# TLC EXPLORATIONS INC. ADVANDTEL MINERALS (CANADA) LTD.

VEGA GOLD PROPERTY
VINCENT TOWNSHIP
NORTHWEST ONTARIO

# REPORT ON MAGNETIC AND VLF-EM SURVEYS AND GEOLOGICAL MAPPING

- by -

Colin Bowdidge, Ph.D., P.Geo.

**July 2012** 



# TABLE OF CONTENTS

INTRODUCTION.	1
	1
HISTORY AND PREVIOUS WORK	3
GEOLOGY	3
2010 SURFACE EXPLORATION PROGRAM	4
Line Cutting	4
Magnetic and VLF-EM Survey	4
Geological Mapping	4
RESULTS OF MAGNETIC AND VLF-EM SURVEY	4
GEOLOGICAL MAPPING	7
Rock Types	7
Structure	8
Alteration	8
Mineralization	8
CONCLUSIONS AND RECOMMENDATIONS	9
REFERENCES	9
LIST OF FIGURES	
1. Location Map	1
2. Claim Location Map	
2. Okt 2004	_
LIST OF TABLES	
1. List of Claims	3
2. VLF conductors.	
2. VLI COIIductors	J
PLATES	
Magnetic Survey - total field postings     Magnetic Survey - total field contains	
2. Magnetic Survey - total field contours	
3. VLF-EM Survey - In-Phase and Quadrature Postings	
4. VLF-EM Survey - In-Phase and Quadrature Profiles	
5. Geological Map	

#### INTRODUCTION

This report summarizes the results of line cutting, magnetic and VLF-EM surveys and geological mapping carried out by the TLC Explorations Inc. ("TLCX") - Advandtel Minerals (Canada) Ltd. ("AMCL") joint venture on the Vega gold property, Vincent Township, Beardmore-Geraldton District, Northwest Ontario

# PROPERTY, LOCATION AND ACCESS

The Vega property forms part of the Vega-Blackwater project area, which straddles almost the whole width of Vincent Township close to its northern edge. The property limits are approximately: 87° 37' 56" to 87° 45' 06" west and 49° 37' 50" to 49° 39' 39" north. Figure 1 shows the location of the property, and figure 2 shows the claims. The property is divided into two parts: the eastern part (Blackwater claims) comprises 8 claims (54 units) held 75% by AMCL and 25% by TLC, and the western part (Vega claims) comprises 6 claims (21 units) held by TLC. AMCL has the option to earn a 50% interest in the Vega claims by funding exploration to the amount of \$500,000. Table 1 lists the claims that comprise the property.



Access to the property has been a problem for many years. In the 1960s and 1970s, there were logging roads throughout the area between the two reaches of the Blackwater River, but after logging ceased, all the bridges were removed, making the area quite inaccessible, despite its proximity to the Trans-Canada Highway. In 1994, Windigo Pete Explorations Ltd. built a bridge suitable for truck traffic, but it was removed by the MNR in 2008. In late 2010, a new bridge was constructed over the Blackwater River by a logging company held in trust for the Animbiigoo Zaagi'igan Anishinaabek (AZA) First Nation. During the course of the work described in this report, access was achieved by using ATV's that crossed the Blackwater River on the CNR trestle, from which the rails had been removed.

