

BC Geological Survey
Assessment Report
37635



ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Interpretation Report on the Spout Lake Property Cariboo Mining Division British Columbia, Canada

TOTAL COST: \$2,000

AUTHOR(S): John Buckle, P.Geo.

SIGNATURE(S): *John Buckle*

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): 5684915, 5684915

YEAR OF WORK: 2018

PROPERTY NAME: Spout Lake

CLAIM NAME(S) (on which work was done): 1050344

COMMODITIES SOUGHT: Copper, gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: Cariboo
NTS / BCGS: 093A 003

LATITUDE: _____ 52 _____ ° _____ 02 _____ ' _____ 00 _____ "
LONGITUDE: _____ 121 _____ ° _____ 24 _____ ' _____ 05 _____ " (at centre of work)
UTM Zone: _____ **EASTING:** 610700 **NORTHING:** 5765000

OWNER(S): Garibaldi Resources Corp.

MAILING ADDRESS: Suite 1150, 409 Granville Street,
Vancouver, BC
Canada V6C 1T2

OPERATOR(S) [who paid for the work]:

MAILING ADDRESS:

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. **Do not use abbreviations or codes**) Quesnel Trough, middle Jurassic, alkalic volcanic, island arc, Takomkane batholith, Late Triassic Nicola Group, andesites, basalts, calcareous tuffs and argillites

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

ARIS 23530, 04697, 04556

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other	Data processing and interpretation	1050344	2000
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
Other			
		TOTAL COST	2000

Interpretation Report on the

Spout Lake Property Cariboo Mining Division British Columbia, Canada

Location

NAD 83: Latitude: 52° 02' 00" Longitude: 121° 24' 05"

NAD 83: UTM: 10 Easting 610700 Northing 5765000

NTS: [093A](#)

BCGS: 093A 003

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DATED: October 31, 2018

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SUMMARY

This report describes the reprocessing and interpretation of a government sponsored airborne geophysical survey and false colour ASTER satellite images with calculated concentrations of alteration minerals. Original data from Geophysical series - NTS 93A/3, 93A/2, 93A/6, 93A/7, 92P/14 - Eagle (Murphy) Lake, British Columbia; Carson, J M; Dumont, R; Potvin, J; Shives, R B K; Harvey, B J A; Buckle, J L; Cathro, M. Geological Survey of Canada, [Open File 5292](#), 2006; 10 sheets was used for this report. Free Download from [GEOSCAN](#).

Geophysical series - NTS 93A/2, 93A/3, 92P/14, 92P/15 - McKinley Creek, British Columbia; Carson, J M; Dumont, R; Potvin, J; Shives, R B K; Harvey, B J A; Buckle, J L. Geological Survey of Canada, Open File 5293, 2006; 10 sheets.

These surveys include the 2004 Tisdall survey in the Quesnel Geophysics Map.

Alteration-Mineral Images Four alteration-mineral images are available in PNG format with PGW world files. These images were produced using standard combinations of the ASTER bands. The four images can be used to map the relative abundance of siliceous rocks, iron oxides, sericite and illite, and alunite and/or kaolinite. The images are in UTM projection. As the colour scaling is unique to each image, the colours should not be compared between images.

INTRODUCTION

This report was commissioned by Mr. Steve Regoci, of Garibaldi Resources Corp. of Suite 1150, 409 Granville Street, Vancouver, BC. Garibaldi is the 100% owner of the property. The work done described in this report is applicable to claim number 1050344 and is written in support of Statement of Work number 5684915. This report is authored by John Buckle, P.Geo. The results of an Bonaparte Lake East, Eagle Lake and Murphy Lake aeromagnetic and radiometric surveys carried out over the Spout Lake area in 2005 and ASTER Alteration Mineral images from

<http://webmap.em.gov.bc.ca/mapplace/minpot/asterdown.asp> have been incorporated into this report.

In the preparation of this report, information was obtained from British Columbia Government websites such as the Map Place (www.em.gov.bc.ca/mining/Geosurv/MapPlace) and Mineral Titles Online (www.mtonline.gov.bc.ca) and Natural Resources Canada <http://gdr.agg.nrcan.gc.ca> and geogratis.ca as well as the mineral assessment work reports from the Spout Lake area that have been filed by various companies.

A high sensitivity helicopter-borne Magnetic and Gamma-ray Spectrometric airborne geophysical survey was carried out for the Geological Survey of Canada over a single block in the central region of British

Columbia. The survey was flown by Fugro Airborne Surveys under the terms of an agreement with the Geological Survey of Canada, dated August 24, 2006. Appendix A lists the personnel involved in the acquisition, processing and presentation of the survey data.

Geophysical equipment comprised a high-sensitivity cesium magnetometer mounted in a stinger configuration and a 256-channel spectrometer with 33.6 litre downward looking crystal. Ancillary equipment included analog and digital recorders, radar, laser and barometric altimeters, a video flight path camera, and a global positioning system (GPS), which provided accurate real-time navigation and subsequent flight path recovery. Surface equipment included magnetic and GPS base stations, and a PC-based field workstation, which was used to check the data quality and completeness on a daily basis.

PROPERTY DESCRIPTION AND LOCATION

The Spout Lake Property is located in central British Columbia (figure1), to the east of Williams Lake, in the Cariboo area. The property is located within the Cariboo Mining Division in central British Columbia. The claims cover an area of 238.6787 hectares and are centered at latitude 59° 29' 43" and longitude 134° 19' 31" within NTS map sheets 093A 004. The property is centred on UTM WGS84 co-ordinates zone 8 610700 east and 5765000 north. Garibaldi Resources Corp. owns a 100% interest in claim number 1050344.

<u>Tenure Number</u>	<u>Type</u>	<u>Claim Name</u>	<u>Good Until</u>	<u>Area (ha)</u>
1050344	Mineral	HIDDENCU	20190831	238.6787

