

# MAR 19990018: OTAUWAU

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19990018

MAY 27 1999

**DANIEL HANGARTNER**

**1998 – 1999 EXPLORATION OF  
THE LESSER SLAVE LAKE  
OTAUWAW AREA PROPERTY**

**NORTH-CENTRAL, ALBERTA**

**Metallic and Industrial Minerals Permit  
9395020018**

**Geographic Co-ordinates  
55°06'30" to 55°12'00"N  
114°27'30" to 114°37'00"W**

**NTS Sheets 83 O/1 and O/2**

**1999.05.25**

**Prepared by**

**A. Hangartner, Prospector**

**756736 Alberta Ltd.  
4011 – 37 Avenue  
Leduc, Alberta  
T9E 6E1**

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## **1. SUMMARY**

**Alberta metallic and industrial minerals permit 9395020018, herein referred to as Otawau Area Property, located south of Mitsu Lake, Alberta in the northeastern part of the Swan Hills were further explored for primary diamond deposits. A number of anomalous areas depicted from several high resolution aeromagnetic (HRAM) surveys acquired from Spectra Exploration Geoscience Corporation and Terraquest Ltd. along with areas recommended by Halferdahl & Associates Ltd. were investigated.**

**756736 Alberta Ltd. conducted ground magnetic surveys to more precisely localize the source or possible sources, of some of the aeromagnetic anomalies. Several topographic circular oval-shaped physiographic features were also investigated. Concentrated streambed mineral samples were collected from several streams near possible source areas and sent in for diamond indicator mineral analysis.**

**Saskatchewan Research Council processed and identified the presence of various diamond indicator minerals.**

## **2. INTRODUCTION**

**During 1997 and early 1998 Blanket Earth Resources Ltd. in conjunction with 756736 Alberta Ltd. conducted exploration for primary diamond deposits within the Lesser Slave Lake property on behalf of Daniel Hangartner. Exploration activities included the acquisition of high-resolution aeromagnetic data from Spectra Exploration Geoscience Corp. and Terraquest Ltd.; ground magnetometer surveys by Blanket Earth Resources Ltd. in conjunction with 756736 Alberta Ltd.; and a brief review of aerial photographs, digital elevation data, and other publicly available information by Halferdahl & Associates Ltd.. An assessment report, '1997 and Early 1998 Exploration of the Lesser Slave Lake Property', describing the exploration conducted at the Lesser Slave Lake property was prepared and submitted for Daniel Hangartner by Halferdahl & Associates Ltd..**

**The assessment report herein, describes the exploration conducted at the Lesser Slave Lake, Otauwau Area Property during 1998 through early 1999. It has been prepared at the request of Daniel Hangartner, who is the owner of the metallic and industrial minerals permit 9395020018.**

### 3. LOCATION AND ACCESS

#### Property Location

**TABLE 3.1** Property Descriptions and Location of Permit.

Claim:	February 1997 – 1999, active MAIM permit # 9395020018.
Legal Land Description:	Tp.71 - 4W5(sec.1-36)
Area:	9216 (ha) Approx.
See Figure:	Fig. 3.2 Location Map – Previous Active Area.

Claim:	February 1999 - 2001, Retained Active Area, MAIM permit # 9395020018. *
Legal Land Description:	<p><b><u>Retained Area A</u></b>            Tp.71 - 4w5 (Sec. 4L15; 5L10, L14, L15; 7L14, L15; 8L1-3, L8, L9, L13-16; 9L2-4, L13, L14; 10L13, L14; 15L3-5, L12, L13; 16SW, L7-9, L12, L13; 17L1, L4, L5, L12, L15, L16; 18SE, NW, L3, L5, L6 L10, L15; 19L2-5, L12-15; 20L1-3, L8, L9; 21L10, L15, L16; 22L3, L4; 23L1, L8; 24NE, L4-8; 25E, L11, L12, L14; 26L2-4, L7-9; 27SW, L1, L2, L7, L10-13; 28NE, L1, L8, L11, L13, L14; 29L13, L14; 30SW, L7, L10, L12, L13, L15, L16; 31NW, L1, L4, L5, L8; 32NE, SW, L2, L7, L8; 33W, L1, L2, L7, L15; 34S, L10, L11, L14, L15; 35L4, L5; 36L1, L8, L9, L13-16)</p> <p><b><u>Retained Area B</u></b>            Tp.71 - 4W5 (Sec. 12SW, L1, L7, L8)</p>
Area:	Area A: 2994.67 (ha) Approx. Area B: 113.31 (ha) Approx. <b>Total retained area: 3107.98 (ha) Approx.</b>
See Figure:	Fig. 3.2 Location Map - Retained Active Areas A and B.

\* The Terraquest Ltd. 1997 high resolution aeromagnetic survey revealed about a hundred low Intensity anomalies. The interpretation stated that not all kimberlite pipes possess strong magnetic responses and that all anomalies should be investigated carefully on the ground. The retained area encompasses about 90% of all small anomalies indicated on the contoured vertical gradient map. We want to investigate these.

### **Property Access**

The property is located in north-central Alberta, about 200 km northwest of the City of Edmonton and 13 km southeast of the town of Slave Lake. The property extends from 55°06'30" to 55°12'00" north latitude and 114°27'30" to 114°37'00" west longitude, within NTS map sheets 83 O/1 and O/2.

The property is accessible by graveled oil and gas service roads leading from Highway 2, 16 km east of the town of Slave Lake, due south of the Mitsu Industrial Area turn-off approximately 4 km. (Fig. 3.1). There are many logging and oilfield service roads throughout the exploration area (Fig. 3.2). Seismic line, pipeline, and power-line lines provide all-terrain vehicle or snow-machine access to remote areas of the property.

Most of the property was recently devastated by a major forest fire that occurred in July 1998. The area and surrounding areas are currently undergoing extensive logging and timber salvage operations. The property also contains substantial amounts of oilfield culture. Economic activities in the area are dominated by logging and timber operations and oil and gas exploration and development. Infrastructure near the area includes accommodations, food, and vehicles at Slave Lake.

The property is in the northeastern part of Swan Hills within the hydrographic basin of the Otawau River.

## **4. PERMIT TABULATION**

MAIM Permit # 9395020018 is held by Daniel Hangartner of Blanket Earth Resources Ltd., P.O. Box 37, Slave Lake, Alberta. This report is being submitted for Daniel Hangartner by August Hangartner of 756736 Alberta Ltd., 4011-37 Ave., Leduc, Alberta.

