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Mining Industry Consultants



**NI 43-101 Technical Report  
Mont Sorcier Project  
Province of Quebec, Canada**

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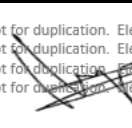
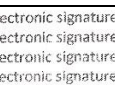
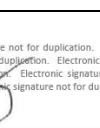
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# Certificates of Qualification

## Certificate of Qualification of Co-Author – Dr Luke Longridge, Ph.D., Pr.Sci.Nat

I, Luke Longridge, Ph.D., Pr.Sci.Nat, do hereby certify that:

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- I have worked as a geologist since my graduation 12 years ago, and I have over seven years' experience with vanadiferous titanomagnetite mineral projects in South Africa and Canada.
- I have read the definition of “Qualified Person” set out in National Instrument 43-101 (“NI 43-101”) and certify that because of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for the purposes of NI 43-101.
- I have visited the Mont Sorcier Project on 30–31 October 2018.
- I am a co-author of the technical report titled: “NI 43-101 Technical Report on the Mont Sorcier Project, Quebec, Canada” for Vanadium One Energy Corp., Effective Date 23 April 2019 (the “Technical Report”). I am responsible for Sections 1 to 13 inclusive, and Sections 15 to 27 inclusive.
- I have had no prior involvement with the Property that is the subject of the Technical Report.
- As of the Effective Date of the Technical Report (23 April 2019), to the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- I am independent of the Issuer applying all the tests in section 1.5 of NI 43-101.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 20<sup>th</sup> day of May 2019 at Vancouver, Canada

[“SIGNED”]

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## **Certificate of Qualification of Co-Author – Dr Adrian Martinez Vargas, Ph.D., P.Geo.**

I, Adrian Martinez Vargas, PhD., P.Geo. (ON, BC), do hereby certify that:

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- I have worked as a geologist since my graduation 17 years ago, I have experience with precious and base metals mineral projects in Cuba and Canada, including Mineral Resource estimation.
- I have read the definition of “Qualified Person” set out in National Instrument 43-101 (“NI 43-101”) and certify that because of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
- I have not visited the Mont Sorcier Project.
- I am a co-author of the technical report titled: “NI 43-101 Technical Report on the Mont Sorcier Project, Quebec, Canada” for Vanadium One Energy Corp., Effective Date 23 April 2019 (the “Technical Report”). I am responsible for Section 14.
- I have had no prior involvement with the Property that is the subject of the Technical Report.
- As of the Effective Date of the Technical Report (23 April 2019), to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- I am independent of the Issuer applying all the tests in section 1.5 of NI 43-101.
- I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 20<sup>th</sup> day of May 2019 at Toronto, Canada

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Adrian Martinez Vargas, PhD., P. Geo



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# 1 Summary

## 1.1 Location

The Mont Sorcier Property is located approximately 20 km east of the town of Chibougamau, Quebec, Canada. It covers an area of approximately 1,919 hectares (4,797.5 acres) and comprises 37 map-designated cells (see Section 4). The centre of the Property lies at approximately Latitude 49° 54.5'N, Longitude 74° 07'W (NTS Map Sheet: 32G-16).

## 1.2 Geology

The project area is located at the northeast end of the Archaean Abitibi Sub-Province (Superior Province), comprising east-west trending volcanic and sedimentary “greenstone belts”. The volcanic-sedimentary belts are folded and faulted and typically have a steep dip, younging away from major intervening domes of intrusive rocks. Major, crustal-scale, east-trending fault zones are prominent in the Abitibi greenstone belt. In the Chibougamau area, a large layered mafic complex (the Lac Dore Complex or LDC) has been emplaced into the volcanoclastic stratigraphy.

The LDC is a stratiform intrusive complex composed primarily of (meta-) anorthosite with lesser amounts of gabbro, anorthositic gabbro, pyroxenite, dunite and harzburgite, and is comparable to other better known complexes such as the Bushveld Complex in South Africa, the Skaergaard Intrusion in Greenland or the nearby Bell River Complex in Matagami, Quebec. The anorthosite represents 70–90% by volume of the lithologies present within the LDC. A younger granite emplaced in the centre of the LDC obscures the mafic lithologies in this area. The LDC stratigraphy comprises four zones (Allard, 1976):

- The lowermost anorthositic zone composed of anorthosite and gabbro
- The layered zone composed of bands of ferro-pyroxenite, magnetite-bearing gabbro, magnetites (containing titanium and vanadium) and anorthosite
- The granophyre zone (at the top) composed of soda-rich leuco-tonalite
- The border zone in contact with the surrounding sedimentary and volcanic rocks.

All rock units were affected by multiple deformation events, and this regional deformation has resulted in steep to sub-vertical dips of rocks in the region. The LDC was folded into a broad east-west trending anticline during compressive deformation at c. 2.7 Ga and has also been affected by deformation (and low-grade metamorphism) attributed to the much younger Grenville Orogeny (c. 1.1 Ga), along the eastern edge of the Superior Province.

The project area itself straddles the contact between the mafic magmatic rocks of the LDC to the south and sediments and mafic volcanics of the Roy Group to the north, into which the LDC is emplaced. Within the property, the volcanic stratigraphy of the Roy Group comprises predominantly basaltic to andesitic rocks of the Obatogamau Formation and Basalt, andesitic basalt, mafic to felsic volcanoclastic rock, dacite, rhyolite, banded iron formation, chert, and argillite of the Waconichi Formation. Both the LDC and Roy Group are crosscut by mafic to ultramafic sills and younger plutonic intrusions ranging from tonalites to carbonatites.

The project area is largely underlain by anorthosites of the LDC, which grade into the iron-rich ultramafic units through a crude stratigraphy comprising (from base to top): anorthosite, gabbro, magnetite-gabbro, magnetite-pyroxenite, magnetite-peridotite, magnetite-dunite and centimetre-scale magnetite layers. The presence of magnetite is strongly associated with ultramafic units – although magnetite is locally observed within anorthosites, it occurs only as minor disseminations or veinlets within the anorthosites. The banded

iron formation (BIF) of the Waconichi Formation is also notable in the project area, the LDC can be seen in contact with these BIFs, and in places, possibly assimilating them. This may have implications for the formation of the low-Ti magnetitites within the project.

The upright regional folding has also affected the layered mafic-ultramafic rocks of LDC in the Mont Sorcier area, and the project area represents the northern limb of the large east-west trending anticlinal LDC. The North Zone and South Zone represent the same stratigraphic unit that has been folded into kilometre-scale parasitic folds, with the North Zone representing the north-dipping limb of a smaller-scale anticlinal fold structure, and the South Zone representing the hinge zone of a syncline (see Section 7).

Faults and shear zones in the area strike between northeast and east, although northwest-striking faults are also reported. Large scale synclines and anticlines are generally bound by regional synvolcanic/sedimentary and syntectonic east-west faults. Late northeast to north-northeast faults dissect the area. They are either associated with or reactivated by the Grenvillian event.

### 1.3 Mineralization

Magnetite mineralization at the Mont Sorcier Project shows several similarities to other magmatic vanadiferous titanomagnetite (VTM) or ilmenite deposits associated with layered mafic intrusive complexes, where repeated crystallisation and settling of magnetite leads to the formation of magnetite layers. Vanadium is compatible in the magnetite crystal structure and fractionates into magnetite. However, VTM mineralization at Mont Sorcier is unusual in several respects:

- It is associated with olivine-bearing ultramafic units, with remarkably primitive compositions
- The VTM is anomalously low in titanium, with  $\text{TiO}_2$  grades generally below 2%.

VTM deposits are typically found in the upper, more fractionated portions of layered complexes, where the formation of VTM-enriched layers has been attributed to magma mixing events or large-scale silicate liquid immiscibility. Although this conceptual model appears to explain the formation of the VTM-enriched units elsewhere on the LDC, the unusual features of the Mont Sorcier deposit, has led to suggestions that VTM mineralization at Mont Sorcier was triggered by the assimilation of a carbonate-facies iron formation (the Lac Sauvage iron formation, within the Waconichi Formation of the Roy Group), leading to the crystallization of magnetite, as well as enhancing cooling rates, thereby prevented prolonged magma differentiation, local vanadium-enrichment and magnetite settling. This has resulted in a broad zone of VTM mineralization without the characteristic stratification found in other magnetite deposits, and without differentiation of highly vanadium or titanium enriched zones within the deposit.

In the North Zone, mineralization is interpreted to occur as a roughly tabular body, with a subvertical to steep northerly dip, and striking east-west. The North Zone is identifiable in the field and through airborne magnetics over a strike length of approximately 4 km and has been drilled over approximately 2.5 km of its strike length. In the South Zone, tabular mineralization has been folded around a synclinal axis with a shallow west-southwest plunging orientation. The South Zone is identifiable over approximately 3 km strikes east-northeast to west-southwest and has been mapped in detail as well as being drilled over its entire strike length. Both the North Zone and South Zone mineralized bodies trend roughly east-west and are steeply dipping; however, the North Zone is interpreted to extend to significant depths (the actual vertical extent has not yet been confirmed and the base of mineralization is unknown). The South Zone mineralization is expected to terminate at depth owing to its position in the hinge of a shallow-dipping syncline. Mineralization is interpreted to vary between approximately 100 m and 200 m in true thickness in the North Zone and South Zone.

## 1.4 Historical Exploration

The bulk of historical work exploration pertinent to the Property was conducted by Campbell Chibougamau Mines in 1961, 1965 to 1969 and 1974 to 1975, who carried out detailed investigations into the potential of the magnetite layers on the Property, primarily as an iron resource. Work included a ground magnetic survey, geological mapping, electromagnetic surveys, geochemistry, trenching, surface diamond drilling, sampling and assaying, and metallurgical testwork. Details of the results of this testwork are available and include drillhole logs, assay results, metallurgical testwork reports, and historical grade and tonnage estimates. The drillholes were primarily drilled between 1963 and 1966 and were selectively resampled as composites and re-assayed in the 1970s. Two drillholes were also drilled by Chibougamau Independent Mines in 2013, and these drill cores are retained by VONE.

## 1.5 Exploration

Between 2017 and 2019, VONE has carried out stripping, mapping and reprocessing of an earlier airborne geophysical survey of the property. Stripping was used to expose the glaciated bedrock, which was used for mapping focused on identifying major structures within the deposit and mapping the distribution of mafic and ultramafic units.

The data from an airborne magnetic survey carried out by AeroQuest in 2010 using a helicopter-borne tri-axial gradiometer at 100 m line spacing and 30 m height was reprocessed in 2018 and the results were used to aid the geological modelling and interpretation. Products included total magnetic intensity and measured vertical gradient.

The combination of mapping and airborne magnetics has shown that areas underlain by magnetite-bearing ultramafic rocks correspond to magnetic highs.

A total of 32 NQ diameter drillholes (7,388.18 m) were drilled on the Mont Sorcier North and South zones between 2017 and 2018 (see Section 10). Core was logged, split, sampled and analysed for head grades, percentage of magnetics (determined using Davis Tube Testing) and the grades of the concentrates.

## 1.6 Mineral Resource Estimates

This Mineral Resources estimate (MRE) was prepared by Dr Adrian Martinez-Vargas, P.Geo., a senior consultant of CSA Global Consultants Canada Ltd (CSA Global). Mineral Resources were estimated in two zones of the property, the North Zone and the South Zone, using all drillhole data available by April 2019.

VONE provided Dr Luke Longridge, one of the authors of this report, with a digital elevation model (DEM) covering the property, and with the drillhole databases described in Sections 10, 11 and 12 of this report. Dr Longridge prepared the geological interpretation of the mineralized domains that were used to constrain the extend of the mineralization in the resource model. Dr. Martínez-Vargas reviewed the informing data, the compiled database, and the geological interpretation completed by Dr. Longridge and considers that the quality and quantity are appropriate for Mineral Resource estimation.

The MRE workflow was as follows:

### *Input Database Validation*

The database consists of two drilling datasets:

- An older dataset based on drilling between 1963 and 1966, with average ~7 m intervals sampled and assayed for Fe<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub>, but also included larger (10–60 m) composite intervals from which Davis Tube



magnetic concentrates were prepared assayed for several oxides, including  $V_2O_5$ , in the 1970s. These composites were also assayed for  $Fe_2O_3$  and  $TiO_2$  head grades.

- Data from drilling between 2013 and 2018, and sampled over ~2 m (in the South Zone) or ~3 m (in the North Zone) intervals, and assayed for  $Al_2O_3$ ,  $Fe_2O_3$ ,  $MgO$ ,  $TiO_2$ ,  $SiO_2$ ,  $CaO$ ,  $Cr_2O_3$ ,  $K_2O$ ,  $MnO$ ,  $Na_2O$ ,  $P_2O_5$ ,  $Na_2O$ , and  $P_2O_5$ , in both the head grade and in the magnetic fraction produced using Davis Tube magnetic separation. Cu and S head grades were collected for some intervals.

These data were separated into two sets of collar, survey, and assay tables in CSV format, one set for the North Zone and one for the South Zone of the property. These tables were imported in the python package PyGSLIB, and validated for presence of gaps, overlap and relation issues between tables. The assay values were also reviewed to identify anomalous values. The drillhole interval coordinates were calculated, plotted in 3D, and visually validated. Head and concentrate grades from 1963 to 1974 and 2013 to 2018 were compared, and no significant differences were observed.

### *Review of the Interpretation of the Geology and Mineralization Domains*

The geological domains were completed by Dr Longridge and reviewed by Dr Martinez. Only a single estimation domain (ultramafic lithologies) was used for each one of the two mineralized zones of this deposit. Since mineralization occurs predominantly in the ultramafic lithologies on the property, geological interpretation was carried out in Leapfrog using logging codes grouped according to ultramafic lithologies, in combination with surface mapping data of lithologies and structures produced by VONE geologists, and airborne magnetic data which clearly highlights ultramafic units hosting magnetite mineralization. The south zone is dissected by 10 faults that slightly displaced the mineralized blocks. This displacement was considered small and the boundaries defined by faults were considered soft, in other words, ignored for interpolation purpose.

### *Compositing*

The average sampling interval in 2013–2018 drilling campaigns is ~3 m in the North Zone and ~2 m in the South Zone. The average sampling interval in the 1963–1966 drilling campaigns is ~7 m in both zones. Composite samples collected in the 1970s from the 1963–1966 drilling campaigns are between 10 m and 60 m in length. Drillhole intervals for head grade interpolation were composited at 3 m in the North Zone and 2 m in the South Zone. Composites of 20 m were created to interpolate average grades in concentrate and to interpolate a head grade trend (a smooth reference grade). Composited samples collected in the 1970s were used to populate intervals without assay, but only to generate 20 m composites. The 20 m composited samples were not used to interpolate head grade and percent of magnetite.

### *Statistical Analyses*

The statistical analyses were completed using composited intervals for both head grade and grade in concentrates. The analysis was done separately for each of the mineralized domains of the South Zone and the North Zone, using Supervisor software, and consisted of de-clustering analysis when necessary, exploratory data analysis, construction of histograms and cumulative histograms, basic statistical calculations, and a basic multivariate statistics review. De-clustering was used only in the South Zone, and an appropriated de-clustering cell was deduced by comparing many cell sizes. The univariate statistics analysis consisted of calculating basic statistics such as mean values and coefficient of variations (CVs). All CVs are lower than one, which is a good empirical criterion to use linear interpolators such as the inverse of the distance, ordinary kriging, and simple kriging.

The statistical analysis for head grades was using 2 m (South Zone) and 3 m (North Zone) composite data. Histograms of head grades show a normal distribution and bimodality associated with the presence of low-grade intervals within the mineralized domain, especially in the South Zone. The statistical analysis for concentrates was using 20 m composites. Note that the  $\text{Fe}_2\text{O}_3$  grade in the concentrate is mostly higher than 85%. Correlation between variables were also reviewed for both head grade variables and grade variables in the concentrate. There is a strong correlation between  $\text{Fe}_2\text{O}_3$  head grade and percent of magnetite, between  $\text{Fe}_2\text{O}_3$  and  $\text{MgO}$ , and between  $\text{Fe}_2\text{O}_3$  and  $\text{SiO}_2$  in the concentrate. There is a moderate correlation between  $\text{V}_2\text{O}_5$  in concentrate and  $\text{Fe}_2\text{O}_3$  in the head grade.

### *Geostatistical Analysis*

Experimental variograms were calculated only for head grade variables and percent of magnetite, using 2 m and 3 m composites, and fitted to a variogram model. In the North Zone, the down dip variogram model was used as a reference to fit an omnidirectional variogram model. In the South Zone, where the quantity of drillholes with close spacing is higher, the variogram model was fit from directional variograms. It was found that the same variogram model fits properly the experimental variograms of the head grade variables and the percent of magnetite.

### *Density*

Density measurements were taken using gas pycnometry at both SGS and Activation Laboratories. Of the 2,273 samples submitted during 2017 and 2018, 278 samples (12.13%) were measured for density. Density values show a positive correlation with total iron of the samples, and the  $\text{Fe}_2\text{O}_3$  of the sample was used to estimate the density for samples with no pycnometry using a polynomial formula based on regression analysis which corresponds well to a theoretical mixing model between magnetite, olivine and feldspar.

### *Block Modelling and Interpolation*

Block models with 10 m cube blocks were created for the North Zone and South Zone and filled with blocks inside the mineralized domains. An approximate percentage of the block inside the solid was used to reproduce the solid volume. The models were then visually validated, section by section and no missing blocks or artifacts were identified. This estimate consists of two main components:

- **Components characterizing the in-situ properties of the rock.** These include head grade assays and percent of magnetite. Only  $\text{Fe}_2\text{O}_3$  and  $\text{TiO}_2$  head grades were used, as well as the percent of magnetite. These three in-situ components of the rock were interpolated using simple kriging with local mean (SKLM). The local means were estimated in block models with inverse of the squared distance using 20 m composites informed by sample intervals assays. In some instances where there was no data in the regular sample interval, larger length composites assays were used. The local means are smooth and are intended to represent grade trends at large distances, therefore using sample composites are appropriated for this purpose. Up to 50 composites were used for interpolation, with a maximum of 20 samples per drillhole. In addition, simple kriging, with local trend or mean, was used to interpolate using only regular sample intervals composited at 2 m and 3 m intervals, where this data was available. This approach was used to re-produce the smaller-scale local distribution of grade where such small-scale distributions are available through more detailed sampling. A minimum and maximum of eight and 30 samples were used to interpolate, with a maximum of five samples per drillhole. This combined approach using both larger length and smaller length composites allows integration of all the data available, while maintaining a resolution appropriate to the level of detail in the sampling.

- **Components characterizing the magnetite concentrate produced after crushing the rock and magnetic separation of the magnetite.** These are the assayed grades of the chemical elements in the concentrate. The  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{MgO}$ ,  $\text{SiO}_2$ ,  $\text{TiO}_2$ ,  $\text{Fe}_2\text{O}_3$ , and  $\text{V}_2\text{O}_5$  grades in magnetite concentrates were interpolated using the same approach and interpolation parameters used to estimate local means or trends.

$\text{Fe}_2\text{O}_3$  is the only element that was assayed systematically in the head grade of all sample intervals for the two main drilling campaigns,  $\text{Fe}_2\text{O}_3$  head grades were used to deduce the percent of magnetite in 1963–1966 and 2013 drillhole sampling intervals, and the percent of magnetite was then modelled in the block model using 1963–1966 and 2013–2018 drillhole data. Although other Fe-bearing silicate phases (in addition to magnetite) are present, there is a strong correlation between  $\text{Fe}_2\text{O}_3$  and magnetite, and the effect of Fe-silicates is negligible.

The average grade of the concentrates was modelled using grade in concentrate available in sample intervals of the 2010s drillholes and in the 1970s composite samples collected from the 196–1966 drillholes, using a smooth interpolator and long compositing intervals. The concentrate grade is affected by granulometry of the sample, and samples drilled in 1963–1966 were milled to smaller sizes than those drilled in 2013–2018, resulting in a small difference in the iron grade of the concentrate; however, this is not considered material at this stage of the project. Head grades for  $\text{Fe}_2\text{O}_3$  and  $\text{TiO}_2$  in 1974 composite samples (from 1963–1966 drilling) were used to populate intervals not sampled at regular sampling intervals. However, this dataset was used to obtain a smooth trend estimate but not for direct interpolation of head grades.

#### *Model Validation*

Model validation consisted of visual comparison of drillholes and blocks in sections, comparison of average grades and statistical distributions, validation with swath plots, and global change of support. The author is of the opinion that all the model validations were satisfactory, and the estimates are appropriated for mineral resource reporting and for mining studies.

#### *Mineral Resource Classification and Reporting*

The aim of this project is producing a saleable magnetite concentrate, with potential value added from the vanadium ( $\text{V}_2\text{O}_5$ ) content of the concentrate. In order to assess reasonable prospects of eventual economic extraction, a 65% magnetite concentrate is assumed that would be saleable at US\$90 per dry metric tonne. (see Section 24 for more information). A  $\text{V}_2\text{O}_5$  price of 30,864.68/tonne (US\$14/lb) is assumed, and it is assumed that VONE would be able to realise 50% of the value of the  $\text{V}_2\text{O}_5$  value contained in the concentrate (i.e. US\$15,432.34/tonne). An analysis of assumed costs (mining, milling, logistics, tailings disposal) and revenue was used to evaluate  $\text{Fe}_2\text{O}_3$  cut-off grades at varying  $\text{V}_2\text{O}_5$  concentrate grades. A head grade of 20%  $\text{Fe}_2\text{O}_3$  (or 14% Fe) was selected as the reference cut-off for resource reporting. All unconstrained resources fell within theoretical pit shells derived for both zones based on the above assumptions, therefore maximum mineralization depths were determined manually through digitisation along sections, based on a maximum of between 50 m and 70 m below the deepest drilled interval. No assessment of environmental constraints on potential pits (e.g. the proximity to the nearby lake) has been carried out. Maximum depths are 500 m for the North Zone and 310 m for the South Zone.

The resource classification definitions used for this estimate are in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM Council, 10 May 2014).

Mineral Resources in areas with drillhole spacing between 400 m and 200 m were classified as Inferred Resources. Areas with drillhole spacing between 200 m and 100 m, and mostly drilled in recent campaigns, were classified as Indicated Resources. Blocks located more than 50–70 m below drilling were not classified.



Blocks without interpolated values of percent of magnetite, Fe<sub>2</sub>O<sub>3</sub> head grade, or V<sub>2</sub>O<sub>5</sub> in the concentrate were not classified. The classification was completed by selecting blocks within classification polygons manually digitized along drillhole sections.

With an effective date of 23 April 2019 and based on the above criteria, a summary of Mineral Resources reported over a cut-off of 20% Fe<sub>2</sub>O<sub>3</sub> head grade (or 14% Fe) is shown in Table 1. A sensitivity analysis for different cut-off grades is shown in Table 20.

Table 1: MRE for the Mont Sorcier Project effective 23 April 2019; cut-off grade is 20% Fe<sub>2</sub>O<sub>3</sub> (14% Fe)

Zone	Category <sup>1</sup>	Tonnage <sup>2</sup>		Head grade <sup>2</sup>		Grade in concentrate <sup>2</sup>					
		Rock (Mt)	Concentrate (Mt)	Fe (%)	Magnetite (%)	Fe (%)	V <sub>2</sub> O <sub>5</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	MgO (%)	SiO <sub>2</sub> (%)
South	Indicated	113.5	35.0	22.7	30.9	65.3	0.6	0.3	1.2	3.8	2.8
	Inferred	144.6	36.1	20.2	24.9	66.9	0.5	0.4	1.0	3.4	2.5
North	Inferred	376.0	142.2	27.4	37.8	63.7	0.6	1.0	1.8	3.5	4.2
<b>TOTAL</b>	<b>Indicated</b>	<b>113.5</b>	<b>35.0</b>	<b>22.7</b>	<b>30.9</b>	<b>65.3</b>	<b>0.6</b>	<b>0.3</b>	<b>1.2</b>	<b>3.8</b>	<b>2.8</b>
	<b>Inferred</b>	<b>520.6</b>	<b>178.3</b>	<b>25.4</b>	<b>34.2</b>	<b>64.4</b>	<b>0.6</b>	<b>0.8</b>	<b>1.7</b>	<b>3.5</b>	<b>3.9</b>

<sup>1</sup> The MRE has been classified CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM Council, 10 May 2014). Differences may occur due to rounding errors.

<sup>2</sup> Numbers have been rounded to reflect the precision of Inferred and Indicated Mineral Resources.

The grades and tonnages of Inferred Resources in this estimation are based on limited geological evidence and sampling that is sufficient to imply but not verify geological and grade continuity, and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Resources. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

## 1.7 Conclusions and Recommendations

Vanadiferous titanomagnetite (VTM) mineralization at the Mont Sorcier Project shows several similarities to other magmatic VTM deposits associated with layered mafic intrusive complexes; however, VTM mineralization at Mont Sorcier was likely triggered assimilation of a carbonate-facies iron formation, resulting in a broad zone of VTM mineralization without the characteristic stratification found in other magnetite deposits, and without differentiation of highly vanadium or titanium enriched zones within the deposit. Two zones of mineralization are defined – the North Zone and the South Zone.

Based on recent drilling by VONE, as well as historical drilling and assay results, Mineral Resources have been reported (effective 23 April 2019) at a cut-off of 20% Fe<sub>2</sub>O<sub>3</sub> head grade (or 14% Fe) for the Mont Sorcier Project. Total Indicated Mineral Resources of 113.5 million tonnes (Mt) at 22.7% Fe and 30.9% magnetite and total Inferred Mineral Resources of 520.6 Mt at 25.4% Fe and 34.2% magnetite have been estimated, as detailed in Table 1. The following risks and uncertainties may affect the reliability or confidence in the exploration information and MRE:

- Not all historical drillhole collars have been surveyed by an independent surveyor, and only partial downhole deviation data is available for historical drillholes; however, those collars that have been located compare favourably with recorded locations.
- Any quality assurance/quality control (QAQC) procedures associated with historical assay data have not been documented and the assay certificates have not yet been retrieved; however, comparison of the results of historical assays with recent values shows that they compare favourably.

- Environmental considerations that may affect the project (e.g. proximity to the lake) and their influence on the potential economic viability of the project have not been assessed.
- Metallurgical and recovery parameters for the magnetite concentrate have not been fully assessed – the data presented on recoveries is estimated from Davis Tube recovery tests.
- The market for a low-Ti, vanadiferous magnetite concentrate and the pricing parameters for such a concentrate have not been assessed, and it is unclear how these could affect project's potential economic viability.
- Permits and authorisations for advancement of the project are not guaranteed.

The following opportunities have been identified with respect to further exploration:

- There is potential to extend both the North Zone and South Zone resources along strike towards the east and west by drilling the magnetic anomalies along strike from the current drilling
- Infill drilling and more detailed sampling with 2–3 m smaller sample lengths in areas of historical drilling will allow more granularity in the resource and may enable the delineation of higher-grade domains within the current resource.

The following recommendations are made with respect to future work on the Property. This work will be required for upgrading resources on the North Zone to the Indicated category, and to prefeasibility studies. These are listed as separate phases, as increasing the confidence of the resources to the Indicated or Measured category will be required prior to prefeasibility studies.

- Phase 1: In order to increase the confidence in the resources:
  - Survey all remaining historical collar locations.
  - More gas pycnometry specific gravity (SG) measurements are required from the laboratory (30–50% of all samples). Additional density measurements should also be taken on 5–10% of samples using the Archimedes method (weight in air/weight in water).
  - Duplicate and umpire measurements of SG required.
  - Infill drilling of the North Zone, with a two-hole fence every 200 m along strike.
  - Increase the number of round-robin assays involving more laboratories and more samples per laboratory to enable the calculation of a statically valid mean and standard deviation for the reference standards sample material.
  - 5% of samples from the 2017 campaign should be sent for duplicate analyses, and 5% for umpire analyses. It is also recommended that the standards used should also be subject to magnetic separation, and the magnetic portion assayed.
- Phase 2: Work required for prefeasibility studies:
  - Detailed environmental studies and assessments of permitting requirements.
  - Detailed metallurgical testwork including grind optimisation, comminution testwork and assessment of pellet options.
  - Progress the project to a preliminary economic assessment, and more detailed studies if positive.
  - Infrastructure studies, to determine transport and shipping options for the project.
  - Detailed marketing studies to establish pricing metrics for the likely concentrate from the project.

A budget for this future work is outlined in Table 2.

Table 2: Budget for future work programs

Recommended work		Details	Estimated cost (US\$)
Phase 1: Additional work to upgrade North Zone to Indicated category	Additional gas pycnometry SG measurements, plus duplicate and umpire measurements	~1,000 samples	~\$10,000
	Infill drilling of the North Zone	Estimated 15,000 m for sufficient detail for Indicated Resources	~\$1,500,000
	5% duplicate and 5% umpire analyses	100 samples (including magnetic separation and assay of the concentrate)	~\$15,000
	Additional analyses of standard materials	30 samples	~\$1,500
	<b>Total estimated costs</b>		
Phase 2: Work required for prefeasibility studies	Grind optimisation and other metallurgical testwork	10 samples	~\$100,000
	Environmental studies		~\$1,000,000
	Mining studies		~\$150,000
	Marketing studies		~\$100,000
	Infrastructure studies		~\$100,000
	<b>Total estimated costs</b>		
<b>GRAND TOTAL</b>			<b>~\$2,976,500</b>

## 2 Introduction

### 2.1 Issuer

Vanadium One Energy Corp. (VONE or the “Issuer”) is a mineral exploration company located in Toronto, Canada, with 100% ownership in the Mont Sorcier Iron, Vanadium and Titanium Project (Mont Sorcier Project) in Roy Township, Quebec, 18 km east of the Town of Chibougamau. VONE also has 100% ownership in three mineral leases near Clinton, British Columbia, Canada, where it is targeting manganese mineralization. VONE is listed on the TSXV Exchange and on the Frankfurt Stock Exchange.

### 2.2 Terms of Reference

VONE commissioned CSA Global to compile a Technical Report on the Mont Sorcier Project.

This report is in accordance with disclosure and reporting requirements set forth in National Instrument 43-101 – Standards for Disclosure for Mineral Projects (NI 43-101), Companion Policy 43-101CP, and Form 43-101F1. This Technical Report discloses material changes to the Property, particularly, VONE’s maiden MRE the North and South magnetite-bearing zones.

The Mineral Resource update has been prepared in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (10 May 2014) as per NI 43-101 requirements. Only Mineral Resources are estimated – no Mineral Reserves are defined. The report is intended to enable the Issuer and potential partners to reach informed decisions with respect to the Project.

The principal author of this report is Dr Luke Longridge, CSA Global Senior Geologist. Dr Longridge has more than five years’ experience in the field of vanadiferous magnetite deposits and is a Qualified Person according to NI 43-101 standards.

The Effective Date of this report is 23 April 2019. The report is based on technical information known to the author and CSA Global at that date.

The Issuer reviewed draft copies of this report for factual errors. Any changes made because of these reviews did not include alterations to the interpretations and conclusions made. Therefore, the statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this report.

### 2.3 Sources of Information

This technical report is based on internal company technical reports, testwork results, maps, published government reports and public information, in addition to items listed in Section 27 (References) of this report. The various studies and reports have been collated and integrated into this report by the author (Dr Luke Longridge) of CSA Global. The MRE has been carried out by Dr Adrian Martinez of CSA Global. The authors have taken reasonable steps to verify the information provided, where possible.

The authors also had discussions with the management and consultants of the Issuer, including:

- Mr Pierre-Jean Lafleur, P.Eng. (OIQ), Vice President Exploration for VONE, regarding the geology and tenure of the property
- Mr Ashley Martin, Vice President Technical Services for VONE, regarding reasonable prospects for eventual economic extraction.

This report includes technical information that requires calculations to derive subtotals, totals and weighted averages, which inherently involve a degree of rounding and, consequently, introduce a margin of error. Where this occurs, the authors do not consider it to be material.

## 2.4 Qualified Persons

This report was prepared by the Qualified Persons listed in Table 3.

Table 3: *Qualified Persons – report responsibilities*

Qualified Person	Report section responsibility
Luke Longridge, Ph.D., Pr.Sci.Nat., OGQ Special Authorization 447 Senior Geologist, CSA Global	Sections 1 to 13 inclusive and Sections 15 to 27 inclusive Property visit in 2018
Adrian Martinez Vargas, Ph.D., P.Geo. (BC, ON), OGQ Special Authorization 446 Senior Resource Geologist, CSA Global	Section 14

The authors are Qualified Persons with the relevant experience, education and professional standing for the portions of the report for which they are responsible.

CSA Global conducted an internal check to confirm that there is no conflict of interest in relation to its engagement in this project or with VONE and that there is no circumstance that could interfere with the Qualified Persons' judgement regarding the preparation of the technical report.

## 2.5 Qualified Person Property Inspection

A two-day visit to the Mont Sorcier Project was made by Dr Luke Longridge on 30–31 October 2018 as detailed in Section 12.1. Dr Adrian Martinez did not visit the Mont Sorcier Project. The authors consider Dr Longridge's 2018 site visit current under Section 6.2 of NI 43-101.

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## 3 Reliance on Other Experts

The authors and CSA Global have relied on claim tenure information including online web-based land records from the Government of the Quebec's online Mining Title Management System: GESTIM Plus (<https://mern.gouv.qc.ca/english/mines/rights/rights-gestim.jsp>).

The authors and CSA Global have relied upon VONE and its management for information related to underlying contracts and agreements pertaining to the acquisition of the mining claims and their status and technical information not in the public domain (Section 4). The Property description presented in this report is not intended to represent a legal, or any other opinion as to title.

## 4 Property Description and Location

### 4.1 Location and Area of Property

The Mont Sorcier Property is located approximately 20 km east of the town of Chibougamau, in the eastern part of the Abitibi Region, Province of Quebec, Canada (Figure 1). It covers an area of approximately 1,919 hectares (4,797.5 acres). The centre of the Property lies at approximately Latitude 49°54.5'N, Longitude 74°07'W (NTS Map Sheet: 32G-16).



Figure 1: Location of the Mont Sorcier Project, approximately 20 km east of Chibougamau, Quebec  
Source: Google Earth, [earth.google.com/web/](http://earth.google.com/web/)

### 4.2 Mineral Tenure

The Mont Sorcier property (Figure 2) comprises 37 map-designated cell claims and locally partial cell claims covering an area of approximately 1,919 hectares (4,797.5 acres). There are no surface rights associated with the claims; however, because the property is located on public lands, the claims grant a right of first refusal to obtain such surface rights within the property area, when required. A list of claims, including expiry dates, areas, current work requirements, current surplus credits and lapse dates is presented Table 4.

Table 4: List of claims for the Mont Sorcier Project

Title	Area (ha)	Expiration date	Amount of work required (C\$)	Work credits (C\$)	Claim lapse date
CDC 2394478	55.44	2022-11-10	\$10,750.00	\$290.54	2032-11-10
CDC 2394491	55.46	2021-03-27	\$10,750.00	\$290.54	2031-03-27
CDC 2394492	55.46	2021-03-27	\$10,750.00	\$290.54	2031-03-27
CDC 2397349	55.47	2022-01-12	\$10,750.00	\$290.54	2032-01-12
CDC 2397350	55.47	2022-01-12	\$10,750.00	\$290.54	2032-01-12
CDC 2397351	55.46	2022-01-12	\$10,750.00	\$290.54	2032-01-12
CDC 2397352	55.45	2022-01-12	\$10,750.00	\$290.54	2032-01-12
CDC 2436339	55.45	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436341	55.44	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436342	55.43	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436343	55.43	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436344	55.43	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436345	55.43	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436346	55.45	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436347	55.44	2021-05-09	\$10,750.00	\$290.54	2031-05-09
CDC 2436532	11.06	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436662	31.63	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436663	8.1	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436664	41.05	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436665	55.46	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436666	55.46	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436667	55.46	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436668	55.46	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436669	55.45	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436670	55.45	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2436671	55.45	2021-10-24	\$10,750.00	\$290.54	2031-10-24
CDC 2477242	55.43	2022-01-08	\$10,750.00	\$290.54	2032-01-08
CDC 2477243	55.43	2022-01-25	\$10,750.00	\$290.54	2032-01-25
CDC 2477244	55.43	2022-01-25	\$10,750.00	\$290.54	2032-01-25
CDC 2477245	55.43	2021-11-06	\$10,750.00	\$290.54	2031-11-06
CDC 2477246	53.69	2022-01-05	\$10,750.00	\$290.54	2032-01-05
CDC 2477247	55.44	2022-01-08	\$10,750.00	\$290.54	2032-01-08
CDC 2477248	55.44	2022-01-08	\$10,750.00	\$290.54	2032-01-08
CDC 2477249	55.07	2021-12-14	\$10,750.00	\$290.54	2031-12-14
CDC 2477250	55.44	2022-04-02	\$10,750.00	\$290.54	2032-04-02
CDC 2477251	55.44	2022-02-08	\$10,750.00	\$290.55	2032-02-08
CDC 2477252	55.45	2021-10-24	\$10,750.00	\$290.55	2031-10-24

Note that claims can be renewed for periods of two years beyond the expiration date, if work in excess of the amount required is carried out before the 60<sup>th</sup> day preceding the claim expiry date. Excess work from previous renewals can be credited and carried over to subsequent periods. The claims cannot be renewed beyond the lapse date, and an application to convert the claims to mining rights needs to have been made by the lapse date. Additional details can be found at <https://mern.gouv.qc.ca/english/publications/online/mines/claim/index.asp>.



All claims are currently recorded 100% interest under:

Mines Indépendantes Chibougamau Inc.  
86, 14e Rue  
Rouyn-Noranda, Québec, Canada, J9X 2J1  
(Client # 87029)

VONE had an earn-in agreement with Mines Indépendantes Chibougamau Inc., as announced on SEDAR on 8 November 2016. Under the agreement, VONE paid Mines Indépendantes Chibougamau Inc. C\$150,000 in cash and issued it 2,750,000 VONE common shares. A minimum of C\$1 million of exploration was to be undertaken in the first 24 months following signature of the agreement. Chibougamau Independent Mines retain a 2% Gross Metal Royalty (GMR) on all mineral production from the property. Globex Mining Enterprises Inc. (GMX-TSX), which held a 3% GMR on some claims, reduced its royalty to 1% GMR (on all claims), and was issued a finder's fee of 300,000 common shares in VONE. As of January 2019, VONE fulfilled its C\$1,000,000 financial commitment for exploration expenditures and completed the earn-in and will acquire 100% of all 37 claims – transfer of ownership is currently in progress.

In order to maintain claims in good standing, VONE is required to pay a fee every second year after the recording date and to file a certain amount of exploration expenditure at each renewal. Excess work will be banked and can later be used to renew claim itself or contiguous claims which lie completely within a 4.0 km radius from the centre of the claim carrying the surplus credit.

All the claims (Figure 2) are in good standing with assessment work requirements being kept up to date.



Figure 2: Map of claims over the Mont Sorcier property

### 4.3 Permitting and Consultation

In order to conduct surface exploration work (principally stripping, trenching and diamond drilling) on claims covering crown land, an intervention permit (permis d'intervention) needs to be obtained. The application process is straight forward, and permits are generally rapidly obtained. No permits are currently held and permits will be required for additional drilling work as recommended in Section 26.

Permitting for underground exploration is more complex, involving numerous regulations levels from various government`al levels.

The Mont Sorcier Project is located in the Nord-du-Québec Region on lands subjected to the James Bay and Northern Quebec Agreement (JBNQA). The JBNQA was put in place in 1975 by the government of Quebec, the government of Canada, the Grand Council of the Crees (Eeyou Itschee) (GCC(EI)), and the Northern Quebec Inuit Association. It enacts the environmental and social protection regimes for the James Bay and Nunavik regions. The JBNQA establishes three categories of lands, numbered I, II and III and defines specific rights for each category.