Total Area: 238.6787 ha

Interpretation Report on the Spout Lake Property

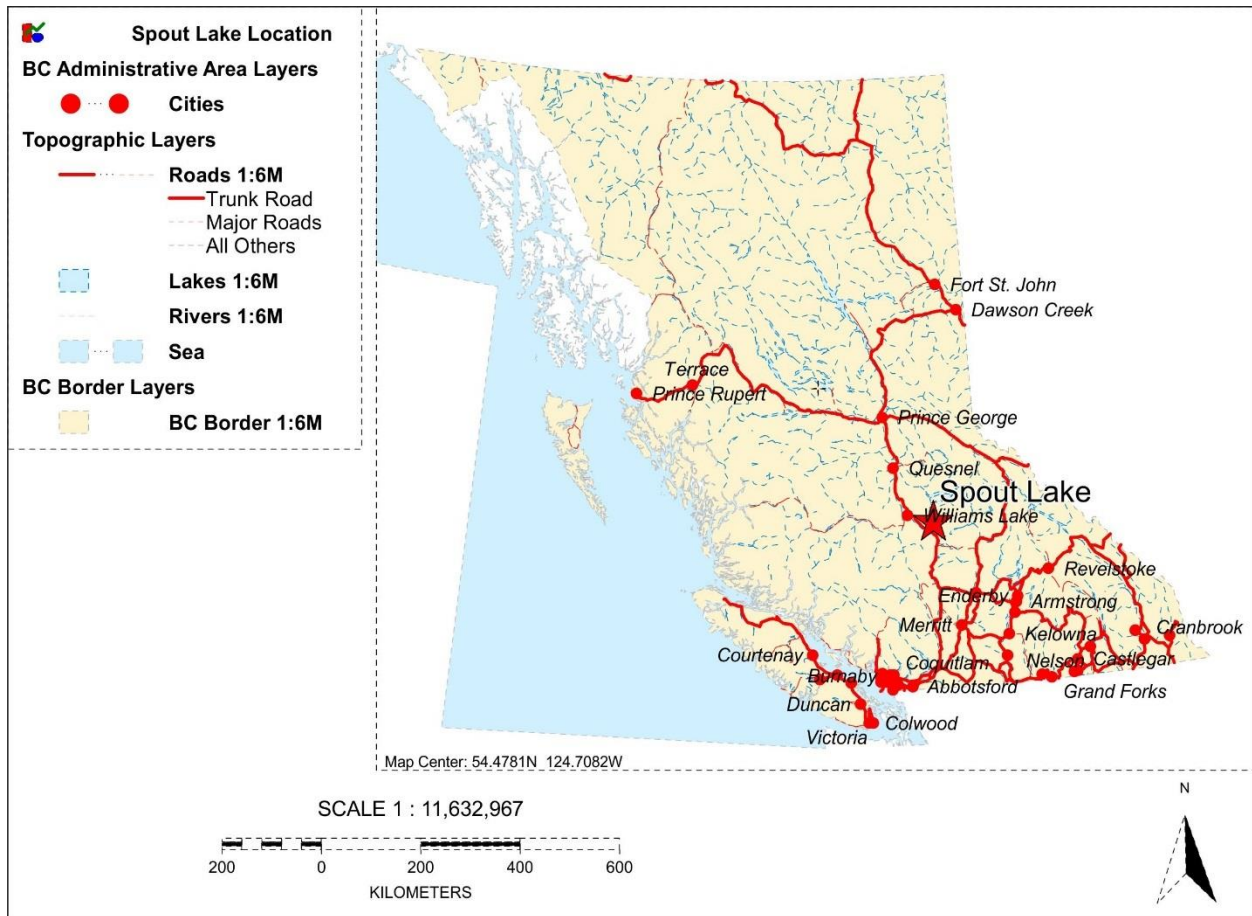


Figure 1 Location Map

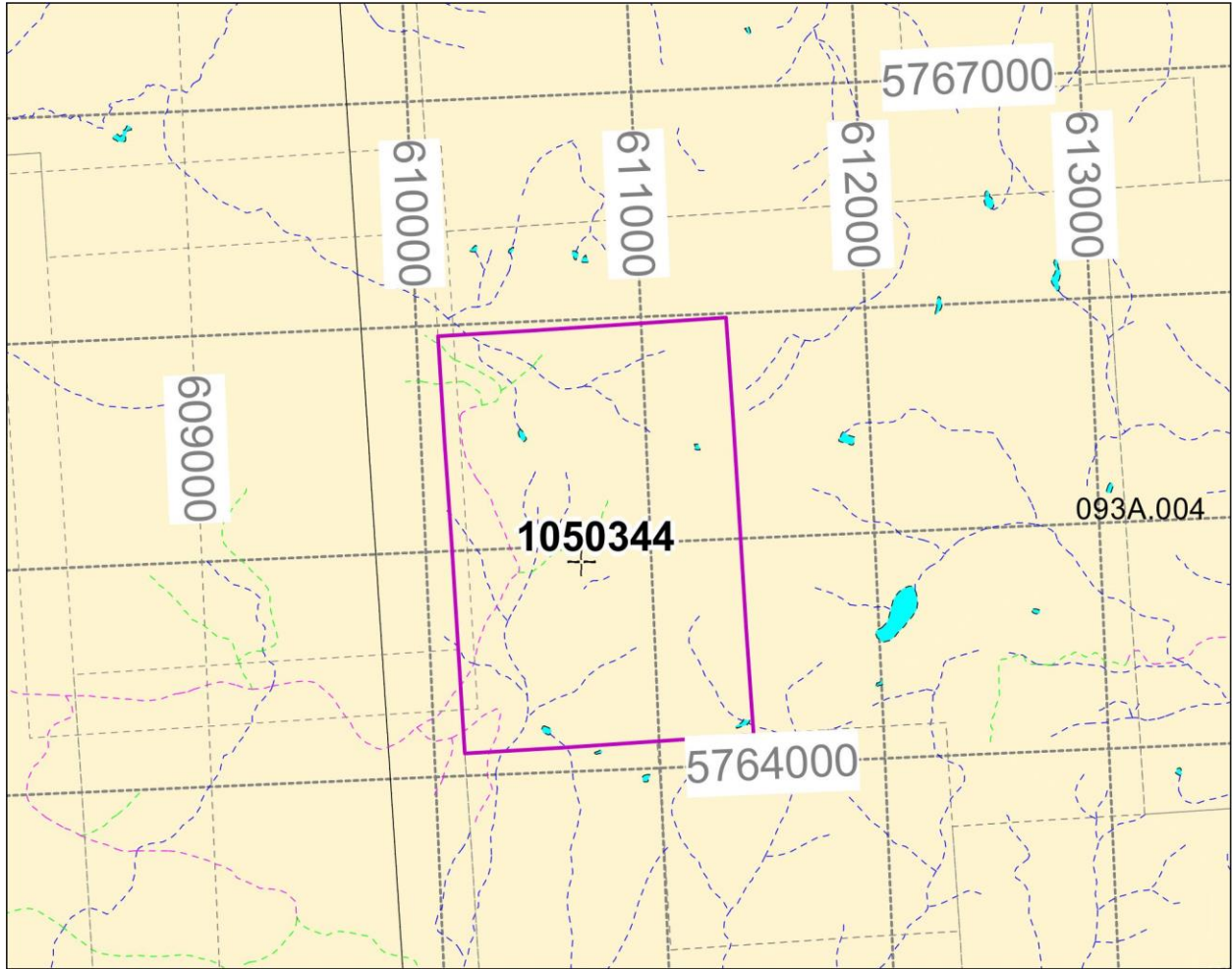


Figure 2 Claim Layout Map

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE

The Spout Lake property is located 25 kilometres north-northeast of Lac La Hache, B.C. in the Cariboo Mining Division. Access to the property is by an all weather gravel road from Lac La Hache. Numerous logging roads cross the property and are in variable condition depending on the age of the logging scars.

Murphy Lake lies to the east and Spout Lake lies to the south of the claim group.

The climate in the vicinity of the Spout Lake property is typical of the Cariboo Region. Temperatures are moderate ranging from a minimum of -30 degrees Celsius in the winter to a maximum of 30 degrees in the summer. Precipitation is moderate, with one metre of snow common on the ground in the winter time. Exploration can be conducted year round.

Relief is gentle to rolling throughout the claim group except for the escarpment located in the centre of the claims. Elevations vary from 915 metres (3000) at Two Mile Lake to 1555 metres (5100) south of Two Mile Lake. Vegetation consists of mature stands of douglas fir, lodgepole pine, and birch, where no logging has taken place. Wet marsh lands occur in the valley bottoms. The bush is generally fairly open. Williams Lake has a humid continental climate with warm summers. Spring is the driest time of year, and summer and winter are the wettest seasons respectively. Williams Lake receives about 2,000 hours of bright sunshine per year, which is more than most of the province. It is also located in the rain shadow of the coastal mountains.

Table 1 Table of annual temperatures

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Record high °C (°F)	16.0 (60.8)	16.0 (60.8)	22.5 (72.5)	31.7 (89.1)	38.0 (100.4)	37.2 (99)	41.1 (106)	37.5 (99.5)	39.0 (102.2)	30.0 (86)	18.0 (64.4)	17.2 (63)
Average high °C (°F)	-1.9 (28.6)	2.6 (36.7)	9.2 (48.6)	14.7 (58.5)	19.7 (67.5)	23.0 (73.4)	25.8 (78.4)	25.9 (78.6)	21.0 (69.8)	12.6 (54.7)	3.5 (38.3)	-2.2 (28)
Daily mean °C (°F)	-5.9 (21.4)	-2.5 (27.5)	2.6 (36.7)	7.3 (45.1)	12.1 (53.8)	15.6 (60.1)	17.9 (64.2)	17.5 (63.5)	13.1 (55.6)	6.7 (44.1)	-0.2 (31.6)	-6.0 (21.2)

EXPLORATION HISTORY

The Cariboo area has had a long history of placer gold exploration following the Cariboo gold rush of the 1860's. Lode gold in quartz veins was discovered in the 1930's at Frasergold to the east and Spanish Mountain to the north. Significant exploration began in the mid 1960s with the discovery of the Cariboo-

Bell porphyry copper deposit to the north. Renewed exploration for gold in the 1980s led to the discovery of the QR deposit to the north.

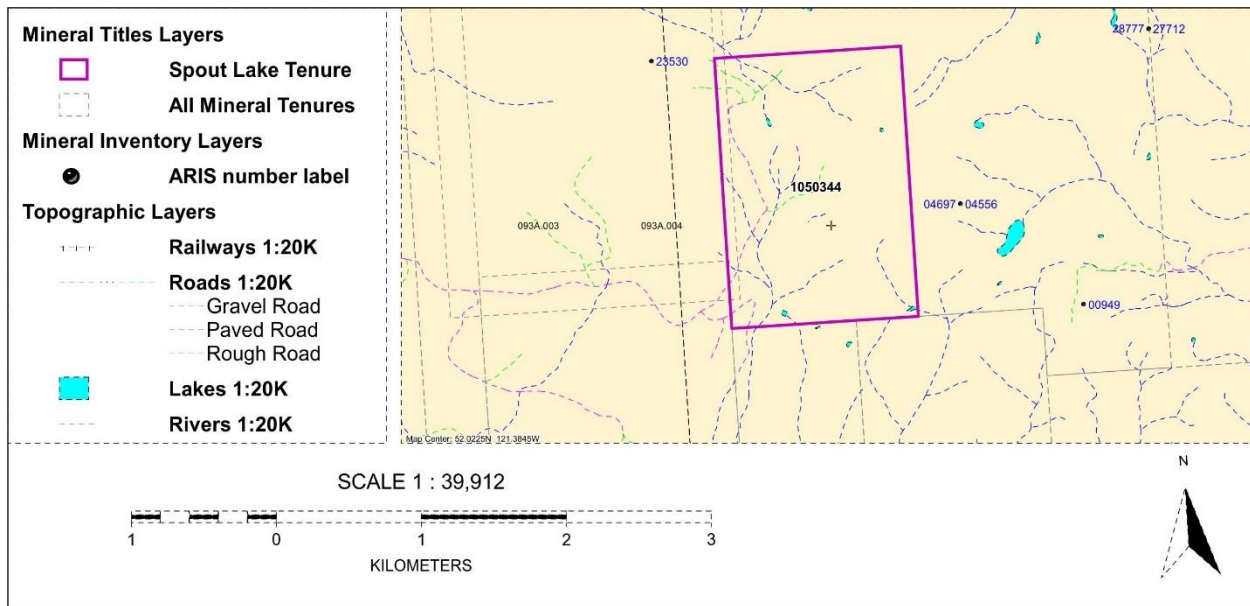


Figure 3 ARIS reports in Spout L. claim area

No previous work is recorded in the ARIS files within the claim, however a few hundred meters from the north-west corner of the claim work was done in 1994. The results were not significant with no anomalous values in gold, silver or copper reported. However, the report states “Copper mineralization is reported on the southeast corner of the claims in syenite (Janes, 1986)” this would be the closest point to Garibaldi claim.

Two ARIS reports 04697 and 04556 report work east of the Spout Lake property. The work done reported in ARIS report 04697 of 1973 described a ground magnetic and VLF geophysical survey and geochemical soil sampling survey that identified 3 specific anomalies worthy of follow-up particularly based on the elevated copper values. Report 04556 describes magnetic and induced polarization geophysical survey and soil samples over the same property as report 04697. The results were not encouraging even though the magnetic anomaly was described as strong, the IP detected a weak deep chargeability with coincident resistivity anomalies.

GEOLOGICAL SETTING

Quesnel Trough is believed to be an island arc assemblage of alkalic volcanic, volcanoclastic, and sedimentary rocks formed at an easterly dipping subduction plate margin and obducted eastward onto the existing continental terrane during the middle Jurassic. Several volcanic centres within the trough

are evident. These centres are controlled by northwest trending, primary fault structures which were active into the late Mesozoic. The centres are cored by subvolcanic alkalic stocks (Saleken and Simpson, 1981). These stocks are hosts for numerous copper-gold porphyry deposits, such as Copper Mountain, Afton, Cariboo Bell and the QR gold mine.

The Spout Lake property area is part of the Quesnel Terraine , a basin of early Mesozoic eugeosynclinal deposition situated between the Omineca Geanticline in the Columbia Mountains to the east and the Pinchi Geanticline to the west (Campbell, Tipper, 1972). Between the geanticlines is a large thickness of late Triassic and early Jurassic primarily volcanic clastic rocks belonging to the Nicola, Takla and Stuhini Groups. These have been intruded by large granitic batholiths. The Takomkane Intrusion is one such batholith and lies along the eastern boundary of the Spout Lake property.

The Spout Lake property is underlain by Upper Nicola volcanic rocks, a large monzonite stock, and the Takomkane batholith rocks ranging in age from Triassic to Tertiary. The Group is situated along the eastern edge of the Intermontane Tectonic Belt in central British Columbia.

