February 14, 2010 EBA File: W23101159.017

Yukon Energy Corporation
2 Miles Canyon Road
Whitehorse, Yukon Y1A 6S7

Attention: David Morrison
President and CEO

Subject: Exploration of Geothermal Potential at Jarvis River Warm Springs – 2009 Electromagnetic Geophysics Survey Program

SUMMARY

With the potential for steeply dipping faults that could serve as conduits of fluids heated by deep thermal sources, the Shakwak Valley region is identified as a favourable area for geothermal exploration. A warm springs in the Jarvis River area provides a prospective target for geothermal exploration. However, detailed geology in the area of the warm springs is unknown, as bedrock in the Shakwak Valley is masked by glacial drift. This report summarizes the results of the 2009 geophysical program (Phase 017) near the Jarvis River Warm Springs that were included in follow-up programs to the 2008 reconnaissance level assessment. The Jarvis River Warm Springs are located on the north side of the Jarvis River valley about 30 kilometres north of Haines Junction.

Permits were received from Champagne Aishihik First Nation on March 24, 2009 to allow access for the geophysical surveys on CAFN Settlement Land. A total of 50.7 line kilometres of TMF was completed in April and June 2009 by Aurora Geosciences of Whitehorse. The survey covers an area of about 30 km^2 from the Alaska Highway into the western margin of the Shakwak Valley floor and includes the Jarvis River Warm Springs. 733 line-meters of Horizontal Loop Electromagnetics (HELM) survey along two lines was also completed from June 7 to June 9, 2009.

Results from the overall Total Magnetic Field and HELM surveys define a distinct geological structure through the site of the Jarvis River Warm Springs. Forward modelling of the data was completed that suggests a north-dipping fault with a surface trace trending 110 degrees crossing Line 1000E at about 1300 m N (Figure 2). Interpretation of the HELM data suggests a structure dipping 30 degrees to the north along the fault line with a depth of 30 m to the top. This geological scenario correlates with the common model of hot spring occurrence with water heated at depth reaching the surface through openings in a steeply dipping fault. Detailed results of the TMF and HELM surveys and forward modelling are appended.

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Calcite Business Centre • Unit 6, 151 Industrial Road • Whitehorse, Yukon Y1A 2V3 • CANADA

1.0 INTRODUCTION

EBA Engineering Consultants Ltd. (EBA) is presently managing a Yukon geothermal exploration program for Yukon Energy Corporation (YEC). The Shakwak Valley region is identified as a favourable area for geothermal exploration. The potential for steeply dipping faults that could serve as conduits of fluids heated by deep thermal sources, and an area of warm springs, occur in the Jarvis River area. As a follow-up to encouraging results of the 2008 reconnaissance level assessment, the 2009 program included detailed geology mapping (Phase 019), geophysical surveys (Phase 017), water and dissolved gas sampling (Phase 022), sampling of warm spring gases (Phase 018) and a diamond drill program (Phase 023). This report summarizes the results of the geophysical surveys.

The Jarvis River Warm Springs are located on the north side of the Jarvis River valley. Access to the springs is from the Alaska Highway, about 31 kilometres north of Haines Junction via an existing four-wheel-drive road and short winter trail.

2.0 GEOPHYSICS SURVEY PROGRAM

Understanding of geology in the study area is limited due to the lack of bedrock outcrops in the area. There is no exposed bedrock within one kilometre of the study site. A Total Magnetic Field geophysical survey was judged a cost-effective means to acquire useful information regarding sub-surface geological structure.

Permits were received from Champagne Aishihik First Nation on March 24, 2009 to allow access on CAFN Settlement Land for the geophysical surveys. A total of 30 line kilometres of TMF was completed from April 22, 2009 to April 25, 2009 by Aurora Geosciences of Whitehorse. The initial geophysical survey was planned to include five lines at one kilometre spacing oriented at 15^{o} north. This survey grid covers an area of about 30 km^{2} from the Alaska Highway into the western margin of the Shakwak Valley floor and includes the Jarvis River Warm Springs. The program was planned for early spring when snow cover allows favourable overland travel with hand-held geophysical equipment in the absence of cut lines.

Results from the initial Total Magnetic Field survey defined a distinct geological structure and the program was expanded to include infill lines and an HELM survey to provide better definition of the probable structure. In-fill lines were completed from June 7 to June 9, 2009 for a total of 50.7 line kilometres of TMF. 733 line-meters of Horizontal Loop Electromagnetics (HELM) survey along two lines was completed from June 7 to June 9, 2009 (Figure 2).

3.0 RESULTS

Initially identified by the April TMF survey and better defined by the June TMF survey, the geophysical data indicate a distinct change in magnetic response forming a linear, east-west oriented anomaly through the site of the Jarvis River Warm Springs. Forward modelling of the data was completed that suggests a north-dipping fault with a surface trace trending 110 degrees crossing Line 1000E at about 1300 m N (Figure 2).

A Horizontal Loop Electromagnetics (HELM) survey was completed in a small area corresponding with the location of the interpreted fault suggested by the results of the TMF survey and forward modelling. Two lines of HELM were completed along sections of Line 1000E and Line 600E of the TMF grid. Three HELM anomalies occur in close location to the fault that was indicated by TMF data. Interpretation of the HELM data suggests a structure dipping 30 degrees to the north along the fault line with a depth of 30 m to the top (Appendix A).

Forward modelling was used to simulate the response of the presumed fault indicated to be underlying the Jarvis River Warm Springs. The modelling is very interpretive and the results describe one of a number of probable geological scenarios. In the absence of physical subsurface data (e.g., from borehole logs), forward modelling with the TMF data introduces considerable ambiguity in the description of possible causative geology. Interpretation of the modelling suggests a fault striking 270 degrees (UTM grid north) and dipping 30 to 70 degrees to the north. A suggested scenario is a hanging wall close to surface on the north side of the fault with depth to bedrock on the south side of between 300 m to 700 m.

Detailed results of the TMF and HELM surveys and forward modelling are appended.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Both the detailed TMF survey and the HELM survey indicate a large fault structure dipping steeply to the north and underlying the Jarvis River Warm Springs. This geological scenario correlates with the common model of hot spring occurrence with water heated at depth reaching the surface through openings in a steeply dipping fault.

There are no outcrops in the area and actual depth to bedrock in the area is unknown. Sub-surface data is required to characterize the geology, confirm the indicated fault structure and orientation, and to provide a reference for the geophysical interpretations.

We trust that the foregoing information meets your present requirements. If you have any questions or require further information, please contact the undersigned.

EBA Engineering Consultants Ltd.

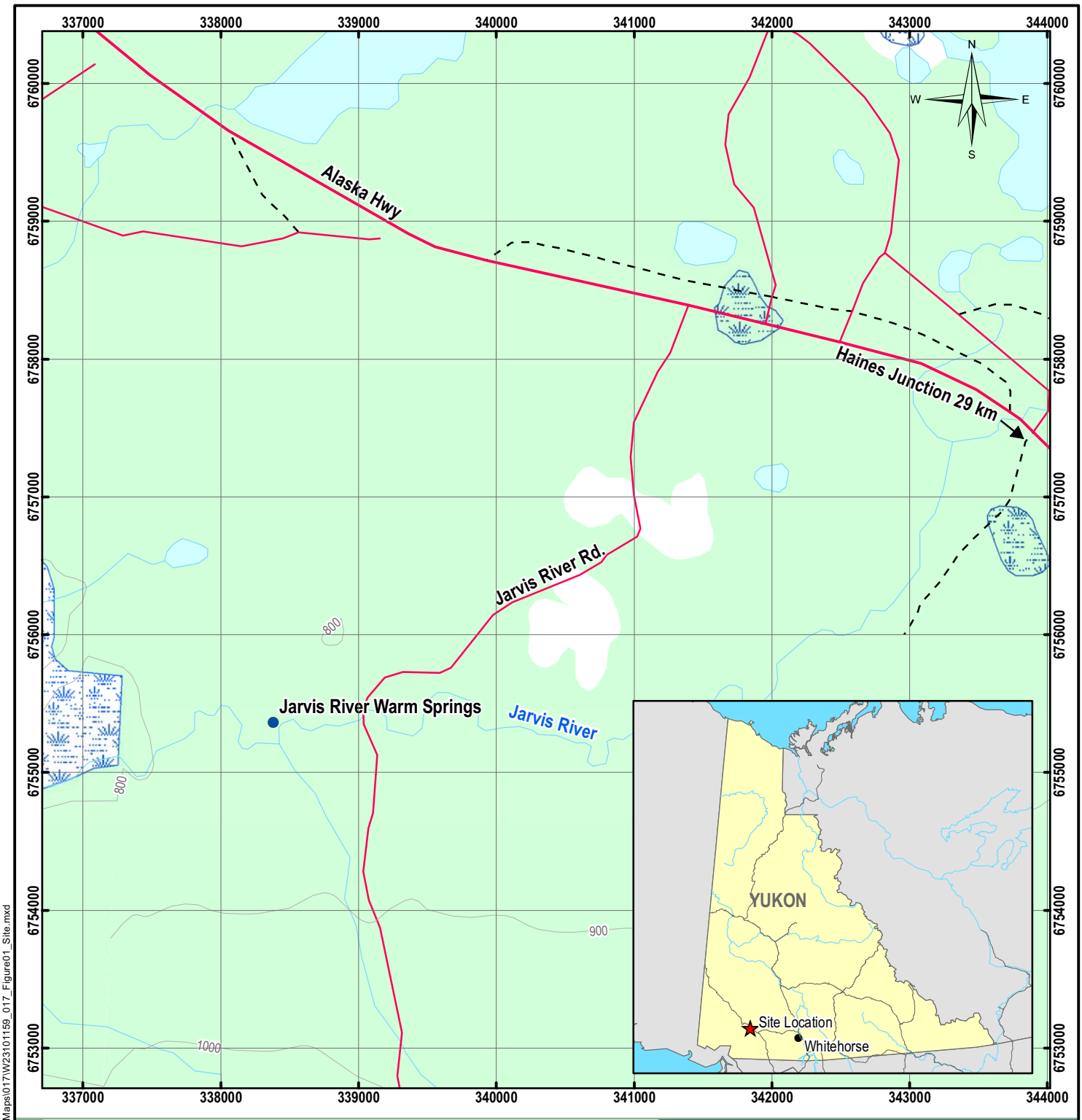
Jack T. Dennett, P.Geo.
Senior Project Geoscientist
phone: 867-668-2071 ext 230
e-mail: jdennett@eba.ca