## **5. WORK PERFORMED**

### **Work Description**

Between Feb 27, 1998 and Feb 27, 1999, 756736 Alberta Ltd. carried out more preliminary ground follow-ups of the HRAM anomalies and other features that were identified in a preceding report<sup>1</sup>. Other lower intensity HRAM anomalies<sup>2</sup> and several circular physiographical features were flagged and ground magnetic survey follow-ups were done on several of these. Soil samples were collected, concentrated and sent in for diamond indicator mineral analysis.

### **Site Selection**

The property contained considerable amounts of cultural interference complicating selection. HRAM data processing and editing may have eliminated geographically significant anomalies not shown on the aeromagnetic maps but that perhaps could be confirmed by ground measurements. Raw data processing using Geosoft Software showed that there were several small anomalies that do not have verified cultural sources.

Several sites were chosen to conduct magnetic surveys. Grids were established by flagging north-south and east-west lines. Stations were measured and positioned using hip chain, compass, and GPS. The size of the grid and the line spacing chosen depended on the terrain and the data available. Magnetic surveys were performed on only four of these grids. (A major forest fire and subsequent timber salvage operations either obliterated much of the earlier flagging efforts or rendered the sites nearly impassable from logging debris and decked timber. Several sites were re-flagged but due to an unusually high snowfall in the area and the extra time needed, some magnetometer surveys had to be dropped or postponed.)

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<sup>1</sup> See assessment report: 1997 and Early 1998 Exploration of the Lesser Slave Lake Property by Halferdahl & Associates Ltd.

<sup>2</sup> Terraquest Ltd. (1998). High resolution aeromagnetic survey. Lesser Slave Lake Project.



Data collected for each grid was uploaded via Internet and processed at a later date (For data collection methods, processing methods and equipment used see Appendix 2 – Methods of Ground Magnetic Surveying Employed).

Soil samples were collected from stream beds at three locations (See Fig. 5.1). The first sample, S6115, was taken from a washout at AT31<sup>1</sup>. Pails of muddy gravel were hauled to the Ottawau River for further processing. The second sample, S5816, was taken from a small stream that ran into a creek down stream from where it crossed an oil road. The pans contained lots of large dark red colored garnets. The third sample, S5315, was taken from a small stream that crossed an oil field road near G5315.

All stream bed samples were meshed, then hand panned down to concentrates. The process was slow going and the amount of material collected turned out quite small. The samples were sent to Saskatchewan Research Council Geoanalytical Services for diamond indicator mineral analysis. Table 5.2, Soil Sample Indicator Mineral Grain Description, displays the results. (For a description of the analytical methods used see Appendix 3 – Methods of Diamond Indicator Minerals Recovery).

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<sup>1</sup> See assessment report: 1997 and Early 1998 Exploration of the Lesser Slave Lake Property by Halferdahl & Associates Ltd.

**Table 5.1 Exploration, Grid Flagging, Soil Sampling, and Magnetic Ground Survey Locations, Feb. 1998 - 1999.**

Locations of field work performed by 756736 Alberta Ltd. \*\*

Previous Identifier ***	UTM		Report Identifier [III]	Work Description	Dates	Shown in Figure
	Easting	Northing				
AT31 [2] Dan1	661324	6115917	G6115	Exploration & Gridding	Jun 4-6, Aug 4/98	5.1
	661236	6115570	S6115	Soil Sampling	Jul 7,8, Aug 5/98	5.1
			G6115	Re-gridding ▼	Dec 13/98, Jan 23/99	5.1
			M6115	Magnetic Grid Survey	Jan 24/99	5.2
T16D [4]	655350	6114450	G5514	Exploration & Gridding	Feb 3/98	5.1
			M5514	Magnetic Grid Survey	Feb 4/98	5.3
T28C [4] Dan5 [4]	653350	6115500	G5315	Exploration & Gridding	Jun 23/98	5.1
	653950	6115950	S5315	Soil Sampling	Jul 10,11, Oct 10,11/98	5.1
			G5315	Re-gridding ▼	Feb 5/99	5.1
			M5315	Magnetic Grid Survey	Feb 6/99	5.4
T25D [4]	660700	6117550	G6017	Exploration & Gridding	Feb 7,12/99	5.1
			M6017	Magnetic Grid Survey	Feb 8,99	5.5
T261 [4]	660000	6115150	G6015	Exploration & Gridding	Jun 26/98	5.1
			G6015	Re-gridding ▼	Jan 22/99	5.1
T171 [4]	655400	6113650	G5513	Exploration & Gridding	Jun 27/98	5.1
Dan4 [4]	658680	6116250	S5816	Soil Sampling	Jul 9,10, Aug 6, Oct 9/98	5.1
P283 [4]	654250	6114650	G5414	Exploration & Gridding	Jun 24/98	5.1
P354 [4]	658528	6118890	G5818	Exploration & Flagging	Jan 21/99	5.1
T04C [4]	656154	6111520	G5611	Exploration & Flagging	Jan 19,20/99	5.1

\* As provided by D. Hangartner of Blanket Earth Resources Ltd.

\*\* As provided by A. Hangartner of 756736 Alberta Ltd.

\*\*\* Identification from the following sources by Halferdahl & Associates Ltd. in an earlier report titled "1997 AND EARLY 1998 EXPLORATION OF THE LESSER SLAVE LAKE PROPERTY"

[1] Spectra Exploration Geoscience Corporation.

[2] Terraquest Ltd. (1998).

[3] Halferdahl & Associates Ltd. - Selected Physiographic Features

[4] 756736 Alberta Ltd. - Identification from the above sources or from physiographical features since report.

[III] Report Identifiers are derived from the work performed and the UTM location:

Work: Flagged grid - G	UTM: 6[39]709 E	61[26]461 N	[- #] means that more than one work site exists in the defined UTM work space, 639000 - 639999 to 6126000 - 6126999.
Soil sampled - S	G3926-1		
Magnetic grid - M			
Magnetic Profile - P			

▼ Re-gridding required, previous efforts partially destroyed by fire and/or by the subsequent logging that followed.

## **Findings**

**M6115: This magnetic ground survey, (Fig. 5.2), confirms an anomaly at AT31<sup>1</sup>.**

**This anomaly coincides with topographical features of a hill. The indicated anomaly is about 75m in diameter. To the north 200m is a bridge. To the south about 150m another anomaly's perimeter is apparent. There is no observed culture in that direction for at least another 400m.**

**M5514: This magnetic ground survey, (Fig. 5.3), is inconclusive.**

**Fluctuations along the lines probably arises from small near the surface magnetic rocks. The low readings at the south end of the grid were taken on the frozen river. The north end readings are likely from a power line that runs approximately 50m north of the grid.**

**M5315: The Spectra and Terraquest HRAM map showed evidence of a small anomaly where there was no obvious attributable culture (Fig. 5.4). There was a very noticeable change in the magnetic ground survey readings when crossing what appeared to be an old cut line. Turns out that what we found was an old buried pipeline.**

**M6017: The Terraquest HRAM map showed evidence of an anomaly in this area with no obvious attributable culture (Fig 5.5). The magnetic ground survey didn't reveal anything other than a small hot spot along one of the grid lines. The rest of the fluctuations are probably due to the iron deposits in the two small streams that meander through the survey area and join near the eastern side. There is a power line about 200m east on the opposite side of the road.**

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<sup>1</sup> See assessment report: 1997 and Early 1998 Exploration of the Lesser Slave Lake Property by Halferdahl & Associates Ltd.