The Late Triassic Nicola Group is andesites, basalts, calcareous tuffs and argillites of the Granodioritic rocks of the Triassic to Jurassic, the Takomkane Batholith intrude Nicola rocks east of the property. Late Triassic to Early Jurassic Spout Lake Intrusive complex is an alkalic intrusive suite ranging in composition from pyroxenite through monzonite to syenite, and from batholithic size to small intrusive plugs, dykes and breccia bodies. Outliers of alkaline plateau basalts of the Miocene to Pleistocene Chilcotin Group are present in the general area.

A predominant set of north to northeast trending faults and a subordinate east to west trending fault set slightly complicates the geology.

Interpretation

Mapping hydrothermally altered rocks, which are common indicators of mineralization, is integral to reconnaissance mineral exploration. Multispectral moderate-resolution satellite remote sensing has long-been applied to map altered rocks, offering wide spatial coverage, low cost, and simple image analysis. Most previous studies have been in un-vegetated arid or semi-arid areas. Use of this technique in much of the Canadian Cordillera faces the challenge of extensive cover by vegetation, ice, snow, and water along with high relief. (Han, Nelson, 2015) ASTER Is a Japanese sensor that is acquiring images for over 17 years. Although problems occurred in 2008 affecting some spectral bands, a large catalog of images taken during 2000-2008 are available for free and are priceless for geological applications. The

sensor is still operational. Each mineral has its own spectral signature. Each ASTER scene covers 60 km X 60 km. At a 30 m resolution (pixel size), this represents 4.000.000 individual pixels having each one a unique spectral signature calculated from 14 spectral values.

The basic detection concept lies in calculating the probability that a pixel indicates the presence of a certain mineral by evaluating the similarities between the pixel spectral signature and the Mineral Lab Spectral

The spectral values received at the sensor, for one specific pixel, will be “contaminated’ by other surface elements (vegetation, other minerals, water, etc.). This has the effect of diluting the specific spectral characteristics of the mineral we are trying to detect. ASTER offers 14 bands, this means that we have only 14 points on the graphic to define the spectral signature. Obviously not all the minerals can be detected. The spectral grouping for ASTER is displayed in 4 classes of alteration minerals. The ASTER images in this report show iron oxide, silica, kaolinite-alunite group and sericite-illite group.

Interpretation Report on the Spout Lake Property

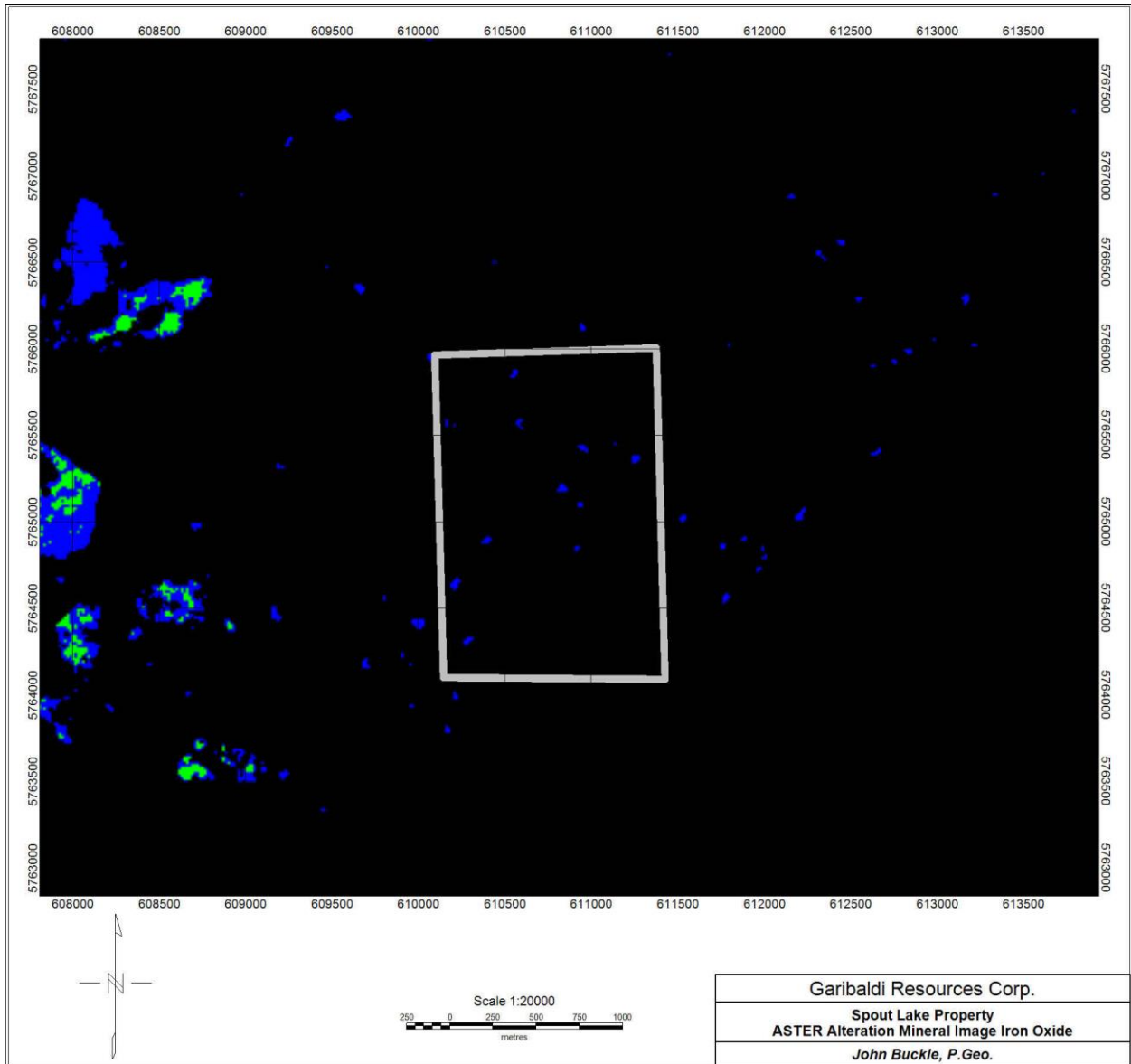


Figure 4 ASTER image of iron oxide

The windowed image in figure 4 shows a few small moderate iron oxide anomalies within the claim.

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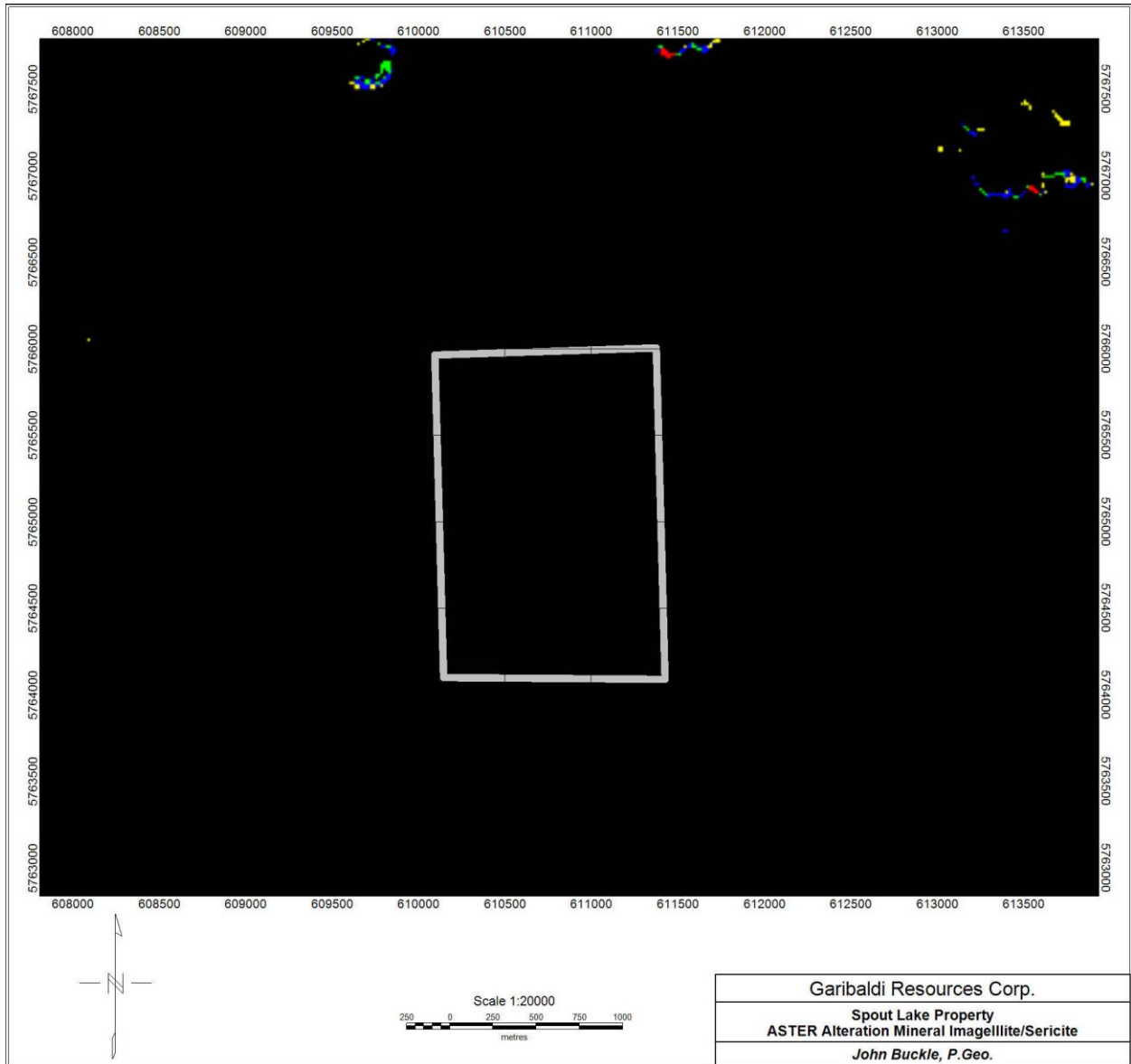


Figure 5 ASTER image of illite and/or sericite

The Illite-sericite group ASTER spectrum in figure 5 does not show any anomalies in the claim.