Stephan Klump, Ph.D.
Hydrogeologist
phone: 867-668-2071 ext 250
e-mail: sklump@eba.ca

Attachments:

Figures 1 to 3:	Location Map, Location Detail, Selected Geophysics Results
Appendix A :	Geophysical Surveys

FIGURES



LEGEND

- Jarvis River Warm Springs
- Road
- Limited Use Road
- Trail
- Watercourse
- Waterbody
- Wetland
- Vegetation

NOTES

Base data source:
NTDB 1:250,000

ISSUED FOR USE

YUKON-WIDE GEOTHERMAL EXPLORATION PROGRAM

2009 Geophysical Surveys
Jarvis River Warm Springs Area

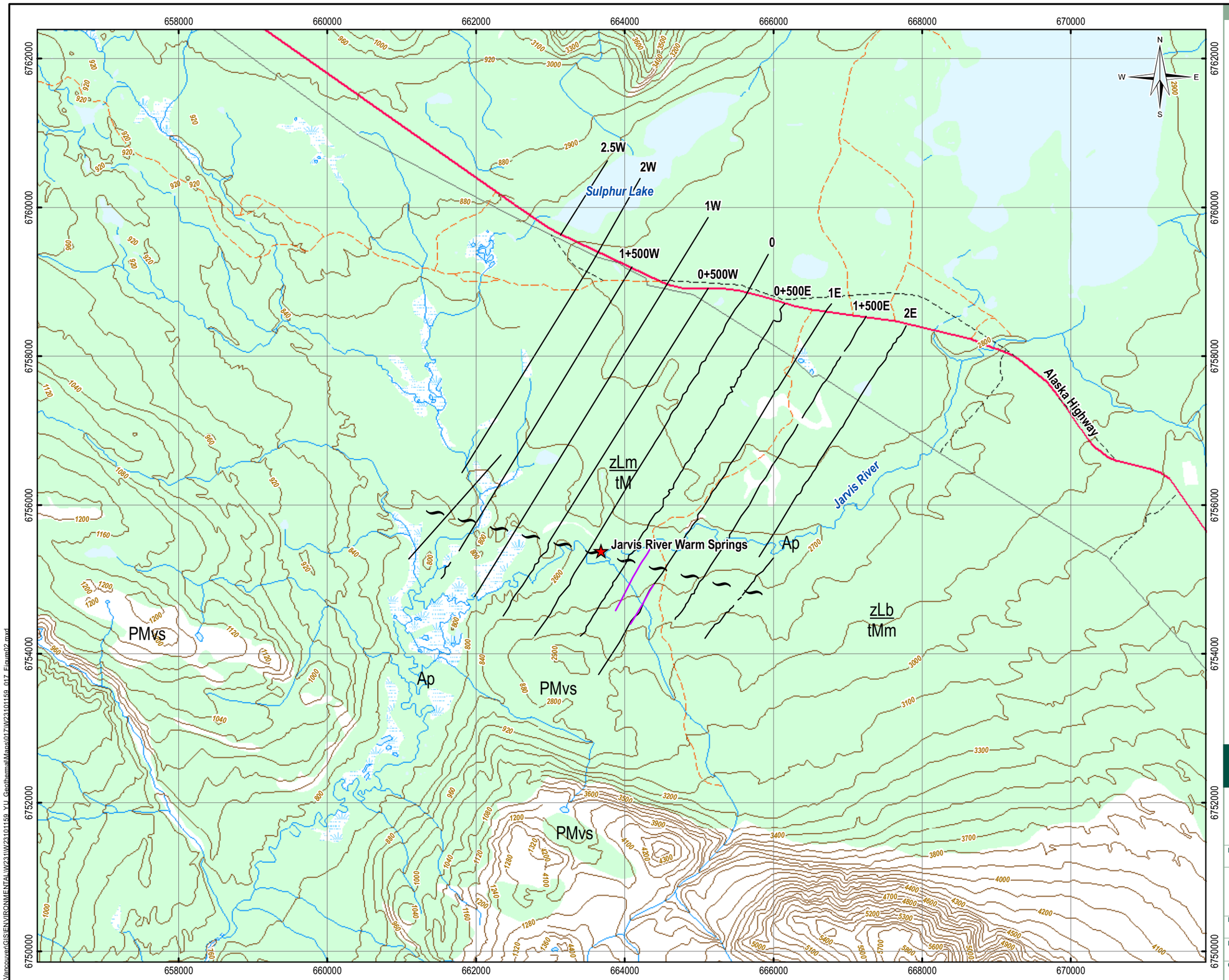
PROJECTION: UTM Zone 8		DATUM: NAD83	
Scale: 1:40,000 (500 250 0 500 Meters)			
FILE NO.: W23101159_017_Figure01_Site.mxd			
PROJECT NO.: W23101159.017	DWN: MEZ	CKD: JD	REV: 0
OFFICE: EBA-VANC	DATE: April 8, 2010		

YUKON ENERGY

EBA Engineering Consultants Ltd.

Figure 1

Q:\Vancouver\GIS\ENVIRONMENTAL\W231\W23101159_YU_Geothermal\Maps\017\W23101159_017_Figure01_Site.mxd



LEGEND

- Jarvis River Warm Springs
- Geophysics TMF Survey Grid
- Geophysics HELM Survey
- Fault Indicated from Geophysical Data
- Road
- Limited-use Road
- Pipeline
- Cut Line
- Contour (40m/100ft)
- Watercourse
- Waterbody
- Wetland
- Vegetation

Bedrock Geology

PMvs (Paleozoic and /or Mesozoic): greenstone, greenschist, minor argillite, and greywacke.

Surficial Geology

Ap Alluvial plain (silt; fine sand)
zLb glaciolacustrine mostly silt, blanket (> 1 m)
zLm glaciolacustrine, mostly silt, rolling
tMm till, sandy silt with trace to some gravel, rolling

NOTES

Base data source:
NTS 1:50,000

ISSUED FOR USE

YUKON-WIDE GEOTHERMAL EXPLORATION PROGRAM

2009 Geophysical Survey Program

PROJECTION	DATUM
UTM Zone 8	NAD83

Scale: 1:50,000
500 250 0 500 1,000
Meters

FILE NO.
W23101159_017_Figure02.mxd

PROJECT NO.	DWN	CKD	REV
W23101159.017	MEZ	JD	0

OFFICE	DATE
EBA-VANC	APril 8, 2010

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Figure 2

Q:\Vancouver\GIS\ENVIRONMENTAL\W23\W23101159_YU Geotherm\Mxds\017\W23101159_017_Figure02.mxd

661500 662000 662500 663000 663500 664000 664500 665000 665500

6757500 6757000 6756500 6756000 6755500 6755000 6754500

59000 59050 59100 58950

N W E S

LEGEND

- Jarvis River Warm Springs
- Fault Indicated from Geophysical Data

ISSUED FOR USE

NOTES

1.See Appendix A for detailed report and Total Magnetic Field figure.
2. Base data source:
NTS 1:50,000

YUKON-WIDE GEOTHERMAL EXPLORATION PROGRAM

Total Magnetic Field Survey, Indicated Fault

PROJECTION	DATUM
UTM Zone 8	NAD83

Scale: 1:15,000

200 100 0 200 400

Meters

FILE NO.
W23101159_017_Figure03.mxd

PROJECT NO.	DWN	CKD	REV
W23101159.017	MEZ	JD	0

OFFICE	DATE
EBA-VANC	April 8, 2010

YUKON ENERGY

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Figure 3

Q:\Vancouver\GIS\ENVIRONMENTAL\W23\W23101159_YU_Geothermal\Mxds\07\W23101159_017_Figure03.mxd

APPENDIX

APPENDIX A *

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AURORA GEOSCIENCES

MEMORANDUM

To: Jack Dennett **Date:** April 28, 2009

From: Andre Lebel

Re: Jarvis River project, 2009 Total Magnetic Field Survey – Field Report

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This memorandum is a field report describing a total magnetic field (TMF) survey conducted near the Jarvis River and Kloo Lake, 28 Km north of Haines Junction. A total of 30 line kilometres of TMF was completed from April 12th, 2009 to April 25th, 2009. The crew lodged in Haines Junction and drove out to the site by truck. For the duration of the survey the base magnetometer was located at 341421 E 6758378 N UTM Z8N using NAD 83 Canada mean. A full survey log is appended to this report.

