47:54.38	W092:40.33	7.07	13.10
T3214.0	N47:47.31	W092:40.29	N47:54.38	W092:40.24	7.07	13.10
T3215.0	N47:47.31	W092:40.21	N47:54.38	W092:40.16	7.07	13.10
T3216.0	N47:47.31	W092:40.13	N47:54.38	W092:40.08	7.07	13.10
T3217.0	N47:47.31	W092:40.05	N47:54.38	W092:40.00	7.07	13.10
T3218.0	N47:47.31	W092:39.97	N47:54.38	W092:39.92	7.07	13.10
T3219.0	N47:47.31	W092:39.89	N47:54.38	W092:39.84	7.07	13.10
T3220.0	N47:47.31	W092:39.81	N47:54.38	W092:39.76	7.07	13.10
T3221.0	N47:47.31	W092:39.73	N47:54.38	W092:39.68	7.07	13.10
T3222.0	N47:47.31	W092:39.65	N47:54.38	W092:39.60	7.07	13.10
T3223.0	N47:47.31	W092:39.57	N47:54.38	W092:39.52	7.07	13.10
T3224.0	N47:47.31	W092:39.49	N47:54.38	W092:39.44	7.07	13.10
T3225.0	N47:47.31	W092:39.41	N47:54.38	W092:39.36	7.07	13.10

**EXTENSION BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T3226.0	N47:47.31	W092:39.33	N47:54.38	W092:39.28	7.07	13.10
T3227.0	N47:47.31	W092:39.25	N47:54.38	W092:39.20	7.07	13.10
T3228.0	N47:47.31	W092:39.17	N47:54.38	W092:39.12	7.07	13.10
T3229.0	N47:47.31	W092:39.09	N47:54.38	W092:39.04	7.07	13.10
T3230.0	N47:47.31	W092:39.01	N47:54.38	W092:38.96	7.07	13.10
T3231.0	N47:47.31	W092:38.93	N47:54.38	W092:38.88	7.07	13.10
T3232.0	N47:47.31	W092:38.85	N47:54.38	W092:38.80	7.07	13.10
T3233.0	N47:47.31	W092:38.77	N47:54.38	W092:38.72	7.07	13.10
T3234.0	N47:47.31	W092:38.69	N47:54.38	W092:38.64	7.07	13.10
T3235.0	N47:47.31	W092:38.61	N47:54.38	W092:38.56	7.07	13.10
T3236.0	N47:47.31	W092:38.53	N47:54.38	W092:38.48	7.07	13.10
T3237.0	N47:47.31	W092:38.45	N47:54.38	W092:38.40	7.07	13.10
T3238.0	N47:47.31	W092:38.37	N47:54.38	W092:38.32	7.07	13.10
T3239.0	N47:47.31	W092:38.29	N47:54.38	W092:38.24	7.07	13.10
T3240.0	N47:47.31	W092:38.21	N47:54.38	W092:38.16	7.07	13.10
T3241.0	N47:47.31	W092:38.13	N47:54.38	W092:38.08	7.07	13.10
T3242.0	N47:47.31	W092:38.05	N47:54.38	W092:38.00	7.07	13.10
T3243.0	N47:47.31	W092:37.97	N47:54.38	W092:37.92	7.07	13.10
T3244.0	N47:47.31	W092:37.89	N47:54.38	W092:37.84	7.07	13.10
T3245.0	N47:47.30	W092:37.81	N47:54.38	W092:37.76	7.07	13.10
T3246.0	N47:47.30	W092:37.73	N47:54.38	W092:37.68	7.07	13.10
T3247.0	N47:47.30	W092:37.65	N47:54.38	W092:37.60	7.07	13.10
T3248.0	N47:47.30	W092:37.57	N47:54.38	W092:37.52	7.07	13.10
T3249.0	N47:47.30	W092:37.49	N47:54.38	W092:37.43	7.07	13.10
T3250.0	N47:47.30	W092:37.41	N47:54.38	W092:37.35	7.07	13.10
T3251.0	N47:47.30	W092:37.33	N47:54.38	W092:37.27	7.07	13.10
T3252.0	N47:47.30	W092:37.25	N47:54.37	W092:37.19	7.07	13.10
T3253.0	N47:47.30	W092:37.17	N47:54.37	W092:37.11	7.07	13.10
T3254.0	N47:47.30	W092:37.09	N47:54.37	W092:37.03	7.07	13.10
T3255.0	N47:47.30	W092:37.01	N47:54.37	W092:36.95	7.07	13.10
T3256.0	N47:47.30	W092:36.93	N47:54.37	W092:36.87	7.07	13.10
T3257.0	N47:47.30	W092:36.85	N47:54.37	W092:36.79	7.07	13.10
T3258.0	N47:47.30	W092:36.77	N47:54.37	W092:36.71	7.07	13.10
T3259.0	N47:47.30	W092:36.68	N47:54.37	W092:36.63	7.07	13.10
T3260.0	N47:47.30	W092:36.60	N47:54.37	W092:36.55	7.07	13.10
T3261.0	N47:47.30	W092:36.52	N47:54.37	W092:36.47	7.07	13.10
T3262.0	N47:47.30	W092:36.44	N47:54.37	W092:36.39	7.07	13.10
T3263.0	N47:47.30	W092:36.36	N47:54.37	W092:36.31	7.07	13.10
T3264.0	N47:47.30	W092:36.28	N47:54.37	W092:36.23	7.07	13.10
T3265.0	N47:47.30	W092:36.20	N47:54.37	W092:36.15	7.07	13.10
T3266.0	N47:47.30	W092:36.12	N47:54.37	W092:36.07	7.07	13.10
T3267.0	N47:47.30	W092:36.04	N47:54.37	W092:35.99	7.07	13.10
T3268.0	N47:47.30	W092:35.96	N47:54.37	W092:35.91	7.07	13.10
T3269.0	N47:47.30	W092:35.88	N47:54.37	W092:35.83	7.07	13.10
T3270.0	N47:47.30	W092:35.80	N47:54.37	W092:35.75	7.07	13.10



**EXTENSION BLOCK - PLANNED SURVEY LINES**  
**WGS-84**

SEGMENT NO	START		END		LENGTH	
	LAT	LONG	LAT	LONG	NM	KM
T3271.0	N47:47.30	W092:35.72	N47:54.37	W092:35.67	7.07	13.10
T3272.0	N47:47.30	W092:35.64	N47:54.37	W092:35.59	7.07	13.10
T3273.0	N47:47.30	W092:35.56	N47:54.37	W092:35.51	7.07	13.10
T3274.0	N47:47.30	W092:35.48	N47:54.37	W092:35.43	7.07	13.10
T3275.0	N47:47.30	W092:35.40	N47:54.37	W092:35.35	7.07	13.10
T3276.0	N47:47.30	W092:35.32	N47:54.37	W092:35.27	7.07	13.10
T3277.0	N47:47.30	W092:35.24	N47:54.37	W092:35.19	7.07	13.10
T3278.0	N47:47.30	W092:35.16	N47:54.37	W092:35.11	7.07	13.10
T3279.0	N47:47.30	W092:35.08	N47:54.37	W092:35.03	7.07	13.10
T3280.0	N47:47.30	W092:35.00	N47:54.37	W092:34.95	7.07	13.10
T3281.0	N47:47.29	W092:34.92	N47:54.37	W092:34.87	7.07	13.10
T3282.0	N47:47.29	W092:34.84	N47:54.37	W092:34.79	7.07	13.10
T3283.0	N47:47.29	W092:34.76	N47:54.37	W092:34.71	7.07	13.10
T3284.0	N47:47.29	W092:34.68	N47:54.37	W092:34.62	7.07	13.10
T3285.0	N47:47.29	W092:34.60	N47:54.37	W092:34.54	7.07	13.10
T3286.0	N47:47.29	W092:34.52	N47:54.37	W092:34.46	7.07	13.10
T3287.0	N47:47.29	W092:34.44	N47:54.36	W092:34.38	7.07	13.10
T3288.0	N47:47.29	W092:34.36	N47:54.36	W092:34.30	7.07	13.10
T3289.0	N47:47.29	W092:34.28	N47:54.36	W092:34.22	7.07	13.10
T3290.0	N47:47.29	W092:34.20	N47:54.36	W092:34.14	7.07	13.10
T3291.0	N47:47.29	W092:34.12	N47:54.36	W092:34.06	7.07	13.10
T3292.0	N47:47.29	W092:34.04	N47:54.36	W092:33.98	7.07	13.10
T3293.0	N47:47.29	W092:33.96	N47:54.36	W092:33.90	7.07	13.10
T3294.0	N47:47.29	W092:33.88	N47:54.36	W092:33.82	7.07	13.10
T3295.0	N47:47.29	W092:33.80	N47:54.36	W092:33.74	7.07	13.10
T3296.0	N47:47.29	W092:33.72	N47:54.36	W092:33.66	7.07	13.10
T3297.0	N47:47.29	W092:33.64	N47:54.36	W092:33.58	7.07	13.10
T3298.0	N47:47.29	W092:33.56	N47:54.36	W092:33.50	7.07	13.10
T3299.0	N47:47.29	W092:33.48	N47:54.36	W092:33.42	7.07	13.10
T3300.0	N47:47.29	W092:33.40	N47:54.36	W092:33.34	7.07	13.10
T3301.0	N47:47.29	W092:33.32	N47:54.36	W092:33.26	7.07	13.10
T3302.0	N47:47.29	W092:33.24	N47:54.36	W092:33.18	7.07	13.10

Total control line length = 71.27 nautical miles  
= 132.00 kilometers.

Total traverse line length = 778.08 nautical miles  
= 1441.00 kilometers.

Total length of all lines = 849.35 nautical miles  
= 1573.00 kilometers.





## Appendix III





**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
101.00	52111.00	52819.00	464970.86	505217.32	5265889.50	5265906.30	1008	280	2016
102.00	52963.00	53703.00	463282.25	505235.99	5266891.09	5266904.98	1008	280	2016
103.00	53828.00	54602.00	461487.25	505250.43	5267892.25	5267903.87	1008	280	2016
104.00	54742.00	55547.00	459665.15	505247.09	5268892.02	5268907.17	1008	280	2016
105.00	55758.00	56596.00	457955.53	505223.61	5269894.32	5269904.17	1008	280	2016
106.00	56716.00	57578.00	456209.79	505254.29	5270892.76	5270908.07	1008	280	2016
107.00	57713.00	58618.00	454496.74	505246.68	5271889.93	5271908.36	1008	280	2016
108.00	57162.00	58091.00	452702.41	505246.75	5272891.21	5272908.07	1009	281	2016
109.00	56085.00	57042.00	450865.04	505235.90	5273894.05	5273906.09	1009	281	2016
110.00	60715.00	61705.00	449170.45	505223.70	5274891.96	5274907.90	2004	294	2016
111.00	63343.00	64322.00	447365.05	505250.35	5275893.88	5275908.85	2004	294	2016
112.00	64425.00	65490.00	445663.35	505200.50	5276893.65	5276906.89	2004	294	2016
113.00	76122.00	77188.00	443855.49	505230.00	5277892.46	5277911.86	2006	296	2016
114.00	56249.00	57358.00	442064.34	505223.23	5278895.35	5278907.53	1020	296	2016
115.00	72780.00	73924.00	440389.04	505212.44	5279893.82	5279907.81	2006	296	2016
116.00	63390.00	63924.00	480278.76	505219.26	5280893.77	5280906.22	1009	281	2016
116.01	75227.00	75965.00	438560.24	480343.40	5280895.63	5280908.35	2006	296	2016
117.00	62082.00	63273.00	436865.59	505241.47	5281890.90	5281908.34	1009	281	2016
118.00	60512.00	61972.00	435068.43	505226.75	5282892.36	5282906.33	1009	281	2016
119.00	73720.00	74981.00	433384.81	505218.41	5283892.14	5283906.81	2005	295	2016
120.00	69813.00	71415.00	431901.23	522703.90	5284892.79	5284910.59	1008	280	2016
121.00	68062.00	69696.00	431872.43	522754.04	5285890.93	5285906.66	1008	280	2016
122.00	71977.00	73614.00	431882.13	522714.48	5286893.44	5286908.06	2005	295	2016
123.00	70311.00	71882.00	431859.43	522754.59	5287893.14	5287915.53	2005	295	2016
124.00	68631.00	70213.00	431869.29	522719.42	5288894.47	5288909.31	2005	295	2016
125.00	66984.00	68548.00	431863.80	522749.76	5289893.10	5289908.98	2005	295	2016
126.00	65294.00	66896.00	431896.43	522718.49	5290894.19	5290908.77	2005	295	2016
127.00	63620.00	65214.00	431903.83	522711.81	5291892.08	5291908.12	2005	295	2016
128.00	61938.00	63528.00	431901.43	522732.95	5292889.91	5292906.61	2005	295	2016
129.00	59075.00	60159.00	431871.97	493532.97	5293893.92	5293905.55	1009	281	2016
129.01	57699.00	58194.00	493476.62	522705.28	5293897.30	5293906.97	2019	351	2016
130.00	62719.00	64325.00	431863.16	522715.70	5294889.70	5294906.50	1008	280	2016
131.00	60895.00	62546.00	431907.59	522751.66	5295892.45	5295904.17	1008	280	2016
132.00	66194.00	67779.00	431884.41	522699.17	5296891.56	5296906.48	1008	280	2016
133.00	64429.00	66066.00	431908.48	522736.73	5297891.41	5297907.58	1008	280	2016
134.00	59174.00	60750.00	431907.28	522730.24	5298892.78	5298908.97	1008	280	2016
135.00	59740.00	61297.00	431909.95	520628.40	5299892.22	5299910.69	2005	295	2016
136.00	58060.00	59632.00	431905.08	520634.69	5300893.15	5301121.07	2005	295	2016
137.00	56388.00	57963.00	431878.13	522748.86	5301889.56	5301912.09	2005	295	2016
138.00	70601.00	72236.00	431905.75	522715.85	5302895.40	5302908.03	2006	296	2016
139.00	68865.00	70431.00	431882.48	522713.98	5303889.92	5303910.02	2006	296	2016
140.00	67137.00	68764.00	431865.72	522750.09	5304888.78	5304908.47	2006	296	2016
141.00	65426.00	67015.00	431895.74	522751.64	5305893.70	5305908.09	2006	296	2016
142.00	63507.00	65227.00	431888.49	522733.45	5306892.36	5306909.72	2006	296	2016
143.00	61778.00	63398.00	431855.85	522701.64	5307892.10	5307907.33	2006	296	2016
144.00	70375.00	71982.00	431862.55	522731.15	5308893.66	5308911.19	1020	296	2016
145.00	68268.00	70236.00	403191.51	522720.50	5309888.54	5309913.54	1020	296	2016
146.00	66169.00	68178.00	403170.44	522739.49	5310891.70	5310907.83	1020	296	2016
147.00	64082.00	66050.00	403174.87	522716.92	5311889.24	5311908.43	1020	296	2016
148.00	70170.00	72149.00	403166.99	522705.64	5312891.62	5312911.85	1019	295	2016
149.00	68084.00	70088.00	403171.17	522717.48	5313888.86	5313912.00	1019	295	2016
150.00	59657.00	61235.00	403175.18	493697.86	5314891.00	5314909.12	2006	296	2016
151.00	72301.00	73518.00	403181.07	472599.34	5315892.82	5315910.49	1019	295	2016
152.00	66656.00	67813.00	403198.64	472599.53	5316893.64	5316911.13	1019	295	2016
153.00	65336.00	66516.00	403200.99	472612.91	5317891.98	5317909.18	1019	295	2016
154.00	64058.00	65216.00	403185.78	472643.96	5318891.89	5318906.32	1019	295	2016
155.00	62756.00	63927.00	403215.79	472627.26	5319890.74	5319907.35	1019	295	2016
156.00	61503.00	62659.00	403179.66	472646.42	5320891.46	5320912.07	1019	295	2016
157.00	60190.00	61384.00	403181.57	472641.14	5321895.06	5321907.00	1019	295	2016
158.00	58938.00	60053.00	403166.66	472598.37	5322892.46	5322907.49	1019	295	2016
159.00	57658.00	58839.00	403183.26	472601.98	5323891.42	5323909.86	1019	295	2016
160.00	56469.00	56994.00	441858.00	472598.82	5324893.28	5324910.88	1019	295	2016
328.00	58483.00	58670.00	522415.55	533512.59	5292899.63	5292905.87	2019	351	2016
329.00	58777.00	58974.00	522390.12	533538.40	5293895.35	5293902.84	2019	351	2016
330.00	59065.00	59246.00	522412.42	533523.00	5294897.81	5294907.99	2019	351	2016
331.00	59323.00	59519.00	522360.94	533549.53	5295893.41	5295906.39	2019	351	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
332.00	59598.00	59782.00	522392.43	533536.44	5296896.85	5296903.42	2019	351	2016
333.00	60342.00	60527.00	522392.30	533543.34	5297895.39	5297904.58	2019	351	2016
334.00	61055.00	61243.00	522378.84	533541.19	5298897.94	5298904.44	2019	351	2016
337.00	61586.00	61780.00	522377.73	533539.92	5301896.39	5301904.53	2019	351	2016
338.00	62151.00	62343.00	522365.41	533530.67	5302899.56	5302905.93	2019	351	2016
339.00	62687.00	62875.00	522402.38	533537.89	5303897.50	5303906.43	2019	351	2016
340.00	60690.00	60887.00	522376.54	533514.72	5304891.91	5304904.73	2019	351	2016
341.00	59991.00	60183.00	522375.99	533501.35	5305881.45	5305904.54	2019	351	2016
1001.00	71636.00	71886.00	403298.61	403308.95	5309739.36	5324274.32	3007	338	2016
1002.00	69092.00	69395.00	403397.64	403409.00	5309744.96	5324293.12	3007	338	2016
1003.00	72360.00	72612.00	403497.21	403511.29	5309703.29	5324259.67	3007	338	2016
1004.00	69865.00	70140.00	403599.47	403609.33	5309721.83	5324276.93	3007	338	2016
1005.00	73098.00	73350.00	403701.49	403710.32	5309713.76	5324288.95	3007	338	2016
1006.00	70574.00	70850.00	403802.32	403807.94	5309707.01	5324292.37	3007	338	2016
1007.00	73777.00	74027.00	403903.66	403913.13	5309759.20	5324290.87	3007	338	2016
1008.00	71263.00	71558.00	403999.44	404014.19	5309723.16	5324255.26	3007	338	2016
1009.00	68715.00	68964.00	404097.81	404111.40	5309713.76	5324262.03	3007	338	2016
1010.00	71985.00	72272.00	404200.53	404215.04	5309751.44	5324289.85	3007	338	2016
1011.00	69498.00	69759.00	404301.08	404311.35	5309736.10	5324300.29	3007	338	2016
1012.00	72711.00	73010.00	404399.40	404413.75	5309713.66	5324280.09	3007	338	2016
1013.00	70232.00	70489.00	404501.97	404509.86	5309743.96	5324257.92	3007	338	2016
1014.00	74119.00	74388.00	404600.58	404608.06	5309735.19	5324275.36	3007	338	2016
1015.00	70924.00	71175.00	404702.27	404711.44	5309760.43	5324271.93	3007	338	2016
1016.00	73432.00	73703.00	404801.98	404810.12	5309723.04	5324255.71	3007	338	2016
1017.00	74471.00	74718.00	404899.52	404909.09	5309706.53	5324274.20	3007	338	2016
1018.00	63683.00	63931.00	405000.46	405009.69	5309705.90	5324243.04	1020	296	2016
1019.00	67948.00	68196.00	405100.72	405110.76	5309718.27	5324250.49	3007	338	2016
1020.00	68325.00	68618.00	405199.74	405209.86	5309737.24	5324273.47	3007	338	2016
1021.00	61688.00	61939.00	405299.90	405312.47	5309719.47	5324258.75	3007	338	2016
1022.00	67566.00	67848.00	405397.17	405411.14	5309704.47	5324282.78	3007	338	2016
1023.00	60963.00	61213.00	405496.61	405511.14	5309726.33	5324288.12	3007	338	2016
1024.00	66903.00	67170.00	405597.60	405610.92	5309754.06	5324282.56	3007	338	2016
1025.00	60236.00	60484.00	405700.32	405710.19	5309743.23	5324292.69	3007	338	2016
1026.00	66233.00	66508.00	405800.33	405809.70	5309742.94	5324253.97	3007	338	2016
1027.00	59575.00	59823.00	405900.14	405908.42	5309708.89	5324248.00	3007	338	2016
1028.00	65547.00	65838.00	406000.78	406009.25	5309723.65	5324260.94	3007	338	2016
1029.00	77708.00	77958.00	406099.98	406110.43	5309705.26	5324291.29	3006	307	2016
1030.00	64809.00	65104.00	406200.15	406213.21	5309710.89	5324269.70	3007	338	2016
1031.00	77031.00	77290.00	406299.11	406318.64	5309730.11	5324256.88	3006	307	2016
1032.00	64075.00	64369.00	406395.52	406411.12	5309712.97	5324290.92	3007	338	2016
1033.00	76316.00	76573.00	406493.48	406519.62	5309742.89	5324266.88	3006	307	2016
1034.00	63409.00	63677.00	406597.10	406609.20	5309751.36	5324289.11	3007	338	2016
1035.00	75619.00	75872.00	406699.69	406715.48	5309754.22	5324286.35	3006	307	2016
1036.00	62719.00	62995.00	406801.10	406814.44	5309709.72	5324285.56	3007	338	2016
1037.00	63349.00	63597.00	406901.95	406914.70	5309750.12	5324246.31	1020	296	2016
1038.00	62028.00	62313.00	406997.91	407011.67	5309711.96	5324293.10	3007	338	2016
1039.00	67246.00	67497.00	407101.37	407107.59	5309735.89	5324258.00	3007	338	2016
1040.00	61306.00	61607.00	407199.11	407208.59	5309707.65	5324297.19	3007	338	2016
1041.00	66584.00	66831.00	407294.30	407309.18	5309713.05	5324242.52	3007	338	2016
1042.00	60563.00	60865.00	407395.93	407410.73	5309723.92	5324270.85	3007	338	2016
1043.00	65911.00	66159.00	407499.82	407510.24	5309754.99	5324299.74	3007	338	2016
1044.00	59902.00	60166.00	407598.43	407607.83	5309738.26	5324267.23	3007	338	2016
1045.00	65190.00	65442.00	407697.02	407711.60	5309732.56	5324282.14	3007	338	2016
1046.00	59239.00	59502.00	407797.96	407830.56	5309703.37	5324300.16	3007	338	2016
1047.00	64454.00	64698.00	407899.86	407912.11	5309746.84	5324258.67	3007	338	2016
1048.00	78041.00	78303.00	407997.59	408009.77	5309749.73	5324244.17	3006	307	2016
1049.00	63751.00	63999.00	408100.79	408110.47	5309747.79	5324295.29	3007	338	2016
1050.00	77373.00	77635.00	408198.40	408208.77	5309746.38	5324288.89	3006	307	2016
1051.00	63074.00	63327.00	408302.12	408309.98	5309701.71	5324243.38	3007	338	2016
1052.00	76661.00	76920.00	408394.33	408412.79	5309736.49	5324257.84	3006	307	2016
1053.00	62387.00	62643.00	408501.65	408509.70	5309745.17	5324268.07	3007	338	2016
1054.00	75956.00	76222.00	408598.02	408614.29	5309719.97	5324286.88	3006	307	2016
1055.00	74898.00	75151.00	408700.57	408708.16	5309749.92	5324246.80	3006	307	2016
1056.00	63017.00	63260.00	408799.93	408809.61	5309755.46	5324253.49	1020	296	2016
1057.00	74202.00	74461.00	408899.50	408912.21	5309705.55	5324275.42	3006	307	2016
1058.00	68200.00	68458.00	408996.51	409013.52	5309701.13	5324252.57	3006	307	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1059.00	73506.00	73768.00	409099.80	409115.08	5309739.17	5324271.63	3006	307	2016
1060.00	67481.00	67738.00	409199.79	409209.55	5309721.93	5324274.96	3006	307	2016
1061.00	72816.00	73072.00	409297.26	409316.08	5309755.05	5324262.84	3006	307	2016
1062.00	66772.00	67025.00	409398.17	409410.56	5309752.99	5324252.40	3006	307	2016
1063.00	72115.00	72373.00	409495.76	409517.21	5309715.26	5324295.38	3006	307	2016
1064.00	66032.00	66290.00	409598.32	409610.96	5309731.49	5324284.17	3006	307	2016
1065.00	71410.00	71670.00	409698.78	409713.26	5309718.72	5324292.21	3006	307	2016
1066.00	75235.00	75500.00	409798.83	409816.06	5309710.72	5324294.52	3006	307	2016
1067.00	70673.00	70936.00	409899.51	409911.26	5309737.36	5324262.37	3006	307	2016
1068.00	74545.00	74801.00	410000.96	410011.52	5309714.12	5324280.28	3006	307	2016
1069.00	69985.00	70247.00	410099.80	410114.60	5309761.13	5324265.36	3006	307	2016
1070.00	64475.00	64739.00	410196.91	410212.91	5309737.59	5324288.82	3005	306	2016
1071.00	69286.00	69544.00	410294.53	410318.39	5309707.90	5324290.77	3006	307	2016
1072.00	63775.00	64035.00	410399.55	410412.71	5309741.93	5324248.19	3005	306	2016
1073.00	68597.00	68855.00	410494.34	410512.27	5309703.91	5324262.89	3006	307	2016
1074.00	63050.00	63312.00	410600.16	410613.34	5309718.51	5324267.50	3005	306	2016
1075.00	62680.00	62922.00	410698.77	410707.59	5309753.02	5324264.29	1020	296	2016
1076.00	62344.00	62600.00	410800.99	410807.68	5309709.58	5324282.46	3005	306	2016
1077.00	67857.00	68109.00	410893.69	410909.63	5309719.91	5324295.19	3006	307	2016
1078.00	73845.00	74101.00	410997.76	411013.06	5309704.32	5324283.09	3006	307	2016
1079.00	67128.00	67384.00	411098.42	411110.67	5309702.01	5324246.83	3006	307	2016
1080.00	73151.00	73418.00	411183.27	411213.07	5309734.64	5324284.53	3006	307	2016
1081.00	66428.00	66689.00	411292.34	411311.68	5309718.72	5324269.25	3006	307	2016
1082.00	72458.00	72715.00	411396.28	411412.11	5309720.90	5324244.43	3006	307	2016
1083.00	65659.00	65915.00	411495.26	411514.56	5309705.60	5324290.17	3006	307	2016
1084.00	71754.00	72014.00	411600.91	411611.77	5309737.39	5324262.56	3006	307	2016
1085.00	64944.00	65196.00	411701.38	411736.60	5309714.93	5324292.05	3006	307	2016
1086.00	71019.00	71276.00	411795.61	411811.05	5309758.32	5324260.79	3006	307	2016
1087.00	64251.00	64512.00	411900.51	411912.37	5309749.27	5324295.44	3006	307	2016
1088.00	70316.00	70577.00	412000.96	412010.73	5309731.09	5324294.04	3006	307	2016
1089.00	64122.00	64380.00	412094.11	412110.06	5309743.00	5324260.02	3005	306	2016
1090.00	69638.00	69896.00	412197.28	412212.47	5309738.34	5324273.85	3006	307	2016
1091.00	63402.00	63659.00	412291.39	412311.00	5309721.66	5324274.12	3005	306	2016
1092.00	68943.00	69196.00	412396.46	412411.91	5309719.19	5324288.27	3006	307	2016
1093.00	62687.00	62949.00	412494.21	412507.72	5309724.10	5324290.36	3005	306	2016
1094.00	62330.00	62578.00	412601.10	412608.96	5309714.09	5324282.53	1020	296	2016
1095.00	61982.00	62238.00	412700.18	412710.98	5309725.43	5324276.84	3005	306	2016
1096.00	61598.00	61858.00	412799.52	412807.84	5309754.02	5324250.72	3005	306	2016
1097.00	63462.00	63728.00	412898.73	412911.19	5309749.97	5324271.04	3006	307	2016
1098.00	60919.00	61180.00	412994.58	413010.25	5309702.18	5324279.30	3005	306	2016
1099.00	62788.00	63041.00	413102.40	413113.08	5309738.50	5324298.33	3006	307	2016
1100.00	60217.00	60471.00	413195.55	413216.49	5309757.27	5324250.11	3005	306	2016
1101.00	62091.00	62342.00	413301.62	413316.29	5309739.08	5324243.07	3006	307	2016
1102.00	59517.00	59775.00	413400.65	413414.48	5309717.03	5324251.18	3005	306	2016
1103.00	61404.00	61662.00	413499.91	413513.90	5309724.78	5324273.70	3006	307	2016
1104.00	78741.00	79021.00	413599.73	413610.71	5309727.45	5324293.54	3004	304	2016
1105.00	60661.00	60913.00	413702.91	413708.56	5309731.52	5324244.80	3006	307	2016
1106.00	78061.00	78337.00	413795.63	413812.19	5309745.47	5324289.75	3004	304	2016
1107.00	59982.00	60233.00	413900.03	413909.18	5309726.77	5324285.54	3006	307	2016
1108.00	77355.00	77623.00	413997.34	414014.76	5309722.05	5324253.70	3004	304	2016
1109.00	65542.00	65795.00	414102.33	414111.91	5309734.29	5324252.46	3005	306	2016
1110.00	76671.00	76933.00	414198.71	414211.40	5309720.09	5324262.60	3004	304	2016
1111.00	64844.00	65102.00	414300.12	414308.58	5309748.03	5324257.91	3005	306	2016
1112.00	75945.00	76209.00	414398.71	414412.23	5309722.01	5324252.63	3004	304	2016
1113.00	61987.00	62232.00	414498.82	414510.21	5309704.48	5324254.46	1020	296	2016
1114.00	65307.00	65568.00	414596.11	414614.96	5309750.94	5324273.51	3006	307	2016
1115.00	61257.00	61519.00	414701.29	414708.29	5309718.86	5324261.72	3005	306	2016
1116.00	64598.00	64859.00	414796.29	414812.90	5309728.15	5324258.95	3006	307	2016
1117.00	60550.00	60815.00	414886.53	414912.08	5309737.83	5324287.55	3005	306	2016
1118.00	63809.00	64063.00	415000.07	415008.50	5309736.28	5324255.48	3006	307	2016
1119.00	59873.00	60135.00	415097.35	415111.18	5309740.80	5324261.15	3005	306	2016
1120.00	63123.00	63378.00	415199.98	415206.75	5309704.05	5324265.16	3006	307	2016
1121.00	59159.00	59420.00	415296.58	415308.18	5309712.94	5324265.04	3005	306	2016
1122.00	62438.00	62691.00	415397.40	415413.07	5309711.58	5324260.15	3006	307	2016
1123.00	78409.00	78657.00	415498.21	415510.53	5309745.43	5324269.66	3004	304	2016
1124.00	61756.00	62007.00	415599.16	415612.12	5309754.01	5324241.32	3006	307	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1125.00	77697.00	77947.00	415693.62	415714.23	5309735.78	5324244.15	3004	304	2016
1126.00	61047.00	61302.00	415795.36	415813.11	5309701.35	5324281.08	3006	307	2016
1127.00	77010.00	77261.00	415896.85	415909.76	5309728.62	5324288.70	3004	304	2016
1128.00	60316.00	60575.00	415999.12	416013.23	5309742.28	5324247.65	3006	307	2016
1129.00	76293.00	76543.00	416092.36	416115.79	5309741.55	5324251.34	3004	304	2016
1130.00	65184.00	65444.00	416199.51	416207.82	5309741.32	5324282.65	3005	306	2016
1131.00	75605.00	75863.00	416300.04	416327.23	5309752.50	5324275.26	3004	304	2016
1132.00	61662.00	61906.00	416394.49	416418.43	5309711.91	5324271.12	1020	296	2016
1133.00	69282.00	69531.00	416495.36	416512.76	5309738.36	5324257.16	3004	304	2016
1134.00	70360.00	70631.00	416597.33	416614.11	5309732.80	5324250.99	3004	304	2016
1135.00	68568.00	68826.00	416700.02	416712.85	5309749.69	5324254.55	3004	304	2016
1136.00	71058.00	71325.00	416798.58	416812.50	5309735.96	5324291.81	3004	304	2016
1137.00	67876.00	68128.00	416899.24	416908.53	5309756.79	5324273.30	3004	304	2016
1138.00	71740.00	72005.00	417002.31	417016.19	5309754.61	5324256.30	3004	304	2016
1139.00	67172.00	67434.00	417097.66	417110.60	5309756.75	5324290.89	3004	304	2016
1140.00	72430.00	72714.00	417202.25	417216.74	5309703.52	5324278.51	3004	304	2016
1141.00	66478.00	66731.00	417301.76	417317.24	5309720.21	5324267.80	3004	304	2016
1142.00	73147.00	73408.00	417396.22	417415.60	5309741.51	5324269.65	3004	304	2016
1143.00	65763.00	66022.00	417500.56	417514.03	5309747.50	5324272.21	3004	304	2016
1144.00	73867.00	74135.00	417598.41	417616.63	5309726.17	5324275.52	3004	304	2016
1145.00	65048.00	65310.00	417698.89	417709.77	5309702.74	5324296.18	3004	304	2016
1146.00	74585.00	74847.00	417800.95	417812.81	5309752.22	5324255.30	3004	304	2016
1147.00	64364.00	64619.00	417900.61	417914.01	5309755.82	5324293.30	3004	304	2016
1148.00	75250.00	75534.00	418001.59	418012.91	5309712.76	5324291.72	3004	304	2016
1149.00	63669.00	63927.00	418096.84	418111.35	5309725.15	5324269.82	3004	304	2016
1150.00	62964.00	63218.00	418198.35	418210.41	5309708.67	5324293.80	3004	304	2016
1151.00	61340.00	61587.00	418298.60	418312.91	5309741.70	5324258.71	1020	296	2016
1152.00	69639.00	69907.00	418398.18	418415.87	5309702.73	5324267.16	3004	304	2016
1153.00	70007.00	70262.00	418495.65	418512.55	5309709.94	5324257.98	3004	304	2016
1154.00	68903.00	69182.00	418598.25	418611.32	5309733.68	5324255.92	3004	304	2016
1155.00	70716.00	70969.00	418690.59	418710.93	5309757.51	5324298.62	3004	304	2016
1156.00	68215.00	68492.00	418799.24	418809.45	5309741.89	5324295.17	3004	304	2016
1157.00	71404.00	71658.00	418899.58	418911.08	5309719.33	5324248.81	3004	304	2016
1158.00	67523.00	67796.00	418999.63	419007.90	5309720.97	5324296.83	3004	304	2016
1159.00	72089.00	72345.00	419098.17	419111.34	5309724.43	5324298.73	3004	304	2016
1160.00	66824.00	67086.00	419197.91	419211.00	5309729.66	5324290.37	3004	304	2016
1161.00	72795.00	73047.00	419296.76	419315.02	5309715.04	5324253.35	3004	304	2016
1162.00	66136.00	66390.00	419396.09	419412.53	5309727.53	5324297.20	3004	304	2016
1163.00	73493.00	73745.00	419499.67	419515.37	5309710.84	5324270.89	3004	304	2016
1164.00	65399.00	65664.00	419599.28	419610.55	5309716.11	5324280.68	3004	304	2016
1165.00	74921.00	75171.00	419699.12	419709.85	5309725.35	5324248.09	3004	304	2016
1166.00	64700.00	64960.00	419800.57	419812.08	5309710.25	5324253.33	3004	304	2016
1167.00	74231.00	74480.00	419892.59	419914.55	5309710.69	5324267.25	3004	304	2016
1168.00	64016.00	64276.00	419995.11	420009.93	5309707.39	5324284.11	3004	304	2016
1169.00	63319.00	63577.00	420097.92	420107.99	5309712.74	5324280.17	3004	304	2016
1170.00	61041.00	61273.00	420198.24	420211.53	5309721.28	5324241.86	1020	296	2016
1171.00	62205.00	62457.00	420299.24	420311.38	5309740.70	5324266.59	3004	304	2016
1172.00	70700.00	70969.00	420399.20	420408.13	5309731.89	5324296.23	3003	299	2016
1172.01	65502.00	65756.00	420397.98	420410.54	5309735.26	5324299.08	2022	5	2017
1172.02	54499.00	54747.00	420399.30	420421.18	5309712.48	5324248.71	2024	7	2017
1173.00	61519.00	61769.00	420498.65	420510.77	5309704.11	5324266.29	3004	304	2016
1174.00	70014.00	70282.00	420599.29	420607.97	5309751.57	5324259.10	3003	299	2016
1175.00	60846.00	61095.00	420698.00	420712.54	5309718.23	5324280.25	3004	304	2016
1176.00	69321.00	69590.00	420798.91	420814.39	5309704.98	5324297.63	3003	299	2016
1177.00	75332.00	75573.00	420900.52	420913.06	5309749.02	5324246.66	3003	299	2016
1178.00	68641.00	68897.00	420991.52	421014.05	5309720.64	5324300.97	3003	299	2016
1179.00	74616.00	74863.00	421096.70	421112.94	5309757.05	5324250.02	3003	299	2016
1180.00	67965.00	68230.00	421199.61	421213.01	5309721.64	5324251.39	3003	299	2016
1180.01	57523.00	57773.00	421199.39	421212.49	5309753.77	5324253.28	2024	7	2017
1181.00	73920.00	74165.00	421301.92	421311.98	5309759.09	5324277.41	3003	299	2016
1182.00	67265.00	67533.00	421401.13	421414.82	5309717.82	5324286.71	3003	299	2016
1183.00	73241.00	73490.00	421501.89	421509.92	5309702.52	5324284.84	3003	299	2016
1184.00	66586.00	66857.00	421601.94	421610.56	5309751.14	5324279.61	3003	299	2016
1184.01	58257.00	58499.00	421601.03	421610.92	5309749.76	5324277.41	2024	7	2017
1185.00	72513.00	72762.00	421698.58	421712.42	5309705.65	5324291.21	3003	299	2016
1186.00	65900.00	66173.00	421801.56	421811.88	5309717.76	5324256.36	3003	299	2016



**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1186.01	58644.00	58913.00	421798.58	421808.59	5309710.31	5324291.71	2024	7	2017
1187.00	71779.00	72028.00	421898.24	421914.69	5309712.67	5324264.93	3003	299	2016
1188.00	65199.00	65474.00	421999.53	422016.81	5309708.07	5324291.73	3003	299	2016
1189.00	60623.00	60869.00	422101.83	422112.64	5309714.85	5324260.99	1020	296	2016
1190.00	64513.00	64775.00	422198.41	422214.02	5309721.93	5324247.77	3003	299	2016
1191.00	71048.00	71292.00	422299.38	422311.83	5309701.26	5324242.55	3003	299	2016
1191.01	65147.00	65412.00	422294.12	422306.14	5309763.58	5324286.53	2022	5	2017
1191.02	54141.00	54409.00	422296.27	422313.00	5309745.37	5324299.87	2024	7	2017
1192.00	63832.00	64097.00	422400.85	422410.98	5309743.20	5324250.22	3003	299	2016
1192.01	66265.00	66518.00	422399.86	422409.80	5309715.17	5324265.51	2022	5	2017
1193.00	70352.00	70600.00	422498.64	422509.57	5309719.75	5324250.11	3003	299	2016
1193.01	65857.00	66134.00	422496.15	422511.69	5309713.77	5324292.87	2022	5	2017
1193.02	54861.00	55128.00	422500.12	422510.29	5309719.46	5324268.82	2024	7	2017
1194.00	62571.00	62830.00	422596.03	422611.02	5309710.92	5324272.94	3004	304	2016
1195.00	69675.00	69926.00	422699.99	422708.18	5309712.45	5324285.16	3003	299	2016
1196.00	61855.00	62116.00	422795.17	422808.85	5309721.67	5324256.95	3004	304	2016
1197.00	68980.00	69222.00	422898.63	422910.90	5309753.82	5324282.68	3003	299	2016
1198.00	61176.00	61438.00	422997.43	423006.68	5309724.60	5324293.72	3004	304	2016
1199.00	68305.00	68548.00	423098.57	423110.78	5309709.90	5324270.47	3003	299	2016
1200.00	75668.00	75932.00	423199.82	423214.08	5309754.05	5324298.13	3003	299	2016
1201.00	67620.00	67867.00	423297.39	423311.39	5309704.74	5324296.41	3003	299	2016
1201.01	66641.00	66912.00	423299.39	423311.69	5309712.32	5324250.74	2022	5	2017
1202.00	74964.00	75236.00	423399.95	423414.86	5309711.06	5324265.34	3003	299	2016
1203.00	66931.00	67176.00	423501.10	423508.95	5309703.41	5324245.51	3003	299	2016
1204.00	74256.00	74530.00	423599.94	423610.28	5309709.00	5324283.95	3003	299	2016
1205.00	66248.00	66496.00	423701.07	423707.85	5309736.08	5324280.84	3003	299	2016
1205.01	67027.00	67281.00	423699.16	423710.45	5309721.83	5324277.02	2022	5	2017
1205.02	55225.00	55473.00	423699.42	423708.83	5309742.10	5324267.90	2024	7	2017
1206.00	73581.00	73845.00	423801.22	423808.06	5309750.33	5324281.72	3003	299	2016
1207.00	65565.00	65814.00	423898.95	423911.59	5309714.01	5324287.52	3003	299	2016
1207.01	57153.00	57417.00	423898.36	423908.53	5309727.93	5324258.69	2024	7	2017
1208.00	60309.00	60550.00	424000.10	424008.33	5309760.05	5324261.35	1020	296	2016
1209.00	64860.00	65102.00	424095.41	424108.52	5309710.23	5324272.04	3003	299	2016
1209.01	57886.00	58159.00	424100.38	424112.10	5309735.83	5324272.53	2024	7	2017
1210.00	72873.00	73142.00	424198.59	424215.10	5309711.32	5324297.47	3003	299	2016
1211.00	64175.00	64416.00	424296.35	424311.75	5309708.52	5324265.32	3003	299	2016
1212.00	72124.00	72393.00	424398.53	424414.25	5309732.82	5324286.37	3003	299	2016
1213.00	63485.00	63734.00	424501.15	424510.08	5309744.21	5324245.67	3003	299	2016
1213.01	67424.00	67697.00	424497.00	424508.95	5309723.00	5324282.66	2022	5	2017
1213.02	55604.00	55874.00	424496.92	424509.70	5309751.09	5324249.75	2024	7	2017
1214.00	71398.00	71670.00	424599.45	424612.91	5309706.12	5324279.83	3003	299	2016
1215.00	62814.00	63058.00	424703.54	424709.76	5309756.36	5324252.82	3003	299	2016
1215.01	67836.00	68092.00	424700.21	424714.40	5309755.82	5324261.82	2022	5	2017
1215.02	56026.00	56286.00	424699.84	424713.80	5309717.62	5324287.81	2024	7	2017
1216.00	74797.00	75047.00	424800.38	424812.68	5309717.87	5324243.61	3002	298	2016
1217.00	62145.00	62392.00	424901.95	424909.03	5309715.94	5324254.01	3003	299	2016
1217.01	68219.00	68472.00	424893.42	424906.70	5309733.95	5324300.89	2022	5	2017
1217.02	56418.00	56689.00	424899.15	424911.69	5309738.27	5324256.02	2024	7	2017
1218.00	74110.00	74363.00	424999.05	425014.88	5309717.44	5324260.00	3002	298	2016
1219.00	61427.00	61672.00	425100.37	425114.70	5309707.62	5324292.73	3003	299	2016
1220.00	73403.00	73656.00	425200.45	425213.05	5309707.83	5324281.51	3002	298	2016
1221.00	60714.00	60960.00	425295.79	425312.80	5309762.18	5324253.17	3003	299	2016
1222.00	72686.00	72939.00	425402.36	425415.66	5309752.14	5324298.67	3002	298	2016
1223.00	60024.00	60273.00	425499.58	425509.68	5309754.09	5324299.41	3003	299	2016
1224.00	71954.00	72210.00	425595.93	425609.27	5309732.03	5324251.43	3002	298	2016
1225.00	59362.00	59610.00	425700.77	425708.40	5309716.35	5324248.54	3003	299	2016
1225.01	59035.00	59282.00	425701.36	425711.09	5309721.17	5324281.78	2024	7	2017
1226.00	71227.00	71482.00	425796.85	425814.76	5309705.28	5324255.09	3002	298	2016
1227.00	59962.00	60214.00	425897.62	425908.80	5309739.72	5324256.81	1020	296	2016
1228.00	73021.00	73266.00	426000.72	426013.44	5309726.25	5324259.17	1020	296	2016
1229.00	58674.00	58923.00	426101.65	426109.70	5309703.86	5324274.01	3003	299	2016
1229.01	59421.00	59693.00	426095.68	426113.64	5309708.04	5324289.43	2024	7	2017
1230.00	63143.00	63402.00	426200.92	426208.68	5309725.66	5324297.91	3003	299	2016
1230.01	68578.00	68828.00	426199.88	426210.66	5309719.96	5324292.91	2022	5	2017
1231.00	57976.00	58221.00	426297.60	426312.34	5309722.65	5324292.89	3003	299	2016
1231.01	68938.00	69209.00	426296.24	426312.74	5309747.24	5324268.11	2022	5	2017

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1231.02	56790.00	57040.00	426301.40	426313.81	5309757.29	5324300.29	2024	7	2017
1232.00	70485.00	70737.00	426397.36	426421.01	5309753.40	5324287.49	3002	298	2016
1233.00	57287.00	57531.00	426499.63	426509.05	5309751.41	5324256.98	3003	299	2016
1233.01	60182.00	60450.00	426493.50	426513.69	5309743.78	5324270.10	2024	7	2017
1234.00	62480.00	62741.00	426600.98	426608.37	5309715.00	5324299.87	3003	299	2016
1235.00	74457.00	74715.00	426695.04	426710.01	5309703.88	5324271.06	3002	298	2016
1236.00	61762.00	62036.00	426798.81	426816.29	5309748.87	5324297.19	3003	299	2016
1236.01	69330.00	69588.00	426799.63	426807.48	5309710.11	5324285.35	2022	5	2017
1237.00	73753.00	74008.00	426898.02	426908.48	5309711.68	5324263.61	3002	298	2016
1238.00	61058.00	61336.00	426999.65	427010.88	5309705.33	5324288.91	3003	299	2016
1239.00	73041.00	73298.00	427095.98	427109.92	5309739.79	5324283.45	3002	298	2016
1240.00	60361.00	60629.00	427200.56	427211.85	5309731.03	5324279.34	3003	299	2016
1241.00	72306.00	72565.00	427296.80	427310.66	5309702.36	5324271.58	3002	298	2016
1242.00	59691.00	59951.00	427401.95	427407.35	5309716.79	5324253.63	3003	299	2016
1243.00	71601.00	71855.00	427494.47	427511.65	5309742.50	5324250.68	3002	298	2016
1244.00	59025.00	59292.00	427601.06	427607.90	5309718.25	5324285.61	3003	299	2016
1244.01	59808.00	60055.00	427600.88	427618.21	5309707.95	5324297.86	2024	7	2017
1245.00	70865.00	71124.00	427694.69	427713.06	5309713.38	5324296.29	3002	298	2016
1246.00	59632.00	59870.00	427798.12	427810.49	5309730.79	5324267.04	1020	296	2016
1247.00	72703.00	72952.00	427899.93	427911.36	5309707.36	5324300.47	1020	296	2016
1248.00	58308.00	58578.00	428001.69	428014.44	5309731.30	5324267.96	3003	299	2016
1248.01	69691.00	69962.00	427993.57	428011.26	5309733.11	5324263.83	2022	5	2017
1249.00	73358.00	73611.00	428098.06	428107.69	5309726.74	5324277.70	1020	296	2016
1250.00	57618.00	57874.00	428202.36	428212.56	5309751.67	5324252.63	3003	299	2016
1250.01	70081.00	70343.00	428198.04	428208.54	5309718.27	5324297.67	2022	5	2017
1251.00	70094.00	70354.00	428299.97	428308.65	5309725.04	5324273.46	3002	298	2016
1252.00	65267.00	65514.00	428398.16	428411.82	5309738.27	5324280.28	3002	298	2016
1253.00	69330.00	69584.00	428496.97	428508.64	5309701.19	5324266.49	3002	298	2016
1254.00	64549.00	64806.00	428595.26	428611.14	5309720.89	5324246.04	3002	298	2016
1255.00	68591.00	68843.00	428697.17	428709.71	5309727.33	5324279.93	3002	298	2016
1256.00	63812.00	64071.00	428799.54	428812.09	5309707.33	5324283.05	3002	298	2016
1257.00	67872.00	68127.00	428900.85	428912.61	5309703.50	5324292.03	3002	298	2016
1258.00	63040.00	63291.00	428998.73	429014.62	5309728.64	5324274.49	3002	298	2016
1259.00	67157.00	67414.00	429097.88	429111.65	5309742.16	5324299.33	3002	298	2016
1260.00	62297.00	62547.00	429195.17	429210.19	5309706.83	5324282.04	3002	298	2016
1261.00	66388.00	66645.00	429296.84	429308.18	5309718.62	5324276.05	3002	298	2016
1262.00	61538.00	61785.00	429400.22	429411.44	5309736.46	5324254.19	3002	298	2016
1263.00	65632.00	65884.00	429498.61	429510.16	5309751.83	5324284.51	3002	298	2016
1264.00	60762.00	61020.00	429600.80	429611.35	5309724.07	5324272.05	3002	298	2016
1265.00	59295.00	59538.00	429697.96	429711.40	5309739.46	5324247.08	1020	296	2016
1266.00	72398.00	72633.00	429801.01	429815.84	5309737.79	5324240.07	1020	296	2016
1267.00	58613.00	58855.00	429897.94	429910.34	5309742.53	5324272.83	1020	296	2016
1268.00	69725.00	69974.00	429999.66	430013.32	5309756.60	5324255.16	3002	298	2016
1269.00	64919.00	65175.00	430099.37	430110.72	5309732.36	5324263.25	3002	298	2016
1270.00	73693.00	73942.00	430199.95	430209.05	5309735.75	5324249.58	1020	296	2016
1271.00	64188.00	64451.00	430298.02	430310.27	5309707.28	5324294.77	3002	298	2016
1272.00	68985.00	69234.00	430398.54	430411.58	5309737.12	5324290.07	3002	298	2016
1273.00	63403.00	63659.00	430496.40	430509.23	5309732.65	5324257.79	3002	298	2016
1274.00	68236.00	68490.00	430596.28	430614.79	5309712.55	5324259.77	3002	298	2016
1275.00	62642.00	62897.00	430699.26	430710.79	5309711.43	5324282.91	3002	298	2016
1276.00	67520.00	67773.00	430796.31	430808.77	5309751.86	5324260.74	3002	298	2016
1277.00	61896.00	62149.00	430899.47	430908.66	5309701.29	5324260.56	3002	298	2016
1278.00	66795.00	67049.00	430998.27	431009.80	5309716.30	5324267.24	3002	298	2016
1279.00	61124.00	61384.00	431099.74	431110.57	5309702.31	5324281.77	3002	298	2016
1280.00	66036.00	66289.00	431201.00	431210.56	5309722.12	5324254.63	3002	298	2016
1281.00	60358.00	60612.00	431297.93	431311.87	5309757.62	5324254.73	3002	298	2016
1282.00	58940.00	59180.00	431399.32	431408.01	5309712.10	5324255.01	1020	296	2016
1283.00	74038.00	74288.00	431499.58	431508.66	5309738.39	5324256.55	1020	296	2016
1284.00	58316.00	58542.00	431599.15	431615.26	5309702.67	5324241.37	1020	296	2016
1285.00	72074.00	72326.00	431699.82	431714.82	5309716.64	5324271.03	1020	296	2016
1286.00	73311.00	73559.00	431796.92	431809.09	5309735.49	5324283.03	2003	293	2016
1287.00	73681.00	73930.00	431898.80	431911.93	5309719.16	5324247.18	2003	293	2016
1288.00	58685.00	59369.00	431999.88	432010.65	5284801.19	5324287.23	3009	345	2016
1289.00	68192.00	68881.00	432101.19	432112.25	5284753.10	5324294.43	2002	292	2016
1290.00	60315.00	61018.00	432200.06	432216.51	5284786.29	5324293.80	3009	345	2016
1291.00	69796.00	70502.00	432298.13	432313.44	5284789.59	5324275.87	2002	292	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1292.00	61929.00	62625.00	432401.67	432412.50	5284762.97	5324264.16	3009	345	2016
1293.00	71401.00	72095.00	432501.03	432510.59	5284771.19	5324247.29	2002	292	2016
1294.00	63546.00	64271.00	432597.59	432612.84	5284753.59	5324275.65	3009	345	2016
1295.00	72977.00	73685.00	432699.85	432711.97	5284711.71	5324251.85	2002	292	2016
1296.00	65261.00	65983.00	432801.30	432814.67	5284644.40	5324273.18	3009	345	2016
1297.00	74590.00	75302.00	432900.20	432913.59	5284636.71	5324254.15	2002	292	2016
1298.00	66942.00	67676.00	433000.80	433012.03	5284563.58	5324289.60	3009	345	2016
1299.00	76196.00	76886.00	433101.35	433110.38	5284472.82	5324297.71	2002	292	2016
1300.00	68681.00	69418.00	433201.95	433214.50	5284440.34	5324299.68	3009	345	2016
1301.00	77798.00	78523.00	433298.99	433311.07	5284369.57	5324267.18	2002	292	2016
1302.00	71333.00	72067.00	433399.29	433414.04	5284306.77	5324290.45	3009	345	2016
1303.00	79384.00	80073.00	433502.59	433512.81	5283755.73	5324268.74	2002	292	2016
1304.00	73121.00	73874.00	433601.41	433614.06	5283755.71	5324278.12	3009	345	2016
1305.00	80965.00	81694.00	433695.88	433709.93	5283765.71	5324261.62	2002	292	2016
1306.00	76906.00	77358.00	433798.19	433839.10	5283788.47	5308914.70	3007	338	2016
1306.01	70474.00	70755.00	433799.50	433809.82	5308870.07	5324275.03	3009	345	2016
1307.00	57856.00	58565.00	433898.43	433910.62	5283765.16	5324251.35	3009	345	2016
1308.00	68968.00	69683.00	433997.02	434009.78	5283755.78	5324269.24	2002	292	2016
1309.00	59524.00	60236.00	434092.74	434109.03	5283766.73	5324268.77	3009	345	2016
1310.00	70600.00	71321.00	434195.22	434209.03	5283788.25	5324276.45	2002	292	2016
1311.00	61133.00	61844.00	434298.92	434310.53	5283784.14	5324275.70	3009	345	2016
1312.00	72177.00	72896.00	434398.21	434408.76	5283774.47	5324247.81	2002	292	2016
1313.00	62738.00	63446.00	434497.52	434510.98	5283719.59	5324252.70	3009	345	2016
1314.00	73775.00	74514.00	434596.09	434610.04	5283638.02	5324278.00	2002	292	2016
1315.00	64396.00	65131.00	434702.09	434713.38	5283581.35	5324276.30	3009	345	2016
1316.00	75392.00	76132.00	434798.79	434809.33	5283530.67	5324282.80	2002	292	2016
1317.00	66099.00	66851.00	434895.63	434913.10	5283466.37	5324250.53	3009	345	2016
1318.00	76982.00	77717.00	434998.59	435009.54	5283404.11	5324258.39	2002	292	2016
1319.00	67802.00	68584.00	435099.81	435119.12	5283385.15	5324247.89	3009	345	2016
1320.00	78618.00	79322.00	435200.00	435209.49	5282771.20	5324286.50	2002	292	2016
1321.00	76410.00	76857.00	435297.44	435307.64	5282760.37	5308899.82	3007	338	2016
1321.01	70966.00	71245.00	435299.82	435311.58	5308888.13	5324265.17	3009	345	2016
1322.00	80160.00	80894.00	435397.95	435412.25	5282769.08	5324297.81	2002	292	2016
1323.00	58076.00	58786.00	435494.88	435512.93	5282810.79	5324245.34	3007	338	2016
1324.00	81782.00	82533.00	435599.67	435612.52	5282756.54	5324261.74	2002	292	2016
1325.00	55493.00	56230.00	435696.00	435710.48	5282800.77	5324298.90	2003	293	2016
1326.00	74052.00	74780.00	435796.49	435812.59	5282763.64	5324275.81	2003	293	2016
1327.00	57163.00	57893.00	435896.22	435909.27	5282759.30	5324266.78	2003	293	2016
1328.00	75233.00	76027.00	435998.30	436014.43	5282799.65	5324289.21	3007	338	2016
1329.00	58816.00	59543.00	436096.17	436111.16	5282756.46	5324281.49	2003	293	2016
1330.00	74919.00	75704.00	436199.64	436211.95	5282736.79	5324286.85	3009	345	2016
1331.00	60482.00	61241.00	436300.72	436310.45	5282682.75	5324281.79	2003	293	2016
1332.00	76701.00	77470.00	436399.41	436412.68	5282647.98	5324285.49	3009	345	2016
1333.00	62154.00	62888.00	436495.40	436511.62	5282546.89	5324261.17	2003	293	2016
1334.00	65519.00	66359.00	436598.64	436613.77	5282489.51	5324269.26	3010	348	2016
1335.00	63819.00	64568.00	436698.35	436710.81	5282455.27	5324294.28	2003	293	2016
1336.00	67351.00	68147.00	436798.77	436811.44	5282394.14	5324266.13	3010	348	2016
1337.00	65518.00	66254.00	436895.52	436910.19	5282313.67	5324283.84	2003	293	2016
1338.00	69129.00	69995.00	436999.76	437013.90	5281795.57	5324287.35	3010	348	2016
1339.00	67203.00	67968.00	437098.52	437113.10	5281792.95	5324283.43	2003	293	2016
1340.00	70644.00	71158.00	437197.84	437243.83	5281791.11	5307908.07	3010	348	2016
1340.01	66994.00	67282.00	437195.34	437211.50	5307874.93	5324265.71	2021	4	2017
1341.00	68906.00	69654.00	437297.45	437312.95	5281796.37	5324253.51	2003	293	2016
1342.00	66114.00	66874.00	437392.29	437407.43	5281796.35	5324297.17	2021	4	2017
1343.00	70594.00	71347.00	437496.16	437510.40	5281766.02	5324296.39	2003	293	2016
1344.00	56342.00	57074.00	437597.84	437612.86	5281775.30	5324275.00	2003	293	2016
1345.00	72353.00	73136.00	437696.60	437711.51	5281763.40	5324251.38	2003	293	2016
1346.00	57984.00	58730.00	437798.27	437810.13	5281758.99	5324280.22	2003	293	2016
1347.00	69581.00	70339.00	437898.99	437910.33	5281762.24	5324292.79	3009	345	2016
1348.00	59652.00	60394.00	437998.76	438011.91	5281727.56	5324244.13	2003	293	2016
1349.00	72196.00	72982.00	438099.30	438111.10	5281649.33	5324267.89	3009	345	2016
1350.00	61330.00	62078.00	438197.25	438209.84	5281600.31	5324247.76	2003	293	2016
1351.00	74034.00	74801.00	438298.89	438312.12	5281540.05	5324277.61	3009	345	2016
1352.00	62989.00	63728.00	438396.18	438412.82	5281494.63	5324281.54	2003	293	2016
1353.00	75847.00	76599.00	438498.52	438509.56	5281454.89	5324280.48	3009	345	2016
1354.00	64658.00	65439.00	438598.09	438613.36	5281370.27	5324287.29	2003	293	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1355.00	64646.00	65412.00	438696.64	438712.27	5280759.62	5324296.16	3010	348	2016
1356.00	66374.00	67123.00	438797.21	438815.83	5280788.62	5324241.54	2003	293	2016
1357.00	66497.00	67247.00	438897.78	438916.36	5280759.97	5324277.18	3010	348	2016
1358.00	68056.00	68836.00	438996.19	439012.01	5280797.06	5324280.73	2003	293	2016
1359.00	68273.00	69029.00	439097.41	439111.90	5280750.83	5324273.55	3010	348	2016
1360.00	69760.00	70514.00	439194.56	439213.76	5280772.84	5324264.03	2003	293	2016
1361.00	70115.00	70582.00	439295.44	439315.82	5280802.54	5307897.22	3010	348	2016
1361.01	67523.00	67823.00	439298.72	439310.38	5307898.09	5324287.45	2021	4	2017
1362.00	71417.00	72191.00	439395.48	439412.90	5280786.49	5324297.95	2003	293	2016
1363.00	57422.00	58142.00	439493.75	439513.55	5280768.58	5324264.91	1020	296	2016
1364.00	74563.00	75288.00	439601.05	439610.95	5280773.29	5324286.10	1020	296	2016
1365.00	56160.00	56667.00	439700.54	439712.86	5280732.70	5309944.11	1023	299	2016
1365.01	60701.00	60934.00	439703.75	439716.06	5309905.73	5324293.16	2024	7	2017
1366.00	73000.00	73752.00	439798.46	439810.19	5280715.58	5324275.92	1033	351	2016
1367.00	58414.00	58617.00	439899.06	439913.95	5312861.31	5324253.97	1023	299	2016
1367.01	71422.00	72002.00	439890.46	439911.74	5280622.64	5312904.15	2022	5	2017
1368.00	67937.00	68692.00	439998.23	440012.28	5280552.84	5324294.94	2021	4	2017
1369.00	59570.00	60330.00	440099.85	440112.61	5280536.92	5324292.30	1023	299	2016
1370.00	77002.00	77771.00	440197.26	440212.48	5280484.27	5324290.35	1034	352	2016
1371.00	61291.00	61700.00	440297.46	440310.58	5280415.53	5304904.86	1023	299	2016
1371.01	61901.00	62027.00	440300.29	440310.38	5316893.23	5324285.78	1023	299	2016
1371.02	57027.00	57249.00	440300.29	440306.30	5304852.69	5316898.86	2023	6	2017
1372.00	74908.00	75672.00	440394.37	440412.39	5280325.93	5324272.91	1034	352	2016
1373.00	63018.00	63765.00	440495.78	440511.70	5279812.64	5324299.23	1023	299	2016
1373.01	55680.00	56477.00	440497.17	440510.59	5279793.91	5324247.80	2023	6	2017
1374.00	72749.00	73536.00	440597.54	440612.48	5279755.29	5324255.09	1034	352	2016
1375.00	64767.00	65002.00	440702.86	440710.09	5279795.44	5293901.57	1023	299	2016
1375.01	65201.00	65512.00	440701.95	440709.07	5305890.86	5324270.65	1023	299	2016
1375.02	70655.00	70974.00	440699.50	440711.56	5290877.22	5308941.78	2022	5	2017
1375.03	61186.00	61388.00	440701.19	440709.24	5293885.42	5305923.67	2024	7	2017
1376.00	70568.00	71364.00	440794.38	440811.66	5279784.71	5324251.13	1034	352	2016
1377.00	66609.00	67236.00	440895.83	440911.76	5287869.70	5324243.62	1023	299	2016
1377.01	71117.00	71173.00	440901.61	440917.49	5287854.38	5290926.76	2022	5	2017
1377.02	61487.00	61624.00	440903.11	440912.67	5279783.02	5287947.08	2024	7	2017
1378.00	68358.00	69142.00	440999.14	441011.40	5279752.57	5324263.59	1034	352	2016
1379.00	68249.00	69006.00	441097.75	441107.82	5279771.62	5324261.77	1023	299	2016
1380.00	66144.00	66935.00	441199.69	441212.10	5279762.44	5324263.41	1034	352	2016
1381.00	69985.00	70489.00	441294.99	441316.59	5279796.72	5308911.44	1023	299	2016
1381.01	72160.00	72437.00	441281.00	441308.79	5308887.08	5324246.48	2022	5	2017
1382.00	71146.00	71934.00	441398.25	441409.92	5279775.87	5324300.80	1033	351	2016
1383.00	71759.00	72508.00	441499.16	441511.08	5279711.73	5324244.84	1023	299	2016
1384.00	57010.00	57568.00	441597.65	441610.45	5291891.55	5324289.36	1023	299	2016
1384.01	73111.00	73324.00	441597.84	441608.58	5279680.40	5291900.99	2022	5	2017
1385.00	73484.00	74245.00	441692.15	441713.43	5279610.15	5324267.18	1023	299	2016
1386.00	58711.00	58789.00	441802.09	441810.15	5319866.03	5324280.00	1023	299	2016
1386.01	59073.00	59502.00	441791.78	441812.04	5279558.82	5303943.29	1023	299	2016
1386.02	57423.00	57723.00	441800.55	441807.68	5303861.57	5319910.53	2023	6	2017
1387.00	72082.00	72896.00	441896.67	441911.24	5279470.11	5324256.20	1033	351	2016
1388.00	60418.00	61206.00	441999.67	442014.32	5279450.52	5325030.84	1023	299	2016
1389.00	60025.00	60826.00	442095.00	442109.39	5279401.11	5325040.15	2009	304	2016
1390.00	62295.00	62821.00	442198.35	442216.47	5285887.00	5315942.84	1023	299	2016
1390.01	74800.00	74921.00	442199.77	442207.89	5278761.75	5285945.77	2022	5	2017
1390.02	56595.00	56762.00	442194.95	442206.23	5315877.80	5325010.29	2023	6	2017
1391.00	61907.00	62710.00	442297.80	442311.50	5278762.64	5325016.99	2009	304	2016
1392.00	64158.00	64679.00	442398.75	442413.57	5278780.77	5308922.57	1023	299	2016
1392.01	72558.00	72846.00	442393.78	442409.95	5308889.89	5325018.20	2022	5	2017
1393.00	63858.00	64666.00	442498.32	442511.30	5278765.29	5325045.85	2009	304	2016
1394.00	65602.00	65816.00	442600.48	442623.85	5312868.83	5325042.80	1023	299	2016
1394.01	65988.00	66253.00	442596.70	442608.87	5287878.65	5302892.39	1023	299	2016
1394.02	73457.00	73614.00	442595.56	442610.70	5278793.26	5287897.35	2022	5	2017
1394.03	74375.00	74545.00	442595.76	442610.03	5302854.26	5312937.06	2022	5	2017
1395.00	65915.00	66721.00	442697.14	442710.73	5278784.17	5325031.60	2009	304	2016
1396.00	67330.00	67538.00	442798.57	442810.59	5312868.17	5324997.64	1023	299	2016
1396.01	68025.00	68133.00	442801.82	442811.20	5278770.11	5284943.80	1023	299	2016
1396.02	73751.00	74246.00	442794.53	442812.13	5284889.02	5312923.57	2022	5	2017
1397.00	67841.00	68649.00	442899.36	442912.88	5278803.02	5325014.21	2009	304	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1398.00	69107.00	69909.00	442999.74	443011.99	5278783.85	5325040.23	1023	299	2016
1399.00	69701.00	70507.00	443099.39	443108.97	5278770.51	5325049.65	2009	304	2016
1400.00	71164.00	71676.00	443193.62	443214.52	5278779.10	5307900.11	1023	299	2016
1400.01	57912.00	58216.00	443200.36	443209.00	5307891.08	5325040.15	2023	6	2017
1401.00	71555.00	72352.00	443296.66	443310.11	5278677.04	5325009.39	2009	304	2016
1402.00	72603.00	73414.00	443399.35	443413.77	5278626.62	5325032.04	1023	299	2016
1403.00	73448.00	74256.00	443498.95	443513.82	5278572.92	5325014.30	2009	304	2016
1404.00	74330.00	75128.00	443595.46	443615.33	5278512.78	5325031.26	1023	299	2016
1405.00	75307.00	76116.00	443700.06	443712.41	5278481.55	5324999.42	2009	304	2016
1406.00	77267.00	78100.00	443796.37	443811.61	5278392.03	5325029.68	2017	348	2016
1407.00	77168.00	77983.00	443898.92	443911.47	5278360.21	5324998.34	2009	304	2016
1408.00	60960.00	61789.00	443999.29	444012.96	5277776.94	5325012.79	2009	304	2016
1409.00	59786.00	60604.00	444075.80	444110.55	5277787.77	5325037.54	2010	306	2016
1410.00	62806.00	63650.00	444195.03	444216.32	5277779.08	5324994.70	2009	304	2016
1411.00	61710.00	62536.00	444299.17	444312.50	5277784.59	5325031.89	2010	306	2016
1412.00	64798.00	65657.00	444394.69	444410.85	5277773.70	5325036.05	2009	304	2016
1413.00	63756.00	64604.00	444493.47	444510.37	5277766.93	5325006.88	2010	306	2016
1414.00	66851.00	67735.00	444597.57	444609.66	5277768.13	5325022.80	2009	304	2016
1415.00	65661.00	66498.00	444697.60	444711.73	5277773.13	5325000.86	2010	306	2016
1416.00	68732.00	69588.00	444797.09	444808.60	5277754.65	5325008.16	2009	304	2016
1417.00	67564.00	68400.00	444897.61	444912.56	5277782.68	5325015.68	2010	306	2016
1418.00	70624.00	71467.00	445000.19	445011.79	5277717.01	5325028.80	2009	304	2016
1419.00	69601.00	70434.00	445097.09	445118.49	5277703.55	5325017.74	2010	306	2016
1420.00	72472.00	73333.00	445200.26	445214.88	5277610.70	5324999.29	2009	304	2016
1421.00	71605.00	72451.00	445298.41	445310.06	5277588.42	5325024.63	2010	306	2016
1422.00	74363.00	75210.00	445400.73	445415.89	5277495.49	5325024.66	2009	304	2016
1423.00	73549.00	74396.00	445498.64	445510.44	5277433.15	5325008.58	2010	306	2016
1424.00	76229.00	77081.00	445599.58	445612.88	5277394.11	5325035.20	2009	304	2016
1425.00	75648.00	76497.00	445697.38	445713.76	5277358.06	5325003.58	2010	306	2016
1426.00	78107.00	78988.00	445800.58	445814.10	5276798.09	5325015.45	2009	304	2016
1427.00	59046.00	59883.00	445896.97	445917.51	5276806.14	5325042.32	2011	307	2016
1428.00	60758.00	61610.00	445996.18	446010.25	5276756.69	5325033.47	2010	306	2016
1429.00	61046.00	61909.00	446099.51	446110.94	5276761.32	5325042.35	2011	307	2016
1430.00	62786.00	63629.00	446197.39	446210.35	5276789.09	5324998.74	2010	306	2016
1431.00	63061.00	63909.00	446301.27	446312.39	5276754.51	5325002.11	2011	307	2016
1432.00	64710.00	65555.00	446398.80	446413.38	5276796.97	5325040.51	2010	306	2016
1433.00	65181.00	66045.00	446498.33	446510.17	5276757.76	5325024.45	2011	307	2016
1434.00	66620.00	67475.00	446593.35	446609.56	5276788.26	5325004.42	2010	306	2016
1435.00	67608.00	68468.00	446698.16	446710.87	5276782.15	5325033.37	2011	307	2016
1436.00	68566.00	69438.00	446796.92	446809.49	5276740.70	5325041.59	2010	306	2016
1437.00	58252.00	58622.00	446894.21	446910.36	5276640.18	5296911.05	1009	281	2016
1437.01	61345.00	61846.00	446895.69	446910.55	5296886.15	5325020.20	1032	350	2016
1438.00	70648.00	71497.00	446999.22	447009.42	5276575.68	5324998.12	2010	306	2016
1439.00	65590.00	66438.00	447096.61	447112.65	5276565.71	5325022.47	2004	294	2016
1440.00	72573.00	73450.00	447197.65	447211.21	5276460.99	5325024.20	2010	306	2016
1441.00	70250.00	71110.00	447297.76	447311.58	5276421.91	5325032.52	2011	307	2016
1442.00	74511.00	75378.00	447399.71	447413.90	5276367.40	5325024.67	2010	306	2016
1443.00	72220.00	73091.00	447494.43	447513.62	5275798.59	5324994.86	2011	307	2016
1444.00	59999.00	60841.00	447598.90	447611.44	5275785.44	5325026.71	2011	307	2016
1445.00	74833.00	75728.00	447699.49	447714.09	5275752.39	5325049.31	2011	307	2016
1446.00	62021.00	62898.00	447799.39	447810.36	5275789.63	5324998.97	2011	307	2016
1447.00	64268.00	65140.00	447893.81	447910.03	5275780.28	5325012.40	2017	348	2016
1448.00	64202.00	65066.00	447998.12	448012.24	5275753.03	5325018.65	2011	307	2016
1449.00	66303.00	67169.00	448094.80	448110.02	5275794.05	5325020.66	2017	348	2016
1450.00	66527.00	67416.00	448191.11	448209.07	5275796.02	5325041.69	2011	307	2016
1451.00	68303.00	69168.00	448292.10	448310.79	5275787.24	5324999.85	2017	348	2016
1452.00	68580.00	69446.00	448389.41	448412.52	5275782.94	5325030.00	2011	307	2016
1453.00	70339.00	71213.00	448493.48	448512.64	5275754.10	5325043.76	2017	348	2016
1454.00	71243.00	72113.00	448599.01	448610.16	5275694.74	5325020.61	2011	307	2016
1455.00	72321.00	73065.00	448697.28	448712.65	5275627.61	5317911.07	2017	348	2016
1455.01	75364.00	75492.00	448697.79	448710.42	5317873.39	5325022.24	2017	348	2016
1456.00	73187.00	74071.00	448799.77	448816.09	5275557.44	5325041.57	2011	307	2016
1457.00	74100.00	74979.00	448887.51	448917.41	5275518.31	5325000.27	2017	348	2016
1458.00	75873.00	76748.00	448998.78	449011.36	5275489.89	5325040.15	2011	307	2016
1459.00	76422.00	77119.00	449084.23	449116.98	5286867.13	5325028.31	2017	348	2016
1459.01	56868.00	57083.00	449097.96	449113.81	5275386.08	5286907.03	1031	349	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1460.00	65267.00	66172.00	449195.08	449214.45	5275328.68	5325032.12	2017	348	2016
1461.00	57707.00	58631.00	449291.72	449309.96	5274798.17	5325005.53	1031	349	2016
1462.00	67294.00	68226.00	449394.67	449411.33	5274796.06	5325024.31	2017	348	2016
1462.01	60638.00	61165.00	449399.32	449412.45	5295883.63	5325005.16	1032	350	2016
1463.00	61786.00	62734.00	449496.10	449513.02	5274772.87	5325011.91	1031	349	2016
1464.00	69309.00	70250.00	449595.33	449613.69	5274762.26	5325043.24	2017	348	2016
1465.00	59800.00	60734.00	449695.43	449713.66	5274757.55	5325049.91	1031	349	2016
1466.00	71322.00	72226.00	449794.44	449812.30	5274767.37	5325018.23	2017	348	2016
1467.00	63798.00	64714.00	449897.25	449917.78	5274773.13	5325023.00	1031	349	2016
1468.00	73196.00	73993.00	449992.60	450016.82	5274789.31	5317901.70	2017	348	2016
1468.01	75147.00	75274.00	449991.46	450009.75	5317876.24	5325022.33	2017	348	2016
1469.00	65783.00	66680.00	450096.66	450117.06	5274780.89	5325048.42	1031	349	2016
1470.00	75625.00	76350.00	450194.51	450210.73	5285901.42	5325005.40	2017	348	2016
1470.01	57367.00	57556.00	450197.08	450206.73	5274769.91	5285890.07	1031	349	2016
1470.02	65060.00	65959.00	450196.03	450212.08	5274764.42	5325023.17	1034	352	2016
1471.00	59641.00	60523.00	450299.78	450311.84	5274714.25	5324995.65	1032	350	2016
1472.00	55828.00	56721.00	450393.80	450415.32	5274678.36	5325025.31	1031	349	2016
1473.00	73992.00	74887.00	450498.10	450509.41	5274619.71	5325023.55	1033	351	2016
1474.00	58765.00	59640.00	450592.09	450619.76	5274569.92	5325023.57	1031	349	2016
1475.00	75901.00	76804.00	450696.88	450713.25	5274488.16	5324998.68	1034	352	2016
1476.00	60833.00	61698.00	450794.79	450812.30	5274443.26	5325036.98	1031	349	2016
1477.00	73766.00	74664.00	450897.08	450911.53	5274374.92	5325007.65	1034	352	2016
1478.00	62833.00	63705.00	450994.70	451012.73	5273789.95	5325009.09	1031	349	2016
1479.00	71589.00	72510.00	451098.52	451111.61	5273759.28	5325009.08	1034	352	2016
1480.00	64818.00	65686.00	451194.80	451213.22	5273788.75	5324997.24	1031	349	2016
1481.00	62996.00	63929.00	451299.35	451311.00	5273755.54	5325032.24	1034	352	2016
1482.00	75020.00	75913.00	451395.77	451409.86	5273765.18	5324991.54	1033	351	2016
1483.00	69413.00	70358.00	451498.54	451513.23	5273750.17	5325024.35	1034	352	2016
1484.00	64059.00	64950.00	451596.90	451616.42	5273780.28	5325000.91	1034	352	2016
1485.00	67207.00	68150.00	451696.55	451716.03	5273772.22	5325010.56	1034	352	2016
1486.00	68991.00	69890.00	451796.21	451810.80	5273803.42	5325005.90	1033	351	2016
1487.00	54739.00	55747.00	451874.17	451918.38	5273758.28	5325032.30	1031	349	2016
1488.00	75569.00	76524.00	451998.72	452009.51	5273772.09	5325028.42	2012	338	2016
1489.00	70037.00	70946.00	452096.05	452111.43	5273707.08	5325015.80	1033	351	2016
1490.00	73460.00	74385.00	452199.37	452210.63	5273618.11	5325032.98	2012	338	2016
1491.00	67951.00	68868.00	452297.42	452314.30	5273609.87	5325004.60	1033	351	2016
1492.00	71355.00	72270.00	452398.06	452409.99	5273551.22	5325030.16	2012	338	2016
1493.00	65943.00	66868.00	452498.27	452513.30	5273447.84	5325004.78	1033	351	2016
1494.00	69247.00	70192.00	452600.28	452609.93	5273411.85	5325014.15	2012	338	2016
1495.00	63904.00	64841.00	452699.17	452714.16	5273363.01	5324995.04	1033	351	2016
1496.00	67145.00	68102.00	452796.83	452811.24	5272757.57	5324998.73	2012	338	2016
1497.00	61861.00	62823.00	452897.34	452916.47	5272779.54	5325041.29	1033	351	2016
1498.00	65090.00	66050.00	452998.85	453013.20	5272764.96	5325018.40	2012	338	2016
1499.00	59855.00	60784.00	453100.48	453113.76	5272769.93	5325028.87	1033	351	2016
1500.00	63022.00	63959.00	453195.85	453211.01	5272767.24	5325013.42	2012	338	2016
1501.00	57796.00	58715.00	453299.28	453315.02	5272806.93	5325043.19	1033	351	2016
1502.00	60921.00	61857.00	453394.25	453410.85	5272800.00	5325004.45	2012	338	2016
1503.00	55718.00	56667.00	453497.67	453511.00	5272778.76	5325043.66	1033	351	2016
1504.00	58791.00	59733.00	453595.59	453610.55	5272782.78	5325028.96	2012	338	2016
1505.00	74536.00	75447.00	453698.82	453710.95	5272757.00	5325042.22	2012	338	2016
1506.00	66962.00	67872.00	453798.71	453811.94	5272705.13	5325038.07	1033	351	2016
1507.00	72410.00	73326.00	453900.35	453912.21	5272696.24	5325037.24	2012	338	2016
1508.00	64936.00	65859.00	453995.78	454009.54	5272633.64	5325041.68	1033	351	2016
1509.00	70355.00	71261.00	454099.54	454113.11	5272550.76	5325032.85	2012	338	2016
1510.00	62894.00	63808.00	454198.70	454210.13	5272529.73	5324998.44	1033	351	2016
1511.00	68234.00	69152.00	454300.85	454311.82	5272478.28	5325014.95	2012	338	2016
1512.00	60855.00	61777.00	454396.96	454412.40	5272369.51	5324994.08	1033	351	2016
1513.00	66131.00	67055.00	454500.50	454509.04	5272314.94	5325017.46	2012	338	2016
1514.00	58842.00	59788.00	454600.14	454612.15	5271773.63	5325023.73	1033	351	2016
1515.00	64045.00	64971.00	454697.86	454710.40	5271798.81	5325012.24	2012	338	2016
1516.00	56782.00	57719.00	454796.87	454810.84	5271804.74	5325031.14	1033	351	2016
1517.00	61973.00	62903.00	454899.63	454913.19	5271789.03	5325012.57	2012	338	2016
1518.00	66792.00	67711.00	454997.09	455012.20	5271763.65	5325028.75	1031	349	2016
1519.00	59896.00	60818.00	455096.07	455110.48	5271772.10	5325014.26	2012	338	2016
1520.00	70576.00	71513.00	455192.77	455214.24	5271755.42	5325022.32	1029	344	2016
1521.00	57724.00	58672.00	455300.33	455309.99	5271772.45	5325009.27	2012	338	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1522.00	68470.00	69405.00	455386.28	455418.90	5271809.93	5325023.35	1029	344	2016
1523.00	64833.00	65790.00	455500.03	455510.34	5271749.90	5325023.84	1028	343	2016
1524.00	66367.00	67291.00	455596.40	455614.89	5271735.35	5325029.55	1029	344	2016
1525.00	67073.00	68010.00	455694.58	455712.18	5271629.81	5325029.20	1028	343	2016
1526.00	64244.00	65227.00	455797.34	455809.88	5271614.94	5325034.90	1029	344	2016
1527.00	69176.00	70136.00	455898.82	455911.56	5271557.16	5325004.76	1028	343	2016
1528.00	62095.00	63040.00	455994.32	456014.37	5271476.00	5325021.21	1029	344	2016
1529.00	71416.00	72368.00	456096.59	456111.56	5271420.40	5325015.89	1028	343	2016
1530.00	59935.00	60903.00	456196.67	456213.96	5271387.65	5325025.86	1029	344	2016
1531.00	73585.00	74555.00	456295.24	456312.09	5270789.53	5325030.36	1028	343	2016
1532.00	57704.00	58696.00	456399.24	456414.74	5270792.65	5325024.60	1029	344	2016
1533.00	75798.00	76752.00	456499.26	456511.02	5270786.75	5325048.59	1028	343	2016
1534.00	72712.00	73676.00	456597.10	456614.92	5270789.09	5324994.66	1029	344	2016
1535.00	77969.00	78909.00	456695.25	456711.47	5270773.74	5325004.26	1028	343	2016
1536.00	65983.00	66953.00	456799.57	456812.92	5270769.05	5324991.24	1028	343	2016
1537.00	69532.00	70482.00	456899.12	456913.96	5270794.52	5325003.94	1029	344	2016
1538.00	68101.00	69053.00	456998.37	457012.08	5270770.98	5325038.86	1028	343	2016
1539.00	67408.00	68388.00	457093.82	457113.81	5270790.75	5325048.21	1029	344	2016
1540.00	70259.00	71235.00	457197.00	457215.70	5270777.62	5324998.33	1028	343	2016
1541.00	65341.00	66292.00	457295.13	457312.82	5270752.37	5325011.14	1029	344	2016
1542.00	72495.00	73468.00	457396.90	457415.74	5270712.91	5325036.67	1028	343	2016
1543.00	63159.00	64110.00	457496.96	457512.35	5270641.11	5325004.74	1029	344	2016
1544.00	74707.00	75678.00	457595.47	457612.73	5270557.08	5325012.37	1028	343	2016
1545.00	61019.00	61991.00	457699.28	457714.14	5270496.87	5325013.49	1029	344	2016
1546.00	76847.00	77827.00	457794.63	457814.26	5270450.18	5325038.28	1028	343	2016
1547.00	58830.00	59805.00	457897.70	457911.28	5270391.30	5325014.38	1029	344	2016
1548.00	79051.00	80054.00	457994.82	458011.57	5270333.60	5325012.98	1028	343	2016
1549.00	56595.00	57593.00	458092.50	458114.57	5269761.68	5325008.53	1029	344	2016
1550.00	62049.00	63021.00	458197.70	458212.00	5269757.79	5325045.85	1032	350	2016
1551.00	71640.00	72629.00	458295.27	458314.24	5269793.62	5324996.89	1029	344	2016
1552.00	64180.00	65130.00	458397.08	458410.60	5269771.54	5325034.92	1032	350	2016
1553.00	71931.00	72895.00	458497.03	458509.98	5269766.05	5325024.42	1032	350	2016
1554.00	76813.00	77806.00	458591.13	458611.37	5269777.70	5325046.00	2010	306	2016
1555.00	77963.00	78944.00	458699.82	458711.50	5269802.36	5325043.40	2010	306	2016
1556.00	79178.00	80132.00	458796.40	458809.40	5269798.63	5325004.97	2010	306	2016
1557.00	78197.00	79162.00	458898.72	458909.82	5269767.16	5325015.63	1034	352	2016
1558.00	66367.00	67355.00	458996.56	459012.86	5269797.82	5325008.29	1032	350	2016
1559.00	69084.00	70078.00	459093.64	459111.78	5269695.56	5325022.64	2021	4	2017
1560.00	68601.00	69597.00	459199.11	459211.58	5269645.21	5325037.59	1032	350	2016
1561.00	71267.00	71958.00	459297.16	459315.78	5269609.70	5306928.15	2021	4	2017
1561.01	56001.00	56327.00	459289.22	459312.24	5306884.50	5325025.11	2022	5	2017
1562.00	70831.00	71851.00	459399.38	459409.43	5269545.52	5325031.39	1032	350	2016
1563.00	72761.00	73423.00	459497.79	459510.52	5269515.20	5305923.42	2021	4	2017
1563.01	57022.00	57373.00	459499.22	459513.12	5305887.06	5325041.83	2022	5	2017
1564.00	72988.00	73966.00	459599.04	459608.36	5269420.61	5325023.77	1032	350	2016
1565.00	63135.00	64108.00	459699.78	459711.17	5269376.55	5325019.20	1032	350	2016
1566.00	70179.00	71151.00	459795.01	459810.45	5268774.87	5325020.54	2021	4	2017
1567.00	65214.00	66196.00	459899.63	459910.79	5268763.64	5325007.15	1032	350	2016
1568.00	72044.00	72650.00	459996.83	460009.44	5268760.49	5303892.36	2021	4	2017
1568.01	55441.00	55818.00	459994.24	460009.15	5303852.63	5325018.38	2022	5	2017
1569.00	67448.00	68437.00	460098.65	460112.47	5268764.95	5325043.79	1032	350	2016
1570.00	73536.00	74124.00	460196.04	460212.14	5268758.35	5302901.96	2021	4	2017
1570.01	56427.00	56825.00	460197.01	460209.16	5302878.27	5325037.20	2022	5	2017
1571.00	69690.00	70668.00	460298.97	460311.02	5268777.74	5325049.17	1032	350	2016
1572.00	59275.00	60271.00	460399.95	460409.93	5268762.39	5325008.26	2008	298	2016
1573.00	54112.00	55015.00	460499.05	460512.98	5268774.20	5317928.98	2007	297	2016
1573.01	55203.00	55337.00	460496.33	460512.37	5317904.11	5325025.01	2022	5	2017
1573.02	68083.00	69066.00	460498.68	460513.18	5268784.35	5325035.53	2023	6	2017
1574.00	75386.00	76376.00	460590.10	460611.57	5268774.80	5325012.35	2021	4	2017
1575.00	74238.00	75261.00	460696.25	460714.18	5268750.72	5325029.39	2021	4	2017
1576.00	63197.00	64167.00	460798.03	460812.42	5268766.21	5325038.55	2022	5	2017
1576.01	69184.00	70141.00	460798.05	460811.10	5268754.64	5325031.71	2023	6	2017
1577.00	74082.00	75054.00	460896.27	460909.23	5268717.66	5325043.32	1032	350	2016
1578.00	53731.00	54740.00	460995.96	461011.23	5268613.81	5325006.24	2022	5	2017
1578.01	70255.00	71217.00	460998.57	461011.35	5268619.30	5325013.24	2023	6	2017
1579.00	70041.00	71055.00	461098.92	461108.87	5268597.28	5325025.77	2008	298	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1580.00	77443.00	78264.00	461197.59	461210.48	5268503.11	5315895.70	2021	4	2017
1580.01	54862.00	55021.00	461195.10	461206.96	5315877.67	5325030.59	2022	5	2017
1580.02	71338.00	72300.00	461197.62	461209.18	5268547.27	5325008.78	2023	6	2017
1581.00	67637.00	68668.00	461297.71	461310.89	5268486.84	5325014.37	2008	298	2016
1582.00	79239.00	80237.00	461397.75	461412.22	5268414.21	5325007.77	1034	352	2016
1583.00	65358.00	66372.00	461499.57	461511.30	5268360.37	5325003.39	2008	298	2016
1584.00	76855.00	77876.00	461599.55	461614.72	5267789.14	5324991.10	2008	298	2016
1585.00	60405.00	61457.00	461697.12	461709.08	5267756.25	5325031.79	2008	298	2016
1586.00	55163.00	56028.00	461797.33	461817.16	5267795.59	5313934.46	2007	297	2016
1586.01	57471.00	57669.00	461796.56	461809.44	5313883.80	5325001.96	2022	5	2017
1587.00	58090.00	59140.00	461896.88	461911.35	5267770.81	5325040.55	2008	298	2016
1588.00	52945.00	53987.00	461999.82	462013.71	5267801.56	5325027.14	2007	297	2016
1588.01	64070.00	65100.00	461998.45	462012.37	5267768.34	5325031.33	2008	298	2016
1589.00	61113.00	62089.00	462093.23	462120.00	5267782.38	5325034.06	2001	289	2016
1590.00	71182.00	72198.00	462195.68	462213.58	5267767.93	5325041.21	2001	289	2016
1591.00	56594.00	57600.00	462300.01	462310.26	5267798.92	5325028.72	2001	289	2016
1592.00	73466.00	74429.00	462396.81	462414.00	5267763.58	5325038.14	2001	289	2016
1593.00	58887.00	59861.00	462494.88	462509.77	5267802.47	5325020.65	2001	289	2016
1594.00	77353.00	78385.00	462596.25	462611.35	5267735.49	5325009.74	1032	350	2016
1595.00	63361.00	64353.00	462700.68	462712.25	5267679.88	5325025.64	2001	289	2016
1596.00	75129.00	76137.00	462795.07	462809.62	5267608.41	5325018.52	1032	350	2016
1597.00	62756.00	63817.00	462895.49	462913.53	5267582.86	5325001.93	2008	298	2016
1598.00	74797.00	75346.00	462997.84	463013.12	5267499.18	5297904.15	2008	298	2016
1598.01	58132.00	58611.00	462996.24	463010.16	5297883.34	5325007.26	2022	5	2017
1599.00	76493.00	77366.00	463096.51	463111.02	5267466.09	5316907.02	2021	4	2017
1599.01	57864.00	58013.00	463103.06	463110.65	5316904.02	5325009.12	2022	5	2017
1600.00	71155.00	72187.00	463197.21	463214.23	5267377.22	5325010.54	2008	298	2016
1601.00	76254.00	77265.00	463297.37	463312.55	5267337.62	5325045.18	1032	350	2016
1602.00	68789.00	69841.00	463391.75	463417.54	5266759.95	5324999.99	2008	298	2016
1603.00	75678.00	76735.00	463497.79	463513.02	5266764.93	5325023.07	2008	298	2016
1604.00	66490.00	67542.00	463597.65	463611.50	5266759.12	5324998.85	2008	298	2016
1605.00	74304.00	74703.00	463698.48	463711.96	5302859.61	5325007.77	2008	298	2016
1605.01	58972.00	59602.00	463695.83	463713.05	5266778.87	5302900.98	2022	5	2017
1606.00	61583.00	62613.00	463798.91	463809.64	5266788.87	5325000.43	2008	298	2016
1607.00	72789.00	73532.00	463900.84	463912.25	5283904.95	5325011.21	2008	298	2016
1607.01	76170.00	76480.00	463899.55	463910.16	5266764.80	5283942.59	1033	351	2016
1608.00	62188.00	63233.00	463995.80	464014.91	5266771.78	5325008.21	2001	289	2016
1609.00	51791.00	52832.00	464096.69	464113.32	5266758.73	5325048.68	2007	297	2016
1610.00	57750.00	58787.00	464198.44	464210.77	5266766.99	5325026.43	2001	289	2016
1611.00	55331.00	56218.00	464297.05	464313.93	5266739.20	5324998.44	1019	295	2016
1612.00	59990.00	61041.00	464398.51	464408.60	5266702.14	5325026.00	2001	289	2016
1613.00	72338.00	73349.00	464493.67	464510.90	5266666.02	5325028.34	2001	289	2016
1614.00	70749.00	71795.00	464598.14	464611.87	5266600.98	5325041.29	1006	276	2016
1615.00	70071.00	71070.00	464699.14	464710.72	5266524.63	5325021.29	2001	289	2016
1616.00	68461.00	69507.00	464799.50	464811.12	5266497.22	5325019.61	1006	276	2016
1617.00	67810.00	68810.00	464893.08	464910.36	5266428.41	5325018.18	2001	289	2016
1618.00	66172.00	67216.00	464996.10	465009.54	5266388.75	5325026.97	1006	276	2016
1619.00	65559.00	66584.00	465096.89	465111.47	5265798.60	5325007.19	2001	289	2016
1620.00	63909.00	64972.00	465198.30	465211.10	5265793.98	5325004.73	1006	276	2016
1621.00	65736.00	66773.00	465298.95	465314.72	5265806.46	5325034.34	1007	277	2016
1622.00	61645.00	62704.00	465396.72	465411.19	5265768.41	5325014.61	1006	276	2016
1623.00	63458.00	64500.00	465497.71	465517.16	5265792.28	5325017.37	1007	277	2016
1624.00	59103.00	60150.00	465599.98	465612.17	5265758.03	5325025.41	1006	276	2016
1625.00	61170.00	62207.00	465699.54	465711.39	5265803.07	5325018.73	1007	277	2016
1626.00	56838.00	57881.00	465799.09	465810.34	5265795.83	5325033.31	1006	276	2016
1627.00	58863.00	59908.00	465900.69	465911.93	5265778.64	5324996.28	1007	277	2016
1628.00	54593.00	55637.00	465995.14	466012.45	5265802.53	5325020.05	1006	276	2016
1629.00	56538.00	57573.00	466096.94	466112.46	5265764.72	5325001.73	1007	277	2016
1630.00	81875.00	82936.00	466199.44	466212.90	5265657.54	5325011.15	1005	275	2016
1631.00	54255.00	55289.00	466297.85	466315.09	5265632.10	5324995.76	1007	277	2016
1632.00	79568.00	80625.00	466398.56	466412.99	5265640.02	5325015.74	1005	275	2016
1633.00	51950.00	53003.00	466498.16	466513.20	5265630.13	5324999.76	1007	277	2016
1634.00	77274.00	78349.00	466596.35	466611.19	5265602.60	5325036.83	1005	275	2016
1635.00	69600.00	70657.00	466699.71	466713.14	5265602.76	5325028.05	1006	276	2016
1636.00	68914.00	69951.00	466798.71	466812.19	5265613.28	5325025.58	2001	289	2016
1637.00	67328.00	68384.00	466898.80	466911.17	5265622.71	5325009.19	1006	276	2016



