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Mont Sorcier Project, Province of Quebec, Canada

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Certificates of Qualification

Certificate of Qualification of Co-Author – Dr Luke Longridge, Ph.D., P.Geo

I, Luke Longridge, Ph.D., P.Geo, do hereby certify that:

- I am employed as a Senior Structural Geologist with the firm of CSA Global Consultants Canada Limited located at 1111 W Hastings Street, 15th Floor, Vancouver, BC, V6E 2J3, Canada.
- I was admitted to the Degree of Bachelor of Science with Honours (Geology), from the University of the Witwatersrand, Johannesburg, South Africa in 2007. I was admitted to the Degree of PhD (Geology) from the University of the Witwatersrand in 2012.
- I am a Professional Geoscientist (P.Geo.) registered with the Association of Professional Engineers and Geoscientists of British Columbia (APEBC, Licence No. 49259), and with a Temporary Geologist Permit from the Ordre des Géologues du Québec (OGQ, Permit No. 2199).
- I have worked as a geologist since my graduation 14 years ago, and I have over nine years of 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 6 May 2021 (the "Technical Report"). I am responsible for Sections 1 to 13 inclusive, and Sections 15 to 27 inclusive.
- As of the Effective Date of the Technical Report (6 May 2021), 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 25th day of June 2021 at Vancouver, Canada

["SIGNED"]

{Luke Longridge}

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Luke Longridge, Ph.D., P.Geo

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:

- I am employed as a Senior Resource Geologist with the firm of CSA Global Consultants Canada Limited located at Suite 400, 15 Toronto Street, Toronto, Ontario, M5H 2V1, Canada.
- I graduated with a degree in Bachelor of Science, Geology, from the Instituto Superior Minero Metalurgico de Moa (ISMM), 2000. I have a Postgraduate Specialization in Geostatistics (CFSG) MINES ParisTech, 2005, and a PhD on Geological Sciences, Geology, from the ISMM in 2006.
- I am a Professional Geoscientist (P.Geo.) registered with the Association of Professional Geoscientists of Ontario (APGO, No. 2934) and the Association of Professional Engineers and Geoscientists of British Columbia (APEBC, No. 43008), and I have applied for a Special Authorization from the Ordre des Géologues du Québec (OGQ) to practice in Quebec.
- I have worked as a geologist since my graduation 19 years ago, and 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 6 May 2021 (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 (6 May 2021), 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 25th day of June 2021 at Toronto, Canada

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{Adrian Martinez Vargas}

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Adrian Martinez Vargas, PhD., P. Geo

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1 Summary

1.1 Location

The Mont Sorcier Property ("the Property" or "the Project") 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 volcaniclastic 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, magnetitites (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 volcaniclastic rock, dacite, rhyolite, banded iron formation, chert, and argilite 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 magnetitite 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 crystallization 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 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 an iron formation (the Lac Sauvage iron formation). This assimilation I thought to have led to the crystallization of magnetite, as well as enhancing cooling rates and 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 two roughly tabular bodies, the main segment (North Zone Main), which is between 100 m and 300 m in thickness, forming a roughly tabular body that strikes approximately 2.8 km east-west, is subvertical and extends to depths of at least 500 m based on drilling, and an eastern extension (North Zone East) which appears to be slightly narrower (30–100 m in thickness), and strikes for approximately 1.5 km east-northeast. It is subvertical and extends to depth of at least 180 m based on drilling. The two segments are offset from one another, this offset is interpreted to be the result of a northwest striking left-lateral fault. The North Zone has been drilled over approximately 4 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, is subvertical, strikes east-northeast to west-southwest and has been mapped in detail as well as being drilled over its entire strike length. The South Zone mineralization is expected to terminate at depth owing to its position in the hinge of a shallow-dipping syncline, although the exact depth of termination has not been determined. Mineralization is interpreted to vary between approximately 100 m and 200 m in true thickness in the South Zone and between 30 m and 300 m in true thickness in the North 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 re-sampled 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 Vanadium One Iron Corp. (VONE).

1.5 Exploration

Between 2017 and 2019, VONE 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 202018. Core was logged, split, sampled and analysed for head grades, percentage of magnetics (determined using Davis Tube Testing) and the grades of the concentrates. An additional 10 NQ diameter drillholes (3,414 m) were drilled on the North Zone in 2020, and core was logged, split, sampled and analysed for head grades. Percentages of magnetics (determined using Davis Tube Testing) and the grades of the concentrates were determined for a selection of samples from the 2020 drilling.

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 Limited (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 2021.

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:

1.6.1 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_2O_3 and TiO_2, 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 2020, 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, and P_2O_5, in both the head grade and in the magnetic fraction produced using Davis Tube magnetic separation. Copper and sulphur 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 2020 were compared, and no significant differences were observed. There were observed differences in the granulometry of the sample preparation for magnetic separation. This resulted in a better liberation and lower contamination of the magnetite concentrate from historical samples. Therefore, Fe_2O_3 grades in concentrate tend to be higher in historical drilling samples. This difference is not considered material at this stage of the Project but more granulometric and metallurgical testwork is recommended to define the optimum granulometry used for sample preparation.

1.6.2 Review of the Interpretation of the Geology and Mineralization Domains

Dr Longridge completed the geological domains of the South Zone and reviewed and modified the geological interpretation of the North Zone prepared by VONE. Dr Martinez then reviewed the interpretations to ensure that they are appropriated estimation domains for Mineral Resource estimation. Only a single estimation domain (ultramafic lithologies) was used for the South Zone, and two separate domains were used for the North Zone. 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.

1.6.3 Compositing

The sampling interval in recent drilling campaigns is typically 3 m in the North Zone and 2 m in the South Zone. The sampling interval in the historical campaigns is around 7 m. Composite samples collected in the historical campaigns are between 10 m and 60 m in length. Drillhole intervals for head grade interpolation were composited to 10 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 interpolate a head grade trend (a smooth reference-grade) in the South Zone only. The objective of these long composites was to maintain the data from long sample composites in a separated dataset and used them as ancillary data in interpolation. In the case of the North Zone, the interpolation approach did not use ancillary data. Instead, long sample composited intervals were used to populate grade values in the regular drilling when the assays were missing. In all cases, the assays and Davis Tube test results collected in regular sampling intervals were preferred.

1.6.4 Capping

For the North Zone, magnetite was set to zero, and Fe_2O_3 head grade was set to 10% if the assay was not available, except for four drillholes. Lower capping for concentrate values was applied at 62% for Fe, and 0.06 for V_2O_5 in concentrate. Fe_2O_3 in head grade was lower capped to 10%. V_2O_5 was top capped to 1%. For the South Zone, capping was not required. Capping and value filling was completed before compositing.

1.6.5 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 analyzed separately using “Supervisor” software, and consisted of de-clustering analyses when necessary, exploratory data analyses, construction of histograms and cumulative histograms, basic statistic calculation, and basic multivariate statistics review.

De-clustering in the South Zone was using de-clustering cells, and in the North Zone, de-clustering used the nearest neighbour estimate. The de-clustering using nearest neighbour was only used for model validation. All the basic statistics completed previously to interpolate were using non de-clustered data.

The statistical analysis for head grades was completed using 2 m (South Zone) and 10 m (North Zone) composite data. Histograms of head grades show a tendency to normal distribution. However, bimodality was observed and attributed to low-grade intervals in the South Zone and North Subzone 2. The statistical analysis for concentrates was completed using 20 m composites for the South Zone, and standard 10 m composites in the North Zone. Correlation between variables were also reviewed for both head grade variables and concentrate grade variables. There is a strong correlation between Fe_2O_3 head grade and percent of magnetite, and a moderate correlation between V_2O_5 in concentrate and Fe_2O_3 head grade.

1.6.6 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.

1.6.7 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 Fe_2O_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.

1.6.8 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 (Fe_2O_3 in the North Zone, Fe_2O_3 and TiO_2 in the South Zone) and percent of magnetite. These in-situ components of the rock were interpolated using simple kriging with local mean (SKLM) in the South Zone and ordinary kriging in the North Zone. The local means for the SKLM estimate of the South Zone were estimated in the block model with the inverse of the squared distance using 20 m composites informed by sample intervals assays. Local means are smooth and intended to represent grade trends at large distances; therefore, both large sample composites and regular sampled intervals 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 cells. Local means were also interpolated into the 2 m composites of the South Zone. 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 represents the smaller-scale local distribution of grades 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.

The interpolation in the North Zone was directly into 10 m parent blocks with ordinary block kriging with 3 x 3 x 3 discretization points, 10 m composites, a maximum of 22 drillhole composites, minimum of six composites, and a maximum of two composites per drillholes, and the variogram model shown in Table 14-2. A large search ellipse of 610 m x 135 m x 87 m was used to select samples. Two search passes were used to interpolate. The second search pass used two times the main search ellipse axis bigger, and three-times secondary and tertiary search ellipse size increment. Visual inspection of the trends was also used to test the estimation parameters.

- **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. In the South Zone, the Al_2O_3, Fe_2O_3, MgO, SiO_2, TiO_2 and V_2O_5 grades in magnetite concentrates were interpolated using the same approach and interpolation parameters used to estimate local means or trends. In the North Zone, only the Fe, and V_2O_5 concentrate grades were interpolated.

Fe_2O_3 is the only element that was assayed systematically in the head grade of all sample intervals for the two main drilling campaigns, Fe_2O_3 head grades were used to deduce the percent of magnetite in 1963–1966, 2013 and 2020 drillhole sampling intervals, and the percent of magnetite was then modelled in the block model using 1963–1966 and 2013–2020 drillhole data. Although other iron-bearing silicate phases (in addition to magnetite) are present, there is a strong correlation between Fe_2O_3 and magnetite, and the effect of iron-silicates is negligible.

The average grade of the concentrates was modelled using grade in concentrate available in sample intervals of the 2010 drillholes and in the 1970s composite samples collected from the 1963–1966 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 Fe_2O_3 and 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.

1.6.9 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 appropriate for mineral resource reporting.

1.6.10 Mineral Resource Classification and Reporting

The aim of this Project is to produce a saleable magnetite concentrate, with potential value added from the vanadium (V_2O_5) content of the concentrate. To assess reasonable prospects of eventual economic extraction, it was assumed that a 65% Fe (93 % Fe_2O_3) magnetite concentrate would be produced, assumed to be saleable at US$90 per dry metric tonne (dmt), and that a US$25/t premium would be applied for the contained V_2O_5. This base-case assumption was also tested with two other options: 1) no bonus for V_2O_5 and 2) 50% of the value of V_2O_5 contained in the concentrate (assuming a price of US$15,432.68/t (US$7/lb) for V_2O_5. Large-scale open pit mining was assumed, with mining, crushing and milling, magnetic separation, general and administration (G&A), and sustaining costs estimated at US$1.9/t, US$2.9/t, and US$2.25/t, respectively, and the cost of transporting the concentrate from site to the buyer estimated at US$40/t.

The assumptions above were used to derive a theoretical pit shell for the North Zone. This pit was used to constraint the resources reported. For the South Zone, all unconstrained resources fell within a theoretical pit and therefore maximum mineralization depths were determined manually through digitization 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 550 m for the North Zone and 310 m for the South Zone.

The block's net values, calculated using the same assumptions used for the pit shell, were used to verify that a reference cut-off grade of 20% Fe_2O_3 is appropriate. A 20% Fe_2O_3 cut-off also align with the threshold below which where most of the iron occurs in non-magnetic silicates rather than in magnetite.

The resource classification definitions used for this estimate are in accordance with Canadian Institute of Mining, Metallurgy and Petroleum (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.

In the South Zone, the classification was completed by selecting blocks within classification polygons manually digitized along drillhole sections. In the North Zone, it was found that blocks above the reference pit (Figure 9-2) satisfy the criteria used for Inferred Mineral Resources and were classified with this category.

With an Effective Date of 6 May 2021 and based on the above criteria, a summary of Mineral Resources reported over a cut-off of 20% Fe_2O_3 head grade (or 14% Fe) is shown in Table 1-1.

Table 1-1: Mineral Resources at Mont Sorcier effective 6 May 2021; cut-off grade is 20% Fe_2O_3 (14% Fe)

Zone	Category	Tonnage		Head grade		Grade in concentrate					
		Rock (Mt)	Concentrate (Mt)	Fe (%)	Magnetite (%)	Fe (%)	V_2O_5 (%)	Al_2O_3 (%)	TiO_2 (%)	MgO (%)	SiO_2 (%)
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	809.1	277	26.1	34.2	63.5	0.6	-	-	-	-
Total	**Indicated**	**113.5**	**35.0**	**22.7**	**30.9**	**65.3**	**0.6**	**0.3**	**1.2**	**3.8**	**2.8**
	Inferred	**953.7**	**313.1**	**25.2**	**32.8**	**64.0**	**0.6**	**-**	**-**	**-**	**-**

Notes: 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. 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 most of the Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

1.7 Conclusions and Recommendations

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 an 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 6 May 2021) at a cut-off of 20% Fe_2O_3 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 953.7 Mt at 25.2% Fe and 32.8% magnetite, have been estimated, as detailed in Table 1-1 and Table 14-5.

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

- 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.
- Permits and authorizations for advancement of the Project are not guaranteed.
- Some historical drillhole collars have been surveyed by an independent surveyor, and some downhole deviation data is available for historical drillholes; however, those that have not been located compare favourably with recorded locations.
- Quality assurance and quality control (QAQC) procedures associated with historical assay only include duplicate analyses, with no standards documented; however, comparison of the results of historical assays with recent values shows that they compare favourably.

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

- 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.
- There is potential for minor extensions to both the North Zone and South Zone resources along strike towards the east and west and at depth by drilling the magnetic anomalies along strike from the current Mineral Resources, as well as testing the depth extensions of mineralization.
- Potential to improve concentrate grades and recoveries with further metallurgical testwork.

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

- Phase 1: 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 100 m along strike.
- Increase the number of round-robin assays for the reference standards sample material, involving more laboratories and more samples per laboratory.
- Standards used should also be subject to magnetic separation, and the magnetic portion assayed.
- Additional Davis Tube testwork on samples from the 2020 drill program and all future drilling programs.

- Phase 2: Work required for prefeasibility studies:
  - Detailed environmental studies and assessments of permitting requirements.
  - Detailed metallurgical testwork including grind optimization.
  - Mining studies
  - Infrastructure studies.
  - Detailed marketing studies.

A budget for this future work is outlined in Table 1-2.

Table 1-2: 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, alternate QAQC methods	~$50,000
	Infill drilling to convert a portion of the North Zone to Indicated Resources	Estimated 10,000 m for sufficient detail for Indicated Resources	~$2,000,000
	5% duplicate and 5% umpire analyses, additional analyses of standards materials	150 samples (including magnetic separation and assay of the concentrate)	~$15,000
	Additional Davis Tube testwork	200 samples	~20,000
	Updated MRE	Interpretation, modelling and reporting	~$60,000
	Total estimated costs		**$2,145,000**
Phase 2: Work required for prefeasibility studies	Metallurgical testwork	Bulk samples, pilot study	~$500,000
	Environmental studies	Commence baseline studies, stakeholder engagement, preliminary work for ESIA	~$1,000,000
	Geotechnical studies	Drilling, sampling, analysis and reporting	~300,000
	Mining studies		~$450,000
	Marketing studies		~$150,000
	Infrastructure studies		~$150,000
	Total estimated costs		**~$2,550,000**
GRAND TOTAL			**~$4,965,000**

2 Introduction

2.1 Issuer

Vanadium One Iron 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" or "the Project" or "the Property") in Roy Township, Quebec, 18 km east of the Town of Chibougamau. 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, an updated Mineral Resource Estimate on VONE's North Zone magnetite deposit.

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 nine 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 6 May 2021. 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, COO 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 2-1.

Table 2-1: Qualified Persons – report responsibilities

Qualified Person	Report section responsibility
Luke Longridge, Ph.D., P.Geo (BC)., OGQ Temporary Geologist Permit 2199 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), 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.

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 4-1). 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 4-1: Location of the Mont Sorcier Project, approximately 20 km east of Chibougamau, Quebec
Source: Google Earth, earth.google.com/web/

4.2 Mineral Tenure

The Mont Sorcier Property (Figure 4-2) 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 4-1.

Figure 4-2: Map of claims over the Mont Sorcier Property

Table 4-1: List of claims for the Mont Sorcier Project

Title	Area (ha)	Expiration date	Amount of work required (C$)	Excess work credits (C$)	Claim lapse date
CDC 2394478	55.44	2023-11-10	$10,750.00	$4,283.07	2031-11-10
CDC 2394491	55.46	2022-03-27	$10,750.00	$4,283.07	2032-03-27
CDC 2394492	55.46	2022-03-27	$10,750.00	$4,283.07	2032-03-27
CDC 2397349	55.47	2023-01-12	$10,750.00	$4,283.07	2033-01-12
CDC 2397350	55.47	2023-01-12	$10,750.00	$4,283.07	2033-01-12
CDC 2397351	55.46	2023-01-12	$10,750.00	$4,283.07	2033-01-12
CDC 2397352	55.45	2023-01-12	$10,750.00	$4,283.07	2033-01-12
CDC 2436339	55.45	2022-05-09	$10,750.00	$4,337.43	2032-05-09
CDC 2436341	55.44	2022-05-09	$10,750.00	$91,809.35	2032-05-09
CDC 2436342	55.43	2022-05-09	$10,750.00	$4,336.15	2032-05-09
CDC 2436343	55.43	2022-05-09	$10,750.00	$4,285.75	2032-05-09
CDC 2436344	55.43	2022-05-09	$10,750.00	$4,283.07	2032-05-09
CDC 2436345	55.43	2022-05-09	$10,750.00	$4,283.07	2032-05-09
CDC 2436346	55.45	2022-05-09	$10,750.00	$4,337.43	2032-05-09
CDC 2436347	55.44	2022-05-09	$10,750.00	$4,336.78	2032-05-09
CDC 2436532	11.06	2022-10-24	$10,750.00	$4,283.06	2032-10-24
CDC 2436662	31.63	2022-10-24	$10,750.00	$4,283.06	2032-10-24
CDC 2436663	8.1	2022-10-24	$10,750.00	$4,283.06	2032-10-24
CDC 2436664	41.05	2022-10-24	$10,750.00	$4,283.06	2032-10-24
CDC 2436665	55.46	2022-10-24	$10,750.00	$4,402.85	2032-10-24
CDC 2436666	55.46	2022-10-24	$10,750.00	$4,367.28	2032-10-24

Title	Area (ha)	Expiration date	Amount of work required (C$)	Excess work credits (C$)	Claim lapse date
CDC 2436667	55.46	2022-10-24	$10,750.00	$4,340.31	2032-10-24
CDC 2436668	55.46	2022-10-24	$10,750.00	$4,283.05	2032-10-24
CDC 2436669	55.45	2022-10-24	$10,750.00	$4,283.05	2032-10-24
CDC 2436670	55.45	2022-10-24	$10,750.00	$430,660.16	2032-10-24
CDC 2436671	55.45	2022-10-24	$10,750.00	$124,832.89	2032-10-24
CDC 2477242	55.43	2023-01-08	$10,750.00	$4,283.05	2033-01-08
CDC 2477243	55.43	2023-01-25	$10,750.00	$4,283.05	2033-01-25
CDC 2477244	55.43	2023-01-25	$10,750.00	$4,283.05	2033-01-25
CDC 2477245	55.43	2022-11-06	$10,750.00	$4,283.05	2032-11-06
CDC 2477246	53.69	2023-01-05	$10,750.00	$4,283.05	2033-01-05
CDC 2477247	55.44	2023-01-08	$10,750.00	$106,948.46	2033-01-08
CDC 2477248	55.44	2023-01-08	$10,750.00	$244,001.58	2033-01-08
CDC 2477249	55.07	2022-12-14	$10,750.00	$4,283.05	2032-12-14
CDC 2477250	55.44	2023-04-02	$10,750.00	$4,283.05	2033-04-02
CDC 2477251	55.44	2023-02-08	$10,750.00	$4,283.05	2033-02-08
CDC 2477252	55.45	2022-10-24	$10,750.00	$591,519.61	2032-10-24

Note that claims can be renewed for periods of two years beyond the expiration date, if more work than required is carried out before the 60th 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:

- Vanadium One Iron Corp.
  110 Younge Street, app 501
  Toronto, Ontario
  Canada, M5C 1T4

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. Mines Indépendantes Chibougamau Inc. 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. Claims were transferred to VONE on 2 April 2020.

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 4-2) are in good standing with assessment work requirements being kept up to date.

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. VONE currently holds an active intervention permit, which allows for drilling on both the North Zone and South Zone, i.e. to undertake additional drilling work as recommended in Section 26. The permit is valid until 31 March 2022.

Permitting for underground exploration is more complex, involving numerous regulations levels from various governmental 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 55th 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, 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 summarized 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 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 on low lying lake or swamp areas may be best conducted during the winter months when the ground and water surfaces are frozen, while high-lying areas are best accessed during summer months. 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 a population of approximately 3,000 and 1,000 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, is available in the Chibougamau area which is also well served by heavy equipment service and maintenance providers. Several companies specialize 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. The railroad network from Chibougamau reaches all of North America, including the Great Lakes industrial basin and the steel belt between Pittsburgh (USA) and Hamilton (Canada).

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 summarized in Table 6-1 below.

Table 6-1: 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 Ltd	Significant exploration of magnetite layers (iron + titanium + vanadium) 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 Resources ownership. However, based on available geophysical surveys carried out by Apella Resources, 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 its 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 iron, titanium 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 (gold, silver, copper, zinc, iron), and the Baie Magnetite Ouest occurrence (gold).

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 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 Ltd

The bulk of historical work pertinent to the Property was carried out by Campbell Chibougamau Mines Ltd in 1961, 1965–1969 and 1974–1975, 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, 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 list of drillholes completed by Campbell Chibougamau Mines Ltd in the 1960s on the North Zone and South Zone deposits is presented in Table 6-2 below, and displayed in Figure 6-1. Holes were generally vertical and were drilled on several north-south sections.

Table 6-2: Drillholes completed by Campbell Chibougamau Mines Ltd (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
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

Hole name	Zone	Easting	Northing	Azimuth	Dip	Year	Collar resurveyed by VONE
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
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

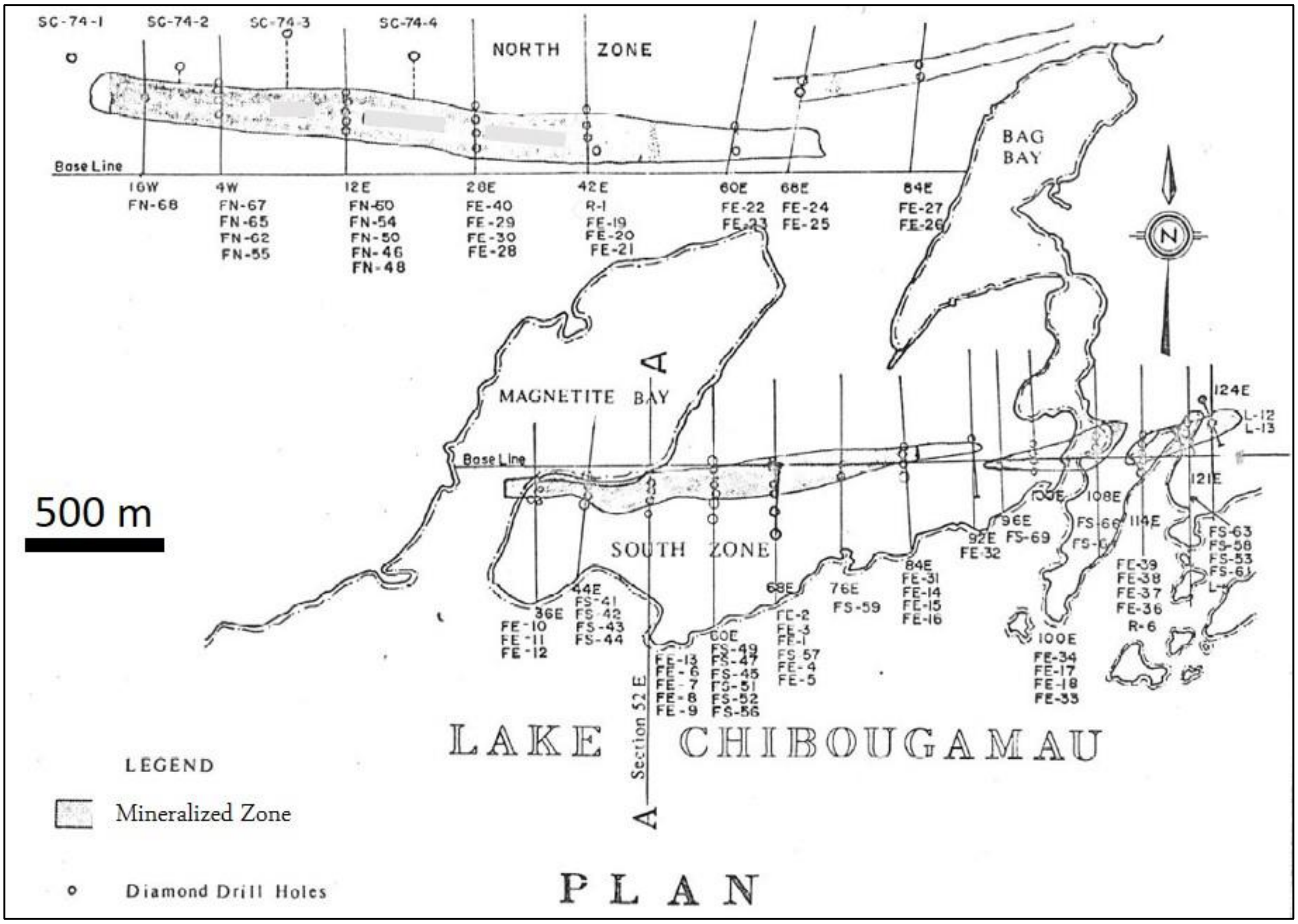

Figure 6-1: Map of historical drillhole locations (from Campbell Chibougamau Mines Ltd, 1974)

Historical data is available as PDF documents, showing detailed drill logs and assay data for each drillhole (Figure 6-2).

CAMPBELL CHIBOUGAMAU MINES LTD.

ACID TEST
~~TWO PART TESTS~~

Hole #	FE-25						**SURVEY RESULTS**	
Location	10+70 N	Size of core	AXT	**PROPERTY**	Depth / Mag. Bng. / Corr. Bng. / Dip		Latitude	
Section	68E	Started	January 18, 1966	Magnetite Bay Corval Group	800.0'	88°	Departure	
Strike	-	Completed	January 27,66				Elevation	
Dip	-90°	Cement	none				Strike	
Length	811.0	Logged by	P.C. Masterman, G. Benussi				Dip	

FOOTAGE		ROCK TYPE	DESCRIPTION: Alteration – Colour	DESCRIPTION: Structure - Texture	DESCRIPTION: Sulphides - Minor features - Remarks	CORE - SAMPLES: Number	From	To	Length	ASSAYS: Au	Cu	Fe	TiO_2
0.0		Overburden											
	10.0					25501	10.0	25.0	15.0			28.8	1.95
10.0		Iron Formation	L-M Serp, M gy	M.gr. equigranular	25-30% Mag, 1% Po	25502	25.0	50.0	25.0			31.4	2.11
				L. contact sharp 45-50°CN	diss.	25503	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. declines	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 blck	Vitreous app. vague	Fine veinlets mag. common	25512	275.0	300.0	25.0			19.2	0.89
				dunite text.	20-25% mag. carb.								
					veining irreg. up to 2". Tr Po								
	304.5	Iron Formation	L-M Carb. Dk gy	Patchy L-M Sh. +	Carb. concentrated in short	25513	300.0	325.0	25.0			27.6	1.38
				brecc. 60-80° CN	sheared sections + veinlets								
	327.0	Brecc. I.F.	M Carb. Dk gy	M. Brecc.	H Carb. in H Sheared sects.	25514	325.0	350.0	25.0			22.2	1.06
					minor graphite								
	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	Dis. 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	M. shearing	35% mag. Tr po	25531	375.0	400.0	25.0			13.1	1.24
			of bands of light and dark	foliation 70-90° CN									
			mineral. H Carb, L Ser	Co.gr. vague phenos									

Figure 6-2: Example of a historical drillhole log from Campbell Chibougamau Mines Ltd, showing assays for Fe and TiO_2

In the 1970s, Campbell Chibougamau Mines Ltd 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_2 and V_2O_5 (Figure 6-3).

SECTION 42E

		Footage		Length	Mine Analysis		Head Analysis			Davis Tube Concentrate Test (Ore Only)						PIT "A"	QDNR (1972) ASSAYS		
Hole #	Test #	From	To	Feet	% Fe	% TiO_2	% Fe	% TiO_2	% Wt	% Fe	% TiO_2	Fe Dist.	TiO_2 Dist.	Grind	Area Sq. Ft.	Area Sq. Ft.	% Sol Fe	% TiO_2	% V_2O_5
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	38,424	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 6-3: Example of composite sample data from Campbell Chibougamau Mines Ltd

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

Several phases of historical metallurgical testwork were carried out on the Project by Campbell Chibougamau Mines Ltd, including mineralogy, magnetite concentration tests, autogenous grinding tests, pelletizing 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 68.5–69% 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 cobbed 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 summarized in Table 6-3 and plotted in Figure 6-4 below.

Table 6-3: Historical grind vs concentrate grade data from Campbell Chibougamau Mines Ltd

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

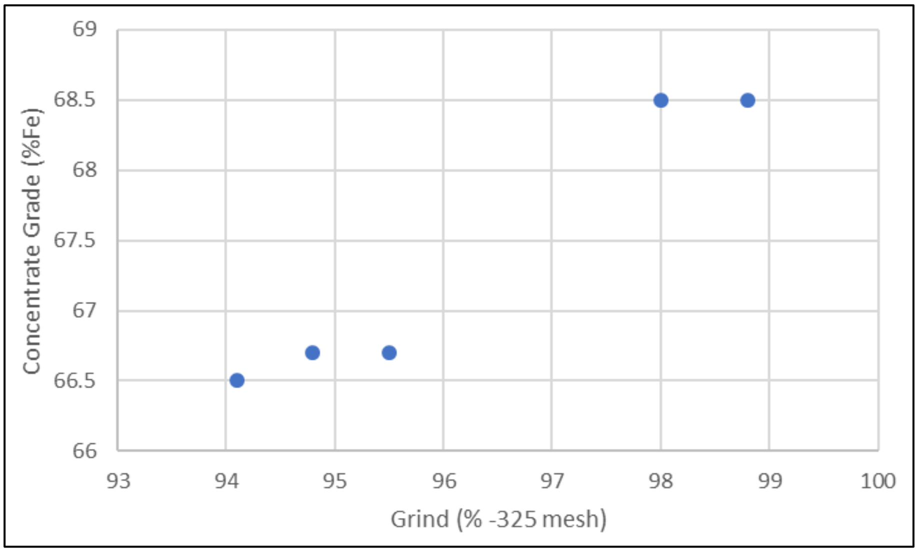

Figure 6-4: Historical grind vs concentrate grade data from Campbell Chibougamau Mines Ltd

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 6-5). Products included total magnetic intensity and measured vertical gradient.

