

## **2011 ASSESSMENT REPORT**

Property Comprising the Following Claims:

LJ 1 – LJ 11 Claims

Located in the:  
Keno Hill Area  
Mayo Mining District  
Yukon Territory, Canada  
N.T.S. 105M/14

Latitude: 63° 89' N  
Longitude: 135° 71' W

**PREPARED FOR:**

Alexco Keno Hill Mining Corp.  
1150-200 Granville Street  
Vancouver, B.C. V6C 1S4

and

**PREPARED BY:**

Al McOnie

Alexco Resource Corp.  
1150-200 Granville St.  
Vancouver, B.C. V6C 1S4

**DATES WORK PERFORMED:** September 7 – 26, 2011

**DATE OF REPORT:** May 20, 2012

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## **1.0 SUMMARY**

During September 2011 a ground magnetometer survey was undertaken within the contiguous claim boundaries of the LJ 1 – LJ 11 quartz claims.

## **2.0 INTRODUCTION**

This report summarizes the results of a ground magnetometer survey carried out for assessment purposes for Alexco Keno Hill Mining Corp during September 2011. Planning, supervision, implementation and reporting of this work were performed by Alexco Resource Corp staff.

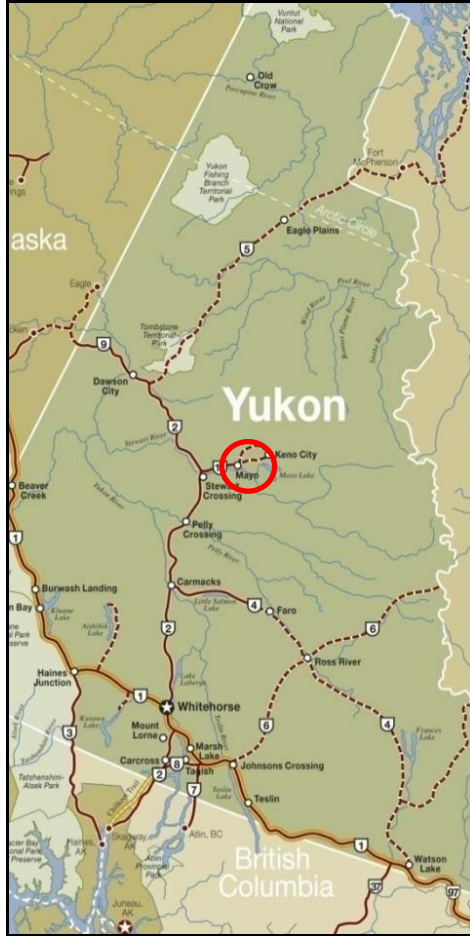
This survey was undertaken as the area is of low relief and covered with fluvio-glacial deposits with no outcrop of the underlying basement rock. Intrusives with associated mineralization are known in the district and it was considered that the geophysical survey may indicate the presence of such features if present.

## **3.0 LOCATION AND ACCESS**

The quartz claims on which assessment work was conducted are held under the name of Alexco Exploration Canada Corp. - 100%. These properties are located in the Keno Hill district, Mayo Mining District approximately 350 km north of Whitehorse (Figure 1). The area is covered by NTS map sheet 105M/13. The reference datum used is UTM NAD83 Zone 8, unless otherwise noted.

Access to the property is from the Silver Trail Highway that runs north of the village of Mayo and then from the South McQuesten road that cuts across the claim group area. The area is covered by a number of pre-existing survey lines from historic exploration that are orientated at about 350° and a number of access tracks appear to be related to shallow placer gold workings.

The base of operations for Alexco is the abandoned company town of Elsa which contains camp and office facilities.