TABLE 1: LIST OF CLAIMS03									
Claim	Township/	11-26-	Haldan	Recording	Claim Due	Work	Total	Total	
Number	Area	Units	Holder	Date	Date	Required	Applied	Reserve	
3011613	Vincent	3	AMCL 75%, TLCX 75%	2007-02-19	2013-02-19	\$1,200	\$4,800	\$533	
4210109	Vincent	16	AMCL 75%, TLCX 75%	2007-02-19	2013-02-19	\$6,400	\$25,600	\$0	
4210110	Vincent	11	AMCL 75%, TLCX 75%	2007-02-19	2013-02-19	\$4,400	\$17,600	\$0	
4210111	Vincent	6	AMCL 75%, TLCX 75%	2007-02-19	2013-02-19	\$2,400	\$9,600	\$0	
4250102	Vincent	14	AMCL 75%, TLCX 75%	2010-02-26	2013-02-26	\$5,600	\$5,600	\$0	
4254917	Vincent	1	AMCL 75%, TLCX 75%	2010-06-09	2012-06-09	\$400	\$0	\$0	
4254918	Vincent	2	AMCL 75%, TLCX 75%	2010-06-09	2012-06-09	\$800	\$0	\$0	
4254919	Vincent	1	AMCL 75%, TLCX 75%	2010-06-09	2012-06-09	\$400	\$0	\$0	
3011496	Vincent	2	TLCX, AMCL 50% option	2005-03-21	2017-03-21	\$800	\$8,000	\$3,593	
3018951	Vincent	4	TLCX, AMCL 50% option	2007-02-19	2017-02-19	\$1,600	\$12,800	\$0	
3018955	Vincent	4	TLCX, AMCL 50% option	2007-02-19	2017-02-19	\$1,600	\$12,800	\$0	
4203994	Vincent	2	TLCX, AMCL 50% option	2005-05-06	2017-05-06	\$800	\$8,000	\$0	
4210062	Vincent	6	TLCX, AMCL 50% option	2006-10-20	2016-10-20	\$2,400	\$19,200	\$28,932	
	Vincent and								
4215198	McComber	3	TLCX, AMCL 50% option	2007-10-03	2016-10-03	\$1,200	\$8,400	\$0	
4242230	Vincent	8	TLCX, AMCL 50% option	2010-10-27	2012-10-27	\$3,200	\$0	\$0	

#### HISTORY AND PREVIOUS WORK

Gold was discovered on the Vega property in the 1920s (Langford, 1928) and was actively worked in the 1930s by Vega Gold Mines and Tombill Mines. Two parallel gold-bearing zones (referred to in this report as the Vega North and Vega South zones) were delineated by trenching and some diamond drilling was carried out. Further diamond drilling was carried out in the 1950s by Tombill Mines, and more drilling was done in the 1970s (Mason & White, 1986). In 1996, Harte Resources acquired the property and drilled two holes, but most of their work was concentrated on the Craskie claims to the east. During the 1980s, the two Vega zones were stripped off over a length of over 200 metres by bulldozer. In 2010, TLC Explorations Inc. and Advendtel Minerals (Canada) Ltd. carried out a 9-hole diamond drilling program, which overlapped in time with the work described in this report.

#### **GEOLOGY**

The property lies at the southern edge of the Beardmore-Geraldton greenstone belt, which is part of the Marmion Terrane (Stott et al., 2008) within the Superior Province of the Canadian Shield. Immediately to the south lies the sediment-dominated Quetico "Basin".

The Vega property is underlain by ENE-striking, steeply north-dipping metavolcanic rocks, mainly mafic flows interbedded with interflow sedimentary units (mostly greywackes with occasional arkoses) and iron formations. The iron formations are typical of the area and include chert-magnetite chemical metasediments and what appear to be clastic metasediments with magnetite grains in an argillitic matrix. There are also intermediate varieties that appear to have been formed by both chemical and clastic sedimentary processes. Small sills and plugs of quartz- and quartz-feldspar-porphyry are present.

#### 2010 SURFACE EXPLORATION PROGRAM

#### **Line Cutting**

A base line, 1950 metres in length was cut, at an azimuth of 077°. Lines were turned off at 50 metre intervals. A total of 33.52 kilometres of line was cut. The work was performed by Tom Wraight and his colleagues from North Bay.

# Magnetic and VLF-EM Survey

Geophysical surveys were carried out using an EDA Omni Plus magnetometer-VLF system. This instrument measures total magnetic field using a proton magnetometer sensor. VLF in-phase tilt, quadrature, and total field strength are measured using three orthogonal antenna coils, with a tilt-meter to correct the tilt readings. Data are stored in the instruments memory and are dumped to a computer at the end pf each day's surveying. Diurnal corrections are effected using a recording base station. Readings were taken at 12.5 metre intervals throughout the grid. The VLF Transmitter used was NLK (24.8 KHz) at Jim Creek, Washington. Operators were Dusan Dmitrovic and Ted Cox. Data processing was done by the author of this report, using Geosoft® software.

Results of the survey are presented on Plate 1 (total magnetic field postings), Plate 2 (total magnetic field contours), Plate 3 (VLF in-phase and quadrature postings) and Plate 4 (VLF in-phase and quadrature profiles), all at a scale of 1:2,500.