Crew and equipment.

The surveys were conducted by the following personnel:

Andre Lebel	Geophysicist - Crew chief
Phil Jackson	Geophysicist
Warren Kappinuck	Mag Technician - Crew chief
Gabe Fortain	Mag Technician

The crew was equipped with the following instruments and equipment:

Mag	4- GSM-19T SN 45337, SN 45335, SN 705678, and SN 902894
Other:	1 - Laptop computer
	1 - Repair tools
	2 - Handheld radios
	4 - Garmin Handheld GPS Units
Software:	Geosoft Oasis 7.1
	GemLink
	GPSU 4.3
	Microsoft Excel

b. Grid.

The grid consisted originally of four lines oriented at 15° N each 6 km long with 1 km line spacing. Two more parallel lines were added on either side of the grid to fill out the final day of surveying; a1.2 km line 0.5 km to the west, and a 3.8 km line 1 km to the east. The grid was a virtual grid where the operators followed GPS routes and saved a track log at a 10 second interval. The line ends were marked with flagging.

c. Survey specifications.

The TMF survey was conducted according to the following specifications

Station seperation	Nominal 12.5 m
Base station	Cycled at a 5 second interval. The base station magnetometer and field magnetometers times were synchronized daily prior to surveying.
Corrections	Temporal geomagnetic variation was removed by linear interpolation of drift from the base station magnetometer.
Levelling	Levelling lines surveyed daily with 2 lines surveyed in both directions. 1 line perpendicular to the grid lines and 1 line parallel to the grid lines of 15 points each. For a total of 60 static points for each operator, every day.

d. Data processing

The total magnetic field data was diurnally corrected for temporal variations in the earth's magnetic field using linear interpolation between base magnetometer readings. UTM coordinates were determined using linear interpolation between GPS track points. UTM Zone 8N was the projection used for all the data, since most of the grid was in zone 8N. Data from different operators and days were levelled to a common datum. The datum used was the levelling grid for the Crew Chief from the first survey day.

e. Products.

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

Raw	Folder with all the unedited daily instrument dump files.
Data	Total magnetic field processed data in Geosoft database format (*.gdb) and ASCII (*.xyz).
Figures	1:20000 scale profiles of the total magnetic field
Jarvis River Project, 2009 Total Magnetic Field Survey – Field Report.pdf	A PDF of this report.
Jarvis River Project, 2009 Total Magnetic Field Survey – Survey Log.pdf	A PDF of the survey log

Respectfully submitted,
AURORA GEOSCIENCES LTD.

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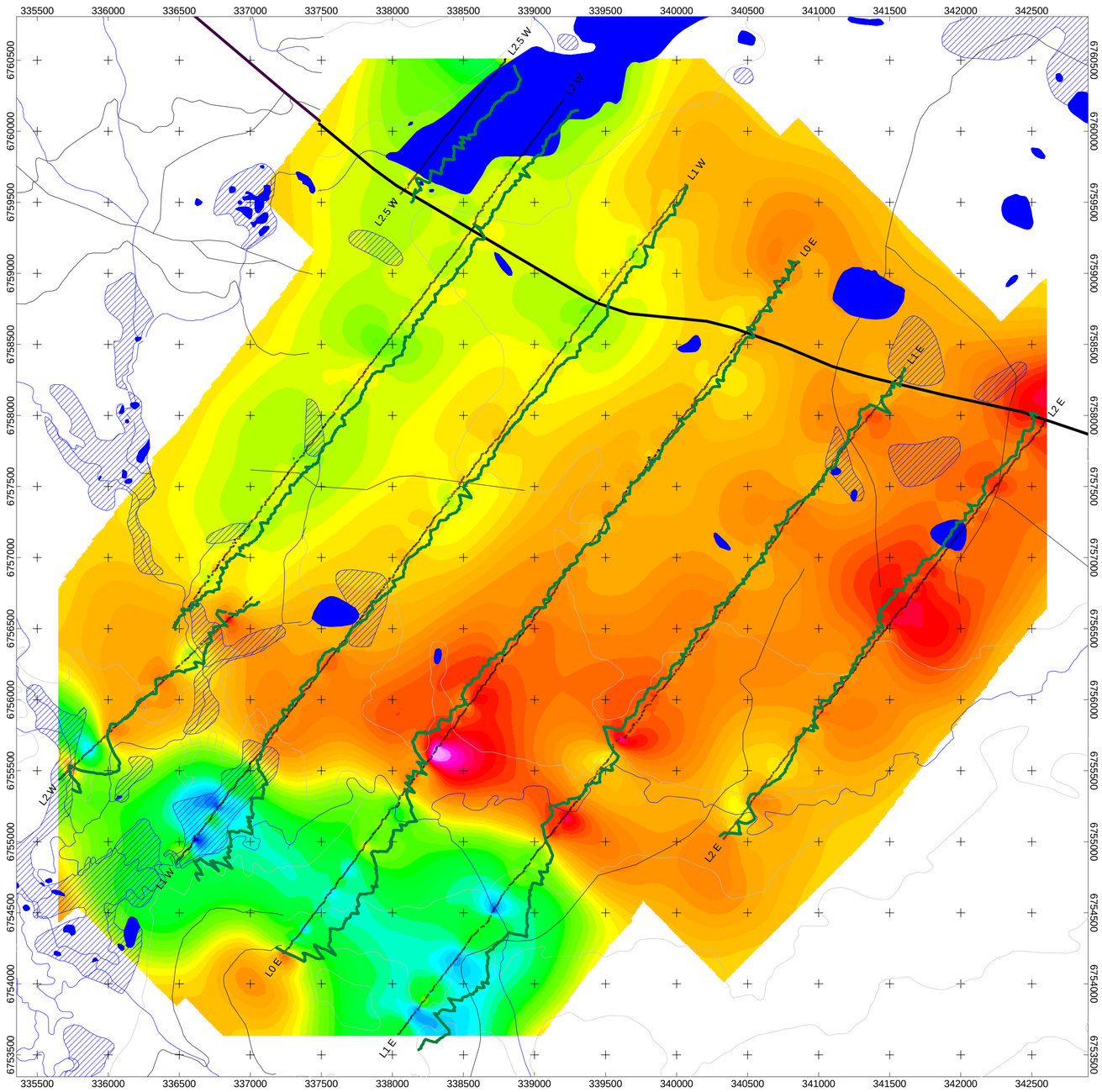
Andre Lebel
Geophysicist

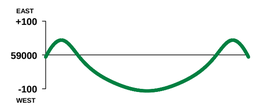


Total Magnetic Field
(nT)

58903.8 58911.5 58919.2 58926.9 58934.6 58942.3 58950.0 58957.7 58965.4 58973.1 58980.8 58988.5 58996.2 59003.8 59011.5 59019.2 59026.9 59034.6 59042.3

LEGEND
TOTAL FIELD MAGNETICS

INSTRUMENT : GEM MAG
PROFILE SCALE : 1 cm = 10 nT



TFM DATUM : 59000nT
DATA FILE :EBA_9520_YT_MAG.gdb
OPERATORS : AL, GF
STATION SEPARATION : 12.5 m
LINE-KM SURVEYED THIS SHEET : 30 km

ELEVATION
CONTOUR INTERVALS (m)

20
100
500

WATERCOURSE

WATERBODY

WETLAND

HIGHWAY

TRAILS

Scale 1:20000

250 0 250 500 750 1000 1250 1500
(meters)
NAD83 / UTM zone 8N

FIELD

EBA CONSULTANTS LTD.

JARVIS RIVER MAGNETICS
TOTAL MAGNETIC FIELD PROFILES

Datum: NAD 83 — Projection: UTM Zone 8 N
NTS Map Sheet: 115B/16, 115A/13 — Operators: AL, GF
Date surveyed: April 22 - 24, 2009 — Date: April 27, 2009
Jarvis River Total Magnetic Field Profiles — Drawn By: AL

AURORA GEOSCIENCES LTD.

SURVEY LOG
EBA-9520-YT TMF

CREW:	Gabe Fortin	Mag Technician	22/04/2009 - 24/04/2009
	Andre Lebel	Crew Chief	22/04/2009 - 24/04/2010
	Warren Kapaniuk	Crew Chief	12/4/2009
	Phil Jackson	Mag Technician	12/4/2009

Total line-km surveyed to date: 30.13

		Mag					Weather	Remarks
Date	**Grid**	**Lines**	**Stations**	**(line-km)**	**surveyor**			
12-Apr-09	Jarvis River						Sunny 20C	Phil and Warren mobed out from Whitehorse. They started surveying by 7:30 am but the snow conditions were very bad, so they drove back to Whitehorse.
22-Apr-09	Jarvis River	0	6060 - 0	6.06	AL		Sunny 10C	Andre and Gabe mobed out of Whitehorse. They started surveying by 8 am. They finished off lines 1 E and 0 by 7pm.
		1E	0 - 6050	6.05	GF			
23-Apr-09	Jarvis River	2W	4880 - 1300	3.58	AL		Sunny 10C	Andre and Gabe arrived at the site by 8 am and finished by 7pm.
		2W	0 - 1900	1.9	GF			
		1W	1900 - 0	1.9	AL			
		1W	1900 - 4.8	3.5	GF			
		1E	6050 - 6200	0.15	AL			
24-Apr-09	Jarvis River	2W	4880 - 5970	1.09	AL		Sunny 15C	Andre and Gabe arrived at the site by 8 am and finished surveying by 3:30 pm and demobed back to Whitehorse. Arriving at the office by 5:30 pm
		1W	4800 - 5780	0.98	GF			
		2.5W	5980 - 4760	1.22	AL			
		2E	1000 - 3700	2.7	AL			
		2E	1000 - 0	1	GF			

Total line-km surveyed to date: 30.13

AURORA GEOSCIENCES

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MEMORANDUM

To: Jack Dennett
EBA Engineering Consultants Ltd.