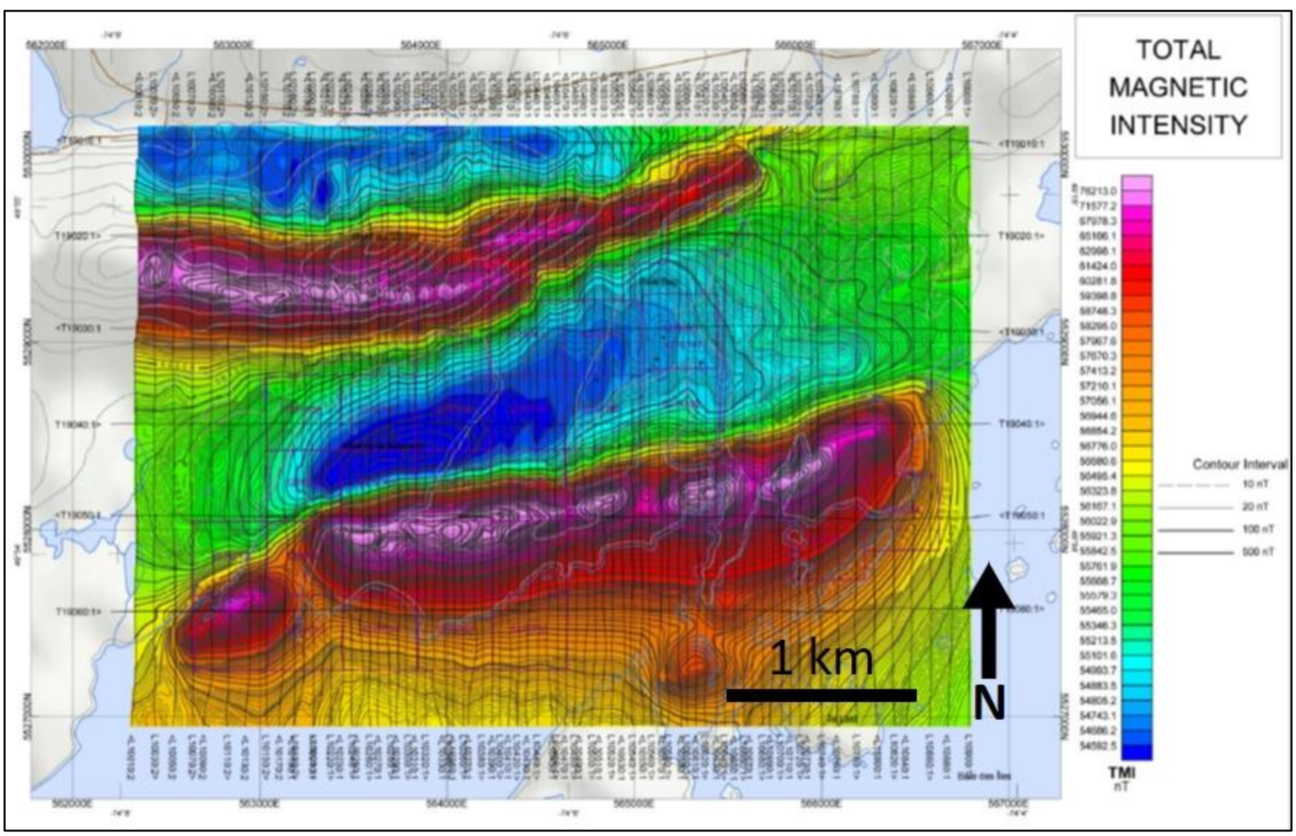

Figure 6-5: Map of flight lines and total magnetic intensity from the 2010 AeroQuest survey

6.2.4 Drilling by Chibougamau Independent Mines Inc. (2013)

In 2013, Chibougamau Independent Mines Inc. 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 6-4).

Table 6-4: Drillhole drilled by Chibougamau Independent Mines Inc. 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 Previous Mineral Resource Estimates

6.3.1 Historical Estimate

Based on its work from 1961 to 1974, Campbell Chibougamau Mines Ltd in 1974 generated a grade and tonnage estimate on the magnetite layers within the project area. These historical, non-compliant reserves for both the South Zone and North Zone were published by Ministère de l'Énergie et des Ressources Naturelles of Quebec in a 1975 report. These reserves were estimated with a cut-off of 17.0% Fe (or 24.3% Fe_2O_3), using polygonal methods and excluding polygons (or blocks) with 1.75% TiO_2 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_2O_5 and 0.57% V_2O_5 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 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves. 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.

6.3.2 2019 Estimate

VONE retained CSA Global to prepare a maiden MRE for the Mont Sorcier Project in 2019 (Longridge and Martinez, 2019). The MRE was prepared in accordance with CIM Definition Standards on Mineral Resources and Reserves, (adopted 10 May 2014) and reported in accordance with NI 43-101. The Mineral Resource was reported at a cut-off grade of 14% Fe in Inferred and Indicated classification. Indicated Mineral Resources were estimated as 113.5 Mt at 22.7% Fe and 30.9% magnetite grading at 65.3% Fe and 0.6% V_2O_5. Inferred Mineral Resources were estimated as 520.6 Mt at 25.4% Fe and 34.2% magnetite grading 64.4% Fe and 0.6% V_2O_5. The 2019 MRE was re-issued in 2020 on behalf of VONE in a technical report disclosing a Preliminary Economic Assessment of the Mont Sorcier Project (Bartsch et al., 2020). VONE had not completed any additional drilling since the 2019 MRE, therefore the Mineral Resource was re-issued and reported without change, with an effective date of 27 February 2020, and in accordance with NI 43-101.

The 2019–20202 MRE (Longridge and Martinez, 2019, Bartsch et al., 2020) is superseded by the 2021 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 x 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 7-1).

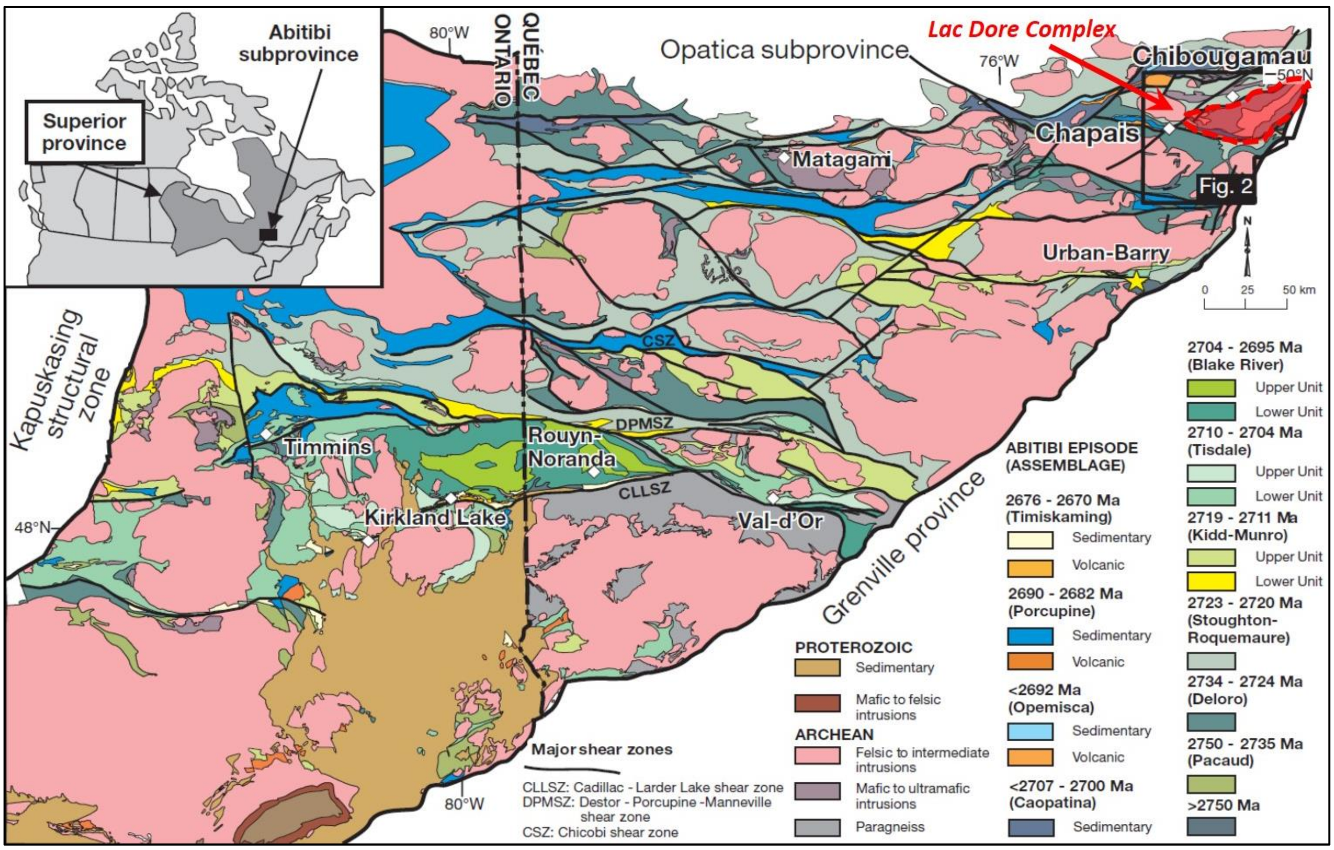

Figure 7-1: Geology of the Abitibi greenstone belt showing the location of the LDC

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 volcaniclastic stratigraphy (Figure 7-2). 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.

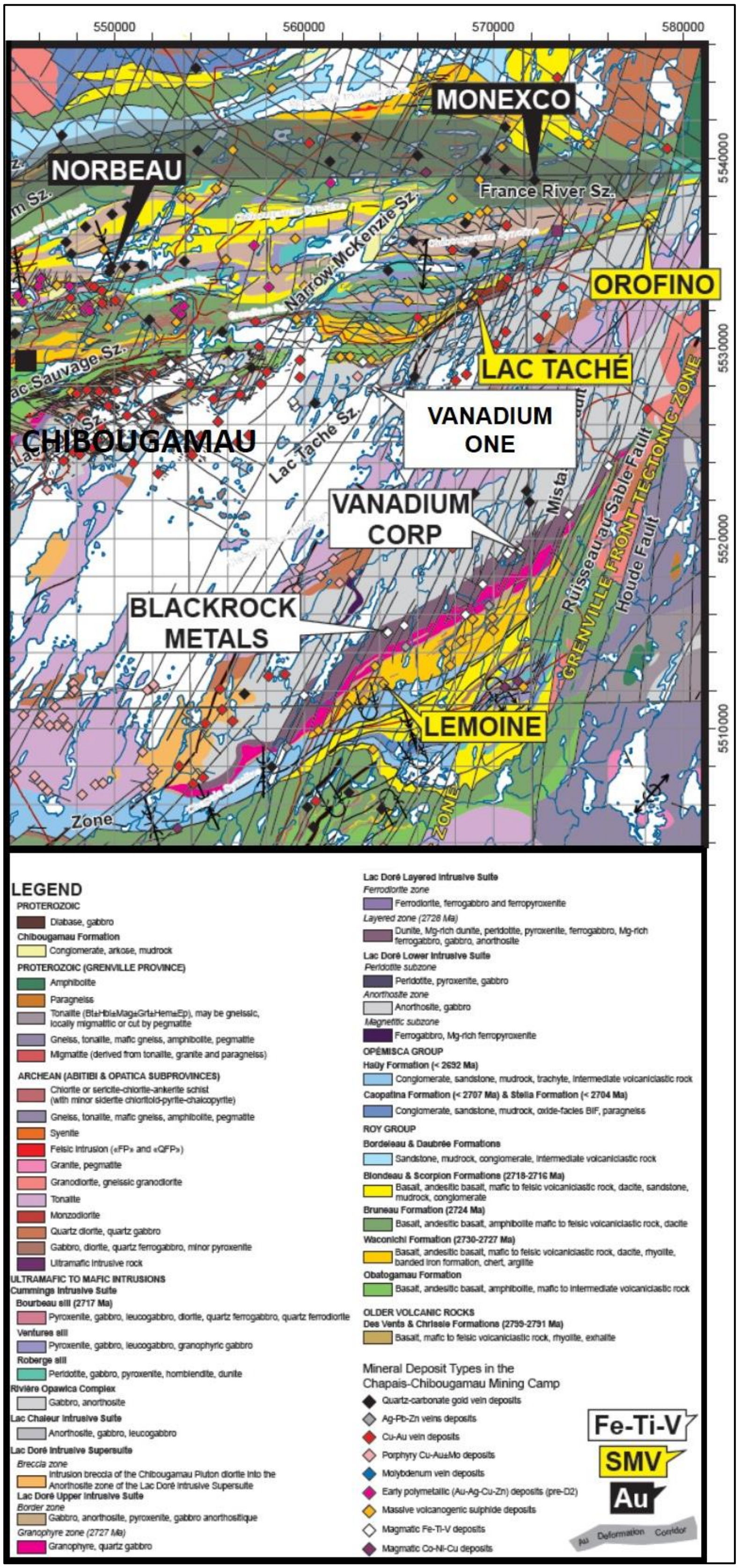

Figure 7-2: Regional geology of the Chibougamau area and the LDC

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, magnetitites (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 7-3) 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.

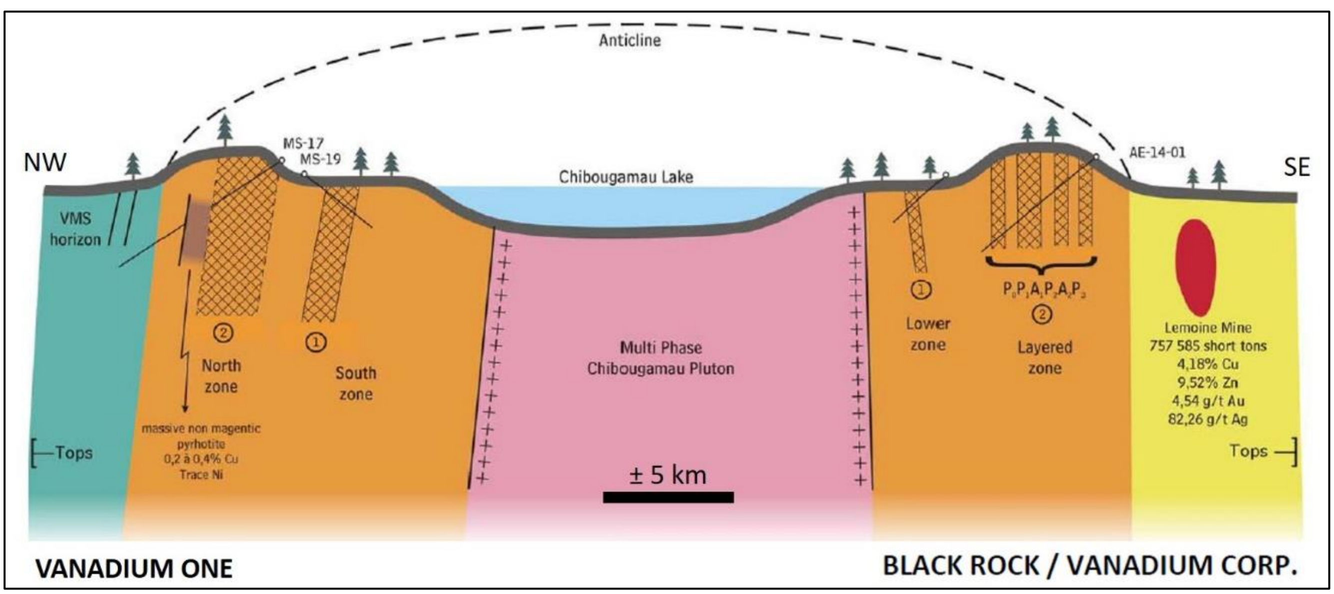

Figure 7-3: Schematic northwest-southeast cross-section through the LDC

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 7-2, Figure 7-5). 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 volcaniclastic rock, dacite, rhyolite, BIF, chert, and argilite 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 7-4). 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.

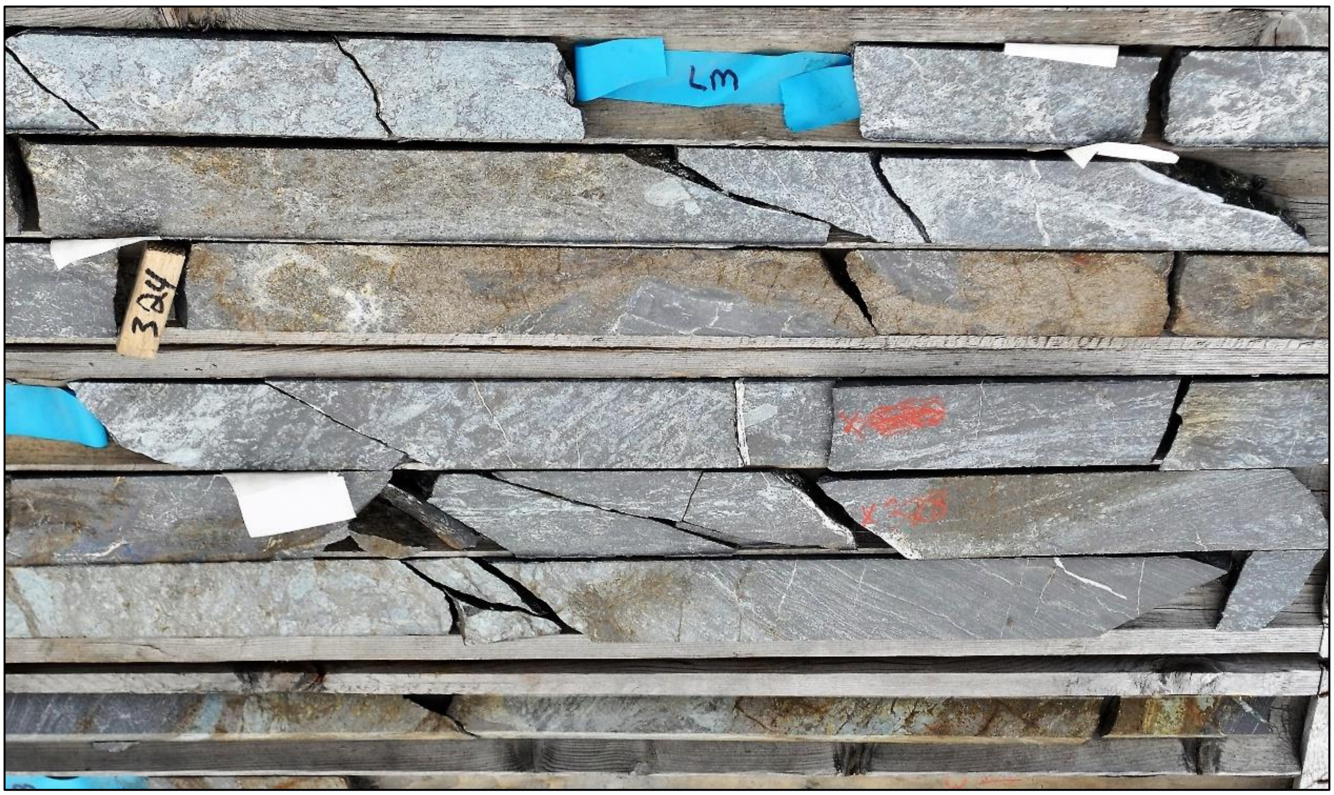

Figure 7-4: BIF being assimilated into mafic magmas in drillhole MS-13-17

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 centimetre-scale magnetitite 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.

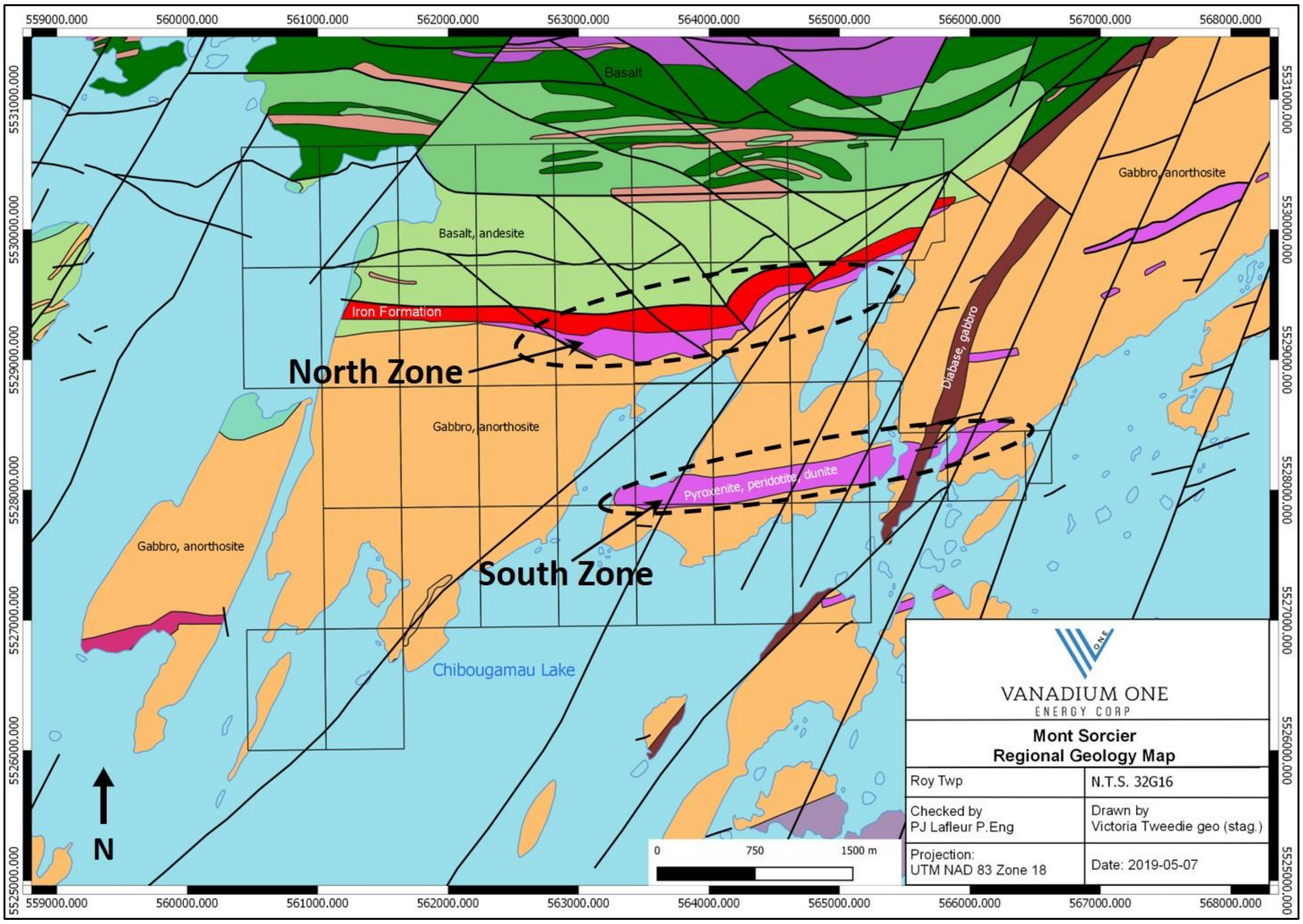

Figure 7-5: Geological map of the Mont Sorcier Property

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 7-6).

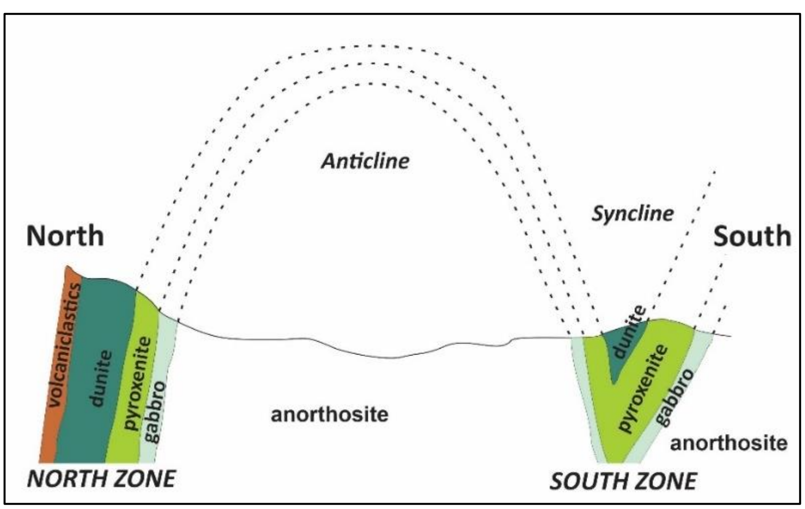

Figure 7-6: Structural relationship between the North Zone and South Zone (after Dorr, 1966)

7.2.1 North Zone and South Zone

Two significant mineralized zones containing magnetite (Fe_3O_4) are found on the property – the North Zone and the South Zone. Both zones contain VTM mineralization.

The North Zone is identifiable in the field and through airborne magnetics over a strike length of approximately 4 km. It forms two discrete segments – the main segment (North Zone Main), which is between 100 m and 300 m in thickness, forming a roughly tabular body that strikes approximately 2.8 km east-west, is subvertical and extends to depths of at least 500 m based on drilling, and an eastern extension (North Zone East) which appears to be slightly narrower (30–100 m in thickness), and strikes for approximately 1.5 km east-northeast. It is subvertical and extends to depth of at least 180 m based on drilling. The two segments are offset from one another, this offset is interpreted to be the result of a northwest striking left-lateral fault. The North Zone has been drilled over approximately 4 km of its strike length.

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). Because magnetite is an iron oxide, it shows a strong correlation with the iron content of the rocks, and assay of iron content can be used as a proxy for magnetite content once a suitable correlation is demonstrated, although care should be taken as some iron silicates are commonly present.

Mineralogy

In early 2018, VONE commissioned ActLabs to undertake mineralogical studies for selected samples using QEMSCAN, to determine the liberation characteristics of the magnetite and associated minerals. In late 2018 VONE commissioned SGS Laboratories to carry out additional QEMSCAN mineralogical characterization 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 7-7). In pristine samples, magnetite often displays an interstitial texture, filling spaces between subhedral to euhedral pyroxene (Figure 7-7A) and olivine (Figure 7-7B) crystals. Elsewhere, magnetite occurs as minute grains within pyroxene (Figure 7-7C) and olivine (Figure 7-7D) grains. Large subhedral pyroxene crystals contain few magnetite inclusions (Figure 7-7C), and some samples display younger magnetite veins in addition to the disseminated igneous magnetite (Figure 7-7D).

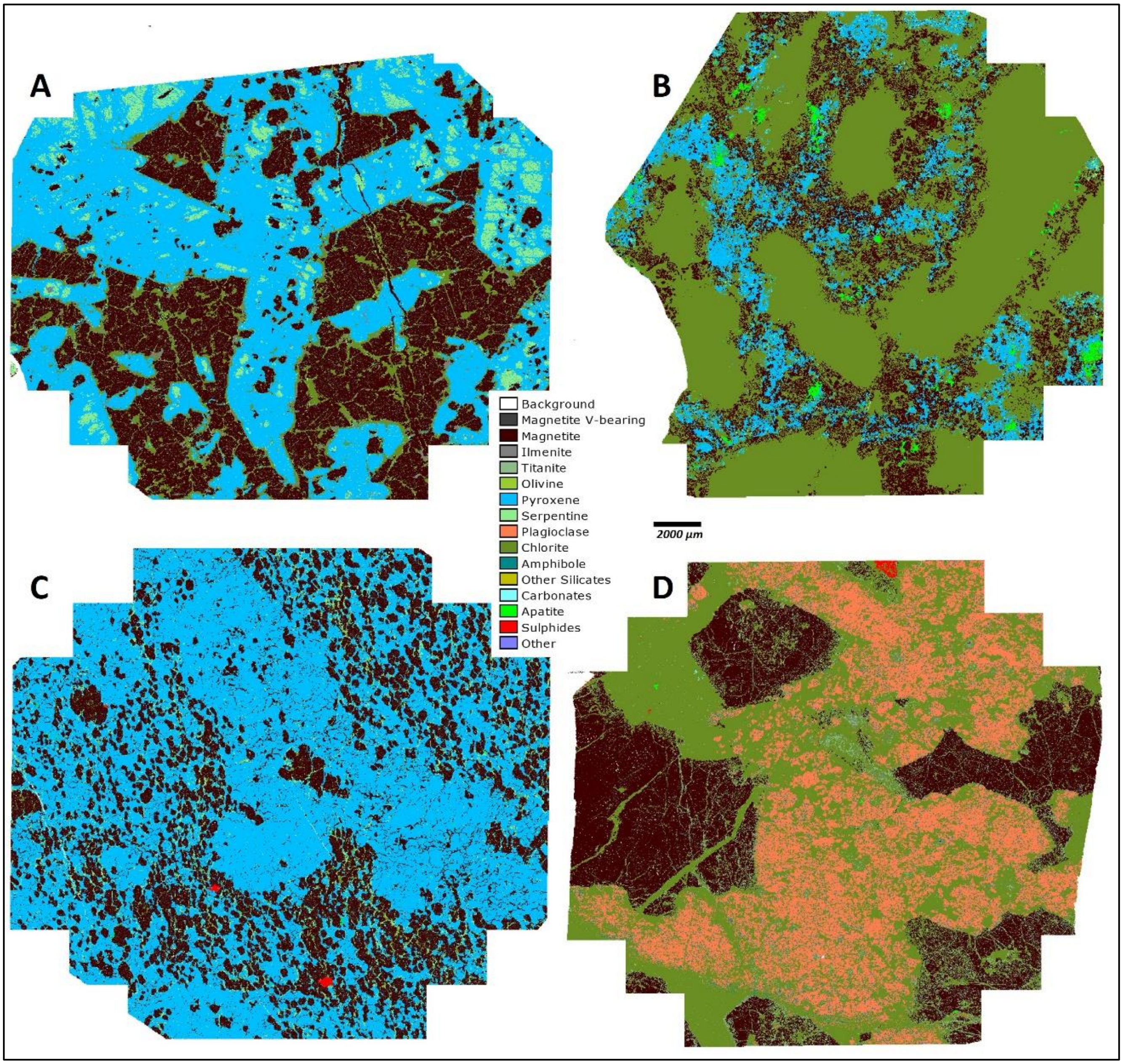

Figure 7-7: SGS QEMSCAN images of magnetite-bearing samples (Glossop and Prout, 2019) – note the presence of apatite and sulphides in some samples

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 7-8) show complete serpentinization of olivine (Figure 7-8A), as well as evidence for deformation in the form of small, intrafolial folds of magnetite (Figure 7-8B). In rare cases where olivine is still preserved, it is found as minute relict grains within an alteration matrix of carbonate and chlorite (Figure 7-8C). In some cases, secondary remobilized veins of magnetite crosscut altered samples and primary magnetite (Figure 7-8D).