**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1638.00	66693.00	67743.00	466995.88	467010.76	5265640.28	5325032.45	2001	289	2016
1639.00	65057.00	66097.00	467095.92	467112.35	5265629.28	5324995.68	1006	276	2016
1640.00	64458.00	65463.00	467197.16	467213.11	5265637.31	5325010.83	2001	289	2016
1641.00	62794.00	63828.00	467297.54	467311.15	5265644.33	5325017.95	1006	276	2016
1642.00	66870.00	67907.00	467396.91	467409.93	5265645.22	5325006.59	1007	277	2016
1643.00	60527.00	61569.00	467495.71	467511.82	5265616.75	5325000.36	1006	276	2016
1644.00	64588.00	65634.00	467596.86	467614.01	5265619.61	5325021.73	1007	277	2016
1645.00	57984.00	59025.00	467698.51	467711.37	5265612.62	5325027.67	1006	276	2016
1646.00	62293.00	63351.00	467797.74	467811.60	5265614.80	5325049.95	1007	277	2016
1647.00	55716.00	56763.00	467899.26	467911.51	5265645.25	5325036.74	1006	276	2016
1648.00	59997.00	61083.00	467995.67	468012.39	5265622.31	5325026.67	1007	277	2016
1649.00	53468.00	54512.00	468101.08	468111.88	5265647.44	5324998.78	1006	276	2016
1650.00	57673.00	58768.00	468198.60	468212.55	5265646.32	5325033.95	1007	277	2016
1651.00	80713.00	81758.00	468299.89	468310.71	5265655.35	5325039.69	1005	275	2016
1652.00	55379.00	56458.00	468398.18	468408.97	5265633.22	5325039.26	1007	277	2016
1653.00	78424.00	79469.00	468493.53	468512.02	5265611.20	5325002.20	1005	275	2016
1654.00	53087.00	54160.00	468600.04	468613.31	5265602.98	5325002.17	1007	277	2016
1655.00	71466.00	72518.00	468697.63	468713.79	5265601.76	5325041.91	1004	274	2016
1656.00	70269.00	71338.00	468793.61	468811.26	5265651.80	5325016.96	1004	274	2016
1657.00	73797.00	74844.00	468899.17	468913.07	5265620.11	5325009.32	1004	274	2016
1658.00	67994.00	69051.00	469000.73	469012.47	5265628.81	5325028.49	1004	274	2016
1659.00	76103.00	77147.00	469096.37	469109.37	5265640.88	5325022.20	1004	274	2016
1660.00	71890.00	72952.00	469200.25	469214.22	5265609.69	5325029.75	1003	273	2016
1661.00	78376.00	79416.00	469299.34	469311.05	5265624.69	5324998.42	1004	274	2016
1662.00	69589.00	70660.00	469398.09	469412.10	5265606.26	5325025.10	1003	273	2016
1663.00	64639.00	65688.00	469496.40	469517.34	5265601.71	5325046.76	1005	275	2016
1664.00	67318.00	68369.00	469596.22	469610.13	5265634.37	5325029.14	1003	273	2016
1665.00	66927.00	67962.00	469698.96	469711.51	5265635.27	5325024.62	1005	275	2016
1666.00	65036.00	66101.00	469798.88	469810.52	5265615.27	5325040.50	1003	273	2016
1667.00	69203.00	70268.00	469899.45	469913.29	5265648.25	5324997.86	1005	275	2016
1668.00	62769.00	63824.00	469999.25	470014.10	5265613.16	5325048.12	1003	273	2016
1669.00	71536.00	72586.00	470097.30	470113.29	5265618.21	5325007.07	1005	275	2016
1670.00	60474.00	61534.00	470196.80	470208.59	5265603.39	5325004.08	1003	273	2016
1671.00	73815.00	74859.00	470296.98	470311.08	5265651.00	5324994.90	1005	275	2016
1672.00	58186.00	59238.00	470399.58	470410.09	5265608.24	5325011.33	1003	273	2016
1673.00	76100.00	77158.00	470497.77	470511.33	5265620.20	5325035.35	1005	275	2016
1674.00	55870.00	56914.00	470598.74	470610.24	5265609.66	5325012.58	1003	273	2016
1675.00	69133.00	70188.00	470694.93	470714.20	5265610.02	5325043.77	1004	274	2016
1676.00	72635.00	73687.00	470799.39	470810.25	5265650.35	5325036.22	1004	274	2016
1677.00	66889.00	67916.00	470897.08	470909.51	5265664.45	5325049.55	1004	274	2016
1678.00	74922.00	75985.00	470996.74	471009.74	5265619.80	5325034.39	1004	274	2016
1679.00	70738.00	71801.00	471099.26	471109.87	5265642.56	5325034.24	1003	273	2016
1680.00	77235.00	78302.00	471197.59	471211.10	5265632.55	5325042.43	1004	274	2016
1681.00	68443.00	69496.00	471300.85	471311.97	5265615.31	5325021.84	1003	273	2016
1682.00	79498.00	80579.00	471397.27	471409.77	5265602.35	5325011.66	1004	274	2016
1683.00	66180.00	67221.00	471498.59	471510.69	5265621.49	5325017.37	1003	273	2016
1684.00	65774.00	66843.00	471597.83	471610.04	5265616.51	5325044.63	1005	275	2016
1685.00	63901.00	64950.00	471697.35	471709.86	5265656.56	5325039.71	1003	273	2016
1686.00	68060.00	69128.00	471798.87	471811.48	5265634.45	5325014.45	1005	275	2016
1687.00	61632.00	62687.00	471898.77	471909.18	5265657.38	5325000.67	1003	273	2016
1688.00	70384.00	71461.00	471997.46	472013.59	5265643.80	5325017.70	1005	275	2016
1689.00	59338.00	60401.00	472099.00	472110.28	5265643.46	5325024.79	1003	273	2016
1690.00	72678.00	73748.00	472196.46	472210.26	5265640.78	5324998.38	1005	275	2016
1691.00	57030.00	58095.00	472298.84	472310.51	5265603.64	5325031.69	1003	273	2016
1692.00	74944.00	76019.00	472396.59	472413.17	5265632.01	5325035.45	1005	275	2016
1693.00	54723.00	55779.00	472499.29	472511.80	5265608.66	5325006.88	1003	273	2016
1694.00	72948.00	73825.00	472598.10	472612.24	5265643.02	5309932.40	3010	348	2016
1694.01	60852.00	60951.00	472599.07	472607.73	5309885.32	5315026.51	3012	350	2016
1695.00	68055.00	68925.00	472699.50	472713.14	5265648.14	5315001.47	1007	277	2016
1696.00	74555.00	75148.00	472792.62	472811.94	5265632.86	5295928.96	3010	348	2016
1696.01	59815.00	60155.00	472800.93	472816.45	5295864.76	5315036.12	3012	350	2016
1697.00	70027.00	70911.00	472899.44	472914.05	5265634.33	5315002.49	1007	277	2016
1698.00	70802.00	71666.00	472995.31	473015.43	5265606.79	5315033.06	1031	349	2016
1699.00	72082.00	72866.00	473097.53	473114.13	5265637.11	5311916.48	3010	348	2016
1699.01	69778.00	70689.00	473094.90	473115.98	5265605.43	5315046.66	1031	349	2016
1700.00	71041.00	71909.00	473198.68	473210.76	5265658.81	5315006.01	1007	277	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1701.00	73935.00	74458.00	473291.84	473319.51	5265651.25	5295927.95	3010	348	2016
1701.01	60370.00	60718.00	473299.54	473315.27	5295876.10	5315012.75	3012	350	2016
1702.00	69053.00	69921.00	473398.10	473411.54	5265627.61	5315024.60	1007	277	2016
1703.00	62175.00	63059.00	473498.33	473511.18	5265639.66	5315018.76	1002	272	2016
1704.00	63163.00	64052.00	473599.11	473613.68	5265652.46	5315001.72	1002	272	2016
1705.00	64197.00	65092.00	473699.24	473711.71	5265624.82	5315043.53	1002	272	2016
1706.00	65210.00	66098.00	473798.43	473809.85	5265657.61	5315031.67	1002	272	2016
1707.00	66236.00	67148.00	473899.31	473911.17	5265649.10	5315032.73	1002	272	2016
1708.00	67299.00	68185.00	473998.28	474011.28	5265638.74	5315016.49	1002	272	2016
1709.00	68304.00	69195.00	474098.75	474110.70	5265604.88	5314996.51	1002	272	2016
1710.00	69349.00	70219.00	474200.62	474211.44	5265652.54	5315024.91	1002	272	2016
1711.00	70311.00	71187.00	474297.43	474314.60	5265617.50	5315014.91	1002	272	2016
1712.00	71308.00	72190.00	474399.61	474410.01	5265642.32	5315044.43	1002	272	2016
1713.00	72287.00	73155.00	474497.14	474511.09	5265633.33	5315015.65	1002	272	2016
1714.00	73266.00	74142.00	474599.14	474611.34	5265647.59	5315031.16	1002	272	2016
1715.00	74271.00	75150.00	474697.61	474708.72	5265646.78	5315043.19	1002	272	2016
1716.00	75251.00	76134.00	474797.24	474811.39	5265627.20	5315012.33	1002	272	2016
1717.00	76281.00	77164.00	474897.94	474910.86	5265629.55	5315031.32	1002	272	2016
1718.00	77288.00	78176.00	474997.66	475009.68	5265655.48	5315036.49	1002	272	2016
1719.00	78277.00	79151.00	475096.48	475112.79	5265628.02	5315006.00	1002	272	2016
1720.00	79288.00	80166.00	475195.76	475212.60	5265609.82	5315003.47	1002	272	2016
1721.00	53679.00	53988.00	475299.11	475314.58	5265623.69	5281921.48	1013	285	2016
1721.01	66707.00	67294.00	475298.54	475311.63	5281893.84	5315027.71	3012	350	2016
1722.00	70034.00	70409.00	475401.87	475408.82	5265601.55	5286913.58	2013	340	2016
1722.01	73136.00	73543.00	475392.25	475410.46	5289874.50	5315048.23	3008	343	2016
1722.02	63284.00	63756.00	475397.04	475414.84	5286864.62	5315041.92	2024	7	2017
1723.00	69415.00	69791.00	475502.40	475510.56	5265648.13	5286915.29	2013	340	2016
1723.01	73752.00	74196.00	475496.83	475515.39	5291894.87	5315015.55	3008	343	2016
1723.02	63984.00	64505.00	475495.76	475515.11	5286885.33	5315046.25	2024	7	2017
1724.00	71130.00	71539.00	475598.46	475611.67	5265638.46	5288897.25	2013	340	2016
1724.01	58629.00	59108.00	475596.79	475609.59	5288905.15	5315046.99	3012	350	2016
1725.00	70540.00	70998.00	475701.42	475716.22	5265639.94	5291901.81	2013	340	2016
1725.01	59295.00	59711.00	475697.16	475715.97	5291904.98	5315030.97	3012	350	2016
1726.00	72234.00	72660.00	475801.33	475812.29	5265643.35	5289893.07	2013	340	2016
1726.01	57485.00	57947.00	475798.17	475809.11	5289898.19	5315030.07	3012	350	2016
1727.00	71673.00	72133.00	475902.44	475916.79	5265626.92	5291935.04	2013	340	2016
1727.01	58078.00	58511.00	475900.74	475911.83	5291895.39	5315020.07	3012	350	2016
1728.00	74295.00	75105.00	475995.21	476011.58	5265621.39	5315009.02	3008	343	2016
1728.01	64640.00	65466.00	475998.56	476011.73	5265604.41	5315017.08	2024	7	2017
1729.00	72173.00	73044.00	476099.26	476115.43	5265649.88	5315043.52	3008	343	2016
1729.01	62242.00	63167.00	476096.04	476114.00	5265624.85	5315008.48	2024	7	2017
1730.00	76386.00	77217.00	476196.47	476213.52	5265621.15	5315020.56	3008	343	2016
1730.01	66638.00	67462.00	476194.17	476212.21	5265641.24	5315021.13	2024	7	2017
1731.00	75351.00	76268.00	476297.51	476313.68	5265650.81	5315043.41	3008	343	2016
1731.01	65588.00	66512.00	476298.86	476312.76	5265602.20	5315015.13	2024	7	2017
1732.00	75588.00	75763.00	476397.77	476408.39	5265601.60	5274918.06	3010	348	2016
1732.01	61253.00	61988.00	476397.68	476410.21	5274864.55	5315040.85	3012	350	2016
1733.00	75259.00	75451.00	476496.30	476508.88	5265629.34	5276940.36	3010	348	2016
1733.01	62163.00	62865.00	476498.99	476512.50	5276884.16	5314995.16	3012	350	2016
1734.00	55761.00	56258.00	476595.56	476613.55	5265635.99	5293922.90	3011	349	2016
1734.01	56501.00	56872.00	476596.26	476610.51	5293874.20	5315031.01	3012	350	2016
1735.00	55102.00	55657.00	476691.31	476714.57	5265613.10	5296907.04	3011	349	2016
1735.01	57065.00	57380.00	476700.03	476712.94	5296885.98	5315013.10	3012	350	2016
1736.00	56984.00	57423.00	476794.61	476811.66	5265655.14	5290938.48	3011	349	2016
1736.01	55379.00	55810.00	476800.19	476811.49	5290893.92	5315023.65	3012	350	2016
1737.00	56401.00	56907.00	476899.29	476914.40	5265653.59	5292906.13	3011	349	2016
1737.01	55979.00	56376.00	476898.59	476913.03	5292860.37	5315022.33	3012	350	2016
1738.00	57846.00	58005.00	476993.53	477020.72	5265630.10	5274929.89	3011	349	2016
1738.01	63006.00	63733.00	476996.85	477017.30	5274892.13	5315013.77	3012	350	2016
1739.00	57567.00	57775.00	477094.89	477119.74	5265647.83	5276925.23	3011	349	2016
1739.01	63931.00	64622.00	477098.18	477113.13	5276878.20	5315015.12	3012	350	2016
1740.00	64765.00	65686.00	477198.56	477215.20	5265606.43	5315012.28	3012	350	2016
1741.00	54348.00	55245.00	477296.24	477313.22	5265638.58	5315034.37	3012	350	2016
1742.00	67386.00	68287.00	477400.00	477410.94	5265601.32	5315026.00	3012	350	2016
1743.00	61932.00	62796.00	477499.29	477513.79	5265625.40	5315029.32	3015	353	2016
1744.00	75764.00	76738.00	477595.30	477611.79	5265613.02	5315046.04	3012	350	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1745.00	74720.00	75633.00	477697.34	477713.19	5265625.52	5315028.24	3012	350	2016
1746.00	71508.00	72487.00	477791.02	477808.84	5265612.73	5315044.30	3012	350	2016
1747.00	72599.00	73508.00	477897.11	477910.61	5265652.43	5315041.91	3012	350	2016
1748.00	78502.00	79392.00	477995.28	478013.47	5265655.03	5315024.59	3005	306	2016
1749.00	68408.00	69312.00	478098.81	478113.54	5265637.91	5315034.23	3012	350	2016
1750.00	69445.00	70389.00	478197.37	478211.93	5265629.85	5315011.34	3012	350	2016
1751.00	70511.00	71401.00	478297.28	478316.09	5265642.39	5315020.96	3012	350	2016
1752.00	73623.00	74620.00	478397.12	478412.57	5265635.89	5315039.58	3012	350	2016
1753.00	76837.00	77085.00	478500.40	478511.04	5265618.10	5278930.97	3012	350	2016
1753.01	64039.00	64663.00	478501.34	478511.56	5278885.74	5315032.34	3015	353	2016
1754.00	77202.00	77440.00	478595.76	478610.22	5265604.07	5278938.84	3012	350	2016
1754.01	62901.00	63587.00	478594.78	478611.33	5278893.18	5315016.85	3015	353	2016
1755.00	65820.00	66663.00	478697.01	478711.92	5265657.27	5315033.80	3015	353	2016
1756.00	70695.00	71623.00	478797.71	478809.85	5265637.56	5315034.33	3015	353	2016
1757.00	67809.00	68652.00	478897.70	478910.49	5265647.41	5315035.29	3015	353	2016
1758.00	76561.00	77414.00	478997.46	479010.87	5265631.85	5314999.44	3005	306	2016
1759.00	69707.00	70551.00	479094.76	479112.56	5265644.63	5315031.52	3015	353	2016
1760.00	60949.00	61851.00	479200.23	479211.96	5265630.47	5315024.79	3015	353	2016
1761.00	59897.00	60771.00	479299.50	479315.27	5265602.50	5315043.22	2022	5	2017
1762.00	64806.00	65717.00	479399.57	479414.48	5265651.86	5315038.09	3015	353	2016
1763.00	60902.00	61759.00	479496.33	479513.34	5265647.85	5315037.59	2022	5	2017
1764.00	66773.00	67710.00	479601.28	479610.77	5265648.89	5315039.45	3015	353	2016
1765.00	61875.00	62769.00	479697.30	479713.92	5265603.79	5315029.08	2022	5	2017
1766.00	68747.00	69599.00	479801.57	479812.52	5265644.55	5314993.27	3015	353	2016
1767.00	77512.00	78412.00	479895.69	479915.51	5265618.74	5315031.46	3005	306	2016
1768.00	75786.00	76666.00	479997.31	480013.56	5265628.35	5315028.16	1024	304	2016
1769.00	59961.00	60830.00	480101.58	480116.52	5265603.42	5315000.37	3015	353	2016
1770.00	73930.00	74777.00	480195.43	480217.67	5265641.29	5315040.54	1024	304	2016
1771.00	57957.00	58829.00	480296.08	480312.60	5265649.78	5315011.06	3015	353	2016
1772.00	72111.00	72966.00	480397.51	480413.11	5265651.94	5315015.26	1024	304	2016
1773.00	54758.00	55617.00	480495.23	480512.68	5265613.43	5314998.48	3015	353	2016
1774.00	70256.00	71112.00	480595.10	480614.63	5265648.08	5315003.54	1024	304	2016
1775.00	78718.00	79165.00	480699.82	480709.98	5265633.84	5290925.49	3014	352	2016
1775.01	56395.00	56813.00	480699.32	480711.01	5290854.23	5315030.14	3015	353	2016
1776.00	68416.00	69258.00	480797.22	480812.60	5265654.34	5314995.15	1024	304	2016
1777.00	75600.00	76475.00	480899.69	480915.85	5265611.52	5315030.70	3005	306	2016
1778.00	66506.00	67370.00	480992.54	481010.77	5265655.56	5315014.05	1024	304	2016
1779.00	73606.00	74504.00	481096.11	481113.76	5265612.04	5315009.05	3005	306	2016
1780.00	54616.00	55413.00	481186.59	481213.52	5265651.69	5315048.86	1021	297	2016
1781.00	71707.00	72587.00	481300.21	481311.64	5265604.83	5315008.17	3005	306	2016
1782.00	58950.00	59871.00	481392.78	481413.39	5265636.27	5315006.72	3015	353	2016
1783.00	69762.00	70649.00	481492.57	481515.38	5265629.81	5315026.93	3005	306	2016
1784.00	56931.00	57852.00	481596.78	481609.55	5265610.55	5315008.14	3015	353	2016
1785.00	67850.00	68728.00	481693.17	481712.10	5265642.38	5315034.04	3005	306	2016
1786.00	79236.00	79650.00	481795.62	481825.15	5265650.12	5289902.02	3014	352	2016
1786.01	55738.00	56215.00	481798.83	481809.02	5289879.94	5315014.45	3015	353	2016
1787.00	74864.00	75663.00	481898.10	481912.86	5265610.17	5315008.65	1024	304	2016
1788.00	74596.00	75487.00	481995.77	482018.47	5265645.89	5314998.03	3005	306	2016
1789.00	73050.00	73835.00	482096.50	482115.60	5265609.31	5315019.37	1024	304	2016
1790.00	62710.00	63575.00	482196.20	482212.58	5265612.00	5315008.90	1024	304	2016
1791.00	71200.00	72017.00	482293.65	482313.54	5265660.12	5314994.54	1024	304	2016
1792.00	60946.00	61757.00	482393.79	482407.28	5265607.78	5315017.64	1024	304	2016
1793.00	69322.00	70154.00	482493.62	482514.81	5265647.24	5315032.26	1024	304	2016
1794.00	72667.00	73528.00	482599.06	482609.14	5265607.26	5315027.54	3005	306	2016
1795.00	67469.00	68302.00	482696.74	482710.89	5265611.93	5315042.69	1024	304	2016
1796.00	70733.00	71617.00	482796.29	482814.62	5265605.24	5315036.13	3005	306	2016
1797.00	65559.00	66389.00	482896.02	482914.16	5265625.13	5315043.70	1024	304	2016
1798.00	68810.00	69681.00	482999.21	483009.99	5265652.07	5315023.68	3005	306	2016
1799.00	53632.00	54523.00	483100.74	483114.93	5265626.50	5315001.60	1021	297	2016
1800.00	66883.00	67755.00	483192.44	483214.10	5265611.48	5315002.42	3005	306	2016
1801.00	72162.00	73028.00	483301.21	483310.83	5265608.45	5315012.50	2004	294	2016
1802.00	73743.00	74644.00	483394.53	483411.90	5265622.25	5315008.53	1019	295	2016
1803.00	74079.00	74947.00	483497.92	483512.91	5265634.22	5315020.90	2004	294	2016
1804.00	68906.00	69777.00	483593.71	483609.32	5265602.55	5314994.61	2004	294	2016
1805.00	75979.00	76859.00	483698.85	483712.03	5265636.23	5315042.48	2004	294	2016
1806.00	66993.00	67836.00	483797.67	483812.01	5265649.84	5315007.83	2004	294	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1807.00	63664.00	64509.00	483897.45	483912.52	5265659.20	5315034.62	1024	304	2016
1808.00	59376.00	60220.00	483996.72	484012.02	5265626.88	5315019.68	2004	294	2016
1809.00	61835.00	62634.00	484092.80	484114.38	5265627.71	5315029.23	1024	304	2016
1810.00	57369.00	58236.00	484198.52	484211.46	5265638.87	5314997.47	2004	294	2016
1811.00	59930.00	60807.00	484289.65	484312.35	5265602.27	5314996.20	1024	304	2016
1812.00	73116.00	73978.00	484398.51	484413.14	5265627.49	5315037.21	2004	294	2016
1813.00	69885.00	70779.00	484498.04	484510.71	5265645.11	5315028.61	2004	294	2016
1814.00	75053.00	75903.00	484597.42	484611.78	5265620.31	5315018.88	2004	294	2016
1815.00	67945.00	68817.00	484699.79	484715.06	5265621.25	5315021.78	2004	294	2016
1816.00	76933.00	77792.00	484798.85	484810.35	5265609.49	5315009.04	2004	294	2016
1817.00	58351.00	59260.00	484900.39	484910.69	5265611.50	5315034.40	2004	294	2016
1818.00	64635.00	65478.00	484997.58	485013.39	5265654.94	5315038.34	1024	304	2016
1819.00	56406.00	57266.00	485094.38	485109.93	5265639.74	5315017.04	2004	294	2016
1820.00	72927.00	73814.00	485199.29	485211.99	5265638.73	5315008.79	1018	293	2016
1821.00	71899.00	72808.00	485297.04	485309.40	5265620.77	5315003.49	1018	293	2016
1822.00	70912.00	71805.00	485397.17	485412.45	5265619.56	5315015.01	1018	293	2016
1823.00	55941.00	56846.00	485496.69	485511.77	5265631.51	5315019.21	1018	293	2016
1824.00	82316.00	83200.00	485597.80	485612.65	5265624.88	5315026.04	1017	292	2016
1825.00	57930.00	58859.00	485698.92	485711.28	5265635.18	5315010.95	1018	293	2016
1826.00	80349.00	81243.00	485794.68	485812.54	5265650.76	5315036.00	1017	292	2016
1827.00	59899.00	60804.00	485898.10	485909.64	5265644.94	5315015.45	1018	293	2016
1828.00	78389.00	79279.00	485998.16	486010.26	5265645.94	5315044.80	1017	292	2016
1829.00	61928.00	62834.00	486096.17	486109.24	5265612.48	5315003.55	1018	293	2016
1830.00	76459.00	77337.00	486196.92	486210.96	5265622.69	5315011.67	1017	292	2016
1831.00	63904.00	64812.00	486297.34	486311.97	5265639.55	5315015.67	1018	293	2016
1832.00	74520.00	75406.00	486396.19	486413.28	5265602.46	5315036.31	1017	292	2016
1833.00	65930.00	66850.00	486498.22	486513.78	5265603.75	5315031.58	1018	293	2016
1834.00	72576.00	73468.00	486595.97	486608.18	5265634.55	5315005.95	1017	292	2016
1835.00	67898.00	68789.00	486696.34	486711.74	5265646.10	5315030.86	1018	293	2016
1836.00	70589.00	71487.00	486793.31	486810.60	5265623.67	5315034.78	1017	292	2016
1837.00	69860.00	70821.00	486894.91	486908.64	5265637.75	5315002.16	1018	293	2016
1838.00	68627.00	69500.00	486997.27	487014.44	5265623.29	5315017.75	1017	292	2016
1839.00	81346.00	82226.00	487097.94	487111.03	5265617.64	5315036.49	1017	292	2016
1840.00	56936.00	57819.00	487196.36	487211.02	5265644.05	5315043.24	1018	293	2016
1841.00	79383.00	80248.00	487299.07	487311.88	5265630.34	5315029.90	1017	292	2016
1842.00	58958.00	59809.00	487397.78	487411.14	5265654.41	5315025.03	1018	293	2016
1843.00	77439.00	78294.00	487498.22	487509.77	5265658.51	5315016.26	1017	292	2016
1844.00	60957.00	61837.00	487593.42	487609.64	5265630.63	5314999.57	1018	293	2016
1845.00	75490.00	76357.00	487693.56	487711.06	5265606.29	5314998.45	1017	292	2016
1846.00	62923.00	63814.00	487797.24	487811.12	5265655.14	5315037.92	1018	293	2016
1847.00	73557.00	74423.00	487897.66	487914.50	5265647.28	5314998.99	1017	292	2016
1848.00	64935.00	65847.00	487997.93	488010.83	5265626.27	5315032.92	1018	293	2016
1849.00	71588.00	72471.00	488094.29	488110.79	5265634.33	5315001.86	1017	292	2016
1850.00	66945.00	67814.00	488199.05	488211.89	5265627.19	5315022.21	1018	293	2016
1851.00	69607.00	70482.00	488296.61	488310.39	5265601.70	5315008.56	1017	292	2016
1852.00	68872.00	69771.00	488395.61	488410.28	5265628.39	5315032.35	1018	293	2016
1853.00	67644.00	68523.00	488494.81	488513.11	5265616.55	5315040.24	1017	292	2016
1854.00	76392.00	77272.00	488595.66	488611.55	5265647.08	5315031.35	1015	289	2016
1855.00	75308.00	76230.00	488697.09	488710.84	5265602.21	5315003.40	1015	289	2016
1856.00	74311.00	75177.00	488797.53	488813.00	5265623.91	5315018.49	1015	289	2016
1857.00	71907.00	72796.00	488893.55	488910.59	5265631.43	5315028.00	1014	287	2016
1858.00	72368.00	73241.00	488993.08	489011.91	5265630.02	5315047.82	1015	289	2016
1859.00	69910.00	70803.00	489097.53	489112.43	5265621.51	5315006.48	1014	287	2016
1860.00	70319.00	71217.00	489198.08	489211.71	5265641.61	5315030.53	1015	289	2016
1861.00	67878.00	68756.00	489295.33	489312.61	5265620.77	5315042.48	1014	287	2016
1862.00	68336.00	69219.00	489396.02	489415.34	5265607.95	5315029.24	1015	289	2016
1863.00	65867.00	66759.00	489494.46	489512.67	5265610.97	5315011.69	1014	287	2016
1864.00	66299.00	67195.00	489591.94	489612.16	5265614.74	5315034.59	1015	289	2016
1865.00	63870.00	64757.00	489697.94	489711.42	5265624.12	5315031.46	1014	287	2016
1866.00	64257.00	65147.00	489797.45	489815.44	5265636.16	5315041.72	1015	289	2016
1867.00	61818.00	62700.00	489896.97	489913.62	5265634.74	5315036.60	1014	287	2016
1868.00	62237.00	63131.00	489998.97	490009.59	5265616.21	5315026.86	1015	289	2016
1869.00	59803.00	60688.00	490098.04	490112.00	5265611.04	5315037.78	1014	287	2016
1870.00	60144.00	61110.00	490198.30	490208.87	5265625.22	5315015.03	1015	289	2016
1871.00	57629.00	58529.00	490294.35	490310.74	5265634.86	5315003.81	1014	287	2016
1872.00	58024.00	58953.00	490397.22	490408.24	5265630.56	5315045.73	1015	289	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1873.00	73333.00	74230.00	490494.92	490512.49	5265649.99	5315006.19	1015	289	2016
1874.00	72921.00	73790.00	490596.80	490615.43	5265644.90	5315001.77	1014	287	2016
1875.00	71376.00	72276.00	490696.39	490711.42	5265611.87	5315001.34	1015	289	2016
1876.00	70926.00	71821.00	490798.02	490810.29	5265627.71	5315025.13	1014	287	2016
1877.00	69329.00	70206.00	490898.39	490913.17	5265638.59	5315029.85	1015	289	2016
1878.00	68916.00	69806.00	490996.21	491012.55	5265654.07	5315024.48	1014	287	2016
1879.00	67314.00	68242.00	491097.76	491111.94	5265640.61	5315044.09	1015	289	2016
1880.00	66856.00	67744.00	491198.10	491212.12	5265648.03	5315028.06	1014	287	2016
1881.00	65263.00	66181.00	491294.34	491311.02	5265628.70	5315005.09	1015	289	2016
1882.00	64855.00	65729.00	491397.66	491412.38	5265624.07	5315008.02	1014	287	2016
1883.00	63243.00	64153.00	491498.00	491512.49	5265654.96	5315045.17	1015	289	2016
1884.00	62827.00	63733.00	491597.34	491614.02	5265620.20	5315021.17	1014	287	2016
1885.00	61220.00	62142.00	491698.42	491710.51	5265615.39	5315049.24	1015	289	2016
1886.00	60809.00	61694.00	491797.08	491813.55	5265634.86	5315040.14	1014	287	2016
1887.00	59078.00	59996.00	491891.95	491911.42	5265644.38	5315019.35	1015	289	2016
1888.00	58650.00	59549.00	491996.86	492011.82	5265634.72	5314995.49	1014	287	2016
1889.00	57012.00	57929.00	492098.27	492111.04	5265604.64	5315015.34	1015	289	2016
1890.00	56592.00	57547.00	492196.39	492212.39	5265648.78	5315020.16	1014	287	2016
1891.00	54007.00	54865.00	492299.22	492314.78	5265632.41	5315036.25	1016	290	2016
1892.00	58247.00	59074.00	492397.18	492414.71	5265603.11	5315047.85	1025	306	2016
1893.00	55964.00	56816.00	492498.52	492513.28	5265611.30	5315028.10	1016	290	2016
1894.00	60087.00	60923.00	492596.33	492611.01	5265640.90	5315032.34	1025	306	2016
1895.00	57937.00	58805.00	492697.10	492730.03	5265612.29	5315021.84	1016	290	2016
1896.00	62013.00	62849.00	492790.25	492812.77	5265648.48	5315018.88	1025	306	2016
1897.00	60041.00	60923.00	492898.74	492910.55	5265614.07	5315036.13	1016	290	2016
1898.00	63830.00	64668.00	492995.87	493025.59	5265633.92	5315016.62	1025	306	2016
1899.00	61942.00	62801.00	493096.10	493109.45	5265640.58	5315041.05	1016	290	2016
1900.00	65706.00	66536.00	493189.27	493213.15	5265648.15	5315024.33	1025	306	2016
1901.00	63869.00	64727.00	493292.28	493310.19	5265649.49	5315000.10	1016	290	2016
1902.00	67565.00	68411.00	493396.99	493410.78	5265636.36	5314998.58	1025	306	2016
1903.00	65797.00	66677.00	493496.59	493510.43	5265613.88	5315025.03	1016	290	2016
1904.00	69473.00	70318.00	493596.69	493611.45	5265624.94	5314991.64	1025	306	2016
1905.00	67747.00	68588.00	493697.85	493714.78	5265640.97	5314026.73	1016	290	2016
1906.00	54977.00	55848.00	493799.70	493812.94	5265637.31	5314041.23	1016	290	2016
1907.00	69650.00	70510.00	493896.48	493910.52	5265611.44	5314047.28	1016	290	2016
1908.00	71326.00	72156.00	493999.81	494012.49	5265614.84	5314004.25	1025	306	2016
1909.00	55672.00	56498.00	494094.54	494114.21	5265658.88	5314022.58	1014	287	2016
1910.00	73203.00	74000.00	494197.65	494219.85	5265655.71	5314035.57	1025	306	2016
1911.00	56985.00	57842.00	494295.52	494311.74	5265620.13	5314019.41	1016	290	2016
1912.00	59132.00	59980.00	494399.27	494411.28	5265620.72	5314049.33	1016	290	2016
1913.01	71928.00	72760.00	494494.72	494512.46	5265662.77	5314010.24	1016	290	2016
1914.00	61001.00	61851.00	494598.13	494611.83	5265637.44	5313995.02	1016	290	2016
1915.00	58587.00	59430.00	494697.89	494711.84	5265620.64	5313996.80	2006	296	2016
1916.00	62881.00	63760.00	494798.54	494814.48	5265633.08	5314049.99	1016	290	2016
1917.00	57297.00	58138.00	494894.43	494910.00	5265652.96	5314047.51	1025	306	2016
1918.00	64836.00	65714.00	494999.93	495010.05	5265638.11	5313996.74	1016	290	2016
1919.00	59171.00	59992.00	495096.82	495112.93	5265605.78	5314038.28	1025	306	2016
1920.00	66763.00	67650.00	495197.98	495215.67	5265644.05	5314041.34	1016	290	2016
1921.00	61058.00	61898.00	495292.74	495315.01	5265646.98	5314021.62	1025	306	2016
1922.00	68689.00	69559.00	495397.30	495412.27	5265638.43	5314004.74	1016	290	2016
1923.00	62924.00	63734.00	495496.56	495514.26	5265640.78	5313993.26	1025	306	2016
1924.00	70591.00	71151.00	495596.42	495611.17	5282830.65	5314033.26	1016	290	2016
1924.01	71487.00	71808.00	495597.05	495610.66	5265652.10	5282998.73	1016	290	2016
1925.00	64767.00	65602.00	495693.41	495712.59	5265622.03	5314039.25	1025	306	2016
1926.00	72853.00	73742.00	495797.95	495808.92	5265616.78	5314011.54	1016	290	2016
1927.00	51718.00	52576.00	495893.67	495915.70	5265626.95	5314016.85	1021	297	2016
1928.00	76294.00	77097.00	495997.53	496011.88	5265648.03	5313994.05	1022	298	2016
1929.00	57508.00	58336.00	496098.47	496109.66	5265628.29	5314030.43	1022	298	2016
1930.00	58919.00	59760.00	496197.65	496211.68	5265601.25	5314031.82	1027	338	2016
1931.00	66627.00	67455.00	496296.27	496310.94	5265640.09	5314001.41	1025	306	2016
1932.00	60779.00	61636.00	496398.65	496408.32	5265629.00	5314034.51	1027	338	2016
1933.00	68525.00	69363.00	496493.67	496510.84	5265614.51	5314015.30	1025	306	2016
1934.00	62632.00	63145.00	496597.10	496616.76	5284862.10	5314044.29	1027	338	2016
1934.01	63479.00	63828.00	496596.70	496611.95	5265622.68	5284903.65	1027	338	2016
1935.00	70415.00	71243.00	496695.50	496714.07	5265663.18	5314005.97	1025	306	2016
1936.00	64839.00	65715.00	496792.25	496813.39	5265641.93	5313997.06	1027	338	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1937.00	72273.00	73114.00	496893.55	496911.87	5265625.85	5314005.34	1025	306	2016
1938.00	66720.00	67564.00	496993.24	497013.01	5265633.97	5314024.54	1027	338	2016
1939.00	74082.00	74916.00	497094.70	497113.97	5265609.10	5313995.88	1025	306	2016
1940.00	68538.00	69403.00	497193.00	497211.08	5265601.94	5314040.86	1027	338	2016
1941.00	75872.00	76680.00	497296.31	497312.79	5265655.99	5314033.36	1025	306	2016
1942.00	70359.00	71211.00	497397.86	497415.26	5265604.35	5314045.05	1027	338	2016
1943.00	58984.00	59812.00	497494.57	497512.34	5265663.42	5314034.39	1026	307	2016
1944.00	72221.00	73067.00	497597.56	497613.52	5265657.91	5314019.24	1027	338	2016
1945.00	75384.00	76223.00	497702.20	497713.69	5265658.50	5314038.08	1022	298	2016
1946.00	52671.00	53214.00	497800.14	497814.48	5281854.60	5314020.44	1021	297	2016
1946.01	78098.00	78383.00	497800.93	497811.96	5265621.80	5281911.90	3014	352	2016
1947.00	60792.00	61622.00	497898.42	497912.13	5265629.69	5314038.83	1026	307	2016
1948.00	74087.00	74980.00	497995.31	498014.67	5265608.75	5314016.53	1027	338	2016
1949.00	62594.00	63423.00	498099.01	498115.85	5265655.42	5314029.85	1026	307	2016
1950.00	74404.00	75230.00	498196.69	498214.65	5265648.35	5314022.36	2014	343	2016
1951.00	64419.00	65243.00	498298.49	498310.27	5265601.28	5314023.65	1026	307	2016
1952.00	76285.00	77085.00	498388.38	498415.97	5265623.85	5314023.84	2014	343	2016
1953.00	66215.00	67036.00	498495.79	498511.51	5265650.15	5313994.86	1026	307	2016
1954.00	58570.00	59409.00	498597.23	498609.22	5265614.65	5313999.25	2015	344	2016
1955.00	68032.00	68884.00	498698.30	498716.04	5265605.70	5313998.37	1026	307	2016
1956.00	60453.00	61289.00	498788.45	498807.98	5265642.89	5314042.16	2015	344	2016
1957.00	69848.00	70677.00	498898.95	498911.25	5265613.60	5314008.19	1026	307	2016
1958.00	74986.00	75791.00	498993.73	499013.28	5265617.78	5314007.44	1025	306	2016
1959.00	73452.00	74282.00	499098.64	499111.65	5265648.24	5314032.10	1026	307	2016
1960.00	76763.00	77547.00	499196.56	499211.44	5265610.30	5314038.14	1025	306	2016
1961.00	75257.00	76092.00	499299.17	499313.66	5265628.32	5313994.51	1026	307	2016
1962.00	59889.00	60708.00	499397.84	499410.54	5265624.74	5314047.29	1026	307	2016
1963.00	71662.00	72499.00	499498.67	499511.67	5265626.77	5314023.64	1026	307	2016
1964.00	74467.00	75283.00	499599.98	499610.95	5265646.62	5314015.71	1022	298	2016
1965.00	58000.00	58802.00	499697.38	499709.88	5265623.77	5314010.08	1027	338	2016
1966.00	61703.00	62518.00	499792.25	499816.80	5265635.78	5314017.80	1026	307	2016
1967.00	59865.00	60676.00	499893.82	499910.85	5265609.28	5314009.24	1027	338	2016
1968.00	63500.00	64338.00	499995.61	500010.83	5265640.99	5314034.32	1026	307	2016
1969.00	61733.00	62520.00	500100.57	500112.76	5265645.73	5314025.96	1027	338	2016
1970.00	65336.00	66144.00	500192.76	500214.05	5265628.28	5314027.22	1026	307	2016
1971.00	63937.00	64742.00	500294.15	500310.06	5265610.62	5314022.30	1027	338	2016
1972.00	67130.00	67962.00	500396.74	500410.00	5265603.22	5314009.00	1026	307	2016
1973.00	65817.00	66608.00	500492.95	500515.72	5265645.46	5314039.53	1027	338	2016
1974.00	68961.00	69775.00	500597.75	500614.59	5265644.99	5314042.25	1026	307	2016
1975.00	67664.00	68433.00	500696.79	500711.95	5265633.12	5314020.83	1027	338	2016
1976.00	70753.00	71592.00	500797.71	500813.17	5265651.29	5314037.79	1026	307	2016
1977.00	69493.00	70248.00	500889.18	500915.56	5265639.28	5313991.15	1027	338	2016
1978.00	72569.00	73376.00	500994.82	501012.28	5265625.60	5314004.35	1026	307	2016
1979.00	71312.00	72117.00	501093.37	501111.22	5265640.56	5314026.42	1027	338	2016
1980.00	74346.00	75167.00	501199.32	501212.69	5265628.01	5314019.34	1026	307	2016
1981.00	73164.00	73970.00	501292.80	501310.49	5265651.69	5314015.06	1027	338	2016
1982.00	76161.00	76954.00	501394.74	501411.09	5265650.47	5314022.62	1026	307	2016
1983.00	73551.00	74382.00	501499.27	501511.98	5265652.76	5314016.43	1022	298	2016
1984.00	65370.00	66223.00	501599.61	501610.00	5265639.06	5314014.73	2015	344	2016
1985.00	72166.00	72738.00	501699.46	501715.61	5265651.16	5297916.48	2014	343	2016
1985.01	65540.00	65817.00	501702.00	501709.35	5297868.38	5314009.41	2016	345	2016
1986.00	67269.00	68120.00	501794.23	501810.63	5265643.77	5314040.09	2015	344	2016
1987.00	73451.00	74308.00	501895.85	501915.57	5265640.27	5314006.53	2014	343	2016
1988.00	63488.00	64330.00	501999.20	502012.68	5265604.51	5314021.47	2015	344	2016
1989.00	75349.00	76194.00	502094.41	502112.91	5265615.70	5314030.80	2014	343	2016
1990.00	77071.00	77940.00	502198.47	502209.81	5265628.44	5314018.37	2016	345	2016
1991.00	57635.00	58463.00	502296.65	502310.77	5265625.31	5314048.46	2015	344	2016
1992.00	75592.00	76112.00	502398.53	502415.16	5265625.48	5295908.24	1030	348	2016
1992.01	67758.00	68075.00	502403.48	502413.52	5295862.40	5314043.47	3014	352	2016
1993.00	59509.00	60348.00	502498.94	502508.48	5265608.36	5314030.54	2015	344	2016
1994.00	75530.00	76352.00	502599.37	502609.46	5265621.18	5313991.79	2019	351	2016
1995.00	61382.00	62206.00	502696.08	502712.31	5265618.60	5314039.89	2015	344	2016
1996.00	65772.00	66609.00	502799.63	502812.46	5265621.69	5314044.57	3014	352	2016
1997.00	74809.00	75318.00	502897.75	502914.82	5265624.90	5295930.29	1030	348	2016
1997.01	68295.00	68640.00	502895.47	502911.88	5295876.06	5314023.74	3014	352	2016
1998.00	72747.00	73586.00	502995.62	503009.89	5265624.21	5314020.98	3014	352	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1999.00	56342.00	57195.00	503100.02	503110.50	5265608.98	5314025.60	2018	350	2016
2000.00	79177.00	79944.00	503193.44	503213.97	5265666.02	5314023.72	2020	352	2016
2001.00	69722.00	70653.00	503296.56	503312.50	5265609.40	5314037.19	3014	352	2016
2002.00	72671.00	73485.00	503395.79	503413.62	5265637.47	5314025.38	1022	298	2016
2003.00	61981.00	62841.00	503500.32	503513.68	5265612.84	5313999.69	2020	352	2016
2004.00	74741.00	75579.00	503596.53	503610.10	5265622.69	5314007.38	3014	352	2016
2005.00	71720.00	72640.00	503696.15	503712.23	5265647.77	5314036.36	3014	352	2016
2006.00	76752.00	77592.00	503789.01	503811.23	5265618.56	5314045.07	3014	352	2016
2007.00	66737.00	67664.00	503893.88	503914.74	5265603.31	5314040.56	3014	352	2016
2008.00	73718.00	74624.00	503998.89	504013.02	5265653.47	5314044.63	3014	352	2016
2009.00	63522.00	64397.00	504096.12	504110.83	5265610.18	5314042.63	3014	352	2016
2010.00	75712.00	76622.00	504195.58	504218.77	5265627.43	5314004.11	3014	352	2016
2011.00	56495.00	57343.00	504296.05	504316.80	5265637.30	5313998.14	3013	351	2016
2012.00	70760.00	71602.00	504398.03	504414.12	5265630.86	5313991.16	3014	352	2016
2013.00	64635.00	65451.00	504495.51	504515.27	5265643.64	5314032.37	2016	345	2016
2014.00	68758.00	69614.00	504600.47	504614.12	5265606.20	5314044.95	3014	352	2016
2015.00	68197.00	68679.00	504697.95	504719.02	5265613.99	5293900.79	2015	344	2016
2015.01	66037.00	66394.00	504701.57	504711.11	5293900.55	5314005.75	2016	345	2016
2016.00	76036.00	76907.00	504797.28	504812.36	5265602.01	5314020.58	3013	351	2016
2017.00	66312.00	67176.00	504897.08	504909.94	5265632.67	5313998.21	2015	344	2016
2018.00	76310.00	77133.00	504997.67	505012.29	5265622.82	5313999.86	2018	350	2016
2019.00	64421.00	65271.00	505099.17	505116.73	5265613.13	5314027.40	2015	344	2016
2020.00	62289.00	62801.00	505198.86	505207.72	5284745.54	5314007.72	2015	344	2016
2021.00	72089.00	72589.00	505300.18	505309.50	5284747.62	5314013.83	1022	298	2016
2022.00	65107.00	65669.00	505399.71	505410.26	5284706.11	5314024.32	3014	352	2016
2023.00	75384.00	75935.00	505496.33	505508.44	5284745.95	5314025.16	3013	351	2016
2024.00	68587.00	69097.00	505599.54	505612.81	5284709.73	5314012.54	3013	351	2016
2025.00	74154.00	74685.00	505696.30	505708.67	5284740.68	5314016.16	3013	351	2016
2026.00	63639.00	64162.00	505799.79	505812.36	5284719.39	5314036.43	3013	351	2016
2027.00	72906.00	73461.00	505894.08	505910.65	5284734.87	5314037.13	3013	351	2016
2028.00	64877.00	65392.00	505998.94	506014.40	5284732.79	5314031.47	3013	351	2016
2029.00	71649.00	72193.00	506097.55	506110.98	5284708.70	5314000.40	3013	351	2016
2030.00	66100.00	66616.00	506200.81	506215.95	5284747.49	5314002.86	3013	351	2016
2031.00	70411.00	70944.00	506298.42	506312.43	5284752.99	5314018.72	3013	351	2016
2032.00	67361.00	67879.00	506396.47	506412.61	5284758.12	5314035.13	3013	351	2016
2033.00	69193.00	69711.00	506493.80	506512.03	5284709.43	5314011.62	3013	351	2016
2034.00	64479.00	64978.00	506599.85	506614.17	5284724.64	5314029.10	3014	352	2016
2035.00	62869.00	63374.00	506700.11	506709.73	5284753.96	5314005.47	2015	344	2016
2036.00	71494.00	71982.00	506800.31	506811.73	5284724.57	5314045.69	1022	298	2016
2037.00	62985.00	63518.00	506898.15	506910.85	5284707.92	5314039.84	3013	351	2016
2038.00	74785.00	75295.00	506998.51	507009.28	5284745.88	5314040.18	3013	351	2016
2039.00	64255.00	64783.00	507100.99	507112.57	5284705.90	5313993.65	3013	351	2016
2040.00	73553.00	74064.00	507194.70	507210.70	5284718.64	5314006.48	3013	351	2016
2041.00	65486.00	66002.00	507296.53	507310.60	5284736.12	5314043.42	3013	351	2016
2042.00	72300.00	72821.00	507400.43	507411.46	5284720.49	5314031.36	3013	351	2016
2043.00	66721.00	67257.00	507498.96	507513.15	5284714.28	5314017.68	3013	351	2016
2044.00	71036.00	71559.00	507596.26	507609.13	5284709.95	5313995.18	3013	351	2016
2045.00	67981.00	68500.00	507696.38	507714.44	5284721.03	5314010.30	3013	351	2016
2046.00	69804.00	70316.00	507798.23	507813.58	5284722.89	5314047.18	3013	351	2016
2047.00	72151.00	72665.00	507898.41	507909.41	5284736.23	5314015.75	2018	350	2016
2048.00	57458.00	57973.00	507996.84	508009.57	5284742.76	5314041.02	3013	351	2016
2049.00	70934.00	71428.00	508095.66	508112.68	5284721.00	5314003.13	2018	350	2016
2050.00	58687.00	59192.00	508199.95	508211.60	5284718.50	5313997.82	3013	351	2016
2051.00	69812.00	70298.00	508300.34	508318.90	5284722.60	5314043.65	2018	350	2016
2052.00	59922.00	60438.00	508399.61	508412.63	5284749.73	5314000.97	3013	351	2016
2053.00	68637.00	69157.00	508500.42	508510.90	5284705.41	5314008.28	2018	350	2016
2054.00	61176.00	61684.00	508598.72	508612.40	5284746.24	5314011.92	3013	351	2016
2055.00	70900.00	71407.00	508691.40	508711.43	5284707.70	5314034.64	1022	298	2016
2056.00	62386.00	62898.00	508798.43	508810.70	5284742.22	5314003.12	3013	351	2016
2057.00	67384.00	67900.00	508899.90	508912.18	5284734.71	5314000.21	2018	350	2016
2058.00	75066.00	75597.00	508995.77	509007.62	5284736.31	5313999.18	2018	350	2016
2059.00	66222.00	66722.00	509101.75	509113.02	5284706.24	5314016.13	2018	350	2016
2060.00	73909.00	74404.00	509196.66	509208.53	5284751.95	5314003.65	2018	350	2016
2061.00	65057.00	65566.00	509300.85	509311.55	5284755.42	5314036.38	2018	350	2016
2062.00	72752.00	73276.00	509394.37	509412.26	5284723.61	5314042.36	2018	350	2016
2063.00	58070.00	58584.00	509496.50	509515.58	5284743.96	5314020.46	3013	351	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
2064.00	71528.00	72062.00	509598.87	509609.35	5284737.47	5314049.24	2018	350	2016
2065.00	59286.00	59819.00	509701.03	509711.73	5284748.94	5314017.37	3013	351	2016
2066.00	70371.00	70878.00	509794.47	509812.47	5284743.35	5314046.35	2018	350	2016
2067.00	60546.00	61087.00	509898.30	509910.80	5284715.78	5314025.09	3013	351	2016
2068.00	69238.00	69757.00	510000.35	510015.67	5284713.00	5314008.21	2018	350	2016
2069.00	61774.00	62299.00	510093.69	510113.07	5284716.74	5314018.63	3013	351	2016
2070.00	67995.00	68535.00	510200.89	510209.46	5284728.05	5314022.43	2018	350	2016
2071.00	75687.00	76185.00	510298.08	510308.12	5284739.54	5314012.89	2018	350	2016
2072.00	66806.00	67318.00	510399.02	510410.07	5284737.88	5314049.49	2018	350	2016
2073.00	74463.00	74974.00	510496.68	510509.40	5284736.45	5314005.96	2018	350	2016
2074.00	70333.00	70817.00	510593.95	510617.47	5284754.50	5314039.47	1022	298	2016
2075.00	73342.00	73837.00	510698.91	510709.06	5284719.18	5313996.06	2018	350	2016
2076.00	65633.00	66134.00	510800.49	510809.45	5284736.34	5314002.30	2018	350	2016
2077.00	75246.00	75747.00	510897.06	510915.71	5284758.52	5314045.36	2016	345	2016
2078.00	64458.00	64964.00	511001.08	511010.25	5284719.21	5314001.43	2018	350	2016
2079.00	74092.00	74605.00	511100.23	511109.34	5284745.87	5314025.28	2016	345	2016
2080.00	63242.00	63745.00	511200.10	511213.16	5284732.70	5314020.64	2018	350	2016
2081.00	72919.00	73438.00	511300.45	511309.29	5284715.21	5314015.35	2016	345	2016
2082.00	62115.00	62613.00	511397.67	511410.52	5284716.81	5314042.66	2018	350	2016
2083.00	71762.00	72268.00	511497.97	511516.79	5284748.48	5314000.46	2016	345	2016
2084.00	60916.00	61428.00	511598.96	511611.21	5284719.56	5314034.98	2018	350	2016
2085.00	70587.00	71111.00	511700.90	511711.85	5284741.20	5314030.25	2016	345	2016
2086.00	59718.00	60218.00	511800.24	511811.10	5284723.94	5314044.47	2018	350	2016
2087.00	69433.00	69942.00	511897.93	511909.74	5284736.61	5314008.90	2016	345	2016
2088.00	58577.00	59072.00	511995.32	512013.71	5284741.43	5314039.02	2018	350	2016
2089.00	68293.00	68801.00	512096.10	512114.02	5284727.86	5314035.84	2016	345	2016
2090.00	57396.00	57902.00	512199.71	512207.13	5284721.00	5313998.59	2018	350	2016
2091.00	67152.00	67663.00	512299.17	512313.38	5284741.87	5314031.18	2016	345	2016
2092.00	75811.00	76295.00	512396.27	512409.83	5284722.59	5314003.57	2016	345	2016
2093.00	69742.00	70264.00	512489.47	512516.58	5284713.28	5314044.77	1022	298	2016
2094.00	74676.00	75187.00	512599.47	512614.22	5284728.64	5314030.16	2016	345	2016
2095.00	63831.00	64349.00	512700.07	512710.22	5284727.87	5314043.24	2018	350	2016
2096.00	73524.00	74030.00	512799.36	512809.78	5284706.40	5314003.96	2016	345	2016
2097.00	62669.00	63178.00	512897.02	512912.88	5284743.76	5314023.32	2018	350	2016
2098.00	72356.00	72854.00	512998.59	513015.12	5284756.39	5314020.03	2016	345	2016
2099.00	61527.00	62048.00	513097.52	513110.40	5284716.79	5314011.17	2018	350	2016
2100.00	71181.00	71698.00	513195.67	513213.89	5284733.39	5314031.41	2016	345	2016
2101.00	60308.00	60822.00	513298.34	513309.06	5284749.33	5314016.43	2018	350	2016
2102.00	70004.00	70521.00	513401.28	513412.79	5284754.40	5314022.10	2016	345	2016
2103.00	59138.00	59645.00	513497.00	513514.80	5284704.25	5314000.55	2018	350	2016
2104.00	68869.00	69367.00	513598.56	513610.63	5284740.07	5314028.64	2016	345	2016
2105.00	58003.00	58512.00	513699.48	513709.92	5284709.83	5314025.14	2018	350	2016
2106.00	67715.00	68224.00	513798.17	513812.77	5284746.43	5314049.88	2016	345	2016
2107.00	76357.00	76857.00	513896.58	513910.90	5284755.18	5314017.46	2016	345	2016
2108.00	66571.00	67084.00	514001.98	514011.85	5284747.20	5313994.36	2016	345	2016
2109.00	77422.00	77955.00	514100.02	514111.61	5284761.66	5314007.36	2006	296	2016
2110.00	78091.00	78600.00	514198.01	514210.71	5284716.96	5313994.89	2006	296	2016
2111.00	51596.00	52151.00	514299.18	514311.61	5284714.20	5314031.31	1013	285	2016
2112.00	69174.00	69675.00	514388.46	514414.31	5284761.77	5314037.97	1022	298	2016
2113.00	72984.00	73485.00	514496.89	514512.45	5284760.93	5314006.46	1012	284	2016
2114.00	67996.00	68487.00	514599.69	514616.85	5284714.49	5314022.23	1022	298	2016
2115.00	71135.00	71624.00	514694.85	514711.49	5284752.19	5313995.12	1012	284	2016
2116.00	66851.00	67336.00	514797.72	514809.78	5284741.67	5314044.58	1022	298	2016
2117.00	69707.00	70216.00	514896.84	514910.81	5284726.53	5314030.58	1012	284	2016
2118.00	65706.00	66195.00	514998.85	515011.59	5284703.32	5314025.04	1022	298	2016
2119.00	68272.00	68790.00	515095.10	515109.90	5284752.24	5314003.93	1012	284	2016
2120.00	64548.00	65031.00	515198.93	515209.64	5284709.56	5313997.34	1022	298	2016
2121.00	66918.00	67435.00	515294.82	515312.91	5284721.96	5313992.97	1012	284	2016
2122.00	63371.00	63862.00	515392.66	515411.21	5284757.49	5313989.60	1022	298	2016
2123.00	65516.00	66019.00	515492.60	515509.62	5284705.17	5314007.27	1012	284	2016
2124.00	62202.00	62698.00	515594.29	515610.88	5284717.91	5313995.14	1022	298	2016
2125.00	64177.00	64681.00	515694.86	515711.07	5284743.95	5313992.33	1012	284	2016
2126.00	61014.00	61508.00	515800.61	515808.53	5284719.12	5314040.29	1022	298	2016
2127.00	62770.00	63290.00	515898.26	515914.37	5284706.52	5314010.39	1012	284	2016
2128.00	59874.00	60355.00	515994.02	516011.38	5284743.97	5314031.54	1022	298	2016
2129.00	61432.00	61943.00	516093.78	516107.69	5284707.47	5314004.44	1012	284	2016