**Table 5.2 Soil Sample Indicator Mineral Grain Description**

Sample:	Dan1			Dan4			Dan5		
Saskatchewan Research Council Reference:	OT98.164 M810			OT99.12 M141			OT99.12 M141		
Sample Weight in Grams:	3007 <sup>[1]</sup>			765 <sup>[1]</sup>			734.2 <sup>[1]</sup>		
Mid Fraction -1.00+0.18MM Dry Weight in Grams:	1642			572.7			536.9		
Frantz Lowers @ 0.34 Amps in Grams:	24.1			6.77			22.03		
Frantz Uppers @ 0.19 Amps in Grams:	118			46.37			58.6		
Report Identifier:	S6115 <sup>[2]</sup>			S5816 <sup>[2]</sup>			S5315 <sup>[2]</sup>		
Location of soil sample shown in figure:	5.1			5.1			5.1		
Definite(Def.) Possible(Poss.) % Picked(%)	Def.	Poss.	%	Def.	Poss.	%	Def.	Poss.	%
Pyropic Garnet Grain Count:	3	0	100	0	0	100	2	2	100
Cr - Diopside Grain Count:	0	0	100	0	0	100	0	1	100
Picrocroilmenite Grain Count:	0	4	8	0	15	6	0	15	5
Chromite Grain Count:	0	0	8	0	0	6	0	1	5
Chromite/Magnetite Grain Count:	0	2	8	0	0	6	0	0	5

[1] Samples were small.

[2] Table 5.1 explains how report identifier codes are derived.

**Distances Gridded and Surveyed**

Total grid line/km = 24.4

Total ground magnetic survey line/km = 10.7

Soil samples taken: 3

**Exploration Expenditures**

Total exploration expenditures, Feb. 1998 – Feb. 1999: \$31,862.00

These expenditures are allocated as follows:

Retained Active Area A - \$30,240.00

Retained Active Area B - \$1622.00

For a summery of expenditures see Appendix 1 – Statement of Reasonable Expenditures. (A detailed breakdown of dates, activities and equipment used has been retained and is available upon request.)

Metallic and industrial minerals permit 9395020018 is privately owned and exploration expenditures are not financed by share holders.

## **6. CONCLUSIONS**

The M6115 ground magnetic survey shows an anomaly at AT31 that displays a second area of higher magnetic contours that warrant further exploration. The small soil sample taken at S6115 indicates the presence of diamond indicator minerals. The grid should be expanded to map the entire perimeter of the anomaly to the south before further investigation with a drilling program is started. Surveys M5514, M5315, and M6017 do not display anything of significance with the exception of a small anomaly on M6017 that requires confirmation. All small anomalies depicted on the aeromagnetic map should be investigated.

## **7. BIBLIOGRAPHY**

**Terraquest Ltd. (1998) High resolution aeromagnetic survey.**

**Lesser Slave Lake project; unpublished report dated 1998/02/16 to Halferdahl and Associates Ltd., Edmonton, by Terraquest Ltd., Toronto, 15 p., 5 fig., 9 maps.**

- 1. 5.0 Data Processing - Processing steps and some important concepts that should be highlighted with regard to cultural editing.**
- 2. 6.0 Interpretation -Techniques and comments offered to assist in the interpretation of the horizontal gradient vectors.**
- 3. Contoured Vertical Gradient of RTF and Horizontal Gradient Vectors, Sawridge Block, high resolution magnetic survey map.**

**Halferdahl & Associates Ltd. (1998) Assessment report. 1997 and Early 1998**

**Exploration of the Lesser Slave Lake Property, North -Central, Alberta dated 1998/05/26, 23 p. 11 fig., 6 app.**

- 1. 10. Conclusions – Anomalies warrant additional exploration.**
- 2. Appendix 2 – Location of Anomalies.**
- 3. Appendix 2 - Selected Physiographic Features.**
- 4. Appendix 2 – Coincident Anomalies and Physiographic Features.**

## **8. QUALIFICATIONS**

**Qualifications and work experience of the author of this report:**

**Education:**

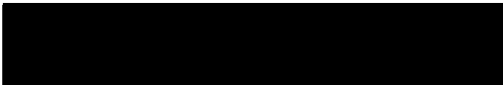
**Graduate of NAIT, - Electronics Engineering Technology (1970).**

**Work experience:**

**Many years experience as a Technical Systems Analyst working with complex computer systems, programming, troubleshooting, interfacing devices, etc.**

**I have no formal training in Geology. Prospecting is a hobby.**

**I have an indirect interest in metallic and industrial minerals permit 9395020018, the subject of this report. It belongs to my brother Dan.**