Interpretation Report on the Spout Lake Property

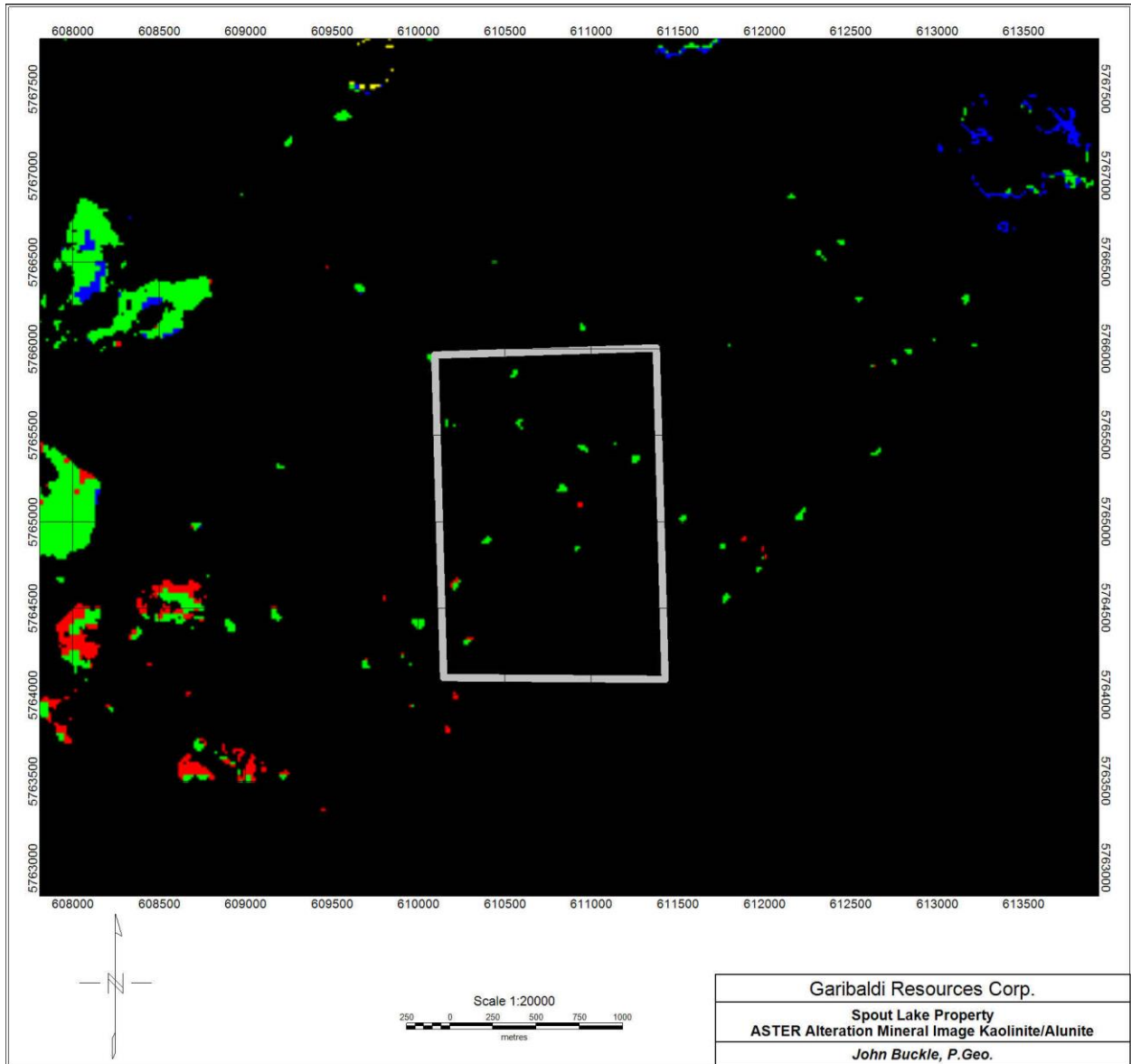


Figure 6 ASTER image of kaolinite and/or alunite

Figure 6 ASTER image of kaolinite and alunite anomalies are coincident with the iron oxide anomalies. The values indicate medium to high anomalous values.

Interpretation Report on the Spout Lake Property

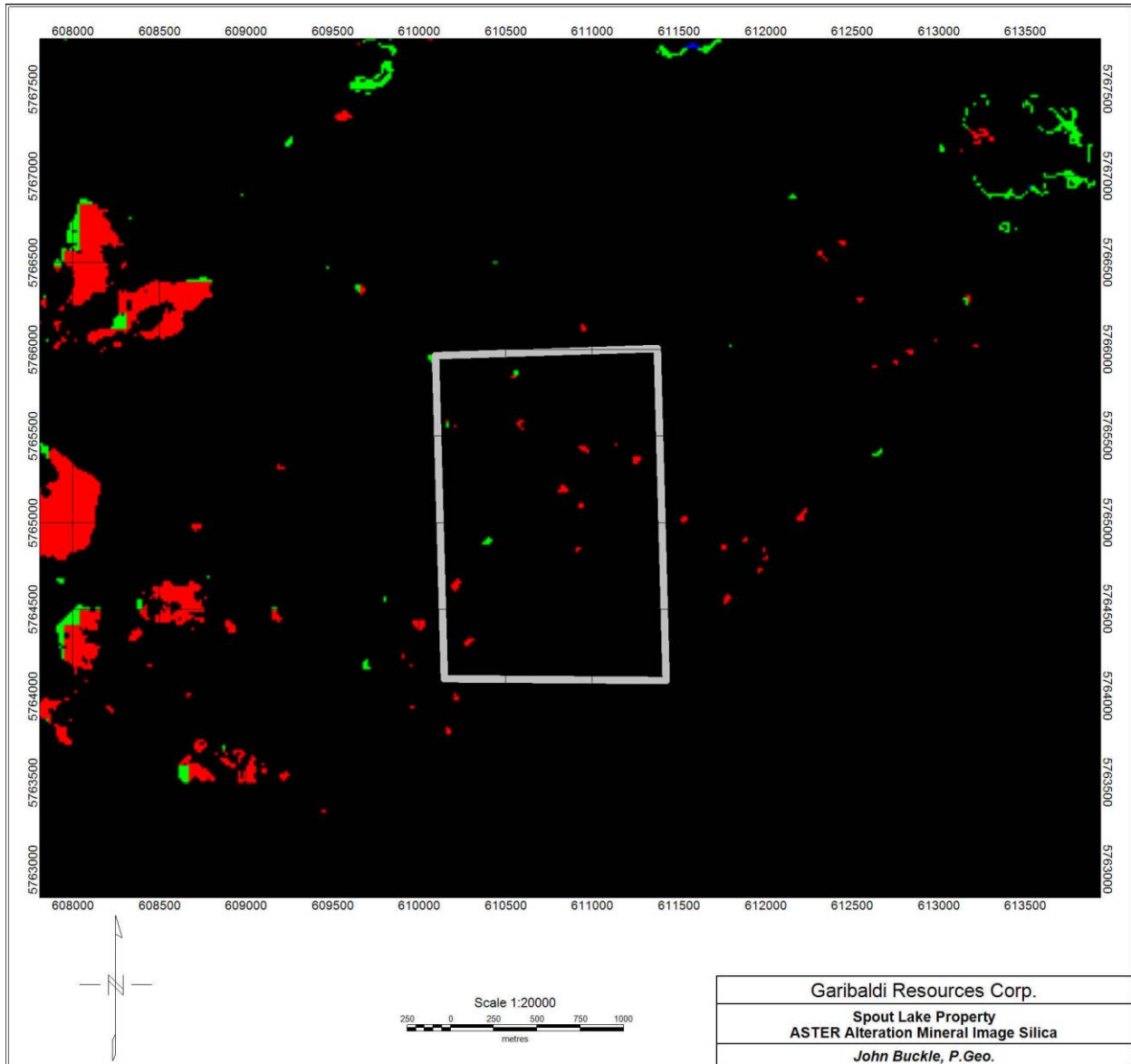


Figure 7 ASTER image of silica

Silica ASTER values are anomalously high in the claim map and these anomalies are also coincident with the iron oxide and kaolinite anomalies.