**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
2130.00	58724.00	59230.00	516199.02	516209.41	5284753.61	5314028.69	1022	298	2016
2131.00	68579.00	69094.00	516297.65	516308.15	5284733.52	5314005.50	1022	298	2016
2132.00	52235.00	52794.00	516399.20	516410.07	5284740.71	5314045.72	1013	285	2016
2133.00	67413.00	67920.00	516497.90	516510.95	5284759.32	5314010.75	1022	298	2016
2134.00	73603.00	74280.00	516576.49	516613.04	5284734.61	5314020.14	1012	284	2016
2135.00	66277.00	66780.00	516701.52	516712.86	5284716.83	5314006.17	1022	298	2016
2136.00	71744.00	72442.00	516799.09	516813.12	5284716.23	5314022.03	1012	284	2016
2137.00	65110.00	65610.00	516897.54	516908.76	5284719.42	5314029.70	1022	298	2016
2138.00	70336.00	71030.00	516995.89	517013.02	5284707.50	5314034.40	1012	284	2016
2139.00	63958.00	64453.00	517098.69	517109.06	5284731.26	5314014.39	1022	298	2016
2140.00	68932.00	69575.00	517199.44	517212.91	5284732.16	5314018.88	1012	284	2016
2141.00	62783.00	63285.00	517299.35	517310.44	5284751.31	5314004.00	1022	298	2016
2142.00	67534.00	68182.00	517395.99	517411.79	5284714.07	5314042.35	1012	284	2016
2143.00	61602.00	62107.00	517497.05	517509.32	5284754.59	5314033.48	1022	298	2016
2144.00	66155.00	66780.00	517598.73	517612.48	5284732.85	5314042.08	1012	284	2016
2145.00	60441.00	60929.00	517698.45	517708.20	5284734.55	5314031.62	1022	298	2016
2146.00	64775.00	65411.00	517798.09	517812.45	5284730.76	5314011.26	1012	284	2016
2147.00	59293.00	59791.00	517898.92	517911.86	5284706.68	5314017.02	1022	298	2016
2148.00	63405.00	64050.00	517998.27	518012.27	5284741.37	5314016.74	1012	284	2016
2149.00	71589.00	72116.00	518095.19	518110.35	5284749.12	5314008.70	1011	283	2016
2150.00	62085.00	62687.00	518196.50	518211.03	5284740.47	5314000.06	1012	284	2016
2151.00	70198.00	70729.00	518299.56	518313.25	5284731.00	5314031.13	1011	283	2016
2152.00	55254.00	55810.00	518396.24	518416.37	5284733.41	5313994.78	1011	283	2016
2153.00	68784.00	69306.00	518492.97	518510.49	5284716.89	5313996.69	1011	283	2016
2154.00	53943.00	54498.00	518600.60	518610.56	5284731.16	5314005.45	1011	283	2016
2155.00	67405.00	67949.00	518698.83	518714.08	5284738.61	5314047.55	1011	283	2016
2156.00	80729.00	81236.00	518800.13	518814.27	5284734.69	5314017.13	1010	282	2016
2157.00	66051.00	66576.00	518899.36	518911.95	5284734.51	5314038.12	1011	283	2016
2158.00	79499.00	80020.00	519001.58	519008.69	5284707.58	5314006.91	1010	282	2016
2159.00	64715.00	65247.00	519095.14	519113.73	5284727.28	5314037.23	1011	283	2016
2160.00	78235.00	78755.00	519198.64	519215.86	5284716.54	5314017.32	1010	282	2016
2161.00	63398.00	63899.00	519297.56	519310.97	5284719.59	5314027.14	1011	283	2016
2162.00	76983.00	77502.00	519397.88	519411.81	5284716.26	5314035.48	1010	282	2016
2163.00	61936.00	62454.00	519496.24	519511.19	5284728.94	5314038.80	1011	283	2016
2164.00	75706.00	76233.00	519589.90	519613.48	5284743.25	5314044.53	1010	282	2016
2165.00	60616.00	61137.00	519695.06	519714.00	5284737.56	5314021.62	1011	283	2016
2166.00	74472.00	74994.00	519799.61	519809.63	5284704.98	5314043.80	1010	282	2016
2167.00	59323.00	59850.00	519898.86	519909.64	5284744.32	5314033.09	1011	283	2016
2168.00	73213.00	73735.00	519997.02	520010.40	5284729.16	5313992.74	1010	282	2016
2169.00	58027.00	58540.00	520098.69	520110.14	5284752.80	5313997.82	1011	283	2016
2170.00	71988.00	72514.00	520199.57	520207.28	5284704.34	5314016.84	1010	282	2016
2171.00	55882.00	56394.00	520293.12	520314.19	5284754.45	5314040.80	1011	283	2016
2172.00	70640.00	71194.00	520399.41	520411.36	5284716.68	5314038.27	1010	282	2016
2173.00	54601.00	55121.00	520498.01	520508.03	5284718.83	5313995.90	1011	283	2016
2174.00	70869.00	71486.00	520598.22	520617.23	5284740.63	5314021.31	1011	283	2016
2175.00	53309.00	53841.00	520698.56	520710.05	5284754.91	5314024.47	1011	283	2016
2176.00	69464.00	70083.00	520799.27	520813.39	5284739.09	5314023.89	1011	283	2016
2177.00	80099.00	80627.00	520900.66	520910.45	5284753.63	5314020.99	1010	282	2016
2178.00	68049.00	68639.00	520998.95	521011.10	5284750.97	5314047.75	1011	283	2016
2179.00	78863.00	79424.00	521095.47	521111.10	5284724.98	5314006.27	1010	282	2016
2180.00	66725.00	67281.00	521198.98	521215.09	5284708.67	5314016.09	1011	283	2016
2181.00	77591.00	78142.00	521298.21	521309.35	5284705.42	5314017.07	1010	282	2016
2182.00	65348.00	65946.00	521395.43	521409.37	5284728.73	5314045.12	1011	283	2016
2183.00	76343.00	76902.00	521499.44	521511.96	5284717.73	5314033.61	1010	282	2016
2184.00	64042.00	64576.00	521597.22	521611.84	5284709.50	5314038.02	1011	283	2016
2185.00	75075.00	75623.00	521698.72	521711.42	5284725.85	5314009.64	1010	282	2016
2186.00	62621.00	63165.00	521798.28	521811.04	5284715.24	5314043.68	1011	283	2016
2187.00	73845.00	74395.00	521896.06	521909.05	5284751.27	5314035.99	1010	282	2016
2188.00	61255.00	61806.00	521998.02	522013.06	5284757.21	5314047.71	1011	283	2016
2189.00	72592.00	73127.00	522099.24	522107.80	5284726.37	5314036.37	1010	282	2016
2190.00	59992.00	60533.00	522197.82	522211.02	5284713.43	5314014.89	1011	283	2016
2191.00	71293.00	71905.00	522294.60	522313.29	5284735.72	5314017.20	1010	282	2016
2192.00	58647.00	59179.00	522398.50	522414.62	5284703.43	5314043.79	1011	283	2016
2193.00	69987.00	70508.00	522497.12	522508.92	5284750.21	5314014.04	1010	282	2016
2194.00	57368.00	57919.00	522598.98	522615.60	5284753.76	5314020.50	1011	283	2016
3195.00	64498.00	64733.00	522700.26	522714.78	5292784.11	5305995.05	2023	6	2017

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
3196.00	66252.00	66490.00	522797.48	522809.72	5292758.96	5306006.03	2023	6	2017
3197.00	63816.00	64052.00	522897.87	522911.53	5292775.63	5305994.15	2023	6	2017
3198.00	65540.00	65781.00	523000.89	523008.57	5292774.30	5306032.76	2023	6	2017
3199.00	63110.00	63351.00	523097.11	523109.70	5292806.28	5306009.12	2023	6	2017
3200.00	66621.00	66850.00	523199.29	523211.69	5292763.41	5306032.98	2023	6	2017
3201.00	62418.00	62656.00	523301.63	523309.36	5292765.76	5305994.35	2023	6	2017
3202.00	64838.00	65080.00	523398.55	523408.97	5292786.40	5306038.70	2023	6	2017
3203.00	65903.00	66140.00	523501.07	523508.29	5292758.80	5306000.34	2023	6	2017
3204.00	64157.00	64391.00	523597.54	523611.23	5292784.53	5306005.68	2023	6	2017
3205.00	65190.00	65423.00	523697.27	523711.58	5292764.25	5306031.77	2023	6	2017
3206.00	63467.00	63704.00	523800.03	523810.70	5292762.86	5306028.10	2023	6	2017
3207.00	76547.00	76785.00	523894.96	523910.30	5292780.99	5306021.35	2020	352	2016
3208.00	62772.00	63011.00	523999.87	524009.15	5292774.72	5306036.57	2023	6	2017
3209.00	75956.00	76191.00	524098.86	524109.95	5292752.26	5306040.49	2020	352	2016
3210.00	62066.00	62305.00	524201.84	524215.68	5292778.17	5306011.15	2023	6	2017
3211.00	75349.00	75590.00	524297.31	524310.74	5292788.02	5306002.01	2020	352	2016
3212.00	61400.00	61639.00	524389.41	524411.50	5292768.13	5306047.63	2023	6	2017
3213.00	74677.00	74923.00	524499.06	524509.33	5292798.66	5306003.95	2020	352	2016
3214.00	60741.00	60980.00	524597.69	524613.61	5292768.80	5306045.54	2023	6	2017
3215.00	73981.00	74224.00	524696.78	524707.80	5292767.24	5305998.59	2020	352	2016
3216.00	60086.00	60320.00	524801.01	524813.43	5292801.67	5306014.42	2023	6	2017
3217.00	73346.00	73582.00	524898.93	524912.20	5292789.93	5306009.47	2020	352	2016
3218.00	59423.00	59658.00	525001.76	525014.24	5292774.17	5306009.64	2023	6	2017
3219.00	72748.00	72989.00	525096.95	525125.45	5292775.37	5306045.36	2020	352	2016
3220.00	78233.00	78459.00	525200.03	525209.03	5292781.89	5306037.04	2020	352	2016
3221.00	72106.00	72345.00	525299.96	525313.01	5292797.93	5306026.34	2020	352	2016
3222.00	77563.00	77789.00	525402.36	525407.57	5292763.21	5306026.83	2020	352	2016
3223.00	71441.00	71681.00	525500.64	525508.93	5292765.52	5305998.83	2020	352	2016
3224.00	76923.00	77156.00	525601.46	525610.81	5292793.26	5306007.26	2020	352	2016
3225.00	70741.00	70983.00	525701.61	525709.16	5292770.02	5306002.09	2020	352	2016
3226.00	76250.00	76478.00	525790.35	525813.78	5292757.11	5306038.32	2020	352	2016
3227.00	61732.00	61972.00	525900.67	525910.78	5292766.64	5306020.60	2023	6	2017
3228.00	75650.00	75877.00	525997.46	526011.80	5292808.03	5305997.83	2020	352	2016
3229.00	61069.00	61305.00	526100.32	526109.96	5292755.55	5306049.02	2023	6	2017
3230.00	75023.00	75251.00	526200.55	526206.64	5292772.15	5306043.47	2020	352	2016
3231.00	60409.00	60649.00	526301.96	526310.10	5292755.53	5306049.13	2023	6	2017
3232.00	74335.00	74565.00	526397.31	526407.93	5292788.08	5306010.71	2020	352	2016
3233.00	59760.00	59994.00	526495.74	526512.12	5292776.25	5306020.21	2023	6	2017
3234.00	73646.00	73879.00	526594.32	526608.32	5292800.16	5306046.13	2020	352	2016
3235.00	78525.00	78749.00	526694.47	526710.77	5292768.24	5306017.49	2020	352	2016
3236.00	73054.00	73283.00	526798.68	526811.80	5292764.01	5306024.74	2020	352	2016
3237.00	77889.00	78135.00	526898.37	526907.17	5292796.53	5306002.33	2020	352	2016
3238.00	71788.00	72018.00	526997.54	527007.82	5292771.98	5306035.89	2020	352	2016
3239.00	77225.00	77459.00	527099.48	527106.24	5292766.38	5306041.96	2020	352	2016
3240.00	71091.00	71330.00	527201.08	527208.49	5292797.85	5306017.80	2020	352	2016
3241.00	72413.00	72646.00	527300.80	527308.37	5292764.33	5306014.28	2020	352	2016
3242.00	70399.00	70639.00	527403.01	527409.37	5292765.86	5306002.56	2020	352	2016
3243.00	65574.00	65807.00	527501.23	527516.88	5292787.97	5306024.77	2020	352	2016
3244.00	69764.00	69990.00	527601.67	527615.07	5292776.17	5306016.34	2020	352	2016
3245.00	64961.00	65192.00	527697.35	527711.96	5292764.56	5306003.01	2020	352	2016
3246.00	69141.00	69363.00	527800.79	527817.48	5292804.02	5306042.00	2020	352	2016
3247.00	64344.00	64587.00	527900.49	527909.15	5292754.75	5306047.75	2020	352	2016
3248.00	68533.00	68769.00	528000.62	528012.68	5292770.27	5306024.14	2020	352	2016
3249.00	63672.00	63914.00	528100.28	528108.97	5292770.87	5306004.75	2020	352	2016
3250.00	67896.00	68134.00	528202.61	528210.87	5292792.86	5306009.00	2020	352	2016
3251.00	74839.00	75075.00	528290.56	528308.11	5292787.55	5306011.85	2019	351	2016
3252.00	67218.00	67456.00	528400.21	528409.95	5292796.58	5306002.35	2020	352	2016
3253.00	74210.00	74443.00	528494.00	528509.45	5292754.65	5306032.02	2019	351	2016
3254.00	66555.00	66784.00	528604.34	528609.86	5292757.06	5306048.85	2020	352	2016
3255.00	73582.00	73820.00	528698.96	528710.86	5292779.01	5306031.70	2019	351	2016
3256.00	65919.00	66147.00	528801.08	528809.76	5292763.22	5305995.46	2020	352	2016
3257.00	72936.00	73173.00	528898.93	528910.76	5292769.00	5306029.39	2019	351	2016
3258.00	65267.00	65498.00	528997.48	529007.34	5292763.67	5306040.17	2020	352	2016
3259.00	70064.00	70302.00	529097.27	529109.84	5292792.98	5306006.97	2020	352	2016
3260.00	64669.00	64894.00	529197.87	529212.71	5292766.75	5306043.54	2020	352	2016
3261.00	69430.00	69671.00	529301.47	529312.37	5292762.94	5306009.47	2020	352	2016

**FLOWN LINES - GAMMA-RAY**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
3262.00	64012.00	64245.00	529401.75	529409.10	5292750.23	5306028.00	2020	352	2016
3263.00	68834.00	69069.00	529497.99	529510.77	5292751.81	5306011.15	2020	352	2016
3264.00	63345.00	63573.00	529602.25	529609.39	5292774.25	5306012.61	2020	352	2016
3265.00	68227.00	68463.00	529701.80	529712.44	5292770.82	5306034.49	2020	352	2016
3266.00	74535.00	74757.00	529793.75	529808.06	5292777.76	5306031.24	2019	351	2016
3267.00	67554.00	67800.00	529896.45	529911.53	5292803.06	5305998.61	2020	352	2016
3268.00	73887.00	74110.00	529994.83	530009.33	5292780.09	5306006.88	2019	351	2016
3269.00	66875.00	67123.00	530100.54	530108.35	5292771.53	5306021.49	2020	352	2016
3270.00	73272.00	73500.00	530198.81	530207.46	5292765.78	5306049.90	2019	351	2016
3271.00	66223.00	66456.00	530299.15	530310.86	5292759.16	5306029.75	2020	352	2016
3272.00	72583.00	72809.00	530399.62	530407.13	5292777.61	5306049.37	2019	351	2016
3273.00	67766.00	67988.00	530502.35	530513.97	5292800.06	5306020.01	2019	351	2016
3274.00	71938.00	72167.00	530599.93	530609.23	5292761.52	5306012.41	2019	351	2016
3275.00	67141.00	67376.00	530703.30	530717.29	5292798.43	5306022.38	2019	351	2016
3276.00	71295.00	71528.00	530800.09	530817.96	5292784.42	5306018.12	2019	351	2016
3277.00	66529.00	66767.00	530894.17	530913.25	5292772.70	5306049.75	2019	351	2016
3278.00	70657.00	70880.00	530997.78	531011.99	5292805.51	5306000.19	2019	351	2016
3279.00	65902.00	66144.00	531100.70	531108.59	5292791.62	5306027.80	2019	351	2016
3280.00	70041.00	70267.00	531198.82	531221.47	5292797.86	5306006.79	2019	351	2016
3281.00	65245.00	65483.00	531300.94	531309.47	5292803.77	5306009.23	2019	351	2016
3282.00	69410.00	69638.00	531403.69	531408.14	5292793.96	5306028.97	2019	351	2016
3283.00	64577.00	64817.00	531499.45	531508.69	5292754.68	5306029.02	2019	351	2016
3284.00	68773.00	68999.00	531604.11	531611.16	5292792.70	5306006.99	2019	351	2016
3285.00	63932.00	64168.00	531696.05	531710.77	5292765.35	5306026.49	2019	351	2016
3286.00	68120.00	68352.00	531801.32	531812.03	5292803.33	5306024.82	2019	351	2016
3287.00	63308.00	63539.00	531900.22	531910.07	5292800.05	5306012.70	2019	351	2016
3288.00	67459.00	67687.00	531995.98	532013.79	5292769.17	5306002.29	2019	351	2016
3289.00	72251.00	72489.00	532100.13	532106.35	5292768.90	5306024.87	2019	351	2016
3290.00	66833.00	67065.00	532200.01	532211.65	5292771.16	5306032.16	2019	351	2016
3291.00	71605.00	71846.00	532297.20	532307.10	5292787.07	5306013.97	2019	351	2016
3292.00	66229.00	66460.00	532399.29	532412.09	5292757.16	5306010.26	2019	351	2016
3293.00	70979.00	71217.00	532499.14	532507.91	5292781.78	5306021.42	2019	351	2016
3294.00	65576.00	65811.00	532603.09	532610.38	5292799.16	5306022.25	2019	351	2016
3295.00	70349.00	70579.00	532698.56	532712.19	5292751.57	5306024.02	2019	351	2016
3296.00	64919.00	65153.00	532802.92	532812.92	5292803.33	5306031.18	2019	351	2016
3297.00	69732.00	69964.00	532898.20	532909.20	5292801.37	5306022.50	2019	351	2016
3298.00	64253.00	64488.00	533001.75	533011.07	5292790.32	5306002.34	2019	351	2016
3299.00	69091.00	69324.00	533101.21	533108.47	5292759.20	5306036.76	2019	351	2016
3300.00	63615.00	63845.00	533198.65	533209.16	5292776.37	5306030.98	2019	351	2016
3301.00	68444.00	68679.00	533300.27	533308.22	5292753.72	5306036.75	2019	351	2016
3302.00	62997.00	63226.00	533401.73	533416.54	5292751.35	5306001.34	2019	351	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
101.00	52111.60	52818.60	465005.25	505194.86	5265889.49	5265906.33	1008	280	2016
102.00	52963.70	53702.60	463305.16	505198.25	5266891.08	5266905.05	1008	280	2016
103.00	53828.30	54601.10	461504.36	505199.29	5267892.25	5267904.00	1008	280	2016
104.00	54742.80	55546.40	459700.91	505199.97	5268891.98	5268907.17	1008	280	2016
105.00	55758.90	56595.50	458004.31	505195.53	5269894.29	5269904.17	1008	280	2016
106.00	56717.00	57578.10	456204.22	505196.52	5270892.58	5270908.08	1008	280	2016
107.00	57713.10	58617.10	454502.09	505195.66	5271889.90	5271908.39	1008	280	2016
108.00	57162.90	58091.00	452702.41	505195.55	5272891.20	5272908.07	1009	281	2016
109.00	56085.70	57041.30	450905.49	505196.28	5273893.93	5273906.15	1009	281	2016
110.00	60715.40	61704.40	449203.30	505198.84	5274891.91	5274907.94	2004	294	2016
111.00	63343.60	64321.10	447403.65	505198.82	5275893.87	5275908.87	2004	294	2016
112.00	64425.10	65489.30	445703.50	505194.69	5276893.61	5276906.91	2004	294	2016
113.00	76122.80	77187.40	443901.05	505197.29	5277892.41	5277911.87	2006	296	2016
114.00	56249.50	57357.30	442104.79	505196.55	5278895.34	5278907.53	1020	296	2016
115.00	72780.20	73923.70	440400.26	505195.36	5279893.81	5279907.87	2006	296	2016
116.00	63390.50	63924.20	480269.45	505196.67	5280893.76	5280906.22	1009	281	2016
116.01	75226.90	75964.30	438601.12	480349.10	5280895.51	5280908.41	2006	296	2016
117.00	62082.70	63272.20	436903.87	505196.04	5281890.89	5281908.40	1009	281	2016
118.00	60512.50	61971.30	435102.31	505198.87	5282892.26	5282906.34	1009	281	2016
119.00	73720.30	74980.60	433401.96	505195.56	5283892.10	5283906.81	2005	295	2016
120.00	69813.10	71415.00	431901.23	522697.85	5284892.72	5284910.59	1008	280	2016
121.00	68062.50	69695.00	431900.24	522697.21	5285890.93	5285906.66	1008	280	2016
122.00	71977.30	73613.60	431903.90	522696.36	5286893.44	5286908.21	2005	295	2016
123.00	70311.80	71881.00	431903.17	522697.69	5287893.11	5287915.70	2005	295	2016
124.00	68631.40	70212.40	431904.04	522696.18	5288894.47	5288909.41	2005	295	2016
125.00	66984.70	68547.10	431904.04	522697.04	5289893.07	5289908.98	2005	295	2016
126.00	65294.40	66895.90	431902.08	522694.77	5290894.14	5290908.82	2005	295	2016
127.00	63620.00	65213.70	431903.83	522694.27	5291892.02	5291908.14	2005	295	2016
128.00	61937.70	63528.00	431901.43	522750.23	5292889.85	5292906.65	2005	295	2016
129.00	59075.60	60159.20	431905.17	493544.46	5293893.92	5293905.59	1009	281	2016
129.01	57698.70	58194.80	493458.99	522753.54	5293897.30	5293906.99	2019	351	2016
130.00	62718.30	64324.30	431904.56	522754.43	5294889.59	5294906.52	1008	280	2016
131.00	60894.90	62546.00	431902.29	522751.66	5295892.40	5295904.17	1008	280	2016
132.00	66193.10	67778.70	431900.88	522750.69	5296891.28	5296906.56	1008	280	2016
133.00	64428.90	66066.30	431903.10	522754.00	5297891.39	5297907.62	1008	280	2016
134.00	59173.60	60750.10	431901.51	522753.52	5298892.76	5298908.99	1008	280	2016
135.00	59739.90	61297.40	431904.38	520650.67	5299892.10	5299910.69	2005	295	2016
136.00	58059.70	59632.00	431905.08	520651.76	5300893.15	5301121.09	2005	295	2016
137.00	56388.40	57963.10	431901.47	522754.46	5301889.45	5301912.09	2005	295	2016
138.00	70600.30	72236.10	431900.10	522751.22	5302895.38	5302908.03	2006	296	2016
139.00	68865.30	70431.70	431900.37	522754.99	5303889.86	5303910.12	2006	296	2016
140.00	67136.90	68763.30	431904.53	522754.96	5304888.75	5304908.50	2006	296	2016
141.00	65426.10	67015.00	431901.46	522751.64	5305893.70	5305908.14	2006	296	2016
142.00	63507.70	65226.70	431904.76	522695.53	5306892.33	5306909.74	2006	296	2016
143.00	61778.80	63397.90	431900.37	522696.09	5307892.10	5307907.37	2006	296	2016
144.00	70375.60	71981.30	431902.59	522699.03	5308893.59	5308911.20	1020	296	2016
145.00	68268.20	70235.60	403204.16	522696.95	5309888.35	5309913.59	1020	296	2016
146.00	66169.80	68177.40	403205.71	522695.36	5310891.67	5310907.84	1020	296	2016
147.00	64082.50	66049.70	403203.58	522698.53	5311889.24	5311908.44	1020	296	2016
148.00	70170.10	72148.40	403201.53	522699.99	5312891.59	5312911.99	1019	295	2016
149.00	68084.50	70087.70	403200.17	522699.31	5313888.85	5313912.01	1019	295	2016
150.00	59657.00	61234.50	403204.42	493697.86	5314890.99	5314909.13	2006	296	2016
151.00	72301.40	73518.00	403203.91	472599.34	5315892.81	5315910.49	1019	295	2016
152.00	66656.00	67812.90	403204.55	472599.53	5316893.60	5316911.15	1019	295	2016
153.00	65336.00	66515.70	403200.99	472595.22	5317891.93	5317909.19	1019	295	2016
154.00	64058.80	65215.70	403203.77	472597.39	5318891.81	5318906.36	1019	295	2016
155.00	62755.80	63926.50	403203.48	472597.32	5319890.74	5319907.51	1019	295	2016
156.00	61503.80	62658.60	403204.54	472598.86	5320891.42	5320912.08	1019	295	2016
157.00	60190.40	61383.30	403204.58	472599.75	5321895.00	5321907.09	1019	295	2016
158.00	58938.00	60052.40	403203.69	472598.37	5322892.44	5322907.59	1019	295	2016
159.00	57658.30	58838.90	403200.80	472595.97	5323891.38	5323909.87	1019	295	2016
160.00	56469.00	56993.20	441905.23	472598.82	5324893.23	5324911.00	1019	295	2016
1001.00	71635.40	71886.40	403298.59	403309.52	5309705.14	5324297.68	3007	338	2016
1002.00	69091.90	69395.80	403397.64	403409.04	5309703.84	5324298.23	3007	338	2016
1003.00	72360.00	72612.70	403497.18	403511.31	5309703.29	5324300.12	3007	338	2016
1004.00	69864.60	70140.30	403599.45	403609.33	5309705.82	5324297.90	3007	338	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1005.00	73097.80	73350.20	403701.47	403710.33	5309701.71	5324300.23	3007	338	2016
1006.00	70573.90	70850.10	403802.32	403807.95	5309701.50	5324297.10	3007	338	2016
1007.00	73776.10	74027.10	403903.59	403913.13	5309705.28	5324296.49	3007	338	2016
1008.00	71262.10	71558.40	403999.42	404014.32	5309702.80	5324298.87	3007	338	2016
1009.00	68714.80	68964.60	404097.81	404111.51	5309701.94	5324297.49	3007	338	2016
1010.00	71984.80	72272.90	404200.48	404215.08	5309703.56	5324299.43	3007	338	2016
1011.00	69497.40	69759.00	404301.08	404311.36	5309701.23	5324300.29	3007	338	2016
1012.00	72710.60	73010.20	404399.39	404413.89	5309703.38	5324299.85	3007	338	2016
1013.00	70231.30	70489.70	404501.97	404509.87	5309701.05	5324298.38	3007	338	2016
1014.00	74118.60	74388.60	404600.56	404608.06	5309702.84	5324296.71	3007	338	2016
1015.00	70923.10	71175.50	404702.25	404711.58	5309705.93	5324300.37	3007	338	2016
1016.00	73431.20	73703.30	404801.97	404810.19	5309706.50	5324298.69	3007	338	2016
1017.00	74471.00	74718.40	404899.52	404909.10	5309706.53	5324300.09	3007	338	2016
1018.00	63682.10	63931.00	405000.45	405009.73	5309705.90	5324297.91	1020	296	2016
1019.00	67947.80	68196.80	405100.72	405110.88	5309706.32	5324297.43	3007	338	2016
1020.00	68324.50	68618.70	405199.73	405209.93	5309701.09	5324300.00	3007	338	2016
1021.00	61687.70	61939.70	405299.89	405312.48	5309701.88	5324298.73	3007	338	2016
1022.00	67565.70	67848.00	405397.17	405411.17	5309704.47	5324299.07	3007	338	2016
1023.00	60962.60	61213.20	405496.59	405511.14	5309702.91	5324299.91	3007	338	2016
1024.00	66902.70	67170.90	405597.58	405610.94	5309705.74	5324298.53	3007	338	2016
1025.00	60235.40	60484.10	405696.51	405710.20	5309706.57	5324298.49	3007	338	2016
1026.00	66232.10	66508.80	405800.32	405810.05	5309701.57	5324299.19	3007	338	2016
1027.00	59574.90	59823.90	405900.14	405908.44	5309702.99	5324300.83	3007	338	2016
1028.00	65546.20	65838.40	406000.78	406009.27	5309703.08	5324300.81	3007	338	2016
1029.00	77708.00	77958.10	406099.96	406110.46	5309705.26	5324297.08	3006	307	2016
1030.00	64808.40	65104.10	406200.14	406213.29	5309705.66	5324300.75	3007	338	2016
1031.00	77030.50	77290.80	406299.09	406318.71	5309703.88	5324298.40	3006	307	2016
1032.00	64074.90	64369.20	406395.49	406411.17	5309703.33	5324296.10	3007	338	2016
1033.00	76315.30	76573.60	406493.47	406519.64	5309703.50	5324299.59	3006	307	2016
1034.00	63408.80	63677.90	406597.09	406609.21	5309701.58	5324299.68	3007	338	2016
1035.00	75618.10	75872.20	406699.61	406715.87	5309701.25	5324296.90	3006	307	2016
1036.00	62718.70	62995.10	406801.09	406814.53	5309704.30	5324300.93	3007	338	2016
1037.00	63348.20	63597.90	406901.91	406915.88	5309702.24	5324296.88	1020	296	2016
1038.00	62027.90	62313.20	406997.89	407011.69	5309701.46	5324297.87	3007	338	2016
1039.00	67245.50	67497.70	407101.33	407107.59	5309705.77	5324298.53	3007	338	2016
1040.00	61306.00	61607.10	407199.11	407208.61	5309702.80	5324297.19	3007	338	2016
1041.00	66583.90	66831.90	407294.25	407309.19	5309706.83	5324296.80	3007	338	2016
1042.00	60562.40	60865.40	407394.61	407410.74	5309704.43	5324299.86	3007	338	2016
1043.00	65910.10	66159.00	407499.80	407510.26	5309701.85	5324299.74	3007	338	2016
1044.00	59901.40	60166.60	407598.42	407607.83	5309704.54	5324299.91	3007	338	2016
1045.00	65189.50	65442.30	407697.00	407711.74	5309702.01	5324298.64	3007	338	2016
1046.00	59239.00	59502.00	407797.84	407830.56	5309703.37	5324300.16	3007	338	2016
1047.00	64453.20	64698.70	407899.84	407912.14	5309702.00	5324300.34	3007	338	2016
1048.00	78040.10	78303.50	407997.57	408009.77	5309722.84	5324297.24	3006	307	2016
1049.00	63750.20	63999.00	408100.78	408110.47	5309701.39	5324295.29	3007	338	2016
1050.00	77372.80	77635.70	408198.33	408208.78	5309704.93	5324299.44	3006	307	2016
1051.00	63074.00	63327.90	408302.10	408310.00	5309701.71	5324297.65	3007	338	2016
1052.00	76660.30	76920.60	408394.31	408412.80	5309703.39	5324298.93	3006	307	2016
1053.00	62386.20	62643.50	408501.59	408509.71	5309701.32	5324297.47	3007	338	2016
1054.00	75955.80	76222.30	408597.95	408614.34	5309703.58	5324297.53	3006	307	2016
1055.00	74897.20	75151.90	408700.55	408708.17	5309705.40	5324297.72	3006	307	2016
1056.00	63016.30	63260.90	408799.89	408809.64	5309701.82	5324295.49	1020	296	2016
1057.00	74202.00	74461.40	408899.50	408912.26	5309705.55	5324297.20	3006	307	2016
1058.00	68199.20	68458.00	408996.48	409013.52	5309701.13	5324297.54	3006	307	2016
1059.00	73505.30	73768.50	409099.79	409115.10	5309701.08	5324298.29	3006	307	2016
1060.00	67480.60	67738.30	409199.78	409209.60	5309704.59	5324296.87	3006	307	2016
1061.00	72815.10	73072.60	409297.26	409316.26	5309705.12	5324295.57	3006	307	2016
1062.00	66771.20	67025.90	409398.10	409410.61	5309702.05	5324298.86	3006	307	2016
1063.00	72114.80	72373.10	409495.76	409517.22	5309703.99	5324300.90	3006	307	2016
1064.00	66031.80	66290.50	409598.28	409610.96	5309705.34	5324295.76	3006	307	2016
1065.00	71409.70	71670.10	409698.78	409713.28	5309702.32	5324297.86	3006	307	2016
1066.00	75234.90	75500.10	409798.82	409816.07	5309705.14	5324300.05	3006	307	2016
1067.00	70672.40	70936.60	409899.49	409911.26	5309704.61	5324296.25	3006	307	2016
1068.00	74544.70	74801.20	410000.95	410011.54	5309703.00	5324297.56	3006	307	2016
1069.00	69984.10	70247.60	410099.79	410114.60	5309706.95	5324299.06	3006	307	2016
1070.00	64474.80	64739.60	410196.78	410212.92	5309704.53	5324299.87	3005	306	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1071.00	69285.90	69544.10	410294.52	410318.78	5309702.18	5324296.56	3006	307	2016
1072.00	63774.10	64035.70	410399.54	410413.08	5309702.72	5324299.38	3005	306	2016
1073.00	68597.00	68855.70	410494.32	410512.34	5309703.91	5324300.64	3006	307	2016
1074.00	63049.50	63312.30	410600.14	410613.36	5309701.70	5324295.57	3005	306	2016
1075.00	62679.20	62922.60	410698.74	410707.60	5309704.67	5324299.36	1020	296	2016
1076.00	62343.70	62600.10	410800.94	410807.76	5309703.81	5324300.01	3005	306	2016
1077.00	67856.70	68109.10	410893.65	410909.68	5309702.53	5324300.99	3006	307	2016
1078.00	73844.80	74101.00	410997.33	411013.07	5309704.32	5324295.38	3006	307	2016
1079.00	67128.00	67384.90	411098.38	411110.70	5309702.01	5324297.32	3006	307	2016
1080.00	73150.80	73418.60	411182.03	411213.10	5309702.71	5324296.48	3006	307	2016
1081.00	66427.70	66689.50	411292.30	411311.75	5309703.22	5324298.35	3006	307	2016
1082.00	72457.10	72715.30	411396.24	411412.12	5309703.42	5324298.61	3006	307	2016
1083.00	65659.00	65915.10	411495.26	411514.56	5309705.60	5324295.73	3006	307	2016
1084.00	71753.40	72014.60	411600.90	411611.77	5309703.35	5324297.79	3006	307	2016
1085.00	64943.80	65196.10	411701.38	411738.68	5309703.29	5324297.57	3006	307	2016
1086.00	71018.40	71276.90	411795.59	411811.05	5309705.06	5324295.73	3006	307	2016
1087.00	64250.20	64512.10	411900.49	411912.40	5309705.56	5324300.69	3006	307	2016
1088.00	70315.90	70577.50	412000.95	412010.92	5309701.78	5324299.66	3006	307	2016
1089.00	64121.30	64380.70	412094.10	412110.08	5309703.71	5324299.57	3005	306	2016
1090.00	69637.60	69896.60	412196.55	412212.49	5309704.19	5324297.24	3006	307	2016
1091.00	63401.70	63659.40	412291.37	412311.00	5309704.01	5324296.85	3005	306	2016
1092.00	68942.80	69196.30	412396.44	412411.95	5309701.47	5324299.51	3006	307	2016
1093.00	62686.60	62949.10	412494.19	412507.73	5309701.75	5324295.86	3005	306	2016
1094.00	62329.70	62578.20	412601.08	412608.97	5309702.58	5324300.92	1020	296	2016
1095.00	61981.60	62238.40	412700.17	412711.13	5309704.72	5324300.07	3005	306	2016
1096.00	61597.10	61858.90	412799.44	412807.94	5309701.18	5324300.64	3005	306	2016
1097.00	63461.20	63728.50	412898.61	412911.26	5309705.06	5324298.34	3006	307	2016
1098.00	60918.70	61180.00	412994.58	413010.27	5309702.18	5324295.76	3005	306	2016
1099.00	62787.40	63041.00	413102.38	413113.09	5309704.47	5324298.33	3006	307	2016
1100.00	60216.20	60471.90	413195.50	413216.61	5309706.15	5324296.51	3005	306	2016
1101.00	62090.40	62342.90	413301.60	413316.37	5309702.96	5324295.47	3006	307	2016
1102.00	59516.20	59775.20	413400.63	413414.48	5309705.65	5324299.74	3005	306	2016
1103.00	61403.60	61662.40	413499.88	413513.90	5309701.47	5324296.44	3006	307	2016
1104.00	78740.90	79021.00	413599.64	413610.71	5309727.45	5324298.66	3004	304	2016
1105.00	60660.50	60913.90	413702.88	413708.56	5309702.45	5324297.01	3006	307	2016
1106.00	78060.80	78337.70	413795.60	413812.20	5309706.06	5324300.44	3004	304	2016
1107.00	59981.60	60233.20	413900.03	413909.19	5309704.56	5324297.17	3006	307	2016
1108.00	77354.20	77623.30	413997.34	414014.77	5309705.76	5324296.20	3004	304	2016
1109.00	65541.50	65795.80	414102.32	414111.97	5309705.24	5324296.46	3005	306	2016
1110.00	76670.40	76933.30	414198.68	414211.41	5309703.53	5324296.27	3004	304	2016
1111.00	64843.20	65102.70	414300.08	414308.58	5309701.78	5324295.72	3005	306	2016
1112.00	75944.20	76209.30	414398.62	414414.51	5309704.48	5324296.18	3004	304	2016
1113.00	61987.00	62232.70	414498.79	414510.28	5309704.48	5324296.84	1020	296	2016
1114.00	65306.60	65568.80	414595.99	414615.01	5309704.97	5324296.03	3006	307	2016
1115.00	61256.70	61519.70	414701.27	414708.31	5309701.70	5324300.50	3005	306	2016
1116.00	64597.30	64859.40	414794.77	414813.04	5309705.63	5324298.68	3006	307	2016
1117.00	60549.40	60815.20	414885.01	414912.08	5309705.08	5324298.55	3005	306	2016
1118.00	63808.20	64063.50	415000.07	415008.53	5309706.76	5324299.52	3006	307	2016
1119.00	59872.30	60135.70	415097.32	415111.18	5309701.73	5324300.50	3005	306	2016
1120.00	63122.40	63378.00	415199.97	415206.77	5309704.05	5324300.17	3006	307	2016
1121.00	59158.80	59420.60	415296.54	415308.18	5309701.33	5324297.68	3005	306	2016
1122.00	62437.40	62691.10	415397.15	415413.07	5309705.70	5324295.58	3006	307	2016
1123.00	78408.30	78657.50	415498.16	415510.55	5309704.65	5324299.46	3004	304	2016
1124.00	61755.10	62007.90	415598.49	415612.13	5309701.51	5324295.98	3006	307	2016
1125.00	77696.40	77947.90	415692.80	415714.23	5309702.31	5324295.43	3004	304	2016
1126.00	61046.70	61302.00	415795.36	415813.15	5309701.35	5324298.73	3006	307	2016
1127.00	77009.60	77261.20	415896.84	415909.77	5309702.80	5324299.84	3004	304	2016
1128.00	60315.10	60575.70	415999.07	416013.25	5309703.67	5324300.96	3006	307	2016
1129.00	76292.40	76543.80	416092.25	416115.84	5309705.05	5324297.99	3004	304	2016
1130.00	65183.70	65444.70	416199.49	416207.83	5309702.58	5324298.48	3005	306	2016
1131.00	75604.20	75863.40	416300.03	416327.27	5309703.23	5324298.69	3004	304	2016
1132.00	61661.60	61906.10	416394.47	416418.44	5309705.83	5324295.06	1020	296	2016
1133.00	69281.50	69531.70	416495.36	416512.76	5309707.16	5324297.28	3004	304	2016
1134.00	70359.20	70631.50	416597.30	416614.12	5309704.74	5324295.64	3004	304	2016
1135.00	68567.20	68826.70	416700.01	416712.92	5309702.58	5324295.58	3004	304	2016
1136.00	71057.90	71325.60	416798.54	416812.56	5309703.08	5324297.66	3004	304	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1137.00	67875.10	68128.40	416899.24	416908.53	5309702.99	5324296.41	3004	304	2016
1138.00	71739.20	72005.90	417002.25	417016.22	5309706.20	5324299.72	3004	304	2016
1139.00	67171.10	67434.10	417097.64	417110.60	5309706.42	5324296.38	3004	304	2016
1140.00	72429.60	72714.00	417202.20	417216.78	5309703.52	5324298.98	3004	304	2016
1141.00	66477.70	66731.60	417301.72	417317.24	5309701.57	5324300.28	3004	304	2016
1142.00	73146.50	73408.70	417396.20	417415.61	5309703.74	5324296.16	3004	304	2016
1143.00	65762.20	66022.50	417500.56	417514.05	5309702.34	5324300.51	3004	304	2016
1144.00	73866.60	74135.40	417598.41	417616.71	5309704.54	5324297.36	3004	304	2016
1145.00	65048.00	65310.00	417698.88	417709.83	5309702.74	5324296.18	3004	304	2016
1146.00	74584.20	74847.90	417800.83	417812.84	5309701.83	5324297.92	3004	304	2016
1147.00	64363.10	64619.10	417899.84	417914.10	5309706.11	5324298.75	3004	304	2016
1148.00	75249.90	75534.20	418001.47	418012.96	5309702.30	5324297.02	3004	304	2016
1149.00	63668.60	63927.50	418096.83	418111.35	5309702.00	5324298.10	3004	304	2016
1150.00	62963.90	63218.10	418198.33	418210.42	5309702.43	5324299.35	3004	304	2016
1151.00	61339.30	61587.70	418298.57	418312.93	5309701.34	5324298.67	1020	296	2016
1152.00	69638.40	69907.00	418398.15	418415.88	5309702.73	5324299.78	3004	304	2016
1153.00	70006.90	70262.70	418495.65	418512.59	5309704.03	5324297.81	3004	304	2016
1154.00	68902.10	69182.60	418598.19	418611.33	5309702.96	5324300.95	3004	304	2016
1155.00	70715.10	70969.00	418690.58	418710.96	5309705.58	5324298.62	3004	304	2016
1156.00	68214.90	68492.70	418799.24	418809.50	5309704.26	5324300.13	3004	304	2016
1157.00	71403.80	71658.90	418899.50	418911.13	5309706.85	5324299.59	3004	304	2016
1158.00	67523.00	67796.30	418999.62	419007.91	5309704.98	5324296.83	3004	304	2016
1159.00	72088.60	72345.00	419098.14	419111.37	5309702.73	5324298.73	3004	304	2016
1160.00	66823.90	67086.40	419197.90	419211.01	5309706.69	5324296.31	3004	304	2016
1161.00	72794.80	73047.80	419296.73	419315.11	5309703.60	5324299.60	3004	304	2016
1162.00	66136.00	66390.40	419396.08	419412.55	5309704.39	5324297.20	3004	304	2016
1163.00	73492.90	73745.50	419499.61	419515.53	5309705.02	5324299.05	3004	304	2016
1164.00	65398.70	65664.20	419599.28	419610.55	5309704.83	5324296.89	3004	304	2016
1165.00	74920.60	75171.80	419699.07	419709.87	5309701.99	5324295.39	3004	304	2016
1166.00	64699.20	64960.10	419800.56	419812.10	5309704.74	5324298.88	3004	304	2016
1167.00	74230.90	74480.50	419892.57	419914.55	5309704.88	5324297.46	3004	304	2016
1168.00	64015.70	64276.10	419995.10	420009.93	5309701.76	5324300.81	3004	304	2016
1169.00	63318.70	63577.10	420097.91	420108.03	5309706.84	5324296.75	3004	304	2016
1170.00	61040.10	61273.30	420198.24	420211.56	5309702.92	5324295.69	1020	296	2016
1171.00	62204.40	62457.50	420299.16	420311.38	5309705.19	5324295.37	3004	304	2016
1172.02	54498.20	54747.10	420399.23	420421.34	5309706.49	5324295.82	2024	7	2017
1173.00	61519.00	61769.50	420498.65	420510.79	5309704.11	5324295.46	3004	304	2016
1174.00	70013.30	70282.90	420599.16	420607.97	5309701.99	5324296.43	3003	299	2016
1175.00	60845.80	61095.30	420697.95	420712.55	5309705.38	5324297.53	3004	304	2016
1176.00	69321.00	69590.00	420798.91	420814.41	5309704.98	5324297.63	3003	299	2016
1177.00	75331.30	75573.80	420900.52	420913.12	5309705.73	5324295.13	3003	299	2016
1178.00	68641.00	68897.30	420991.48	421014.07	5309704.55	5324300.97	3003	299	2016
1179.00	74615.10	74863.80	421096.67	421112.99	5309703.95	5324298.17	3003	299	2016
1180.01	57522.30	57773.80	421199.39	421213.37	5309705.90	5324295.12	2024	7	2017
1181.00	73919.10	74165.40	421301.92	421311.98	5309702.31	5324300.56	3003	299	2016
1182.00	67264.80	67533.20	421401.12	421414.97	5309706.40	5324297.06	3003	299	2016
1183.00	73241.00	73490.20	421501.88	421509.92	5309702.52	5324296.23	3003	299	2016
1184.01	58256.70	58499.80	421601.01	421611.06	5309701.72	5324296.00	2024	7	2017
1185.00	72513.00	72762.10	421698.53	421712.44	5309705.65	5324296.83	3003	299	2016
1186.01	58643.90	58913.10	421798.57	421808.60	5309705.26	5324297.10	2024	7	2017
1187.00	71778.90	72028.60	421898.24	421914.70	5309706.66	5324299.70	3003	299	2016
1188.00	65198.90	65474.10	421999.51	422016.87	5309702.56	5324296.77	3003	299	2016
1189.00	60622.80	60869.60	422101.83	422112.65	5309704.67	5324298.20	1020	296	2016
1190.00	64512.10	64775.30	422198.38	422214.08	5309705.11	5324297.91	3003	299	2016
1191.02	54140.30	54409.00	422296.24	422313.02	5309706.40	5324299.87	2024	7	2017
1192.01	66264.40	66518.20	422399.85	422409.83	5309703.69	5324300.25	2022	5	2017
1193.02	54860.70	55128.50	422500.12	422510.33	5309703.58	5324295.71	2024	7	2017
1194.00	62570.50	62830.10	422596.02	422611.02	5309705.19	5324300.46	3004	304	2016
1195.00	69674.90	69926.20	422699.87	422708.20	5309706.23	5324296.77	3003	299	2016
1196.00	61854.30	62116.30	422795.12	422808.85	5309704.48	5324299.58	3004	304	2016
1197.00	68979.20	69222.30	422898.62	422910.92	5309705.73	5324300.57	3003	299	2016
1198.00	61175.90	61438.40	422997.39	423006.68	5309702.40	5324299.66	3004	304	2016
1199.00	68304.90	68548.50	423098.54	423110.81	5309703.65	5324299.63	3003	299	2016
1200.00	75668.00	75932.90	423199.78	423214.27	5309704.71	5324298.13	3003	299	2016
1201.01	66640.80	66912.90	423299.39	423311.69	5309701.95	5324298.15	2022	5	2017
1202.00	74963.40	75236.10	423399.94	423414.86	5309705.69	5324296.57	3003	299	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1203.00	66931.00	67176.90	423501.10	423508.96	5309703.41	5324297.91	3003	299	2016
1204.00	74255.70	74530.10	423599.92	423610.31	5309703.49	5324300.00	3003	299	2016
1205.02	55224.50	55473.70	423699.36	423708.85	5309702.39	5324297.89	2024	7	2017
1206.00	73580.70	73845.90	423801.21	423808.11	5309701.90	5324298.38	3003	299	2016
1207.01	57152.50	57417.70	423898.36	423908.62	5309701.82	5324297.24	2024	7	2017
1208.00	60308.40	60550.90	424000.04	424008.35	5309705.84	5324298.27	1020	296	2016
1209.01	57885.40	58159.50	424100.35	424112.20	5309705.76	5324298.99	2024	7	2017
1210.00	72873.00	73142.10	424198.56	424215.12	5309705.96	5324297.47	3003	299	2016
1211.00	64174.90	64416.50	424296.29	424311.78	5309702.28	5324295.27	3003	299	2016
1212.00	72123.80	72393.60	424398.49	424414.26	5309701.34	5324296.60	3003	299	2016
1213.02	55603.10	55874.90	424496.92	424509.73	5309703.72	5324297.53	2024	7	2017
1214.00	71397.70	71670.00	424599.45	424612.96	5309706.12	5324296.48	3003	299	2016
1215.02	56025.80	56286.20	424699.67	424713.85	5309706.12	5324299.68	2024	7	2017
1216.00	74796.10	75046.80	424800.33	424812.69	5309729.56	5324296.80	3002	298	2016
1217.02	56417.30	56689.80	424899.08	424911.69	5309702.13	5324300.00	2024	7	2017
1218.00	74109.30	74363.30	424998.95	425014.88	5309701.05	5324299.88	3002	298	2016
1219.00	61426.90	61672.10	425100.27	425114.75	5309701.45	5324298.66	3003	299	2016
1220.00	73402.70	73656.10	425200.41	425213.06	5309702.20	5324298.52	3002	298	2016
1221.00	60713.10	60960.70	425295.72	425312.83	5309706.55	5324295.03	3003	299	2016
1222.00	72686.00	72939.80	425402.36	425415.71	5309706.34	5324298.67	3002	298	2016
1223.00	60023.20	60273.00	425499.57	425509.70	5309706.23	5324299.41	3003	299	2016
1224.00	71953.20	72210.50	425595.93	425609.27	5309704.57	5324296.80	3002	298	2016
1225.01	59034.70	59282.30	425701.35	425711.10	5309703.45	5324299.63	2024	7	2017
1226.00	71226.20	71482.00	425796.83	425814.84	5309705.28	5324299.82	3002	298	2016
1227.00	59961.40	60214.70	425897.62	425908.81	5309704.90	5324297.05	1020	296	2016
1228.00	73020.40	73266.40	426000.72	426014.16	5309702.16	5324299.03	1020	296	2016
1229.01	59420.90	59693.20	426095.61	426113.69	5309703.08	5324300.32	2024	7	2017
1230.01	68577.90	68828.30	426199.88	426210.74	5309702.08	5324298.77	2022	5	2017
1231.02	56790.00	57040.90	426301.30	426313.86	5309701.99	5324300.29	2024	7	2017
1232.00	70484.80	70737.90	426397.36	426421.21	5309701.58	5324299.20	3002	298	2016
1233.01	60181.20	60450.50	426493.33	426513.70	5309702.50	5324296.97	2024	7	2017
1234.00	62480.00	62741.20	426600.93	426608.43	5309703.91	5324299.87	3003	299	2016
1235.00	74457.00	74715.50	426695.04	426710.04	5309703.88	5324299.43	3002	298	2016
1236.01	69329.80	69588.10	426799.56	426807.48	5309704.27	5324296.76	2022	5	2017
1237.00	73752.90	74008.60	426898.02	426908.52	5309705.99	5324299.01	3002	298	2016
1238.00	61057.80	61336.00	426999.64	427010.93	5309705.33	5324299.82	3003	299	2016
1239.00	73040.40	73298.30	427095.85	427109.96	5309705.81	5324300.20	3002	298	2016
1240.00	60360.60	60629.50	427200.50	427211.85	5309703.99	5324300.69	3003	299	2016
1241.00	72306.00	72565.50	427296.78	427310.67	5309702.36	5324299.37	3002	298	2016
1242.00	59690.20	59951.20	427401.64	427407.37	5309705.72	5324299.10	3003	299	2016
1243.00	71600.30	71855.80	427494.43	427511.65	5309702.42	5324296.72	3002	298	2016
1244.01	59808.00	60055.10	427600.80	427618.22	5309701.62	5324297.86	2024	7	2017
1245.00	70864.80	71124.00	427694.67	427713.12	5309701.97	5324296.29	3002	298	2016
1246.00	59631.50	59870.40	427798.01	427810.80	5309706.42	5324296.80	1020	296	2016
1247.00	72702.90	72952.00	427899.85	427911.38	5309701.62	5324300.47	1020	296	2016
1248.01	69690.50	69962.70	427993.57	428011.26	5309706.31	5324300.46	2022	5	2017
1249.00	73357.60	73611.40	428098.06	428107.70	5309705.00	5324300.57	1020	296	2016
1250.01	70081.00	70343.30	428198.04	428208.55	5309701.35	5324297.67	2022	5	2017
1251.00	70093.60	70354.40	428299.95	428308.66	5309701.61	5324295.83	3002	298	2016
1252.00	65266.70	65514.60	428398.16	428411.87	5309702.71	5324297.11	3002	298	2016
1253.00	69330.00	69584.60	428496.96	428508.65	5309701.19	5324300.61	3002	298	2016
1254.00	64548.10	64806.30	428595.20	428611.14	5309704.11	5324296.16	3002	298	2016
1255.00	68590.60	68843.30	428697.13	428709.79	5309704.57	5324297.09	3002	298	2016
1256.00	63811.70	64071.10	428799.47	428812.14	5309701.89	5324299.73	3002	298	2016
1257.00	67872.00	68127.10	428900.84	428912.61	5309703.50	5324297.62	3002	298	2016
1258.00	63039.60	63291.40	428998.73	429014.64	5309705.38	5324297.92	3002	298	2016
1259.00	67156.30	67414.00	429097.80	429111.66	5309702.52	5324299.33	3002	298	2016
1260.00	62296.70	62547.00	429195.11	429210.19	5309706.83	5324299.52	3002	298	2016
1261.00	66387.70	66645.40	429296.84	429308.18	5309702.05	5324298.58	3002	298	2016
1262.00	61537.30	61785.60	429400.21	429411.47	5309701.28	5324295.65	3002	298	2016
1263.00	65631.10	65884.20	429498.56	429510.16	5309701.38	5324296.06	3002	298	2016
1264.00	60761.50	61020.40	429600.77	429611.38	5309701.32	5324299.91	3002	298	2016
1265.00	59294.40	59538.90	429697.92	429711.41	5309703.19	5324300.46	1020	296	2016
1266.00	72397.10	72633.60	429800.97	429815.85	5309701.17	5324297.30	1020	296	2016
1267.00	58612.30	58855.40	429897.93	429910.35	5309701.07	5324297.05	1020	296	2016
1268.00	69724.30	69974.90	429999.65	430013.33	5309701.87	5324295.35	3002	298	2016