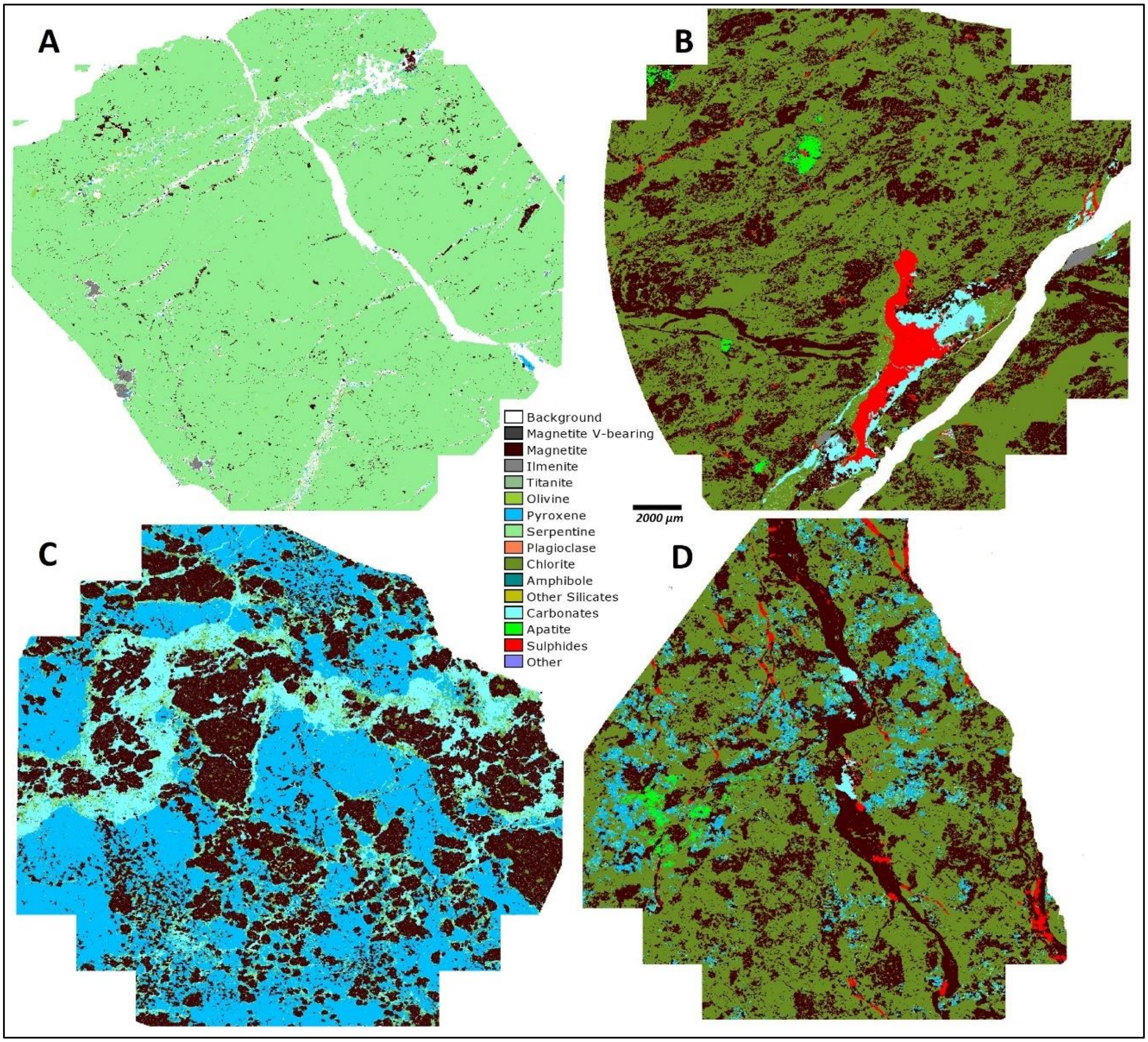

Figure 7-8: SGS QEMSCAN images of more altered and deformed samples (Glossop and Prout, 2019) – note the presence of apatite and sulphides in some samples

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 (formula Fe_3O_4) is initiated when the evolving magma becomes sufficiently iron-enriched to form oxide minerals, and thereafter settling of magnetite crystals results in localized lowering of the magma density from ~2.7 to ~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. Magnetite content correlates strongly with iron content (measured as Fe or Fe_2O_3), owing to magnetite being an iron oxide mineral. Because vanadium is compatible in the magnetite crystal structure, it fractionates into magnetite, thereby depleting the remaining magma of vanadium. This results in the lowermost magnetite-bearing units in layered complexes typically having the highest V_2O_5 values, with the vanadium content of the magnetite gradually decreasing upwards through the stratigraphy (Figure 8-1) – lower layers can have V_2O_5 contents of up to 3%, while this drops to below 0.3% in the upper layers. Conversely, titanium is incompatible, and becomes more concentrated in the residual magma – hence the lower VTM layers have lower titanium contents (typically 7–12% TiO_2) than upper layers (up to 20% TiO_2), where ilmenite and even rutile may be observed.

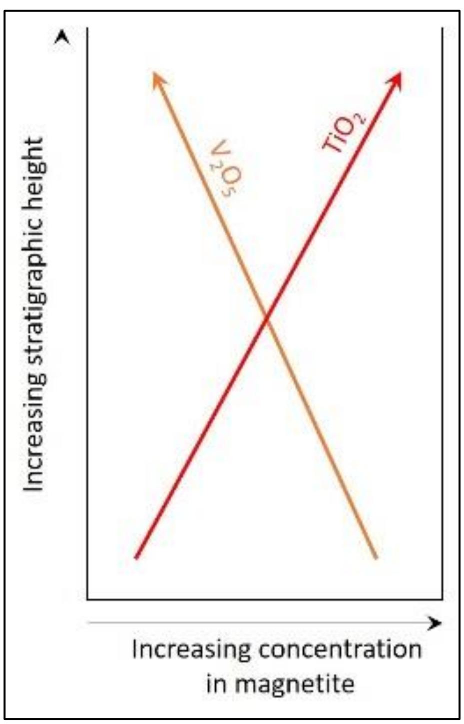

Figure 8-1: Schematic diagram showing the general increase in TiO_2 and decrease in V_2O_5 in magnetite with increased stratigraphic height in the upper portions of layered mafic complexes

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. overturned) or the influx of new magma (Harne and Von Gruenewaldt, 1995). Separation of a dense, iron-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 titanium, 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 iron-enriched, magnesium-bearing, and silicon-poor rocks would have de-silicified and added iron-magnesium to an already iron-enriched, evolved basaltic magma and favoured the formation of magnesium-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 8-2), in contrast to the rhythmic succession of centimetre- to metre-thick magnetitite 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).

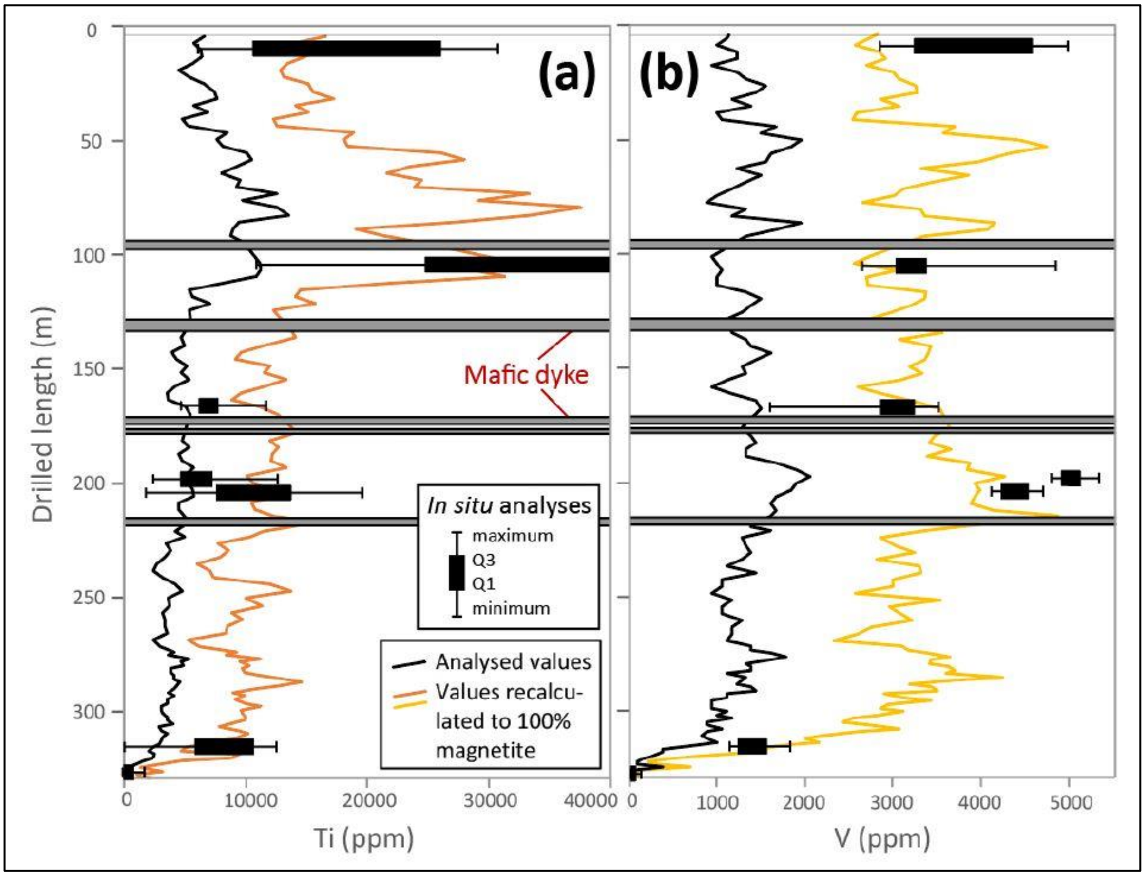

Figure 8-2: Titanium (a) and vanadium (b) contents (from drill core MS-13-17) represented as a function of downhole length

Note: The vanadium and titanium 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 9-1). 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, FE-9, and FE-13). No trenching/sampling of the exposed areas by VONE has taken place, but the exposed bedrock has been used for mapping.

Figure 9-1: 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 9-2.

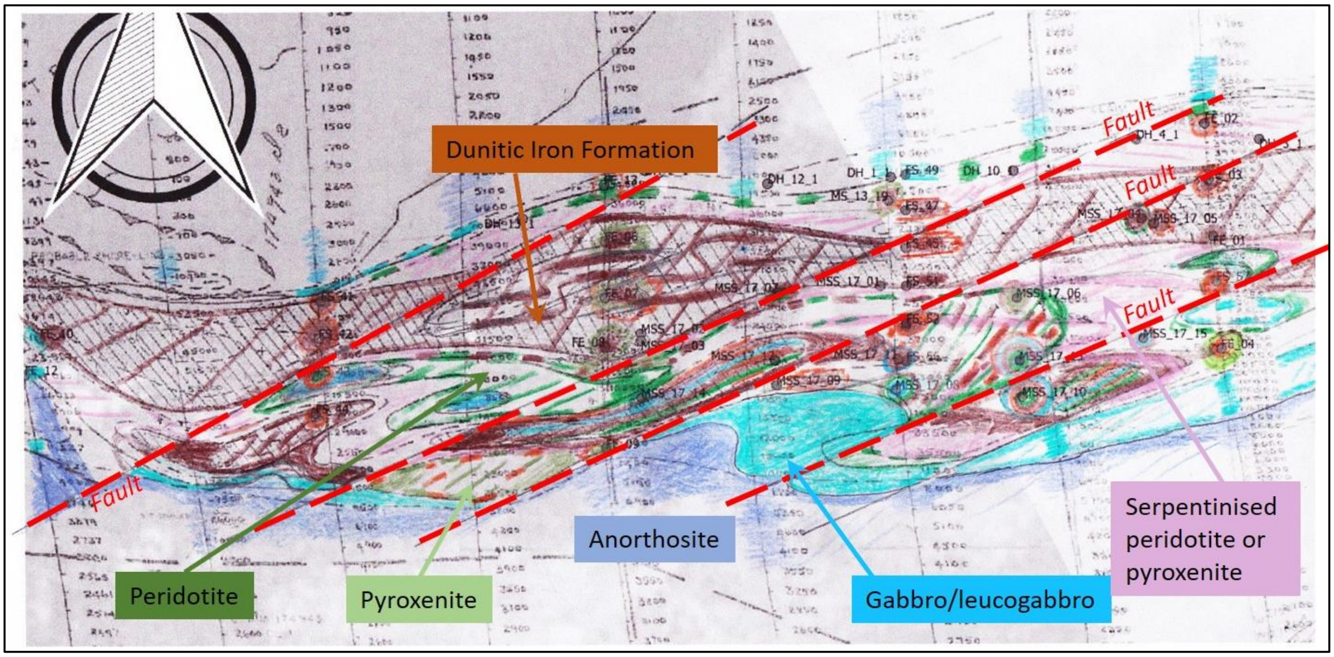

Figure 9-2: *Hand-drawn geological map (created by Mr Ali Ben Ayad) of a portion of the South Zone deposit*

Note: The map has been drawn over historical ground magnetic data (carried out by Campbell Chibougamau Mines Ltd). Several northeast-trending sinsitral faults are evident, which displace and offset mafic-ultramafic units and accociated 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 9-3) and Tilt. These products were used together with the results of field mapping to aid in the interpretation of wireframes for Mineral Resource estimation.

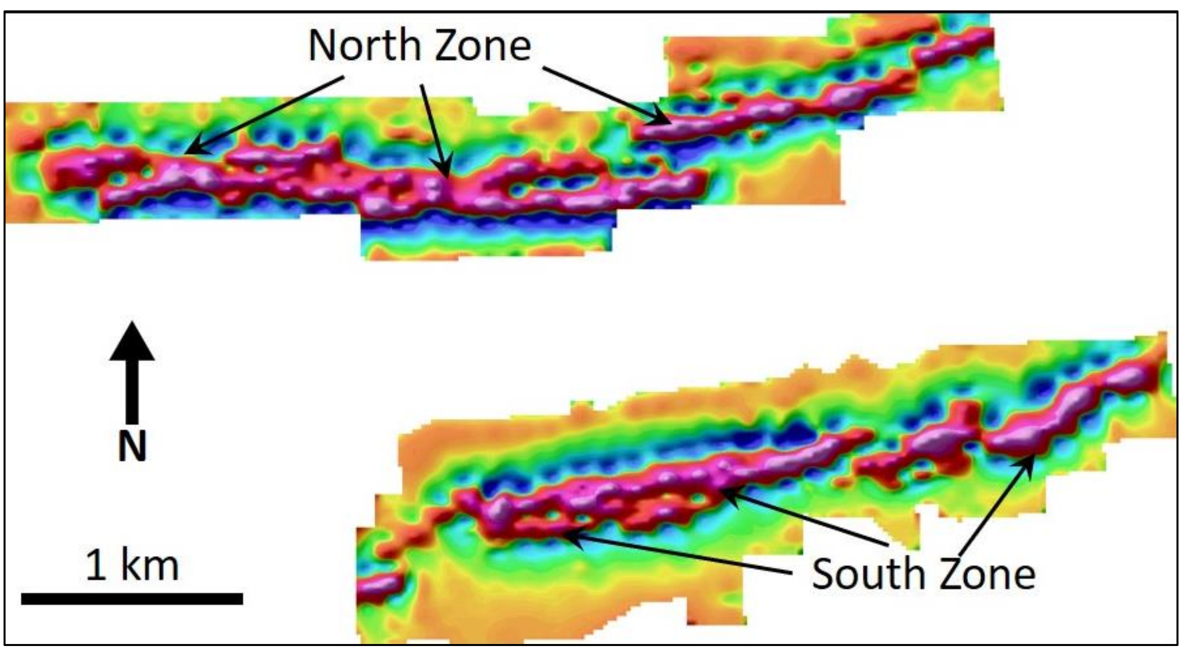

Figure 9-3: *1VD created in 2018 by Laurentia Exploration using 2010 AeroQuest airborne magnetic data*

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 10-1. A total of 32 drillholes (7,388.18 m) were drilled.

Table 10-1: 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	360	-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
MSS-18-25	564521.5	5527958.6	350	-45	207
MSS-18-26	564762.7	5528074.9	360	-45	175.4

Hole name	Easting	Northing	Azimuth	Dip	Length (m)
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.

10.3 Summary of VONE 2020 Drilling

Local drill company, Forage Chibougamau was contracted to drill NQ diameter diamond drill core on the Mont Sorcier North deposit. 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 2020, their coordinates (easting and northing), length, and the dip and azimuth of the hole, are shown in Table 10-2. A total of 10 drillholes (3,414 m) were drilled.

Table 10-2: Drillholes drilled by VONE in 2020 on the Mont Sorcier Property.

Hole name	Easting	Northing	Azimuth	Dip	Length (m)
MSN-20-05	564708	5529711	180	-45	249
MSN-20-06	564708	5529711	180	-60	264
MSN-20-07	564400	5529640	180	-45	189
MSN-20-08	564290	5529625	200	-51	315
MSN-20-09	565000	5529790	180	-55	225
MSN-20-10	565305	5529907	180	-45	228
MSN-20-11	564091	5529153	360	-45	498
MSN-20-12	563677	5529110	360	-45	534
MSN-20-13	565476	5530040	180	-45	312
MSN-20-14	562614	5529973	180	-45	600

A map showing the locations of all holes drilled by VONE between 2017 and 2020, in addition to the locations of historical drillholes, is shown in Figure 10-1.

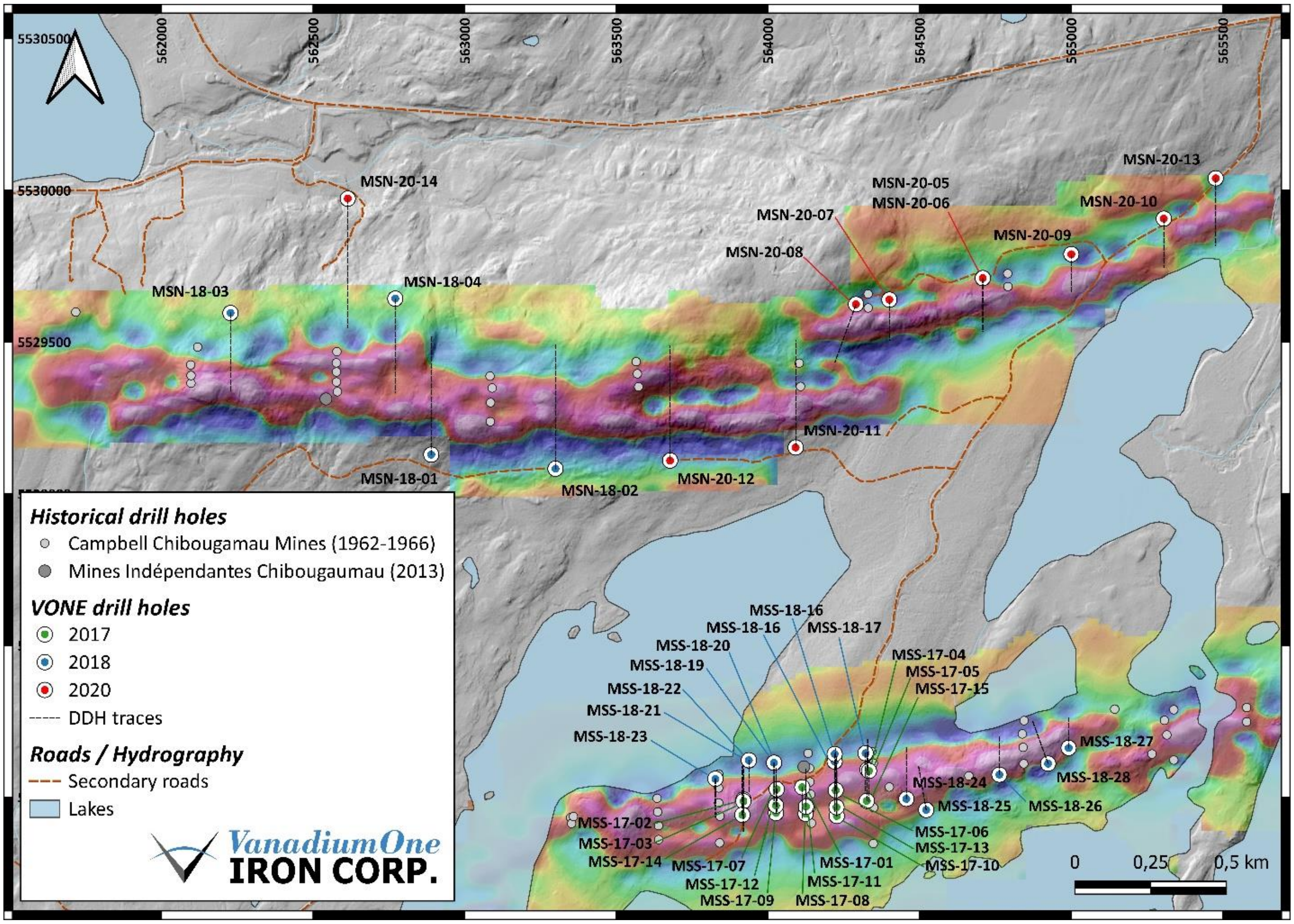

Figure 10-1: Location of drillholes on the Mont Sorcier Project, overlain on the total magnetic intensity (airborne magnetics data) for the Property

10.4 Sampling

10.4.1 Core Logging

After 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, 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.

10.4.2 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.

10.5 Surveying

10.5.1 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 6-2) were measured by a Leica GS18 multi-frequency GNSS providing centimetre-level accuracy.

10.5.2 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.

10.6 Significant Intervals

A list of significant intervals for holes drilled by VONE in 2017, 2018 and 2020 is presented in Table 10-3.

Table 10-3: List of significant intervals drilled by VONE in 2017 and 2018 and 2020

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
	MSN-20-05	20.6	202	181.4	180.0	-45.0	135.0	32.7	0.18	-
	MSN-20-06	21.9	92.5	70.6	180.0	-60.0	45.0	31.6	0.23	-
		140.4	231.7	91.3	180.0	-60.0	65.0	30.0	0.15	-
	MSN-20-07	44.0	138.0	94.0	180.0	-45.0	80.0	37.8	0.35	-
	MSN-20-08	56.0	230.9	174.9	200.0	-51.0	130.0	38.0	0.41	-
	MSN-20-09	75.0	167.3	92.3	180.0	-55.0	53.0	32.6	0.15	-
	MSN-20-10	112.0	156.0	44.0	180.0	-45.0	31.0	29.7	0.13	-
	MSN-20-11	237.3	389.9	152.6	360.0	-45.0	87.0	39.1	0.29	-
	MSN-20-12	237.8	415.5	177.7	001.0	-45.0	106.0	37.6	0.37	-
	MSN-20-13	177.0	222.5	45.5	180.0	-45.0	30.0	38.3	0.22	-
	MSN-20-14	452.0	558.0	106.0	180.0	-45.0	106.0	37.7	0.25	-
		582.8	598.0	15.2	180.0	-45.0	15.2	33.9	0.22	-

Zone	Hole name	From	To	Length	Azimuth	Dip	True thickness	Fe2O3_T	V2O5	V2O5c
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

10.7 Interpretation

10.7.1 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 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. Representative cross-sections through the North Zone and South Zone are shown in Figure 10-2A and Figure 10-2B, respectively.

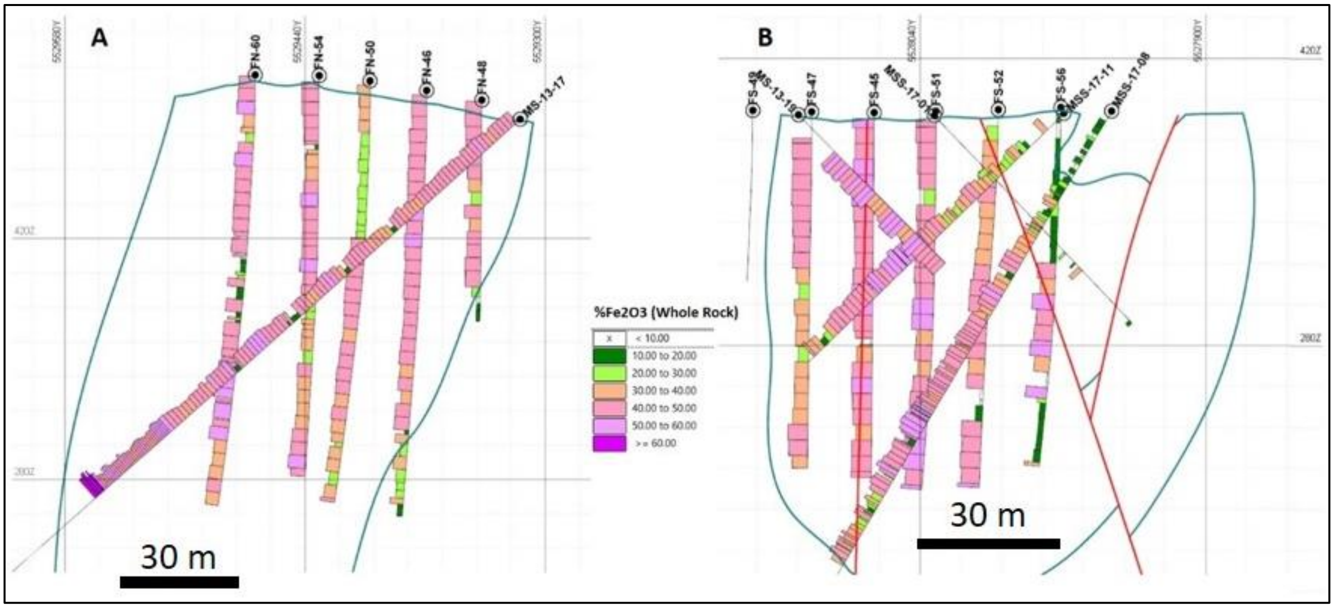

Figure 10-2: Representative cross-sections looking east through the mineralization, showing historical and recent drilling, and assay values for Fe_2O_3

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

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

10.8 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°). 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 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 Inc. 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 summarized in Table 11-1.

Table 11-1: Laboratories used by VONE for assay of samples

Laboratory	Boreholes
Activation Laboratories	MS-13-17, MS-13-19, MSS-17-01 to MSS-17-05, MSS-17-08 to MSS-17-15, 2020 drillholes
Laboratoire Expert	MS-13-17
SGS Laboratories	MSN-18-01 to MSN-18-04, MSS-18-16 to MSS-18-28, 2020 DT results

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 analyzed using XRF on a borate fusion disk.

Sample analytical procedures utilized by Campbell Chibougamau Mines Ltd 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 11-1) create a magnetic field which can 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 11-1: A Davis Tube magnetic separator
Source: https://geneq.com/materials-testing/en/product/sepor/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 optimize 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 Fe_2O_3 up to ~15% Fe_2O_3 (Figure 11-2). A slightly higher cut-off grade of 20% Fe_2O_3 has been chosen for Mineral Resources.

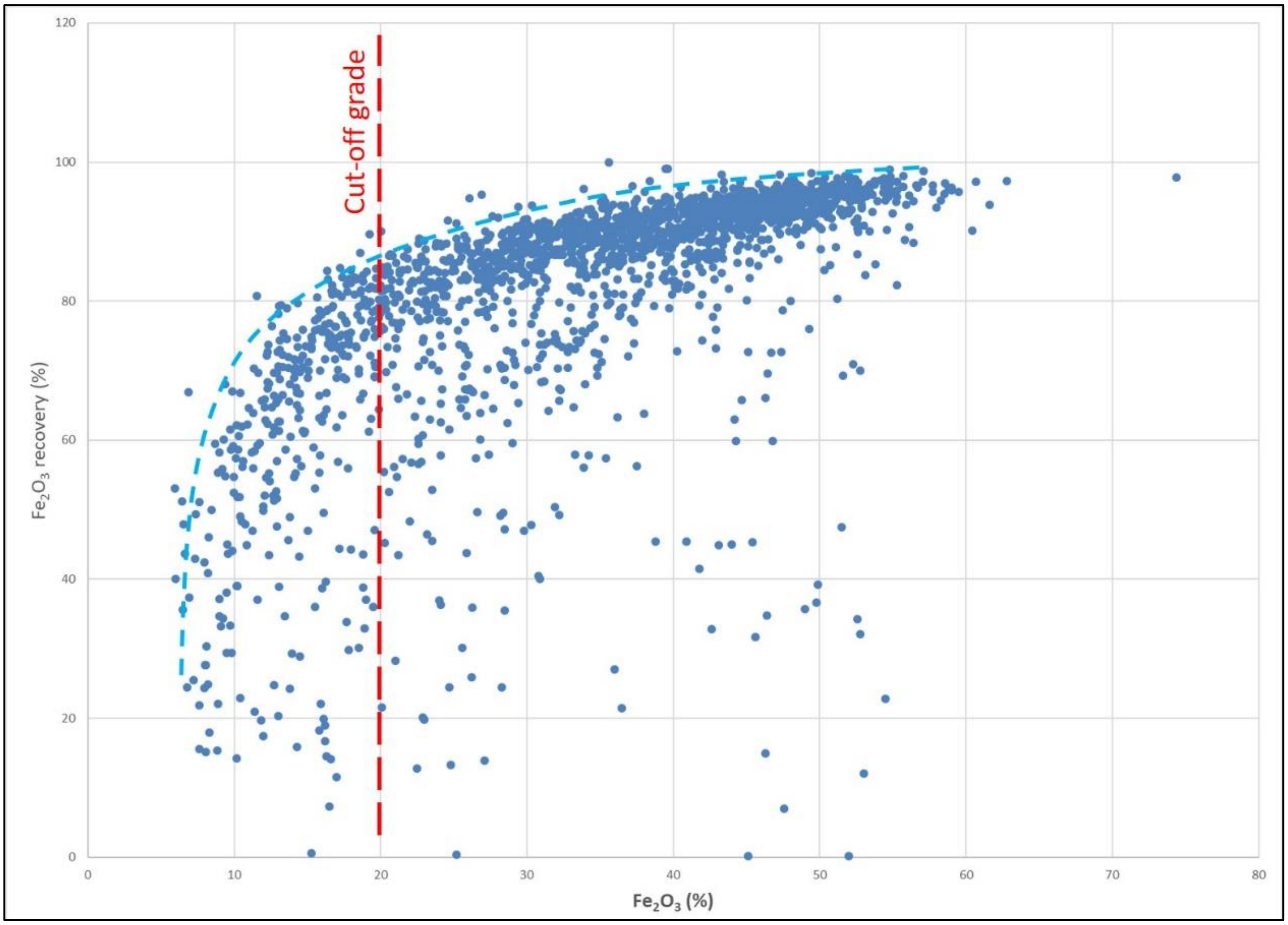

Figure 11-2: Graph of Fe_2O_3 recovery vs Fe_2O_3 grade of the head sample from Davis Tube testing

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. In 2020, 8.6% blanks, 7.2% standards and 9.6% duplicates were submitted, in addition to duplicates of 2017 and 2018 samples. Total numbers of samples, standards, blanks and duplicates are summarized in Table 11-2 below.

Table 11-2: Summary of samples submitted between 2013 and 2018

Sample type	2013	2017	2018	2020	Total
Sample	274	1,002	1,171	374	2,821
Standard	-	-	54	27	81
Blank	-	-	47	32	79
Duplicate	-	-	41	36	77
Repeat	-	-	3	-	3
All samples	**274**	**1,002**	**1,316**	**469**	**3,061**

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 programs (see recommendations).

High-grade standard samples inserted into core sample batches submitted to both SGS and Actlabs between 2017 and 2018 have values for Fe_2O_3_T (Figure 11-3), V_2O_5 (Figure 11-4) and TiO_2 (Figure 11-5) 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. Note that there are two outliers, which could be the result of mislabelling of samples.

