We are committed to providing <u>accessible customer service</u>. If you need accessible formats or communications supports, please <u>contact us</u>.

Nous tenons à améliorer <u>l'accessibilité des services à la clientèle</u>. Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez <u>nous contacter</u>.





CANADIAN EXPLORATION SERVICES LTD

# ASHLEY GOLD MINES LIMITED

## Q2221 – Donovan Property VLF Survey

C Jason Ploeger, P.Geo. – March 23, 2017



#### Abstract

CXS was contracted to perform VLF survey over the Donovan Property for Ashley Gold Mines Limited. This survey was performed in July 2016 and covered the southern portion of the Donovan Property. In total 7.825 kilometers of no grid VLF was read.

## **ASHLEY GOLD MINES LIMITED**

Q2221 – Donovan Property VLF Survey

C Jason Ploeger, P.Geo. – March 23, 2017





## TABLE OF CONTENTS

1.		SURVEY DETAILS	3
	1.1	PROJECT NAME	3
	1.1	CLIENT	3
	1.2	LOCATION	3
	1.3	Access	4
	1.4	SURVEY GRID	4
2.		SURVEY WORK UNDERTAKEN	5
	2.1	SURVEY LOG	5
	3.1	Personnel	5
	3.2	SURVEY SPECIFICATIONS	5
4.		OVERVIEW OF SURVEY RESULTS	6
	4.1	SUMMARY	6

## LIST OF APPENDICES

APPENDIX A: STATEMENT OF QUALIFICATIONS APPENDIX B: THEORETICAL BASIS AND SURVEY PROCEDURES APPENDIX C: INSTRUMENT SPECIFICATIONS APPENDIX D: LIST OF MAPS (IN MAP POCKET)

#### LIST OF TABLES AND FIGURES

Figure 1: Location of the Donovan Property	3
Figure 2: VLF EM Traverses on Claim Map	4
Figure 3: VLF EM Axis	6





## 1. SURVEY DETAILS

## 1.1 PROJECT NAME

This project is known as the **Donovan Property**.

## 1.1 CLIENT

Ashley Gold Mines Limited

14579 Government Rd. Larder Lake, Ontario P0K1L0

## 1.2 LOCATION

The Donovan Property is located approximately 20 km SSE of Gowganda, Ontario. The surveyed area covers parts of claims 4271099 and 4273069 located in Donovan Township, within the Larder Lake Mining Division.

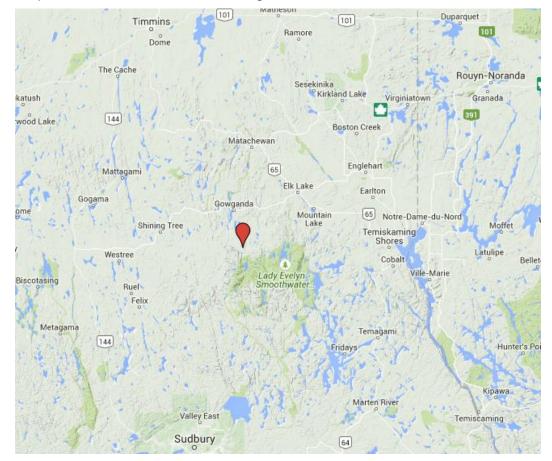


Figure 1: Location of the Donovan Property





## 1.3 ACCESS

Access to the property was attained with a 4x4 truck via highway 560 approximately 33km west of Elk Lake Ontario. One would then take the Beauty Lake road south from highway 560 for approximately 22km to the OFSC trail just before the bridge on the Montreal River. From the Beauty Lake road, one takes the OFSC trail south for approximately 3km to the Gowganda-Duggan site. From here one takes the Thompson Silver access trail east for 1km to arrive on the claim.

## 1.4 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the VLF EM operator. GPS waypoints, VLF EM samples were taken every 12.5m along these controlled traverses. The GPS used was a Garmin GPSMAP 62s with an external antenna for added accuracy.