Interpretation Report on the Spout Lake Property

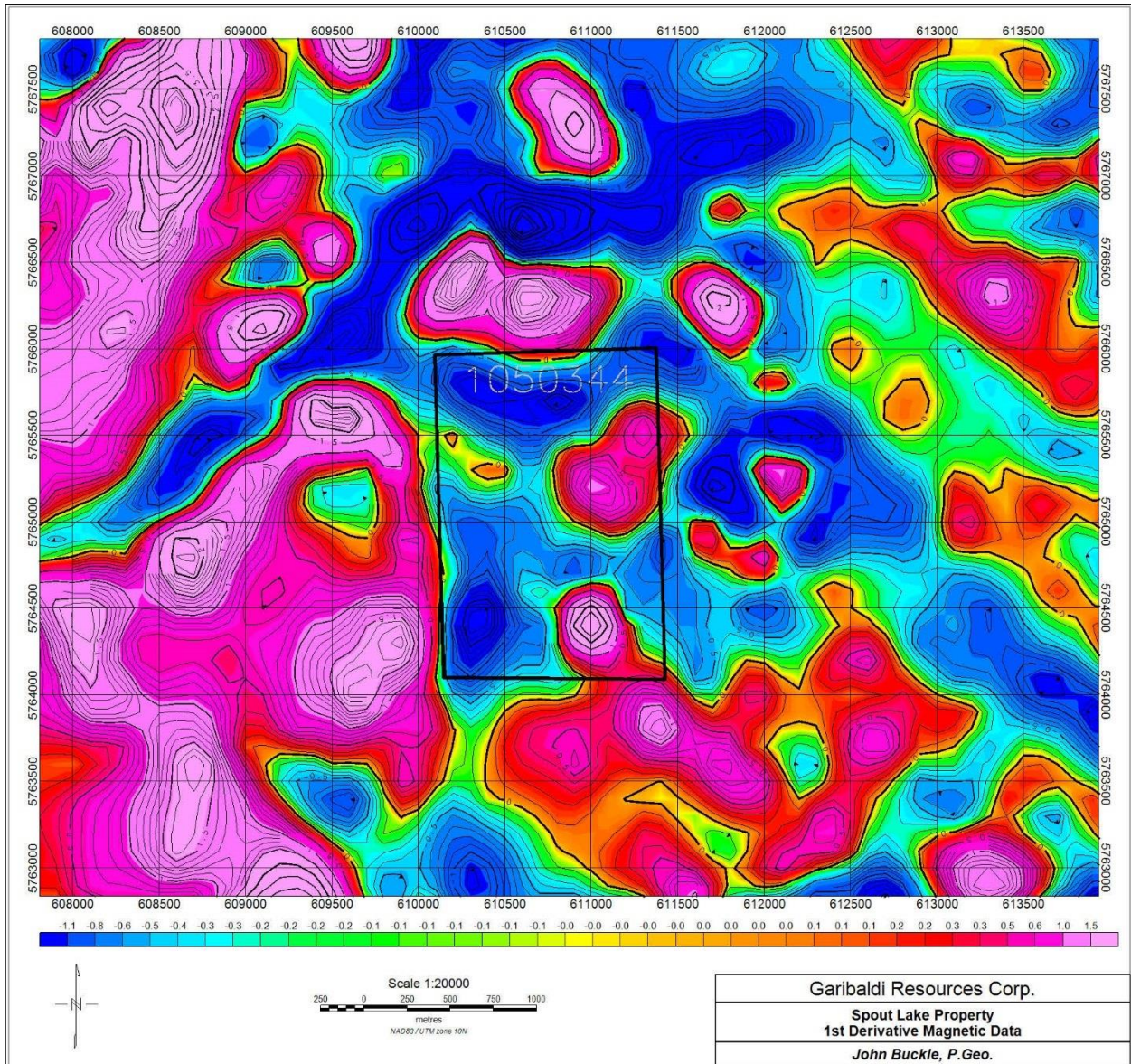


Figure 8 Windowed airborne magnetic data 1st derivative plan map

The first derivative magnetic data show two anomalous magnetic high within a relatively low magnetic area.

Interpretation Report on the Spout Lake Property

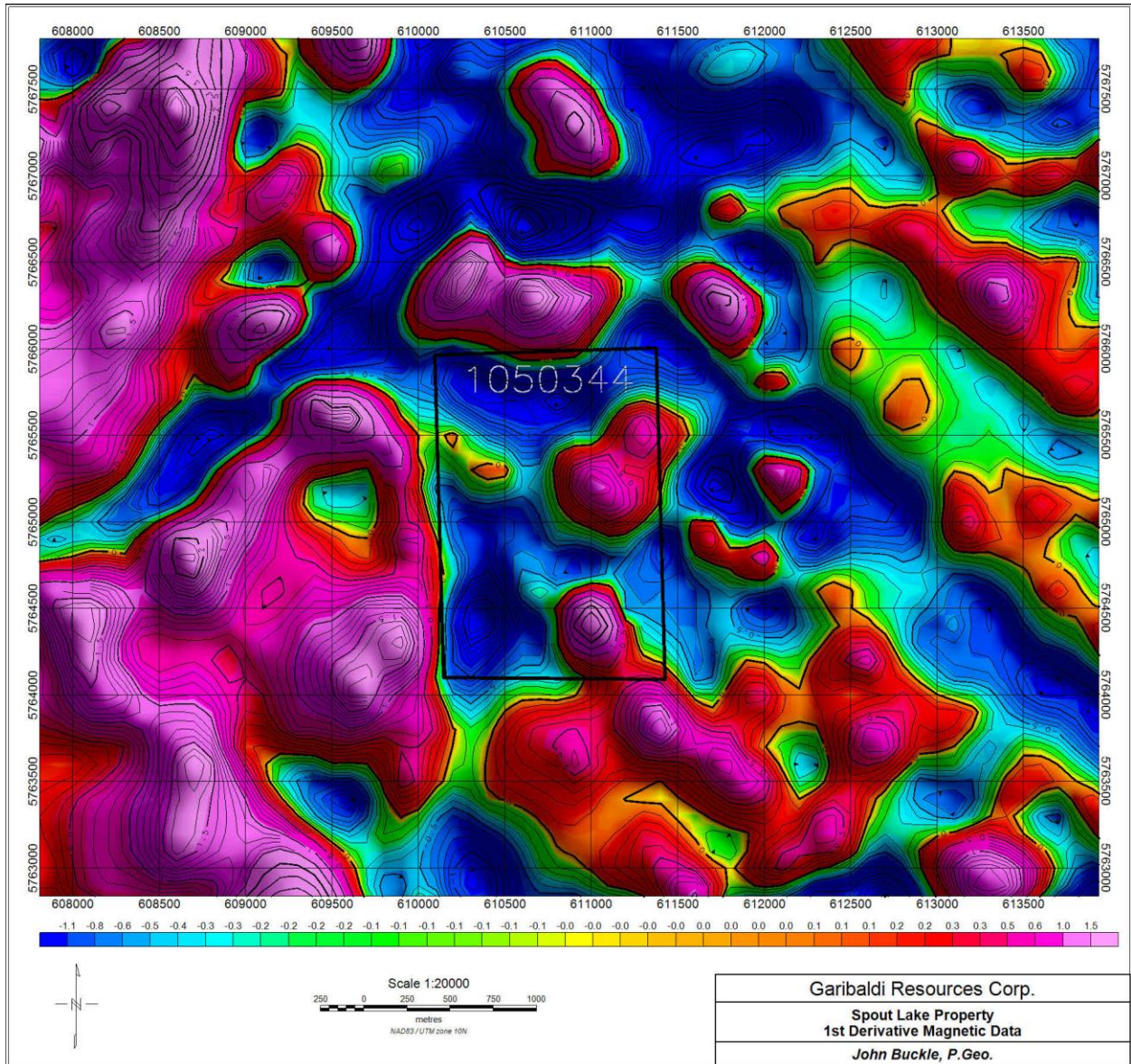


Figure 9 Windowed airborne magnetic data 1st derivative shadowed plan map

The shadow magnetic presentation of the first derivative data shows the anomalies more clearly.

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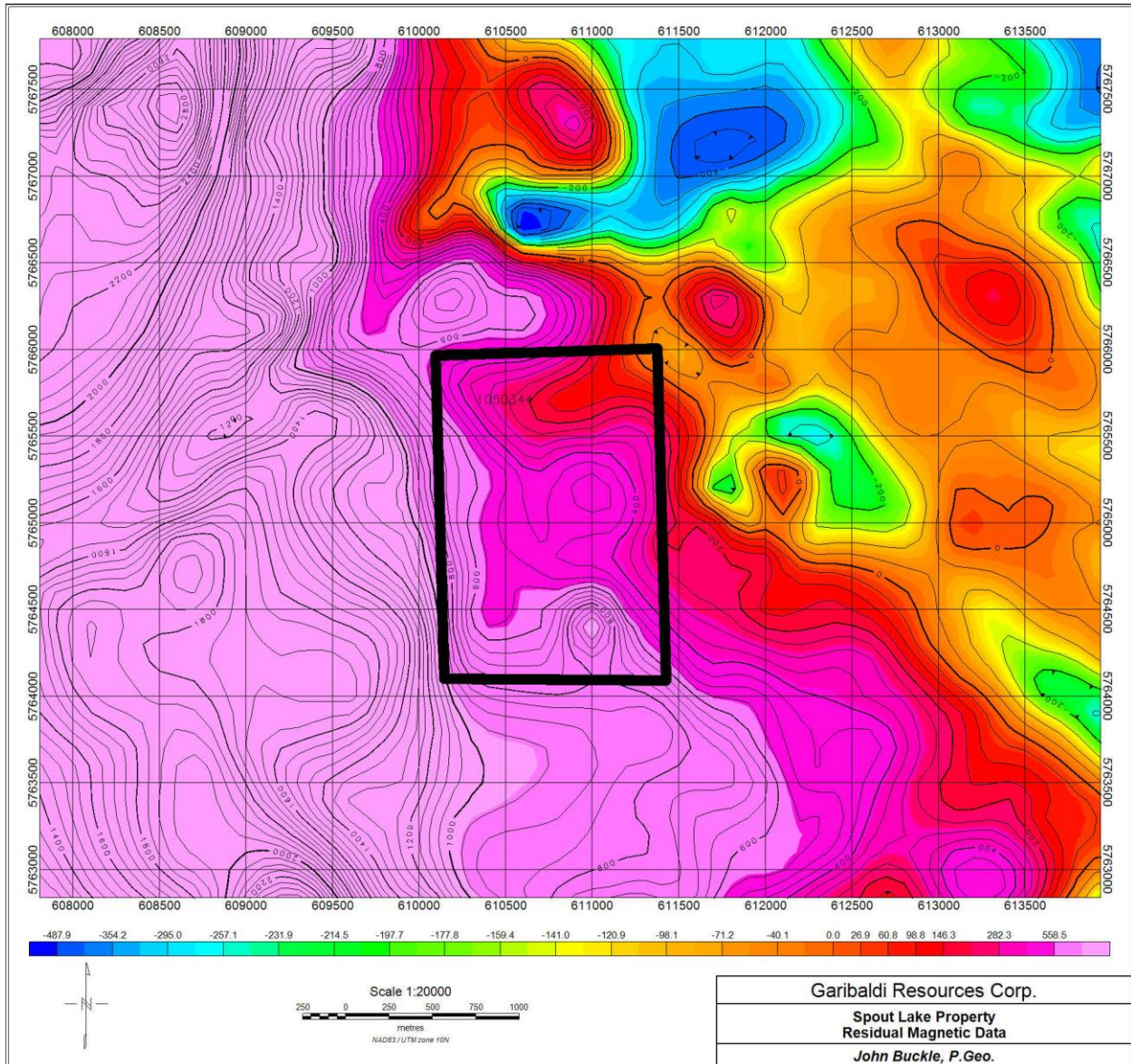


Figure 10 Windowed airborne residual magnetic data

The residual magnetic data generally reflects the basement magnetic of the area. The magnetic data illustrates that the claim lies on the contact with mafic volcanic rocks to the west with the calc-alkaline rock to the north and east.