The Mont Sorcier Project area lies over Category III lands, which are public lands in the domain of the State. The Cree Nation has exclusive trapping rights on these lands, as well as certain non-exclusive hunting and fishing rights. The Cree Nation also benefits from an environmental and social protection regime that includes, among other things, the obligation for proponents to carry out an environmental and social impact assessment (ESIA) for mining projects and the obligation to consult with First Nations Communities. Category III lands include all the lands within the territory covered by the JBNQA that are located south of the 55<sup>th</sup> parallel and are not included in other land categories. Category III lands are managed by the Eeyou Istchee James Bay Regional Government (EIJBRG) as established by the Act establishing the Eeyou Istchee James Bay Regional Government (chapter G-1.04). VONE is required to inform and consult with the First Nation communities as well trap line permit holders concerning any planned exploration work, in order to minimize interference with traditional trapping, hunting and fishing activities. In the event of the construction of a mine, the project will be submitted to review by First Nation communities.

### 4.4 Environmental and Social Scoping Study

VONE commissioned Norda Stelo (a technical services firm based in Québec) to carry out an Environmental and Social Scoping Study (ESSS) on the project, which has summarised available information sources and knowledge gaps physical environment components (Climate and weather, Air quality, Topography, Geology and surface deposits, Hydrography and hydrology, Sediment and freshwater quality, Hydrogeology and groundwater quality), biological environment components (Protected areas and wildlife habitats, Plant communities, Freshwater fish and fish habitat, Avifauna, Herpetofauna, Mammals, Special status species) and human environment components (Population and demographic trends, Socio-economic profile, Land tenure and zoning, Main land uses in the study area, Transport infrastructure, Cree traditional land use (historical and current), Historical and cultural resources).

Key environmental issues identified as part of the ESSS (Boulé *et al.*, 2019) include:

Biophysical issues:

- Greenhouse gas emissions
- Dust emissions
- Water management and effluent quality
- Project of biological refuge

- Impact on hydrology
- Terrestrial habitat losses
- Impacts on fish populations and fish habitats
- Destruction of wetlands
- Contamination of soil, water, plants, fish and animals
- Destruction of bird nests
- Disturbance of wildlife
- Special status plant and wildlife species
- Risk management.

Socio-economic issues – the main socio-economic issues generally raised by the Cree of Eeyou Istchee in the context of mining projects are as follows:

- Potential for conflicts between mining activities and the traditional uses of the land
- Environmentally and culturally sustainable development
- Cultural and heritage protection and development
- Human health risks
- Economic benefits and revenue sharing
- Provision of sustainable economic development within the region in order to provide employment and business opportunities for its members
- Training and education programs so that members of the community might fully participate in available opportunities.

Additional socio-economic issues raised for similar projects in the area include:

- Contamination of traditional food
- Access to the area
- Hunting pressure on big game, small game and fur-bearing animals
- Site safety
- Social acceptability
- Impact of ore/concentrate transport
- Lodging/housing availability
- Signature of a framework agreement with the local communities
- Training and employment
- Creation of local and regional economic benefits.

Upcoming environmental studies and project development activities that will need to be undertaken in order to advance the project include:

- Environmental baseline studies
- Public consultations and engagement
- Project notice and description of a designated project
- ESIA
- Permitting.

## 4.5 Liabilities

There are no known environmental liabilities resulting from exploration works completed by previous owners on claims within the current Property area.

To the best of the authors' knowledge, there are no other environmental, permitting, legal, title, taxation, socio-economic, marketing, and political or other relevant issues, liabilities and risks associated with the Project at this time that may affect access, title or the right or ability to perform the work recommended in this report within the Project area.

## 5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

### 5.1 Access to Property

Chibougamau is an active mining and forestry centre which straddles Highway QC-167 and has a population of over 7,000 people. Chibougamau is serviced by an airport with daily regular scheduled direct flights to Montreal, Québec (Air Creebec).

The Mont Sorcier Property is easily accessible by an all-weather gravel road (SIGAM road) heading east from Highway QC-167 some 10 km east-northeast of Chibougamau. This gravel road passes through the northern claims and numerous forestry roads give access to lakes and different sectors in the southern and central portions of the Property.

### 5.2 Topography, Elevation and Vegetation

The physiography of the general area is one of rolling hills and abundant lakes and rivers. Forests cover about 84% of the area with an additional 16% representing lakes and rivers.

The overburden cover generally consists of sand and clay varying in thickness from 1.0 m to locally more than 30.0 m. Widespread swampy areas are found within this moderately to locally densely forested (generally black spruce, minor birch, pine, aspen with alder undergrowth) area of the province. Bedrock exposures are sparse.

The Property has local relief of up to approximately 130 m. Mont Sorcier rises roughly 510 m above sea level with local steep topographic features characterized by vertical cliffs of up to 30.0 m in height. The level of Lac Chibougamau, just south of the mining claims, is about 380 m above sea level.

### 5.3 Climate

Chibougamau has a humid sub-arctic continental climate with cool summers and no dry season. Climate conditions are fairly typical of the Canadian Shield; the temperature varies from an average minimum of -26°C in winter (January and February) to an average maximum of 22°C in the summer (July and August). Nevertheless, temperature extremes below -36°C or above +27°C can be expected within the respective seasons. Rainfall is usually frequent in the summer along with snowfall in the winter. The “warm” season usually lasts from mid-May to mid-September and the “cold” season from early December to early March.

Seasonally appropriate mineral exploration activities may be conducted year-round at the Property. Depending on local ground conditions, drilling may be best conducted during the winter months when the ground and water surfaces are frozen. Mine operations in the region can operate year-round with supporting infrastructure.

### 5.4 Infrastructure

#### 5.4.1 Sources of Power

Hydro-electric power is readily available in the region, and the 735-kV line linking generation facilities in the James Bay region (north of Chibougamau) to Montreal and Quebec (to the south) runs through Chibougamau, where a 735-kV substation is located.

#### 5.4.2 *Water*

Quebec and the Chibougamau region contain abundant water sources sufficient for mining operations.

#### 5.4.3 *Local Infrastructure and Mining Personnel*

Chibougamau and nearby Chapais (approximately 45 km drive west of Chibougamau) are former copper and gold mining centres and have a combined municipal population of about 10,000 residents. The local Cree communities of Mistissini and Ouje-Bougoumo have population of about 3,000 and 1000 residents, respectively. In addition to regional mining, the local economy is based on forestry, tourism, energy and an integrated service industry. Social, educational, commercial, medical and industrial services, as well as a helicopter base, airport and seaplane base are available at Chibougamau-Chapais.

A large and competitive skilled labour force including mining personnel are available in the Chibougamau area which is also well served by heavy equipment service and maintenance providers. Several companies specialise in mining services.

Chibougamau is also the railhead of Canadian National's Chemin de fer d'intérêt local interne du Nord du Québec (CFILNQ). A seaport is available at La Baie (Port-Alfred), approximately 300 km southeast, along the railroad.

#### 5.4.4 *Property Infrastructure*

The Property has no infrastructure except for the east-west all-weather gravel road (Lac Chibougamau North Road) maintained by the local logging company (Chantiers Chibougamau Ltd) in the north and several poorly maintained logging roads.

#### 5.4.5 *Adequacy of Property Size*

At this time, it appears that VONE holds sufficient claims necessary for proposed exploration activities and potential future mining operations (including potential tailings storage areas, potential waste disposal areas, and potential processing plant sites) should a mineable mineral deposit be delineated at the Property.

## 6 History

### 6.1 Property Ownership

The current claims have had numerous owners over the past several decades and have only recently been amalgamated into the current property boundary. Owing to this, the current property claims have been fragmented, with a complex ownership history. Historical and current ownership of the property pertaining to the magnetite deposits is summarised in Table 5 below:

*Table 5: Summary of historical ownership and work undertaken on the magnetite occurrences at the Mont Sorcier Property*

Dates	Ownership	Comments
1929 to 1930	Dome Mines Ltd	Trenching and surface diamond drilling on the North Zone and South Zone.
1955	ROYCAM Copper Mines Ltd	Geological and geophysical surveys on the property along with 913.0 m of drilling.
1961 to 1975	Campbell Chibougamau Mines	Significant exploration of magnetite layers (Fe +Ti + V) within the LDC, including a magnetic survey, geological mapping, electromagnetic surveys, geochemistry, trenching, surface diamond drilling and sampling.
2010	Apella Resources	No formal record exists available of Apella ownership. However, based on available geophysical surveys carried out by Apella, they had an option over the property in 2010.
Unknown to 2012	Globex Mining	Property transferred to Chibougamau Independent Mines Inc, effective 29 December 2012.
2012 to -2016	Chibougamau Independent Mines Inc.	Drilling of two drillholes, MS-13-17, MS-13-19 (VONE retains the drill core).
2016 to present	Vanadium One (Vendome Resources Corp.)	VONE has an option agreement with Mines Indépendantes Chibougamau Inc., who retains a 2% GMR on the Property, Globex Mining retains a 1% GMR on the property. Vendome changed name to Vanadium One in early 2017.

*Note that owing to the complex ownership of the claims, this list is not comprehensive.*

### 6.2 Project Results – Previous Owners

Within the Property (i.e. claims currently held by VONE), exploration has been carried out since the 1920s on several targets, including the Baie Magnetite Nord and Baie Magnetite Sud occurrences containing Fe, Ti and vanadium mineralization (the target of VONE’s current exploration for magnetite mineralization, and referred to herein as the “North Zone” and the “South Zone”, respectively), the Sulphur Converting/Baie de l’Ours occurrence (Au, Ag, Cu, Zn, Fe), and the Baie Magnetite Ouest occurrence (Au).

Only work undertaken on the North Zone and South Zone occurrences is documented in this report; work carried out on the other occurrences is not considered relevant to the magnetite mineralization targeted by VONE and described here. More complete detail of historical work undertaken on all occurrences within the Property can be found in the VONE’s (then Vendome) previous technical report (Larouche, 2016), available on SEDAR at:

<https://www.sedar.com/GetFile.do?lang=EN&docClass=24&issuerNo=00025074&issuerType=03&projectNo=02549636&docId=4008373>

### 6.2.1 Historical Exploration by Campbell Chibougamau Mines

The bulk of historical work pertinent to the Property was carried out by Campbell Chibougamau Mines in 1961, 1965 to 1969 and 1974 to 1975, who carried out a significant exploration program investigating the potential of the magnetite layers on the Property, primarily as an iron resource. Work included a ground magnetic survey, geological mapping, electro-magnetic surveys, geochemistry, trenching, surface diamond drilling, sampling and assaying, and metallurgical testwork. Details of the results of this testwork are available, and include drillhole logs, assay results, metallurgical testwork reports, and historical grade and tonnage estimates.

The list of drillholes completed by Campbell Chibougamau Mines Ltd in the 1960s on the North Zone and South Zone deposits is presented in Table 6 below, and displayed in

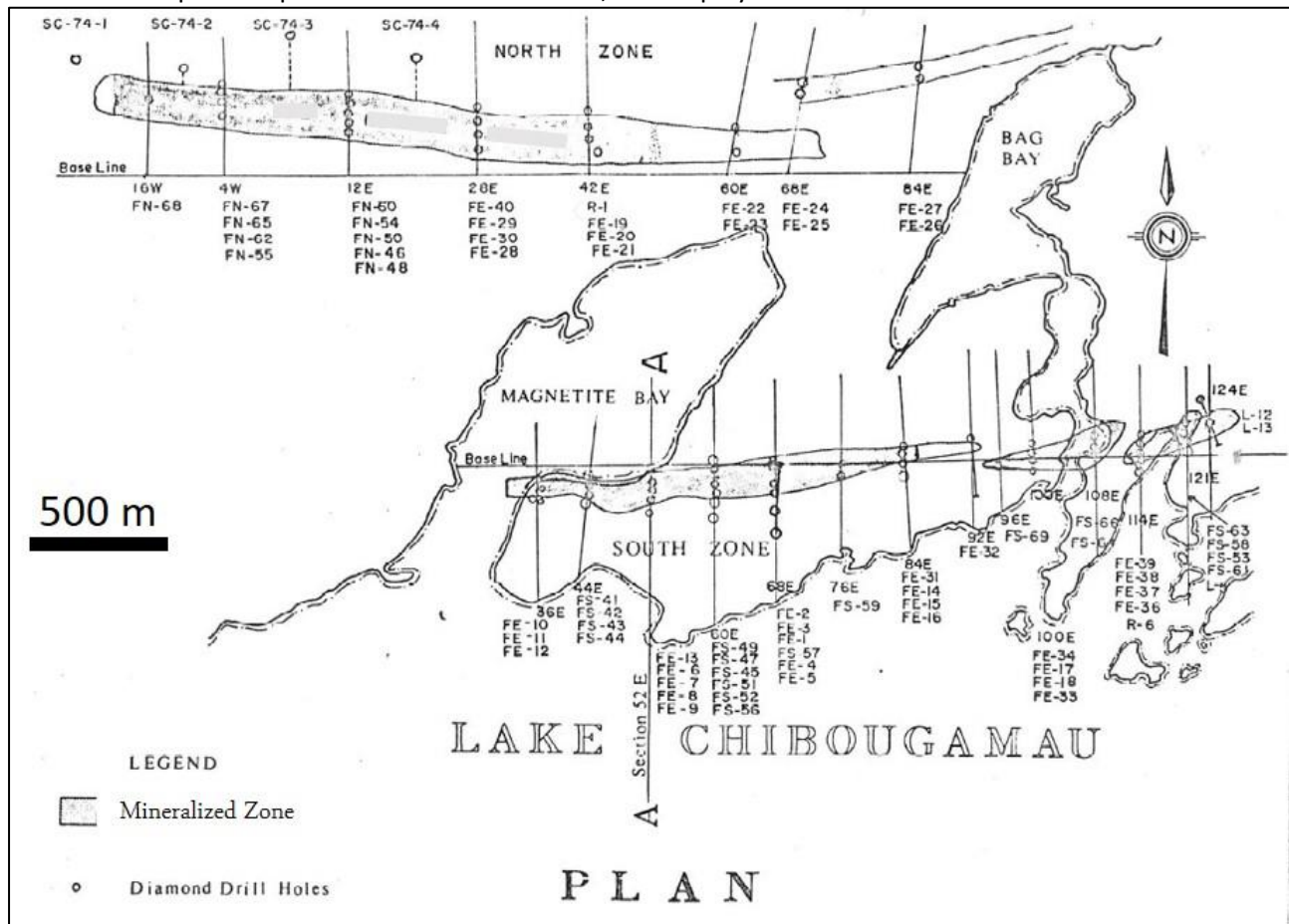


Figure 3. Holes were generally vertical and were drilled on several north-south sections.

Table 6: Drillholes completed by Campbell Chibougamau Mines (1963 to 1966)

Hole name	Zone	Easting	Northing	Azimuth	Dip	Year	Collar resurveyed by VONE
FE-01	South	564382.13	5528071.59	0	-90	1963	YES
FE-02	South	564375.75	5528162.81	0	-90	1965	YES
FE-03	South	564378.94	5528117.2	0	-90	1965	YES
FE-04	South	564388.5	5527980.38	0	-90	1965	YES
FE-05	South	564397.01	5527858.75	0	-40	1965	YES





Hole name	Zone	Easting	Northing	Azimuth	Dip	Year	Collar resurveyed by VONE
FE-06	South	563887	5528068.76	0	-90	1965	YES
FE-07	South	563887	5528023.04	0	-90	1965	YES
FE-08	South	563861.5	5527965.3	0	-90	1965	YES
FE-09	South	563887	5527901.12	0	-90	1965	YES
FE-10	South	563427	5527991.86	0	-70.5	1965	YES
FE-11	South	563408	5527991.86	0	-41	1965	YES
FE-12	South	563414	5527962	0	-90	1965	YES
FE-13	South	563887	5528114.48	0	-90	1965	YES
FE-14	South	564909.9	5528192.3	0	-90	1965	YES
FE-15	South	564913.88	5528146.75	0	-90	1965	YES
FE-16	South	564917.82	5528101.81	0	-90	1965	YES
FE-17	South	565353.02	5528250.86	0	-90	1965	YES
FE-18	South	565356.26	5528204.64	0	-90	1965	YES
FE-31	South	564904.37	5528255.46	180	-81	1966	YES
FE-32	South	565155.82	5528304.97	180	-45	1966	YES
FE-33	South	565359.45	5528159.03	0	-90	1966	YES
FE-34	South	565350.83	5528282.18	0	-90	1966	YES
FE-35	South	565768.33	5528208.82	0	-90	1966	YES
FE-36	South	565765.67	5528239.18	0	-90	1966	YES
FE-37	South	565763.02	5528269.55	0	-90	1966	YES
FE-38	South	565760.15	5528302.34	0	-90	1966	YES
FE-39	South	565757.49	5528332.7	0	-90	1966	YES
FS-41	South	563655.64	5528021.18	0	-90	1966	YES
FS-42	South	563654.04	5527990.74	0	-90	1966	YES
FS-43	South	563652.45	5527960.3	0	-90	1966	YES
FS-44	South	563650.85	5527929.86	0	-90	1966	YES
FS-45	South	564132	5528062.52	0	-90	1966	YES
FS-47	South	564132	5528093	0	-90	1966	YES
FS-49	South	564132	5528121.96	0	-90	1966	YES
FS-51	South	564132	5528032.04	0	-90	1966	YES
FS-52	South	564132	5528001.56	0	-90	1966	YES
FS-53	South	565988.77	5528337.38	0	-90	1966	YES
FS-56	South	564132	5527971.08	0	-90	1966	YES
FS-57	South	564384.68	5528035.11	0	-90	1966	YES
FS-58	South	565986.64	5528367.79	0	-90	1966	YES
FS-59	South	564663	5528075.42	0	-90	1966	YES
FS-61	South	565990.9	5528306.97	0	-90	1966	YES
FS-63	South	565984.52	5528398.19	0	-90	1966	YES
FS-64	South	565578.69	5528278.73	0	-90	1966	YES
FS-66	South	565576.03	5528309.09	0	-90	1966	YES
FS-69	South	565259.28	5528161.76	0	-90	1966	YES
FE-19	North	563565	5529436	0	-90	1965	NO
FE-20	North	563569	5529396	0	-90	1965	NO

Hole name	Zone	Easting	Northing	Azimuth	Dip	Year	Collar resurveyed by VONE
FE-21	North	563373	5529353	0	-90	1965	NO
FE-22	North	564103	5529431	0	-90	1965	NO
FE-23	North	564107	5529354	0	-90	1965	NO
FE-28	North	563084	5529238	0	-90	1966	NO
FE-29	North	563090	5529349	0	-90	1966	NO
FE-30	North	563085	5529301	0	-90	1966	NO
FE-40	North	563083	5529388	0	-90	1966	NO
FN-46	North	562577	5529369	0	-90	1966	NO
FN-48	North	562580	5529337	0	-90	1966	NO
FN-50	North	562577	5529402	0	-90	1966	NO
FN-54	North	562576	5529432	0	-90	1966	NO
FN-55	North	562097	5529365	0	-90	1966	NO
FN-60	North	562578	5529469	0	-90	1966	NO
FN-62	North	562097	5529390	0	-90	1966	NO
FN-65	North	562096	5529425	0	-90	1966	NO
FN-67	North	562119	5529484	0	-89	1966	NO

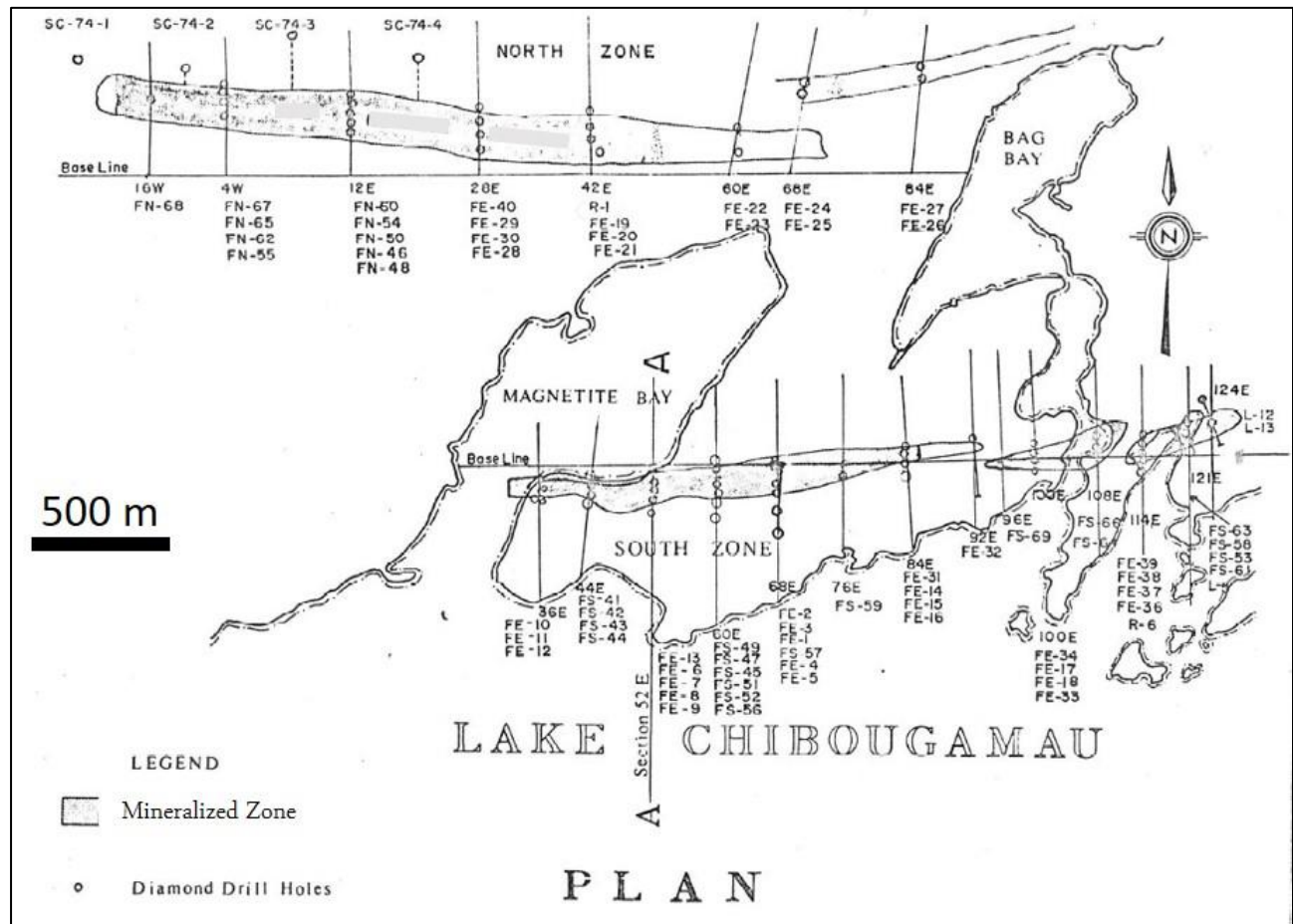


Figure 3: Map of historical drillhole locations (from Campbell Chibougamau Mines Ltd, 1974)

Historical data is available as PDF documents, showing detailed drill logs and assay data for each drillhole (Figure 4).

CAMPBELL CHIBOUGAMAU MINES LTD.																	
Hole #		ACID TEST		PROPERTY		SURVEY RESULTS											
FE-25		INDO-PAR/TESTS		Magnetite Bay		Latitude											
Location 10+70 N		+Depth 300.0'		Corval Group		Departure											
Section 68E		Mag. Bng.		Dip 88°		Elevation											
Strike -		Corr. Bng.		Strike		Dip											
Dip -90°		Dip		Dip		Dip											
Length 811.0		Dip		Dip		Dip											
Size of core AXI		Started January 18, 1966		Completed January 27, 66		Cement none		Logged by P.C. Masterman, G. Demasi									
FOOTAGE	ROCK TYPE	DESCRIPTION				CORE - SAMPLES				ASSAYS							
		Alteration - Colour		Structure - Texture		Sulphides - Minor features - Remarks				Number	From	To	Length	Au	Cu	Fe	TiO <sub>2</sub>
0.0	Overburden																
10.0	Iron Formation	L-M Serp.	M gy	M.gr. equigranular	25-30% Mag, 1% Po	25502	10.0	25.0	15.0						28.8	1.95	
				L. contact sharp 45-50° CN diss.		25503	25.0	50.0	25.0						31.4	2.11	
				Vague co. gab. text.	Mag. occurs in fract. fillings	25504	50.0	75.0	25.0						32.0	1.85	
99.3	Gab. I.F.	Patchy M Serp.	M gy	Vague co. gab. text.	Mag. occurs in fract. fillings	25504	75.0	100.0	25.0						32.3	1.79	
				in lesser patches	+ repl. patchy 25% mag.	25505	100.0	125.0	25.0						28.0	1.78	
					Tr po	25506	125.0	150.0	25.0						30.2	1.76	
225.0	Iron Formation	L.M. Serp	M gy	Gab. text. declinate	Increased carbonate veining	25507	150.0	175.0	25.0						29.9	1.49	
					25% Mag	25508	175.0	200.0	25.0						31.6	1.25	
						25509	200.0	225.0	25.0						28.7	1.00	
						25510	225.0	250.0	25.0						29.2	1.15	
						25511	250.0	275.0	25.0						28.4	1.66	
276.0	Serp. I.F.	M-H Serp.	Dk gy blk	Vitreous app. vague ductile text.	Fine veinlets mag. common	25512	275.0	300.0	25.0						19.2	0.89	
					20-25% mag. carb. veining irreg. up to 2". Tr Po												
308.5	Iron Formation	L-M Carb.	Dk gy	Patchy L-M Sh. + brecc. 60-80° CN	Carb. concentrated in short sheared sections + veinlets	25513	300.0	325.0	25.0						27.6	1.38	
327.0	Brecc. I.F.	M Carb.	Dk gy	M. Brecc.	H Carb. in H Sheared sects. minor graphite	25514	325.0	350.0	25.0						22.2	1.06	
332.5																	
332.5	Lost Core	Fragts. broken brecc. + sheared															
336.5																	
336.5	Brecc. I.F.	L-M Carb.	Dk gy														
339.6	Sheared I.F.	H Carb.	Pale gy	M-H Sh. 65-70° CN	Dk. mag. 20% Po, 1% Cpy Tr												
347.0	Brecc. I.F.	M-H Carb.	Dk gy	Vague gab. texture		25515	350.0	375.0	25.0						27.3	1.40	
374.0	Sheared I.F.	Dk. gy. part. alternating		N. shearing	35% mag. Tr po	25531	375.0	400.0	25.0						18.1	1.24	
		of bands of light and dark mineral. H Carb, L Ser		foliation 70-90° CN													
				Co. gr. vague phenoc													

Figure 4: Example of a historical drillhole log from Campbell Chibougamau Mines Ltd, showing assays for Fe and TiO<sub>2</sub>

In the 1970s, Cambbell Chibougamau Mines re-evaluated the project and created composite samples from the 1963–1966 drill core. These composite samples were milled to 95% passing -325 mesh (44 µm), and magnetic separates were created using Davis Tube testing, and the concentrates were assayed for Fe, TiO<sub>2</sub> and V<sub>2</sub>O<sub>5</sub> (Figure 5).

SECTION 42E														PIT "A"			QDR (1972) ASSAYS		
Hole #	Test #	Footage From	To	Length Feet	Mine Analysis % Fe	% TiO <sub>2</sub>	Head Analysis % Fe	% TiO <sub>2</sub>	% Wt	Davis Tube % Fe	% TiO <sub>2</sub>	Concentrate Fe -lst.	Test (Ore Only) TiO <sub>2</sub> Dist.	Grind	Area Sq. Ft.	Area Sq. Ft.	% Sol Fe	% TiO <sub>2</sub>	% V <sub>2</sub> O <sub>5</sub>
FE-21	F-21-1	6.8	227.6	220.8	25.4	1.71	27.8	1.49	39.0	63.7	2.01	89.3	53.0	97.0	38,426	10,800	26.54	1.75	0.23
	F-21-2	227.6	458.0	230.4	18.3	1.55	19.3	1.46	20.2	64.7	2.19	67.0	30.1	94.0	29,098	--	19.24	1.62	0.12
FE-20	F-20-1	2.5	250.0	247.5	25.9	1.11	26.2	0.91	36.5	62.9	1.53	87.5	70.4	94.0	61,070	61,070	27.09	1.09	0.21
	F-20-2	250.0	504.0	254.0	26.7	1.50	25.8	1.24	34.7	64.5	1.87	86.5	52.4	94.2	66,167	44,130	25.52	1.40	0.29
	F-20-3	As Section Average			28.4	1.13	28.3	1.00	33.8	64.9	1.51	77.2	52.9	96.3	40,575	5,270	28.68	1.12	0.21
	F-20-4	As Section Average			28.4	1.13	28.3	1.00	33.8	64.9	1.51	77.2	52.9	96.3	60,390	--	28.68	1.12	0.21
FE-19	F-19-1	3.5	115.7	112.2	32.8	0.48	32.6	0.51	36.2	68.1	0.83	75.5	58.8	99.0	12,851	12,851	34.46	0.52	0.21
	F-19-2	115.7	270.0	154.3	28.3	0.93	28.0	0.94	24.1	66.3	1.31	57.0	33.0	99.0	25,768	25,768	27.76	0.96	0.13
	F-19-3	270.0	425.0	155.0	42.4	0.68	41.3	0.74	52.0	67.2	0.90	84.5	63.5	98.8	29,016	29,016	42.22	0.76	0.27
	F-19-4	425.0	546.7	121.7	31.6	0.51	30.8	0.49	21.6	64.9	1.02	45.4	45.0	98.6	25,009	25,009	31.18	0.45	0.13
	F-19-5	546.7	747.0	200.3	31.5	0.75	30.7	0.66	32.9	66.2	1.04	70.8	51.5	98.0	42,724	42,724	32.32	0.73	0.20
		Weighted Average (Overall)			28.4	1.13	28.3	1.00	33.8	64.9	1.51	77.2	52.9	96.3	431,092	--	28.68	1.12	0.21
	Weighted Average (Pit "A")			30.0	0.99	29.6	0.87	34.7	65.1	1.35	76.3	55.5	96.6	--	256,638	--	30.25	0.97	0.21

(Grind %325 m)

Figure 5: Example of composite sample data from Campbell Chibougamau Mines Ltd

### 6.2.2 Campbell Chibougamau Mines Historical Metallurgical Testwork (1963–1966 and 1970s)

Several phases of historical metallurgical testwork were carried out on the project by Campbell Chibougamau Mines, including mineralogy, magnetite concentration tests, autogenous grinding tests, pelletising tests and blast furnace smelting tests. Of these tests, magnetite concentration tests (using a Davis Tube) were carried out at a fine grind of 95% passing 325 mesh (44 µm), and at 98% passing 325 mesh. These results showed that an acceptable concentrate grade of 66% Fe was produced at 95% passing 325 mesh, but this could be improved to 68.5% to 69% Fe by regrinding to 98% passing 325 mesh.

This Davis Tube work was followed by magnetic separation of two bulk samples (35 tons each) to emulate Davis Tube testwork on a larger scale. Separation included magnetic cobbing (rejection of waste) of samples ground to minus 10 mesh (2 mm), followed by regrinding of the cobbled concentrate to 95% passing 325 mesh and upgraded using two-stage magnetic separation. One concentrate sample was further reground to 98% passing 325 mesh and subject to an additional stage of magnetic separation. The results are summarised in Table 7 and plotted in Figure 6 below.

Table 7: Historical grind vs concentrate grade data from Campbell Chibougamau Mines

Grind (% -325 mesh)	Concentrate grade (% Fe)	Iron recovery to concentrate (%)
94.1	66.5	83.0
95.5	66.7	84.3
98.0	68.5	82.4
98.8	68.5	81.3
94.8	66.7	89.5

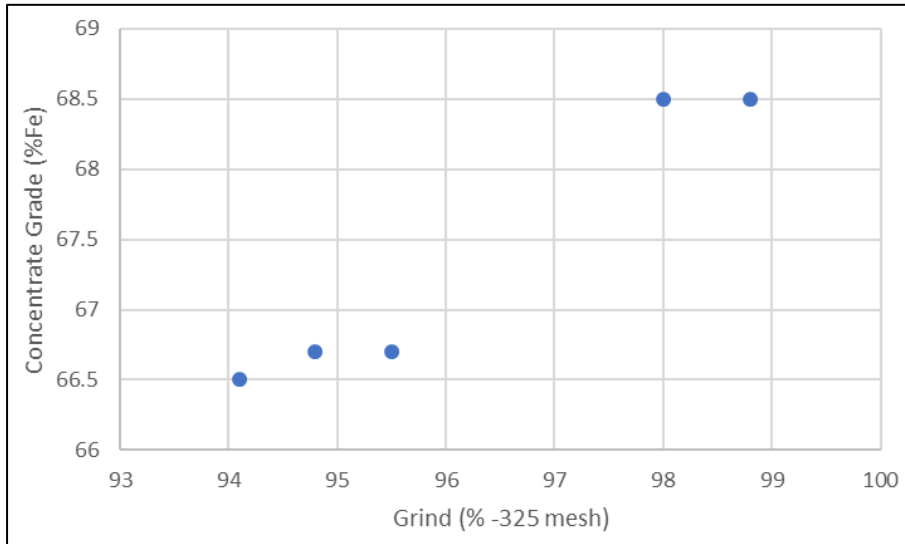


Figure 6: Historical grind vs concentrate grade data from Campbell Chibougamau Mines

### 6.2.3 Historical Geophysics by Apella Resources (2010)

In 2010, Apella Resources (a Vancouver headquartered company who had an option on the property) contracted AeroQuest to conduct an airborne geophysical (magnetic) survey using a helicopter-borne tri-axial gradiometer. The survey was flown at a nominal instrument terrain clearance of 30 m and at a line spacing of 100 m, with 50 m infill lines over the core of the deposit (Figure 7). Products included total magnetic intensity and measured vertical gradient.

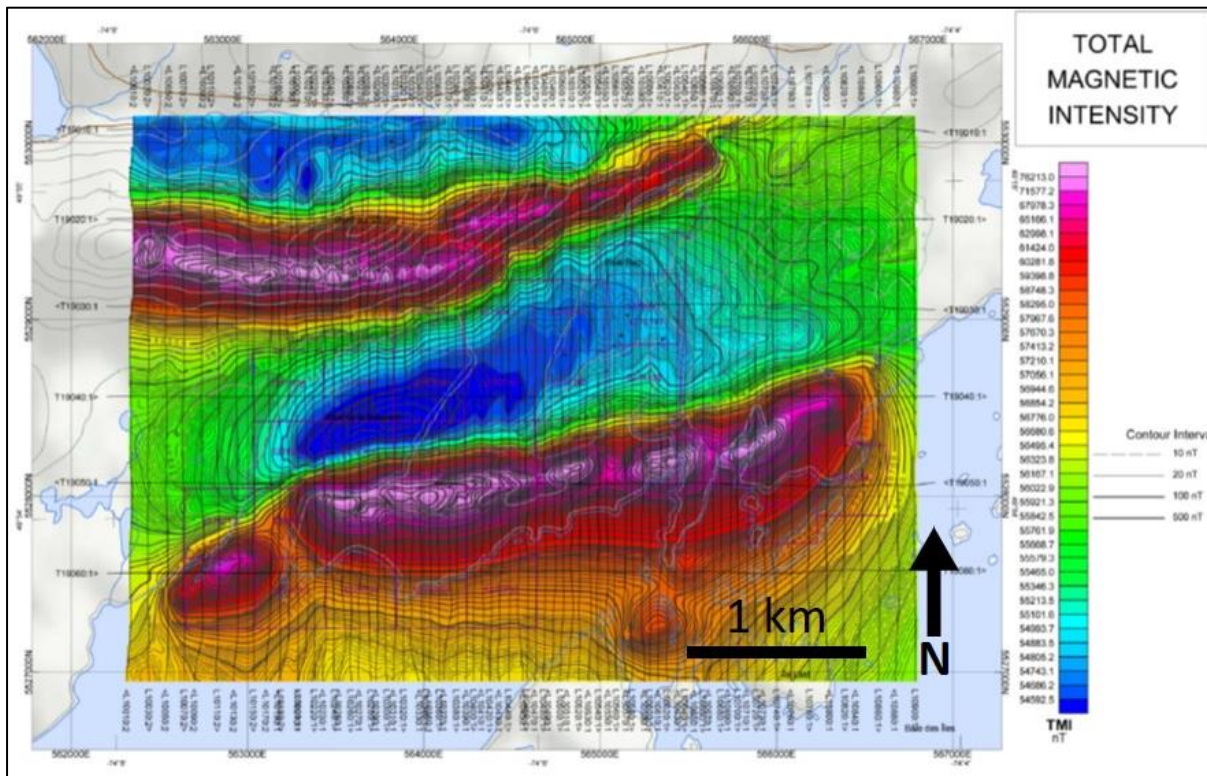


Figure 7: Map of flight lines and total magnetic intensity from the 2010 AeroQuest survey

#### 6.2.4 Drilling by Chibougamau Independent Mines (2013)

In 2013, Chibougamau Independent Mines drilled two diamond drillholes, MS-13-17 (on the North Zone) and MS-13-19 (on the South Zone). Drill core is in the possession of VONE, and collar locations have been verified and surveyed by VONE (Table 8).

Table 8: Drillhole drilled by Chibougamau Independent Mines in 2013 on the Mont Sorcier Property.

Hole Name	Easting	Northing	Azimuth	Dip	Length (m)
MS-13-17	562539	5529314.6	360	-42	603
MS-13-19	564118.2	5528099.5	180	-45	102

Note that coordinates are UTM, NAD83.

### 6.3 Historical Mineral Resource Estimates

Based on its work from 1961 to 1974, Campbell Chibougamau Mines in 1974 generated a grade and tonnage estimate on the magnetite layers within the project area totalling 274.4 Mt grading 29% Fe (172 Mt at 30% Fe for the North Zone, 103 Mt at 27.4% Fe for the South Zone).

The estimate noted in this section is “historical” in nature and not in compliance with NI 43-101. A Qualified Person has not done the work necessary to verify the historical estimates as current estimates under NI 43-101 and as such they should not be relied upon. The authors, CSA Global and VONE are not treating the historical estimates as current Mineral Resources or Mineral Reserves and are instead presented for informational purposes only. The historical resource estimate is superseded by the 2019 MRE presented in Section 14 of this report.

# 7 Geological Setting and Mineralization

## 7.1 Regional Geology

The project area is located at the northeast end of the well-documented Abitibi Sub-Province, also known as the Abitibi greenstone belt, the world’s largest contiguous area of Archean volcanic and sedimentary rocks, and host to a significant number of mineral deposits. It covers an approximately 500 km by 350 km large area in the south-eastern portion of the Archean Superior craton (Monecke *et al.*, 2017). The Precambrian rocks in the area are commonly covered by an overburden of Quaternary glacial deposits of variable thickness.

The Abitibi greenstone belt is primarily composed of east-trending submarine volcanic packages, which largely formed between 2795 Ma and 2695 Ma (Ayer *et al.*, 2002; Leclerc *et al.*, 2012). The volcanic packages of the belt are folded and faulted and typically have a steep dip, younging away from major intervening domes of intrusive rocks (Monecke *et al.*, 2017). Major, crustal-scale, east-trending fault zones are prominent in the Abitibi greenstone belt (Figure 8).

