



**Val-d'Or Head Office**  
560, 3<sup>e</sup> Avenue  
Val-d'Or (Québec) J9P 1S4

**Quebec City Office**  
725, boulevard Lebourgneuf  
Suite 310-17  
Québec (Québec) G2J 0C4

**Montreal Office**  
859, boulevard Jean-Paul-Vincent  
Suite 201  
Longueuil (Québec) J4G 1R3

Phone: 819-874-0447  
Toll-free: 866-749-8140  
Email: [info@innovexplo.com](mailto:info@innovexplo.com)  
Website: <http://www.innovexplo.com>

---

**NI 43-101 Technical Report for the Ligneris Property, Québec, Canada  
Lithogeochemical and Geological Interpretation**



**Project Location**  
Latitude: 48°59' North; Longitude: 78°28' West  
Province of Québec, Canada

**Prepared by:**

Stéphane Faure, PhD, P.Geo.  
Claude Savard, P.Geo.

**InnovExplo Inc.**

Effective Date: Novembre 28, 2019  
Signature Date: Novembre 28, 2019

SIGNATURE PAGE – INNOVEXPLO

**NI 43-101 TECHNICAL REPORT FOR LIGNERIS PROPERTY,  
QUÉBEC, CANADA  
LITHOGEOCHEMICAL AND GEOLOGICAL INTERPRETATION**



Project Location  
Latitude: 48°59' North; Longitude: 78°28' West  
Province of Québec, Canada

Effective Date: November 28, 2019

*(Original signed and sealed)*

\_\_\_\_\_  
**Stéphane Faure, PhD, P.Geol.**  
InnovExplo Inc.  
Longueuil (Québec)

Signed at Longueuil on November 28<sup>th</sup>, 2019

*(Original signed and sealed)*

\_\_\_\_\_  
**Claude Savard, P.Geol.**  
InnovExplo Inc.  
Val-d'Or (Québec)

Signed at Val-d'Or on November 28<sup>th</sup>, 2019

## CERTIFICATE OF AUTHOR – STÉPHANE FAURE

I, Stéphane Faure, P.Ge., PhD (OGQ No. 306, PGO No. 2662, NAPEG No. L3536), do hereby certify that:

1. I am a professional geoscientist, employed as Geoscience Expert at InnovExplo Inc., located at 859, boulevard Jean-Paul Vincent, Suite 201, Longueuil, Québec, Canada, J4G 1R3.
2. This certificate applies to the technical report entitled “NI 43-101 Technical Report for the Ligneris Property, Québec, Canada – Lithochemical and Geological Interpretation” (the “Technical Report”) with an effective date of November 28, 2019 and a signature date of November 28, 2019, prepared for Ethos Gold Corp.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ permit No. 306), the Association of Professional Geoscientists of Ontario (PGO licence No. 2662), and the Northwest Territories and Nunavut Association of Professional Engineers and Professional Geoscientists (NAPEG licence No. L3536). I graduated with a Bachelor of Geology degree from Université du Québec à Montréal (Montréal, Québec) in 1987. In addition, I obtained a Master degree in Earth Sciences from Université du Québec à Montréal in 1990 and a PhD degree in Geology from the Institut National de la Recherche Scientifique (city of Québec, Québec) in 1995.
4. I have practiced my profession continuously as a geologist for a total of twenty-four (24) years since graduating in 1995. I acquired my expertise in mineral exploration with Inmet Mining in Central America and South America, Cambior Inc. in Canada and numerous exploration companies through the Research Consortium in Mineral Exploration. I have been a geological consultant with InnovExplo Inc. since January 2016.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason 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.
6. I have visited the Property from July 17 and 18, 2019, for the purpose of the Technical Report.
7. I am the author of items 7 to 9, and 12 of the Technical Report, and I am co-author and share responsibility for sections of items 1 to 3 and 25 to 27.
8. I have not had prior involvement with the Property that is the subject of this Technical Report.
9. I am independent of the issuer in accordance with the application of Section 1.5 of NI 43-101.
10. I have read NI 43-101 and Form 43 101F1, and the sections of the Technical Report for which I am responsible have been prepared in accordance with that instrument and form.
11. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

Signed this 28<sup>th</sup> day of November 2019 in Longueuil, Québec.

*(Original signed and sealed)*

Stéphane Faure, PhD, P.Ge.  
InnovExplo Inc.  
stephane.faure@innovexplo.com

## CERTIFICATE OF AUTHOR – CLAUDE SAVARD

I, Claude Savard, P.Ge. (OGQ No. 1057, PGO No. 2959), do hereby certify that:

1. I am a professional geoscientist, employed as Senior Geologist of InnovExplo Inc., located at 560, 3<sup>e</sup> Avenue, Val-d'Or, Québec, Canada, J9P 1S4.
2. This certificate applies to the technical report entitled "NI 43-101 Technical Report for the Ligneris Property, Québec, Canada – Lithogeochemical and Geological Interpretation, Québec, Canada" (the "Technical Report") with an effective date of November 28, 2019 and a signature date of November 28, 2019, prepared for Ethos Gold Corp.
3. I am a member in good standing of the Ordre des Géologues du Québec (OGQ licence No. 1057) and the Association of Professional Geoscientists of Ontario (PGO licence No. 2959). I graduated with a Bachelor of Geology degree from Université du Québec à Chicoutimi (Chicoutimi, Québec) in 1996.
4. I have practiced my profession continuously as a geologist for a total of twenty-three (23) years during which time I have been involved in mineral exploration, mine geology (underground and open pit), ore control and resource modelling projects for gold, copper, zinc and silver properties in Canada.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason 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.
6. I have not visited the Property for the purpose of the Technical Report.
7. I am the author of items 4 to 6, 10 and 11, and 13 to 24 of the Technical Report, and I am co-author and share responsibility for sections of items 1 to 3 and 25 to 27.
8. I have not had prior involvement with the Property that is the subject of this Technical Report.
9. I am independent of the issuer in accordance with the application of Section 1.5 of NI 43-101.
10. I have read NI 43-101 and Form 43 101F1, and the sections of the Technical Report for which I am responsible have been prepared in accordance with that instrument and form.
11. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

Signed this 28<sup>th</sup> day of November 2019 in Val-d'Or, Québec.

*(Original signed and sealed)*

Claude Savard, P.Ge.

InnovExplo Inc.

claude.savard@innovexplo.com

## TABLE OF CONTENTS

<b>SIGNATURE PAGE – INNOVEXPLO .....</b>	<b>ii</b>
<b>CERTIFICATE OF AUTHOR – STÉPHANE FAURE.....</b>	<b>iii</b>
<b>CERTIFICATE OF AUTHOR – CLAUDE SAVARD.....</b>	<b>iv</b>
<b>1. SUMMARY .....</b>	<b>9</b>
<b>2. INTRODUCTION.....</b>	<b>12</b>
2.1 Overview .....	12
2.2 Report Responsibility and Qualified Persons.....	12
2.3 Sources of Information .....	12
2.4 Currency, Units of Measure, and Abbreviations .....	13
<b>3. RELIANCE ON OTHER EXPERTS .....</b>	<b>16</b>
<b>4. PROPERTY DESCRIPTION AND LOCATION .....</b>	<b>17</b>
4.1 Location.....	17
4.2 Mining Title Status.....	17
4.3 Mineral Royalties and Agreements .....	17
4.4 Letter of Intent for the Acquisition .....	17
4.5 Environment .....	20
4.6 Constraints and Restrictions .....	20
<b>5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY ..</b>	<b>21</b>
5.1 Accessibility.....	21
5.2 Climate .....	21
5.3 Local Resources .....	21
5.4 Infrastructure .....	21
5.5 Physiography.....	22
5.6 Information and Public Consultation Process .....	22
<b>6. HISTORY.....</b>	<b>24</b>
6.1 Mid-1940s to early 1960s.....	24
6.2 1968-1973 SOQUEM .....	24
6.3 1973 Rio Tinto Canadian Exploration Ltd .....	25
6.4 1975-1977 Amax Potash Ltd.....	26
6.5 1980-1984 Société d'Exploration Minière Vior Inc. ....	27
6.6 1985-1992 Mines Sigma (Québec) Ltée .....	27
6.7 1997 Placer Dome Ltd and Vior Inc. ....	29
6.8 2008-2013 Société d'Exploration Minière Vior Inc .....	30
<b>7. GEOLOGICAL SETTING AND MINERALIZATION.....</b>	<b>31</b>
7.1 Abitibi Terrane (Abitibi Subprovince) .....	31
7.2 Regional Geology.....	33
7.3 Geology of the Property .....	34
7.3.1 <i>Least deformed lithologies</i> .....	36
7.3.2 <i>Deformed lithologies</i> .....	36
7.3.3 <i>Alteration</i> .....	37
7.4 Mineralization .....	37
7.4.1 <i>South Zone</i> .....	37
7.4.2 <i>Central Zone</i> .....	38
7.4.3 <i>North Zone</i> .....	39
<b>8. DEPOSIT TYPES.....</b>	<b>41</b>
8.1 VMS type Deposits.....	41
<b>9. EXPLORATION.....</b>	<b>43</b>

9.1	Vior databases (2018).....	43
9.2	VTEM survey (2018) .....	43
9.3	Ground induced polarization survey (2019) .....	44
9.4	Till sampling survey (2019) .....	45
9.5	Geochemical Data Processing and Interpretation (2019) .....	47
9.5.1	<i>Lithochemical Database</i> .....	47
9.5.2	<i>Methodology</i> .....	47
9.5.3	<i>Geochemical Classification, Affinities and Fertility</i> .....	48
9.5.4	<i>Alteration</i> .....	51
9.6	Structural Geology Study (2019).....	52
9.6.1	<i>Central Zone</i> .....	53
9.6.2	<i>South Zone</i> .....	54
9.7	Improved Geological Map (2019).....	54
9.8	Conclusions.....	54
<b>10.</b>	<b>DRILLING.....</b>	<b>57</b>
<b>11.</b>	<b>SAMPLE PREPARATION, ANALYSES AND SECURITY .....</b>	<b>57</b>
<b>12.</b>	<b>DATA VERIFICATION .....</b>	<b>58</b>
12.1	Site visit.....	58
12.2	Independent core sampling.....	58
12.3	Independent grab samples.....	60
12.4	Drill hole Location Check .....	61
12.5	Conclusion.....	62
<b>13.</b>	<b>MINERAL PROCESSING AND METALLURGICAL TESTING .....</b>	<b>63</b>
<b>14.</b>	<b>MINERAL RESOURCE ESTIMATES .....</b>	<b>63</b>
<b>15.</b>	<b>MINERAL RESERVE ESTIMATES .....</b>	<b>63</b>
<b>16.</b>	<b>MINING METHODS .....</b>	<b>63</b>
<b>17.</b>	<b>RECOVERY METHOD.....</b>	<b>63</b>
<b>18.</b>	<b>PROJECT INFRASTRUCTURE .....</b>	<b>63</b>
<b>19.</b>	<b>MARKET STUDIES AND CONTRACTS.....</b>	<b>63</b>
<b>20.</b>	<b>ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT.....</b>	<b>63</b>
<b>21.</b>	<b>CAPITAL AND OPERATING COSTS .....</b>	<b>63</b>
<b>22.</b>	<b>ECONOMIC ANALYSIS .....</b>	<b>63</b>
<b>23.</b>	<b>ADJACENT PROPERTIES.....</b>	<b>64</b>
<b>24.</b>	<b>OTHER RELEVANT DATA AND INFORMATION .....</b>	<b>67</b>
<b>25.</b>	<b>INTERPRETATIONS AND CONCLUSIONS .....</b>	<b>68</b>
25.1	Risks and Opportunities .....	68
<b>26.</b>	<b>RECOMMENDATIONS.....</b>	<b>70</b>
26.1	Geology.....	70
26.2	Exploration Drilling Program .....	70
26.3	Cost Estimate for Recommended Work.....	71
<b>27.</b>	<b>REFERENCES.....</b>	<b>72</b>
	<b>APPENDIX I – List of Mining titles.....</b>	<b>78</b>
	<b>APPENDIX II – Certificats .....</b>	<b>86</b>

## LIST OF FIGURES

Figure 4.1 – Location of the Ligneris Property in the Province of Québec .....	18
Figure 4.2 – Map of mining titles comprising the Ligneris Property .....	19
Figure 5.1 – Map showing the Ligneris Property area and access roads.....	23
Figure 7.1 – Stratigraphic map of the Abitibi Greenstone Belt, figure modified from Thurston et al. (2008) .....	32
Figure 7.2 – Geological map of the Property (from SIGEOM) .....	35
Figure 7.3 – Typical gold mineralization observed in the South Zone (July, 2019 site visit) .....	38
Figure 7.4 – Typical gold and base metal mineralization observed in the Central Zone (July 2019, site visit) .....	40
Figure 8.1 – Schematic illustration of the various types of gold deposits shown at their inferred crustal level of formation .....	42
Figure 9.1 – Flight path over the reduced to pole total magnetic intensity (From Geotech report, 2018) ..	44
Figure 9.2 – Map of apparent chargeability (mV/V) and grid survey .....	45
Figure 9.3 – Map showing the till sample number (n=27) and location, and the type of glacial material (from Girard and Villeneuve, 2019) .....	46
Figure 9.4 – Winchester et Floyd (1977) diagram showing the composition of Ligneris igneous rocks (n=1,719).....	49
Figure 9.5 – Diagram of $Zr/Al_2O_3$ versus $TiO_2/Al_2O_3$ showing the four groups of igneous rocks on the Ligneris Property (n=1,747) .....	50
Figure 9.6 – Discriminant diagram to distinguish fertile to less fertile felsic rocks for base metal VMS (Leshner et al., 1986) (n=1,117).....	50
Figure 9.7 – Distribution and intensity of normative ankerite index relative to mineralized zones. Geology from SIGEOM.....	51
Figure 9.8 – Distribution and intensity of normative sericite index relative to mineralized zones. Geology from SIGEOM.....	52
Figure 9.9 – Stereograms of the structural elements in the Central and South zones .....	53
Figure 9.10 – New geological map based on geochemical and geophysical interpretations. First derivative of the total magnetic intensity in transparency.....	55
Figure 12.1 – Photograph showing label on the side of the core box, hole 275-73 (A) and a sample tag from Vior’s hole L-9 (B) .....	59
Figure 12.2 – Independent core sampling by InnovExplo, hole 275-52 (samples K504252 and K504253 in white).....	59
Figure 12.3 – Grab sample analyzed by InnovExplo to verify gold and base metal contents in the Central Zone during the site visit (Sample K504261) .....	61
Figure 12.4 – Photograph showing the GPS used to verify the location of a drill collar during the site visit – Hole 275-12 (drilled in 1985).....	62
Figure 23.1 – Adjacent properties to Ligneris .....	65

## LIST OF TABLES

---

Table 2.1 – List of abbreviations and acronyms .....	13
Table 2.2 – List of units .....	14
Table 2.3 – Conversion factors for measurements .....	15
Table 6-1 – Exploration work in the Ligneris Property area, 1945 to early 1960s .....	24
Table 6.2 – Exploration work in the Ligneris Property area, 1968-1973.....	24
Table 6.3 – Exploration work in the Ligneris Property area, 1973 .....	25
Table 6.4 – Exploration work in the Ligneris Property area, 1975-1977 .....	26
Table 6.5 – Exploration work in the Ligneris Property area, 1980-1984.....	27
Table 6.6 – Exploration work in the Ligneris Property area, 1985-1992.....	27
Table 6.7 – Exploration work on the Ligneris Property, 1997 .....	29
Table 6.8 – Exploration work on the Ligneris Property, 2008-2013.....	30
Table 12.1 – Results of Original Assays Compared to InnovExplo’s Independent Sampling – Ligneris Project .....	60
Table 12.2 – Independent Sampling Results for Grab Samples Collected in Mineralized Zones – Ligneris Project .....	61
Table 12.3 – Original collar surveys compared to InnovExplo’s checks – Ligneris Project.....	62
Table 23.1 – Adjacent Properties mineralized occurrences .....	66
Table 25.1 – Risks for the Ligneris Property.....	69
Table 25.2 – Opportunities for the Ligneris Property .....	69
Table 26.1 – Estimated Cost for the Recommended Work Program.....	71

## 1. SUMMARY

### Introduction

InnovExplo's mandate was to prepare a Technical Report for the Property and to present the results of geochemical, geophysical, structural and geological interpretations. The Property is at an early exploration stage with no recent drilling.

InnovExplo is an independent mining and exploration consulting firm based in Val-d'Or, Québec.

Ethos Gold Corp. is a Canadian mineral exploration company trading publicly on the TSX Venture Exchange ("TSXV") under the symbol ECC.

The technical report follows CIM Definition Standards on Mineral Resources and Mineral Reserves ("CIM Definition Standards").

### Contributors

This Technical Report was prepared by Stéphane Faure (P.Geo.), PhD, Geoscience Expert of InnovExplo and Claude Savard (P.Geo.), Senior Geologist of InnovExplo. All are independent qualified persons ("QPs") as defined by NI 43-101.

Mr. Faure is a professional geologist in good standing with the OGQ (permit No. 306), PGO (licence No. 2662), and NAPEG (licence No. L3536). He is the author of items 7 to 9 and 12, and co-author of items 1 to 3 and 25 to 27.

Ms. Savard is a professional geologist in good standing with the OGQ (licence No. 1057) and PGO (licence No. 2959). She is the author of items 4 to 6, 10 and 11, and 13 to 24, and co-author of items 1 to 3 and 25 to 27.

### Property Description and Location

The Property is located in the Abitibi-Témiscamingue administrative region in the Province of Québec (Canada), approximately 55 km northwest of the municipality of Amos and roughly 600 km northwest of Montreal.

The Property is located on ranges VIII, IX and X of Ligneris Township, ranges I and II of the townships of Celoron and Mazarin, and range X of Desboues Township.

The coordinates of the centre of the Property are 78°28'04"W and 48°59'59"N (UTM coordinates: 685186E and 5430520N, NAD 83, Zone 17). The Property lies on NTS map sheets 32E/01-02 and 32D/15-16 and consists of two (2) blocks of 163 mining claims, for an aggregate area of 6,562 ha. The Block I of claims consists of 134 mining claims for an area of 4,925 ha or 49,25 km<sup>2</sup> and is the principal object of this technical report.

### Geology

The Property is located in the central part of the Abitibi Subprovince of the Archean Superior Province, within the 5 km wide felsic belt of the Rivière Octave Formation. Major layer-parallel shear zones transect the Property with a NE-SW dominant orientation. Together they form the regional Laflamme deformation corridor. The strong penetrative schistosity is oriented EW to ESE-WNW and is subvertical while the stretching lineation dips steeply.

Three (3) main gold-bearing zones (named North, Central, and South) occur in the property. Mineralization consists of disseminated pyrite along foliation planes and locally as centimetric to metric masses of massive sulphides (mainly pyrite ± sphalerite ± chalcopyrite ± galena). The key characteristics of the mineralized share similarities with VMS deposits. The abundance of polymetallic mineralization sulphides, the crosscutting relations of sulphide-rich veinlets and the mineralization hosted by a bimodal volcanic sequence dominated by felsic volcanic rocks are typical to the VMS felsic volcanoclastic dominant subtype. The context of mineralization at Ligneris is similar to an Au-rich VMS deposit such as the Doyon-Bousquet-LaRonde world class deposit (Abitibi) in terms of volcanic environment, alterations and mineral assemblages. It is interpreted that the polymetallic VMS mineralization was subsequently buried, sheared and heavily deformed, and overprinted by quartz-carbonate-vein typical to Orogenic Gold Deposit.

### **Data Verification**

Stéphane Faure visited the Property and core storage facilities on July 17 and 18, 2019. Data verification consisted of a visit to outcrops and stripped areas on the Property, a review of drill core at the core storage facilities, independent sampling of historical drill holes, and a field check of collar locations.

### **Exploration**

In term of exploration, the years 2018 and 2019 were important for new data acquisition over the Property. Vior is the operator of the exploration activities since the agreement between Vior and Ethos in June 2019.

The 717 line-kilometres airborne Mag and VTEM surveys (2018) have enhanced the geological map and identified new possible fault zones along strike of known shears.

The 2019 till survey (27 samples) explained the mineralization of the Central Zone with two samples located down-ice, 2 km to the SSE. One other till sample is considered anomalous and represents an exploration target.

The 124,3 line-kilometres ground gradient IP survey (2019) yielded zones of high chargeability and resistivity that correspond to the Central Zone. The 3D inversion suggested a deep potential for mineralization beneath relatively shallow historical drill holes.

The results geochemical data processing by InnovExplo (2019) highlighted alteration corridors that match the trends of geophysical lineaments. They provide new exploration vectors beyond known occurrences of mineralization. The felsic rocks that underlie most of the Property have geochemical characteristics comparable to environments that host gold-rich VMS deposits, such as the world-class LaRonde deposit.

The structural analysis by InnovExplo (2019) indicates that the volcanic and sedimentary sequences have been tilted vertically by a well-defined penetrative schistosity. The strong vertical stretching lineation within schistosity forms a typical L-S fabric. Mineralized zones may adopt a similar ductile fabric.

The results of geochemical and structural studies and the airborne Mag and EM survey flown by Geotech were used to improve the geological map.

## **Recommendations**

InnovExplo believes that the Property is underexplored. Previous work on the Property has been mostly limited to the North, Central, and South zones. Many historical gold and zinc intercepts are of economic interest. They need to be confirmed by future drilling programs. Elsewhere on the Property, reconnaissance drilling has been carried out only in selected areas on geophysical targets.

The potential at depth has not been investigated. Most of the historical drill holes do not reach more than 300 m vertical depth. Future drilling targets should take into account that the most likely geometry for a mineralized body is a subvertical cigar shape stretched parallel to the lineations. The Central and South zones are hosted in east-west and northeast-southwest shear zones several metres wide. Based mainly on geophysical interpretations, several untested shear zones with similar trends cross the Property.