### **Geological Mapping**

Geological mapping was carried out by the author and Steven Parker. The grid lines were used to control traverses, but wherever possible, outcrops between lines were also mapped in. The geological map is presented in Plate 5. Locations of diamond drill holes that were drilled before, during and after the mapping program have been added (see AFRI file 20000005654 or AFRO file 2.46406).

#### **RESULTS OF MAGNETIC AND VLF-EM SURVEY**

The most prominent feature of the magnetic survey is a group of strong (mostly between 2,000 and 7,000 nT above a background of 56,000 nT, with an extreme value of 15,000 nT above background on line 300W), positive anomalies running along and on both sides of the baseline. These anomalies correspond to magnetite-chert iron formations, some of whish are exposed in outcrops. There are also numerous other shorter, less continuous and more isolated anomalies of similar amplitudes, that have been interpreted as iron formations on the geology map (Plate 5). One of these is seen in outcrop at 060W/220S, but more importantly, the two "Vega" zones which were stripped off in the 1980s, expose chert-magnetite (often quite "lean" or magnetite-poor) at several places.

TABLE 2 - LIST OF VLF CONDUCTORS								
Conductor	Length	Amplitude	Q/IP	Width	Shape	Interpretation/geology/comments		
Α	250+	L-H	S	N	good	shear zone		
В	150+	Н	N	N	good	Mag ass., in QP, IF/graph/sulph?		
С	150+	M	WS	N	good	Mag ass., IF/graph/sulph		
D	200	L	SS	N	OK	weak shear or contact		
Е	350+	Н	S	N	good	in QP but under lake, maybe o/b or mineralized shear		
F	300	Н	WR	N	good	Mag ass., at contact of QP, IF/graph/sulph		
G	250	VL	SS	N	poor	Contact of mag unit?		
Н	short	VL	SS	N	poor	contact or topo		
J	250	L-VL VL	S S	N N	OK OK	Edge of mag anomaly, contact?		
K	short 1150	H	R-N-S	N N	good	follows mag - IF/graph/sulph		
L	100	۷L	SS	N N	OK	contact?		
М	100	H	WR	N	good	follows mag - IF/graph/sulph		
N	100	VL	R-S	N	OK	contact (edge of mag unit)?		
0	250	M	SS	N	OK	contact or topo		
P	100	L	SS	N	OK	contact or topo		
Q	400	М	S	N	good	follows mag - IF/graph/sulph		
R	1200	VH	R	N	good	follows mag - IF/graph/sulph, very good conductor		
S	short	VL	SS	N	ÖK	contact or topo		
Т	short	М	WS	N	good	Mag contact, IF/graph/sulph		
U	1250	H-VH	WS-S	N	good	Vega North Zone, IF, possibly with sulphides		
V	100	L	SS	N	OK	shear zone±sulphides		
W	550	H-VH	N-WR	N	good	follows mag - IF/graph/sulph		
Х	50+	VL	SS	N	OK	contact or topo		
Y	short	VL	S	N	OK	contact or topo		
Z	100	L-M	S	N	good	mag ass., shear zone±sulphides?		
AA	100	L	WS	N	OK	mag ass - IF?		
BB	short	L	SS	W	poor	mag ass., IF at edge of swamp?		
CC	150	L	S	N	good	follows mag - IF/graph/sulph		
DD	150	L	SS	W	poor	x-cutting shear or topo feature?		
EE FF	100	L	SS SS	N	OK	x-cutting shear or topo feature?		
GG	short short	VL VL	 N	N N	OK OK	contact (edge of mag unit)? contact (edge of mag unit)?		
HH	short	VL	S	N	poor	topography?		
11	100	L	SS	N	OK	topography?		
JJ	650	VH	WR-R	N	good	follows mag - IF/graph/sulph		
KK	100	VL	SS	N	poor	contact or topo		
LL	short	VL	N	N	OK	contact or topo		
MM	200	L	S	N	poor	follows creek - overburden?		
NN	short	VL	S	N	OK	topography?		
00	100	L	SS	N	OK	shear? Crosscuts geology		
PP	250	М	WR	W	poor	corresponds to metasediments - wide lithological unit?		
QQ	short	L	SS	N	poor	edge of swamp		
				Explana	tion of abbre			
					good	Well-defined profile, typical of steep narrow bedrock source		
					OK	Some irregularity, suggesting a complex source		
					poor	commonly resulting from overburden sources		
				N		ore indicative of a bedrock source)		
				M	Moderate  Wide (typical of overburden conductors)			
			D		W Wide (typical of overburden conductors) everse quadrature (Q/IP <-0.25)			
			R WR	Weakly reverse quadrature (Q/IP -0.1 to -0.25)				
			N	Neutral quadrature (Q/IP +0.1 to -0.1)				
			WS	Weakly sympathetic quadrature (Q/IP +0.1 to +0.25)				
			S	Sympathetic quadrature (Q/IP +0.1 to +0.25)				
			SS	Strongly sympathetic quadrature (Q/IP +0.25 to +0.8)				
		VL	Very Low (F					
		L	Low (P-P 5-					
		M		erate (P-P 15-40%)				
		Н		(P-P 40-60%)				
		VH	Very High (P-P >60%)					

