Duprat, Gallen, Noranda 5 and Waite Properties

CDL-6001243, CDC-5038, CDC-5039, CDC-2210775, CDC-5212001, CDC-5215001, CLD6001237, CLD6001238, CL-2626361, CL-2626362, CL-2626363, CL-2626364, CLC-009422, CL-C003593, CL-C003594, CDC-1103945, CL-P480010, CL-P480020 and CCL-005671

Dufresnoy, Beauchatel and Rouyn Townships

Magnetic Airborne (UAV) Survey

Prepared for Glencore Canada

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Énergie et Ressources naturelles
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1.0 Notice to the reader

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2.0 Introduction

This document reports the results of a high resolution aeromagnetic survey (Aérovision (UAV-MAG)) carried out on four claims blocks belonging to Glencore Canada Corporation located on the Dufresnoy, Beauchatel and Rouyn townships in the Rouyn-Noranda area.

The properties comprise the Dupart, Waite, Gallen and Noranda 5 claim blocks. The surveys were carried out between October 22nd and November 4th 2017. A total of 182.66 line kilometres was completed. The field work was performed by Devbrio Géophysique Inc. subcontracted by Abitibi Géophysique inc. based in Val D'or, Québec.

The airborne survey and the quality control were done under strict airborne geophysical norms by Devbrio Géophysique Inc. and Abitibi Géophysique Inc.

3.0 Property Descriptions and Locations

3.1 Duprat claim clock

Duprat property is located 10 kilometres north of the town of Rouyn-Noranda (Figure 1). The Duprat property comprises one mining claims CDL-6001243 covering 19.14 hectares.

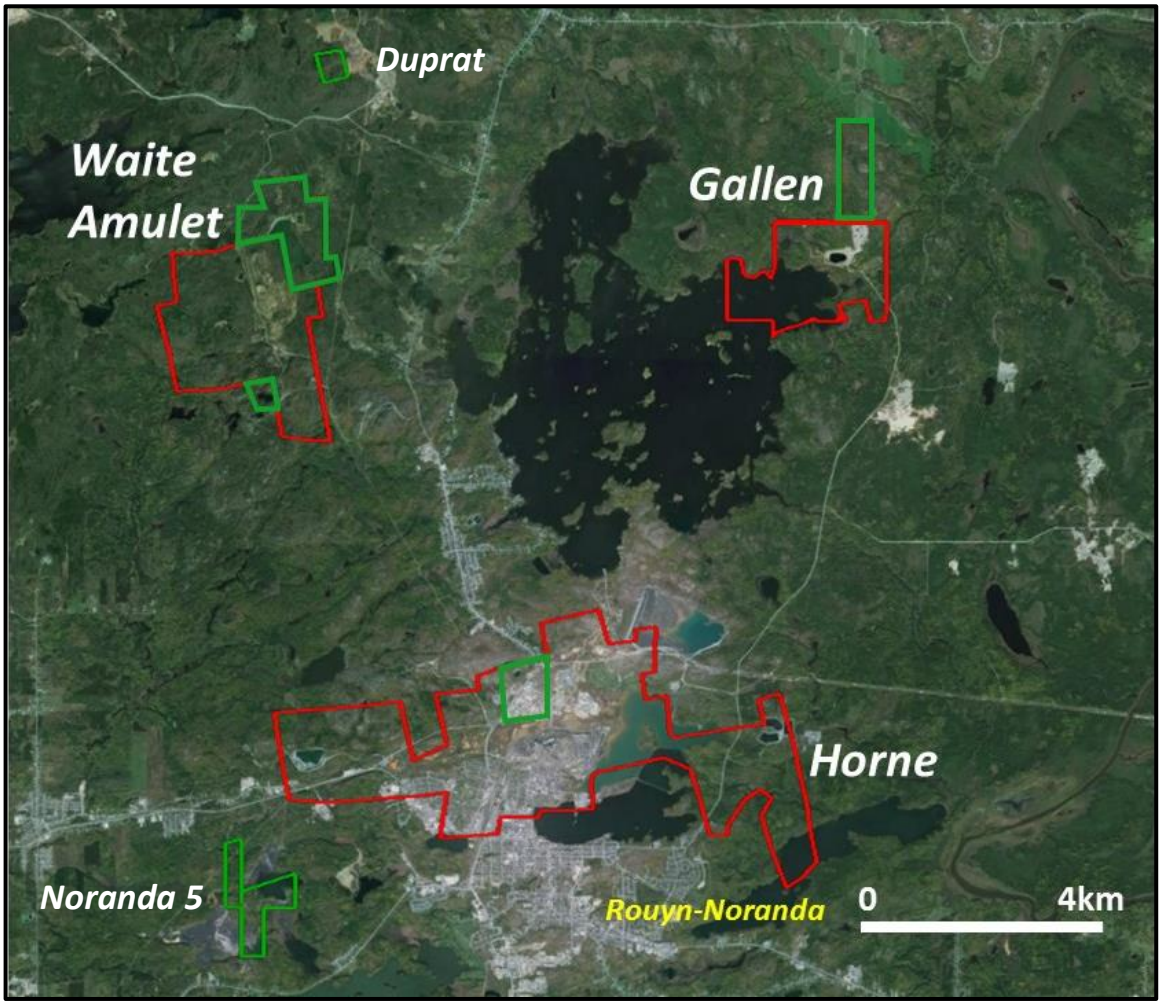

Figure 1. Regional location map showing the Glencore's mining concessions in red and their claims in green.

The claim is owned 100% by Glencore Canada. The property is located in the Dufresnoy Townships, in the NTS sheet 32D06 (Figure 2). The 2017 airborne survey on the Duprat property was carried out uniquely on claim CDL-6001243.

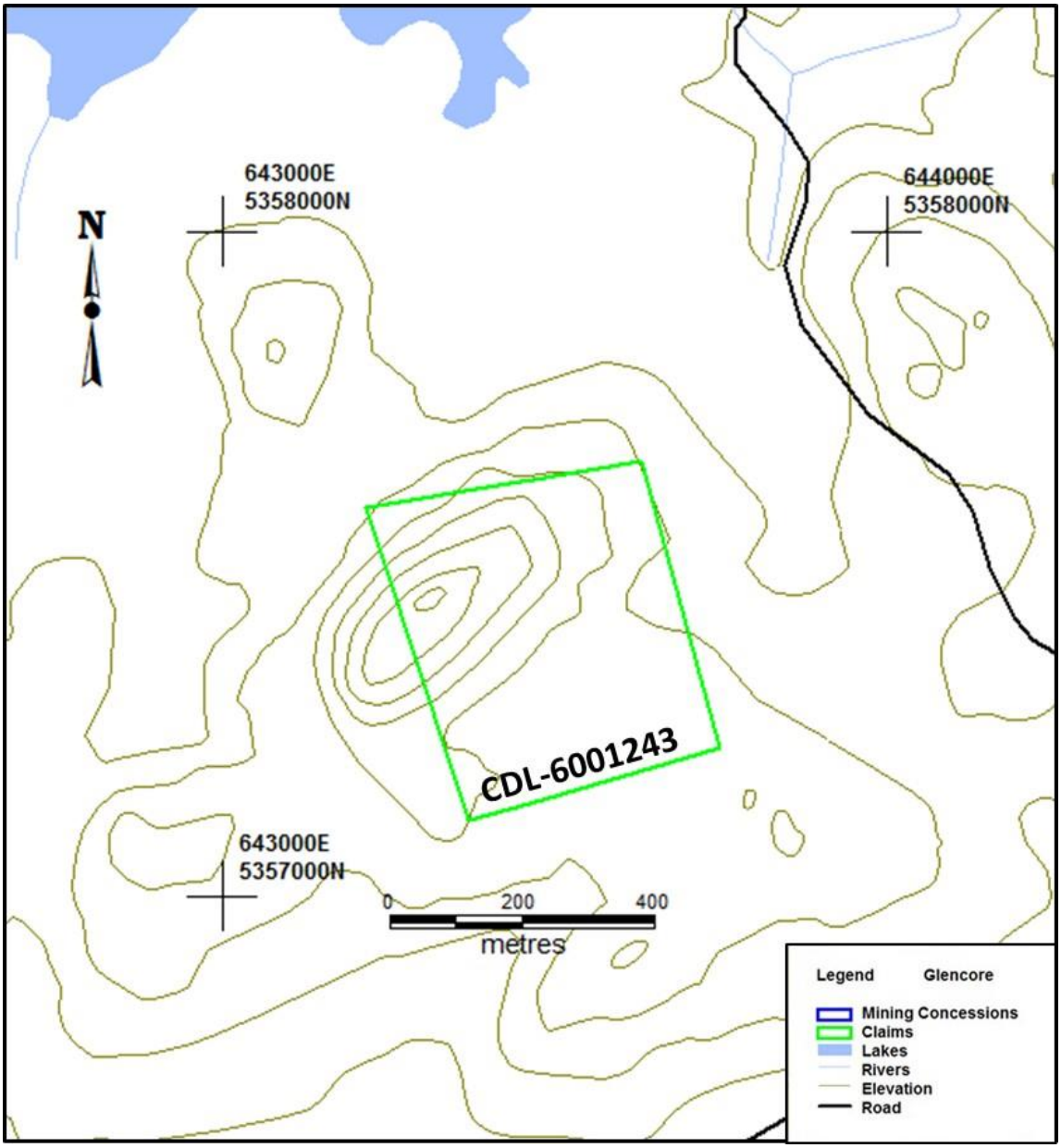

Figure 2. The Duprat claim map.

3.2 Gallen claim clock

Gallen Mine is located 8 kilometres north east of the town of Rouyn-Noranda near the north-east shore of Dufault Lake (Figure 1). The Gallen Mine property is composed of three Mining Concessions 345, 359 and 398 and 2 mining claims (CDC 5038 and CDC 5039) covering a total of 437 hectares. The claims are all owned 100% by Glencore Canada and cover 42.39 and 42.4 hectares respectively. The property is located in the

Dufresnoy Township, in the NTS sheet 32D07 (Figure 3). The 2017 airborne survey was restricted to the two claims.