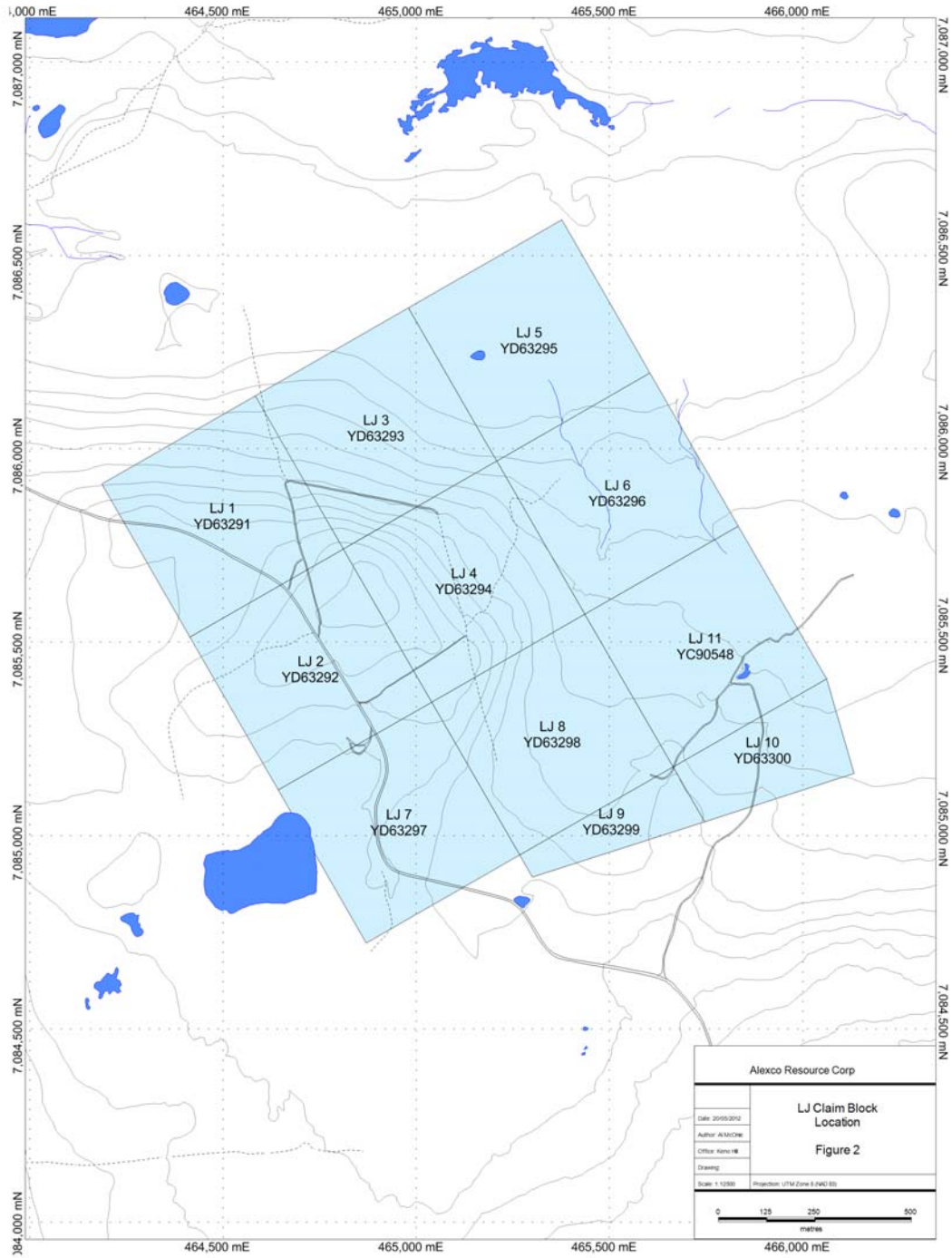


**Figure 1 General Location of the Claim Block**

#### **4.0 CLAIM STATUS**

The quartz mining claims covered by this report are active having been staked in 2010 and 2011 and expiring in December 2011 or December 2012.

A complete list of claims pertaining to this assessment report, including all grouped claims is included in Appendix 1. The locations of the quartz claims are shown in Figure 2. A list of personnel and cost statement related to the application of Certificates of Work are included as Appendices 2 and 3.



**Figure 2 Location of the Claim Group**

## **5.0 REGIONAL GEOLOGY**

The property is situated within the western part of the Selwyn Basin in an area dominated by deformed and metamorphosed sediments accumulated at the edge of the Neoproterozoic to Paleozoic continental margin. During the Jurassic and Cretaceous, the area was subjected to compressional tectonic forces producing imbricate thrust sheets and widespread folding. In the mid-Cretaceous, renewed tectonism resulted in extensive brittle deformation and the emplacement of intrusive plutons.

The rock units underlying the claim area are thought to include the Keno Hill Quartzite (Mississippian) host to most of the past producing ore bodies in the Keno Hill district and locally intruded by dykes and sills of the Early Late Cretaceous Tombstone Intrusive suite in a location close to the inferred thrust fault contact to the south with the older but structurally overlying Yusezyu Formation of the Upper Proterozoic Hyland Group (Murphy, 1997).