**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1269.00	64918.50	65175.60	430099.37	430110.73	5309703.70	5324298.06	3002	298	2016
1270.00	73692.20	73942.50	430199.95	430209.09	5309706.63	5324298.64	1020	296	2016
1271.00	64187.90	64451.10	430297.99	430310.33	5309701.65	5324300.26	3002	298	2016
1272.00	68984.90	69234.60	430398.47	430411.58	5309701.76	5324295.94	3002	298	2016
1273.00	63402.50	63659.70	430496.35	430509.24	5309704.43	5324297.59	3002	298	2016
1274.00	68235.30	68490.20	430596.18	430614.79	5309701.27	5324300.51	3002	298	2016
1275.00	62641.90	62897.30	430699.16	430710.82	5309705.48	5324300.34	3002	298	2016
1276.00	67519.30	67773.80	430796.22	430808.80	5309706.50	5324299.77	3002	298	2016
1277.00	61896.00	62149.70	430899.43	430908.66	5309701.29	5324299.64	3002	298	2016
1278.00	66794.50	67049.20	430998.25	431009.81	5309704.80	5324297.13	3002	298	2016
1279.00	61124.00	61384.30	431099.72	431110.59	5309702.31	5324298.71	3002	298	2016
1280.00	66035.30	66289.30	431200.95	431210.58	5309704.73	5324295.65	3002	298	2016
1281.00	60357.10	60612.80	431297.93	431311.91	5309705.35	5324300.47	3002	298	2016
1282.00	58939.30	59180.10	431399.31	431408.02	5309706.09	5324297.93	1020	296	2016
1283.00	74037.40	74288.70	431499.51	431508.68	5309704.23	5324297.20	1020	296	2016
1284.00	58315.20	58542.00	431599.15	431615.36	5309702.67	5324295.36	1020	296	2016
1285.00	72073.80	72326.50	431699.78	431714.87	5309705.36	5324298.06	1020	296	2016
1286.00	73310.70	73559.60	431796.89	431809.09	5309701.07	5324300.67	2003	293	2016
1287.00	73680.70	73930.90	431898.75	431911.94	5309701.31	5324299.66	2003	293	2016
1288.00	58684.80	59369.80	431999.85	432010.66	5284754.18	5324298.65	3009	345	2016
1289.00	68192.00	68881.10	432101.15	432112.27	5284753.10	5324300.20	2002	292	2016
1290.00	60314.90	61018.60	432200.02	432216.52	5284753.63	5324299.26	3009	345	2016
1291.00	69795.30	70502.40	432298.10	432313.45	5284750.52	5324297.86	2002	292	2016
1292.00	61928.40	62625.20	432401.67	432412.50	5284751.51	5324298.05	3009	345	2016
1293.00	71400.70	72095.90	432501.00	432510.62	5284754.04	5324297.95	2002	292	2016
1294.00	63545.60	64271.00	432597.54	432612.85	5284753.59	5324297.73	3009	345	2016
1295.00	72976.80	73685.80	432699.84	432712.01	5284700.62	5324296.63	2002	292	2016
1296.00	65260.50	65983.00	432801.29	432814.67	5284644.40	5324299.98	3009	345	2016
1297.00	74589.20	75302.80	432900.15	432913.59	5284590.38	5324298.66	2002	292	2016
1298.00	66941.80	67676.60	433000.78	433012.03	5284533.64	5324300.40	3009	345	2016
1299.00	76196.00	76886.00	433101.34	433110.42	5284472.82	5324297.71	2002	292	2016
1300.00	68681.00	69418.40	433201.95	433214.56	5284418.89	5324299.68	3009	345	2016
1301.00	77797.90	78523.60	433298.98	433311.14	5284363.68	5324298.93	2002	292	2016
1302.00	71332.90	72067.00	433399.23	433414.08	5284306.77	5324295.92	3009	345	2016
1303.00	79384.00	80073.50	433502.58	433512.85	5283755.73	5324297.79	2002	292	2016
1304.00	73120.60	73874.10	433601.38	433614.13	5283750.04	5324298.70	3009	345	2016
1305.00	80964.80	81694.70	433695.83	433709.98	5283754.15	5324299.79	2002	292	2016
1306.00	76905.40	77358.60	433798.16	433841.07	5283754.77	5308945.31	3007	338	2016
1306.01	70473.60	70755.30	433799.50	433809.82	5308854.22	5324296.88	3009	345	2016
1307.00	57855.80	58565.80	433898.43	433910.64	5283753.89	5324296.45	3009	345	2016
1308.00	68967.50	69683.10	433997.01	434009.88	5283750.28	5324297.65	2002	292	2016
1309.00	59523.80	60236.50	434092.73	434109.05	5283755.01	5324296.67	3009	345	2016
1310.00	70599.60	71321.70	434195.18	434209.11	5283750.67	5324299.64	2002	292	2016
1311.00	61132.50	61844.40	434298.92	434310.54	5283754.96	5324298.46	3009	345	2016
1312.00	72176.10	72896.70	434398.20	434408.83	5283736.63	5324296.96	2002	292	2016
1313.00	62737.30	63446.80	434497.52	434510.99	5283678.73	5324297.77	3009	345	2016
1314.00	73774.70	74514.30	434596.04	434610.04	5283621.99	5324295.77	2002	292	2016
1315.00	64395.70	65131.40	434702.05	434713.38	5283564.29	5324298.09	3009	345	2016
1316.00	75391.70	76132.40	434798.78	434809.39	5283508.76	5324299.12	2002	292	2016
1317.00	66098.70	66851.90	434894.39	434913.17	5283449.82	5324298.48	3009	345	2016
1318.00	76981.30	77717.20	434998.59	435009.63	5283393.37	5324299.51	2002	292	2016
1319.00	67801.10	68584.90	435099.80	435119.24	5283336.80	5324296.56	3009	345	2016
1320.00	78617.80	79322.30	435199.98	435209.54	5282754.87	5324297.45	2002	292	2016
1321.00	76409.90	76857.80	435297.27	435307.70	5282754.52	5308947.76	3007	338	2016
1321.01	70965.40	71245.60	435299.73	435311.61	5308855.43	5324299.68	3009	345	2016
1322.00	80160.00	80894.30	435397.80	435412.25	5282753.22	5324297.81	2002	292	2016
1323.00	58075.10	58786.90	435494.80	435512.95	5282752.78	5324297.68	3007	338	2016
1324.00	81781.30	82532.70	435599.63	435612.53	5282772.13	5324300.50	2002	292	2016
1325.00	55492.20	56230.00	435696.00	435710.59	5282754.31	5324298.90	2003	293	2016
1326.00	74051.60	74779.80	435796.49	435812.62	5282774.47	5324299.87	2003	293	2016
1327.00	57162.90	57893.50	435896.16	435909.31	5282753.80	5324295.55	2003	293	2016
1328.00	75232.80	76027.90	435998.25	436014.47	5282753.23	5324299.36	3007	338	2016
1329.00	58815.90	59543.30	436096.00	436111.17	5282750.66	5324297.74	2003	293	2016
1330.00	74918.80	75704.50	436199.64	436211.99	5282710.66	5324297.50	3009	345	2016
1331.00	60481.50	61241.30	436300.69	436310.51	5282654.80	5324298.95	2003	293	2016
1332.00	76700.80	77470.90	436399.41	436412.68	5282598.10	5324296.35	3009	345	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1333.00	62153.90	62888.70	436495.40	436511.72	5282540.80	5324298.93	2003	293	2016
1334.00	65518.40	66359.10	436598.64	436613.87	5282484.73	5324298.09	3010	348	2016
1335.00	63818.50	64568.10	436698.29	436710.83	5282427.78	5324299.76	2003	293	2016
1336.00	67350.30	68147.40	436798.69	436811.46	5282372.52	5324300.73	3010	348	2016
1337.00	65518.00	66254.30	436895.45	436910.19	5282313.67	5324300.73	2003	293	2016
1338.00	69128.80	69995.90	436999.72	437013.92	5281753.09	5324297.37	3010	348	2016
1339.00	67202.30	67968.30	437098.52	437113.10	5281754.43	5324299.68	2003	293	2016
1340.00	70643.20	71158.80	437197.82	437256.68	5281751.14	5307946.09	3010	348	2016
1340.01	66993.40	67282.40	437195.32	437211.62	5307852.11	5324298.73	2021	4	2017
1341.00	68905.20	69654.80	437297.40	437312.97	5281755.05	5324299.98	2003	293	2016
1342.00	66113.20	66874.00	437392.19	437407.47	5281754.45	5324297.17	2021	4	2017
1343.00	70593.80	71347.00	437496.09	437510.41	5281754.11	5324296.39	2003	293	2016
1344.00	56341.60	57074.40	437597.83	437612.88	5281752.67	5324299.86	2003	293	2016
1345.00	72352.80	73136.80	437696.60	437711.54	5281753.16	5324297.47	2003	293	2016
1346.00	57983.70	58730.10	437798.19	437810.18	5281753.18	5324297.80	2003	293	2016
1347.00	69580.70	70339.10	437898.97	437910.34	5281744.94	5324298.54	3009	345	2016
1348.00	59651.10	60394.70	437998.74	438011.99	5281689.03	5324298.24	2003	293	2016
1349.00	72195.70	72982.50	438099.30	438111.11	5281633.20	5324296.45	3009	345	2016
1350.00	61329.20	62078.40	438197.25	438209.84	5281577.10	5324296.36	2003	293	2016
1351.00	74033.60	74801.40	438298.81	438312.12	5281516.01	5324299.27	3009	345	2016
1352.00	62988.70	63728.60	438396.08	438412.93	5281460.51	5324299.91	2003	293	2016
1353.00	75846.10	76599.30	438498.52	438509.62	5281403.51	5324297.65	3009	345	2016
1354.00	64657.80	65439.40	438598.09	438613.38	5281347.54	5324298.99	2003	293	2016
1355.00	64645.90	65412.00	438696.63	438712.27	5280753.98	5324296.16	3010	348	2016
1356.00	66373.10	67123.60	438797.21	438815.83	5280753.82	5324296.18	2003	293	2016
1357.00	66496.90	67247.40	438897.72	438916.37	5280754.37	5324300.26	3010	348	2016
1358.00	68055.70	68836.80	438996.16	439012.12	5280753.66	5324298.20	2003	293	2016
1359.00	68273.00	69029.40	439097.40	439111.99	5280750.83	5324297.36	3010	348	2016
1360.00	69759.40	70514.30	439194.56	439213.76	5280755.58	5324299.76	2003	293	2016
1361.00	70114.10	70582.90	439295.36	439315.86	5280751.14	5307949.54	3010	348	2016
1361.01	67522.20	67823.20	439298.61	439310.68	5307853.78	5324298.35	2021	4	2017
1362.00	71417.00	72191.60	439395.48	439412.90	5280754.29	5324297.95	2003	293	2016
1363.00	57421.70	58142.50	439493.71	439513.55	5280751.50	5324296.29	1020	296	2016
1364.00	74562.80	75287.90	439601.05	439610.95	5280779.19	5324299.13	1020	296	2016
1365.00	56159.90	56667.10	439700.50	439712.91	5280726.34	5309949.94	1023	299	2016
1365.01	60700.90	60934.80	439703.71	439716.06	5309854.52	5324299.41	2024	7	2017
1366.00	72999.60	73752.80	439798.45	439810.20	5280667.18	5324299.88	1033	351	2016
1367.00	58413.80	58617.80	439899.06	439913.96	5312850.06	5324298.79	1023	299	2016
1367.01	71421.80	72002.80	439890.33	439911.77	5280611.41	5312947.32	2022	5	2017
1368.00	67936.90	68692.00	439998.22	440012.29	5280552.84	5324300.87	2021	4	2017
1369.00	59569.30	60330.10	440099.85	440112.62	5280497.27	5324298.04	1023	299	2016
1370.00	77001.90	77771.80	440197.22	440212.49	5280438.40	5324296.36	1034	352	2016
1371.00	61290.40	61700.70	440297.43	440310.60	5280380.61	5304946.86	1023	299	2016
1371.01	61900.30	62027.20	440300.26	440310.40	5316851.98	5324297.46	1023	299	2016
1371.02	57026.10	57249.00	440300.27	440306.31	5304852.69	5316946.51	2023	6	2017
1372.00	74907.60	75672.00	440394.37	440412.43	5280325.93	5324296.08	1034	352	2016
1373.01	55679.20	56477.90	440497.15	440510.59	5279752.54	5324297.93	2023	6	2017
1374.00	72748.30	73536.00	440597.49	440612.48	5279755.29	5324298.96	1034	352	2016
1375.00	64766.30	65002.70	440702.86	440710.09	5279754.83	5293944.26	1023	299	2016
1375.01	65200.40	65512.50	440701.89	440709.10	5305855.34	5324299.89	1023	299	2016
1375.03	61185.60	61388.50	440701.15	440709.24	5293855.43	5305947.75	2024	7	2017
1376.00	70567.20	71364.60	440793.24	440811.68	5279750.10	5324295.51	1034	352	2016
1377.00	66608.70	67236.90	440895.81	440911.78	5287851.76	5324296.96	1023	299	2016
1377.02	61487.00	61624.50	440903.10	440912.68	5279754.26	5287947.08	2024	7	2017
1378.00	68357.40	69142.00	440999.11	441011.48	5279752.57	5324296.68	1034	352	2016
1379.00	68248.70	69006.60	441097.73	441107.87	5279754.69	5324297.56	1023	299	2016
1380.00	66143.40	66935.20	441199.67	441212.25	5279751.16	5324295.91	1034	352	2016
1381.00	69984.20	70489.60	441294.99	441316.70	5279752.54	5308946.96	1023	299	2016
1381.01	72159.40	72437.90	441280.87	441308.83	5308852.37	5324296.81	2022	5	2017
1382.00	71146.00	71934.40	441398.09	441409.95	5279753.76	5324300.80	1033	351	2016
1383.00	71758.80	72508.90	441499.14	441511.11	5279699.73	5324299.88	1023	299	2016
1384.00	57009.80	57568.70	441597.63	441610.47	5291850.87	5324300.79	1023	299	2016
1384.01	73110.20	73324.70	441597.84	441608.59	5279640.25	5291948.60	2022	5	2017
1385.00	73483.60	74245.50	441692.13	441713.43	5279586.12	5324295.50	1023	299	2016
1386.00	58710.70	58789.20	441801.97	441810.15	5319855.26	5324297.01	1023	299	2016
1386.01	59072.90	59502.50	441791.78	441812.05	5279530.04	5303948.86	1023	299	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1386.02	57422.80	57723.70	441800.51	441807.69	5303850.30	5319947.37	2023	6	2017
1387.00	72082.00	72896.70	441896.66	441911.26	5279470.11	5324296.53	1033	351	2016
1388.00	60417.70	61206.60	441999.66	442014.32	5279416.39	5325048.80	1023	299	2016
1389.00	60024.20	60826.10	442094.89	442109.39	5279357.46	5325045.97	2009	304	2016
1390.00	62294.90	62821.50	442198.33	442216.50	5285859.35	5315948.73	1023	299	2016
1390.01	74799.90	74921.10	442199.77	442207.93	5278755.79	5285951.92	2022	5	2017
1390.02	56594.30	56762.50	442194.90	442206.24	5315850.62	5325048.86	2023	6	2017
1391.00	61906.80	62710.50	442297.80	442311.54	5278751.89	5325045.81	2009	304	2016
1392.00	64157.40	64679.50	442398.70	442413.61	5278750.71	5308957.02	1023	299	2016
1392.01	72557.50	72846.50	442393.78	442410.06	5308861.63	5325046.95	2022	5	2017
1393.00	63857.80	64666.00	442498.23	442511.33	5278753.49	5325045.85	2009	304	2016
1394.00	65601.90	65816.30	442600.48	442624.12	5312851.25	5325048.63	1023	299	2016
1394.01	65987.10	66253.50	442596.64	442608.92	5287850.69	5302944.47	1023	299	2016
1394.02	73456.30	73614.90	442595.50	442610.70	5278753.48	5287948.96	2022	5	2017
1394.03	74374.80	74545.00	442595.75	442610.03	5302854.26	5312949.46	2022	5	2017
1395.00	65914.40	66721.30	442697.13	442710.76	5278750.03	5325047.92	2009	304	2016
1396.00	67329.10	67538.30	442798.57	442810.60	5312850.58	5325049.67	1023	299	2016
1396.01	68024.90	68133.30	442801.81	442811.26	5278752.93	5284949.58	1023	299	2016
1396.02	73750.40	74246.40	442794.53	442812.14	5284853.58	5312946.96	2022	5	2017
1397.00	67840.10	68649.60	442899.32	442912.90	5278750.51	5325049.59	2009	304	2016
1398.00	69106.90	69909.60	442999.73	443011.99	5278754.17	5325046.10	1023	299	2016
1399.00	69700.70	70507.00	443099.38	443108.99	5278753.34	5325049.65	2009	304	2016
1400.00	71163.10	71676.80	443193.60	443214.52	5278732.92	5307946.82	1023	299	2016
1400.01	57911.90	58216.70	443200.36	443209.00	5307851.96	5325045.78	2023	6	2017
1401.00	71555.00	72352.60	443296.59	443310.11	5278677.04	5325044.25	2009	304	2016
1402.00	72602.80	73414.10	443399.32	443413.87	5278620.47	5325044.16	1023	299	2016
1403.00	73447.80	74256.60	443498.91	443513.85	5278561.38	5325049.06	2009	304	2016
1404.00	74329.70	75127.70	443595.44	443615.33	5278530.15	5325049.38	1023	299	2016
1405.00	75306.50	76116.80	443700.05	443712.44	5278451.34	5325046.54	2009	304	2016
1406.00	77266.70	78099.60	443796.34	443811.61	5278414.83	5325045.96	2017	348	2016
1407.00	77167.60	77983.80	443898.87	443911.49	5278334.96	5325044.51	2009	304	2016
1408.00	60959.40	61789.40	443999.27	444013.10	5277753.89	5325047.00	2009	304	2016
1409.00	59785.40	60604.20	444075.58	444110.55	5277750.77	5325048.96	2010	306	2016
1410.00	62805.10	63650.50	444194.99	444216.42	5277751.06	5325049.53	2009	304	2016
1411.00	61709.50	62536.30	444299.08	444312.53	5277755.13	5325049.29	2010	306	2016
1412.00	64797.80	65657.40	444394.45	444410.87	5277753.00	5325046.57	2009	304	2016
1413.00	63755.70	64604.70	444493.47	444510.47	5277750.51	5325044.94	2010	306	2016
1414.00	66850.50	67735.30	444597.49	444609.70	5277751.64	5325049.30	2009	304	2016
1415.00	65660.60	66498.80	444697.60	444711.73	5277750.79	5325044.90	2010	306	2016
1416.00	68731.30	69588.00	444796.99	444808.60	5277754.65	5325045.98	2009	304	2016
1417.00	67563.50	68400.60	444897.60	444912.67	5277754.26	5325048.90	2010	306	2016
1418.00	70623.60	71467.10	445000.19	445011.79	5277711.35	5325049.08	2009	304	2016
1419.00	69600.10	70434.50	445096.96	445118.55	5277653.16	5325045.79	2010	306	2016
1420.00	72471.10	73333.30	445200.24	445214.96	5277594.07	5325047.64	2009	304	2016
1421.00	71604.10	72451.40	445298.35	445310.11	5277539.19	5325046.82	2010	306	2016
1422.00	74362.60	75210.20	445400.72	445415.89	5277484.43	5325046.22	2009	304	2016
1423.00	73548.90	74396.70	445498.62	445510.45	5277427.59	5325047.92	2010	306	2016
1424.00	76228.80	77081.40	445599.54	445612.88	5277371.57	5325046.35	2009	304	2016
1425.00	75647.20	76497.80	445697.36	445713.79	5277314.06	5325048.56	2010	306	2016
1426.00	78106.40	78988.40	445800.58	445814.24	5276775.84	5325046.49	2009	304	2016
1427.00	59045.20	59883.10	445896.60	445930.56	5276754.61	5325048.15	2011	307	2016
1428.00	60757.80	61610.10	445996.14	446010.26	5276750.79	5325044.94	2010	306	2016
1429.00	61045.80	61909.10	446099.50	446111.00	5276750.08	5325047.74	2011	307	2016
1430.00	62785.20	63629.70	446197.39	446210.40	5276750.04	5325046.01	2010	306	2016
1431.00	63061.00	63909.80	446301.27	446312.40	5276754.51	5325047.31	2011	307	2016
1432.00	64709.90	65555.80	446398.80	446413.38	5276751.37	5325046.05	2010	306	2016
1433.00	65180.90	66045.40	446498.30	446510.20	5276751.97	5325047.05	2011	307	2016
1434.00	66619.20	67475.60	446593.34	446609.56	5276752.96	5325049.58	2010	306	2016
1435.00	67607.30	68468.20	446698.12	446710.91	5276743.20	5325044.73	2011	307	2016
1436.00	68565.90	69438.90	446796.88	446809.49	5276689.42	5325047.56	2010	306	2016
1437.00	58251.80	58622.50	446894.15	446910.41	5276630.18	5296939.59	1009	281	2016
1437.01	61344.40	61846.50	446895.67	446910.58	5296852.40	5325048.13	1032	350	2016
1438.00	70647.10	71497.10	446999.19	447009.47	5276570.02	5325047.70	2010	306	2016
1439.00	65589.10	66438.40	447096.60	447112.70	5276513.28	5325045.53	2004	294	2016
1440.00	72572.60	73450.00	447197.61	447211.23	5276460.99	5325046.68	2010	306	2016
1441.00	70249.70	71110.30	447297.05	447311.61	5276403.91	5325049.31	2011	307	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1442.00	74510.60	75378.40	447399.71	447413.90	5276344.23	5325047.54	2010	306	2016
1443.00	72219.20	73091.90	447494.36	447514.79	5275751.59	5325045.68	2011	307	2016
1444.00	59998.70	60841.50	447598.40	447611.44	5275755.66	5325044.61	2011	307	2016
1445.00	74833.00	75728.00	447699.41	447714.10	5275752.39	5325049.31	2011	307	2016
1446.00	62020.10	62898.60	447799.33	447810.39	5275753.54	5325048.84	2011	307	2016
1447.00	64267.50	65140.60	447893.56	447910.13	5275753.56	5325046.29	2017	348	2016
1448.00	64201.50	65066.00	447998.09	448012.24	5275753.03	5325049.88	2011	307	2016
1449.00	66302.20	67169.50	448094.73	448110.02	5275751.22	5325049.55	2017	348	2016
1450.00	66526.90	67416.80	448191.10	448209.13	5275750.75	5325047.40	2011	307	2016
1451.00	68302.40	69168.90	448292.08	448310.87	5275752.64	5325050.00	2017	348	2016
1452.00	68579.70	69446.50	448389.38	448412.55	5275753.98	5325047.36	2011	307	2016
1453.00	70338.40	71213.10	448493.48	448512.65	5275718.91	5325049.31	2017	348	2016
1454.00	71242.50	72113.60	448598.98	448610.16	5275660.16	5325048.90	2011	307	2016
1455.00	72320.60	73065.60	448697.20	448712.69	5275605.02	5317945.35	2017	348	2016
1455.01	75363.70	75492.40	448697.72	448710.43	5317855.47	5325044.69	2017	348	2016
1456.00	73186.90	74071.10	448799.69	448816.16	5275551.85	5325047.50	2011	307	2016
1457.00	74099.60	74979.80	448887.47	448917.46	5275495.52	5325044.54	2017	348	2016
1458.00	75872.90	76748.50	448998.78	449011.37	5275460.62	5325045.80	2011	307	2016
1459.00	76421.70	77119.30	449084.22	449117.20	5286850.50	5325046.07	2017	348	2016
1459.01	56867.90	57083.80	449097.90	449113.84	5275380.51	5286948.18	1031	349	2016
1460.00	65266.70	66172.10	449195.07	449214.50	5275323.21	5325048.75	2017	348	2016
1461.00	57706.20	58631.80	449291.70	449310.17	5274753.28	5325047.52	1031	349	2016
1462.00	67293.50	68226.80	449394.54	449411.33	5274754.28	5325048.97	2017	348	2016
1463.00	61785.60	62734.60	449495.95	449513.12	5274750.44	5325045.55	1031	349	2016
1464.00	69308.90	70250.20	449595.30	449613.75	5274752.30	5325048.70	2017	348	2016
1465.00	59799.90	60734.00	449695.36	449713.69	5274752.33	5325049.91	1031	349	2016
1466.00	71321.40	72226.30	449793.24	449812.79	5274750.68	5325049.91	2017	348	2016
1467.00	63797.60	64714.40	449897.20	449917.86	5274750.79	5325046.13	1031	349	2016
1468.00	73195.20	73993.70	449992.60	450016.82	5274750.67	5317945.96	2017	348	2016
1468.01	75146.60	75274.40	449991.40	450009.82	5317853.76	5325045.84	2017	348	2016
1469.00	65782.50	66680.00	450096.64	450117.15	5274753.85	5325048.42	1031	349	2016
1470.00	75624.20	76350.90	450194.39	450210.75	5285854.37	5325049.06	2017	348	2016
1470.01	57366.10	57556.30	450197.03	450206.77	5274752.49	5285946.29	1031	349	2016
1471.00	59640.70	60523.90	450299.75	450311.84	5274697.28	5325047.90	1032	350	2016
1472.00	55827.60	56721.70	450393.71	450415.37	5274639.95	5325048.89	1031	349	2016
1473.00	73991.30	74887.40	450497.99	450509.42	5274580.13	5325046.24	1033	351	2016
1474.00	58764.60	59640.70	450592.08	450619.94	5274528.15	5325047.14	1031	349	2016
1475.00	75900.70	76804.90	450696.81	450713.25	5274471.22	5325049.65	1034	352	2016
1476.00	60832.80	61698.50	450794.77	450812.31	5274413.68	5325049.32	1031	349	2016
1477.00	73765.60	74664.70	450896.98	450911.54	5274353.38	5325047.24	1034	352	2016
1478.00	62832.40	63705.60	450994.64	451012.74	5273752.61	5325046.18	1031	349	2016
1479.00	71588.90	72510.60	451098.51	451111.72	5273753.93	5325044.56	1034	352	2016
1480.00	64817.20	65686.60	451194.74	451213.22	5273752.13	5325046.56	1031	349	2016
1481.00	62995.90	63929.30	451299.32	451311.03	5273750.29	5325049.29	1034	352	2016
1482.00	75019.10	75913.20	451395.73	451409.86	5273753.21	5325048.57	1033	351	2016
1483.00	69413.00	70358.40	451498.54	451513.23	5273750.17	5325047.19	1034	352	2016
1484.00	64058.20	64950.50	451596.87	451616.46	5273751.39	5325049.60	1034	352	2016
1485.00	67206.60	68150.70	451696.52	451716.05	5273751.91	5325049.50	1034	352	2016
1486.00	68990.30	69890.90	451796.19	451810.84	5273751.65	5325048.84	1033	351	2016
1487.00	54738.90	55747.30	451872.23	451918.53	5273752.85	5325048.18	1031	349	2016
1488.00	75568.60	76524.70	451998.68	452009.54	5273731.46	5325049.35	2012	338	2016
1489.00	70036.40	70946.50	452096.05	452111.45	5273673.87	5325044.44	1033	351	2016
1490.00	73459.70	74385.00	452199.35	452210.63	5273618.11	5325049.20	2012	338	2016
1491.00	67950.10	68868.70	452297.37	452314.30	5273558.18	5325044.75	1033	351	2016
1492.00	71354.70	72270.80	452398.06	452410.04	5273504.55	5325045.72	2012	338	2016
1493.00	65943.00	66868.80	452498.18	452513.34	5273447.84	5325048.09	1033	351	2016
1494.00	69246.40	70192.40	452599.98	452609.97	5273388.50	5325045.92	2012	338	2016
1495.00	63903.50	64841.90	452699.12	452714.18	5273335.35	5325045.17	1033	351	2016
1496.00	67144.20	68102.10	452796.73	452811.27	5272751.74	5325044.43	2012	338	2016
1497.00	61860.50	62823.10	452897.34	452916.51	5272752.93	5325046.72	1033	351	2016
1498.00	65089.50	66050.20	452998.81	453013.42	5272754.03	5325045.31	2012	338	2016
1499.00	59854.70	60784.30	453100.44	453113.80	5272754.09	5325045.56	1033	351	2016
1500.00	63021.40	63959.30	453195.84	453211.01	5272751.01	5325045.71	2012	338	2016
1501.00	57795.10	58715.10	453299.26	453315.13	5272754.79	5325048.69	1033	351	2016
1502.00	60920.20	61857.80	453394.17	453411.03	5272754.02	5325045.30	2012	338	2016
1503.00	55717.60	56667.10	453497.63	453511.11	5272755.05	5325049.33	1033	351	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1504.00	58790.70	59733.60	453595.59	453610.60	5272750.29	5325045.14	2012	338	2016
1505.00	74535.90	75447.10	453698.73	453710.96	5272751.23	5325047.69	2012	338	2016
1506.00	66961.80	67872.00	453798.64	453811.94	5272705.13	5325049.68	1033	351	2016
1507.00	72409.20	73326.20	453900.31	453912.22	5272650.96	5325048.51	2012	338	2016
1508.00	64935.90	65859.70	453995.75	454009.62	5272593.03	5325047.71	1033	351	2016
1509.00	70354.80	71261.30	454099.43	454113.13	5272537.90	5325049.77	2012	338	2016
1510.00	62893.20	63808.80	454198.69	454210.15	5272482.64	5325046.21	1033	351	2016
1511.00	68233.10	69152.60	454300.82	454311.83	5272424.25	5325049.33	2012	338	2016
1512.00	60854.10	61777.10	454396.95	454412.41	5272363.81	5325047.55	1033	351	2016
1513.00	66130.90	67055.50	454500.48	454509.04	5272309.21	5325045.78	2012	338	2016
1514.00	58841.60	59788.40	454600.13	454612.16	5271751.34	5325047.23	1033	351	2016
1515.00	64044.20	64971.60	454697.52	454710.41	5271753.44	5325046.88	2012	338	2016
1516.00	56781.70	57719.90	454796.84	454810.84	5271753.86	5325048.85	1033	351	2016
1517.00	61972.40	62903.60	454899.53	454913.20	5271754.59	5325047.46	2012	338	2016
1518.00	66791.70	67711.20	454997.04	455012.24	5271751.89	5325046.38	1031	349	2016
1519.00	59895.70	60818.60	455096.01	455110.48	5271755.06	5325047.92	2012	338	2016
1520.00	70575.60	71513.00	455192.63	455214.31	5271755.42	5325045.55	1029	344	2016
1521.00	57723.70	58672.70	455300.32	455310.01	5271755.23	5325047.81	2012	338	2016
1522.00	68469.60	69405.90	455386.26	455418.90	5271755.84	5325045.73	1029	344	2016
1523.00	64832.90	65790.40	455499.95	455510.40	5271743.80	5325046.23	1028	343	2016
1524.00	66366.70	67291.90	455596.39	455615.04	5271684.43	5325046.33	1029	344	2016
1525.00	67072.90	68010.30	455694.56	455712.22	5271624.12	5325046.51	1028	343	2016
1526.00	64243.80	65227.80	455797.34	455809.88	5271571.70	5325046.45	1029	344	2016
1527.00	69175.20	70136.80	455898.68	455911.68	5271510.20	5325049.20	1028	343	2016
1528.00	62094.60	63040.40	455994.32	456014.40	5271453.34	5325044.53	1029	344	2016
1529.00	71415.70	72368.60	456096.56	456111.57	5271402.50	5325047.30	1028	343	2016
1530.00	59934.70	60903.80	456196.62	456213.97	5271344.09	5325044.38	1029	344	2016
1531.00	73584.30	74555.30	456295.20	456312.81	5270752.87	5325047.12	1028	343	2016
1532.00	57703.60	58696.80	456399.13	456414.77	5270751.14	5325045.38	1029	344	2016
1533.00	75797.40	76752.00	456499.21	456511.04	5270753.26	5325048.59	1028	343	2016
1534.00	72711.10	73676.70	456597.10	456615.00	5270750.39	5325046.16	1029	344	2016
1535.00	77968.60	78909.70	456695.17	456711.89	5270750.44	5325044.39	1028	343	2016
1536.00	65982.10	66953.30	456799.57	456812.98	5270751.92	5325044.37	1028	343	2016
1537.00	69531.30	70482.80	456899.12	456913.97	5270751.67	5325049.25	1029	344	2016
1538.00	68100.90	69053.30	456998.37	457012.12	5270754.61	5325044.58	1028	343	2016
1539.00	67407.30	68388.00	457093.79	457113.87	5270753.61	5325048.21	1029	344	2016
1540.00	70258.10	71235.40	457196.97	457215.72	5270755.46	5325046.54	1028	343	2016
1541.00	65340.40	66292.60	457295.06	457312.83	5270717.29	5325045.34	1029	344	2016
1542.00	72494.80	73468.90	457396.86	457415.92	5270662.83	5325047.73	1028	343	2016
1543.00	63158.40	64110.80	457496.95	457512.39	5270605.00	5325049.90	1029	344	2016
1544.00	74706.40	75678.20	457595.45	457612.74	5270545.61	5325045.90	1028	343	2016
1545.00	61018.80	61991.60	457699.15	457714.15	5270488.06	5325047.58	1029	344	2016
1546.00	76846.80	77827.30	457794.08	457814.34	5270433.03	5325049.07	1028	343	2016
1547.00	58829.70	59805.60	457897.70	457911.28	5270374.53	5325047.30	1029	344	2016
1548.00	79050.40	80053.90	457994.82	458011.65	5270338.84	5325045.48	1028	343	2016
1549.00	56594.80	57593.70	458092.50	458114.58	5269750.42	5325047.36	1029	344	2016
1550.00	62049.00	63021.10	458197.68	458212.01	5269752.09	5325045.85	1032	350	2016
1551.00	71639.30	72629.90	458295.23	458314.29	5269754.94	5325048.44	1029	344	2016
1552.00	64179.80	65130.30	458397.07	458410.62	5269754.20	5325045.91	1032	350	2016
1553.00	71930.80	72895.40	458497.01	458509.99	5269754.55	5325046.54	1032	350	2016
1554.00	76813.00	77806.40	458590.59	458611.38	5269755.02	5325046.00	2010	306	2016
1555.00	77962.10	78944.10	458699.82	458711.61	5269752.00	5325048.94	2010	306	2016
1556.00	79177.30	80132.40	458796.40	458809.40	5269775.68	5325047.74	2010	306	2016
1557.00	78196.70	79162.60	458898.68	458909.82	5269750.34	5325049.39	1034	352	2016
1558.00	66366.30	67355.90	458996.51	459012.89	5269748.26	5325047.37	1032	350	2016
1559.00	69084.00	70078.50	459093.64	459111.79	5269695.56	5325049.87	2021	4	2017
1560.00	68600.80	69597.20	459199.04	459211.59	5269634.44	5325048.87	1032	350	2016
1561.00	71266.40	71958.40	459297.15	459316.09	5269577.22	5306948.12	2021	4	2017
1561.01	56000.40	56327.40	459289.22	459312.25	5306853.14	5325047.25	2022	5	2017
1562.00	70830.70	71851.40	459399.23	459409.51	5269523.45	5325047.23	1032	350	2016
1563.00	72760.10	73423.40	459497.78	459510.52	5269468.50	5305946.61	2021	4	2017
1563.01	57021.40	57373.10	459499.19	459513.12	5305854.37	5325047.13	2022	5	2017
1564.00	72987.60	73966.20	459599.02	459608.44	5269409.06	5325045.89	1032	350	2016
1565.00	63134.60	64108.50	459699.77	459711.17	5269352.72	5325047.03	1032	350	2016
1566.00	70178.50	71151.40	459794.98	459810.55	5268751.61	5325049.47	2021	4	2017
1567.00	65213.80	66196.70	459899.61	459910.81	5268751.56	5325046.69	1032	350	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1568.00	72043.10	72650.10	459996.83	460009.45	5268754.77	5303945.98	2021	4	2017
1568.01	55440.50	55818.00	459994.18	460009.19	5303852.63	5325048.59	2022	5	2017
1569.00	67447.80	68437.10	460098.62	460112.48	5268753.39	5325049.51	1032	350	2016
1570.00	73535.20	74124.10	460196.04	460212.18	5268752.56	5302949.98	2021	4	2017
1570.01	56426.80	56825.50	460196.92	460209.23	5302850.45	5325048.65	2022	5	2017
1571.00	69689.60	70668.00	460298.96	460311.03	5268753.63	5325049.17	1032	350	2016
1572.00	59274.30	60271.20	460399.92	460409.97	5268751.20	5325047.80	2008	298	2016
1573.02	68082.40	69066.20	460498.63	460513.23	5268750.56	5325047.17	2023	6	2017
1574.00	75385.40	76376.40	460590.09	460611.61	5268753.25	5325048.66	2021	4	2017
1575.00	74238.00	75261.30	460696.19	460714.20	5268750.72	5325045.71	2021	4	2017
1576.01	69183.70	70141.50	460798.04	460811.10	5268725.86	5325048.48	2023	6	2017
1577.00	74081.20	75054.10	460896.24	460909.34	5268669.94	5325049.20	1032	350	2016
1578.01	70254.90	71217.60	460998.53	461011.35	5268613.51	5325049.78	2023	6	2017
1579.00	70040.30	71055.40	461098.83	461108.87	5268558.17	5325047.51	2008	298	2016
1580.02	71337.30	72300.40	461197.58	461209.23	5268523.18	5325049.47	2023	6	2017
1581.00	67636.20	68668.60	461297.71	461310.99	5268444.31	5325047.62	2008	298	2016
1582.00	79238.30	80237.10	461397.74	461412.22	5268408.44	5325048.24	1034	352	2016
1583.00	65357.40	66372.80	461499.57	461511.33	5268328.56	5325048.33	2008	298	2016
1584.00	76854.10	77876.30	461599.39	461614.72	5267772.86	5325044.93	2008	298	2016
1585.00	60404.90	61457.30	461697.12	461709.11	5267750.81	5325048.52	2008	298	2016
1586.00	55162.80	56028.80	461797.27	461817.21	5267751.40	5313944.83	2007	297	2016
1586.01	57470.30	57669.60	461796.53	461809.44	5313850.84	5325045.09	2022	5	2017
1587.00	58089.70	59140.10	461896.87	461911.35	5267754.47	5325046.10	2008	298	2016
1588.01	64069.70	65100.30	461998.42	462012.39	5267751.06	5325048.08	2008	298	2016
1589.00	61112.50	62089.20	462093.21	462121.11	5267751.71	5325045.90	2001	289	2016
1590.00	71181.90	72198.30	462195.64	462213.70	5267750.66	5325046.95	2001	289	2016
1591.00	56593.20	57600.30	462300.01	462310.33	5267752.76	5325046.23	2001	289	2016
1592.00	73465.90	74428.80	462396.71	462414.03	5267775.85	5325044.09	2001	289	2016
1593.00	58886.20	59861.50	462494.87	462509.77	5267753.60	5325049.45	2001	289	2016
1594.00	77352.30	78385.50	462596.21	462611.35	5267706.53	5325047.70	1032	350	2016
1595.00	63360.50	64353.40	462700.67	462712.28	5267649.29	5325049.27	2001	289	2016
1596.00	75128.50	76137.30	462795.02	462809.64	5267591.04	5325046.03	1032	350	2016
1597.00	62755.10	63817.80	462895.43	462913.56	5267532.60	5325045.37	2008	298	2016
1598.00	74796.20	75346.40	462997.84	463013.12	5267476.07	5297947.24	2008	298	2016
1598.01	58131.30	58611.60	462996.16	463010.16	5297851.85	5325049.97	2022	5	2017
1599.00	76492.10	77366.30	463096.49	463111.03	5267419.14	5316924.73	2021	4	2017
1599.01	57863.10	58013.70	463103.06	463111.18	5316853.77	5325047.11	2022	5	2017
1600.00	71154.40	72187.30	463197.15	463214.25	5267360.80	5325045.09	2008	298	2016
1601.00	76253.50	77265.00	463297.37	463312.60	5267306.68	5325045.18	1032	350	2016
1602.00	68788.20	69841.10	463391.62	463417.68	5266754.25	5325045.04	2008	298	2016
1603.00	75677.80	76735.40	463497.78	463513.21	5266753.28	5325045.77	2008	298	2016
1604.00	66489.10	67542.10	463597.64	463611.52	5266753.70	5325048.16	2008	298	2016
1605.00	74303.30	74703.10	463698.40	463712.05	5302854.21	5325045.78	2008	298	2016
1605.01	58971.20	59602.50	463695.80	463713.05	5266750.00	5302945.07	2022	5	2017
1606.00	61582.20	62613.60	463798.83	463809.74	5266755.38	5325045.47	2008	298	2016
1607.00	72788.10	73532.60	463900.75	463912.26	5283853.54	5325044.46	2008	298	2016
1607.01	76169.80	76479.70	463899.54	463910.16	5266754.41	5283927.29	1033	351	2016
1608.00	62187.30	63233.30	463995.67	464014.99	5266754.78	5325046.65	2001	289	2016
1609.00	51790.90	52832.00	464096.67	464113.33	5266753.12	5325048.68	2007	297	2016
1610.00	57749.60	58787.20	464198.44	464210.88	5266755.34	5325048.58	2001	289	2016
1611.00	55331.00	56218.70	464297.00	464314.00	5266739.20	5325045.26	1019	295	2016
1612.00	59989.60	61041.40	464398.50	464408.70	5266679.41	5325048.80	2001	289	2016
1613.00	72337.40	73349.30	464493.62	464510.90	5266626.97	5325045.55	2001	289	2016
1614.00	70748.90	71795.60	464598.14	464611.87	5266566.60	5325047.17	1006	276	2016
1615.00	70070.80	71070.50	464699.04	464710.72	5266512.22	5325049.33	2001	289	2016
1616.00	68460.50	69507.80	464799.50	464811.17	5266451.68	5325048.01	1006	276	2016
1617.00	67809.50	68810.50	464893.08	464910.37	5266397.35	5325048.21	2001	289	2016
1618.00	66171.60	67216.90	464996.10	465009.61	5266337.82	5325049.94	1006	276	2016
1619.00	65558.30	66584.70	465096.83	465111.48	5265755.36	5325045.90	2001	289	2016
1620.00	63908.30	64972.70	465198.16	465211.13	5265753.25	5325044.45	1006	276	2016
1621.00	65735.10	66773.20	465298.93	465314.82	5265753.98	5325045.57	1007	277	2016
1622.00	61644.40	62704.30	465396.69	465411.21	5265751.18	5325047.12	1006	276	2016
1623.00	63457.30	64500.50	465497.61	465517.16	5265752.68	5325046.32	1007	277	2016
1624.00	59102.60	60150.10	465599.97	465612.26	5265752.41	5325047.14	1006	276	2016
1625.00	61169.10	62207.50	465699.46	465711.41	5265751.51	5325046.83	1007	277	2016
1626.00	56837.70	57881.80	465798.83	465810.34	5265750.60	5325049.72	1006	276	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1627.00	58862.60	59908.90	465900.63	465912.03	5265754.61	5325048.76	1007	277	2016
1628.00	54592.50	55637.90	465995.08	466012.47	5265750.90	5325047.56	1006	276	2016
1629.00	56537.10	57573.80	466096.91	466112.62	5265712.10	5325047.24	1007	277	2016
1630.00	81874.30	82936.00	466199.42	466212.92	5265657.54	5325047.66	1005	275	2016
1631.00	54254.50	55289.90	466297.82	466315.13	5265602.65	5325044.93	1007	277	2016
1632.00	79567.50	80625.70	466398.52	466413.09	5265601.80	5325044.58	1005	275	2016
1633.00	51949.50	53003.80	466498.16	466513.20	5265601.83	5325044.98	1007	277	2016
1634.00	77273.80	78349.00	466596.32	466611.19	5265602.60	5325047.37	1005	275	2016
1635.00	69600.00	70657.30	466699.71	466713.14	5265602.76	5325044.66	1006	276	2016
1636.00	68913.60	69951.20	466798.61	466812.20	5265601.41	5325049.44	2001	289	2016
1637.00	67327.70	68384.70	466898.73	466911.18	5265605.60	5325049.87	1006	276	2016
1638.00	66692.70	67743.60	466995.81	467010.77	5265606.12	5325048.47	2001	289	2016
1639.00	65056.60	66097.90	467095.86	467112.46	5265605.95	5325045.10	1006	276	2016
1640.00	64457.40	65463.60	467196.95	467213.12	5265603.11	5325045.79	2001	289	2016
1641.00	62793.30	63828.50	467297.51	467311.24	5265603.66	5325046.30	1006	276	2016
1642.00	66869.30	67907.70	467396.91	467410.04	5265604.53	5325049.30	1007	277	2016
1643.00	60526.80	61569.90	467495.69	467511.85	5265605.50	5325049.13	1006	276	2016
1644.00	64587.60	65634.30	467596.84	467614.32	5265602.41	5325044.92	1007	277	2016
1645.00	57983.80	59025.30	467698.34	467711.41	5265601.52	5325044.79	1006	276	2016
1646.00	62293.00	63351.20	467797.69	467811.67	5265602.96	5325049.95	1007	277	2016
1647.00	55715.30	56763.20	467899.26	467911.51	5265606.13	5325048.18	1006	276	2016
1648.00	59996.60	61083.30	467995.61	468012.51	5265605.21	5325045.87	1007	277	2016
1649.00	53467.20	54512.80	468101.07	468112.00	5265603.15	5325045.14	1006	276	2016
1650.00	57672.70	58768.70	468198.57	468212.65	5265606.60	5325047.26	1007	277	2016
1651.00	80712.10	81758.10	468299.89	468310.78	5265604.62	5325045.47	1005	275	2016
1652.00	55378.90	56458.50	468398.16	468409.04	5265605.35	5325044.85	1007	277	2016
1653.00	78423.90	79469.80	468493.49	468512.03	5265605.68	5325047.93	1005	275	2016
1654.00	53086.20	54160.00	468600.04	468613.35	5265602.98	5325046.01	1007	277	2016
1655.00	71466.00	72518.10	468697.63	468713.81	5265601.76	5325047.64	1004	274	2016
1656.00	70268.40	71338.90	468793.50	468811.30	5265602.55	5325049.46	1004	274	2016
1657.00	73796.70	74844.70	468899.12	468913.24	5265602.55	5325049.54	1004	274	2016
1658.00	67993.70	69051.50	469000.72	469012.55	5265601.95	5325045.19	1004	274	2016
1659.00	76102.40	77147.40	469096.35	469109.41	5265604.42	5325044.77	1004	274	2016
1660.00	71889.70	72952.10	469200.20	469214.24	5265604.08	5325046.18	1003	273	2016
1661.00	78375.60	79416.90	469299.34	469311.05	5265601.71	5325046.71	1004	274	2016
1662.00	69588.60	70660.00	469398.07	469412.11	5265606.26	5325045.87	1003	273	2016
1663.00	64639.00	65688.00	469496.40	469517.36	5265601.71	5325046.76	1005	275	2016
1664.00	67317.60	68369.50	469596.12	469610.14	5265605.83	5325049.66	1003	273	2016
1665.00	66926.50	67962.40	469698.89	469711.53	5265604.92	5325046.79	1005	275	2016
1666.00	65035.90	66101.20	469798.87	469810.52	5265604.08	5325045.98	1003	273	2016
1667.00	69202.20	70268.90	469899.44	469913.36	5265602.04	5325048.06	1005	275	2016
1668.00	62769.00	63824.20	469999.21	470014.10	5265601.63	5325048.12	1003	273	2016
1669.00	71535.80	72586.70	470097.25	470113.30	5265606.58	5325046.64	1005	275	2016
1670.00	60473.20	61534.00	470196.78	470209.00	5265603.39	5325048.33	1003	273	2016
1671.00	73814.20	74859.90	470296.95	470311.09	5265605.67	5325044.57	1005	275	2016
1672.00	58185.30	59238.10	470399.56	470410.19	5265602.69	5325048.02	1003	273	2016
1673.00	76099.70	77158.20	470497.77	470511.33	5265602.49	5325046.34	1005	275	2016
1674.00	55869.40	56914.10	470598.74	470610.27	5265604.02	5325047.31	1003	273	2016
1675.00	69132.90	70188.10	470694.93	470714.21	5265604.36	5325049.32	1004	274	2016
1676.00	72634.80	73687.80	470799.39	470810.30	5265605.46	5325047.21	1004	274	2016
1677.00	66888.10	67916.00	470897.08	470909.54	5265604.59	5325049.55	1004	274	2016
1678.00	74921.80	75985.30	470996.64	471009.77	5265602.39	5325045.28	1004	274	2016
1679.00	70737.30	71801.20	471099.17	471109.87	5265601.57	5325045.46	1003	273	2016
1680.00	77234.90	78302.50	471197.49	471211.12	5265603.53	5325047.84	1004	274	2016
1681.00	68442.80	69496.50	471300.83	471312.00	5265603.59	5325049.69	1003	273	2016
1682.00	79497.40	80579.00	471397.27	471409.78	5265602.35	5325044.64	1004	274	2016
1683.00	66179.70	67221.50	471498.57	471510.71	5265604.07	5325045.99	1003	273	2016
1684.00	65774.00	66843.20	471597.78	471610.04	5265605.28	5325044.63	1005	275	2016
1685.00	63900.10	64950.10	471697.30	471709.94	5265603.51	5325045.49	1003	273	2016
1686.00	68059.40	69128.50	471798.87	471811.49	5265605.58	5325047.21	1005	275	2016
1687.00	61631.10	62687.80	471898.72	471909.18	5265605.45	5325046.72	1003	273	2016
1688.00	70383.40	71461.70	471997.43	472013.59	5265605.73	5325049.72	1005	275	2016
1689.00	59337.30	60401.40	472098.86	472110.32	5265604.40	5325047.07	1003	273	2016
1690.00	72677.10	73748.70	472196.45	472210.31	5265601.19	5325046.58	1005	275	2016
1691.00	57030.00	58095.30	472298.84	472310.53	5265603.64	5325048.77	1003	273	2016
1692.00	74943.80	76019.50	472396.58	472413.25	5265603.81	5325046.61	1005	275	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1693.00	54722.90	55779.70	472499.17	472511.81	5265603.04	5325046.68	1003	273	2016
1694.00	72947.70	73825.80	472597.97	472612.33	5265602.58	5309948.31	3010	348	2016
1694.01	60851.60	60951.60	472599.06	472607.75	5309854.08	5315046.94	3012	350	2016
1695.00	68054.20	68925.80	472699.38	472713.29	5265602.15	5315047.88	1007	277	2016
1696.00	74554.60	75148.60	472792.61	472811.94	5265603.00	5295948.87	3010	348	2016
1696.01	59814.80	60155.20	472800.83	472816.53	5295853.58	5315048.02	3012	350	2016
1697.00	70026.40	70911.80	472899.44	472914.08	5265602.25	5315046.38	1007	277	2016
1698.00	70801.80	71666.00	472995.17	473015.43	5265606.79	5315044.82	1031	349	2016
1699.01	69778.00	70689.00	473094.90	473116.11	5265605.43	5315046.66	1031	349	2016
1700.00	71040.30	71909.90	473198.67	473210.78	5265606.41	5315044.99	1007	277	2016
1701.00	73934.20	74458.30	473291.83	473319.70	5265603.86	5295945.44	3010	348	2016
1701.01	60369.60	60718.60	473299.47	473315.34	5295854.17	5315045.85	3012	350	2016
1702.00	69052.60	69921.40	473398.09	473411.60	5265604.58	5315047.97	1007	277	2016
1703.00	62174.40	63059.50	473498.26	473511.20	5265605.96	5315047.94	1002	272	2016
1704.00	63162.20	64052.90	473599.08	473613.73	5265602.17	5315047.09	1002	272	2016
1705.00	64196.60	65092.10	473699.24	473711.84	5265603.35	5315049.26	1002	272	2016
1706.00	65209.70	66098.90	473798.43	473809.86	5265606.36	5315048.17	1002	272	2016
1707.00	66235.20	67148.30	473899.31	473911.18	5265604.75	5315048.82	1002	272	2016
1708.00	67298.40	68185.60	473998.27	474011.28	5265605.08	5315047.35	1002	272	2016
1709.00	68304.00	69195.90	474098.73	474110.72	5265604.88	5315045.40	1002	272	2016
1710.00	69348.60	70219.90	474200.62	474211.44	5265601.64	5315047.33	1002	272	2016
1711.00	70310.70	71187.60	474297.40	474314.60	5265601.35	5315046.93	1002	272	2016
1712.00	71307.90	72190.70	474399.61	474410.01	5265603.28	5315049.92	1002	272	2016
1713.00	72286.50	73155.60	474495.10	474511.11	5265605.55	5315049.99	1002	272	2016
1714.00	73265.70	74142.80	474599.13	474611.50	5265601.49	5315046.98	1002	272	2016
1715.00	74270.20	75150.10	474697.60	474708.73	5265603.42	5315048.80	1002	272	2016
1716.00	75250.40	76134.40	474797.24	474811.40	5265605.25	5315045.39	1002	272	2016
1717.00	76280.50	77164.30	474897.93	474910.86	5265602.58	5315047.49	1002	272	2016
1718.00	77287.80	78176.90	474997.65	475009.69	5265603.96	5315047.60	1002	272	2016
1719.00	78276.60	79151.70	475096.43	475112.91	5265605.12	5315045.44	1002	272	2016
1720.00	79287.30	80166.10	475195.76	475212.64	5265604.01	5315044.74	1002	272	2016
1721.00	53678.60	53988.50	475299.11	475314.70	5265603.34	5281949.02	1013	285	2016
1721.01	66706.30	67294.30	475298.53	475311.89	5281853.91	5315044.58	3012	350	2016
1722.00	70033.40	70409.00	475401.82	475408.84	5265601.55	5286947.61	2013	340	2016
1722.02	63283.90	63756.20	475396.84	475414.84	5286852.45	5315047.59	2024	7	2017
1723.00	69414.20	69791.60	475502.40	475510.58	5265603.18	5286948.95	2013	340	2016
1723.02	63983.40	64505.00	475495.65	475515.12	5286854.94	5315046.25	2024	7	2017
1724.00	71129.10	71539.60	475598.46	475611.69	5265603.91	5288946.66	2013	340	2016
1724.01	58629.00	59108.90	475596.78	475609.59	5288854.21	5315046.99	3012	350	2016
1725.00	70539.40	70998.80	475701.42	475716.22	5265605.76	5291947.69	2013	340	2016
1725.01	59294.10	59711.30	475697.09	475716.03	5291854.96	5315047.78	3012	350	2016
1726.00	72233.10	72660.30	475801.31	475812.32	5265625.70	5289945.51	2013	340	2016
1726.01	57484.70	57947.80	475798.14	475809.11	5289855.28	5315047.21	3012	350	2016
1727.00	71672.60	72133.20	475902.41	475916.81	5265605.35	5291946.74	2013	340	2016
1727.01	58077.20	58511.50	475900.73	475911.84	5291852.92	5315046.96	3012	350	2016
1728.01	64639.50	65466.00	475998.50	476011.76	5265604.41	5315047.16	2024	7	2017
1729.01	62241.60	63167.70	476096.01	476114.02	5265604.06	5315046.31	2024	7	2017
1730.01	66637.60	67462.20	476194.15	476212.24	5265629.20	5315045.76	2024	7	2017
1731.01	65588.00	66512.60	476298.78	476312.78	5265602.20	5315045.57	2024	7	2017
1732.00	75587.40	75763.00	476397.77	476408.40	5265601.60	5274948.16	3010	348	2016
1732.01	61252.90	61988.20	476397.67	476410.27	5274853.70	5315046.59	3012	350	2016
1733.00	75258.60	75451.10	476496.29	476508.88	5265606.25	5276946.25	3010	348	2016
1733.01	62162.40	62865.90	476498.99	476512.50	5276852.63	5315045.16	3012	350	2016
1734.00	55760.60	56258.60	476595.50	476613.68	5265602.85	5293946.15	3011	349	2016
1734.01	56500.70	56872.40	476596.20	476610.51	5293851.12	5315046.93	3012	350	2016
1735.00	55101.80	55657.70	476691.31	476714.57	5265602.03	5296947.16	3011	349	2016
1735.01	57064.40	57380.60	476700.03	476713.01	5296852.02	5315046.25	3012	350	2016
1736.00	56983.80	57423.90	476794.61	476811.70	5265602.64	5290949.97	3011	349	2016
1736.01	55378.60	55810.70	476800.17	476811.57	5290854.45	5315045.20	3012	350	2016
1737.00	56400.10	56907.80	476899.23	476914.48	5265606.19	5292948.98	3011	349	2016
1737.01	55978.90	56376.50	476898.55	476913.08	5292854.63	5315049.78	3012	350	2016
1738.00	57845.70	58005.40	476993.53	477020.84	5265606.38	5274947.02	3011	349	2016
1738.01	63005.40	63733.70	476996.85	477017.30	5274854.25	5315047.11	3012	350	2016
1739.00	57566.20	57775.40	477094.79	477119.94	5265605.38	5276946.44	3011	349	2016
1739.01	63930.60	64622.60	477098.18	477113.14	5276855.56	5315047.34	3012	350	2016
1740.00	64764.40	65686.10	477198.55	477215.22	5265601.36	5315046.06	3012	350	2016



**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1741.00	54347.40	55245.20	477296.24	477313.23	5265605.79	5315045.54	3012	350	2016
1742.00	67385.60	68287.00	477399.93	477410.96	5265601.32	5315048.29	3012	350	2016
1743.00	61931.60	62796.30	477499.29	477513.83	5265601.22	5315046.83	3015	353	2016
1744.00	75764.00	76738.20	477595.26	477611.81	5265603.07	5315046.04	3012	350	2016
1745.00	74719.60	75633.30	477697.34	477713.24	5265603.21	5315044.68	3012	350	2016
1746.00	71507.90	72487.20	477790.99	477808.86	5265602.04	5315049.58	3012	350	2016
1747.00	72598.10	73508.10	477897.05	477910.62	5265601.55	5315047.56	3012	350	2016
1748.00	78501.60	79392.50	477995.21	478013.55	5265626.89	5315045.77	3005	306	2016
1749.00	68407.40	69312.20	478098.80	478113.57	5265605.12	5315045.33	3012	350	2016
1750.00	69444.30	70389.50	478197.36	478211.95	5265604.21	5315046.88	3012	350	2016
1751.00	70510.30	71401.50	478297.21	478316.13	5265602.97	5315049.17	3012	350	2016
1752.00	73622.80	74620.60	478397.10	478412.61	5265605.47	5315049.54	3012	350	2016
1753.00	76836.70	77085.30	478500.39	478511.05	5265601.86	5278947.03	3012	350	2016
1753.01	64038.40	64663.30	478501.28	478511.57	5278850.62	5315049.17	3015	353	2016
1754.00	77201.80	77439.60	478595.76	478610.24	5265626.53	5278949.49	3012	350	2016
1754.01	62900.40	63587.80	478594.78	478611.33	5278850.82	5315048.27	3015	353	2016
1755.00	65819.10	66663.20	478696.91	478711.99	5265603.95	5315045.15	3015	353	2016
1756.00	70694.70	71623.20	478797.66	478809.91	5265626.50	5315049.51	3015	353	2016
1757.00	67808.20	68652.20	478897.69	478910.49	5265601.40	5315047.05	3015	353	2016
1758.00	76560.20	77414.50	478997.39	479010.95	5265602.67	5315047.10	3005	306	2016
1759.00	69706.40	70551.30	479094.64	479112.56	5265606.85	5315048.46	3015	353	2016
1760.00	60948.60	61851.50	479200.19	479212.02	5265603.06	5315045.80	3015	353	2016
1761.00	59897.00	60771.10	479299.50	479315.27	5265602.50	5315048.79	2022	5	2017
1762.00	64805.80	65717.90	479399.50	479414.57	5265602.15	5315048.45	3015	353	2016
1763.00	60901.80	61759.80	479496.33	479513.34	5265601.51	5315049.62	2022	5	2017
1764.00	66772.80	67710.90	479601.27	479610.81	5265602.57	5315049.82	3015	353	2016
1765.00	61875.00	62769.30	479697.29	479713.92	5265603.79	5315046.43	2022	5	2017
1766.00	68746.10	69599.70	479801.51	479812.58	5265603.55	5315044.62	3015	353	2016
1767.00	77511.70	78412.30	479895.68	479915.59	5265602.13	5315047.61	3005	306	2016
1768.00	75785.70	76666.00	479997.31	480013.56	5265628.35	5315044.69	1024	304	2016
1769.00	59961.00	60830.80	480101.58	480116.54	5265603.42	5315045.50	3015	353	2016
1770.00	73929.90	74777.60	480195.38	480217.68	5265605.32	5315046.36	1024	304	2016
1771.00	57956.20	58829.60	480296.08	480312.70	5265602.06	5315045.02	3015	353	2016
1772.00	72110.40	72966.80	480397.51	480413.38	5265603.59	5315048.43	1024	304	2016
1773.00	54757.80	55617.90	480495.00	480512.75	5265602.51	5315049.63	3015	353	2016
1774.00	70255.20	71112.70	480595.07	480614.70	5265606.84	5315048.16	1024	304	2016
1775.00	78717.40	79165.40	480699.82	480709.98	5265602.14	5290948.09	3014	352	2016
1775.01	56395.00	56813.30	480699.82	480711.03	5290854.23	5315047.10	3015	353	2016
1776.00	68415.10	69258.80	480797.22	480812.62	5265606.90	5315047.18	1024	304	2016
1777.00	75599.90	76475.30	480899.68	480915.86	5265605.95	5315047.11	3005	306	2016
1778.00	66505.40	67370.90	480992.44	481010.78	5265603.77	5315047.50	1024	304	2016
1779.00	73605.90	74504.70	481096.10	481113.80	5265606.41	5315046.57	3005	306	2016
1780.00	54616.00	55413.30	481186.47	481213.54	5265631.93	5315048.86	1021	297	2016
1781.00	71707.00	72587.70	481300.13	481311.68	5265604.83	5315047.94	3005	306	2016
1782.00	58949.20	59871.60	481392.78	481413.39	5265603.80	5315048.97	3015	353	2016
1783.00	69761.50	70649.40	481492.51	481515.42	5265601.47	5315048.68	3005	306	2016
1784.00	56930.20	57852.10	481596.73	481609.55	5265604.94	5315047.87	3015	353	2016
1785.00	67849.40	68728.20	481693.08	481712.10	5265606.79	5315045.44	3005	306	2016
1786.00	79235.30	79650.40	481795.62	481829.17	5265626.19	5289945.96	3014	352	2016
1786.01	55737.40	56215.50	481798.72	481809.02	5289854.47	5315046.19	3015	353	2016
1787.00	74863.90	75663.60	481898.09	481912.98	5265603.75	5315044.41	1024	304	2016
1788.00	74595.10	75487.80	481995.77	482018.48	5265601.22	5315048.19	3005	306	2016
1789.00	73049.90	73835.40	482096.46	482115.85	5265603.13	5315044.81	1024	304	2016
1790.00	62709.40	63575.10	482196.19	482212.58	5265606.33	5315045.44	1024	304	2016
1791.00	71199.10	72017.80	482293.64	482313.55	5265601.94	5315044.09	1024	304	2016
1792.00	60945.50	61757.10	482393.76	482407.32	5265601.65	5315047.32	1024	304	2016
1793.00	69321.30	70154.30	482493.62	482514.85	5265601.73	5315049.48	1024	304	2016
1794.00	72666.70	73528.10	482598.84	482609.21	5265601.44	5315045.15	3005	306	2016
1795.00	67468.90	68302.10	482696.73	482710.94	5265605.75	5315048.94	1024	304	2016
1796.00	70732.80	71617.00	482796.26	482814.62	5265605.24	5315047.57	3005	306	2016
1797.00	65558.70	66389.10	482896.02	482914.20	5265606.70	5315049.59	1024	304	2016
1798.00	68809.60	69681.90	482999.19	483009.99	5265603.32	5315047.21	3005	306	2016
1799.00	53631.60	54523.80	483100.73	483114.93	5265605.17	5315046.10	1021	297	2016
1800.00	66882.20	67755.10	483192.42	483214.15	5265606.01	5315049.85	3005	306	2016
1801.00	72161.90	73028.60	483301.21	483310.89	5265602.67	5315046.17	2004	294	2016
1802.00	73742.30	74643.90	483394.52	483411.95	5265627.64	5315045.97	1019	295	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1803.00	74078.50	74947.50	483497.91	483513.01	5265605.45	5315049.32	2004	294	2016
1804.00	68905.10	69777.00	483593.70	483609.34	5265602.55	5315046.60	2004	294	2016
1805.00	75978.50	76859.10	483698.84	483712.05	5265606.67	5315048.26	2004	294	2016
1806.00	66992.40	67836.80	483797.60	483812.02	5265602.74	5315047.68	2004	294	2016
1807.00	63663.10	64509.20	483897.43	483912.53	5265606.06	5315046.48	1024	304	2016
1808.00	59375.60	60220.40	483996.70	484012.02	5265603.89	5315044.68	2004	294	2016
1809.00	61834.60	62634.30	484092.79	484114.43	5265602.52	5315047.61	1024	304	2016
1810.00	57368.30	58236.60	484198.48	484211.46	5265604.87	5315044.08	2004	294	2016
1811.00	59930.00	60807.90	484289.63	484312.38	5265602.27	5315047.38	1024	304	2016
1812.00	73115.80	73978.40	484398.46	484413.14	5265604.34	5315048.98	2004	294	2016
1813.00	69884.20	70779.30	484498.00	484510.71	5265604.06	5315045.48	2004	294	2016
1814.00	75052.50	75903.30	484597.41	484611.80	5265603.43	5315048.79	2004	294	2016
1815.00	67944.70	68817.40	484699.79	484715.07	5265603.63	5315044.58	2004	294	2016
1816.00	76932.30	77791.70	484798.84	484810.38	5265626.67	5315048.12	2004	294	2016
1817.00	58350.90	59260.20	484900.39	484910.70	5265606.14	5315045.27	2004	294	2016
1818.00	64634.90	65478.90	484997.58	485013.39	5265603.02	5315044.40	1024	304	2016
1819.00	56405.40	57266.50	485094.32	485110.29	5265605.85	5315045.61	2004	294	2016
1820.00	72926.30	73814.20	485199.24	485212.06	5265627.26	5315049.07	1018	293	2016
1821.00	71898.70	72808.80	485297.04	485309.45	5265604.89	5315048.63	1018	293	2016
1822.00	70911.40	71805.30	485397.14	485412.49	5265603.03	5315049.66	1018	293	2016
1823.00	55940.40	56846.50	485496.64	485511.78	5265601.10	5315046.45	1018	293	2016
1824.00	82315.60	83200.00	485597.80	485612.65	5265624.88	5315049.86	1017	292	2016
1825.00	57929.40	58859.70	485698.89	485711.28	5265604.59	5315047.29	1018	293	2016
1826.00	80348.80	81243.80	485794.63	485812.59	5265605.28	5315047.05	1017	292	2016
1827.00	59898.20	60804.60	485898.07	485909.70	5265601.16	5315048.65	1018	293	2016
1828.00	78389.00	79279.70	485998.02	486010.27	5265605.17	5315044.80	1017	292	2016
1829.00	61927.80	62834.80	486096.16	486109.36	5265601.87	5315046.78	1018	293	2016
1830.00	76458.40	77337.30	486196.90	486210.98	5265604.69	5315045.24	1017	292	2016
1831.00	63903.30	64812.60	486297.31	486312.16	5265602.21	5315047.46	1018	293	2016
1832.00	74519.80	75406.00	486396.17	486413.28	5265602.46	5315047.41	1017	292	2016
1833.00	65930.00	66850.30	486498.18	486513.78	5265603.75	5315047.95	1018	293	2016
1834.00	72575.30	73468.60	486595.88	486608.30	5265602.00	5315045.75	1017	292	2016
1835.00	67897.20	68789.30	486696.31	486711.76	5265602.26	5315047.45	1018	293	2016
1836.00	70588.80	71487.40	486793.22	486810.61	5265601.65	5315045.82	1017	292	2016
1837.00	69859.40	70821.90	486894.82	486908.64	5265605.19	5315045.66	1018	293	2016
1838.00	68626.50	69500.30	486997.20	487014.50	5265605.99	5315046.43	1017	292	2016
1839.00	81345.80	82226.20	487097.77	487111.07	5265605.61	5315048.05	1017	292	2016
1840.00	56935.90	57819.70	487196.20	487211.06	5265605.18	5315048.57	1018	293	2016
1841.00	79382.60	80248.30	487299.07	487311.89	5265604.94	5315047.20	1017	292	2016
1842.00	58957.60	59809.90	487397.77	487411.15	5265604.57	5315046.35	1018	293	2016
1843.00	77438.10	78294.60	487498.21	487509.78	5265606.63	5315049.99	1017	292	2016
1844.00	60956.20	61837.50	487593.42	487609.66	5265601.75	5315046.22	1018	293	2016
1845.00	75490.00	76357.90	487693.56	487711.07	5265606.29	5315049.81	1017	292	2016
1846.00	62922.80	63814.90	487797.14	487811.12	5265603.19	5315049.64	1018	293	2016
1847.00	73556.30	74423.90	487897.63	487914.55	5265606.26	5315049.12	1017	292	2016
1848.00	64934.80	65847.40	487997.92	488010.86	5265604.73	5315044.40	1018	293	2016
1849.00	71587.50	72471.80	488094.17	488110.83	5265605.65	5315046.06	1017	292	2016
1850.00	66944.60	67814.40	488199.03	488211.89	5265604.34	5315046.44	1018	293	2016
1851.00	69607.00	70482.70	488296.53	488310.40	5265601.70	5315048.40	1017	292	2016
1852.00	68871.70	69771.40	488395.52	488410.28	5265606.25	5315049.29	1018	293	2016
1853.00	67643.80	68523.10	488494.79	488513.16	5265605.28	5315045.71	1017	292	2016
1854.00	76391.70	77272.40	488595.56	488611.56	5265624.92	5315048.32	1015	289	2016
1855.00	75308.00	76230.80	488696.23	488710.84	5265602.21	5315045.82	1015	289	2016
1856.00	74310.50	75177.30	488797.44	488813.24	5265606.60	5315047.49	1015	289	2016
1857.00	71906.50	72796.30	488893.41	488910.62	5265603.31	5315044.56	1014	287	2016
1858.00	72368.00	73241.50	488993.02	489011.96	5265601.20	5315047.82	1015	289	2016
1859.00	69909.70	70803.70	489097.51	489112.47	5265605.66	5315045.48	1014	287	2016
1860.00	70318.70	71217.70	489198.08	489211.76	5265603.77	5315047.56	1015	289	2016
1861.00	67877.70	68756.10	489295.29	489312.74	5265604.37	5315047.82	1014	287	2016
1862.00	68335.70	69219.10	489395.98	489416.50	5265602.26	5315045.85	1015	289	2016
1863.00	65866.90	66759.70	489494.38	489512.68	5265605.50	5315048.97	1014	287	2016
1864.00	66298.80	67195.20	489591.91	489612.21	5265603.96	5315046.17	1015	289	2016
1865.00	63869.60	64757.30	489697.94	489711.46	5265601.41	5315048.35	1014	287	2016
1866.00	64256.90	65147.60	489797.38	489815.51	5265604.78	5315047.18	1015	289	2016
1867.00	61817.50	62700.20	489896.97	489913.62	5265604.99	5315047.36	1014	287	2016
1868.00	62236.60	63131.20	489998.95	490009.62	5265605.38	5315047.44	1015	289	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1869.00	59802.90	60688.20	490097.95	490112.01	5265605.45	5315048.34	1014	287	2016
1870.00	60143.40	61110.40	490198.30	490208.90	5265604.54	5315045.25	1015	289	2016
1871.00	57628.50	58529.80	490294.35	490310.75	5265605.04	5315046.49	1014	287	2016
1872.00	58024.00	58953.50	490397.21	490408.32	5265603.59	5315045.73	1015	289	2016
1873.00	73332.20	74230.80	490494.72	490512.52	5265604.38	5315047.82	1015	289	2016
1874.00	72920.20	73790.70	490596.80	490615.46	5265605.33	5315046.42	1014	287	2016
1875.00	71375.80	72276.90	490696.33	490711.43	5265601.50	5315049.43	1015	289	2016
1876.00	70925.60	71821.40	490798.01	490810.30	5265605.54	5315049.83	1014	287	2016
1877.00	69328.40	70206.30	490898.26	490913.19	5265605.70	5315045.39	1015	289	2016
1878.00	68915.60	69806.90	490996.21	491012.66	5265603.83	5315045.98	1014	287	2016
1879.00	67313.30	68242.10	491097.76	491111.98	5265603.16	5315049.37	1015	289	2016
1880.00	66855.60	67744.80	491197.91	491212.27	5265604.38	5315049.50	1014	287	2016
1881.00	65262.50	66181.80	491294.27	491311.02	5265601.26	5315045.74	1015	289	2016
1882.00	64854.30	65729.40	491397.66	491412.41	5265601.94	5315047.15	1014	287	2016
1883.00	63242.10	64153.00	491497.85	491512.53	5265606.33	5315045.17	1015	289	2016
1884.00	62826.50	63733.30	491597.34	491614.05	5265603.70	5315049.51	1014	287	2016
1885.00	61219.80	62142.00	491698.42	491710.52	5265604.52	5315049.24	1015	289	2016
1886.00	60808.90	61694.60	491797.02	491813.61	5265601.62	5315045.63	1014	287	2016
1887.00	59077.30	59996.50	491888.14	491911.54	5265604.92	5315045.11	1015	289	2016
1888.00	58649.10	59549.60	491996.86	492011.82	5265602.44	5315044.70	1014	287	2016
1889.00	57012.00	57929.60	492097.99	492111.11	5265604.64	5315045.60	1015	289	2016
1890.00	56591.40	57547.90	492196.30	492212.43	5265604.42	5315049.96	1014	287	2016
1891.00	54006.50	54865.20	492299.22	492314.85	5265603.08	5315047.08	1016	290	2016
1892.00	58247.00	59074.00	492397.17	492414.79	5265603.11	5315047.85	1025	306	2016
1893.00	55963.90	56816.30	492498.51	492513.29	5265605.38	5315045.01	1016	290	2016
1894.00	60086.80	60923.70	492596.31	492611.05	5265601.42	5315045.16	1025	306	2016
1895.00	57936.80	58805.40	492697.07	492730.23	5265601.05	5315044.64	1016	290	2016
1896.00	62012.60	62849.80	492790.17	492812.79	5265602.32	5315044.40	1025	306	2016
1897.00	60040.80	60923.20	492898.71	492910.68	5265603.16	5315047.33	1016	290	2016
1898.00	63829.50	64668.50	492995.82	493025.65	5265605.37	5315048.31	1025	306	2016
1899.00	61941.40	62801.10	493096.01	493109.45	5265602.87	5315046.58	1016	290	2016
1900.00	65705.60	66536.80	493189.21	493213.15	5265603.69	5315048.24	1025	306	2016
1901.00	63868.20	64727.90	493292.20	493310.25	5265601.09	5315049.62	1016	290	2016
1902.00	67564.20	68411.60	493396.97	493410.84	5265602.04	5315047.40	1025	306	2016
1903.00	65796.80	66677.40	493496.58	493510.46	5265602.36	5315046.76	1016	290	2016
1904.00	69472.10	70318.40	493596.69	493611.48	5265601.32	5315045.58	1025	306	2016
1905.00	67746.40	68588.40	493697.84	493714.97	5265606.30	5314049.17	1016	290	2016
1906.00	54976.90	55848.60	493799.67	493813.00	5265604.55	5314046.71	1016	290	2016
1907.00	69649.90	70510.00	493896.48	493910.53	5265605.59	5314047.28	1016	290	2016
1908.00	71325.30	72156.20	493999.81	494012.51	5265603.35	5314047.42	1025	306	2016
1909.00	55671.10	56498.50	494094.54	494114.26	5265603.75	5314049.48	1014	287	2016
1910.00	73202.80	74000.90	494197.64	494219.91	5265602.91	5314047.97	1025	306	2016
1911.00	56984.50	57842.30	494295.37	494311.74	5265603.46	5314049.11	1016	290	2016
1912.00	59132.00	59980.30	494399.26	494411.28	5265604.61	5314049.33	1016	290	2016
1913.01	71927.10	72760.70	494494.70	494512.49	5265607.02	5314049.28	1016	290	2016
1914.00	61000.10	61851.60	494598.12	494611.84	5265603.78	5314047.56	1016	290	2016
1915.00	58586.70	59430.90	494697.78	494711.85	5265602.94	5314047.22	2006	296	2016
1916.00	62881.00	63760.50	494798.54	494814.49	5265605.52	5314049.99	1016	290	2016
1917.00	57296.10	58138.00	494894.37	494910.00	5265601.44	5314047.51	1025	306	2016
1918.00	64835.10	65714.60	494999.87	495010.07	5265606.29	5314045.78	1016	290	2016
1919.00	59171.00	59992.10	495096.81	495113.01	5265605.78	5314044.26	1025	306	2016
1920.00	66762.90	67650.80	495197.97	495215.67	5265602.75	5314046.65	1016	290	2016
1921.00	61057.30	61898.40	495292.74	495315.03	5265606.37	5314044.49	1025	306	2016
1922.00	68688.30	69559.60	495397.30	495412.27	5265604.05	5314044.75	1016	290	2016
1923.00	62923.40	63734.90	495496.55	495514.31	5265604.68	5314046.02	1025	306	2016
1924.00	70590.80	71151.60	495596.42	495611.18	5282800.12	5314044.49	1016	290	2016
1924.01	71486.70	71808.90	495597.03	495610.70	5265601.46	5283013.95	1016	290	2016
1925.00	64766.70	65602.10	495693.38	495712.59	5265604.56	5314045.20	1025	306	2016
1926.00	72852.30	73741.80	495797.94	495809.03	5265627.79	5314049.38	1016	290	2016
1927.00	51717.60	52576.60	495893.65	495915.70	5265603.70	5314049.59	1021	297	2016
1928.00	76293.20	77097.30	495997.51	496012.00	5265629.12	5314045.19	1022	298	2016
1929.00	57507.60	58336.30	496098.47	496109.70	5265603.80	5314048.23	1022	298	2016
1930.00	58918.70	59760.00	496197.61	496211.68	5265601.25	5314049.24	1027	338	2016
1931.00	66626.40	67455.80	496296.24	496310.96	5265605.52	5314049.13	1025	306	2016
1932.00	60778.80	61636.50	496398.63	496408.32	5265601.11	5314045.41	1027	338	2016
1933.00	68524.80	69363.60	496493.65	496510.88	5265602.33	5314049.07	1025	306	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1934.00	62631.90	63145.20	496597.08	496616.81	5284851.29	5314049.32	1027	338	2016
1934.01	63478.10	63828.30	496596.60	496611.96	5265605.22	5284948.83	1027	338	2016
1935.00	70414.10	71243.70	496695.49	496714.20	5265607.02	5314047.31	1025	306	2016
1936.00	64838.10	65715.70	496792.24	496813.42	5265601.61	5314046.55	1027	338	2016
1937.00	72272.60	73114.70	496893.53	496911.87	5265601.88	5314045.26	1025	306	2016
1938.00	66719.60	67564.50	496993.23	497013.01	5265605.19	5314045.06	1027	338	2016
1939.00	74081.90	74916.90	497094.62	497113.98	5265603.09	5314047.10	1025	306	2016
1940.00	68537.90	69403.00	497192.94	497211.09	5265601.94	5314046.43	1027	338	2016
1941.00	75871.10	76680.20	497296.28	497312.80	5265604.05	5314045.26	1025	306	2016
1942.00	70359.00	71211.00	497397.85	497415.29	5265604.35	5314045.05	1027	338	2016
1943.00	58983.10	59812.20	497494.56	497512.38	5265606.21	5314046.43	1026	307	2016
1944.00	72220.50	73067.90	497597.56	497613.52	5265605.09	5314049.93	1027	338	2016
1945.00	75383.10	76223.20	497702.19	497713.72	5265605.95	5314049.58	1022	298	2016
1946.00	52670.60	53214.00	497800.13	497814.52	5281854.60	5314045.48	1021	297	2016
1946.01	78097.40	78383.30	497800.87	497811.97	5265603.68	5281947.63	3014	352	2016
1947.00	60791.60	61622.10	497898.38	497912.13	5265605.00	5314044.83	1026	307	2016
1948.00	74086.30	74980.10	497995.31	498014.68	5265603.49	5314049.81	1027	338	2016
1949.00	62593.10	63423.30	498098.97	498115.90	5265601.33	5314047.19	1026	307	2016
1950.00	74403.60	75230.70	498196.60	498214.65	5265606.44	5314046.65	2014	343	2016
1951.00	64419.00	65243.40	498298.48	498310.37	5265601.28	5314046.74	1026	307	2016
1952.00	76284.70	77084.90	498388.37	498416.00	5265629.90	5314043.73	2014	343	2016
1953.00	66214.30	67036.90	498495.78	498511.51	5265606.23	5314046.86	1026	307	2016
1954.00	58569.20	59409.20	498597.16	498609.24	5265603.29	5314045.47	2015	344	2016
1955.00	68032.00	68884.90	498698.30	498716.04	5265605.70	5314048.55	1026	307	2016
1956.00	60452.90	61289.60	498788.11	498808.01	5265606.78	5314047.82	2015	344	2016
1957.00	69847.80	70677.70	498898.88	498911.25	5265601.60	5314048.28	1026	307	2016
1958.00	74985.30	75791.20	498993.68	499013.31	5265606.09	5314049.47	1025	306	2016
1959.00	73451.30	74282.30	499098.63	499111.77	5265605.78	5314048.96	1026	307	2016
1960.00	76762.90	77546.70	499196.51	499211.45	5265628.10	5314044.39	1025	306	2016
1961.00	75256.60	76092.90	499299.17	499313.68	5265604.71	5314045.61	1026	307	2016
1962.00	59889.00	60708.40	499397.83	499410.58	5265602.29	5314047.29	1026	307	2016
1963.00	71661.60	72499.40	499498.67	499511.67	5265604.08	5314046.93	1026	307	2016
1964.00	74466.50	75283.70	499599.96	499611.02	5265606.42	5314049.12	1022	298	2016
1965.00	57999.70	58802.60	499697.37	499709.88	5265605.66	5314046.80	1027	338	2016
1966.00	61702.50	62518.60	499792.25	499816.80	5265601.21	5314047.32	1026	307	2016
1967.00	59864.90	60676.70	499893.53	499910.85	5265603.33	5314049.48	1027	338	2016
1968.00	63499.80	64338.70	499995.53	500010.91	5265601.89	5314045.72	1026	307	2016
1969.00	61732.30	62520.30	500100.56	500112.76	5265601.34	5314045.88	1027	338	2016
1970.00	65335.70	66144.40	500192.74	500214.05	5265605.79	5314044.96	1026	307	2016
1971.00	63936.90	64742.40	500294.14	500310.13	5265604.00	5314047.30	1027	338	2016
1972.00	67129.40	67962.00	500396.73	500410.04	5265603.22	5314044.60	1026	307	2016
1973.00	65816.40	66608.10	500492.95	500515.72	5265607.08	5314045.72	1027	338	2016
1974.00	68960.90	69775.70	500597.68	500614.59	5265603.90	5314047.89	1026	307	2016
1975.00	67663.50	68433.40	500696.77	500711.97	5265601.95	5314046.56	1027	338	2016
1976.00	70752.80	71592.90	500797.70	500813.21	5265601.85	5314049.58	1026	307	2016
1977.00	69492.40	70248.90	500889.13	500915.56	5265601.72	5314044.78	1027	338	2016
1978.00	72568.30	73376.40	500994.78	501012.29	5265603.52	5314045.61	1026	307	2016
1979.00	71311.40	72117.30	501093.37	501111.23	5265601.01	5314046.16	1027	338	2016
1980.00	74345.60	75167.40	501199.30	501212.71	5265605.55	5314044.10	1026	307	2016
1981.00	73163.30	73970.60	501292.78	501310.60	5265603.96	5314049.35	1027	338	2016
1982.00	76160.60	76954.50	501394.72	501411.09	5265623.37	5314048.51	1026	307	2016
1983.00	73550.10	74382.50	501499.23	501512.07	5265603.50	5314044.91	1022	298	2016
1984.00	65369.40	66223.60	501599.58	501610.05	5265606.18	5314049.23	2015	344	2016
1985.00	72165.20	72738.50	501699.45	501715.69	5265603.69	5297944.87	2014	343	2016
1985.01	65539.40	65817.30	501701.99	501709.35	5297851.12	5314045.22	2016	345	2016
1986.00	67268.90	68120.70	501794.18	501810.64	5265604.06	5314045.62	2015	344	2016
1987.00	73450.30	74308.80	501895.80	501915.59	5265601.73	5314049.51	2014	343	2016
1988.00	63487.60	64330.00	501999.19	502012.69	5265604.51	5314045.09	2015	344	2016
1989.00	75348.80	76194.30	502094.41	502113.00	5265605.19	5314047.45	2014	343	2016
1990.00	77070.50	77940.40	502198.45	502209.85	5265605.63	5314046.97	2016	345	2016
1991.00	57634.60	58463.00	502296.60	502310.80	5265601.51	5314048.46	2015	344	2016
1992.00	75591.30	76112.40	502398.50	502415.25	5265603.06	5295946.67	1030	348	2016
1992.01	67757.90	68075.20	502403.40	502413.58	5295850.92	5314049.60	3014	352	2016
1993.00	59508.90	60348.30	502498.86	502508.50	5265602.43	5314047.40	2015	344	2016
1994.00	75529.10	76352.30	502599.32	502609.46	5265602.67	5314045.92	2019	351	2016
1995.00	61381.80	62206.10	502696.08	502712.41	5265606.73	5314045.69	2015	344	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
1996.00	65772.00	66609.30	502799.61	502812.46	5265605.02	5314044.57	3014	352	2016
1997.00	74808.70	75318.60	502897.68	502915.23	5265606.66	5295965.60	1030	348	2016
1997.01	68294.90	68640.50	502895.46	502911.88	5295870.80	5314049.66	3014	352	2016
1998.00	72746.60	73586.30	502995.60	503009.91	5265606.16	5314044.61	3014	352	2016
1999.00	56341.90	57195.40	503099.98	503110.51	5265603.02	5314047.79	2018	350	2016
2000.00	79176.60	79944.50	503193.36	503213.98	5265633.42	5314047.97	2020	352	2016
2001.00	69721.90	70653.20	503296.55	503312.52	5265604.11	5314047.78	3014	352	2016
2002.00	72670.70	73485.60	503395.72	503413.63	5265601.08	5314044.20	1022	298	2016
2003.00	61980.80	62841.90	503500.31	503513.74	5265602.06	5314049.50	2020	352	2016
2004.00	74740.30	75579.30	503596.52	503610.15	5265604.72	5314048.86	3014	352	2016
2005.00	71719.10	72640.20	503696.06	503712.23	5265601.14	5314046.16	3014	352	2016
2006.00	76752.00	77592.20	503788.86	503811.26	5265606.58	5314045.07	3014	352	2016
2007.00	66737.00	67664.10	503893.85	503914.81	5265603.31	5314046.03	3014	352	2016
2008.00	73717.10	74624.10	503998.89	504013.02	5265605.43	5314049.77	3014	352	2016
2009.00	63521.90	64397.10	504096.07	504110.89	5265604.98	5314048.32	3014	352	2016
2010.00	75711.50	76622.80	504195.58	504218.78	5265602.47	5314048.08	3014	352	2016
2011.00	56494.40	57343.90	504296.02	504316.81	5265603.11	5314048.13	3013	351	2016
2012.00	70759.10	71602.50	504398.02	504414.12	5265602.04	5314045.14	3014	352	2016
2013.00	64634.40	65451.30	504495.51	504515.27	5265606.75	5314049.93	2016	345	2016
2014.00	68758.00	69614.00	504600.46	504614.12	5265606.20	5314044.95	3014	352	2016
2015.00	68196.80	68679.40	504697.90	504719.04	5265602.18	5293924.31	2015	344	2016
2015.01	66036.10	66394.80	504701.57	504711.11	5293850.07	5314049.90	2016	345	2016
2016.00	76035.50	76907.00	504797.27	504812.38	5265602.01	5314049.03	3013	351	2016
2017.00	66311.40	67176.90	504897.08	504909.95	5265601.78	5314049.13	2015	344	2016
2018.00	76309.10	77132.90	504997.67	505012.34	5265628.73	5314049.16	2018	350	2016
2019.00	64420.80	65271.30	505099.17	505116.80	5265601.90	5314044.88	2015	344	2016
2020.00	62288.30	62801.70	505198.85	505207.73	5284704.83	5314044.99	2015	344	2016
2021.00	72088.30	72589.60	505300.16	505309.56	5284705.78	5314047.72	1022	298	2016
2022.00	65107.00	65669.40	505399.68	505410.32	5284706.11	5314045.26	3014	352	2016
2023.00	75383.20	75935.40	505496.29	505508.44	5284705.52	5314046.12	3013	351	2016
2024.00	68586.40	69097.10	505599.54	505612.83	5284704.09	5314047.45	3013	351	2016
2025.00	74153.30	74685.60	505696.30	505708.68	5284703.23	5314048.68	3013	351	2016
2026.00	63638.80	64162.20	505799.79	505812.37	5284707.92	5314047.72	3013	351	2016
2027.00	72905.40	73461.20	505894.07	505910.65	5284704.27	5314047.91	3013	351	2016
2028.00	64876.70	65392.50	505998.93	506014.49	5284703.72	5314049.17	3013	351	2016
2029.00	71648.90	72193.90	506097.53	506111.02	5284703.47	5314049.39	3013	351	2016
2030.00	66099.20	66616.80	506200.80	506215.96	5284703.64	5314049.61	3013	351	2016
2031.00	70410.10	70944.50	506298.39	506312.46	5284703.94	5314047.22	3013	351	2016
2032.00	67360.80	67879.90	506396.46	506412.62	5284706.44	5314046.40	3013	351	2016
2033.00	69192.90	69711.60	506493.71	506512.06	5284703.93	5314045.93	3013	351	2016
2034.00	64478.70	64978.30	506599.29	506614.19	5284707.58	5314048.21	3014	352	2016
2035.00	62868.10	63374.70	506700.03	506709.74	5284704.71	5314045.92	2015	344	2016
2036.00	71494.00	71982.30	506800.30	506811.84	5284706.76	5314045.65	1022	298	2016
2037.00	62985.00	63518.10	506898.11	506910.86	5284707.92	5314045.45	3013	351	2016
2038.00	74784.90	75295.70	506998.42	507009.28	5284706.70	5314045.93	3013	351	2016
2039.00	64255.00	64783.90	507100.97	507112.61	5284705.90	5314044.88	3013	351	2016
2040.00	73552.30	74064.20	507194.69	507210.73	5284707.37	5314047.71	3013	351	2016
2041.00	65485.40	66002.10	507296.47	507310.64	5284704.36	5314048.98	3013	351	2016
2042.00	72299.70	72821.30	507400.41	507411.46	5284704.13	5314047.80	3013	351	2016
2043.00	66720.80	67257.50	507498.95	507513.17	5284703.58	5314045.64	3013	351	2016
2044.00	71035.10	71559.10	507596.24	507609.17	5284704.44	5314047.49	3013	351	2016
2045.00	67980.70	68500.60	507696.35	507714.93	5284705.14	5314045.59	3013	351	2016
2046.00	69804.00	70316.30	507798.23	507813.60	5284706.40	5314047.18	3013	351	2016
2047.00	72150.50	72665.50	507898.39	507909.45	5284707.20	5314044.75	2018	350	2016
2048.00	57457.90	57973.70	507996.78	508009.58	5284704.26	5314046.79	3013	351	2016
2049.00	70933.70	71428.70	508095.64	508112.74	5284703.09	5314044.33	2018	350	2016
2050.00	58686.10	59192.20	508199.90	508211.62	5284707.22	5314049.06	3013	351	2016
2051.00	69811.70	70298.10	508300.32	508318.92	5284703.76	5314049.61	2018	350	2016
2052.00	59921.20	60438.80	508399.60	508412.64	5284705.93	5314045.96	3013	351	2016
2053.00	68637.00	69157.70	508500.41	508510.93	5284705.41	5314047.28	2018	350	2016
2054.00	61175.40	61684.70	508598.68	508612.42	5284705.59	5314044.78	3013	351	2016
2055.00	70900.00	71407.20	508691.26	508711.43	5284707.70	5314046.13	1022	298	2016
2056.00	62385.30	62898.60	508798.42	508810.74	5284707.99	5314044.71	3013	351	2016
2057.00	67383.50	67900.90	508899.86	508912.19	5284704.76	5314049.56	2018	350	2016
2058.00	75065.10	75597.60	508995.73	509007.63	5284703.33	5314047.29	2018	350	2016
2059.00	66222.00	66722.60	509101.74	509113.02	5284706.24	5314049.77	2018	350	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
2060.00	73908.30	74404.80	509196.61	509208.56	5284706.27	5314044.23	2018	350	2016
2061.00	65056.10	65566.20	509300.85	509311.55	5284704.19	5314047.99	2018	350	2016
2062.00	72751.90	73276.30	509394.34	509412.30	5284706.46	5314047.97	2018	350	2016
2063.00	58069.30	58584.50	509496.50	509515.64	5284706.17	5314048.95	3013	351	2016
2064.00	71528.00	72062.60	509598.81	509609.37	5284704.32	5314049.24	2018	350	2016
2065.00	59285.20	59819.50	509701.03	509711.73	5284706.02	5314045.02	3013	351	2016
2066.00	70371.00	70878.70	509794.46	509812.50	5284703.29	5314046.35	2018	350	2016
2067.00	60545.80	61087.40	509898.29	509910.80	5284705.65	5314047.39	3013	351	2016
2068.00	69237.30	69757.10	510000.33	510015.68	5284707.44	5314046.93	2018	350	2016
2069.00	61773.80	62299.50	510093.66	510113.08	5284706.26	5314046.61	3013	351	2016
2070.00	67994.60	68535.40	510200.89	510209.52	5284706.49	5314044.57	2018	350	2016
2071.00	75686.50	76185.60	510298.08	510308.14	5284708.52	5314049.41	2018	350	2016
2072.00	66806.00	67318.60	510398.93	510410.11	5284703.69	5314049.49	2018	350	2016
2073.00	74462.50	74974.70	510496.61	510509.43	5284706.27	5314045.11	2018	350	2016
2074.00	70332.90	70817.80	510593.93	510617.68	5284708.51	5314045.86	1022	298	2016
2075.00	73341.80	73837.80	510698.52	510709.08	5284706.96	5314044.79	2018	350	2016
2076.00	65632.20	66134.50	510800.46	510809.45	5284707.76	5314050.00	2018	350	2016
2077.00	75245.10	75747.00	510897.06	510921.52	5284705.65	5314045.36	2016	345	2016
2078.00	64457.20	64964.20	511001.07	511010.28	5284707.87	5314048.57	2018	350	2016
2079.00	74091.30	74605.40	511100.21	511109.37	5284703.85	5314047.60	2016	345	2016
2080.00	63241.60	63745.50	511200.09	511213.18	5284704.96	5314046.06	2018	350	2016
2081.00	72918.80	73438.60	511300.42	511309.36	5284703.33	5314049.40	2016	345	2016
2082.00	62114.90	62613.20	511397.59	511410.52	5284704.88	5314048.60	2018	350	2016
2083.00	71761.30	72268.80	511497.93	511517.87	5284706.04	5314045.91	2016	345	2016
2084.00	60915.80	61428.30	511598.93	511611.21	5284703.14	5314046.68	2018	350	2016
2085.00	70586.40	71111.30	511700.90	511711.86	5284707.41	5314046.91	2016	345	2016
2086.00	59718.00	60218.30	511800.20	511811.11	5284707.03	5314044.47	2018	350	2016
2087.00	69432.50	69942.70	511897.84	511909.76	5284706.49	5314047.44	2016	345	2016
2088.00	58576.90	59072.60	511995.25	512013.78	5284705.83	5314044.81	2018	350	2016
2089.00	68292.60	68801.20	512096.10	512114.09	5284705.13	5314046.65	2016	345	2016
2090.00	57395.10	57902.30	512199.70	512207.14	5284704.05	5314047.90	2018	350	2016
2091.00	67151.40	67663.30	512299.13	512314.88	5284708.08	5314048.21	2016	345	2016
2092.00	75810.30	76295.30	512396.26	512410.66	5284704.35	5314045.12	2016	345	2016
2093.00	69741.90	70264.00	512489.43	512516.64	5284708.00	5314044.77	1022	298	2016
2094.00	74675.70	75187.40	512599.46	512614.23	5284706.33	5314046.70	2016	345	2016
2095.00	63830.60	64349.10	512700.05	512710.24	5284704.96	5314049.01	2018	350	2016
2096.00	73523.20	74030.00	512799.32	512809.79	5284706.40	5314048.26	2016	345	2016
2097.00	62668.40	63178.40	512896.97	512912.93	5284708.58	5314045.87	2018	350	2016
2098.00	72355.50	72854.90	512998.58	513015.14	5284703.94	5314048.76	2016	345	2016
2099.00	61526.80	62048.60	513097.51	513110.40	5284705.54	5314045.70	2018	350	2016
2100.00	71180.70	71698.50	513195.66	513213.98	5284704.86	5314047.28	2016	345	2016
2101.00	60307.20	60822.60	513298.29	513309.11	5284704.62	5314049.57	2018	350	2016
2102.00	70003.60	70521.90	513401.27	513413.15	5284703.74	5314045.15	2016	345	2016
2103.00	59138.00	59645.80	513497.00	513514.82	5284704.25	5314046.26	2018	350	2016
2104.00	68868.70	69367.60	513598.54	513610.64	5284705.12	5314046.29	2016	345	2016
2105.00	58002.90	58512.40	513699.46	513710.00	5284704.03	5314048.92	2018	350	2016
2106.00	67715.00	68224.70	513798.17	513812.79	5284704.90	5314049.88	2016	345	2016
2107.00	76356.20	76857.50	513896.58	513910.90	5284706.49	5314046.08	2016	345	2016
2108.00	66570.10	67084.70	514001.96	514015.41	5284707.72	5314046.12	2016	345	2016
2109.00	77421.10	77955.70	514099.99	514111.65	5284708.03	5314047.56	2006	296	2016
2110.00	78090.10	78599.80	514198.00	514210.76	5284728.62	5314046.65	2006	296	2016
2111.00	51595.80	52151.30	514299.18	514311.64	5284703.33	5314047.33	1013	285	2016
2112.00	69173.90	69675.90	514388.26	514414.31	5284708.60	5314044.22	1022	298	2016
2113.00	72983.10	73485.70	514496.87	514512.75	5284706.26	5314047.95	1012	284	2016
2114.00	67995.60	68487.10	514599.68	514616.85	5284708.56	5314046.77	1022	298	2016
2115.00	71134.20	71624.90	514692.59	514711.49	5284704.56	5314048.60	1012	284	2016
2116.00	66851.00	67336.60	514797.71	514809.79	5284704.38	5314044.58	1022	298	2016
2117.00	69706.70	70216.30	514896.78	514910.82	5284708.06	5314047.18	1012	284	2016
2118.00	65705.60	66195.00	514998.85	515011.59	5284703.32	5314048.98	1022	298	2016
2119.00	68271.20	68790.70	515095.09	515109.91	5284708.22	5314046.76	1012	284	2016
2120.00	64547.20	65031.10	515198.91	515210.47	5284703.43	5314047.62	1022	298	2016
2121.00	66917.70	67435.90	515294.79	515313.00	5284703.63	5314046.86	1012	284	2016
2122.00	63370.10	63862.80	515392.63	515411.22	5284708.78	5314044.26	1022	298	2016
2123.00	65516.00	66019.60	515492.59	515509.68	5284705.17	5314045.67	1012	284	2016
2124.00	62201.20	62698.20	515594.25	515610.92	5284705.67	5314044.47	1022	298	2016
2125.00	64176.40	64681.90	515694.86	515711.08	5284707.64	5314046.00	1012	284	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

LINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLIGHT	DAY	YEAR
2126.00	61013.90	61508.20	515800.61	515808.53	5284707.15	5314046.13	1022	298	2016
2127.00	62770.00	63290.60	515898.23	515914.48	5284706.52	5314044.78	1012	284	2016
2128.00	59873.70	60355.60	515994.02	516011.42	5284707.13	5314049.44	1022	298	2016
2129.00	61432.00	61943.70	516093.78	516107.69	5284707.47	5314045.36	1012	284	2016
2130.00	58723.70	59230.80	516199.01	516209.41	5284706.50	5314045.73	1022	298	2016
2131.00	68578.50	69094.70	516297.64	516308.17	5284704.56	5314045.29	1022	298	2016
2132.00	52235.00	52794.70	516399.16	516410.08	5284706.86	5314045.72	1013	285	2016
2133.00	67412.10	67920.60	516497.89	516510.95	5284706.39	5314046.57	1022	298	2016
2134.00	73602.30	74280.20	516576.26	516613.05	5284725.54	5314049.74	1012	284	2016
2135.00	66276.80	66780.70	516701.47	516712.88	5284705.25	5314048.82	1022	298	2016
2136.00	71743.40	72442.30	516799.04	516813.12	5284704.45	5314048.61	1012	284	2016
2137.00	65109.80	65610.30	516897.49	516908.76	5284707.22	5314047.90	1022	298	2016
2138.00	70335.70	71030.10	516995.74	517013.10	5284703.26	5314048.16	1012	284	2016
2139.00	63957.60	64453.50	517098.57	517109.08	5284706.52	5314044.56	1022	298	2016
2140.00	68931.30	69575.60	517199.38	517212.92	5284707.11	5314048.92	1012	284	2016
2141.00	62782.20	63285.70	517299.33	517310.44	5284706.07	5314044.98	1022	298	2016
2142.00	67533.90	68182.20	517395.98	517411.79	5284705.29	5314046.44	1012	284	2016
2143.00	61601.20	62107.20	517496.99	517509.34	5284706.59	5314045.71	1022	298	2016
2144.00	66154.90	66780.60	517598.73	517612.49	5284706.11	5314047.22	1012	284	2016
2145.00	60440.50	60929.20	517698.30	517708.21	5284703.73	5314044.07	1022	298	2016
2146.00	64774.20	65411.50	517798.09	517812.50	5284707.20	5314047.30	1012	284	2016
2147.00	59293.00	59791.50	517898.92	517911.86	5284706.68	5314046.67	1022	298	2016
2148.00	63404.30	64050.80	517998.23	518012.31	5284704.31	5314049.32	1012	284	2016
2149.00	71588.20	72116.30	518095.18	518110.49	5284706.60	5314026.18	1011	283	2016
2150.00	62084.10	62687.80	518196.38	518211.13	5284703.28	5314046.93	1012	284	2016
2151.00	70197.60	70729.30	518299.40	518313.31	5284708.57	5314048.01	1011	283	2016
2152.00	55253.10	55810.50	518396.22	518416.46	5284706.87	5314045.43	1011	283	2016
2153.00	68783.80	69306.80	518492.97	518510.51	5284706.00	5314045.42	1011	283	2016
2154.00	53942.20	54498.50	518600.58	518610.58	5284703.63	5314049.21	1011	283	2016
2155.00	67404.40	67949.00	518698.83	518714.08	5284706.40	5314047.55	1011	283	2016
2156.00	80728.50	81236.10	518800.13	518814.29	5284729.03	5314048.29	1010	282	2016
2157.00	66050.50	66576.20	518899.19	518912.01	5284706.79	5314049.62	1011	283	2016
2158.00	79498.30	80020.00	519001.58	519008.69	5284707.58	5314049.32	1010	282	2016
2159.00	64714.60	65247.20	519095.08	519113.73	5284705.52	5314047.73	1011	283	2016
2160.00	78234.50	78755.20	519198.64	519215.86	5284705.18	5314047.65	1010	282	2016
2161.00	63397.80	63899.30	519297.55	519310.99	5284708.03	5314045.27	1011	283	2016
2162.00	76982.80	77502.20	519397.84	519412.44	5284704.36	5314046.50	1010	282	2016
2163.00	61935.60	62454.10	519496.24	519511.21	5284705.09	5314044.62	1011	283	2016
2164.00	75705.90	76233.60	519589.28	519613.63	5284707.93	5314049.95	1010	282	2016
2165.00	60615.50	61137.40	519695.03	519714.04	5284706.60	5314044.44	1011	283	2016
2166.00	74471.90	74994.00	519799.60	519809.73	5284704.98	5314049.83	1010	282	2016
2167.00	59322.40	59850.20	519898.81	519909.67	5284706.49	5314044.69	1011	283	2016
2168.00	73212.10	73735.40	519996.99	520010.42	5284707.40	5314046.09	1010	282	2016
2169.00	58026.20	58540.90	520098.52	520110.14	5284707.22	5314048.94	1011	283	2016
2170.00	71987.40	72514.00	520199.57	520207.69	5284704.34	5314048.91	1010	282	2016
2171.00	55881.20	56394.10	520293.12	520314.22	5284705.39	5314046.60	1011	283	2016
2172.00	70639.80	71194.20	520399.41	520411.45	5284705.93	5314049.39	1010	282	2016
2173.00	54600.80	55121.90	520497.96	520508.05	5284707.04	5314046.69	1011	283	2016
2174.00	70868.40	71486.70	520598.02	520617.23	5284705.15	5314049.58	1011	283	2016
2175.00	53308.10	53841.40	520698.52	520710.05	5284705.08	5314046.65	1011	283	2016
2176.00	69463.50	70083.70	520799.25	520813.45	5284705.93	5314047.83	1011	283	2016
2177.00	80098.20	80627.50	520900.57	520910.56	5284708.35	5314046.19	1010	282	2016
2178.00	68049.00	68639.90	520998.81	521011.13	5284707.01	5314047.75	1011	283	2016
2179.00	78862.60	79424.80	521095.43	521111.12	5284705.46	5314048.59	1010	282	2016
2180.00	66724.40	67281.10	521198.94	521215.13	5284703.62	5314047.51	1011	283	2016
2181.00	77591.00	78142.60	521298.19	521309.35	5284705.42	5314047.80	1010	282	2016
2182.00	65347.90	65946.50	521395.43	521409.43	5284703.85	5314049.79	1011	283	2016
2183.00	76342.80	76902.30	521499.42	521511.96	5284707.45	5314048.59	1010	282	2016
2184.00	64041.80	64576.10	521597.20	521611.85	5284704.20	5314048.88	1011	283	2016
2185.00	75074.60	75623.70	521698.72	521711.53	5284703.98	5314045.93	1010	282	2016
2186.00	62620.90	63165.20	521798.17	521811.07	5284704.42	5314048.87	1011	283	2016
2187.00	73844.10	74395.20	521896.06	521909.08	5284703.59	5314047.05	1010	282	2016
2188.00	61255.00	61806.90	521997.99	522013.11	5284707.30	5314047.71	1011	283	2016
2189.00	72591.60	73127.20	522099.22	522107.80	5284704.48	5314048.04	1010	282	2016
2190.00	59991.30	60533.10	522197.81	522211.06	5284708.11	5314045.87	1011	283	2016
2191.00	71292.40	71905.60	522294.57	522313.45	5284705.87	5314046.93	1010	282	2016

**FLOWN LINES - MAGNETIC**  
**UTM Zone 15 North, Datum WGS-84**

<b>LINE</b>	<b>TIME</b>	<b>TIME</b>	<b>MIN X</b>	<b>MAX X</b>	<b>MIN Y</b>	<b>MAX Y</b>	<b>FLIGHT</b>	<b>DAY</b>	<b>YEAR</b>
2192.00	58646.90	59179.00	522398.48	522414.64	5284703.43	5314049.26	1011	283	2016
2193.00	69986.20	70508.60	522497.11	522509.01	5284704.20	5314048.36	1010	282	2016
2194.00	57367.40	57919.90	522598.95	522615.74	5284703.24	5314049.55	1011	283	2016





## Appendix IV





### Equipment List

Part	Serial No.	Description	Manufacturer
Aircraft C-GSGL	208B-0783	Cessna 208B Grand Caravan, Engine Pratt & Whitney Canada	Cessna
Aircraft C-GSGV	208B-0524	Cessna 208B Grand Caravan, Engine Pratt & Whitney Canada	Cessna
Aircraft C-GSGW	208B-0646	Cessna 208B Grand Caravan, Engine Pratt & Whitney Canada	Cessna
Barometric Sensor	1099727	Model THE AP122,BJ,2C	Honeywell
Barometric Sensor	462078	Model THE/0727-01TJA	Honeywell
Barometric Sensor	1335789	Model THE absolute sensor	Honeywell
Data acquisition computer	CDAC-14	CPCI Data Acquisition computer	SGL
Data acquisition computer	CDAC-11	CPCI Data Acquisition computer	SGL
Data acquisition computer	CDAC-01	CPCI Data Acquisition computer	SGL
DGPS Antenna	6777	Aero Patch TSO, AT1665-OW-TNCF-000-RG-38-NM	Novatel
DGPS Antenna	21376	L1/L2 - Lband Aircraft Antenna p/n 3GO1215A-XT-1	Novatel
Fluxgate Magnetometer	875	Model TFM100G2-1E	Billingsley Magnetics
Fluxgate Magnetometer	872	Model TFM100G2-1E	Billingsley Magnetics
Fluxgate Magnetometer	876	Model TFM100G2-1E	Billingsley Magnetics
GPS Antenna	512C-5986	Model 512C, L1/L2	Novatel
GPS Antenna	SGA0735	Model 511	Novatel
GPS Antenna	12828	S67-1575-39	Novatel
GPS Antenna	4881	Model DMC-146-10-1	Novatel
GPS Antenna	AGPS-002	Model 511	Novatel
GPS Antenna	512C-5972	Model 512C, L1/L2	Novatel
GPS Antenna	97209	Active L1/L2 GPS Antenna	Novatel
Laser Profilometer	9995928	LD90-31K-HiP, 11-28VDC laser rangefinder.	Riegl
Laser Profilometer	9994628	LD90-31K-HiP, 11-28VDC laser rangefinder.	Riegl
Laser Profilometer	9996507	LD90-31K-HiP, 11-28VDC laser rangefinder.	Riegl
Magnetometer Sensor	75424-C1963	Model G-822A	Geometrics

### Equipment List

Part	Serial No.	Description	Manufacturer
Magnetometer Sensor	75534-C2450	Model G-822A, Sensor S/N C2450	Geometrics
Magnetometer Sensor	75248-G1254	Model G-822A, Sensor S/N C1254	Geometrics
Magnetometer Sensor	75542-C2457	Model G-822A, Sensor S/N C2457	Geometrics
Magnetometer Sensor	75536-C2491	Model G-822A, Sensor S/N C2450	Geometrics
Magnetometer Sensor	75411-C1927	Model G-822A, Sensor S/N C1927	Geometrics
Magnetometer Sensor	75303-C991	Model G-822A, Sensor S/N C991	Geometrics
Magnetometer Sensor	75246-C517	Model G-822A, Sensor S/N C517	Geometrics
Magnetometer Sensor	75306-C986	Model G-822A, Sensor S/N C986	Geometrics
Magnetometer Sensor	75307-C1325	Model G-822A, Sensor S/N C1325	Geometrics
RA Antenna - KING	13954		Bendix/King
RA Antenna - TRT	22983	S67-2002	Thomson TRT Defense SA
RA Antenna - TRT	11779	S67-2002	Thomson TRT Defense SA
RA Antenna - TRT	22984	S67-2002	Thomson TRT Defense SA
RA Transceiver - KING	16665	Radar Altimeter, Model KRA 10A	Bendix/King
RA Transceiver - KING	18494	Radar Altimeter, Model KRA 10A	Bendix/King
RA Transceiver - TRT	3575	Radar Altimeter, Model ERT-530A	Thomson TRT Defense SA
RA Transceiver - TRT	1225	Radar Altimeter, Model ERT-530A	Thomson TRT Defense SA
RA Transceiver - TRT	9800	Radar Altimeter, Model ERT-530A	Thomson TRT Defense SA
SGRef Station	M-SGREF-73	CPCI ground station - 28Vdc input	SGL
SGRef Station	SGREF-09	Dual CPCI ground station - 28Vdc input	SGL
Spectrometer	8254	GR 820 Gamma Ray Spectrum Processor	Exploranium
Spectrometer	8250	GR 820 Gamma Ray Spectrum Processor	Exploranium
Spectrometer detector 5-pack	2623	GPX-1024/256	Exploranium
Spectrometer detector 5-pack	2669	GPX-1024/256	Exploranium
Spectrometer detector 5-pack	2664	GPX-1024/256	Exploranium

### Equipment List

Part	Serial No.	Description	Manufacturer
Spectrometer detector 5-pack	2645	GPX-1024/256	Exploranium
Spectrometer detector 5-pack	2609	GPX-1024/256	Exploranium
Spectrometer detector 5-pack	2632	GPX-1024/256	Exploranium
Video Camera	V14H19290NTSC	Bullet video camera	Bad Wolf Technologies





## Appendix V









## GEOPHYSICAL SURVEY AIRCRAFT

# CESSNA 208B GRAND CARAVAN

Registration	C-GSGW	C-GSGY	C-GSGZ	C-GSGL	C-GSGV	C-GSGU	C-GSGJ	C-GSGA
Serial #	208B0646	208B0600	208B0493	208B0783	208B0524	208B0747	208B1187	208B1228

The Cessna 208B Grand Caravan is an all metal, high wing, single-engine aircraft powered by a Pratt & Whitney Canada PT6A-114A engine. This engine drives a constant speed, fully feathering, reversible propeller. The aircraft has fixed gear, extendable flaps and manually adjustable trim tabs on the primary controls for the roll and pitch axis and full rudder trim for the yaw axes. The aircraft is equipped with full de-icing equipment and sufficient avionics for instrument flying including a flight control system and weather radar. Supplementary fuel can be added for transoceanic flight. The Caravan is certified for IFR flights in known icing conditions.



## ■ GEOPHYSICAL SURVEYING

SGL aircraft have a rigid aluminum and composite material 3 m tail stinger designed to accommodate the magnetometer sensor. The stinger can be easily removed and the aircraft returned to its original configuration. There is a camera hole in the belly of the aircraft and provisions for other survey and navigation systems.

The Cessna Grand Caravan uses the extremely reliable Pratt & Whitney Canada PT6 turbine engine. These engines have recorded tens of millions of hours of flight time and with virtually no in-flight engine stoppages due to mechanical failure. Over 2,000 Caravans are in use around the world. Because the Caravan has one engine, fixed landing gear, and no single engine control speed limitations, it is considered an easy and very safe aircraft to fly. The PT6 turbine engine provides ample power for climbing over terrain, working at altitudes up to 7,000 m and can withstand frequent rapid power changes. The low stall speeds and abundant available power, mean that the Caravan is a safe and effective aircraft for surveys which require low airspeeds, draping flying over rough topography, or flights at high altitudes.

## CESSNA 208B GRAND CARAVAN SPECIFICATIONS

### Crew Capacity:

- 2 pilots, 1 operator (optional)

### Fuselage:

- semi-monocoque

### Wings:

- strut braced, high wing
- outboard ailerons with spoiler and trim tab

### Tail:

- conventional stabilizers
- elevator and rudder with trim tabs

### Power Plant:

- Pratt & Whitney Canada PT6A-114A, 675 shp, free-turbine gas engine, overhaul 4,600 hours
- three-blade, fully-feathering, constant-speed, reversible propeller, overhaul 4,000 hours or 10 years

### Systems:

- dual flight controls with IFR instruments and avionics
- 2 axis autopilot
- weather radar
- full airframe and propeller de-icing

### Dimensions:

Wing span	52 ft 1 in	16.11 m
Exterior length	41 ft 7 in	12.68 m
Exterior height	15 ft 5.5 in	4.72 m
Interior usable length	15 ft 10 in	4.83 m
Interior usable width	5 ft 4 in	1.63 m
Interior height	4 ft 6 in	1.37 m
Usable fuel capacity (with survey tank)	519 US gal	2,011 l

### Weights:

Empty	4,237 lb	1,926 kg
Maximum take-off	9,062 lb	4,119 kg

### Performance (2000 ft ASL, standard day, maximum take-off weight, 1900 rpm, 1375 ft-lb tq):

Range, maximum range power (plus reserve)	1,450 nm	2,685 km
Cruise speed at maximum range power	155 kt	287 km/h
Fuel flow at maximum range power	50 US gal/h	189 l/h
Stall airspeed, landing configuration	61 kt	113 km/h
Service ceiling	25,000 ft	7,620 m
Minimum required runway length	2,500 ft	765 m
Rate of climb	975 ft/min	297 m/min
Maximum sustained climb gradient	650 ft/nm	107 m/km

### Type of Aviation Fuel:

Jet A, A-1, B, JP-1, 4, 5, 8

### Maximum Endurance:

8 hours plus 1 hour reserve at maximum range power

## GEOPHYSICAL CAPABILITIES

**AIRGrav**, SGL airborne gravimeter

**Magnetic total field**

**Tri-axial magnetic gradient**

**Gamma-ray spectrometer**, up to 63 litres (3,840 in<sup>3</sup>) of detector crystals

**SGMethane**, methane gas sensing

### Additional Features:

- Tail stinger, 3 m long, 21 cm in diameter, capable of housing a 5.5 kg sensor
- HF radio
- Video camera mount with 14 cm diameter glass covered opening in the belly of the aircraft
- Two instrument racks, standard 48 cm (19 in) width
- Radar altimeter, 0–3,000 m
- Electrical power capacity, 28 VDC at 200 amp
- Static inverters, 115 VAC – 400 Hz, 110 VAC – 60 Hz
- GPS receiver and antenna plus data link for real-time corrections
- Cabin fuel tank certified for a normal production flying

v2.0



## Appendix VI





Table 1: Magnetometer 1 heading test – Flight 9002

Aircraft type : Cessna 208B Registration : C-GSGW Organization : Sander Geophysics Date : July 9, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	901.00	-146.5	-0.10
S	901.01	-146.9	-0.45
E	9001.01	-146.0	0.39
W	9001.00	-146.1	0.33
N	901.02	-146.2	0.19
S	901.03	-146.2	0.22
E	9001.03	-146.2	0.16
W	9001.02	-147.1	-0.74
Average		-146.4	
Average North-South Heading Error		0.16 nT	
Average East-West Heading Error		0.48 nT	

Table 2: Magnetometer 1 heading test – Flight 9201

Aircraft type : Cessna 208B Registration : C-GSGL Organization : Sander Geophysics Date : July 15, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	921.02	-58.1	0.60
S	921.01	-59.4	-0.66
E	9201.02	-59.0	-0.21
W	9201.01	-59.1	-0.34
N	921.04	-58.2	0.54
S	921.03	-59.2	-0.47
E	9201.04	-58.4	0.30
W	9201.03	-58.5	0.24
Average		-58.7	
Average North-South Heading Error		1.14 nT	
Average East-West Heading Error		0.09 nT	

Table 3: Magnetometer 1 heading test – Flight 9301

Aircraft type : Cessna 208B Registration : C-GSGV Organization : Sander Geophysics Date : July 20, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	106.02	-70.6	0.32
S	106.01	-71.3	-0.41
E	1619.02	-70.9	0.02
W	1619.01	-70.8	0.09
N	106.04	-70.6	0.37
S	106.03	-71.2	-0.32
E	1619.04	-70.8	0.08
W	1619.03	-71.1	-0.15
Average		-70.9	
Average North-South Heading Error		0.71 nT	
Average East-West Heading Error		0.08 nT	

Table 4: Magnetometer 2 heading test – Flight 9002

Aircraft type : Cessna 208B Registration : C-GSGW Organization : Sander Geophysics Date : July 9, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	901.00	-49.7	-0.08
S	901.01	-50.1	-0.50
E	9001.01	-49.4	0.28
W	9001.00	-49.3	0.34
N	901.02	-49.3	0.36
S	901.03	-49.6	0.05
E	9001.03	-49.5	0.17
W	9001.02	-50.2	-0.61
Average		-49.6	
Average North-South Heading Error		0.36 nT	
Average East-West Heading Error		0.36 nT	

Table 5: Magnetometer 2 heading test – Flight 9201

Aircraft type : Cessna 208B Registration : C-GSGL Organization : Sander Geophysics Date : July 15, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	921.02	-56.7	0.57
S	921.01	-57.9	-0.62
E	9201.02	-57.5	-0.24
W	9201.01	-57.6	-0.32
N	921.04	-56.8	0.50
S	921.03	-57.7	-0.45
E	9201.04	-57.1	0.21
W	9201.03	-57.0	0.34
Average		-57.3	
Average North-South Heading Error		1.07 nT	
Average East-West Heading Error		-0.02 n	

Table 6: Magnetometer 2 heading test – Flight 9301

Aircraft type : Cessna 208B Registration : C-GSGV Organization : Sander Geophysics Date : July 20, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	106.2	-67.0	0.45
S	106.1	-67.9	-0.48
E	1619.02	-67.6	-0.24
W	1619.01	-67.1	0.31
N	106.4	-66.9	0.46
S	106.3	-67.8	-0.37
E	1619.04	-67.6	-0.21
W	1619.03	-67.3	0.08
Average		-67.4	
Average North-South Heading Error		0.88 nT	
Average East-West Heading Error		-0.42 nT	

Table 7: Magnetometer 3 heading test – Flight 9002

Aircraft type : Cessna 208B Registration : C-GSGW Organization : Sander Geophysics Date : July 9, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	901.00	-64.7	-0.10
S	901.01	-64.9	-0.29
E	9001.01	-64.3	0.35
W	9001.00	-64.5	0.14
N	901.02	-64.5	0.18
S	901.03	-64.3	0.36
E	9001.03	-64.5	0.11
W	9001.02	-65.4	-0.74
Average		-64.7	
Average North-South Heading Error		0.01 nT	
Average East-West Heading Error		0.53 nT	

Table 8: Magnetometer 3 heading test – Flight 9201

Aircraft type : Cessna 208B Registration : C-GSGL Organization : Sander Geophysics Date : July 15, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	921.02	-59.6	0.49
S	921.01	-60.6	-0.47
E	9201.02	-60.2	-0.06
W	9201.01	-60.7	-0.54
N	921.04	-59.7	0.41
S	921.03	-60.4	-0.27
E	9201.04	-59.7	0.37
W	9201.03	-60.0	0.07
Average		-60.1	
Average North-South Heading Error		0.82 nT	
Average East-West Heading Error		0.38 nT	



Table 9: Magnetometer 3 heading test – Flight 9301

Aircraft type : Cessna 208B Registration : C-GSGV Organization : Sander Geophysics Date : July 20, 2016		Height flown: 1350 ft ASL Magnetometer type : Geometrics G-822A Compensator: SGL AIRComp Sampling rate : 10/s Data acquisition system : Sander SGDAS	
Direction	Line #	Diurnally corrected mag	Variation from Average
N	106.02	-64.1	-0.05
S	106.01	-64.0	0.07
E	1619.02	-64.3	-0.20
W	1619.01	-63.8	0.26
N	106.04	-64.1	-0.06
S	106.03	-63.9	0.15
E	1619.04	-64.3	-0.22
W	1619.03	-64.0	0.05
Average		-64.1	
Average North-South Heading Error		-0.16 nT	
Average East-West Heading Error		-0.36 nT	





## Appendix VII





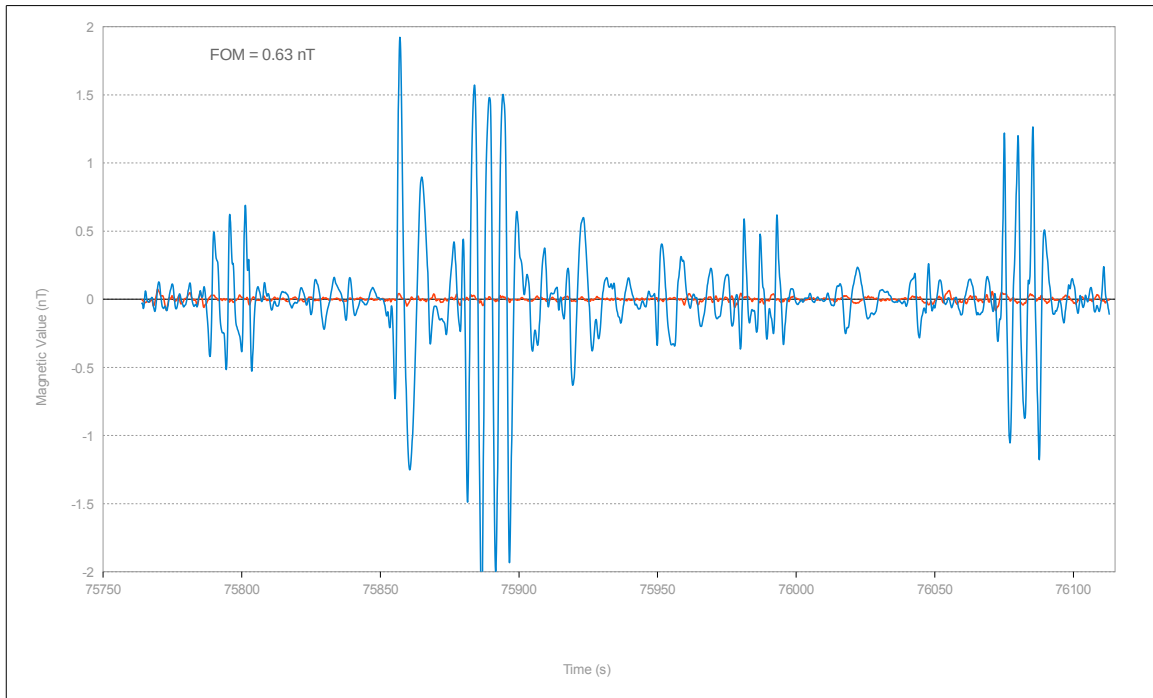


Figure 1: Magnetometer 1-Compensator Calibration - C-GSGL - Flt2001 - 15 October 2016

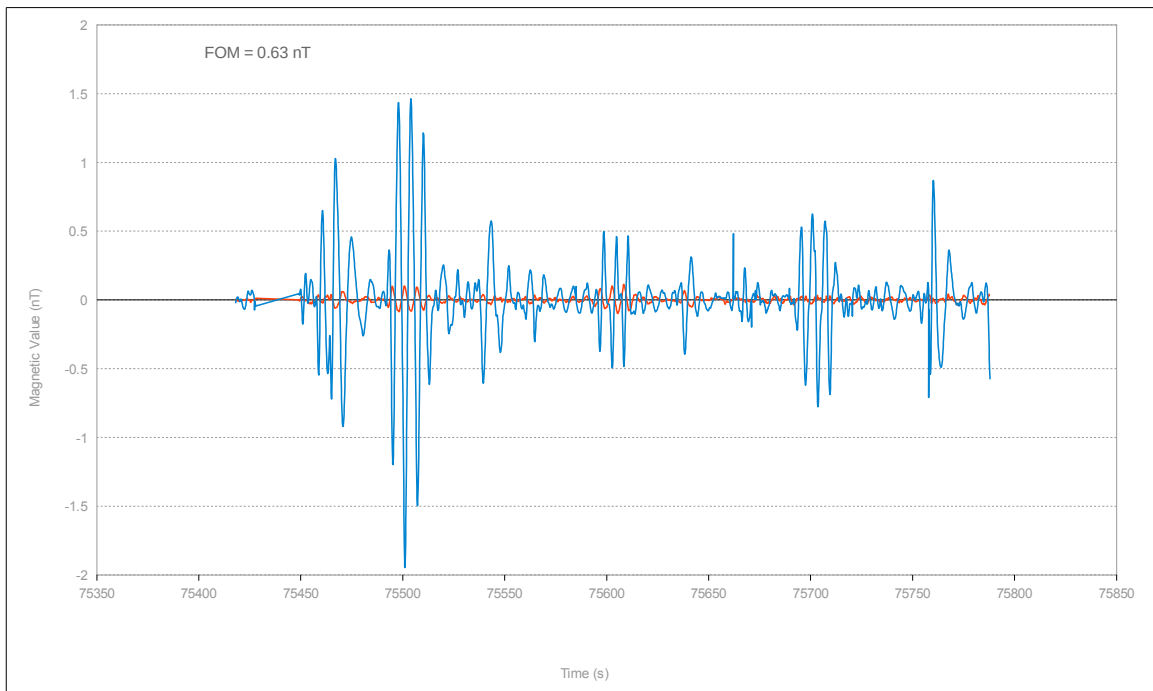


Figure 2: Magnetometer 1-Compensator Calibration - C-GSGL - Flt2013 - 5 December 2016

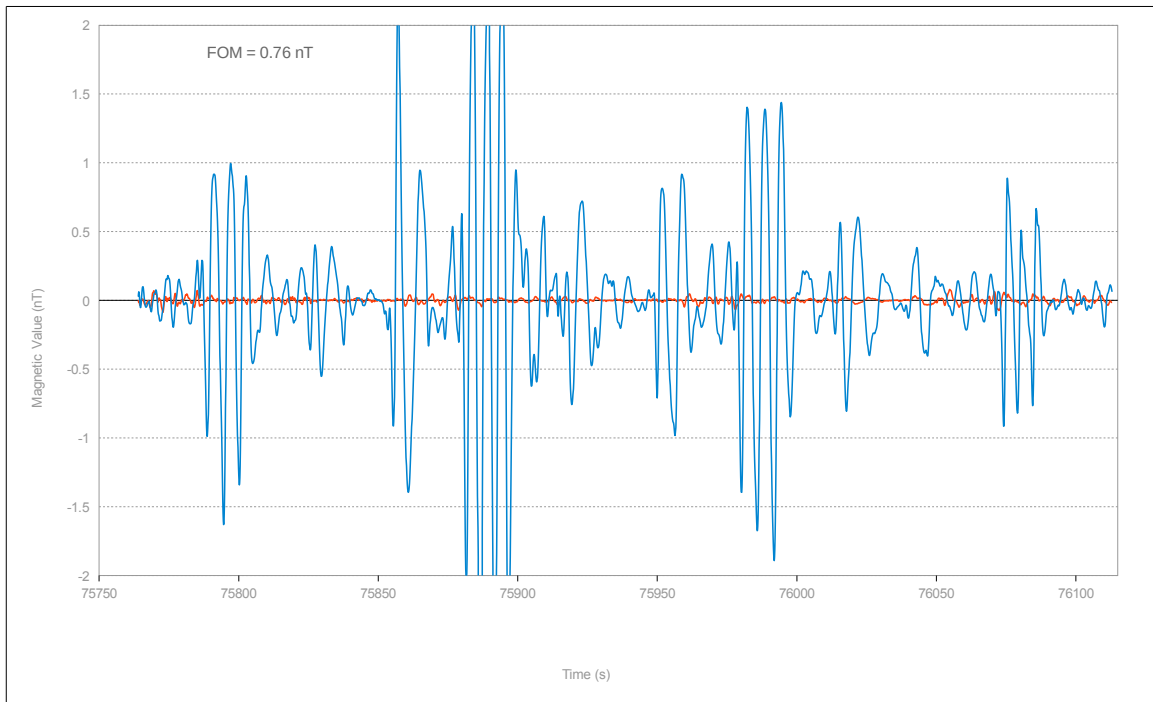


Figure 3: Magnetometer 2-Compensator Calibration - C-GSGL - Flt2001 - 15 October 2016

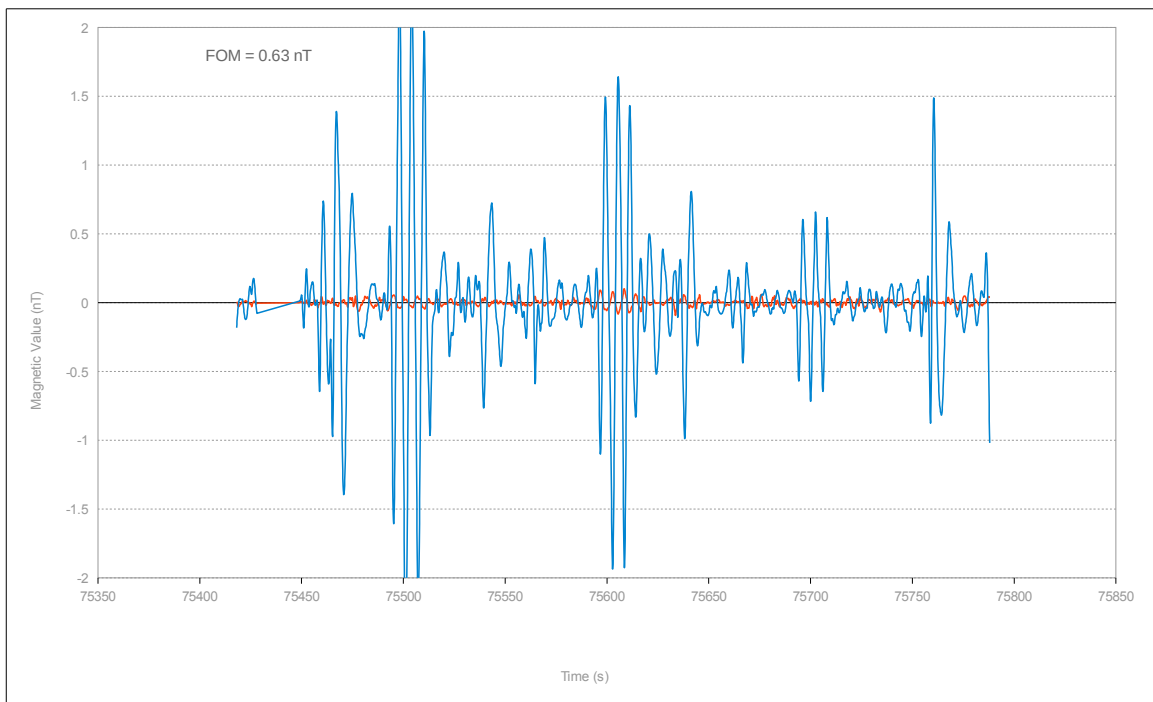


Figure 4: Magnetometer 2-Compensator Calibration - C-GSGL - Flt2013 - 5 December 2016

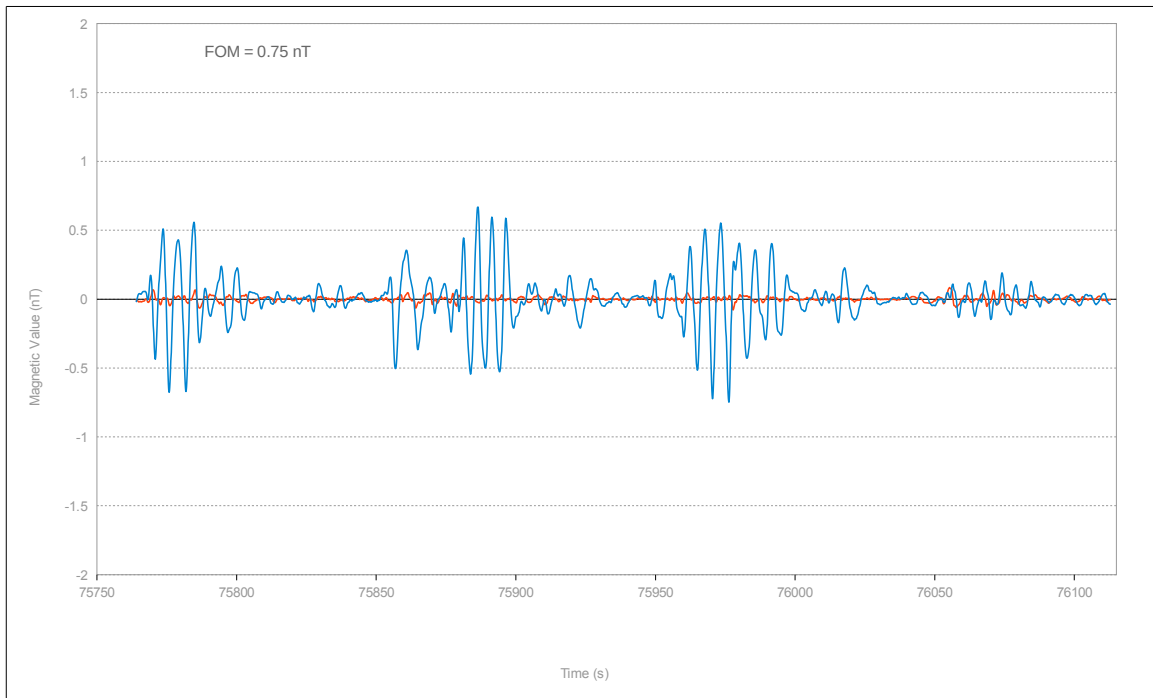


Figure 5: Magnetometer 3-Compensator Calibration - C-GSGL - Flt2001 - 15 October 2016

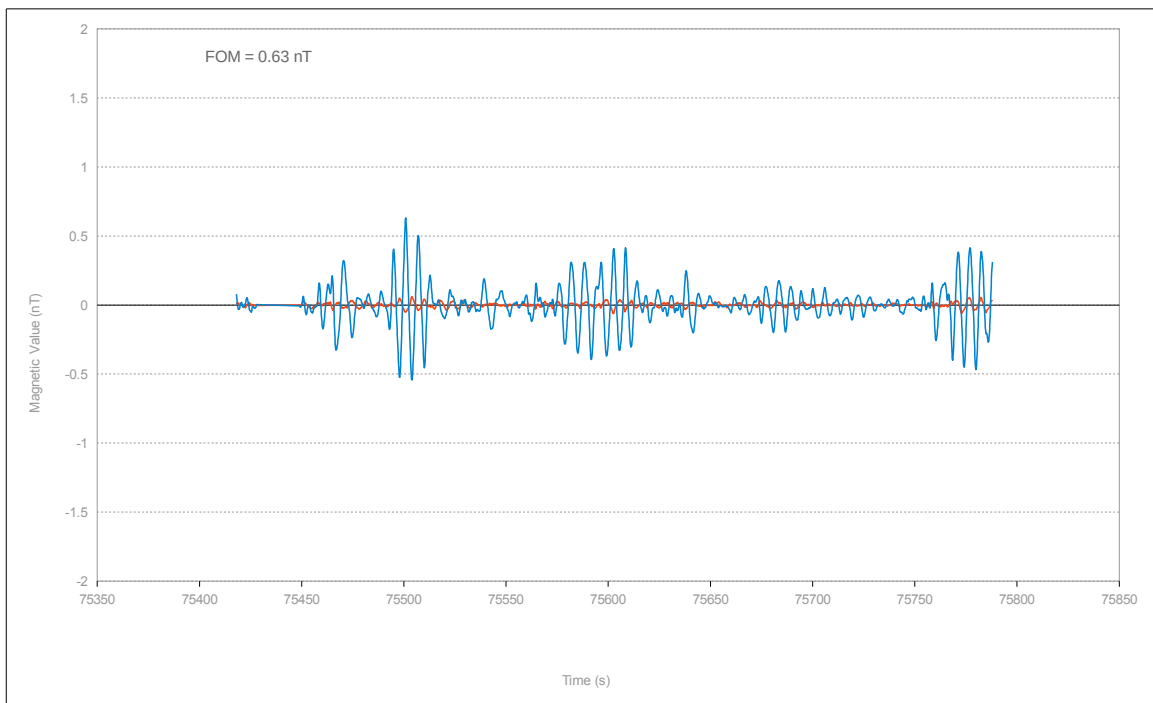


Figure 6: Magnetometer 3-Compensator Calibration - C-GSGL - Flt2013 - 5 December 2016

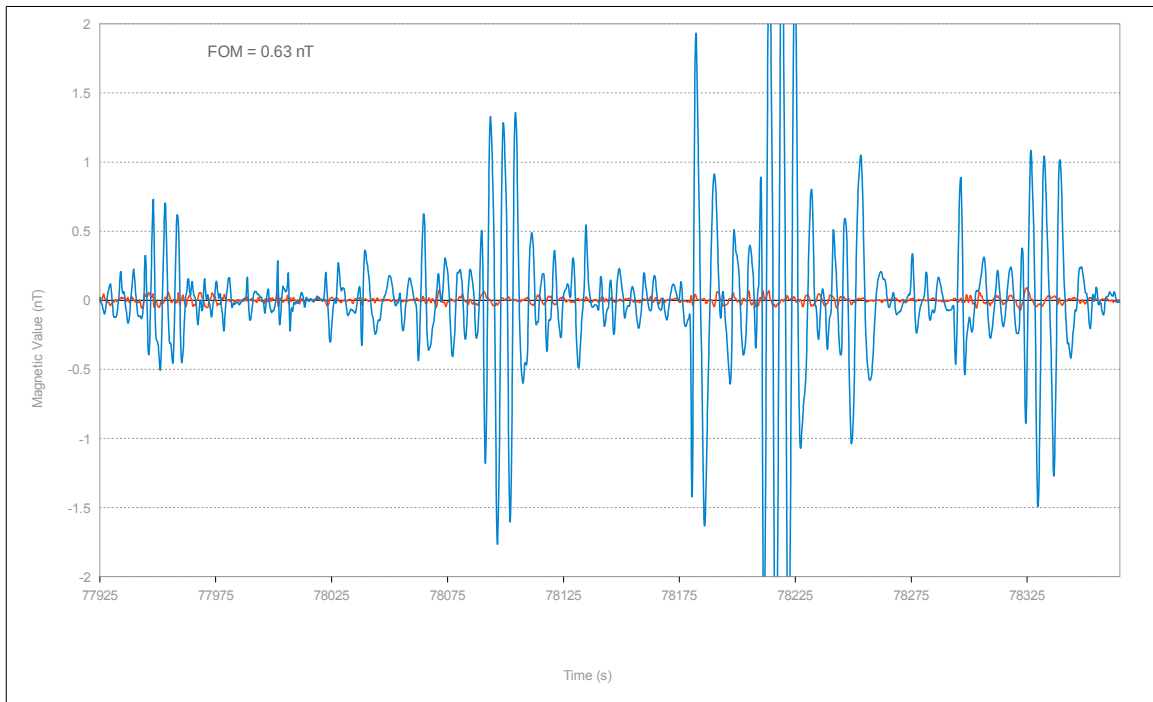


Figure 7: Magnetometer 1 Compensator Calibration - C-GSGV - Flt3002 - 24 October 2016

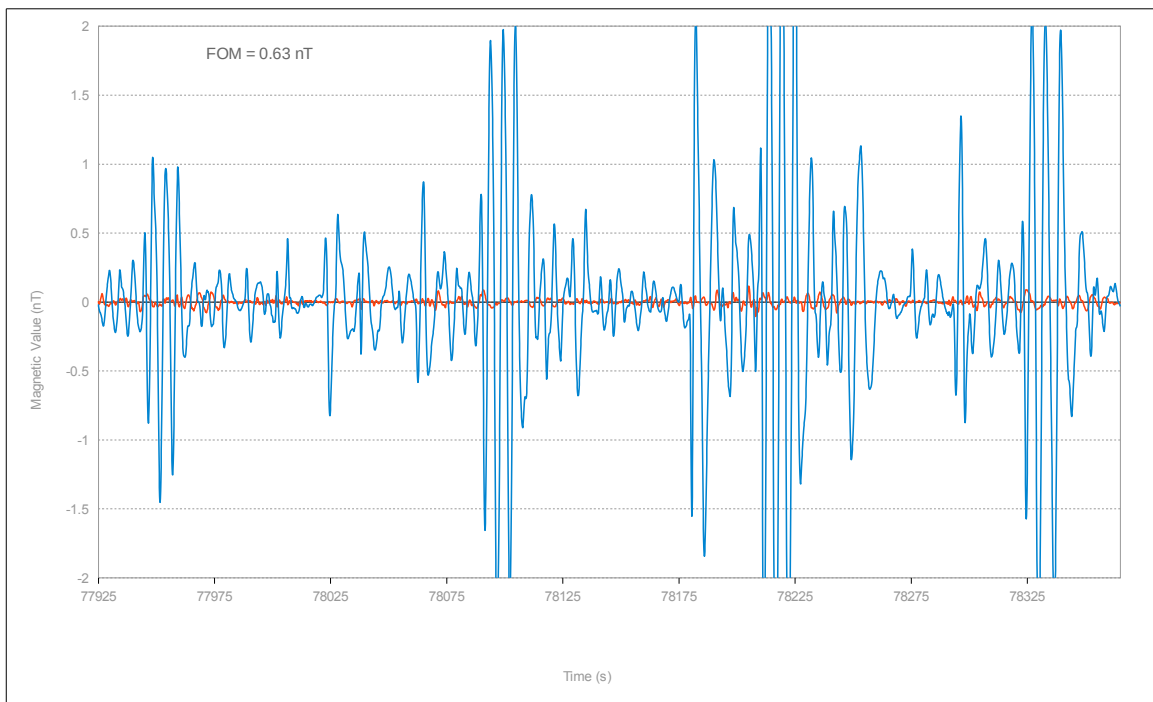
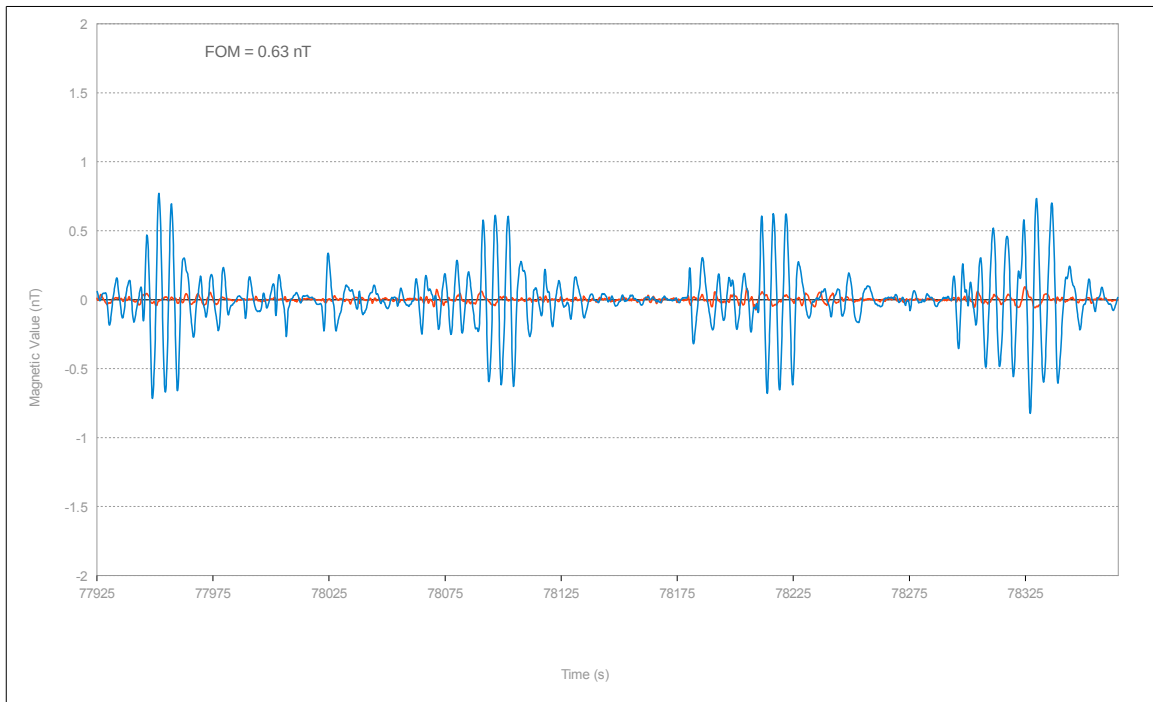
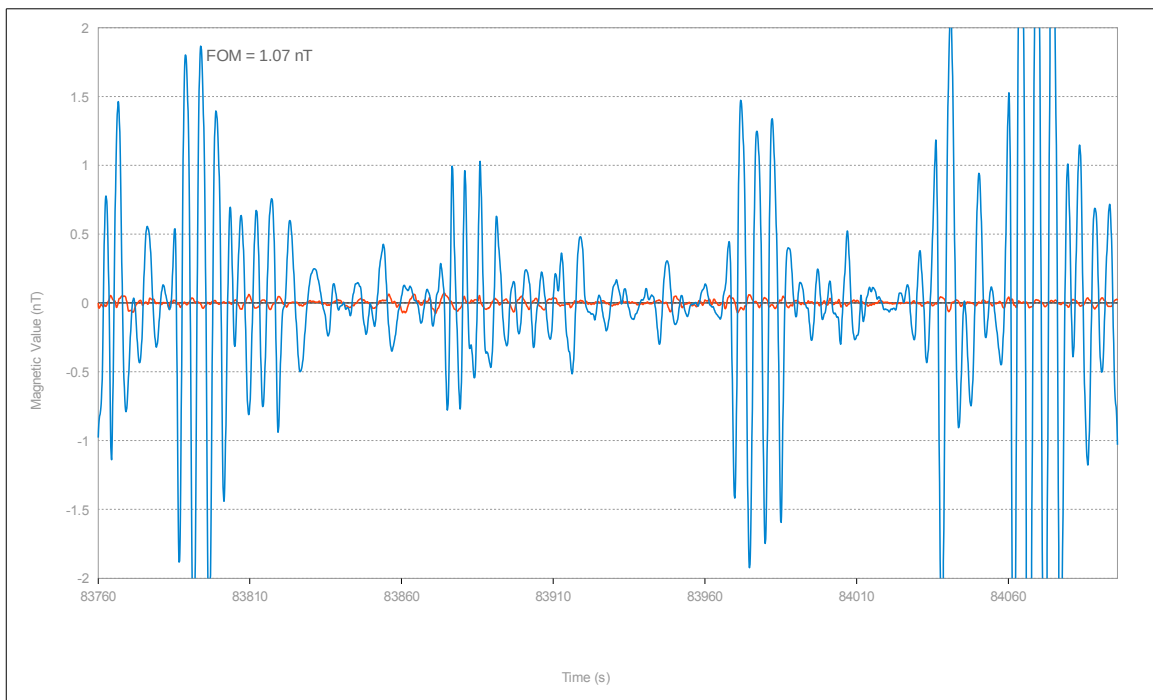


Figure 8: Magnetometer 2 Compensator Calibration - C-GSGV - Flt3002 - 24 October 2016

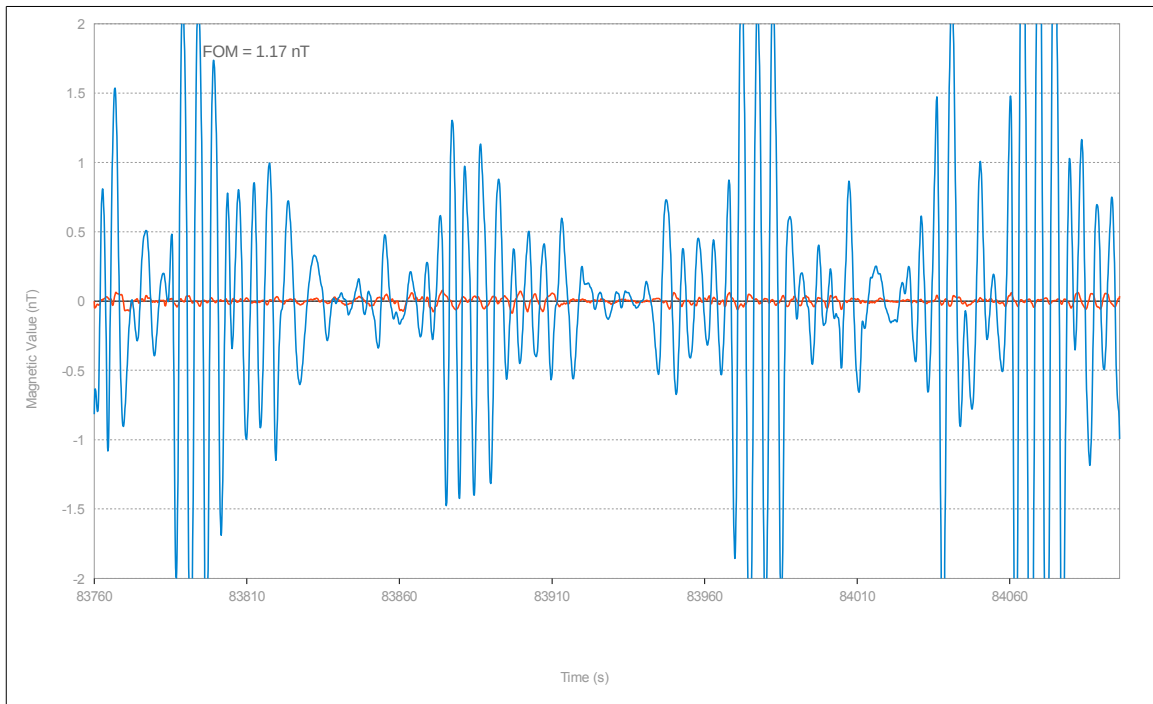




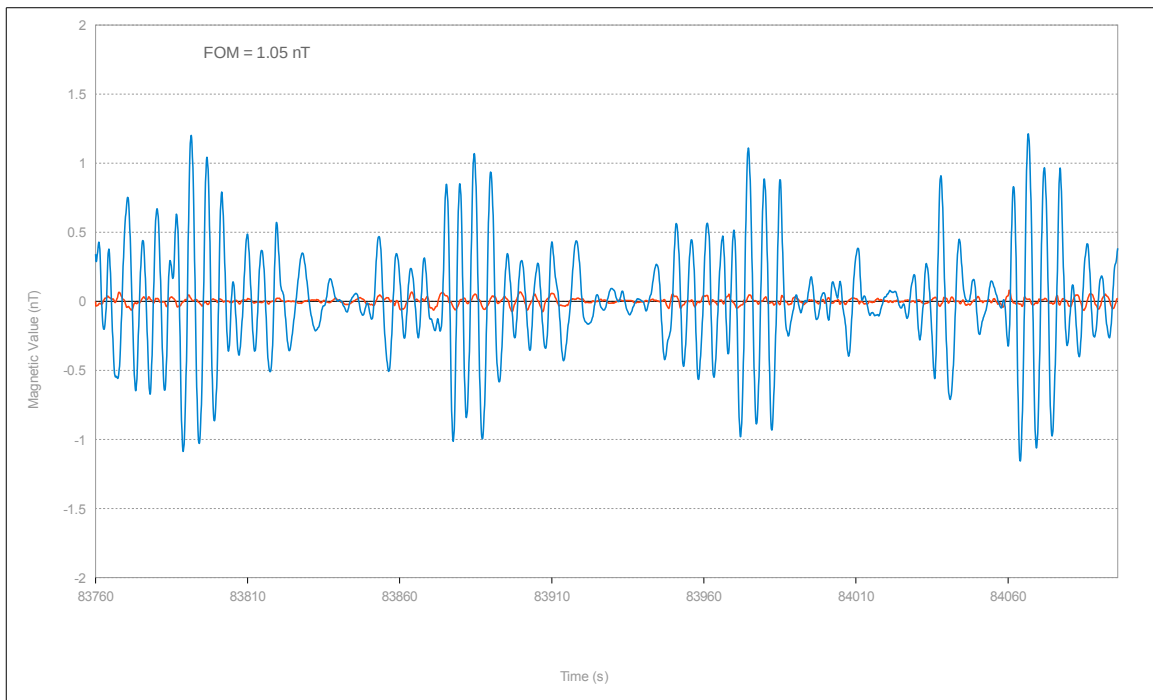
**Figure 9: Magnetometer 3 Compensator Calibration - C-GSGV - Flt3002 - 24 October 2016**



**Figure 10: Magnetometer 1-Compensator Calibration - C-GSGW - Flt1004 - 30 September 2016**



**Figure 11: Magnetometer 2-Compensator Calibration - C-GSGW - Flt1004 - 30 September 2016**



**Figure 12: Magnetometer 3-Compensator Calibration - C-GSGW - Flt1004 - 30 September 2016**



## Appendix VIII





Note: Original and corrected data are offset in the vertical axis for clarity of display.