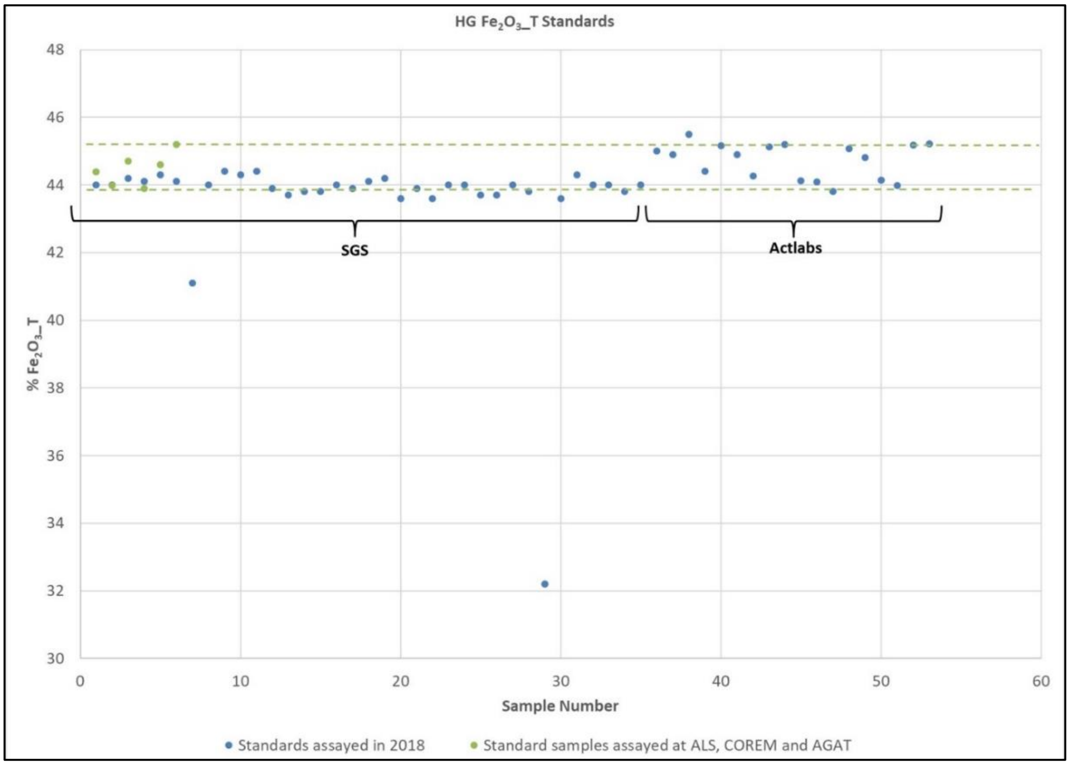

Figure 11-3: High-grade standard analyses for Fe_2O_3_T

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

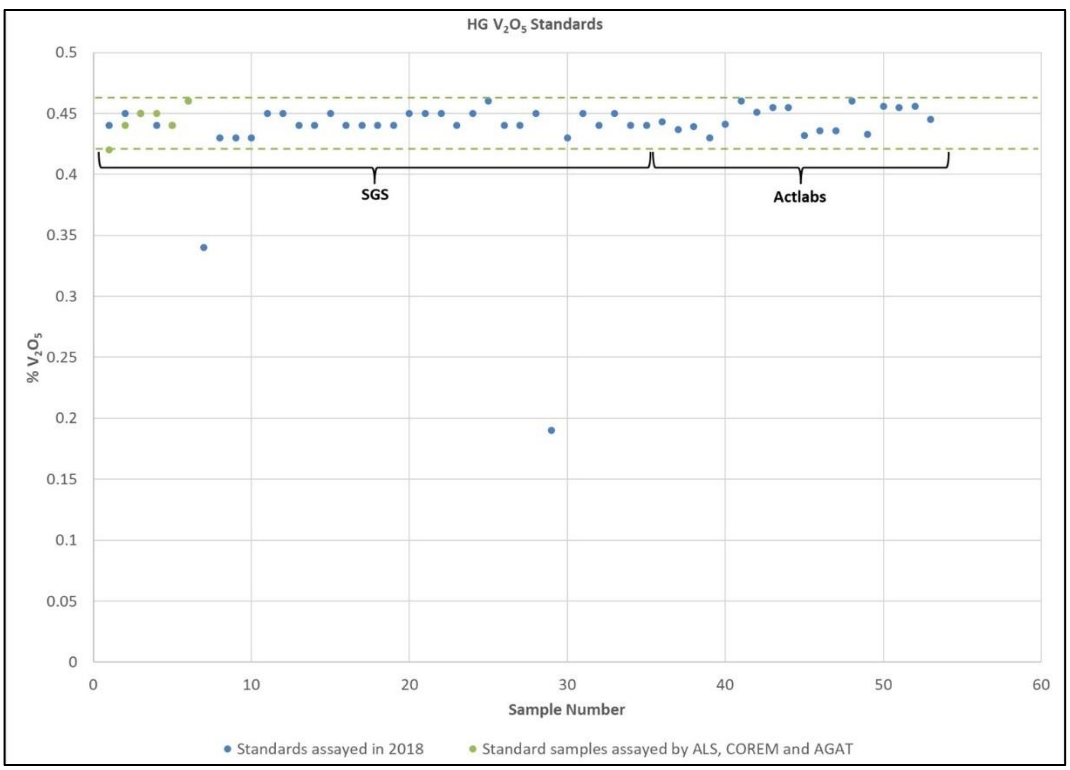

Figure 11-4: High-grade standard analyses for V_2O_5

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

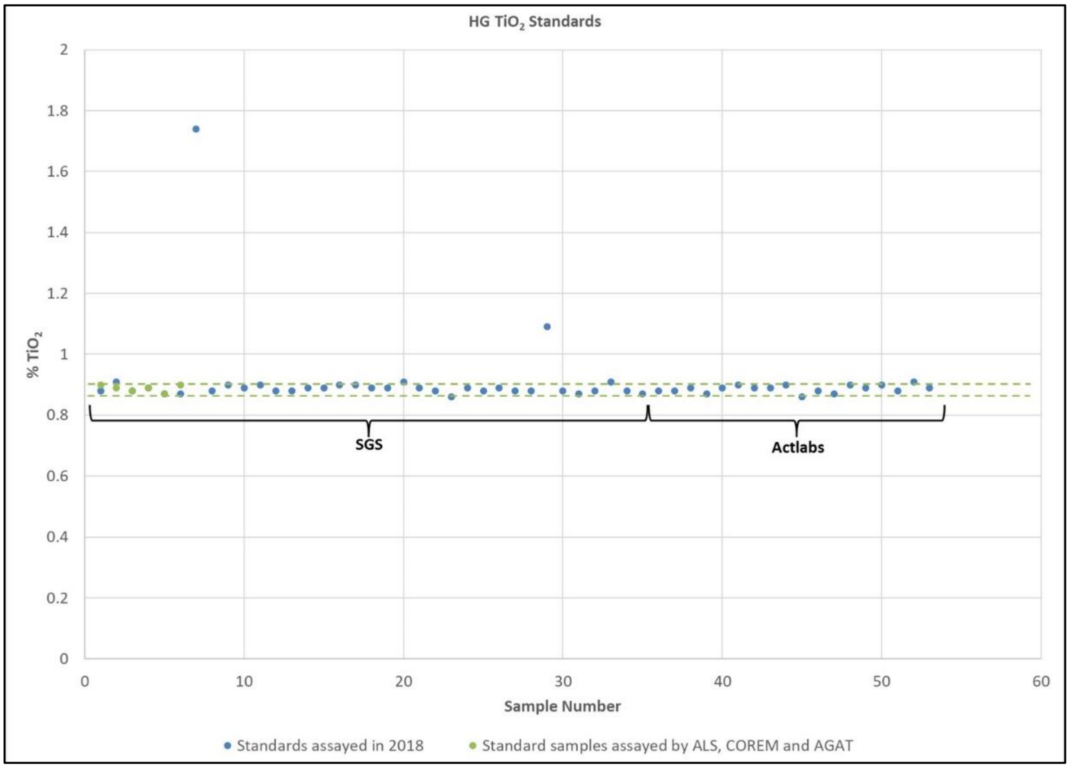

Figure 11-5: High-grade standard analyses for TiO_2

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 in 2018 and 2020 have values for Fe_2O_3_T (Figure 11-6), and TiO_2 (Figure 11-7) that are aligned with results from the samples submitted to ALS, COREM and AGAT. However, low-grade standards assayed for V_2O_5 (at SGS and Actlabs) in 2018 show slightly higher values than those assayed at ALS, COREM and AGAT (Figure 11-8), although more round-robin assays should be completed for the standards to ensure robust statistical evaluation of assay results.

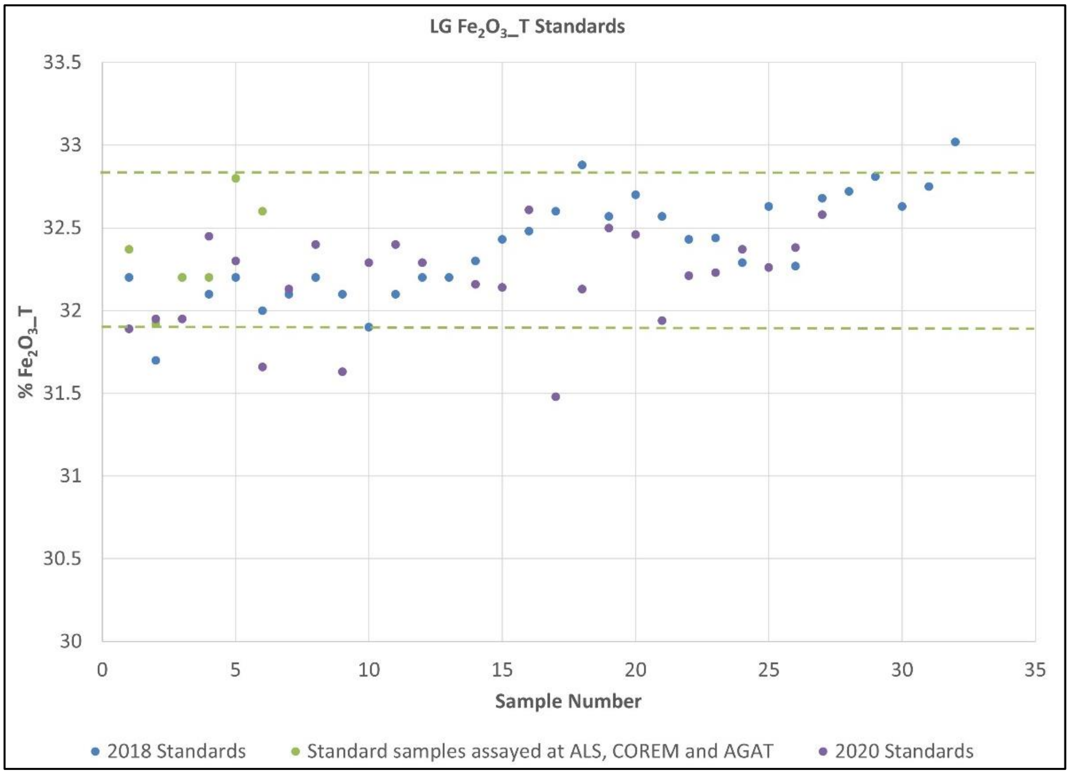

Figure 11-6: Low-grade standard analyses for Fe_2O_3_T
Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

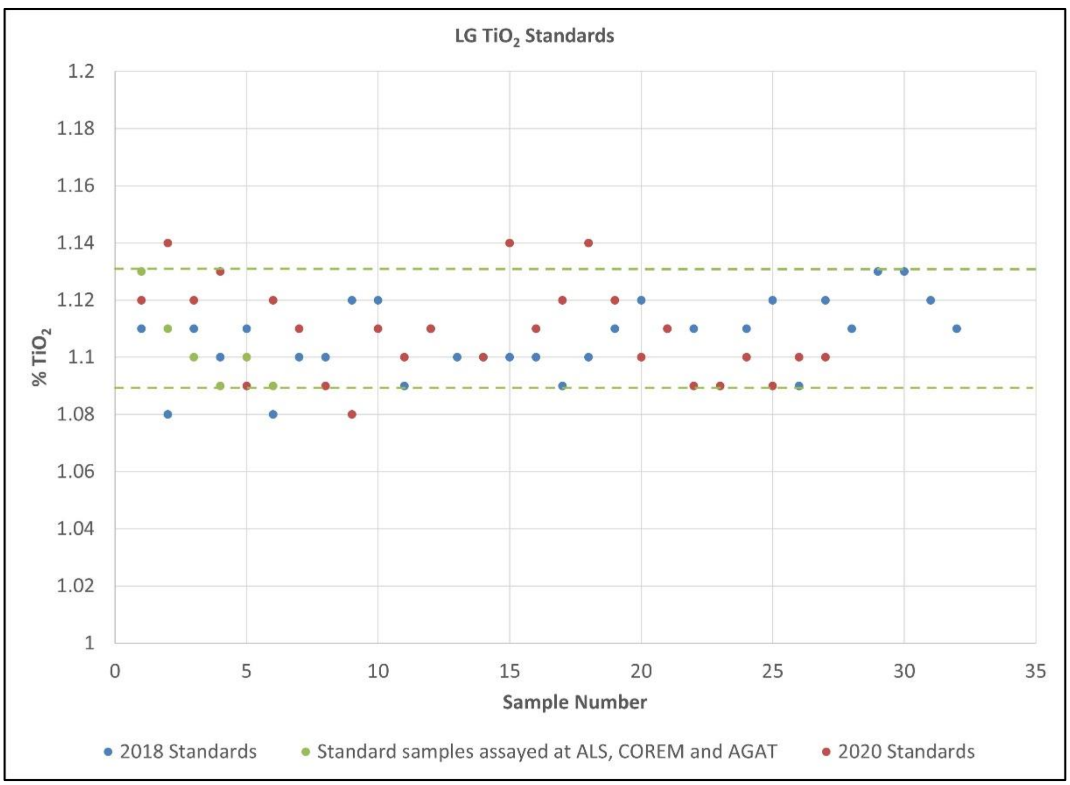

Figure 11-7: Low-grade standard analyses for TiO_2
Note: Green dashed lines show the range of analyses from referee labs: ALS, COREM and AGAT.

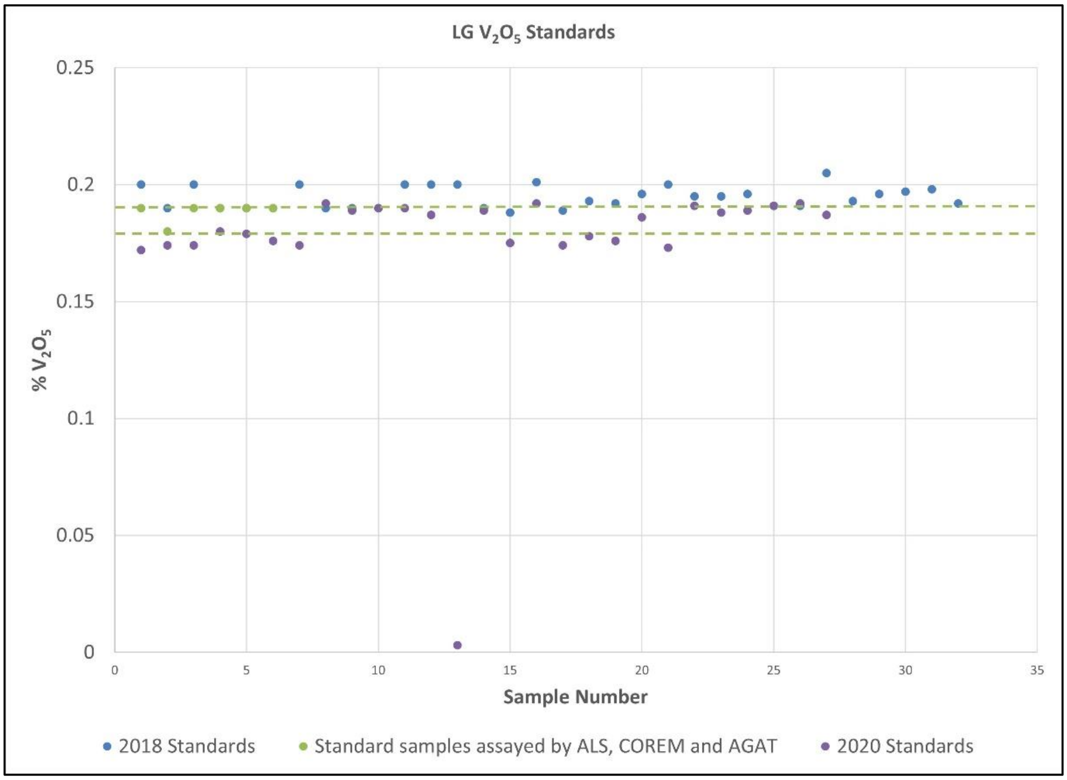

Figure 11-8: Low-grade standard analyses for V_2O_5

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_2O_3 (Figure 11-9), V_2O_5 (Figure 11-11) or TiO_2 (Figure 11-10); however, a single outlier is evident (chart sample #29) which is clearly a mislabelled mineralized core sample.

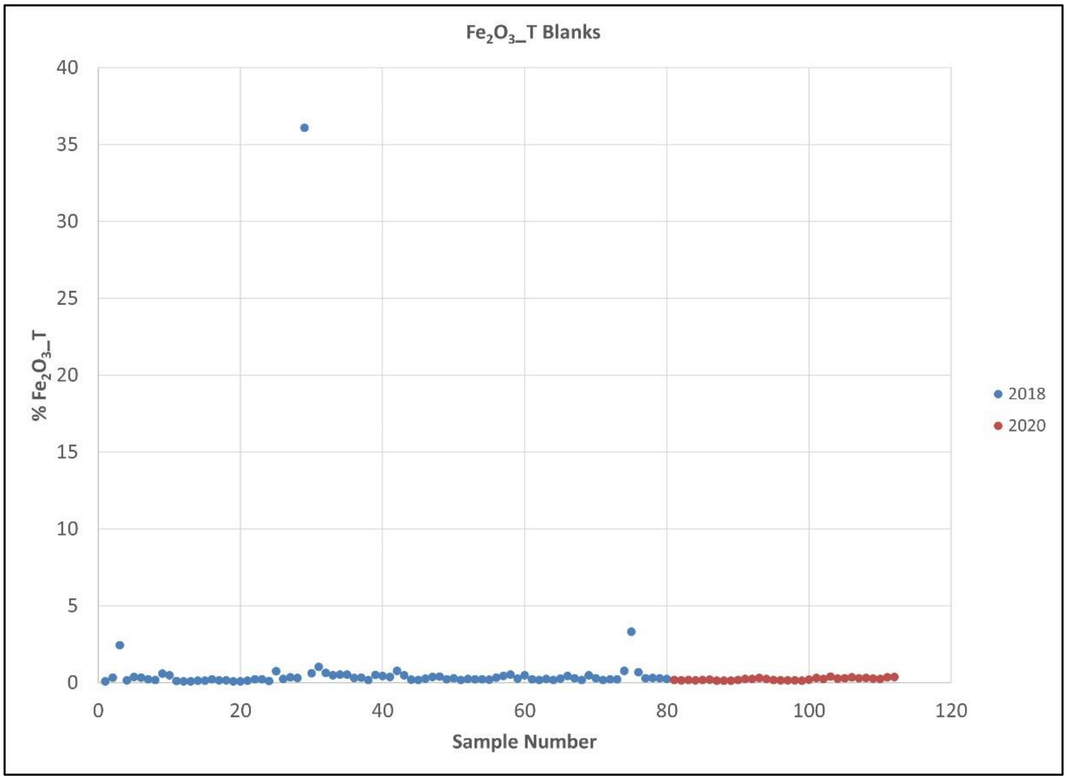

Figure 11-9: *Fe_2O_3_T values of blanks*

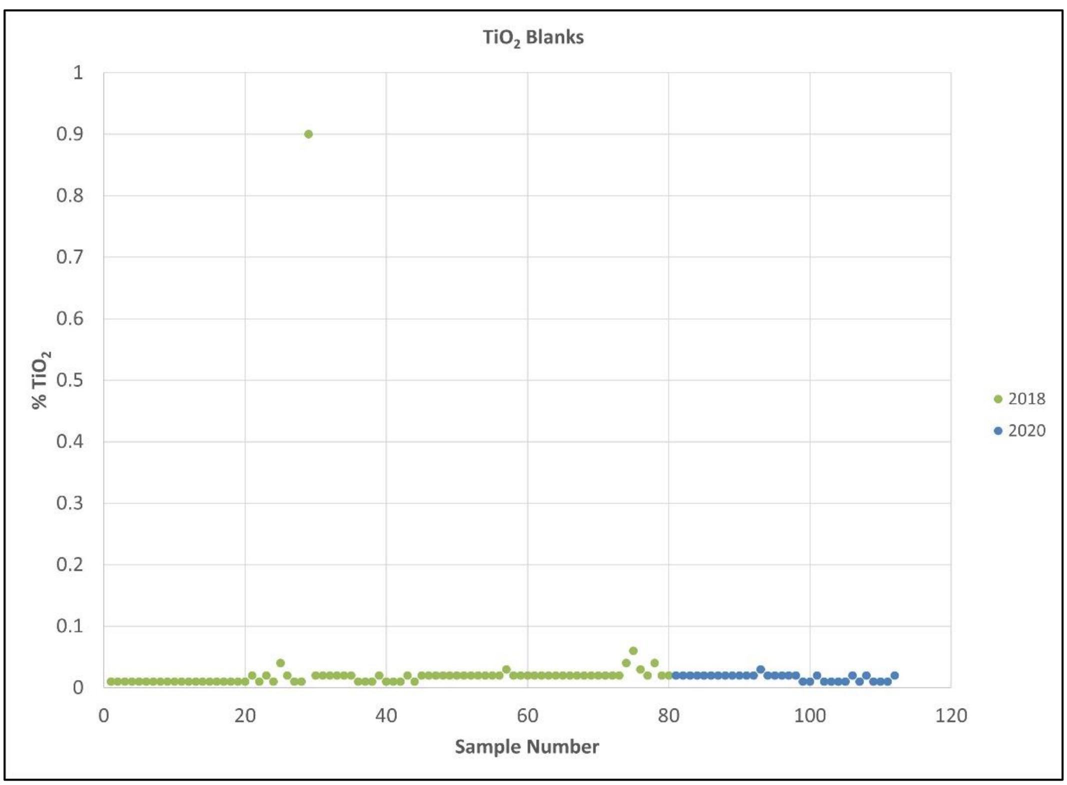

Figure 11-10: *TiO_2 values of blanks*

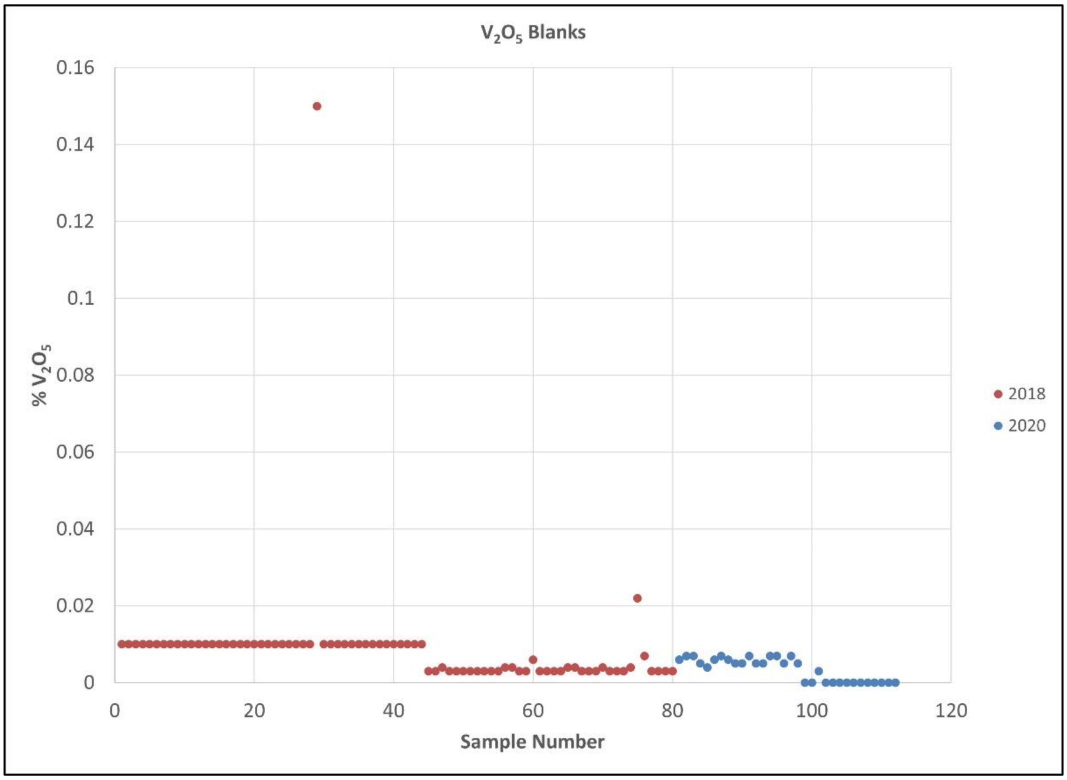

Figure 11-11: V_2O_5 values of blanks

11.4.3 Duplicates

During 2017 and 2018, duplicate samples produced from quarter core (apart from the half core submitted from assay) were submitted simultaneously with different sample numbers. During 2020, several different duplicate types were assayed, including internal laboratory duplicates, composite duplicates assayed for head grades as part of Davis Tube testing, and duplicates of samples from holes drilled in 2017 and 2018. Comparison of original assays with duplicate assays are shown in Figure 11-12 (Fe_2O_3) and Figure 11-13 (V_2O_5) below and show a good correlation between original and duplicate results.

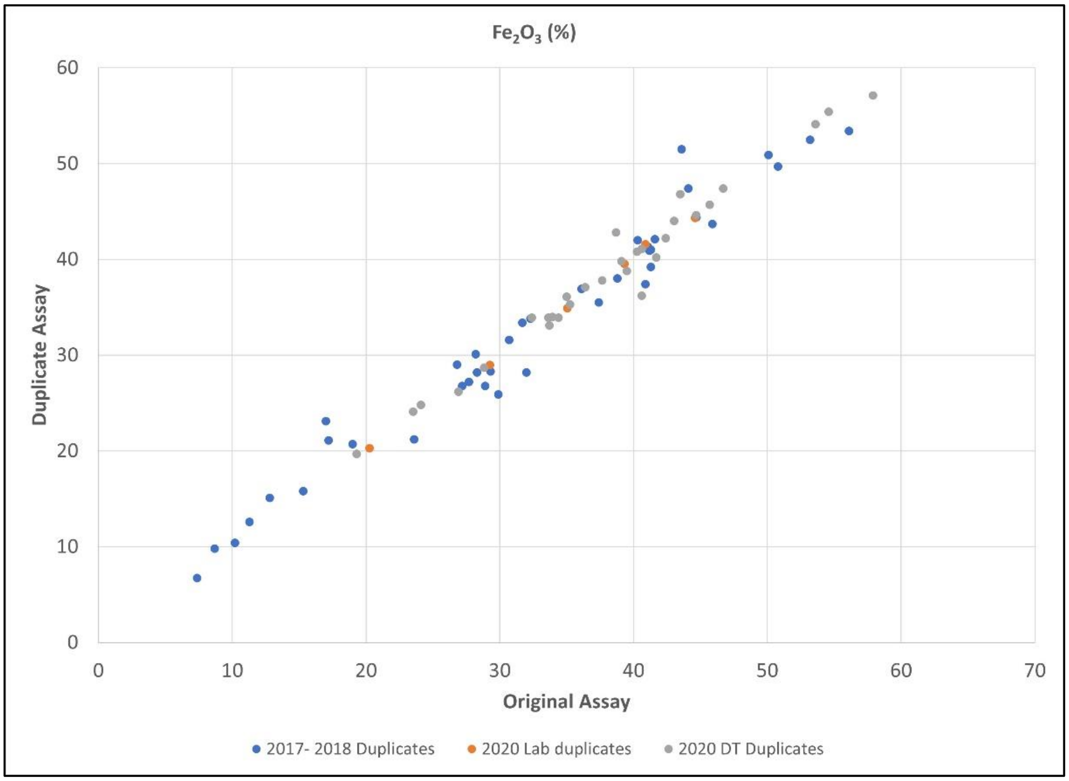

Figure 11-12: Duplicate and original assay results for Fe_2O_3

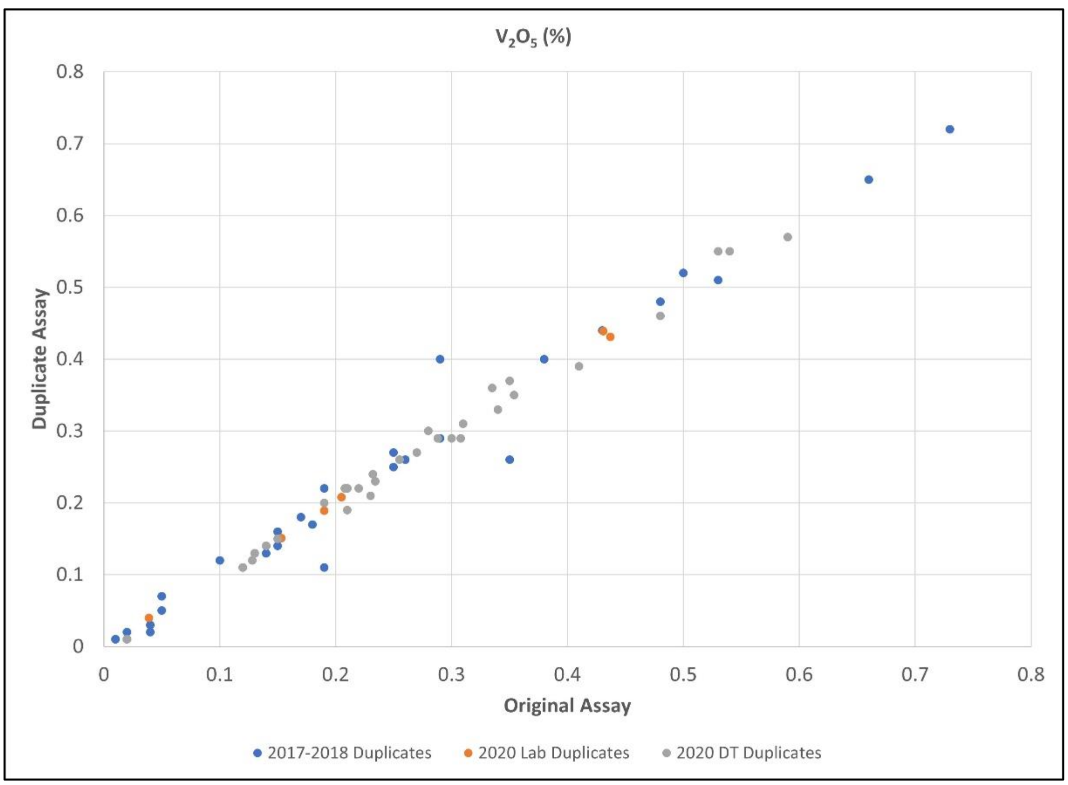

Figure 11-13: Duplicate and original assay results for V_2O_5

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 and 2020 standard, blank, and duplicate sample results provide sufficient confidence in the 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 more recent drill results.

It is recommended that the standards used should also be subject to magnetic separation, and the magnetic portion assayed. Additional round-robin assays of the standards should be carried out to allow more robust statistical analysis of assay results.

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 2020 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 the Qualified Person's and CSA Global's opinion that the sample collection, preparation and analytical procedures undertaken on the Project during the 2013 to 2020 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 2020 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 historical 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).

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 30–31 October 2018. During this time, the author visited the property site, noted exposed outcrops of magnetite mineralization (Figure 12-1A), validated the collar positions of both recent and historical drilling using a handheld GPS (Figure 12-1B, Figure 12-1C), and reviewed drill core at the VONE facility in Chibougamau (Figure 12-1D).