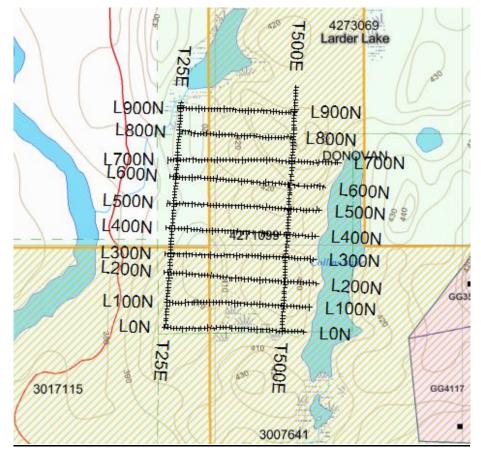


Figure 2: VLF EM Traverses on Claim Map





#### 2. SURVEY WORK UNDERTAKEN

#### 2.1 SURVEY LOG

3. Date	Description	Line	Min Ex- tent	Max Extent	Total Survey (meters)
July 6, 2016	Locate survey area and				
	begin VLF EM survey.	0	25E	600E	575
		100N	25E	612.5E	587.5
		200N	12.5E	637.5E	625
		300N	12.5E	625E	612.5
		400N	12.5E	625E	612.5
		500N	0	625E	625
		25E	0	500N	500
		500E	0	600N	600
July 7, 2016	Complete VLF EM survey.	600N	12.5E	625E	612.5
		700N	0	700E	700
		800N	37.5E	500E	462.5
		900N	12.5E	500E	487.5
		25E	500N	925N	425
		500E	600N	1000N	400

## Table 1: Survey Log

#### 3.1 PERSONNEL

Bruce Lavalley and Claudia Moraga both of Britt, Ontario operated the VLF EM systems along with the performing the GPS navigation.

#### 3.2 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 VLF.

A total of 7.825 line kilometers of VLF EM was read over the Donovan Property between July 6<sup>th</sup> and 7<sup>th</sup>, 2016. This consisted of 626 VLF EM samples taken at an approximate 12.5 metre sample interval.





#### 4. OVERVIEW OF SURVEY RESULTS

4.1 SUMMARY



Figure 3: VLF EM Axis

From the VLF EM survey one axis has been identified. This axis appears to strike at approximately 20 degrees through the property. By projecting the axis northward it would intersect some historic trenching as can be seen in Figure 3. The historic trenching revolves around what is thought to be the Thompson Showing. This may indicate a structural sequence or a projection of the mineralized system. I would recommend further work including IP and prospecting in the vicinity of UTM coordinate NAD 83, Zone 17N, 522291E and 5257981N. This may help identify the source of the anomaly.





## **APPENDIX A**

#### **STATEMENT OF QUALIFICATIONS**

- I, C. Jason Ploeger, hereby declare that:
- 1. I am a professional geophysicist with residence in Larder Lake, Ontario and am presently employed as a Geophysicist and Geophysical Manager of Canadian Exploration Services Ltd. of Larder Lake, Ontario.
- 2. I am a Practicing Member of the Association of Professional Geoscientists, with membership number 2172.
- 3. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
- 4. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
- 5. I am a member of the Ontario Prospectors Association, a Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
- 6. I do not have nor expect an interest in the properties and securities of **Ashley Gold Mines Limited.**
- 7. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.



C. Jason Ploeger, P.Geo., B.Sc. Geophysical Manager Canadian Exploration Services Ltd.

> Larder Lake, ON March 23, 2017





#### **APPENDIX B**

THEORETICAL BASIS AND SURVEY PROCEDURES

### VLF EM SURVEY

The frequency domain VLF electromagnetic survey is designed to measure both the vertical and horizontal in-phase (IP) and Quadrature (OP) components of the anomalous field from electrically conductive zones. The sources for VLF EM surveys are several powerful radio transmitters located around the world which generate EM radiation in the low frequency band of 15-25kHZ. The signals created by these long-range communications and navigational systems may be used for surveying up to several thousand kilometers away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

The EM field is planar and horizontal at large distances from the EM source. The two components, electric (E) and magnetic (H), created by the source field are orthogonal to each other. E lies in a vertical plane while H lies at right angles to the direction of propagation in a horizontal plane. In order to ensure good coupling, the strike of possible conductors should lie in the direction of the transmitter to allow the H vector to pass through the anomaly, in turn, creating a secondary EM field.