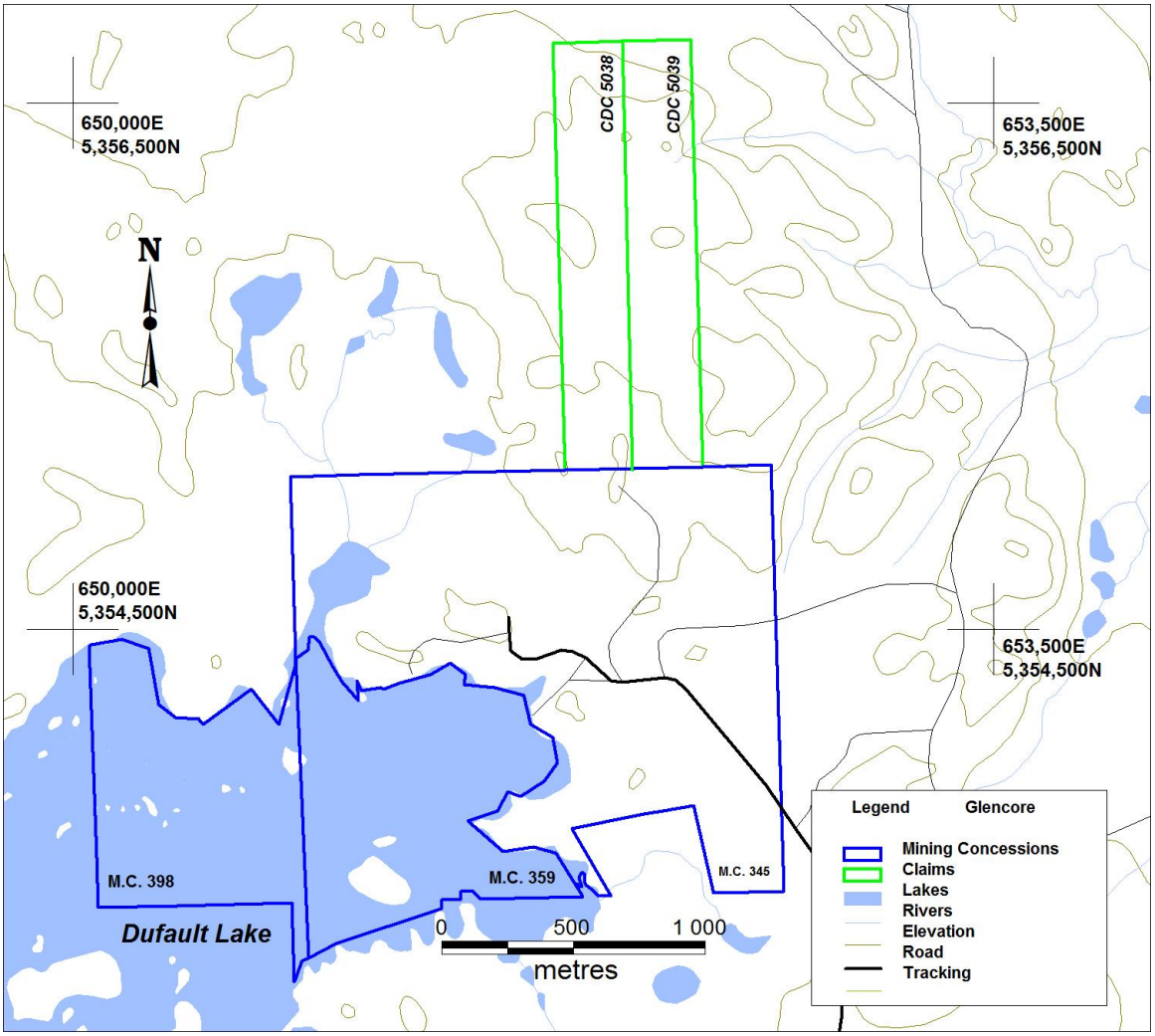

Figure 3. Gallen's mining concessions and claims map.

3.3 Noranda 5 claim block

Noranda 5 property is located 3 kilometres west of the town of Rouyn-Noranda (Figure 1). The Noranda 5 property is composed of three mining claims CDC-2210775, CL-5215001 and CL-5215002 covering a total of 96.01 hectares. The claims are all owned 100% by Glencore Canada. The property is located in the Beauchastel and Rouyn Townships, in the NTS sheet 32D03 (Figure 4). The 2017 airborne survey was carried out on the three claims.

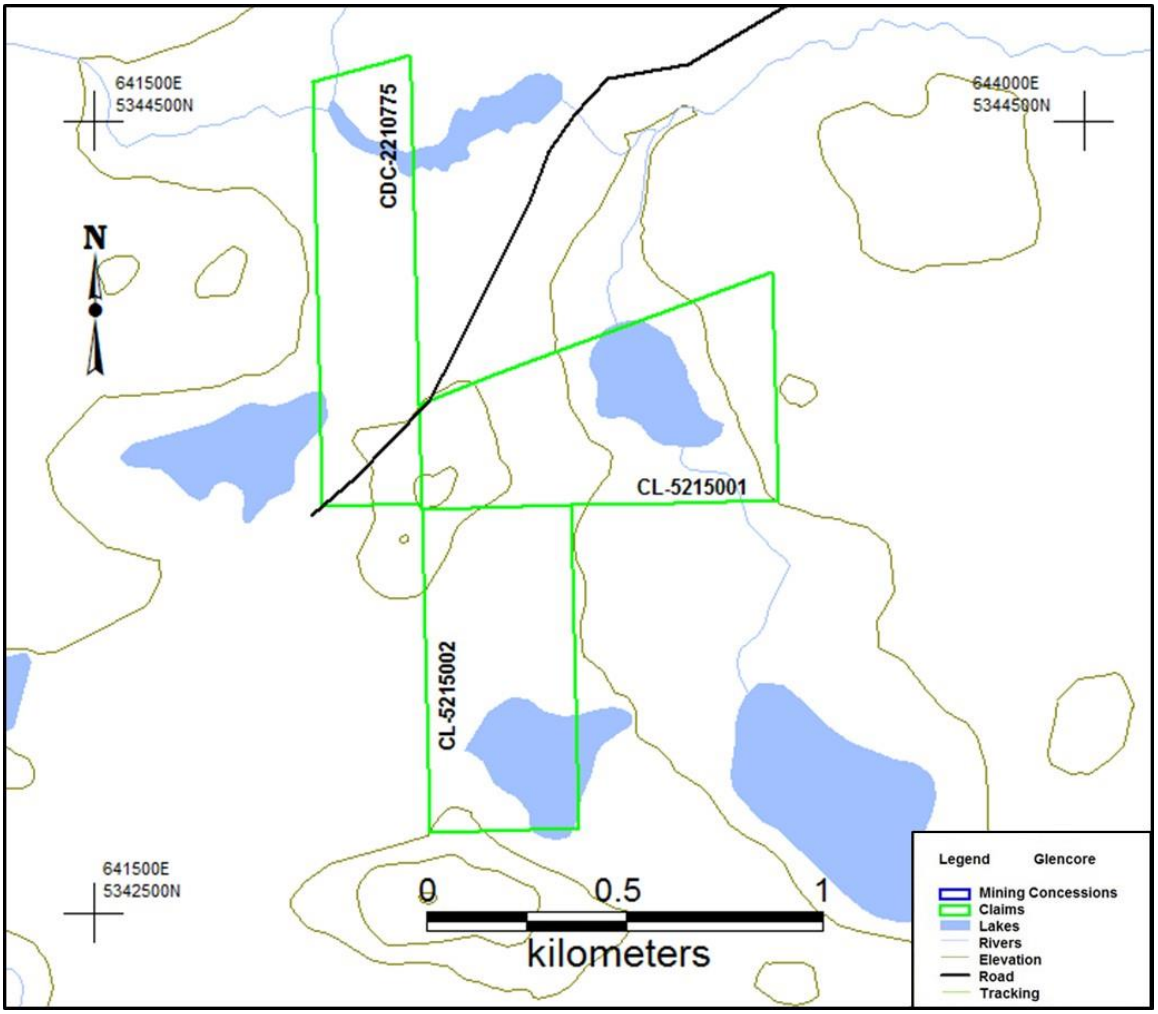

Figure 4. Noranda 5 claims map.

3.4 Waite-Amulet claim block

Waite-Amulet Mines are located 8 kilometres north of the town of Rouyn-Noranda (Figure 1). The Waite-Amulet property is composed of three Mining Concessions 173, 186 and 321 and 13 mining claims (CLD-6001237, CLD-6001238, CL-26266361, CL-2626362, CL-2626363, CL-2626364, CL-009422, CL-C003593, CDC-1103945, CL-C09422, CLC-P480010, CLD-P480020 and CL-C005671) covering a total of 752.63 hectares. The claims are all owned 100% by Glencore Canada and cover 169.32 hectares. The property is located in the Duprat and Dufresnoy Townships, in the NTS sheet 32D06 (Figure 5).

The 2017 airborne survey was limited to the claims; one survey over a group of 12 claims north of the mining concession 321 and another survey on a claim adjacent south (CL-C005671) of the mining concession 173.

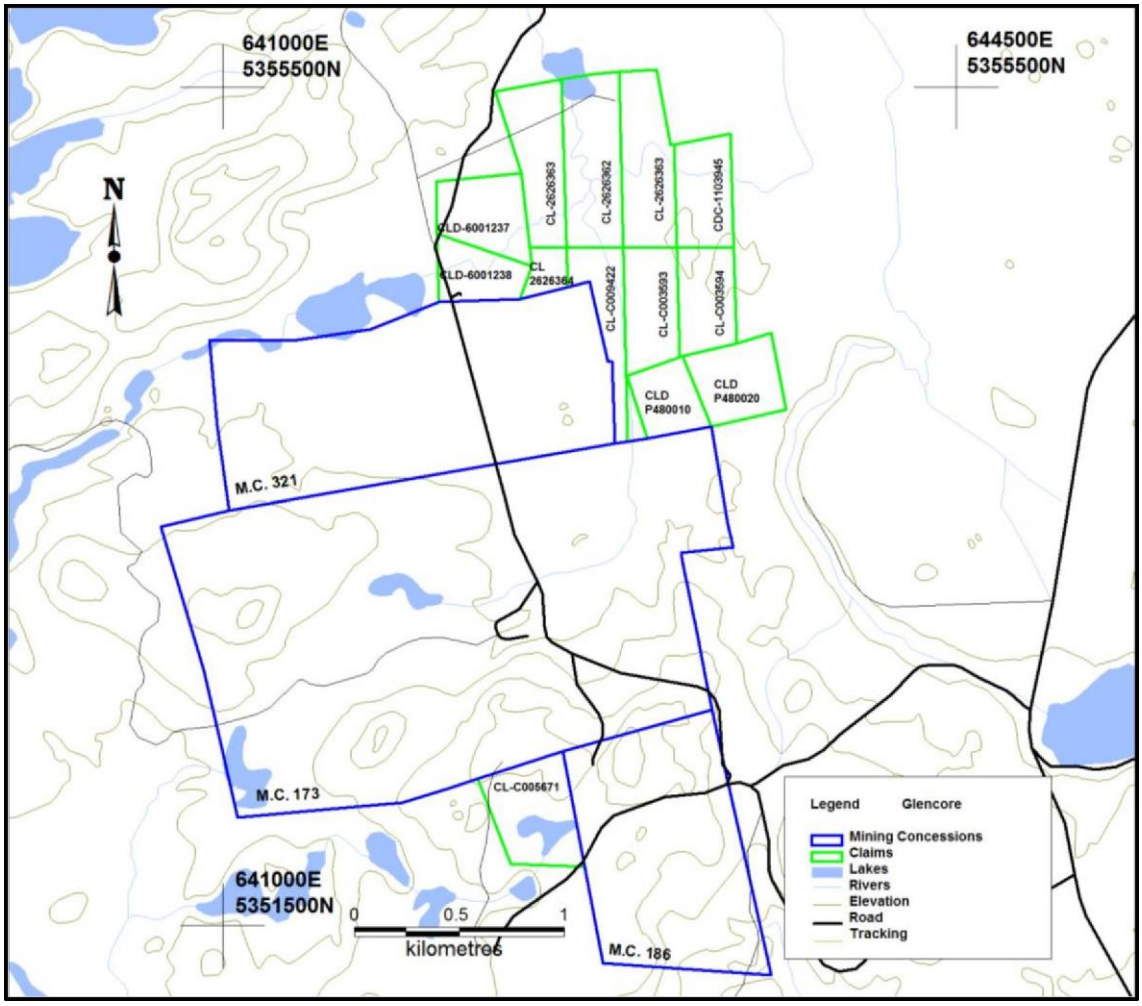

Figure 5. Waite-Amulet mining concessions and claims map.

4.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Accessibility

4.1.1 Duprat

The principal access to the Duprat property is by paved road 101, 9 kilometres north from Rouyn-Noranda up Jason Road west over 2.4 kilometres. From there, a gravel going north over one kilometre, reaches the property (Figure 1). This access is open all year around.