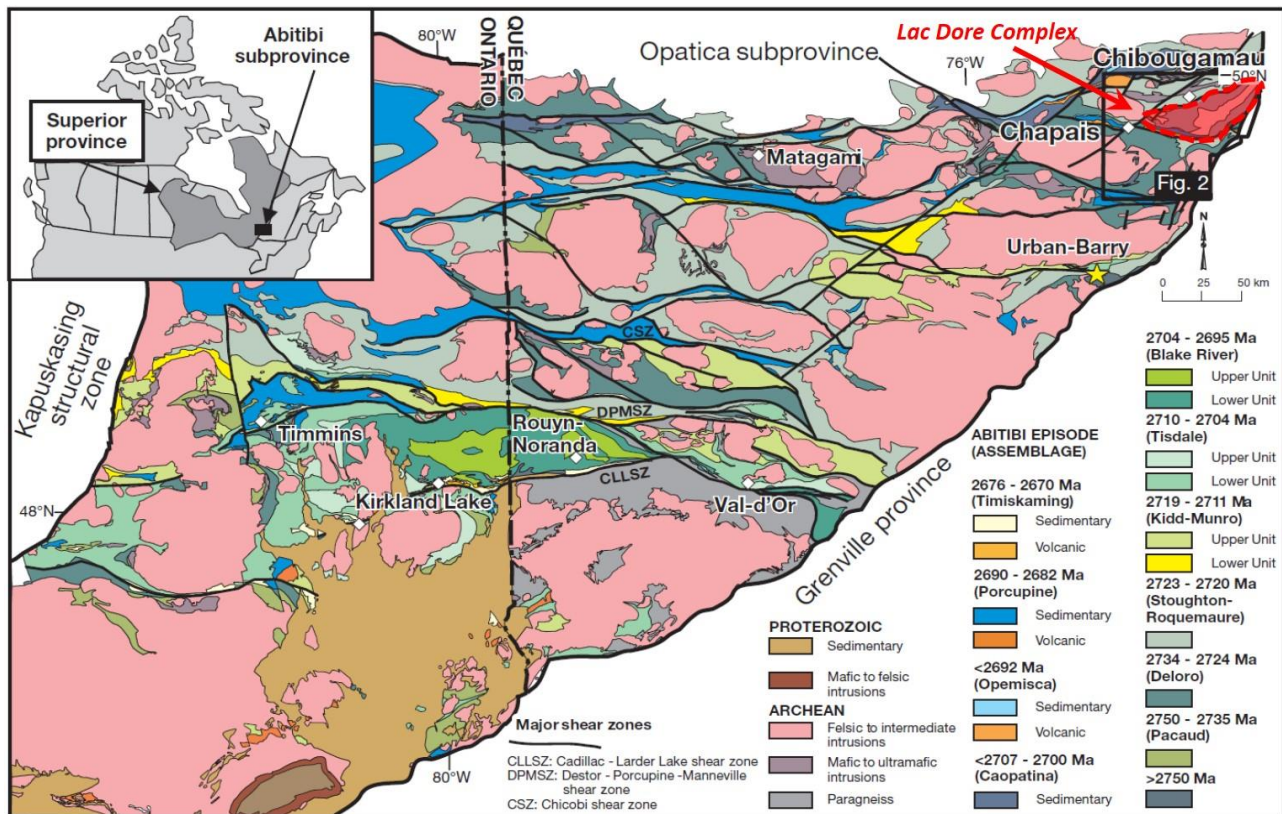


Figure 8: Geology of the Abitibi greenstone belt showing the location of the LDC  
Note: Upper-left inset shows location of the Abitibi greenstone belt in the Superior Province.  
Source: Leclerc *et al.* (2012)

In the Chibougamau area, a large layered mafic complex (the LDC) has been emplaced into the volcanoclastic stratigraphy (Figure 9). The LDC is comparable to other better-known complexes such as the Bushveld Complex in South Africa, the Skaergaard Intrusion in Greenland or the nearby Bell River Complex in Matagami, Quebec.

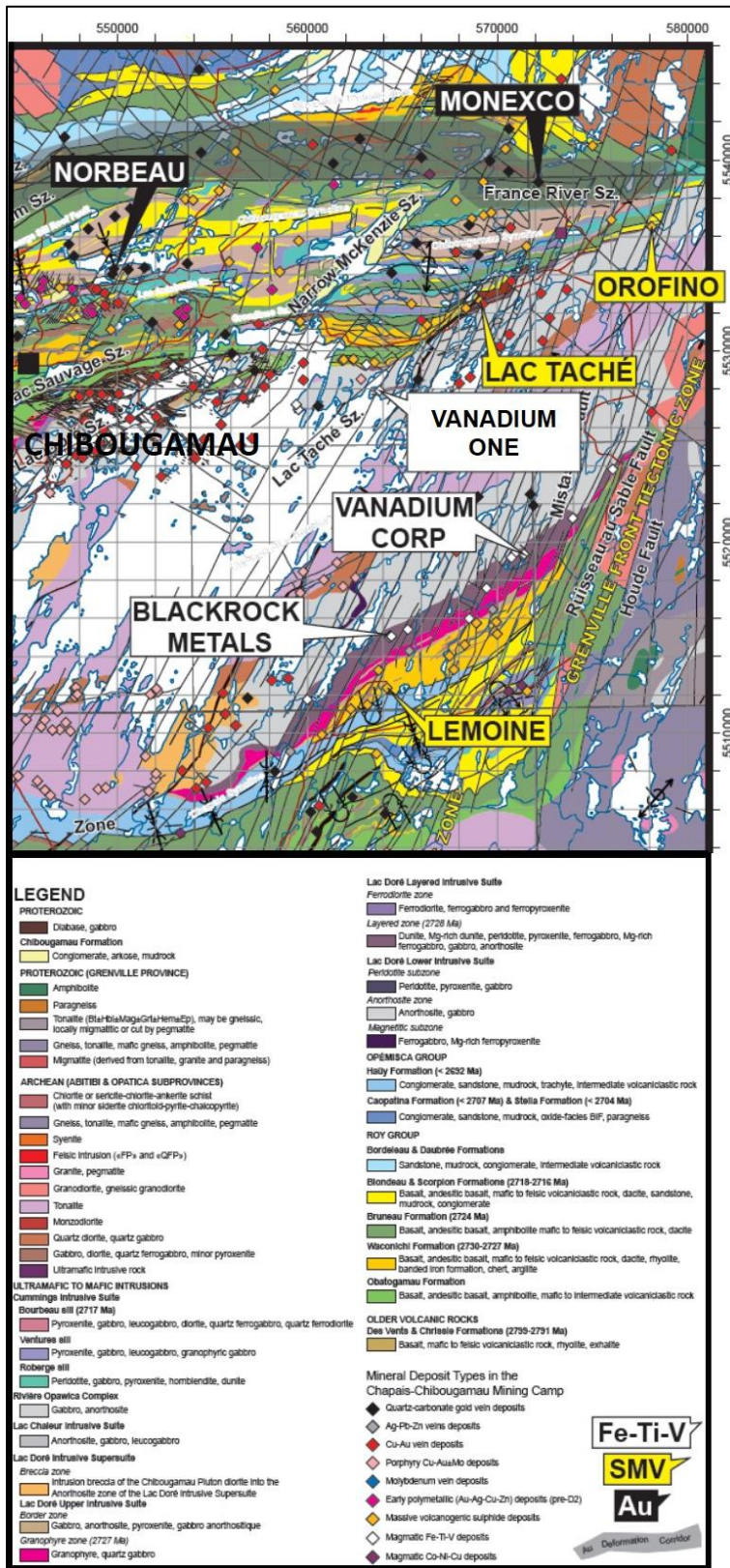


Figure 9: Regional geology of the Chibougamau area and the LDC



The LDC is a stratiform intrusive complex composed primarily of (meta-) anorthosite with lesser amounts of gabbro, anorthositic gabbro, pyroxenite, dunite and harzburgite. The anorthosite represents 70–90% by volume of the lithologies present within the LDC. A younger granitic phase of the LDC is emplaced in the centre of the LDC and obscures the mafic lithologies in this area.

The LDC stratigraphy comprises four zones (Allard, 1976):

- The lowermost anorthositic zone composed of anorthosite and gabbro, in variable proportions (including gabbroic anorthosite and anorthositic gabbro). A maximum thickness of 3,000 m has been estimated by Allard (1976).
- The layered zone composed of bands of ferro-pyroxenite, magnetite-bearing gabbro, magnetites (containing titanium and vanadium) and anorthosite. The maximum thickness has been estimated at 900 m (Allard, 1976). The layered zone rocks pass gradually into the underlying anorthosites and gabbros of the anorthositic zone.
- The granophyre zone (at the top) composed of soda-rich leuco-tonalite.
- The border zone, found in contact with the volcanic rocks of the Roy Group (Waconichi Formation), which forms the margin of the complex. This border zone is discontinuous and is composed of gabbro and anorthosite locally containing a considerable percentage of quartz.

### 7.1.1 Regional Tectonics and Structure

All rock units in the area were affected by multiple deformation events and are folded into a succession of east-west trending anticlines and synclines. Lithological units tend to have steep to subvertical dips. The LDC was folded into a broad east-west trending anticline (Figure 10) during the compressive accretion of the Abitibi-Wawa Terrane between 2.698 Ga and 2.690 Ga (Daigneault and Allard, 1990). The LDC has also been affected by deformation (and low-grade metamorphism) owing to the much younger Grenville Orogeny (c. 1.1 Ga), along the eastern edge of the Superior Province. The late Chibougamau pluton that occupies the core of the Chibougamau anticline has intruded and truncated the LDC.

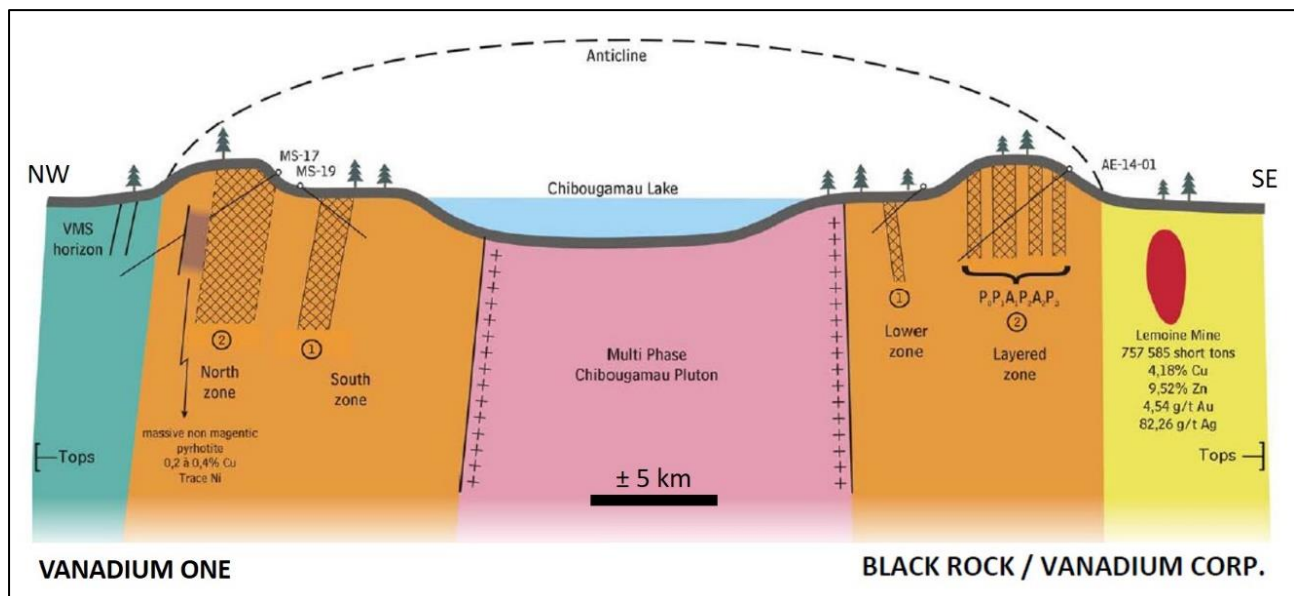


Figure 10: Schematic northwest-southeast cross-section through the LDC  
Note: All features are not to scale and the scale bar is an approximation.

Faults and shear zones in the region strike between northeast and east, although northwest-striking faults are also reported. Large scale synclines and anticlines are generally bound by regional synvolcanic/sedimentary and syntectonic east-west faults. Late northeast to north-northeast faults dissect the region and are either associated with or reactivated by the Grenvillian event.

## 7.2 Prospect and Local Geology

The project area straddles the contact between the mafic magmatic rocks of the LDC to the south and sediments and mafic volcanics of the Roy Group to the north (Figure 9, Figure 12). Within the Property, the volcanic stratigraphy of the Roy Group comprises predominantly basaltic to andesitic rocks of the Obatogamau Formation and basalt, andesitic basalt, mafic to felsic volcanoclastic rock, dacite, rhyolite, BIF, chert, and argillite of the Waconichi Formation (dated at 2726–2729 Ma). The LDC is emplaced into this volcano-sedimentary package, and both are crosscut by mafic to ultramafic sills and younger plutonic intrusions ranging from tonalites to carbonatites. The BIF of the Waconichi Formation are particularly notable in the project area, as the LDC can be seen in contact with these BIFs, and in places, can be seen assimilating them (Figure 11). This may have implications for the formation of the low-Ti magnetites within the project. A small felsic plug, probably related to the younger Lac Chibougamau batholith, is present at the western boundary of the property.



Figure 11: BIF being assimilated into mafic magmas in drillhole MS-13-17

The project area is largely underlain by anorthosites of the LDC, which grade into the iron-rich ultramafic units through a crude stratigraphy comprising (from base to top): anorthosite, gabbro, magnetite-gabbro, magnetite-pyroxenite, magnetite-peridotite, magnetite-dunite and cm-scale magnetite layers. The presence of magnetite is strongly associated with ultramafic units. Magnetite is locally observed within anorthosites; however, it occurs only as minor disseminations or veinlets.

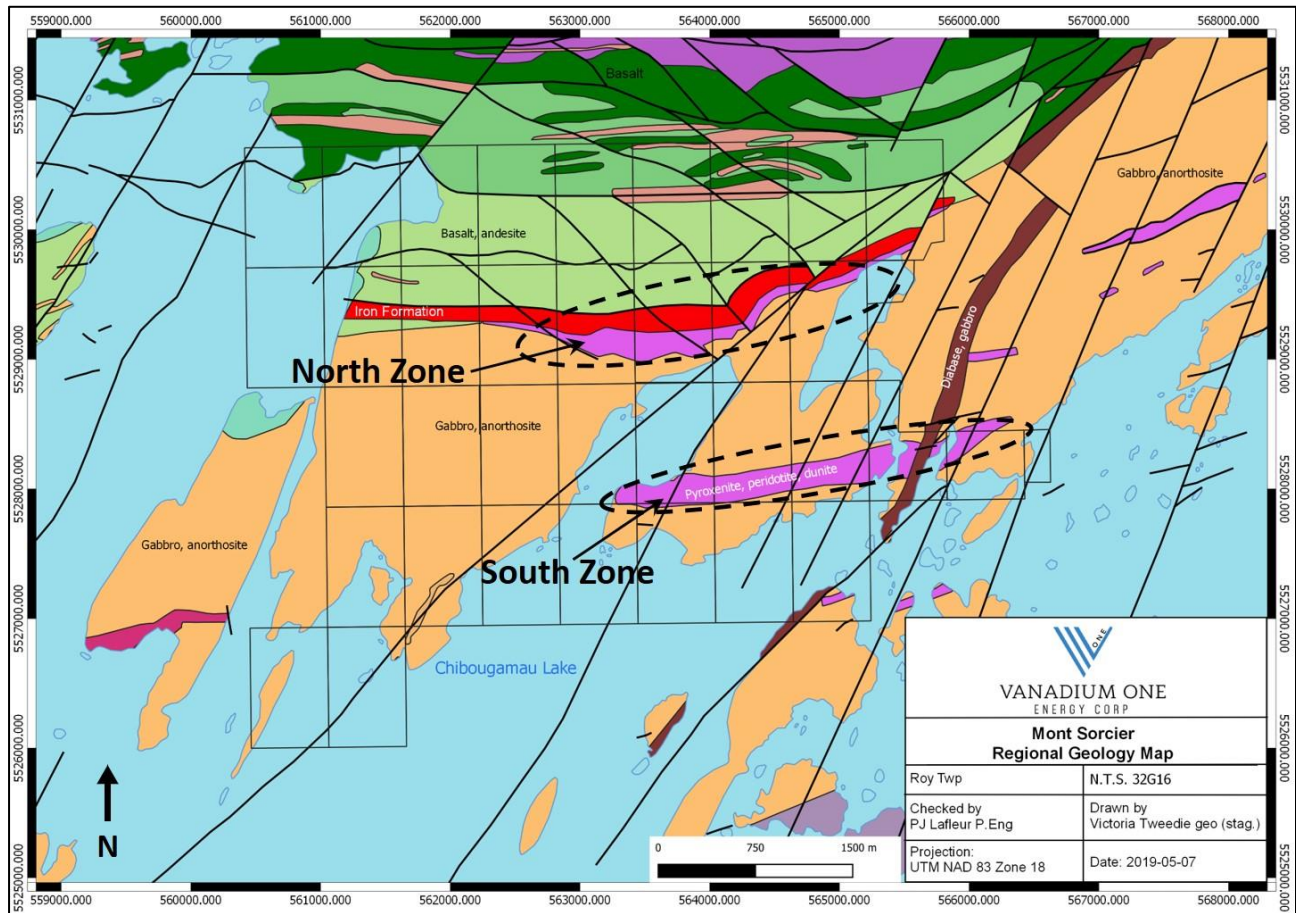


Figure 12: Geological map of the Mont Sorcier Property

The layered mafic-ultramafic rocks of the Mont Sorcier area have also been affected by the upright folding that affects the region, and that has created the anticlinal nature of the LDC. The North Zone and South Zone thus represent the same stratigraphic unit that has been folded into kilometre-scale parasitic folds, with the North Zone representing the north-dipping limb of an anticlinal fold structure, and the South Zone representing the hinge zone of a syncline (Figure 13).

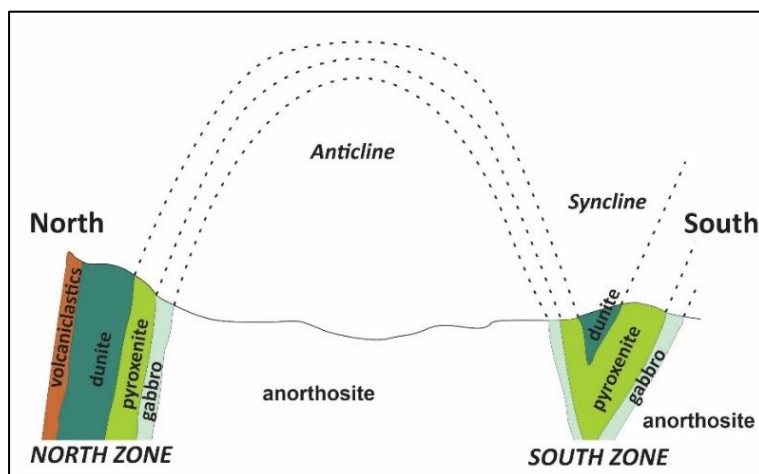


Figure 13: Structural relationship between the North Zone and South Zone (after Dorr, 1966)

### 7.2.1 North Zone and South Zone

Two significant mineralized zones are found on the property – the North Zone and the South Zone.

The North Zone is identifiable in the field and through airborne magnetics over a strike length of approximately 4 km. It appears to be between 100 m and 300 m in thickness, forming a roughly tabular body that strikes east-west, is subvertical and extends to depths of at least 500 m based on drilling. The North Zone has been drilled over approximately 2.5 km of its strike length. Possible extensions to the North Zone could be found to the east, as well as down-dip.

The South Zone is identifiable over approximately 3 km strikes east-northeast to west-southwest and has been mapped in detail as well as being drilled over its entire strike length. It is thought to form a tight synclinal structure, with a shallow plunge to the west-southwest. It is 100–200 m thick and extends to at least ~300 m in depth in the western part of the deposit, shallowing towards the east. Although the total depth of mineralization has not been fully tested, it is not expected to continue to depths significantly deeper than currently defined. The South Zone has been cut by several small northeast-trending faults, one larger northeast-trending fault with a ~150 m dextral displacement and is also cut by a north-northeast trending dyke that is ~150 m thick.

Both the North Zone and South Zone appear to have formed from the crystallization of VTM triggered by assimilation of a carbonate-facies iron formation (the Lac Sauvage iron formation) by mafic magmas of the LDC (see Section 8). In both the North Zone and South Zone, magnetite is disseminated within ultramafic rocks (dunite, peridotite pyroxenite), and the ultramafic VTM-bearing lithologies are surrounded by mafic units (gabbro and anorthosite).

#### *Mineralogy*

In early 2018, VONE commissioned ActLabs to undertake mineralogical studies for selected samples using QEMSCAN, in order to determine the liberation characteristics of the magnetite and associated minerals. In late 2018, VONE commissioned SGS Laboratories to carry out additional QEMSCAN mineralogical characterisation of selected magnetite-bearing samples to investigate any alteration, characterize the mode of occurrence of magnetite, and gain insight into the formation of the magnetite-rich ultramafic rocks (Glossop and Prout, 2019).

Several of the samples analysed by SGS show fresh, igneous textures with limited alteration of pyroxene and olivine (Figure 14). In pristine samples, magnetite often displays an interstitial texture, filling spaces between subhedral to euhedral pyroxene (Figure 14A) and olivine (Figure 14B) crystals. Elsewhere, magnetite occurs as minute grains within pyroxene (Figure 14C) and olivine (D) grains. Large subhedral pyroxene crystals contain few magnetite inclusions (Figure 14C), and some samples display younger magnetite veins in addition to the disseminated igneous magnetite (Figure 14D).

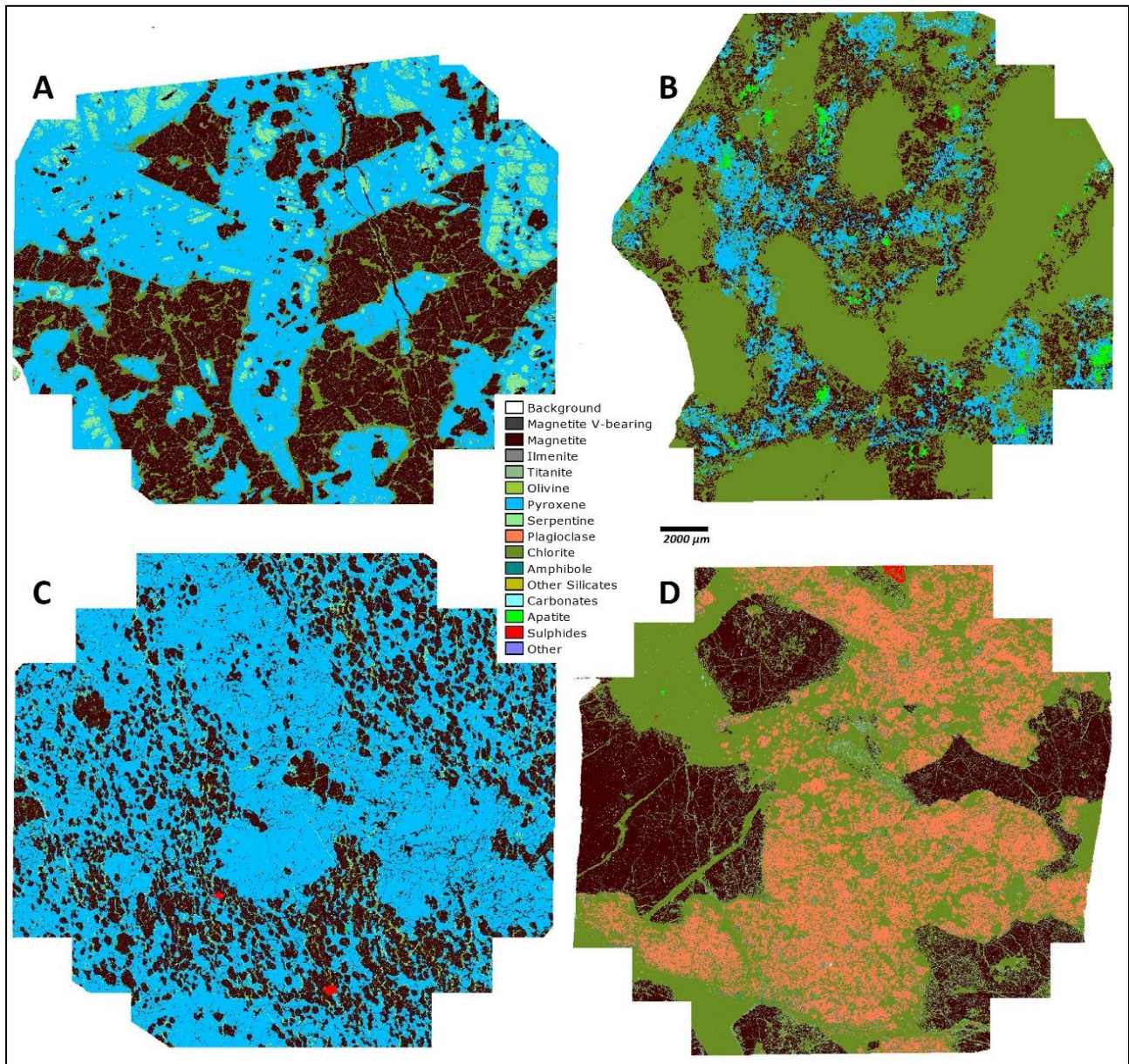


Figure 14: SGS QEMSCAN images of magnetite-bearing samples (Glossop & Prout, 2019) – note the presence of apatite and sulphides in some samples

A: Interstitial magnetite associated with subhedral to euhedral pyroxene.

B: Large, magnetite-free chlorite pseudomorphs (after pyroxene) surrounded by an interstitial mix of extremely fine-grained magnetite and pyroxene.

C: Fine-grained magnetite grains within pyroxene.

D: Interstitial magnetite between subhedral grains of plagioclase feldspar that has been partially altered to chlorite.

More deformed or altered samples (Figure 15) show complete serpentinization of olivine (Figure 15A), as well as evidence for deformation in the form of small, intrafolial folds of magnetite (Figure 15B). In rare cases where olivine is still preserved, it is found as minute relict grains within an alteration matrix of carbonate and chlorite (Figure 15C). In some cases, secondary remobilised veins of magnetite crosscut altered samples and primary magnetite (Figure 15D).

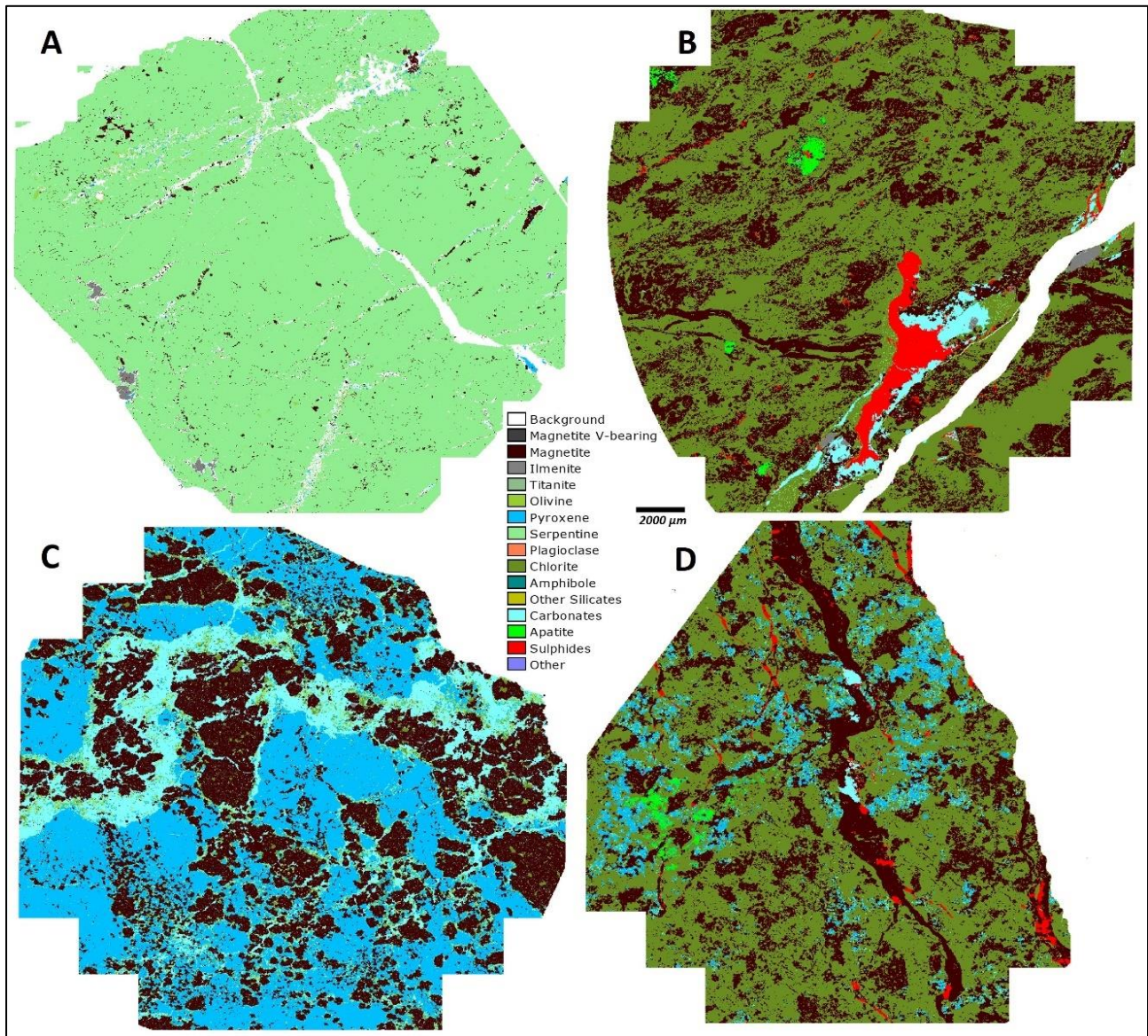


Figure 15: SGS QEMSCAN images of more altered and deformed samples (Glossop & Prout, 2019) – note the presence of apatite and sulphides in some samples.

A: Serpentine (after olivine) with fine-grained secondary magnetite.

B: Deformed magnetite bands within a chlorite sample. Note the small-scale folded magnetite bands.

C: Magnetite-bearing pyroxenite with a zone of carbonate (with chlorite), and other similar zones of carbonate surrounding magnetite crystals. Note that some fine-grained relict olivine is present within the carbonate-chlorite matrix.

D: Sample of chlorite (with minor unaltered pyroxene), as well as a vein a magnetite.

## 8 Deposit Types

### 8.1 Mineralization Styles

Magnetite mineralization at the Mont Sorcier Project shows several similarities to other magmatic VTM or ilmenite deposits associated with layered mafic intrusive complexes such as the Bushveld Complex (South Africa) or the Skaergard Intrusion (Greenland). In these and other layered complexes, as well as on the south-eastern margin of the LDC (the Blackrock Minerals Armitage deposit and the Vanadium Corp Lac Dore deposit), VTM and ilmenite deposits typically form in the upper portions of the layered complexes and have been subdivided into ilmenite-dominant deposits (generally in massif-type anorthosites host rocks) and magnetite-dominant deposits (generally in layered intrusions within gabbroic host rocks – Gross, 1996).

Crystallization of magnetite is initiated when the evolving magma becomes sufficiently Fe-enriched to form oxide minerals, and thereafter settling of magnetite crystals results in localized lowering of the magma density from  $\sim 2.7$  to  $\sim 2.5$ . This creates an inverted density stratification, resulting in overturn of the magma and resulting magma mixing, thereby precipitating additional magnetite. The repetition of this process leads to the formation of several stratified layers of magnetite, often with sharp bases and gradational upper contacts. Because V is compatible in the magnetite crystal structure, it fractionates into magnetite, thereby depleting the remaining magma of V. This results in the lowermost magnetite-bearing units in layered complexes typically having the highest  $V_2O_5$  values, with the V content of the magnetite gradually decreasing upwards through the stratigraphy (Figure 16) – lower layers can have  $V_2O_5$  contents of up to 3%, while this drops to below 0.3% in the upper layers. Conversely, Ti is incompatible, and becomes more concentrated in the residual magma – hence the lower VTM layers have lower Ti contents (typically 7–12%  $TiO_2$ ) than upper layers (up to 20%  $TiO_2$ ), where ilmenite and even rutile may be observed.

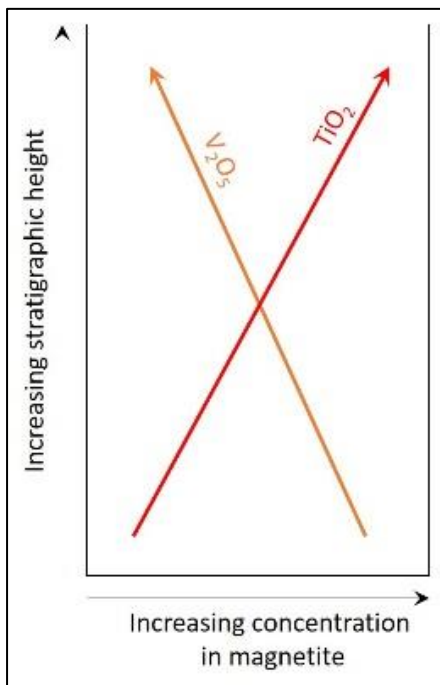


Figure 16: Schematic diagram showing the general increase in  $TiO_2$  and decrease in  $V_2O_5$  in magnetite with increased stratigraphic height in the upper portions of layered mafic complexes

## 8.2 Conceptual Models

VTM deposits are typically found in the upper, more fractionated portions of layered complexes. In the Upper Zone of the Bushveld Complex, the formation of VTM-enriched layers has been attributed to magma mixing events, resulting either from a breakdown of densely stratified liquid layers (i.e. overturn) or the influx of new magma (Harne and Von Gruenewaldt, 1995). Separation of a dense, Fe-rich magma owing to large-scale silicate liquid immiscibility has also been suggested and may explain the occurrence of apatite-oxide layers in the upper portions of some layered mafic complexes (Van Tongeren and Mathez, 2012).

Although this conceptual model appears to explain the formation of the VTM-enriched units elsewhere on the LDC, the VTM mineralization at Mont Sorcier is unusual in several respects:

- It is associated with olivine-bearing ultramafic units, with remarkably primitive compositions ( $Fo_{82-90}$  – Mathieu, 2019)
- The VTM is anomalously low in Ti, with  $TiO_2$  grades generally below 2%.

These unusual features, in combination with detailed studies of the chemistry of the VTM and host rocks at the Mont Sorcier deposit, has led Mathieu (2019) to propose that the formation of VTM mineralization at Mont Sorcier was triggered by assimilation of a carbonate-facies iron formation (the Lac Sauvage iron formation, within the Waconichi Formation of the Roy Group). The assimilation of these Fe-enriched, Mg-bearing, and Si-poor rocks would have desilicified and added Fe–Mg to an already Fe-enriched, evolved basaltic magma and favoured the formation of Mg-olivine (Mathieu, 2019). In addition, the assimilation of carbonate by magma is known to favour the crystallization of clinopyroxene over plagioclase and to induce  $CO_2$  degassing, and oxidizing  $CO_2$ -bearing fluids may have favoured the crystallization of magnetite. Furthermore, the volatiles may also have promoted fast cooling rates, prevented prolonged magma differentiation, local vanadium-enrichment and magnetite settling (Mathieu, 2019).

The overall result is the formation of a broad layered zone of magnetite mineralization in which vanadium has a relatively homogeneous spatial distribution (Figure 17), in contrast to the rhythmic succession of centimetre- to metre-thick magnetite and silicate-rich rocks that characterize the VTM deposits elsewhere within the LDC and within other layered complexes, but which are not observed at Mont Sorcier (Mathieu, 2019).



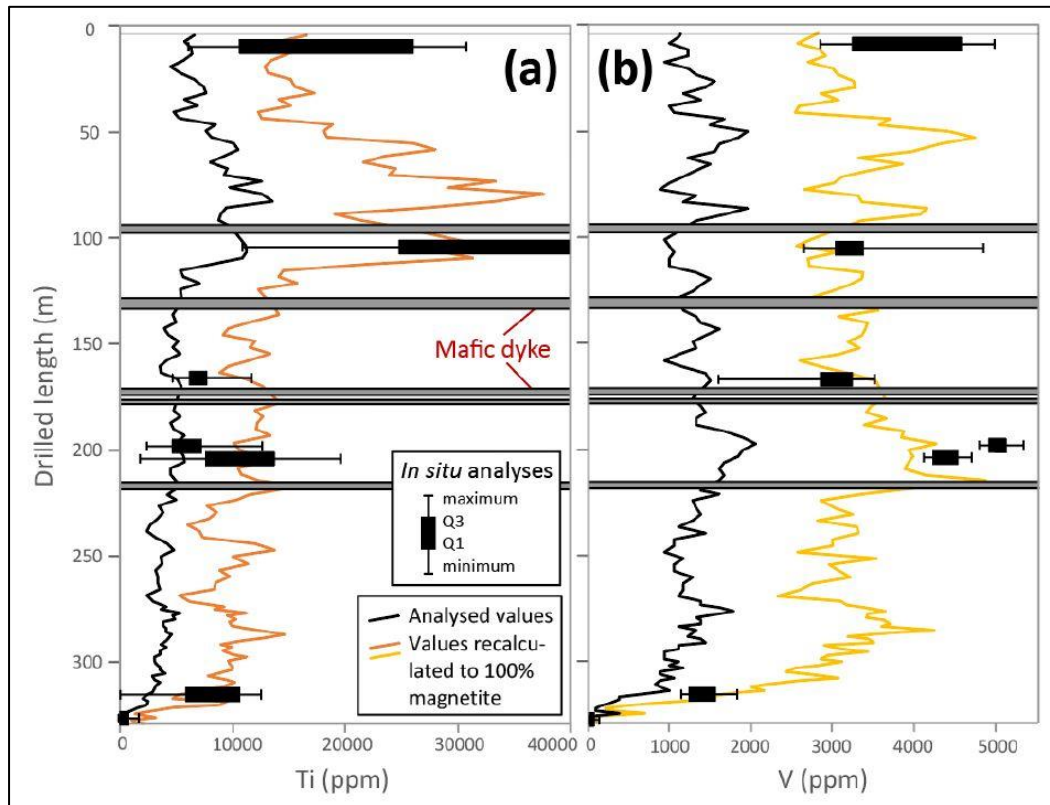


Figure 17: Ti (a) and V (b) contents (from drill core MS-13-17) represented as a function of downhole length  
Note: The V and Ti contents are analyzed bulk rock values (black lines) and values recalculated to 100% magnetite (orange lines). The magnetite proportions used to perform these calculations were measured by SATMAGAN (from Mathieu, 2019).

## 9 Exploration

### 9.1 Exploration Program

Between 2017 and 2019, VONE has carried out stripping and mapping of the property, in addition to drilling (see Section 10).

### 9.2 Stripping

In June 2018, a selected area was cleared of vegetation and washed clean of any remaining overburden, to expose the pristine glaciated bedrock (Figure 18). The 2018 stripping area runs parallel to and just east of historical section 52E, the site of historical trenching and drilling (historical drillholes FE-6, FE-7, FE-8 and FE-9, FE-13). No trenching/sampling of the exposed areas by VONE has taken place, but the exposed bedrock has been used for mapping.



Figure 18: Washing of a stripped area of the South Zone deposit to expose the glaciated bedrock below

### 9.3 Mapping

In August 2018, VONE commissioned Mr Ali Ben Ayad to carry out detailed lithological and structural mapping of the South Zone. This mapping focused on identifying major structures within the deposit and mapping the distribution of mafic and ultramafic units – an example of the mapping is shown in Figure 19.