**August Hangartner  
Part time prospector,  
Leduc, Alberta  
May 25, 1999.**

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F1

Wood  
Buffalo  
National  
Park



58° 00'N

57° 00'N

56° 00'N

55° 00'N



HIGH LEVEL

FORT VERMILION

35

98

PEACE RIVER

Peerless Lake

RED EARTH CREEK

Cadotte Lake

Lubicon Lake

750

Ullikuma Lake

Lesser Slave Lake

SLAVE LAKE

2

MITSU INDUSTRIAL AREA TURN-OFF

Calling Lake

**SYMBOLS**

 Active Permit

**OTAUWAWU AREA  
PROPERTY**

**DANIEL HANGARTNER**

**756736 ALBERTA LTD.  
LEDUC, ALBERTA**

**Fig. 3.1 Location and Index Map  
MAIM Permit # 9395020018  
LESSER SLAVE LAKE AREA, ALBERTA**

**A. Hangartner**

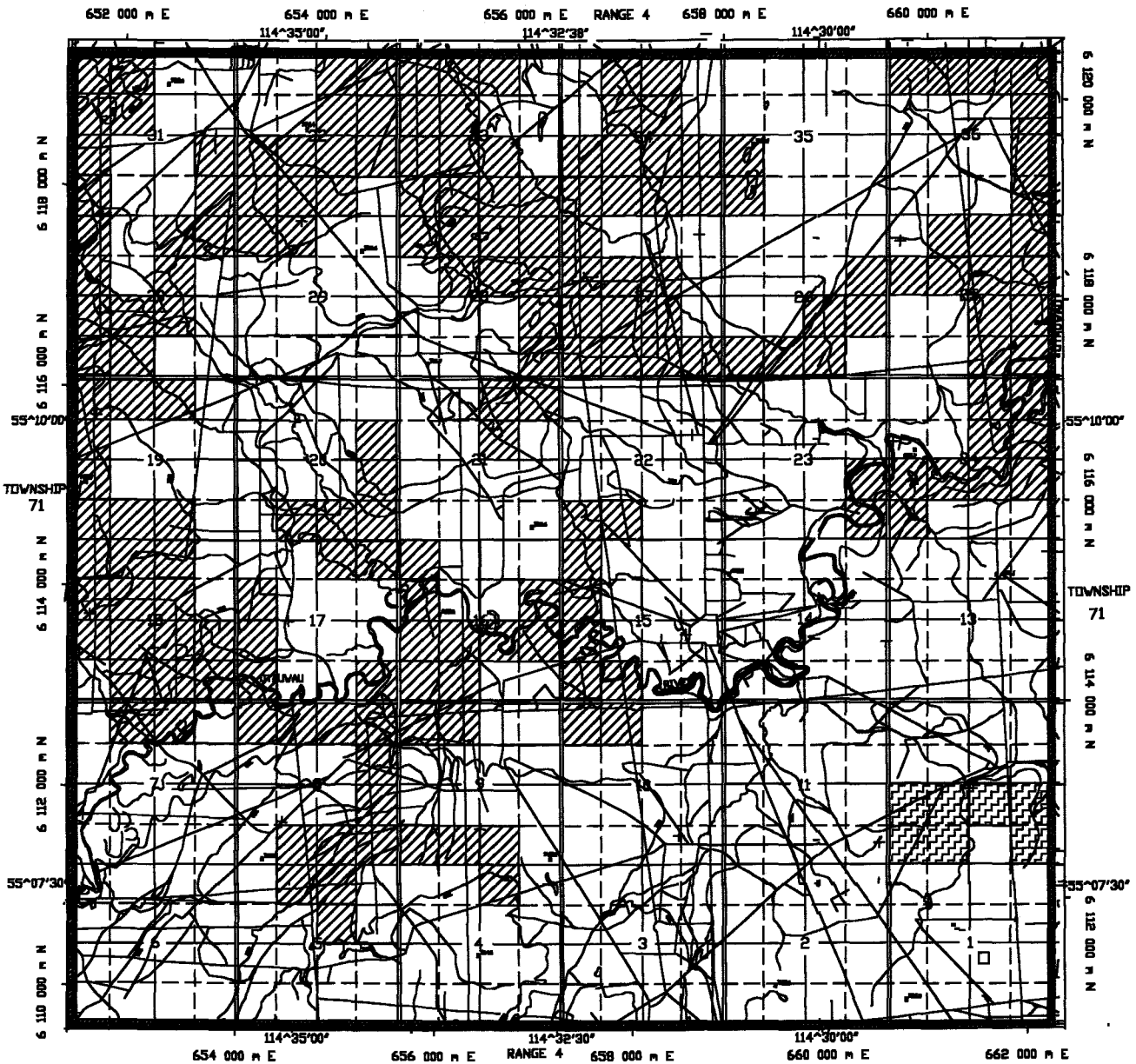
**1999.04**

WHITECOURT

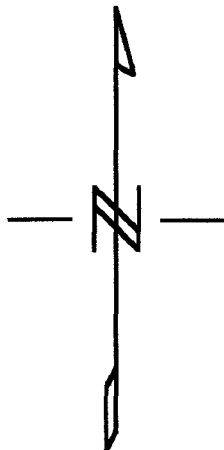


116° 00'W

5th Meridian  
114° 00'W



**SYMBOLS**



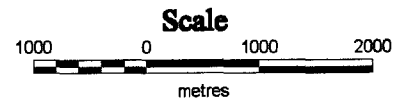
**Previously Held  
Active Area  
(Feb. 1997 - 1999)**



**Retained Active Area A  
(Feb. 1999 - 2001)**

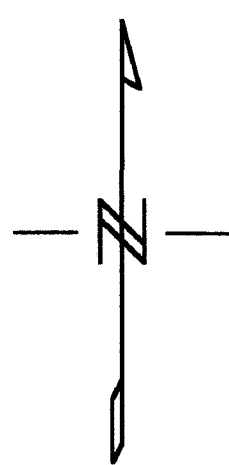
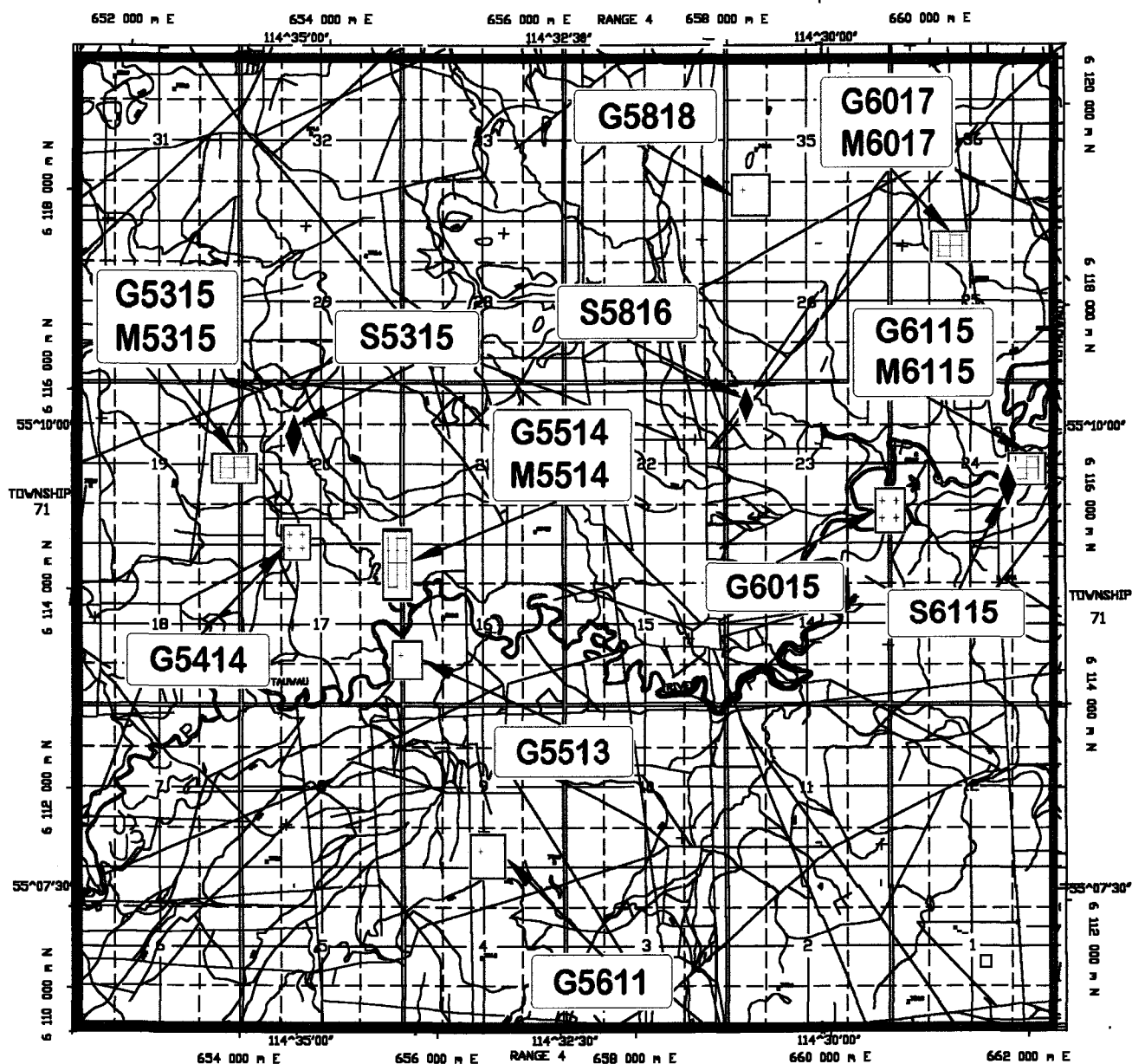