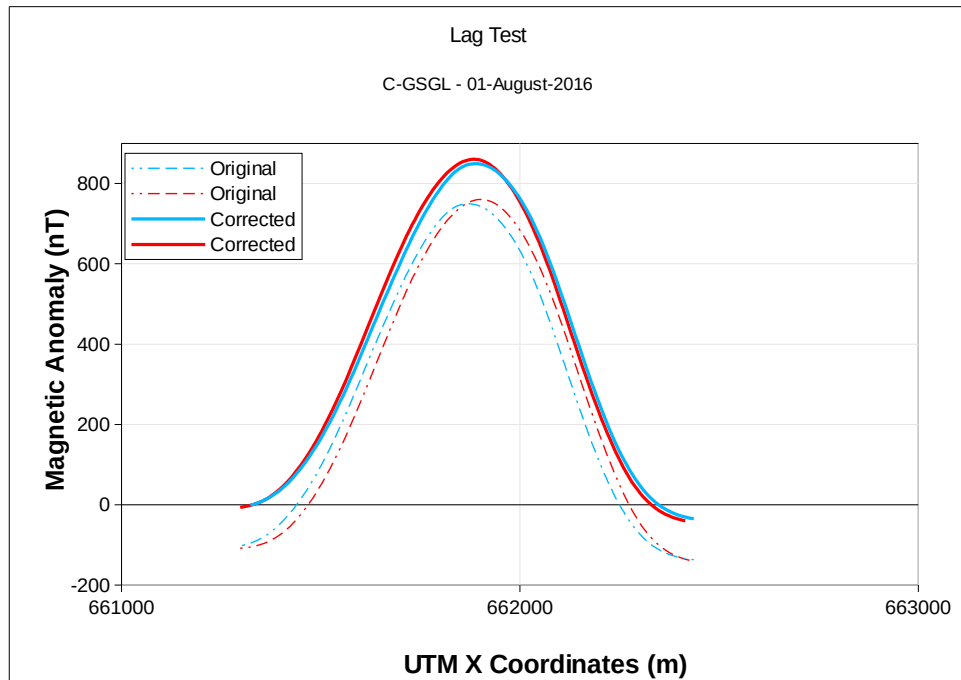


Figure 1: Magnetometer 1-Lag Test – C-GSGL - Flt 2018 – 01 Aug 2016

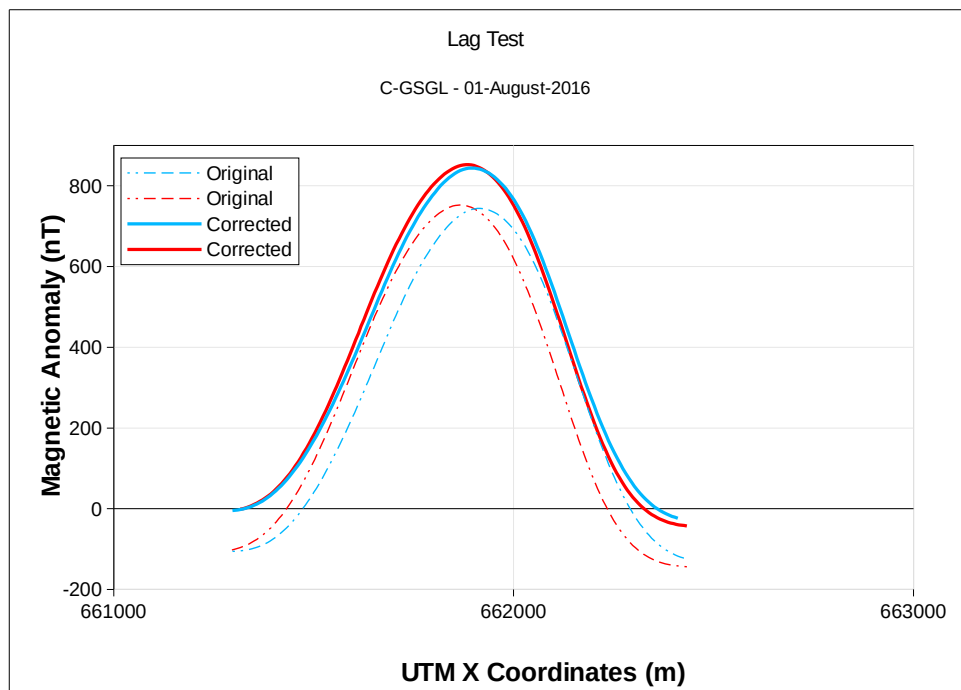


Figure 2: Magnetometer 2-Lag Test – C-GSGL - Flt 2018 – 01 Aug 2016

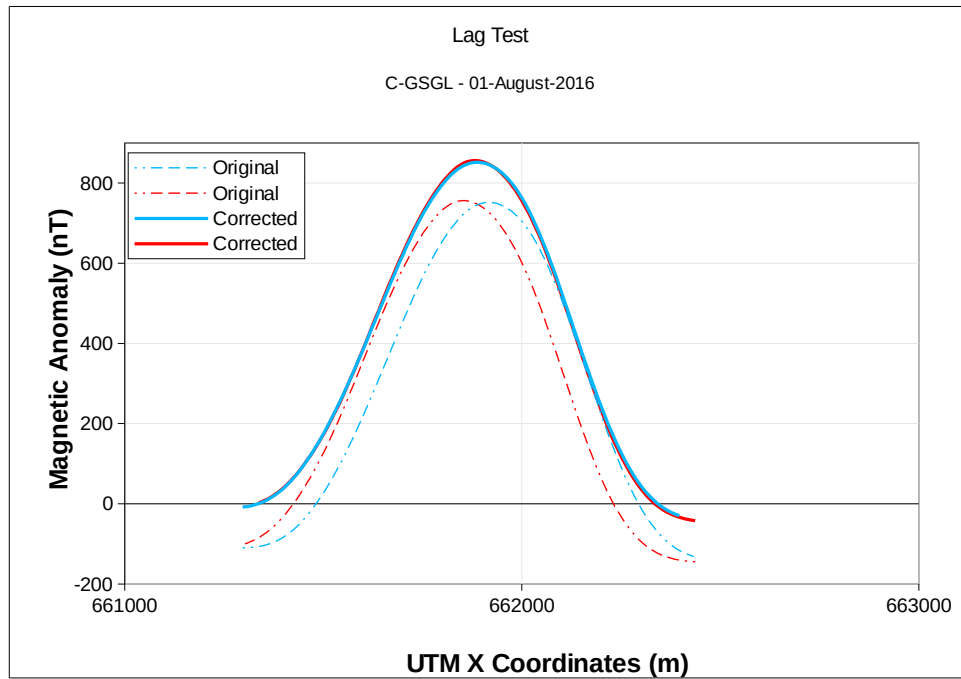


Figure 3: Magnetometer 3-Lag Test – C-GSGL - Flt 2018 – 01 Aug 2016

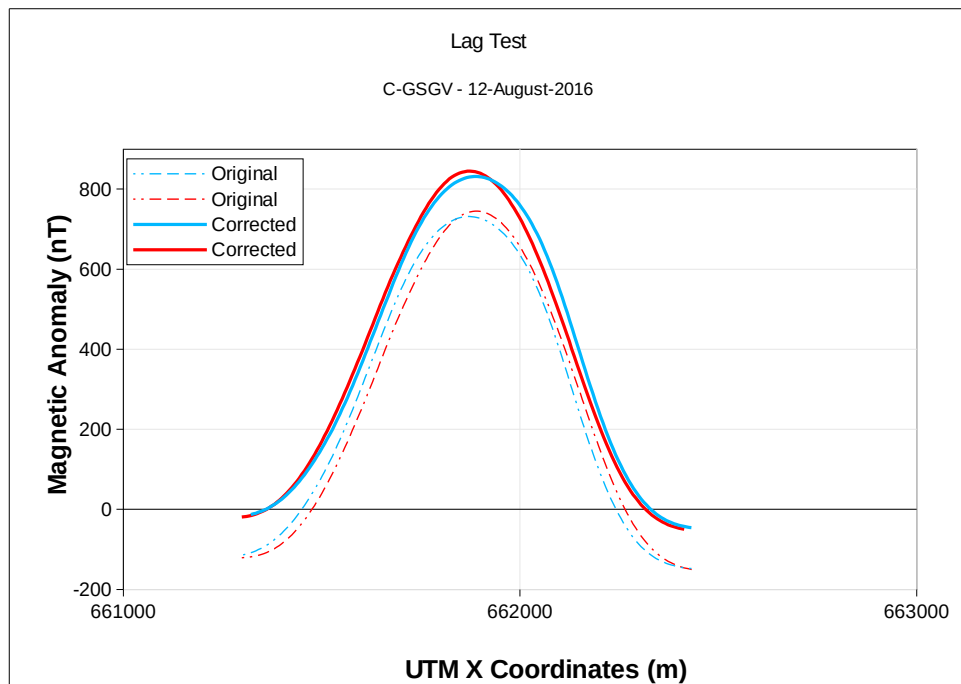


Figure 4: Magnetometer 1-Lag Test – C-GSGV - Flt 3004 – 12 Aug 2016

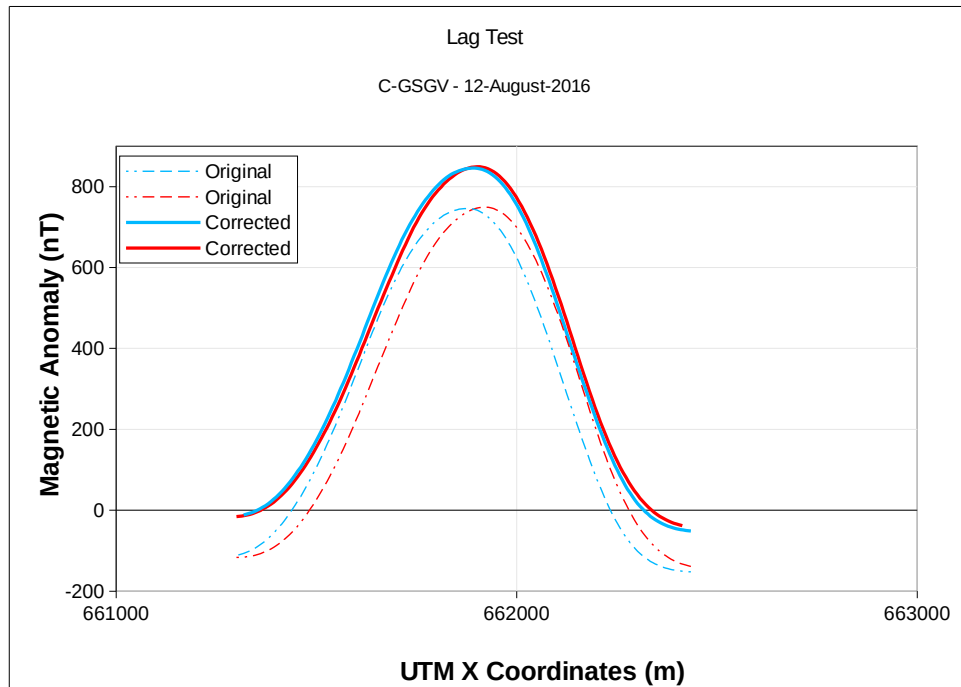


Figure 5: Magnetometer 2-Lag Test – C-GSGV - Flt 3004 – 12 Aug 2016

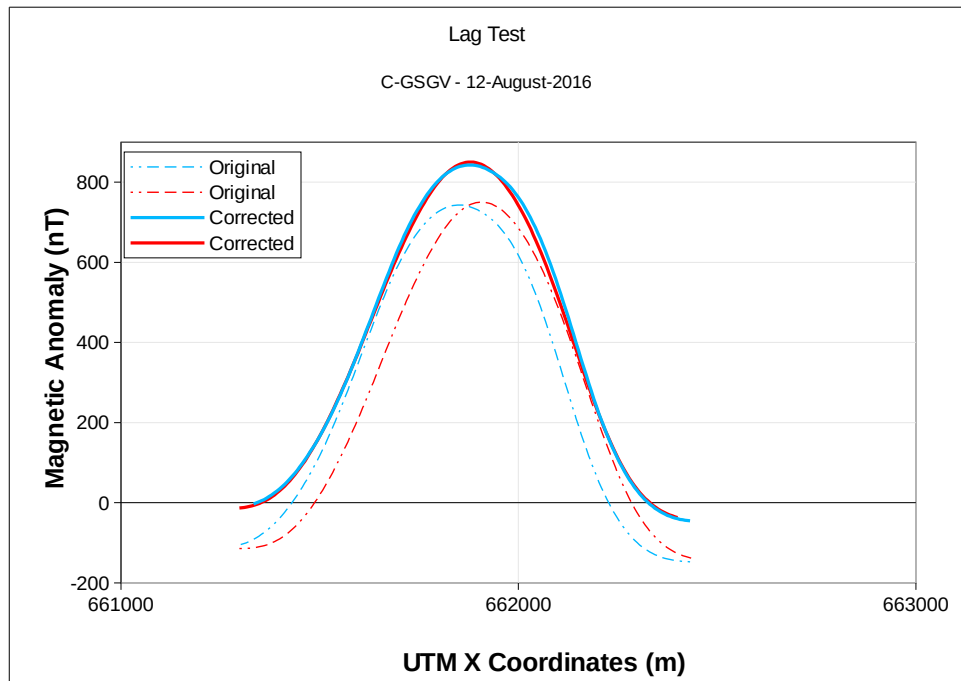


Figure 6: Magnetometer 3-Lag Test – C-GSGV - Flt 3004 – 12 Aug 2016

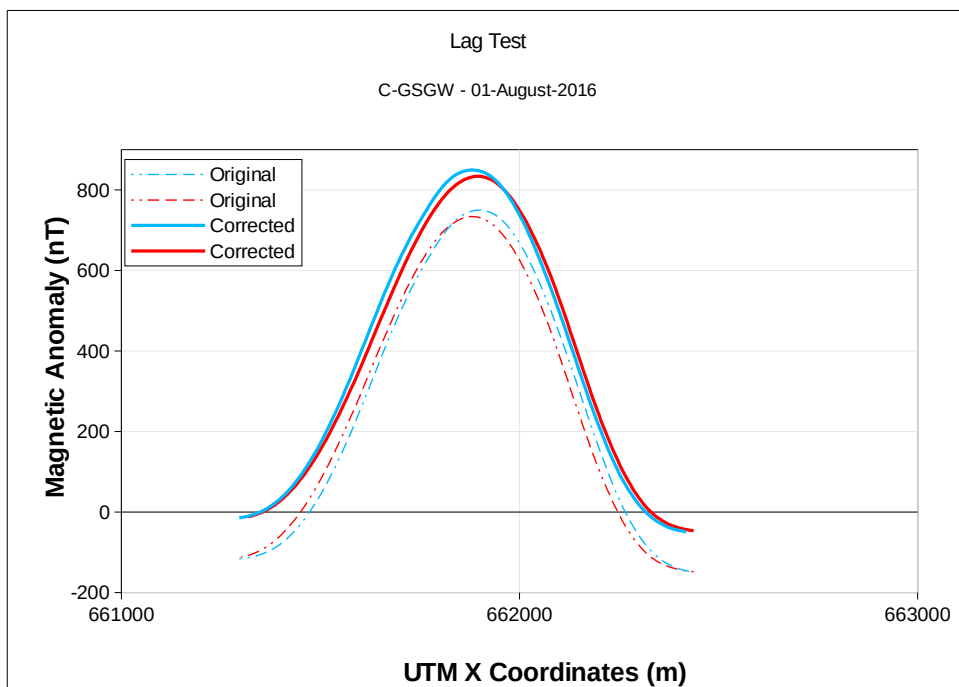


Figure 7: Magnetometer 1-Lag Test – C-GSGW – Flt 1022 – 01 Aug 2016

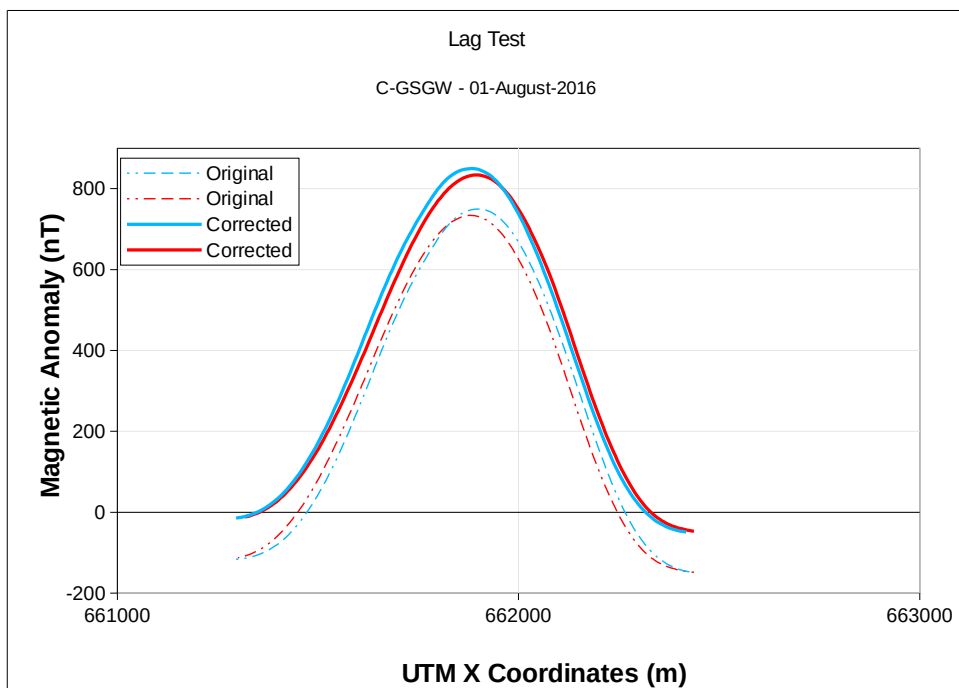


Figure 8: Magnetometer 2-Lag Test – C-GSGW – Flt 1022 – 01 Aug 2016



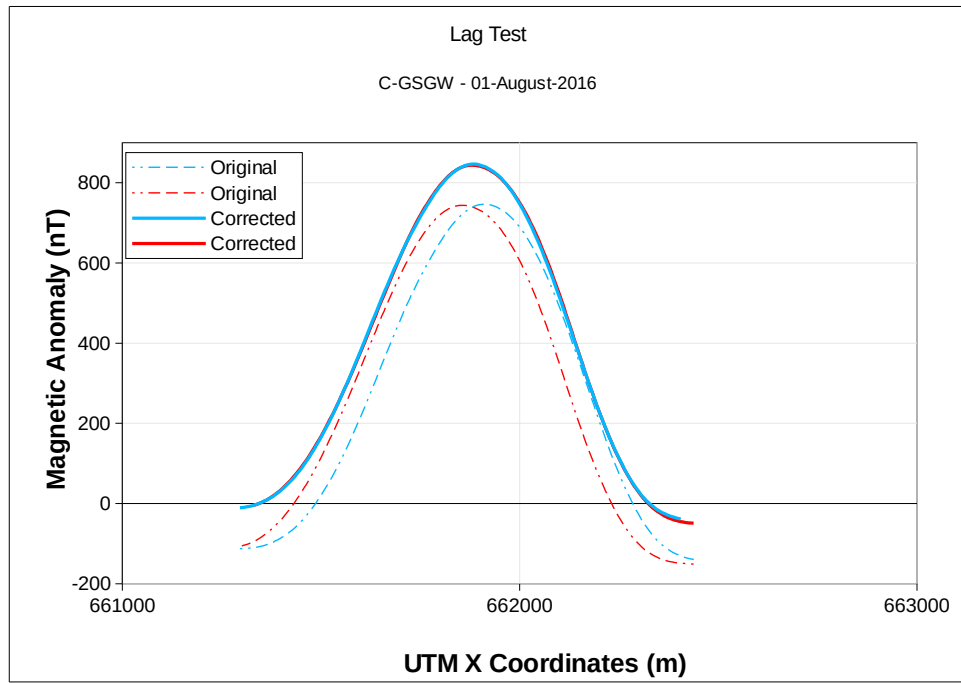


Figure 9: Magnetometer 3-Lag Test – C-GSGW – Flt 1022 – 01 Aug 2016





## Appendix IX





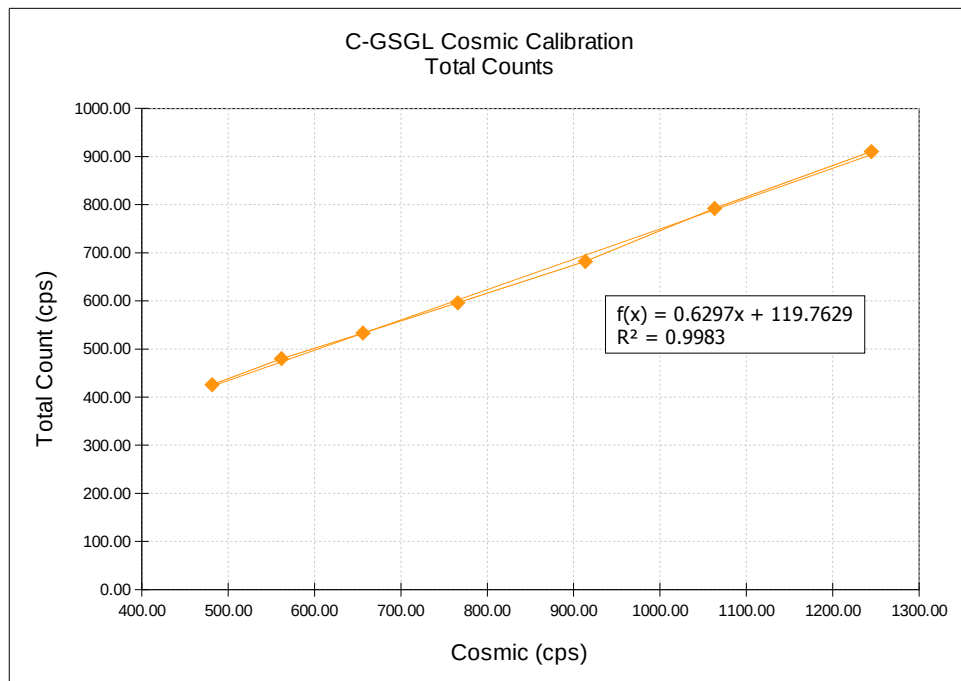


Figure 1: Total vs Cosmic test C-GSGL

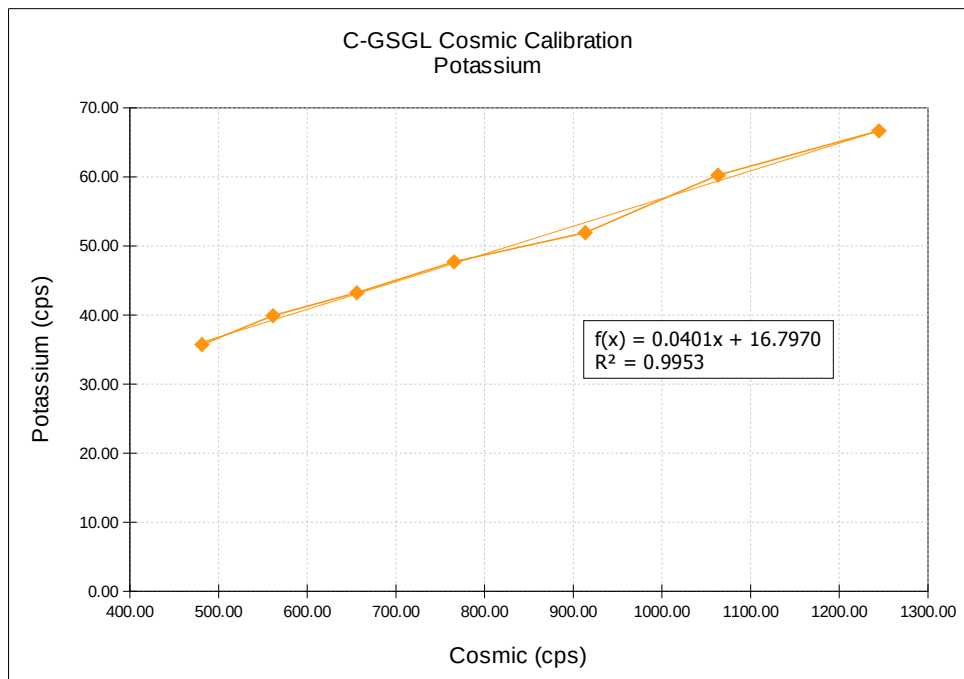


Figure 2: Potassium vs Cosmic test C-GSGL

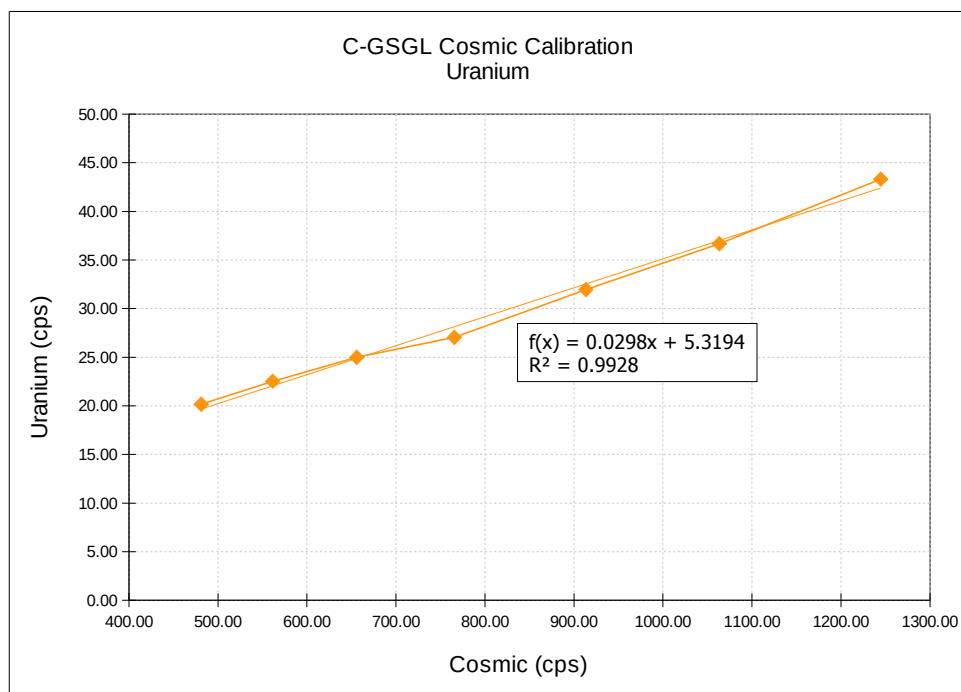


Figure 3: Uranium vs Cosmic test C-GSGL

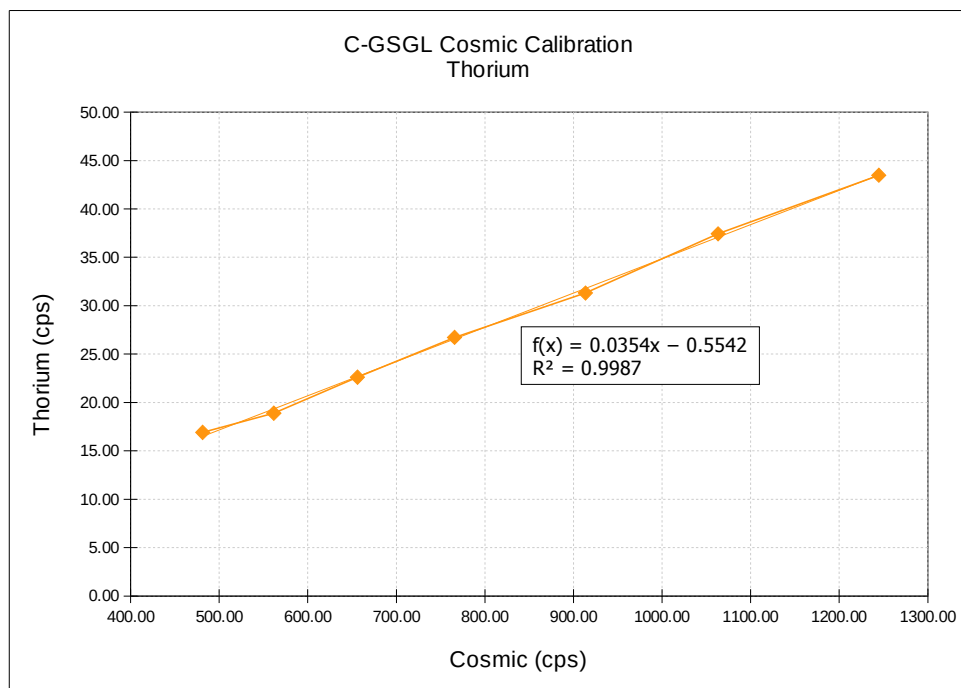


Figure 4: Thorium vs Cosmic test C-GSGL

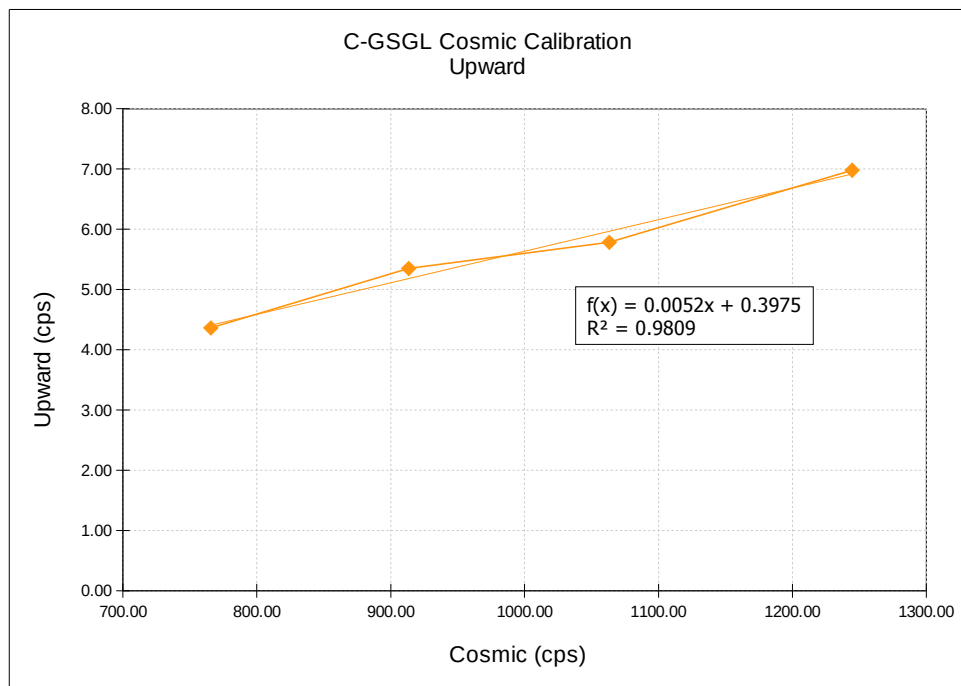


Figure 5: Upward vs Cosmic test C-GSGL

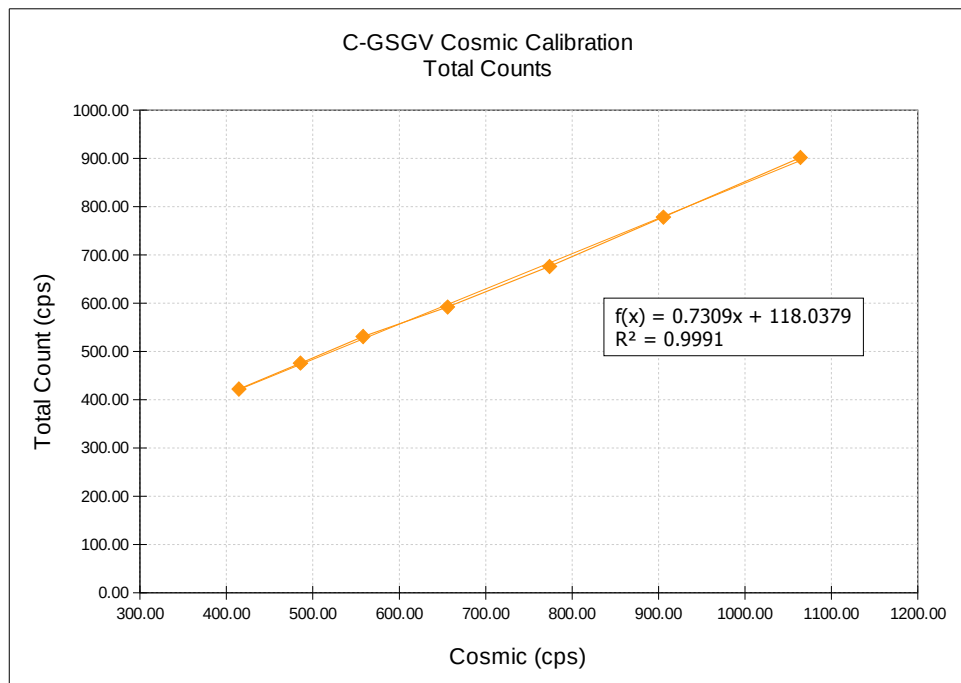


Figure 6: Total vs Cosmic test C-GSGV

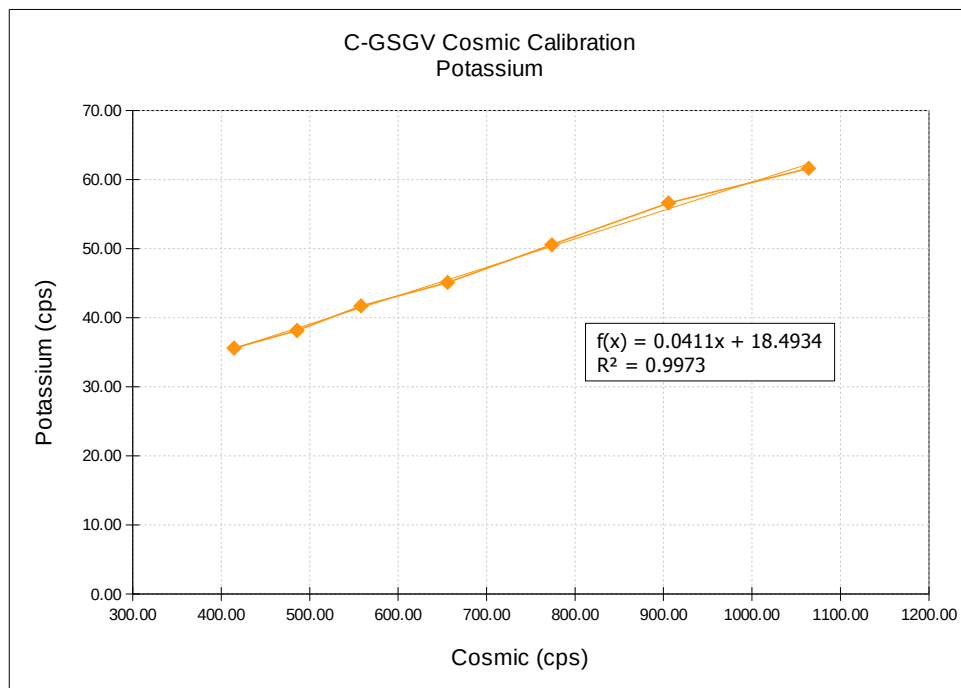


Figure 7: Potassium vs Cosmic test C-GSGV

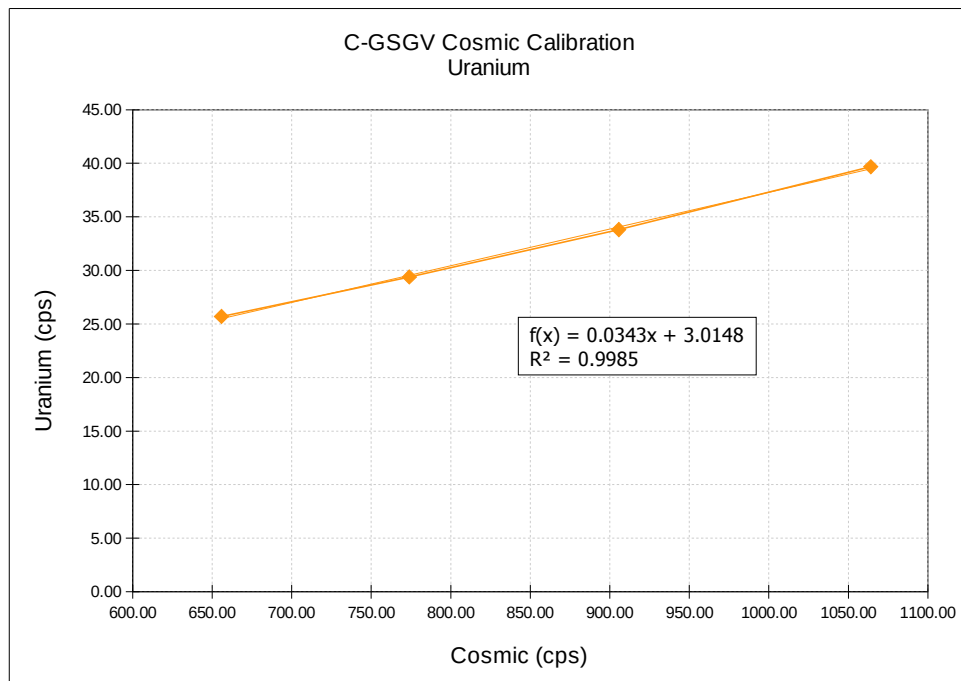


Figure 8: Uranium vs Cosmic test C-GSGV



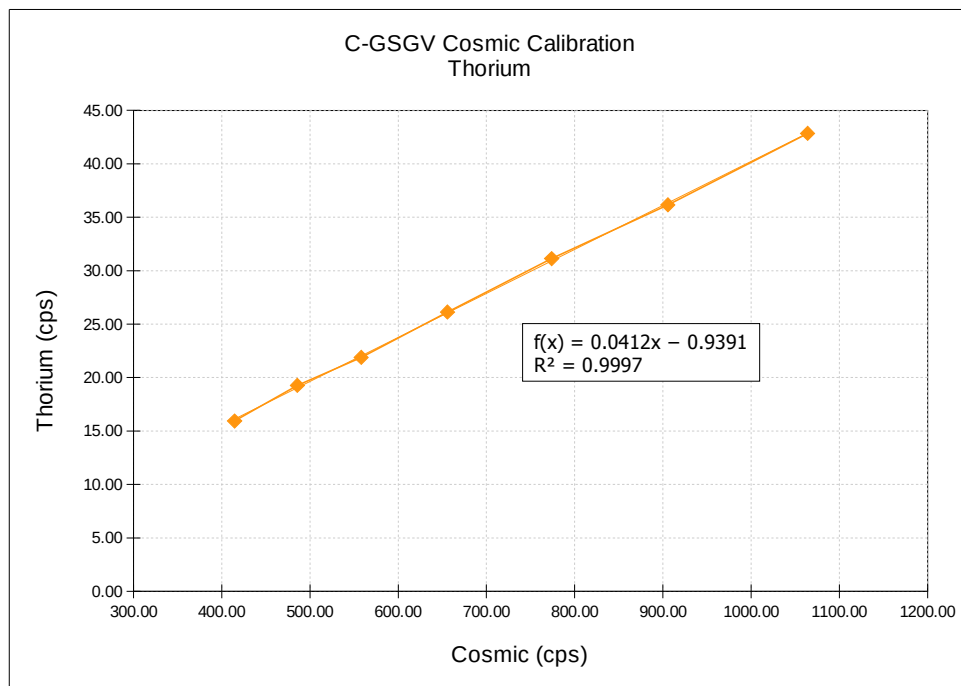


Figure 9: Thorium vs Cosmic test C-GSGV

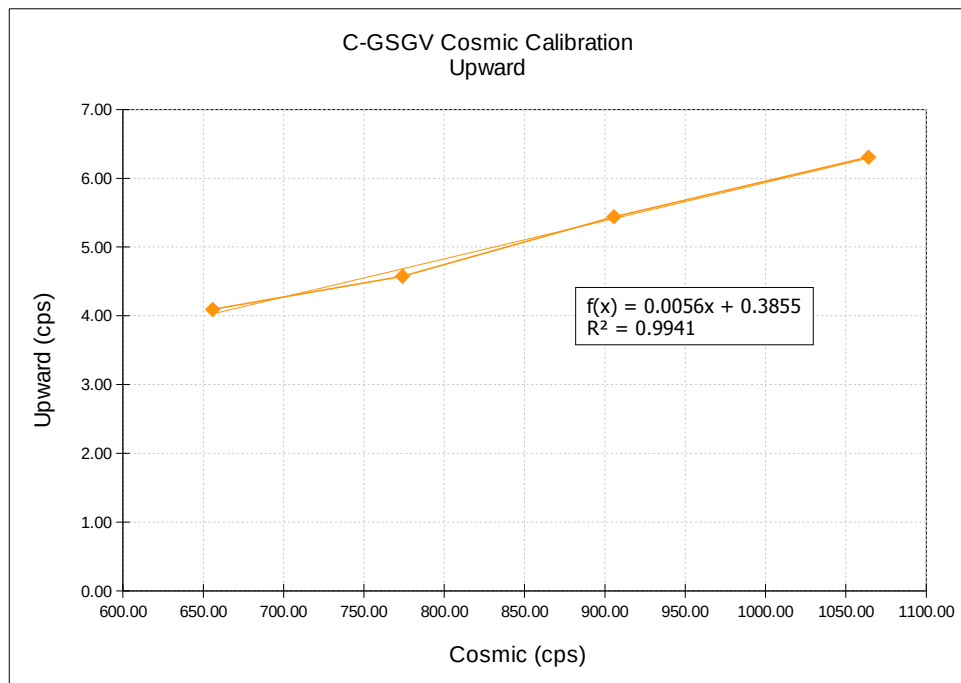


Figure 10: Upward vs Cosmic test C-GSGV

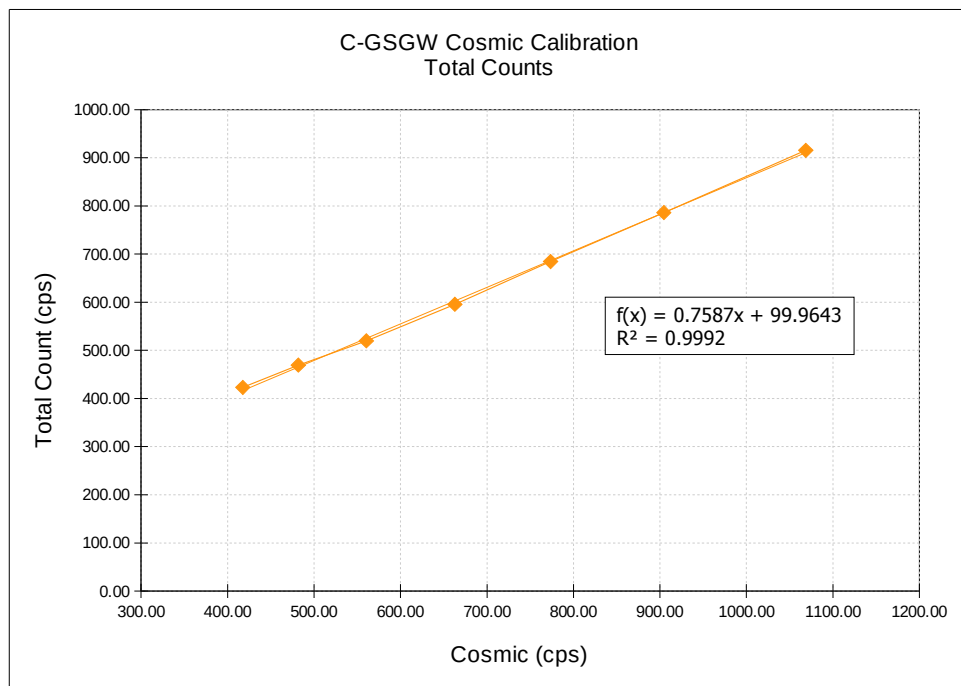


Figure 11: Total vs Cosmic test C-GSGW

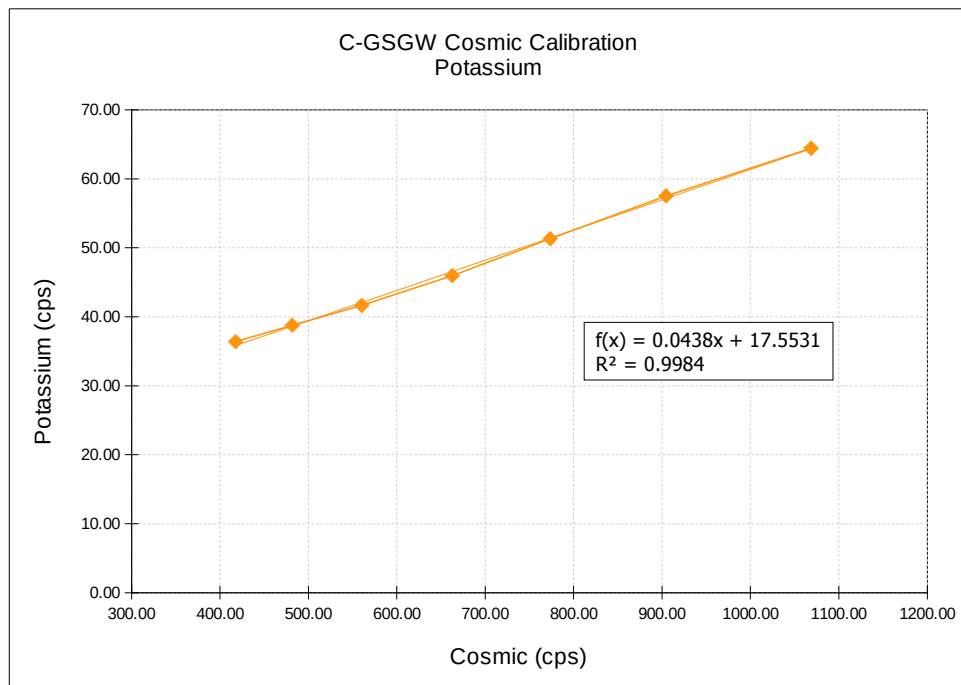


Figure 12: Potassium vs Cosmic test C-GSGW

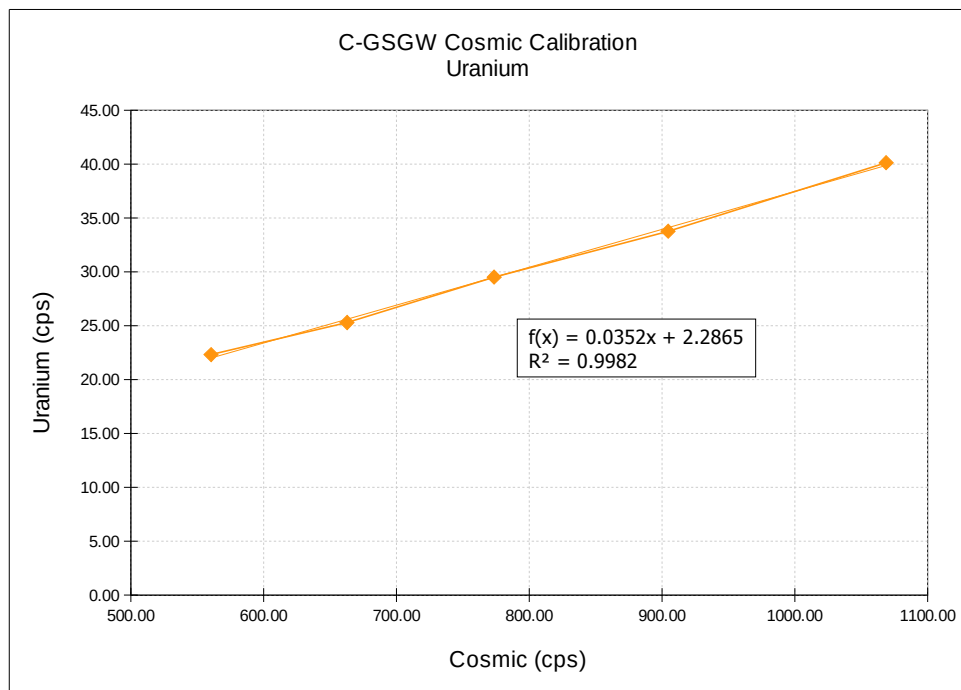


Figure 13: Uranium vs Cosmic test C-GSGW

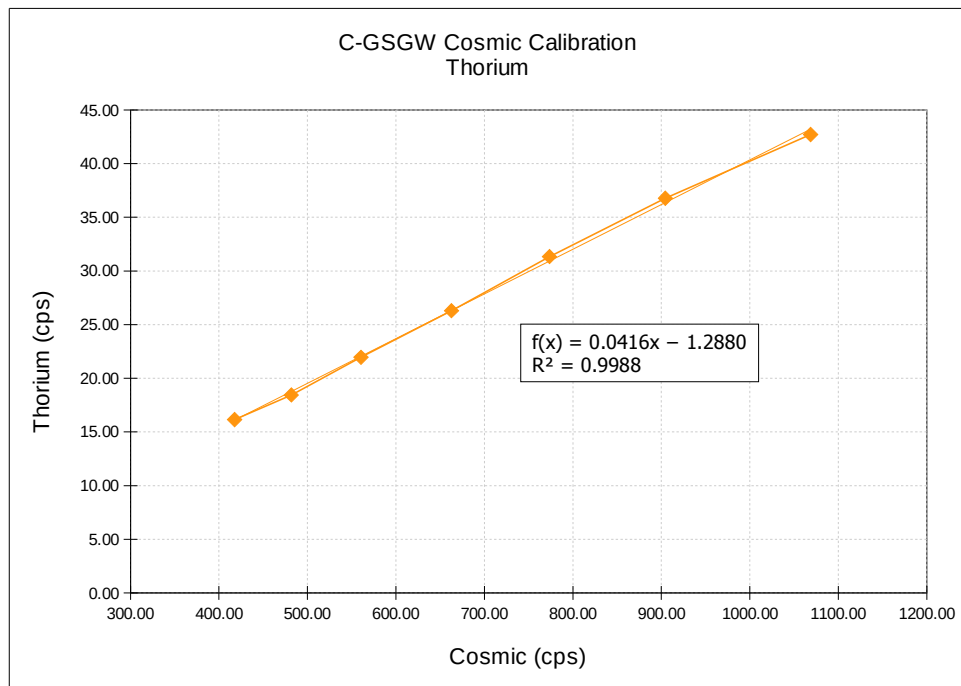


Figure 14: Thorium vs Cosmic test C-GSGW

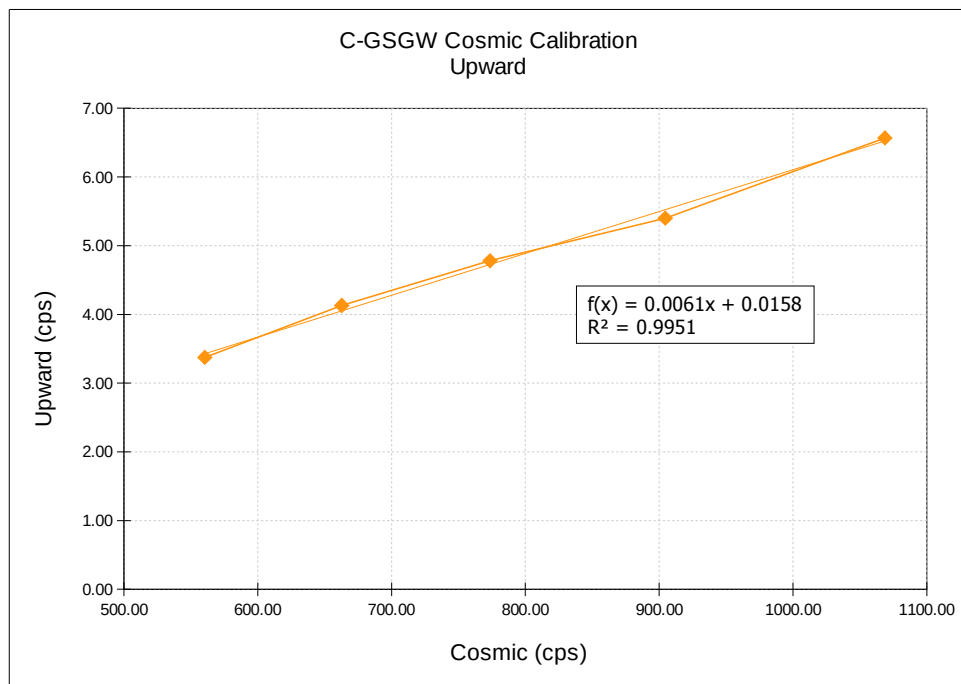


Figure 15: Upward vs Cosmic test C-GSGW



## Appendix X





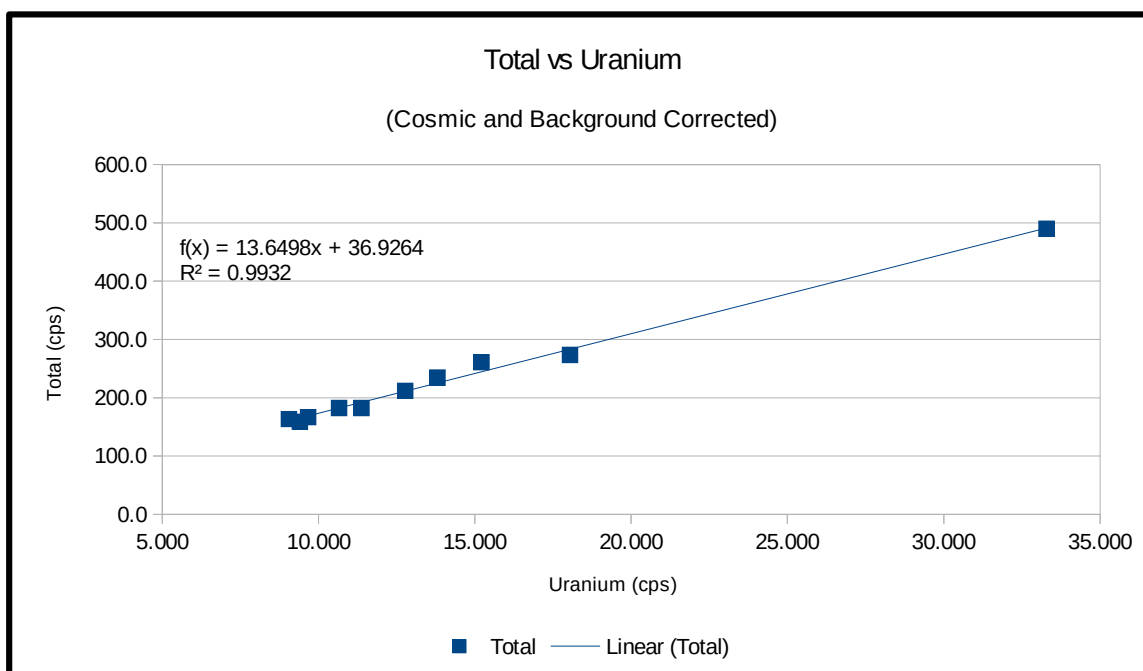


Figure 1: Total Radon coefficient test C-GSGL

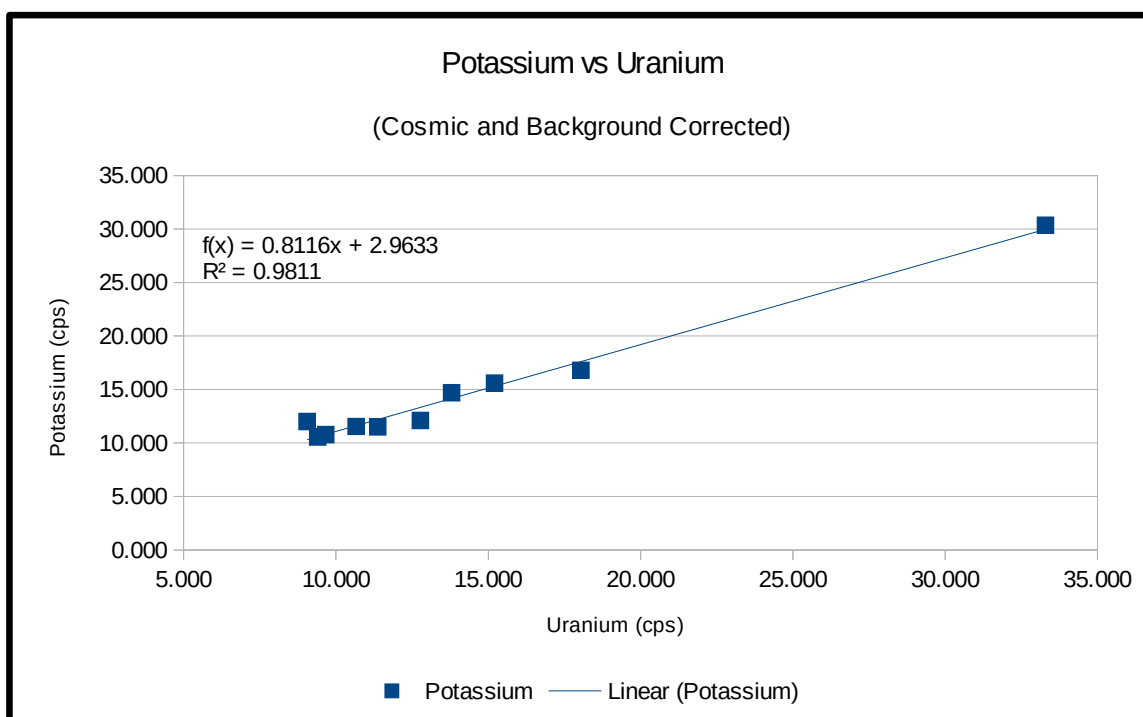


Figure 2: Potassium Radon coefficient test C-GSGL

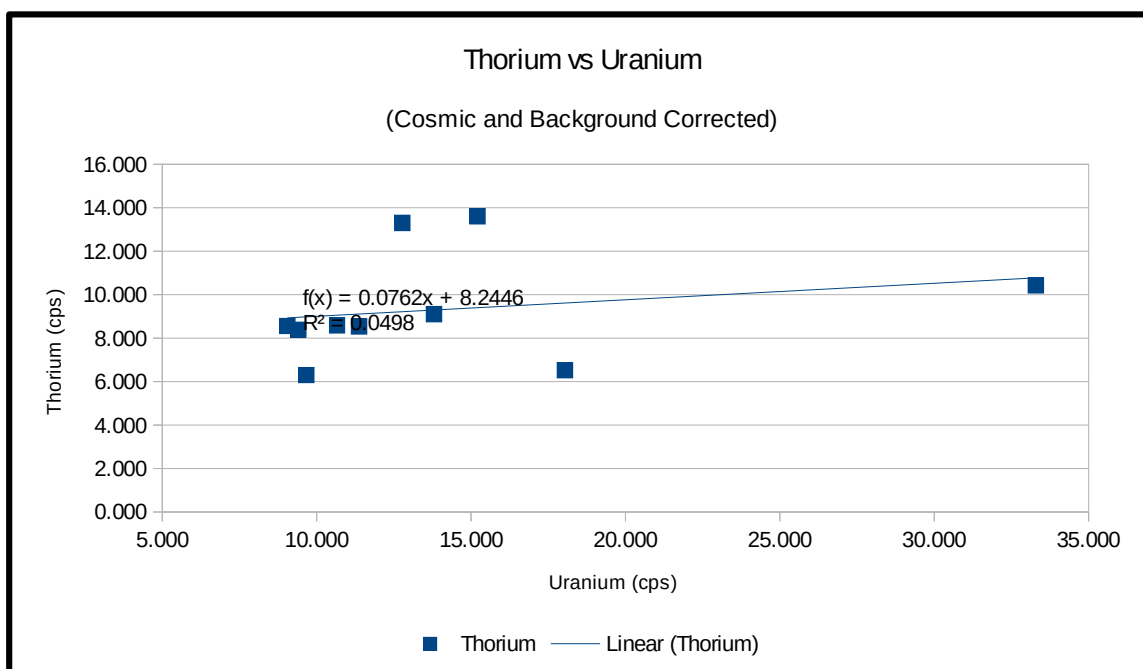


Figure 3: Thorium Radon coefficient test C-GSGL

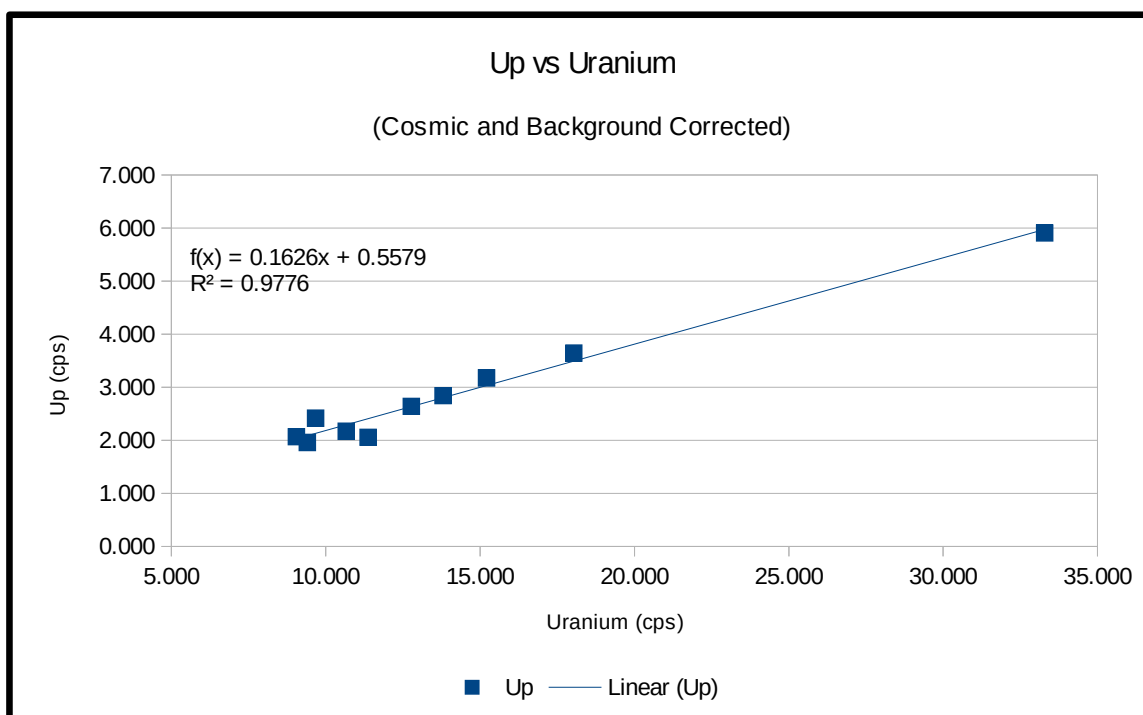


Figure 4: Up Radon coefficient test C-GSGL



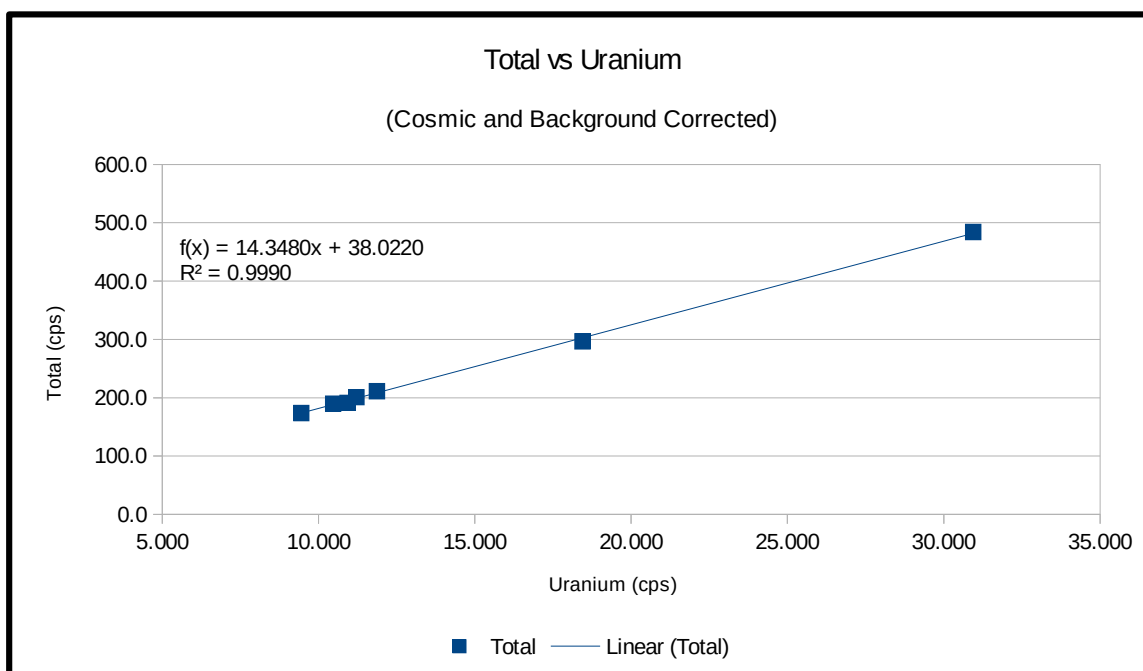


Figure 5: Total Radon coefficient test C-GSGV

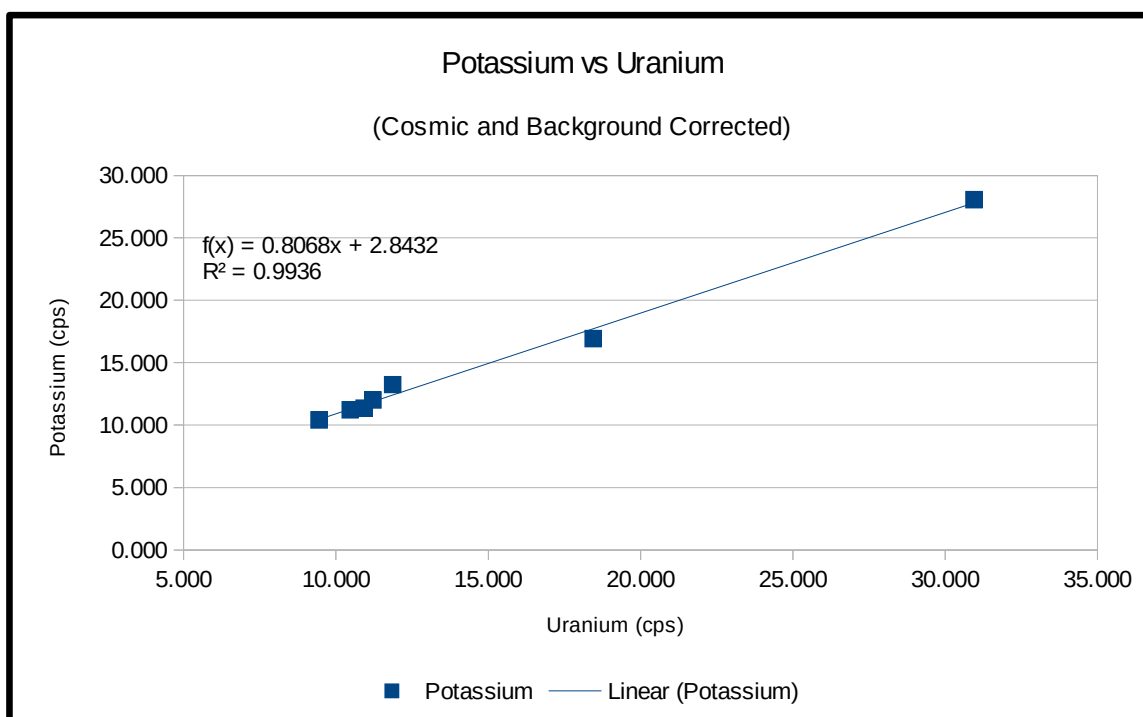


Figure 6: Potassium Radon coefficient test C-GSGV

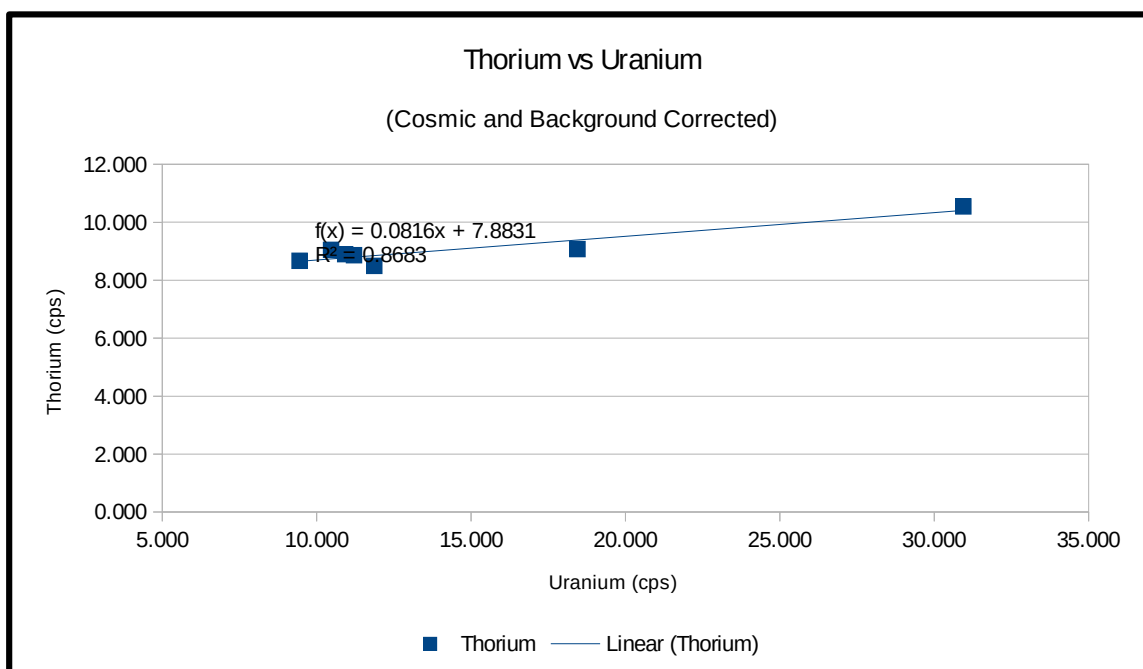


Figure 7: Thorium Radon coefficient test C-GSGV

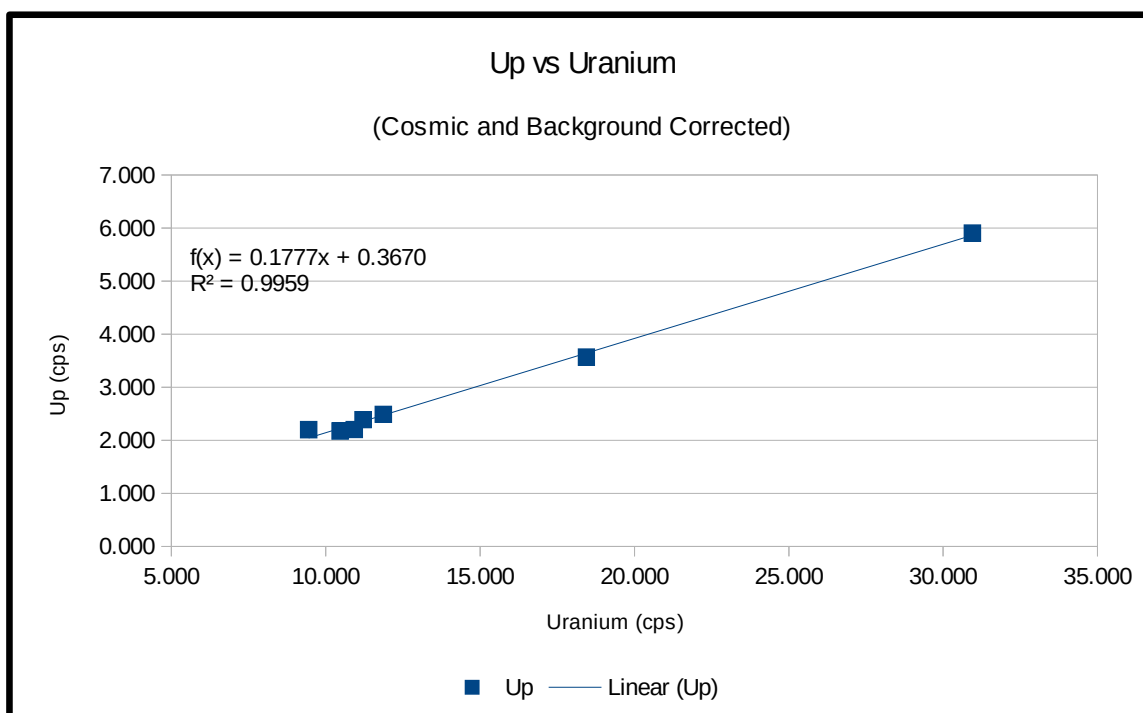


Figure 8: Up Radon coefficient test C-GSGV

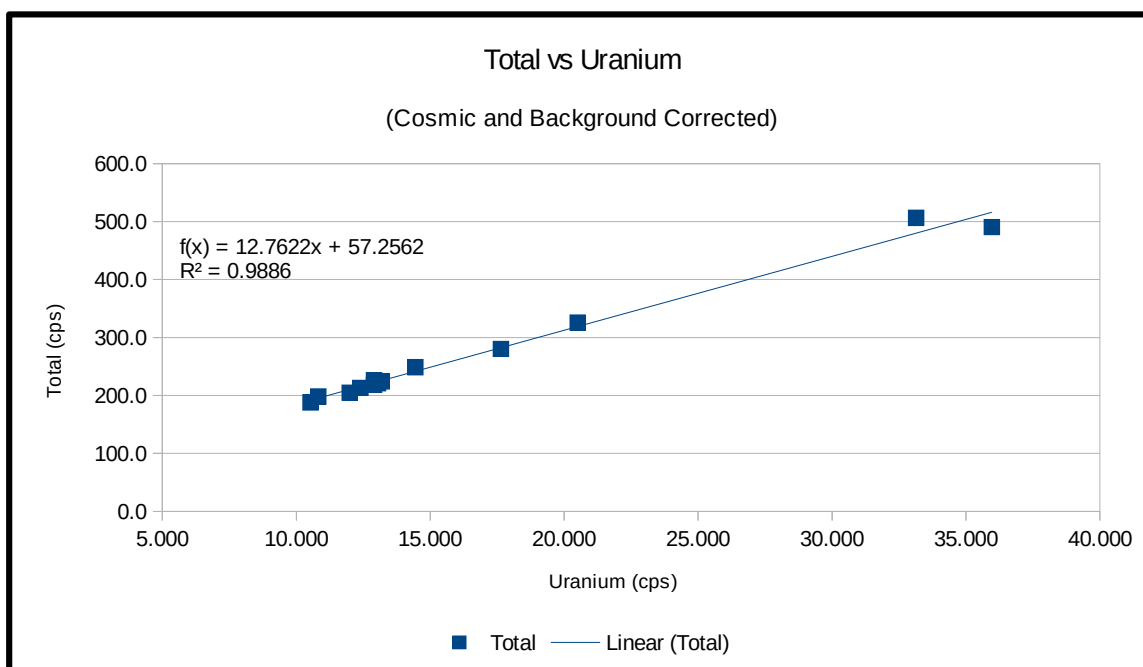


Figure 9: Total Radon coefficient test C-GSGW

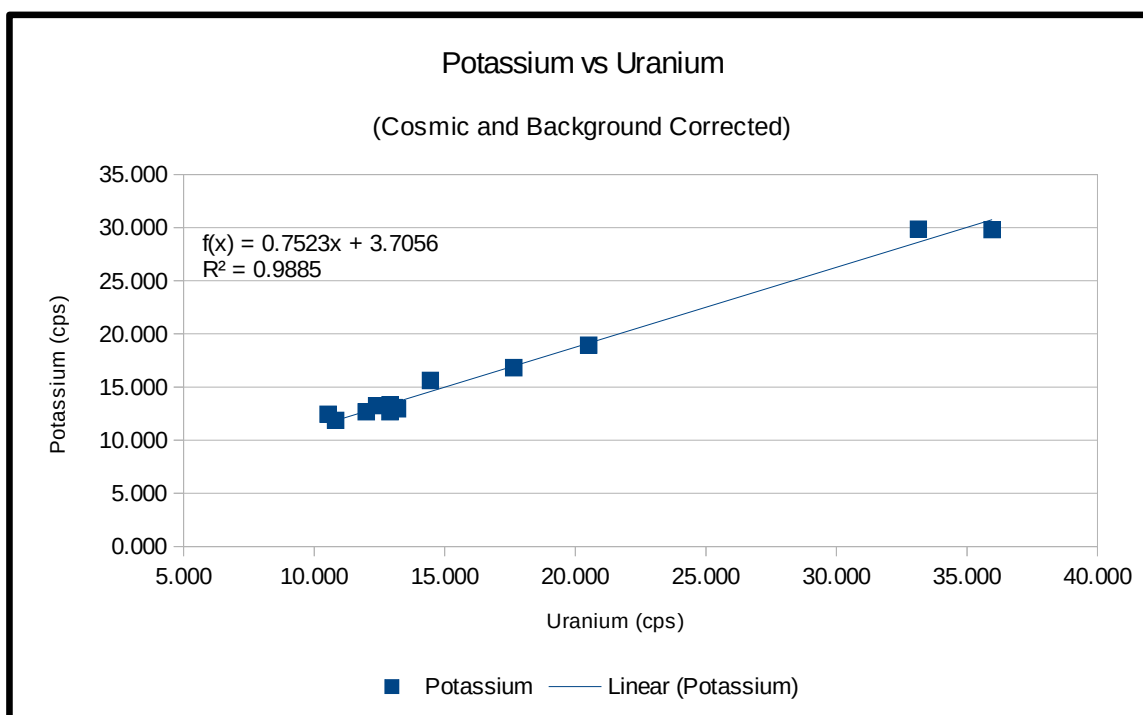


Figure 10: Potassium Radon coefficient test C-GSGW

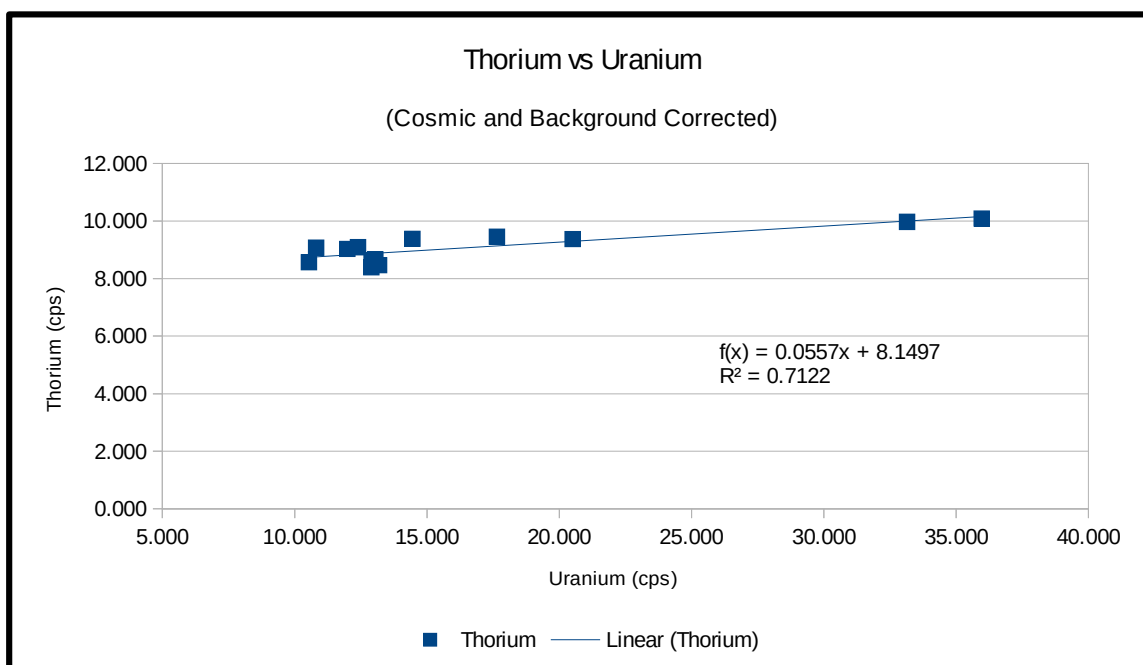


Figure 11: Thorium Radon coefficient test C-GSGW

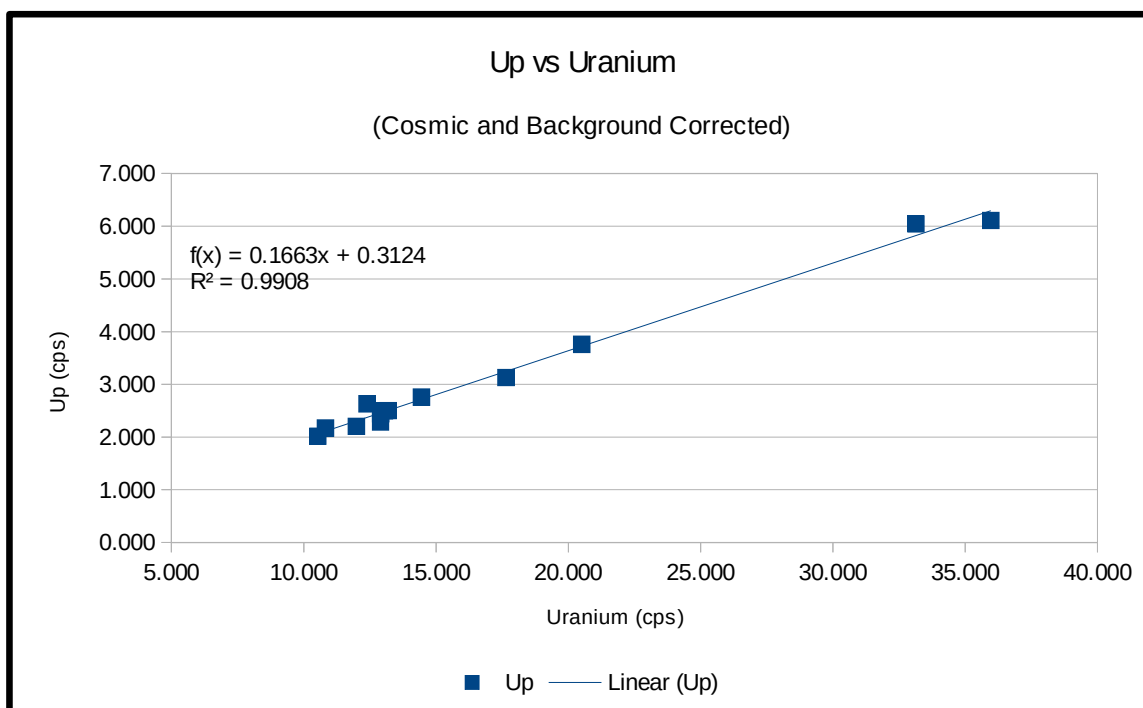


Figure 12: Up Radon coefficient test C-GSGW



## Appendix XI







## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	0.0	<b>Total km Flown to Date</b>	0.0
<b>Total Remaining (km)</b>	52093.2	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	0.0	<b>Flight Time This Week (h)</b>	2.0
<b>Prod km/Day This Week</b>	0.0	<b>Prod km/Flt Hour This Week</b>	0.0

### WEEKLY PRODUCTION

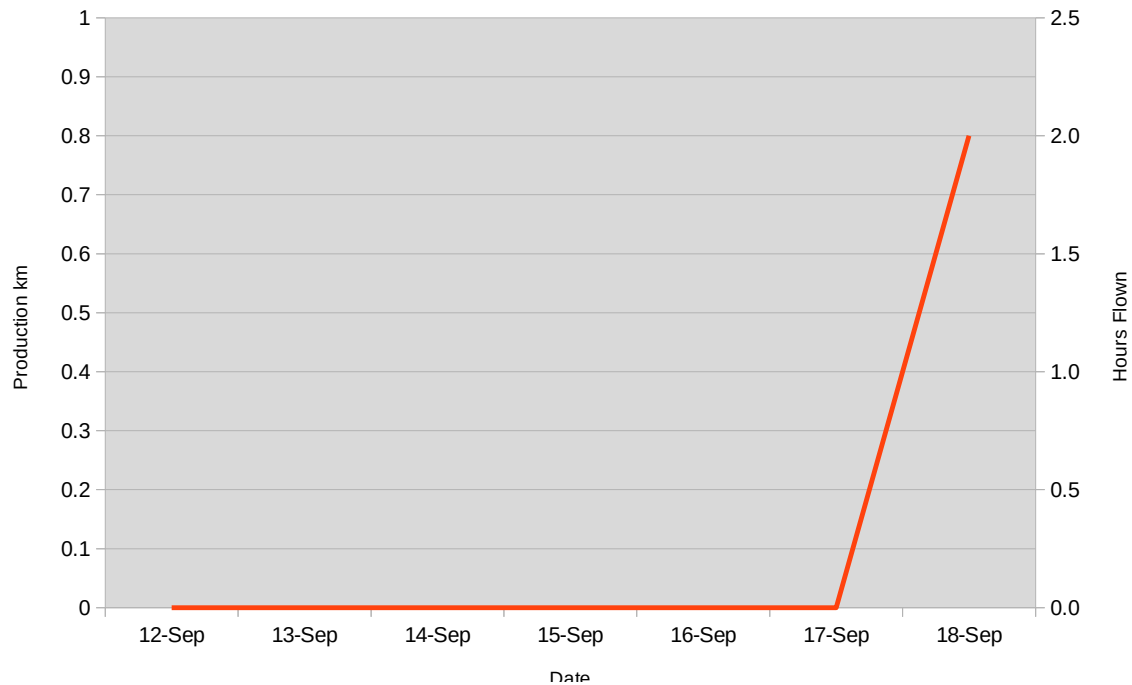
Week 1		Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>			<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>12-Sep</b>	<b>Mon</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	C-GSGW arrives in Grand Rapids, Minnesota, USA			
<b>Geomag</b>							
<b>13-Sep</b>	<b>Tue</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Keith W scheduled to arrive but was delayed due to US CBP			
<b>Geomag</b>							
<b>14-Sep</b>	<b>Wed</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Keith W Arrives in Grand Rapids.			
<b>Geomag</b>							
<b>15-Sep</b>	<b>Thu</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Crew awaiting shipment of equipment.			
<b>Geomag</b>							
<b>16-Sep</b>	<b>Fri</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>		Rain, Low cloud	<b>Remarks</b>	Crew awaiting shipment of equipment.			
<b>Geomag</b>							
<b>17-Sep</b>	<b>Sat</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>		Rain, Low cloud	<b>Remarks</b>	Crew awaiting shipment of equipment.			
<b>Geomag</b>							
<b>18-Sep</b>	<b>Sun</b>	C-GSGW	2.0	0.0	0.0	0.0	0.0
<b>Weather</b>		Clear, Sunny	<b>Remarks</b>	Crew awaiting shipment of equipment. Recce flight completed			
<b>Geomag</b>							

**Comments** Project start-up. SGW arrives in Grand Rapids. Awaiting the arrival of the survey equipment and tools.

**Signed** Keith Wells

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo	14-Sep-16		ON SITE	5	5
Adam Dalziel	Pilot	12-Sep-16		ON SITE	7	7
Karlo Pavlicevic	Pilot	12-Sep-16		ON SITE	7	7
Nathan Shirey	AME				0	0
Randall Forwell	Pilot				0	0
Diana Kuiper	Geo				0	0
Bret Curtis	Pilot				0	0
Tomo Nishimura	Pilot				0	0
Nikal Behl	Pilot				0	0
Jason Thomas	Pilot				0	0
Oteng Matsetse	Geo				0	0
Matt Lemay	Pilot				0	0
Andre Lafontaine	Pilot				0	0
Martin Bates	Auidtor				0	0
Dwayne Bailey	AME				0	0

### WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN







## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	0.0	<b>Total km Flown to Date</b>	0.0
<b>Total Remaining (km)</b>	52093.2	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	0.0	<b>Flight Time This Week (h)</b>	1.0
<b>Prod km/Day This Week</b>	0.0	<b>Prod km/Flt Hour This Week</b>	0.0

### WEEKLY PRODUCTION

Week 2		Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>			<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>19-Sep</b>	<b>Mon</b>	C-GSGW	1.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Windy		<b>Remarks</b>	Awaiting arrival of equipment. Second Recon flight done at 80m and 100m.			
<b>Geomag</b>							
<b>20-Sep</b>	<b>Tue</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Awaiting arrival of equipment.			
<b>Geomag</b>							
<b>21-Sep</b>	<b>Wed</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Awaiting arrival of equipment. Nathan S arrives in Grand Rapids.			
<b>Geomag</b>							
<b>22-Sep</b>	<b>Thu</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Awaiting arrival of equipment. Adam D drives to Duluth			
<b>Geomag</b>							
<b>23-Sep</b>	<b>Fri</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	good		<b>Remarks</b>	Equipment arrives. Adam D leaves Duluth. Randall arrives in Grand Rapids.			
<b>Geomag</b>							
<b>24-Sep</b>	<b>Sat</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low ceilings		<b>Remarks</b>	Ground Station set up.			
<b>Geomag</b>							
<b>25-Sep</b>	<b>Sun</b>	C-GSGW	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Rain, wind, low ceilings		<b>Remarks</b>	No Production due to weather.			
<b>Geomag</b>							

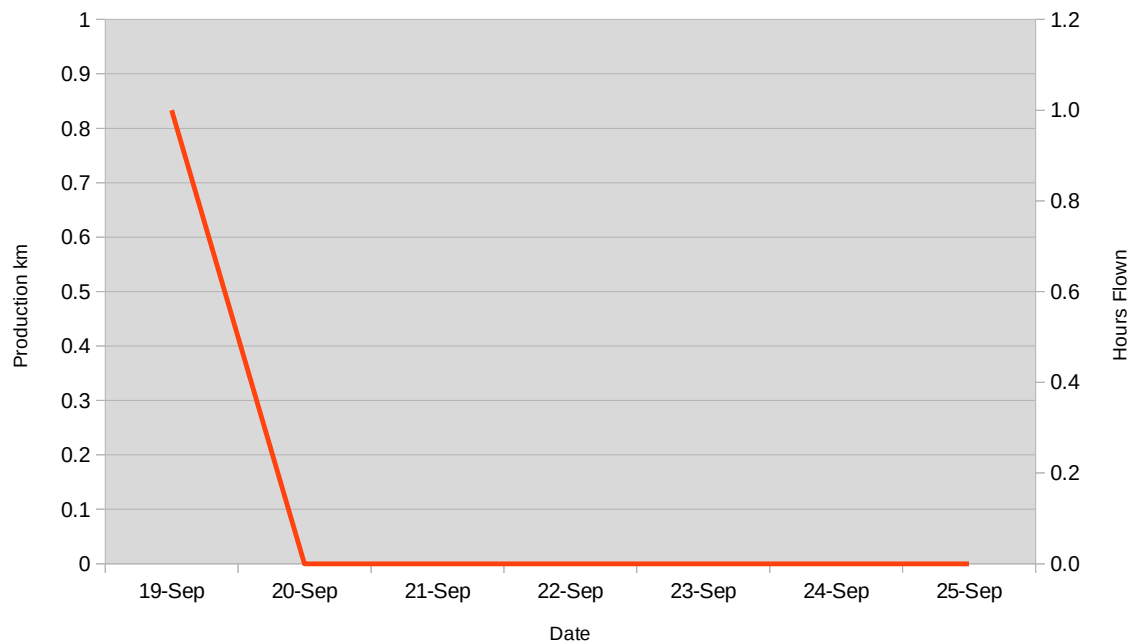
**Comments** Equipment arrived in Grand Rapids and the crew are ready to begin survey.