Date: June 18, 2009

From: Andre Lebel

Re: Jarvis River, 2009 Mag & HLEM Survey – Field Report

This memorandum is a field report describing a total magnetic field (TMF) survey and horizontal loop electromagnetics (HLEM) conducted near the Jarvis River and Kloo Lake, 28 Km north of Haines Junction, YT. A total of 22 line kilometres of TMF and 1.6 km of HLEM was completed from June 7th, 2009 to June 12th, 2009. The crew lodged in Haines Junction and drove out to the site by truck. For the duration of the survey the base magnetometer was located at 341421 E 6758378 N Nad83 Canada mean, Zone 8N. A full survey log is appended to this report.

a. **Crew and equipment.** The survey was conducted by the following personnel:

Andre Lebel	Crew Chief	June 7 – June 12, 2009.
Matthew Olsen	Lead Cutter	June 7 – June 12, 2009.

The crew was equipped with the following instruments and equipment:

Magnetometers	3 – Gem 19T Magnetometers SN: 2011132, SN: 45335 and SN: 510496
HLEM System:	1 – Apex Maxmin I-10 S/N:10384 1 – 50m Reference cable 1 – 100m Reference cable 1 – 150m Reference cable 1 – 300m Reference cable
Other:	1 - Truck 1 - Pentium 4 lap top computer 1 - Iridium Satellite Phone 1 - Firearm
Software:	MMCDUMP (Apex Parametrics Software) MMCREF (Apex) MMCFIX1 (Apex) MMCPRO87 (Apex) Gem Link 3.0 (GEM) Geosoft Oasis Montaj 7.1 Microsoft Excel

Grid. The Grid consisted of two lines, 1000m line and 600m line separated by a distance of 250m and oriented at 035 degrees true north. The starting points of the lines were located at the following: 379450E 6913200N and 379550E 6913200N Nad83 Canada Mean, Zone 8N.

b. Survey specifications. The HLEM survey was conducted according to the following specifications

Station spacing	20 metres

Coil Separation	100 meters
HLEM Frequencies.	220, 880, 3520, and 14080 Hz.
Terrain Slopes	Recorded in percent.
Terrain Corrections	Coils held at the indicated slope for coplanar coils. Short chaining errors caused by rough topography (such as steep slopes) were corrected for using the slope chaining method with Apex parametrics software MMCFIX1.

The total magnetic field survey was conducted to the following specifications.

Station separation	Nominal 10 m
Base station	Cycled at a 3 second interval. The base station magnetometer and field magnetometers times were synchronized daily prior to surveying.
Corrections	Temporal geomagnetic variation was removed by linear interpolation of drift from the base station magnetometer.
Levelling	Levelling lines surveyed daily with 2 lines surveyed in both directions. 1 line perpendicular to the grid lines and 1 line parallel to the grid lines of 15 points each. For a total of 60 static points for each operator, every day.

c. Data processing.

The HLEM data was dumped in its raw form from the instrument using Apex Parametrics software MMCDUMP. Short coil spacing errors were corrected using

the Apex software MMCFIX1. Data was exported to an ASCII format using MMCPRO87, and plotted using Geosoft Oasis software.

The total magnetic field data was diurnally corrected for temporal variations in the earth's magnetic field using linear interpolation between base magnetometer readings. UTM coordinates were determined using linear interpolation between GPS track points. UTM Zone 8N was the projection used for all the data, since most of the grid was in zone 8N. Data from different operators and days were levelled to a common datum. The datum used was the levelling grid for the Crew Chief from the first survey day.

d. Interpretation

The purpose of these surveys is to locate faults in the area that may have Geothermal potential. The TMF survey showed a change in character that may suggest a fault; therefore the TMF data was forward modeled to see if the response matched that of a fault running through the area, and from the modeling it matched the response of a fault dipping to the north with a surface trace trending 110 degrees crossing L1000E approximately at 1300N. Using the TMF data and the forward modeling I determined where to put the HLEM lines so that they cross over the presumed fault.

The response of a conductive fault would be similar to a weak conductor. As a result HLEM Anomalies A1, A2 and A3 are of interest because they are close in location to where the forward modeling predicted their location. By analysing characteristic curves for HLEM anomalies we can determine the approximate conductivity, depth and dip of conductors depending on the strength and shape of anomaly. The shape and strength of HLEM anomalies A1 and A2 suggests a dip of approximately 30 degrees to the north along the line, and depth of 30m to the top. Because of limited length of the HLEM surveys it is difficult to interpret the conductor axis across both lines without additional geological and geophysical information. A table of all the HLEM anomalies is located below.

Anomaly	Location Nad83 Canada Mean Zone 8N	Excess width	Depth to top	Dip (North)	Conductivity (Siemens)
A1	338662E 6754466N	0m	40m	<30	7.16
A2	338511E	0m	30m	30 - 45	7.16

	6754723N				
A3	338394E 6754542N	n/a	n/a	n/a	n/a
A4	338556E 6754320N	n/a	n/a	n/a	n/a
A5	338887E 6754764N	n/a	n/a	n/a	n/a

e. Products.

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

Raw	Folder with all the unedited daily HLEM instrument, GPS, and TMF dump files.
Data	HLEM processed data in Geosoft database format (*.gdb) and ASCII (*.xyz).
Figures	**1:2500** scale image of the stacked HLEM profiles. 1 figure has been appended with the frequencies surveyed for the 100m. **1:20000** scale image of the contoured total magnetic field.
EBA-9532-YT, Jarvis River MAG & HLEM 2009 – survey log.pdf	PDF copies of the field survey log, field report sheet and survey line notes.
EBA-9532-YT, Jarvis River MAG & HLEM 2009 – Field Report.pdf	A PDF copy of this preliminary field report.

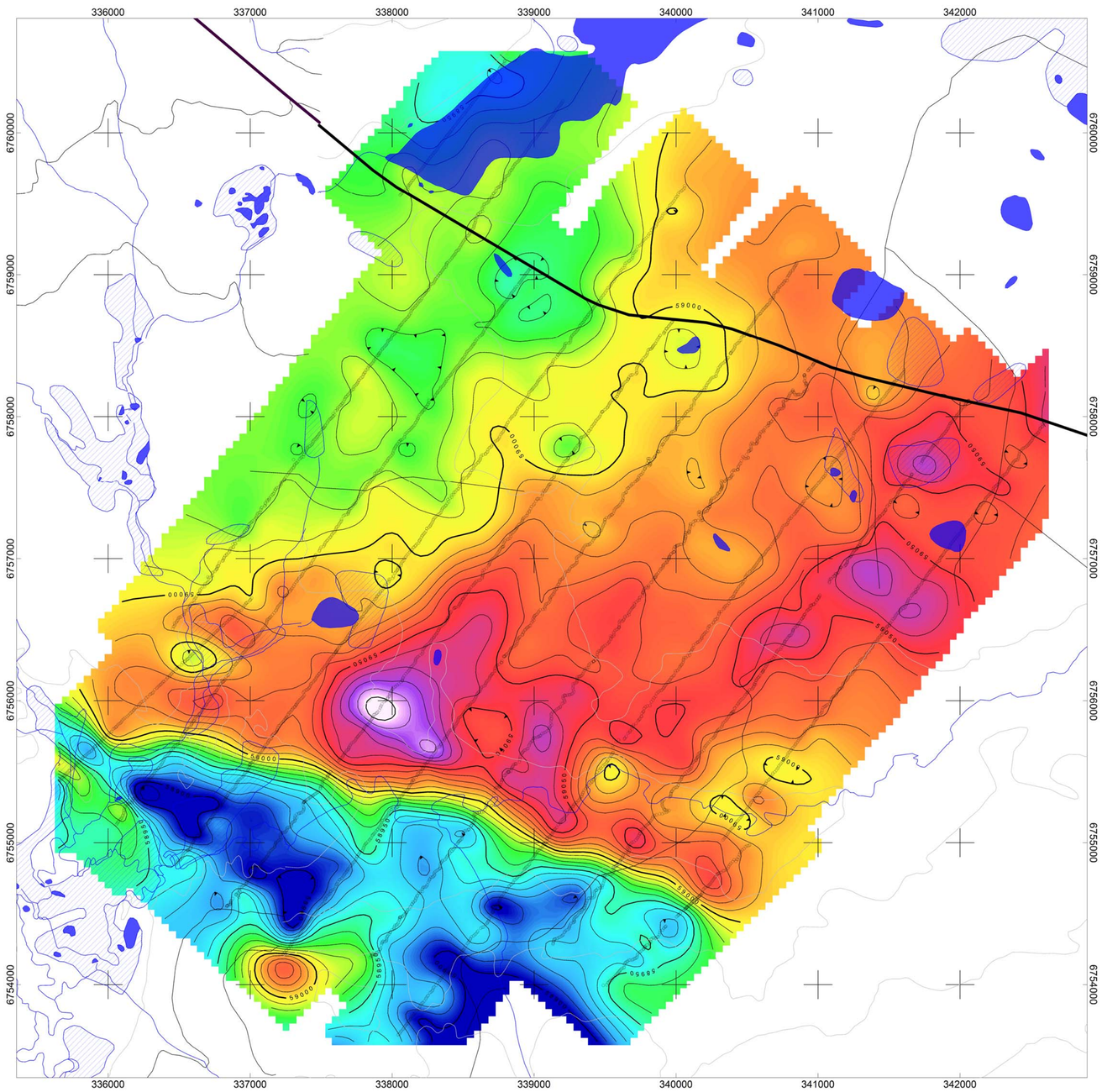
Respectfully submitted,
AURORA GEOSCIENCES LTD.