InnovExplo has prepared a cost estimate for a two-phase work program in which Phase II is contingent upon the success of Phase I. Expenditures for Phase I are estimated at CAD 1,620,000 and includes geological works, 6,500 m of DDH drilling, boreholes geophysics, and a till survey. Expenditures for Phase II are estimated at CAD 1,890,000 and includes 8,000 m of DDH drilling and borehole geophysics.

## **2. INTRODUCTION**

### **2.1 Overview**

Ethos Gold Corp. (“Ethos” or the “issuer”) retained InnovExplo Inc. (“InnovExplo”) to prepare a Technical Report (the “Technical Report”) for the Ligneris Property (the “Property” or the “Project”) in accordance with Canadian Securities Administrators’ National Instrument 43-101 Respecting Standards of Disclosure for Mineral Projects (“NI 43-101”) and Form 43-101F1. The mandate was assigned by Mrs. Jo Price (P.Ge.), Vice President Exploration of Ethos.

This Technical Report reviews the historical work on the Property, summarizes the exploration work done since the agreement between Société d’Exploration Minière Vior Inc. (“Vior”) and Ethos in June 2019, and presents the results of a geochemical study on the Property as well as a geological interpretation.

InnovExplo is an independent mining and exploration consulting firm based in Val-d’Or, Québec.

Ethos is a Canadian mineral exploration company trading publicly on the TSX Venture Exchange (“TSXV”) under the symbol ECC.

### **2.2 Report Responsibility and Qualified Persons**

This Technical Report was prepared by Stéphane Faure (P.Ge.), Geoscience Expert at InnovExplo, and Claude Savard (P.Ge.), Senior Geologist at InnovExplo. Both are independent and qualified persons (“QPs”) as defined by NI 43-101.

Mr. Faure is a professional geologist in good standing with the OGQ (No. 306), PGO (No. 2662), and NAPEG (No. L3536). He is the author of items 7 to 9 and 12, and co-author of items 1 to 3 and 25 to 27.

Ms. Savard is a professional geologist in good standing with the OGQ (No. 1057) and PGO (No. 2959). She is the author of items 4 to 6, 10 and 11, and 13 to 24, and co-author of items 1 to 3 and 25 to 27.

Mr. Faure visited the project site from July 17 and 18, 2019, at which time he reviewed selected historical drill core, toured the core storage facilities, visited outcrops exposing the South and Central mineralized zones, and collected field and core samples for independent validation.

### **2.3 Sources of Information**

The documentation listed in items 3 and 27 was used to support this Technical Report. Excerpts or summaries from documents authored by other consultants are indicated in the text.

The authors’ assessment of the Project was based on published material in addition to the data, professional opinions and unpublished material submitted by the issuer. The authors reviewed all relevant data provided by the issuer and/or by its agents.

InnovExplo has also consulted other information sources, mainly the Government of Québec’s online claim management and assessment work databases (GESTIM and SIGEOM, respectively), other provincial government online sources for the

physiographic information, as well as technical reports and press releases published by the issuer on SEDAR ([www.sedar.com](http://www.sedar.com)).

The authors reviewed and appraised the information used to prepare this Technical Report, including the conclusions and recommendations, and believe that such information is valid and appropriate considering the status of the project and the purpose for which this Technical Report is prepared. The authors have thoroughly researched and documented the conclusions and recommendations made in this Technical Report.

## 2.4 Currency, Units of Measure, and Abbreviations

The abbreviations, acronyms and units used in this report are provided in Table 2.1 and Table 2.2. All currency amounts are stated in Canadian Dollars (\$, C\$, CAD) or US dollars (US\$, USD). Quantities are stated in metric units, as per standard Canadian and international practice, including metric tons (tonnes, t) and kilograms (kg) for weight, kilometres (km) or metres (m) for distance, hectares (ha) for area, percentage (%) for copper and nickel grades, and gram per metric ton (g/t) for precious metal grades. Wherever applicable, imperial units have been converted to the International System of Units (SI units) for consistency (Table 2.3).

**Table 2.1 – List of abbreviations and acronyms**

Abbreviations and Acronyms	Definitions
43-101	National Instrument 43-101 – Standards of Disclosure for Mineral Projects ( <i>Regulation 43-101</i> in Québec)
Ag	Silver
Au	Gold
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIM Definition Standards	CIM Definition Standards on Mineral Resources and Reserves (adopted in 2014)
Cu	Copper
DDH	Diamond drill hole
DEEPEM	Surface Pulse EM
DEM	Pulse electromagnetic
EM	Electromagnetic
Fe	Iron
HEM	Horizontal electromagnetic
IP	Induced polarization
Mag, MAG	Magnetometer, magnetometric
Mn	manganese
MRN	Ministère des Ressources Naturelles
NAPEG	Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists
Nb	Niobium
NI 43-101	National Instrument 43-101 – Standards of Disclosure for Mineral Projects

Abbreviations and Acronyms	Definitions
	(Regulation 43-101 in Québec)
NTS	National Topographic System
OGQ	Ordre des Géologues du Québec (Québec Order of Geologists)
P.Geo.	Professional geologist
PGO	Professional Geoscientists Ontario
Py	Pyrite
QA/QC	Quality assurance/quality control
QFP	Quartz-feldspar porphyry
QP	Qualified person (as defined in NI 43-101)
Regulation 43-101	National Instrument 43-101 (Québec)
SEDAR	System for Electronic Document Analysis and Retrieval
SIGÉOM	Système d'information géominère
TDEM	Time-domain electromagnetic
TSX-V	TSX Venture Exchange
Twp	Township
U-Pb	Uranium-lead (dating)
VHEM	Vertical horizontal electromagnetic
VLF	Very low frequency
Zn	Zinc

**Table 2.2 – List of units**

Symbol	Unit
A	Ampere
cm	Centimetre
ft	Foot (12 inches)
g	Gram
G	Billion
g/cm <sup>3</sup>	Gram per cubic centimetre
g/t	Gram per metric ton (tonne)
in	Inch
kg	Kilogram
km <sup>2</sup>	Square kilometre
L	Litre
M	Million
m	Metre
Ma	Million years (annum)

Symbol	Unit
masl	Metres above mean sea level
mi	Miles
mm	Millimetre
Mt	Million metric tons
oz/t	Ounce (troy) per short ton (2,000 lbs)
t	Metric tonne (1,000 kg)
ton	Short ton (2,000 lbs)

**Table 2.3 – Conversion factors for measurements**

Imperial Unit	Multiplied by	Metric Unit
1 inch	25.4	mm
1 foot	0.3048	m
1 acre	0.405	ha
1 ounce (troy)	31.1035	g
1 pound (avdp)	0.4535	kg
1 ton (short)	0.9072	t
1 ounce (troy) / ton (short)	34.2857	g/t

### 3. RELIANCE ON OTHER EXPERTS

This Technical Report has been prepared by InnovExplo at the request of Ethos.

The QPs assigned to the current mandate are Stéphane Faure (P.Geo.) and Claude Savard (P.Geo.) of InnovExplo. The mandate included a review of any technical documentation and GM reports relevant to the report, data compilation, the geochemical and geological interpretation, and recommendations for a future work program.

The QPs relied on the following people or sources of information during the preparation of this Technical Report:

- In addition to technical information, Ethos supplied information on mining titles, option agreements, royalty agreements, environmental liabilities, and permits. InnovExplo verified the online status of the mining titles and consulted the information provided by Ethos as well as public sources of relevant technical information. InnovExplo is not qualified to express any legal opinion with respect to property titles, current ownership or possible litigation.
- Venetia Bodycomb (M.Sc.) of Vee Geoservices provided critical and linguistic editing of a draft version of this Technical Report.

## **4. PROPERTY DESCRIPTION AND LOCATION**

### **4.1 Location**

The Property is located in the Abitibi-Témiscamingue administrative region in the Province of Québec (Canada), approximately 55 km northwest of the municipality of Amos and roughly 600 km northwest of Montreal (Figure 4.1).

The Property is located on ranges VIII, IX and X of Ligneris Township, ranges I and II of the townships of Celoron and Mazarin, and range X of Desboues Township.

The coordinates of the centre of the Property are 78°28'04"W and 48°59'59"N (UTM coordinates: 685186E and 5430520N, NAD 83, Zone 17). The Property lies on NTS map sheets 32E/01-02 and 32D/15-16.

### **4.2 Mining Title Status**

Mining title status was supplied by the issuer. InnovExplo verified the status of all mining titles using GESTIM, the Government of Québec's online claim management system ([gestim.mines.gouv.qc.ca](http://gestim.mines.gouv.qc.ca)). All mining titles are registered 100% in the name of Société d'Exploration Minière Vior Inc. All claims are in good standing as of November 25, 2019. Appendix I contains a detailed list of mining titles, ownership, royalties and expiration dates.

The Property currently consists of two (2) blocks of claims for a total of 163 mining claims for an aggregate area of 6,562 ha staked by electronic map designation. The Block I of claims consists of 134 mining claims for an area of 4,925 ha or 49,25 km<sup>2</sup> (Figure 4.2). The Block II of claims consists of 29 mining claims (1,638 ha) recently added by electronic map designation on August 30, 2019. Those additional claims from Block II were added during this report process and are not directly part of this technical report. They are illustrated here on Figure 4.2 as Block II.

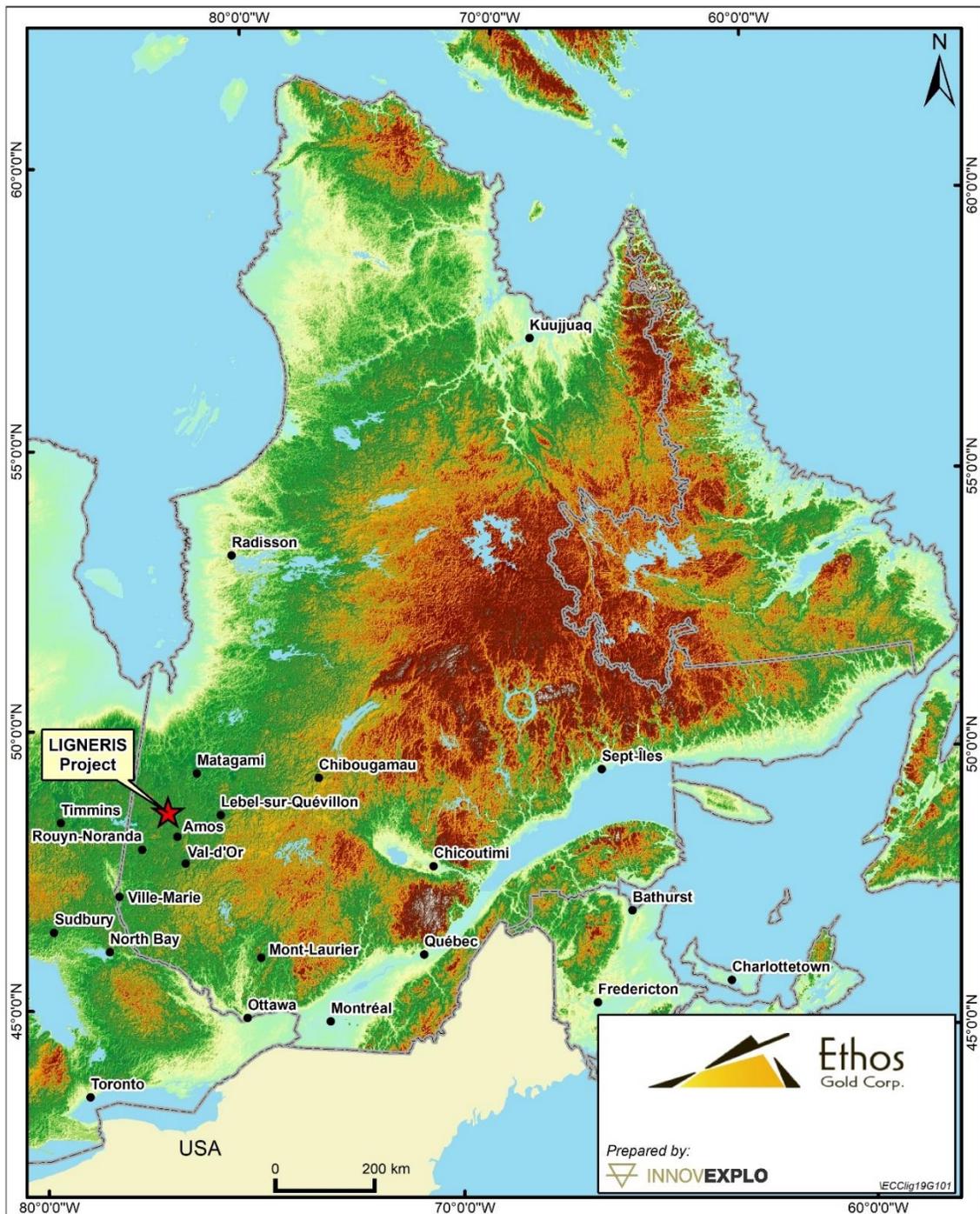
### **4.3 Mineral Royalties and Agreements**

Apart from the agreement between Vior and Ethos, nobody else has any royalty or other interest whatsoever in production from any part of the Property or the claims.

### **4.4 Letter of Intent for the Acquisition**

In June 2019, Vior and Ethos signed an agreement to the effect that Ethos is entitled to acquire up to a 70% undivided interest in the Property.

During the First Earn-in Period, Ethos will be able to acquire and become the owner of a 51% undivided interest in the Property. Ethos must incur and fund expenditures in the aggregate amount of \$3 million and issue 1 million shares. For the Second Earn-In Right, Ethos will be able to acquire a 70% undivided interest by incurring and funding additional expenditures in the aggregate amount of \$4 million over a period of 36 months.



**Figure 4.1 – Location of the Ligneris Property in the Province of Québec**

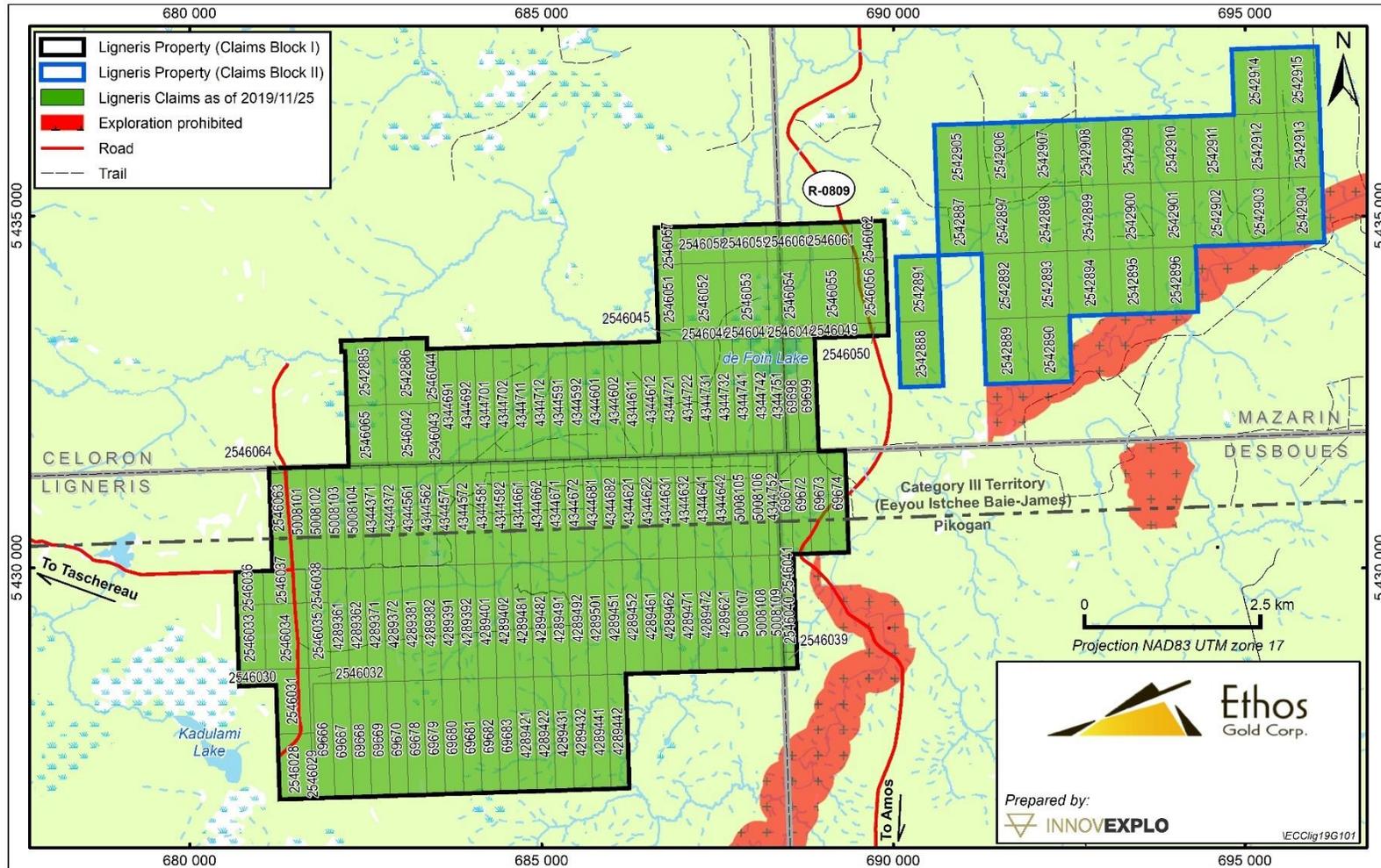


Figure 4.2 – Map of mining titles comprising the Ligneris Property

#### **4.5 Environment**

Vior is in compliance with all applicable laws, including all environmental laws, relating to the Property and the claims, and has obtained all permits. There are no existing or contingent liabilities associated with the Property, nor are there any claims relating to environmental laws or damages arising from a breach of environmental laws. Vior has sufficient surface and access rights to access and explore the claims.

#### **4.6 Constraints and Restrictions**

The northern half of the Property is in the Eeyou Istchee James Bay territory (Figure 4.2). Since 2013, this area corresponds to Category III lands where exploration is allowed under specific conditions. A claim titleholder is invited to communicate directly with the Cree Nation Government and the Eeyou Istchee James Bay Regional Government.

The southern half of the Property is in the territory of the Algonkin community of Pikogan, which falls under an agreement between the Council of the First Nation of Abitibiwinni and the Government of Québec (Figure 4.2). The objective of consultations with the Council of the First Nation of Abitibiwinni is to raise and discuss concerns regarding natural resource development projects on the territory, including mineral exploration and mining activities, and, if applicable, have the parties determine ways to address these concerns.

## **5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY**

### **5.1 Accessibility**

The Project is located in the Abitibi-Témiscamingue administrative region in the northwestern part of Southern Québec (Canada), 40 km north of the town of Taschereau and 55 km northwest of the municipality of Amos. It is 100 km northeast of Rouyn-Noranda and 110 km north-northwest of Val-d'Or, where, in both cities, there are airports with scheduled flights to Montreal, about 600 km to the southeast.

The Project is accessible from the west via all-season gravel roads branching off Route 111, a paved provincial highway, and from the east by R-089, an all-season gravel road. A network of smaller roads on the Project is navigable during dry periods, and ATV trails are also present (Figure 5.1).

### **5.2 Climate**

The Abitibi region is under the influence of a typical continental-style climate marked by cold, dry winters and warm, humid summers. Climate data collected by Environment Canada at the nearest weather station (Amos) ([climate.weather.gc.ca/climate\\_normals](http://climate.weather.gc.ca/climate_normals)), average temperatures are +17.4°C in July and -17.2°C in January. The mean annual temperature is +1.5°C. The lowest recorded temperature was -52.8°C and the highest was +37.2°C. In this area, the temperature drops below freezing an average of 203 days per year. Snow accumulates from mid-October or November to early/mid-May. Freeze-up usually occurs in late December and ice break-up in March-April. Average annual precipitation indicates a mean rainfall of 929 mm, with the highest level of precipitation occurring in September (107.3 mm).

Exploration, mining and drilling operations may be generally carried out year-round with some limitations in specific areas. Surface exploration work (mapping, channel sampling) should be planned from mid-May to mid-October. Lakes are usually frozen and suitable for drilling from January to April. The thick overburden can make conditions difficult when the snow melts in May.

### **5.3 Local Resources**

The Project area is well serviced by mining and milling industries. The city of Amos is the closest supply and service centre with a population of 12,800 and also has the closest regional hospital. Qualified personnel can be found throughout the region as it has a rich history of mineral exploration and production.

### **5.4 Infrastructure**

Cellular connections, electricity, train infrastructure and other services are found within 50 km of the Project. The Amos/Magny Airport (CYEY) is located 10 km west of Amos.

A high voltage power line runs alongside Route 109 (between Amos and Matagami), 30 km east of the Project. Water is readily available from the many creeks and lakes found on the Property.