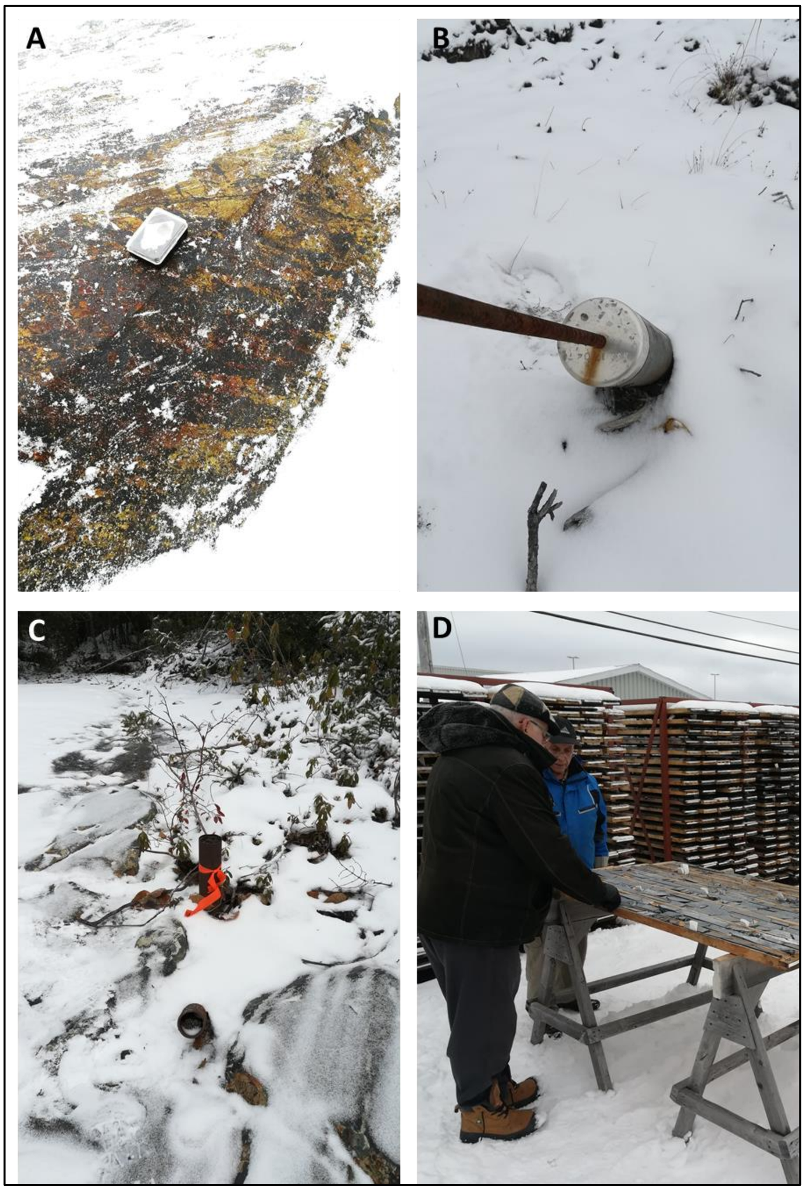

Figure 12-1: Photographs from the author's site visit to the Mont Sorcier Project

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 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 Fe_2O_3 values (head grade) shows an excellent correlation between recent and historical data (Figure 12-2), although 2020 results show a lower proportion of low-grade samples (below ~20% Fe_2O_3), owing to more selective sampling.

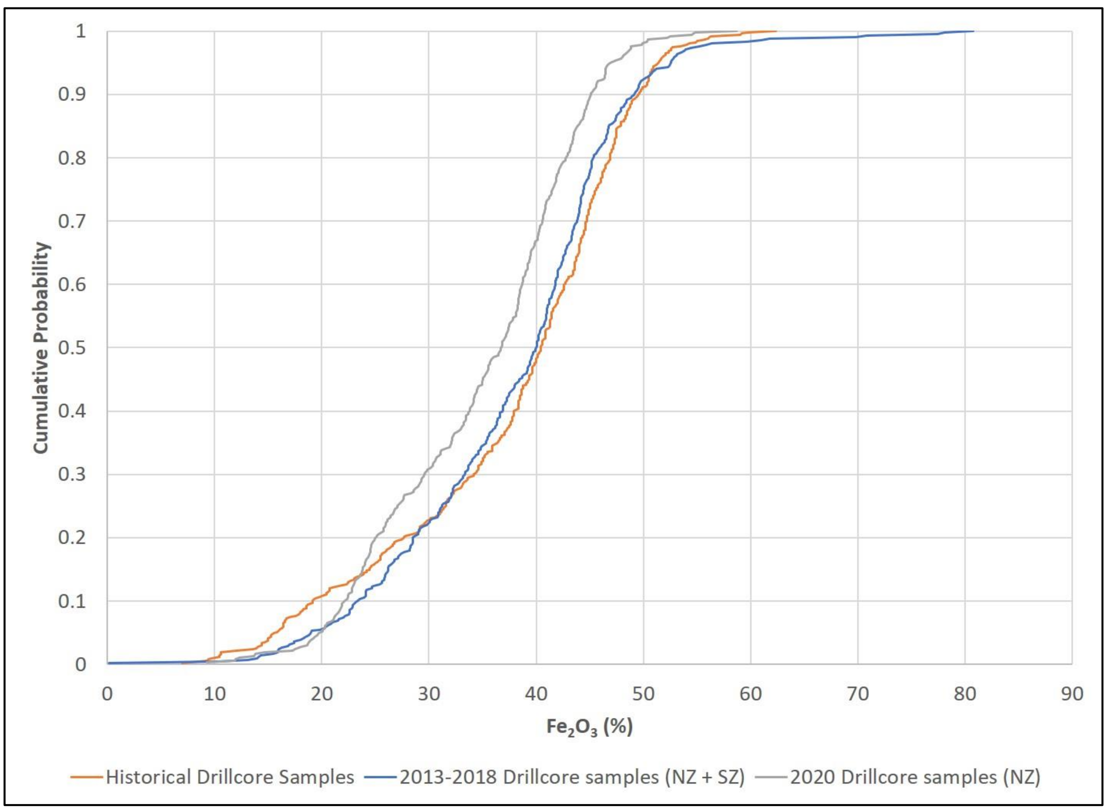

Figure 12-2: Cumulative probability plot for Fe_2O_3, comparing recent and historical assays

Comparing recent drill core assay data with historical composites for magnetite content (Figure 12-3) and V_2O_5 (Figure 12-4) 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. The location, areas covered, and rock type sampled are also different with each period drilled historically and recent. For instance, VONE drilling in the NZ is much deeper than historical drilling.

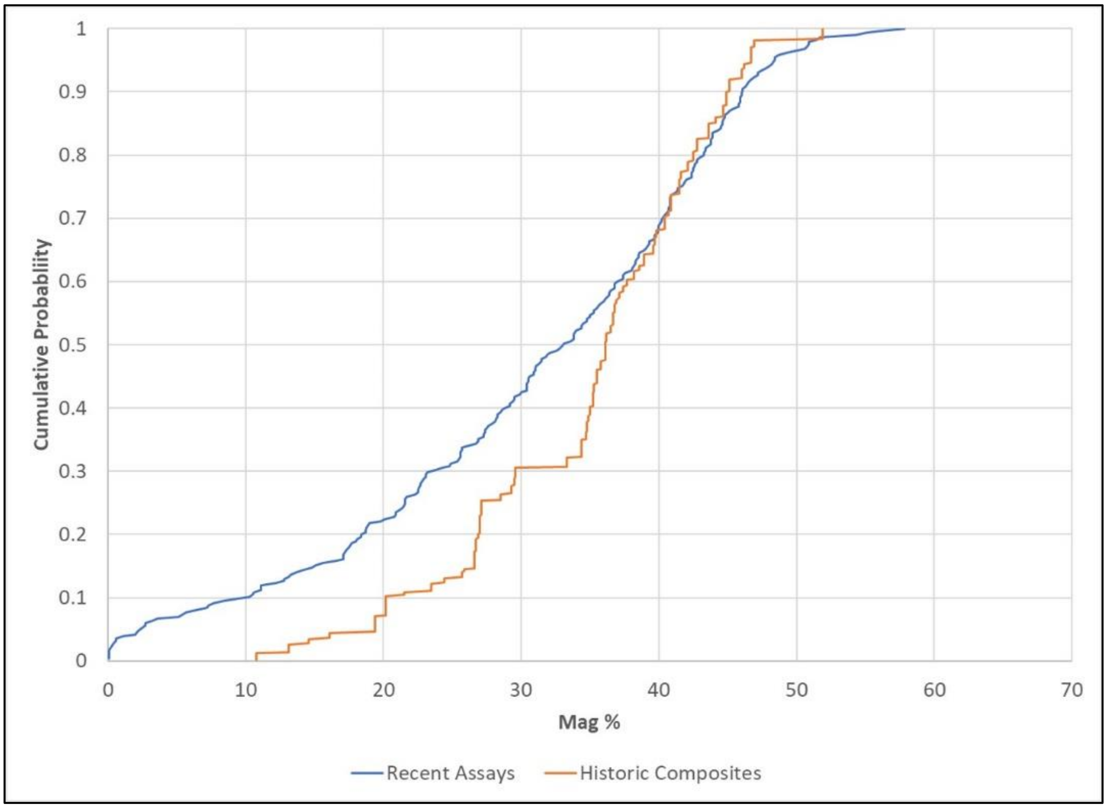

Figure 12-3: Cumulative probability plot for magnetite content (note that recent assays exclude 2020 samples)

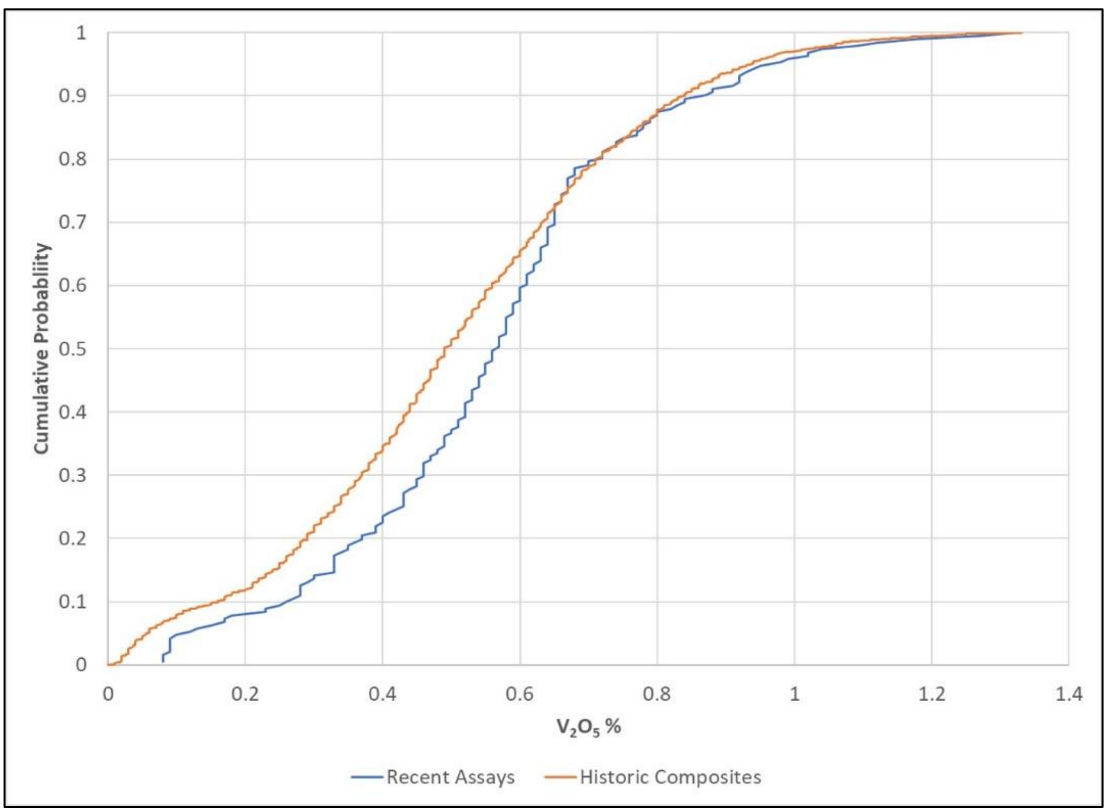

Figure 12-4: Cumulative probability plot for V_2O_5 (note that recent assays exclude 2020 samples)

Comparing iron and titanium values (Figure 12-5), it appears that both historical drill core samples and recent drill core samples show a small proportion of elevated TiO_2 values, and there is excellent agreement between recent and historical TiO_2 data. Slight differences between recent and historical results are attributed to the coarser grind size used for the recent concentrate separates and is not considered material.

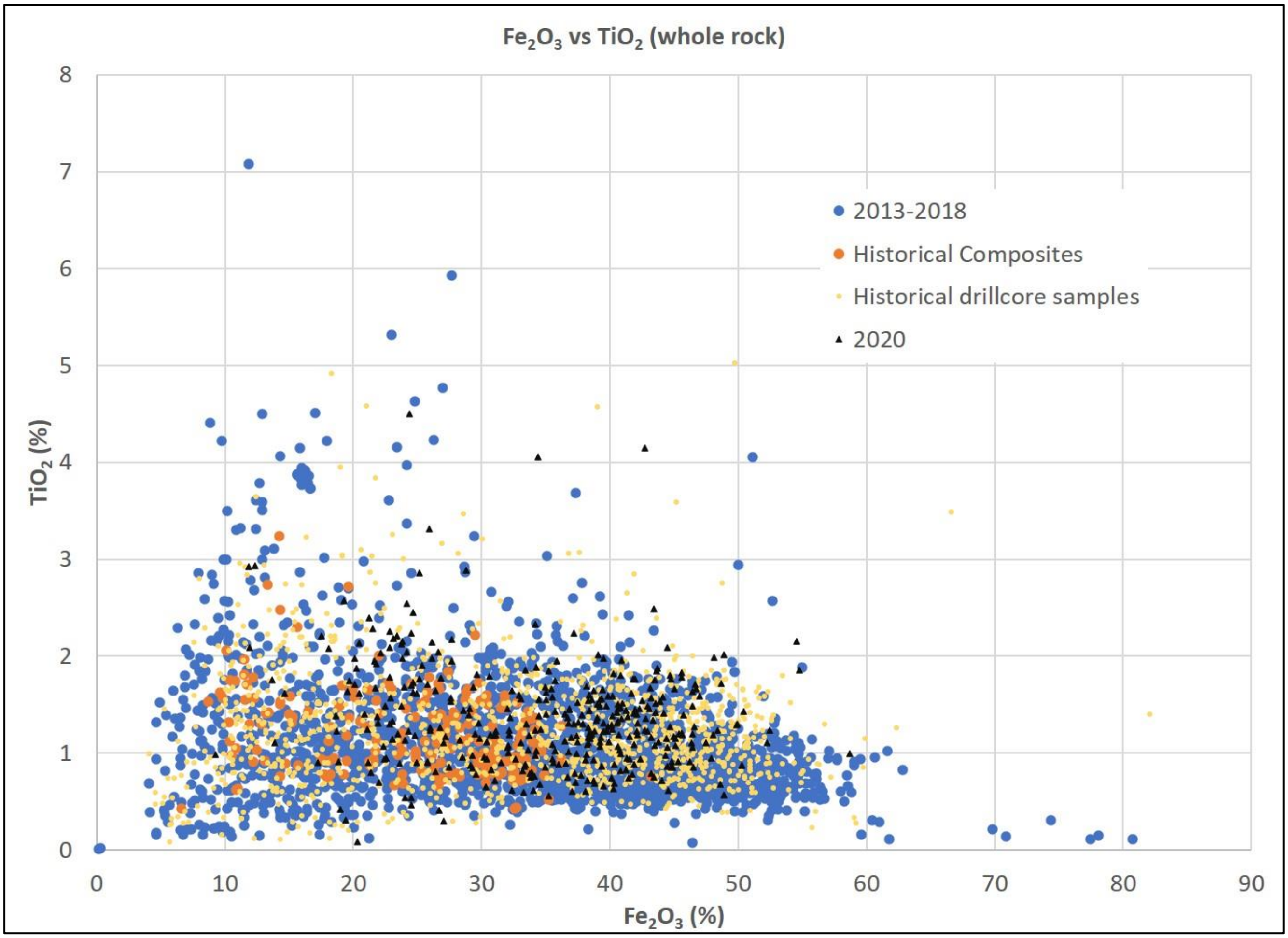

Figure 12-5: Fe_2O_3 vs TiO_2 for recent drill core samples, historical drill core samples and historical composites

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_2O_5 and 46.1%. Fe_2O_3. 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 13-1 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 13-1: 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

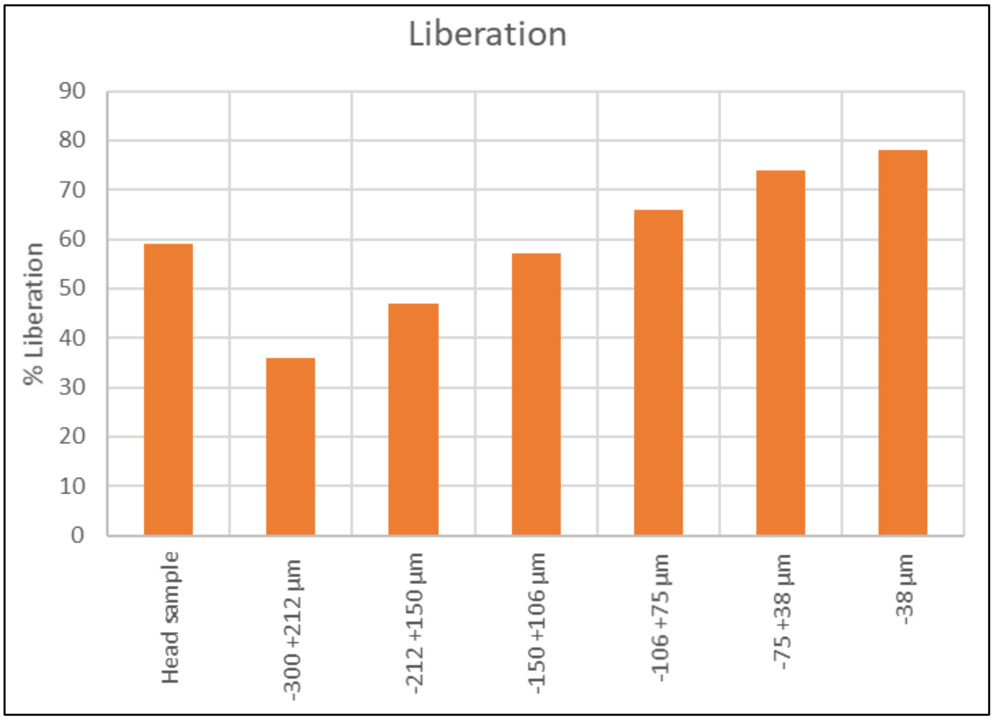

Figure 13-1: MLA liberation results, showing increased liberation with finer particle size

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 13-2), which showed that while recovery of iron and vanadium does not vary significantly with grind size, there is an effect on the iron grade of the concentrate produced, with a grind size of -38 µm required to achieve a concentrate grade of >65% Fe.

Table 13-2: Grind size vs iron and vanadium recovery and iron grade for COREM Davis Tube concentrates

Grind size	Fe recovery (%)	V_2O_5 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 Deportment 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 deportment 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_2O_5 content of the magnetite, with three distinct populations (Figure 13-2):

- Vanadium-enriched magnetite, with ~ 1.3% V_2O_5 in magnetite
- Magnetite with between 0.3% V_2O_5 and 1.1% V_2O_5 (average of ~0.7% V_2O_5)
- Low-vanadium magnetite (<0.2% V_2O_5).

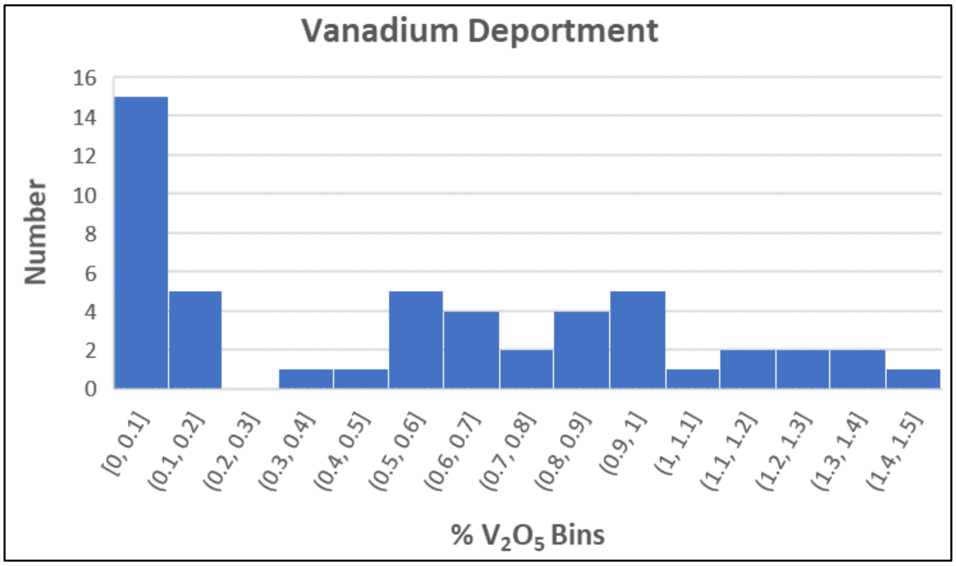

Figure 13-2: Vanadium deportment in magnetite (sum of 50 microprobe analyses)

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 optimization 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 17 May 2021 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

Dr Adrian Martinez-Vargas, P.Geo and Principal Consultant of CSA Global, prepared this MRE. Mineral Resources were updated in the North Zone using all drillhole data available by the Effective Date. No new drilling was made available for the South Zone, and mineral resources were not updated. However, the Mineral Resources of the South Zone's tables and documentation extracted from the 2019 NI 43-101 Technical Report are included in this section for completeness.

VONE provided Dr Luke Longridge with a digital elevation model (DTM) covering the property and the drillhole databases described in Sections 10, 11 and 12 of this report. VONE provided its interpretation of the mineralized domain of the North Zone based on the geological evidence provided by new drillholes and magnetic survey. This North Zone geological interpretation was reviewed and slightly modified to ensure it is appropriate for mineral resource estimation. The geological interpretation of the South Zone was prepared by Dr Luke Longridge and reviewed by Dr Martínez-Vargas in 2019. Dr. Martínez-Vargas reviewed the compiled database and geological interpretation and considers that they are appropriate for Mineral Resource estimation. The drillholes used and geological domains used for mineral resource estimation in the North and South Zone are shown in Figure 14-1.

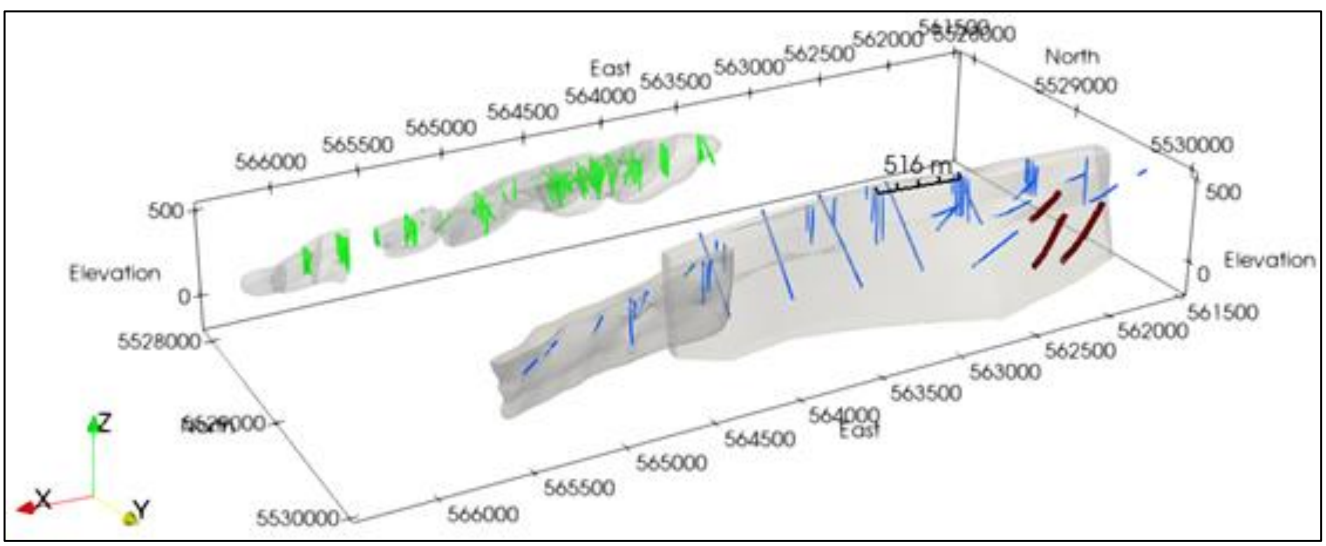

Figure 14-1: Geological interpretation of the mineralization (grey transparent wireframe), and drillhole data of the North Zone (blue) and the South Zone (green), drillholes with logging but not assay data in the North Zone (red) and typical drilling spacing in the North Zone (black ruler)

Ashley Brown, P.Geo. and Principal Consultant of CSA Global, completed a high-level peer review of the MRE's results, parameters, and assumptions.

The MRE workflow was as follows:

- Input database validation

- Review of the interpretation of the geology and mineralization domains
- Coding, compositing and capping
- 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 historical campaign was drilled between 1963 and 1966 and contains data sampled and assayed for head grade Fe_2O_3 and TiO_2 over approximately 7 m intervals. This drilling campaign also contains larger composite sample intervals that vary from 10 m to 60 m. These composites were assayed for Fe_2O_3 and TiO_2 head grades, and a Davis Tube magnetic concentrate fraction was prepared from the composites and assayed for several other oxides, including V_2O_5.

The current drilling campaign was completed in 2013 and between 2017 and 2020. Diamond drill core was sampled in 2 m (in the South Zone) or 3 m intervals (in the North Zone) and assayed for Al_2O_3, Fe_2O_3, MgO, TiO_2, SiO_2, CaO, Cr_2O_3, K_2O, MnO, Na_2O, and P_2O_5, in both the head grade and in the magnetic fraction produced using Davis Tube magnetic separation. Copper and sulphur head grades were collected for some intervals.

Dr Longridge compiled this data to obtain a working database described in Table 14-1. The working database was provided as two separated sets of collar, survey, and assay tables in CSV format. The North Zone assay database was prepared with magnetite and F_2O_3 (%) content in the rock. CSA Global refers to these assays as the head grade in this report. The database also contains V_2O_5 (%) and Fe_2O_3 (%) grades in the concentrate produced with Davis Tube tests. Density values were available for some intervals, but these were used to define a regression formula based on the Fe_2O_3 (%) in the head grade.

Table 14-1: Drillhole data used for Mineral Resource estimation

Parameter	Values	
	North Zone	South Zone
Number of drillholes (total)	46 (within the area mineralized)	75
Number of drillholes (1960s campaign)	23 (from 1960s) + 4 (1974) + 4 (1993)	46
Number of drillholes (2013 to 2020 campaigns)	15	29
Metres (total)	5,220	11,370
Drillhole spacing in best areas (m)	50 x 250 to 500	30 x 100
Variables assayed for in regular sample intervals		
Head grade	Percent of magnetite, Al_2O_3, Fe_2O_3, MgO, TiO_2, SiO_2	
Concentrate	Al_2O_3, Fe_2O_3, MgO, TiO_2, V_2O_5, SiO_2	

Note:

- Only Fe_2O_3 and TiO_2 head grades are available in historical and current drilling campaigns. CaO, Cr_2O_3, K_2O, MnO, Na_2O, and P_2O_5 were available in the head and concentrate grade but not modelled. V_2O_5 head grade is available in some assays but was not modelled.
- Only Fe_2O_3 and magnetite content in the head grade, and V_2O_5 and Fe in the concentrate, were modelled for North Zone.
- Magnetite content was predicted with regression based on Fe_2O_3 when the Davis Tube was not available.
- In the North Zone, the Davis Tube results of historical long composite intervals were used to populate non-assayed V_2O_5 values.
- Three drillholes of the North Zone contained logging describing the presence of magnetite but no assay (Figure 4-2). The company did not drill these drillholes and were considered historical. The drillholes were not intended to explore for magnetite, and for that reason, were not assayed.

Parameter	Values	
	North Zone	South Zone
Variables assayed for in larger composite sample intervals		
Head grade	Percent of magnetite, Fe_2O_3, TiO_2	
Concentrate	Al_2O_3, Fe_2O_3, MgO, SiO_2, TiO_2, V_2O_5	
Note: Available only in 1963–1974 drilling campaign.		

The drillhole tables were imported in the python package PyGSLIB, and validated for interval gaps, overlap, and relationship issues between drillhole tables. The assay values were also reviewed to identify anomalous values. Drillhole interval coordinates were calculated, plotted in 3D, and visually validated. Head and concentrate grades from historical and recent campaigns were compared, and no significant differences were observed. There were observed differences in the granulometry of the sample preparation for magnetic separation. This resulted in a better liberation and lower contamination of the magnetite concentrate from historical samples. Therefore, Fe_2O_3 grades in concentrate tend to be higher in historical drilling samples. The author of this section (Dr Adrian Martinez) considers that this difference is not material at this stage of the work. However, more granulometric and metallurgical testwork is recommended to define the optimum granulometry used for sample preparation.

Since only Fe_2O_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:

- Fe_2O_3 head grades were used to deduce the percent of magnetite in the historical and recent drillhole sampling intervals, using the regression formulas shown in Figure 14-2. The percent of magnetite was then modelled in the block model using all drillhole data available (i.e. a combination of measured magnetite values and those calculated from regression).
- The average grade in the concentrate was modelled using grade in concentrate available in sample intervals of the current drillholes and composite samples of the historical drillholes (Table 14-1). For the South Zone, a smooth interpolator and long compositing intervals were used to interpolate the concentrate grade per separate. The long composites of the historical drillhole campaign tested with Davis tube were integrated into the regular drillhole samples when the concentrate grade was not available in the North Zone.
- Fe_2O_3 and TiO_2 head grades of the South Zone in historical drillhole long composites samples 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. For the North Zone, Fe_2O_3 head grade in long composites was incorporated into the regular sampling intervals and used to interpolate.
- Non-assayed intervals were used as non-defined (NaN) and not assigned with zero value or background grade when there was evidence that these samples non-assayed were mineralized (i.e. based on drillhole logging or nearby drillholes). Intervals non-assayed for V_2O_5 in concentrate were not set with zero values if samples had elevated magnetite or Fe_2O_3 head grades.