**Retained Active Area B  
(Feb. 1999 - 2001)**



<b>Daniel Hangartner</b>	
756736 Alberta Ltd. Leduc, Alberta	
<b>Fig. 3.2 Property Map</b> MAIM Permit # 9395020018 Otauwau Area	
A. Hangartner	1999.05





**SYMBOLS**



**Active Area**  
(Feb. 1997 - 1999)



Explored (grid incomplete)

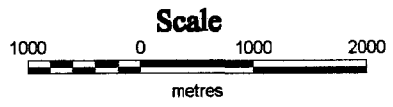


Flagged Grid Area

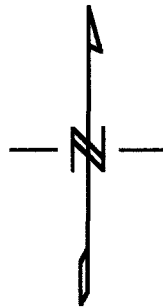
Magnetic Ground Survey



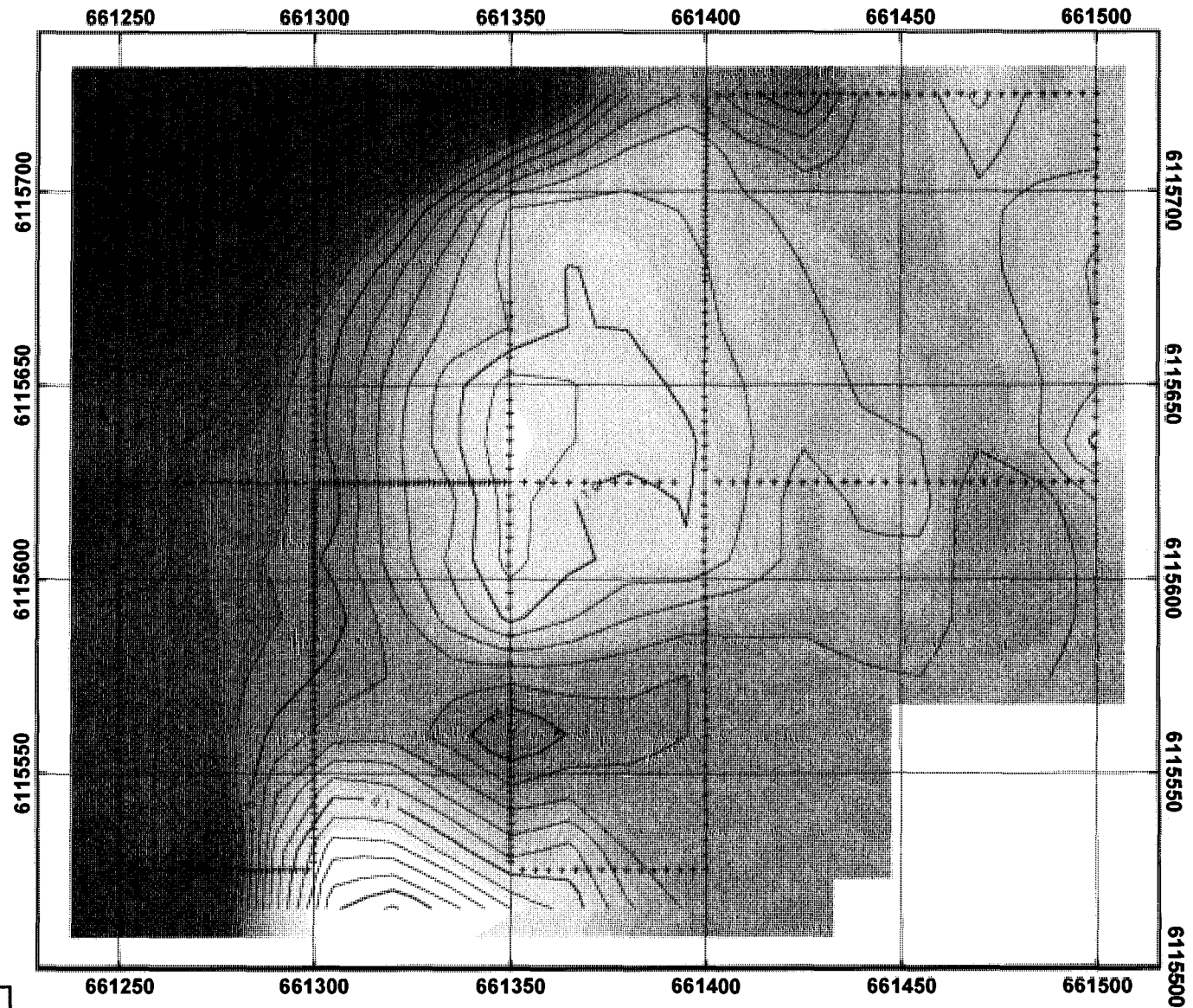
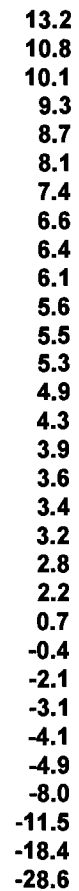
Soil Sample Location