4.1.2 Gallen

The principal access to the Gallen Mines property is by an eight kilometres gravel road passing east of lac Dufault originating from the east side of Rouyn-Noranda (Figure 1). This access is open all year around. Another access to the mining claims is from the north using Chemin Chabot up to the north end of the claims 1600m south.

4.1.3 Noranda 5

The principal access to the Noranda 5 property is by paved road 101 west of Rouyn-Noranda up a service gravel road 1 kilometre west from there up to another gravel road reaching the heart of the property after 1 kilometre (Figure 1). This access is open all year around.

4.1.4 Waite Amulet

The principal access to the Waite Amulet property is by paved road 101 over 3 kilometres from the north side of Rouyn-Noranda up the Millenback gravel road, westward over 1 kilometre (Figure 1). This access is open all year around.

4.2 Climate

Rouyn-Noranda area is in sub-arctic climate which is intermediate between polar and tempered climate. Average annual temperatures range between -18° C and -19° C in January and 16° C to 17° C in July with the coldest record of -49.5° C and warmest record of 34.5° C (*Wikipedia web site*).

4.3 Local Resources

The nearest town in the vicinity of all the claim blocks is the town of Rouyn-Noranda. It was founded in 1966 and has 41,012 inhabitants based on the 2011 census (Wikipedia web site). The town possesses a city hall, full-service maintenance department, post offices, schools, General Hospital, CLSC health centres, airport and tourist office. Basic commercial infrastructure includes hotels, grocery stores, hardware stores, pharmacies, banks, restaurants and gas stations. Rouyn-Noranda main activities include agriculture, mining exploitation, forestry and transport.

4.4 Infrastructures

4.4.1 Duprat

The only existing infrastructure on the Duprat property is a gravel road passing not far east from the property that reaches the old Norbec Mines tailings. Just north of the Norbec tailings there is a pump house with power supply.

4.4.2 Gallen

The only remaining infrastructure at Gallen Mine are gravel roads, a pump house as a unique building, a transmission lines as well as a past producing open pit and underground mine.

4.4.3 Noranda 5

The remaining infrastructure on the Noranda 5 property are gravel roads, a transmission line as well as a producing quarry and a vast, still running, tailings originating from the Horne mining operation (photo 1).

Photo 1. Noranda 5 infrastructures; property outlined in red.

4.4.4 Waite-Amulet

The remaining infrastructures on the Waite-Amulet mining claims are gravel roads, a transmission lines as well as a tailings pond, tailings and a pump house (photo 2).

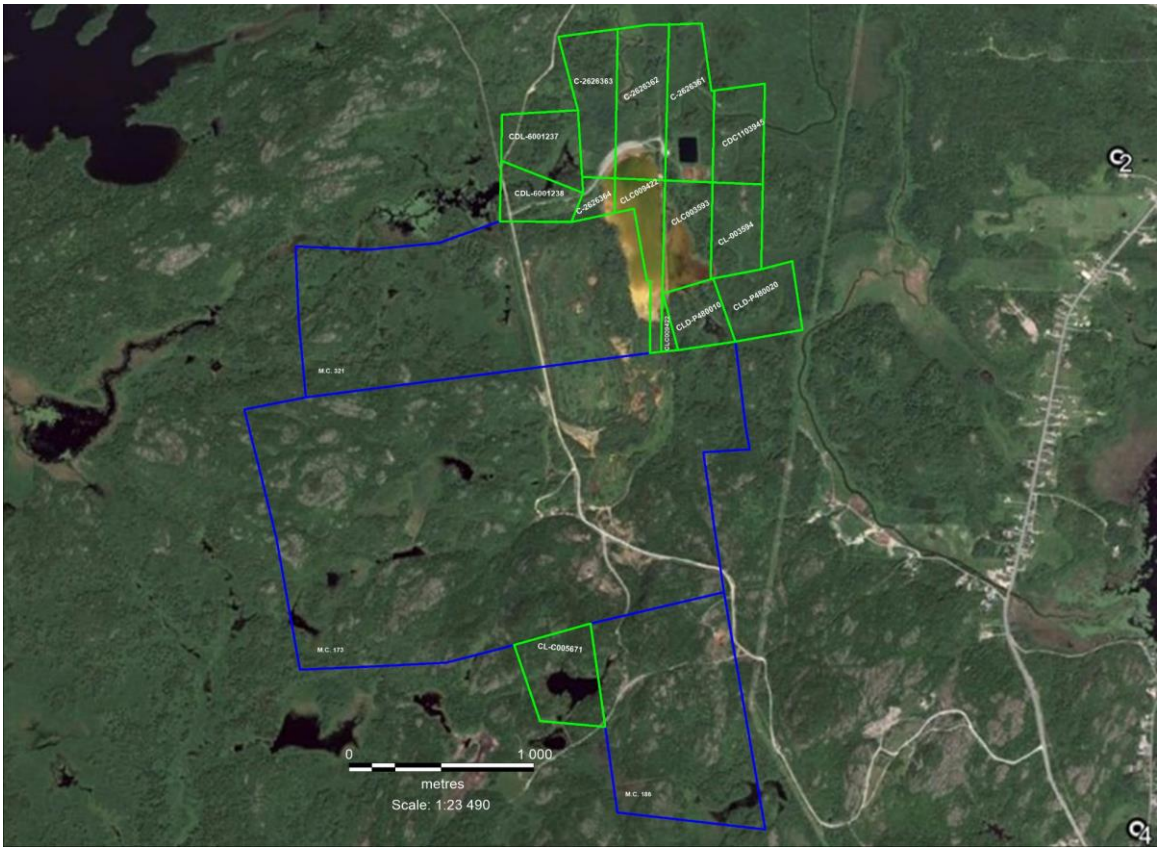

Photo 2. Waite-Amulet infrastructures; property claims in green.

4.5 Physiography

4.5.1 Duprat

The Duprat property area exhibits a low relief, with an elevation about 300 metres above sea level (ASL). The claim itself exhibits a rounded hill reaching about 350m ASL. Vegetation in the area is dominated by spruce and fir.

4.5.2 Gallen

The Gallen Mines Property exhibits a low relief, with an elevation ranging from 290 to 305 metres above sea level. Vegetation in the area is dominated by poplar, birch, spruce, fir and tamarack (photo 3).

Photo 3. Typical vegetation found around the Gallen Mine open pit.

4.5.3 Noranda 5

The Noranda 5 property exhibits a low relief, with an elevation about 300 metres above sea level. Vegetation in the area is dominated by spruce, fir and tamarack.

4.5.4 Waite-Amulet

The Waite-Amulet Property exhibits a low relief, with an elevation ranging from 310 to 360 metres above sea level. Vegetation in the area is dominated by spruce, fir and tamarack (photo 4).

Photo 4. Typical vegetation found around the Waite-Amulet Property dominated by spruce, fir and tamarack.

5.0 History

There is no volcanic massive sulfide (VMS) deposit proximately on the Duprat, Gallen, Noranda 5 and Waite claim blocks but first basemetal discovery in the area is back in 1924. From 1927 to 1978, about ten massive sulphide lenses were exploited in this part of the central Noranda camp. Historic production figures are shown in table 1.

Table 1. Tonnages and grades of selected massive sulfide deposits in the Rouyn-Noranda area.

Deposit name	Tonnes	Cu	Zn	Pb	Ag	Au
		%	%	%	g/t	g/t
Corbet	2,836,470	2.99	2.13		19.0	0.756
Vauze	350,350	2.9	0.94		21.5	0.588
East Waite	1,365,000	4.13	3.26		28	1.62
Waite Amulet	1,132,950	4.7	2.97	0.038	19.3	0.98
Amulet F	254,800	3.54	3.4		4.2	0.47
Amulet C	546,000	2.2	8.5		78.4	0.53
Amulet A and Lower A	4,823,000	5.12	5.47		42	1.31
Norbec	3,657,654	2.78	4.76		31.9	0.50
Lake Dufault No 2	91,000	0.5	9.8		92.4	1.23
Millenbach	3,215,030	3.43	4.23		42.5	0.72
Horne	56,693,000	2.18			0	4.62
Quemont	13,967,590	1.31	2.43	0.018	28	4.84
Delbridge	439,530	0.49	9.4		86.8	2.46
Gallen	9,141,860	0.014	2.69		1.708	0
Mobrun	2,767,310	0.62	2.32		19.1	1.59

There is no known basemetal occurrences (Sigéom) on the Duprat, Gallen, Noranda 5 and Waite properties. The Norbec deposit is, however, located about 1000 metres east from the Duprat property; the Gallen deposit is located 300 m north of the Gallen's claims and Waite-Amulet and Amulet A, C, and F deposit are within x meters from the Waite claim block.

6.0 Geological Setting

The Duprat, Gallen, Noranda 5 and Waite-Amulet claim blocks are located in the southern portion of the Abitibi greenstone belt in a volcano-sedimentary sequence belonging to the Blake River Group as defined by Wilson (1962), Spence (1975) and Gelinas et al. (1983). The property is underlain by massive and pillowed andesite and basalt (Figure 3). The volcanic sequence is bimodal with rhyolite and andesite belonging to the upper Blake River Group.

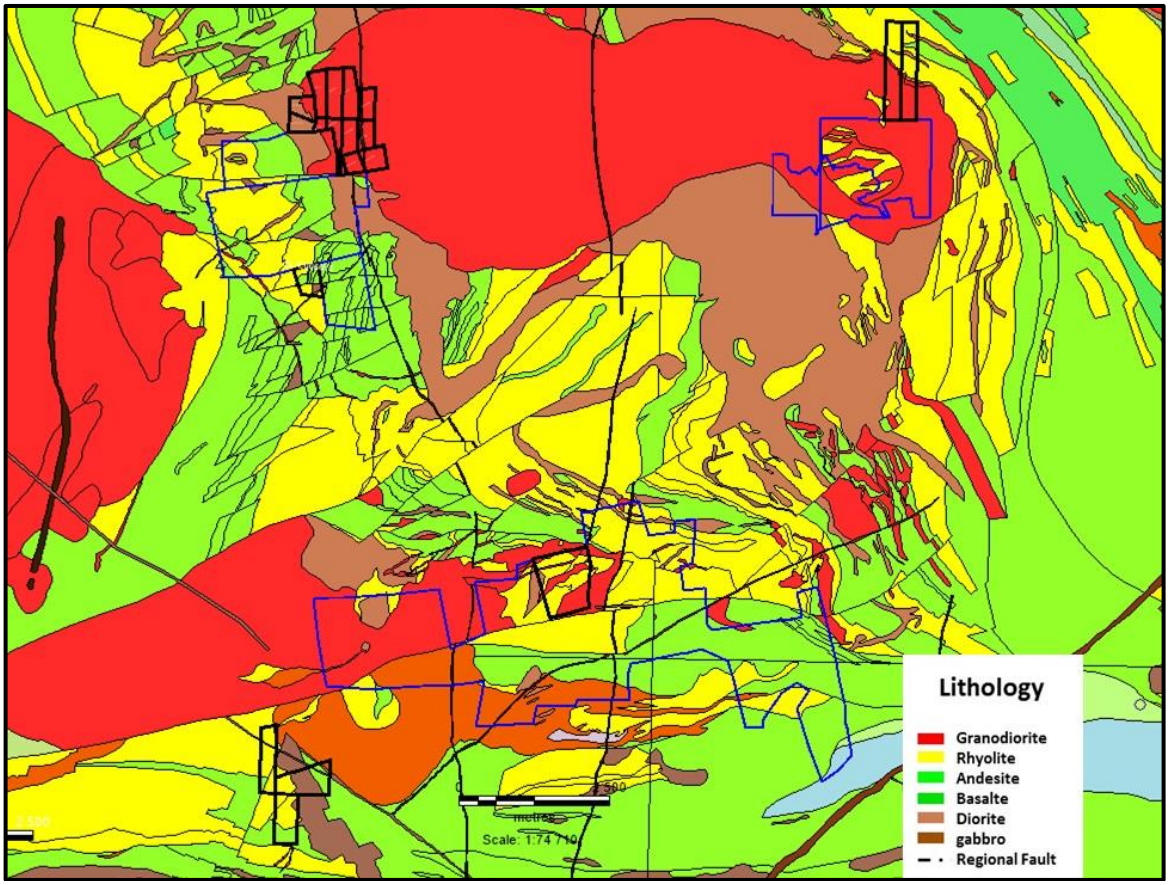

Figure 3. Regional geological map. Duprat, Gallen, Noranda 5 and Waite-Amulet claims are black.