## **6.0 PROPERTY GEOLOGY**

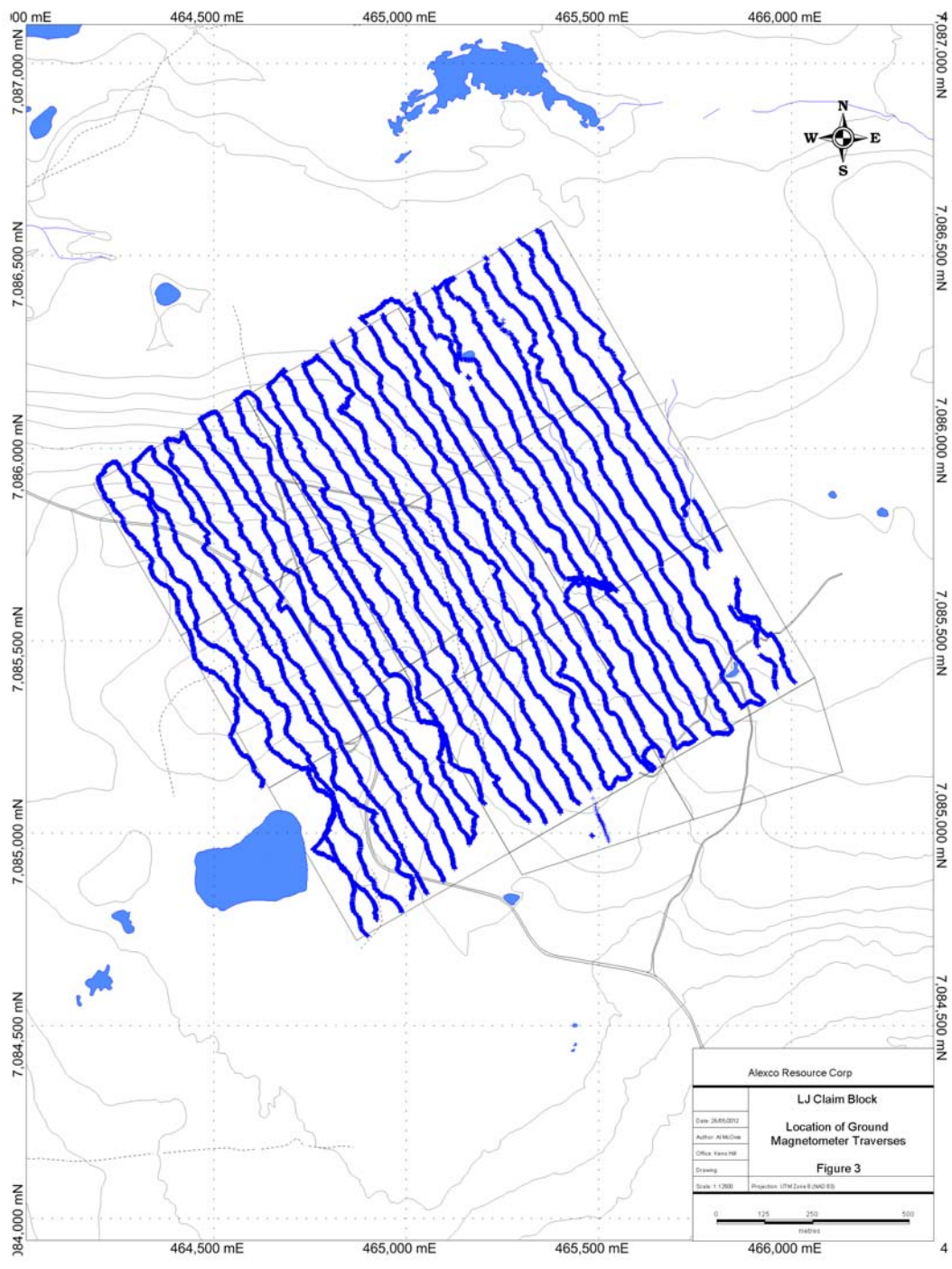
The claim block is entirely covered with Quaternary undifferentiated unconsolidated gravels, sands and clays that obscure the basement geology.

## **7.0 2011 GROUND MAGNETIC SURVEY**

The Total Magnetic Field survey was conducted with two leased GSM-19 Overhauser total field magnetometers.