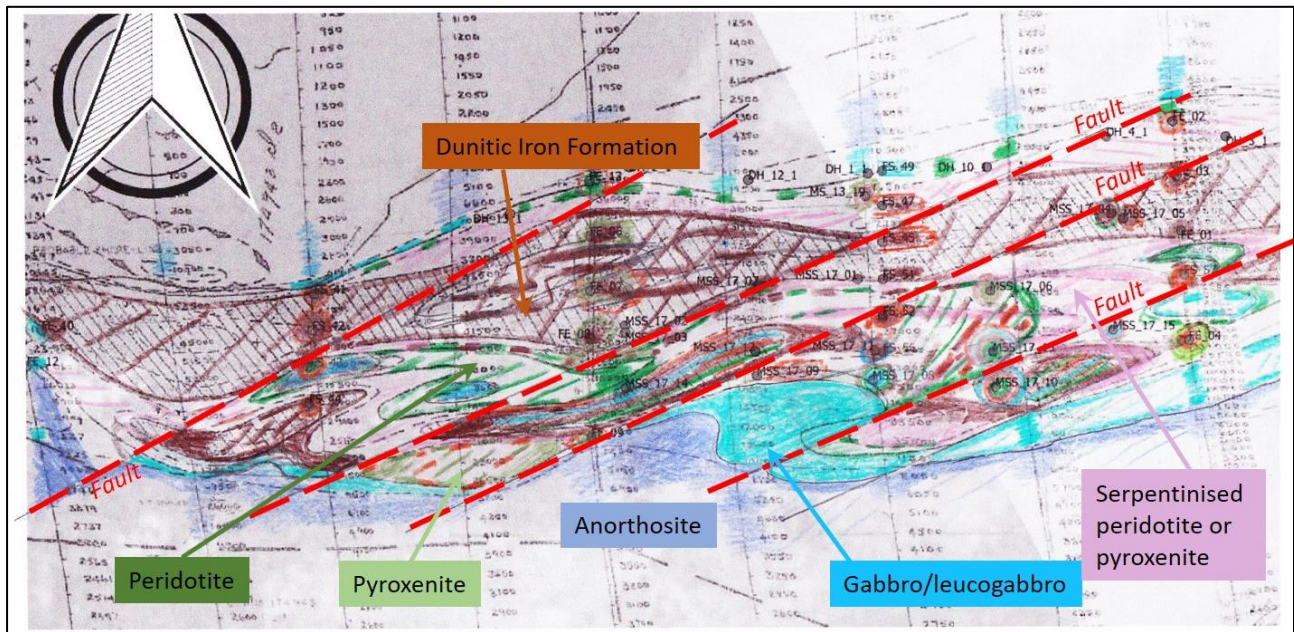


Figure 19: Hand-drawn geological map (created by Mr Ali Ben Ayad) of a portion of the South Zone deposit  
Note: The map has been drawn over historical ground magnetic data (carried out by Campbell Chibougamau Mines). Several northeast-trending sinistral faults are evident, which displace and offset mafic-ultramafic units and associated magnetite mineralization.

#### 9.4 Airborne Geophysics Reprocessing

In 2018, VONE commissioned Laurentia Exploration (a geological consultancy based in Quebec) to reprocess the previous historical (2010) aeromagnetic data to produce derivative products, including First Vertical Derivative (1VD) (Figure 20) and Tilt. These products were used together with the results of field mapping to aid in the interpretation of wireframes for Mineral Resource estimation.

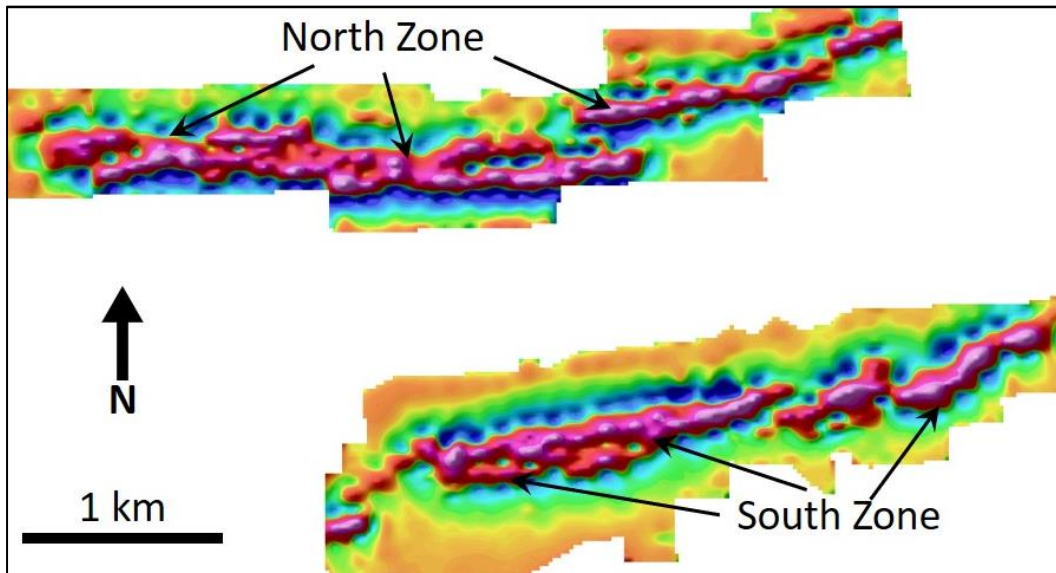


Figure 20: 1VD created in 2018 by Laurentia Exploration using 2010 AeroQuest airborne magnetic data



## 9.5 Interpretation

The combination of mapping and airborne magnetics has shown that areas underlain by magnetite-bearing ultramafic rocks correspond to magnetic highs. This is expected since magnetite-bearing units will naturally give a strong magnetic response. The use of magnetic surveys is a useful tool in the exploration and delineation of magnetite deposits, and magnetic data has been used in the interpretation of the geology and creation of the geological model for the deposit.

# 10 Drilling

## 10.1 Historical Drilling

Historical drilling conducted by previous operators on the Mont Sorcier Project is discussed in Section 6 (History).

## 10.2 Summary of VONE 2017–2018 Drilling

Local drill company Forage Chibougamau was contracted to drill NQ diameter diamond drill core on the Mont Sorcier North and South deposits. Drill core was delivered to the VONE core facility in Chibougamau at the end of each shift. VONE’s Project Geologist managed the contractors.

A list of all drillholes drilled by VONE during 2017 and 2018, their coordinates (easting and northing), length, and the dip and azimuth of the hole, are shown in Table 9. A total of 32 drillholes (7,388.18 m) were drilled.

Table 9: Drillhole drilled by VONE in 2017 and 2018 on the Mont Sorcier Property

Hole name	Easting	Northing	Azimuth	Dip	Length (m)
MSN-18-01	562889.2	5529129.4	360	-45	552
MSN-18-02	563298.9	5529083	360	-45	578
MSN-18-03	562227.2	5529596.1	180	-45	363
MSN-18-04	562770.5	5529643.5	180	-45	439.54
MSS-17-01	564112.6	5528033.1	180	-45	141
MSS-17-02	563918.6	5527992.9	180	-45	141
MSS-17-03	563918.6	5527987.4	180	-45	141
MSS-17-04	564328.2	5528091.3	360	-45	141
MSS-17-05	564332.7	5528087.2	180	-45	141
MSS-17-06	564223	5528023.5	360	-45	195
MSS-17-07	564028.4	5528026.9	180	-45	102
MSS-17-08	564123.8	5527946.1	360	-59	276
MSS-17-09	564026	5527948.5	360	-59	276
MSS-17-10	564226.6	5527938.7	360	-55	273
MSS-17-11	564125.1	5527969.5	360	-45	174
MSS-17-12	564025.9	5527973.2	360	-45	174
MSS-17-13	564225.6	5527967.7	360	-45	234
MSS-17-14	563915.1	5527942.4	360	-45	225
MSS-17-15	564325.6	5527988.5	360	-45	225
MSS-18-16	564219.6	5528118.2	180	-45	153
MSS-18-17	564321.4	5528145.6	180	-45	189
MSS-18-18	564219.6	5528143	180	-45	270
MSS-18-19	564019.6	5528113.7	180	-60	222
MSS-18-20	564019.6	5528114.2	180	-45	192
MSS-18-21	563936.7	5528121.9	180	-60	201
MSS-18-22	563936.7	5528122.4	180	-60	210
MSS-18-23	563826.1	5528061.2	180	-45	186
MSS-18-24	564456.1	5527995	0	-45	237

Hole name	Easting	Northing	Azimuth	Dip	Length (m)
MSS-18-25	564521.5	5527958.6	350	-45	207
MSS-18-26	564762.7	5528074.9	360	-45	175.4
MSS-18-27	564991.2	5528163	360	-45	138.24
MSS-18-28	564923.3	5528111.2	340	-45	216

Note that coordinates are UTM, NAD83.

A map showing the locations of all holes drilled by VONE between 2017 and 2018, in addition to the locations of historical drillholes, is shown in Figure 21.

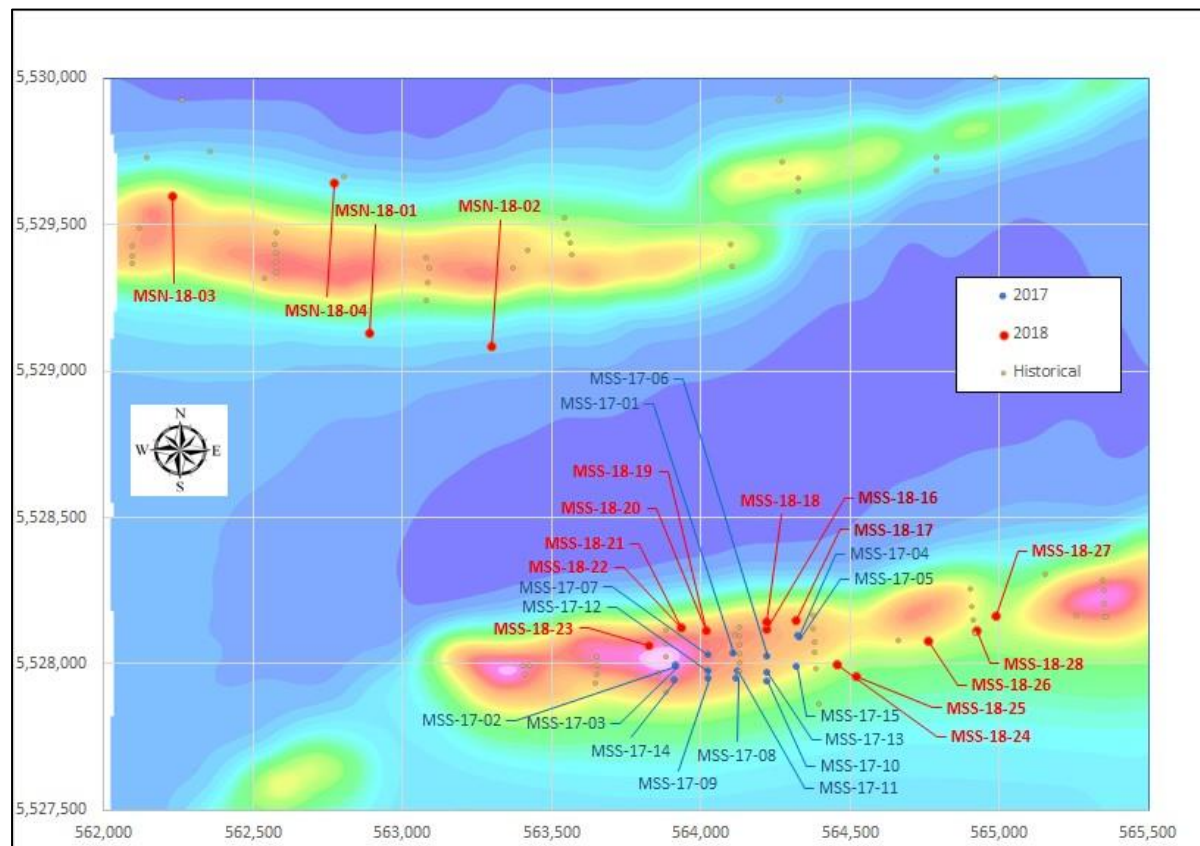


Figure 21: Location of drillholes on the Mont Sorcier Project, overlain on the total magnetic intensity (airborne magnetics data) for the property

## 10.3 Sampling

### 10.3.1 Core Logging

Subsequent to unpackaging at the core facility, the drill core was checked for measurement errors and placement errors by Technicians and then metered appropriately. The VONE Project Geologist prepared a quick log summary each morning to summarize the drill progress, geology encountered, and sampling performed to that point.

The VONE Project Geologist or technicians use a magnetic probe to measure the magnetic susceptibility and conductivity every 50 cm down the drillhole. A scale was also used to measure whole core sample weight,

both dry and in water, in order to calculate the density, although the results of these density measurements are highly variable and have not been used for the purposes of resource estimation.

The Drill Geologist is responsible for recording geological aspects of the drill core including lithology, alteration, and mineralization with special focus on structures (bedding, foliation, shearing, faults) and geologic relationships (contacts) and their relation to the stratigraphy, lithology, and magnetite mineralization.

### *10.3.2 Core Sampling*

Following the completion of logging the Drill Geologist samples the drill core at 2–4 m intervals respecting lithological boundaries, major structures, and magnetite mineralization.

Sampled core is cut into halves at the VONE core facility using a diamond saw. The bottom half is returned to the core box and top half is placed in a sample bag with the corresponding sample tag and sealed with a zip tie. All bags are labelled. Beginning in 2018, QAQC samples (5% standards, blanks, and duplicates) are included with each shipment sent to the lab.

The archived core is stored in core racks at the VONE core storage facility in Chibougamau.

## **10.4 Surveying**

### *10.4.1 Collar Surveying*

Collars were surveyed by an independent surveyor (Paul Roy, Q.L.S., C.L.S.). A list of preliminary drillhole coordinates was provided to the surveyor by the VONE Project Geologist. A Leica GS15 GNSS RTK receiver was set up as a base station at control point MS-1 (5,527,937.63mN, 564,210.33mE) whose coordinates were determined in June 2018 using Precise Point Positioning from Natural Resource Canada (30 June 2018 report, Document 7662). A measurement check was performed on existing permanent control point MS-2 (5,527,922.09mN, 564,091.77mE). Drillhole collars for all 2013, 2017 and 2018 drillholes, as well as most historical drillholes (see Table 6) were measured by a Leica GS18 multi-frequency GNSS providing centimetre-level accuracy.

### *10.4.2 Downhole Surveying*

A north seeking Champ Gyro was deployed to measure downhole azimuth and dip of drillholes. The Champ Gyro is first run down and then up the borehole length with the up run being a repeat for quality assurance. Azimuth and dip accuracies are 0.75° and 0.15°, respectively. The use of a gyro-based instrument is appropriate for rocks with significant proportions of magnetite. No historical holes were surveyed for downhole deviation, however as these holes were all vertical, minimal deviation is anticipated.

## **10.5 Significant Intervals**

A list of significant intervals for holes drilled by VONE in 2017 and 2018 is presented in Table 10.



Table 10: List of significant intervals drilled by VONE in 2017 and 2018

Zone	Hole name	From	To	Length	Azimuth	Dip	True thickness	Fe2O3_T	V2O5	V2O5c
North	MSN-18-01	258.0	552.0	294.0	360.0	-45.0	207.9	32.1	0.16	0.45
	MSN-18-02	275.0	578.0	303.0	360.0	-45.0	214.3	36.2	0.29	0.60
	MSN-18-03	147.0	290.0	143.0	180.0	-45.0	101.1	37.5	0.22	0.52
	MSN-18-04	194.0	408.0	214.0	180.0	-45.0	151.3	37.5	0.18	0.43
South	MSS-17-01	14.8	136.5	121.7	180.0	-45.0	86.1	33.8	0.26	0.60
	MSS-17-02	11.7	141.0	129.3	360.0	-45.0	91.4	33.6	0.23	0.50
	MSS-17-03	12.5	27.5	15.0	180.0	-45.0	10.6	20.4	0.06	0.18
		117.0	132.0	15.0	180.0	-45.0	10.6	17.7	0.02	0.08
	MSS-17-04	8.6	107.6	99.0	360.0	-45.0	70.0	32.0	0.20	0.45
	MSS-17-05	16.2	31.2	15.0	180.0	-45.0	10.6	41.7	0.29	0.53
		31.2	46.2	15.0	180.0	-45.0	10.6	36.6	0.18	0.37
		46.2	126.0	79.8	180.0	-45.0	56.4	30.1	0.13	0.35
	MSS-17-06	32.1	135.2	103.1	360.0	-45.0	72.9	40.8	0.33	0.57
	MSS-17-08	5.7	21.7	16.0	360.0	-59.0	8.2	16.1	0.01	0.04
		39.0	258.0	219.0	360.0	-59.0	112.8	38.3	0.30	0.59
	MSS-17-09	3.8	244.0	240.2	360.0	-59.0	123.7	39.4	0.29	0.55
	MSS-17-10	76.2	254.5	178.3	360.0	-55.0	102.3	33.3	0.27	0.61
	MSS-17-11	23.1	170.4	147.3	360.0	-45.0	104.2	39.2	0.33	0.65
	MSS-17-12	13.8	147.5	133.7	360.0	-45.0	94.5	43.2	0.34	0.65
	MSS-17-13	11.5	71.6	60.1	360.0	-45.0	42.5	32.6	0.24	0.56
		71.6	86.6	15.0	360.0	-45.0	10.6	34.3	0.29	0.66
		86.6	101.6	15.0	360.0	-45.0	10.6	38.5	0.30	0.63
		101.6	202.0	100.4	360.0	-45.0	71.0	40.7	0.32	0.64
	MSS-17-14	60.9	75.9	15.0	360.0	-45.0	10.6	17.9	0.09	0.37
		94.2	225.0	130.8	360.0	-45.0	92.5	32.7	0.24	0.62
	MSS-17-15	58.2	187.0	128.8	360.0	-45.0	91.1	34.6	0.25	0.55
	MSS-18-16	21.0	148.4	127.4	180.0	-45.0	90.1	39.6	0.30	0.60
	MSS-18-17	12.0	187.6	175.6	180.0	-45.0	124.2	36.1	0.26	0.53
	MSS-18-18	27.0	270.0	243.0	180.0	-45.0	171.8	34.8	0.23	0.50
	MSS-18-19	35.0	221.2	186.2	180.0	-60.0	93.1	38.9	0.28	0.55
	MSS-18-20	54.0	192.0	138.0	180.0	-45.0	97.6	45.1	0.39	0.70
	MSS-18-21	47.0	201.0	154.0	180.0	-60.0	77.0	33.6	0.23	0.53
MSS-18-22	85.0	210.0	125.0	180.0	-60.0	62.5	38.1	0.30	0.65	
MSS-18-23	3.0	119.0	116.0	180.0	-45.0	82.0	35.1	0.23	0.51	
MSS-18-24	84.5	223.0	138.5	360.0	-45.0	97.9	32.4	0.19	0.41	
MSS-18-25	98.0	150.6	52.6	350.0	-45.0	36.6	33.3	0.18	0.40	
MSS-18-26	33.3	132.0	98.8	360.0	-45.0	69.8	22.0	0.10	0.35	
MSS-18-27	66.5	104.5	38.0	360.0	-45.0	26.8	26.7	0.15	0.28	
MSS-18-28	63.0	83.0	20.0	360.0	-45.0	14.1	15.5	0.02	0.04	
	106.0	183.0	77.0	340.0	-45.0	51.2	22.0	0.11	0.28	



## 10.6 Interpretation

### 10.6.1 Mineralization Orientation and Thickness

In the North Zone, mineralization is interpreted to occur as a roughly tabular body, with a subvertical to steeply north-dipping dip, and striking east-west. In the South Zone, tabular mineralization has been folded around a synclinal axis with a shallow west-southwest plunging orientation. Both the North Zone and South Zone mineralised bodies trend roughly east-west and are steeply dipping, however the North Zone is interpreted to extend to significant depths (the actual vertical extent has not yet been confirmed and the base of mineralization is unknown). The South Zone mineralization is expected to terminate at depth owing to its position in the hinge of a shallow-dipping syncline. Representative cross-sections through the North Zone and South Zone are shown in Figure 22A and Figure 22B, respectively.

Mineralization is interpreted to vary between approximately 100 m and 200 m in true thickness in the North Zone and South Zone.

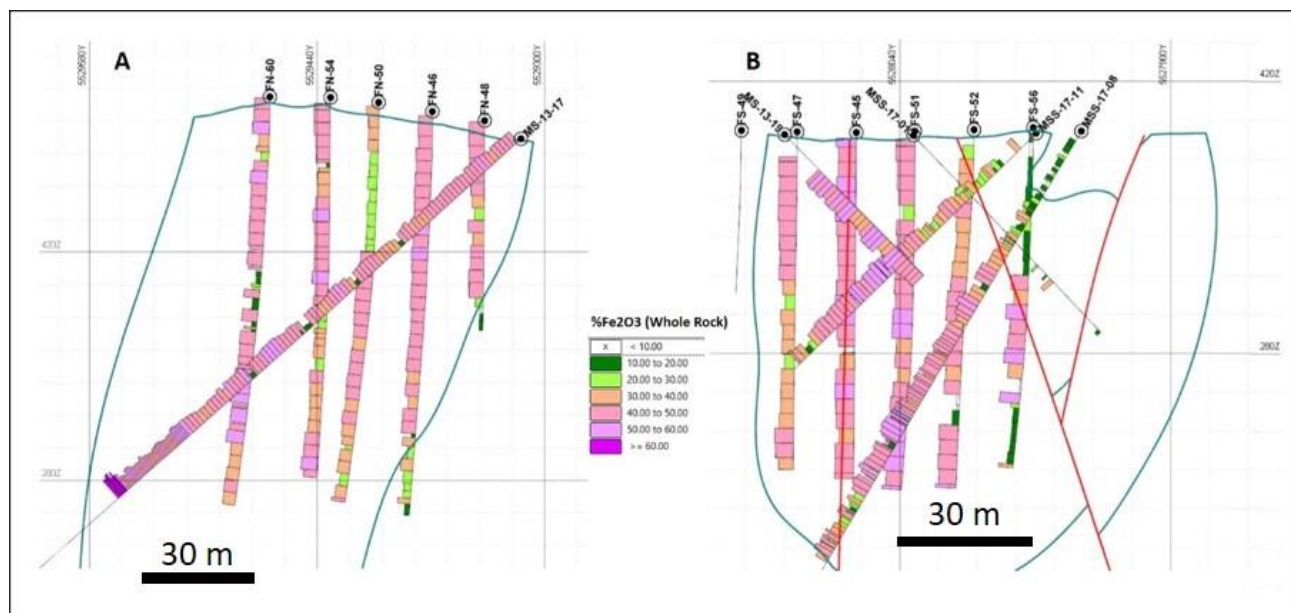


Figure 22: Representative cross-sections looking east through the mineralization, showing historical and recent drilling, and assay values for  $Fe_2O_3$

A: North Zone. B: South Zone. Note that some holes have been projected onto the section.

## 10.7 Additional Discussion

Historical drillholes have not been subject to downhole gyro surveys – these historical holes are all vertical and were subject to acid dip tests, which showed minimal downhole deviations ( $<1^\circ$ ). The rocks are magnetic and therefore no azimuths could be determined using magnetic-based survey methods at that time. Because the historical holes are vertical, downhole deviations are expected to be negligible. Additionally, some historical drillhole collars have not been subject to accurate surveys using a differential global positioning system (GPS).

Due to the fact that boreholes are widely spaced, mineralization is continuous and broadly disseminated, and because only Inferred Mineral Resources have been estimated in areas with predominantly historical drillholes; this is not considered material at this stage of the project.

# 11 Sample Preparation, Analyses and Security

## 11.1 Project based Sample Preparation and Security

The following procedure applies to samples collected by VONE, as well as samples collected from 2013 drilling by Chibougamau Independent Mines. Following the completion of logging, the VONE Project Geologist lays out drill core samples at 2–4 m intervals respecting lithological boundaries, major structures, and magnetite mineralization. Sampled core is cut into halves at the VONE core facility. The bottom half is returned to the core box for archive and top half is placed in a sample bag with the corresponding sample tag and sealed with a zip tie. All bags are labelled. Beginning in 2018, QAQC samples (5% standards, blanks, and duplicates) are included with each shipment sent to the lab.

Security of samples prior to dispatch to the analytical laboratory was maintained by limiting access to the samples by unauthorized persons. Samples are sealed and stored within wooden boxes at the VONE core facility prior to shipment. Samples remained under the supervision of VONE personnel at the core facility until transferred to a commercial trucking for ground delivery of the boxed samples to the analytical lab. The VONE Project Geologist is responsible for overseeing the transfer of samples from VONE to the shipping company. The VONE geologist is alerted of the arrival of the samples at the Laboratory.

Sample preparation and security procedures utilized by historical operators are undocumented.

## 11.2 Laboratory Based Sample Preparation

For drillholes from 2013 onwards, sample preparation and assays were carried out at three laboratories: Activation Laboratories (Actlabs – Val d’Or, Quebec) Laboratoire Expert (Expert – Rouyn-Noranda, Quebec), and SGS Laboratories (SGS – Lakefield, Ontario). Samples analysed at SGS were crushed and milled at the SGS laboratory in Val d’Or. For all laboratories, samples were weighed, dried at 105°C, and crushed to 75% passing 2 mm. A 250 g split was taken using a riffle splitter and milled in a non-magnetic Cr-steel ring and bowl mill to 80% passing 75 µm.

## 11.3 Analytical Method

Actlabs, Expert and SGS, and their employees, are independent from VONE. Other than initial sample collection and bagging, VONE personnel and its consultants and contractors are not involved in the core sample preparation and analysis. Actlabs and Expert are both certified to ISO 9001:2008. Actlabs is ISO 17025 accredited. SGS is ISO 17025 accredited and certified to ISO 9001:2015.

The laboratories used for the various VONE drillholes are summarised in Table 11.

Table 11: Laboratories used by VONE for assay of samples

Laboratory	Boreholes
Activation Laboratories	MS-13-17, MS-13-19, MSS-17-01, MSS-17-02, MSS-17-03, MSS-17-04, MSS-17-05, MSS-17-08, MSS-17-09, MSS-17-10, MSS-17-11, MSS-17-12, MSS-17-13, MSS-17-14, MSS-17-15.
Laboratoire Expert	MS-13-17
SGS Laboratories	MSN-18-01 to MSN-18-04, MSS-18-16 to MSS-18-28

Samples were assayed using similar methodologies at all laboratories. Head samples were fused into disks using a borate flux (borate fusion) and analysed using x-ray fluorescence (XRF) spectrometry. A 30–50 g

subsample of the head sample was used to create magnetic separates using a Davis Tube magnetic separator, at a magnetic intensity of 1000 Gauss. The head sample was weighed, and the magnetic fraction produced was dried and weighed, to determine the percentage of magnetics within the sample. The magnetic fraction was also analysed using XRF on a borate fusion disk.

Sample analytical procedures utilized by Campbell Chibougamau Mines are largely undocumented, although historical reports indicate that magnetic separation was also carried out using Davis Tube tests on samples milled to >95% or >98% passing 44 µm.

### 11.3.1 Davis Tube Testing

Drill core samples from the 2017 and 2018 VONE drilling programs have all been subject to Davis Tube testing. Davis Tube testing has been used as part of the assaying procedure for each sample (and has been used to estimate the iron, vanadium and titanium grades of the magnetite concentrates as part of the MRE). Davis Tube testing also gives useful insights into the metallurgical parameters of the Mont Sorcier deposit. Davis Tube magnetic separators (Figure 23) create a magnetic field which is able to extract magnetic particles from pulverized samples, and the percentage of magnetic and non-magnetic material in a sample may be determined. A 30–50 g aliquot of pulp sample is gradually added to the cylindrical glass tube which oscillates at 60 strokes per minute. As the sample progresses down the inclined tube the magnetic particles are captured by the magnetic field. Wash water flushes the non-magnetic fraction out of the tube until only the magnetic fraction remains. Both the magnetic and non-magnetic fractions are dried and weighed to determine the percentage of magnetics in each sample.



Figure 23: A Davis Tube magnetic separator

Source: <https://geneq.com/materials-testing/en/product/sepord/davis-tube-tester-11534>

For Davis Tube testwork, it was assumed that all magnetic iron is present within magnetite, and that all vanadium is present as a solid solution within magnetite. Mineralogical testwork has shown no evidence for other magnetic iron-bearing minerals (e.g. pyrrhotite) and has also demonstrated that the vanadium is found

within magnetite. A grind size of -75 microns has been used for the Davis Tube testing. This is coarser than the grind used for historical testwork; however, no testing has yet been carried out to optimise the grind size. Each drill core sample submitted for assay was subject to Davis Tube testing. Since a large number of samples from across the entire deposit have been tested, the samples tested reflect the various mineralization styles across the deposit.

The primary objective of the Davis Tube testing has been to determine if there is a relationship between magnetite concentration in the sample and recovery of iron, vanadium and titanium. The results show that recovery increases with increasing magnetite content, and that there is a substantial increase in the recovery curve for  $\text{Fe}_2\text{O}_3$  up to  $\sim 15\%$   $\text{Fe}_2\text{O}_3$  (Figure 24). A slightly higher cut-off grade of 20%  $\text{Fe}_2\text{O}_3$  has been chosen for Mineral Resources.

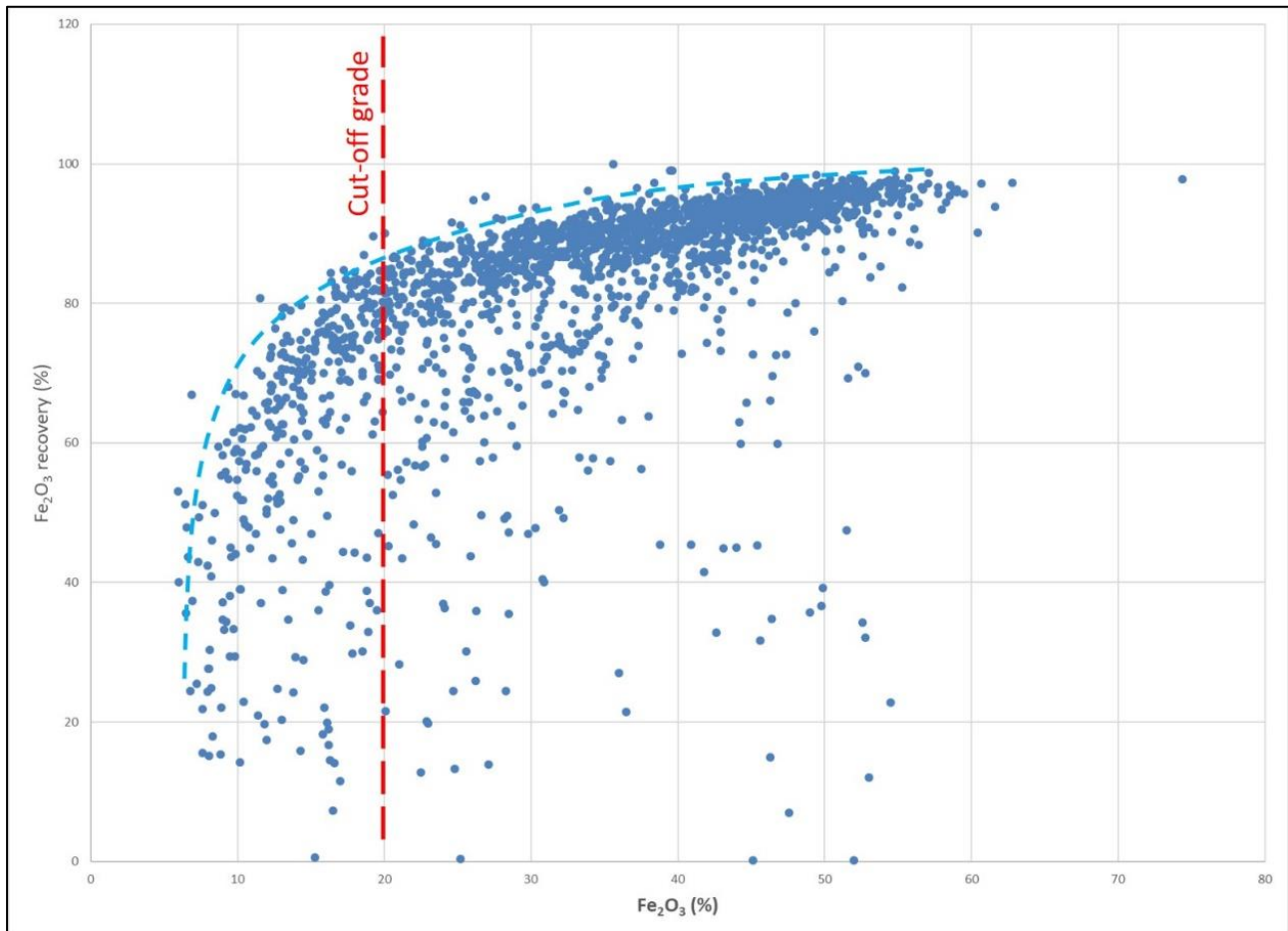


Figure 24: Graph of  $\text{Fe}_2\text{O}_3$  recovery vs  $\text{Fe}_2\text{O}_3$  grade of the head sample from Davis Tube testing

## 11.4 Quality Assurance and Quality Control

### 11.4.1 Overview

The following QAQC procedures have been followed by VONE since 2018. No standards or blanks were used during 2013 and 2017. Two standards (a high-grade and a low-grade) were made up by VONE using archived 2017 reject material. The standard materials were prepared by Actlabs, and samples were referee assayed at three different laboratories (ALS, COREM, AGAT). Two samples of each standard were analysed at each

laboratory. Blanks used were quartz rocks collected near Chapais, Quebec. In 2018, 4% blanks, 3.5% duplicates, and 4.6% standards were submitted. Total numbers of samples, standards, blanks and duplicates are summarised in Table 12 below.

Table 12: Summary of samples submitted between 2013 and 2018

Sample type	2013	2017	2018	Total
Sample	274	1,002	1,171	2,447
Standard			54	54
Blank			47	47
Duplicate			41	41
Repeat			3	3
<b>All samples</b>	<b>274</b>	<b>1,002</b>	<b>1,316</b>	<b>2,592</b>

QAQC protocols and procedures that may have been utilized by historical operators are undocumented.

#### 11.4.2 Analysis of QAQC Data

##### *Referee Analysis of Standards*

In 2018, two standards (a high-grade and a low-grade) were made up by VONE using reject material collected from the 2017 drillhole samples. The Standard materials were prepared by Actlabs, and two samples of each standard were referee assayed at three different commercial laboratories (ALS, COREM and, AGAT).

Although the small number (six samples) of standard assayed by these three independent referee laboratories may not have captured the inherent variability of the samples, results from the standard analyses show no obvious evidence for bias.

Ideally creation of a standard material should involve more labs and more samples per lab to enable the calculation of a statistically valid mean and standard deviation for the sample material. This is recommended for future programmes (see recommendations).

High-grade standard samples inserted into core sample batches submitted to both SGS and Actlabs have values for Fe<sub>2</sub>O<sub>3</sub>\_T (Figure 25), V<sub>2</sub>O<sub>5</sub> (Figure 26) and TiO<sub>2</sub> (Figure 27) that are aligned with results from the samples submitted to referee labs: ALS, COREM and AGAT. Results from the standard analyses at SGS and Actlabs show no evidence for bias, although it is apparent that analyses from Actlabs show more variability with respect to Fe<sub>2</sub>O<sub>3</sub>\_T results than those from SGS. Note that there are two outliers, which could be the result of mislabelling of samples.

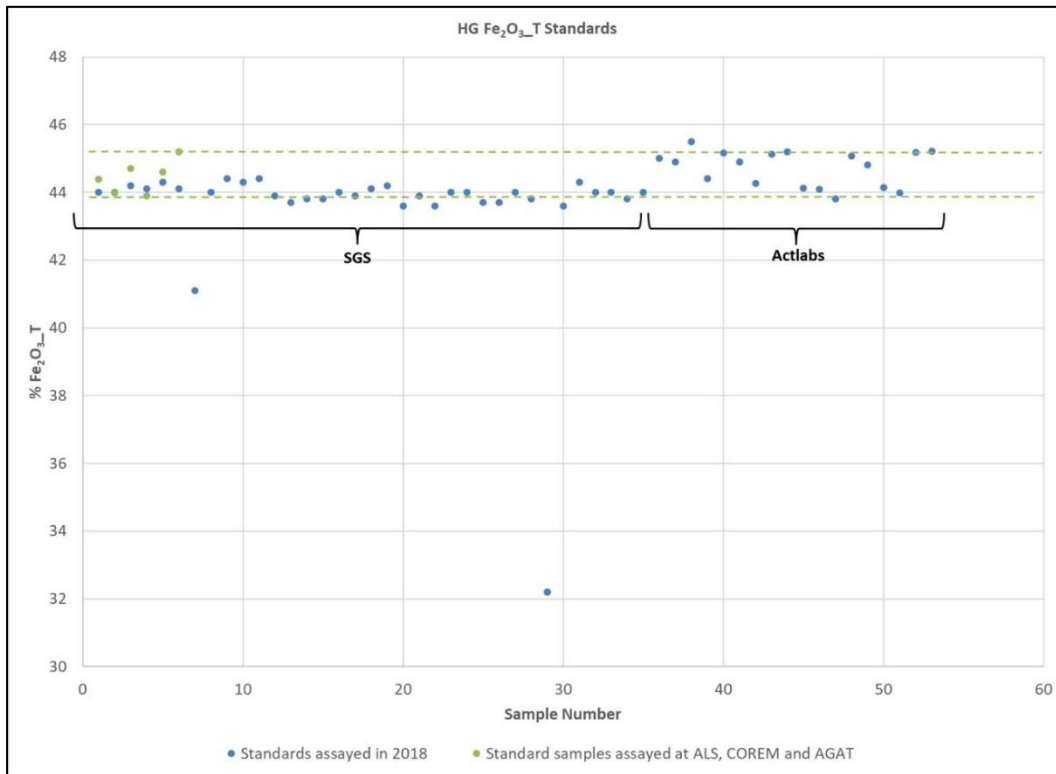


Figure 25: High-grade standard analyses for Fe<sub>2</sub>O<sub>3\_T</sub>  
 Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

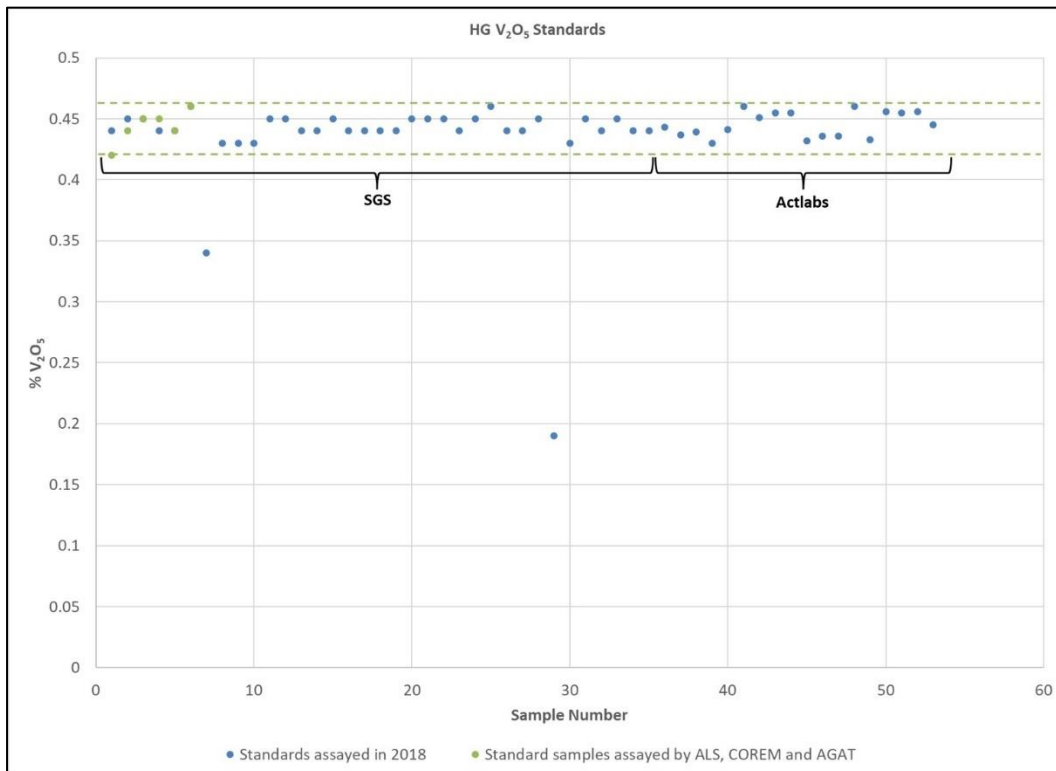


Figure 26: High-grade standard analyses for V<sub>2</sub>O<sub>5</sub>  
 Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

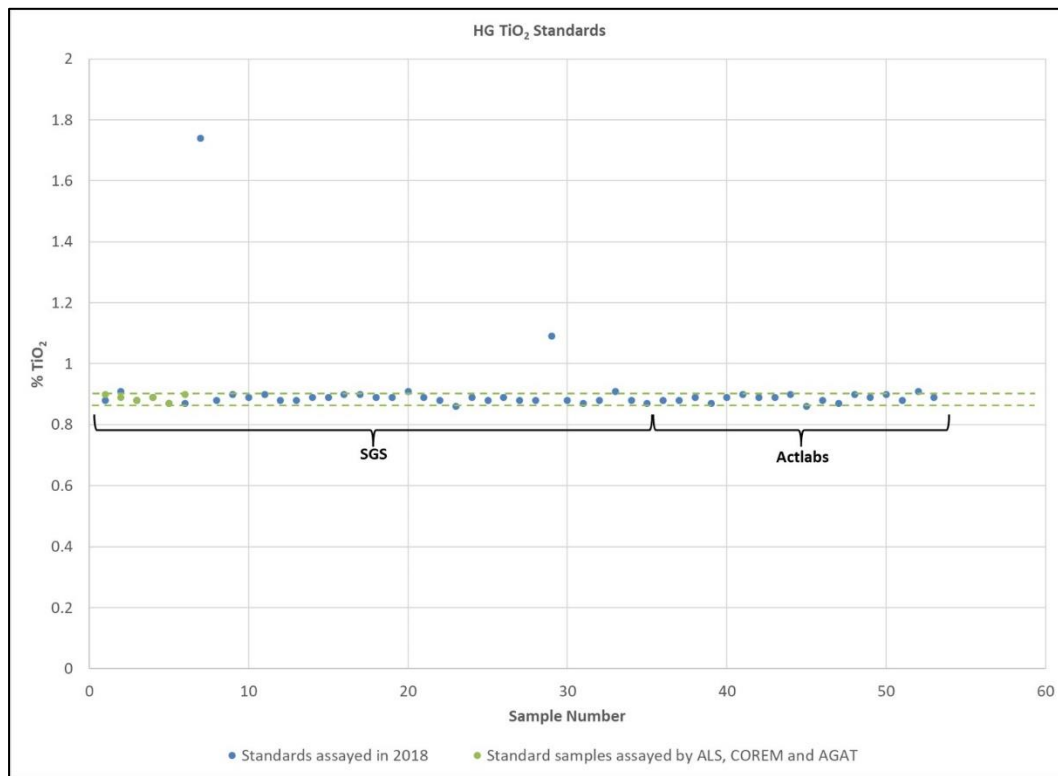


Figure 27: High-grade standard analyses for TiO<sub>2</sub>

Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

Low-grade standard samples submitted to both SGS and Actlabs have values for Fe<sub>2</sub>O<sub>3</sub>\_T (Figure 28), and TiO<sub>2</sub> (Figure 29) that are aligned with results from the samples submitted to ALS, COREM and AGAT. However, low-grade standards assayed for V<sub>2</sub>O<sub>5</sub> (at SGS and Actlabs) show higher values than those assayed at ALS, COREM and AGAT (Figure 30). It is possible that the referee assays for V<sub>2</sub>O<sub>5</sub> at these three external laboratories are too low, since values between SGS and Actlabs correlate well.