7.0 Deposit Type

Archean volcanogenic massive-sulfide deposits (VMS) in the Noranda camp occur as lenses of polymetallic massive sulfide that were formed at or near the seafloor in

submarine volcanic environments (Galley et al. 2005). They formed from metal-enriched fluids associated with seafloor hydrothermal convection. Their immediate host rocks can be either volcanic or sedimentary.

VMS deposits form at, or near, the seafloor through the focused discharge of hot, metal-rich hydrothermal fluids. Most VMS deposits have two components (figure 4). There is typically a mound-shaped to tabular, stratabound body composed principally by massive sulfide, quartz and subordinate phyllosilicates and iron oxide minerals and altered silicate wallrock. These stratabound bodies are typically underlain by discordant to semi-concordant stockwork veins and disseminated sulfides. The stockwork veins systems, or pipes, are enveloped in distinctive alteration halos, which may extend into the hanging-wall strata above the VMS deposit.

VMS deposits are grouped according to base metal, gold content and host-rock lithology. The Cu-Zn and Zn-Cu categories for Canadian deposits. In Canada, VMS deposits can also be grouped based on dominant host-rock lithology. There are mafic-dominant, bimodal mafic, bimodal felsic, siliciclastic-mafic and bimodal-siliciclastic (Figure 5). The VMS deposits found in the Noranda massive sulfide district falls in the bimodal-mafic dominant group.

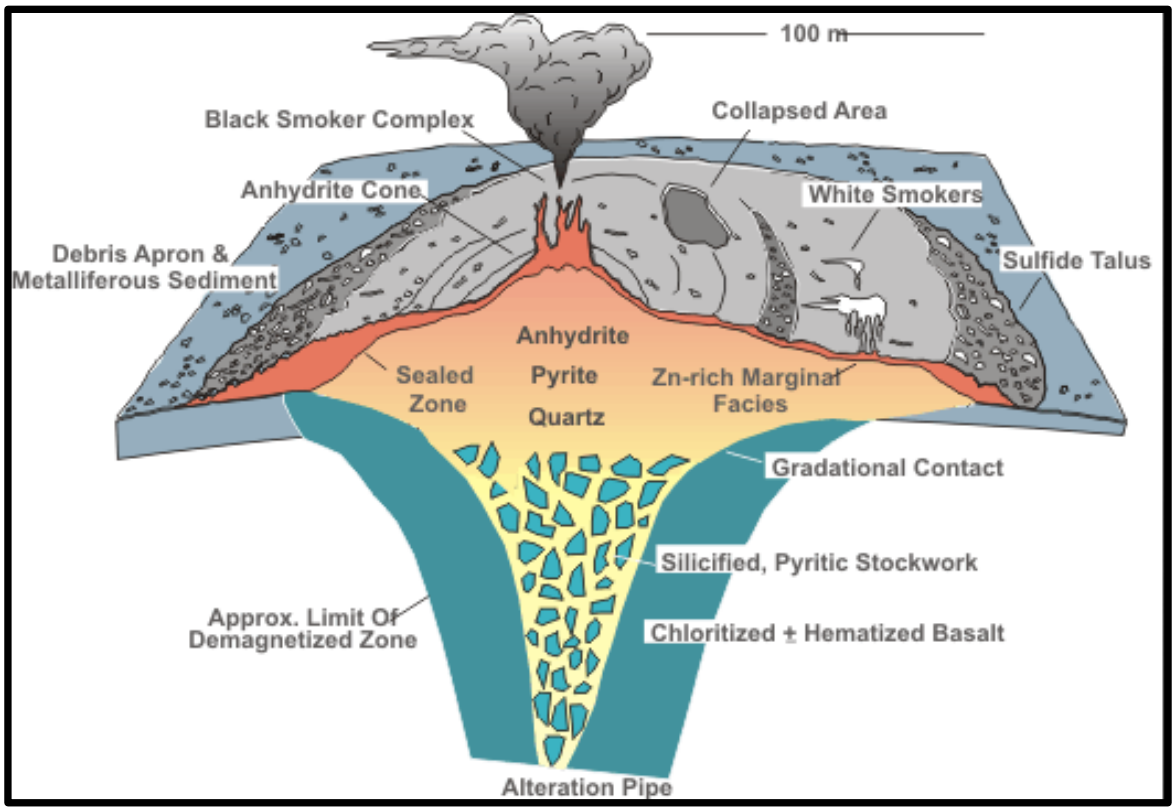

Figure 4. Main features of volcanogenic massive sulfide deposits.

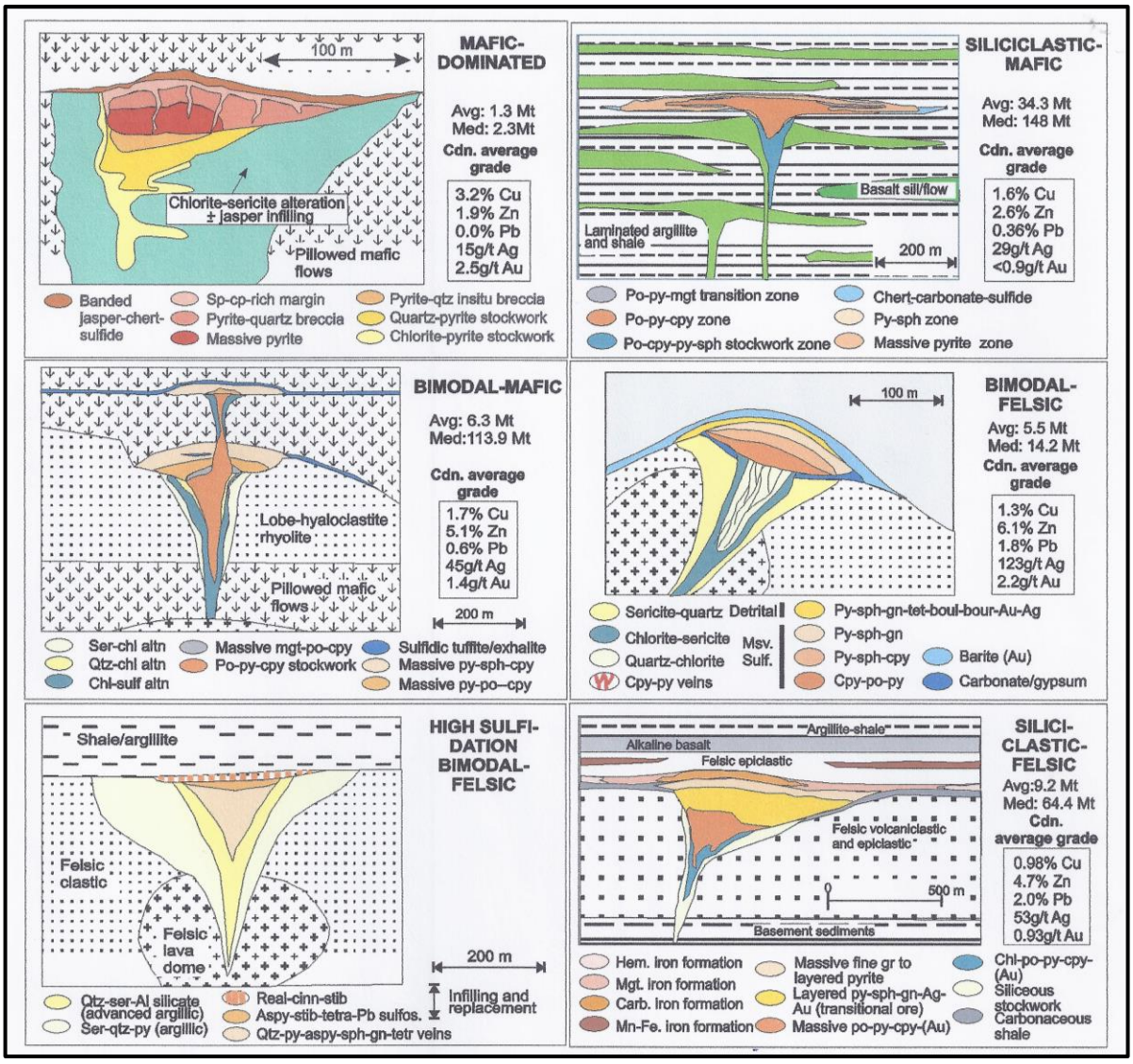

Figure 5. Graphic representation of the lithological classification for VMS deposits by Barrie and Hannington (1999), with "high sulfidation" type and added subtypes to the bimodal-felsic group. Average and median sizes for each type for all Canadian deposits, along with average grade.

8.0 2017 Exploration Work

Glencore Canada Corporation has contracted Abitibi Géophysiques inc. to perform a high resolution aeromagnetic survey from an unmanned aerial vehicle (UAV) on 5 claim blocks located in the vicinity of the town of Rouyn-Noranda. The project objective was to help better understand the local geology over the five claim blocks.

The survey was conducted October 22nd and November 4th 2017 and includes 6.5 standby days due to difficult weather. A total of 182.66 line kilometres was completed. The line spacing was 25 m and the drone was flying at an average altitude of 45m. The drone was a DJI Matrice 600 PRO instrument and flew at an average speed of 35 kilometres per hour. The magnetometer was a Cesium CS-VL of Scintrex while the base station was a GSM-19W of GEMS Systems. More information about the survey and instrumental features can be seen with the attached document (Appendix 1).

The field work was performed by Devbrio Géophysique Inc. that was sub-contracted by Abitibi Géophysique inc. based in Val D'Or, Québec. The next section shows the survey results as coloured maps.

8.1 Duprat

The first grid covered the Duprat claim block. Figures 6, 7 and 8 show the total magnetic field, the vertical gradient and the 3D magnetic inversion respectively. The survey has identified 2 magnetic anomalies on the north-east portion of the grid. A magnetic 3D inversion suggests that the magnetic source is likely near the surface.