The survey was conducted over 37.6 line kilometers on a grid pattern consisting of 27 lines 1,360 m long, with northwest – southeast lines oriented along the claim boundary at 330° with nominal 50m spacings. The traverses were undertaken using hand held GPS navigation with no grid lines cut, and as a result the traverses appear irregular in places due to circumnavigation of surficial features such as swampy ground and lakes.

The instrumentation was set to record continuously at 3 second intervals with a total of 262,475 readings recorded. The raw data was processed to account for diurnal magnetic drift using base station reference that was set up on the property (“LJ\_All Corrected Mag\_UTM.csv” Digital Files). The location of the traverses is shown in Figure 3.



**Figure 3 Location of Magnetometer Traverses.**



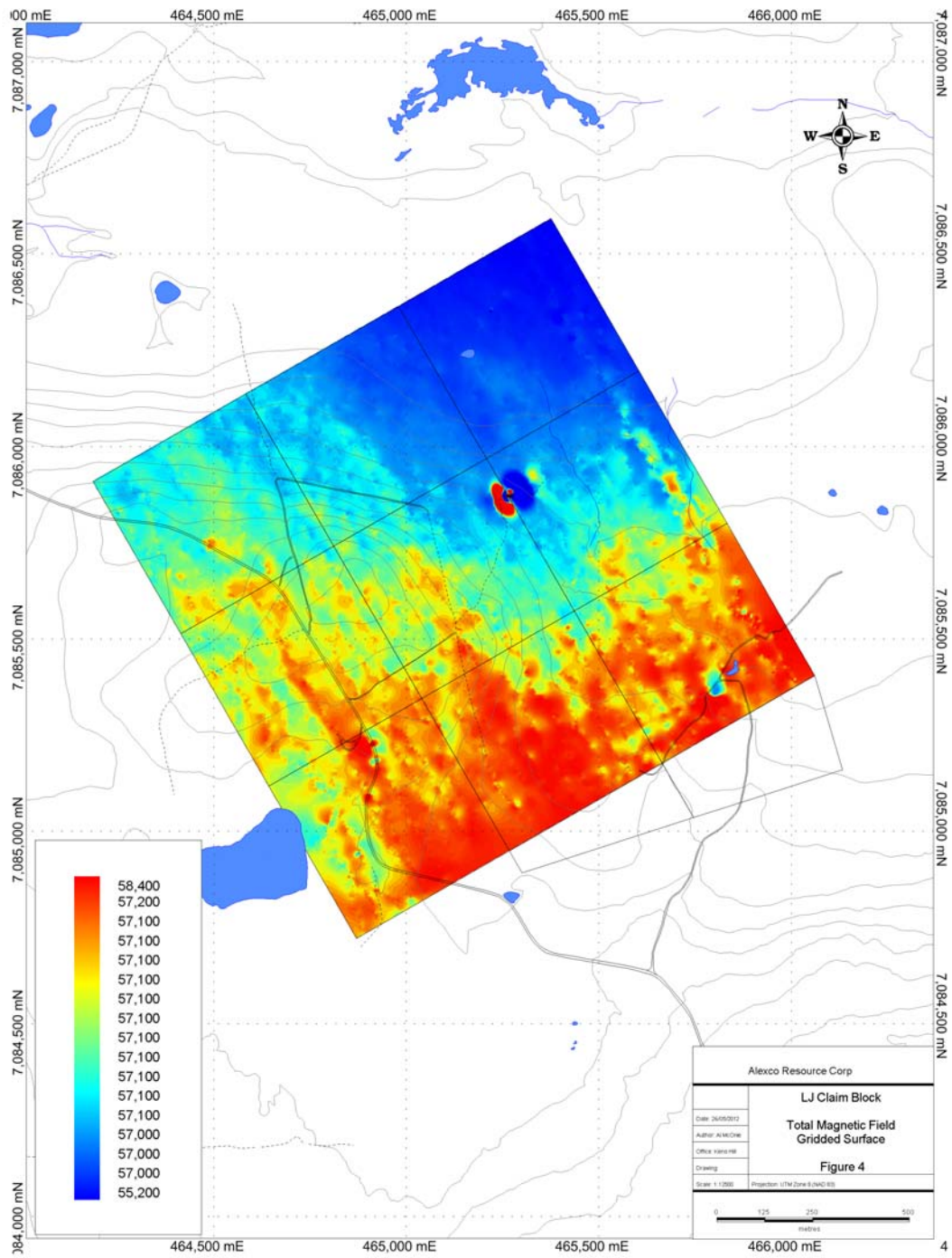
## Results

The range of corrected magnetic values is 5,334 nT between a minimum of 54,167 nT and maximum of 59,501nT.