<b>Daniel Hangartner</b>	
756736 Alberta Ltd.	
Leduc, Alberta	
<b>Fig. 5.1 Locations of Work Performed</b>	
<b>Otauwau Area, Delorme Block</b>	
A. Hangartner	1999.05



58900 nT



**Daniel Hangartner**

756736 Alberta Ltd.  
Leduc, Alberta

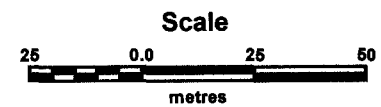
**Fig. 5.2 Ground Magnetic  
Survey: M6115  
Otauwau Area**

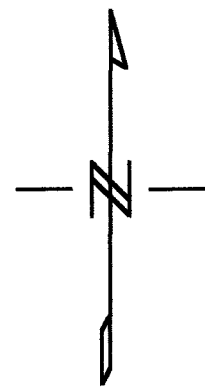
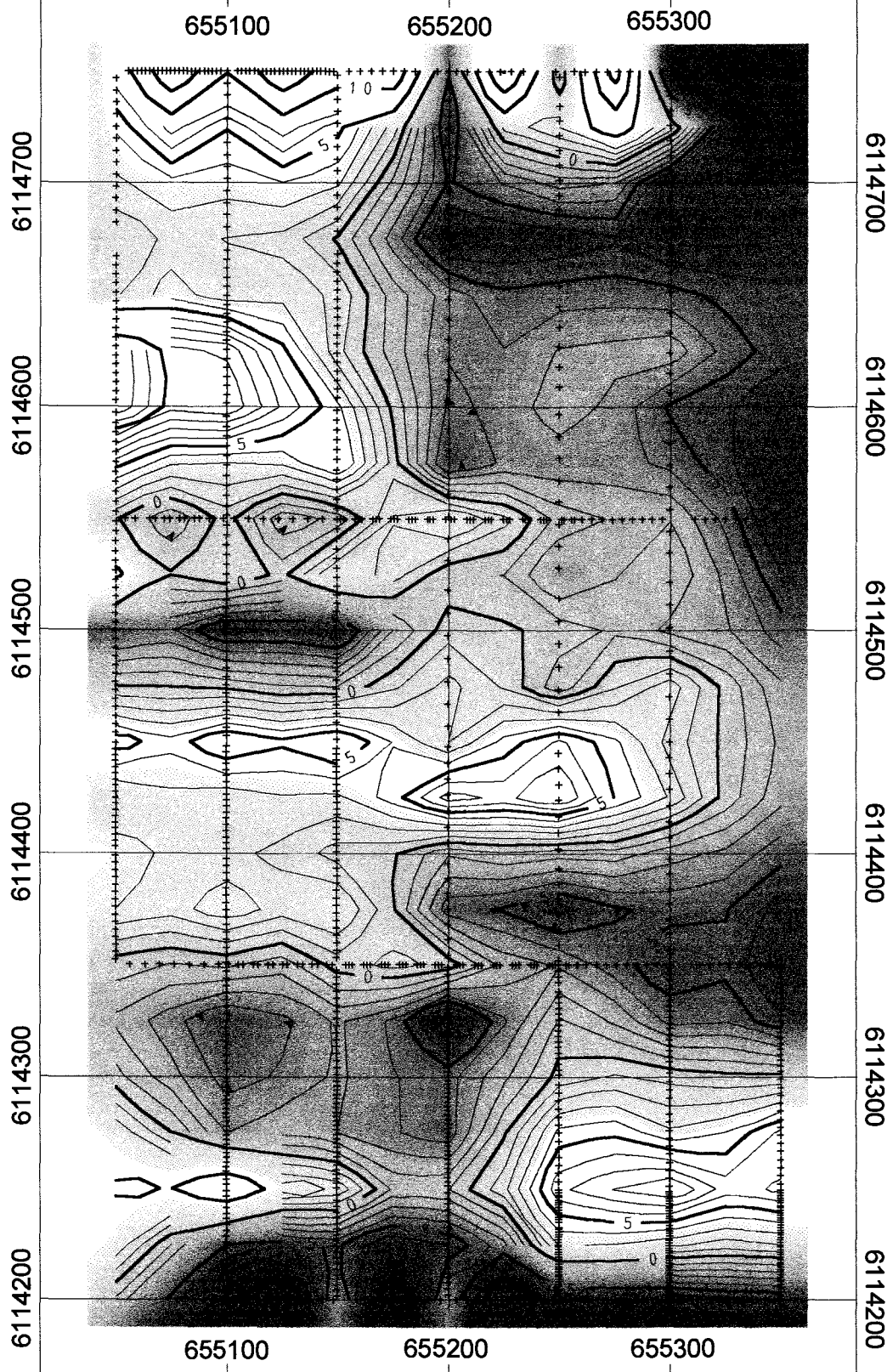
A. Hangartner

1999.05

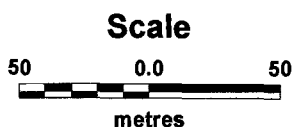
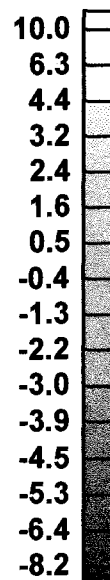
**SYMBOL**

+ Location of Magnetometer Reading



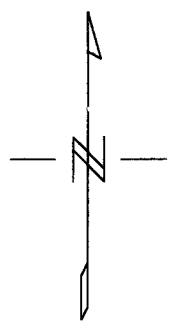


59030 nT

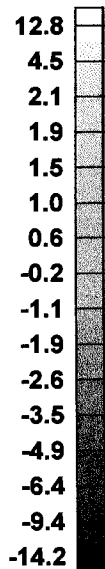


**SYMBOL**  
+ Location of Magnetic Reading

<b>Daniel Hangartner</b>	
756736 ALberta Ltd. Leduc, Alberta	
<b>Fig. 5.3 Ground Magnetic Survey: M5514</b> Otauwau Area	
A. Hangartner	1999.05