			TA	ABLE 2 - LIS	T OF VLF C	ONDUCTORS		
Conductor	Length	Amplitude	Q/IP	Width	Shape	Interpretation/geology/comments		
RR	150	М	WS	N	good	shear/sulphides/graphite?		
SS	550	Н	S	М	good	shear ± sulphides?		
TT	short	VL	WR	N	poor	very weak, contact or topography		
UU	150	М	SS	М	OK	follows creek, overburden possibly with underlying shear		
VV	short	L	S	N	OK	mag assoc, may be lithological unit ± topography		
WW	100	Н	WS	N	OK	follows mag - IF/graph/sulph		
XX	short	L	S	N	OK	swamp?		
YY	400+	M-VH	WR-N-S	N-W	OK	Sulphide zone on L1200E, rest may be extension of PP		
ZZ	350	L-M	N-WR	N-W	OK	Sulphides on L1150 & 1200, rest may be ext of PP		
AAA	short	VL	S	N	poor	swamp?		
BBB	400+	M-H	S	W	poor	swamp?		
CCC	250+	М	R	W	poor	overburden?		
DDD	100	L	SS	N	OK	edge of swamp		
EEE	short	М	SS	W	poor	swamp?		
FFF	short	L	SS	М	poor	edge of mag, overburden or topo or contact		
GGG	200+	Н	S-SS	W	OK	swamp?		
HHH	150	Н	SS	М	OK	swamp?		
Ш	short	VH	N	N	good	Mag contact, IF/graph/sulph		
JJJ	150+	L	SS	N	OK	follows mag - IF/graph/sulph		
KKK	150+	VH	R	N	good	edge of mag, edge of swamp		
LLL	100+	VL	SS	N	OK	edge of mag, overburden or topo or contact		
MMM	100+	Н	SS	N	good	follows mag - IF/graph/sulph		
				Explana	tion of abbre	eviations		
					good	Well-defined profile, typical of steep narrow bedrock source		
					OK	Some irregularity, suggesting a complex source		
					poor	commonly resulting from overburden sources		
	(2) 4 (4) 4 (4)			N	Narrow (mo	ore indicative of a bedrock source)		
				М	Moderate			
				W	Wide (typical of overburden conductors)			
			R	Reverse qu	rse quadrature (Q/IP <-0.25)			
			WR		akly reverse quadrature (Q/IP -0.1 to -0.25)			
			N	Neutral qua	ral quadrature (Q/IP +0.1 to -0.1)			
			WS	Weakly sym	kly sympathetic quadrature (Q/IP +0.1 to +0.25)			
			S		Sympathetic quadrature (Q/IP +0.25 to +0.8)			
			SS	Strongly sympathetic quadrature (Q/IP >+0.8)				
		VL	Very Low (F	Low (P-P <5%)				
		L	Low (P-P 5-15%)					
		М	Moderate (P-P 15-40%)					
		Н	High (P-P 40-60%)					
		VH	Very High (P-P >60%)					

The other magnetic feature that is of interest is a broad magnetic low in the northwestern part of the grid, that corresponds closely to the quartz porphyry body seen on the geology map. The rest of the survey area is typical of mafic-dominated greenstone terrains, with more or less random fluctuations within a range of about 500 nT above and below the base level of 56,000 nT. One feature that deserves attention is a northeast-trending magnetic discontinuity that may reflect a fault, extending from about 950E/500s to 1550E/025S.