Andre Lebel
Geophysicist

SURVEY LOG
EBA-9532-YT Mag and HLEM

CREW:	Matt Olsen	Mag Technician/Lead cutter		7/06/2009 - 12/06/2009
	Andre Lebel	Crew Chief		7/06/2009 - 12/06/2010
	Total line-km surveyed to date:	22	1.74	1.64

		Mag					HLEM			Weather	Remarks
Date	**Grid**	**Lines**	**Stations**	**(line-km)**	**surveyor**	**Linecutting**	**Lines**	**Stations**	**(line-km)**		
07-Jun-09	Jarvis River	L500 L1500	1400 - 4200 4500 - 1500	3.8 4	AL MO					Sunny 25C	Mobed out from Whithorse. Started mag around 1pm. Arrived at the hotel around 6pm
08-Jun-09	Jarvis River	L-500 L-1500 L2000 L1500 L500 L-500	1300 - 4000 5000-0 0-1500 1300- 0 0 -1400 0-1300	2.7 5 1.5 1.3 1.4 1.3	MO MO AL AL AL AL					Sunny 30C	Started mag around 9am and finished around 6pm.
09-Jun-09	Jarvis River	L-500	4000-5000	1	MO	0.4				Sunny 25C	There was only enough Mag for one person for half a day, so Matt finished off mag by and Andre planned where to put the HLEM lines. Started cutting L600 at around 1pm and finished around 5pm
10-Jun-09	Jarvis River					0.5	L600	500 - 1300	0.8	Sunny 20C	Linecut untill 3:30pm and surveyed L600E using 100m coils.
11-Jun-09	Jarvis River					0.52	L600	500 - 280	0.22	Sunny 25C	Linecut an extension on L600E untill 12pm and started line L1000E. Cut till 4pm and then surveyed the extension of L600E using 100m coils.
12-Jun-09	Jarvis River					0.32	L1000	800 - 1420	0.62	Sunny 20C	Linecut untill 1:00 pm and surveyed L1000E using 100m coils. Then Demobed back to Whitehorse



LEGEND

TOTAL FIELD MAGNETICS

CONTOUR INTERVALS (nT)

10

50

200

REFERENCE FIELD : 59,000 nT
INSTRUMENT : GEM MAGNETOMETERS
GRIDDING ALGORITHM : MINIMUM CURVATURE
GRID CELL SIZE : 50 m
GRID HANNING FILTER : 2 PASSES
DATA FILE : EBA-9532&20-YT_MAG.GDB
OPERATORS : AL, GF, MO
STATION SEPARATION : 10 m
LINE-KM SURVEYED THIS SHEET : 51.2 km

ELEVATION

CONTOUR INTERVALS (m)

20

100

500

WATERCOURSE

WATERBODY

WETLAND

HIGHWAY

TRAILS

FIELD

Scale 1:20000

250 0 250 500 750 1000 1250 1500

(meters)

NAD83 / UTM zone 8N

Total Magntic Field
(nT)

58901.6 58910.9 58920.3 58929.7 58939.1 58948.4 58957.8 58967.2 58976.6 58985.9 58995.3 59004.7 59014.1 59023.4 59032.8 59042.2 59051.6 59060.9 59070.3 59079.7 59089.1 59098.4

EBA ENGINEERING CONSULTANTS LTD.

JARVIS RIVER MAGNETICS
TOTAL MAGNETIC FIELD CONTOURS

Datum: NAD 83
NTS Map Sheet: 115B/16, 115A/13
Date surveyed: April 22 - 24 and June 7-9, 2009
Jarvis River Total Magnetic Field Contours

Projection: UTM Zone 8 N
Operators: AL, GF
Date: April 27, 2009
Drawn By: AL

AURORA GEOSCIENCES LTD.

Line	Station		04/22 AL	04/22 GF	04/22 GF-	04/23 AL	04/23 AL-	04/23 GF
99	0	1	58990.95	59007.24	16.29	59001.4	10.4	59014.43
99	1	2	58989.43	59002.56	13.13	58996.3	6.83	58994.24
99	2	3	58989.16	58994.87	5.71	58995.7	6.5	58999.84
99	3	4	58990.84	58997.19	6.35	58999.3	8.47	59012.27
99	4	5	58990.9	59001.09	10.19	59000.7	9.76	59012.28
99	5	6	58995.31	58999.7	4.39	59005.3	10.03	59016.39
99	6	7	58993.86	59003.68	9.82	58999.4	5.55	59007.74
99	7	8	58993.63	58999.87	6.24	58995.1	1.46	59008.27
99	8	9	58988.87	58996.76	7.89	58993.8	4.94	59008.57
99	9	10	58990.45	58995.6	5.15	58997	6.59	59004.95
99	10	11	58995.48	59002.73	7.25	59000.3	4.84	59009.49
99	11	12	58994.92	58989.53	-5.39	59000.2	5.28	59031.29
99	12	13	58989	58996.85	7.85	58997.1	8.08	59004.39
99	13	14	58989.19	58994.58	5.39	58996	6.85	59003.69
99	14	15	58985.56	59012.56	27	58994.8	9.25	59006.03
98	14	16	58990.78	58995.62	4.84	58995.4	4.64	59005.51
98	13	17	58988.62	58999.75	11.13	58994.5	5.84	59011.18
98	12	18	58990.51	59008.9	18.39	58996	5.49	59013.71
98	11	19	58994.77	59002.66	7.89	58997.7	2.97	59012.06
98	10	20	58996.35	59005.35	9	59000	3.64	59017.64
98	9	21	58990.83	58995.42	4.59	58994.6	3.8	59011.71
98	8	22	58989.26	58996.59	7.33	58995.7	6.42	59012.8
98	7	23	58991.15	58998.85	7.7	58997.8	6.67	59011.84
98	6	24	58990.55	58985.88	-4.67	59001.7	11.1	58996.84
98	5	25	58996.86	58982.68	-14.18	59002.2	5.29	59002.43
98	4	26	58991.51	58975.86	-15.65	59002.7	11.17	58998.75
98	3	27	58990.52	58978.79	-11.73	59001.5	10.93	58995.97
98	2	28	58989.18	58976.14	-13.04	58997.5	8.34	58996.69
98	1	29	58986.79	59025.23	38.44	58994.1	7.27	59008.61
98	0	30	58988.29	59000.4	12.11	58997.8	9.53	59016.99
97	0	31	58985.16	58987.18	2.02	58996.7	11.5	59009.11
97	1	32	58984.11	58994.84	10.73	58998.7	14.63	59009.94
97	2	33	58993.06	59003.12	10.06	58996.8	3.7	58990.45
97	3	34	59002	59003.29	1.29	59013.8	11.76	59002.48
97	4	35	59002.84	59022.53	19.69	59008.4	5.53	59043.03
97	5	36	58994.19	59000.8	6.61	59001.4	7.19	59010.84
97	6	37	58997.36	59012.83	15.47	59005.3	7.96	59026.86
97	7	38	59004.48	59010.23	5.75	59016.2	11.73	59026.53
97	8	39	59005.04	59006.74	1.7	59019.4	14.31	59020.27
97	9	40	59007.8	59021.74	13.94	59019.9	12.12	59026.14
97	10	41	59013.06	59022.03	8.97	59023	9.96	59042.25
97	11	42	59019.08	59047.57	28.49	59029.5	10.42	59058.98
97	12	43	59013.78	59020.09	6.31	59027.4	13.58	59039.33
97	13	44	59008.95	58986.49	-22.46	59015.3	6.38	59033.72
97	14	45	59010.92	58994.36	-16.56	59014.5	3.58	59035.76
96	14	46	59010.62	58993.38	-17.24	59013	2.37	59035.97
96	13	47	59004.4	58996.98	-7.42	59015.9	11.51	59033.3
96	12	48	59015.66	59040.27	24.61	59019.1	3.44	59045.86
96	11	49	59021.91	59013.2	-8.71	59030.9	8.94	59051.15
96	10	50	59010.25	59013.54	3.29	59020.7	10.41	59042.56