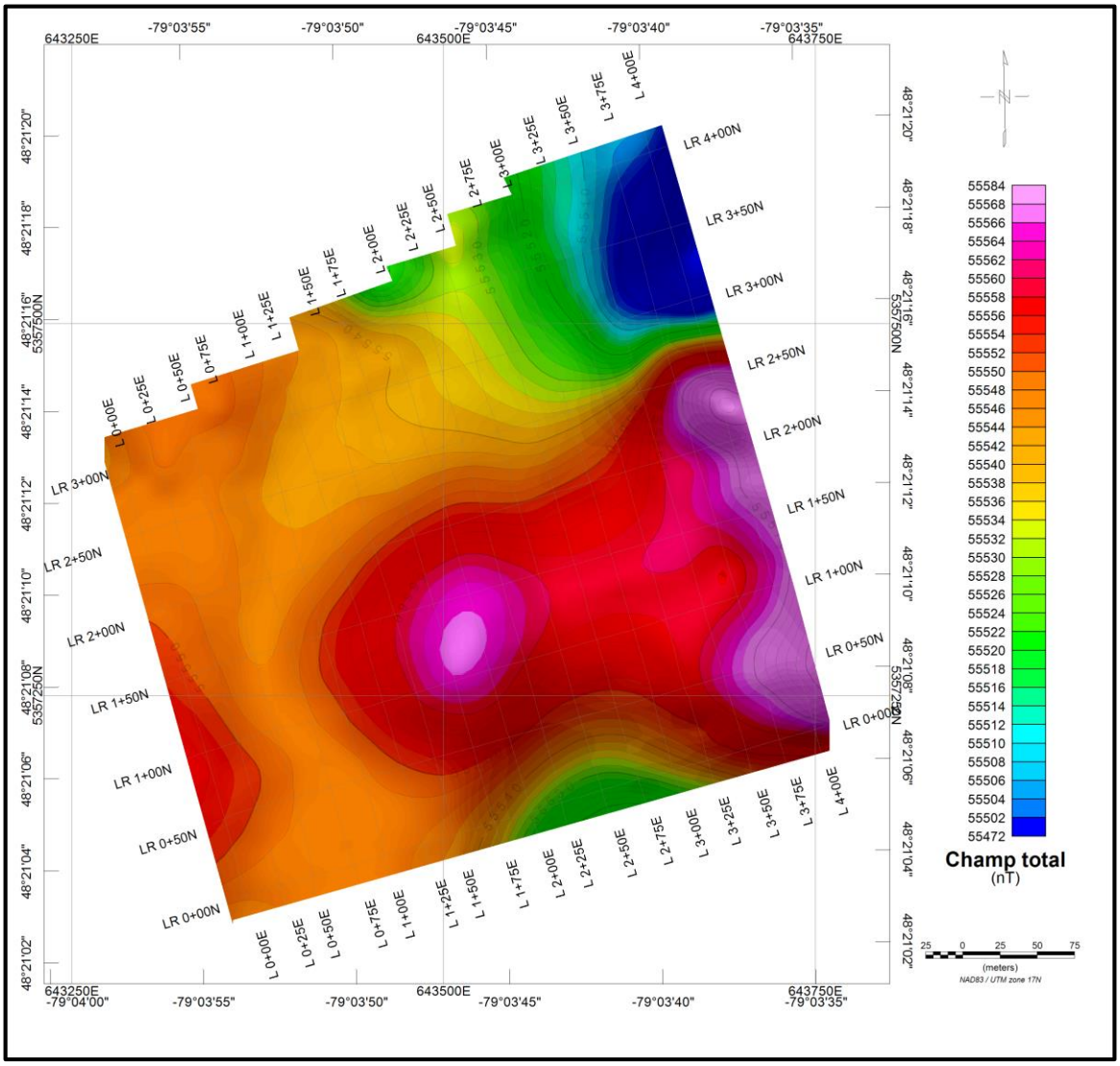

Figure 6. Duprat total field mag map.

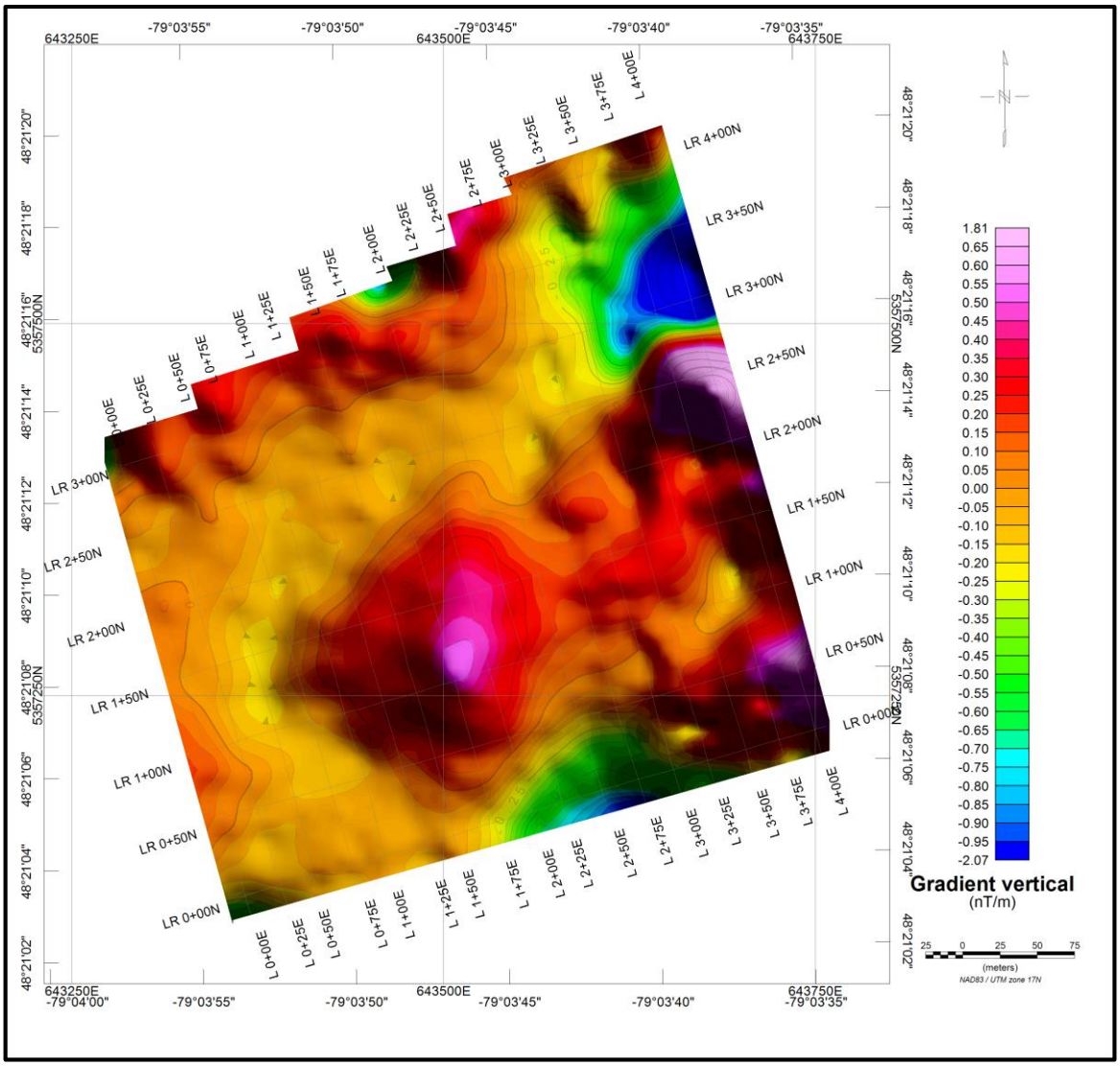

Figure 7. Duprat vertical gradient.

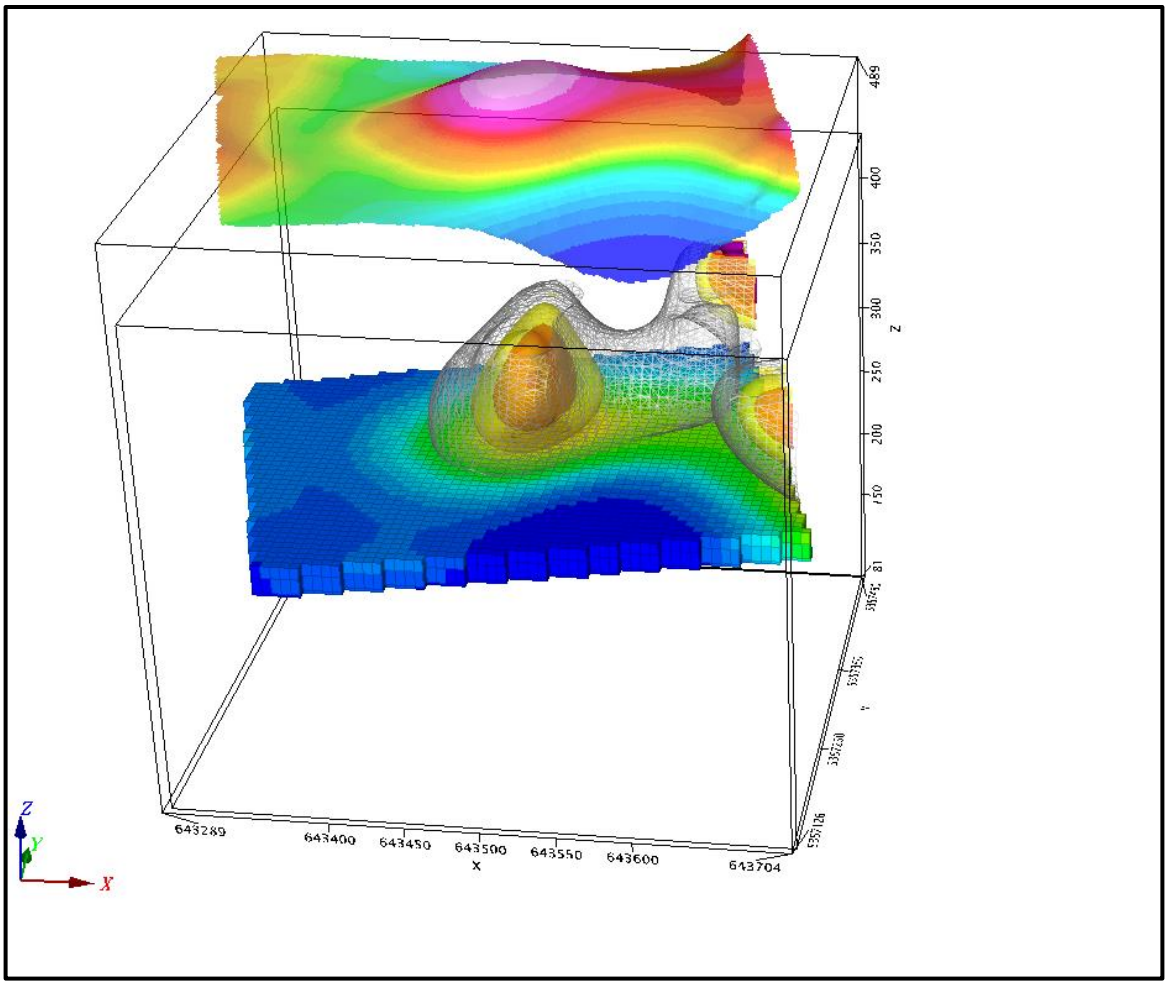

Figure 8. Duprat 3D magnetic inversion.

8.2 Gallen

The second grid covered the Gallen claim block. Figures 9 and 10 show the total magnetic field and the vertical gradient. The survey has identified a series of five magnetic lineaments, all oriented NO-SE and interpreted as dykes. The outlined magnetic lineaments seem to identify NE-SW trending faults. The magnetic amplitudes are weak and do not exceed 10 nano-tesla.