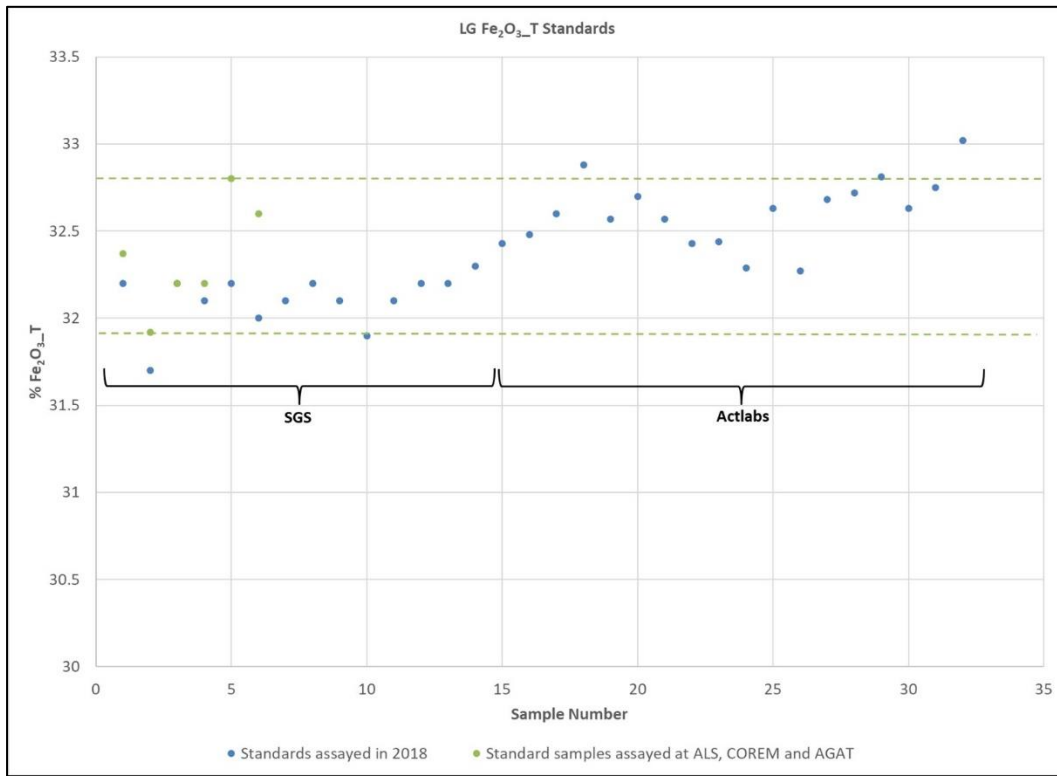


Figure 28: Low-grade standard analyses for Fe<sub>2</sub>O<sub>3</sub>\_T  
 Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

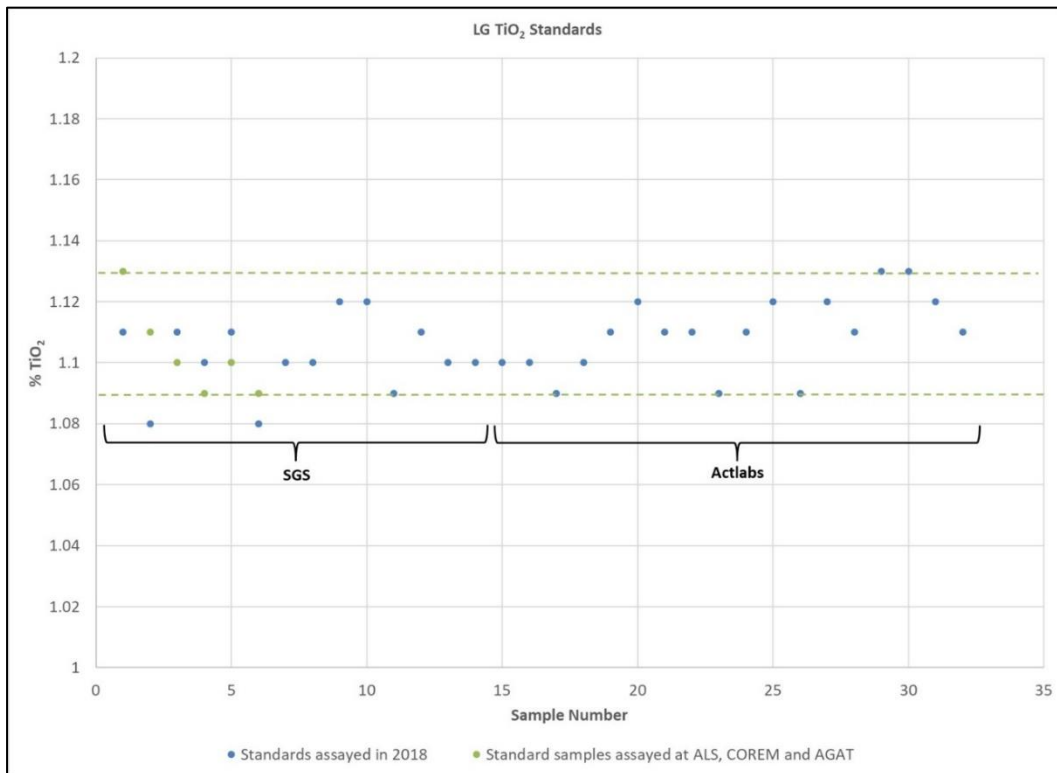


Figure 29: Low-grade standard analyses for TiO<sub>2</sub>  
 Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.



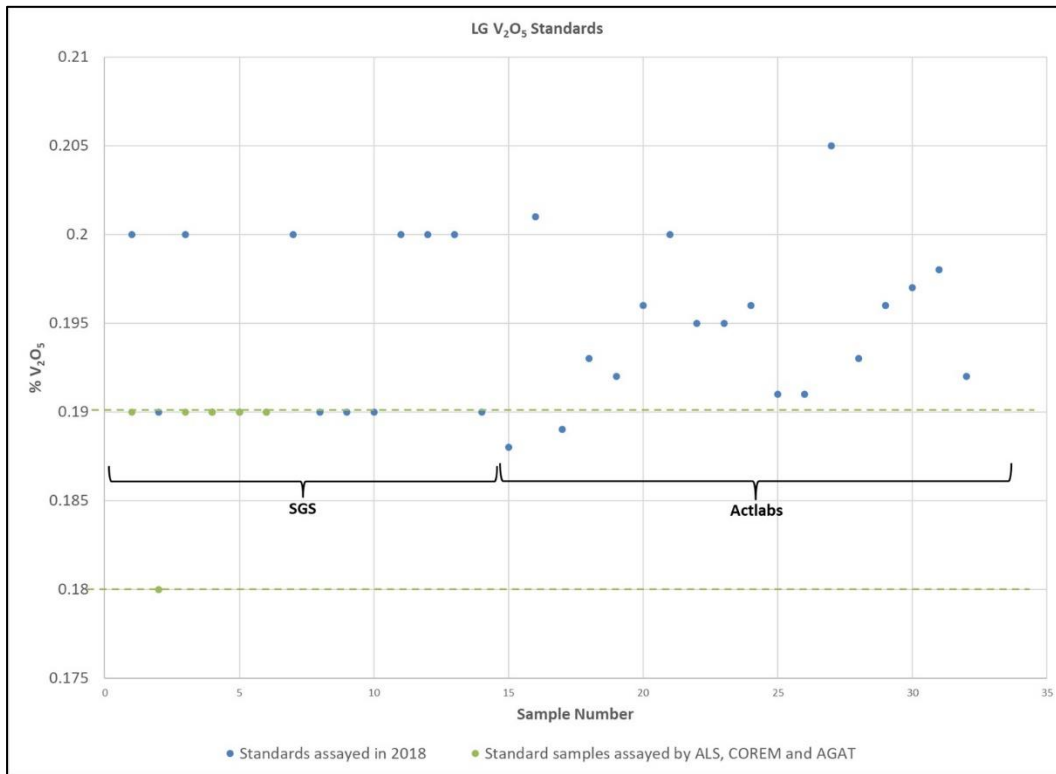


Figure 30: Low-grade standard analyses for V<sub>2</sub>O<sub>5</sub>  
Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

**Blanks**

Blank samples assayed at SGS and Actlabs largely show no significant contamination for Fe<sub>2</sub>O<sub>3</sub> (Figure 31), V<sub>2</sub>O<sub>5</sub> (Figure 33) or TiO<sub>2</sub> (Figure 32); however, a single outlier is evident (chart sample #29) which is clearly a mislabelled mineralised core sample.

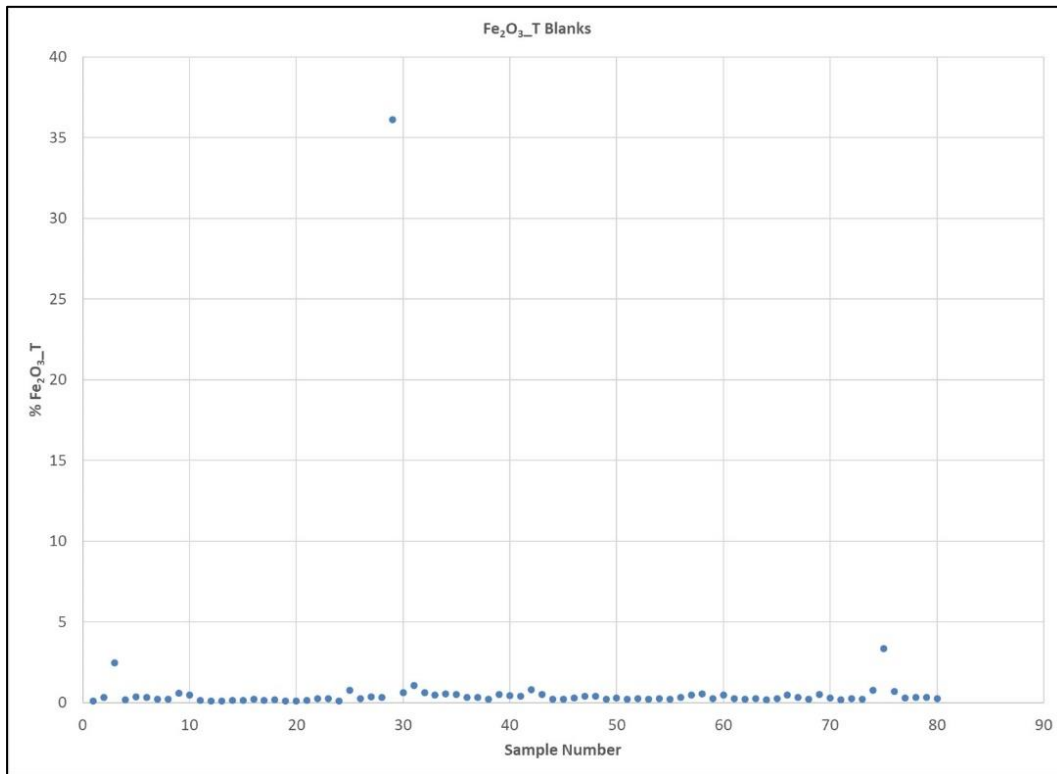


Figure 31: Fe<sub>2</sub>O<sub>3</sub>\_T values of blanks

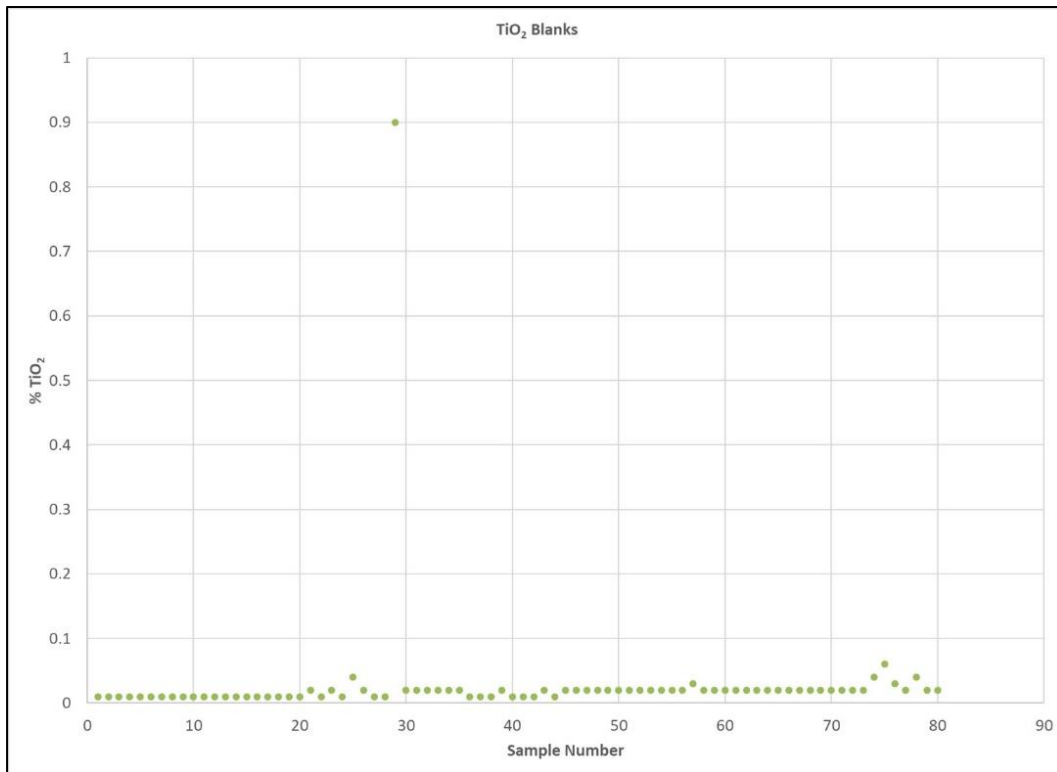


Figure 32: TiO<sub>2</sub> values of blanks

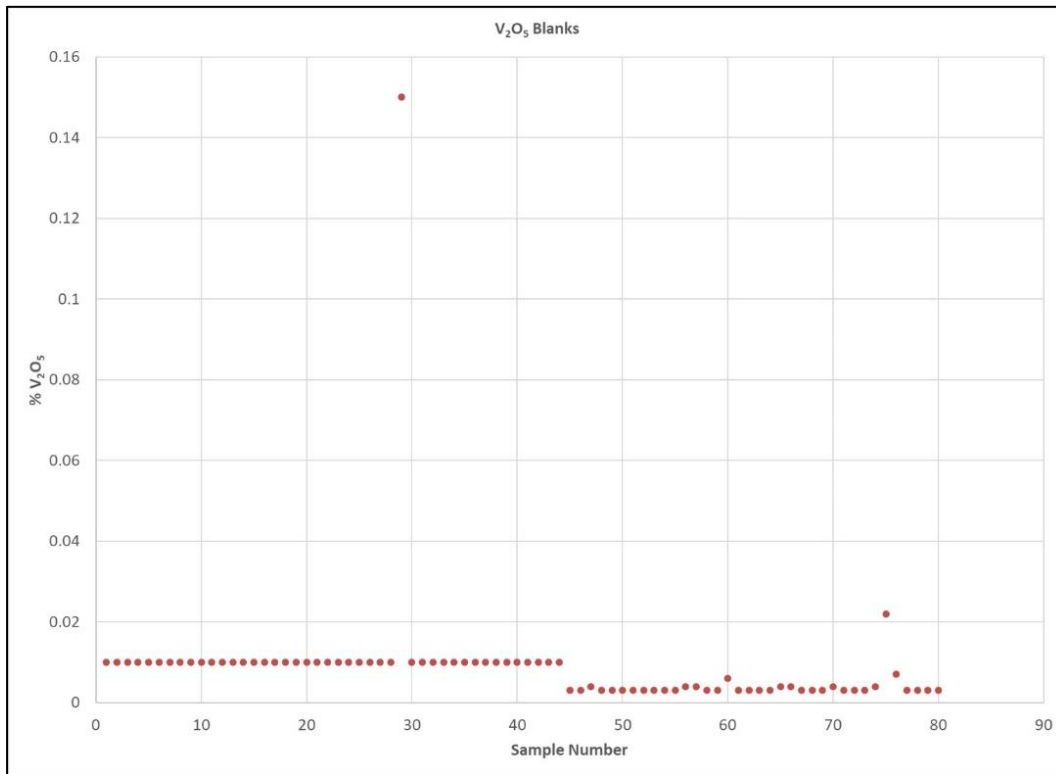


Figure 33:  $V_2O_5$  values of blanks

### 11.4.3 Duplicates

Duplicate samples produced from quarter core (apart from the half core submitted from assay) were submitted simultaneously with different sample numbers. Comparison of original assays with duplicate assays are shown in Figure 34 ( $Fe_2O_3$ ), Figure 35 ( $V_2O_5$ ) and **Error! Reference source not found.** ( $TiO_2$ ) below, and show a good correlation between original and duplicate results. Re-submitting returned rejects to a different laboratory (or the same lab) as duplicate check assays remains to be done.

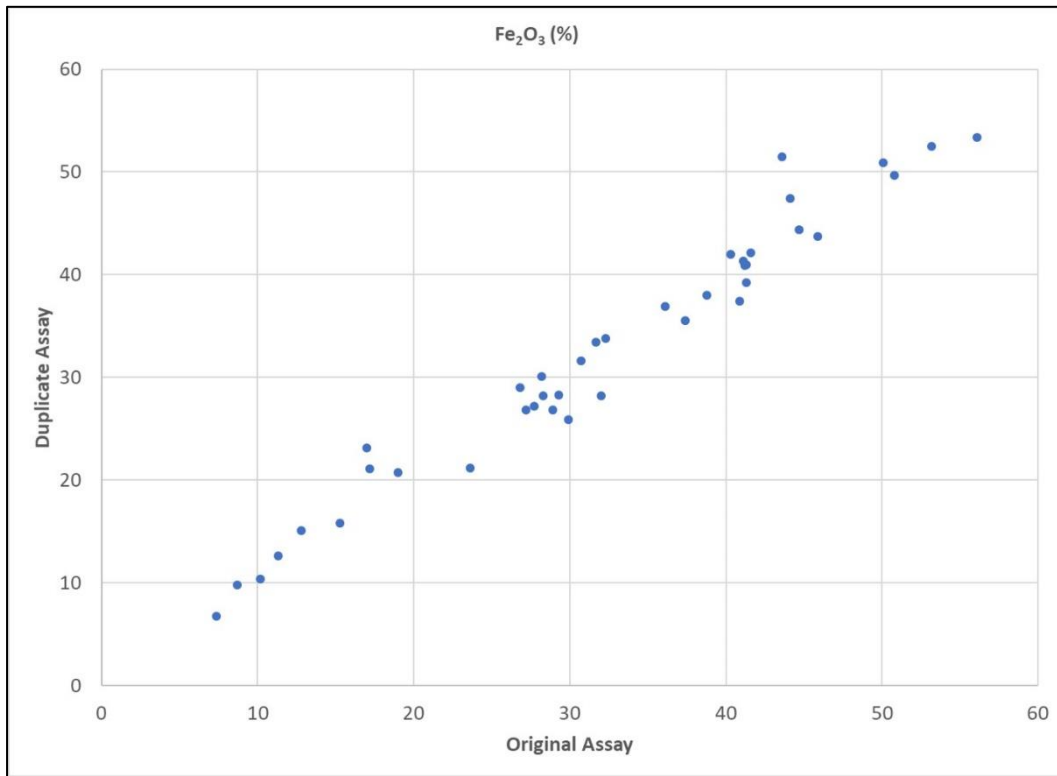


Figure 34: Duplicate and original assay results for  $Fe_2O_3$

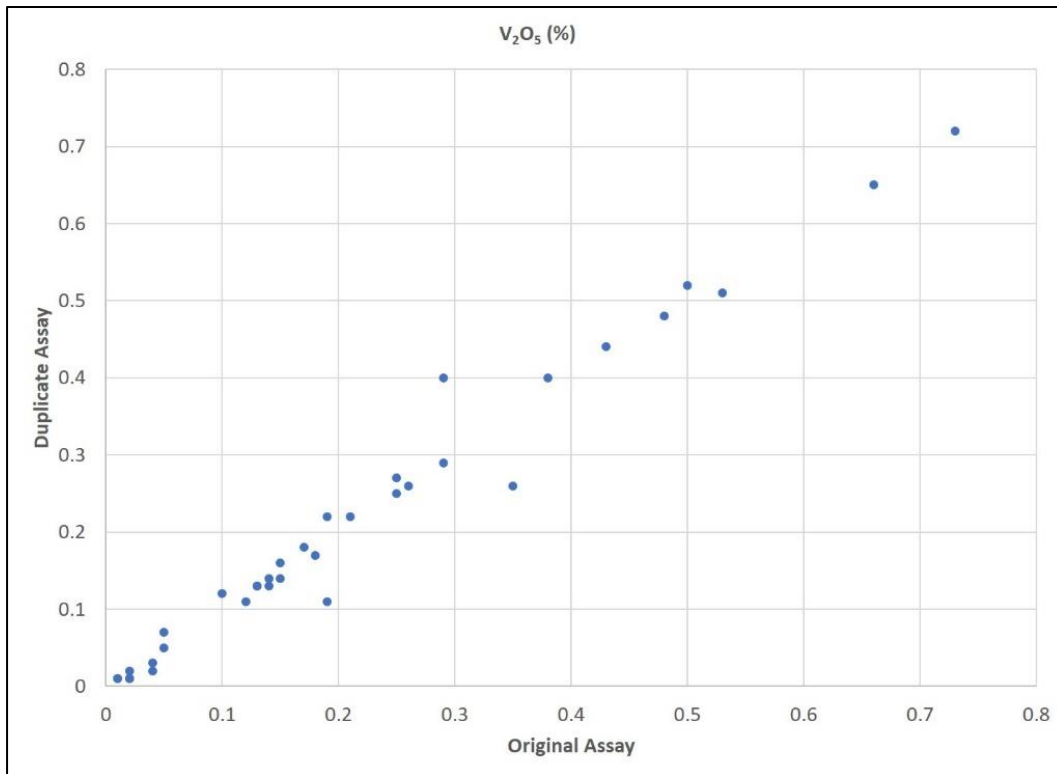


Figure 35: Duplicate and original assay results for  $V_2O_5$



#### 11.4.4 QAQC Conclusions

It is the author's opinion that VONE's independent QAQC program undertaken during the 2018 drill programs is appropriate for the type of project and stage of development and it conforms to industry standards.

It is the author's opinion that the 2018 standard, blank, and duplicate sample results provide sufficient confidence in the 2018 drill core assay values for their use in the estimation of Inferred and Indicated resources. Given the 2013 and 2017 drill samples were collected and analysed by similar methods, the author is confident in their use in the estimation of Inferred and Indicated Resources.

No QAQC data is available for the remaining historical assays. However, the data is considered adequate for the estimation of an Inferred Resource where they are not supported by 2013 to 2018 drill results.

It is recommended that 5% of samples from the 2017 campaign be sent for duplicate analyses, and 5% for umpire analyses. It is also recommended that the standards used should also be subject to magnetic separation, and the magnetic portion assayed.

#### 11.5 Author's Opinion on Sample Preparation, Security and Analytical Procedures

The Qualified Person and CSA Global believe the security and integrity of the core samples submitted for analyses during the 2013 to 2018 diamond drill programs is un-compromised, given the adequate record keeping, storage locations, sample transport methods, and the analytical laboratories' chain of custody procedures.

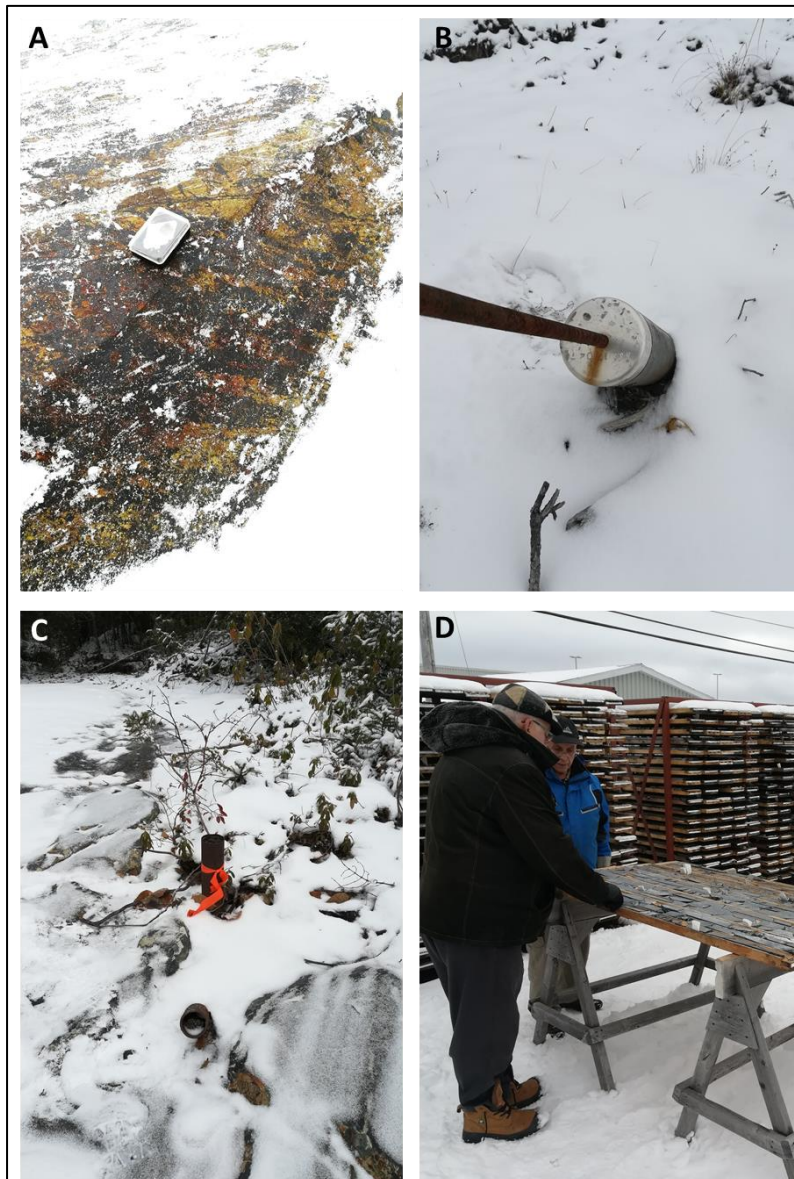
Furthermore, it is QP's and CSA Global's opinion that the sample collection, preparation and analytical procedures undertaken on the Project during the 2013 to 2018 diamond drill programs are appropriate for the sample media and mineralization type, the type and stage of project and, conform to industry standards.

Based on an assessment of the drilling sample analytical results and the available quality control information, the Qualified Person is of the opinion that the Mont Sorcier Project dataset (with particular reference to 2013 to 2018 drilling) is acceptable for resource estimation. Analytical results are considered to pose minimal risk to the overall confidence level of the MRE. Although analytical methods and QAQC procedures for historical data are not available, the nature of the mineralization (disseminated to massive magnetite that is visible on surface and can be clearly identified using airborne magnetic surveys) as well as the validation of the data (see Section 12.2) means that the Qualified Person is of the opinion that it is considered suitable for use in resource estimation. A minor amount of risk related to the historic data does exist, and hence in areas where it is not supported by recent drilling it has only been used to estimate Inferred Mineral Resources (see Section 14.13).

## 12 Data Verification

### 12.1 Site Visit

The Qualified Person and author, Dr Luke Longridge carried out a two-day site visit to the Mont Sorcier Project on 30–3 October 2018. During this time, the author visited the property site, noted exposed outcrops of magnetite mineralization (Figure 36A), validated the collar positions of both recent and historical drilling using a handheld GPS (Figure 36B,C), and reviewed drill core at the VONE facility in Chibougamau (Figure 36D).



**Figure 36:** Photographs from the author's site visit to the Mont Sorcier Project  
A: An outcrop of banded magnetite mineralization within altered ultramafic rocks.  
B: Collar of drillhole MSS-17-02.  
C: Historical collars.  
D: Examining drill core with VONE geologists and management.

Drill core was visually compared to assay results and geological logs for several drill cores from 2013, 2017 and 2018 drilling. Magnetite mineralization was evident and visually consistent with the recorded geological logging and reported assay results. Significant intercepts appear to correlate with the intervals of highest magnetite concentration recorded in the drill logs.

There were no negative outcomes from the above site inspection.

## 12.2 Data Validation

Assay certificates from recent and historical drilling were compared with the digital database for several drillholes in order to confirm that data is accurately captured in the digital database.

### 12.2.1 Validation of Historical Data

In order to verify and validate the quality of the historical assay and Davis Tube magnetic separation data, a comparison was made between historical data and recent data. A cumulative probability plot of  $\text{Fe}_2\text{O}_3$  values (head grade) shows an excellent correlation between recent and historical data (Figure 37).

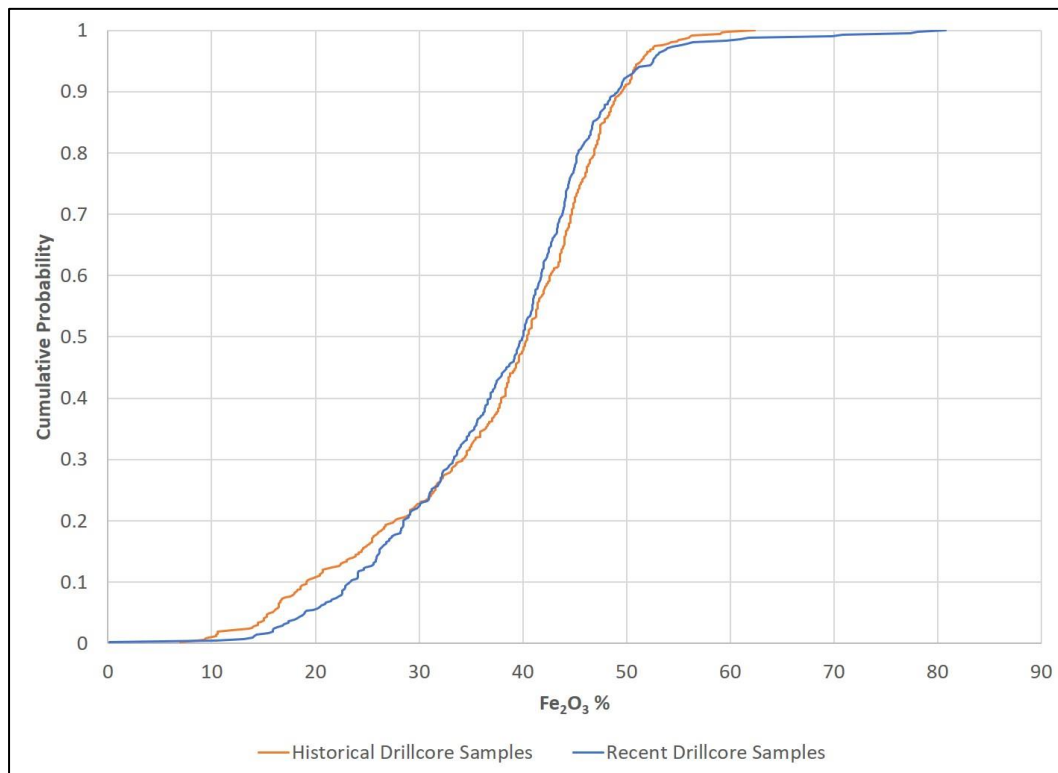


Figure 37: Cumulative probability plot for  $\text{Fe}_2\text{O}_3$ , comparing recent and historical assays

Comparing recent drill core assay data with historical composites for magnetite content (Figure 38) and  $\text{V}_2\text{O}_5$  (Figure 39) shows that at low magnetite percentages, historical composites are slightly higher than recent drill core assays. At lower vanadium grades, recent drill core assays show slightly higher values than historical composites. These discrepancies are due to the fact that magnetite content and vanadium grade in historical samples were measured on composite samples results rather than on smaller individual sample intervals. The differences are not considered material.

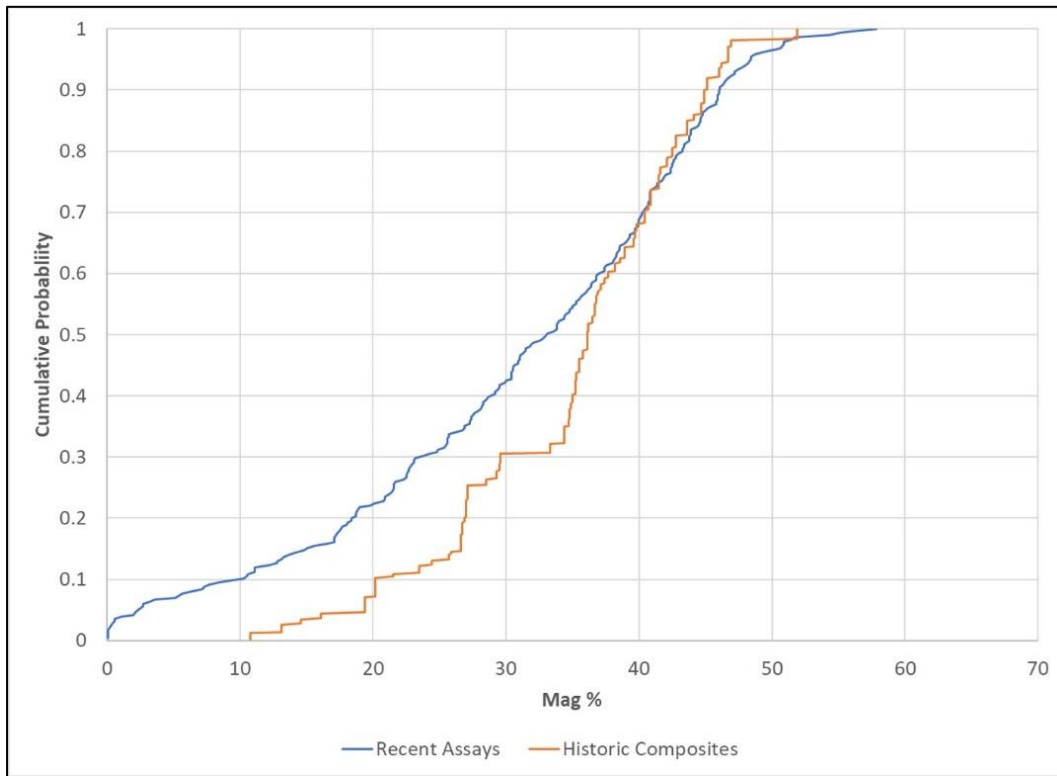


Figure 38: Cumulative probability plot for magnetite content

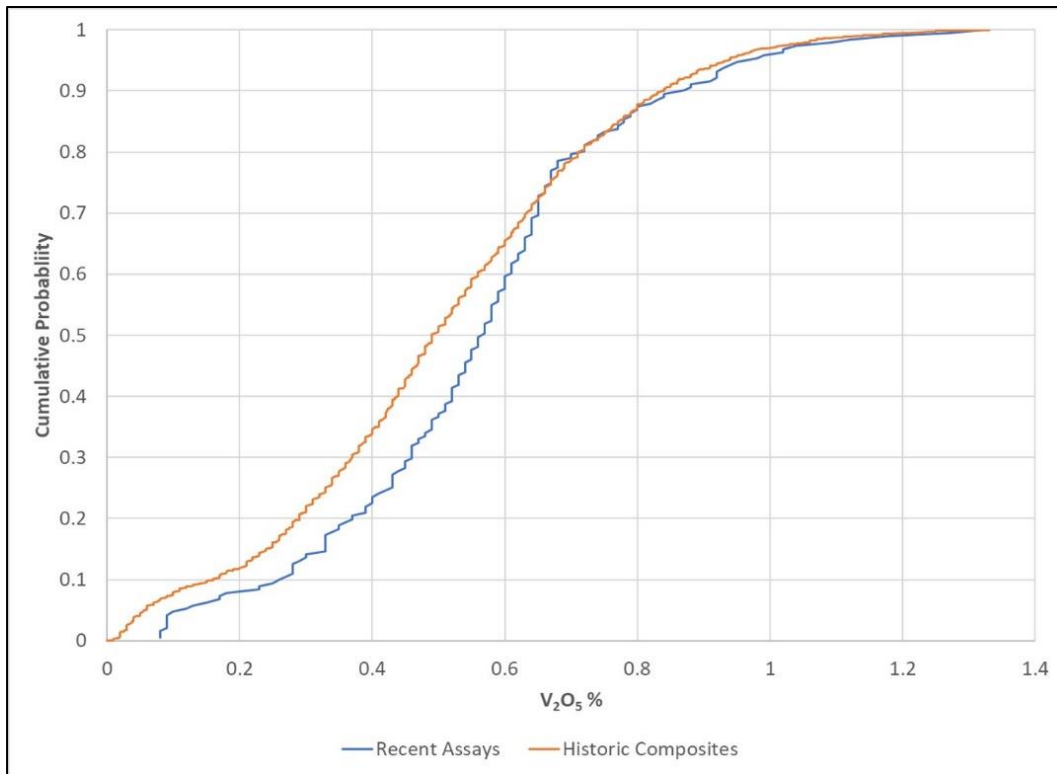


Figure 39: Cumulative probability plot for V<sub>2</sub>O<sub>5</sub>



Comparing iron and titanium values (Figure 40), it appears that both historical drill core samples and recent drill core samples show a small proportion of elevated  $\text{TiO}_2$  values, and a cumulative probability plot of historical and recent data for both drill core and concentrate samples (Figure 41) shows largely excellent agreement between recent and historical data. Recent concentrate assays show a small proportion with higher  $\text{TiO}_2$  values than historical composites. This is likely the result of the coarser grind size used for the recent concentrate separates and is not considered material.