Interpretation Report on the Spout Lake Property

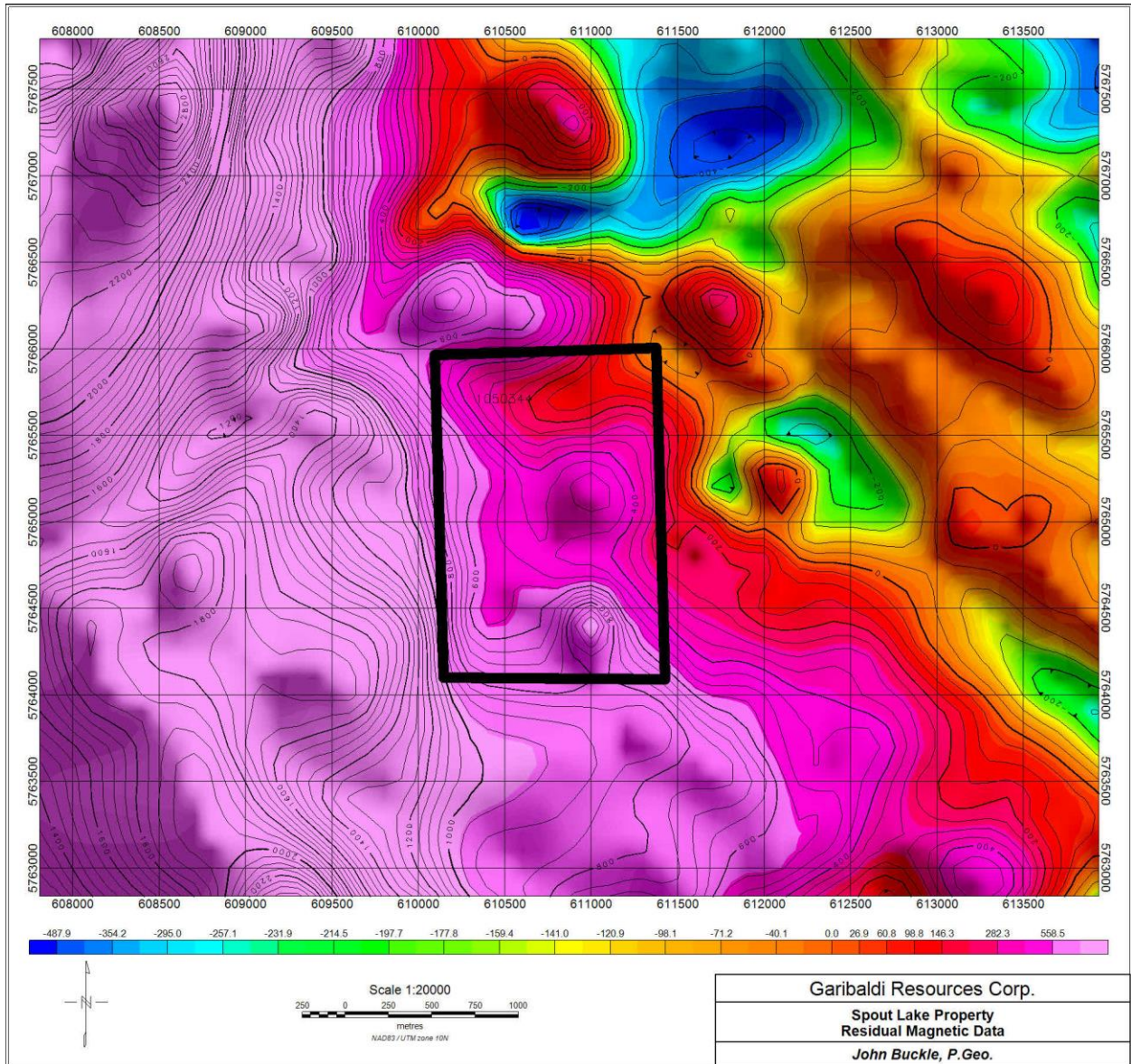


Figure 11 Windowed residual shadowed magnetic data

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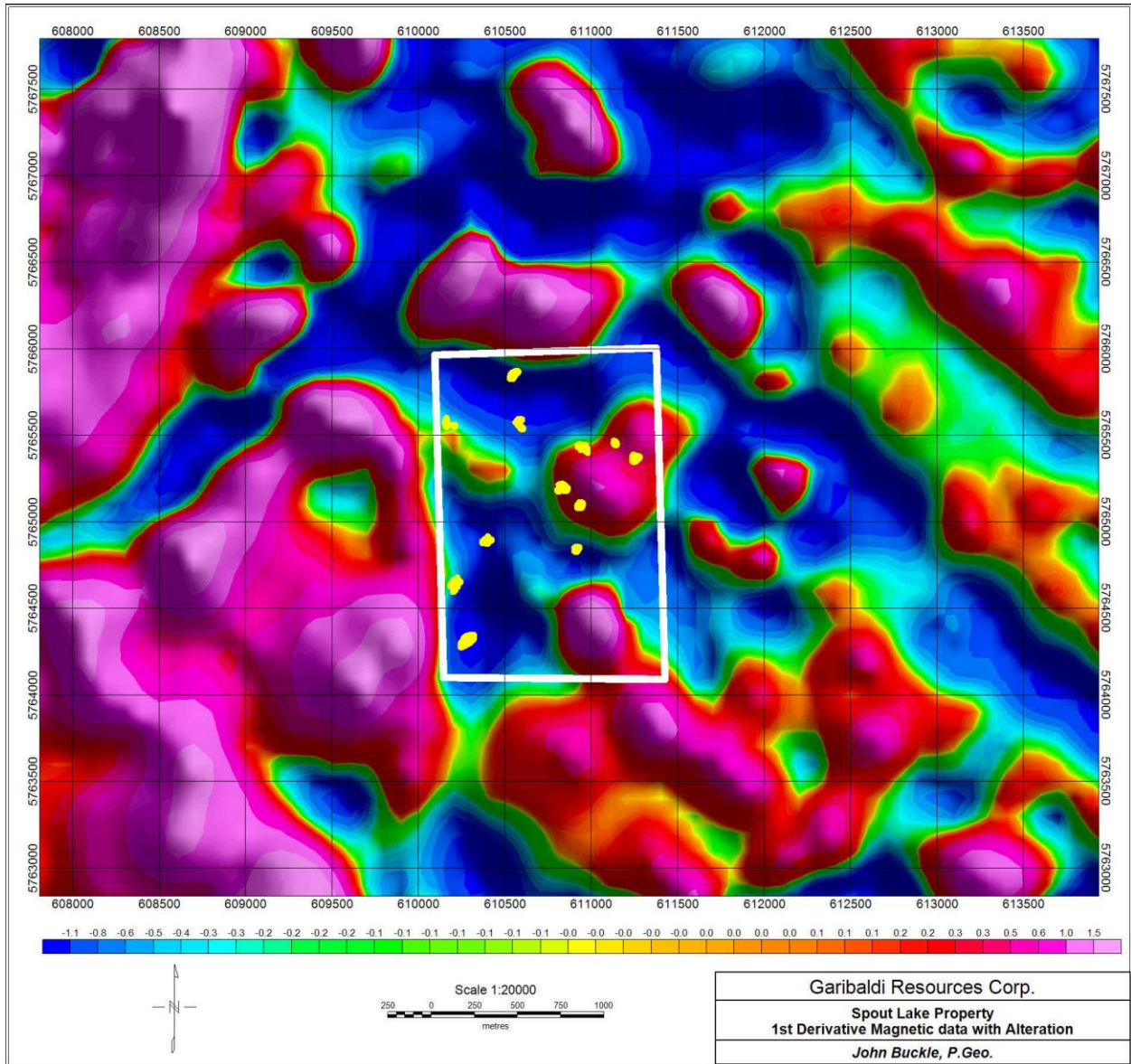


Figure 12 first derivative with hydro-thermal alteration anomalies

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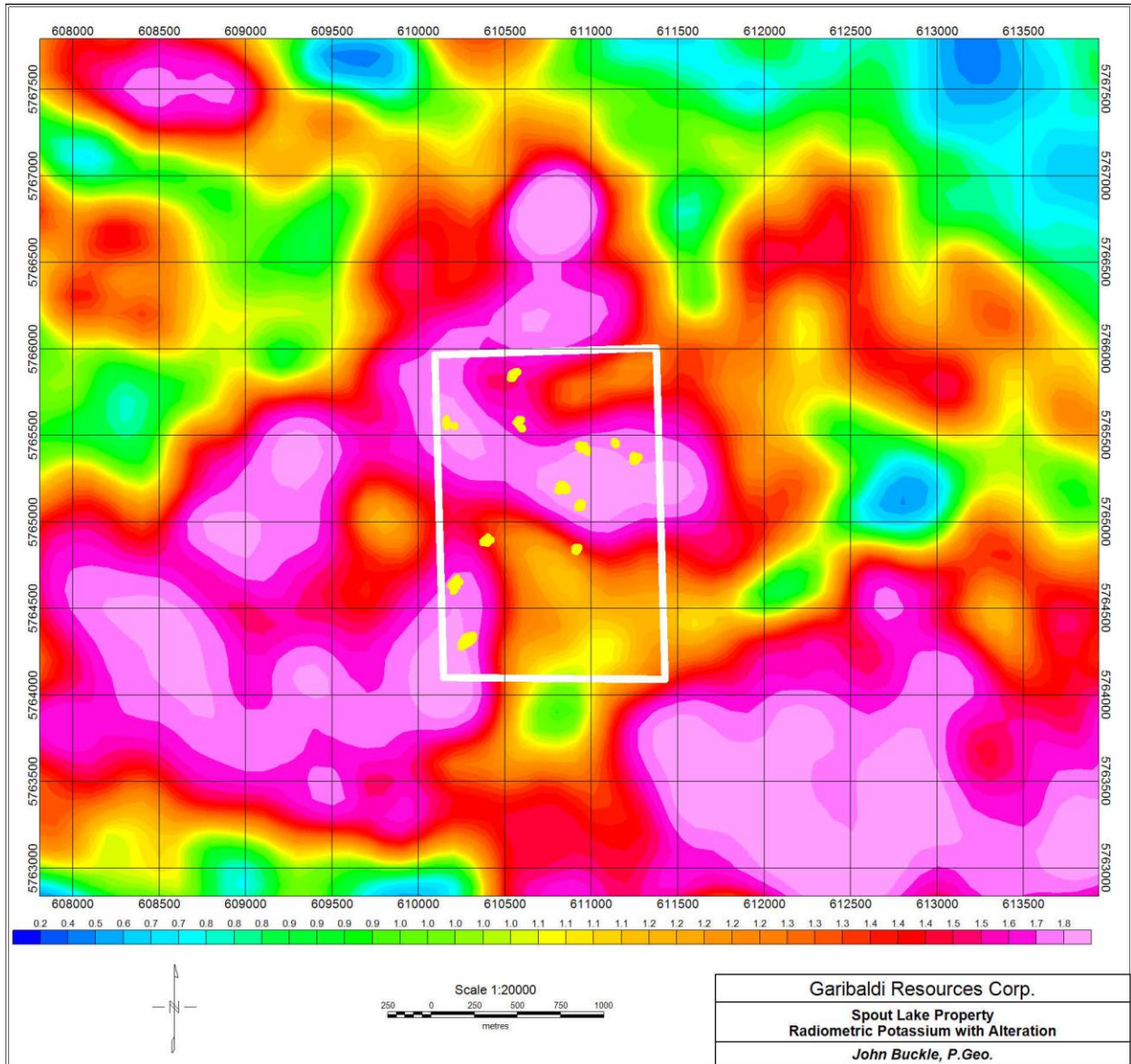


Figure 13 Radiometric potassium with ASTER alteration anomalies

Airborne radiometric data map of potassium shows an anomalous potassium high zone on the north half of the claim and coincident with alteration anomalies from the ASTER data and the magnetic high anomaly.