The VLF EM receiver has two orthogonal aerials which are tuned to the frequency of the transmitting station. The direction of the source station is located by rotating the sensor around a vertical axis until a null position is found. The VLF EM survey procedure consists of taking measurements at stations along each line on the grid. The receiver is rotated about a horizontal axis, right angles to the traverse and the tilt recorded at the null position.





#### **APPENDIX C**

### **GSM 19**



## **Specifications**

Overhauser Performance

Resolution: 0.01 nT Relative Sensitivity: 0.02 nT Absolute Accuracy: 0.2nT Range: 20,000 to 120,000 nT Gradient Tolerance: Over 10,000nT/m Operating Temperature: -40°C to +60°C

**Operation Modes** 

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.

Base Station: Time, date and reading stored at 3 to 60 second intervals. Walking Mag: Time, date and reading stored at coordinates of fiducial. Remote Control: Optional remote control using RS-232 interface. Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

**Operating Parameters** 

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.

Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available

Operating Temperature: -50°C to +60°C

Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.

Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)

Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.





#### **Omnidirectional VLF**

Performance Parameters: Resolution 0.5% and range to  $\pm 200\%$  of total field. Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to  $\pm 10^{\circ}$  tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

Dimensions and Weights

Dimensions: Console: 223 x 69 x 240mm Sensor: 170 x 71mm diameter cylinder Weight: Console: 2.1kg Sensor and Staff Assembly: 2.0kg

Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

## Taking Advantage of a "Quirk" of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).





• The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities





## **APPENDIX C**

## **GARMIN GPS MAP 62S**



Physical & Performanc	e:
Unit dimensions, WxHxD:	2.4" x 6.3" x 1.4" (6.1 x 16.0 x 3.6 cm)
Display size, WxH:	1.43" x 2.15" (3.6 x 5.5 cm); 2.6" diag (6.6 cm)
Display resolution, WxH:	160 x 240 pixels
Display type:	transflective, 65-K color TFT
Weight:	9.2 oz (260.1 g) with batteries
Battery:	2 AA batteries (not included); NiMH or Lithium recom- mended
Battery life:	20 hours
Waterproof:	yes (IPX7)
Floats:	no
High-sensitivity re- ceiver:	yes





Interface:	high-speed USB	and NMEA 0183 compatible
Maps & Memory:		
Basemap:		yes
Preloaded maps:		no
Ability to add maps:		yes
Built-in memory:		1.7 GB
Accepts data cards:		microSD™ card (not included)
Waypoints/favorites/loc	ations:	2000
Routes:		200
Track log:		10,000 points, 200 saved tracks
Features & Benefits:		
Automatic routing (turn	by turn routing	yes (with optional mapping for detailed
on roads):		roads)
Electronic compass:		yes (tilt-compensated, 3-axis)
Touchscreen:		no
Barometric altimeter:		yes
Camera:		no
Geocaching-friendly:		yes (paperless)
Custom maps compatit	<u>ble</u> :	yes
Photo navigation (navig	gate to ge-	yes
otagged photos):		-
Outdoor GPS games:		no
Hunt/fish calendar:		yes
Sun and moon information	tion:	yes



VLF EM Survey Donovan Property Donovan Township, Ontario



Tide tables:	yes
Area calculation:	yes
Custom POIs (ability to add additional points of interest):	yes
Unit-to-unit transfer (shares data wire- lessly with similar units):	yes
Picture viewer:	yes
Garmin Connect™ compatible (online community where you analyze, catego-rize and share data):	yes

• Specifications obtained from www.garmin.com





## **APPENDIX D**

LIST OF MAPS (IN MAP POCKET)