96	9	51	59003.12	58997.32	-5.8	59017.3	14.2	59036.5
96	8	52	59011.59	59035.74	24.15	59014.8	3.2	59036.84
96	7	53	59007.9	59019.1	11.2	59014	6.05	59028.34
96	6	54	59002.56	59022.73	20.17	59005.4	2.84	59026.04
96	5	55	58992.13	59001.26	9.13	58998.8	6.66	59010.89
96	4	56	59002.39	59008.13	5.74	59008	5.56	59035.27
96	3	57	58998.83	58990.13	-8.7	59013.5	14.7	59021.05
96	2	58	58993.2	59009.54	16.34	58996.5	3.28	59021.62
96	1	59	58991.09	59018.35	27.26	58995.2	4.1	59018.38
96	0	60	58988.52	58998.12	9.6	58991.5	2.98	59010.42

Average	0	6.4173333	7.542
Stdev		12.193753	3.492637

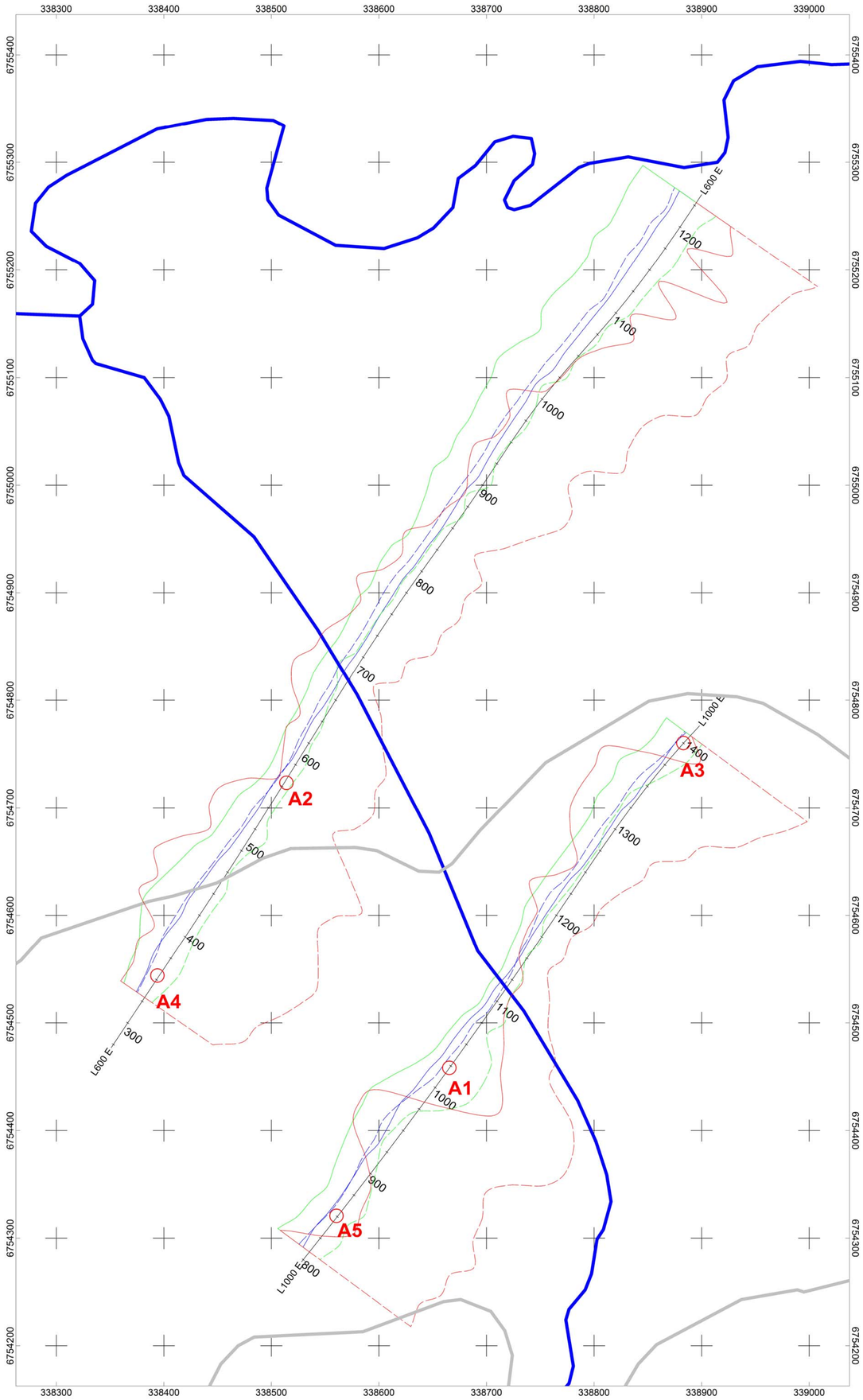
04/23 GF	04/24 AL	04/24 AL - 04/22 AL		04/24 GF	06/07 AL	06/07 AL - 06/07 MO		06/07 MO
23.48	58994.13	3.18	58994.6	3.65	58987.81	-3.14	58979.43	-11.52
4.81	58991.07	1.64	58991.87	2.44	58989.49	0.06	58988.36	-1.07
10.68	58991.22	2.06	58994.06	4.9	58984.53	-4.63	58973.04	-16.12
21.43	58992.79	1.95	58988.66	-2.18	58987.55	-3.29	58960.75	-30.09
21.38	58994.24	3.34	58993.79	2.89	58991.54	0.64	58962.68	-28.22
21.08	58998.35	3.04	58995.83	0.52	58996.06	0.75	58960.42	-34.89
13.88	58989.19	-4.67	58993.72	-0.14	58986.97	-6.89	58970.08	-23.78
14.64	58990.17	-3.46	58992.03	-1.6	58989.7	-3.93	58972.79	-20.84
19.7	58990.01	1.14	58991.35	2.48	58985.56	-3.31	58946.62	-42.25
14.5	58990.99	0.54	58989.02	-1.43	58993.3	2.85	58974.33	-16.12
14.01	58995.29	-0.19	58997.34	1.86	58988.83	-6.65	58956.65	-38.83
36.37	58993.93	-0.99	58991.43	-3.49	58985.82	-9.1	58965.06	-29.86
15.39	58989.14	0.14	58992.75	3.75	58987.48	-1.52	58964.81	-24.19
14.5	58988.08	-1.11	58987.87	-1.32	58987.35	-1.84	58959.35	-29.84
20.47	58989.08	3.52	58988.34	2.78			58947.54	-38.02
14.73	58986.27	-4.51	58989.46	-1.32			58948.86	-41.92
22.56	58988.66	0.04	58987.15	-1.47	58976.46	-12.16	58956.54	-32.08
23.2	58990.26	-0.25	58987.8	-2.71	58977.32	-13.19	58937.91	-52.6
17.29	58993.28	-1.49	58994.8	0.03	58992.21	-2.56	58945.25	-49.52
21.29	58994.14	-2.21	58995.09	-1.26	58991.55	-4.8	58944.84	-51.51
20.88	58988.69	-2.14	58987.42	-3.41	58977.53	-13.3	58950.12	-40.71
23.54	58989.69	0.43	58983.89	-5.37	58981	-8.26	58941.77	-47.49
20.69	58990.11	-1.04	58988.47	-2.68	58982.9	-8.25	58934.28	-56.87
6.29	58990.47	-0.08	58991.14	0.59	58988.38	-2.17	58945.09	-45.46
5.57	58995.12	-1.74	58992.14	-4.72	58993.57	-3.29	58956.63	-40.23
7.24	58994.14	2.63	58991.77	0.26	58983.59	-7.92	58926.59	-64.92
5.45	58993.5	2.98	58988.23	-2.29	58986.33	-4.19	58942.33	-48.19
7.51	58992.21	3.03	58984.31	-4.87	58981.3	-7.88	58952.34	-36.84
21.82	58990.02	3.23	58983.53	-3.26	58982.3	-4.49	58951.22	-35.57
28.7	58988.69	0.4	58985.68	-2.61	58984	-4.29	58952.1	-36.19
23.95	58987.73	2.57	58988.71	3.55	58981.29	-3.87	58954.61	-30.55
25.83	58989.28	5.17	58990.19	6.08	58985.2	1.09	58954.51	-29.6
-2.61	58990.12	-2.94	58992.46	-0.6	58987.78	-5.28	58955.21	-37.85
0.48	59004.49	2.49	59001.01	-0.99	58998	-4	58950.25	-51.75
40.19	59003.69	0.85	58999.28	-3.56	58991.24	-11.6	58957.81	-45.03
16.65	58994.6	0.41	58991.62	-2.57	58983.7	-10.49	58967.38	-26.81
29.5	59000.95	3.59	58998.89	1.53	58996.25	-1.11	58959.27	-38.09
22.05	59012.76	8.28	59007.93	3.45	59003.07	-1.41	58961.3	-43.18
15.23	59008.46	3.42	59006.87	1.83	59006.28	1.24	58965.41	-39.63
18.34	59013.64	5.84	59009.09	1.29	59002.85	-4.95	58952.89	-54.91
29.19	59008.81	-4.25	59008.75	-4.31	59002.57	-10.49	58971.82	-41.24
39.9	59024.81	5.73	59023.77	4.69	59011.31	-7.77	58962.48	-56.6
25.55	59023.71	9.93	59012.04	-1.74	59007.9	-5.88	58950.18	-63.6
24.77	59011.87	2.92	59008.26	-0.69	58998.16	-10.79	58961.31	-47.64
24.84	59009.28	-1.64	59007.94	-2.98			58943.21	-67.71
25.35	59009.56	-1.06	59007.18	-3.44			58973.92	-36.7
28.9	59010.84	6.44	59008.92	4.52	58997.21	-7.19	58958.5	-45.9
30.2	59011.57	-4.09	59017.67	2.01	59007.15	-8.51	58975.47	-40.19
29.24	59021.26	-0.65	59012.22	-9.69	59014.16	-7.75	58982.76	-39.15
32.31	59008.4	-1.85	59008.72	-1.53	59001.29	-8.96	58971.35	-38.9