## 5.5 Physiography

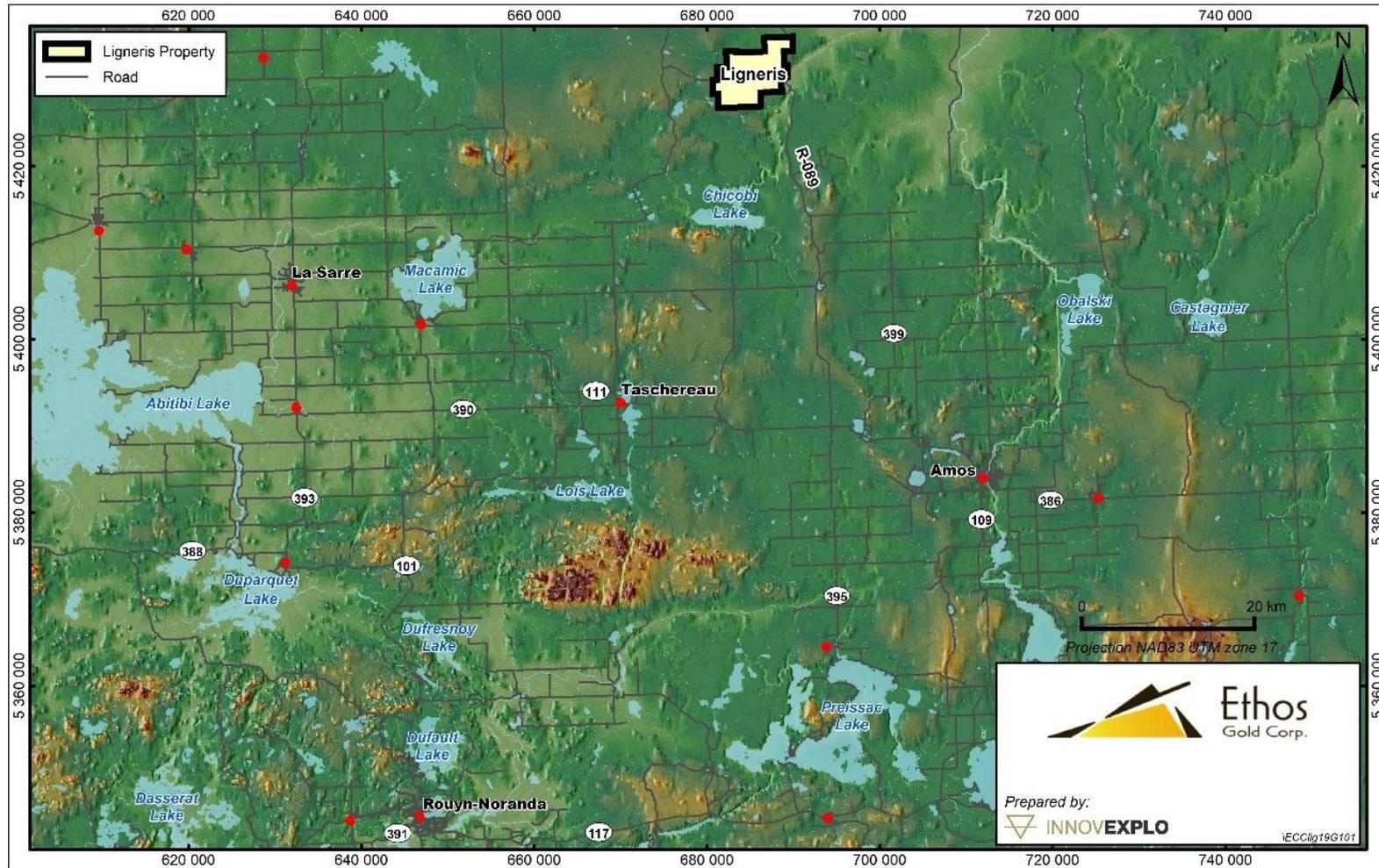
The region is flat with small hills with the presence of numerous lakes and wetlands. The Property is covered by thick glacial deposits. Outcrop exposure is poor, except in the central and southern parts. The forest cover consists of various types of conifers dominated by black spruce and larch in wet areas. The forest has been harvested over most of the Property. The documented wildlife is typical for this type of forest: moose, black bears, foxes, partridges, hares, beavers and numerous small mammals. The altitude varies between 285 masl and 375 masl.

## 5.6 Information and Public Consultation Process

The Property is located on Category III land, i.e., public land in the domain of the State, most of which is dominated by forestry activities. On this land, First Nations people have an exclusive hunting, fishing and trapping rights. The Property also lies on traditional lands of the Algonkin community of Pikogan.

On August 7, 2019, Vior representatives met with Mr. Benoît Croteau, Director of the Territory and Environment, and Mr. Sylvester Ruperthouse-Trapper, Mining Liaison Officer. The meeting focused on the presentation of the company, the Project (location, history of work, future work), and land use allowances as part of the Aboriginal consultation process by the Quebec Ministère des Forêts, de la Faune et des Parcs. The community has proposed a draft agreement and a brief description of the services that the local cooperative can provide for mining companies.

Since then, communication has continued via telephone calls and e-mail exchanges, mainly requests for documents concerning the application for a forest intervention permit.



**Figure 5.1 – Map showing the Ligneris Property area and access roads**

## 6. HISTORY

This review summarizes all work and activities completed before 2014. The information in this section was mostly extracted from Mercier et al. (2013) and Descarreaux et al. (1984), and from assessment reports in the SIGEOM database.

### 6.1 Mid-1940s to early 1960s

The first work dates to the mid-1940s when Quebec Gold Mining Corporation explored the area (Parent, 1947). This was followed by geological surveys, ground and airborne geophysical surveys, and drilling campaigns carried out on and around the Property by Turgeon Syndicate (Scott, 1960).

Table 6.1 summarizes the exploration work from the mid 1940s to the early 1960s.

**Table 6-1 – Exploration work in the Ligneris Property area, 1945 to early 1960s**

Owner	Location	Work description	Highlights/ Significant results	Reference
QUEBEC GOLD MINING CORP	Ligneris Twp (lots 13 to 53 Range IX)	June-July 1945 Prospection and geophysical surveys: N-S lines cut at 600-ft intervals; 15.8 mi of lines cut and measured; 784 readings taken on 114.8 mi of lines	Various anomalies detected	Parent, 1947
AREA MINES LTD, CLAIMS HALL	Carqueville Twp (lots 38 to 61 of Ranges I and II)	December 1959 EM and magnetometer survey (Turgeon Syndicate) flown by Canadian Aero Service using S-55 helicopter	5 conductors identified in the 34 mi flown over Ranges I and II of Carqueville Twp, east of lot 38	Turgeon Syndicate; Scott, 1960

### 6.2 1968-1973 SOQUEM

SOQUEM was the principal claim holder from 1968 to 1973. The work comprised drilling, geological programs, and geophysical surveys (Table 6.2).

**Table 6.2 – Exploration work in the Ligneris Property area, 1968-1973**

Owner	Location	Work description	Highlights/ Significant results	Reference
SOQUEM	Octave Project (Celeron, Ligneris, Mazarin, Desboues and Glendelot Twps)	1) INPUT survey in 1969 totalling 1,020 line-miles, spacing at 1/8 mi; 2) Multiple anomalies staked in Jan-Feb 1968; total of 84 claims covering 8,198 acres; 3) EM surveys with cable separations of 200 and 300 ft (spacing of 400 ft); 66 miles of lines cut for surveys; total of 58	Many INPUT anomalies identified by the survey	Salamis, 1969

Owner	Location	Work description	Highlights/ Significant results	Reference
		line (1 mi) of EM and 55 mi of Mag; 4) Geological survey over 3 subprojects in summer 1968; 5) 2 DDH drilled in August 1968 totalling 650 ft		
	Ligneris and Desboues Twps	1970 gravimetric survey: 510 stations	A few small anomalies detected but probably due to a change in overburden thickness	Gaucher and Theriault, 1970
	Ligneris and Desboues Twps	1970 geological and geophysical surveys: Line cutting (24.8 mi); Mag survey (22.2 mi), detail ABEM GUN (1.7 mi); EM survey (20.7 mi); Geological survey; 2 DDH (650 ft); EM (2.0 mi); Gravimetric survey (510 stations)	2 anomalies identified	Laroche and Lavoie, 1970
	Ligneris, Mazarin, Desboues, Giandelet and Céleron Twps	Winter 1970-1971 drilling campaign: 2 DDH totalling 720 ft (429-02-01 and 429-04-01)	Anomaly explained by hole 429-02-1: 60% Py to 90 ft; 429-04-1: 70% Py to 4 ft and 80% Py to 6 ft	Holub and Lavoie, 1971
	Ligneris Twp (lots 35 to 41 of Range VI)	Feb to April 1973: Geophysical survey: Mag survey (6.25 mi); EM survey (EM 17, cable 400 ft, distance 9.28 mi); Gravimetric (EM at 87 stations); 2 cut lines spaced 600 ft apart (base 330N direction N53°E) and 400 ft (N-S)	2 anomalies detected	Denomme, 1973

### 6.3 1973 Rio Tinto Canadian Exploration Ltd

Rio Tinto Canadian Exploration Ltd (“Rio Tinto”) was the principal claim holder in 1973. Details of the work, essentially geophysical surveying and some drilling, are presented in Table 6.3.

**Table 6.3 – Exploration work in the Ligneris Property area, 1973**

Owner	Location	Work description	Highlights/ Significant results	Reference
RIO TINTO CANADIAN EXPL LTD (properties optioned from C. Salamis and J. Descarreaux)	Octave River area (Desboues, Mazarin, Celeron and Trécesson Twp)	Jan. 1973: Geological survey (VHEM, VLF and Mag) and EM survey (400-ft spacing); Mag survey and EM conductors (horizontal loop a 400-ft cable)	3 conductors identified by the vertical loop reconnaissance survey	Salamis, C, 1973

Owner	Location	Work description	Highlights/ Significant results	Reference
	Desboves Twp, Lots 1-6, Range X	Oct. to Nov. 1973 drilling campaign: 3 DDH totalling 1,007 ft	No assays of significance	Purdy, D, 1973

#### 6.4 1975-1977 Amax Potash Ltd

Amax Potash Ltd (“AMAX”) was the principal claim holder during the 1975-1977 period. The company conducted some geophysical surveys and a soil geochemistry survey, the details of which are presented in Table 6.4.

**Table 6.4 – Exploration work in the Ligneris Property area, 1975-1977**

Owner/ Operator	Location	Work description	Highlights/ Significant results	Reference	
AMAX	M. Larouche claim	Nov-Dec 1975 geophysical surveys: EM (McPhar VHEM, horizontal loop 300 ft); Mag (McPhar M-700 fluxgate, 100-ft intervals).	Strongest EM response appears to coincide with airborne INPUT, EM anomaly; strike and location of this same conductor also coincides with SOQUEM airborne anomalies	Chartre, 1975	
	Moron Twp	Dec 1975: EM survey (VHEM., horizontal loop of 300 ft); readings on 4 lines for a total length of 1.14 mi.	Ground EM survey confirms INPUT data	Chartre, 1975	
	Ligneris, Celeron Twp	June 1976 prospecting geological survey; random sampling (Crone VLF EM receiver); 1 DDH (730-76-01) with 357 ft.	Conductor at station 5+80S coincides with previous geophysical surveys by Riocanex in 1973 and Amax in 1976	Roussain, 1976	
	Ligneris Twp		July-August 1976 geological survey: Quebec aerial photos at 1:15,000 scale (Nos. Q-72131 to 64 and Q-73100 to 173) used as control for N-S traverses.	2 sets of INPUT anomalies: a strong set in south-central part of Property and a smaller	Flawn and Lauzier, 1976
			Nov 1976 survey and EM survey: N-S grid (total of 10.5 line-miles oriented north-south on 400-ft centres); EM survey (8.6 line-mi) and Mag survey (9.5 line-mi)	Confirmation of INPUT anomalies	Glackmeyer, 1977
			July 1977 soil geochemistry survey: 400-ft intervals along a logging road and at 100-ft to 25-ft intervals along section lines over conductor axis. Analyzed for Cu, Zn, Ag, Fe and Mn.	No significant concentration of anomalous values; only scattered Cu and Zn values exceeding background levels	Roussain and Tremblay, 1977

## 6.5 1980-1984 Société d'Exploration Minière Vior Inc.

From 1980 to 1984, the MERN carried out geological mapping work in the region at map scales of 1:100,000, 1:50,000 and 1:20,000. Mapping uncovered a mineralized showing on the Property with grab sample grades of 1.8 g/t Au, 6.1 g/t Ag and 0.5% Cu (Bernier and Magnan, 1997). During the 1980-1984 period, Société d'Exploration Minière Vior Inc. ("Vior") also undertook major exploration work in the property area, including line cutting, geophysics (Mag, VLF and IP), geological surveys and drilling. Table 6.5 summarizes Vior's exploration work.

**Table 6.5 – Exploration work in the Ligneris Property area, 1980-1984**

Owner/ Operator	Location	Work description	Highlight/ Significant results	Reference
SOCIETE D'EXPLORATION MINIERE VIOR INC	Ligneris Twp (Covering almost the entire property)	1984 exploration work: 3 grids of lines (144.8 km, 200-m spacing); Mag survey on all lines; EM survey (VLF) on two-thirds of lines; selective IP; geological survey in central and southern parts (18 lithogeochem samples); 20 DDH totalling 3,855.7 m.	Results suggest at least 3 gold-bearing areas of potential economic interest on the Property	Descarreux and Leonard, 1984 (GM 41991)
	Ligneris and Celoron Twp (North Zone, Central, Southwest and Southeast)	Nov-Dec 1984: EM survey (VLF) (71,745 km); Mag survey (108.14 km); IP (27,055 km).	66 EM anomalies; 48 Mag anomalies, 18 of which were ranked as first priority; no major IP anomaly (magnetic structure)	Lavoie, 1984

## 6.6 1985-1992 Mines Sigma (Québec) Ltée

Exploration concentrated on VMS-type mineralization until 1985 when mesothermal gold became the preferred exploration target (Bernier and Magnan, 1997). In March 1985, an agreement was reached between Vior and Mines Sigma Québec Ltée (Placer Dome Inc.) to continue exploration work on the Property with Sigma as the operator. Details of the work are presented in Table 6.6.

**Table 6.6 – Exploration work in the Ligneris Property area, 1985-1992**

Owner/Operator	Location	Work description	Highlights/ Significant results	Reference
MINES SIGMA [QUEBEC] LTEE	Ligneris and Celoron Twp	June-July 1985: EM survey, horizontal frames HEM (272 km) and Mag survey (498.7 km); nearly complete property-wide coverage	Several EM anomalies identified; generally calm magnetic relief made it possible to distinguish different geological formations on the Property	Audet and Hallof, 1985

Owner/Operator	Location	Work description	Highlights/ Significant results	Reference
	Ligneris Twp	June-Dec 1985 drilling campaign: 42 DDH for 6,696.0 m	Best results in DDH 275-27B and 275-26: 70.0 g/t Au over 0.6 m (North Zone) and 11.85 Au over 1.0 m (South Zone), respectively	Audet and D'Entremont, 1985
	Ligneris and Celoron Twp	June 1986 complementary Mag survey: total field and gradient (North Grid Line (P275), 25.5 km; Central grid, 19.6 km)	Checked for discontinuities along magnetic lineaments (central-west part of northern grid where anomaly trends vary from E-W to NE-SW)	Turcotte, 1986
	Ligneris Twp (Audet Property)	June 1986 drilling campaign: 4 DDH for 188.0 m; targeting geophysical anomalies	No significant values	D'Entremont, 1986
	Ligneris Twp	1987 drilling campaign: 45 DDH for 9,626.0 m	Best result in DDH 275-70 in South Zone area: 40.75 g/t Au over 0.5 m	Babin and Chevalier, 1987
MINES SIGMA [QUEBEC] LTEE (PLACER DOME INC.)	Ligneris and Celoron Twp	Oct 1988: EM survey VLF (measurements at 12.5-m intervals) and Mag survey (91.4 km)	EM survey detected 59 anomalies: 1 second-priority, 8 third-priority, 50 fourth-priority	Lavoie and Plante, 1988
	Ligneris and Celoron Twp	1988 IP survey: Phase 1 August-Sept, 74.4 km, Phase 2 Nov-Dec, 51 km	Mapping of several significant lithological and structural features, low-resistance lines, including E-W, NW-SE and N-S	Lambert and Turcotte, 1988
	Ligneris and Celoron Twp	Oct-Nov 1989, DEEPEM survey totalling 20.4 km and Pulse survey in DDH 275-84	DEEPEM identified 2 metalliferous bedrock conductors, one in the west and the other in the Central area; PEM survey yielded no anomalies	Lambert and Turcotte, 1989
	Ligneris Twp	Nov 1988-April 1989 drilling campaign carried out by Placer Dome on the Ligneris Property (interest Placer Dome 50% / Vior 50%): 36 DDH for 9,172.2 m; May-April 1988 exploration campaign: mapping (1:5,000), geophysical surveys (Mag, VLF and IP on South Zone), chip samples (South Zone), lithochem, structural and mineralogy study, compilation of geophysical and geological work	Best results in DDH 275-101 and 112. 275-101: 5.7 g/t Au over 1.8 m, linking South Zone East to South Zone West over a distance of 600 m. DDH 275-112 yielded anomalous gold over a 60-m downhole length with economic grades: 4.6% Zn over 0.7 m.	Lafleur and Simoneau, 1989

Owner/Operator	Location	Work description	Highlights/ Significant results	Reference
		(1:5,000), regional compilation of the Ligneris and Celoron areas (1:20 000), and IP survey on Central Zone.		
	Ligneris Twp (South, Central and North)	Fall 1989 and Winter 1990 work programs: stripping (1 area, fall 1989) and drilling campaign (17 DDH for 5,683.2 m)	Best result in western extension of Central Zone: 4.05 Au g/t over 0.5 m; best results in South Zone (and overall best results): 32.5 g/t Au over 1.47 m and 12.5 g/t Au over 1.45 m	Boivin and Lafleur, 1990
	Ligneris Twp (Audet Property)	Winter 1990 drilling campaign: 2 DDH for 400.50 m (Project 274-B)	No significant gold values	Boivin and Lafleur, 1990
		1991-1995: Ligneris Property is inactive		Bernier and Magnan, 1997
	Ligneris Twp	1992 Louis Gauthier's thesis on the geological context and the process of the gold mineralization set up in the Ligneris deposit. Study based on mapping, petrography, geochemical analyses of major elements as well as micro-probe analysis of minerals.	Better understanding of the tectono-stratigraphic evolution, the mechanism of the establishment of the mineralization of pyritic gold deposits.	Gauthier, 1992

## 6.7 1997 Placer Dome Ltd and Vior Inc.

In 1997, the Property became a 50-50 joint-venture between Vior Mining Exploration Corporation Inc. and Placer Dome Canada Ltd. The same year, Kac Properties Inc., a subsidiary of Barrick Gold Corporation, had an option to acquire all of Placer Dome Canada Ltd's interest in the Property (Bernier and Magnan, 1997). Details of the exploration work are presented in Table 6.7.

**Table 6.7 – Exploration work on the Ligneris Property, 1997**

Owner/ Operator	Location	Work description	Highlight/ Significant results	Reference
PLACER DOME LTD, VIOR INC. (PERFORMED BY BARRICK GOLD CORPORATION)	Ligneris Twp	April-August 1997 assessment report: logs provided for > 70% of existing DDH; lithogeochem sampling (1,226 samples); verification of geological mapping	South and Central areas: Py halo yields pronounced IP signature; North Zone: linear PP anomaly (graphite); potential for continuity of mineralized zones is mostly at depth	Bernier, C, Magnan, M, 1997

Owner/ Operator	Location	Work description	Highlight/ Significant results	Reference
	(32D15, 32D16 and 32E01)	Compilation plans, surface work	Ligneris: 032D15, 032D16 and 032E01	Laliberte, P, Mazoue, L, 1997

## 6.8 2008-2013 Société d'Exploration Minière Vior Inc

From 2008 to 2013 the principal claim holder was Vior. Exploration work on the Property included a geophysical and geological surveys, including rock sampling. Details of the exploration work are presented in the Table 6.8.

**Table 6.8 – Exploration work on the Ligneris Property, 2008-2013**

Location	Work description	Highlights/ Significant results	Reference
Rivière Octave region (SNRC 32D16 and 30E01)	Winter 2011 MNR: Update on bedrock geology; sonic drilling and outcrop visits; 43 DDH completed between Jan and March 2012	Update on bedrock geology (MRN)	Allard and Deschenes, 2015
Ligneris Twp	Oct-Nov 2012 Mapping and Sampling (rock and till): A total of 69 samples were collected (61 outcrop samples, 8 erratic boulder samples) and 25 till samples	2 samples of pyrite-mineralized quartz-sericite shale yielded 179 and 228 ppb Au	Mercier and Ouellette, 2013
Ligneris Twp (North, Central and South Zones)	Nov 2013 Mapping and Sampling: 130 samples collected for Au and base metal (Ag, Zn, Cu) analyses	Best results from felsic volcanic rocks, sericite shale, or quartz veins: 4.32 g/t Au; 2.85 g/t Au, 26.3 g/t Ag, 4860 ppm Zn; 2.02 g/t Au, 17.1 g/t Ag, 3920 ppm Zn; 1.54 g/t Au, 29.8 Ag; 1.47 g/t Au; 8.1 g/t Ag, 1400 ppm Cu, 2530 ppm Zn; 0.96 g/t Au, 5.4 g/t Ag	L'Heureux and Legouix, 2014

## 7. GEOLOGICAL SETTING AND MINERALIZATION

The Property is located in the central part of the Abitibi Subprovince of the Archean Superior Province (Figure 7.1).

### 7.1 Abitibi Terrane (Abitibi Subprovince)

The Abitibi Subprovince is a greenstone belt composed of east-trending synclines of largely volcanic rocks and intervening domes cored by synvolcanic and/or syntectonic plutonic rocks (gabbro-diorite, tonalite, and granite in composition) alternating with east-trending bands of turbiditic wackes (Ayer et al., 2002a; Daigneault et al., 2004; Goutier and Melançon, 2007). Most of the volcanic and sedimentary strata dip vertically and are generally separated by abrupt, east-trending trans crustal faults with variable dip. Some of these faults, such as the Cadillac-Larder Lake and Porcupine-Destor faults, display evidence of overprinting deformation events including early thrusting, later strike-slip and extension events (Goutier, 1997; Benn and Peschler, 2005; Bateman et al., 2008). Two ages of unconformable successor basins occur early, widely distributed “Porcupine-style” basins of fine-grained clastic rocks, followed by Timiskaming-style basins of coarser clastic and minor volcanic rocks which are largely proximal to major strike-slip faults (Porcupine-Destor, Cadillac–Larder Lake, and similar faults in the northern Abitibi greenstone belt; Ayer et al., 2002; Goutier and Melançon, 2007). In addition, the Abitibi greenstone belt is cut by numerous late-tectonic plutons from syenite and gabbro to granite with lesser dikes of lamprophyre and carbonatite.