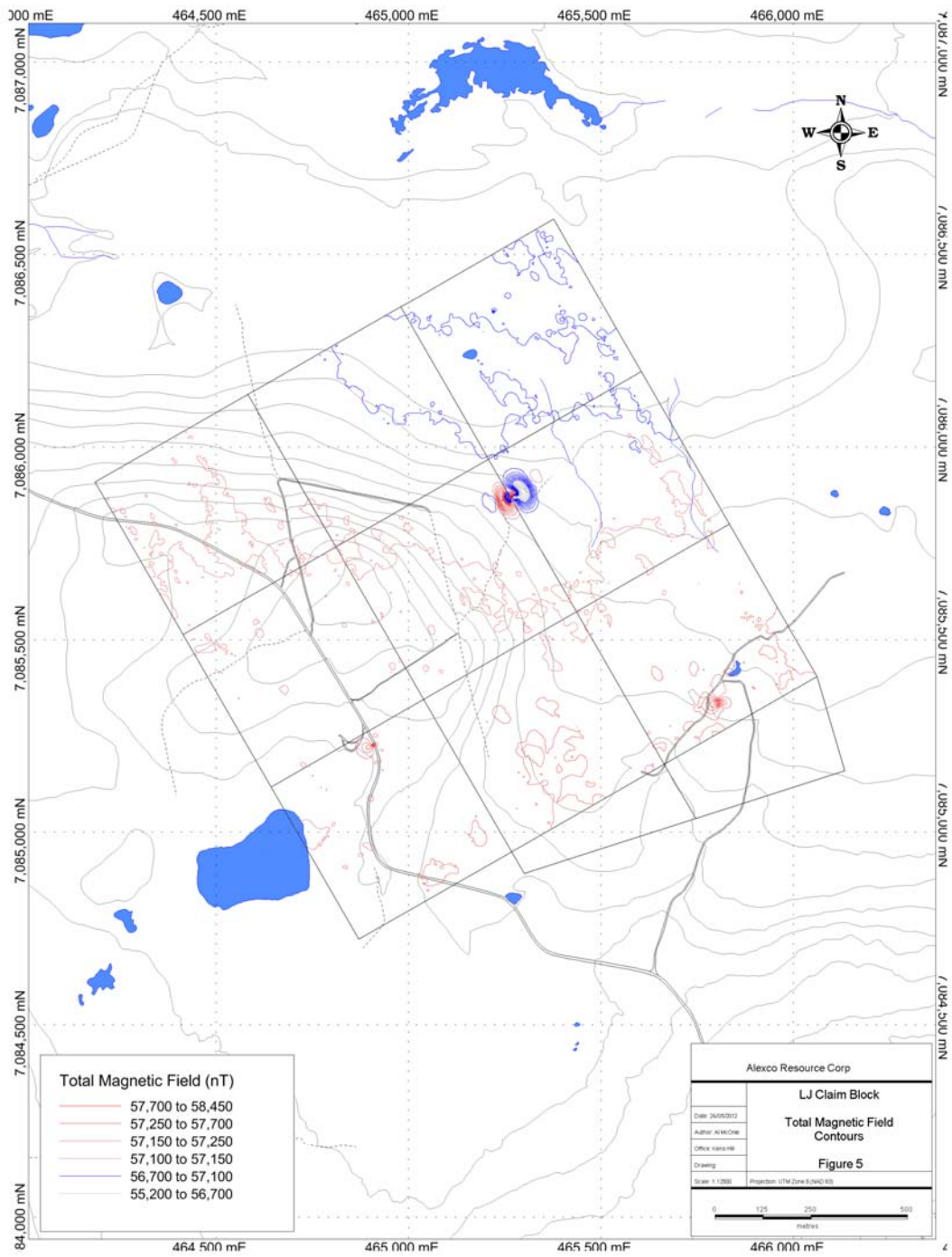
The results are shown as a gridded surface in Figure 4 and as contours in Figure 5. In general these show a gradual decrease in magnetic intensity from south to north with one prominent anomaly positive/negative pair located at 465,260E - 7,087,870N, and smaller positive anomalies located at 464,900E – 7,085,225N and 465,804E – 7,085,336N.