33.38	59015.37	12.25	59005.06	1.94	59005.29	2.17	58973.08	-30.04
25.25	59005.32	-6.27	59011.81	0.22	59000.03	-11.56	58985.47	-26.12
20.44	59005.24	-2.66	59011.62	3.72	59003.32	-4.58	58982.46	-25.44
23.48	58998.44	-4.12	58999.14	-3.42	58991.86	-10.7	58973.78	-28.78
18.76	58992.01	-0.12	58993.16	1.03	58986.29	-5.84	58962.34	-29.79
32.88	59001.36	-1.03	59000.91	-1.48	59000.76	-1.63	58962.84	-39.55
22.22	59006.43	7.6	59000.13	1.3	58998.17	-0.66	58942.82	-56.01
28.42	58991.77	-1.43	58990.76	-2.44	58985.35	-7.85	58961.12	-32.08
27.29	58982.03	-9.06	58988.86	-2.23	58984.26	-6.83	58954.76	-36.33
21.9	58982.97	-5.55	58986.2	-2.32	58980.19	-8.33	58947.79	-40.73

20.7827	0.669667	-0.44683	-5.36214	-38.094
9.04699	3.956806	3.052495	4.083689	12.82951

06/08 AL	06/08 AL - 06/08 MO	06/08 M0 -	06/09 AL	06/09 MO - 04/22 AL
58984.5	-6.45	58998.97	8.02	58992.98	2.03
58981.18	-8.25	58998.97	9.54	58987.04	-2.39
58981.68	-7.48	59013.08	23.92	58986.61	-2.55
58985.02	-5.82	59006.49	15.65	58985.1	-5.74
58982.51	-8.39	59007.24	16.34	59015.77	24.87
58989.04	-6.27	59010.84	15.53	59002.38	7.07
58983.56	-10.3	59000.66	6.8	58986.45	-7.41
58986.62	-7.01	59003.35	9.72	59009.85	16.22
58981.16	-7.71	58997.66	8.79	58986.64	-2.23
58979.4	-11.05	59006.73	16.28	58984.03	-6.42
58987.87	-7.61	59008.44	12.96	58988.93	-6.55
58989.22	-5.7	59003.34	8.42	58995.07	0.15
58983.3	-5.7	58997.26	8.26	58977.41	-11.59
58979.28	-9.91	59004.49	15.3	58976.98	-12.21
58981.99	-3.57	58990.64	5.08	58975.78	-9.78
58981.24	-9.54	59035.16	44.38	59019.14	28.36
58979.87	-8.75	59027.13	38.51	59031.63	43.01
58983.13	-7.38	59030.68	40.17	59011.54	21.03
58987.96	-6.81	59034.66	39.89	59032.42	37.65
58987.85	-8.5	59043.47	47.12	59036.68	40.33
58982.49	-8.34	59039.21	48.38	59005.79	14.96
58985.51	-3.75	59038.03	48.77	59000.6	11.34
58987.74	-3.41	59021.48	30.33	58991.47	0.32
58987.13	-3.42	59020.91	30.36	58981.18	-9.37
58988.16	-8.7	59032.72	35.86	58985.43	-11.43
58990.62	-0.89	59033.45	41.94	58986.97	-4.54
58984.41	-6.11	59030.5	39.98	59031.25	40.73
58981.78	-7.4	59026.28	37.1	59010.52	21.34
58982.61	-4.18	59016.63	29.84	59018.7	31.91
58983.71	-4.58	59032.1	43.81	59028.98	40.69
58982.93	-2.23	59015.55	30.39	58981.79	-3.37
58985.77	1.66	59019.38	35.27	58936.12	-47.99
58986.29	-6.77	59014.44	21.38	58957.97	-35.09
58998.64	-3.36	59047.75	45.75	58969	-33
58995.05	-7.79	59032.96	30.12	58967.4	-35.44
58985.76	-8.43	59022.75	28.56	58960.78	-33.41
58992.47	-4.89	59036.21	38.85	58985.54	-11.82
59005.66	1.18	59037.14	32.66	58999.06	-5.42
59005.01	-0.03	59041.12	36.08	58998.01	-7.03
59004.4	-3.4	59043.5	35.7	59009.32	1.52
59003.25	-9.81	59043.71	30.65	59025.54	12.48
59016.37	-2.71	59052.39	33.31	59043.84	24.76
59011.67	-2.11	59035.56	21.78	59022.44	8.66
59005.62	-3.33	59021.21	12.26	59013.87	4.92
59001.78	-9.14	59032.87	21.95	59044.05	33.13
59006.24	-4.38	59032.75	22.13	59049.64	39.02
59008.02	3.62	59044.8	40.4	58998.62	-5.78
59010.7	-4.96	59051.96	36.3	59030.87	15.21
59017.3	-4.61	59042.13	20.22	59025.7	3.79
59011.32	1.07	59031.45	21.2	59012.58	2.33

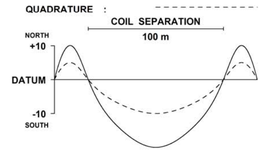
59007.03	3.91	59052.59	49.47	59010.35	7.23
59002.25	-9.34	59043.73	32.14	59028.02	16.43
58999.04	-8.86	59029.49	21.59	59029.48	21.58
58988.74	-13.82	59019.44	16.88	59018.16	15.6
58983.59	-8.54	59007.4	15.27	59008.55	16.42
58995.02	-7.37	59022.85	20.46	59024.14	21.75
59001.67	2.84	59041.91	43.08	59035.56	36.73
58983.28	-9.92	59017.07	23.87	59014.96	21.76
58983.9	-7.19	59006.74	15.65	59011.59	20.5
58982.72	-5.8	59004.87	16.35	59006.57	18.05
	-5.62483		27.11283		6.888667
	3.779081		12.72886		20.79767



LEGEND

HORIZONTAL LOOP EM

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10
PROFILE SCALE : 1 cm = 10%
IN PHASE :
QUADRATURE :



IN-PHASE DATUM : 0%
QUADRATURE DATUM : 0%
DATA FILE: EBA-9532-YT HLEM.gdb
OPERATORS : AL
STATION SEPARATION : 20m
LINE-KM SURVEYED THIS SHEET : 1.6 km

Right of Line = Positive

220Hz In-Phase Response removed from all In-Phase Responses

880Hz In-Phase
880Hz Quadrature
3520Hz In-Phase
3520Hz Quadrature
14080Hz In-Phase
14080Hz Quadrature

Anomaly centre

Anomaly centre with long axis indicating excess width

Conductor axes

A1-A6 Anomaly designations

ELEVATION
CONTOUR INTERVALS (m)
20
100
500

WATERCOURSE

WATERBODY

WETLAND

HIGHWAY

TRAILS

Scale 1:2500
50 0 50 100 150
(meters)
NAD83 / UTM zone 8N

FIELD

EBA ENGINEERING CONSULTANTS LTD.

JARVIS RIVER
100m COIL SEPARATION
HLEM IN-PHASE AND QUADRATURE PROFILES

Minning district: Whitehorse
Proj: UTM Zone 8N
Date surveyed: June 10, 2009 - June 12, 2009
Date drawn: June 16, 2009

NTS Map Sheet: 115B/16, 115A/13
Datum: NAD 83
Surveyed by: AL, MO
Drawn by: AL

AURORA GEOSCIENCES LTD.

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MEMORANDUM

To: Jack Dennett **Date:** May 13, 2009

From: Andre Lebel

Re: Jarvis River project, 2009 Total Magnetic Field Survey – Forward Modeling

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This memorandum describes the forward modeling to simulate the response of a presumed fault running the along the Jarvis River. The total magnetic field (TMF) survey that was conducted near the Jarvis River and Kloo Lake, 28 Km north of Haines Junction, showed a response that is consistent with a fault that offset the basement. The magnetic anomaly can be simulated by superimposing the magnetic effect of two unlimited dipping prisms offset along a fault. The angle of dip, depth to basement on both sides, and magnetic susceptibility of the basement are the parameters that are required to forward model the total magnetic field profile acquired along the survey lines. These models are only a few possible geological scenarios of many; ambiguity in the causative geology is inherent in a TMF survey.

Forward models that best match the total magnetic field profiles are dipping to the north between 30 to 70 degrees, strike approximately 270 degrees UTM grid north and have an up-thrust hanging wall with depth to basement on the footwall side between 300 m to 700 m assuming that basement is close to surface on the hanging wall side (see Figure 1). The forward modeling suggests the magnetic susceptibility contrast between the fill and the basement is between 0.0005 to 0.001 SI units based on the magnitude of the magnetic anomaly which ranges from 130 nT to on L -1N to 230 nT on L 1N. Assuming the fill has zero susceptibility this is consistent with sedimentary, metamorphic, or acidic igneous rocks. Figures 2, 3, and 4 show the response of these models compared to the total magnetic field profiles for L -1N, L 0N and L 1N. In the model the fault is dipping to the north and the hanging wall has moved up, therefore the surface trace of the fault is 100m to 300m south of the anomaly.