The Abitibi greenstone belt is subdivided into seven volcanic stratigraphic episodes based on groupings of numerous U-Pb zircon ages (Thurston et al., 2008). These episodes denote a geochronologically constrained stratigraphy; they are listed from oldest to youngest:

- Pre-2750 Ma volcanic episode 1;
- Pacaud Assemblage (2750-2735 Ma);
- Deloro Assemblage (2734-2724 Ma);
- Stoughton-Roquemaure Assemblage (2723-2720 Ma);
- Kidd-Munro Assemblage (2719-2711 Ma);
- Tisdale Assemblage (2710-2704 Ma); and
- Blake River Assemblage (2704-2695 Ma).

U-Pb zircon ages and recent mapping show similarity in timing of volcanic episodes and ages of plutonic activity between the northern and southern Abitibi Greenstone Belt as indicated in (Figure 7.1). Therefore, this geographic limit has only stratigraphic and structural significance (Thurston et al., 2008).

The Abitibi Subprovince is bounded to the south by the Cadillac–Larder Lake Fault Zone, a major crustal structure that separates the Abitibi and Pontiac subprovinces (Figure 7.1); Chown et al., 1992; Mueller et al., 1996a; Daigneault et al., 2002, Thurston et al., 2008). The Abitibi Subprovince is bound to the north by the Opatoca Subprovince (Figure 7.1) a complex plutonic-gneiss belt formed between 2800 and 2702 Ma (Sawyer and Benn, 1993; Davis et al. 1995). The metamorphic grade in the greenstone belt displays greenschist to sub-greenschist facies except around plutons, as well as when approaching the Opatoca and Pontiac subprovinces and the Grenville Province where amphibolite grade prevails (Jolly, 1978; Powell et al., 1993; Dimroth et al., 1983; Benn et al., 1994; Faure, 2015).

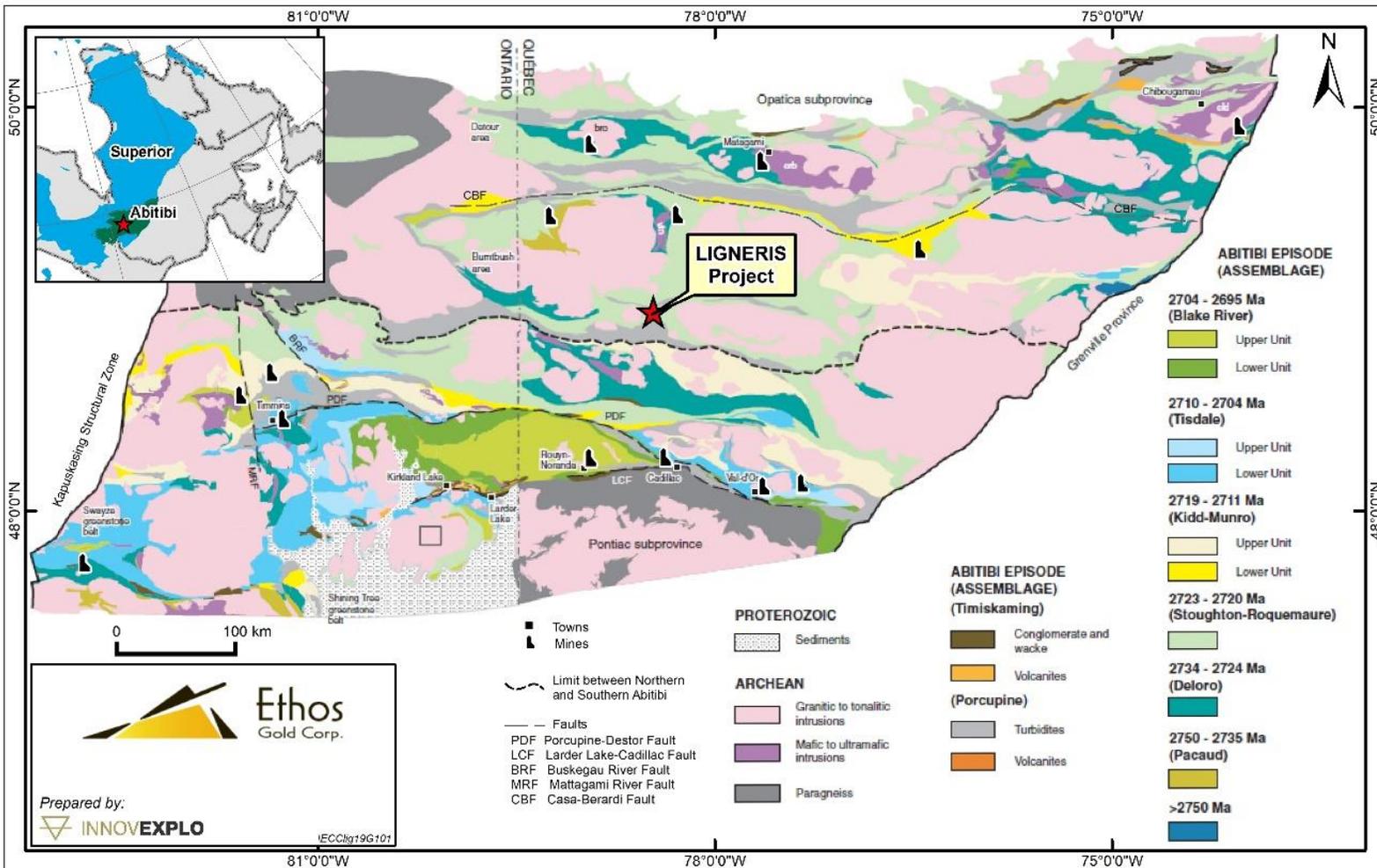


Figure 7.1 – Stratigraphic map of the Abitibi Greenstone Belt, figure modified from Thurston et al. (2008)

## 7.2 Regional Geology

Over the past decade, the MERN has published compilations and revisions of the geological interpretation for the area around the Property (Rhéaume et al., 2010; Allard and Deschenes, 2014). These studies cover several earlier interpretations by Hocq (1981, 1982, 1983), Gauthier (1992) and Berrada Hmima (1994). Recent geoscientific compilation maps are available for the region and the geology of these new maps at a scale of 1:20,000 were interpreted using recent field observations, sonic drill holes and new geochronologic data. In addition, an Abitibi-wide Megatam II survey (GSC, 2009) greatly assisted the geological interpretation of the region (Keating and D'Amours, 2010). The area is known for its thick cover of glaciolacustrine sediments which makes geology mapping difficult and geological interpretation relies heavily on geophysical surveys and drilling.

At the regional scale (Figure 7.2), the geology is characterized by the Bernetz Intrusion, located approximately 3 km east of the Property. The pluton is a multiphase intrusion composed of granodiorite, tonalite, gneissic tonalite, hornblende granite, and porphyritic granite. The pluton occupies the centre of a regional anticlinal (Allard and Deschenes, 2014). The domal structure is interpreted to be south of the Property, with fold axes plunging west and trending mainly E-W to ESE-WNW. The principal regional schistosity (S1) trends E-W to NE-SW and is steeply dipping to the north. The metamorphism is at the greenschist facies, except near the Bernetz Intrusion where it reaches the amphibolite grade.

From south to north, the Property is underlain by the Desboues, Rivière Octave, Clermont-Disson and Glandelet formations. The Desboues Formation is composed of basaltic and andesitic rocks, injected by gabbroic sills. The thickness of the formation ranges from a few hundred metres up to roughly 10 km in the vicinity of the Bernetz Intrusion.

The Rivière Octave Formation (2726.3 Ma; Augland et al., 2016) occupies most of the Property. It is composed of felsic to intermediate volcanic and volcanoclastic rocks. It hosts the three main mineralized zones on the Property. Several metre-thick horizons of graphitic argillite and wacke are interlayered in volcanoclastics. They generate a strong EM response.

The Clermont-Disson Formation borders the Rivière Octave Formation to the northwest and is mainly composed of basaltic rocks. The Glandelet Formation (<2695 Ma; Rhéaume et al., 2010) borders the Rivière Octave Formation to the north. It represents a 125-km-long sedimentary basin of turbiditic sediments (mudstones and iron formations).

Finally, outside the Property to the north, extending from its contact with the Glandelet Formation, the Vanier-Dalet-Poirier Group (2722-2721 Ma; Rhéaume et al., 2010) is dominated by intermediate to mafic volcanic rocks of calc-alkaline to tholeiitic composition. This formation, while not on the Property, includes the Sleeping Giant Mine Deposit to the east.

Four major layer-parallel shear zones transect the Property with a NE-SW dominant orientation. Together they form the regional Laflamme deformation corridor. They are described as follows:

1. Laflamme-South shear zone: corresponds to the northern limit of the lava flows of the Desboues Formation and dips abruptly sub-vertically to the north;
2. Laflamme-centre 1 shear zone: located in the centre of the Octave River Formation dips vertically;
3. Laflamme-centre 2 shear zone: corresponds to the limit between the Rivière Octave and the Glandelet formations with a vertical dip; and
4. Laflamme-North shear zone: corresponds to the northern limit of the Glandelet Formation with the Vanier-Dalet-Poirier Group

These shear zones are crosscut by brittle WNW-ESE faults.

### 7.3 Geology of the Property

A large part of the Property's geology information was taken from Gauthier (1992). As mentioned above, the MERN has improved the geological knowledge of the area, including the Property, with extensive field mapping, geophysical surveying and sonic drilling since 1992. Also, Vior has recently revised and integrated all field data to produce an updated geological interpretation and model.

At the property scale, anastomosing shear zones of the Laflamme corridor are present. There are two principal shear zones affecting the units on the Property: one crosses the South Zone and is up to 200 m wide, and the other crosses the Central Zone and is 100 to 500 m wide. A L-S fabric developed within these ductile fault zones. The strong penetrative schistosity is oriented EW to ESE-WNW and is subvertical while the stretching lineation dips steeply westward.

These deformation corridors separate the lithologies on the Property into two domains:

1. Less deformed rocks with primary fabrics and textures, enclosed within low-strain areas showing virtually no deformation; and
2. Highly deformed rocks in ductile shear zones, characterized by mylonites and schists retaining no primary textures and virtually none of their primary mineralogy.

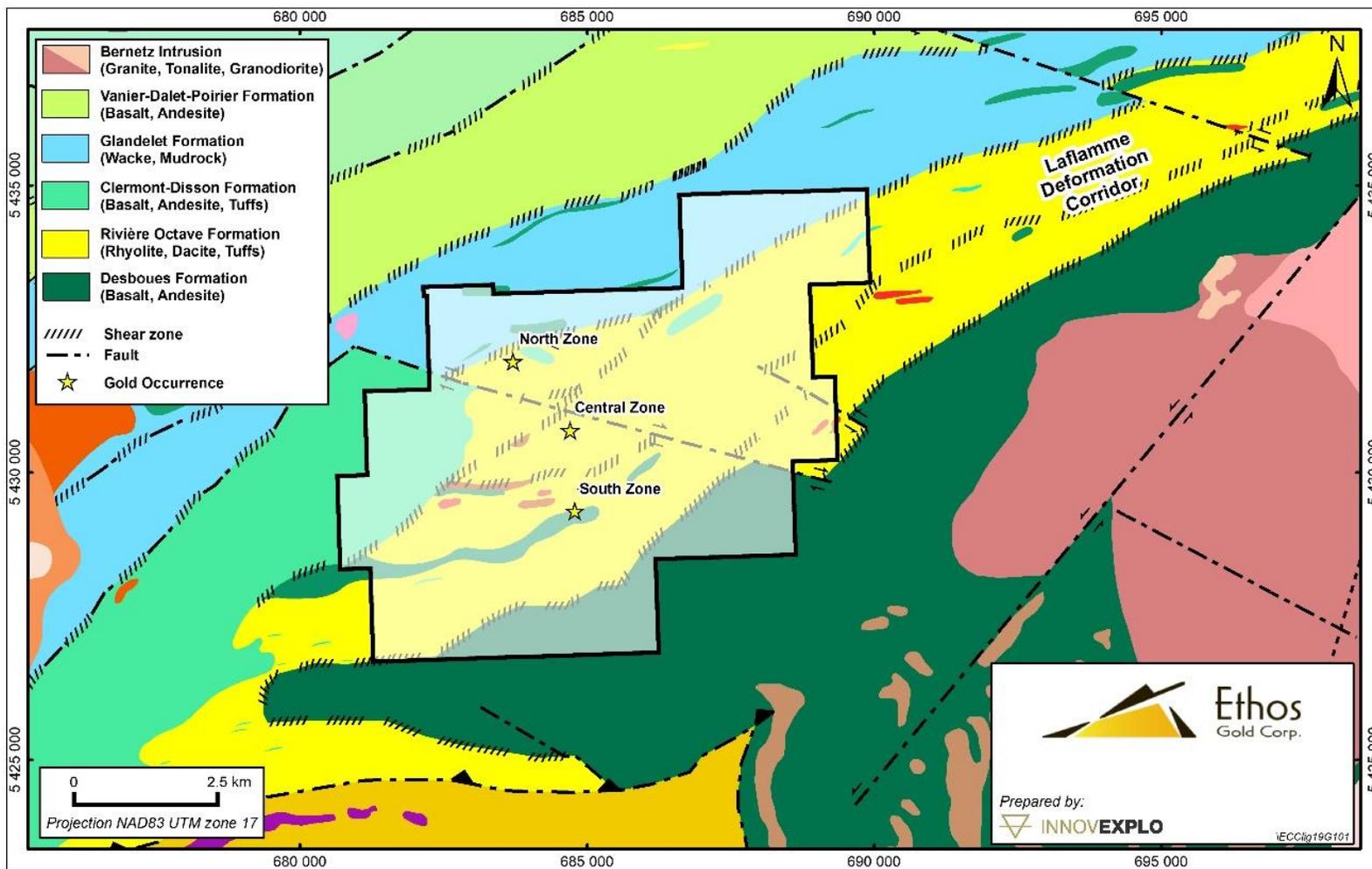


Figure 7.2 – Geological map of the Property (from SIGEOM)

### 7.3.1 Least deformed lithologies

The southern part of the Property is underlain by basaltic rocks, mainly pillow basalts, flow breccias, amygdular and massive basalts and fine- to medium-grained gabbros of the Desboues Formation. The northern part of the Property is underlain by sediments, mainly graphitic argillite of the Glandelet Formation.

These basaltic and sedimentary units border the felsic belt of the Rivière Octave Formation, which is roughly 5 km wide on the Property. This felsic belt is underlain by felsic volcanoclastic units (autoclastic breccia, heterolithic breccia and lapilli-sized volcanoclastics) that have restricted extents and thicknesses ranging from 10 to 30 cm wide within porphyritic dacite flows. Most of the fragments in volcanoclastic units consist of massive dacite showing various degrees of alteration and deformation. These felsic units are intercalated by many thin layers (usually no more than 10 m thick) of fine clastic sediments composed of graphitic and pyritic argillites and greywacke.

Also, felsic intrusives occur throughout the Property as 5-10 m wide QFP dykes with sharp contacts, subconcordant to the host units. These intrusive rocks have the same major element compositions as the massive dacites and are therefore considered to be cogenetic.

Intrusive tonalitic rocks up to 100 m wide and intercalated with intrusive fine-grained gabbroic rocks are interpreted by Gauthier (1992) in the area between the Central and South zones.

### 7.3.2 Deformed lithologies

Within the shear zones transecting the Property, the primary textures and mineralogy of volcanic rocks have been partially to totally obliterated, reflecting various degrees of penetrative deformation. The resulting lithologies may be divided into two main categories: those derived from felsic protoliths and those from mafic protoliths.

Chloritoid schist displays pervasive carbonatization in lithologies derived from the mafic units. The mineralogical assemblage of these rocks consists mainly of quartz + carbonate + sericite + chloritoid. This assemblage remains relatively constant for most shear zones.

In lower strain areas where the foliation is weak, chloritoid forms tabular crystals and carbonates form small, disseminated, porphyroblastic crystals. Together these minerals comprise approximately 60% of the rock, regardless of the degree of penetrative deformation. Sericite accounts for about 10% of the rock and the proportion increases with the intensity of deformation. Quartz forms small recrystallized aggregates that constitute about 30% of the rock and it decreases in abundance with increasing deformation.

Sericitic foliation is ubiquitous in higher-strain rocks. Sericitic and chloritoid-bearing bands become wider, subparallel to one another, and are separated by narrow quartz-carbonate bands.

In the Central Zone, the chloritoid schist grades laterally into carbonate schist. The carbonate schist is megascopically recognizable by its massive crystalline texture which contrasts with the strongly foliated aspect of the chloritoid and sericite schist.

Mineralogically, it is distinct from the chloritoid schist by the general absence of chloritoid crystals.

The sericite schists in felsic units are much less affected by pervasive carbonatization than those in mafic units. The primary fabrics of the various felsic units are commonly preserved in low-strain domains, but a secondary fabric tends to obliterate the primary texture as the strain increases. In higher-strain zones, the felsic lithologies form a common sericite schist in which no primary textures can be recognized; only minor quartz porphyroblasts remain.

### 7.3.3 Alteration

The alteration facies observed on the Property are divided into two major groups according to the nature of the altered protolith. Mafic protoliths were pervasively replaced by carbonates and chloritoid, and felsic protoliths were largely replaced by sericite.

The mafic protolith is divided into four different alteration facies according to their mineralogical assemblages. They are, in order of increasing alteration:

1. Least-altered facies consisting of gabbro and basalt, in which the chlorite-actinolite-epidote-albite assemblage resulted mainly from regional greenschist metamorphism;
2. A chloritoid schist in which the Fe-Mg-bearing carbonates, chloritoid, sericite and quartz were clearly the result of intense carbonatization;
3. A carbonate schist in which Fe-Mg-bearing carbonates, sericite and quartz predominate; and
4. A mineralized carbonate schist cut by pyrite-rich veinlets, in which chlorite occurs locally in the sericitic altered borders of the veinlets.

The felsic protolith is divided into three alteration facies. They are, in order of increasing alteration:

1. Least-altered facies consisting mostly of massive porphyritic dacites, volcaniclastics, and tonalites;
2. A sericite schist characterized by a marked increase in the abundance of sericite; and
3. A mineralized sericite schist crosscut by pyrite-rich veinlets.

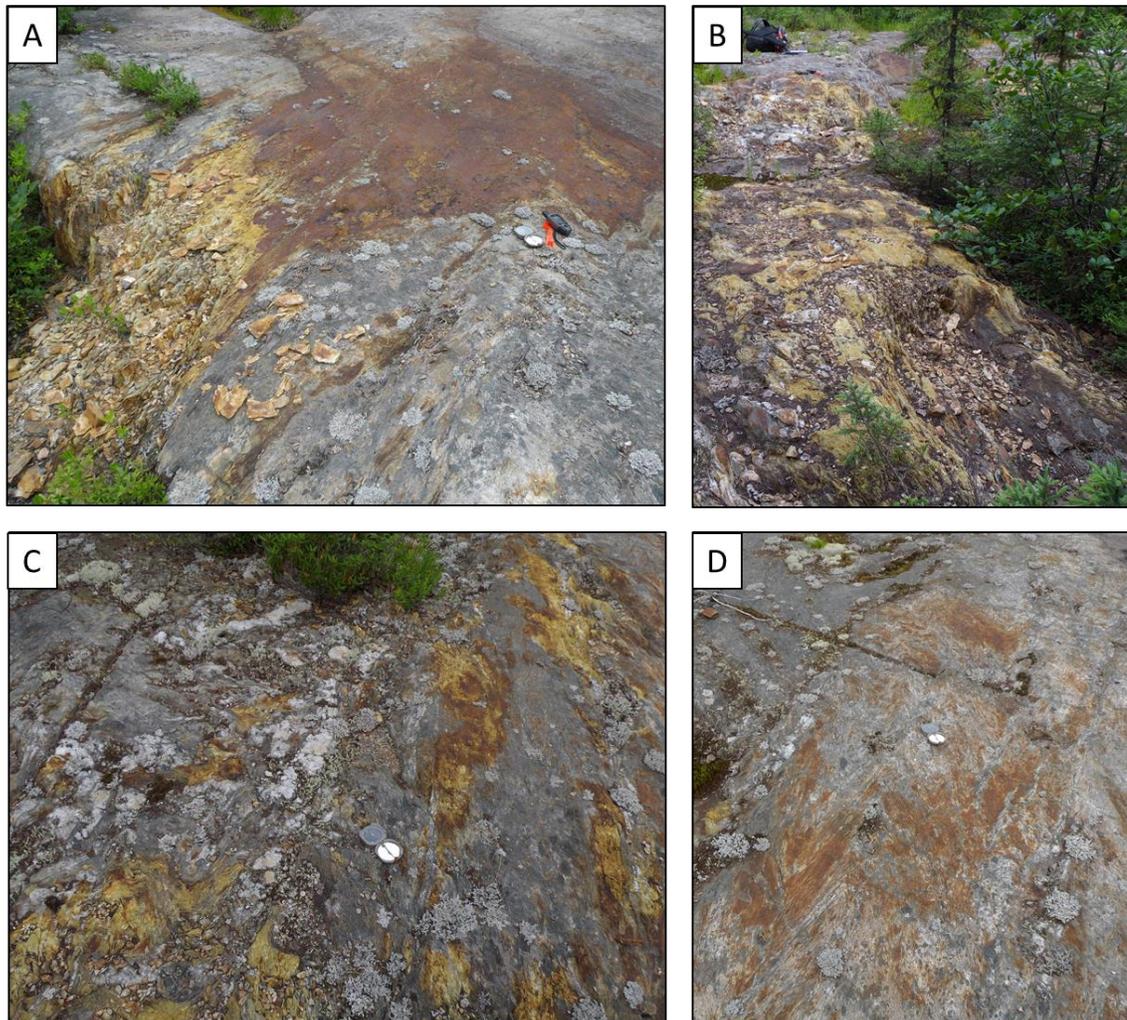
## 7.4 Mineralization

### 7.4.1 South Zone

The South Zone was discovered in 1984 by diamond drilling (Figure 7.2). The zone is located about 1.5 km south of the Central Zone and is well exposed in outcrops. Using threshold values above 100 ppb (0.1 g/t), the zone is about 100 m thick. It is characterized by sheared felsic to intermediate volcanic rocks with quartz phenocrysts, altered and mineralized (sericitized and Fe-carbonatized). Approximately 3-5% disseminated pyrite, mainly along foliation planes, is observed throughout the zone with locally centimetric to metric masses of massive sulphides (mainly pyrite ± sphalerite

± chalcopyrite ± galena). Mineralization is also found locally in quartz veinlets (± pyrite ± arsenopyrite ± chalcopyrite).