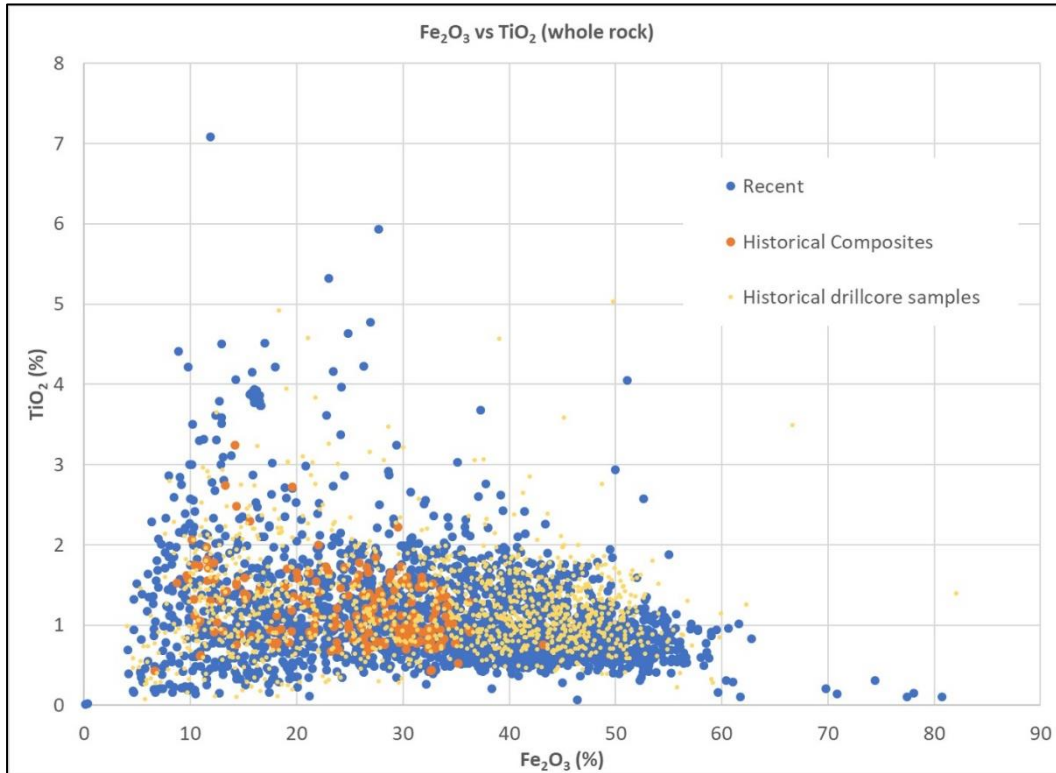


Figure 40:  $\text{Fe}_2\text{O}_3$  vs  $\text{TiO}_2$  for recent drill core samples, historical drill core samples and historical composites

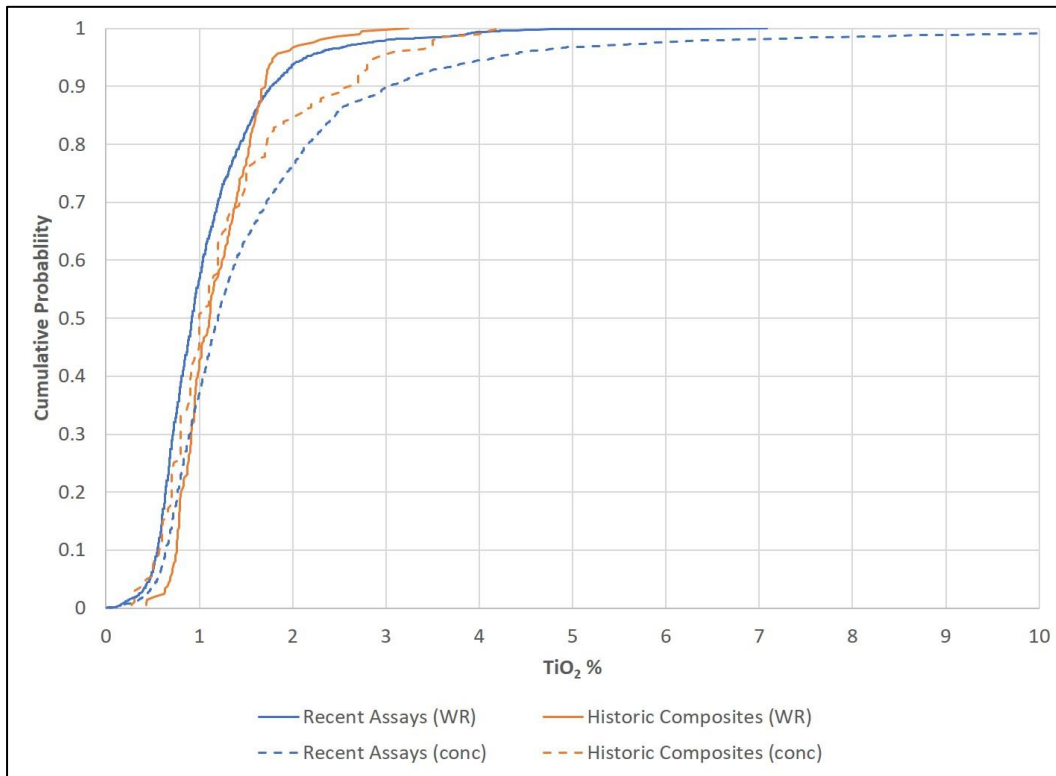


Figure 41: Cumulative probability plot for recent and historic data from both drill core samples and composites, as well as for whole rock (WR) and concentrate (conc)

### 12.2.2 Database Validation

Validation of the final drillhole database provided to CSA Global for the MRE included checks for overlapping intervals, missing assay data, missing lithological data, missing collars and missing or erroneous survey data. No errors were identified.

## 12.3 Qualified Person's Opinion

It is the opinion of the authors of this report that the inspection of historical drillhole collars and comparison of historical data with current data verifies and validates the use of the historical data. Both the historical and current data is considered adequate for the purposes of Mineral Resource estimation as described in Section 14.

# 13 Mineral Processing and Metallurgical Testing

## 13.1 COREM Liberation Mineralogical Study

A study of the liberation of magnetite and deportment of vanadium in magnetite was performed by COREM in 2017 (Laflamme *et al.*, 2017) using drillhole MSS-17-06 only. The testing was done on a composite of 24 separate 4 kg samples that were combined to produce a 96 kg composite with a grade of 0.39% V<sub>2</sub>O<sub>5</sub> and 46.1% Fe<sub>2</sub>O<sub>3</sub>. Six size fractions were analyzed with the Mineral Liberation Analyzer (MLA) in order to identify the liberation of the magnetite: -300 +212 µm, -212 +150 µm, -150 +106 µm, -106 +75 µm, -75 +38 µm, and -38 µm. For size fractions coarser than 150 µm, two polished sections were made, while one polished section per fraction was made for size fractions finer than 150 µm. MLA is an automated scanning electron microscope that combines back-scattered electron (BSE) image analysis and x-ray mineral identification to provide quantitative mineral characterization. In addition, the sample was observed under a scanning electron microscope (SEM). The mineralogical characterization carried out in this study was completed with microprobe analyses to characterize vanadium deportment in magnetite. Furthermore, x-ray diffraction (XRD) analyses were carried out to verify the main minerals present in the sample.

None of the size fractions contained 90% or more of liberated magnetite (i.e. containing more than 90% of magnetite in free particles); Davis Tube test results from all other drillholes show excellent recovery of liberated, and more liberation tests should be carried out across other areas of the deposit. Table 13 presents the proportion of free magnetite in Wt.% by size fraction and for the combined head sample obtained from the MLA analyses. In the head sample, only 59% of magnetite was liberated. The finest size fraction (-38 µm) contained 78% of free magnetite.

Table 13: MLA liberation results

Size fraction	Magnetite as free particles (Wt%)
Head sample	59
-300 +212 µm	36
-212 +150 µm	47
-150 +106 µm	57
-106 +75 µm	66
-75 +38 µm	74
-38 µm	78

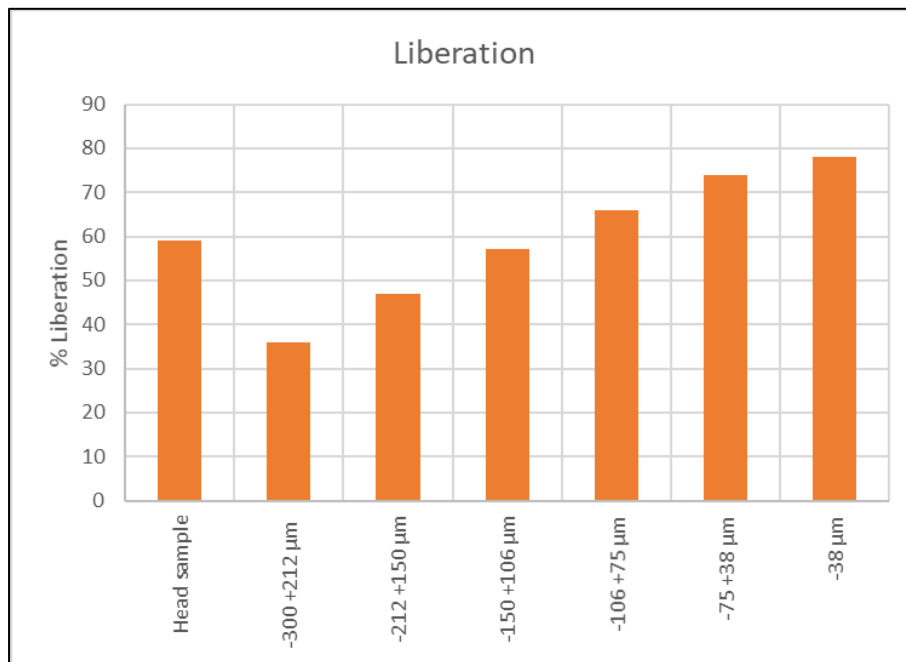


Figure 42: MLA liberation results, showing increased liberation with finer particle size

### 13.2 COREM Grind Size vs Recovery Tests

As part of their testwork program for VONE (Laflamme *et al.*, 2017), COREM carried out Davis tube tests at several grind sizes (80% passing 75 µm, 53 µm and 38 µm – Table 14), which showed that while recovery of iron and vanadium does not vary significantly with grind size, there is an effect on the Fe grade of the concentrate produced, with a grind size of -38 µm required to achieve a concentrate grade of >65% Fe.

Table 14: Grind size vs iron and vanadium recovery and iron grade for COREM Davis Tube concentrates

Grind size	Fe recovery (%)	V <sub>2</sub> O <sub>5</sub> recovery (%)	Fe grade (%)
75 µm	93.6	81.4	63.3
53 µm	93.8	81.4	64.4
38 µm	93.9	81.2	65.1

### 13.3 COREM Vanadium Department Study

The polished section from the -150 +106 µm size fraction (Section 13.1) was analysed using the microprobe (a total of 50 microprobe measurements) to investigate the vanadium department in magnetite (i.e. the variability of the vanadium content in the magnetite). The results indicate that there is a large range in the V<sub>2</sub>O<sub>5</sub> content of the magnetite, with three distinct populations (Figure 43):

- Vanadium-enriched magnetite, with ~ 1.3% V<sub>2</sub>O<sub>5</sub> in magnetite
- Magnetite with between 0.3% V<sub>2</sub>O<sub>5</sub> and 1.1% V<sub>2</sub>O<sub>5</sub> (average of ~0.7% V<sub>2</sub>O<sub>5</sub>)
- Low-vanadium magnetite (<0.2% V<sub>2</sub>O<sub>5</sub>).

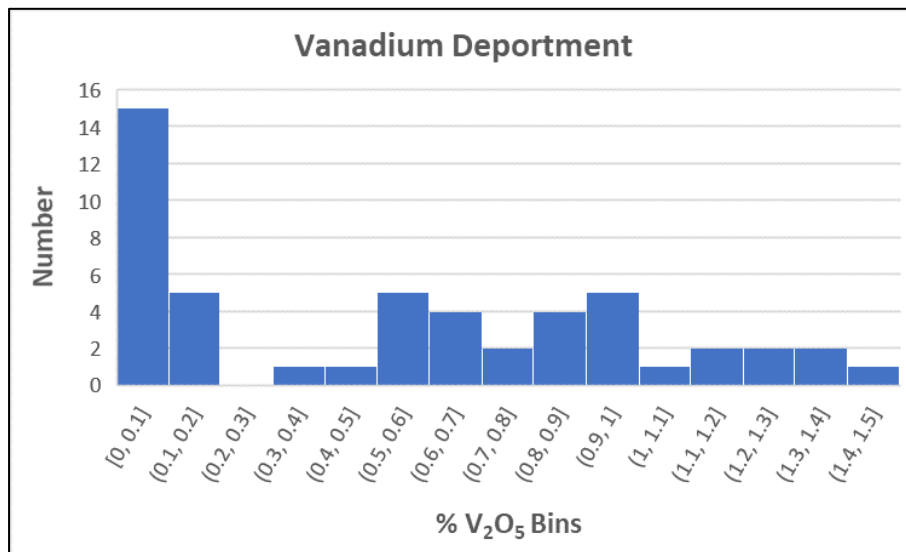


Figure 43: Vanadium department in magnetite (sum of 50 microprobe analyses)

### 13.4 COREM Bond Ball Mill Work Index Tests

COREM conducted Bond Ball Mill Work Index (BWI) tests on a sample from the Mont Sorcier Project (Laflamme *et al.*, 2017). A Bond Ball Mill grindability test is a standard test for determining the BWI of an ore sample. The BWI is a measure of the resistance to crushing and grinding and can be used to determine the net grinding power required for a given throughput of material under ball mill grinding conditions. The test is a closed circuit dry grindability test performed in a standard ball mill. It can be performed at mesh sizes ranging from 28 mesh (700 µm) to 400 mesh (38 µm). The finishing size used in this project was 300 mesh (53 µm).

The BWI for the sample is 18.6 kWh/t, which corresponds to a Hard classification as defined by the Julius Kruttschnitt Mineral Research Centre (JKMRC) classification.

### 13.5 COREM Alkali Roasting and Leaching Tests

In order to determine the potential recovery of vanadium from the concentrate using the salt roast process, several roasting and leaching tests were carried out by COREM (Laflamme *et al.*, 2017). Following several preliminary roasting optimisation tests (using 50 g concentrate samples) at varying temperatures, a 4 kg sample was roasted with NaOH salt at 400°C, and then leached in water and a final concentrate precipitated. Preliminary tests showed little change in vanadium recovery to the leach solution with increasing roasting temperature, and the final roasting/leaching test showed 69.2% recovery of vanadium to the leach solution.

## 14 Mineral Resource Estimates

The MRE reported herein has an Effective Date of 23 April 2019 and is reported in accordance with the Canadian Securities Administrators' NI 43-101 and Form NI 43-101F1. The MRE has been prepared in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM Council, 10 May 2014) and CIM "Estimation of Mineral Resource and Mineral Reserves Best Practice Guidelines" (CIM Council, 2003).

### 14.1 Introduction

This MRE was prepared by Dr Adrian Martinez-Vargas, P.Geo., a Senior Consultant of CSA Global. Mineral Resources were estimated in two zones on the Property, the North Zone and the South Zone, using all drillhole data available by the Effective Date.

VONE provided Dr Luke Longridge, one of the authors of this report, with a digital elevation model (DEM) covering the property, and with the drillhole databases described in Section 10, 11 and 12 of this report. Dr Longridge prepared the geological interpretation of the mineralized domains that were used to constrain the extent of the mineralization in the resource model. Dr Martínez-Vargas reviewed the informing data, the compiled database, and the geological interpretation completed by Dr Longridge and considers that the quality and quantity are appropriate for Mineral Resource estimation.

The MRE workflow was as follows:

- Input database validation
- Review of the interpretation of the geology and mineralization domains
- Coding, compositing (capping was not necessary)
- Block modelling
- Exploratory data analysis and statistical analysis
- Variogram analysis
- Derivation of kriging plan, interpolation and validation
- Classification and resource reporting.

### 14.2 Drillhole Database Loading and Validation

The database provided by VONE consists of two drilling campaigns. The older campaign was drilled between 1963 to 1966 and contains data sampled and assayed for head grade  $\text{Fe}_2\text{O}_3$  and  $\text{TiO}_2$  over approximately 7 m intervals. This drilling campaign also contains larger composite sample intervals (taken from the 1963–1966 drilling in the 1970s) that vary from 10 m to 60 m. These composites were assayed for  $\text{Fe}_2\text{O}_3$  and  $\text{TiO}_2$  head grades, and a Davis Tube magnetic concentrate fraction was prepared from the composites and assayed for several other oxides, including  $\text{V}_2\text{O}_5$ .

The latest drilling campaign was completed in 2013 and between 2017 and 2018. Diamond drill core was sampled in 2 m (in the South Zone) or 3 m (in the North Zone) intervals, and assayed for  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{MgO}$ ,  $\text{TiO}_2$ ,  $\text{SiO}_2$ ,  $\text{CaO}$ ,  $\text{Cr}_2\text{O}_3$ ,  $\text{K}_2\text{O}$ ,  $\text{MnO}$ ,  $\text{Na}_2\text{O}$ ,  $\text{P}_2\text{O}_5$ ,  $\text{Na}_2\text{O}$ , and  $\text{P}_2\text{O}_5$ , in both the head grade and in the magnetic fraction produced using Davis Tube magnetic separation. Cu and S head grades were collected for some intervals.

Dr Longridge compiled this data to obtain a working database described in Table 15. The working database was provided as two separated sets of collar, survey, and assay tables in CSV format, one set for the North Zone and one for the South Zone. These tables were imported in the python package PyGSLIB, and validated for presence of gaps, overlap and relation issues between tables. The assay values were also reviewed to identify anomalous values. The drillhole intervals coordinates were calculated, plotted in 3D, and visually validated. Head and concentrate grades from 1963–1974 and 2013–2018 were compared, and no significant differences were observed (see Section 12.2). Differences in the granulometry of the sample preparation for magnetic separation, as explained in Sections 6.2.2 and 13.2 has resulted in a better liberation and lower contamination of the magnetite concentrate from historical samples, therefore  $\text{Fe}_2\text{O}_3$  grades in concentrate tend to be higher in 1963–1974 samples. The author of this section (Dr Adrian Martinez) considers that this difference is not material at this stage of work. However, more granulometric and metallurgical testwork is recommended to define the optimum granulometry to use in sample preparation.

Table 15: Drillhole data used for Mineral Resource estimation

Parameter	Values	
	North Zone	South Zone
Number of drillholes (total)	23 (with assay data)	75
Number of drillholes (1960s campaign)	18	46
Number of drillholes (2013 to 2018 campaigns)	5	29
Meters (total)	5220	11370
Drillhole spacing in best areas (m)	50 x 500	30 x 100
<b>Variables assayed for in regular sample intervals</b>		
Head grade	Percent of magnetite, $\text{Al}_2\text{O}_3$ , $\text{Fe}_2\text{O}_3$ , $\text{MgO}$ , $\text{TiO}_2$ , $\text{SiO}_2$	
Concentrate	$\text{Al}_2\text{O}_3$ , $\text{Fe}_2\text{O}_3$ , $\text{MgO}$ , $\text{TiO}_2$ , $\text{V}_2\text{O}_5$ , $\text{SiO}_2$	
Note: Only $\text{Fe}_2\text{O}_3$ and $\text{TiO}_2$ head grades are available in 1963–1974, and 2013 drilling campaigns. $\text{CaO}$ , $\text{Cr}_2\text{O}_3$ , $\text{K}_2\text{O}$ , $\text{MnO}$ , $\text{Na}_2\text{O}$ , $\text{P}_2\text{O}_5$ , $\text{Na}_2\text{O}$ , $\text{P}_2\text{O}_5$ were available in the head and concentrate grade but not modelled. $\text{V}_2\text{O}_5$ head grade is available but not modelled.		
<b>Variables assayed for in larger composite sample intervals</b>		
Head grade	Percent of magnetite, $\text{Fe}_2\text{O}_3$ , $\text{TiO}_2$	
Concentrate	$\text{Al}_2\text{O}_3$ , $\text{Fe}_2\text{O}_3$ , $\text{MgO}$ , $\text{SiO}_2$ , $\text{TiO}_2$ , $\text{V}_2\text{O}_5$	
Note: Available only in 1963–1974 drilling campaign.		

Since only  $\text{Fe}_2\text{O}_3$  was assayed systematically in sample intervals of the two main drilling campaigns, and these drilling campaigns inform different parts of the deposit, the strategy to interpolate was as follows:

- I.  $\text{Fe}_2\text{O}_3$  head grades were used to deduce the percent of magnetite in 1963–1974 and 2013 drillhole sampling intervals, using the regression formulas shown in Figure 44. The percent of magnetite was then modelled in the block model using the 1963–1974 and 2013–2018 drillhole data.
- II. The average grade in the concentrate was modelled using grade in concentrate available for the sample intervals from the 2013–2018 drillholes and in composite samples of the 1963–1974 drillholes (Table 15), using a smooth interpolator and long compositing intervals, as explained in more detail in Section 14.10.

Some of the 1960s drilling intervals were not sampled at regular 7 m sampling intervals. In order to populate these intervals with data, head grades for  $\text{Fe}_2\text{O}_3$  and  $\text{TiO}_2$  assayed in composited samples were used. However, this dataset was used only to obtain a smooth trend estimate (as in II above) but not for direct interpolation of head grades.

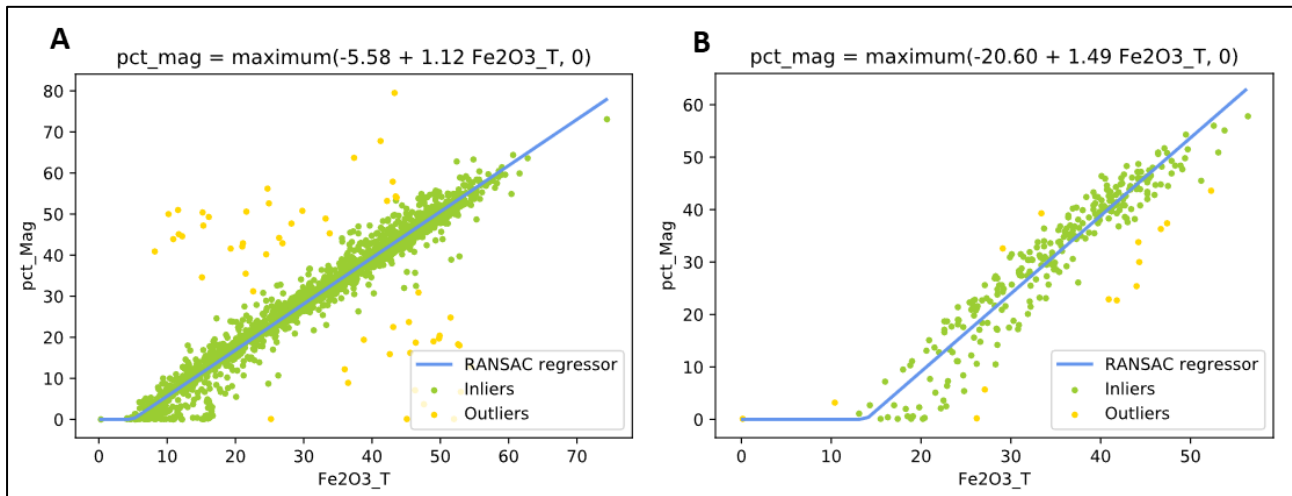


Figure 44: Linear regression formula between  $Fe_2O_3$  and percent of magnetite fitted with 2010s drillhole data  
A = South Zone; B = North Zone.

### 14.3 Geological Interpretation

The modelling of geological domains was completed by Dr Longridge and reviewed by the author of this section. Only one estimation domain was used for each one of the two mineralized zones of this deposit (Figure 45). The mineralization occurs predominantly in the ultramafic lithologies on the property. The interpretation was based on drillhole log data and as airborne magnetic anomalies, as well as and surface mapping available for the South Zone. The South Zone is dissected by 10 faults that slightly displaced the mineralized blocks. This displacement was considered small and the boundaries defined by faults were considered soft, in other words, ignored for interpolation purposes.

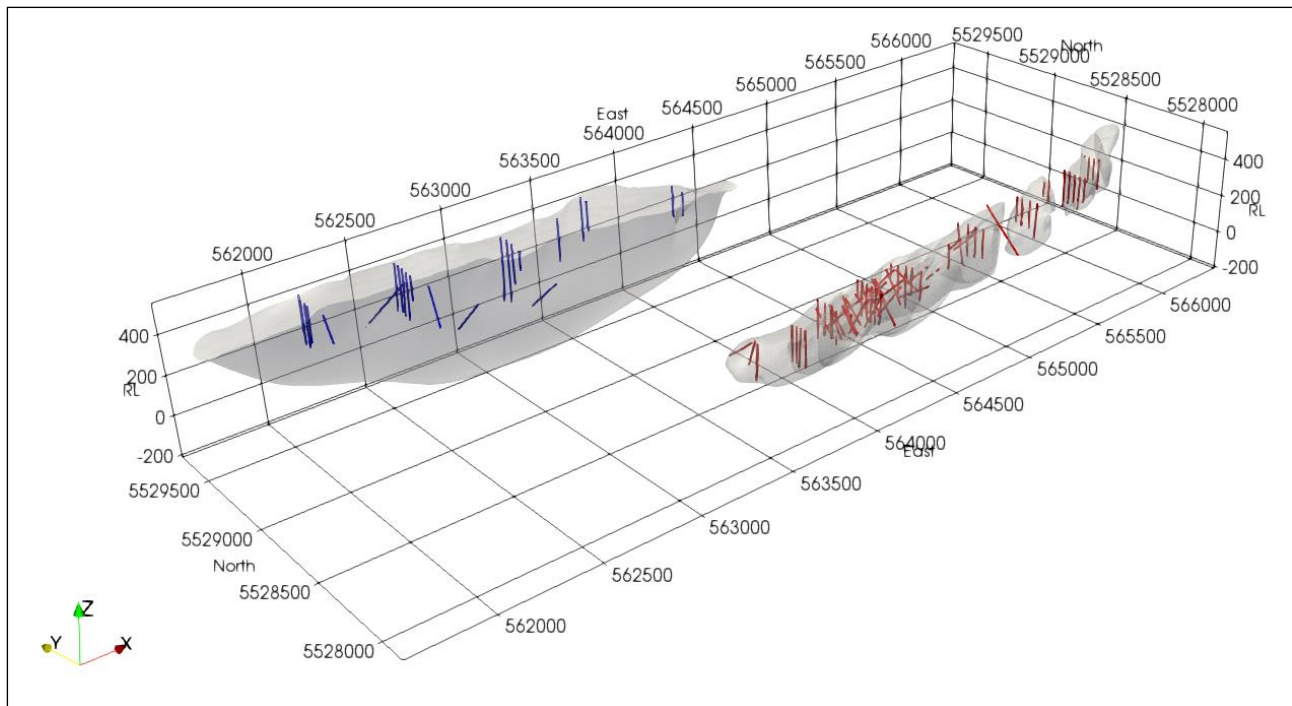


Figure 45: Geological interpretation of the mineralization (grey transparent wireframe), and drillhole data of the North Zone (blue) and the South Zone (red)





### 14.3.1 Lithology

During logging of drill core from the Mont Sorcier Project, as well as when capturing historical drill core logs, several lithological codes were used to describe the lithologies encountered on the project. These codes are largely based on the SIGEOM Symbols and Abbreviations (Giguère *et al.*, 2014). For the purposes of geological interpretation, lithological codes were grouped together to form groups of similar lithologies, including overburden, tonalite/pegmatite, quartz veins, dolerite, faults/shears, anorthosite, mafic rocks (gabbro, norite), ultramafic rocks (pyroxenite, dunite, peridotite, magnetite), volcanics and sediments.

### 14.3.2 Weathering

Owing to relatively recent glaciation of the project area, very little surface weathering has taken place, and outcrops in the project region show no evidence for weathering.

### 14.3.3 Mineralization

Previous work, inspection of the drill core by Dr Longridge and logging show that magnetite mineralization is strongly associated with ultramafic lithologies, and almost exclusively occurs within ultramafic rocks.

### 14.3.4 Topography

No detailed airborne elevation models are yet available for the project, so Shuttle Radar Topography Mission elevation data was used and was adjusted to fit with surveyed collar elevations over mineralised areas.

## 14.4 Wireframes

The geological interpretation was carried out in Leapfrog 3D modelling software using logging codes grouped according to ultramafic lithologies, in combination with surface mapping data of lithologies and structures produced by VONE geologists, and airborne magnetic data which clearly highlights ultramafic units hosting magnetite mineralization.

## 14.5 Sample Compositing

Sampling interval in the 2013–2018 drilling campaigns is typically 3 m in the North Zone and 2 m in the South Zone (Figure 46). The sampling interval in the 1960s campaigns is around 7 m. Composite samples collected in the 1960s campaigns are between 10 m and 60 m in length. Drillhole intervals for head grade interpolation were composited at 3 m in the North Zone and 2 m in the South Zone. Composites of 20 m were created to interpolate average grades in concentrate and to interpolate a head grade trend (a smooth reference grade). Composited samples collected in the 1960s were used to populate intervals without assay, but only to generate 20 m composites. Composited samples were not used to generate the 2 m and 3 m composites used to interpolate head grade and percent of magnetite.

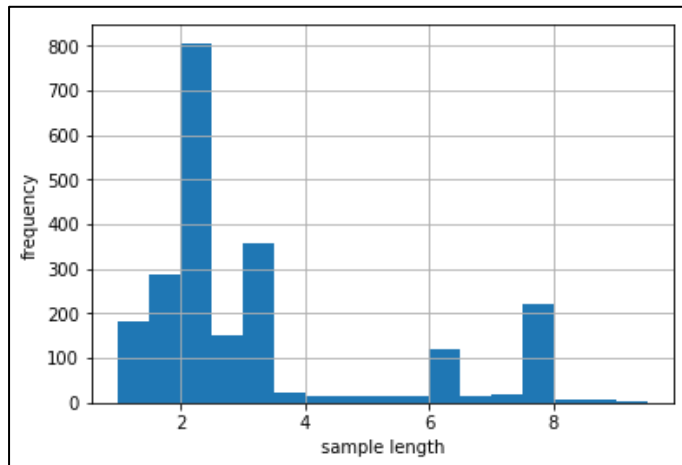


Figure 46: Histogram of sample lengths – South Zone

## 14.6 Statistical Analyses

The statistical analyses were completed using composited intervals for both head grade and grade in concentrates. The South Zone and North Zone mineralized domains were analysed separately using “Supervisor” software, and this consisted of de-clustering analysis when necessary, exploratory data analysis, construction of histograms and cumulative histograms, basic statistic calculation, and basic multivariate statistics review.

De-clustering was used only in the South Zone, and an appropriate de-clustering cell was deduced by comparing many cell sizes, as shown in Figure 47. The univariate statistics analysis consisted of calculating basic statistics such as mean values and coefficient of variations. All CVs are lower than one, which is a good empirical criterion to use linear interpolators such as the inverse of the distance, ordinary kriging, and simple kriging.

The statistical analysis for head grades was completed using 2 m (South Zone) and 3 m (North Zone) composite data. Histograms of head grades show tendency of normal distribution and bimodality attributed to the presence of low-grade intervals within the mineralized domain, especially in the South Zone (Figure 48 and Figure 49). The statistical analysis for concentrates was completed using 20 m composites; histograms are shown in Figure 50 and Figure 51. Note that  $\text{Fe}_2\text{O}_3$  grade in concentrate is generally higher than 85%.  $\text{Fe}_2\text{O}_3$  grade in concentrate under 85% in the North Zone occurs mostly in the deepest part of the deposit and is associated with the 2013–2018 drillhole data.

Correlation between variables were also reviewed for both head grade variables and concentrate grade variables. There is a strong correlation between  $\text{Fe}_2\text{O}_3$  head grade and percent of magnetite, as shown in Figure 44. There are also strong correlations between  $\text{Fe}_2\text{O}_3$  and  $\text{MgO}$ , and between  $\text{Fe}_2\text{O}_3$  and  $\text{SiO}_2$  in the concentrate. There is a moderate correlation between  $\text{V}_2\text{O}_5$  in concentrate and  $\text{Fe}_2\text{O}_3$  head grade.

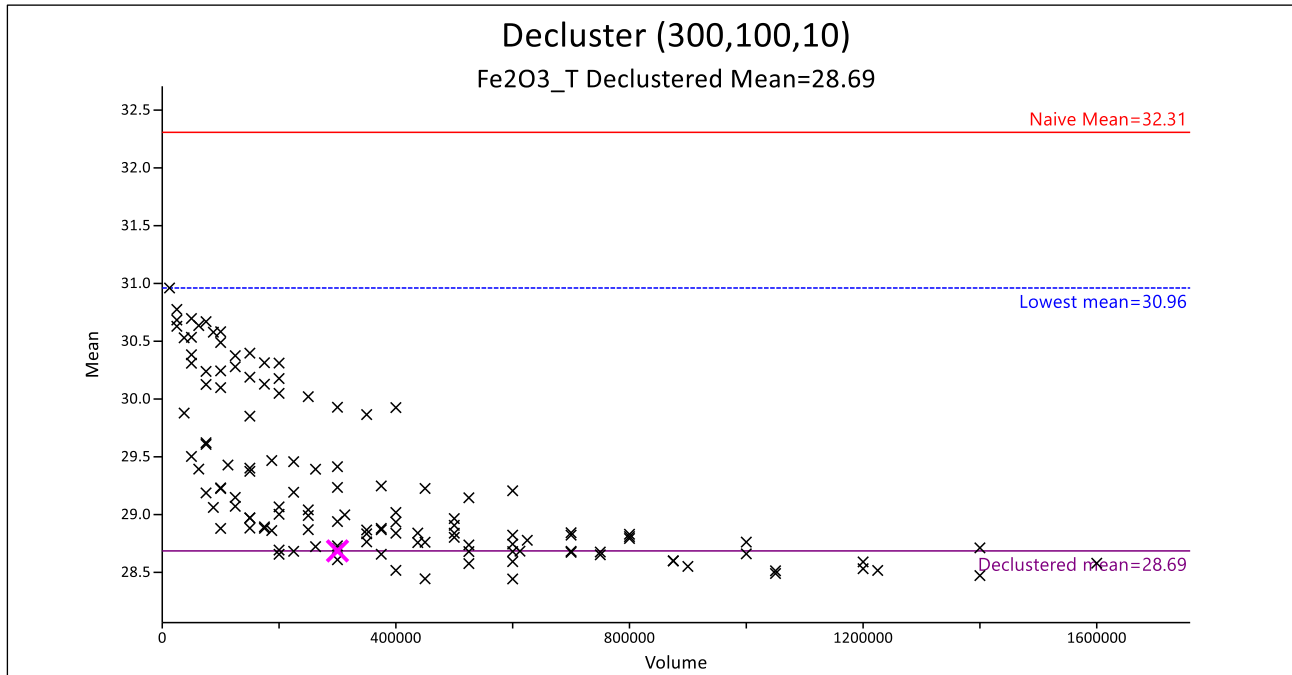


Figure 47: De-clustering weight optimization on South Zone, using Fe<sub>2</sub>O<sub>3</sub> grades

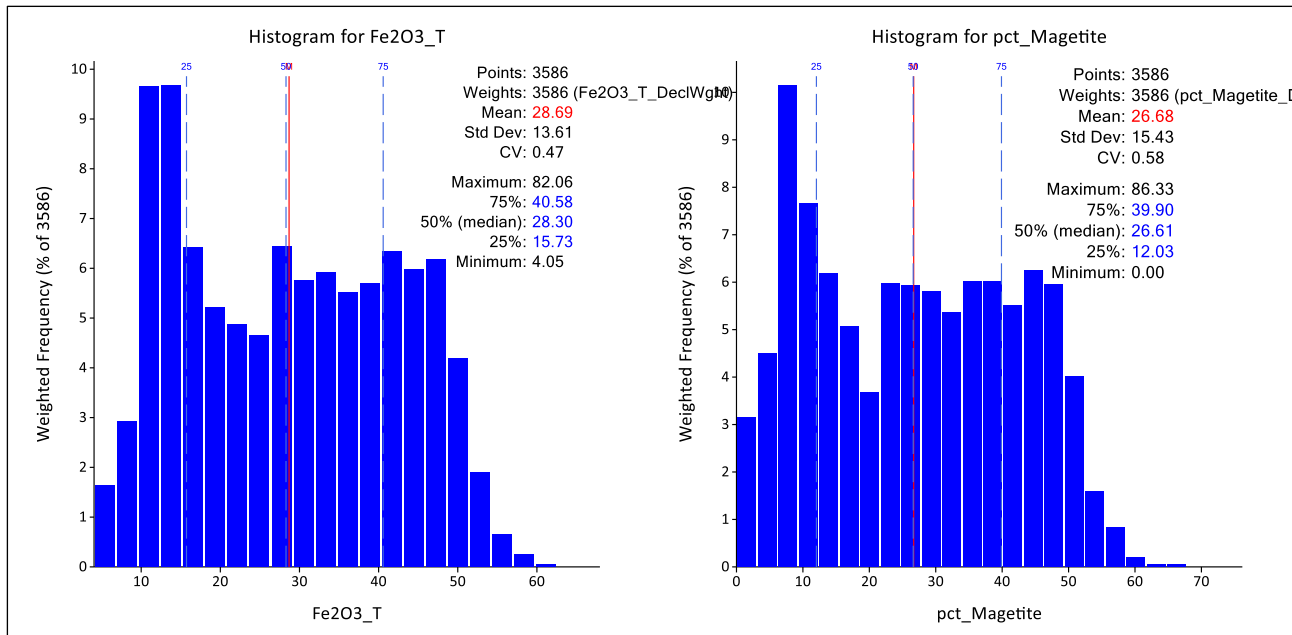


Figure 48: Histogram of iron oxide head grade and percent of magnetite – South Zone