**Signed** Keith Wells

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo			ON SITE	7	12
Adam Dalziel	Pilot		23-Sep-16	ON SITE	5	12
Karlo Pavlicevic	Pilot			ON SITE	7	14
Nathan Shirey	AME	22-Sep-16		ON SITE	4	4
Randall Forwell	Pilot	22-Sep-16		ON SITE	4	4
Diana Kuiper	Geo	25-Sep-16		ON SITE	1	1
Bret Curtis	Pilot				0	0
Tomo Nishimura	Pilot				0	0
Nikal Behl	Pilot				0	0
Jason Thomas	Pilot				0	0
Oteng Matsetse	Geo				0	0
Matt Lemay	Pilot				0	0
Andre Lafontaine	Pilot				0	0
Martin Bates	Auidtor				0	0
Dwayne Bailey	AME				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	4438.2	<b>Total km Flown to Date</b>	4438.2
<b>Total Remaining (km)</b>	47655.1	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	8.5	<b>Flight Time This Week (h)</b>	30.7
<b>Prod km/Day This Week</b>	634.0	<b>Prod km/Flt Hour This Week</b>	144.6

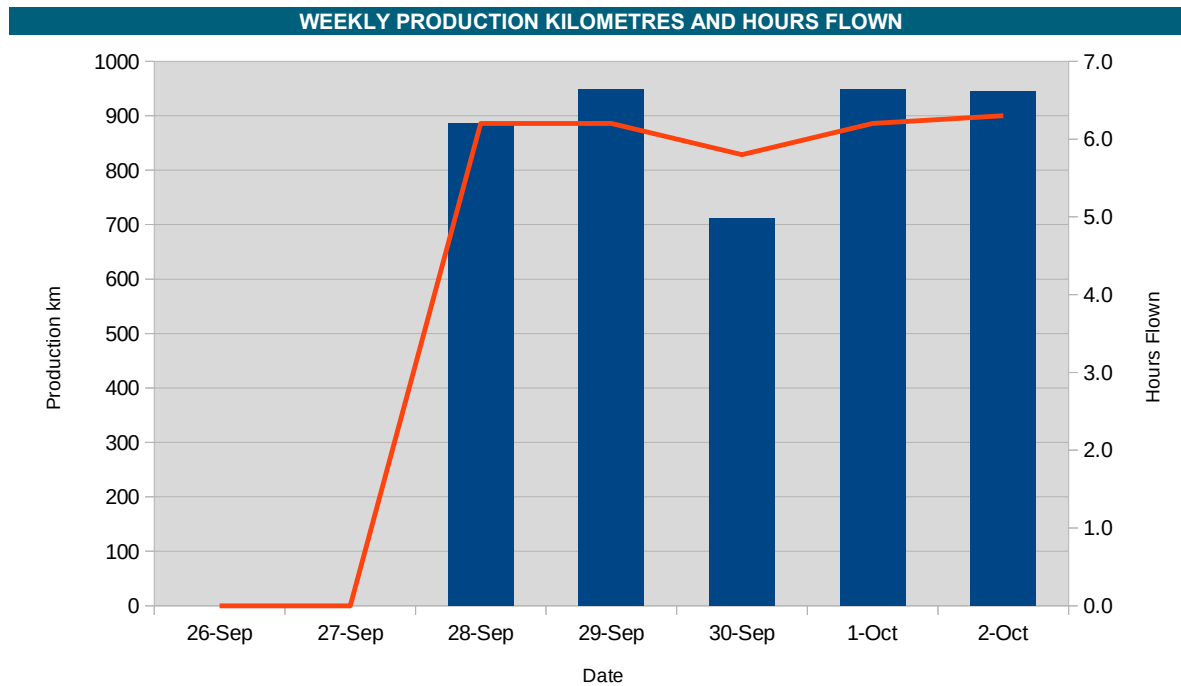
### WEEKLY PRODUCTION

Week 3			Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>				<b>30.7</b>	<b>78.0</b>	<b>0.0</b>	<b>4438.2</b>	<b>0.0</b>
<b>26-Sep</b>	<b>Mon</b>	C-GSGW		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Rain							
<b>Geomag</b>				<b>Remarks</b>	No production due to weather			
<b>27-Sep</b>	<b>Tue</b>	C-GSGW		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Rain							
<b>Geomag</b>				<b>Remarks</b>	No production due to weather			
<b>28-Sep</b>	<b>Wed</b>	C-GSGW	1002	6.2	18.0	0.0	886.5	0.0
<b>Weather</b>	Overcast							
<b>Geomag</b>	Quiet + Active			<b>Remarks</b>	Production Flight			
<b>29-Sep</b>	<b>Thu</b>	C-GSGW	1003	6.2	16.0	0.0	948.0	0.0
<b>Weather</b>	Overcast							
<b>Geomag</b>	Quiet + Active			<b>Remarks</b>	Production Flight			
<b>30-Sep</b>	<b>Fri</b>	C-GSGW	1004	5.8	12.0	0.0	711.0	0.0
<b>Weather</b>	Sunny							
<b>Geomag</b>	Quiet			<b>Remarks</b>	Production Flight			
<b>1-Oct</b>	<b>Sat</b>	C-GSGW	1005	6.2	16.0	0.0	948.0	0.0
<b>Weather</b>	sunny							
<b>Geomag</b>	Quiet + Active			<b>Remarks</b>	Production Flight			
<b>2-Oct</b>	<b>Sun</b>	C-GSGW	1006	6.3	16.0	0.0	944.7	0.0
<b>Weather</b>	Sunny							
<b>Geomag</b>	Quiet			<b>Remarks</b>	Production Flight			

**Comments** Start of the week was poor weather followed by 5 days of good production flying.

**Signed** Keith Wells

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo			ON SITE	7	19
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot			ON SITE	7	21
Nathan Shirey	AME			ON SITE	7	11
Randall Forwell	Pilot			ON SITE	7	11
Diana Kuiper	Geo			ON SITE	7	8
Bret Curtis	Pilot				0	0
Tomo Nishimura	Pilot				0	0
Nikal Behl	Pilot				0	0
Jason Thomas	Pilot				0	0
Oteng Matsetse	Geo				0	0
Matt Lemay	Pilot				0	0
Andre Lafontaine	Pilot				0	0
Martin Bates	Auidtor				0	0
Dwayne Bailey	AME				0	0





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	3554.3	<b>Total km Flown to Date</b>	7992.4
<b>Total Remaining (km)</b>	44100.8	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	15.3	<b>Flight Time This Week (h)</b>	26.4
<b>Prod km/Day This Week</b>	507.8	<b>Prod km/Flt Hour This Week</b>	134.6

### WEEKLY PRODUCTION

Week 4			Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>				<b>26.4</b>	<b>82.5</b>	<b>0.0</b>	<b>3554.3</b>	<b>0.0</b>
<b>3-Oct</b>	<b>Mon</b>	C-GSGW	1007	6.6	18.0	0.0	1025.8	0.0
<b>Weather</b>	Clear, Sunny, warm			<b>Remarks</b>	Production Flight			
<b>Geomag</b>	Quiet							
<b>4-Oct</b>	<b>Tue</b>	C-GSGW		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Cloudy, showers			<b>Remarks</b>	Pilot Rest Day. No Production.			
<b>Geomag</b>	n/a							
<b>5-Oct</b>	<b>Wed</b>	C-GSGW		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear, Windy			<b>Remarks</b>	No Production due to high winds.			
<b>Geomag</b>	n/a							
<b>6-Oct</b>	<b>Thu</b>	C-GSGW	1008	6.1	14.0	0.0	952.4	0.0
<b>Weather</b>	Clear, cool			<b>Remarks</b>	Production Flight			
<b>Geomag</b>	Quiet							
<b>7-Oct</b>	<b>Fri</b>	C-GSGW	1009	3.1	5.5	0.0	351.8	0.0
<b>Weather</b>	Cloudy, showers			<b>Remarks</b>	Short Production Flight due to weather.			
<b>Geomag</b>	Quiet							
<b>8-Oct</b>	<b>Sat</b>	C-GSGW	1010	4.2	18.0	0.0	495.6	0.0
<b>Weather</b>	Cloudy, windy, Showers			<b>Remarks</b>	SGW returned due to weather in the morning. Afternoon Survey flight.			
<b>Geomag</b>								
<b>9-Oct</b>	<b>Sun</b>	C-GSGW	1011	6.4	27.0	0.0	728.8	0.0
<b>Weather</b>	Clear, Cold			<b>Remarks</b>	Production Flight.			
<b>Geomag</b>	Quiet							

**Comments** Good week with 5 production flights completed. One pilot rest day and one day of high winds.

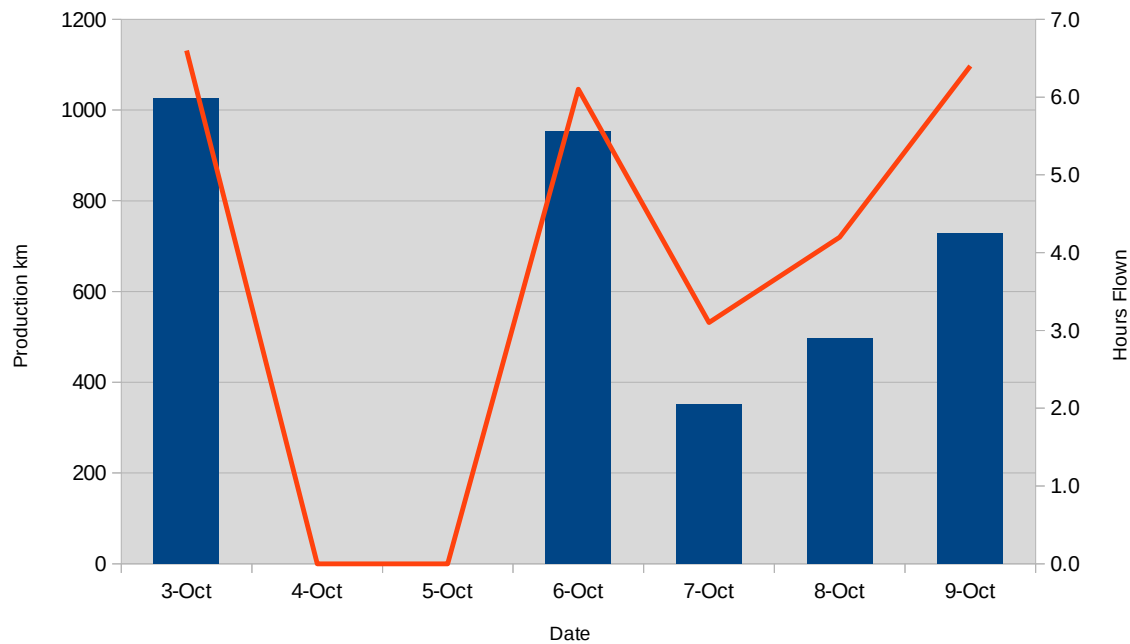
**Signed** Keith Wells

Week 4 Page 2

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo			ON SITE	7	26
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot		9-Oct-16	ON SITE	7	28
Nathan Shirey	AME			ON SITE	7	18
Randall Forwell	Pilot			ON SITE	7	18
Diana Kuiper	Geo			ON SITE	7	15
Bret Curtis	Pilot	8-Oct-16		ON SITE	2	2
Tomo Nishimura	Pilot				0	0
Nikal Behl	Pilot				0	0
Jason Thomas	Pilot				0	0
Oteng Matsetse	Geo				0	0
Matt Lemay	Pilot				0	0
Andre Lafontaine	Pilot				0	0
Martin Bates	Auidtor				0	0
Dwayne Bailey	AME				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	4341.7	<b>Total km Flown to Date</b>	12334.2
<b>Total Remaining (km)</b>	39759.1	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	23.7	<b>Flight Time This Week (h)</b>	31.6
<b>Prod km/Day This Week</b>	620.2	<b>Prod km/Flt Hour This Week</b>	137.4

### WEEKLY PRODUCTION

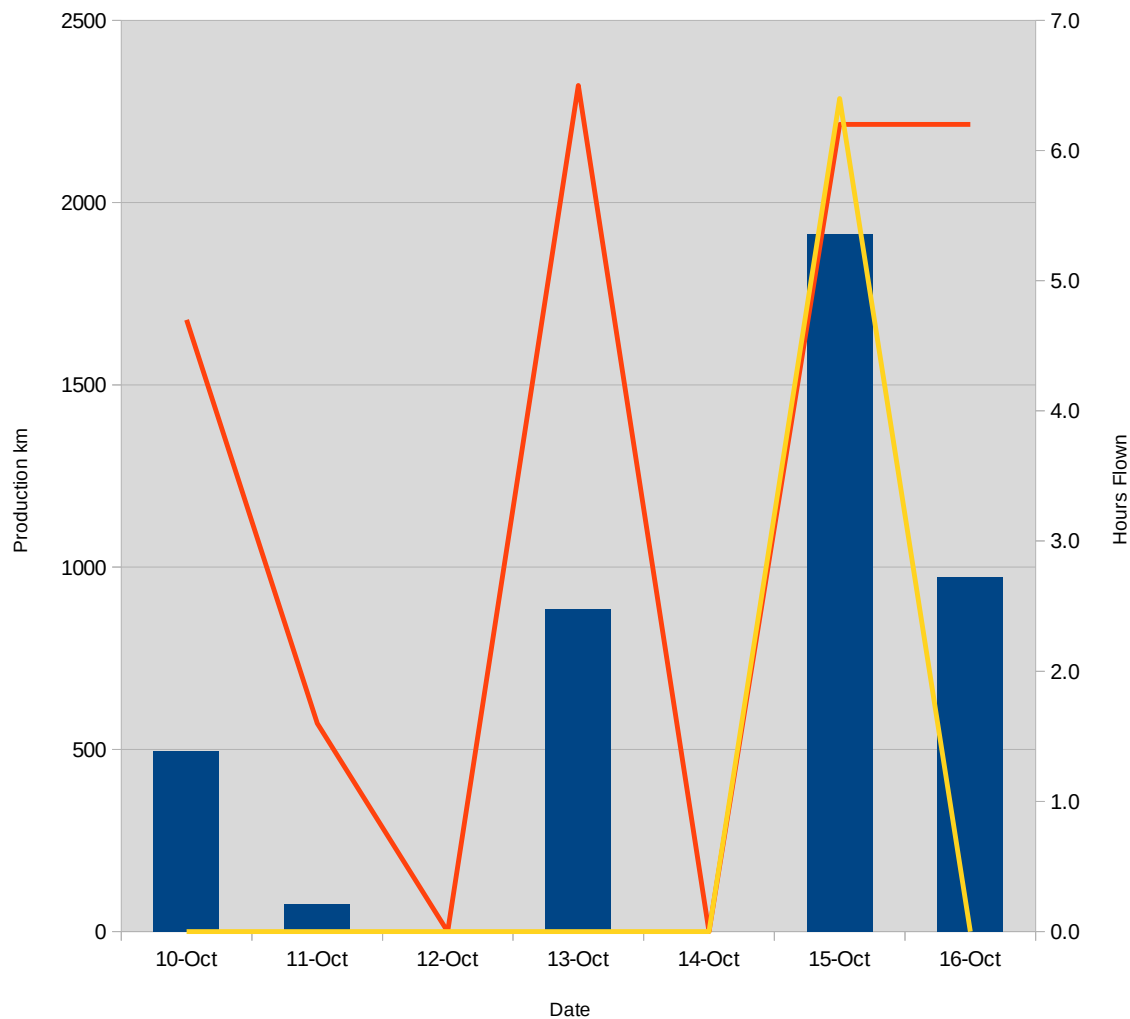
Week 5		Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>			<b>31.6</b>	<b>94.3</b>	<b>0.0</b>	<b>4341.7</b>	<b>0.0</b>
<b>10-Oct</b>	<b>Monday</b>		<b>4.7</b>	<b>17.0</b>	<b>0.0</b>	<b>495.6</b>	<b>0.0</b>
	C-GSGW	1012	4.7	17.0	0.0	495.6	0.0
	C-GSGL		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Windy, Sunny, Warm		<b>Remarks</b>	Delayed due to winds. Afternoon Production Flight			
<b>Geomag</b>	Quiet						
<b>11-Oct</b>	<b>Tuesday</b>		<b>1.6</b>	<b>2.3</b>	<b>0.0</b>	<b>74.6</b>	<b>0.0</b>
	C-GSGW	1013	1.6	2.3	0.0	74.6	0.0
	C-GSGL		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Cloudy, windy, rain		<b>Remarks</b>				
<b>Geomag</b>	Quiet						
<b>12-Oct</b>	<b>Wednesday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW		0.0	0.0	0.0	0.0	0.0
	C-GSGL		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>			<b>Remarks</b>	Pilot Rest day in accordance with Anglo Aviation Guidelines			
<b>Geomag</b>							
<b>13-Oct</b>	<b>Thursday</b>		<b>6.5</b>	<b>18.0</b>	<b>0.0</b>	<b>885.5</b>	<b>0.0</b>
	C-GSGW	1014	6.5	18.0	0.0	885.5	0.0
	C-GSGL		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear, cool, calm		<b>Remarks</b>	Good Production Flight. C-GSGL arrives.			
<b>Geomag</b>	Quiet						
<b>14-Oct</b>	<b>Friday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW		0.0	0.0	0.0	0.0	0.0
	C-GSGL		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	High Winds, Cloudy		<b>Remarks</b>	HSE Meeting in the morning. SGL completes recon flight. Winds too high for survey.			
<b>Geomag</b>							
<b>15-Oct</b>	<b>Saturday</b>		<b>12.6</b>	<b>36.0</b>	<b>0.0</b>	<b>1914.0</b>	<b>0.0</b>
	C-GSGW	1015	6.2	20.0	0.0	985.0	0.0
	C-GSGL	2001	6.4	16.0	0.0	929.0	0.0
<b>Weather</b>	Overcast, warm		<b>Remarks</b>	Both a/c flew production. G-GSGL completed a FOM at the end of the flight.			
<b>Geomag</b>	Quiet						
<b>16-Oct</b>	<b>Sunday</b>		<b>6.2</b>	<b>21.0</b>	<b>0.0</b>	<b>972.1</b>	<b>0.0</b>
	C-GSGW	1016	6.2	21.0	0.0	972.1	0.0
	C-GSGL		0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear, warm, calm		<b>Remarks</b>	Production flight for SGW. C-GSGL crew taking rest day in accordance with Anglo Aviation Guidelines.			
<b>Geomag</b>	Quiet						

**Comments** Good production continued. C-GSGL has arrived in Grand Rapids.

**Signed** Keith Wells

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo			ON SITE	7	33
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME			ON SITE	7	25
Randall Forwell	Pilot			ON SITE	7	25
Diana Kuiper	Geo			ON SITE	7	22
Bret Curtis	Pilot			ON SITE	7	9
Tomo Nishimura	Pilot	13-Oct-16		ON SITE	4	4
Nikal Behl	Pilot	13-Oct-16		ON SITE	4	4
Jason Thomas	Pilot				0	0
Oteng Matsetse	Geo				0	0
Matt Lemay	Pilot				0	0
Andre Lafontaine	Pilot				0	0
Martin Bates	Auidtor				0	0
Dwayne Bailey	AME				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN







## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	8573.9	Total km Flown to Date	20908.0
Total Remaining (km)	31185.2	km Reflown This Week	0.0
Percent Complete (%)	40.1	Flight Time This Week (h)	68.8
Prod km/Day This Week	1224.8	Prod km/Flt Hour This Week	124.6

### WEEKLY PRODUCTION

Week 6	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>68.8</b>	<b>170.4</b>	<b>0.0</b>	<b>8573.9</b>	<b>0.0</b>
<b>17-Oct Monday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Low Cloud, fog						
<b>Geomag</b> Quiet						
<b>Remarks</b>	No production due to weather.					
<b>18-Oct Tuesday</b>		<b>9.8</b>	<b>34.0</b>	<b>0.0</b>	<b>1511.9</b>	<b>0.0</b>
	C-GSGW 1017	4.9	16.0	0.0	788.0	0.0
	C-GSGL 2002	4.9	18.0	0.0	723.9	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> cool, clear						
<b>Geomag</b> Quiet						
<b>Remarks</b>	Two production flights. Delayed due to weather in morning.					
<b>19-Oct Wednesday</b>		<b>12.9</b>	<b>42.0</b>	<b>0.0</b>	<b>1845.0</b>	<b>0.0</b>
	C-GSGW 1018	6.4	18.0	0.0	886.5	0.0
	C-GSGL 2003	6.5	24.0	0.0	958.5	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Clear and Cool						
<b>Geomag</b> Quiet						
<b>Remarks</b>						
<b>20-Oct Thursday</b>		<b>9.3</b>	<b>18.0</b>	<b>0.0</b>	<b>910.8</b>	<b>0.0</b>
	C-GSGW -	2.7	0.0	0.0	0.0	0.0
	C-GSGL 2004	6.6	18.0	0.0	910.8	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Clear and Cool						
<b>Geomag</b> Quiet						
<b>Remarks</b>	SGW flies PCC and training flight for Jason. SGL flies production flight.					
<b>21-Oct Friday</b>		<b>15.1</b>	<b>25.0</b>	<b>0.0</b>	<b>2063.9</b>	<b>0.0</b>
	C-GSGW 1019	6.0	14.0	0.0	1089.4	0.0
	C-GSGL 2005	6.4	11.0	0.0	974.5	0.0
	C-GSGV Ferry Flight	2.7	0.0	0.0	0.0	0.0
<b>Weather</b> Clear and Cool						
<b>Geomag</b> Quiet						
<b>Remarks</b>	SGW and SGL fly production. SGV arrives in Grand Rapids.					
<b>22-Oct Saturday</b>		<b>16.9</b>	<b>44.0</b>	<b>0.0</b>	<b>1852.8</b>	<b>0.0</b>
	C-GSGW 1020	6.1	31.0	0.0	944.2	0.0
	C-GSGL 2006	6.5	13.0	0.0	908.6	0.0
	C-GSGV 7001	4.3	0.0	0.0	0.0	0.0
<b>Weather</b> Clear and Cool						
<b>Geomag</b> Quiet						
<b>Remarks</b>	Two production flights. SGV does PCC and training flight for Andre. Then completes recon flight					
<b>23-Oct Sunday</b>		<b>4.8</b>	<b>7.4</b>	<b>0.0</b>	<b>389.5</b>	<b>0.0</b>
	C-GSGW 1021	1.7	3.7	0.0	178.9	0.0
	C-GSGL 2007	1.8	3.7	0.0	210.6	0.0
	C-GSGV 3001	1.3	0.0	0.0	0.0	0.0
<b>Weather</b> Cloudy, cool						
<b>Geomag</b> Quiet						
<b>Remarks</b>	Short Production flights by SGW and SGL. SGV did not reach the block before turning back due to weather.					

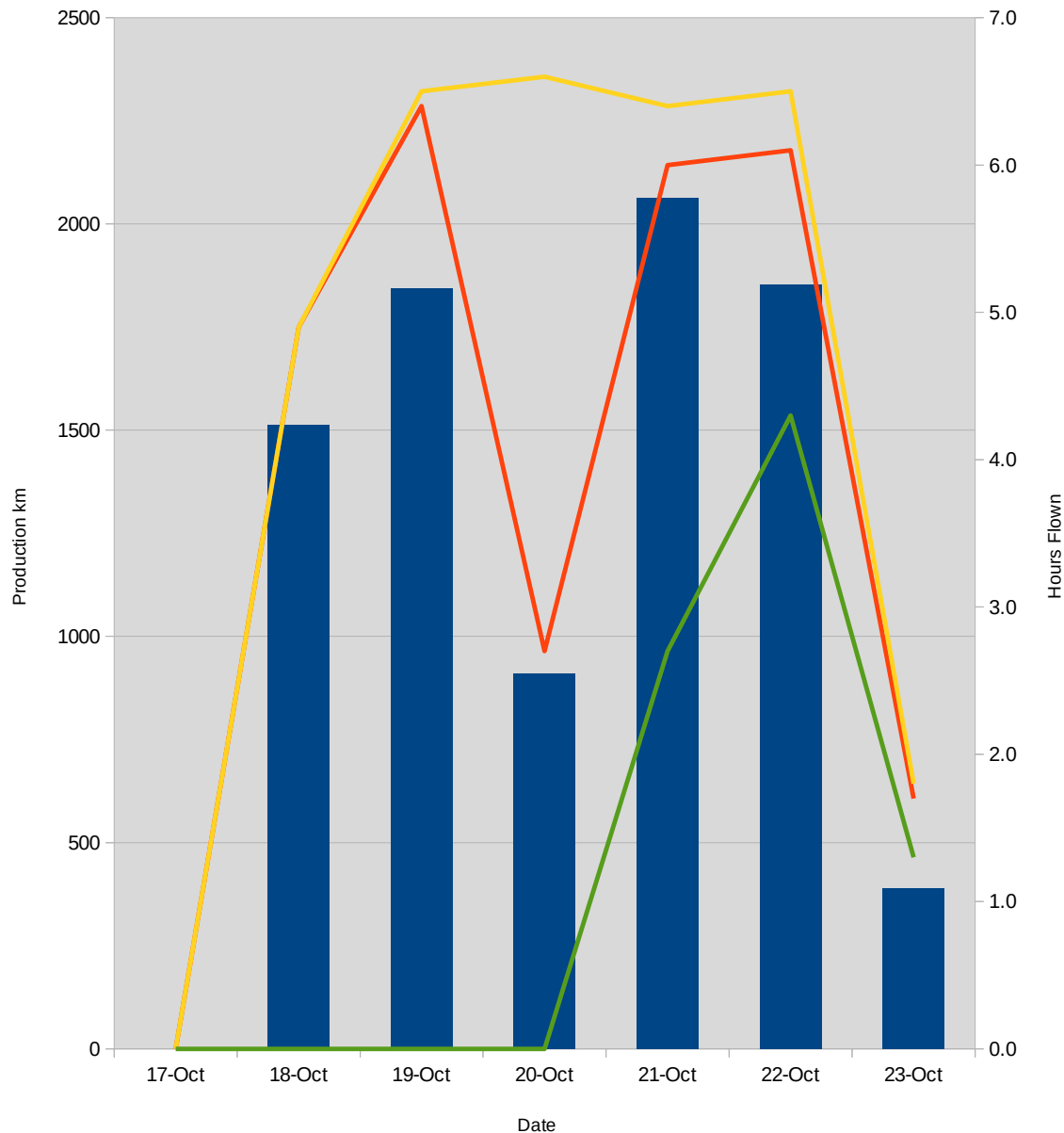
**Comments** Good week of steady production. SGV arrived and is ready to survey.

**Signed** Keith Wells

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo			ON SITE	7	40
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME			ON SITE	7	32
Randall Forwell	Pilot			ON SITE	7	32
Diana Kuiper	Geo			ON SITE	7	29
Bret Curtis	Pilot			ON SITE	7	16
Tomo Nishimura	Pilot			ON SITE	7	11
Nikal Behl	Pilot			ON SITE	7	11
Jason Thomas	Pilot	18-Oct-16		ON SITE	6	6
Oteng Matsetse	Geo	19-Oct-16		ON SITE	5	5
Matt Lemay	Pilot	21-Oct-16		ON SITE	3	3
Andre Lafontaine	Pilot	21-Oct-16		ON SITE	3	3
Martin Bates	Auidtor				0	0
Dwayne Bailey	AME	20-Oct-16		ON SITE	4	4

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	6738.5	Total km Flown to Date	27646.5
Total Remaining (km)	24446.7	km Reflown This Week	0.0
Percent Complete (%)	53.1	Flight Time This Week (h)	50.4
Prod km/Day This Week	962.6	Prod km/Flt Hour This Week	133.7

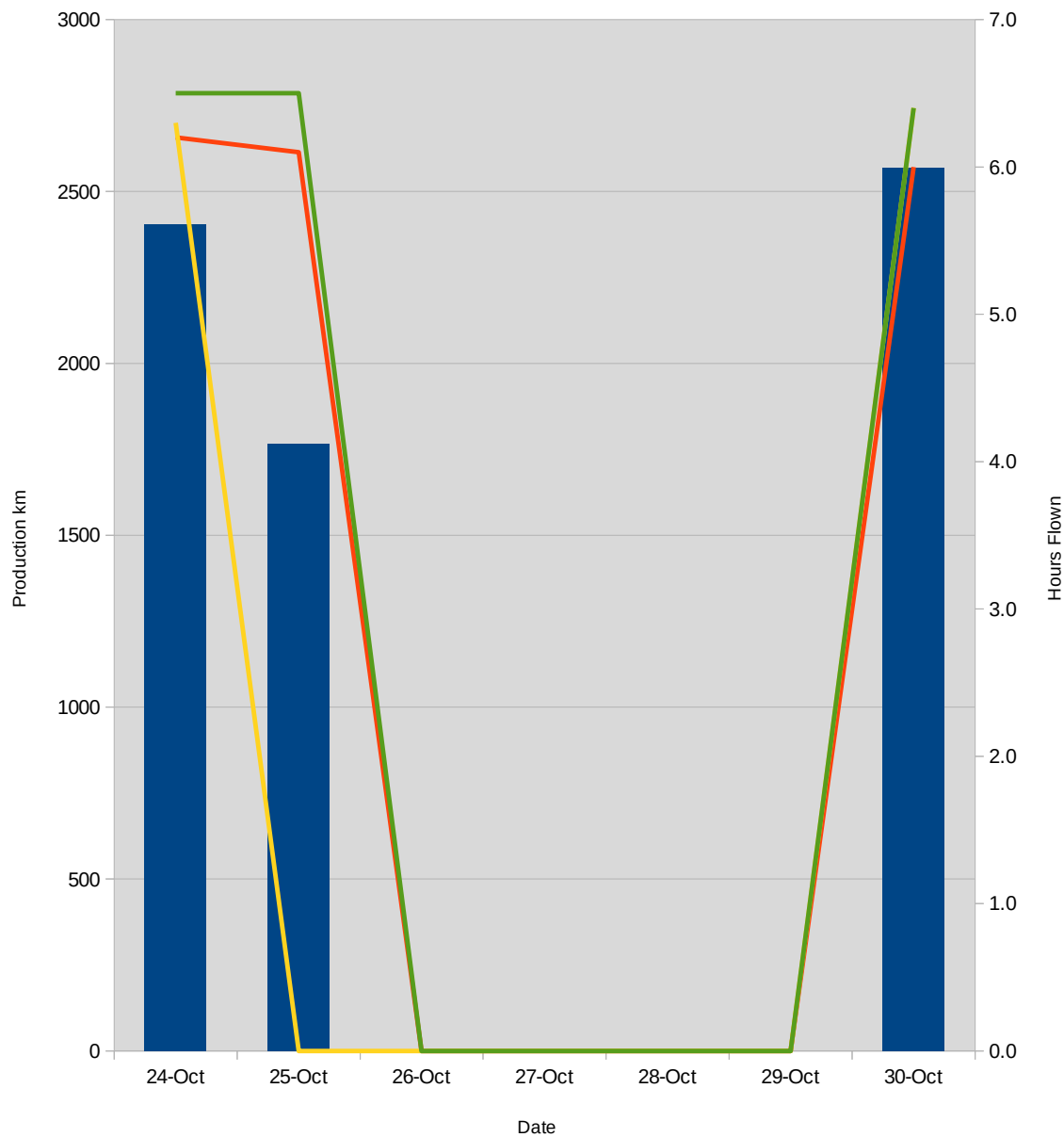
### WEEKLY PRODUCTION

Week 7	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>50.4</b>	<b>250.6</b>	<b>0.0</b>	<b>6738.5</b>	<b>0.0</b>
<b>24-Oct Monday</b>		<b>19.0</b>	<b>84.6</b>	<b>0.0</b>	<b>2402.8</b>	<b>0.0</b>
C-GSGW	1022	6.2	30.0	0.0	989.1	0.0
C-GSGL	2008	6.3	14.6	0.0	837.7	0.0
C-GSGV	3002	6.5	40.0	0.0	576.0	0.0
Weather	Clear, Cool, Calm					
Geomag	Quiet					
Remarks	Three production flights.					
<b>25-Oct Tuesday</b>		<b>12.6</b>	<b>76.0</b>	<b>0.0</b>	<b>1766.1</b>	<b>0.0</b>
C-GSGW	1023	6.1	22.0	0.0	988.5	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV	3003	6.5	54.0	0.0	777.6	0.0
Weather	Cool, Cloudy, Calm					
Geomag	Stormy					
Remarks	Two production flights. SGL unable to fly due to Anglo pilot rest day for 2 pilots.					
<b>26-Oct Wednesday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather	Rain, low ceilings					
Geomag	Active					
Remarks	No production due to weather.					
<b>27-Oct Thursday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather	Low visibility, cloudy					
Geomag	unsettled					
Remarks	No production due to weather.					
<b>28-Oct Friday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather	Low ceilings, fog					
Geomag	Quiet					
Remarks	No production due to weather.					
<b>29-Oct Saturday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather	Low ceilings, fog					
Geomag	Quiet					
Remarks	No production due to weather.					
<b>30-Oct Sunday</b>		<b>18.8</b>	<b>90.0</b>	<b>0.0</b>	<b>2569.5</b>	<b>0.0</b>
C-GSGW	1024	6.0	18.0	0.0	886.5	0.0
C-GSGL	2009	6.4	20.0	0.0	934.2	0.0
C-GSGV	3004	6.4	52.0	0.0	748.8	0.0
Weather	Cloudy, cool					
Geomag	Quiet					
Remarks	Three production flights.					
Comments	Slow week of production due to weather.					
Signed	Keith Wells					

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo			ON SITE	7	47
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME			ON SITE	7	39
Randall Forwell	Pilot			ON SITE	7	39
Diana Kuiper	Geo		30-Oct-16	ON SITE	7	36
Bret Curtis	Pilot		26-Oct-16	ON SITE	3	19
Tomo Nishimura	Pilot			ON SITE	7	18
Nikal Behl	Pilot			ON SITE	7	18
Jason Thomas	Pilot			ON SITE	7	13
Oteng Matsetse	Geo			ON SITE	7	12
Matt Lemay	Pilot			ON SITE	7	10
Andre Lafontaine	Pilot			ON SITE	7	10
Martin Bates	Auidtor	28-Oct-16		ON SITE	3	3
Dwayne Bailey	AME			ON SITE	7	11

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	5452.8	<b>Total km Flown to Date</b>	33099.3
<b>Total Remaining (km)</b>	18994.0	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	63.5	<b>Flight Time This Week (h)</b>	38.2
<b>Prod km/Day This Week</b>	779.0	<b>Prod km/Flt Hour This Week</b>	142.7

### WEEKLY PRODUCTION

Week 8	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>38.2</b>	<b>162.0</b>	<b>0.0</b>	<b>5452.8</b>	<b>0.0</b>
<b>31-Oct Monday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Rain, low cloud						
<b>Geomag</b> good						
<b>Remarks</b>	No production due to weather					
<b>1-Nov Tuesday</b>		<b>12.9</b>	<b>74.0</b>	<b>0.0</b>	<b>2958.4</b>	<b>0.0</b>
	C-GSGW 1025	0.0	22.0	0.0	1068.5	0.0
	C-GSGL 2010	6.5	20.0	0.0	976.0	0.0
	C-GSGV 3005	6.4	32.0	0.0	913.9	0.0
<b>Weather</b> Clear, cool						
<b>Geomag</b> unsettled						
<b>Remarks</b>	Production flights for all a/c					
<b>2-Nov Wednesday</b>		<b>19.1</b>	<b>88.0</b>	<b>0.0</b>	<b>2494.4</b>	<b>0.0</b>
	C-GSGW 1026	6.4	20.0	0.0	965.0	0.0
	C-GSGL 2011	6.2	16.0	0.0	780.6	0.0
	C-GSGV 3006	6.5	52.0	0.0	748.8	0.0
<b>Weather</b> Clear, cool						
<b>Geomag</b> unsettled						
<b>Remarks</b>	Production flights for all a/c					
<b>3-Nov Thursday</b>		<b>6.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW Test	2.4	0.0	0.0	0.0	0.0
	C-GSGL Test	1.9	0.0	0.0	0.0	0.0
	C-GSGV Test	1.9	0.0	0.0	0.0	0.0
<b>Weather</b> fog, warm						
<b>Geomag</b> Quiet						
<b>Remarks</b>	Fog in the survey area. No production. Cosmic and Magnetometer noise tests were complete for each a/c					
<b>4-Nov Friday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Clear, warm						
<b>Geomag</b> n/a						
<b>Remarks</b>	Standby for hunting season at Anglo's request.					
<b>5-Nov Saturday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Clear, warm						
<b>Geomag</b> n/a						
<b>Remarks</b>	Standby for hunting season at Anglo's request.					
<b>6-Nov Sunday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> Clear, warm						
<b>Geomag</b> n/a						
<b>Remarks</b>	Standby for hunting season at Anglo's request.					

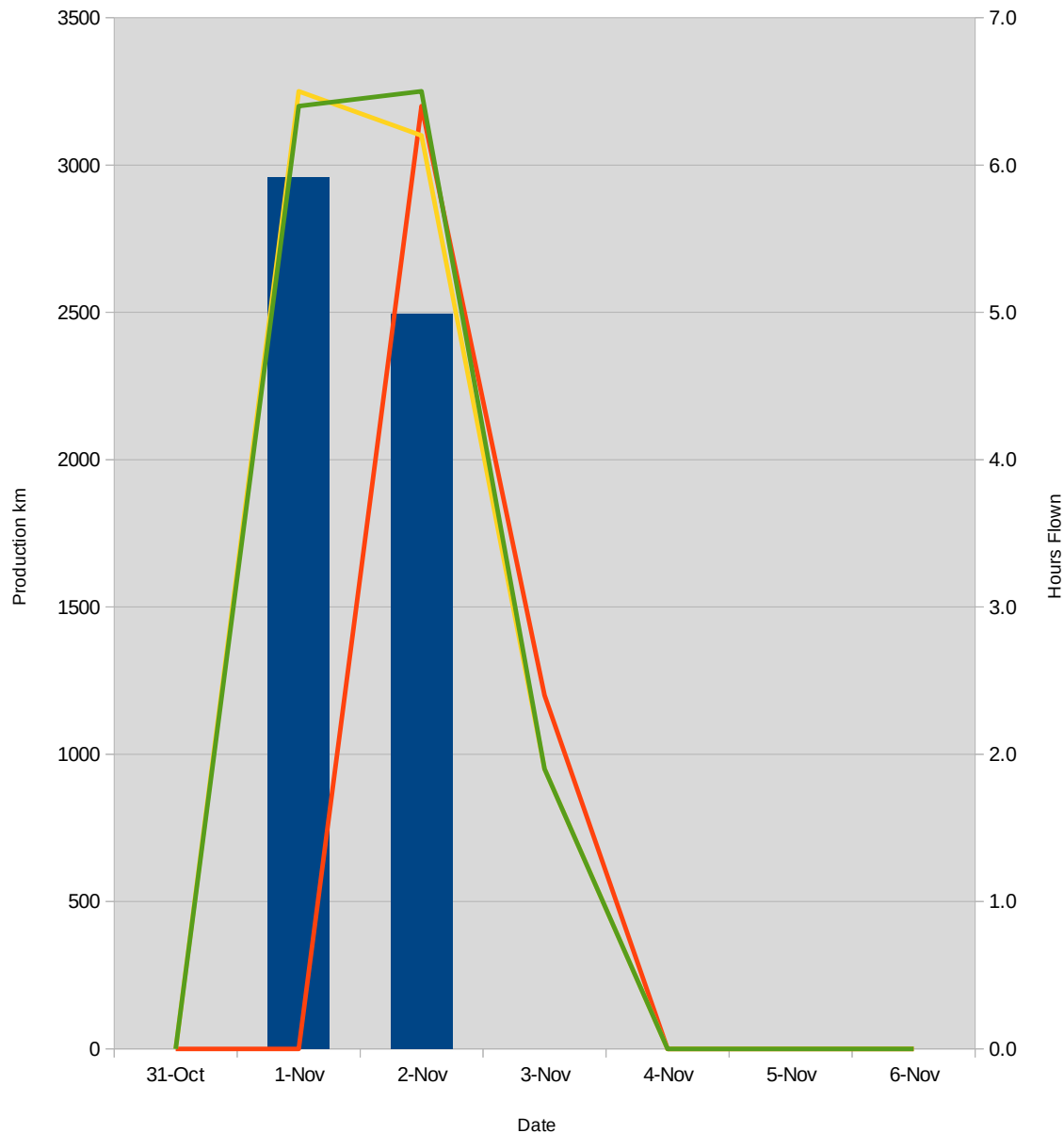
**Comments** Production this week slowed by weather. Crew is on standby for the deer hunting season until Nov. 21<sup>st</sup>.

**Signed** Keith Wells

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo		6-Nov-16	ON SITE	7	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME		6-Nov-16	ON SITE	7	46
Randall Forwell	Pilot		5-Nov-16	ON SITE	6	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot		4-Nov-16	ON SITE	5	23
Nikal Behl	Pilot		4-Nov-16	ON SITE	5	23
Jason Thomas	Pilot		4-Nov-16	ON SITE	5	18
Oteng Matsetse	Geo		6-Nov-16	ON SITE	7	19
Matt Lemay	Pilot		4-Nov-16	ON SITE	5	15
Andre Lafontaine	Pilot		4-Nov-16	ON SITE	5	15
Martin Bates	Auidtor		2-Nov-16	ON SITE	3	6
Dwayne Bailey	AME		6-Nov-16	ON SITE	7	18

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	0.0	Total km Flown to Date	33099.3
Total Remaining (km)	18994.0	km Reflown This Week	0.0
Percent Complete (%)	63.5	Flight Time This Week (h)	0.0
Prod km/Day This Week	0.0	Prod km/Flt Hour This Week	

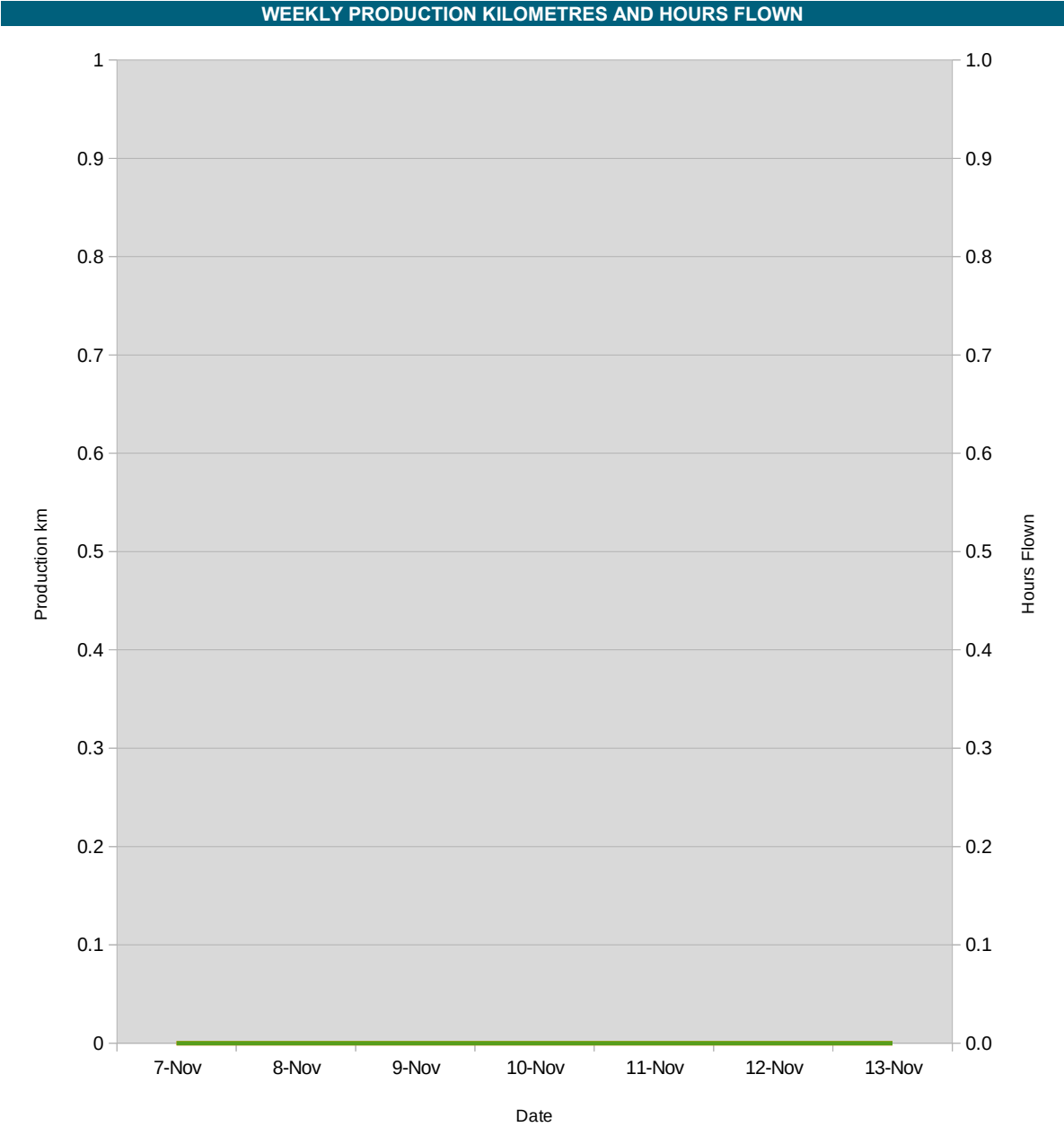
### WEEKLY PRODUCTION

Week 9	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
7-Nov	Monday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				
8-Nov	Tuesday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				
9-Nov	Wednesday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				
10-Nov	Thursday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				
11-Nov	Friday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				
12-Nov	Saturday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				
13-Nov	Sunday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Standby for hunting season at Anglo's request.				

Comments Standby for hunting season at Anglo's request.

Signed Keith Wells

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18







## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	0.0	Total km Flown to Date	33099.3
Total Remaining (km)	18994.0	km Reflown This Week	0.0
Percent Complete (%)	63.5	Flight Time This Week (h)	0.0
Prod km/Day This Week	0.0	Prod km/Flt Hour This Week	

### WEEKLY PRODUCTION

Week 10	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>14-Nov</b>	<b>Monday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request.				
<b>15-Nov</b>	<b>Tuesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request. Dwayne and Branden arrive to do Maintenance.				
<b>16-Nov</b>	<b>Wednesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request.				
<b>17-Nov</b>	<b>Thursday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request.				
<b>18-Nov</b>	<b>Friday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request.				
<b>19-Nov</b>	<b>Saturday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request. Keith and Mike arrive in the afternoon Alex, Karlo, Kevin and Marianne arrive in the evening.				
<b>20-Nov</b>	<b>Sunday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather Geomag</b>	<b>Remarks</b>	Standby for hunting season at Anglo's request. Randall and Jason arrive.				

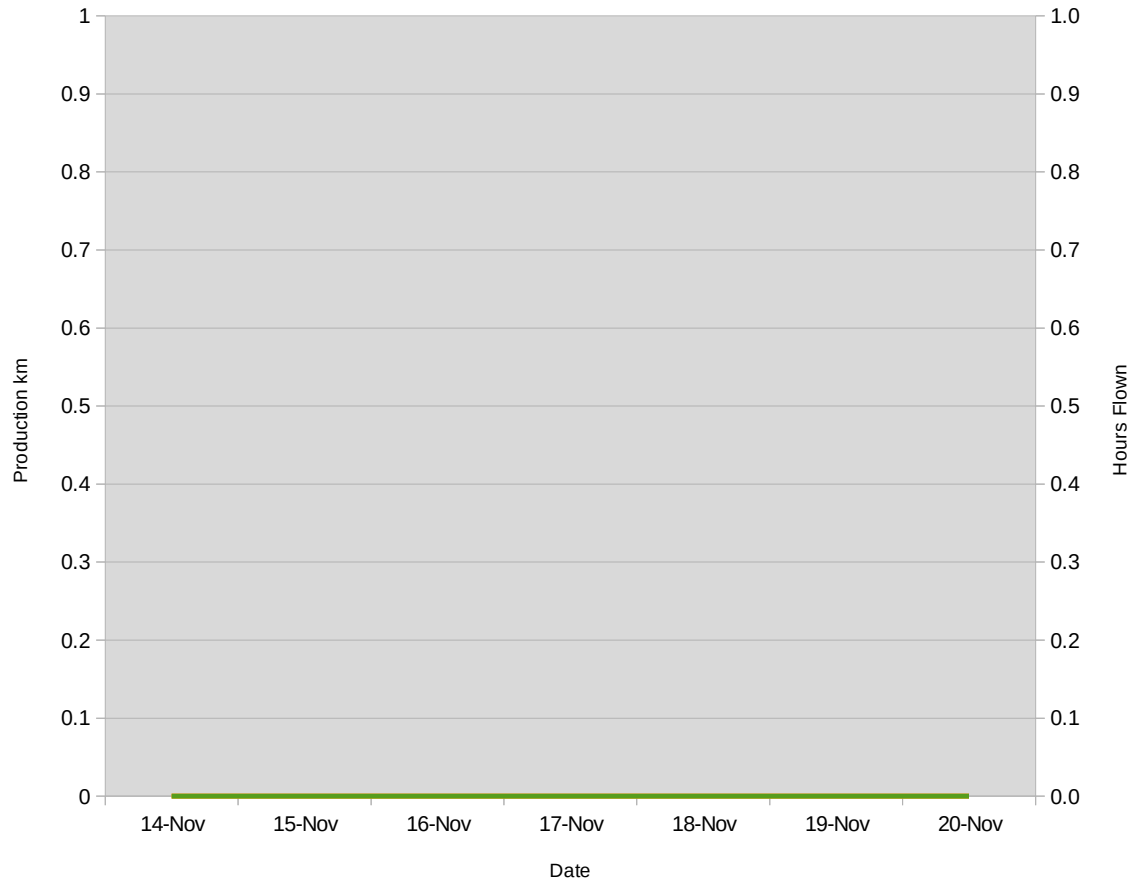
**Comments** Standby for hunting season at Anglo's request. Crew mobilize back to Grand Rapids.

**Signed** Keith Wells

Week 10 Page 2

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo	19-Nov-16		ON SITE	2	2
Dwayne Bailey	AME	15-Nov-16		ON SITE	6	6
Branden Lachapelle	AME	15-Nov-16		ON SITE	6	6
Mike McManus	Geo	19-Nov-16		ON SITE	2	2
Karlo Pavlicevic	Pilot	19-Nov-16		ON SITE	2	2
Kevin Michaud	Pilot	19-Nov-16		ON SITE	2	2
Marianne Durrant	Pilot	19-Nov-16		ON SITE	2	2
Alex Faulkner	Pilot	19-Nov-16		ON SITE	2	2
Randall Forwell	Pilot	20-Nov-16		ON SITE	1	1
Jason Thomas	Pilot	20-Nov-16		ON SITE	1	1
Lindsay Upiter	Geo				0	0
Kevin Michaud	Pilot				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	0.0	<b>Total km Flown to Date</b>	33099.3
<b>Total Remaining (km)</b>	18994.0	<b>km Reflown This Week</b>	0.0
<b>Percent Complete (%)</b>	63.5	<b>Flight Time This Week (h)</b>	4.6
<b>Prod km/Day This Week</b>	0.0	<b>Prod km/Flt Hour This Week</b>	0.0

### WEEKLY PRODUCTION

Week 11	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>4.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>21-Nov Monday</b>		<b>4.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL PCC	1.8	0.0	0.0	0.0	0.0
	C-GSGV PCC/Recon	2.8	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear, Calm, cool					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	Two PCC flights and one recon flight				
<b>22-Nov Tuesday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low ceilings					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	No Production due to weather				
<b>23-Nov Wednesday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low ceilings					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	No Production due to weather				
<b>24-Nov Thursday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low ceilings					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	No Production due to weather				
<b>25-Nov Friday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low ceilings					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	No Production due to weather				
<b>26-Nov Saturday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low ceilings					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	No Production due to weather				
<b>27-Nov Sunday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Fog, icing conditions					
<b>Geomag</b>	Quiet					
	<b>Remarks</b>	No Production due to weather				

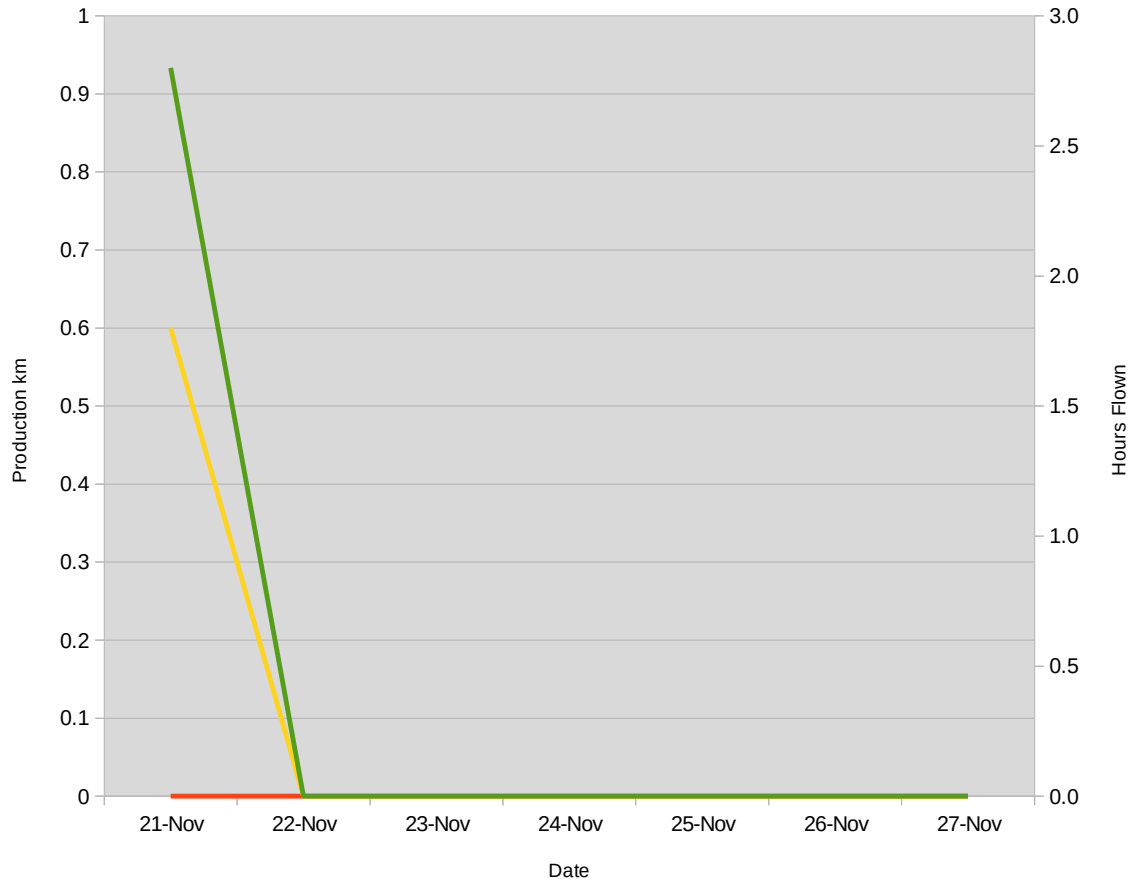
**Comments** Project re-mobilization complete. Poor weather throughout the week did not permit survey flying.

**Signed** Keith Wells

Week 11 Page 2

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo			ON SITE	7	9
Dwayne Bailey	AME			ON SITE	7	13
Branden Lachapelle	AME			ON SITE	7	13
Mike McManus	Geo			ON SITE	7	9
Karlo Pavlicevic	Pilot			ON SITE	7	9
Kevin Michaud	Pilot			ON SITE	7	9
Marianne Durrant	Pilot			ON SITE	7	9
Alex Faulkner	Pilot			ON SITE	7	9
Randall Forwell	Pilot			ON SITE	7	8
Jason Thomas	Pilot			ON SITE	7	8
Lindsay Upiter	Geo	22-Nov-16		ON SITE	6	6
Kevin Michaud	Pilot				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	2575.9	Total km Flown to Date	35675.1
Total Remaining (km)	16418.1	km Reflown This Week	0.0
Percent Complete (%)	68.5	Flight Time This Week (h)	20.1
Prod km/Day This Week	368.0	Prod km/Flt Hour This Week	128.2

### WEEKLY PRODUCTION

Week 12	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>20.1</b>	<b>83.9</b>	<b>0.0</b>	<b>2575.9</b>	<b>0.0</b>
<b>28-Nov</b>	<b>Monday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low Cloud, rain, fog	<b>Remarks</b>	No production due to weather			
<b>Geomag</b>	Quiet					
<b>29-Nov</b>	<b>Tuesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low Cloud, snow	<b>Remarks</b>	No production due to weather			
<b>Geomag</b>	Quiet					
<b>30-Nov</b>	<b>Wednesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low Cloud, rain	<b>Remarks</b>	No production due to weather			
<b>Geomag</b>						
<b>1-Dec</b>	<b>Thursday</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.4	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.6	0.0	0.0	0.0	0.0
<b>Weather</b>	Cloudy, cold, snow	<b>Remarks</b>	Attempted production flights but found poor weather in the block. No production due to weather			
<b>Geomag</b>	Quiet					
<b>2-Dec</b>	<b>Friday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low Cloud, snow	<b>Remarks</b>	No production due to weather			
<b>Geomag</b>						
<b>3-Dec</b>	<b>Saturday</b>	<b>19.1</b>	<b>83.9</b>	<b>0.0</b>	<b>2575.9</b>	<b>0.0</b>
	C-GSGW	1027	6.1	18.6	868.5	0.0
	C-GSGL	2012	6.6	18.0	939.7	0.0
	C-GSGV	3007	6.4	47.3	767.7	0.0
<b>Weather</b>	Cloudy, cold	<b>Remarks</b>	Full day of production			
<b>Geomag</b>	Quiet					
<b>4-Dec</b>	<b>Sunday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Low Cloud, snow	<b>Remarks</b>	No production due to weather			
<b>Geomag</b>	Quiet					

**Comments** Poor weather throughout the week limited production flying to one day.

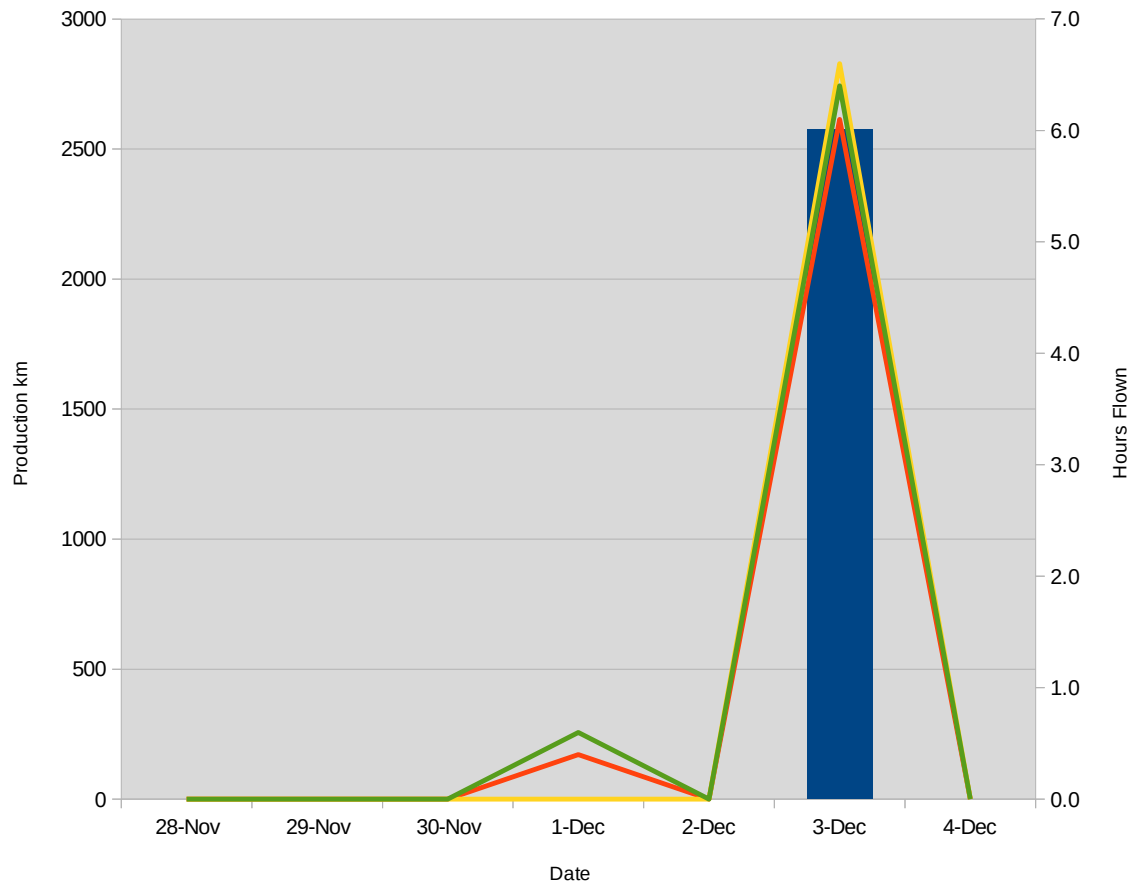
**Signed** Keith Wells

Week 12 Page 2

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo			ON SITE	7	16
Dwayne Bailey	AME			ON SITE	7	20
Branden Lachapelle	AME			ON SITE	7	20
Mike McManus	Geo			ON SITE	7	16
Karlo Pavlicevic	Pilot			ON SITE	7	16
Kevin Michaud	Pilot			ON SITE	7	16
Marianne Durrant	Pilot			ON SITE	7	16
Alex Faulkner	Pilot			ON SITE	7	16
Randall Forwell	Pilot			ON SITE	7	15
Jason Thomas	Pilot			ON SITE	7	15
Lindsay Upiter	Geo			ON SITE	7	13
Kevin Michaud	Pilot				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	4392.8	Total km Flown to Date	40067.9
Total Remaining (km)	12025.3	km Reflown This Week	0.0
Percent Complete (%)	76.9	Flight Time This Week (h)	32.8
Prod km/Day This Week	627.5	Prod km/Flt Hour This Week	133.9

### WEEKLY PRODUCTION

Week 13	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>32.8</b>	<b>103.6</b>	<b>0.0</b>	<b>4392.8</b>	<b>0.0</b>
<b>5-Dec Monday</b>		<b>2.5</b>	<b>3.0</b>	<b>0.0</b>	<b>151.1</b>	<b>0.0</b>
C-GSGW	2013	0.0	0.0	0.0	0.0	0.0
C-GSGL		2.5	3.0	0.0	151.1	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather cloudy						
Geomag quiet						
<b>6-Dec Tuesday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather overcast						
Geomag						
<b>7-Dec Wednesday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather overcast						
Geomag						
<b>8-Dec Thursday</b>		<b>9.2</b>	<b>26.0</b>	<b>0.0</b>	<b>1229.2</b>	<b>0.0</b>
C-GSGW	1028	4.7	14.0	0.0	757.0	0.0
C-GSGL	2014	2.4	6.0	0.0	226.0	0.0
C-GSGV	3008	2.1	6.0	0.0	246.2	0.0
Weather cloudy						
Geomag active						
<b>9-Dec Friday</b>		<b>10.0</b>	<b>28.6</b>	<b>0.0</b>	<b>1432.5</b>	<b>0.0</b>
C-GSGW	1029	6.0	16.0	0.0	863.4	0.0
C-GSGL	2015	4.0	12.6	0.0	569.1	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather cloudy						
Geomag unsettled						
<b>10-Dec Saturday</b>		<b>11.1</b>	<b>46.0</b>	<b>0.0</b>	<b>1580.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL	2016	4.7	22.0	0.0	657.0	0.0
C-GSGV	3009	6.4	24.0	0.0	923.0	0.0
Weather cloudy						
Geomag quiet						
<b>11-Dec Sunday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
C-GSGW		0.0	0.0	0.0	0.0	0.0
C-GSGL		0.0	0.0	0.0	0.0	0.0
C-GSGV		0.0	0.0	0.0	0.0	0.0
Weather						
Geomag						

Comments

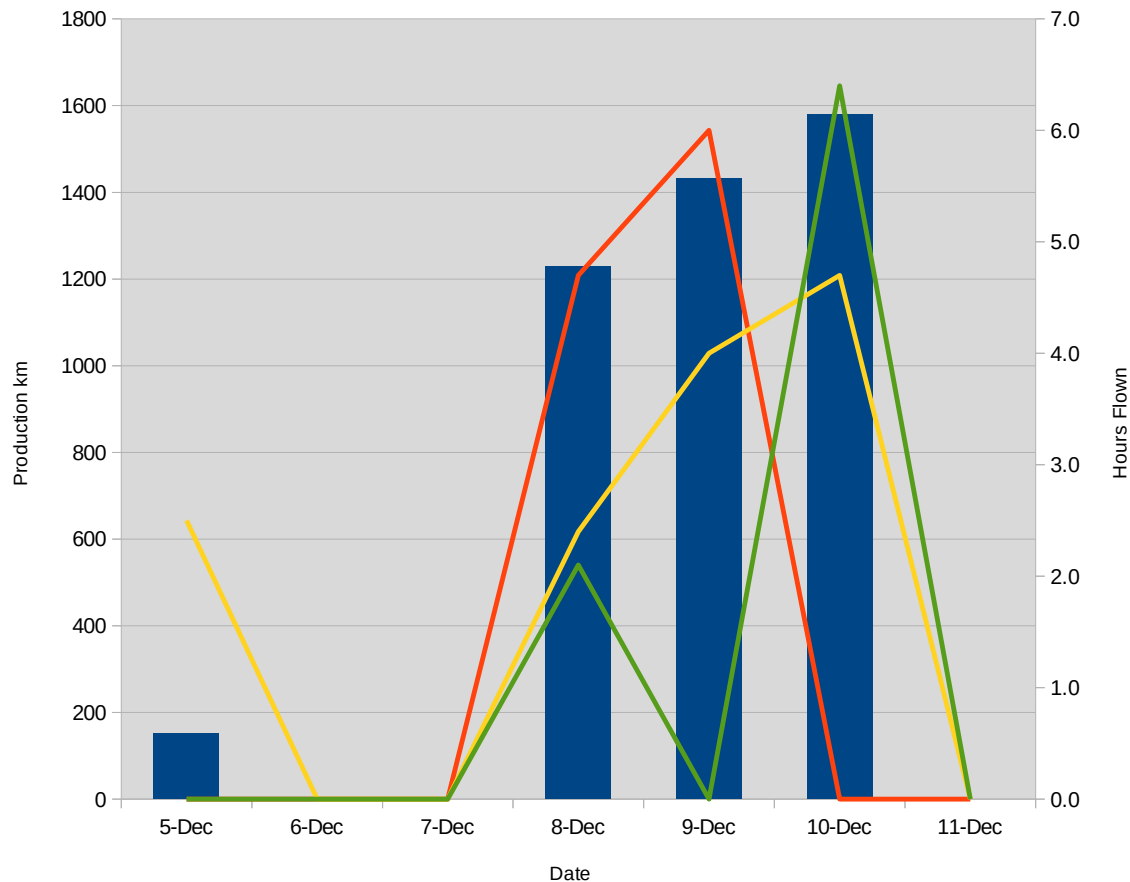
Signed

Week 13 Page 2

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo		7-Dec-16	ON SITE	3	19
Dwayne Bailey	AME			ON SITE	7	27
Branden Lachapelle	AME			ON SITE	7	27
Mike McManus	Geo			ON SITE	7	23
Karlo Pavlicevic	Pilot			ON SITE	7	23
Kevin Michaud	Pilot			ON SITE	7	23
Marianne Durrant	Pilot			ON SITE	7	23
Alex Faulkner	Pilot			ON SITE	7	23
Randall Forwell	Pilot			ON SITE	7	22
Jason Thomas	Pilot			ON SITE	7	22
Lindsay Upiter	Geo			ON SITE	7	20
Kevin Michaud	Pilot				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN







## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

<b>Survey Name</b>	AngloG_16.MN	<b>Client Name</b>	Anglo Gold Ashanti
<b>Survey Location</b>	Minnesota, USA	<b>Contact Name</b>	Keith Martin
<b>Project Code</b>	845	<b>Contact Phone</b>	
<b>Total km</b>	52093	<b>Client Address</b>	
<b>Line Spacing</b>	100	<b>Email</b>	KMartin@AngloGoldAshanti.com
<b>Survey Type</b>	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

<b>Production This Week (km)</b>	10718.0	<b>Total km Flown to Date</b>	50785.9
<b>Total Remaining (km)</b>	1307.3	<b>km Reflown This Week</b>	49.3
<b>Percent Complete (%)</b>	97.5	<b>Flight Time This Week (h)</b>	81.2
<b>Prod km/Day This Week</b>	1531.1	<b>Prod km/Flt Hour This Week</b>	132.0

### WEEKLY PRODUCTION

Week 14	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>81.2</b>	<b>317.7</b>	<b>0.9</b>	<b>10718.0</b>	<b>49.3</b>
<b>12-Dec Monday</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b> overcast with snow						
<b>Geomag</b> Quiet						
<b>Remarks</b>	No flight due to weather.					
<b>13-Dec Tuesday</b>		<b>10.1</b>	<b>25.6</b>	<b>0.0</b>	<b>1210.3</b>	<b>0.0</b>
	C-GSGW 1030	1.3	1.3	0.0	60.6	0.0
	C-GSGL 2017	4.9	13.6	0.0	668.8	0.0
	C-GSGV 3010	3.9	10.7	0.0	480.9	0.0
<b>Weather</b> Clear w/ scattered cloud						
<b>Geomag</b> quiet						
<b>Remarks</b>	3 production flights. Local ground station issues effecting entire flight (remote station used to process data). SGW departure delayed due to data acquisition system problem.					
<b>14-Dec Wednesday</b>		<b>8.5</b>	<b>18.7</b>	<b>0.9</b>	<b>864.0</b>	<b>49.3</b>
	C-GSGW 1031	5.7	16.0	0.9	731.0	49.3
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV 3011	2.8	2.7	0.0	133.0	0.0
<b>Weather</b> clear with fog						
<b>Geomag</b> quiet						
<b>Remarks</b>	2 production flights. SGV returned early due to weather. SGL did not depart due to weather in it's area of the block.					
<b>15-Dec Thursday</b>		<b>20.1</b>	<b>70.9</b>	<b>0.0</b>	<b>2927.3</b>	<b>0.0</b>
	C-GSGW 1032	6.1	17.0	0.0	916.4	0.0
	C-GSGL 2018	6.9	34.0	0.0	1029.3	0.0
	C-GSGV 3012	7.1	19.9	0.0	981.6	0.0
<b>Weather</b> clear						
<b>Geomag</b> unsettled						
<b>Remarks</b>	3 full production flights.					
<b>16-Dec Friday</b>		<b>20.3</b>	<b>105.0</b>	<b>0.0</b>	<b>2709.2</b>	<b>0.0</b>
	C-GSGW 1033	6.6	21.0	0.0	1031.1	0.0
	C-GSGL 2019	6.8	52.0	0.0	707.1	0.0
	C-GSGV 3013	6.9	32.0	0.0	971.0	0.0
<b>Weather</b> Overcast with clear patches						
<b>Geomag</b> quiet						
<b>Remarks</b>	3 full production flights					
<b>17-Dec Saturday</b>		<b>16.8</b>	<b>81.1</b>	<b>0.0</b>	<b>2197.1</b>	<b>0.0</b>
	C-GSGW 1034	5.5	15.0	0.0	732.8	0.0
	C-GSGL 2020	5.8	50.0	0.0	725.3	0.0
	C-GSGV 3014	5.5	16.1	0.0	739.0	0.0
<b>Weather</b> clear						
<b>Geomag</b> unsettled						
<b>Remarks</b>	3 production flights. Early return due to deteriorating weather in the block.					
<b>18-Dec Sunday</b>		<b>5.4</b>	<b>16.5</b>	<b>0.0</b>	<b>810.1</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV 3015	5.4	16.5	0.0	810.1	0.0
<b>Weather</b> clear						
<b>Geomag</b> unsettled						
<b>Remarks</b>	1 production flight. SGW did not depart due to acquisition system issues. SGL returned to base with flight control issue.					