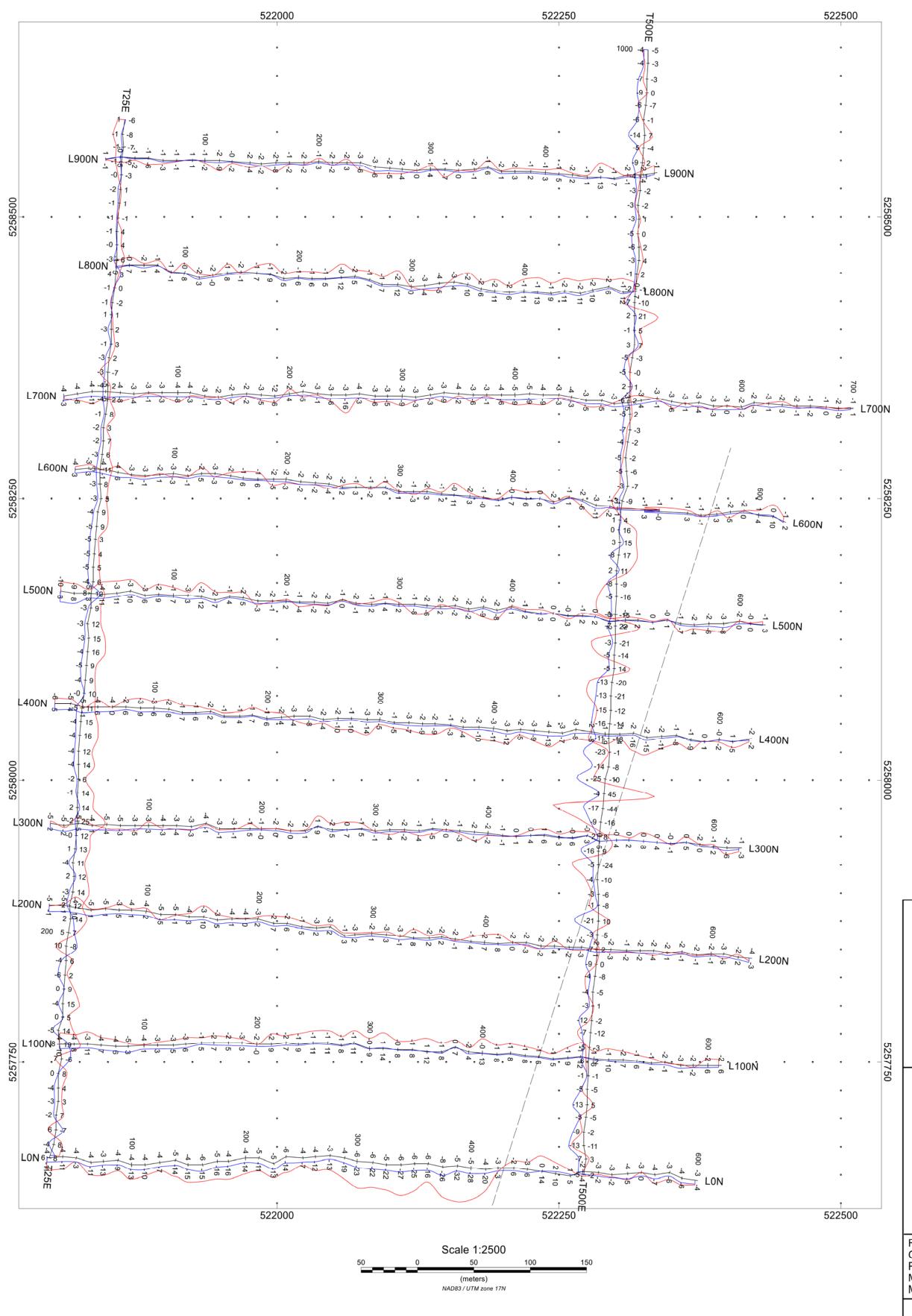
VLF EM Plan Map (1:2500)

1) Q2221-ASHLEY-DONOVAN-VLF

Grid Sketch on Claim Map (1:20000)

2) Q2221-ASHLEY-DONOVAN-TRAVERSE

## TOTAL MAPS = 2





# DONOVAN PROPERTY Donovan Township, Ontario

## VLF IN PHASE/OUT PHASE PROFILE 25.2kHz NML - LaMOUR USA

In Phase: Posted Right/Bottom (Red) Out Phase: Posted Left/Top (Blue)