According to the SIGEOM database, the best drilling results were: 15 g/t Au and 0.3 g/t Ag over 1.52 m (DDH LS-5); 13.05 g/t Au over 0.56 m (DDH 275-73); 7.55 g/t Au over 1.47 m (DDH 275-148); and 5.7 g/t Au over 1.8 m (DDH 275-101).



Scale and true north shown by compass. Sericite-quartz schists with disseminated sulphides folded and dismembered along S2 schistosity (A, B and C). D) Late S2 crenulation cleavage crosscutting sulphides parallel to S1 schistosity showing a 'W' fold pattern.

**Figure 7.3 – Typical gold mineralization observed in the South Zone (July, 2019 site visit)**

#### 7.4.2 Central Zone

The Central Zone is located about 1.5 km north of the South Zone and 1.5 km southeast of the North Zone (Figure 7.2). It was discovered in 1984 by diamond drilling. Several outcrops expose the mineralization. The area comprises a few distinct zones with gold

anomalies and is up to 200-300 m wide. It is characterized by sheared felsic to intermediate altered and mineralized volcanic rocks (sericitized and Fe-carbonatized) with quartz phenocrysts and, locally, typically barren quartz-tourmaline-calcite-pyrite veins cross-cutting the units. Mineralization is usually observed as disseminated sphalerite (traces to 10%) and pyrite (1-40%) with traces of chalcopyrite and galena. Sphalerite is also found as coarser grains or as 2 to 8 mm thick veinlets parallel to the local foliation.

According to the SIGEOM database, the best drilling results were: 27.5 g/t Au, 43.1 g/t Ag and 6.26% Zn over 0.90 m; 12.4 g/t Au, 24.7 g/t Ag and 3.18% Zn over 0.60 m; and 12.0 g/t Au, 15.0 g/t Ag and 0.60% Zn over 1.10 m (DDH L-84-4 and L-84-8). The best field sample results were: 2.85 g/t Au, 26.3 g/t Ag and 4860 ppm Zn (sample 65087); 2.02 g/t Au, 17.1 g/t Ag and 3920 ppm Zn (sample 65088); 1.54 g/t Au and 29.8 g/t Ag (sample 65038); 1.47 g/t Au, 8.1 g/t Ag, 1400 ppm Cu and 2530 ppm Zn (sample 65010); 6.7 g/t Ag and 6930 ppm Zn (sample 65037); 6.7 g/t Ag, 10.1 g/t Ag and 7 g/t Ag (samples 65062, 65085 and 65086); 7.9 g/t Ag (sample 65016); 14.8 g/t Ag (sample 65001); and 9.3 g/t Ag (sample 65490).

### 7.4.3 North Zone

The mineralization of the North Zone was discovered in 1985 by a diamond drilling campaign to test a geophysical target. The zone is located about 1.5 km northwest of the Central Zone (Figure 7.2) and within secondary lithologies of the Rivière Octave Formation and close to the Laflamme-centre-2 Fault. It is hosted by sheared and altered (mainly sericitized) felsic to intermediate volcanoclastic rocks. A few cherty and graphitic horizons with pyrite are observed close to the gold anomalies. Mineralization consists of approximately 1-5% disseminated pyrite with locally higher concentrations (10-25%) and traces of sphalerite, chalcopyrite and galena. Pyrite appears as euhedral crystals, rounded or elongated grains, or as fine veinlets up to 1 cm thick.

According to the SIGEOM database, the best drilling results were: 1.40 g/t Au, 2 g/t Ag and 0.17% Zn over 0.38 m (DDH 275-36); 5.55 g/t Au, 0.084% Zn and 0.06% Cu over 0.3 m (DDH 275-37); 70 g/t Au, 3 g/t Ag and 0.019% Zn over 0.63 m (DDH 275-27B); and 692.3 g/t Au, 3760 ppm Zn and 380 ppm Cu over 0.3 m (DDH 275-27B).



Scale and true north shown by compass. A) Semi-massive pyrite conduit interpreted as a synvolcanic vent. Grab sample from InnovExplo (K504261) returned 11.65 g/t Au, 131 g/t Ag, 6.21% Zn and 0.17% Cu. B) Semi-massive pyrite parallel to the main schistosity (S1) and folded by late crenulation cleavage S2. C) Fracture-controlled pyrite stringers. D) Sulphides parallel to S1 schistosity and folded by late S2 crenulation cleavage.

**Figure 7.4 – Typical gold and base metal mineralization observed in the Central Zone (July 2019, site visit)**

## 8. DEPOSIT TYPES

The mineralized zones observed on the Property remain at an early exploration stage and it is difficult to assess a final deposit type model for the origin of the mineralization.

Timing of the mineralization, which usually helps assess a proper model of deposit, is not yet accurately known. According to Gauthier (1992), the sulphide-rich veinlets, breccias and disseminated pyrite hosted by ductile deformation zones in the Central Zone are interpreted as late syntectonic and the disseminated pyrite is also considered to be syntectonic. The syntectonic emplacement of the sulphide-rich veinlets does not preclude the possibility that the base metals and gold in the veinlets originated from remobilization of a volcanogenic base-metal deposit (VMS). In fact, high concentrations of zinc in the Central Zone argues in favor of a VMS-type deposit, since typical mesothermal (orogenic) gold deposits tend to be depleted in base metals.

The key characteristics of the three mineralized zones (North, Central, and South zones) share similarities with VMS deposits. Principally, the abundance of polymetallic mineralization sulphides (pyrite, sphalerite, chalcopyrite and traces of galena), the crosscutting relations of sulphide-rich veinlets and the mineralization hosted by a bimodal volcanic sequence dominated by felsic volcanic rocks are typical to the VMS felsic volcanoclastic dominant subtype (Galley, 2007). Sericite, chlorite, and chloritoids alterations are also common in these deposit types. However, considering its setting in a widely and intensely carbonatized, steeply dipping ductile and anastomosing fault corridor, and also considering that there is gold enrichment, it shares more similarities with the Orogenic Gold Deposit type, in particular, the replacement-type and disseminated-type orebodies developed in deep, ductile environments of regional faults (Dubé and Gosselin, 2007).

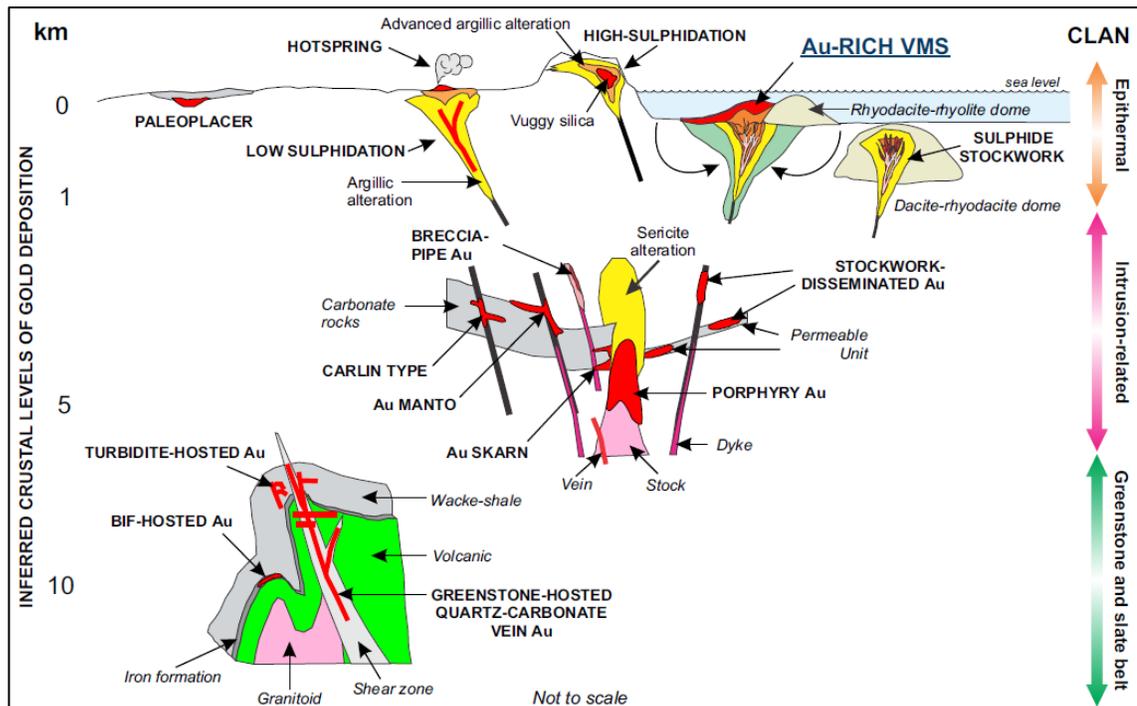
In conclusion, the model that appears to best correspond to the Property is the juxtaposition of both deposit types. Initially a polymetallic VMS that was subsequently buried, sheared and heavily deformed overprinted with features of an Orogenic Gold Deposit (Greenstone-hosted quartz-carbonate-vein deposit type in Figure 8.1).

### 8.1 VMS type Deposits

As mentioned by Galley et al. (2007), bimodal felsic-dominated siliciclastic continental back-arc terranes contain some of the world's most economically important VMS districts. Most, but not all, significant VMS mining districts are defined by deposit clusters formed within rifts or calderas. In the case of Ligneris, the linear aspect of the felsic belt (Octave River Formation) suggests a regional volcanic basin. The clustering of VMS deposits is further attributed to a common heat source that triggers large-scale subseafloor fluid convection systems. These subvolcanic intrusions may also supply metals to the VMS hydrothermal systems through magmatic devolatilization. The multiphase Bernetz Intrusion is not dated but may be interpreted as a synvolcanic pluton providing a regional heat flow. As a result of large-scale fluid flow, VMS mining districts are commonly characterized by extensive semi-conformable zones of hydrothermal alteration that intensifies into zones of discordant alteration in the immediate footwall and hanging wall of individual deposits. The deposits comprise stacked massive sulfide lenses.

The context of mineralization at Ligneris is similar to an Au-rich VMS deposit such as the Doyon-Bousquet-LaRonde world class deposit (Abitibi) in terms of volcanic environment, alterations and mineral assemblages (Figure 8.1).

Such VMS deposits are preferentially associated with calc-alkaline or transitional magmatic successions, with andesite-dacite-rhyodacite-rhyolite magmatic suites and thick (10s to 100s of m) felsic volcanic packages (Mercier-Langevin et al. 2015). The aluminous alteration zones have accommodated most of the post-ore strain due to their ductility and are transformed into schists. Consequently, the alteration product coincides spatially with the deformation zones despite the lack of a genetic relationship.



From Mercier-Langevin et al. 2015

**Figure 8.1 – Schematic illustration of the various types of gold deposits shown at their inferred crustal level of formation**

## 9. EXPLORATION

This chapter briefly summarizes Vior's exploration work on the Property from January 2018 to the effective date of this report. No exploration work was done after the Vior 2013 mapping and sampling program until January 2018.

Vior is the operator of the exploration activities since the agreement between Vior and Ethos in June 2019.

Exploration highlights are listed as follows and details are provided in the sections below:

- Update and review of Vior's databases
- VTEM survey by Geotech Ltd
- Lithochemical treatments, structural studies, and geological interpretation by InnovExplo
- Till sampling survey by IOS
- Ground IP by Abitibi Geophysics

### 9.1 Vior databases (2018)

In 2018, Vior validated and updated their digital databases, including diamond drill holes, geochemistry, and surface geology from historical public sources (SIGEOM). The objective was to identify possible errors in the databases with respect to the original documents and data sources.

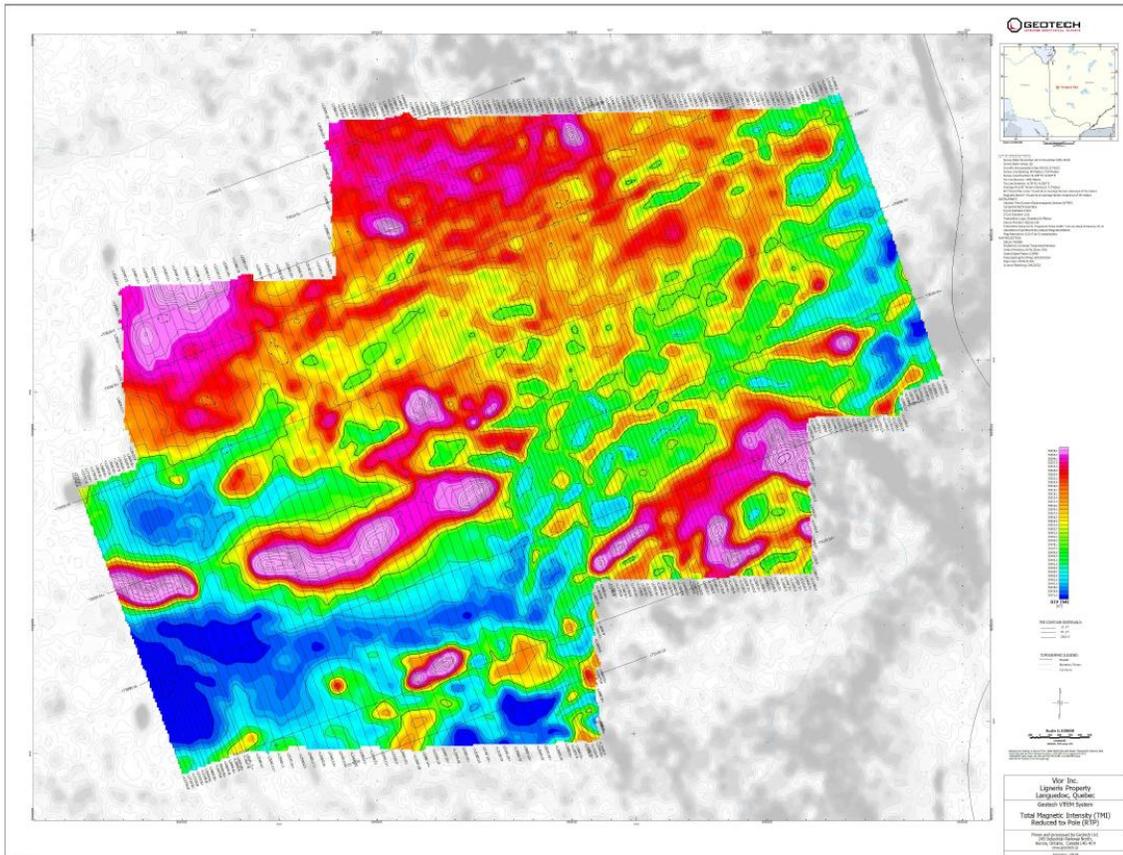
### 9.2 VTEM survey (2018)

From November 1 to November 24, 2018, Geotech Ltd carried out a heliborne geophysical survey over the Property (Geotech, 2018). Principal geophysical sensors included a versatile time domain electromagnetic (VTEM™plus) system and a horizontal magnetic gradiometer with two cesium sensors. The ancillary equipment included a GPS navigation system and a radar altimeter.

A total of 717 line-kilometres of geophysical data were acquired during the survey (Figure 9.1). Total coverage is 41 km<sup>2</sup>. Digital data included all EM and Mag products. The survey report described the procedures for data acquisition, equipment, processing, final image presentation and specifications for the digital data set.

The survey area was flown northwest to southeast (N160 Az) with traverse line spacings of 50 and 100 m (Figure 9.1). Tie lines were flown perpendicular to the traverse lines. The helicopter maintained a mean altitude of 71 m above the ground.

In January 2019, Marc Boivin (P.Ge.), consulting geophysicist for MB Géosolutions, was contracted to produce a property-scale target map based on the Geotech EM and Mag surveys. A total of 10 drill targets were proposed using TAU profiles and the calculated vertical magnetic gradient ("CVG") profiles.



**Figure 9.1 – Flight path over the reduced to pole total magnetic intensity (From Geotech report, 2018)**

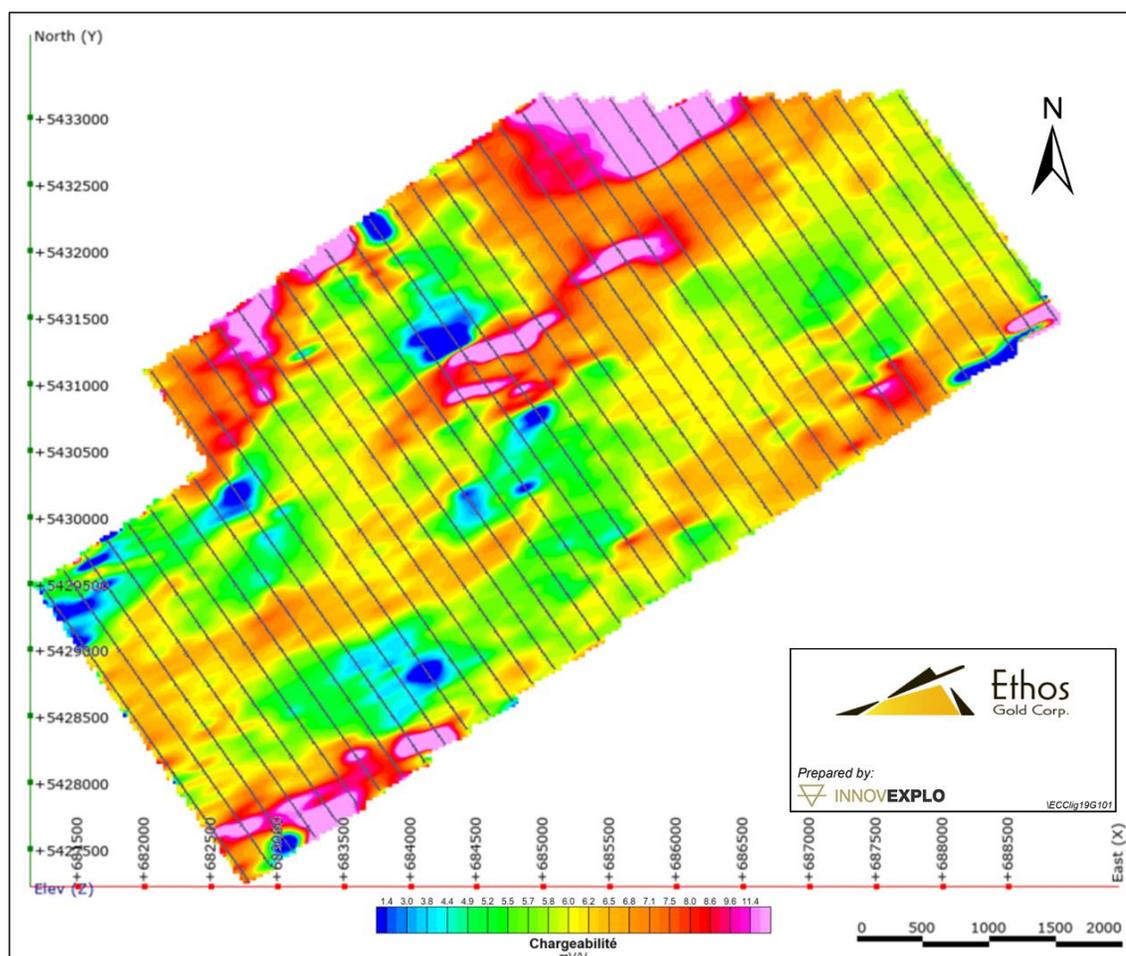
### 9.3 Ground induced polarization survey (2019)

In August 2019, Abitibi Geophysics carried out a ground gradient IP survey (Figure 9.2). The objectives were to detect gold-bearing structures and semi-massive sulphide mineralization in the previously untested deep extensions of known mineralized zones and to suggest priority drill targets (Saliou BAH and Cheman, 2019).

The grid consists of 38 survey lines at 200 m intervals (Figure 9.2). The lines are oriented NNW, with line lengths ranging from 2.1 to 3.6 km, for a total of 124.3 km. The grid lines were cut in July 2019 by Exploration Choquette Inc.

The Gradient-IP configuration was chosen with an electrode spacing (AB) of 7.2 and 7.4 km and stations every 25 m. The wide spacing of the injection electrodes minimizes the number of investigation blocks and maximizes the depth of investigation, which is estimated to be at least 400 m.

Abitibi Geophysics interpreted six (6) zones of anomalous chargeability on the chargeability map. A 3D matrix inversion of the chargeability and resistivity was calculated in September 2019 by Mr. Boivin.