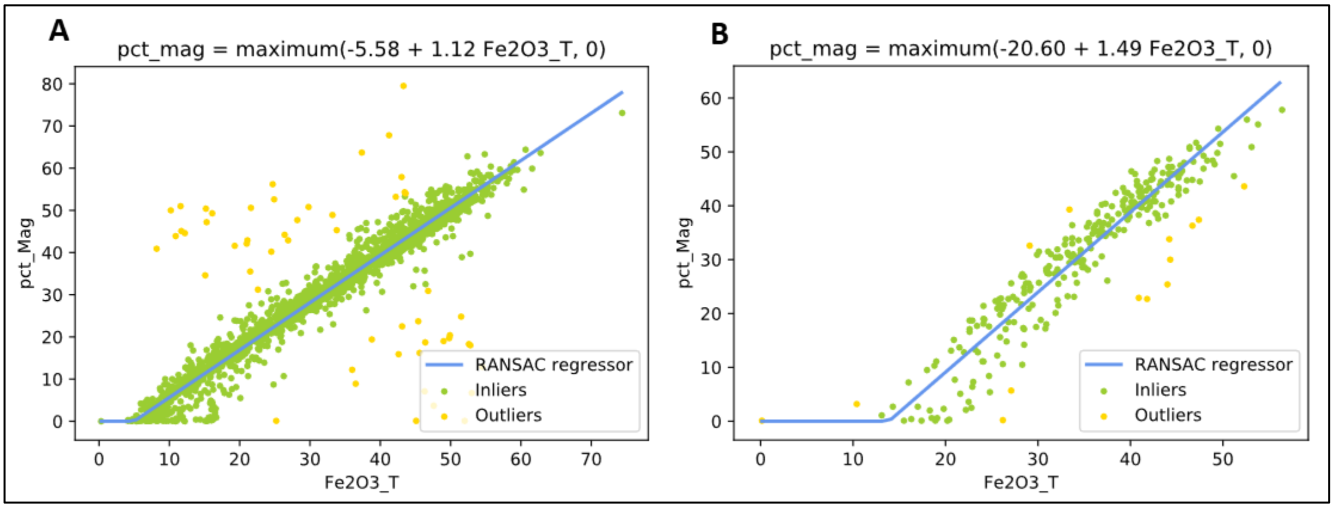

Figure 14-2: Linear regression formula between Fe_2O_3 and percent of magnetite fitted with 2010s drillhole data A = South Zone; B = North Zone.

14.3 Geological Interpretation

Dr Longridge completed the geological domains of the South Zone and reviewed and modified the geological interpretation of the North Zone prepared by VONE. The author of this section then reviewed the interpretations to ensure that they are appropriated estimation domains for Mineral Resource estimation. The estimation domains and drillhole data are shown in Figure 2. The mineralization occurs predominantly in the ultramafic lithologies, which also contain some mafic rocks. However, the interpretation was based on the magnetic anomaly, surface mapping available, and assayed grade, in addition to drillhole log data. The South Zone is dissected by ten 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.

The North Zone was subdivided into subdomains 1 to the west and subdomain 2 to the east for interpolation purposes. These are defined with two separated wireframes (Figure 14-2).

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. The minimal amount of overburden material is not considered material.

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 geological 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 mineralized 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 and Capping

The sampling interval in recent drilling campaigns is typically 3 m in the North Zone and 2 m in the South Zone (Figure 14-3). The sampling interval in the historical campaigns is around 7 m. Composite samples collected in the historical campaigns are between 10 m and 60 m in length. Drillhole intervals for head grade interpolation were composited to 10 m in the North Zone and 2 m in the South Zone.

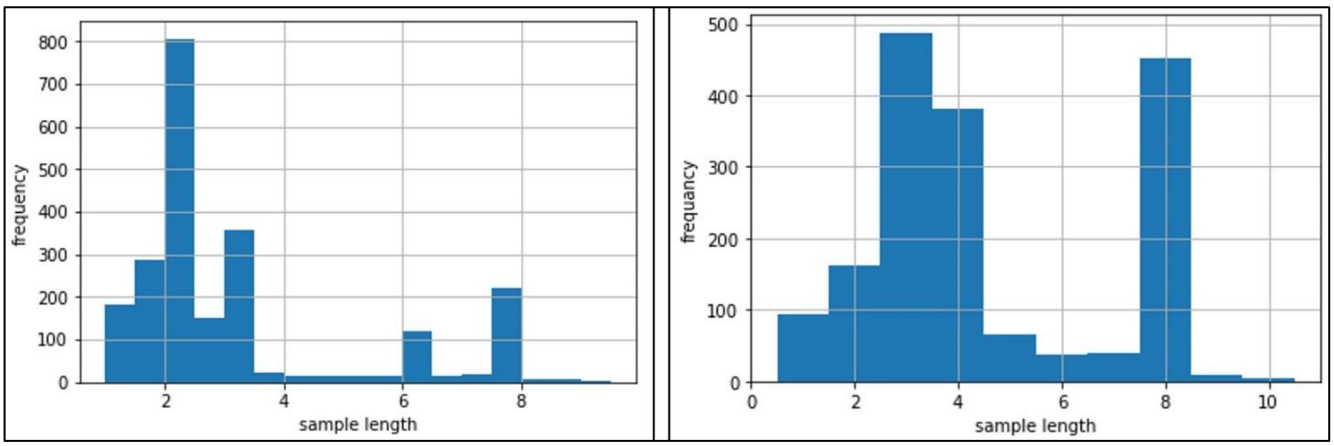

Figure 14-3: Histogram of sample lengths, South Zone (left) and North Zone (right)

Composites of 20 m were created to interpolate average grades in concentrate and interpolate a head grade trend (a smooth reference-grade) in the South Zone only. The objective of these long composites was to maintain the data from long sample composites in a separated dataset and used them as ancillary data in interpolation.

In the case of the North Zone, the interpolation approach did not use ancillary data. Instead, long sample composited intervals were used to populate grade values in the regular drilling when the assays were missing. In all cases, the assays and Davis Tube test results collected in regular sampling intervals were preferred.

For the North Zone, magnetite was set to zero, and Fe_2O_3 head grade was set to 10% if the assay was not available, except for drillholes SC93-1119-93-01, 02, 04 and FE-40. Lower capping was applied to 62% for Fe, and 0.06 for V_2O_5 in concentrate. Fe_2O_3 in head grade was lower capped to 10%. V_2O_5 was top capped to 1%. For the South Zone capping was not required. Capping and value filling was completed before compositing.

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 analyzed separately using “Supervisor” software, and 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 in the South Zone was using de-clustering cells. The cell size was deduced by comparing many cell sizes, as shown in Figure 14-4. The univariate statistics analysis consisted of calculating basic statistics such as mean values and coefficient of variations. All coefficients of variation (CV) 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.

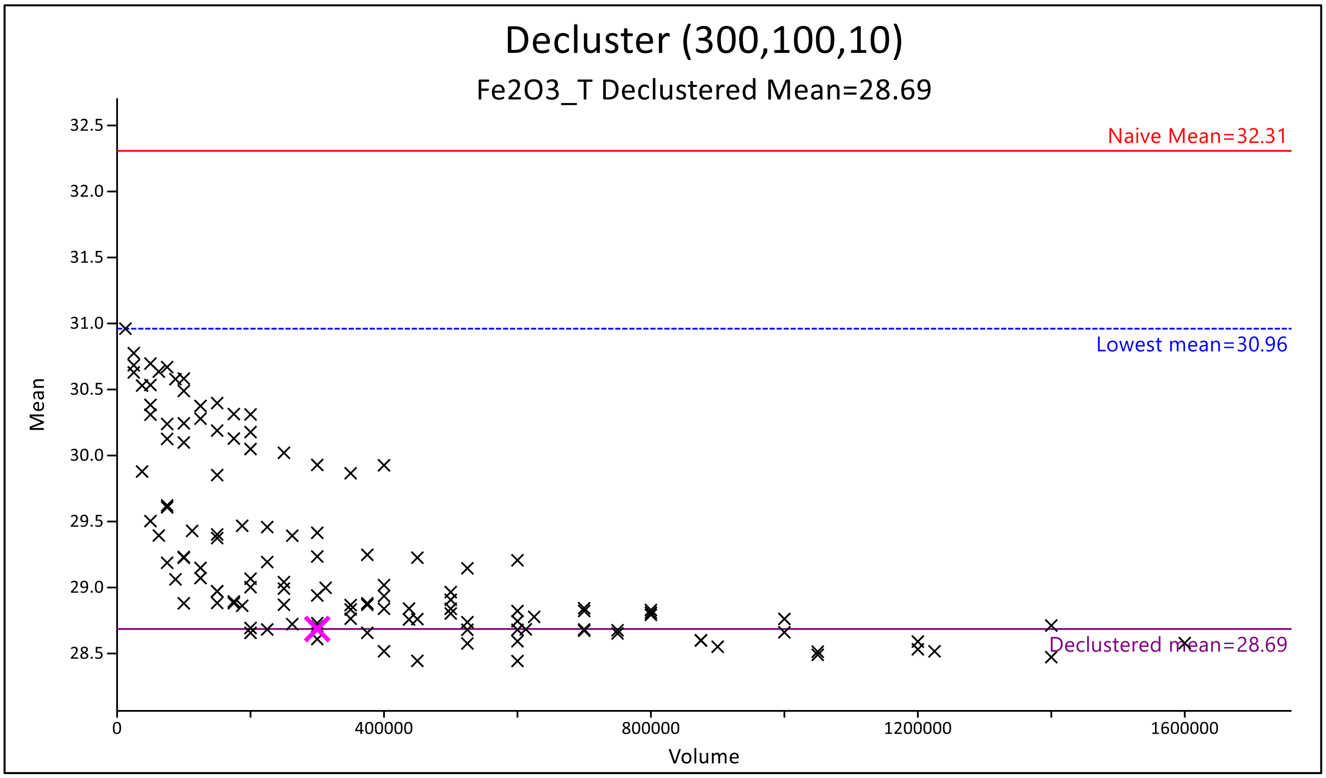

Figure 14-4: De-clustering weight optimization on South Zone, using Fe_2O_3 grades

In the North Zone, the de-clustering used the nearest neighbour estimate. This is equivalent to 3D polygonal de-clustering constrained by the boundaries of the mineralized domains. This approach works better in this zone since the amount of drilling is limited, and the compositing length reduces the number of samples available for de-clustering optimization. The de-clustering using nearest neighbour was only used for model validation. All the basic statistics completed previously to interpolate were using non de-clustered data.

The statistical analysis for head grades was completed using 2 m (South Zone) and 10 m (North Zone) composite data. Histograms of head grades show a tendency to normal distribution. However, bimodality was observed and attributed to low-grade intervals in the South Zone and North Subzone 2 (Figure 14-5 and Figure 14-6). The statistical analysis for concentrates was completed using 20 m composites for the South Zone, and standard 10 m composites in the North Zone. The histograms are shown in Figure 14-7, Figure 14-8, and Figure 14-9. Note that Fe_2O_3 grade in concentrate is generally higher than 85% (or 60% Fe).

Correlation between variables were also reviewed for both head grade variables and concentrate grade variables. There is a strong correlation between Fe_2O_3 head grade and percent of magnetite, as shown in Figure 14-2. There is a moderate correlation between V_2O_5 in concentrate and Fe_2O_3 head grade.

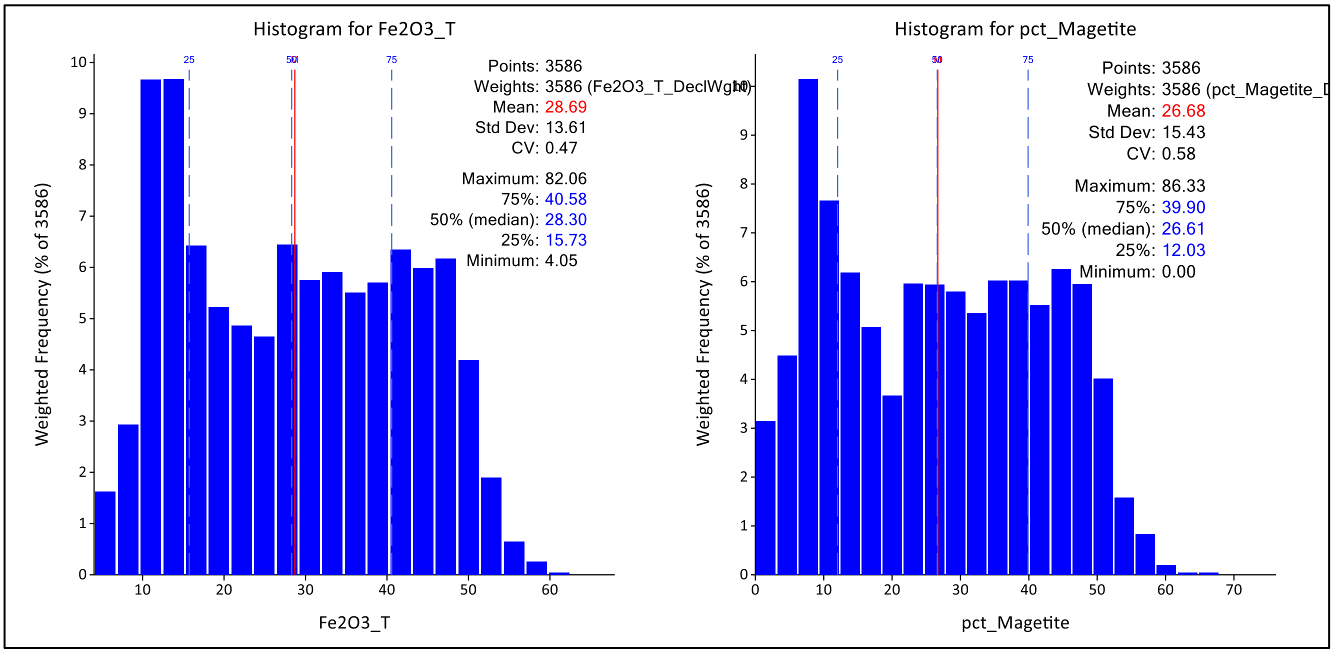

Figure 14-5: Histogram of iron oxide head grade and percent of magnetite – South Zone

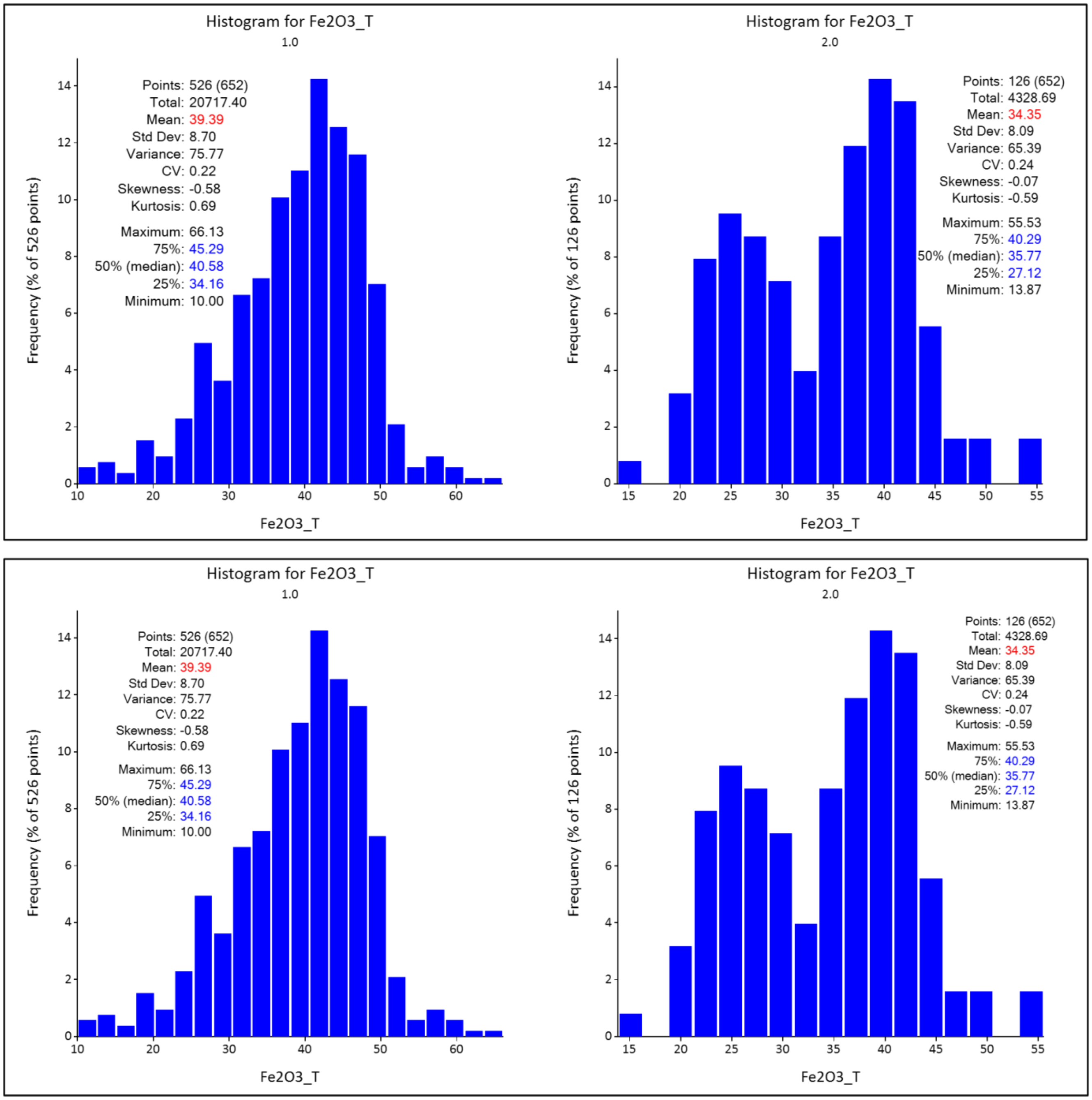

Figure 14-6: Histogram of iron oxide head grade and percent of magnetite, North Zone subdomain 1 and 2

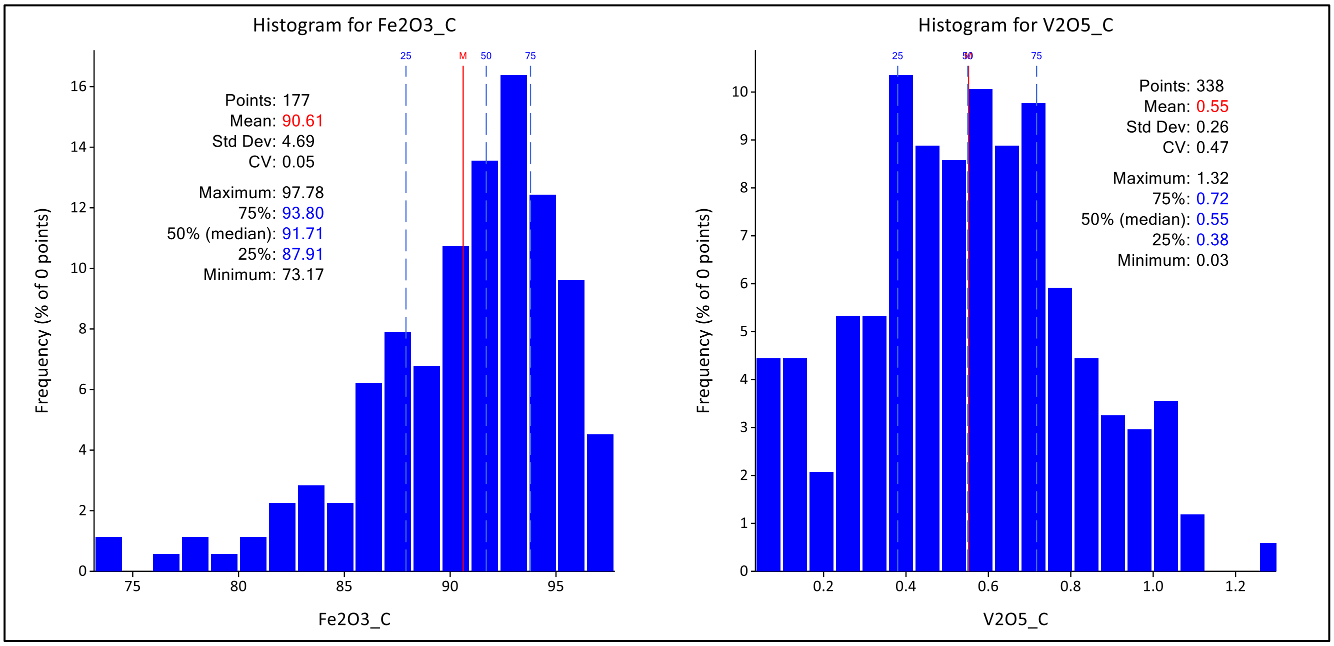

Figure 14-7: Histogram of Fe_2O_3 and V_2O_5 concentrate grade in the South Zone

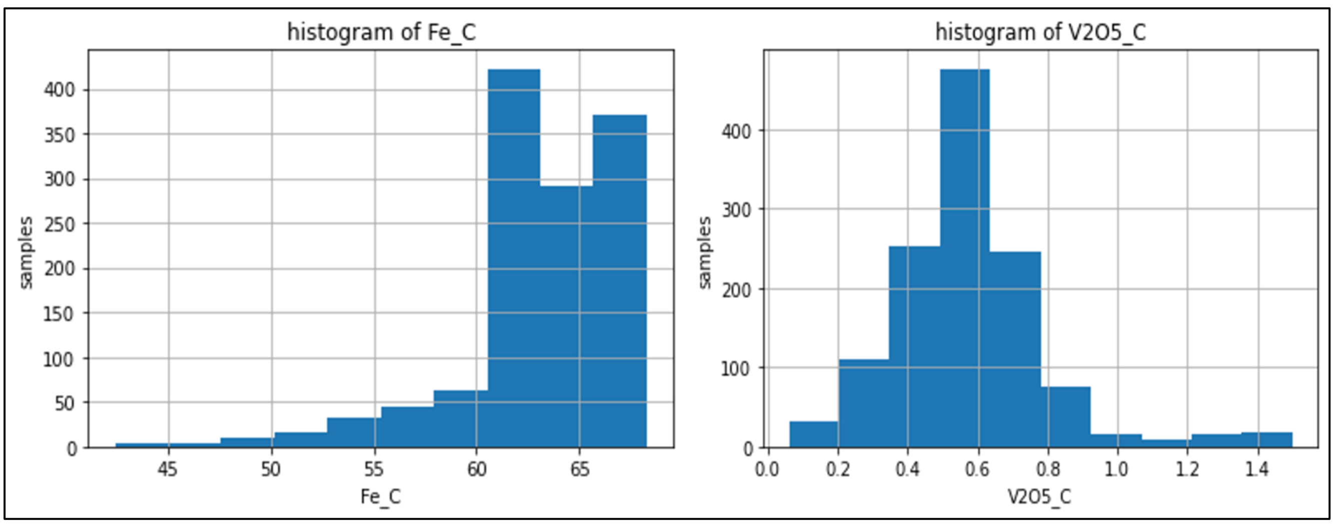

Figure 14-8: Histogram of Fe_2O_3 and V_2O_5 concentrate grade in the North Zone (using raw data)

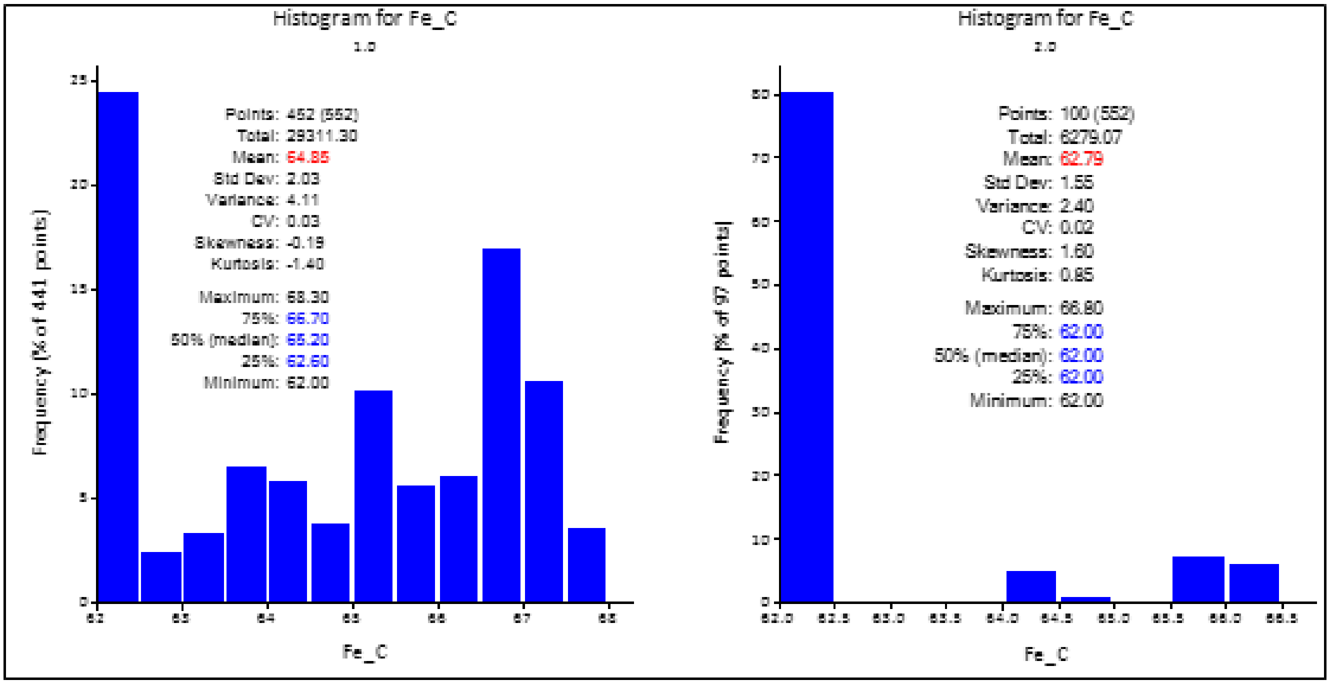

Figure 14-9: Histogram of Fe (%) in concentrate grade in the North Zone (using 10m composites data)

14.7 Geostatistical Analysis

Experimental variograms were calculated only for head grade variables and percent of magnetite, and 10 m composites for the North Zone (Figure 14-10) and using 2 m composites for the South Zone (Figure 14-11) and fitted to a variogram model. It was found that the same variogram model fits the experimental variograms of the head grade variables and the percent of magnetite (Figure 14-11). The variogram models are shown in Table 14-2.

Table 14-2: Variogram models used to interpolate Fe_2O_3 and TiO_2 head grades, and percent of magnetite

Zone	Orientation (dip-->dip direction)	Exponential 1			Exponential 2	
		Nugget	Sill	Range	Sill	Range
South	00-->085	0.165	0.835	307	-	-
	00-->355			101		-
	90-->000			187		-
North	00-->090	0.2	0.18	14	0.62	500
	90-->000			14		100
	00-->180			14		100

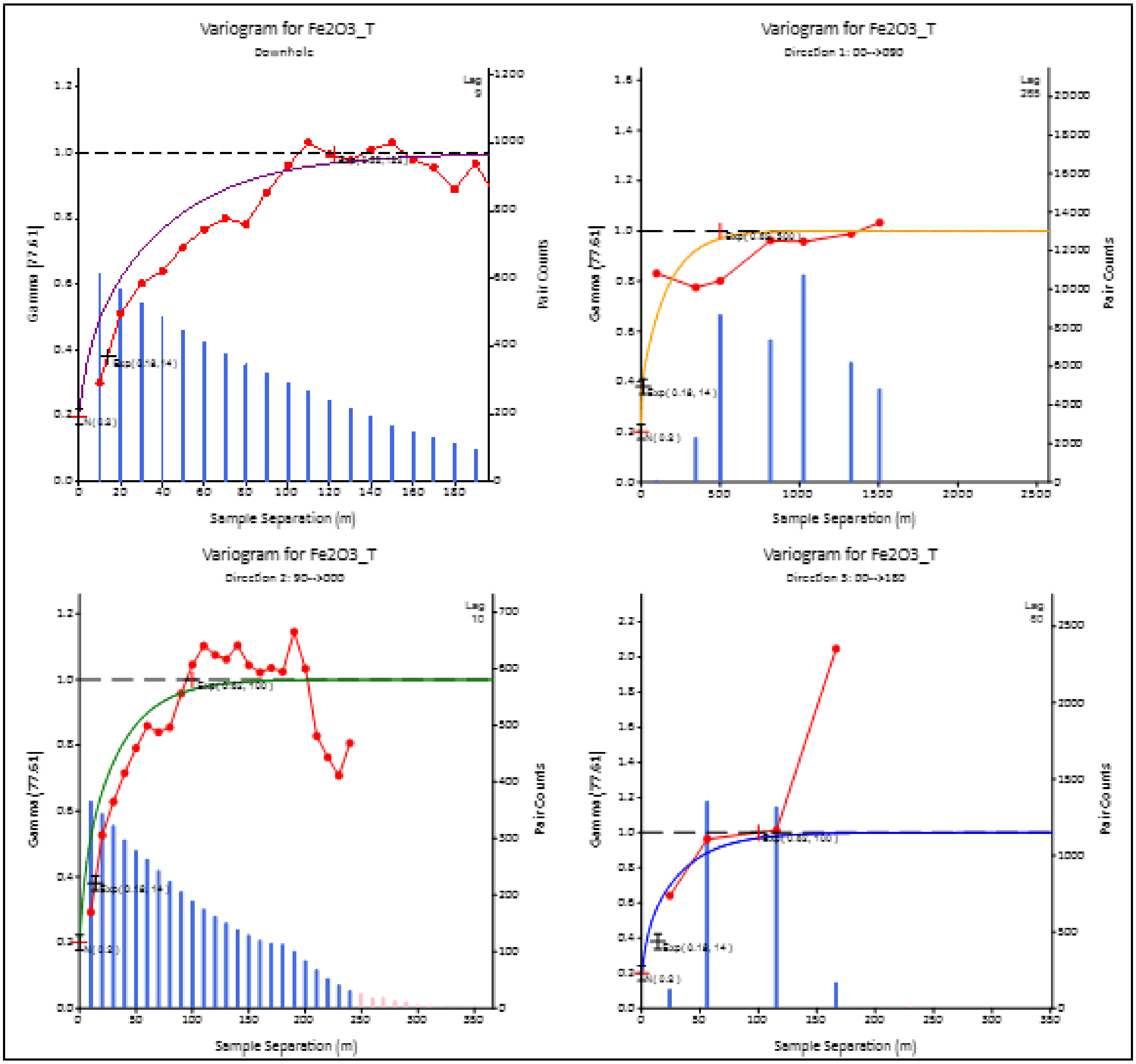

Figure 14-10: Experimental variogram and model of the North Zone

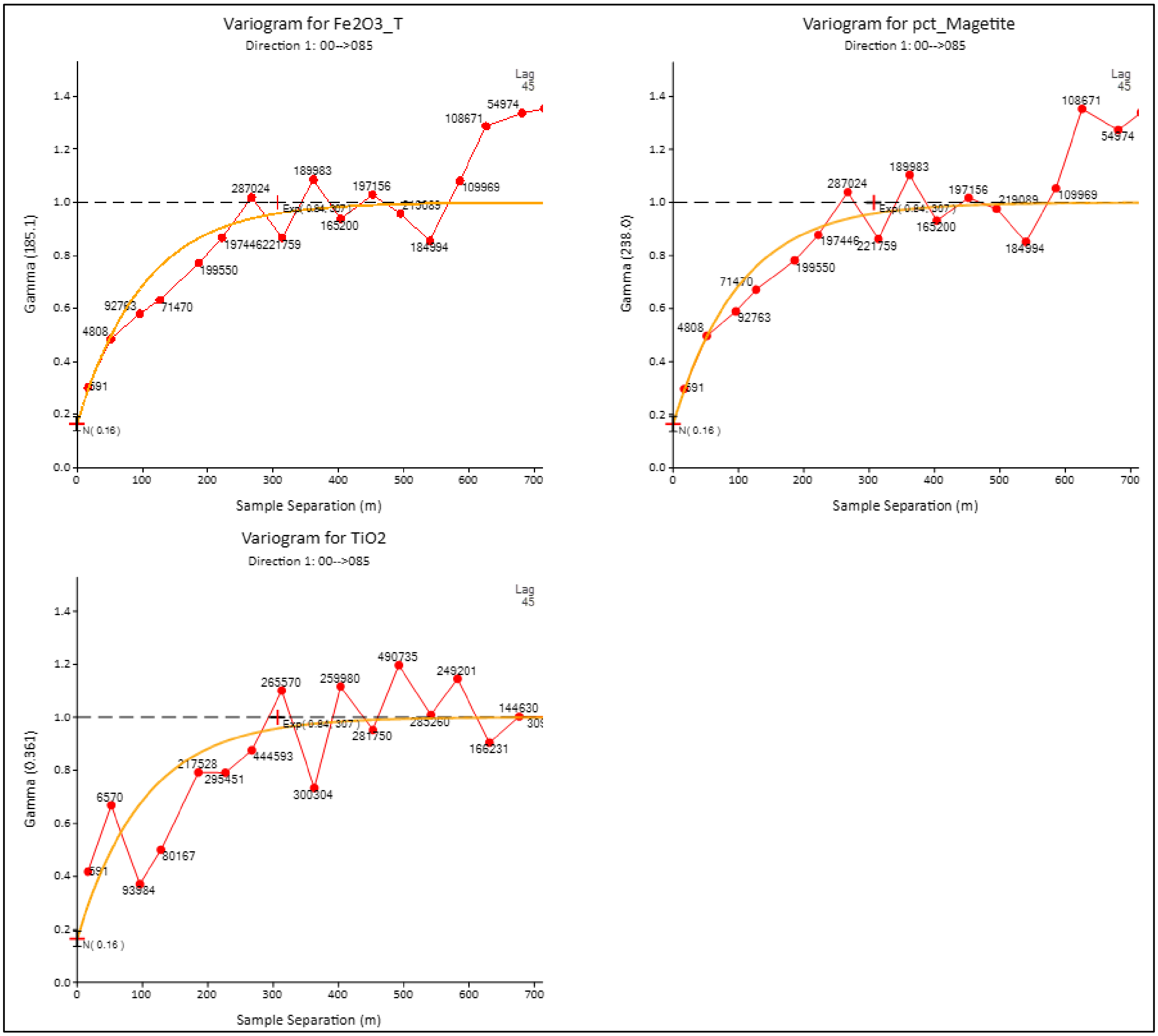

Figure 14-11: Variogram model (in yellow) and experimental variograms of Fe_2O_3 and TiO_2 head grades, and percent of magnetite, in the horizontal direction with azimuth 85° for the South Zone

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 14-12). The polynomial formula:

$$SG = 0.0003(Fe2O3)2 + 0.0036(Fe2O3) + 2.7517$$

was used to calculate the density of samples without density measurements, based on the Fe_2O_3_T of the sample.