Vertical Profile Scales: 2 %/mm

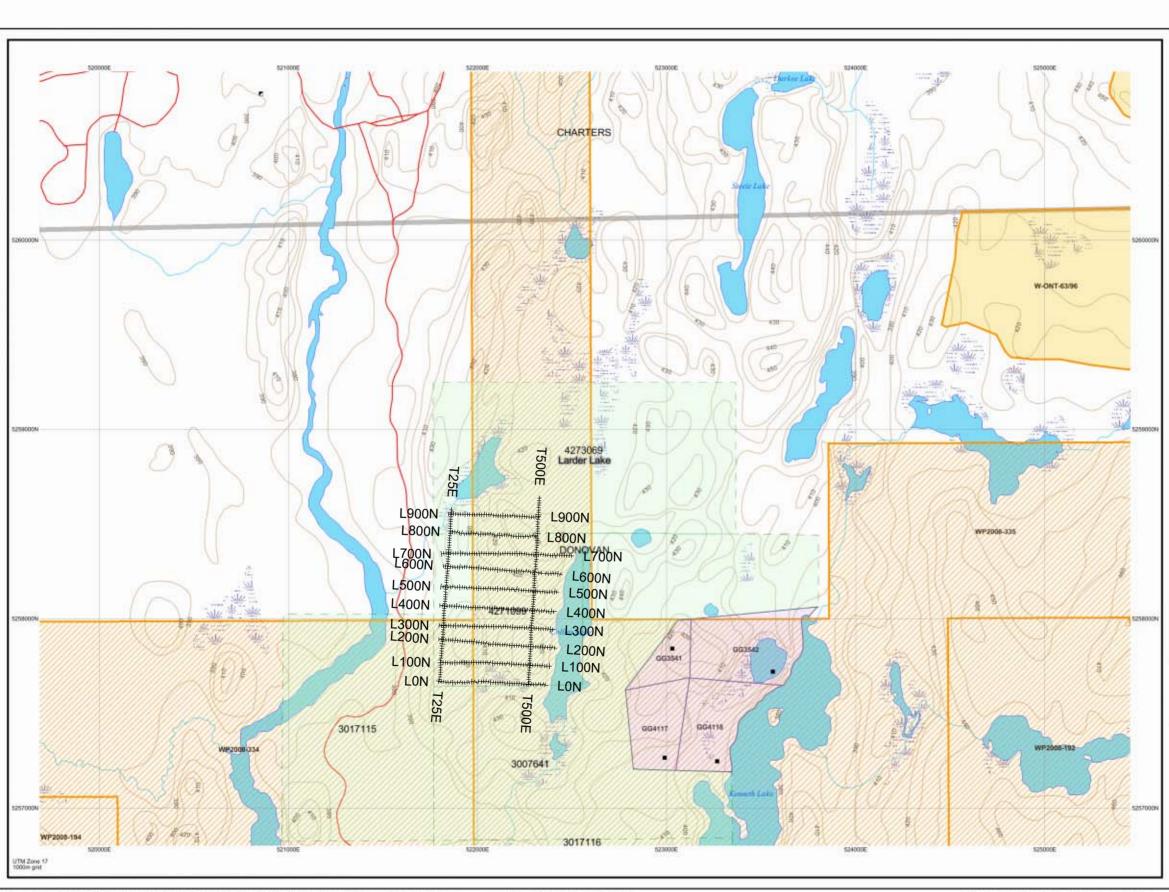
Station Seperation: 25 meters Posting Level: 0

GSM-19 VLF v7

Receiver Operated By: Bruce Lavalley GPS Operated By: Claudia Moraga Processed by: C Jason Ploeger, P.Geo. Map Drawn By: C Jason Ploeger, P.Geo. March 2017



Drawing : Q2221-AGM-DONOVAN-VLF-NML



Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land tille determination purposes as the information shown on this map is completed from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources. The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations Central Information: And Limitations Central Information: Tell Free Provincial Mining Recorders' Office Tel: 1 (888) 415-Wilet Green Miler Centre 933 Ramey Lake Road Fax: 1 (877) 670 Stutbury ON 926 685 Home Page: www.mndm.gov.on.ca/MNDM/MINES/LANDS/Inismrpge.htm

Toll Free Map Datum: NAD 83 Tei: 1 (888) 415-8645 ed 574/Projection: UTM (6 degree) Fax: 1 (877) 670-1444 Topographic Data Source: Land Information Ortanio Mining Land Tenure Source: Provincial Mining Recordars' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to stake mining claims may not be illustrated.