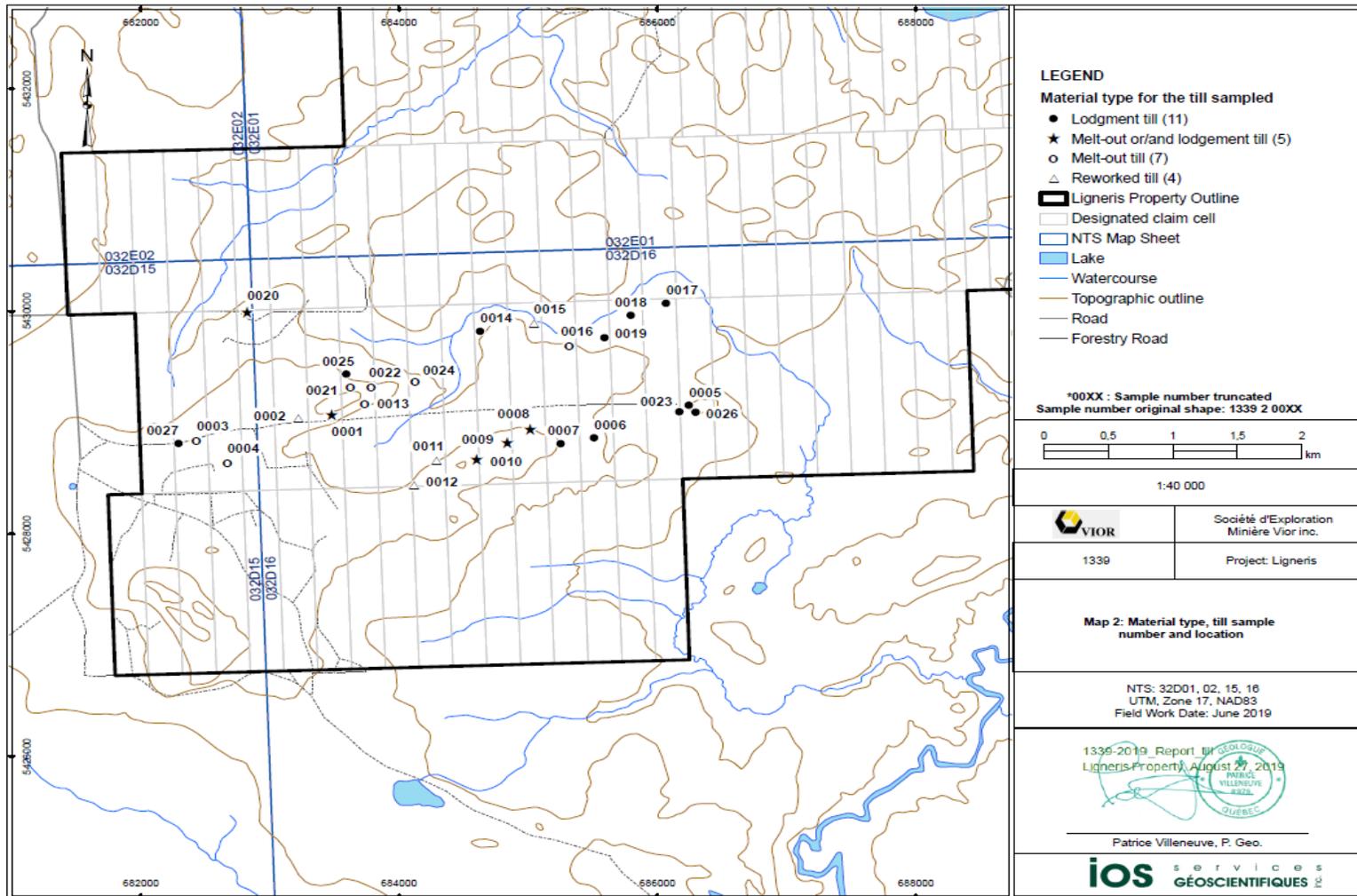


**Figure 9.2 – Map of apparent chargeability (mV/V) and grid survey**

#### 9.4 Till sampling survey (2019)

In June and July 2019, IOS Services Géoscientifiques Inc. performed a glacial sediment sampling program in the southwestern part of the Property to evaluate the potential for gold occurrences based on gold grain dispersion in the secondary environment (Figure 9.3). The report for the program describes the till sampling methodology, the 27 samples collected, the ARTPhot processing of the fine gold grain extraction, the gold grain counts, and a brief interpretation of the results (Girard and Villeneuve, 2019).

The Central Zone signature was easily detected on two sampling profiles, 1 and 2 km down-ice of the Central Zone, with normalized counts exceeding 600 grains. One other sample is considered anomalous with a normalized count of 118 grains.



**Figure 9.3 – Map showing the till sample number (n=27) and location, and the type of glacial material (from Girard and Villeneuve, 2019)**

## 9.5 Geochemical Data Processing and Interpretation (2019)

During the summer of 2019, InnovExplo integrated, processed and interpreted the lithochemical database of the Project. An enhanced geological map of the Property was also made based on the geochemical and geophysical interpretations. Author Stéphane Faure was in charge of the Project.

### 9.5.1 Lithochemical Database

The geochemical database contains a total of 1,989 samples from historical DDH core (Lafleur and Simoneau, 1989; Boivin and Lafleur, 1990; Bernier and Magnan, 1997) and 482 samples from surface grab samples (Gauthier, 1992; L'Heureux and Legouix, 2014), for a total of 2,471 samples. Of these, 2,272 samples were analyzed for major element oxides and the most common trace elements. Volcanic rocks are the dominant type of rock analyzed, followed by intrusive rocks. Many samples have no geological description, meaning that the protolith is unknown. A small sample set of sedimentary rocks and quartz veins has also been analyzed. The database is non-homogeneous, and the data is incomplete in term of elements analyzed. Some trace elements, such as Nb, are not usable due to their high detection limits.

InnovExplo did not validate the database except to perform basic sorting to identify outliers. Minor changes were made. The sampling preparation, analyses and security procedures before 1997 are not all known. InnovExplo assumes that the exploration sampling and analytical procedures conducted by those companies and laboratories were in accordance with prevailing industry standards at the time.

### 9.5.2 Methodology

The first step in the methodology was to identify the geochemical name and affinity of the protolith, and then calculate common element ratios and alteration indices. Results were expressed on binary diagrams.

The igneous rock type was identified using the Zr/TiO<sub>2</sub> versus SiO<sub>2</sub> diagram of Winchester and Floyd (1977). Although the Winchester and Floyd (1977) diagram with Nb is more accurate because it uses immobile elements on both axes, it was not used due to the poor lower detection limit of Nb in the database. This was a compromise knowing that silica is mobile and may be sensitive to alteration (silicification or leaching).

Magmatic affinity (i.e., calc-alkaline, transitional, and tholeiitic) was determined using immobile trace elements and the threshold Zr/Y ratios proposed by Ross and Bédard (2009).

Various approaches were used to characterize the geochemical alteration. The following common alteration indices were calculated (Franklin, 1997):

- Alkali Index I:  $[(\text{MgO}+\text{K}_2\text{O})/(\text{MgO}+\text{K}_2\text{O}+\text{Na}_2\text{O}+\text{CaO})]*100$ ;
- Alkali Index II:  $[(\text{Na}_2\text{O}+\text{CaO})/(\text{Na}_2\text{O}+\text{CaO}+\text{K}_2\text{O})]*100$ ;
- Hashimoto Index:  $[(\text{FeO}+\text{MgO}+\text{K}_2\text{O})/(\text{MgO}+\text{K}_2\text{O}+\text{Na}_2\text{O}+\text{CaO})]*100$ ;
- Spitz-Darling:  $\text{Al}_2\text{O}_3/\text{Na}_2\text{O}$ ;
- CCPI (chlorite-carbonate-pyrite index):
  - $[(\text{MgO}+\text{Fe}_2\text{O}_3\text{T})/(\text{MgO}+\text{Fe}_2\text{O}_3\text{T}+\text{Na}_2\text{O}+\text{K}_2\text{O})]*100$ ;
- AAI (advanced argillic alteration index):

- $[\text{SiO}_2/(\text{SiO}_2+(10*\text{MgO})+(10*\text{CaO})+(10*\text{Na}_2\text{O})) *100;$
- Sericite Index:  $\text{K}_2\text{O}/(\text{K}_2\text{O}+\text{Na}_2\text{O});$  and
- Chlorite Index:  $[(\text{Fe}_2\text{O}_3+\text{MgO})/(\text{Fe}_2\text{O}_3+\text{MgO}+2*\text{Na}_2\text{O}+2*\text{CaO})]*100$

Also, normative mineral calculations were performed using the Norm CONSONORM\_LG (Trépanier et al., 2015). This method provides a solution for approximating metamorphic normative minerals, as well as indices for estimating chemical and mineralogical changes caused by hydrothermal alteration. The norm yields the main paragenesis using an ACFMNK tetrahedron with the major elements  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{CaO}$ ,  $\text{FeO}$ ,  $\text{MgO}$ ,  $\text{MnO}$ ,  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$ . In addition to providing normative minerals, the approach quantifies carbonatization ( $\text{CO}_2$ ) and other types of alteration. It is relatively independent of the composition precursors.

Finally, the correlations between metals and alterations were calculated and interpreted. Thematic 2D maps in and 3D visualizations were generated at the end of the process to help generate drill targets.

### 9.5.3 Geochemical Classification, Affinities and Fertility

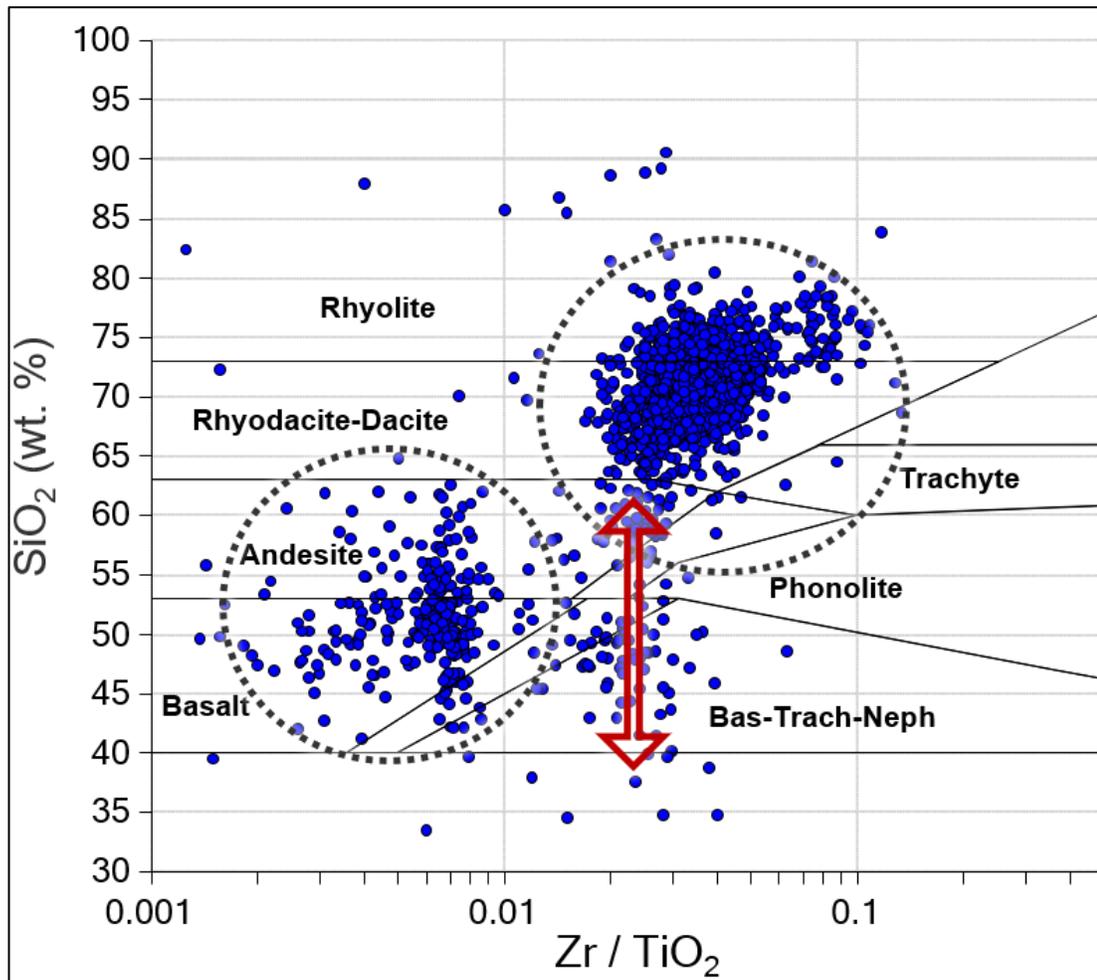
The volcanic and intrusive rocks plot in two different geochemical groups on the Winchester and Floyd (1977) classification diagram (Figure 9.4). One group has a felsic composition, ranging from rhyolite to rhyodacite-dacite, and the second group is mafic with basaltic to andesitic composition. Tens of samples fall outside the normal fields due to silicification, the presence of quartz veins, or silica leaching.

Felsic rocks have a calc-alkaline affinity based on a Zr/Y ratio of  $\geq 8$ . Mafic rocks trend at the limit between the transitional and tholeiitic affinity fields (ratio Zr/Y = 2.8). Most of the dykes lie in the calc-alkaline field with Zr/Y ratios between 4.5 and 8. The igneous rocks are further discriminated based on the  $\text{Zr}/\text{Al}_2\text{O}_3$  versus  $\text{TiO}_2/\text{Al}_2\text{O}_3$  diagram (Figure 9.5). One group of rhyolites (Group 1) is characterized by a low  $\text{TiO}_2/\text{Al}_2\text{O}_3$  ratio ( $<0.018$ ). The other group of felsic rocks (Group 2; rhyolites to dacites) have a  $\text{TiO}_2/\text{Al}_2\text{O}_3$  ratio between 0.018 and 0.04, and a  $\text{Zr}/\text{Al}_2\text{O}_3$  ratio between 5 and 12. The dykes form a distinct geochemical group with a  $\text{TiO}_2/\text{Al}_2\text{O}_3$  ratio of  $\geq 0.04$  and a  $\text{Zr}/\text{Al}_2\text{O}_3$  ratio of  $\geq 7$ . Basalts and andesites appear comagmatic based on their common trend.

Leshner et al. (1986) proposed a discriminant diagram to distinguish fertile and less fertile felsic rocks for base metal VMS deposits in the Superior Province (Figure 9.6). The Ligneris rhyolites to dacites lie in the FI and FII fields of the diagram. According to Leshner et al. (1986), FI rhyolites are calc-alkaline and usually barren, unless associated with FII or FIII felsic volcanic rocks. FII rhyolites are calc-alkaline to transitional and range from barren to having a high potential to host base metal VMS mineralization. FIIIa and FIIIb rhyolites are tholeiitic and have the highest potential to host Cu-Zn VMS mineralization, such as the host rocks of the Noranda and Matagami camps. Gaboury and Pearson (2008) found that FI and FII-type rhyolites in the Abitibi greenstone belt are particularly associated with gold-rich VMS deposits, such as the world-class LaRonde deposit, and all gold deposits in the Doyon-Westwood-Bousquet-LaRonde mining camp. The FI and FII-type rhyolites are also more prospective for Cu-Au replacement and vein-type deposits. According to these authors, FII-type rhyolites account for about 70% of rhyolites in the Abitibi belt. Although considered less prospective, some districts dominated by FII rhyolites, such as Val-d'Or and Selbaie, have collectively produced in

excess of 100 Mt of ore. Deposits in these districts mainly consist of sulphide veins and disseminated ore with low Cu and Zn grades.

In conclusion, the geochemistry of the felsic rocks and the type of gold mineralization at Ligneris share similar geochemical and geological characteristics with the Doyon-Bousquet-LaRonde, Val-d'Or and Selbaie mining districts.



Felsic rocks are grouped on the right and the mafic rocks on the left. The red arrow indicates possible SiO<sub>2</sub> loss or gain due to alteration. Samples with > 85% SiO<sub>2</sub> reflect silicification or the presence of quartz veins.

**Figure 9.4 – Winchester et Floyd (1977) diagram showing the composition of Ligneris igneous rocks (n=1,719)**

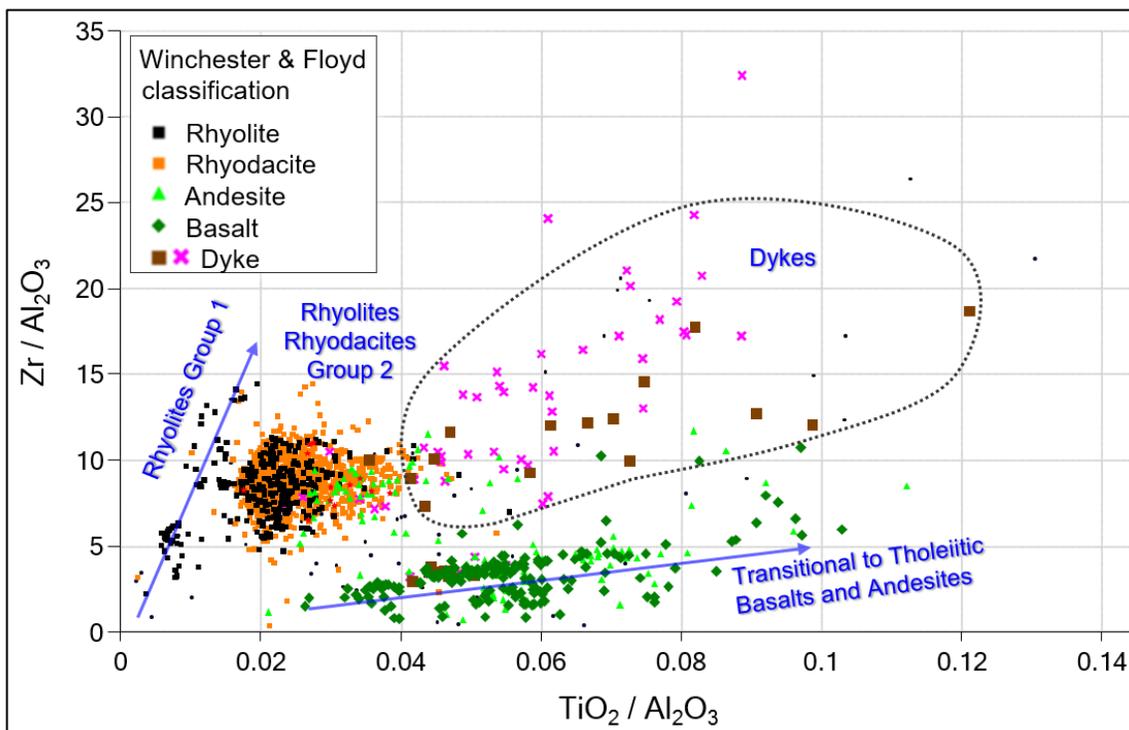


Figure 9.5 – Diagram of  $Zr/Al_2O_3$  versus  $TiO_2/Al_2O_3$  showing the four groups of igneous rocks on the Ligneris Property (n=1,747)

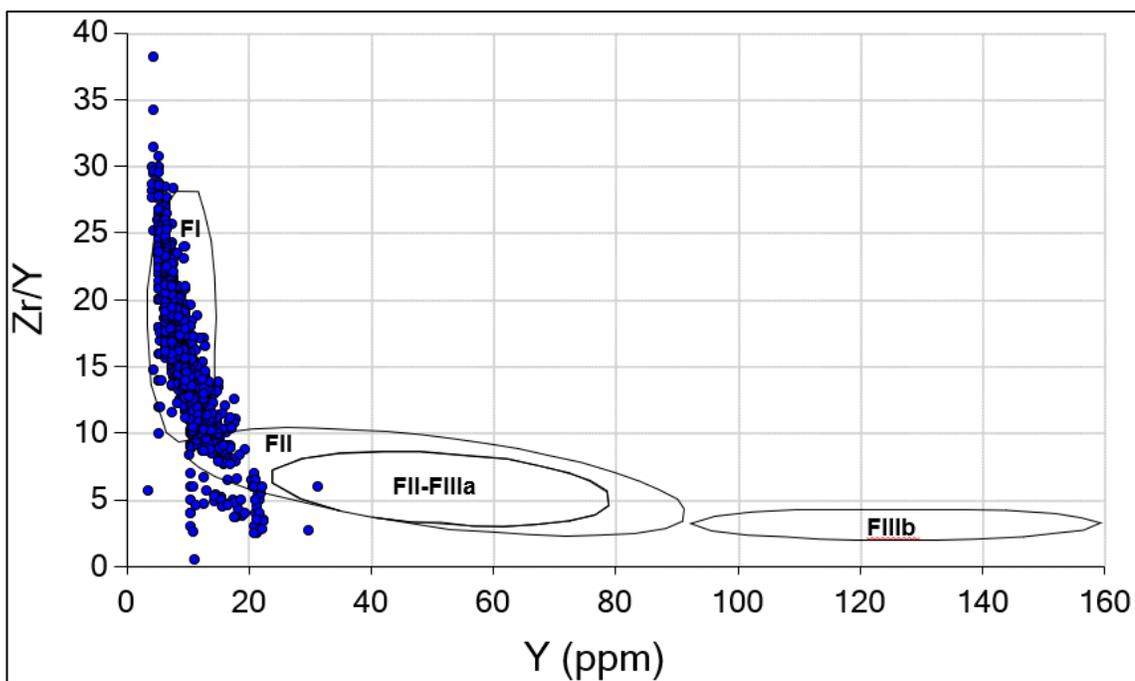
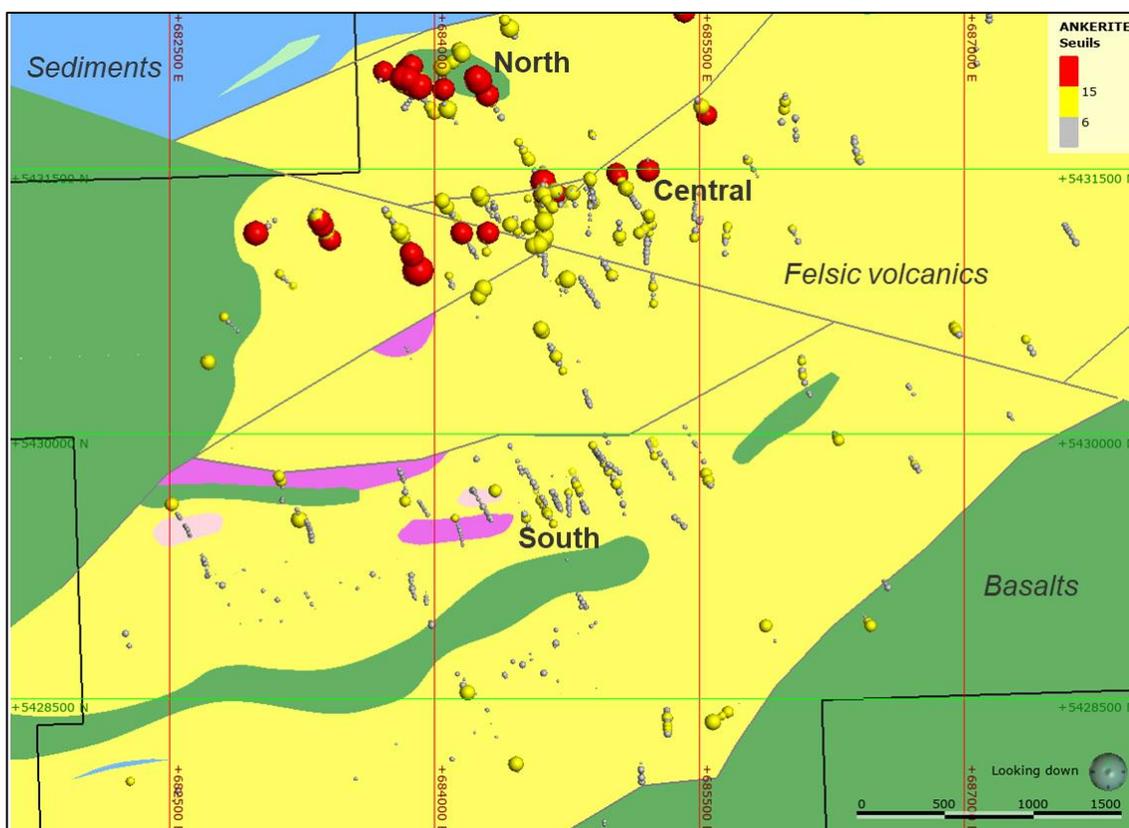