59040 nT



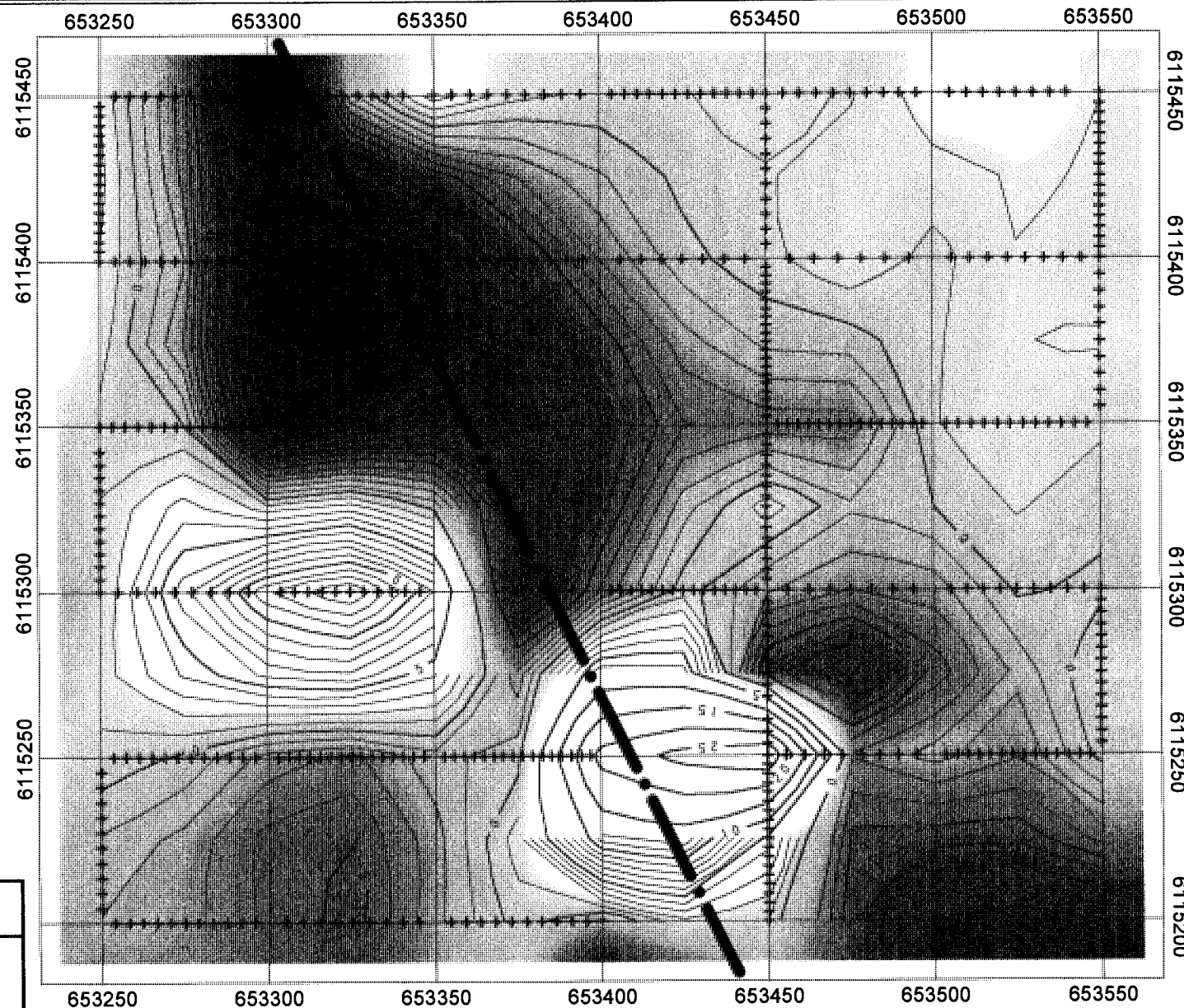
**Daniel Hangartner**

**756736 Alberta Ltd.  
Leduc, Alberta**

**Fig. 5.4 Ground Magnetic  
Survey: M5315  
Otawau Area**

A. Hangartner

1999.05

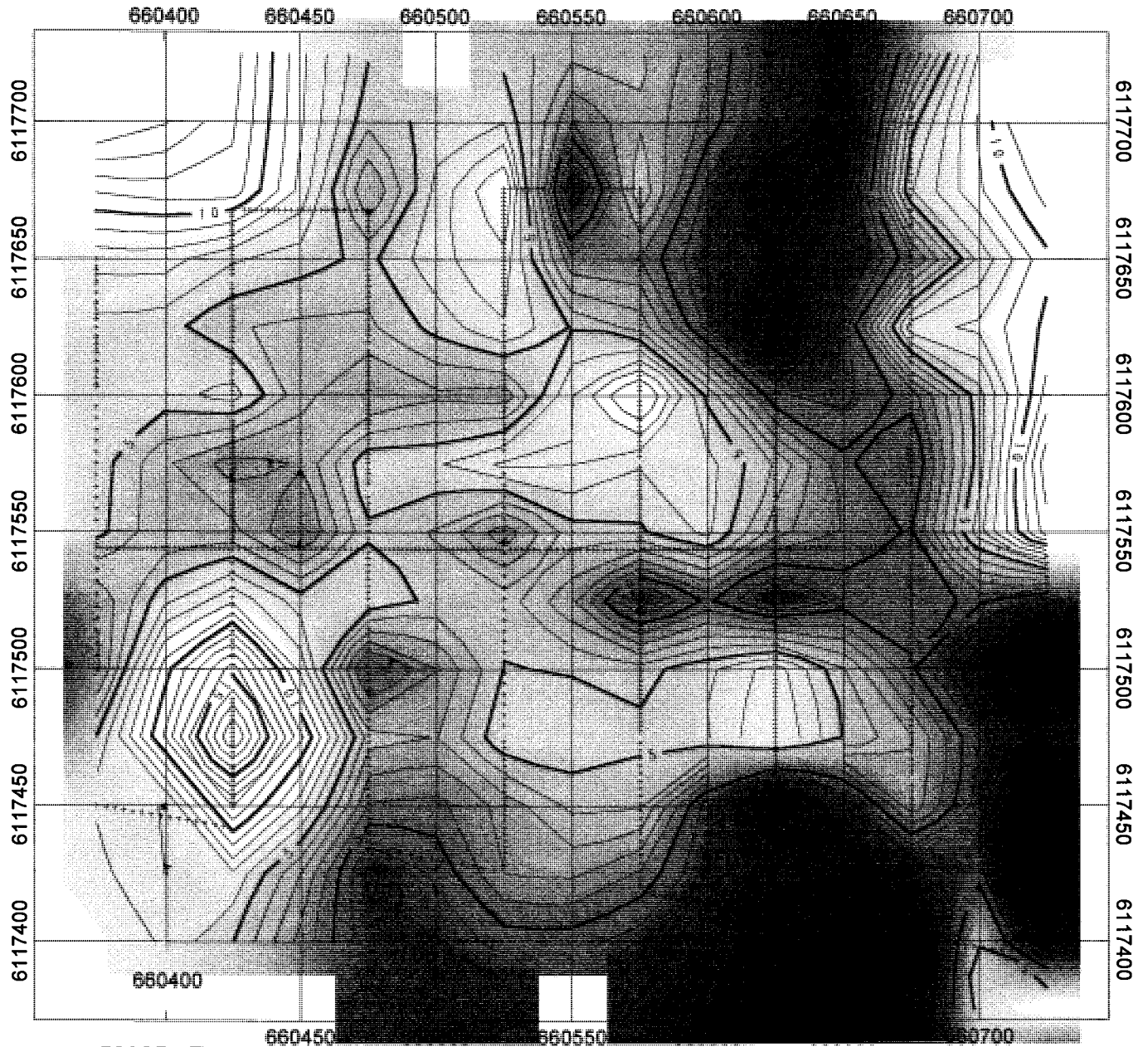


**SYMBOL**

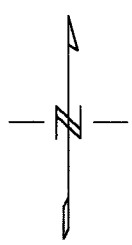
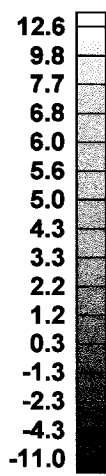
- + Location of Magnetic Reading
- Hidden Pipeline

**Scale**



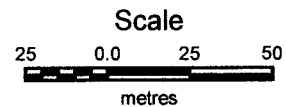


58985 nT



**SYMBOL**

+ Location of Magnetometer Reading



<b>Daniel Hangartner</b>
756736 ALberta Ltd. Leduc, Alberta
<b>Fig. 5.5 Ground Magnetic Survey: M6017 Otawau Area</b>
A. Hangartner 1999.05

**Appendix 1: Statement of Reasonable Expenditures**  
**Metallic and Industrial Minerals Permit 9395020018, Otawau Area.**

Description	Rates		Amount (\$)
	Per	Charge	
<b>EXPLORATION SERVICES - 756736 ALBERTA LTD.</b>			
A. Hangartner	- consultations, data processing, drafting, exploration, ground magnetometer surveys, gridding, mineral sampling, reporting		
Helper	382 hr		
	242 hr		\$0.00
-travel (2 per.)	- trip preparation	26 hr	\$780.00
	- total travel time for services	84 hr	\$1,680.00
			\$0.00
-meals & lodging (2 per.)	- total meal expenses for services	57 dy	\$1,140.00
	- total accomodations expenses for services	56 nt	\$1,680.00
			\$0.00
-equipment rental	- truck rental, 1/2 ton	45 dy	\$2,925.00
	- GSM-19 Magnetometer rental	4 dy	\$216.00
	- GSM-19 Magnetometer Base Station rental	4 dy	\$216.00
	- pentium computer system rental	21 dy	\$525.00
	- data logging device rental	4 dy	\$100.00
	- global positioning system rental	25 dy	\$625.00
	- gridding equipment rental	19 dy	\$380.00
	- lap top CPU pentium rental	10 dy	\$250.00
	- quad 6x6 rental	3 dy	\$300.00
	- soil sampling equipment rental	10 dy	\$100.00
	- utility trailer rental	3 dy	\$75.00
	- x-country ski equipment rental	12 dy	\$240.00
	<b>Total Expenditures:</b>		<b>\$31,862.00</b>

Above is a summary of reasonable expenditures derived from quoted commercial equipment rental rates less 10 or 20%. Many, many more man hours than the summary above indicates were spent on this project, and one could reasonably ascribe some \$50.00 per man hour to work of this nature in professional fees, however, this would be an unreasonable amount to justify considering the qualifications of the exploration teams, therefore, \$30.00 - \$35.00 per man hour and the shortened claimed duration should be more appropriate.

I, August Hangartner, hereby certify that the costs as outlined above for the assessment of metallic and industrial permit 9395020018 were expended as indicated.

[Redacted Signature]  
 August Hangartner

*Eugene Saldanka*  
 A Commissioner for Oaths  
 in and for the Province  
 of Alberta. My commission  
 expires on the 20th day of  
 March, 1999

*Declared before me in the  
 City of Edmonton on  
 At 11th day of June, 1999  
 Saldanka*