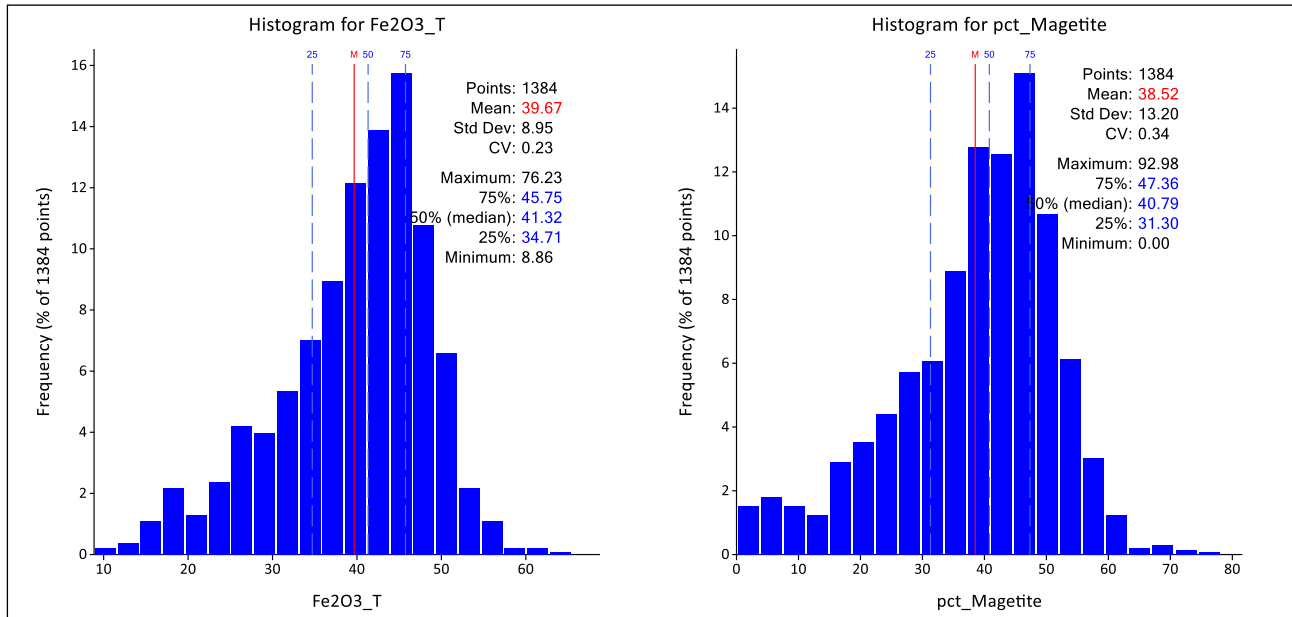


Figure 49: Histogram of iron oxide head grade and percent of magnetite – North Zone

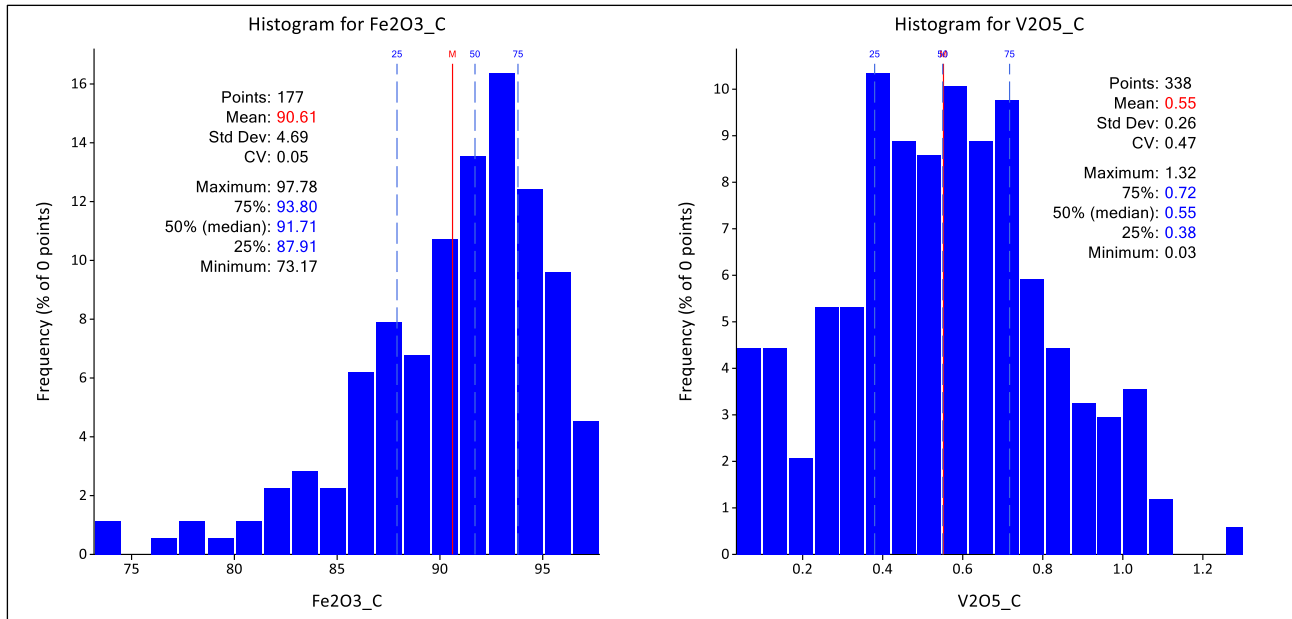


Figure 50: Histogram of Fe<sub>2</sub>O<sub>3</sub> and V<sub>2</sub>O<sub>5</sub> concentrate grade in the South Zone

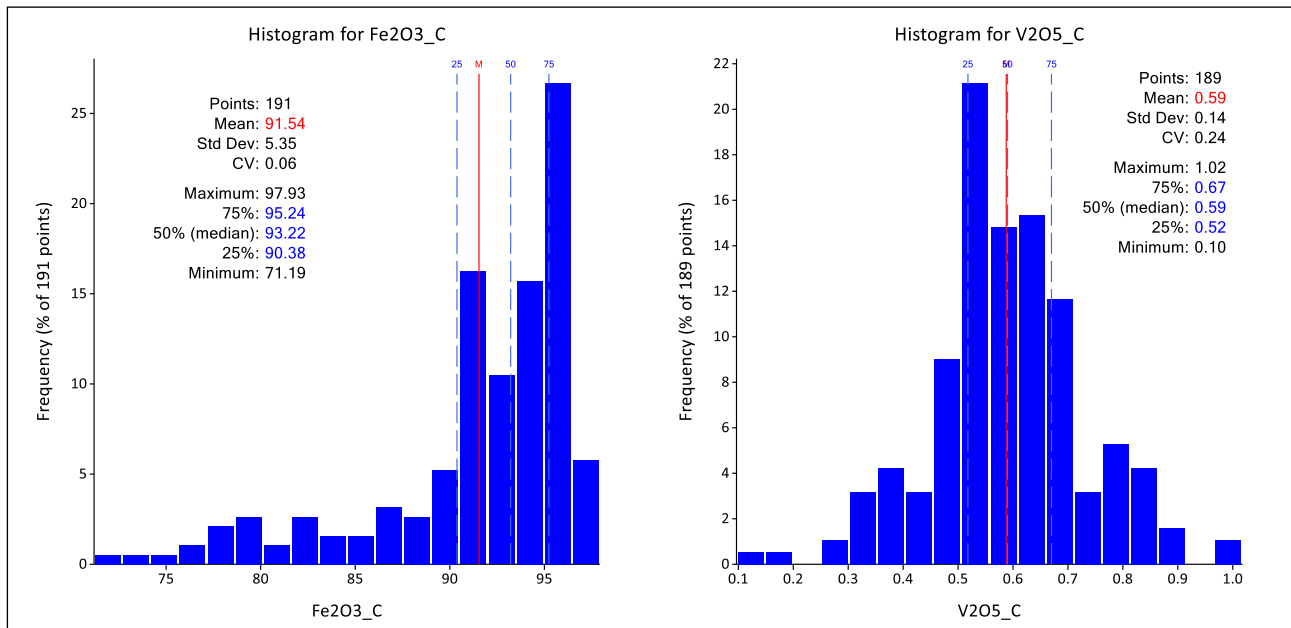


Figure 51: Histogram of Fe<sub>2</sub>O<sub>3</sub> and V<sub>2</sub>O<sub>5</sub> concentrate grade in the North Zone

## 14.7 Geostatistical Analysis

Experimental variograms were calculated only for head grade variables and percent of magnetite, using 2 m and 3 m composites, and fitted to a variogram model. In the North Zone the down dip variogram model was used as a reference to fit an omnidirectional variogram model. In the South Zone, where the quantity of drillholes with close spacing is higher, the variogram model was fit from directional variograms. It was found that the same variogram model fits properly the experimental variograms of the head grade variables and the percent of magnetite (Figure 52). The variograms models are shown in Table 16.

Table 16: Variogram models used to interpolate Fe<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub> head grades, and percent of magnetite

Zone	Orientation (dip-->dip direction)	Exponential		
		Nugget	Sill	Range
South	00-->085	0.165	0.835	307
	00-->355	0.165	0.835	101
	90-->000	0.165	0.835	187
North	Omnidirectional	0.11	0.89	60

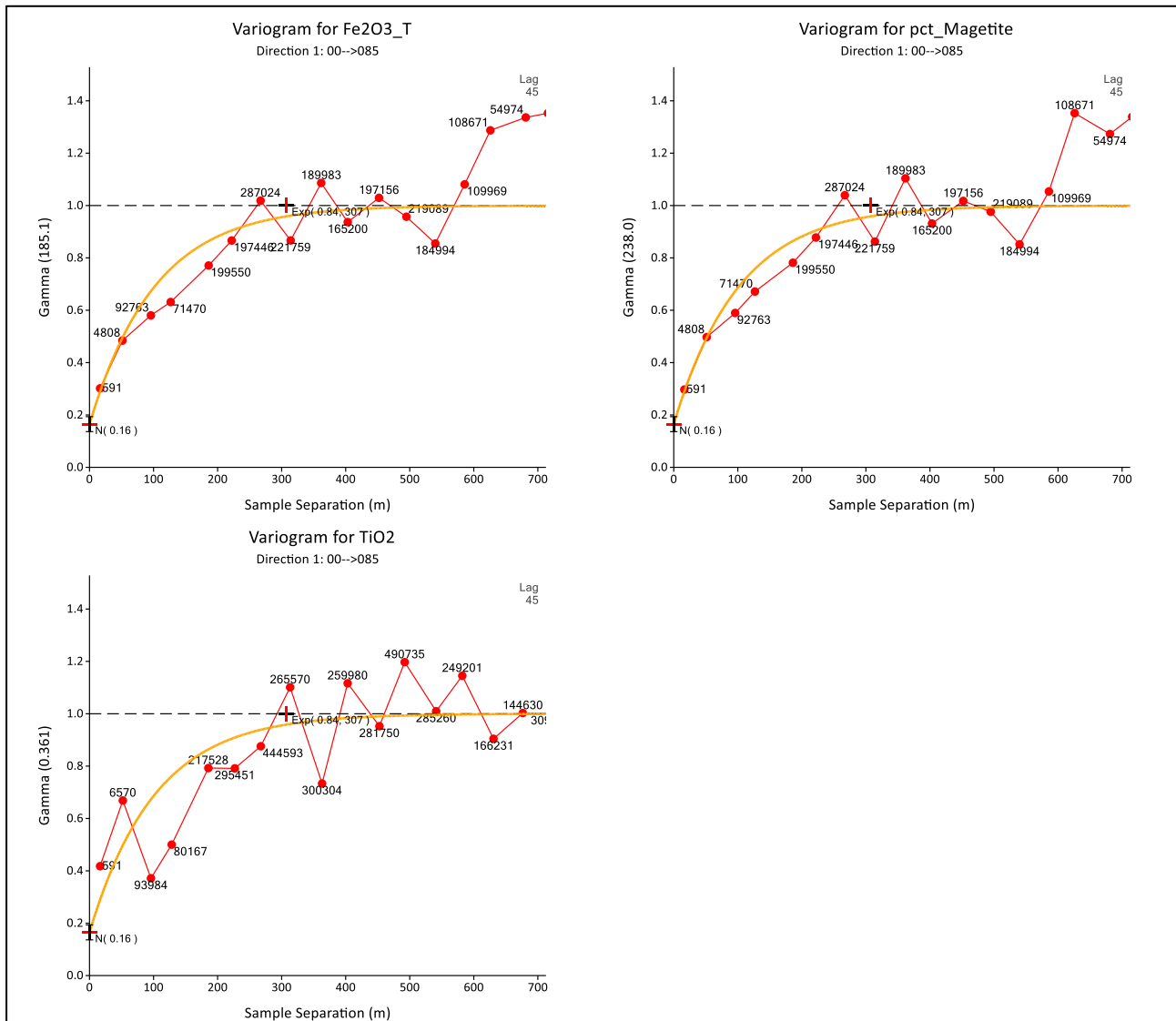


Figure 52: Same variogram model (in yellow) and experimental variograms of  $Fe_2O_3$  and  $TiO_2$  head grades, and percent of magnetite, in the horizontal direction with azimuth  $85^\circ$

## 14.8 Density

Density measurements were taken using gas pycnometry at both SGS and Activation Laboratories. Of the 2,273 samples submitted during 2017 and 2018, 278 samples (12.13%) were measured for density. Density is expected to show a positive correlation with total iron of the sample and will depend on the relative proportions of magnetite (SG = 5.15), plagioclase feldspar (SG = 2.6-2.7), pyroxene (SG = 3.2-3.95) and olivine (SG = 3.3). A regression through the data gives a polynomial curve that corresponds well to a theoretical mixing model between magnetite, olivine and feldspar (Figure 53). The polynomial formula:

$$SG = 0.0003(Fe_2O_3)^2 + 0.0036(Fe_2O_3) + 2.7517$$

was used to calculate the density of samples without density measurements, based on the  $Fe_2O_3\_T$  of the sample.

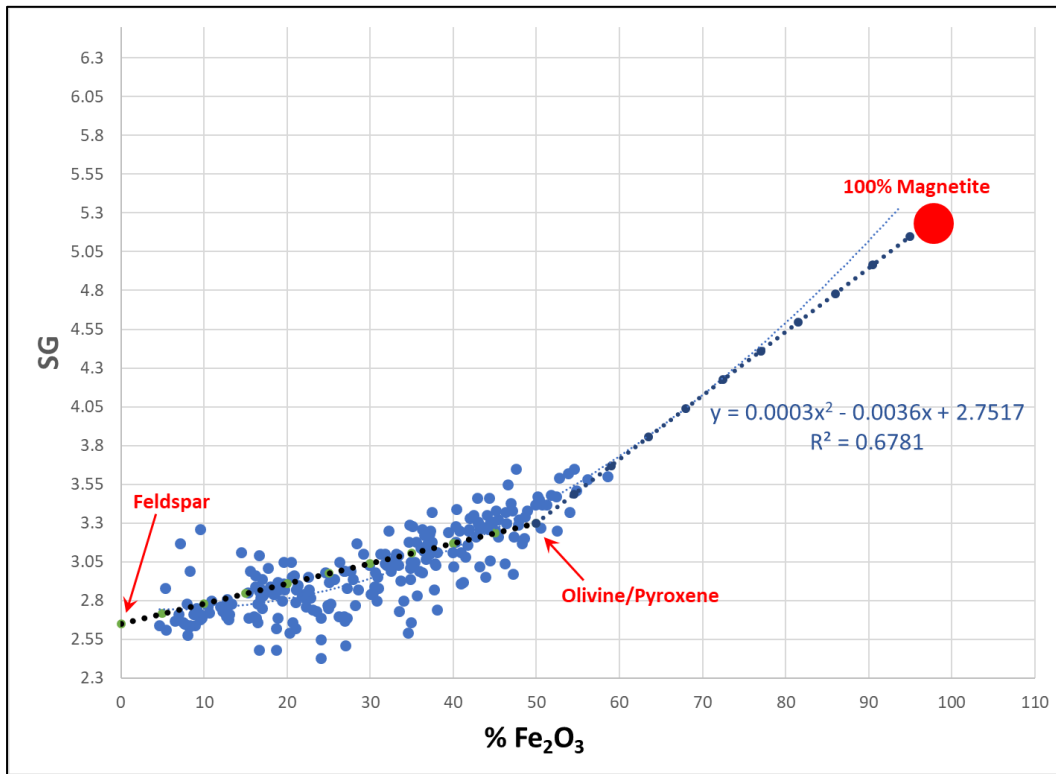


Figure 53: Plot of Fe<sub>2</sub>O<sub>3</sub> (total) vs density (SG) for all samples measured for density using gas pycnometry in 2017 and 2018

Note: The regression line (blue) and formula are shown. The black dotted line shows theoretical linear density variation between feldspar and olivine/pyroxene, and between magnetite and olivine/pyroxene.

## 14.9 Block Model

Block models with 10 m cube blocks were created for the North and South Zones and filled with blocks inside the mineralized domains. An approximate percentage of the block inside the solid was used to reproduce the solid volume. The models were then visually validated, section by section and no missing blocks or artifacts were identified.

### 14.10 Grade Estimation

This estimate consists of two main components:

- Components characterizing the in-situ properties of the rock. These include head grade assays and percent of magnetite.
- Components characterizing the magnetite concentrate produced after crushing the rock and completing magnetic separation of the magnetite. These are the assayed grades of the chemical elements in the concentrate.

#### 14.10.1 Head Grade (Fe<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub>) and Percent of Magnetite Estimation

Only Fe<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub> head grades (historical data did not include head assays for other chemical components), as well as the percent of magnetite were used to inform the block models. These three in-situ components of the rock were interpolated using simple kriging with local mean (SKLM).

The local means were estimated in block models with inverse of the squared distance using 20 m composites informed by sample intervals assays. In some instances where there was no data in the regular sample interval (Figure 54), larger length composites assays were used. The local means are smooth and are intended to represent grade trends at large distances, therefore using sample composites are appropriated for this purpose. Up to 50 composites were used for interpolation, with a maximum of 20 samples per drillhole. The estimation parameters were tested in random individual blocks, as shown in Figure 55A. Local means were also interpolated into 2 m (South Zone) and 3 m (North Zone) intervals composites intervals, as this is a requirement for SKLM.

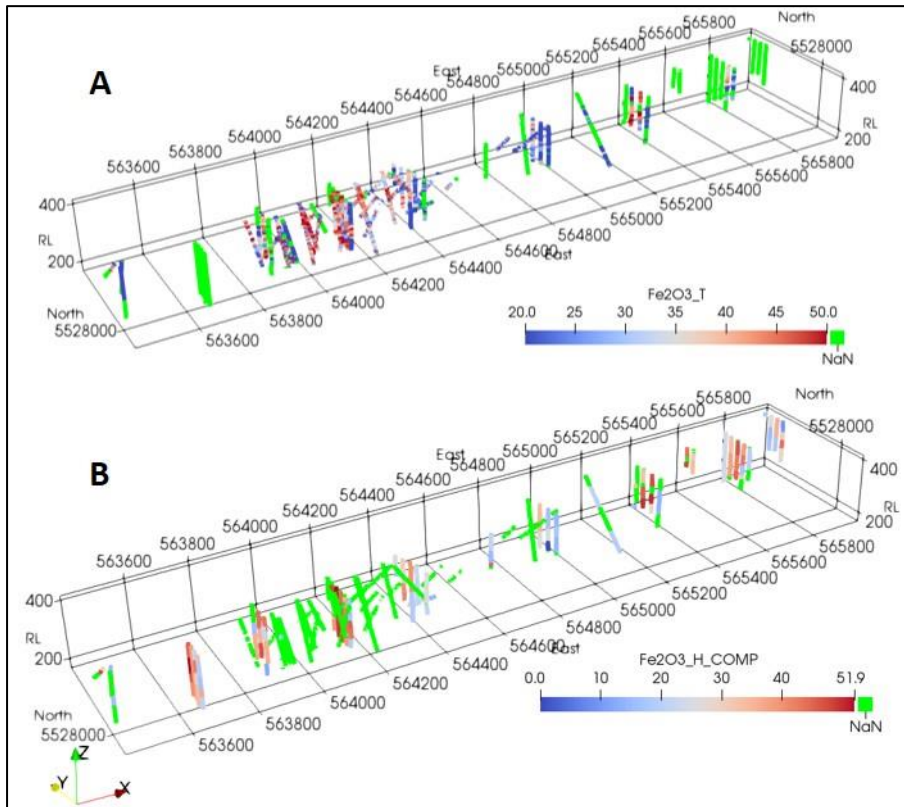


Figure 54: Sample intervals for the South Zone

A:  $Fe_2O_3$  head grade in regular sample intervals.

B:  $Fe_2O_3$  head grade in composite samples. Note that where non-informed regular sample intervals occur, these are informed by composite samples.

SKLM was used to interpolate the percent of magnetite,  $Fe_2O_3$  and  $TiO_2$  using only regular sample intervals composited at 2 m and 3 m intervals as primary data. This approach is used to represent the smaller-scale local distribution of grade where such small-scale distributions are available through more detailed sampling. A minimum and maximum of eight and 30 samples were used to interpolate, with a maximum of five samples per drillholes. The smooth local means interpolated in drillhole and block models were used as the local mean parameter of SKLM to represent grade trends at deposit scale. The sample selection and simple kriging weights were tested as shown in Figure 55B) to ensure the estimate works as intended.



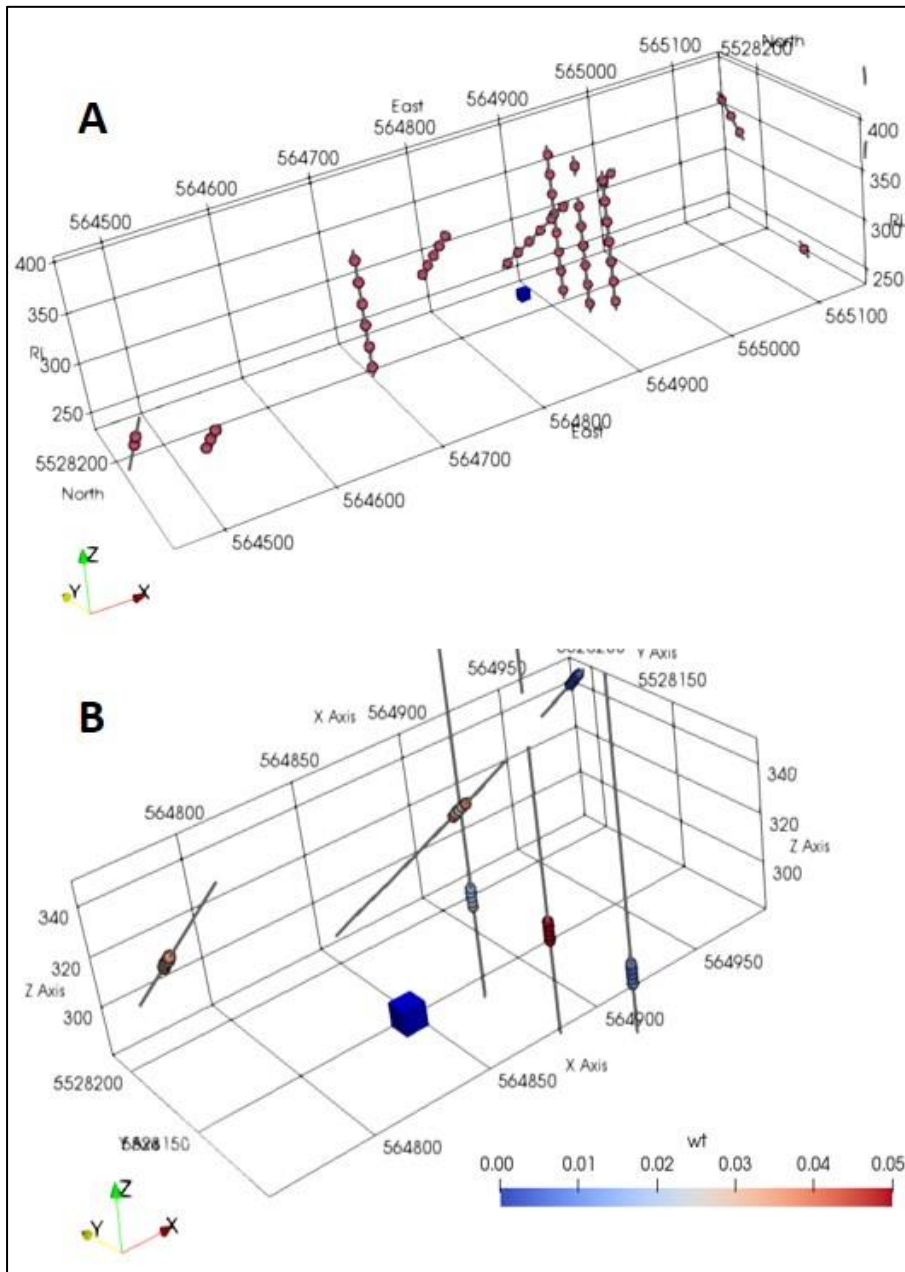


Figure 55: Visual validation of the interpolation parameters in South Zone  
 A: 20 m composites (in red) used to interpolate local means in one block (blue), and drillhole traces (grey).  
 B: 2 m composites used to interpolate with simple kriging with local mean colored by kriging weight.

This combined approach using both larger length and smaller length composites allows integration of all the data available, while maintaining a resolution appropriate to the level of detail in the sampling.

#### 14.10.2 Grade in Concentrate Estimation

The  $Al_2O_3$ ,  $Fe_2O_3$ ,  $MgO$ ,  $SiO_2$ ,  $TiO_2$ ,  $Fe_2O_3$ , and  $V_2O_5$  grades in magnetite concentrates were interpolated using the same approach and interpolation parameters used to estimate local means or trends.

## 14.11 Model Validation

Model validation consisted of visual comparison of drillholes and blocks in sections, comparison of average grades and statistical distributions, validation with swath plots, and global change of support.

Table 17 and Table 18 show the comparison between means in block model and composites. It shows that means were reproduced. Means calculated with composites in the South Zone used de-clustering weights. Visual validations consisted of a comparison of grade in drillholes and in block model to ensure the local estimate and main trends were reproduced in the estimate (

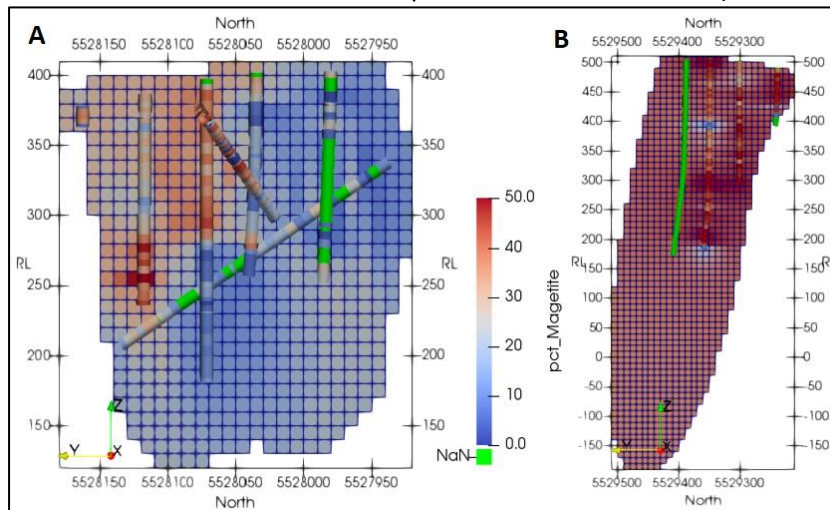


Figure 56). Swath plots were used to validated local trends, and bias, in the estimate. The global change of cut-off compares the volume and grade over certain cut-off obtained from the model and with theoretical grade-tonnage curves estimated with the discrete Gaussian model (Figure 57).

The author is of the opinion that all the model validations were satisfactory, and the estimates are appropriate for mineral resource reporting.

Table 17: Mean comparison – South Zone

Variable		Mean in composite (%)	Mean in model (%)	Difference in mean (%)	Number of composites	Number of blocks
Fe <sub>2</sub> O <sub>3</sub>	Head grades	28.7	28.5	-0.5	3586	109218
TiO <sub>2</sub>		1.19	1.20	1.2	4561	115525
Percent of magnetite		26.7	25.4	-4.9	3586	109218
V <sub>2</sub> O <sub>5</sub>	Grades in concentrate	0.51	0.47	-7.3	338	117479
Fe <sub>2</sub> O <sub>3</sub>		90.0	94.8	5.3	177	117479
TiO <sub>2</sub>		1.4	1.3	-0.9	430	117479
MgO		3.5	3.5	-0.0	428	117479
Al <sub>2</sub> O <sub>3</sub>		0.35	0.34	-2.9	428	117479
SiO <sub>2</sub>		2.7	2.6	-1.3	428	117479

Table 18: Mean comparison – North Zone

Variable		Mean in composite (%)	Mean in model (%)	Difference in mean (%)	Number of composites	Number of blocks
Fe <sub>2</sub> O <sub>3</sub>	Head grades	39.7	38.6	-2.7	1384	262706
TiO <sub>2</sub>		1.22	1.24	1.1	1493	262706

Percent of magnetite		38.5	37.0	-4.0	1384	262706
V <sub>2</sub> O <sub>5</sub>	Grades in concentrate	0.59	0.59	-0.4	189	261967
Fe <sub>2</sub> O <sub>3</sub>		91.5	90.7	-0.9	191	261967
TiO <sub>2</sub>		1.8	1.9	7.2	191	261967
MgO		3.4	3.7	9.0	189	261967
Al <sub>2</sub> O <sub>3</sub>		0.94	0.93	-0.8	189	261967
SiO <sub>2</sub>		4.1	4.4	7.2	189	261967

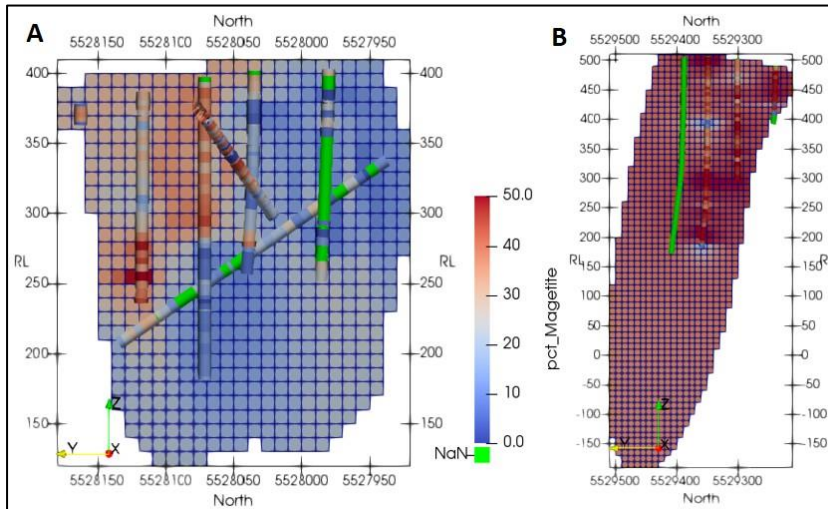


Figure 56: Visual validation in sections  
 A: South Zone section along E 543611 with percent of magnetite estimated in block model and in assay intervals.  
 B: North Zone section along E 563097 with percent of magnetite estimated in block model and in assay intervals.

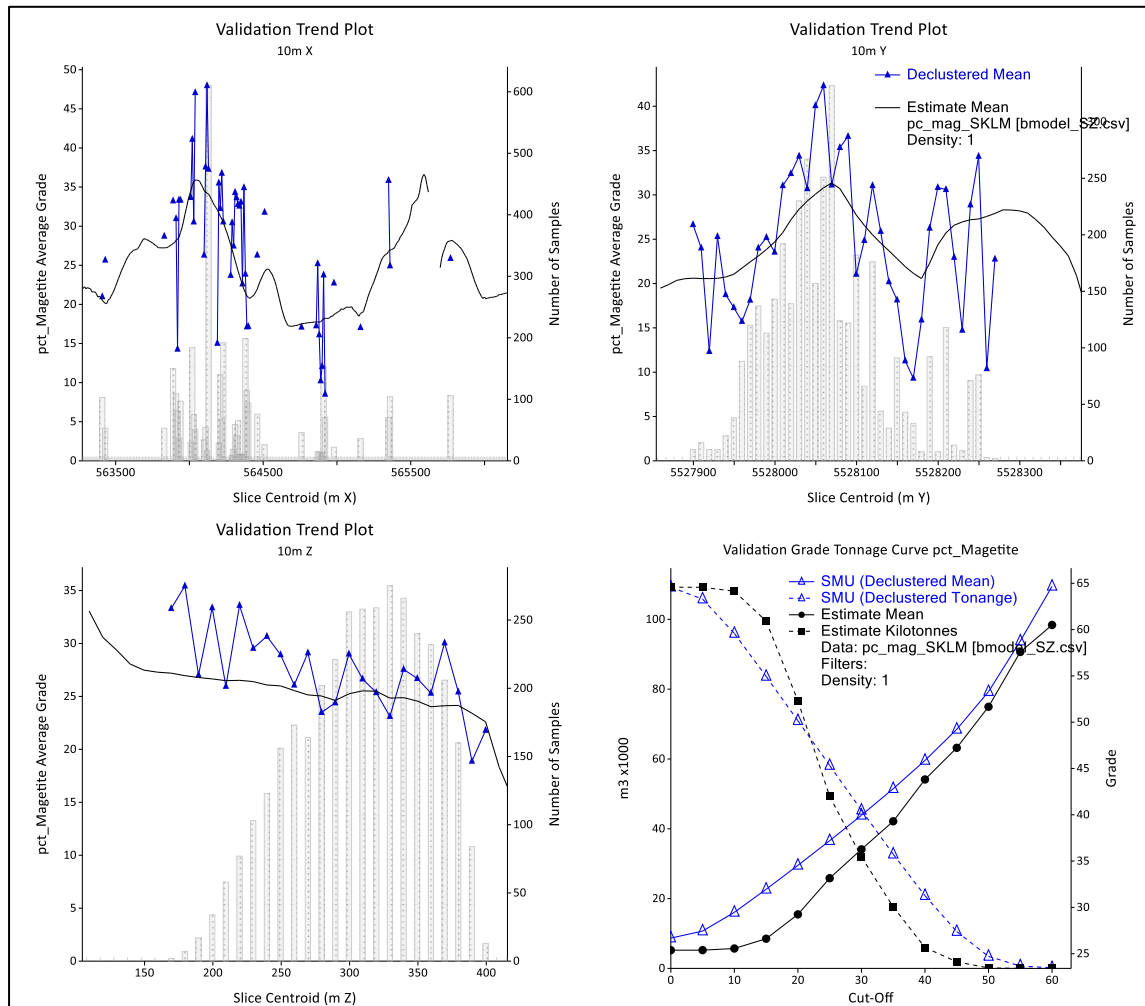


Figure 57: Swath plots (top row and below left) and global change of support (below right) of percent of magnetite estimate in the South Zone

## 14.12 Mineral Resource Classification

### 14.12.1 Reasonable Prospects for Eventual Economic Extraction

The aim of this project is to produce a saleable magnetite concentrate, with potential bonus value added from the vanadium ( $V_2O_5$ ) content of the concentrate. In order to assess reasonable prospects of eventual economic extraction, the following assumptions were made (see Section 24 for more information):

- The magnetite concentrate is assumed to be 65% Fe (93 %  $Fe_2O_3$ ) and is assumed to be saleable at US\$90 per dry metric tonne
- The assumed price of  $V_2O_5$  is US\$ 30,864.68/tonne (US\$14/lb)
- It is assumed that VONE will realise 50% of the value of the  $V_2O_5$  value contained in the concentrate; i.e. US\$15,432.34/tonne (US\$7/lb)
- The cost of mining and milling ore is assumed to be US\$ 13.80/tonne
- The assumed cost of transporting the concentrate from site to the buyer (assumed to be in Asia) is US\$40/tonne
- There is an assumed cost of US\$1.5/tonne for disposal of tailings.

It is assumed that the extraction will be via an open pit mine, and the assumptions above were used to derive theoretical pit shells for both the North Zone and the South Zone; however, for both deposits the entire unconstrained block model fell within the theoretical pits. This means that for both deposits all mineralization falls within pits shells derived using the price and cost assumptions above. No assessment of environmental constraints on potential pits (e.g. the proximity to the nearby lake) has been carried out.

Figure 58 shows a comparison of the cost of mining one metric tonne of material and its assumed value for different average grade of  $V_2O_5$  in the concentrate. If  $V_2O_5$  grade in the concentrate is zero or is not considered, the head grade cut-off could be approximately 30% magnetite, or around 32–34%  $Fe_2O_3$  (22–24% Fe), as per regression formulas that are shown in Figure 44. However, the average grade of  $V_2O_5$  in the concentrate is between 0.5% and 0.6%, and usually over 0.2% (Figure 59, Table 17 and Table 18). This allows for a cut-off as low as 10–20% magnetite, which is equivalent to 15–27%  $Fe_2O_3$  (or 10–19% Fe).

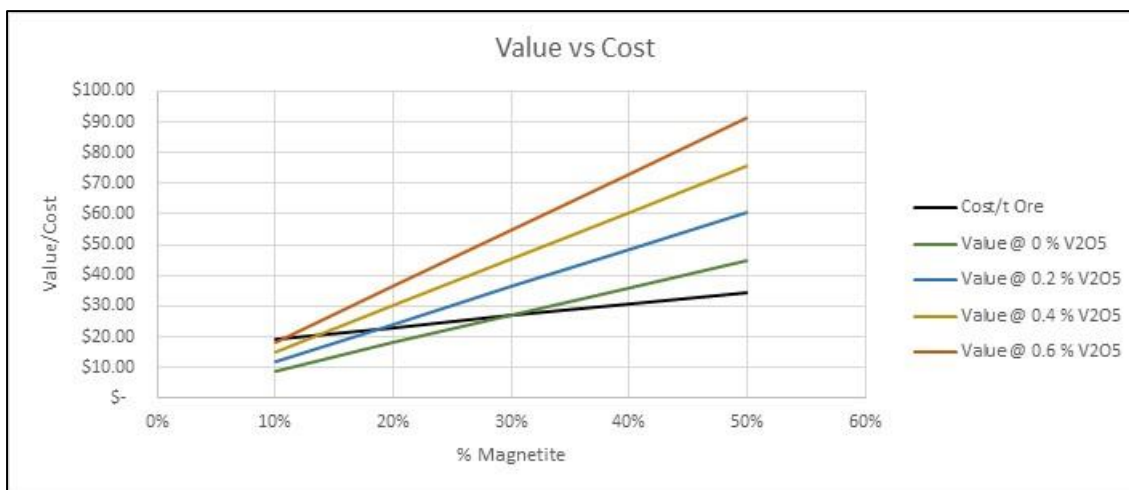


Figure 58: Value vs cost of the one tonne of material as a function of the percentage of magnetite, assuming different average grades of  $V_2O_5$ .

A head grade of 20%  $Fe_2O_3$  (or 14% Fe) was selected as the reference cut-off for resource reporting, assuming a minimum  $V_2O_5$  grade in the concentrate of 0.2%. This cut-off value is also close to the value at which the  $V_2O_5$  recovery to the concentrate begins to decline (Figure 24, Section 11.3.1).

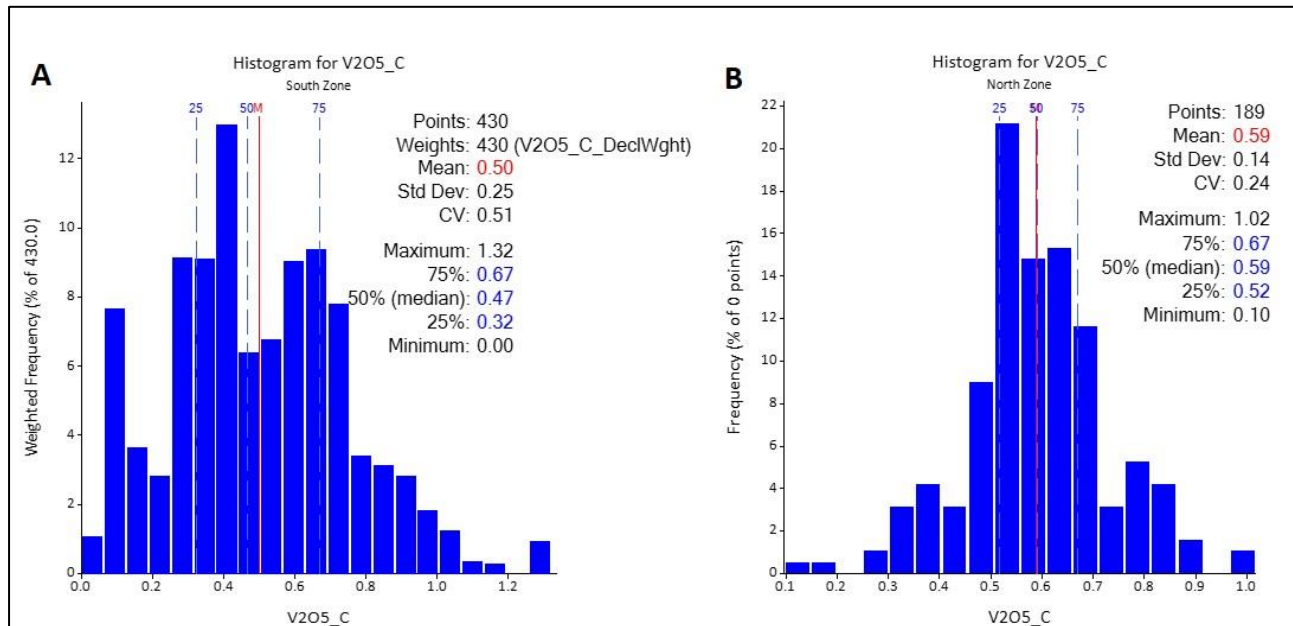


Figure 59: Histograms of  $V_2O_5$  calculated in 20 m composites for the South Zone (A) and North Zone (B)

### 14.13 Mineral Resource Reporting

The resource classification definitions used for this estimate are in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM Council, 10 May 2014).