Interpretation Report on the Spout Lake Property

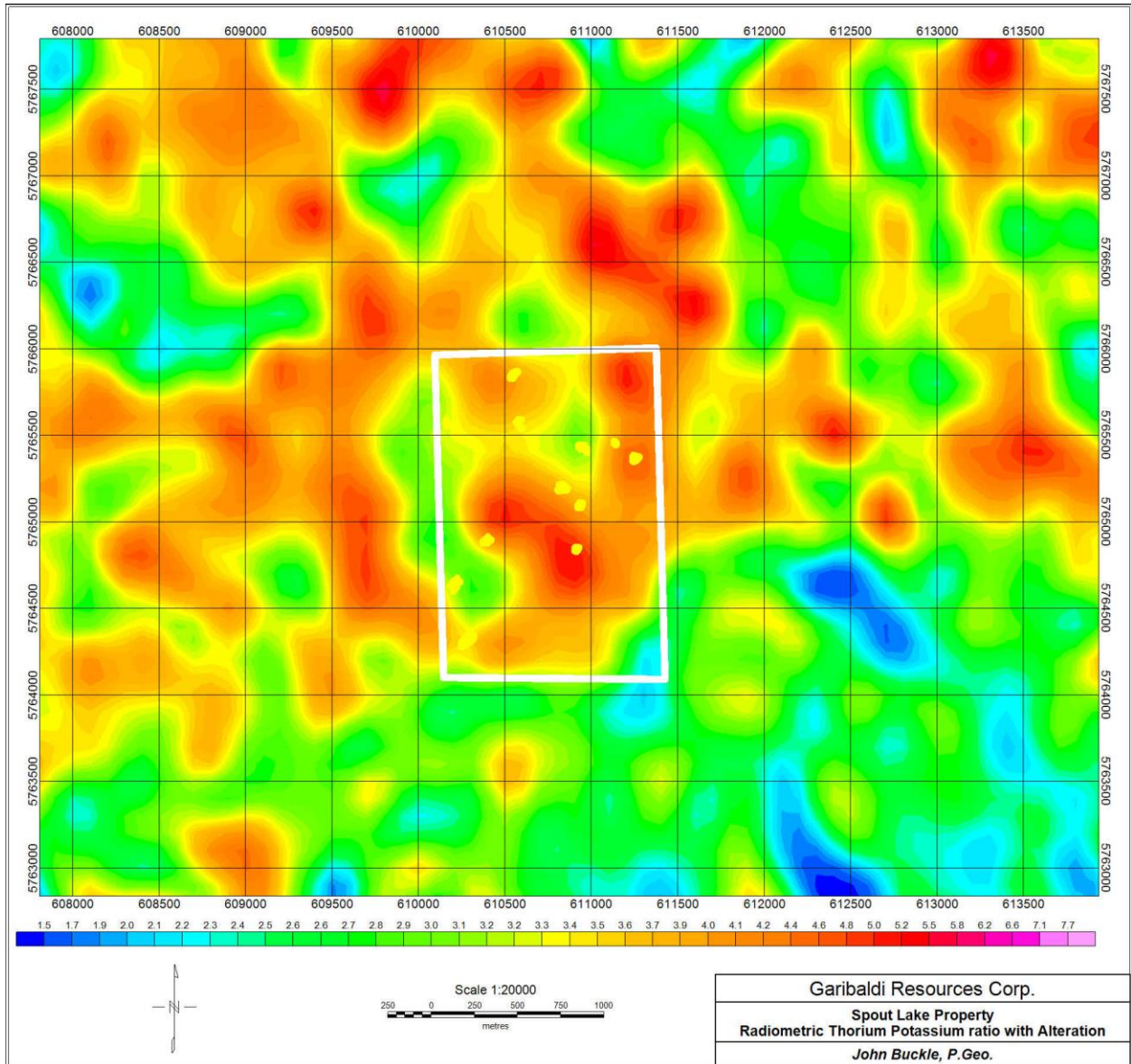


Figure 14 Radiometric Thorium

The map in figure 14 of thorium over potassium ratio coincident with ASTER anomalies.

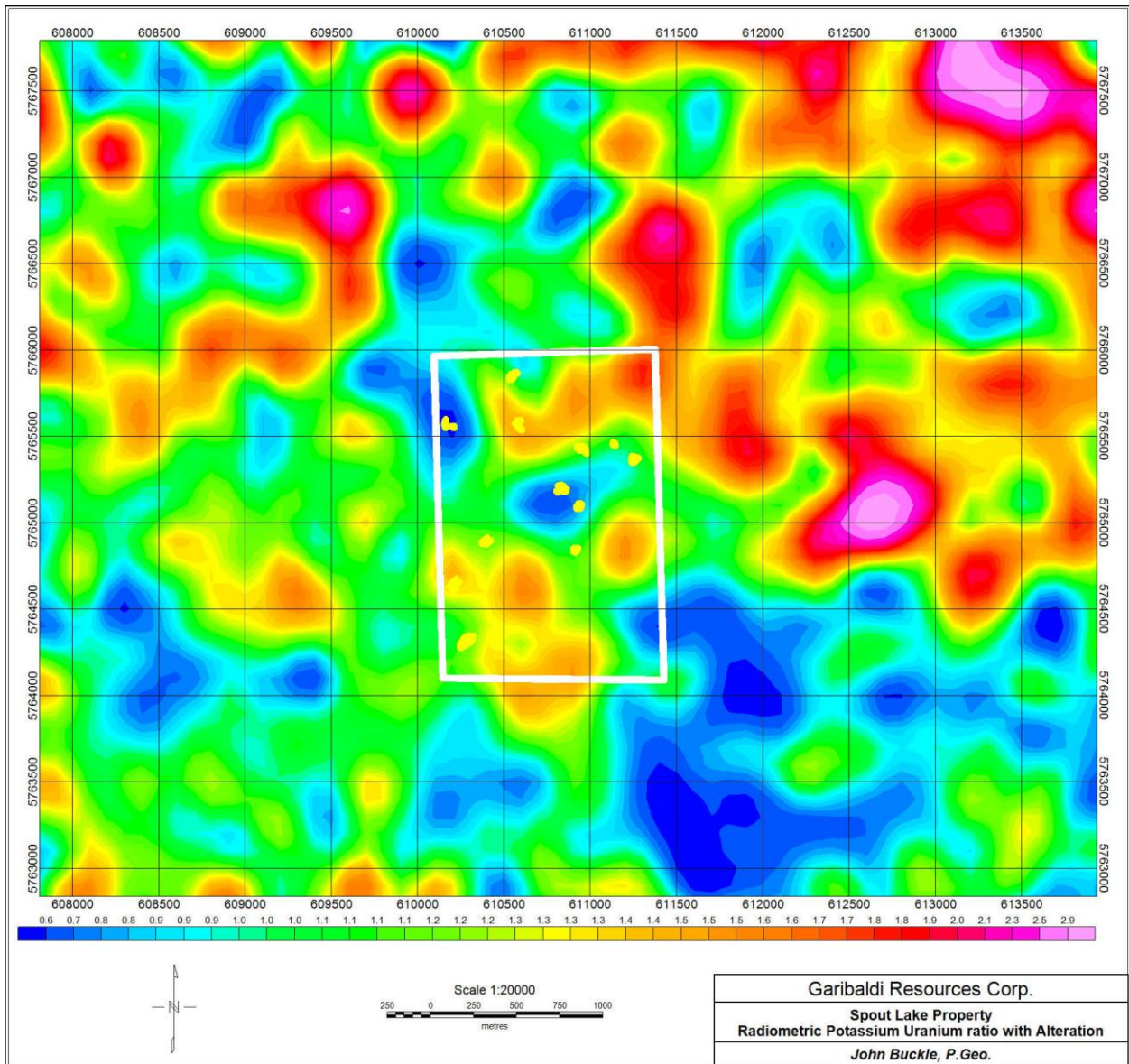


Figure 15 ratio of uranium over potassium colour contour map

The uranium over potassium map in figure 15 indicates a uranium low over the magnetic anomalies in the centre of the claim and uranium high in the magnetic low areas.