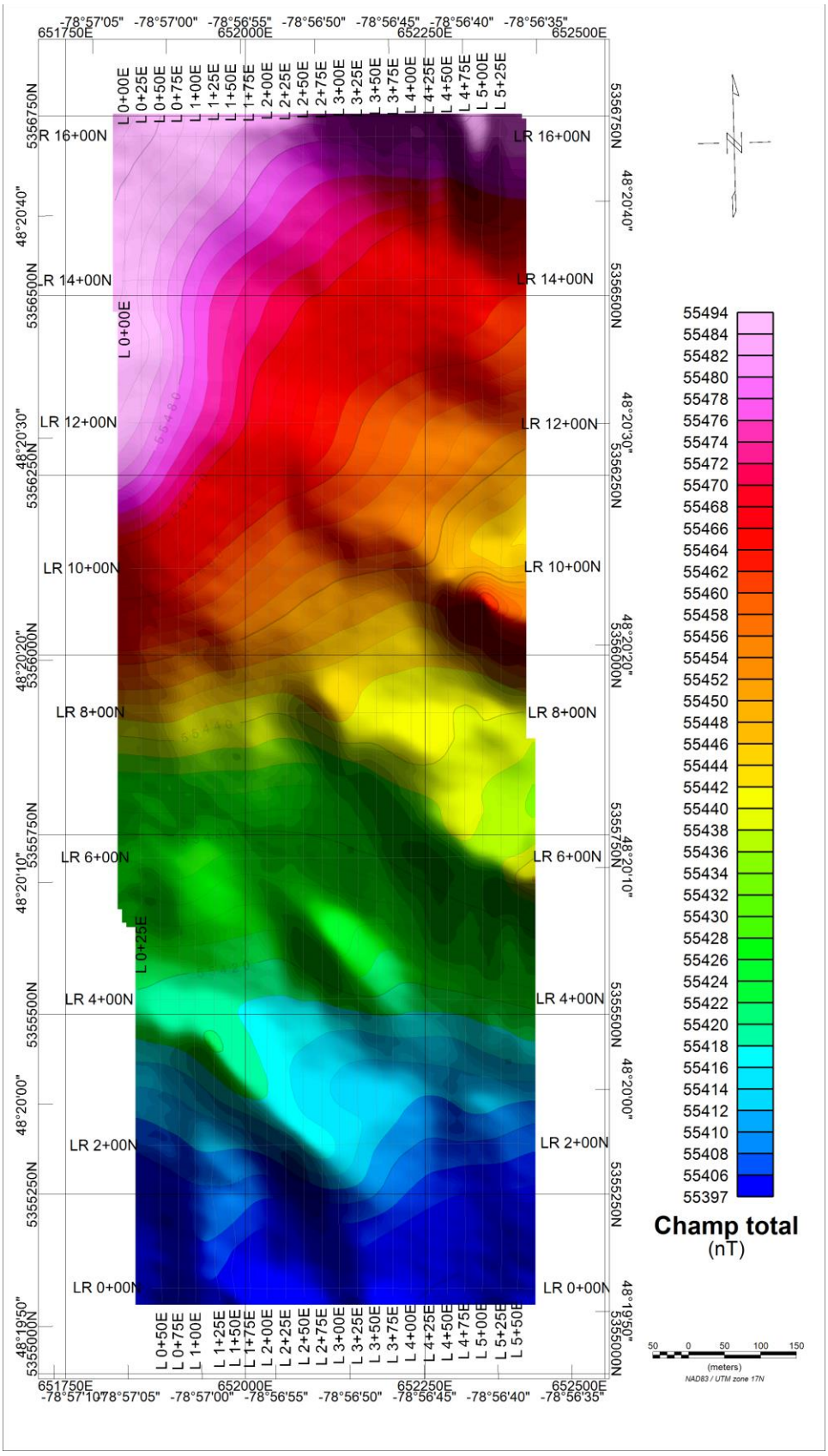

Figure 9. Gallen total field mag.

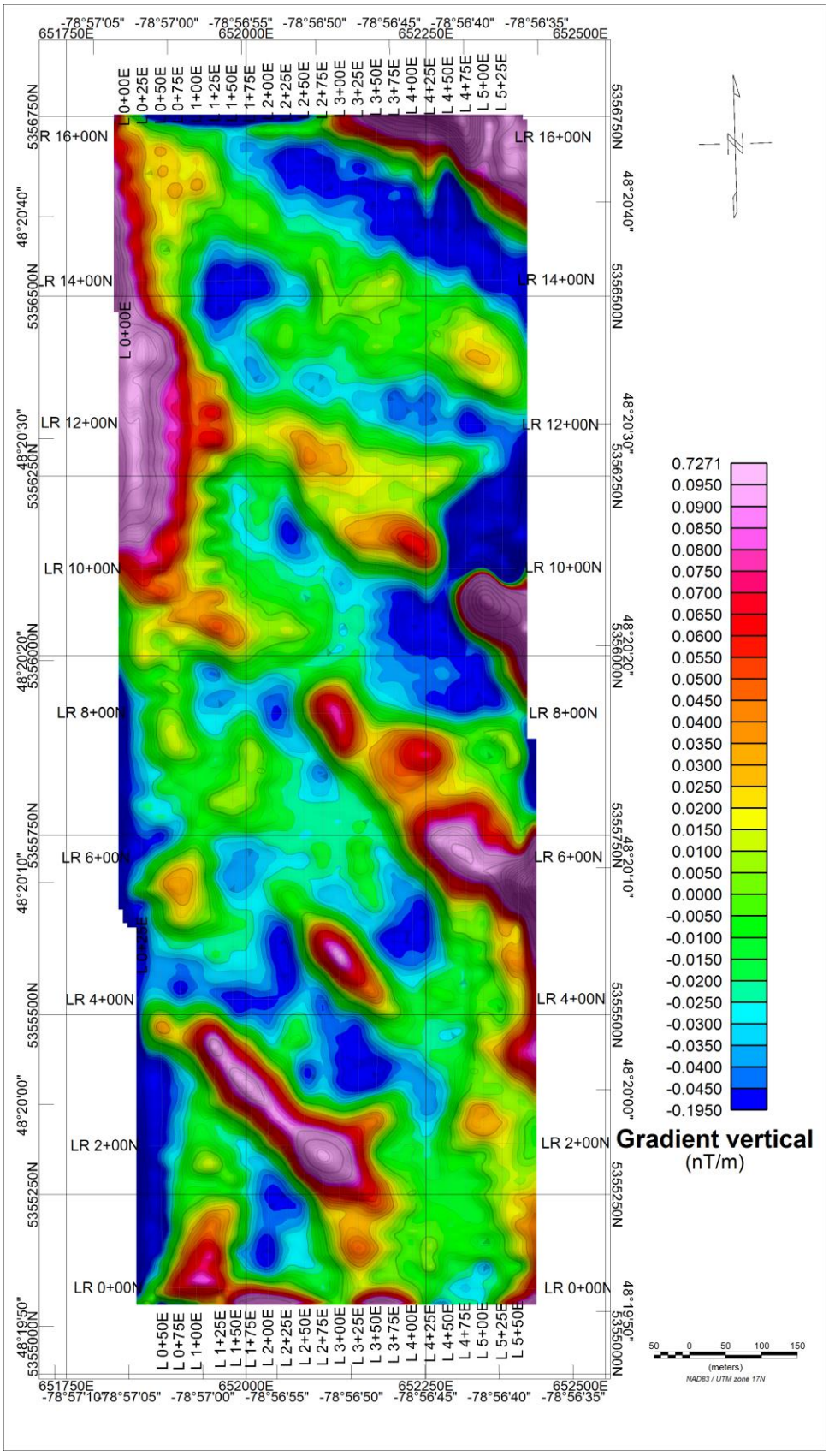

Figure 10. Gallen vertical gradient

8.3 Noranda 5

The sixth grid covered the Noranda 5 claim block. Figures 11 and 12 show the total magnetic field and the vertical gradient. The survey has identified four anomalies although only partially defined.

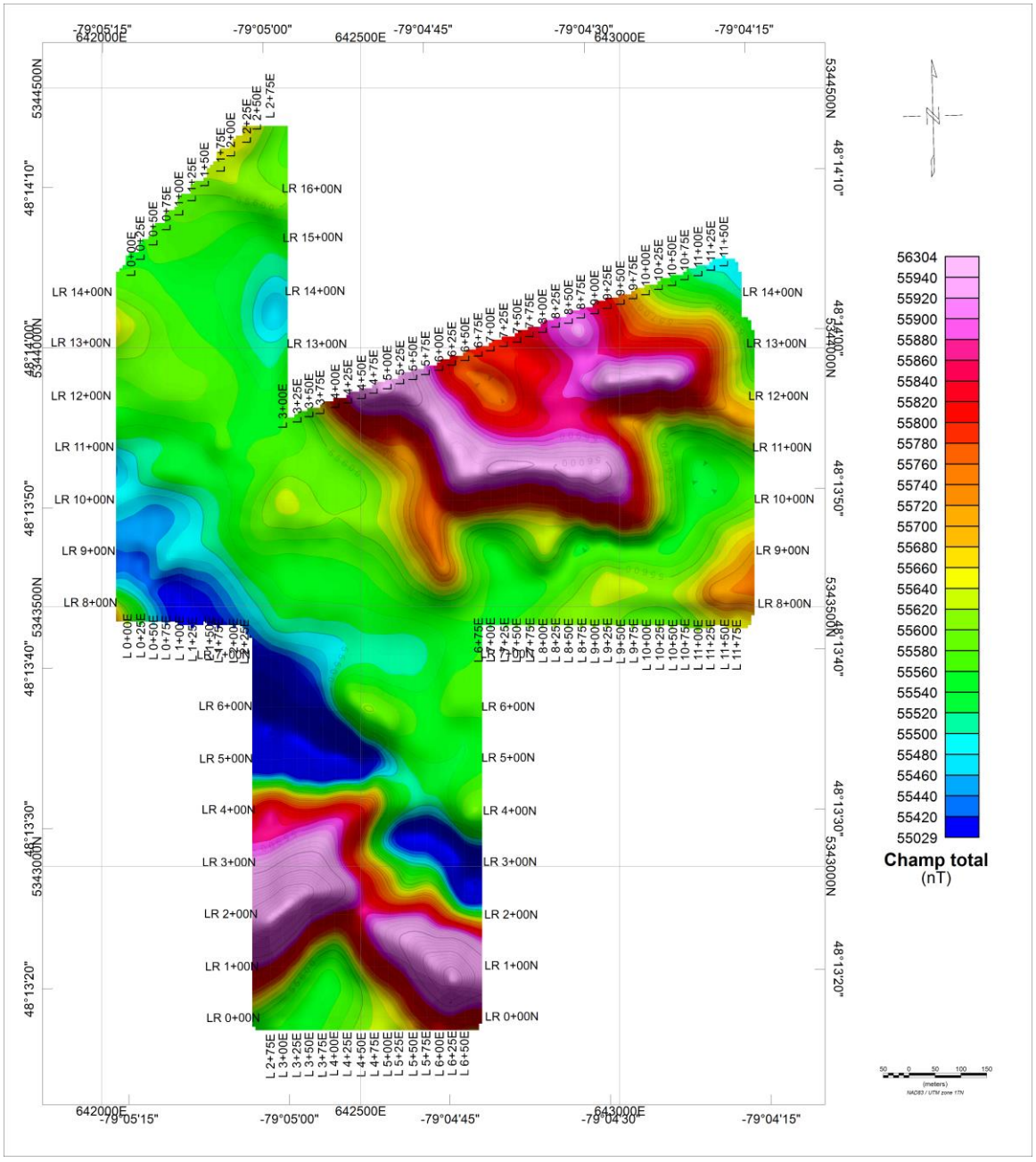

Figure 11. Noranda 5 total field mag.