## **Appendix 2: Method of Ground Magnetic Surveying Employed.**

### **Collection Method**

The magnetic surveys were performed using an Overhauser Model GMS-19 Memory Magnetometer carried by the operator devoid of any magnetic materials and other ferrous metals. The operator walked each survey line, recording continuous time and magnetic intensity readings at 3 second intervals. At fixed stations along each survey line, the exact time of arrival and the location of the station were logged for post processing. After the survey lines were finish, a tie-line traversing the grid intersecting the lines at known locations was completed for additional reference.

The base magnetometer, an Overhauser Model GSM- 19 located at a fixed position operating in base mode, recorded continuous time and magnetometer readings at 3 second intervals for post processing diurnal correction. Both units are proton magnetometers with omnidirectional sensors.

### **Processing Method**

The collected data, base (time and reading), mobile (time, reading and location) and the GPS readings- were downloaded in the field to a Pentium II/2 66 based laptop processor. The data was then uploaded, via the Internet, for post processing and plotting.

Using a program, written in Microsoft Access on a Pentium II/300 PC processor, variations of the base station were subtracted from the field (or mobile) instrument data to give a data set which varies only with position. The GPS information was used to map the grid and the grid description was used to scale the location of each station. The logged time, location and grid location information were used to correlate measurements with location. The data collected at each station is therefore attributable to local variations in magnetic materials in the underlying rocks. Another Microsoft Access program module was used to process the data collected at 3 second intervals by spacing the readings evenly between the station locations at which they occurred. The addition of the latter process gives a more accurate presentation of what data might be present between stations.

The data were then contoured using Geosoft Oasis Software. The maps produced represent a set of contours joining points of equal magnetic field intensity measurements (i.e. an isomagnetic contour map), which in turn are determined from a grid of equally spaced points between nodes that have been interpolated from the original data.

## **Appendix 3: Methods of Diamond Indicator Minerals Recovery**

**Sediment samples were subjected to various procedures that included:**

- dispersion and screening at  $\pm 1.7$  mm
- shaker table gravity separation of  $-1.7$  mm fraction
- permroll paramagnetic separation
- magstream heavy liquid separation
- ferromagnetic separation
- frantz paramagnetic separation
- binocular microscopic identification of diamond indicators

**Saskatchewan Research Council Geoanalytical Services Laboratory Sediment Sample processing package used**

### **Re: Picking of diamond indicator mineral grains**

- color and morphology were the main determining factors
- officially reported as 'Definite' are picked mineral grains that have a high probability of being indicators
- borderline indicators labeled as 'Possible' have a lower probability of being indicators

**From: Al Holsten**

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Saskatchewan Research Council  
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Ph: (306)933-5426**