On aerial photographs, the two smaller of these anomalies occur close to areas where there are cultural disturbances from either the South McQuesten road or placer mining, while the larger anomaly occurs adjacent to what appears to be old tracking. These anomalies have therefore been identified as requiring followup to determine if there may be some cultural reason for them.

Otherwise the gradual change in magnetic intensity across the area is consistent with a probable increasing depth of Quaternary gravel in the valley towards the South McQuesten River.



**Figure 4 Total Magnetic Field Gridded Surface**



**Figure 5 Total Magnetic Field Contours**

## **8.0 CONCLUSIONS AND RECOMMENDATIONS**

The results from the ground magnetic survey identify three magnetic anomalies that require field checking to ascertain if they might be related to cultural occurrences, before further exploration investigation is warranted.

## **9.0 LIST OF REFERENCES**

Murphy, D.C., 1997.

Geology of the McQuesten River Region, Northern McQuesten and Mayo Map Areas, Yukon Territory (11P/14, 15, 16; 105M/13,14).

Exploration and Geological Services Division, Yukon, Indian and Northern Affairs Canada, Bulletin 6.

## APPENDIX 1

### LIST OF CLAIMS

Claim label	Quartz claim	Grant number	Owner name	Staking date	Recorded date	District
U 9	97160630	YD63299	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 1	97161595	YD63291	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 8	97161596	YD63298	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 7	97253780	YD63297	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 2	97267509	YD63292	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 6	97282313	YD63296	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 5	97280538	YD63295	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 10	97304307	YD63300	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 3	97336054	YD63293	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 4	97360428	YD63294	Alexco Exploration Canada Corp. - 100%	20101220	20101222	Mayo
U 11	97356444	YC90548	Alexco Exploration Canada Corp. - 100%	20110831	20110902	Mayo

## **APPENDIX 2**

### **LIST OF PERSONNEL**

Al McOnie  
694 SH 2, RD1  
Katikati  
New Zealand  
3177

Margaret McLennon  
24 – 255 Parkside Drive  
Fredericton, New Brunswick  
E3B 5L7

Riley Hall  
PO Box 37  
Mayo, YT  
Y0B 1M0

Lena Steinbrenner  
2708 Skeena St  
Terrace, BC  
V8G 3K4

Jared Chipman  
P.O. Box 74, South Ohio  
Yarmouth Co., Nova Scotia  
B0W 3E0

**APPENDIX 3**

**STATEMENT OF EXPENDITURES**

<b>COST STATEMENT - Alexco Resource Corp. November 2011 "LJ" Assessment Filing</b>						
<i>Claim(s)</i>		<i>Owner</i>	<i>STAFF/REPORTING</i>	<i>ROOM AND BOARD</i>	<i>RENTALS / SUPPPORT</i>	<b>EST TOTAL</b>
LJ 1	YD63291	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 2	YD63292	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 3	YD63293	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 4	YD63294	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 5	YD63295	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 6	YD63296	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 7	YD63297	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 8	YD63298	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
LJ 11	YC90548	Alexco Exploration Canada Corp.	\$ 803.33	\$ 179.67	\$ 357.00	\$ 1,340.00
Totals To Date			\$ 7,229.97	\$ 1,617.03	\$ 3,213.00	\$ 12,060.00
*Rentals/Support includes communication, freight, travel, fuel, truck & field office rental Magnetometer Survey work by Hall, McLennan, Chipman, Steinbrenner and McOnie						



## APPENDIX 6

### STATEMENT OF QUALIFICATIONS

#### Al McOnie

I, Alan McOnie of 694 SH2, RD1, Katikati, New Zealand  
DO HEREBY CERTIFY:

- 1 THAT, I am a VP Exploration and Qualified Person with Alexco Resource Corp., 1150-200 Granville Street, Vancouver, BC, V6C 1S4.
- 2 THAT, I have practiced my profession with various mining companies in the Canada, New Zealand, Australia, United States, Mexico, and China for over 35 years.
- 3 THAT, I am graduate in geology holding a BSc (Hons) from the University of Otago, New Zealand and a MSc from the University of Toronto, Canada.
- 4 THAT, I am a member of the Society of Economic Geologists.
- 5 THAT, I am a Fellow of the Australasian Institute of Mining and Metallurgy.
- 6 THAT, this report is based on work which I personally managed during the year 2011.
- 7 THAT, I have no interest in the property described herein, nor do I expect to receive any such interest.

DATED at Elsa, Yukon this 13th day of May, 2012.



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Al McOnie