The VLF survey has defined 66 separate conductors, which are listed with their salient characteristics in Table 2, with comments on their possible causes. They vary from weak, short (one-line) conductors of dubious origin to strong, well-defined conductors up to 1200 metres long, closely associated with the iron-formation-related magnetic anomalies, that are probably caused by graphitic bands or sulphide zones in close association with the iron formations.

#### **GEOLOGICAL MAPPING**

### **Rock Types**

<u>Mafic Metavolcanics</u> occupy more than 90 percent of the map area. They are typically dark grey-green in colour, with a medium grey weathering surface. They vary in a number of ways, as indicated by suffixes on the map in Plate 5: from coarse-grained to fine-grained and massive, pillowed, amygdaloidal and/or schistose. They represent a typical submarine mafic volcanic sequence with alternating thin flows, thick flows and shallow-seated sills, with pillowed and massive sections and rubbly flow tops that are often receptive to development of schistosity. Primary lamination is rare, most of the structural measurements are on schistosity that appears to more or less parallel the primary layering. Minor amounts of disseminated pyrrhotite, up to 1%, are present in many outcrops of mafic metavolcanics.

<u>Clastic metasediments</u> are present as lenses and discontinuous beds, within the dominantly mafic metavolcanic sequence. They are typically pale to medium grey in colour, They may be fine-grained (3b or argillite on the map) or coarser-grained with visible clasts in the 1 mm size range (3a or greywacke on the map). They are typical clasic metasediments of greenstone belts, their provenance is assumed to be either pyroclastic debris, or the results of physical degradation and weathering of rubbly flow-tops. That is to imply that compositionally, they have a close relationship with the mafic metavolcanics that they accompany. At 1250E/135S, is an outcrop of arkose, a much more leucocratic rock than the typical greywacke.

<u>Iron Formation</u> forms only a small part of the area, but because of its magnetic character, it can easily be traced. Typically, when seen in outcrop, the iron formation consists of thinly bedded or laminated chert, with (usually) minor amounts of magnetite as thin laminae.

Quartz (-feldspar) Porphyry is more common in the map area than in many other parts of the Beardmore-Geraldton greenstone belt. It is pale pinkish-grey to almost white in colour, with quartz phenocrysts that often form 50% or more of the rock, in a fine-grained, very leucocratic, quartzofeldspathic matrix. In a few outcrops, phenocrysts of feldspar are also present. Typically, the porphyry is quite massive, but schistosity is occasionally observed in smaller bodies. Quartz stringers are common in the porphyry. In a few locations, the leucocratic nature of the porphyry changes a bit. At 050E/375 to 400N, hornblende phenocrysts are present. At 000E/320N, biotite flakes are present, and at 400E/360N, the fine-grained matrix appears to contain 10% of mafic minerals.

The main porphyry body is 200 metres wide and over 450 metres long, in the northwestern part of the map area. It is clearly a dome-like body that intrudes the volcanic sequence; on the magnetic map in Plate 2, the iron formations diverge around it. To the north are other bodies of porphyry that are separated by thin screens of mafic metavolcanics. Elsewhere, the porphyry forms thin sills no more than 1 to 2 metres thick, e.g. at 050W/085S, or small plugs of indeterminate shape, with a tendency to be concentrated along, or close to, the base line.

#### Structure

The map area appears to be a simple homocline, with strikes close to the base line orientation of 077°. Dips are uniformly to the north at between 75° and 85°. Top directions could not be determined.

#### Alteration

Minor calcite impregnation is common in the mafic metavolcanics. Calcite also occurs as fracture fillings and amygdule fillings. Epidote also occurs in mafic metavolcanics. Neither of these constitute an important alteration system with possible relations to mineralization, except possibly between 550e and 650E, 000 to 025 N, where heavy calcite alteration of mafic rocks is exposed in old trenches.

Iron carbonate (referred to on the map for simplicity, as ankerite) occurs as a pervasive alteration mineral in mafic volcanic inclusions in the main porphyry body and the screen of mafic rocks that separates it from the next porphyry zone to the north. Ankerite also appears in the adjacent porphyry. In some cases, unidentified carbonate (possibly ferroan dolomite) was observed in quartz porphyry.