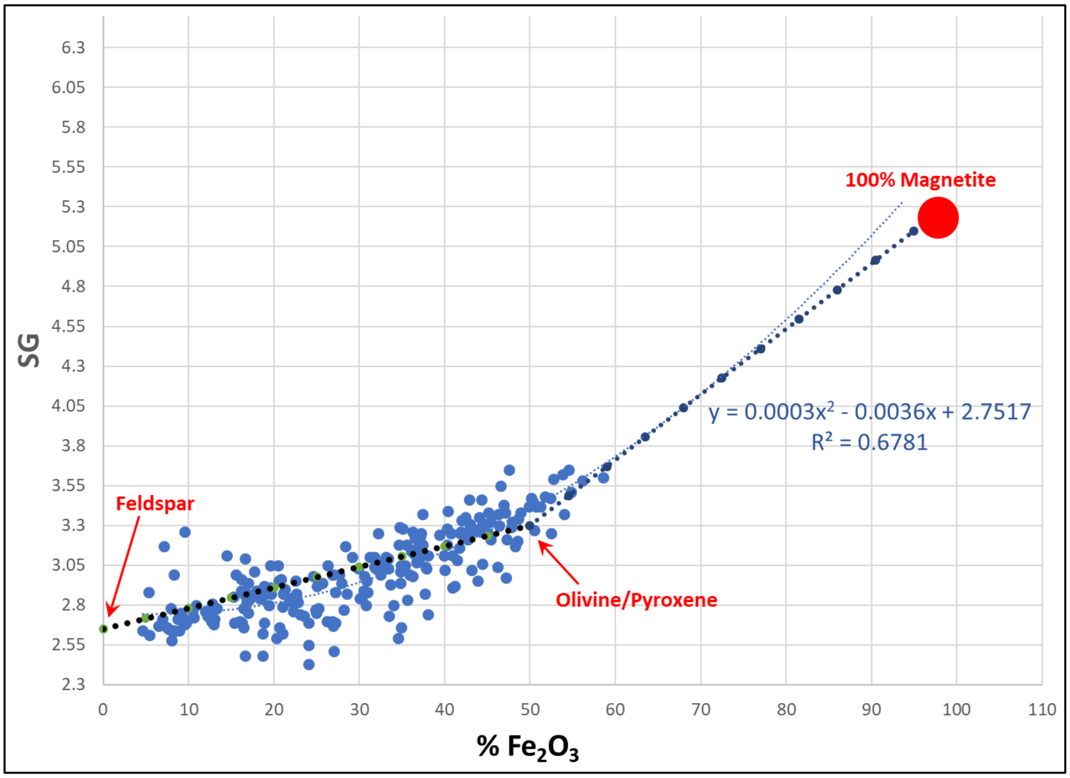

Figure 14-12: Plot of Fe_2O_3 (total) vs density (SG) for all samples measured for density using gas pycnometry in 2017 and 2018

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 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.

14.10 Grade Estimation

This estimate consists of two main components:

- Components characterizing the in-situ properties of the rock, referred to as the head grade in this report. 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_2O_3 and TiO_2) and Percent of Magnetite Estimation

Only Fe_2O_3 head grades and the percent of magnetite were used to inform the block models. The TiO_2 was also interpolated for the South Zone. These in-situ components of the rock were interpolated using SKLM in the South Zone and ordinary kriging in the North Zone.

The local means for the SKLM estimate of the South Zone were estimated in the block model with the inverse of the squared distance using 20 m composites informed by sample intervals assays. Local means are smooth and intended to represent grade trends at large distances; therefore, both large sample composites and regular sampled intervals 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 14-13. Local means were also interpolated into the 2 m composites of the South Zone.

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 represents the smaller-scale local distribution of grades 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 sample selection and simple kriging weights were tested in Figure 14-13B to ensure the estimate works as intended.

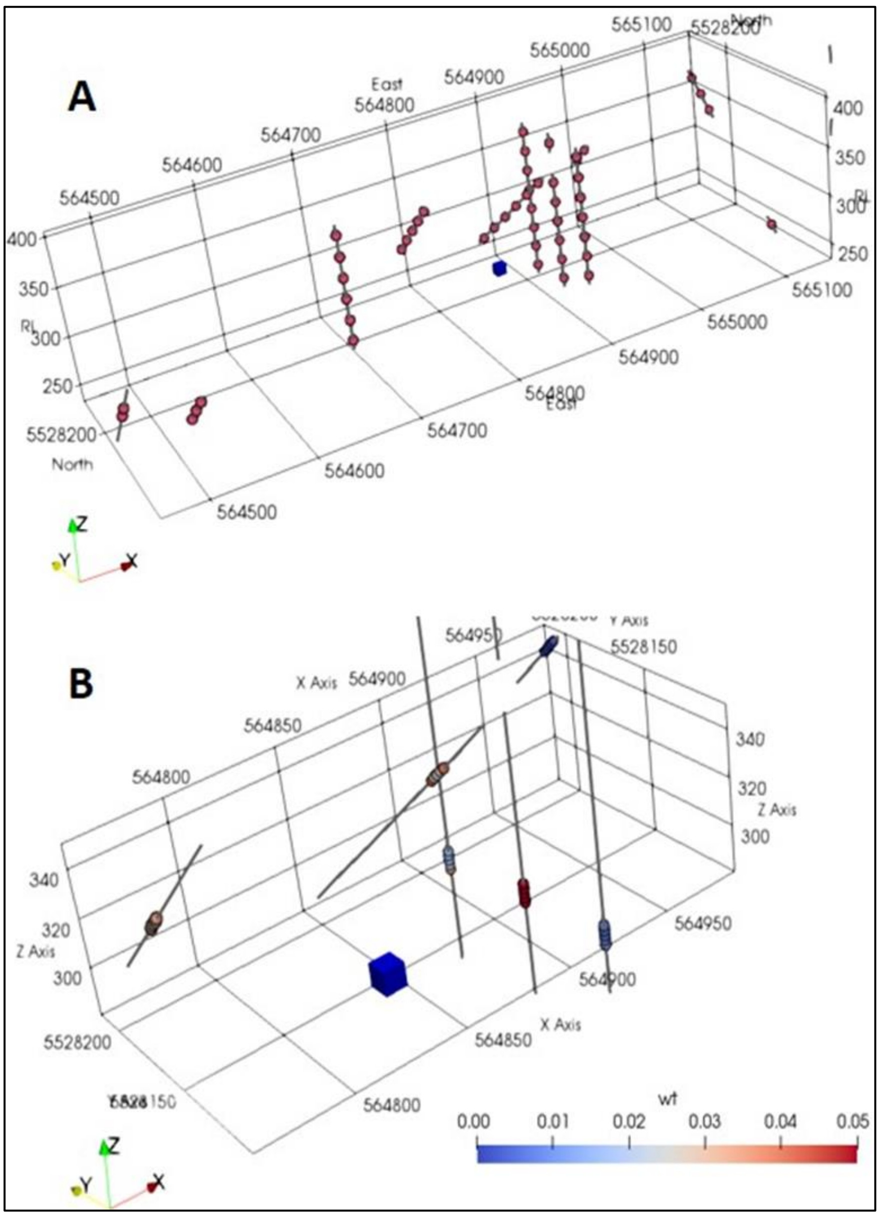

Figure 14-13: Visual Validation of the interpolation parameters in the South Zone
A: 20 m composites (in red) used to interpolate local means in one block (blue) and drillhole traces (gray).
B: 2 m composites used to interpolate with SKLM.

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.

The interpolation in the North Zone was directly into 10 m parent blocks with ordinary block kriging with 3 x 3 x 3 discretization points, 10 m composites, a maximum of 22 drillhole composites, minimum of six composites, and a maximum of two composites per drillholes, and the variogram model shown in Table 14-2. A large search ellipse of 610 m x 135 m x 87 m was used to select samples. Two search passes were used to interpolate. The second search pass used two times the main search ellipse axis bigger, and three-time secondary and tertiary search ellipse size increment. The interpolation parameters were tested and tuned up using interpolation in one block and visualizing the results in 3D (Figure 14-14). Visual inspection of the trends was also used to test the estimation parameters.

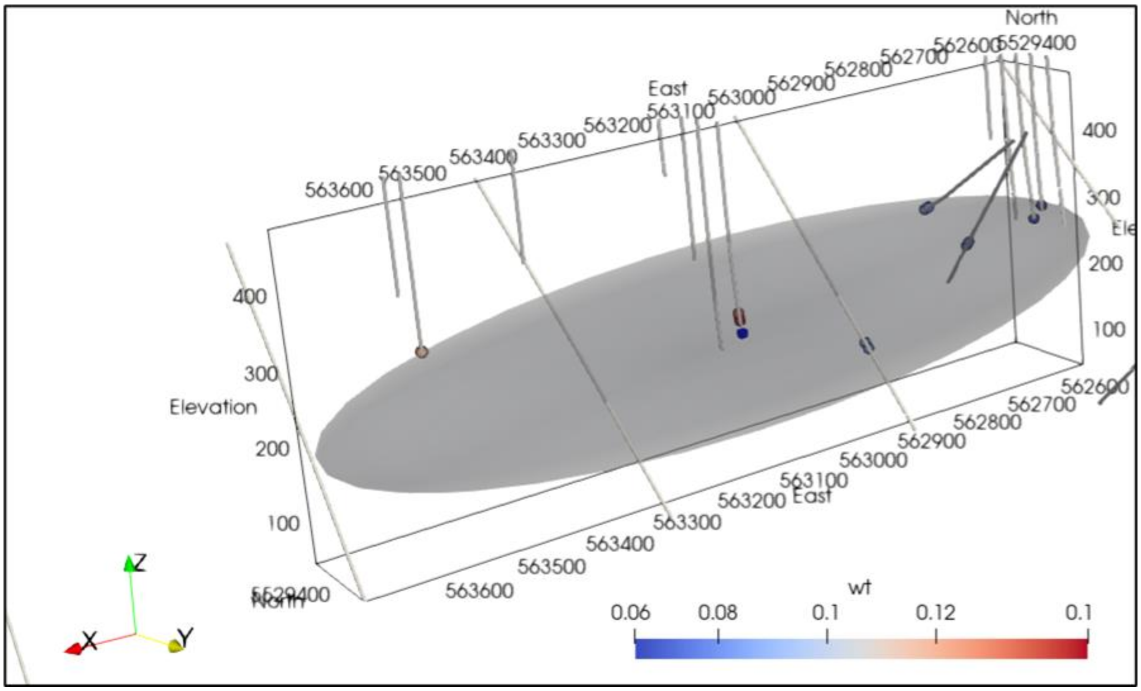

Figure 14-14: *Visual Validation of the interpolation parameters in the North Zone*

Note: The 10 m composites (in grey), search ellipse (transparent grey), and points selected to interpolate a single test block (blue) composites used to interpolate with ordinary kriging are coloured by kriging weight.

14.10.2 Grade in Concentrate Estimation

In the South Zone, the Al_2O_3, Fe_2O_3, MgO, SiO_2, TiO_2 and V_2O_5 grades in magnetite concentrates were interpolated using the same approach and interpolation parameters used to estimate local means or trends. In the North Zone, only the Fe, and V_2O_5 concentrate grades were interpolated.

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 14-3 and Table 14-4 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. The de-clustered mean values in the North Zone were calculated with the nearest neighbour interpolator. The North Zone was also validated with an alternative interpolation using the inverse of the squared distance interpolator (Table 14-4).

Table 14-3: Mean comparison – South Zone

Variable		Mean in composite (%)	Mean in model (%)	Difference in mean (%)	Number of composites	Number of blocks
Fe_2O_3	Head grades	28.7	28.5	-0.5	3,586	109,218
TiO_2		1.19	1.20	1.2	4,561	115,525
Percent of magnetite		26.7	25.4	-4.9	3,586	109,218
V_2O_5	Grades in concentrate	0.51	0.47	-7.3	338	117,479
Fe_2O_3		90.0	94.8	5.3	177	117,479
TiO_2		1.4	1.3	-0.9	430	117,479
MgO		3.5	3.5	-0.0	428	117,479
Al_2O_3		0.35	0.34	-2.9	428	117,479
SiO_2		2.7	2.6	-1.3	428	117,479

Table 14-4: Mean comparison – North Zone

Variable		Mean in composite (nearest neighbour estimate) (%)	Mean in the model (ordinary kriging) (%)	Mean in the model (inverse of the distance²) (%)	Number of blocks
Fe_2O_3	Head grades	37.6	38.0	38.1	197711
Percent of magnetite		35.1	35.0	35.1	
V_2O_5	Grades in concentrate	0.58	0.58	0.58	
Fe		64.4	64.0	64.2	
Fe_2O_3	Head grades	33.3	33.8	34.4	29414
Percent of magnetite		29.1	29.9	30.8	
V_2O_5	Grades in concentrate	0.48	0.51	0.52	
Fe		62.4	62.9	62.9	

Visual validations consisted of a comparison of grade in drillholes and block model to ensure the local estimate and main trends were reproduced in the estimate (Figure 14-15). Swath plots were used to validated local trends and bias in the estimate (Figure 14-16). The global change of support compares the volume and grade over a certain cut-off obtained from the model and with theoretical grade-tonnage curves estimated with the discrete Gaussian model (Figure 14-16, and Figure 14-17).

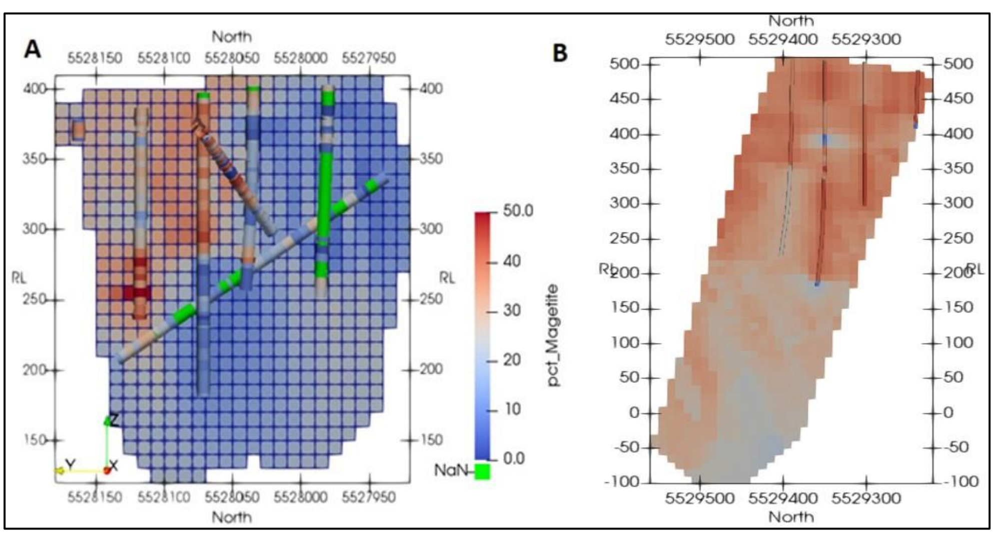

Figure 14-15: Visual validation in sections
A: South Zone section along E 543611 with percent of magnetite estimated in block model and in assay intervals.
B: North Zone section along E 563097 with percent of magnetite estimated in block model and in assay intervals.

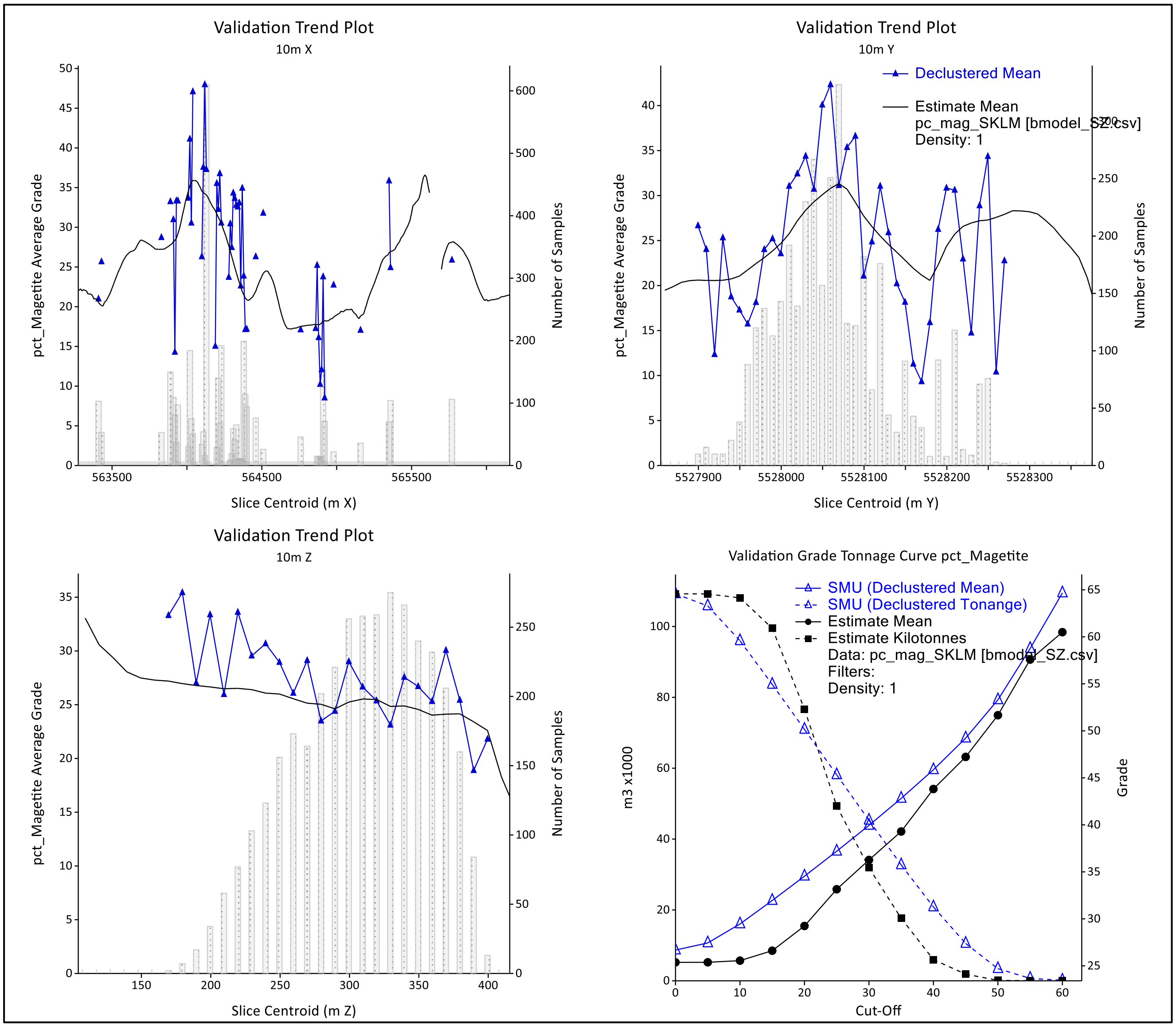

Figure 14-16: Swath plots (top row and below left) and global change of support (below right) of percent of magnetite estimate in the South Zone

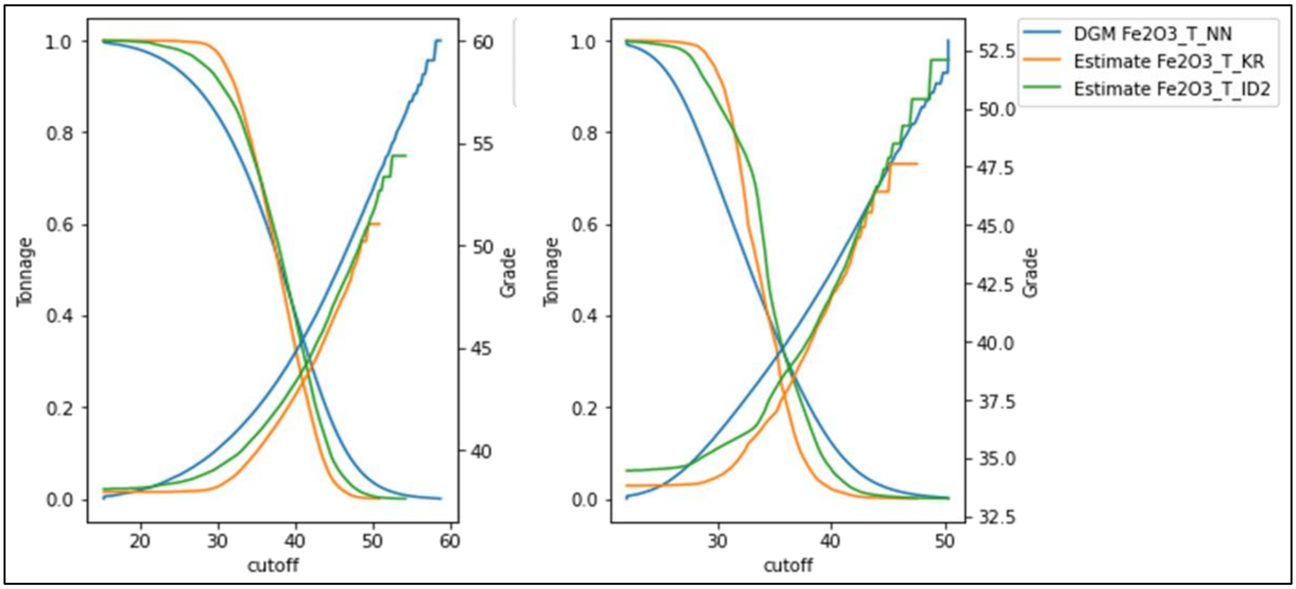

Figure 14-17: Global change of support validation of the Fe_2O_3 in head grade estimate of North Zone subdomain 1 (left) and subdomain 2 (right)

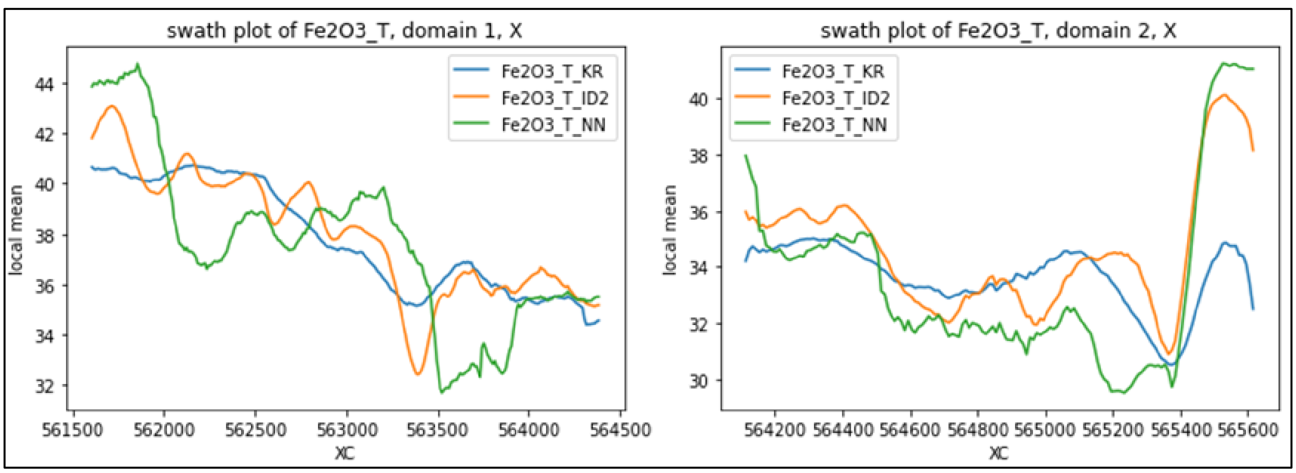

Figure 14-18: Swat plot validation of the Fe_2O_3 in head grade estimate of North Zone subdomain 1 (left) and subdomain 2 (right)

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

14.12 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/dmt.
- It is assumed that VONE will receive an additional premium for V_2O_5 of US$25 per tonne of concentrate (i.e. a total price of US$115/t). This assumption was also tested with two other options: 1) no premium for V_2O_5; and 2) 50% of the value of V_2O_5 contained in the concentrate, using an assumed price of V_2O_5 of US$15,432.68/t (US$7/lb).

- The costs are – mining, crushing and milling = US$1.9/t, magnetic separation = US$2.9/t, G&A and sustaining costs = US$2.25/t.
- The assumed cost of transporting the concentrate from site to the buyer (assumed to be in China) is US$40/t.
- The extraction will be with large-scale open pit mining.

The assumptions above were used to derive a theoretical pit shell for the North Zone (Figure 14-19). This pit was used to constraint the resources reported. Optimizing a pit for the South Zone was not required, since a similar cost model and block model were used to report resources as part of the preliminary economic assessment, and no change was introduced in the model since then.

The block's net values (using the pricing and costs above) were also used to verify that a reference cut-off grade of 20% Fe_2O_3 is appropriate. Figure 14-19 shows that most blocks are economical over 20% Fe_2O_3 for the three scenarios. The only difference is in the overall total value. The pits did not show any significant difference. Note that the pits extend to the bottom of the block model, meaning they could go deeper eventually. Additionally, current metal prices are more favorable than the one used to create the theoretical pits.

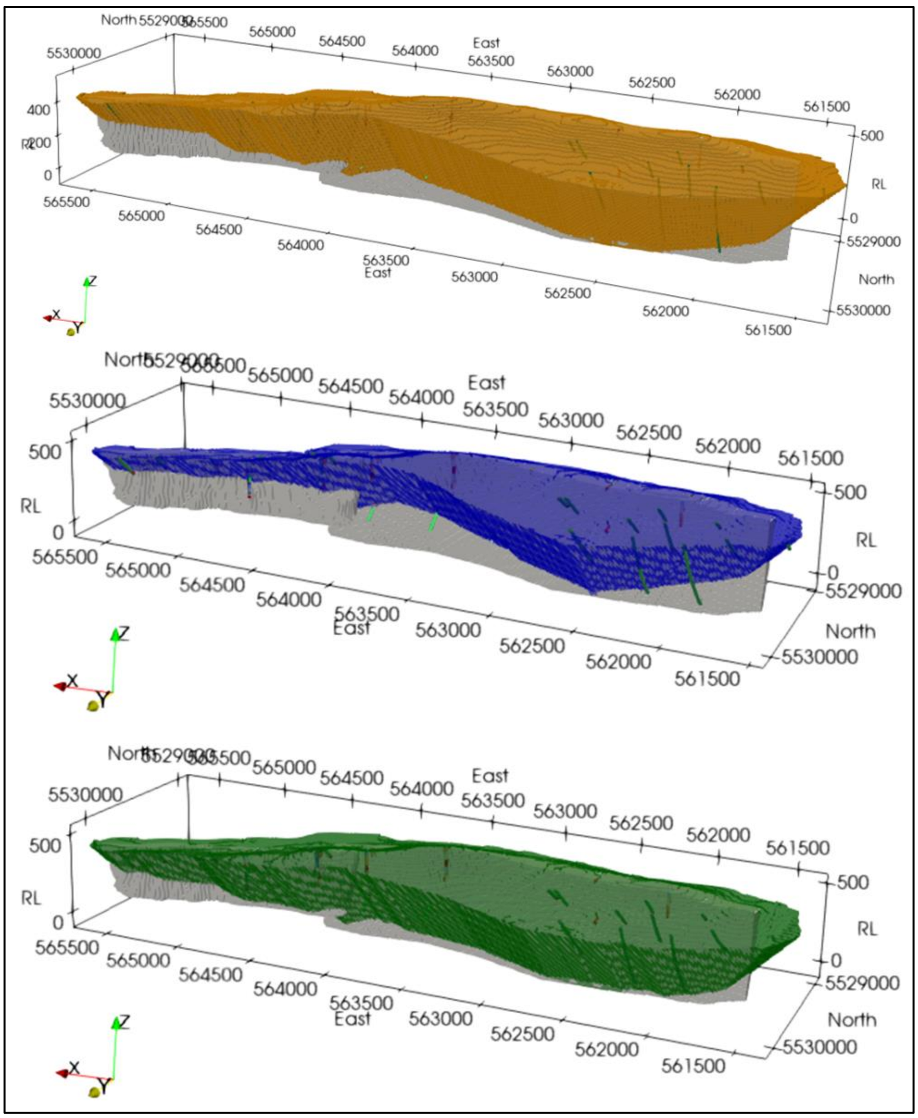

Figure 14-19: Base case of pit optimization used to constraint resources, using a US$25/t of concentrate of bonus for V_2O_5 (top), and alternative cases using no V_2O_5 contribution (middle) and ½ of the V_2O_5 value (bottom)

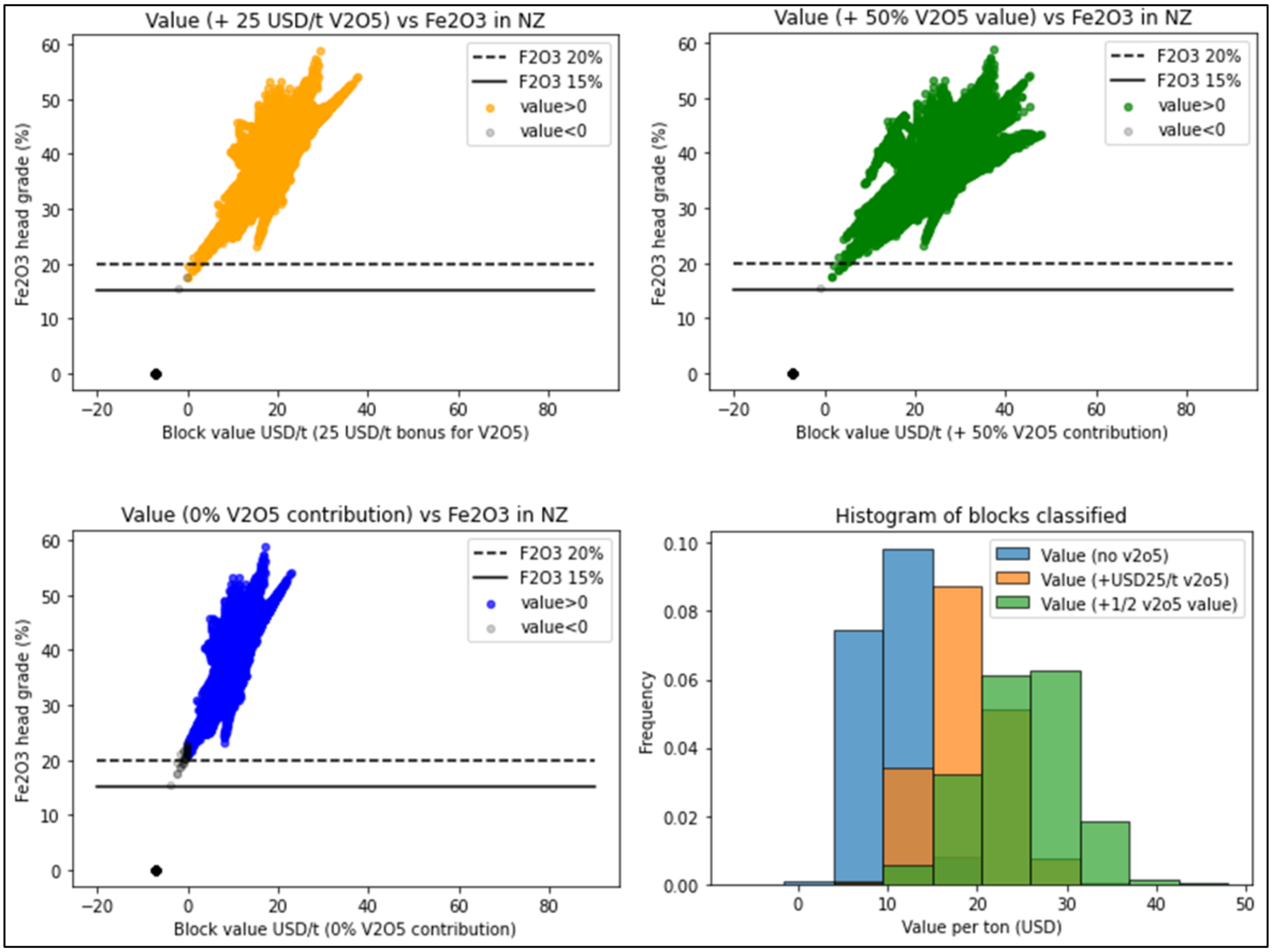

Figure 14-20: Scatterplots of block value vs Fe_2O_3 content (%) and histograms of block values per economic scenario

14.13 Mineral Resource Classification

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). These CIM definitions are stated below.