Figure 9.6 – Discriminant diagram to distinguish fertile to less fertile felsic rocks for base metal VMS (Leshner et al., 1986) (n=1,117)

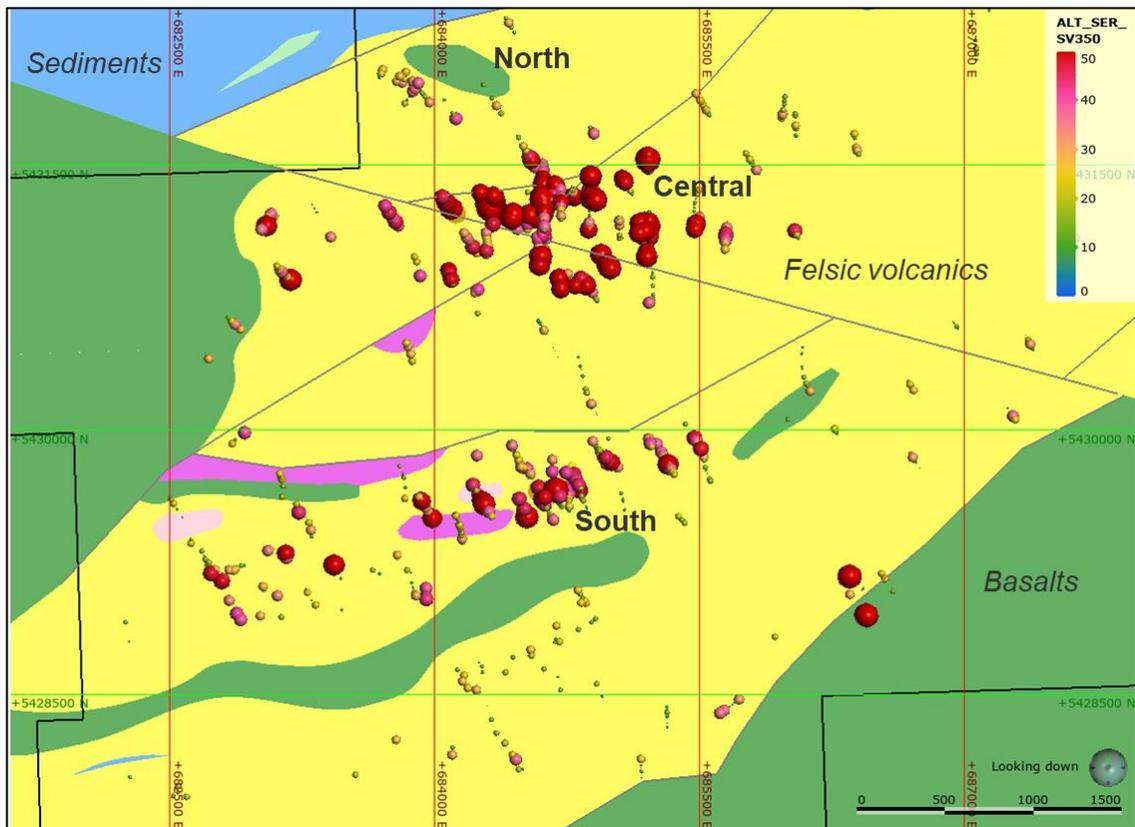
## 9.5.4 Alteration

The Norm CONSONORM\_LG calculation (Trépanier et al., 2015) indicates that felsic rocks at Ligneris are mainly altered to carbonates and sericite. Over 70% of the felsic rocks have a carbonatation saturation index  $[CO_2/(CaO+FeO+MgO+MnO)]$  over 0.6, which means that the intensity of the carbonatization is relatively high. The norm calculation indicates that normative dolomite  $[CaMg(CO_3)_2]$  and normative ankerite  $[CaFe(CO_3)_2]$  are more present and intense in the North and Central zones, and also represent proximal alteration halos (Figure 9.7). Normative siderite ( $FeCO_3$ ) is only present in the Central Zone. Normative sericite also forms a proximal alteration halo centred on the Central and South zones (Figure 9.8). Normative paragonite, an aluminosilicate mineral related to muscovite, is only present proximal to mineralization in the Central and South zones. This mineral, observed on the Property by Gauthier (1992), indicates strong leaching (residual silica and aluminium) commonly related to high sulphidation alteration systems.

Chlorite and ankerite normative minerals are associated with basalts and andesites and are the main alteration proximal to mineralized zones. Normative chlorite is particularly developed in the Central Zone.



**Figure 9.7 – Distribution and intensity of normative ankerite index relative to mineralized zones. Geology from SIGEOM**

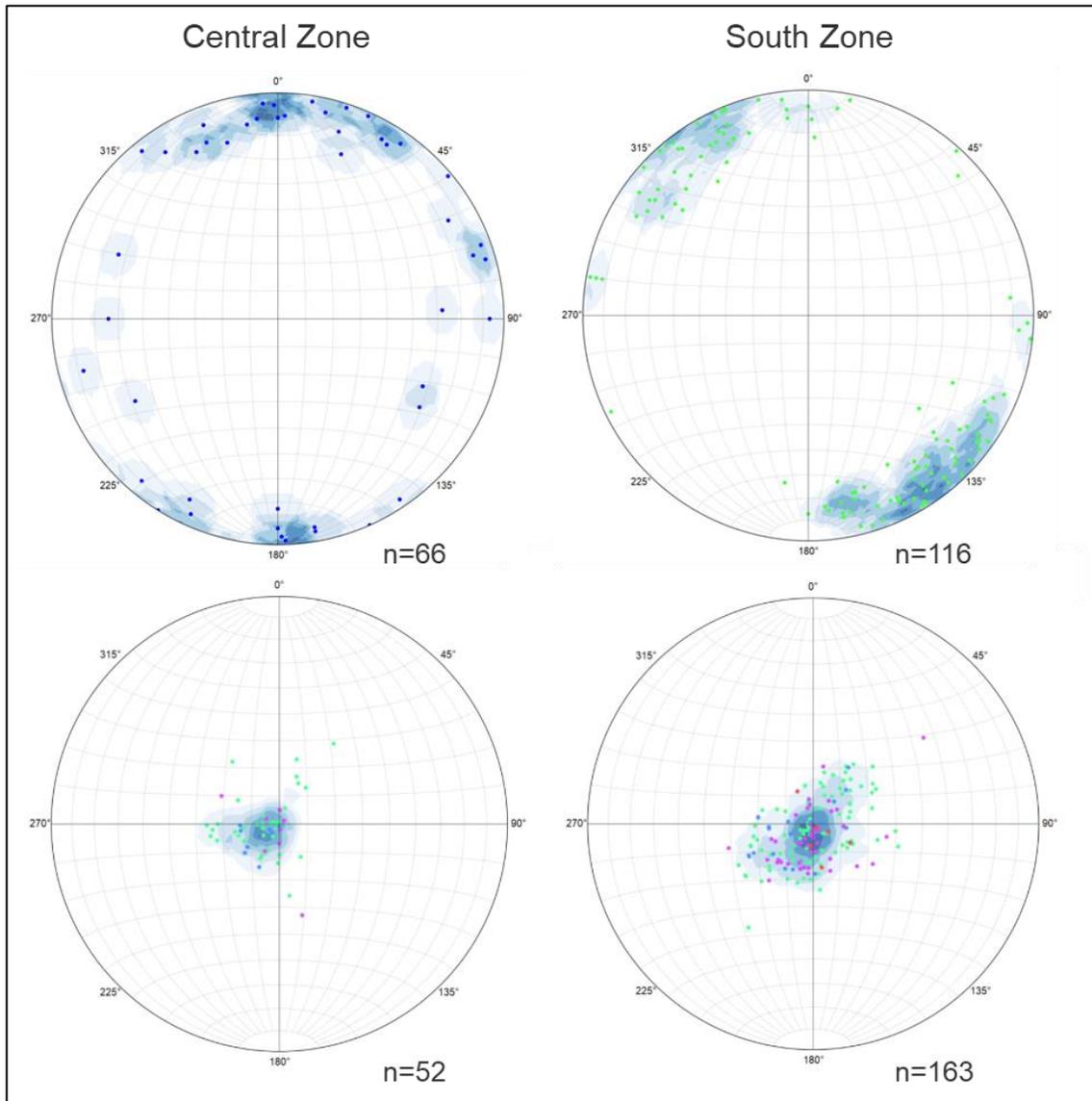


**Figure 9.8 – Distribution and intensity of normative sericite index relative to mineralized zones. Geology from SIGEOM**

## 9.6 Structural Geology Study (2019)

In August 2019, Arnaud Fontaine (geologist-in-training, OGQ) from InnovExplo conducted a structural mapping program over the Property under the supervision of author Stéphane Faure. The goal was to collect detailed structural data in the Central and South Zones in order to better understand the 3D geometry of the planar and linear fabrics, mainly the schistosity and shears that host gold.

A total of 494 structures were measured. They comprised schistositities, fold axes, stretching and mineral lineations, and intersection lineations (Figure 9.9).



Upper stereograms are poles of the dominant planar fabrics (S1 schistosity and shears for the Central Zone; S2 cleavage, schistosity and shears for the South Zone). Lower stereograms are compilation linear fabrics for the Central and South zones (stretching and mineral lineations, S1 and S2 intersections, and fold axes).

**Figure 9.9 – Stereograms of the structural elements in the Central and South zones**

### 9.6.1 Central Zone

The Central Zone crops out at the northern edge of a topographic high. The main penetrative planar fabric is S1 schistosity and ductile shears that trend E-W and dip steeply toward the north or south (Figure 9.9). Shear zones are characterized by mylonites and sericite schists with disseminated sulphides. A NE-SW crenulation cleavage (S2) crosscuts S1. All lineations (mineral lineations, fold axes and S1-S2 intersections) plunge subvertically (Figure 9.9).

### 9.6.2 South Zone

The mineralization and structures are well exposed on the South Zone area. The S1 penetrative schistosity is tightly folded into W-folds with S2 cleavage, yielding F2 fold hinge measurements. The variation in S1 measurements reflect this folding. S2 has a NE-SW trend and dips vertically (Figure 9.9). S2 intensifies in strongly sericitized ductile shear zones ranging from a metre to several metres wide. Shears correlate with the regional Laflamme deformation corridor. All lineations in the South Zone are subvertical (Figure 9.9).

### 9.7 Improved Geological Map (2019)

The results of geochemical and structural studies performed by InnovExplo in 2019 and the airborne Mag and EM survey flown by Geotech in 2018 were used to improve the geological map (Figure 9.10).

The geochemical data was used to identify new small andesitic to basaltic horizons in the felsic volcanics. The geophysical interpretation concentrated on Mag lineaments. Lineaments were interpreted along a major break between two magnetic domains and/or a magnetic high, or as an apparent displacement along a linear series of EM anomalies. Such lineaments are also characterized by a continuous low magnetic trough.

One family of lineaments trends E-W (black dashed-lines on Figure 9.10), parallel to the main schistosity (S1) and to shear zones observed in the Central Zone. The other family of lineaments trends NE-SW (blue dashed-lines on Figure 9.10), parallel to the Laflamme deformation corridor and S2 schistosity, such as the shears observed at the South Zone. Therefore, most lineaments are interpreted as deformation corridors. The crosscutting relationship between the two families is not clear, but they appear to cut across each other and are consequently interpreted as contemporaneous structures. The resulting structural pattern is lozenge-shaped as was proposed by Gauthier (1992).

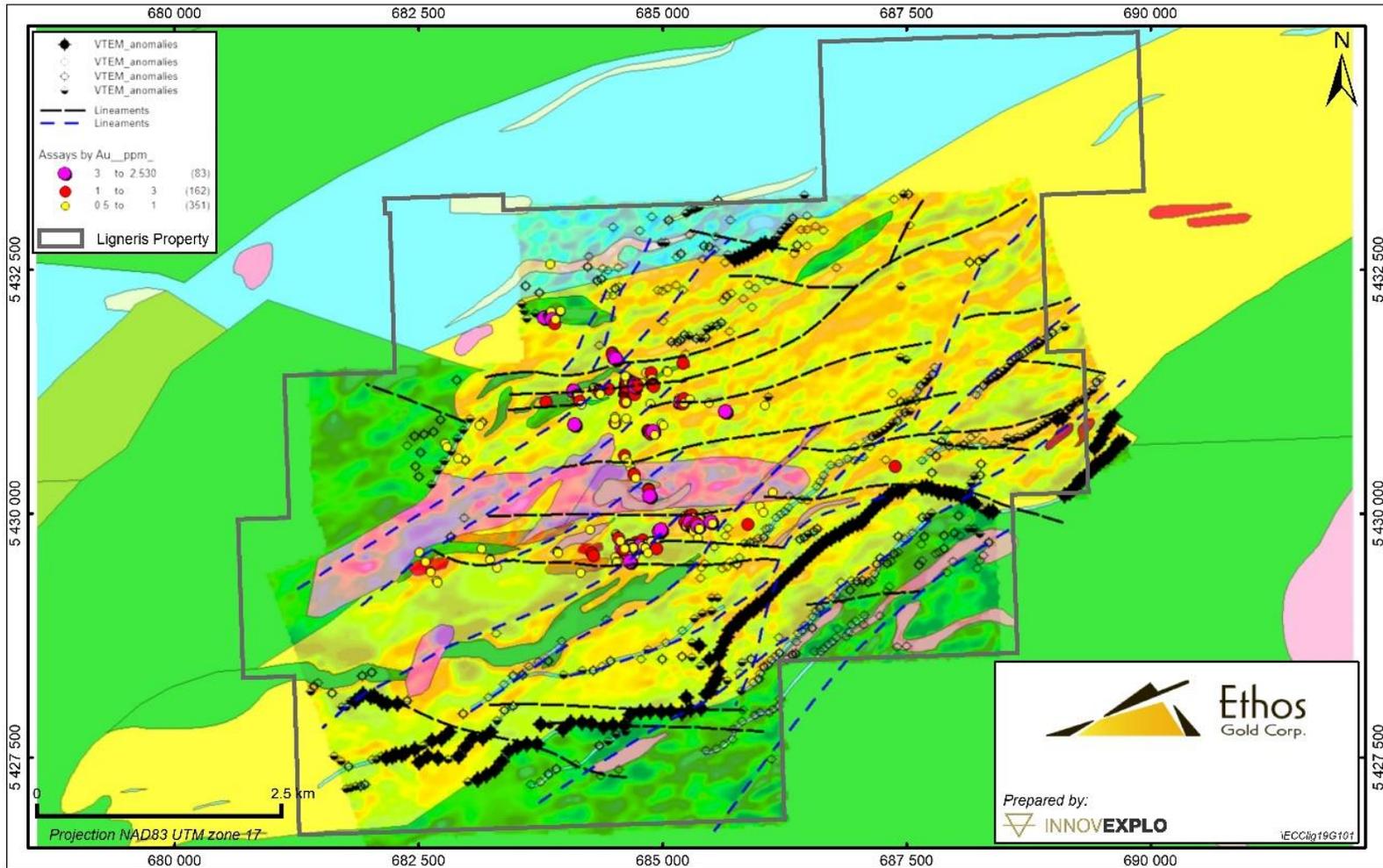
Based on drill hole information, the linear series of VTEM anomalies represent graphitic argillite horizons with or without pyrrhotite. These horizons are intersected by E-W magnetic lineaments.

### 9.8 Conclusions

The years 2018 and 2019 were important for new data acquisition over the Property. The high-resolution airborne Mag and VTEM surveys have enhanced the geological map and identified new possible fault zones along strike of known shears. Isolated groups of VTEM anomalies also represent good drilling targets.

The till survey explained the mineralization of the Central Zone with two samples located down-ice, 2 km to the SSE. One other till sample is considered anomalous with a high normalized count compared to the sample population (n=27). This sample is not located directly down-ice from any known mineral occurrence and is considered an exploration target.

The ground gradient IP survey yielded zones of high chargeability and resistivity that correspond to the Central Zone and another target. The 3D inversion suggested a deep potential for mineralization beneath relatively shallow historical drill holes on the Central Zone.



**Figure 9.10 – New geological map based on geochemical and geophysical interpretations. First derivative of the total magnetic intensity in transparency**

The results of geochemical data processing highlighted alteration corridors that match the trends of geophysical lineaments. They provide new exploration vectors beyond known occurrences of mineralization. The felsic rocks that underlie most of the Property have geochemical characteristics comparable to environments that host gold-rich VMS deposits, such as the world-class LaRonde deposit.

The structural analysis indicates that the volcanic and sedimentary sequences have been tilted vertically by a well-defined penetrative schistosity (S1). S1 was folded by a second event characterized by a vertical cleavage (S2) and shears parallel to the Laflamme deformational corridor. The strong vertical stretching lineation within S1 forms a typical L-S fabric. In such circumstances, mineralized zones may adopt a cigar shape.

## **10. DRILLING**

No recent drilling has been completed by Vior and/or Ethos. This section is not relevant to the present report.

## **11. SAMPLE PREPARATION, ANALYSES AND SECURITY**

No recent assaying has been completed by Vior and/or Ethos. This section is not relevant to the present report.

## 12. DATA VERIFICATION

The Property is at an early exploration stage with no recent drilling. Data verification consisted of a visit to outcrops and stripped areas on the Property, a review of drill core at the core storage facilities, independent sampling of historical drill holes, and a field check of collar locations.

### 12.1 Site visit

Stéphane Faure visited the Property and core storage facilities on July 17 and 18, 2019. He was accompanied by Marc L'Heureux, VP Exploration for Vior. The core storage facility is located at Vior's former Douay Project (now the property of Maple Gold Mines Ltd), 120 km north of Amos.

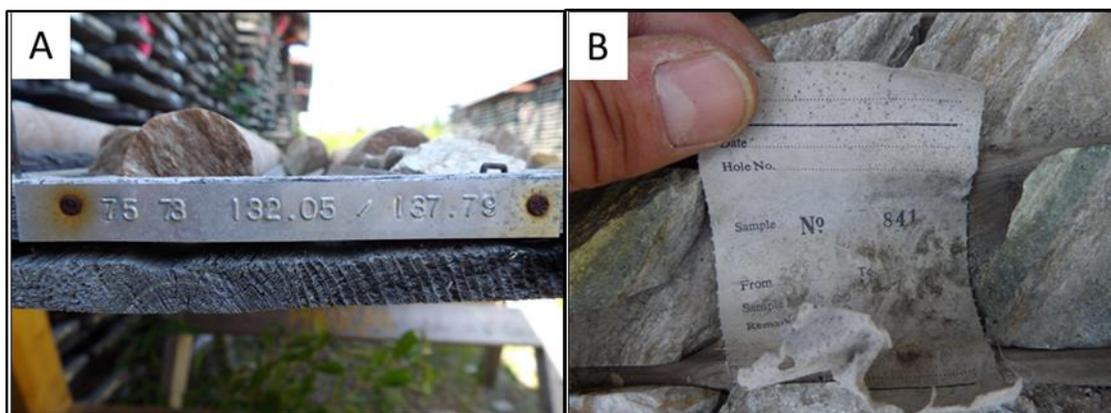
The Property visit focused on an overview of mineralized zones in the Central and South Zones, collecting grab samples in the field to validate the presence of mineralization, as well as the validation of drill hole collar positions with a hand-held GPS.

### 12.2 Independent core sampling

InnovExplo reviewed core while visiting the core storage facilities. The core boxes are stored outside in racks with other drill core from the Douay Project. Only drill core from 36 drill holes out of a total of 208 drill holes are still on site, the rest of the drill core was discarded by previous exploration companies in mid-1990s. Only some of the core from these 36 DDH has been preserved. Many high-grade intervals are missing. Some boxes are in poor condition. However, the author was able to examine and sample mineralized intervals from the Central and South zones.

Wooden core boxes are properly labelled with aluminium tags indicating the drill hole number and the from-to depths (Figure 12.1). There is no sample tag present in the boxes for the drill hole series beginning with 275-. This is a major issue for resampling, but it is believed that it was a common practice at that time. Therefore, it was not possible to validate most of the sample numbers. However, the wooden blocks placed at the beginning and end of each drill run are still present and most match the footage indicated on the boxes.