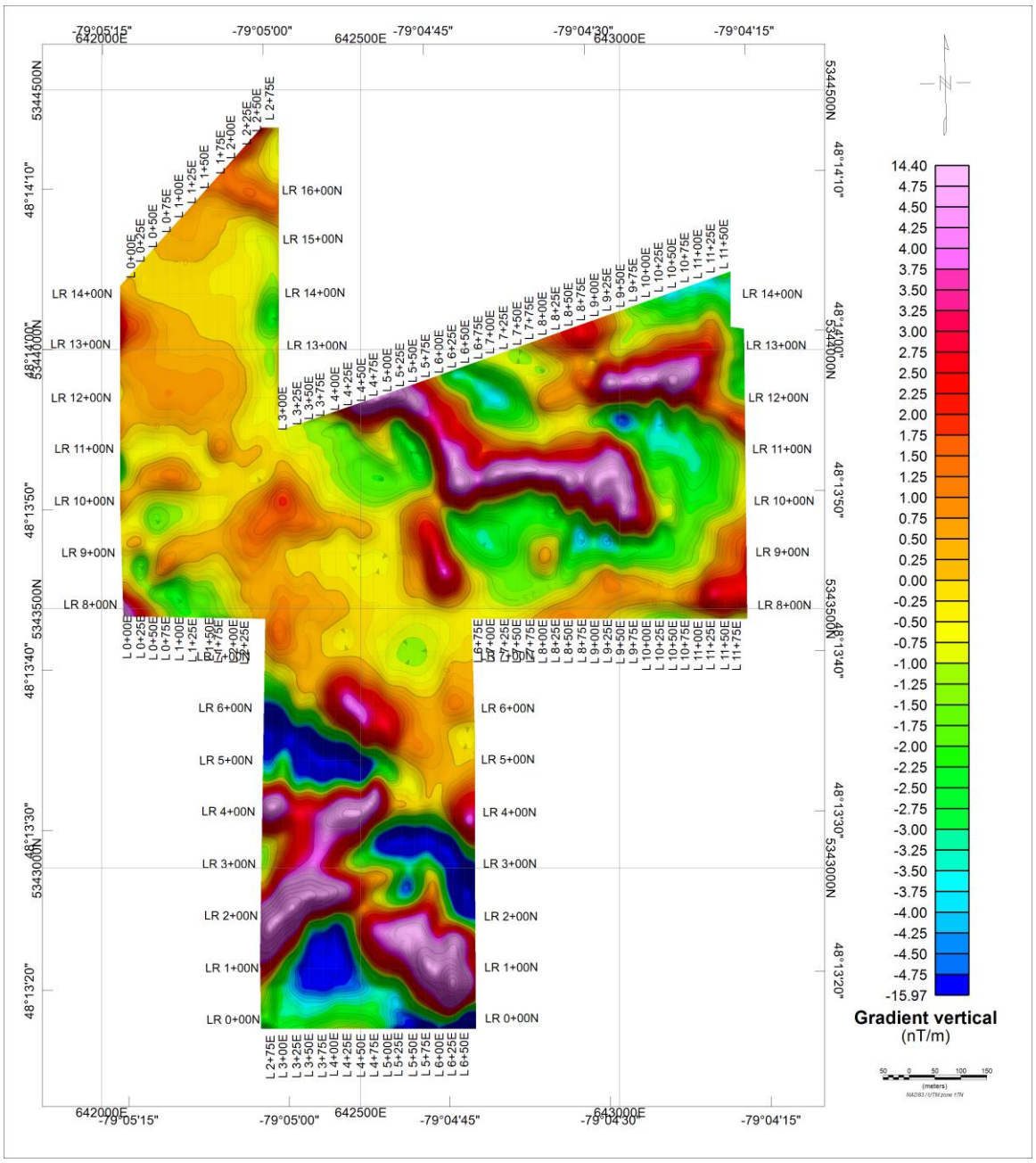

Figure 12. Noranda 5 vertical gradient.

8.4 Waite-Amulet

8.4.1 North block

The third grid covered the Waite-Amulet claim block. Figures 12 and 13 show the total magnetic field and the vertical gradient. The survey has identified one broad complex anomaly in the west part of the grid; a few isolated anomalies in the north portion of the grid and one E-W magnetic lineament on the eastern side of the grid interpreted as a dyke and a cultural anomaly in the centre of the grid.

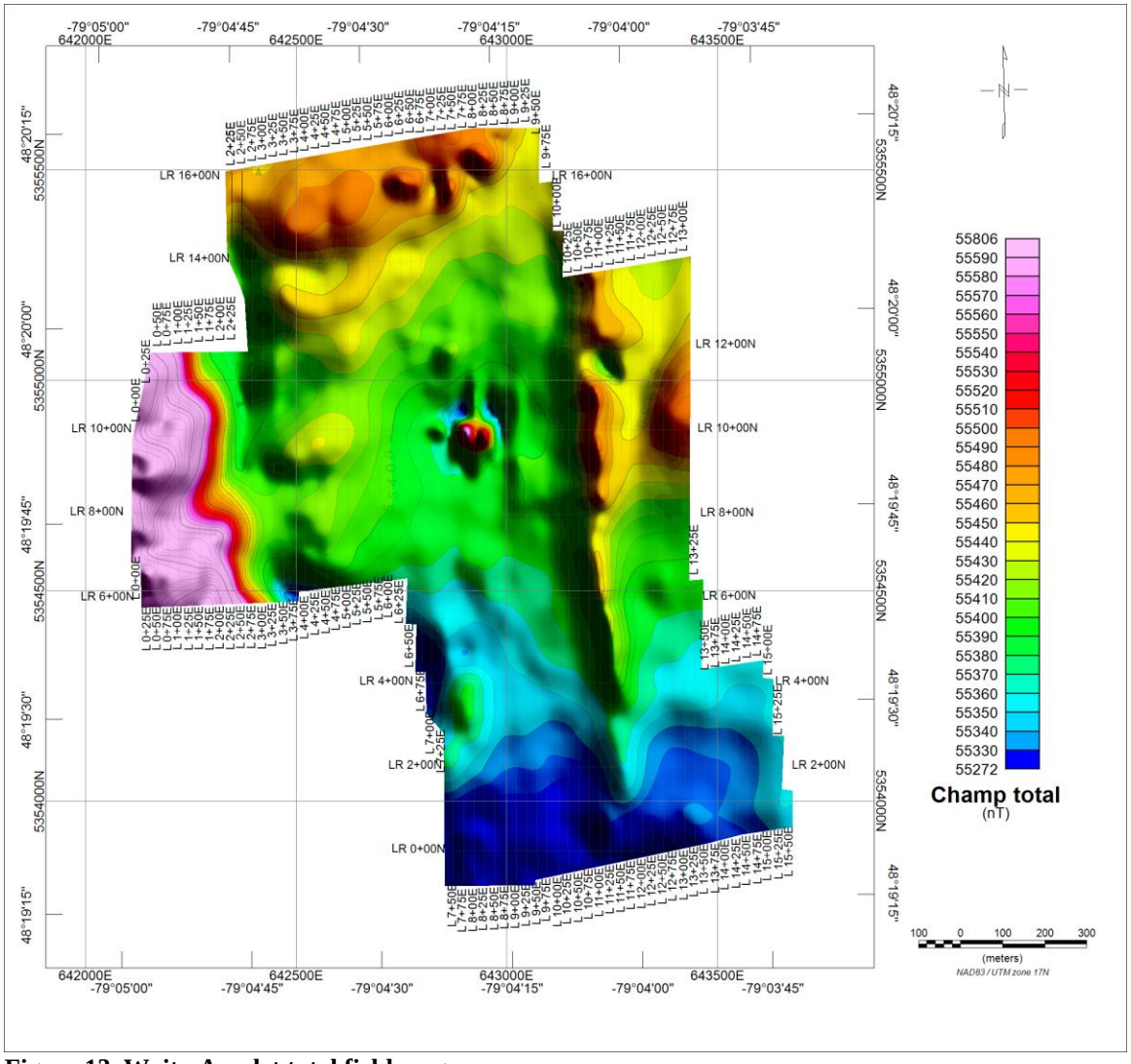

Figure 13. Waite-Amulet total field mag.

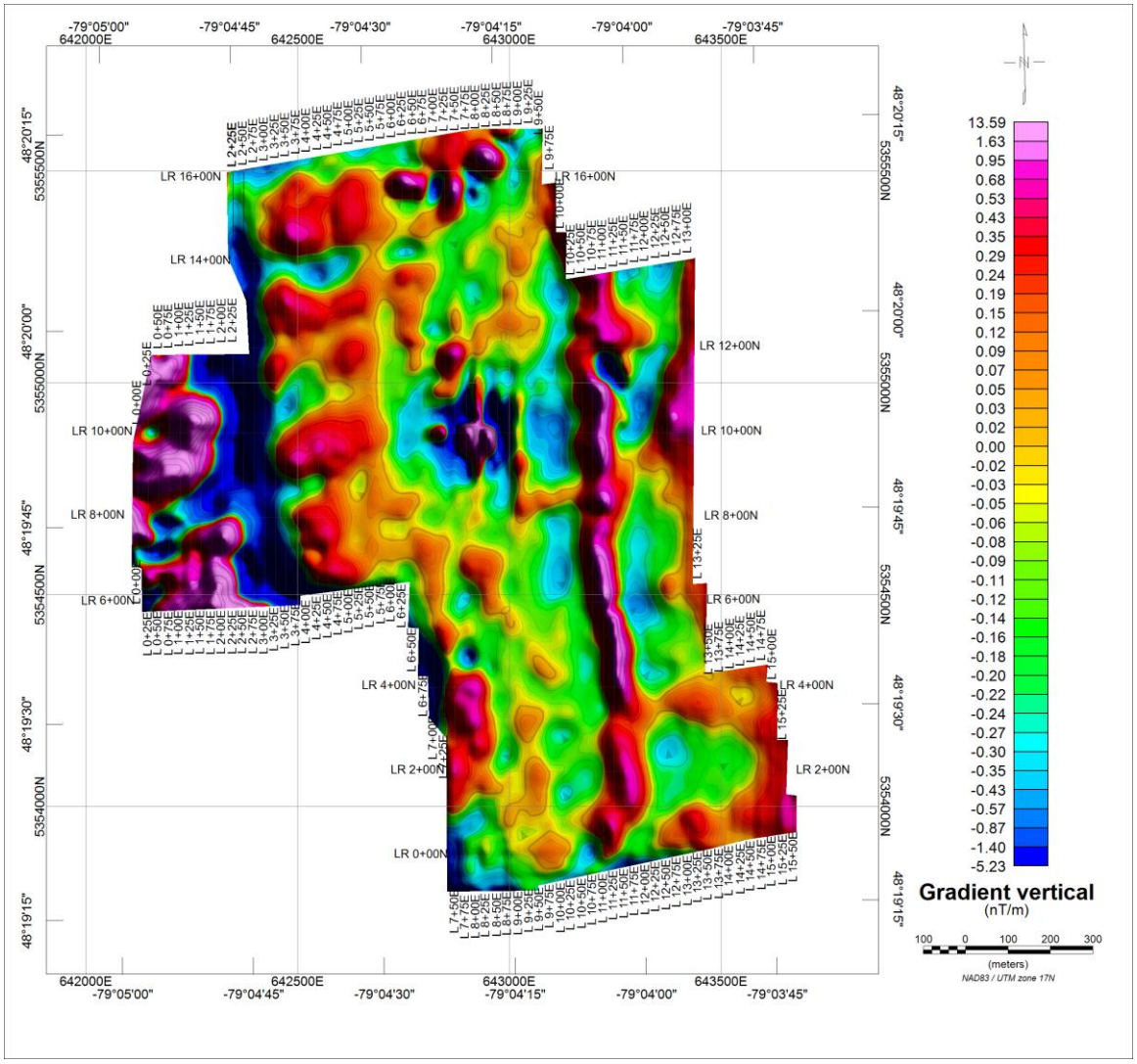

Figure 14. Waite-Amulet vertical gradient.