Inferred Mineral Resource: An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity

Indicated Mineral Resource: An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

Measured Mineral Resource: A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

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.

In the South Zone, the classification was completed by selecting blocks within classification polygons manually digitized along drillhole sections. In the North Zone, it was found that blocks above the reference pit (Figure 9-2) satisfy the criteria used for Inferred Mineral Resources and were classified with this category.

Mineral Resources were reported over a cut-off of 20% Fe_2O_3 head grade (or 14% Fe), which is also approximately equivalent to the point where Fe_2O_3 recover to magnetite decreases rapidly (Figure 11-2) indicating that below this threshold, majority of the iron occurs in non-magnetic silicates. These resources are shown in Table 14-5. A sensitivity analysis for different cut-off grades is also shown in Table 14-5.

Table 14-5: Mineral Resources at Mont Sorcier effective 6 May 2021; cut-off grade is 20% Fe_2O_3 (14% Fe)

Zone	Category	Tonnage		Head grade		Grade in concentrate					
		Rock (Mt)	Concentrate (Mt)	Fe (%)	Magnetite (%)	Fe (%)	V_2O_5 (%)	Al_2O_3 (%)	TiO_2 (%)	MgO (%)	SiO_2 (%)
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	809.1	277	26.1	34.2	63.5	0.6	-	-	-	-
Total	**Indicated**	**113.5**	**35.0**	**22.7**	**30.9**	**65.3**	**0.6**	**0.3**	**1.2**	**3.8**	**2.8**
	Inferred	**953.7**	**313.1**	**25.2**	**32.8**	**64.0**	**0.6**	**-**	**-**	**-**	**-**

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. Numbers have been rounded to reflect the precision of Inferred and Indicated Mineral Resource.

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 majority of the Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration, based on geophysical and geological evidence suggesting continuity of mineralization.

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.

17 Recovery Methods

This section is not applicable to the current report.

18 Project Infrastructure

This section is not applicable to the current report.

19 Market Studies and Contracts

This section is not applicable to the current report.

20 Environmental Studies, Permitting and Social or Community Impact

This section is not applicable to the current report.

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 Inc., who hold several licences in the region. Many of these licences are for gold, copper, silver and zinc mineralization. The properties immediately to the west of Mont Sorcier (Figure 23-1) may host continuations of the VTM mineralization described in this report, but this has not yet been tested.

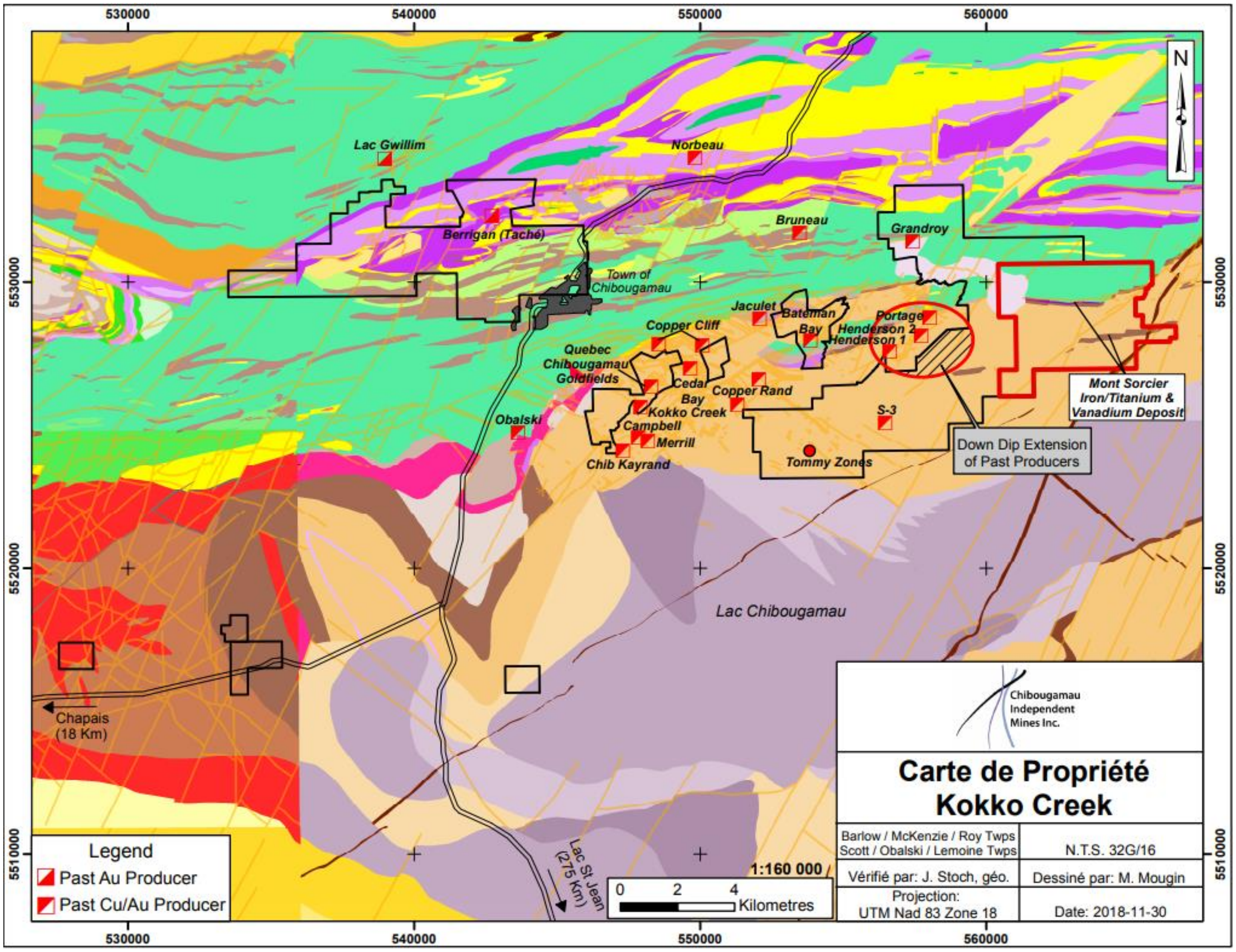

Figure 23-1: Adjacent and nearby properties and deposits held by Chibougamau Independent Mines

In addition, along the southeastern margin of the LDC, the contiguous properties of Blackrock Metals and VanadiumCorp Resource Inc. (Figure 7-2) 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, and a MRE and NI 43-101 report were completed in 2020 for the Lac Dore deposit.

The author has not been able to verify all 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

It is expected that the economics of the Project will likely be determined by the iron ore price and the vanadium price.

24.1.1 Iron Ore 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/t to over US$220/t (Figure 24-1), with a significant increase in prices from ~$80/t in early 2020 to >$220/t in June 2021.

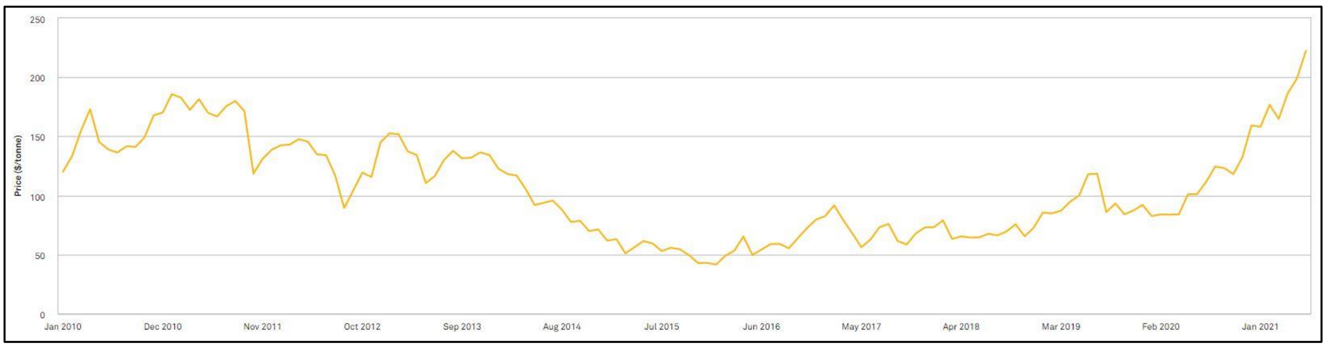

Figure 24-1: The Steel Index Iron Ore Fines 62% (US$/t) iron ore prices from January 2010 to June 2021
Source: S&P Global Market Intelligence

65% Fe fines fetch a variable premium over 62% Fe fines (Figure 24-2), whereas 58% Fe fines are discounted. From end of 2013 to approximately mid-2016, the iron premium, defined as the price spread between the 65% Fe and the 62% Fe benchmark indices, has varied in a narrow range with the premium for 65% Fe being about 5% above the price of the 62% Fe iron product. Since mid-2016, the Fe premium has increased significantly and climbed as high as 35% above the benchmark price (Platts62 product). One key driver to this significant premium increased has been the environmental restrictions on emissions imposed by the Chinese Central and Provincial Governments. To comply with these restrictions and to minimize production cuts, steelmakers have resorted to an increase in quantity of higher-grade iron concentrates purchased. This increased demand for higher grade concentrates has contributed to the increase in iron premium.

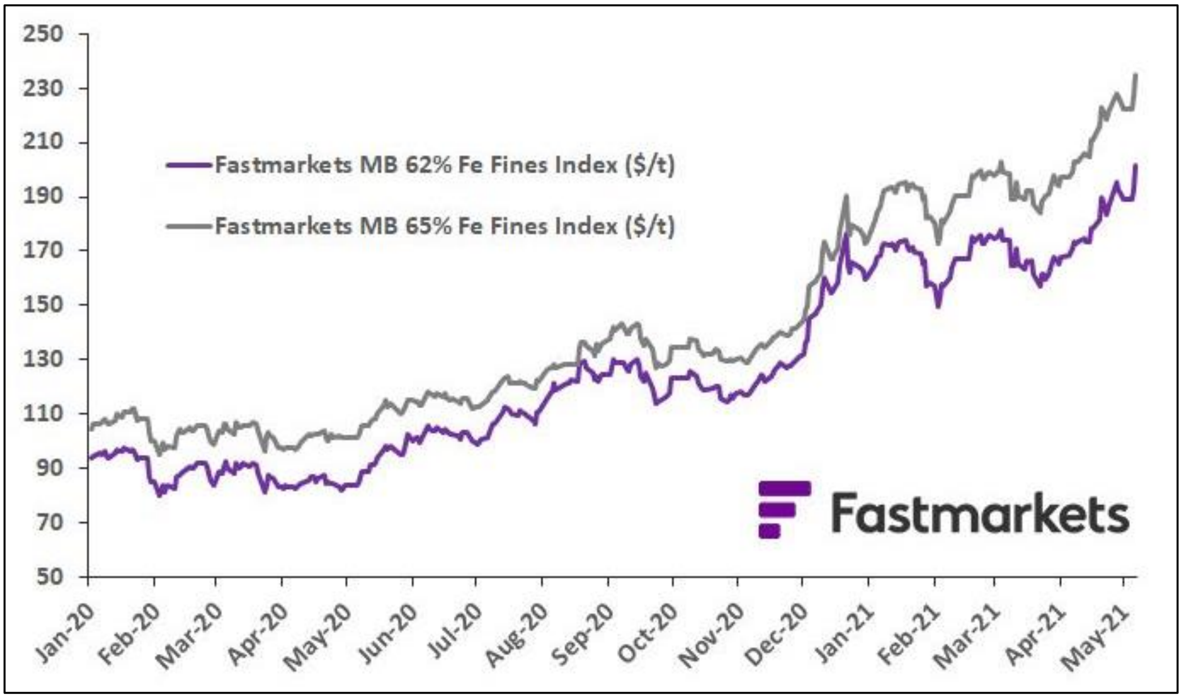

Figure 24-2: Price premium of 65% Fe content fines relative to 62% Fe fines between January 2020 and May 2021
Source: Fastmarkets: https://mobile.twitter.com/IronOreIndex/status/1390259597500305409

24.1.2 Vanadium Price

Over the past decade, vanadium prices (>98% V_2O_5 flake) have varied between US$2.5/lb and US$28.8/lb (Figure 24-3).

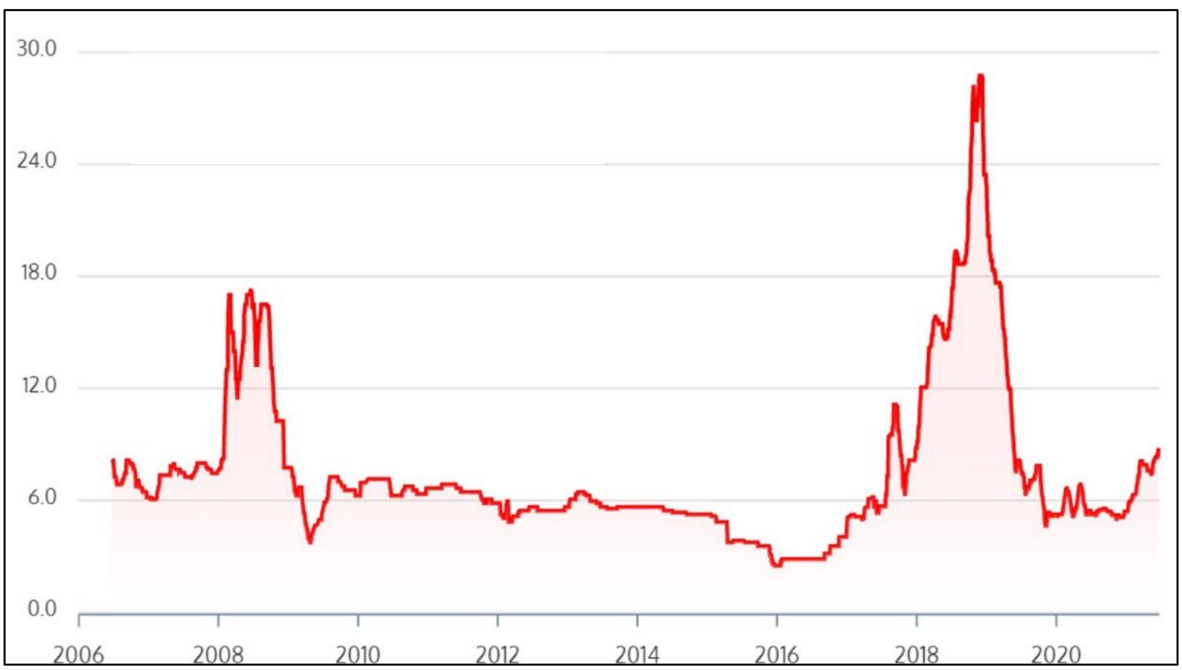

Figure 24-3: Vanadium pentoxide prices (>98% V_2O_5, Europe, US$/lb) between 2006 and 2021
Source: www.vanadiumprice.com

24.1.3 Mont Sorcier Concentrate Price

In 2019, an Independent Market Pricing Study was completed by Paul Vermeulen of Vulcan Technologies, who applied a value in use methodology based upon a review of the grade and concentrate chemistry from Mont Sorcier relative to other similar iron products. The study concluded that the concentrate from Mont Sorcier should receive a US$15/t premium to the Platts 65 price iron index for the contained vanadium credits (based on a net attributable value using a long term V_2O_5 price of US$7.25/lb). This study recommended a base case concentrate price of between US$76/dmt (for 62% Fe) and US%92/dmt (for 65% Fe), before addition of vanadium credits, and a selling price of US$107/t or C$140.79/t for the Mont Sorcier concentrate (Table 24-1).

Table 24-1: Consensus concentrate price assumptions from the 2019 Independent Market Pricing Study

	Spot price, 24 Sep 2019 (US$/dmt)	Three-year average (US$/dmt)	Long-term forecast consensus price range (US$/dmt)	Base case (recommended) price (US$/dmt)
Platts 62	89.6	76.3	76	76
Consensus for Platts 65% grade iron concentrate	95.6	92.5	92-104 (15-30% premium)	92
Mont Sorcier pricing		Base price	92–104	92
		Quality premium for phosphorus and alumina	0-5	Nil
		Quality premium for magnesium oxide credits	1.5 (US$20/t dolomite x 3.8% MgO in mineralization)	Nil
		Quality premium for magnetite content	Nil	Nil
		Discount for small grind size	Nil	Nil
Vanadium premium per tonne of concentrate		Vanadium credits	0–30	15.00
Final forecasted price CFR China (including vanadium premium)		Final forecasted price CFR	92–134	107
Freight			21	21
Forecast FOB Canada			71-113	86
Exchange Rate US$:C$ (PEA used)				0.76
Final base case price C$ per tonne concentrate CFR China				**C$140.79**

Since the 2019 study, iron ore prices have increased dramatically, but for the purposes of assessment of reasonable prospects of economic evaluation (Section 14.12), assumptions similar to those in the 2019 study have been used. The magnetite concentrate is assumed to be 65% Fe (93% Fe_2O_3) and is assumed to be saleable at US$90/dmt, excluding vanadium credits. It was also assumed VONE will receive an additional premium for V_2O_5 of US$25 per tonne of concentrate (i.e. a total price of US$115/t). This assumption was also tested with two other options: 1) no premium for V_2O_5; and 2) 50% of the value of V_2O_5 contained in the concentrate, using an assumed price of V_2O_5 of US$15,432.68/t (US$7/lb).

The iron ore concentrate price of US$90/t used in the assessment of reasonable prospects of economic evaluation (Section 14.12) is therefore conservative with respect to recent prices for iron ore concentrates.

25 Interpretation and Conclusions

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 an 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 two subvertical, east-west striking or east-northeast to west-southwest striking roughly tabular bodies that are separated by a fault. 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 South Zone and between 30 m and 300 m in thickness in the North Zone.

Between 2017 and 2021, 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 2021.

Based on recent drilling by VONE, as well as historical drilling and assay results, Mineral Resources have been reported (effective 6 May 2021) at a cut-off of 20% Fe_2O_3 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 953.7 Mt at 25.2% Fe and 32.8% magnetite, have been estimated, as detailed in Table 1-1 and Table 14-5.

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 majority of the Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration, including small strike extensions, and extension at depth for both zones.

The following risks and uncertainties (listed in order from what the author considers highest risk to lowest risk) may affect the reliability or confidence in the exploration information and MRE:

1) 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
2) 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.
3) Permits and authorizations for advancement of the Project are not guaranteed.
4) Some historical drillhole collars have been surveyed by an independent surveyor, and some downhole deviation data is available for historical drillholes; however, those that have not been located compare favourably with recorded locations. (Score of 8)
5) QAQC procedures associated with historical assay only include duplicate analyses, with no standards documented; however, comparison of the results of historical assays with recent values shows that they compare favourably.

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

- 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.
- There is potential for minor extensions to both the North Zone and South Zone resources along strike towards the east and west and at depth by drilling the magnetic anomalies along strike from the current Mineral Resources, as well as testing the depth extensions of mineralization.
- Opportunity to improve concentrate grades and recoveries through further metallurgical test work.

26 Recommendations

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

Phase 1: Work required to increase the confidence in the resource:

- Survey all remaining historical 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 100 m along strike.
- Increase the number of round-robin assays for the reference standards sample material involving more laboratories and more samples per laboratory.
- Standards used should also be subject to magnetic separation, and the magnetic portion assayed.
- Additional Davis Tube testwork on samples from the 2020 drill programme and all future drilling programs.

Phase 2: Work required for prefeasibility studies:

- Detailed environmental studies and assessments of permitting requirements
- Metallurgical testwork including grind optimization
- Mining studies
- Infrastructure studies
- Detailed marketing studies.

A budget for this future work is outlined in Table 26-1.

Table 26-1: 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, alternate QAQC methods	~$50,000
	Infill drilling to convert a portion of the North Zone to Indicated Resources	Estimated 10,000 m for sufficient detail for Indicated Resources	~$2,000,000
	5% duplicate and 5% umpire analyses, additional analyses of standards materials	150 samples (including magnetic separation and assay of the concentrate)	~$15,000
	Additional Davis Tube testwork	200 samples	~20,000
	Updated MRE	Interpretation modelling and reporting	~60,000
	Total estimated costs		**~$2,145,000**
Phase 2: Work required for prefeasibility studies	Metallurgical testwork	Bulk samples, pilot study	~$500,000
	Environmental studies	Commence baseline studies, stakeholder engagement, preliminary work for ESIA	~$1,000,000
	Geotechnical study	Drilling, sampling, analysis and reporting	~300,000
	Mining studies		~$450,000
	Marketing studies		~$150,000
	Infrastructure studies		~$150,000
	Total estimated costs		**~$2,550,000**
GRAND TOTAL			**~$4,695,000**

27 References

Allard, G.O. (1976). Doré Lake Complex and its Importance to Chibougamau Geology and Metallogeny, Québec; MERN report DP-386; Ministère des richesses naturelles: Peterborough, Canada.

Ayer, J., Amelin, Y., Corfu, F., Kamo, S., Ketchum, J., Kwok, K., and Trowell, N. (2002). Evolution of the southern Abitibi greenstone belt based on U-Pb geochronology: Autochthonous volcanic construction followed by plutonism, regional deformation and sedimentation: Precambrian Research, 115, p. 63–95.

Bartsch, K., Pilcher, B., Longridge, L., Martinez, A., Veresezan, A. and Doundarov, G. (2020). Preliminary Economic Assessment (PEA) of the Mont Sorcier Project, Province of Quebec, Canada. 178p.

Boulé, V., Plourde, D., Vallières, C., and Racine, Y. (2019) Vanadium One Energy Corp. Mont Sorcier Project Environmental and Social Scoping Study Preliminary Report, Norda Stelo, Ref: 117310.002-100, 175p.

Daigneault, R., and Allard, G.O. (1990). Le Complexe du Lac Doré et Son Environnement Géologique (Région de Chibougamau-Sous-Province de l'Abitibi); MERN report MM-89-03; Ministère des Ressources naturelles du Québec: Québec, QC, Canada; ISBN 2551123313.

Dorr, A. (1969). Magnetite Deposits in the Northern Part of the Doré Lake Complex, Chibougamau District, Québec. Master's thesis, McGill University, Montréal, QC, Canada.

Giguère, R., Roy, P., and Roy, C. (2014). Symboles et abbréviations de la carte géoscientifique. Ministère de l'Énergie et des Ressources naturelles. Dépôt légal – Bibliothèque et Archives nationales du Québec. ISBN: 978-2-550-71708-9 (PDF)

Glossop, L., and Prout, S. (2019). QEMSCAN & SEM DATA prepared for: Vanadium One Corp. Project: CA20I-00000-211-17154-01, SGS Canada MI7021-DEC18, 15p.

Gross, G.A. (1996). Mafic intrusion-hosted titanium-iron. In: Geology of Canadian Mineral Deposit Types. Eckstrand, O.R., Sinclair, W.D. and Thorpe, R.I. (eds). Geological; Survey of Canada, Geology of Canada, no 8, p 573-582.

Harne, D.M.W., and Von Gruenewaldt, G. (1995). Ore-forming processes in the upper part of the Bushveld complex, South Africa. Journal of African Earth Sciences, 20, p 77-89.

Laflamme et al., 2017., Vanadium One Energy Corp. Preliminary testing on Mont-Sorcier ore for vanadium concentration. COREM Final Report No: T2256, 36p

Larouche, C.P. (2016) "Technical Review and Exploration Potential on the Mont Sorcier mining claims controlled by Chibougamau Independent Mines Inc. in Roy Township, Chibougamau Area; NTS 32G-16, Province of Québec for Vendome Resources Corp."

Leclerc, F., Harris, L.B., Bédard, J.H., van Breemen, O. and Goulet, N. (2012). Structural and Stratigraphic Controls on Magmatic, Volcanogenic, and Shear Zone-Hosted Mineralization in the Chapais-Chibougamau Mining Camp, Northeastern Abitibi, Canada. Economic Geology, 107, 963–989.

Longridge, L. and Martinez, A. (2019). NI 43-101 Technical Report, Mont Sorcier Project, Province of Quebec, Canada. 108 p.

Mathieu, L. (2019). Origin of the Vanadiferous Serpentine–Magnetite Rocks of the Mt. Sorcerer Area, Lac Doré Layered Intrusion, Chibougamau, Québec. Geosciences, 9, 110, 36 p. doi:10.3390/geosciences9030110

Monecke, T., Mercier-Langevin, P., Dubé, B., and Frieman, B. (2017). Geology of the Abitibi greenstone belt: Reviews in Economic Geology, 19, p. 7–49.

Van Tongeren, J., and Mathez, E.A. (2012). Large-scale liquid immiscibility at the top of the Bushveld Complex, South Africa. Geology, 40, 491–494. doi: https://doi.org/10.1130/G32980.1

Appendix A Glossary of Technical Terms and Abbreviations

Glossary of Technical Terms

azimuth	Drillhole azimuth deviation (from north).
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.
collar	Geographical coordinates of the collar of a drillhole 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 drillhole core for further assay.
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.
de-clustering	In geostatistics, a procedure allowing bounded grouping of samples within the octant sectors of a search ellipse.
digital terrain model	3D wireframe surface model, e.g. topography (DTM).
dip	Angle of drilling of a drillhole.
Expert	Laboritoire Expert.
flagging	Coding of cells of the digital model.
FROM	Beginning of intersection.
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.
group sampling	In exploration and mining, method of sampling by means of union of the material of individual samples characterizing an independent orebody.
histogram	Diagrammatic representation of data distribution by calculating frequency of occurrence.
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 minimized, and the standard deviation is equal to zero (based on the model).
lag	The chosen spacing for constructing a variogram.
lognormal	Relates to the distribution of a variable value, where the logarithm of this variable is a normal distribution.
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.
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.
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).
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 drillhole, 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.
sill	Variation value at which a variogram reaches a plateau.
standard deviation	Statistical value of data dispersion around the mean value.
string	Series of 3D points connected in series by straight lines.
TO	End of intersection.
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.
wireframe model	3D surface defined by triangles.
X	Coordinate of the longitude of a drillhole, a trench collar, or a pit bench.
Y	Coordinate of the latitude of a drillhole, a trench collar, or a pit bench.

Abbreviations

%	percent
°	degrees
°C	degrees Celsius
1VD	first vertical derivative
3D	three-dimensional
Actlabs	Activation Laboratories
Al_2O_3	aluminium oxide
BIF	banded iron formation
BSE	back-scattered electron
BWI	Bond Ball Mill Work Index
C$	Canadian dollars
c.	circa
CaO	calcium oxide
CFILNQ	Chemin de fer d'intérêt local interne du Nord du Québec
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
cm	centimetre(s)
CO_2	carbon dioxide
Cr_2O_3	chromium(III) oxide
CSA Global	CSA Global Consultants Canada Limited
CV	coefficient of variation
d	diameter
DEM	digital elevation model
dip	Angle of drilling of a drillhole
dmt	dry metric tonne
EIJBRG	Eeyou Itschee James Bay Regional Government
ESIA	environmental and social impact assessment
ESSS	environmental and social scoping study
Fe	iron
Fe_2O_3	iron(III) oxide (or ferric oxide)
g	gram(s)
GCC(EI)	Grand Council of the Crees (Eeyou Itschee)
GMR	gross metal royalty
GPS	global positioning system
ha	hectare(s)
JBNQA	James Bay and Northern Quebec Agreement
JKMRC	Julius Kruttschnitt Mineral Research Centre
K_2O	potassium oxide
kg	kilogram(s)
km	kilometre(s)

LDC	Lac Dore Complex
m	metre(s)
M	million or mega (106)
MgO	magnesium oxide
ml	millilitre(s)
MLA	Mineral Liberation Analyzer
mm	millimetre(s)
MnO	manganese oxide
MRE	Mineral Resource estimate
Mt	million tonnes
Na_2O	sodium oxide
NI 43-101	National Instrument 43-101
P_2O_5	phosphorous pentoxide
QAQC	quality assurance/quality control
SEM	scanning electron microscope
SG	specific gravity
SGS	SGS Laboratories
SiO_2	silicon dioxide (or silica)
SKLM	simple kriging with local mean
t	tonne
t/m^3	tonnes per cubic metre
TiO_2	titanium dioxide
TO	end of intersection
US$	United States dollars
V_2O_5	vanadium oxide
VONE	Vanadium One Iron Corp.
VTM	vanadiferous titanomagnetite
XRD	x-ray diffraction
XRF	x-ray fluorescence
y	year

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