Mineral Resources in areas with drillhole spacing between 400 m and 200 m were classified as Inferred Resources. Areas with drillhole spacing between 200 m and 100 m, and mostly drilled in recent campaigns, were classified as Indicated Resources. Blocks located more than 50–70 m below drilling were not classified. Blocks without interpolated values of percent of magnetite,  $Fe_2O_3$  head grade, or  $V_2O_5$  in the concentrate were not classified.

As all modelled blocks fell within theoretical pit shells, the maximum depths of the reported Mineral Resources have been manually constrained using classification polygons manually digitized along drillhole sections. For the North Zone, resources were cut at a maximum of 50–70 m below the deepest drilled 1963–1974 interval but cut at the deepest intersection of 2013–2018 drilling (i.e. no resources were estimated below the deepest intersection for the North Zone (Figure 60A). For the South Zone, resources were cut at a maximum of 50–70 m below the deepest drilled interval (Figure 60B). The maximum depths below surface for reported resources are 500 m in the North Zone and 310 m in the South Zone.

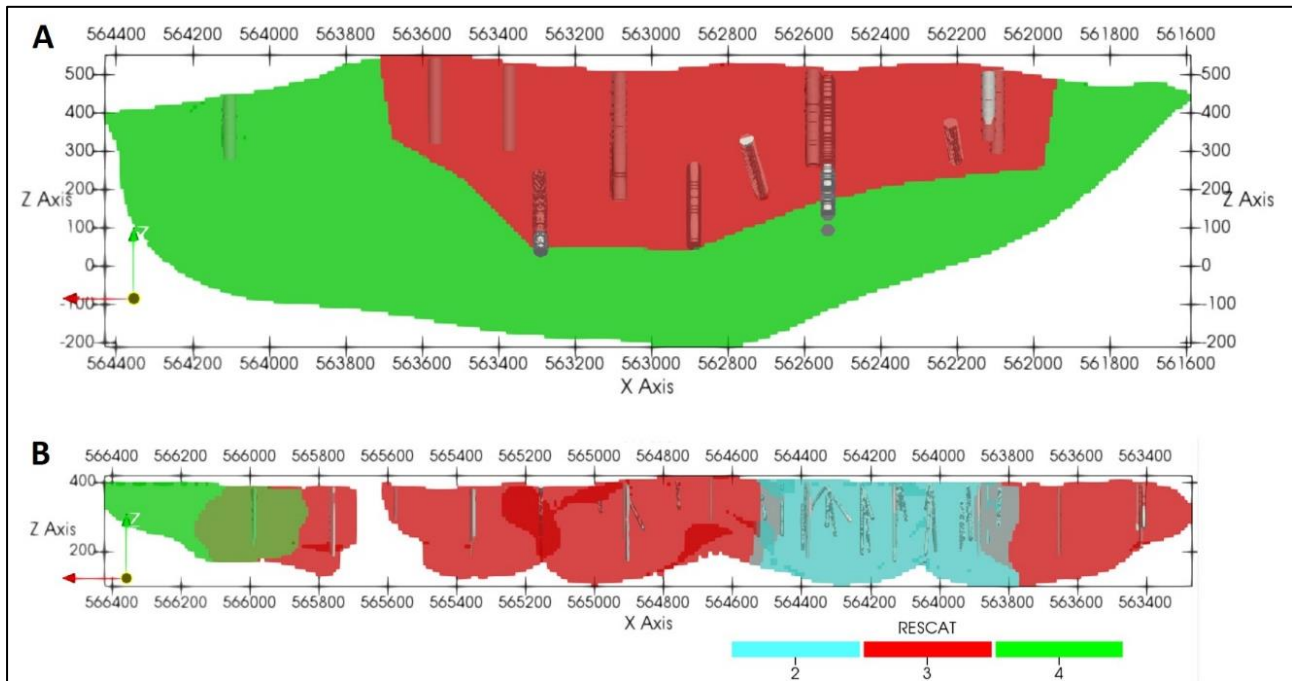


Figure 60: Longitudinal sections through both the North Zone (A) and South Zone (B), looking south  
Note: Red blocks (RESCAT=3) are Inferred, blue blocks (RESCAT=2) are Indicated, green blocks (RESCAT=4) are unclassified (i.e. excluded).

Mineral Resources reported over a cut-off of 20% Fe<sub>2</sub>O<sub>3</sub> head grade (or 14% Fe) is shown in Table 19. A sensitivity analysis for different cut-off grades is shown in Table 20 and Figure 61.

Table 19: MRE for the Mont Sorcier Project effective 23 April 2019; cut-off grade is 20% Fe<sub>2</sub>O<sub>3</sub> (14% Fe)

Zone	Category*	Tonnage		Head grade		Grade in concentrate					
		Rock (Mt)	Concentrate (Mt)	Fe (%)	Magnetite (%)	Fe (%)	V <sub>2</sub> O <sub>5</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	MgO (%)	SiO <sub>2</sub> (%)
South	Indicated	113.5	35.0	22.7	30.9	65.3	0.6	0.3	1.2	3.8	2.8
	Inferred	144.6	36.1	20.2	24.9	66.9	0.5	0.4	1.0	3.4	2.5
North	Inferred	376.0	142.2	27.4	37.8	63.7	0.6	1.0	1.8	3.5	4.2
TOTAL	Indicated	113.5	35.0	22.7	30.9	65.3	0.6	0.3	1.2	3.8	2.8
	Inferred	520.6	178.3	25.4	34.2	64.4	0.6	0.8	1.7	3.5	3.9

\*The MRE has been classified CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM Council, 10 May 2014). Differences may occur due to rounding errors.

The grades and tonnages of Inferred Resources in this estimation are based on limited geological evidence and sampling that is sufficient to imply but not verify geological and grade continuity, and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Resource. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

Table 20: Grade-tonnage sensitivity

Zone	Category	Cut-off		Tonnage		Head grade		Grade in concentrate					
		Fe <sub>2</sub> O <sub>3</sub> (%)	Fe (%)	Rock (Mt)	Conc. (Mt)	Fe (%)	Mag (%)	Fe (%)	V <sub>2</sub> O <sub>5</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	MgO (%)	SiO <sub>2</sub> (%)
South Zone	Indicated	10	7.0	124.3	36.6	21.8	29.4	65.3	0.6	0.3	1.2	3.8	2.8
		15	10.5	123.2	36.5	21.9	29.6	65.3	0.6	0.3	1.2	3.8	2.8
		20	14.0	113.5	35.0	22.7	30.9	65.3	0.6	0.3	1.2	3.8	2.8
		25	17.5	91.6	30.7	24.3	33.5	65.2	0.6	0.3	1.2	3.8	2.8
		30	21.0	68.7	24.9	26.0	36.2	65.1	0.6	0.4	1.2	3.8	2.8
	Inferred	10	7.0	167.3	39.1	19.1	23.4	66.8	0.5	0.3	1.0	3.4	2.5
		15	10.5	164.0	38.8	19.3	23.7	66.8	0.5	0.4	1.0	3.4	2.5
		20	14.0	144.6	36.1	20.2	24.9	66.9	0.5	0.4	1.0	3.4	2.5
		25	17.5	95.7	26.8	22.4	28.1	67.2	0.5	0.4	1.0	3.4	2.3
		30	21.0	54.8	17.5	24.8	32.0	67.4	0.6	0.3	0.9	3.3	2.1
North Zone	Inferred	10	7.0	376.2	142.2	27.4	37.8	63.7	0.6	1.0	1.8	3.5	4.2
		15	10.5	376.1	142.2	27.4	37.8	63.7	0.6	1.0	1.8	3.5	4.2
		20	14.0	376.0	142.2	27.4	37.8	63.7	0.6	1.0	1.8	3.5	4.2
		25	17.5	375.4	142.1	27.4	37.9	63.7	0.6	1.0	1.8	3.5	4.2
		30	21.0	371.3	141.2	27.5	38.0	63.7	0.6	1.0	1.8	3.5	4.2
TOTAL	Indicated	10	7.0	124.3	36.6	21.8	29.4	65.3	0.6	0.3	1.2	3.8	2.8
		15	10.5	123.2	36.5	21.9	29.6	65.3	0.6	0.3	1.2	3.8	2.8
		20	14.0	113.5	35.0	22.7	30.9	65.3	0.6	0.3	1.2	3.8	2.8
		25	17.5	91.6	30.7	24.3	33.5	65.2	0.6	0.3	1.2	3.8	2.8
		30	21.0	68.7	24.9	26.0	36.2	65.1	0.6	0.4	1.2	3.8	2.8
	Inferred	10	7.0	543.5	181.4	24.8	33.4	64.4	0.6	0.8	1.6	3.5	3.9
		15	10.5	540.2	181.0	24.9	33.5	64.4	0.6	0.8	1.6	3.5	3.9
		20	14.0	520.6	178.3	25.4	34.2	64.4	0.6	0.8	1.7	3.5	3.9
		25	17.5	471.1	169.0	26.4	35.9	64.3	0.6	0.9	1.7	3.5	3.9
		30	21.0	426.1	158.7	27.2	37.2	64.2	0.6	0.9	1.7	3.5	4.0

Note that the preferred (base-case) cut-off grade is 20% Fe<sub>2</sub>O<sub>3</sub> (14% Fe) and has been highlighted in the table.



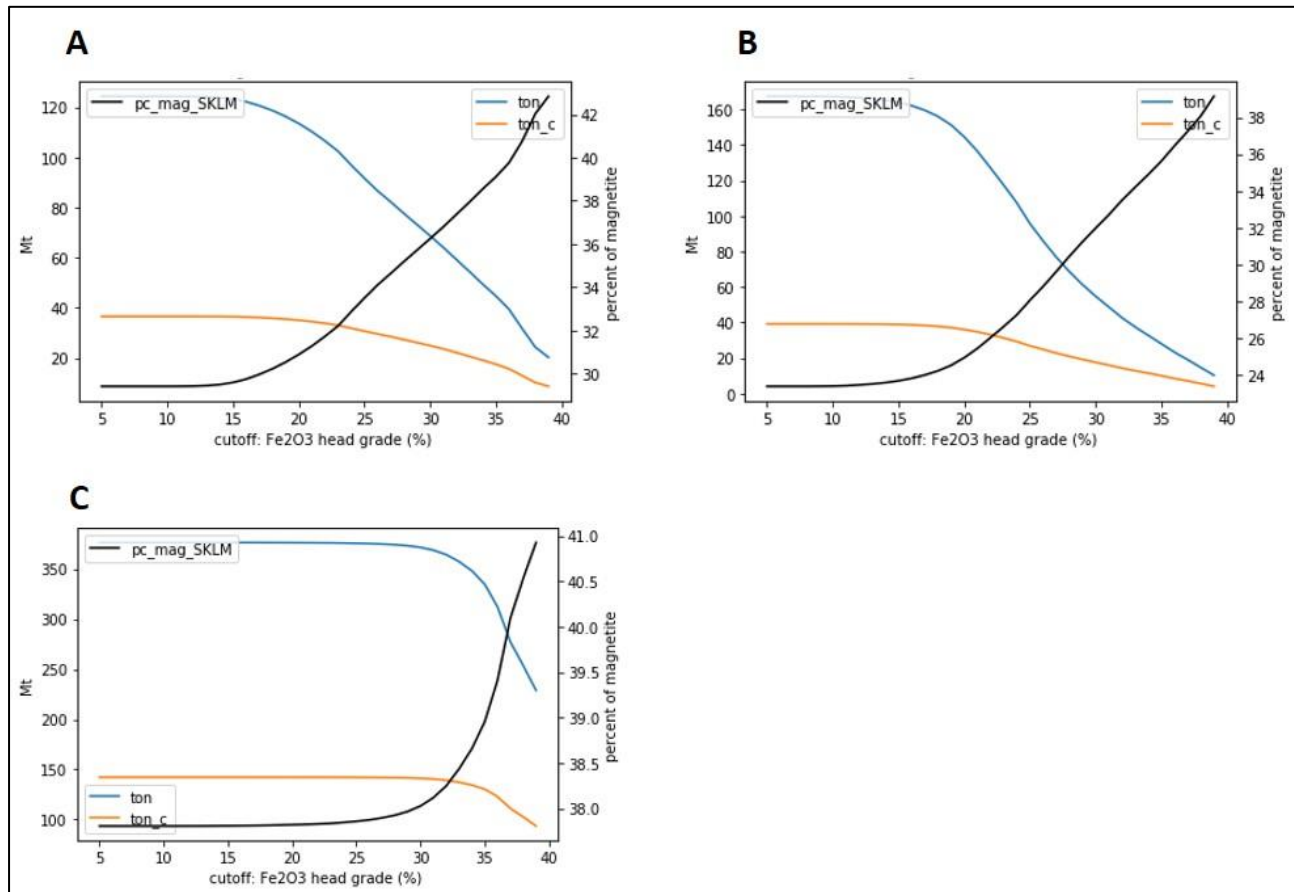


Figure 61: Grade-tonnage curves  
A: SZ "Indicated"; B: SZ "Inferred"; C: NZ "Inferred".

#### 14.14 Previous Mineral Resource Estimates

There is no previous MRE for the Property reported in accordance with NI 43-101. However, the Ministère de l'Énergie et des Ressources Naturelles of Quebec published a 1975 report where historical, non-compliant reserves estimated by Campbell Chibougamau Mines Ltd for both the South Zone and North Zone are reported. These reserves were estimated with a cut-off of 17.0% Fe (or 24.3% Fe<sub>2</sub>O<sub>3</sub>), using polygonal methods and excluding polygons (or blocks) with 1.75% TiO<sub>2</sub> in the concentrate. The informing data used to produce this estimate were composites created from core assay with Fe head grade over 15%. The total reserves reported were 102.1 Mt and 171.6 Mt, with 67.7% Fe and 66.1% Fe, and 0.68% V<sub>2</sub>O<sub>5</sub> and 0.57% V<sub>2</sub>O<sub>5</sub> in the concentrate, for the South Zone and North Zone, respectively. These reserves are considered historical in nature and were classified using categories other than the ones set out in Sections 1.2 and 1.3 of the National Instrument 43-101 of 9 May 2016. A Qualified Person has not done the work necessary to verify the historical estimates as current estimates under NI 43-101 and as such they should not be relied upon. The authors, CSA Global and VONE are not treating the historical estimates as current Mineral Resources or Mineral Reserves and are instead presented for informational purposes only.

The author compared sections reported by Campbell Chibougamau Mines with drillhole data and block model, as shown in Figure 62, in order to understand differences with previous resources and reserve estimates. This comparison clearly shows that the main difference is in volume of the material reported. Historical resources are more restrictive and were heavily constrained at depth. Recent drilling has extended

the known depths of mineralization substantially deeper than the historical drilling, but still within the limits of a theoretical pit shell as per the assumptions defined in Section 14.12.1.

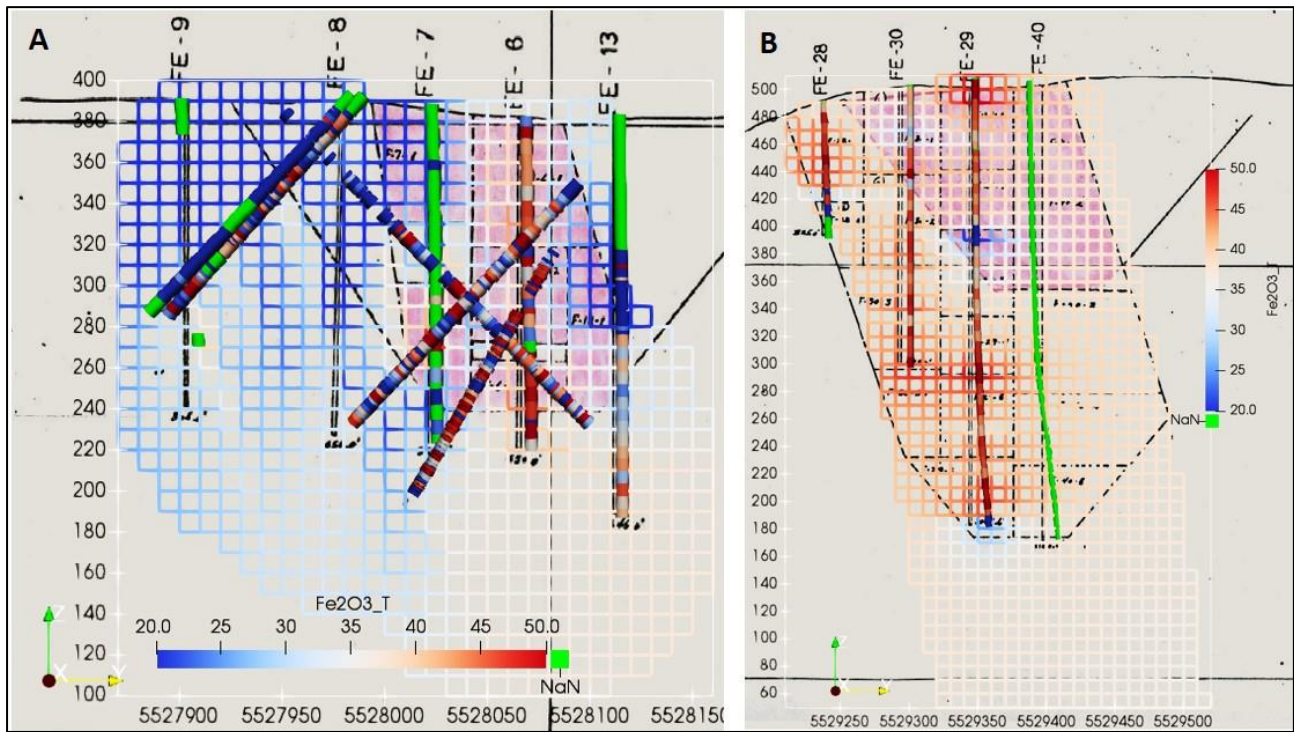


Figure 62: Comparison of historical reserves (hand-drawing background), the block models, and drillhole data, coloured by  $Fe_2O_3$   
A: Section E 563887 of the South Zone; B: Section E 563083 of the North Zone.



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## 15 Mineral Reserve Estimates

This section is not applicable to the current report.



## 16 Mining Methods

This section is not applicable to the current report.



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## 17 Recovery Methods

This section is not applicable to the current report.



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## 18 Project Infrastructure

This section is not applicable to the current report.

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## 19 Market Studies and Contracts

This section is not applicable to the current report.



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## 20 Environmental Studies, Permitting and Social or Community Impact

This section is not applicable to the current report.





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## 21 Capital and Operating Costs

This section is not applicable to the current report.



## 22 Economic Analysis

This section is not applicable to the current report.

## 23 Adjacent Properties

The properties to the west of the Mont Sorcier Property are currently held by Chibougamau Independent Mines, who hold several licences in the region. Many of these licences are for Au, Cu, Ag and Zn mineralization. The properties immediately to the west of Mont Sorcier (Figure 63) may host continuations of the VTM mineralization described in this report, but this has not yet been tested.

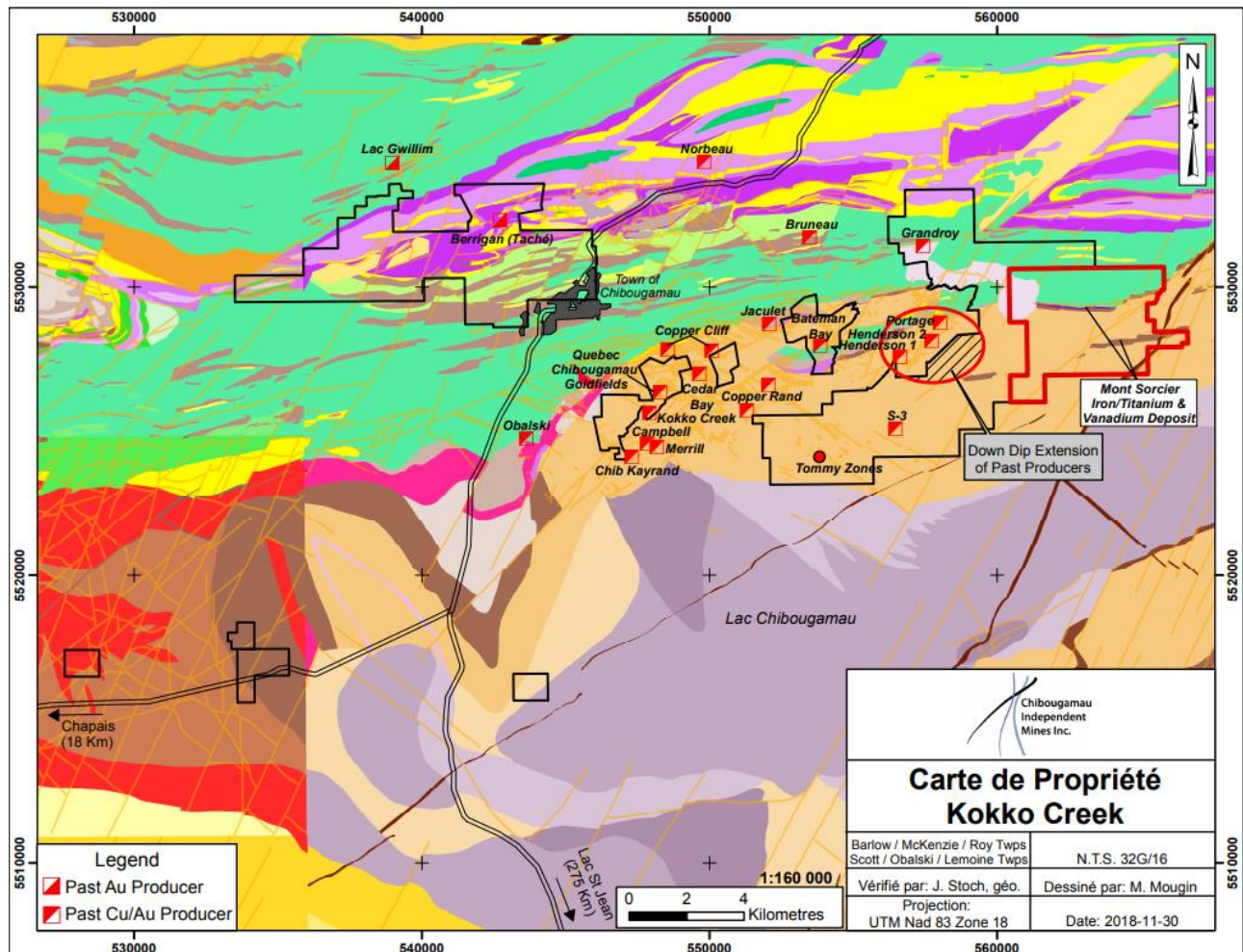


Figure 63: Adjacent and nearby properties and deposits held by Chibougamau Independent Mines

In addition, along the southeastern margin of the LDC, the contiguous properties of Blackrock Metals and VanadiumCorp Resource Inc. (Figure 9) contain layered VTM deposits. The Armitage and Southwest deposits have been the subject of a 2013 feasibility study by Blackrock Metals Inc., who is currently undertaking permitting to develop a mine on the deposits. The Lac Dore deposit, owned by VanadiumCorp Resource Inc., has also been drilled.

The author has not been able to verify the adjacent property information and the information is not necessarily indicative of mineralization on VONE's Mont Sorcier Property that is the subject of this report.

## 24 Other Relevant Data and Information

### 24.1 Metal Pricing Assumptions

Due to the fact this is an early-stage project, no detailed market studies or contacts have been carried out. However, the economics of the project will likely be determined by the iron ore price and the vanadium price. Benchmark prices are generally given as 62% Fe, whereas magnetite concentrates produced by VONE often approach or exceed 65% Fe. Over the past decade, monthly 62% Fe prices have fluctuated from below US\$50/tonne to over US\$160/tonne (Figure 64), with an average of US\$99.31/tonne.

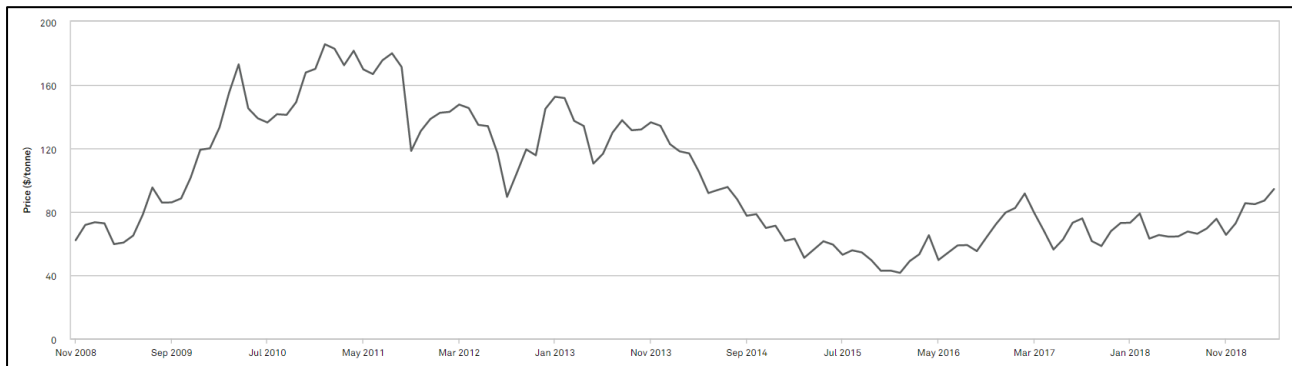


Figure 64: The Steel Index Iron Ore Fines 62% (US\$/tonne) iron ore prices over the past decade  
Source: S&P Global Market Intelligence

65% Fe fines fetch a variable premium over 62% Fe fines, whereas 58% Fe fines are discounted (Figure 65).

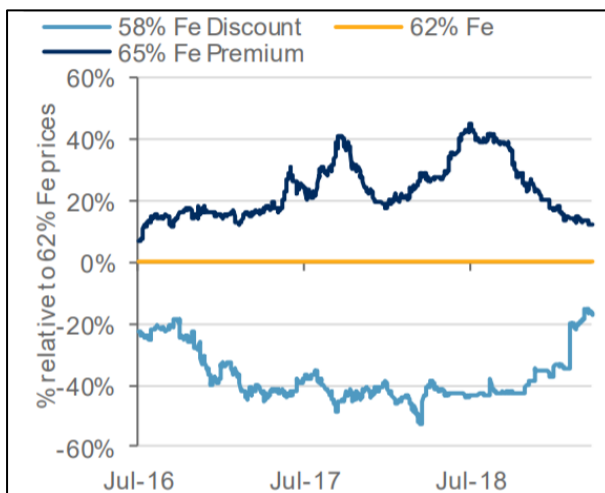


Figure 65: Price premium or discount for Fe content relative to 62% Fe prices  
Source: S&P Global Market Intelligence, April 2019

Over the course of the past several years, 65% Fe prices have varied between US\$61.4/tonne (2016) and US\$105.5/tonne (2014), with an average price of US\$90.4/tonne in 2018. Prices for 65% Fe and 62% Fe are shown in Table 21 below. The iron ore concentrate price of US\$90/tonne used in the assessment of reasonable prospects of economic evaluation (Section 14.12.1) is therefore in line with recent prices for 65% Fe concentrates.

Table 21: 2014–2018 iron ore prices for 65% Fe and 62% Fe

US\$/dmt CFR Price Index	2014	2015	2016	2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	2018	Q1 2019
Platts 65% Fe	105.5	61.4	65	87.4	90.3	85.7	93.9	91.4	90.4	95.5
Platts 62% Fe IODEX	96.7	55.5	58.4	71.3	74.3	65.3	66.7	71.6	69.5	82.7

Over the past decade, vanadium prices (>98% V<sub>2</sub>O<sub>5</sub> flake) have varied between US\$2.5/lb and US\$28.8/lb (Figure 66). A price of US\$14/lb has been assumed in the assessment of reasonable prospects of economic evaluation (Section 14.12.1), and it has also been assumed that VONE may be able to obtain 50% of the value of the vanadium within the concentrate. However, this assumption has not been tested and it is not yet clear what value VONE may be able to obtain for vanadium. Studies of the iron ore and vanadium markets, as well as detailed assessments of potential buyers and the product specification requirements of these buyers will be required in order to advance the project.



Figure 66: Vanadium pentoxide prices (>98% V<sub>2</sub>O<sub>5</sub>, Europe, US\$/lb) between 2006 and 2019  
Source: [www.vanadiumprice.com](http://www.vanadiumprice.com)

## 25 Interpretation and Conclusions

Vanadiferous titanomagnetite (VTM) mineralization at the Mont Sorcier Project shows several similarities to other magmatic VTM deposits associated with layered mafic intrusive complexes; however VTM mineralization at Mont Sorcier was likely triggered assimilation of a carbonate-facies iron formation, resulting in a broad zone of VTM mineralization without the characteristic stratification found in other magnetite deposits, and without differentiation of highly vanadium or titanium enriched zones within the deposit. Two zones of mineralization are defined – the North Zone and the South Zone.

In the North Zone, mineralization is interpreted to occur as a subvertical, east-west striking roughly tabular body. In the South Zone, tabular mineralization has been folded around a synclinal axis with a shallow west-southwest plunging orientation. Mineralization is interpreted to vary between approximately 100 m and 200 m in true thickness in the North Zone and South Zone.

Between 2017 and 2019, VONE has carried out drilling, stripping, mapping and reprocessing of an earlier airborne geophysical survey of the property. Drill core was assayed, and samples subject to Davis Tube magnetic concentration and the concentrates were assayed. A significant amount of historical drilling data is also available for the property, and this data has been validated. Mineral Resources have been estimated, using both an older dataset based on drilling between 1963 and 1966, and data from drilling between 2013 and 2018.

Based on recent drilling by VONE, as well as historical drilling and assay results, Mineral Resources have been reported (effective 23 April 2019) at a cut-off of 20% Fe<sub>2</sub>O<sub>3</sub> head grade (or 14% Fe) for the Mont Sorcier Project. Total Indicated Mineral Resources of 113.5 Mt at 22.7% Fe and 30.9% magnetite, and total Inferred Mineral Resources of 520.6 Mt at 25.4% Fe and 34.2% magnetite, have been estimated, as detailed in Table 1 and Table 19.

The grades and tonnages of Inferred Resources in this estimation are based on limited geological evidence and sampling that is sufficient to imply but not verify geological and grade continuity, and there has been insufficient exploration to define these Inferred Resources as an Indicated or Measured Resource. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

The following risks and uncertainties may affect the reliability or confidence in the exploration information and MRE:

- Not all historical drillhole collars have been surveyed by an independent surveyor, and no downhole deviation data is available for historical drillholes; however, those that have been located compare favourably with recorded locations.
- Any QAQC procedures associated with historical assay data have not been documented; however, comparison of the results of historical assays with recent values shows that they compare favourably.
- Environmental considerations that may affect the project (e.g. proximity to the lake) and their influence on the potential economic viability of the project have not been assessed.
- Metallurgical and recovery parameters for the magnetite concentrate have not been fully assessed – the data presented on recoveries is estimated from Davis Tube recovery tests.
- The market for a low-Ti, vanadiferous magnetite concentrate and the pricing parameters for such a concentrate have not been assessed, and it is unclear how these could affect project's potential economic viability.



- Permits and authorisations for advancement of the project are not guaranteed.

The following opportunities have been identified with respect to further exploration:

- There is potential to extend both the North Zone and South Zone resources along strike towards the east and west by drilling the magnetic anomalies along strike from the current drilling.
- Infill drilling and more detailed sampling with 2–3 m smaller sample lengths in areas of historical drilling will allow more granularity in the resource and may enable the delineation of higher-grade domains within the current resource.

## 26 Recommendations

The following recommendations are made with respect to future work on the property. This work will be required for upgrading resources on the North Zone to Indicated category, and to prefeasibility studies. These are listed as separate phases, as increasing the confidence of the resources to Indicated or Measured category will be required prior to prefeasibility studies.

- Phase 1: Work required to increase the confidence in the resource:
  - Survey all remaining historic collar locations.
  - More gas pycnometry SG measurements are required from the laboratory (30–50% of all samples). Additional density measurements should also be taken on 5–10% of samples using the Archimedes method (weight in air/weight in water).
  - Duplicate and umpire measurements of SG required.
  - Infill drilling of the North Zone, with a two-hole fence every 200 m along strike.
  - Increase the number of round-robin assays involving more laboratories and more samples per laboratory to enable the calculation of a statically valid mean and standard deviation for the reference standards sample material.
  - 5% of samples from the 2017 campaign should be sent for duplicate analyses, and 5% for umpire analyses. It is also recommended that the standards used should also be subject to magnetic separation, and the magnetic portion assayed.
- Phase 2: Work required for prefeasibility studies:
  - Detailed environmental studies and assessments of permitting requirements.
  - Metallurgical testwork including grind optimisation.
  - Mining studies.
  - Infrastructure studies.
  - Detailed marketing studies.

A budget for this future work is outlined in Table 22.



Table 22: Budget for future work programs

Recommended work		Details	Estimated cost (US\$)
Phase 1: Additional work to upgrade North Zone to Indicated category	Additional gas pycnometry SG measurements, plus duplicate and umpire measurements	~1,000 samples	~\$10,000
	Infill drilling of the North Zone	Estimated 15,000 m for sufficient detail for Indicated Resources	~\$1,500,000
	5% duplicate and 5% umpire analyses	100 samples (including magnetic separation and assay of the concentrate)	~\$15,000
	Additional analyses of standard materials	30 samples	~\$1,500
	<b>Total estimated costs</b>		
Phase 2: Work required for prefeasibility studies	Grind optimisation and other metallurgical testwork	10 samples	~\$100,000
	Environmental studies		~\$1,000,000
	Mining studies		~\$150,000
	Marketing studies		~\$100,000
	Infrastructure studies		~\$100,000
	<b>Total estimated costs</b>		
<b>GRAND TOTAL</b>			<b>~\$2,976,500</b>

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## Appendix 1: Glossary of Technical Terms and Abbreviations

%	percent
°	degrees
°C	Celsius degrees
1VD	first vertical derivative
3D	three-dimensional
Actlabs	Activation Laboratories
azimuth	Drillhole azimuth deviation (from north)
BIF	banded iron formation
BSE	back scattered electron
BWI	Bond Ball Mill Work Index
C\$	Canadian dollars
CFILNQ	Chemin de fer d'intérêt local interne du Nord du Québec
clipping window	In case of display of 3D data at the plane, plus-minus the distance, within which the data is projected perpendicular to the image plane
cm	centimetre(s)
collar	Geographical coordinates of the collar of a drill hole or a working portal
compositing	In sampling and resource estimation, process designed to carry all samples to certain equal length
core sampling	In exploration, a sampling method of obtaining ore or rock samples from a drill hole core for further assay
CSA Global	CSA Global Consultants Canada Ltd
CSV	Digital computer file containing comma-separated text data
cut off grade	The threshold value in exploration and geological resources estimation above which ore material is selectively processed or estimated
CV	Coefficient of variation
d	diameter
de-clustering	In geostatistics, a procedure allowing bounded grouping of samples within the octant sectors of a search ellipse
DEM	digital elevation model
digital terrain model	3D wireframe surface model, e.g. topography (DTM)
dip	Angle of drilling of a drillhole
EIJBRG	Eeyou Itschee James Bay Regional Government
ESIA	environmental and social impact assessment
ESSS	environmental and social scoping study

Expert	Laboratoire Expert
flagging	Coding of cells of the digital model
FROM	Beginning of intersection
g	gram(s)
GCC(EI)	Grand Council of the Crees (Eeyou Itschee)
geochemical sampling	In exploration, the main method of sampling for determination of presence of mineralization. A geochemical sample usually unites fragments of rock chipped with a hammer from drillhole core at a specific interval
geometric mean	The antilog of the mean value of the logarithms of individual values. For a logarithmic distribution, the geometric mean is equal to the median
GMR	gross metal royalty
GPS	global positioning system
group sampling	In exploration and mining, method of sampling by means of union of the material of individual samples characterizing an independent orebody
ha	hectare(s)
histogram	Diagrammatic representation of data distribution by calculating frequency of occurrence
JBNQA	James Bay and Northern Quebec Agreement
JKMRC	Julius Kruttschnitt Mineral Research Centre
kg	kilogram(s)
km	kilometre(s)
kriging	Method of interpolating grade using variogram parameters associated with the samples' spatial distribution. Kriging estimates grades in untested areas (blocks) such that the variogram parameters are used for optimum weighting of known grades. Kriging weights known grades such that variation of the estimation is minimised, and the standard deviation is equal to zero (based on the model)
lag	The chosen spacing for constructing a variogram
LDC	Lac Dore Complex
lognormal	Relates to the distribution of a variable value, where the logarithm of this variable is a normal distribution
m	metre(s)
M	million or mega ( $10^6$ )
macro	A set of MICROMINE commands written as a computer program for reading and handling data
mean	Arithmetic mean
median	Sample occupying the middle position in a database
Micromine	Software product for exploration and the mining industry
ml	millilitre(s)
ml/l	millilitres per litre



MLA	Mineral Liberation Analyzer
mm	millimetre(s)
Mt	million tonnes
NI 43-101	National Instrument 43-101
omni	In all directions
overburden	All material above mineralization
percentile	In statistics, one one-hundredth of the data. It is generally used to break a database down into equal hundredths
population	In geostatistics, a population formed from grades having identical or similar geostatistical characteristics. Ideally, one given population is characterized by a linear distribution
probability curve	Diagram showing cumulative frequency as a function of interval size on a logarithmic scale
QAQC	quality assurance/quality control
quantile plot	Diagrammatic representation of the distribution of two variables. It is one of the control tools, e.g., when comparing grades of a model with sampling data. It is one of the control tools, e.g., for comparing model grades with sampling data
quantile	In statistics, a discrete value of a variable for the purposes of comparing two populations after they have been sorted in ascending order.
range	Same as Influence Zone; as the spacing between pairs increases, the value of corresponding variogram as a whole also increases. However, the value of the mean square difference between pairs of values does not change from the defined spacing value, and the variogram reaches its plateau. The horizontal spacing at which a variogram reaches its plateau is called the range. Above this spacing there is no correlation between samples.
reserves	Mineable geological resources
resources	Geological resources (both mineable and unmineable)
RL	Elevation above the sea level
RL	Elevation of the collar of a drill hole, a trench or a pit bench above the sea level
sample	Specimen with analytically determined grade values for the components being studied
scatterplot	Diagrammatic representation of measurement pairs about an orthogonal axis
SEM	scanning electron microscope
SG	specific gravity
SGS	SGS Laboratories
sill	Variation value at which a variogram reaches a plateau
SKLM	simple kriging with local mean
standard deviation	Statistical value of data dispersion around the mean value
string	Series of 3D points connected in series by straight lines
t	tonne



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t/m <sup>3</sup>	tonne per cubic metre
TO	end of intersection
US\$	United States dollars
variation	In statistics, the measure of dispersion around the mean value of a dataset
variogram	Graph showing variability of an element by increasing spacing between samples
variography	The process of constructing a variogram
VONE	Vanadium One Energy Corp.
VTM	vanadiferous titanomagnetite
wireframe model	3D surface defined by triangles
X	Coordinate of the longitude of a drillhole, a trench collar, or a pit bench
XRD	x-ray diffraction
XRF	x-ray fluorescence
Y	coordinate of the latitude of a drillhole, a trench collar, or a pit bench
y	year



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