MINISTRY OF NORTHERN DEVELOPMENT AND MINES PROVINCIAL MINING RECORDER'S OFFICE

Mining Land Tenure Map

Date / Time of Issue: Fri May 23 14:46:21 EDT 2014

TOWNSHIP / AREA DONOVAN

PLAN G-3424

#### ADMINISTRATIVE DISTRICTS / DIVISIONS

Larder Lake Mining Division TIMISKAMING Land Titles/Registry Division KIRKLAND LAKE Ministry of Natural Resources District

Co Pro Ind Col Mai 	R. (		Surface And Mining Rights     Surface Rights Drily     Mining Rights Drily     Mining Rights Drily     Surface And Mining Rights     Surface And Mining Rights     Mining Rights Drily     Mining Rights Drily     Unes Not Specified     Surface And Mining Rights
Pro Ind Cit Cit Main	vincial Park Ian Reserve I. Pit & Pite four e Shutte e Headthame haay ad		Mining Rights Drily Laseshold Patent      Surface And Mining Rights      Surface Rights Drily      Mining Rights Only      Users of Docupation      Uses Not Specified
11d CH Mi Mi Ha Ro L Ha Ro L Ha Ro L Ha Ro L Ha L Ha L Ha L Ha L Ha Ha L Ha Ha L Ha Ha Ha Ha Ha Ha Ha Ha Ha Ha Ha Ha Ha	un Reserve 1. Pit & Pite 1tour In Shatta In Headthame Hway ad		Leaseshold Patent
Col Ma Ma Ha Ro 1 1 Na Na US	r, Pit & Pilao Houri e Shutta e Headtharne hway ad		Burface And Mining Rights     Surface Rights Only     Mining Rights Only Licence of Occupation
- Co Mi Mi Ha Ro Na Na	tbur e Shuta e Haadharne haary ad		Surface Rights Only     Mining Rights Only     Unexe of Docupetion     Unexe Not Specified
Mi Mi Ra Ro Tri Na US	e Shuta e Headfrane horry al		Mining Rights Only Licence of Docupation     Uses Not Specified
Mi Ha Ro Tri Na US	e Headframe Iway al		Licence of Docupation
Ha Ro Tri Na US	heary ad		Uses Not Specified
- Ro Tri Na US	ed a		
To Na US			Surface And Mining Rights
Na			
	ural Gas Pipeline		Surface Rights Only
			Mixing Rights Only
Te	ties		Land Use Permit
	NDF		Dider In Council (Not open for staking)
	1	1	Water Power Lasse Agreement
MUMER	NICOL	LANDON	1234567 Mining Claim
	1000	0.1603.000	Filed Only Mining Claime
			1234567
LETH	CHARTERS	CORNELL	LAND TENURE WITHDRAWALS
_			1234 Areas Withdrawn from Disposition
BAY	DONONAM	INTEWSTER	Mining Acta Withshawal Types Warth Sufface And Wining Rights Withshawn Well Sufface Rights Only Withshawn
			Wm Mining Rights Only Withdown Order In Council Withdrawal Types
LEDIE	CORLEY	SAMELE.	W <sup>1</sup> att Surface And Mining Rights Withdown W <sup>1</sup> a Surface Rights Only Withdown W <sup>1</sup> m Mining Rights Only Withdown
10000	325775	Terrer (	
LEOD	8110	PARKER SELEN	NN IMPORTANT NOTICES
		Scale 1 20000	
300	. Gra		900m
D TEN	URE WITHDRAW	VAL DESCRIPTION	ONS (list may not be complete)

#### IMPORTANT NOTICES

Areas under which special regulation, limitations or conditions exist that affect normal prospecting, staking and mineral development activities HIRD POWER WER, WY, FOR MID, ALL MARTER TO RECTOR TREADS WERKARD, FOR FLICTURE WIRE POWER OF INSERTION, ON PERMIT PLANE CONTACT THE LOOK, WE INTERFORMED FILE