Comments

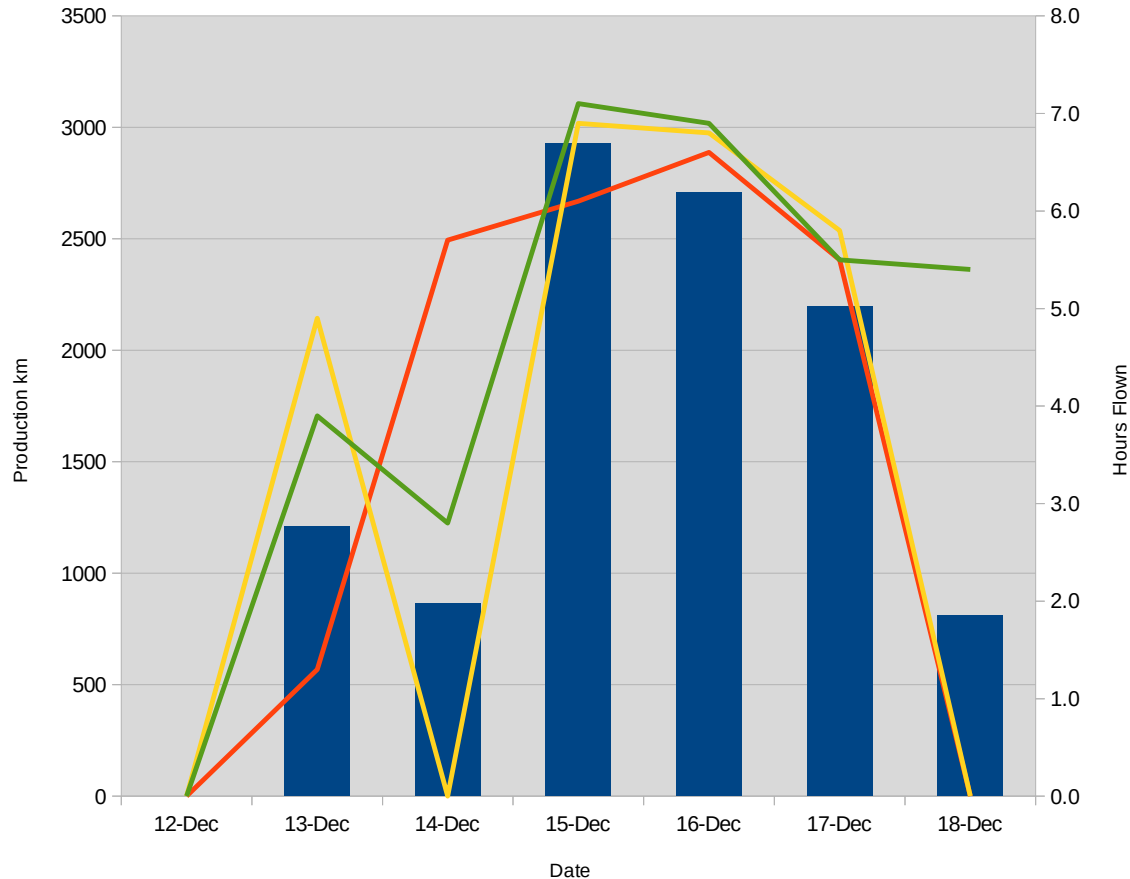
Signed

Week 14 Page 2

## PERSONNEL ON SITE THIS WEEK

Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo				0	19
Dwayne Bailey	AME			ON SITE	7	34
Branden Lachapelle	AME		13-Dec-16	ON SITE	2	29
Mike McManus	Geo			ON SITE	7	30
Karlo Pavlicevic	Pilot			ON SITE	7	30
Kevin Michaud	Pilot			ON SITE	7	30
Marianne Durrant	Pilot			ON SITE	7	30
Alex Faulkner	Pilot			ON SITE	7	30
Randall Forwell	Pilot			ON SITE	7	29
Jason Thomas	Pilot		18-Dec-16	ON SITE	7	29
Lindsay Upiter	Geo			ON SITE	7	27
Kevin Michaud	Pilot				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	0.0	Total km Flown to Date	50785.9
Total Remaining (km)	1307.3	km Reflown This Week	0.0
Percent Complete (%)	97.5	Flight Time This Week (h)	0.0
Prod km/Day This Week	0.0	Prod km/Flt Hour This Week	

### WEEKLY PRODUCTION

Week 15	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>19-Dec</b>	<b>Monday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks	Christmas break			
<b>20-Dec</b>	<b>Tuesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks				
<b>21-Dec</b>	<b>Wednesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks	Christmas break			
<b>22-Dec</b>	<b>Thursday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks				
<b>23-Dec</b>	<b>Friday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks	Christmas break			
<b>24-Dec</b>	<b>Saturday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks				
<b>25-Dec</b>	<b>Sunday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather	Geomag	Remarks	Christmas break			

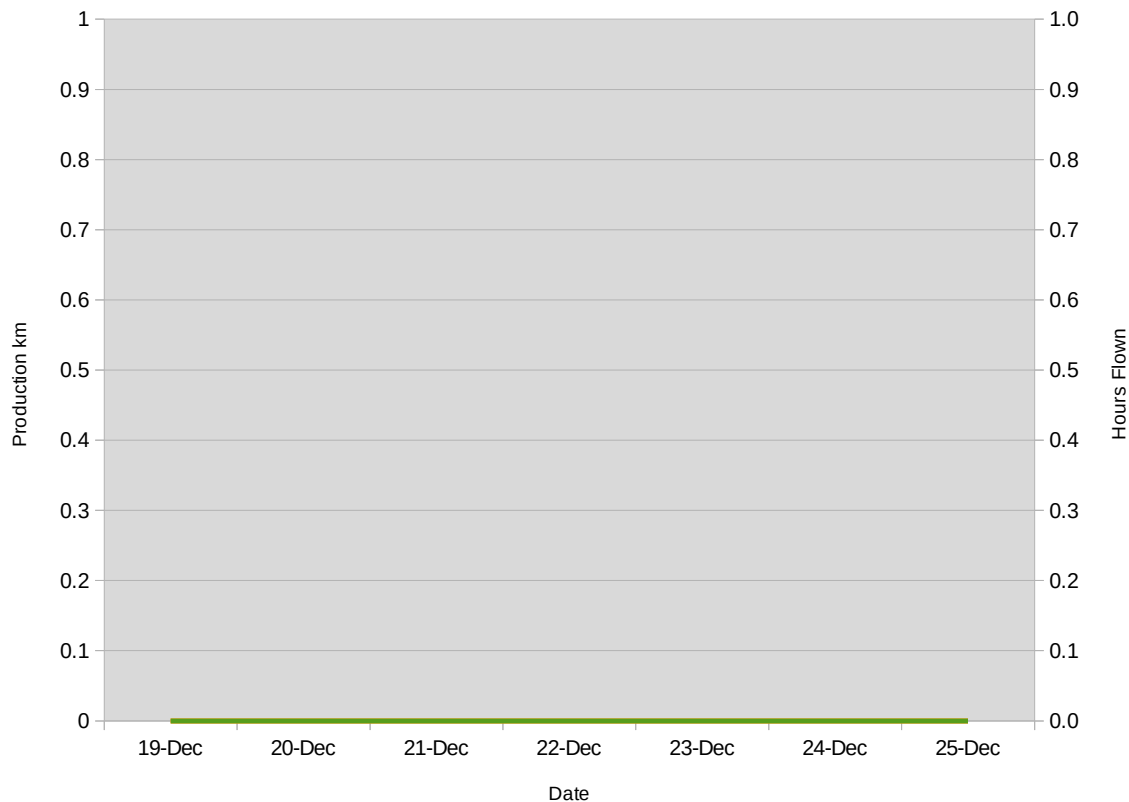
Comments

Signed

Week 15 Page 2

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo				0	19
Dwayne Bailey	AME		19-Dec-16	ON SITE	1	35
Branden Lachapelle	AME				0	29
Mike McManus	Geo		19-Dec-16	ON SITE	1	31
Karlo Pavlicevic	Pilot		19-Dec-16	ON SITE	1	31
Kevin Michaud	Pilot		19-Dec-16	ON SITE	1	31
Marianne Durrant	Pilot		19-Dec-16	ON SITE	1	31
Alex Faulkner	Pilot		19-Dec-16	ON SITE	1	31
Randall Forwell	Pilot		19-Dec-16	ON SITE	1	30
Jason Thomas	Pilot				0	29
Lindsay Upiter	Geo		19-Dec-16	ON SITE	1	28
Kevin Michaud	Pilot				0	0
Marianne Durette	Pilot				0	0
Mike McManus	Geo				0	0
Nathan Shirey	AME				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	0.0	Total km Flown to Date	50785.9
Total Remaining (km)	1307.3	km Reflown This Week	0.0
Percent Complete (%)	97.5	Flight Time This Week (h)	0.0
Prod km/Day This Week	0.0	Prod km/Flt Hour This Week	

### WEEKLY PRODUCTION

Week 16	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>26-Dec</b>	<b>Monday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Christmas break				
<b>27-Dec</b>	<b>Tuesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks					
<b>28-Dec</b>	<b>Wednesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Christmas break				
<b>29-Dec</b>	<b>Thursday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks					
<b>30-Dec</b>	<b>Friday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Christmas break				
<b>31-Dec</b>	<b>Saturday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks					
<b>1-Jan</b>	<b>Sunday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Christmas break				

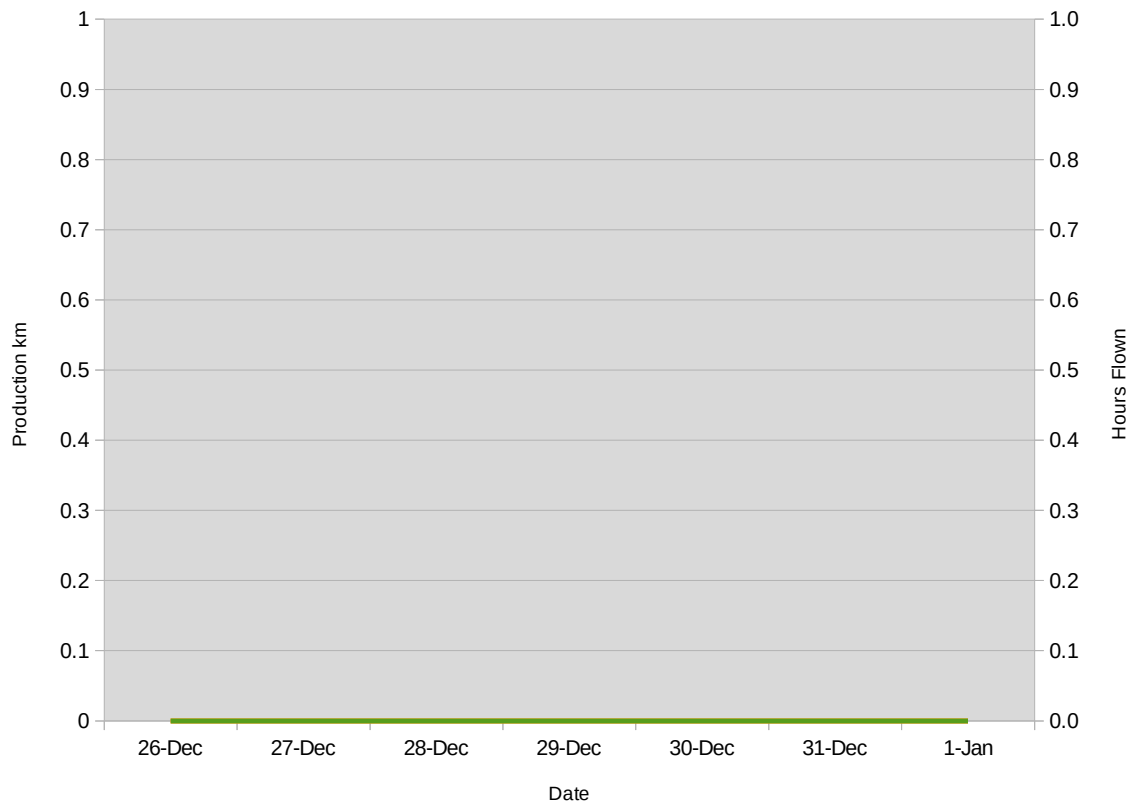
Comments

Signed

Week 16 Page 2

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo				0	19
Dwayne Bailey	AME				0	35
Branden Lachapelle	AME				0	29
Mike McManus	Geo				0	31
Karlo Pavlicevic	Pilot				0	31
Kevin Michaud	Pilot				0	31
Marianne Durrant	Pilot				0	31
Alex Faulkner	Pilot				0	31
Randall Forwell	Pilot				0	30
Jason Thomas	Pilot				0	29
Lindsay Upiter	Geo				0	28
Kevin Michaud	Pilot				0	0
Marianne Durette	Pilot				0	0
Mike McManus	Geo				0	0
Nathan Shirey	AME				0	0

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	1307.3	Total km Flown to Date	52093.3
Total Remaining (km)	0.0	km Reflown This Week	1498.4
Percent Complete (%)	100.0	Flight Time This Week (h)	21.2
Prod km/Day This Week	186.8	Prod km/Flt Hour This Week	61.7

### WEEKLY PRODUCTION

Week 17	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>21.2</b>	<b>42.9</b>	<b>56.2</b>	<b>1307.3</b>	<b>1498.4</b>
<b>2-Jan</b>	<b>Monday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>		<b>Remarks</b>	Returned to Grand Rapids			
<b>Geomag</b>						
<b>3-Jan</b>	<b>Tuesday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Overcast with low ceiling	<b>Remarks</b>	No production due to weather in the block			
<b>Geomag</b>	Unsettled					
<b>4-Jan</b>	<b>Wednesday</b>	<b>4.5</b>	<b>11.3</b>	<b>0.0</b>	<b>598.8</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL 2021	4.5	11.3	0.0	598.8	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Mostly clear with some fog	<b>Remarks</b>	1 full production flight			
<b>Geomag</b>	Unsettled					
<b>5-Jan</b>	<b>Thursday</b>	<b>6.6</b>	<b>9.6</b>	<b>22.0</b>	<b>420.3</b>	<b>560.9</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL 2022	6.6	9.6	22.0	420.3	560.9
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear	<b>Remarks</b>	1 production flight including reflight lines			
<b>Geomag</b>	Active					
<b>6-Jan</b>	<b>Friday</b>	<b>5.4</b>	<b>22.0</b>	<b>9.0</b>	<b>288.2</b>	<b>400.5</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL 2023	5.4	22.0	9.0	288.2	400.5
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear	<b>Remarks</b>	1 production flight including reflight lines			
<b>Geomag</b>	Active					
<b>7-Jan</b>	<b>Saturday</b>	<b>4.7</b>	<b>0.0</b>	<b>25.2</b>	<b>0.0</b>	<b>537.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL 2024	4.7	0.0	25.2	0.0	537.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>	Clear	<b>Remarks</b>				
<b>Geomag</b>	Active					
<b>8-Jan</b>	<b>Sunday</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
<b>Weather</b>		<b>Remarks</b>				
<b>Geomag</b>						

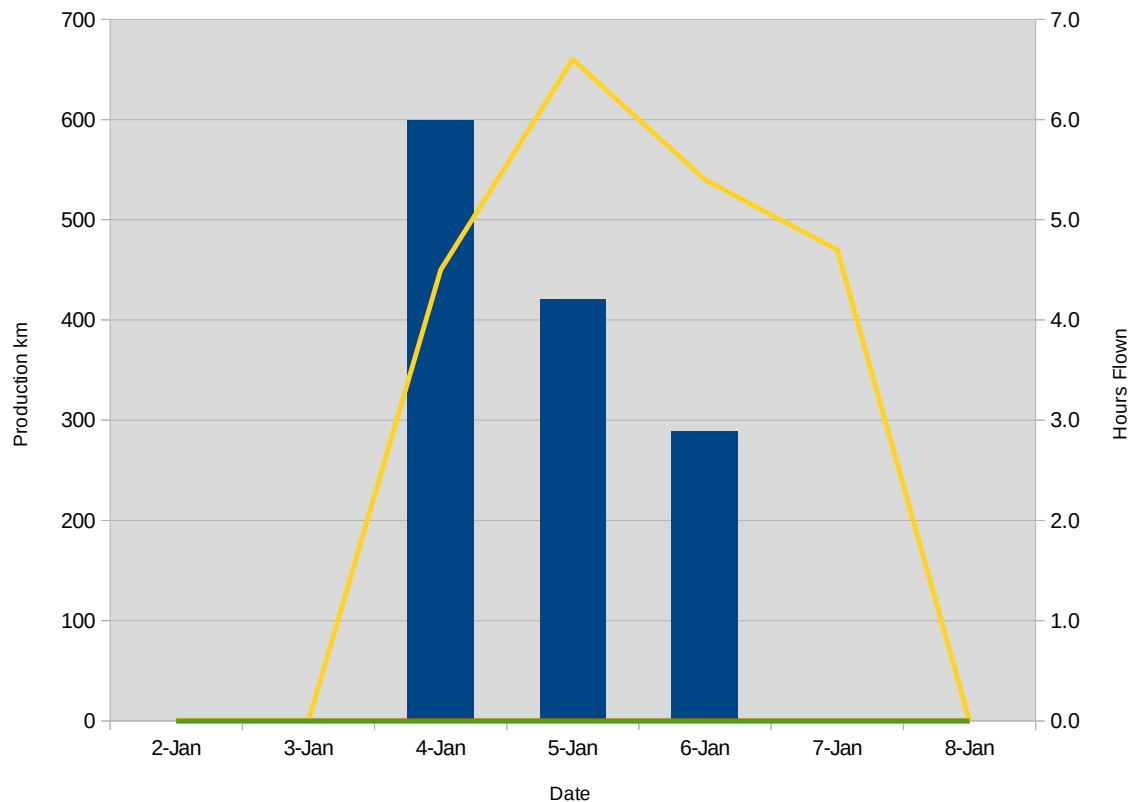
Comments

Signed

Week 17 Page 2

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo				0	19
Dwayne Bailey	AME				0	35
Branden Lachapelle	AME				0	29
Mike McManus	Geo				0	31
Karlo Pavlicevic	Pilot				0	31
Kevin Michaud	Pilot				0	31
Marianne Durrant	Pilot				0	31
Alex Faulkner	Pilot				0	31
Randall Forwell	Pilot				0	30
Jason Thomas	Pilot				0	29
Lindsay Upter	Geo				0	28
Kevin Michaud	Pilot	2-Jan-17		ON SITE	7	7
Marianne Durette	Pilot	2-Jan-17		ON SITE	7	7
Mike McManus	Geo	2-Jan-17		ON SITE	7	7
Nathan Shirey	AME	2-Jan-17		ON SITE	7	7

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN







## SANDER GEOPHYSICS AIRBORNE GEOPHYSICAL SURVEY

260 Hunt Club Road, Ottawa, ON K1V 1C1 Canada Tel: +1 613-521-9626 Fax: +1 613-521-0215 www.sgl.com

### SURVEY DETAILS

Survey Name	AngloG_16.MN	Client Name	Anglo Gold Ashanti
Survey Location	Minnesota, USA	Contact Name	Keith Martin
Project Code	845	Contact Phone	
Total km	52093	Client Address	
Line Spacing	100	Email	KMartin@AngloGoldAshanti.com
Survey Type	Mag Grad/spec		

### SURVEY PRODUCTION SUMMARY

Production This Week (km)	0.0	Total km Flown to Date	52093.3
Total Remaining (km)	0.0	km Reflown This Week	0.0
Percent Complete (%)	100.0	Flight Time This Week (h)	0.0
Prod km/Day This Week	0.0	Prod km/Flt Hour This Week	

### WEEKLY PRODUCTION

Week 18	Flight No.	Flight Time	No. of Lines Flown	No. Reflight Lines Flown	Production (km)	Reflown (km)
<b>TOTALS</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
9-Jan	Monday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Demobilization.				
10-Jan	Tuesday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Demobilization				
11-Jan	Wednesday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Demobilization. C-GSGL leaves Minnesota.				
12-Jan	Thursday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks					
13-Jan	Friday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Demobilization.				
14-Jan	Saturday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks					
15-Jan	Sunday	0.0	0.0	0.0	0.0	0.0
	C-GSGW	0.0	0.0	0.0	0.0	0.0
	C-GSGL	0.0	0.0	0.0	0.0	0.0
	C-GSGV	0.0	0.0	0.0	0.0	0.0
Weather Geomag	Remarks	Departure from field.				

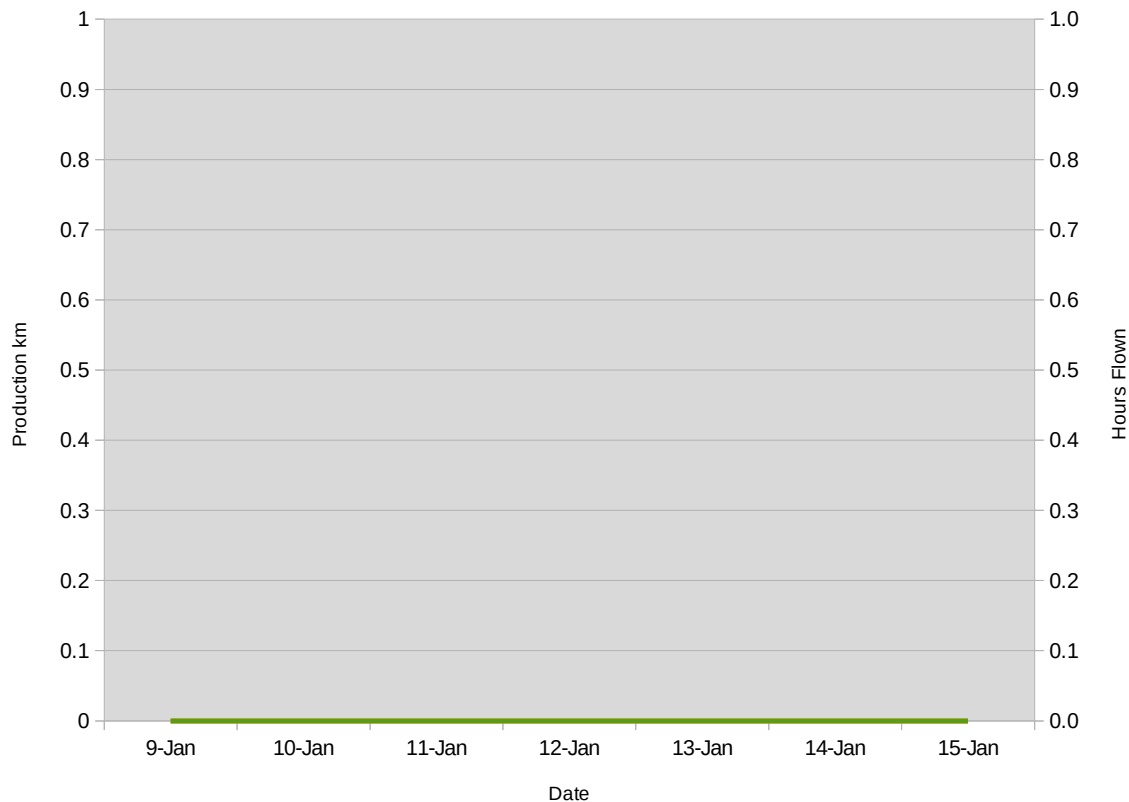
Comments

Signed

Week 18 Page 2

PERSONNEL ON SITE THIS WEEK						
Name	Position	Arrival This Week	Departure This Week	On Site?	No. of Days On Site This Week	No. of Days on Site To Date
Keith Wells	CC/Geo				0	54
Adam Dalziel	Pilot				0	12
Karlo Pavlicevic	Pilot				0	28
Nathan Shirey	AME				0	46
Randall Forwell	Pilot				0	45
Diana Kuiper	Geo				0	36
Bret Curtis	Pilot				0	19
Tomo Nishimura	Pilot				0	23
Nikal Behl	Pilot				0	23
Jason Thomas	Pilot				0	18
Oteng Matsetse	Geo				0	19
Matt Lemay	Pilot				0	15
Andre Lafontaine	Pilot				0	15
Martin Bates	Auidtor				0	6
Dwayne Bailey	AME				0	18
Keith Wells	CC/Geo				0	19
Dwayne Bailey	AME				0	35
Branden Lachapelle	AME				0	29
Mike McManus	Geo				0	31
Karlo Pavlicevic	Pilot				0	31
Kevin Michaud	Pilot				0	31
Marianne Durrant	Pilot				0	31
Alex Faulkner	Pilot				0	31
Randall Forwell	Pilot				0	30
Jason Thomas	Pilot				0	29
Lindsay Upiter	Geo				0	28
Kevin Michaud	Pilot		12-Jan-17	ON SITE	4	11
Marianne Durette	Pilot		12-Jan-17	ON SITE	4	11
Mike McManus	Geo		14-Jan-17	ON SITE	6	13
Nathan Shirey	AME		13-Jan-17	ON SITE	5	12

## WEEKLY PRODUCTION KILOMETRES AND HOURS FLOWN





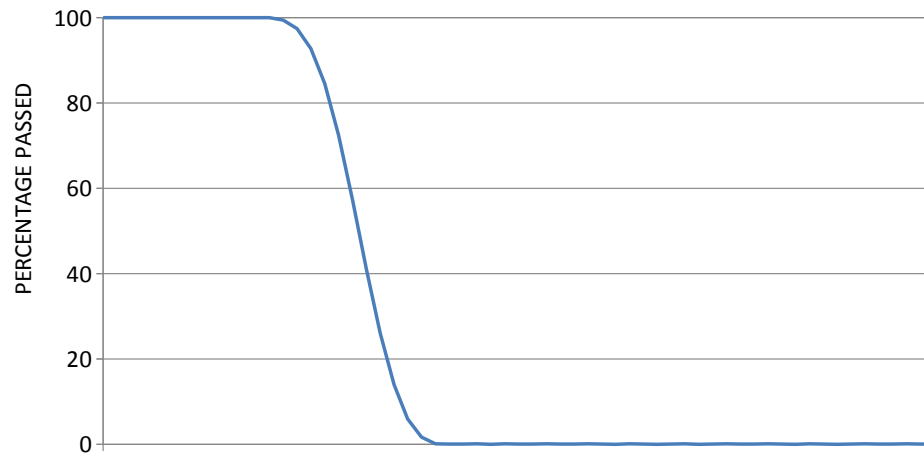
## Appendix XII





# 121 POINT FILTER

WAVELENGTH IN READINGS / CYCLE



FREQUENCY IN CYCLES / READING

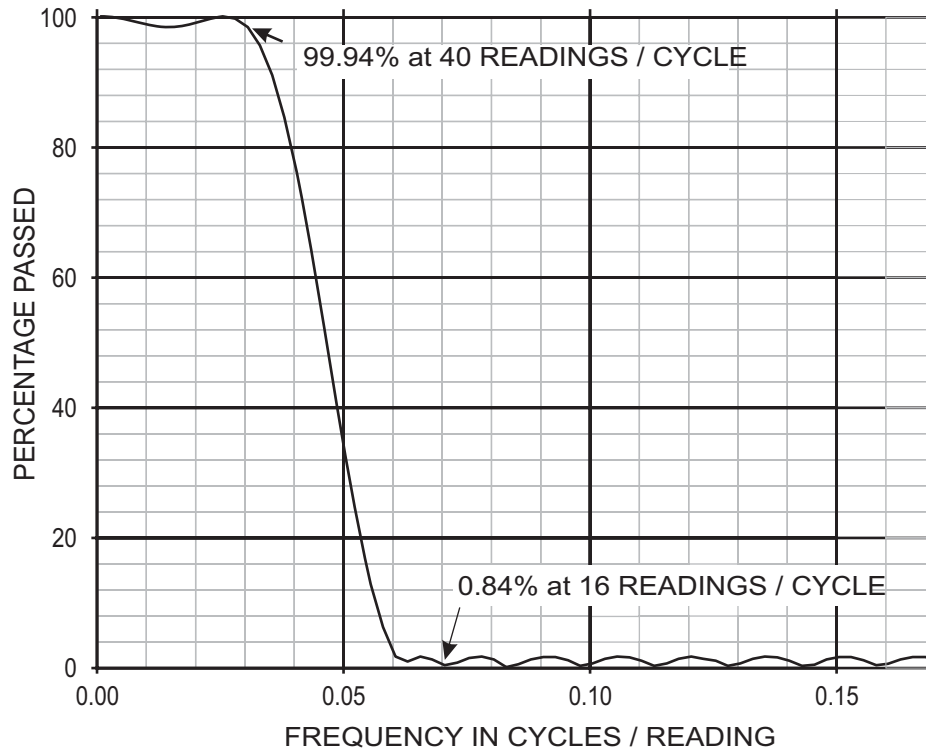
# 67 POINT FILTER

WAVELENGTH IN READINGS / CYCLE

20

10

6.7



## FILTER 67 COEFFICIENTS

-.0073813819  
.0017786870  
.0022008393  
.0028708524  
.0036799926  
.0044552023  
.0050366484  
.0052816825  
.0050482578  
.0042355750  
.0028043608  
.0007561474  
.0018169265  
-.0047570802  
-.0078405226  
-.010776499  
-.013235446  
-.014878507  
-.015358825  
-.014386294  
-.011729066  
-.0072475690  
-.0009241524  
.0071362499  
.016706382  
.027417007  
.038819272  
.050368667  
.061476381  
.071564890  
.080079578  
.086310541  
.090552829  
.091944844



## Appendix XIII







### Background Adjustments by line (all in counts/sec)

Line	Total	Potassium	Uranium	Thorium
1,246.00	0	0.00	-0.25	0.00
1,247.00	0	0.00	-0.25	0.00
1,249.00	0	0.00	-0.25	0.00
1,265.00	0	0.00	-0.25	0.00
1,266.00	0	0.00	-0.25	0.00
1,267.00	0	0.00	-0.25	0.00
1,270.00	0	0.00	-0.25	0.00
1,282.00	0	0.00	-0.25	0.00
1,283.00	0	0.00	-0.25	0.00
1,284.00	0	0.00	-0.25	0.00
1,285.00	0	0.00	-0.25	0.00
1,286.00	0	0.00	0.00	-0.65
1,287.00	0	0.00	0.00	-0.65
1,288.00	0	0.00	0.00	0.10
1,289.00	0	0.00	0.10	-0.65
1,290.00	0	0.00	0.00	0.10
1,291.00	0	0.00	0.10	-0.65
1,292.00	0	0.00	0.00	0.10
1,293.00	0	0.00	0.10	-0.65
1,294.00	0	0.00	0.00	0.10
1,295.00	0	0.00	0.10	-0.65
1,296.00	0	0.00	0.00	0.10
1,297.00	0	0.00	0.10	-0.65
1,298.00	0	0.00	0.00	0.10
1,299.00	0	0.00	0.10	-0.65

Line	Total	Potassium	Uranium	Thorium
1,300.00	0	0.00	0.00	0.10
1,301.00	0	0.00	0.10	-0.65
1,302.00	0	0.00	0.00	0.10
1,303.00	0	0.00	0.10	-0.65
1,304.00	0	0.00	0.00	0.10
1,305.00	0	0.00	0.10	-0.65
1,306.01	0	0.00	0.00	0.10
1,307.00	0	0.00	0.00	0.10
1,308.00	0	0.00	0.10	-0.65
1,309.00	0	0.00	0.00	0.10
1,310.00	0	0.00	0.10	-0.65
1,311.00	0	0.00	0.00	0.10
1,312.00	0	0.00	0.10	-0.65
1,313.00	0	0.00	0.00	0.10
1,314.00	0	0.00	0.10	-0.65
1,315.00	0	0.00	0.00	0.10
1,316.00	0	0.00	0.10	-0.65
1,317.00	0	0.00	0.00	0.10
1,318.00	0	0.00	0.10	-0.65
1,319.00	0	0.00	0.00	0.10
1,320.00	0	0.00	0.10	-0.65
1,321.01	0	0.00	0.00	0.10
1,322.00	0	0.00	0.10	-0.65
1,324.00	0	0.00	0.10	-0.65
1,325.00	0	0.00	0.00	-0.65
1,326.00	0	0.00	0.00	-0.65
1,327.00	0	0.00	0.00	-0.65

Line	Total	Potassium	Uranium	Thorium
1,329.00	0	0.00	0.00	-0.65
1,330.00	0	0.00	0.00	0.10
1,331.00	0	0.00	0.00	-0.65
1,332.00	0	0.00	0.00	0.10
1,333.00	0	0.00	0.00	-0.65
1,335.00	0	0.00	0.00	-0.65
1,337.00	0	0.00	0.00	-0.65
1,339.00	0	0.00	0.00	-0.65
1,341.00	0	0.00	0.00	-0.65
1,343.00	0	0.00	0.00	-0.65
1,344.00	0	0.00	0.00	-0.65
1,345.00	0	0.00	0.00	-0.65
1,346.00	0	0.00	0.00	-0.65
1,347.00	0	0.00	0.00	0.10
1,348.00	0	0.00	0.00	-0.65
1,349.00	0	0.00	0.00	0.10
1,350.00	0	0.00	0.00	-0.45
1,351.00	0	0.00	0.00	0.10
1,352.00	0	0.00	0.00	-0.45
1,353.00	0	0.00	0.00	0.10
1,354.00	0	0.00	0.00	-0.45
1,356.00	0	0.00	0.00	-0.45
1,358.00	0	0.00	0.00	-0.45
1,360.00	0	0.00	0.00	-0.45
1,362.00	0	0.00	0.00	-0.45
1,363.00	0	0.00	-0.25	0.00
1,364.00	0	0.00	-0.25	0.00

Line	Total	Potassium	Uranium	Thorium
1,365.00	0	0.00	-0.15	0.00
1,366.00	0	0.00	-0.15	0.00
1,367.00	0	0.00	-0.15	0.00
1,369.00	0	0.00	-0.15	0.00
1,370.00	0	0.00	-0.15	0.00
1,371.00	0	0.00	-0.15	0.00
1,371.01	0	0.00	-0.15	0.00
1,371.02	-75	0.00	-0.25	0.00
1,372.00	0	0.00	-0.15	0.00
1,373.00	0	0.00	-0.15	0.00
1,374.00	0	0.00	-0.15	0.00
1,375.00	0	0.00	-0.15	0.00
1,375.01	0	0.00	-0.15	0.00
1,376.00	0	0.00	-0.15	0.00
1,377.00	0	0.00	-0.15	0.00
1,378.00	0	0.00	-0.15	0.00
1,379.00	0	0.00	-0.15	0.00
1,380.00	0	0.00	-0.15	0.00
1,381.00	0	0.00	-0.15	0.00
1,382.00	0	0.00	-0.15	0.00
1,383.00	0	0.00	-0.15	0.00
1,384.00	0	0.00	-0.15	0.00
1,385.00	0	0.00	-0.15	0.00
1,386.00	0	0.00	-0.15	0.00
1,386.01	0	0.00	-0.15	0.00
1,386.02	-75	0.00	0.00	0.00
1,386.02	-75	0.00	-0.25	0.00

Line	Total	Potassium	Uranium	Thorium
1,387.00	0	0.00	-0.15	0.00
1,388.00	0	0.00	-0.15	0.00
1,390.00	0	0.00	-0.15	0.00
1,390.02	-75	0.00	0.00	0.00
1,392.00	0	0.00	-0.15	0.00
1,394.00	0	0.00	-0.15	0.00
1,394.01	0	0.00	-0.15	0.00
1,396.00	0	0.00	-0.15	0.00
1,396.01	0	0.00	-0.15	0.00
1,398.00	0	0.00	-0.15	0.00
1,400.00	0	0.00	-0.15	0.00
1,400.01	-75	0.00	-0.25	0.00
1,402.00	0	0.00	-0.15	0.00
1,404.00	0	0.00	-0.15	0.00
1,406.00	0	0.00	0.00	0.30
1,409.00	0	0.00	-0.10	0.00
1,411.00	0	0.00	-0.10	0.00
1,413.00	0	0.00	-0.10	0.00
1,415.00	0	0.00	-0.10	0.00
1,417.00	0	0.00	-0.10	0.00
1,419.00	0	0.00	-0.10	0.00
1,421.00	0	0.00	-0.10	0.00
1,423.00	0	0.00	-0.10	0.00
1,425.00	0	0.00	-0.10	0.00
1,428.00	0	0.00	-0.10	0.00
1,430.00	0	0.00	-0.10	0.00
1,432.00	0	0.00	-0.10	0.00

Line	Total	Potassium	Uranium	Thorium
1,434.00	0	0.00	-0.10	0.00
1,436.00	0	0.00	-0.10	0.00
1,437.01	0	0.00	-0.25	0.00
1,438.00	0	0.00	-0.25	0.00
1,439.00	0	0.00	-0.10	0.00
1,440.00	0	0.00	-0.10	0.00
1,442.00	0	0.00	-0.10	0.00
1,447.00	0	0.00	0.00	0.30
1,449.00	0	0.00	0.00	0.30
1,451.00	0	0.00	0.00	0.30
1,453.00	0	0.00	0.00	0.30
1,455.00	0	0.00	0.00	0.30
1,455.01	0	0.00	0.00	0.30
1,457.00	0	0.00	0.00	0.30
1,459.00	0	0.00	0.00	0.30
1,459.01	0	0.00	-0.25	0.00
1,460.00	0	0.00	0.00	0.30
1,461.00	0	0.00	-0.25	0.00
1,462.00	0	0.00	0.00	0.30
1,463.00	0	0.00	-0.25	0.00
1,464.00	0	0.00	0.00	0.30
1,465.00	0	0.00	-0.25	0.00
1,466.00	0	0.00	0.00	0.30
1,467.00	0	0.00	-0.25	0.00
1,468.00	0	0.00	0.00	0.30
1,468.01	0	0.00	0.00	0.30
1,469.00	0	0.00	-0.25	0.00

Line	Total	Potassium	Uranium	Thorium
1,470.00	0	0.00	0.00	0.30
1,470.01	0	0.00	-0.25	0.00
1,470.02	0	0.00	-0.15	0.00
1,472.00	0	0.00	-0.25	0.00
1,473.00	0	0.00	-0.15	0.00
1,474.00	0	0.00	-0.25	0.00
1,475.00	0	0.00	-0.15	0.00
1,476.00	0	0.00	-0.25	0.00
1,477.00	0	0.00	-0.15	0.00
1,478.00	0	0.00	-0.25	0.00
1,479.00	0	0.00	-0.15	0.00
1,480.00	0	0.00	-0.25	0.00
1,481.00	0	0.00	-0.15	0.00
1,482.00	0	0.00	-0.15	0.00
1,483.00	0	0.00	-0.15	0.00
1,484.00	0	0.00	-0.15	0.00
1,485.00	0	0.00	-0.15	0.00
1,486.00	0	0.00	-0.15	0.00
1,487.00	0	0.00	-0.25	0.00
1,489.00	0	0.00	-0.15	0.00
1,491.00	0	0.00	-0.15	0.00
1,493.00	0	0.00	-0.15	0.00
1,495.00	0	0.00	-0.15	0.00
1,497.00	0	0.00	-0.15	0.00
1,499.00	0	0.00	-0.15	0.00
1,501.00	0	0.00	-0.15	0.00
1,503.00	0	0.00	-0.15	0.00

Line	Total	Potassium	Uranium	Thorium
1,506.00	0	0.00	-0.15	0.00
1,508.00	0	0.00	-0.15	0.00
1,510.00	0	0.00	-0.15	0.00
1,512.00	0	0.00	-0.15	0.00
1,514.00	0	0.00	-0.15	0.00
1,516.00	0	0.00	-0.15	0.00
1,518.00	0	0.00	-0.25	0.00
1,520.00	0	0.00	-0.35	0.00
1,522.00	0	0.00	-0.35	0.00
1,523.00	0	0.00	-0.25	0.00
1,524.00	0	0.00	-0.35	0.00
1,525.00	0	0.00	-0.25	0.00
1,526.00	0	0.00	-0.35	0.00
1,527.00	0	0.00	-0.25	0.00
1,528.00	0	0.00	-0.35	0.00
1,529.00	0	0.00	-0.25	0.00
1,530.00	0	0.00	-0.35	0.00
1,531.00	0	0.00	-0.25	0.00
1,532.00	0	0.00	-0.35	0.00
1,533.00	0	0.00	-0.25	0.00
1,534.00	0	0.00	-0.35	0.00
1,535.00	0	0.00	-0.25	0.00
1,536.00	0	0.00	-0.25	0.00
1,537.00	0	0.00	-0.35	0.00
1,538.00	0	0.00	-0.25	0.00
1,539.00	0	0.00	-0.35	0.00
1,540.00	0	0.00	-0.25	0.00



Line	Total	Potassium	Uranium	Thorium
1,541.00	0	0.00	-0.35	0.00
1,542.00	0	0.00	-0.25	0.00
1,543.00	0	0.00	-0.35	0.00
1,544.00	0	0.00	-0.25	0.00
1,545.00	0	0.00	-0.35	0.00
1,546.00	0	0.00	-0.25	0.00
1,547.00	0	0.00	-0.35	0.00
1,548.00	0	0.00	-0.25	0.00
1,549.00	0	0.00	-0.35	0.00
1,550.00	0	0.00	-0.25	0.00
1,551.00	0	0.00	-0.35	0.00
1,553.00	0	0.00	-0.10	0.00
1,554.00	0	0.00	-0.10	0.00
1,555.00	0	0.00	-0.10	0.00
1,556.00	0	0.00	-0.10	0.00
1,557.00	0	0.00	-0.15	0.00
1,566.00	0	0.00	0.10	0.00
1,573.00	0	0.00	0.00	-0.65
1,573.02	-75	0.00	0.00	0.00
1,576.01	-75	0.00	0.00	0.00
1,578.01	-75	0.00	0.00	0.00
1,580.02	-75	0.00	0.00	0.00
1,582.00	0	0.00	-0.15	0.00
1,586.00	0	0.00	0.00	-0.65
1,588.00	0	0.00	0.00	-0.65
1,589.00	-50	0.00	0.10	0.00
1,590.00	-50	0.00	0.00	0.00

Line	Total	Potassium	Uranium	Thorium
1,591.00	-50	0.00	0.00	0.00
1,592.00	-50	0.00	0.00	0.00
1,593.00	-50	0.00	0.00	0.00
1,595.00	-50	0.00	0.00	0.00
1,607.01	0	0.00	-0.15	0.00
1,608.00	-50	0.00	0.00	0.00
1,609.00	0	0.00	0.00	-0.65
1,610.00	-50	0.00	0.00	0.00
1,612.00	-50	0.00	0.00	0.00
1,613.00	-50	0.00	0.00	0.00
1,615.00	-50	0.00	0.00	0.00
1,617.00	-50	0.00	0.00	0.00
1,619.00	-50	0.00	0.00	0.00
1,636.00	-50	0.00	0.00	0.00
1,638.00	-50	0.00	0.00	0.00
1,640.00	-50	0.00	0.00	0.00
1,641.00	0	0.00	0.25	0.00
1,698.00	0	0.00	-0.25	0.00
1,699.01	0	0.00	-0.25	0.00
1,722.00	0	0.00	0.10	0.00
1,723.00	0	0.00	0.10	0.00
1,724.00	0	0.00	0.10	0.00
1,725.00	0	0.00	0.10	0.00
1,726.00	0	0.00	0.10	0.00
1,727.00	0	0.00	0.10	0.00
1,761.00	0	0.00	0.25	0.00
1,763.00	0	0.00	0.25	0.00

Line	Total	Potassium	Uranium	Thorium
1,765.00	0	0.00	0.25	0.00
1,766.00	0	0.00	0.25	0.00
1,964.00	0	0.00	0.25	0.00
1,990.00	0	0.00	0.25	0.00
1,999.00	0	0.00	0.00	-0.65
2,018.00	0	0.00	0.00	-0.65
2,047.00	0	0.00	0.00	-0.65
2,049.00	0	0.00	0.00	-0.65
2,051.00	0	0.00	0.00	-0.65
2,053.00	0	0.00	0.00	-0.65
2,057.00	0	0.00	0.00	-0.65
2,058.00	0	0.00	0.00	-0.65
2,059.00	0	0.00	0.00	-0.65
2,060.00	0	0.00	0.00	-0.65
2,061.00	0	0.00	0.00	-0.65
2,062.00	0	0.00	0.00	-0.65
2,064.00	0	0.00	0.00	-0.65
-2,065.00	100	-0.10	0.00	0.00
2,066.00	-50	-0.05	0.00	-0.65
2,068.00	0	0.00	0.00	-0.65
2,070.00	0	0.00	0.00	-0.65
2,071.00	0	0.00	0.00	-0.65
2,072.00	0	0.00	0.00	-0.65
2,073.00	0	0.00	0.00	-0.65
2,075.00	0	0.00	0.00	-0.65
2,076.00	0	0.00	0.00	-0.65
2,078.00	0	0.00	0.00	-0.65

Line	Total	Potassium	Uranium	Thorium
2,080.00	0	0.00	0.00	-0.65
2,082.00	0	0.00	0.00	-0.65
2,084.00	0	0.00	0.00	-0.65
2,086.00	0	0.00	0.00	-0.65
2,088.00	0	0.00	0.00	-0.65
2,090.00	0	0.00	0.00	-0.65
2,095.00	0	0.00	0.00	-0.65
2,097.00	0	0.00	0.00	-0.65
2,099.00	0	0.00	0.00	-0.65
2,101.00	0	0.00	0.00	-0.65
2,103.00	0	0.00	0.00	-0.65
2,105.00	0	0.00	0.00	-0.65
3,195.00	-75	0.00	0.00	0.00
3,196.00	-75	0.00	0.00	0.00
3,197.00	-75	0.00	0.00	0.00
3,198.00	-75	0.00	0.00	0.00
3,199.00	-75	0.00	0.00	0.00
3,200.00	-75	0.00	0.00	0.00
3,201.00	-75	0.00	0.00	0.00
3,202.00	-75	0.00	0.00	0.00
3,203.00	-75	0.00	0.00	0.00
3,204.00	-75	0.00	0.00	0.00
3,205.00	-75	0.00	0.00	0.00
3,206.00	-75	0.00	0.00	0.00
3,208.00	-75	0.00	0.00	0.00
3,210.00	-75	0.00	0.00	0.00
3,212.00	-75	0.00	0.00	0.00

Line	Total	Potassium	Uranium	Thorium
3,214.00	-75	0.00	0.00	0.00
3,216.00	-75	0.00	0.00	0.00
3,218.00	-75	0.00	0.00	0.00
3,227.00	-75	0.00	0.00	0.00
3,229.00	-75	0.00	0.00	0.00
3,231.00	-75	0.00	0.00	0.00
3,233.00	-75	0.00	0.00	0.00





## Appendix XIV







### Scaling factors applied on a by-flight basis to account for the effects of precipitation

Flight	Total	Potassium	Uranium	Thorium
1002	1.18	1.19	1.20	1.32
1003	1.05	1.13	1.20	1.25
1004	1.18	1.14	1.20	1.22
1005	1.05	1.04	1.00	1.24
1006	1.07	1.04	0.90	1.16
1007	1.06	1.04	1.00	1.14
1008	1.08	1.06	1.00	1.18
1009	1.09	1.09	1.00	1.12
1010	1.09	1.05	1.00	1.00
1011	1.08	1.07	1.00	1.00
1012	1.00	1.03	1.00	1.00
1013	1.07	1.04	1.00	1.00
1014	1.08	1.04	1.00	1.13
1015	1.00	1.00	0.90	1.00
1016	1.06	1.01	1.00	1.00
1017	1.05	1.07	1.20	1.12
1018	1.09	1.07	1.20	1.12
1019	1.08	1.03	1.00	1.15
1020	1.05	1.06	0.80	1.05
1021	1.06	1.02	1.00	1.04
1022	1.05	1.04	1.00	1.00
1023	1.05	1.06	1.00	1.12
1024	1.08	1.04	1.00	1.04
1025	1.00	1.02	1.00	1.00
1026	1.00	0.95	1.00	0.95

<b>Flight</b>	<b>Total</b>	<b>Potassium</b>	<b>Uranium</b>	<b>Thorium</b>
1027	1.25	1.14	1.14	1.08
1028	1.26	1.26	1.10	1.23
1029	1.23	1.25	1.10	1.25
1030	1.21	1.29	1.20	1.10
1031	1.28	1.28	0.80	1.20
1032	1.27	1.29	1.00	1.30
1033	1.23	1.29	1.05	1.28
1034	1.29	1.29	0.90	1.29
2001	1.15	1.01	0.90	1.00
2002	1.08	1.17	1.10	1.00
2003	1.10	1.18	1.00	1.05
2004	1.05	1.04	1.55	1.03
2005	1.05	1.04	1.00	1.22
2006	1.03	1.02	1.00	1.00
2007	1.07	1.15	1.10	1.05
2008	1.04	1.12	1.00	1.01
2009	1.00	1.03	1.10	1.00
2010	1.01	1.00	0.85	1.00
2011	1.05	1.03	0.75	1.00
2012	1.14	1.10	0.90	1.10
2013	1.11	1.16	1.40	1.11
2014	1.26	1.23	1.23	1.30
2015	1.35	1.22	1.22	1.35
2016	1.36	1.20	1.10	1.45
2017	1.48	1.34	1.50	1.54
2018	1.28	1.42	1.23	1.18
2019	1.45	1.26	1.26	1.17

Flight	Total	Potassium	Uranium	Thorium
2020	1.32	1.37	1.57	1.65
2021	1.57	1.62	1.10	1.57
2022	1.60	1.65	1.20	1.44
2023	1.60	1.62	1.10	1.35
2024	1.59	1.59	1.60	1.66
3002	1.04	1.03	1.00	1.08
3003	1.05	1.03	1.00	1.08
3004	1.10	1.01	1.00	1.20
3005	1.08	1.00	0.80	1.20
3006	1.05	1.03	1.00	1.20
3007	1.11	1.05	1.00	1.31
3008	1.23	1.18	1.20	1.11
3009	1.23	1.17	1.00	1.33
3010	1.31	1.18	1.00	1.51
3011	1.22	1.23	1.20	1.34
3012	1.30	1.19	1.30	1.54
3013	1.20	1.21	1.21	1.24
3014	1.35	1.25	1.40	1.41
3015	1.35	1.27	0.80	1.45





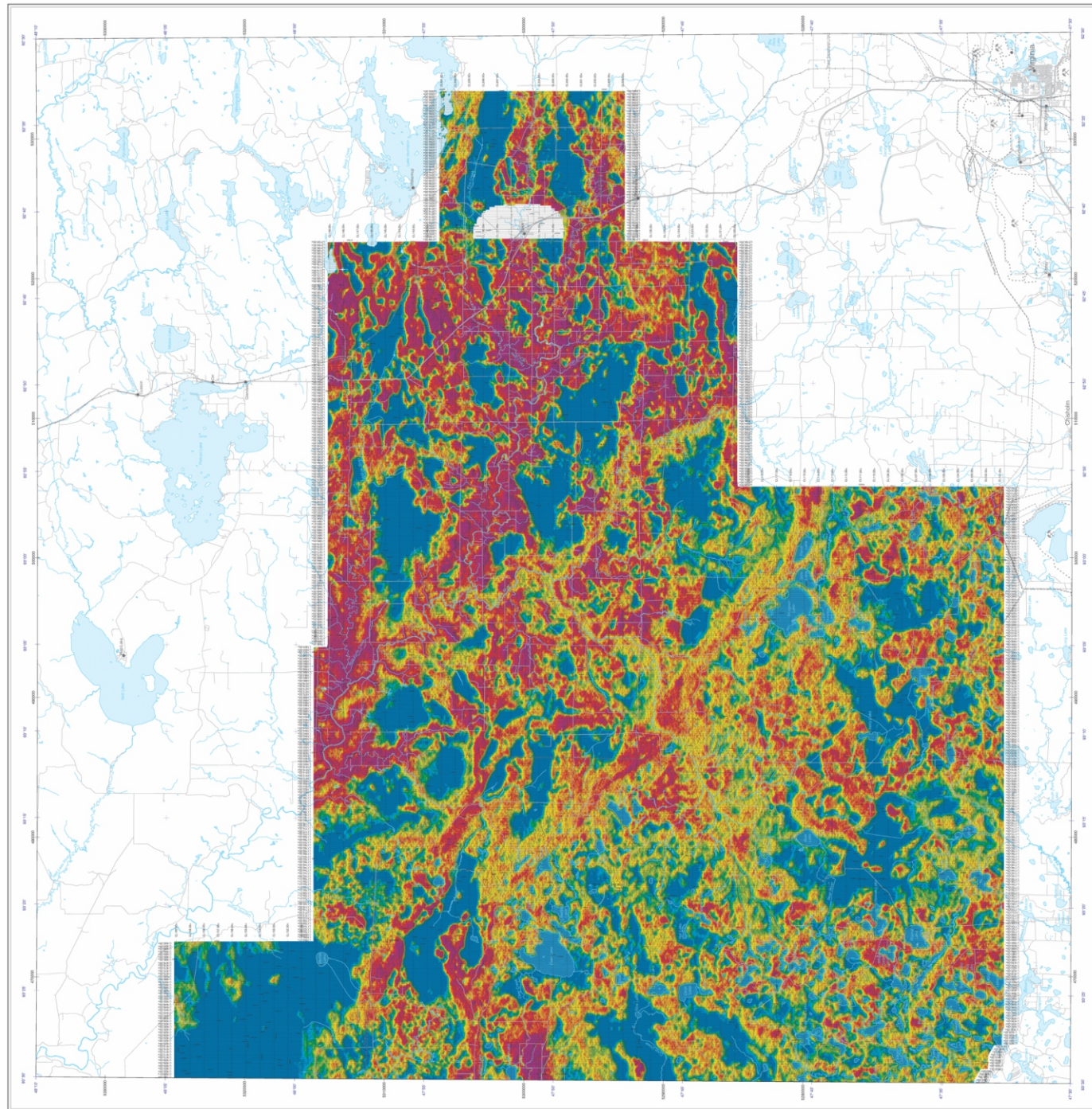
## Appendix XV





### EAST MAP

**AIR ABSORBED DOSE RATE (nGy/h)**



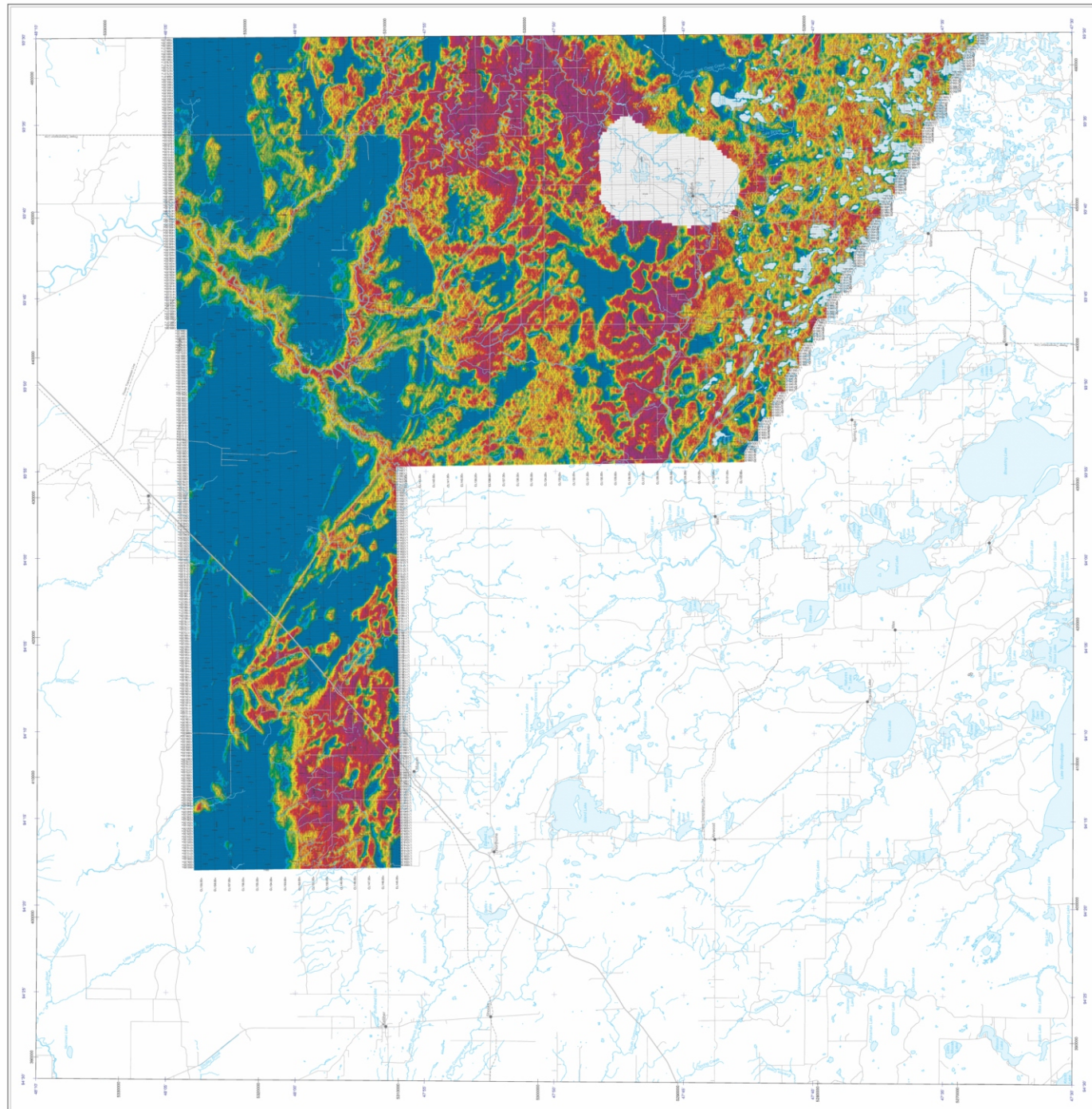
### Survey and Processing Specifications

[illegible]



**WEST MAP**

**AIR ABSORBED DOSE RATE (nGy/h)**



### Survey and Processing Specifications

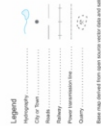
1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395</
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	--------





## EAST MAP

## RESIDUAL MAGNETIC FIELD (nT)



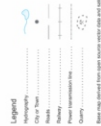
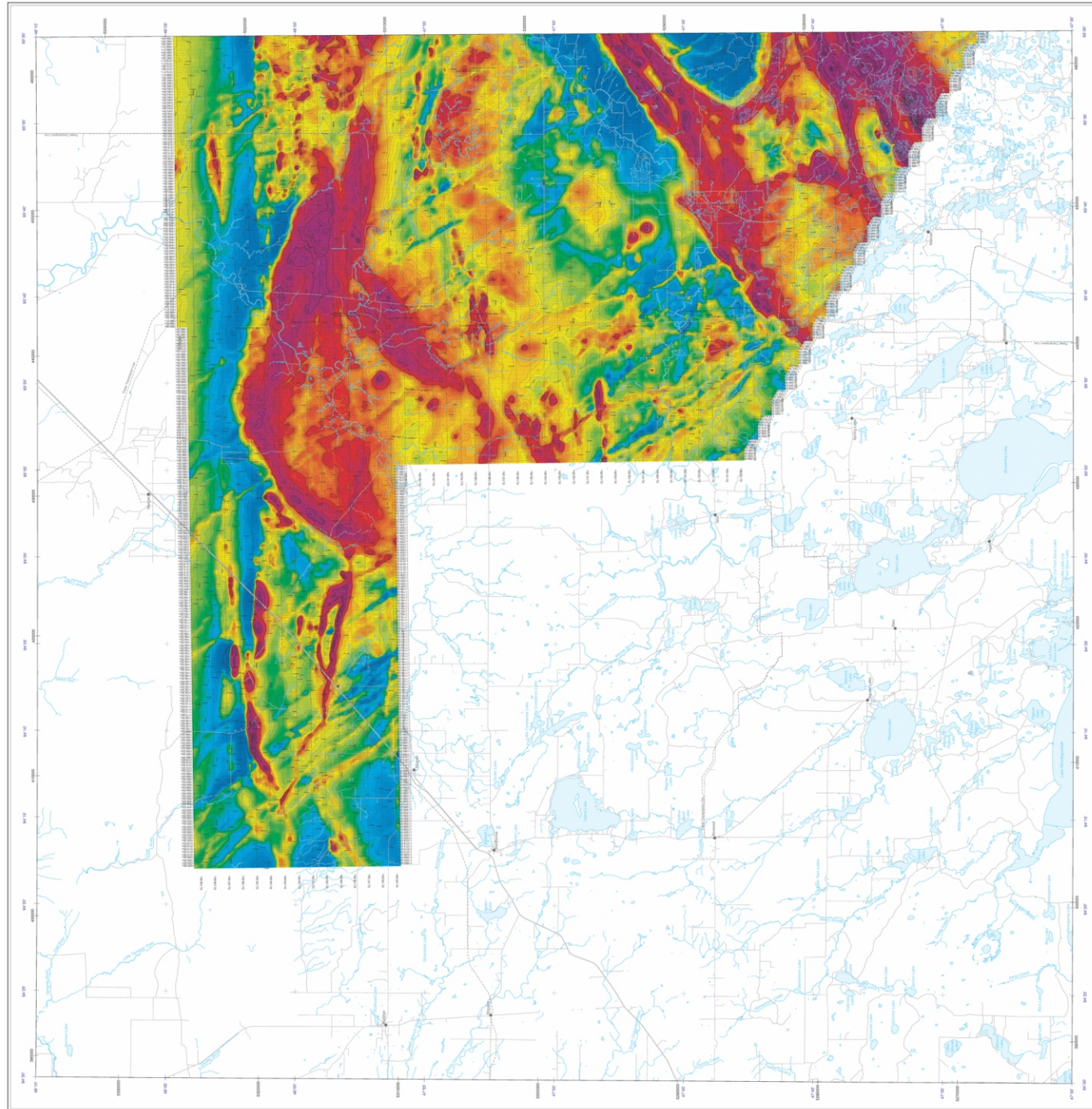
### Survey and Processing Specifications

[illegible]



## WEST MAP

## RESIDUAL MAGNETIC FIELD (nT)



Survey and Processing Specifications

[illegible]

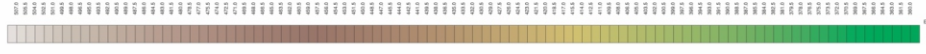




Airborne Magnetic and Radiometric Survey  
Minnesota, USA  
2016

EAST MAP

DIGITAL ELEVATION MODEL (m)  
(above mean sea level)



Survey and Processing Specifications

Survey Area	1000
Survey Date	2016
Survey Method	Fixed Wing Aircraft
Survey Platform	Boeing Stearman
Survey Altitude	1000 ft AGL
Survey Speed	100 kts
Survey Swath	1000 ft
Survey Coverage	100%
Survey Accuracy	± 1 m
Survey Precision	± 0.5 m
Survey Resolution	1 m
Survey Scale	1:100,000
Survey Projection	UTM
Survey Datum	NAD 83
Survey Units	Meters
Survey Format	GeoTIFF
Survey File Size	100 MB
Survey File Count	100
Survey File Name	Survey_2016_01.tif
Survey File Path	C:\Users\jdoe\Documents\Survey_2016_01.tif
Survey File Size	100 MB
Survey File Count	100
Survey File Name	Survey_2016_01.tif
Survey File Path	C:\Users\jdoe\Documents\Survey_2016_01.tif







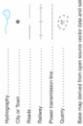
Airborne Magnetic and Radiometric Survey  
Minnesota, USA  
2016

WEST MAP

DIGITAL ELEVATION MODEL (m)  
(above mean sea level)



Legend



Survey and Processing Specifications

Survey Area	47°10'N to 47°15'N
Survey Date	August 2016
Survey Method	Airborne Magnetic and Radiometric
Processing Method	Geomatics 5.0-5.2, version 10.0.1
Projection	UTM Zone 18N, Datum NAD 83
Units	Meters
Scale	1:100,000
Map Date	September 2016
Map Author	AngloGold Ashanti
Map Reviewer	AngloGold Ashanti
Map Approval	AngloGold Ashanti



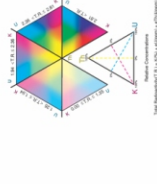




Airborne Magnetic and Radiometric Survey  
Minnesota, USA  
2016

EAST MAP

RADIOMETRIC TERNARY

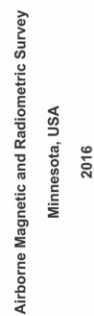


Survey and Processing Specifications

Survey Area	Minnesota, USA
Survey Date	2016
Survey Time	06:00 - 18:00
Survey Altitude	1000 ft
Survey Speed	100 knots
Survey Frequency	100 MHz
Survey Wavelength	300 m
Survey Bandwidth	10 MHz
Survey Resolution	10 m
Survey Accuracy	± 10 m
Survey Precision	± 1 m
Survey Reliability	99.9%
Survey Availability	99.9%
Survey Maintainability	99.9%
Survey Supportability	99.9%
Survey Usability	99.9%
Survey Compatibility	99.9%
Survey Interoperability	99.9%
Survey Portability	99.9%
Survey Scalability	99.9%
Survey Flexibility	99.9%
Survey Adaptability	99.9%
Survey Transformability	99.9%
Survey Convertibility	99.9%
Survey Reversibility	99.9%
Survey Recoverability	99.9%
Survey Restorability	99.9%
Survey Sustainability	99.9%
Survey Resiliency	99.9%
Survey Robustness	99.9%
Survey Reliability	99.9%
Survey Availability	99.9%
Survey Maintainability	99.9%
Survey Supportability	99.9%
Survey Usability	99.9%
Survey Compatibility	99.9%
Survey Interoperability	99.9%
Survey Portability	99.9%
Survey Scalability	99.9%
Survey Flexibility	99.9%
Survey Adaptability	99.9%
Survey Transformability	99.9%
Survey Convertibility	99.9%
Survey Reversibility	99.9%
Survey Recoverability	99.9%
Survey Restorability	99.9%
Survey Sustainability	99.9%
Survey Resiliency	99.9%
Survey Robustness	99.9%

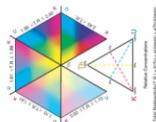






**WEST MAP**

## RADIOMETRIC TERNARY



### Survey and Processing Specifications

1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395</
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	--------