#### Mineralization

As mentioned above, minor amounts of disseminated pyrrhotite are very common in the mafic metavolcanics. Minor disseminations and streaks of pyrite also occur in places throughout the mafic metavolcanics. Similarly, minor amounts of pyrite are not uncommon in clastic metsediments (where pyrite has been observed forming up to 10% of the rock) and quartz porphyry. More significantly, arsenopyrite, which is quite commonly associated with gold mineralization in the southern volcanic belt, was observed in quartz porphyry at 300W/355N and 050E/145N, and in mafic metavolcanics at 650E/187N. In an old trench at 400E/037N, quartz porphyry contains minor disseminated chalcopyrite and sphalerite.

- 9 -

#### **CONCLUSIONS AND RECOMMENDATIONS**

The geophysical surveys have outlined numerous iron formation bands, as well as conductive zones that may reflect sulphide mineralization. Approximately 22 VLF conductors are considered suitable targets for further prospecting and/or stripping. More significantly, the number and size of the quartz porphyry bodies in the map area, was a genuine surprise, and speaks well for its potential to host gold mineralization. Three occurrences of arsenopyrite are also targets for further exploration.

Based on the work described in this report, the gold potential of the property has been enhanced, and further prospecting and stripping are strongly recommended.

Respectfully submitted,

Colin Bowdidge, Ph.D., P.Geo.

PRACTISING MEMBER
0202

October 2010

## **REFERENCES**

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MASON, J. & WHITE, G., 1986. Gold Occurrences, Prospects and Deposits of the Beardmore-Geraldton Area, Districts of Thunder Bay and Cochrane. Ont. Geol. Surv. Open File Rept. 5630.

STOTT, G., CORKERY, T., LECLAIR, A., BOILY, M. & PERCIVAL, J., 2008. A Revised Terrane Map for the Superior Province as Interpreted from Aeromagnetic Data.

LEGEND Instrument: EDA Omni Plus Operators: D. Dmitrovic, T. Cox Parameter: Total magnetic intensity (nT Diurnal Correction: Base station Posting base: 56000 nT UTM coordinates: Zone 16N Datm NAD83 ADVANDTEL MINERALS (CANADA) LTD. TLC EXPLORATIONS INC. VEGA GOLD PROPERTY VINCENT TOWNSHIP

NORTHWEST ONTARIO

2010 EXPLORATION PROGRAM MAGNETIC SURVEY TOTAL MAGNETIC INTENSITY IN nT DATA POSTINGS

PLATE 1

Hilldale Geoscience Inc.

75
23
134
18
167
126
365
-37
135
-119
-207
662
-155
-393
1072
-737
-961
1102
720
-541
-988
133
-662

115
125
359
440
237
212
117
70
-35
-62
-45
-29
-36
-45
-66
-31
-157
-16
-58
-36
-105
-6
-248
-460
-827
-1098
-1025
-987
-1604
-1144
-742
-1118
-627
-914 97 192 208 165 613 324 981 394 7 272 284 -273 -17 48 838 - 936 - 382 - 542 - 172 - 81 - 408 - 749 -365 -100 -245 -1036 -41 -1322 

1500E

1600E

1700E

- 638 - 272 - 363 - 8115 - 991 - 291 - 1573

411
327
340
139
1
242
150
130
-46
-101
-208
-2
-793
-697
-246
-379
-434
-440
-62
-107
-318
-2525
-267
-240
-213
-331
-378
-459
-421
-186
-695
-226
-1217
-1496
-492
-556
-571
-1048
-591
-113
-462 m | 131 | 151 | 114 | 283 | 220 | 73 | 26 | -61 | -108 | 96 | 80 | -129 | -25 | 624 | 190 | 225 | 152 | 515 | 337 | 199 | 172 | 104 | 249 | 168 | -179 | 877 | -1043 | 1191 | 2187 | 183 | 2327 | 1564 | 771 | 646 | -811 | 645 | 782 | 1199 93 23 108 103 280 -74 752 518 141 129 231 429 268 -461 -622 -126 1901 1105 2705 103 - 517 - 683 - 632 - 335 - 367 - 589 

1100E

1200E

179
221
139
77
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-92
-193
-121
-242
-1267
1042
-253
-800
-111
-50
-229
-432
-876
-789
-1212
-135
-130
-78
-232
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-81
-1591
-832
-1898
-637 - 266
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- 787
- 76
- 1014
- 2290
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- 510
- 134
- 137
- 28
- 314
- 480
- 501
- 94
- 134
- -260
- 3099
- 1038
- 2564
- 43 - 100 - 370 - 609 - 683 - 362 - 270 -276 

m | 184 | 227 | 434 | 217 | 213 | 185 | 242 | 446 | -99 | -110 | -304 | -667 | -1888 | -3254 | 2045 | 1558 | -1803 | 955 | 788 | 114 | 833 | -170 | 213 | 169 | 226 | 233 | 236 | 297 | -55 | -149 | 1995 | 845 | 692 | 0