Respectfully submitted,
AURORA GEOSCIENCES LTD.

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Andre Lebel
Geophysicist

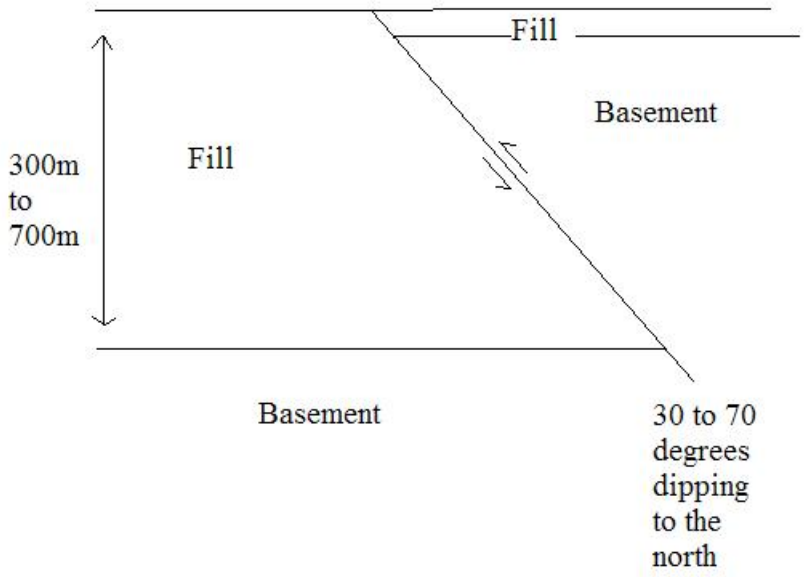

Figure 1: A schematic of the models used.

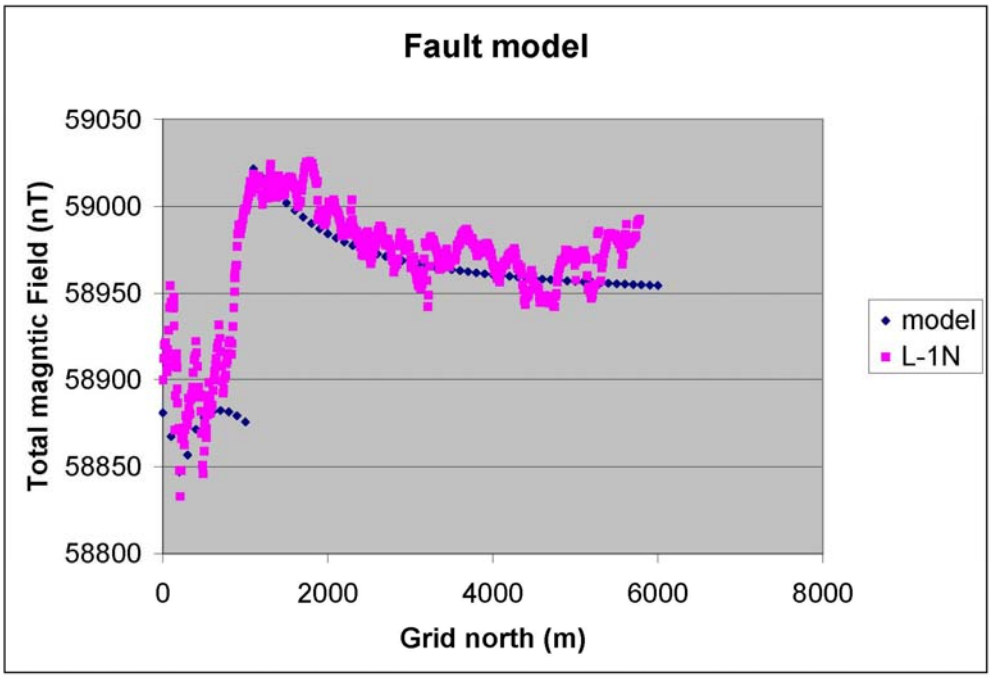

Figure 2: The total magnetic field profile for L -1N compared to the response of a fault dipping 40 degrees to the north, basement offset vertically 700 m on the footwall side, the surface trace is at 200 m grid north, and using a 0.0007 SI units magnetic susceptibility contrast.

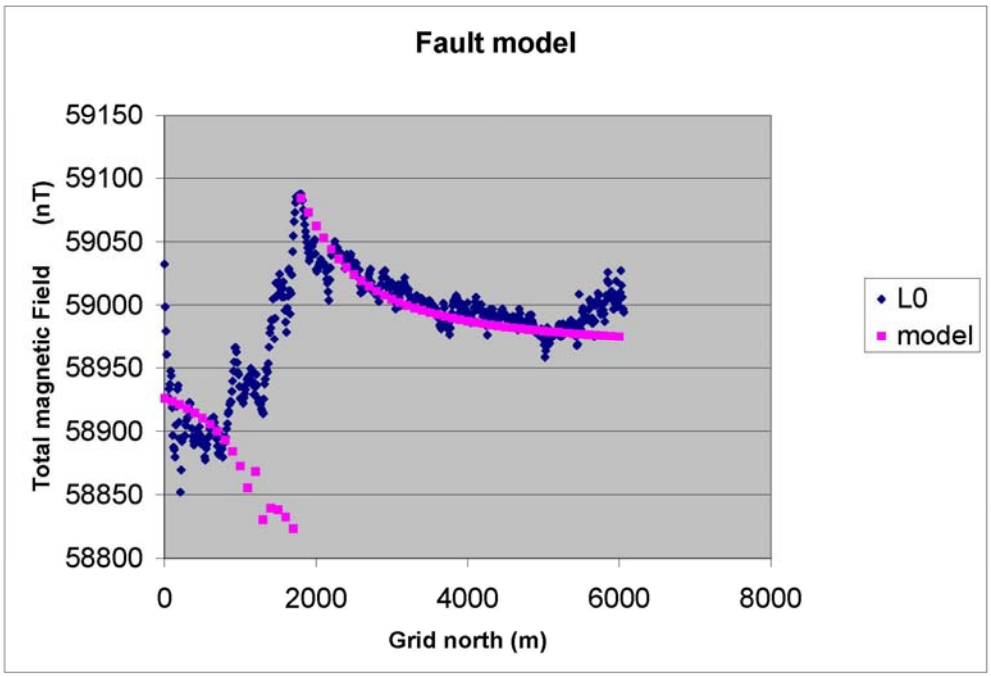

Figure 3: The total magnetic field profile for L 0N compared to the response of a fault dipping 50 degrees to the north, the surface trace is at 1200 m grid north, basement 600 m offset vertically on the footwall side, and using a magnetic susceptibility contrast of 0.001 SI units.

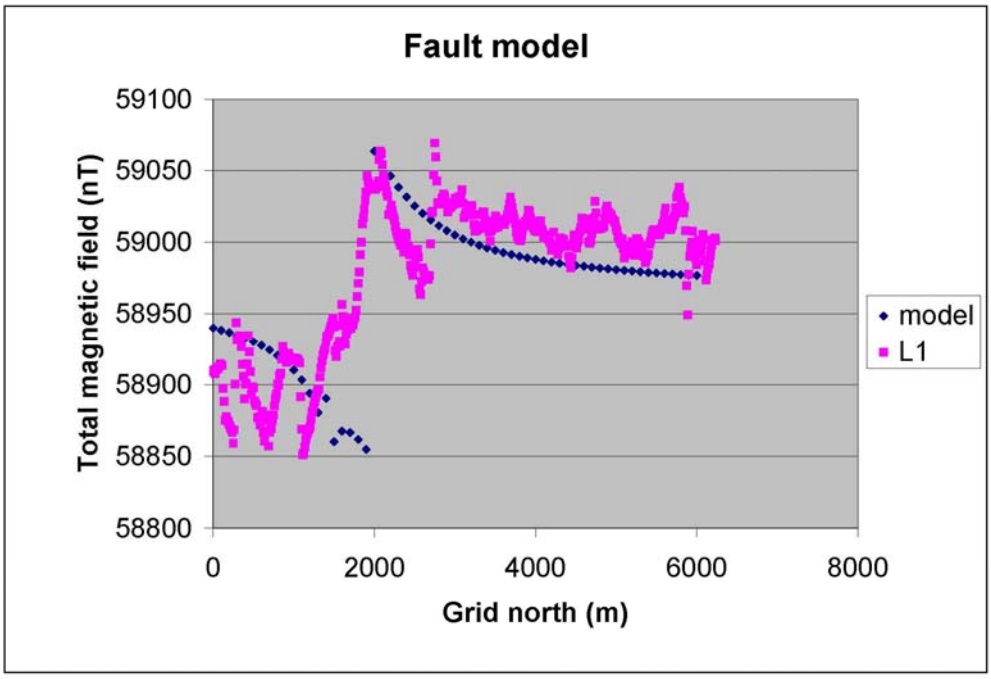

Figure 4: The total magnetic field profile for L 1N compared to the response of a fault dipping 50 degrees to the north, basement offset 600 m vertically on the footwall side, the surface trace is at 1400 m grid north, and using a 0.0008 SI units magnetic susceptibility contrast.