8.4.2 South block

The fourth grid covered the claim located adjacent south of the Waite-Amulet mining concessions. Figures 15 and 16 show the total magnetic field and the vertical gradient. The survey has identified 3 anomalies located in the north portion of the grid from the total field mag while two more anomalies were identified from the vertical gradient.

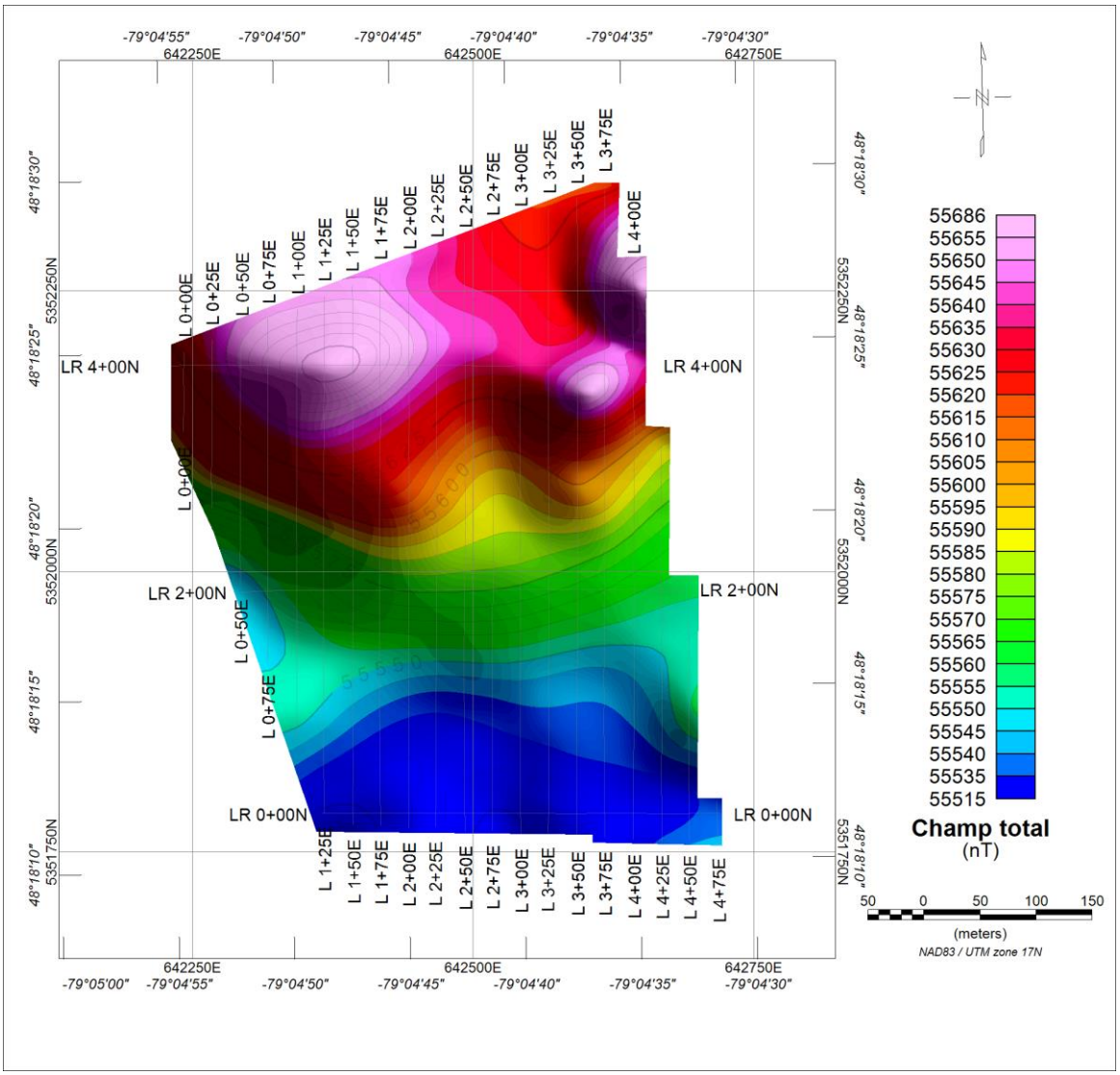

Figure 15. Waite-Amulet South total field mag.

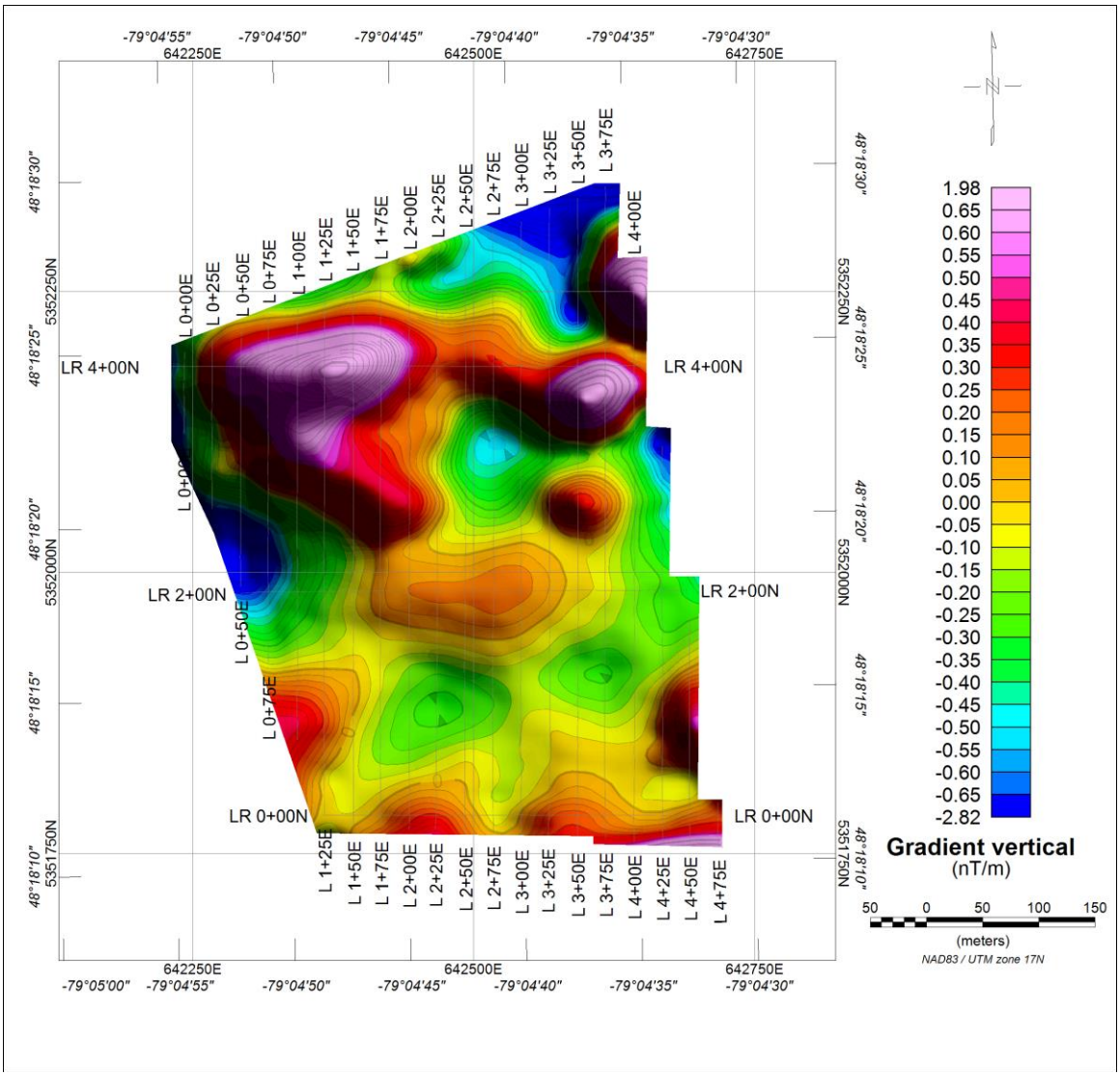

Figure 16. Waite-Amulet South vertical gradient.

9.0 Drilling

In the course of this project, no drilling was conducted.

10.0 Sampling Method and Approach

Geophysical sampling approaches and methodologies are provided in the geophysical report attached to this document (appendix 1).

11.0 QAQC

The quality control program applied in this geophysical program is provided in the geophysical report attached to this document.

12.0 Adjacent Properties

The Noranda massive sulfide district is known to host many other VMS deposits such as Horne, Corbet, Vauze, Norbec, East Waite, West Waite, Lac Dufault, Millenbach, Quemont, Delbridge and Mobrun among others. Table 3 providing tonnages and grades of selected massive sulfides located within 10 kilometres from the town of Rouyn-Noranda (Robinson et al. 1982).

Table 2. Tonnages and grades of selected massive sulfide deposits in the Rouyn-Noranda area.

Deposit name	Tonnes	Cu	Zn	Pb	Ag	Au
		%	%	%	g/t	g/t
Corbet	2,836,470	2.99	2.13		19.0	0.756
Vauze	350,350	2.9	0.94		21.5	0.588
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Amulet C	546,000	2.2	8.5		78.4	0.53
Amulet A and Lower A	4,823,000	5.12	5.47		42	1.31
Norbec	3,657,654	2.78	4.76		31.9	0.50
Lake Dufault No 2	91,000	0.5	9.8		92.4	1.23
Millenbach	3,215,030	3.43	4.23		42.5	0.72
Horne	56,693,000	2.18			0	4.62
Quemont	13,967,590	1.31	2.43	0.018	28	4.84
Delbridge	439,530	0.49	9.4		86.8	2.46
Gallen	9,141,860	0.014	2.69		1.708	0
Mobrun	2,767,310	0.62	2.32		19.1	1.59

13.0 Geological Modelling

No geological modelling was done in the course of the current study.

14.0 Resource Calculation

No resource calculation was performed during the course of the current study.

15.0 Conclusions

The most interesting comments that can be said about this high resolution aeromagnetic survey is its powerful capability to identify very subtle magnetic features that otherwise would not be seen by the regional survey (Abitibi QC-ON – 50m). The best examples are on the Gallen, Waite-Amulet and Noranda 5 grids. Follow up programs are recommended.

16.0 References

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17.0 Date and Signature

Date and Signature

I, **Robert Banville,** engineer, 3 D'Amqui, Blainville, Québec, J7B 1X3, do hereby certify

that:

- I am presently employed as consultant geologist by Glencore Canada Corporation.
- I have received a B.Sc. in Geological Engineering in 1985 from the Université Laval, Québec City.
- I am a member of l'Ordre des Ingénieurs du Québec; number 41807.
- I am working in exploration over more than 25 years and I am a Qualified Person in accordance to section 5.1 of the National Instrument 43-101.
- I have supervised the Duprat project since 2015 up until now. I have directly supervised the rock sampling program assisted by Charles Lemieux Verreault.
- I am responsible for writing the present technical report, utilizing proprietary exploration data generated by Glencore Canada Corporation and information compiled from various authors and sources as summarized in the reference section 17 of this report.
- I am not aware of any missing information or changes, which could have caused the present report to be misleading.
- I have read and used the National Instrument 43-101 and the Form 43-101A1 to make the present report in accordance with their specifications and terminology.

Dated in Blainville, Québec, this 4th of February, 2016.

Robert Banville Ing.

Appendix 1. Rapport D'interprétation (USB key)

VOIR GM 70474