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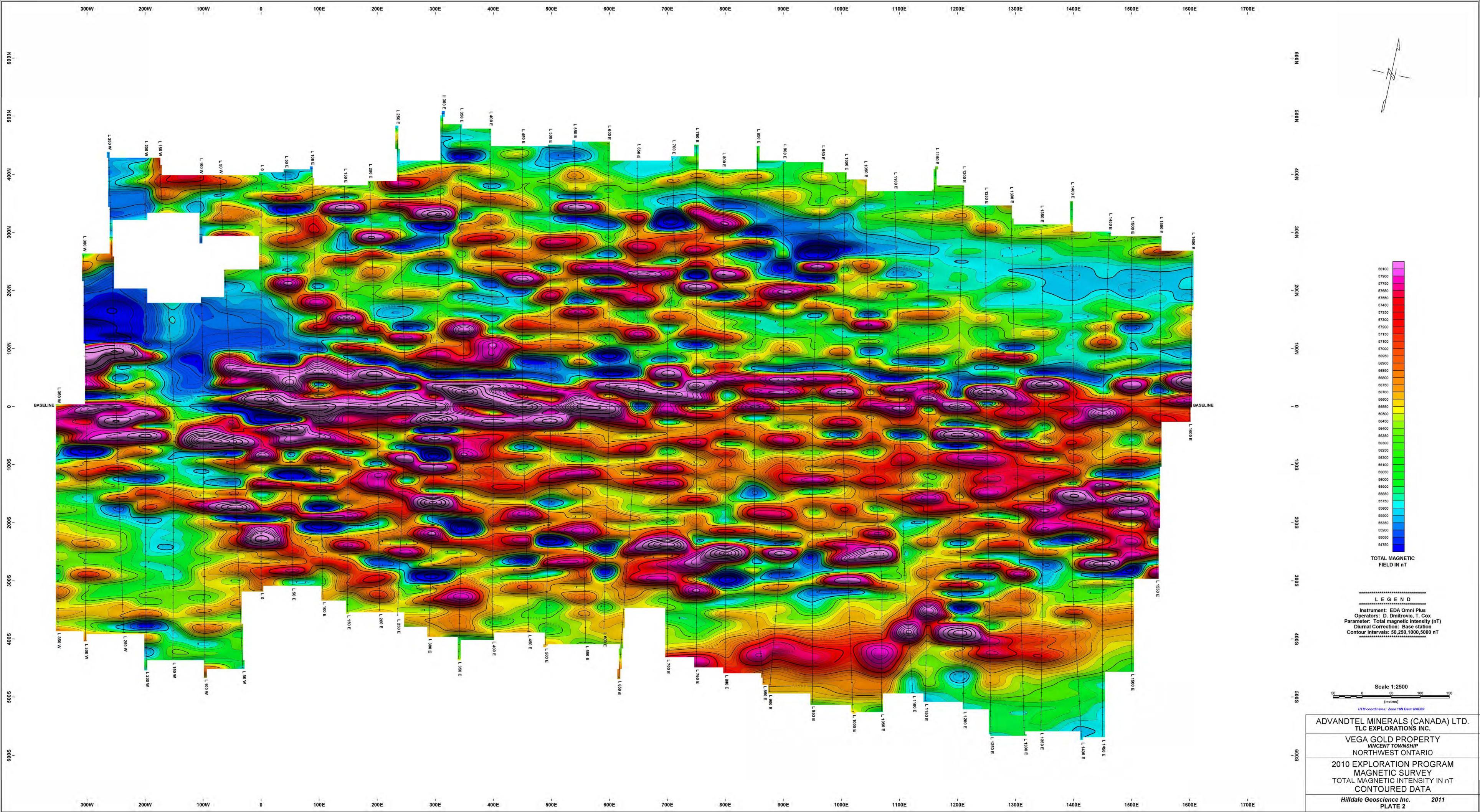
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Hilldale Geoscience Inc.

PLATE 3

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