Interpretation Report on the Spout Lake Property

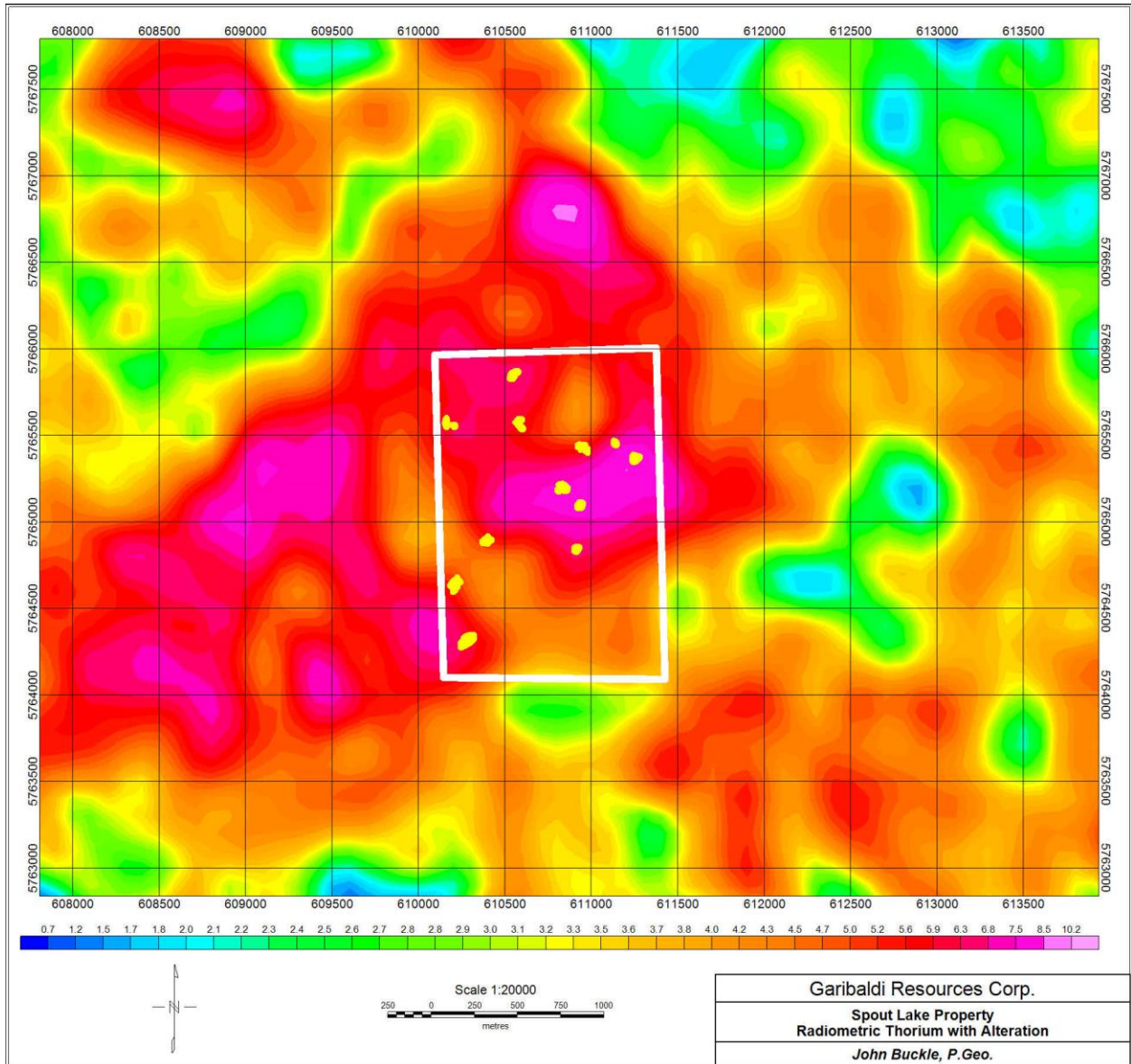


Figure 16 Thorium concentration map

The thorium map, figure 16, shows the ASTER anomalies and magnetics are coincident. This map show the best correlation of the geophysical and ASTER image anomalies. On the interpretation map as anomaly B.

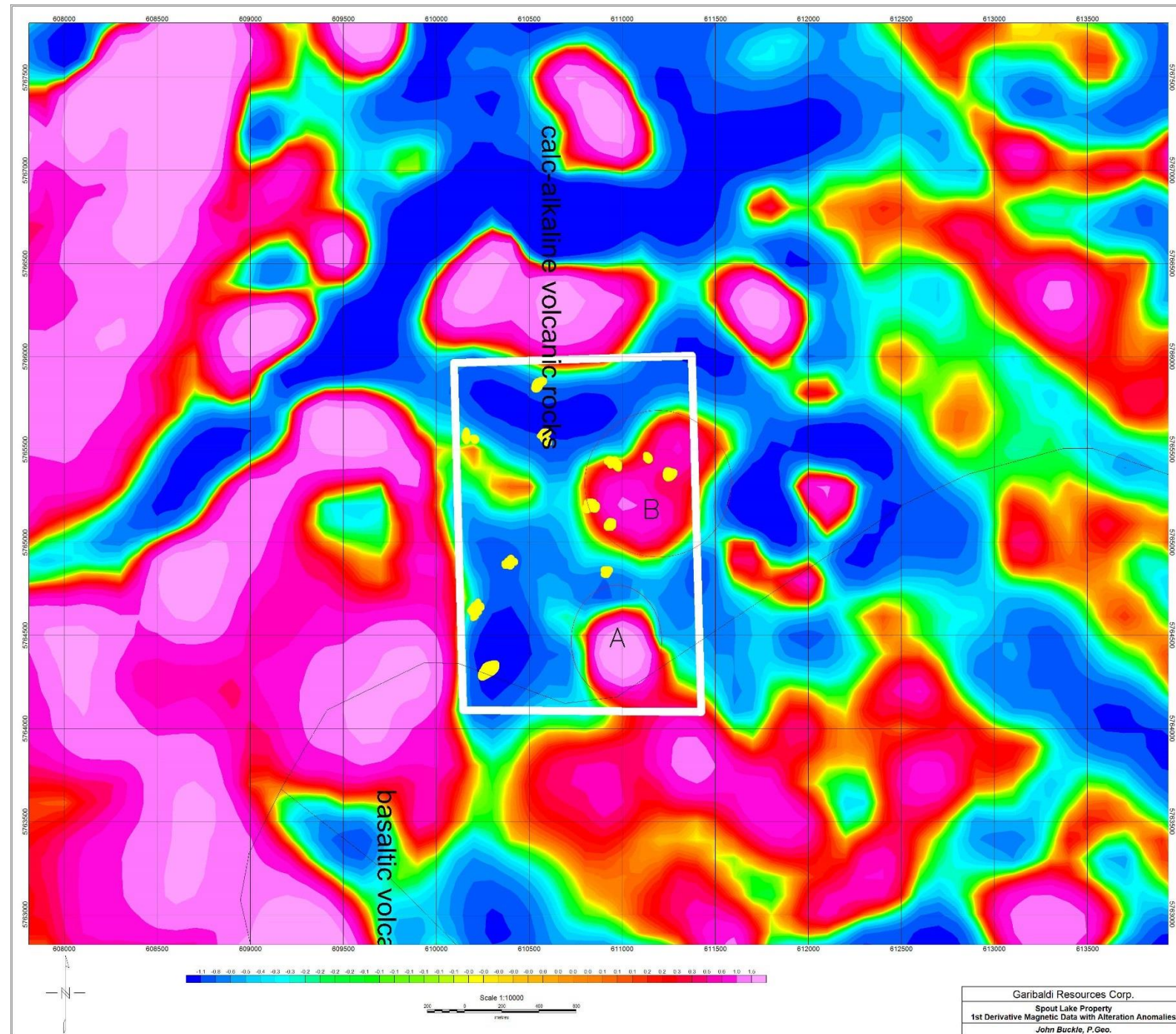


Figure 17 Interpretation map

CONCLUSIONS AND RECOMMENDATIONS

The location of this claim block at the southern end of the Quesnel trough makes it a possible location for mineralized porphyry intrusive. Previous work in the surrounding area have noted skarn mineralization.

Two anomalies noted on the accompanying map as anomalies A and B.

Anomaly A is a magnetic peak seen in the first derivative and also, in the residual magnetic map. This implies a bedrock intrusive is likely the source. ASTER alteration images do not show any alteration anomalous areas in the area of magnetic anomaly A.

Anomaly B is a broader magnetic anomaly that appears to be part of a chain of northwest tending anomalies. The coincident ASTER alteration warrants follow-up exploration with soil sampling and geological mapping to identify a possible mineralization source.

Follow-up geological mapping and soil sampling with MMI is recommended. Geochemical survey with MMI over the Spout Lake property would require geochemical sampling at 50 meter intervals on lines one kilometer long on fifteen lines 100 meters apart. The proposed area should cover 3 square kilometers on Claim number 1050344, a block bounded by 5763000 to 5766500 north and 609500 to 612000 east.

Estimated Budget

Table 2 Estimated Budget for follow-up

Work	Unit	rate		
MMI	Samples	Collection	Analysis	Total
	160	\$50	\$40	\$14,400
Geo. Map.	5 days	\$500/day		\$2,500
Support	20 man-days	\$150/man/day		\$3,000
Data proc.	4	\$500		\$2,000
Report	4	\$500		\$2,000
Total				\$23,900

REFERENCES

1. Eagle (Murphy) Lake, British Columbia; Carson, J M; Dumont, R; Potvin, J; Shives, R B K; Harvey, B J A; Buckle, J L; Cathro, M. Geological Survey of Canada, Open File 5292, 2006
2. Han, T., and Nelson, J., 2015. Mapping hydrothermally altered rocks with Landsat 8 imagery: A case study in the KSM and Snowfi eld zones, northwestern British Columbia. In: Geological Fieldwork 2014, British Columbia Ministry of Energy and Mines, British Columbia Geological Survey Paper 2015-1, pp. 103-112.
3. Report #06068 A HELICOPTER-BORNE GEOPHYSICAL SURVEY FOR GEOLOGICAL SURVEY OF CANADA BRITISH COLUMBIA, 2006 PARTS OF NTS 92P and 93A February 2007

CERTIFICATE OF AUTHOR

John Buckle, P. Geo

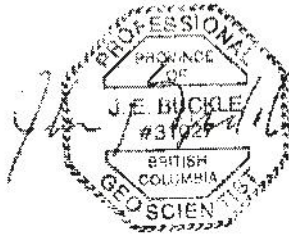
Consulting Geoscientist

I, John Buckle, P. Geo. Do hereby certify that:

1. I am a consulting geoscientist with a B.Sc. from York University in Toronto in 1980 and Geological Tech. certificate from Sault College in Sault Ste. Marie in 1972.
2. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, #31027.
3. I have worked continuously in mineral exploration for 43 years as an employee of a major mining company, an officer and director of junior mining companies and as an independent consultant.

I am responsible for the report entitled Geological Investigation Report on the Interpretation Report on the Spout Lake Property, Cariboo Mining Division, British Columbia, Canada and dated October 31, 2018.

Signature of Author



John Buckle, P. Geo.

Affidavit of Expenses

Table 3 Affidavit of Expenses

Project	Man/day	Support\$150/man/day	Subtotal	Total
P.Geo.	Days	\$/Day		
Report	3	\$500		\$1,500.00
Data Proc./drafting	1	\$500		\$500.00
TOTAL				\$2,000

Respectfully submitted,



John Buckle, P.Geo.

Geological Solutions