InnovExplo selected representative mineralized zones and collected eight (8) samples for independent assaying (Table 12.1). The historical samples left in the boxes were half- or quarter-split by a semi-mechanical core splitter (Figure 12.2). Therefore, all the remaining core chips were sampled by InnovExplo. These samples were placed in plastic bags, sealed with plastic zip ties and packed in rice bags. The samples were transported by author Stéphane Faure to InnovExplo's office in Val-d'Or, and then brought to the ALS laboratory in Val-d'Or. The ALS assay certificate, sampling preparation, and analytical procedures are presented in Appendix II.



**Figure 12.1 – Photograph showing label on the side of the core box, hole 275-73 (A) and a sample tag from Vior’s hole L-9 (B)**



**Figure 12.2 – Independent core sampling by InnovExplo, hole 275-52 (samples K504252 and K504253 in white)**

Table 12.1 shows the results of InnovExplo’s independent assaying. The results of the check are in part consistent with the original data (GM-41991, GM-45463 and GM-49206) and are believed to be representative of the historical values. Two samples returned higher grades (samples K504251 and K504253) and two samples are within a reasonable range equivalent grade (samples K504252 and K504258). The other half of the samples returned lower gold grade than the original assays.

**Table 12.1 – Results of Original Assays Compared to InnovExplo’s Independent Sampling – Ligneris Project**

Zone	Drill Hole	From (m)	To (m)	Interval (m)	Sample no	Au (ppm)	InnovExplo sample	Au (ppm)
South	275-073	136.4	137.0	0.6	46625	4.05	K504251	8.73
	275-052	273	274	1	43261	3.6	K504252	2.51
	275-052	275	276	1	43263	7.15	K504253	7.35
	LS-05	220.3	221.8	1.5	1957	15.0	K504254	2.79
	275-100	85.6	86.0	0.4	14689	7.0	K504257	0.031
	275-89A	138	139.5	1.5	12896	4.05	K504258	2.67
Central	L-9	97.8	98.8	1	847	6.0	K504255	0.078
	275-049	169.1	170.6	1.5	44695	8.4	K504256	0.029

The author believes the core duplicate results from the independent resampling program are in part reliable, consistent with the database, and valid for a gold project at an exploration stage. The reason for the large difference in half of the sample results may be due to the nugget effect and/or the fact that the intervals analyzed by InnovExplo do not match the original intervals due to the absence of sample tags in the boxes.

### 12.3 Independent grab samples

During the site visit, InnovExplo collected six (6) grab samples to verify the presence of gold and base metal mineralization in the Central and South Zones. Samples were chosen in highly altered sericitic shears or in rich sulphide horizons (Figure 12.3).

Table 12.2 shows the results of independent assaying. One sample in the Central Zone (sample K504261) shows high gold, copper and zinc content. The remaining samples range between 0.066 and 0.352 ppm gold indicating a systematic background level of precious metals over the known mineralized zones.



**Figure 12.3 – Grab sample analyzed by InnovExplo to verify gold and base metal contents in the Central Zone during the site visit (Sample K504261)**

**Table 12.2 – Independent Sampling Results for Grab Samples Collected in Mineralized Zones – Ligneris Project**

Zone	Sample	Easting	Northing	Au (ppm)	Ag (ppm)	Cu (ppm)	Zn (ppm)
Central	K504259	684461	5431213	0.211	3.9	18	26
	K504260	684654	5431308	0.352	23.9	965	100
	K504261	684687	5431335	11.65	131	1710	>10000
South	K504262	684705	5429647	0.199	0.8	58	112
	K504263	684622	5429701	0.167	0.5	13	44
	K504264	684665	5429742	0.066	2.4	194	1760

#### 12.4 Drill hole Location Check

The drill hole collars over the Project have never been professionally surveyed. Collars were positioned relative to exploration grids by georeferencing scanned maps from original documents (SIGEOM). InnovExplo checked the location of five (5) drill hole collars with a portable GPS (Table 12.3 and Figure 12.4). These checks did not reveal any location issues for a project at the exploration stage; all results were within the

expected precision, except for one hole (275-099). The direction and dip of the holes are also consistent with the database.

**Table 12.3 – Original collar surveys compared to InnovExplo’s checks – Ligneris Project**

Hole ID	Original collar		InnovExplo GPS survey			Difference in meter	
	Easting	Northing	Easting	Northing	Precision (±m)	Easting	Northing
275-001	684595	5431188	684590	5431180	4	5	8
275-012	684595	5431213	684584	5431206	6	11	7
275-017	684511	5431034	684505	5431035	6	6	1
275-099	684675	5429638	684704	5429654	5	29	16
L-9	684711	5431373	684706	5431363	4	5	10



**Figure 12.4 – Photograph showing the GPS used to verify the location of a drill collar during the site visit – Hole 275-12 (drilled in 1985)**

## 12.5 Conclusion

Based on the results of the verification process, InnovExplo is of the opinion that the available information is accurate enough and sufficiently valid to advance the Project to the exploration stage.

**13. MINERAL PROCESSING AND METALLURGICAL TESTING**

This section is not relevant to the present report.

**14. MINERAL RESOURCE ESTIMATES**

This section is not relevant to the present report.

**15. MINERAL RESERVE ESTIMATES**

This section is not relevant to the present report.

**16. MINING METHODS**

This section is not relevant to the present report.

**17. RECOVERY METHOD**

This section is not relevant to the present report.

**18. PROJECT INFRASTRUCTURE**

This section is not relevant to the present report.

**19. MARKET STUDIES AND CONTRACTS**

This section is not relevant to the present report.

**20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT**

This section is not relevant to the present report.

**21. CAPITAL AND OPERATING COSTS**

This section is not relevant to the present report.

**22. ECONOMIC ANALYSIS**

This section is not relevant to the present report.

### **23. ADJACENT PROPERTIES**

There are no known mineral deposits on properties immediately adjacent to the Property (Figure 23.1), although there are some mineralized occurrences in a similar environment approximately 5 km from the Property limit. The adjacent properties are all at an early exploration stage, and most of them have been drilled (Madex Exploration Inc., Greg Exploration Inc., Osisko Mining Inc., Tony Perron, and others). Mineralization on the adjacent properties consists mainly of gold-bearing quartz veins or pyrite disseminations related to shear zones (Table 23.1).

The information presented above and in Table 23.1 was obtained from the public domain and has not been verified by InnovExplo. The gold occurrences on adjacent properties are not necessarily indicative that the Property host similar types of mineralization.

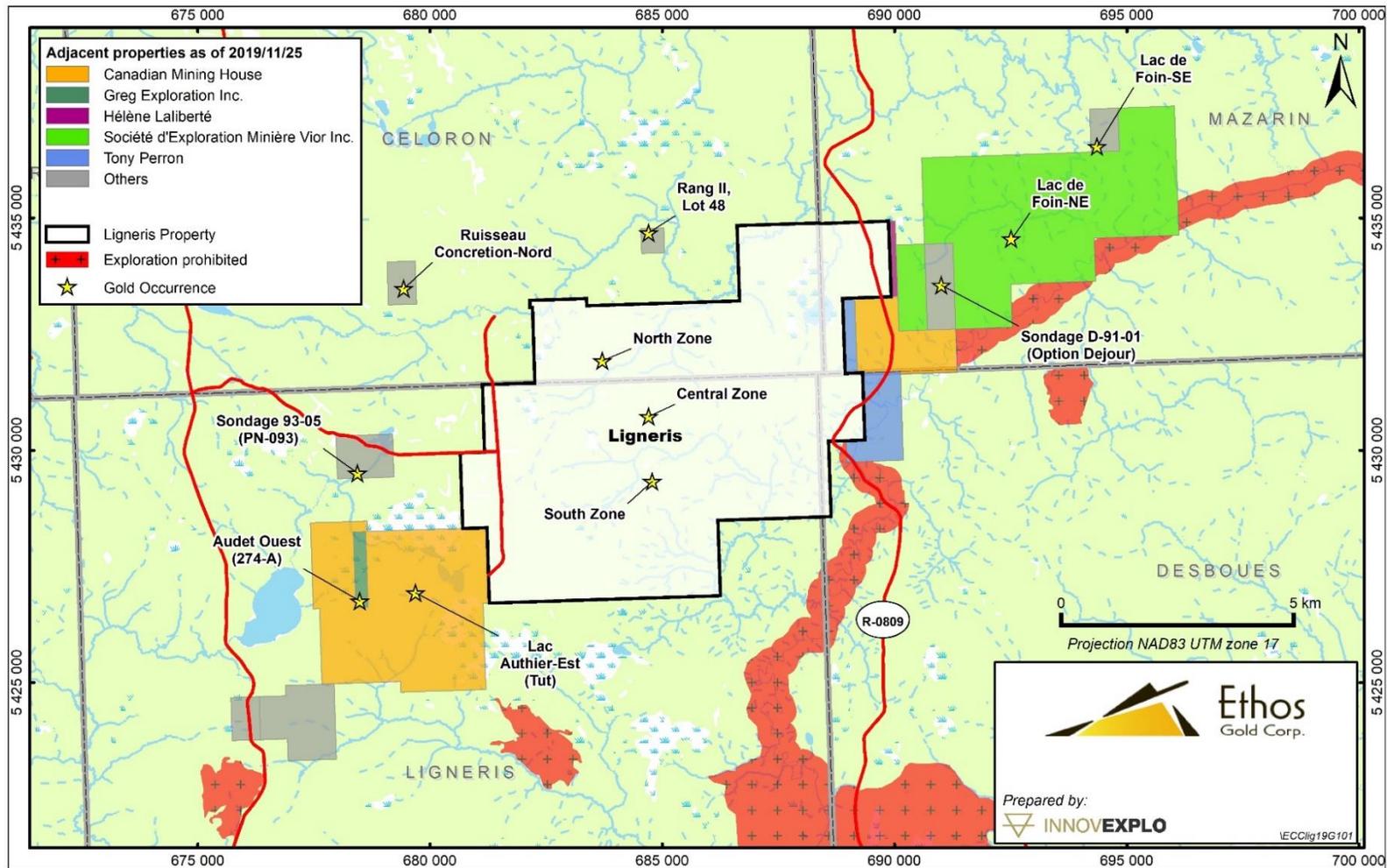


Figure 23.1 – Adjacent properties to Ligneris

**Table 23.1 – Adjacent Properties mineralized occurrences**

Mineralized occurrences	Location in relation to Property	Year of discovery	Owner	Type	Mineralization type	Results
Audet Ouest (274-A)	Southwest	1990	Greg Exploration Inc	Outcrop	Quartz veins intersect rocks of basaltic composition.	3.55 g/t Au over 0.50 m (Channel A24040, GM 49575) ; 1.55 g/t Au and 1.35 g/t Au (Grab sample A24032 and A24022, GM 49575).
Lac Authier-Est (Tut)	Southwest	1945	Canadian Mining House	Outcrop	Mineralization is associated with sub horizontal veins and quartz clusters located in shear zones.	GM 59075: 1.6 g/t Au grab sample (RD-TUT 12087). GM 48776 : 4 DDH on the main area, in brechified QZ veins with 2-8 % Py: 4.81 g/t Au over 1.97 m (drill hole 73-12); 3.72 g/t Au over 1.10 m (drill hole 73-11); 5.98 g/t Au over 0.60 m (drill hole 73-10); 0.88 to 29.0 g/t Au over short sections (Dome Mines Ltée., 1945). GM 69948: Grab sample de 1986 yielded 2.19 ppm Au (sample. #1512); 2.48 ppm Au (#1525); 2.03 ppm Au (#1534); 1.42 ppm Au (#1542); 3.32 ppm Au (#1547) and 1.82 ppm Au (#1548).
Sondage D-91-01	Northeast	1991	Glenn Griesbach	Drill hole	Mineralization is composed of scattered Py.	4,35 g/t Au and 6,9 g/t Ag over 1,5 m (drill hole D-91-01, GM 51214).
Lac de Foin-NE	Northeast	1989?	Vior*	Trench	Mineralization is composed of scattered Py.	1,0 g/t Au (sample 6540, trench #2, GM 49438).
Lac de Foin-SE	Northeast	1987?	Vior*	Drill hole	Horizon of sheared volcanic rock, scattered Py.	1,5 g/t Au over 0,40 m (Sample RX080740; drill hole 76102; GM 44459).
Sondage 93-05 (PN-093)	West	1990	Glenn Griesbach	Drill hole	Quartz veins intersect rocks of volcanic massive (probable andesitic) composition.	1,09 g/t Au over 1,0 m (Sample 14151, drill hole 93-05, GM 49418).
Ruisseau Concretion-Nord	Northwest	1990	Glenn Griesbach	Drill hole	Mineralization is associated with veins quartz carbonate.	1,06 g/t Au over 0,95 m (drill hole 224B-01, GM 49576).
Rang II, lot 48	North	1987?	Glenn Griesbach	Drill hole	Mineralization is composed of scattered Py.	2,35 g/t Au over 1,49 m (drill hole 276-8, GM 47998, GM 49577).

\* As of August 30, 2019 part of the Ligneris Property (Claim Block II)

## 24. OTHER RELEVANT DATA AND INFORMATION

This section is not relevant to the present report.

## 25. INTERPRETATIONS AND CONCLUSIONS

InnovExplo's mandate was to prepare a Technical Report for the Property and to present the results of geochemical, geophysical, structural and geological interpretations. This report meets those objectives.

InnovExplo conducted a site visit that included, among other things, validation of the Property's mineralization and a review of geological information provided by the issuer or obtained from public sources.

InnovExplo believes that the Property is underexplored. Previous work on the Property has been mostly limited to the North, Central, and South zones. Many historical gold and zinc intercepts are of economic interest. They need to be confirmed by future drilling programs. Elsewhere on the Property, reconnaissance drilling has been carried out in selected areas on geophysical targets.

The potential at depth has not been investigated. Most of the historical drill holes do not reach more than 300 m vertical depth. Future drilling targets should take into account that the most likely geometry for a mineralized body is a subvertical cigar shape stretched parallel to the lineations.

The geological setting of the Property is highly favourable for Au-rich VMS deposits as well as shear zone-hosted orogenic gold. The intense sericite, carbonate, quartz and chloritoid alteration reflects the favorable context for VMS. The metal association (Au-Ag-Cu-Zn) is comparable to that of the mineralization found in the Doyon-Bousquet-LaRonde mining camp in the southern Abitibi greenstone belt. The Central and South zones on the Project are hosted in east-west and northeast-southwest shear zones several metres wide. Based mainly on geophysical interpretations, several untested shear zones with similar trends cross the Property.

The potential for additional mineralized lenses should be assessed by modern exploration methods, such as geophysics, coupled with structural interpretations and directional drilling, particularly in areas of thick glacial cover. The exploration budget proposed in Item 26 is considered reasonable to reach this objective.

### 25.1 Risks and Opportunities

Table 25.1 identifies the significant internal risks, potential impacts and possible risk mitigation measures that could affect the economic outcome of the Project. The list does not include the external risks that apply to all mining projects (e.g., changes in metal prices, exchange rates, availability of investment capital, change in government regulations, etc.). Significant opportunities that could improve the economics of the project are identified in Table 25.2. Further information and study are required before these opportunities can be included in the project economics.

**Table 25.1 – Risks for the Ligneris Property**

RISK	Potential Impact	Possible Risk Mitigation
Geological model	Geological complexity: the mineralized system has been affected by shearing, folding, and two phases of deformation, potentially decreasing the continuity of mineralization.	Infill drilling to improve confidence of continuity of mineralization. Acquire structural measurements in drill holes with a core orientation system for 3D structural analysis.
Social acceptability/ Community support	Possibility that the Property could not be explored or exploited.	Develop a proactive and transparent strategy to identify all stakeholders and develop a communication plan. Organize information sessions, provide information on the Project, and meet with host communities.

**Table 25.2 – Opportunities for the Ligneris Property**

OPPORTUNITY	Explanation	Potential Benefit
3D modelling	Integrate all geological and geophysical information in a 3D model. Potential to discover trends or clusters of mineralization.	Better understanding of the distribution of mineralized zones and structures.
Surface exploration: till sampling	Potential to identify and delineate mineralization and metal zonation.	Higher confidence in potential drill targets and thus better chances of discovering mineralization.
Surface exploration: diamond drilling	Potential to extend known mineralization and to identify new mineralization.	Discovery of new mineralization.
Borehole geophysics	Potential to identify mineralization at depth.	Improved confidence in potential drill targets and thus better chances of discovering mineralization.

## 26. RECOMMENDATIONS

InnovExplo recommends focusing future work on improving the geological knowledge of the Property at the exploration stage. Additional exploration/delineation drilling and further geological and structural interpretation would provide a better understanding of the mineralization.

InnovExplo recommends completing the permitting already underway and continuing the community outreach program.

### 26.1 Geology

Due diligence and QA/QC on the historical drill holes database (collar location, deviation, assays) is recommended. This would be accomplished by returning to the original documents stored in SIGEOM and filling missing major and secondary unit intervals to complete the database.

Digitizing all historical geophysical anomalies is also recommended to complete the geological interpretation.

The geological map and 3D geological model can be improved. The current geological map of the Property does not consider all the lithologic and structural information obtained by drilling. A 3D compilation project is recommended to integrate all previous exploration work and results on the Property (drilling, sampling, geochemistry, geophysics, etc.). The volume of the principal geological units, deformation corridors and mineralized lenses should be modelled in 3D.

The amount of information on structural features significantly affects the interpreted geometry of the mineralized zones. Therefore, it is important to improve the understanding of all structural features and their impacts. The timing between mineralization, schistosity, and the other phases of deformation should be better evaluated. This would also help identify additional targets on the Property.

The till survey showed that till sampling can be an effective method in the southern part of the Property despite the complex glacial history. Further sampling to provide property-wide coverage is recommended.

### 26.2 Exploration Drilling Program

InnovExplo recommends the two-phased program described below in which Phase II is contingent upon the success of Phase I.

#### Phase I – Compilation Study and Exploration Work

The objective of the maiden exploration drilling program would be to continue investigating untested gold targets along potential lateral and depth extensions in the North, Central and South zones. Approximately 3,500 m should be dedicated to this purpose.

A large part of the Property is underexplored. The new geological interpretation and recent geophysical surveys have generated many geophysical and geological targets. These targets warrant follow-up. Approximately 3,000 m should be dedicated to this purpose.

The high-chargeability domains identified by the 2019 IP survey should be tested at depth below the Central and South zones and in other locations where

chargeability/resistivity responses are positive. The recommendation is four (4) diamond drill holes with borehole time domain electromagnetic (TDEM) surveying.

Future drill core samples should be analyzed using a complete high-quality geochemical package (four-acid digestion) for lithochemical characterization. The samples should also be analyzed for Au, as well as Ag, Cu, Zn; these elements are good indicators of metal zonation around a potential VMS deposit and may eventually be of interest as by-products to gold and for metallurgical tests.

The use of a core orientation device is recommended for 3D structural analysis, especially below the Central and South zones.

#### Phase II –Exploration and Follow-up Drilling Program

A provision of 8,000 m of additional drilling is recommended in Phase II should Phase I drilling be successful. Many lower-priority geophysical targets could be tested during this phase.

### 26.3 Cost Estimate for Recommended Work

InnovExplo has prepared a cost estimate for the recommended two-phase work program to serve as a guideline. The budget for the proposed program is presented in Table 26.1.

Expenditures for Phase I are estimated at CAD 1,620,000 (incl. 15% for contingencies). Expenditures for Phase II are estimated at CAD 1,890,000 (incl. 15% for contingencies). The grand total is CAD 3,510,000 (incl. 15% for contingencies).

**Table 26.1 – Estimated Cost for the Recommended Work Program**

Phase I –Compilation Study and Exploration Work	Budget	
	Description	Cost (CAD)
1- QA/QC on database and 3D geological model	-	30,000
2- Exploration drilling	6,500 m	1,300,000
3- Borehole geophysics (TDEM survey)	4 holes	40,000
4- Till survey	30 samples	40,000
<i>Contingencies (~15%)</i>		210,000
Total Phase I		1,620,000
Phase II – Exploration and Follow-up Drilling	Budget	
	Description	Cost (CAD)
1- Exploration drilling	3,000 m	600,000
2- Follow-up drilling	5,000 m	1,000,000
3- Borehole geophysics TDEM survey	4 holes	40,000
<i>Contingencies (~15%)</i>		250,000
Total Phase II		1,890,000
<b>Total Phase I + II</b>		<b>3,510,000</b>

InnovExplo is of the opinion that the recommended two-phase work program and proposed expenditures are appropriate and well thought out, and that the character of the Project is of enough merit to justify the recommended program. InnovExplo believes that the proposed budget reasonably reflects the type and the amount of contemplated activities.

## 27. REFERENCES

- Allard, G, Deschenes, P L, 2015. Révision de la géologie de la région de la rivière Wawagasic (Parties des SNRC 32D15 et 32E02). Ministère de l'Énergie et des Ressources naturelles du Québec. (SIGÉOM: RP 2014-04), 22 pages.
- Allard, G, Deschenes, P L, 2014. Geological revision of the riviere Octave region (NTS 32D16 and 32E01). Ministère de l'Énergie et des Ressources naturelles du Québec. (SIGÉOM: RP 2014-02-A), 1 page.
- Audet, A, D'Entremont, J F, 1985. Journaux de sondage, Projet 275, Propriété Vior. Mines Sigma [Quebec] Ltee. (SIGÉOM: GM 44211), 359 pages and 1 plan.
- Audet, A, Hallof, P G, 1985. Levé de polarisation provoquée, Projet Domex No. 275, 276, 274, 244 B. Val d'Or Géophysique Ltee. (SIGÉOM: GM 42523), 122 pages and 242 plans.
- Augland, L.E. et al., 2016. Datations U-Pb dans les provinces de Churchill et du Supérieur effectuées au GEOTOP en 2012-2013. Ministère de l'Énergie et des Ressources Naturelles, Québec; RP 2015-01, 43 pages.
- Ayer, J., Amelin, Y., Corfu, F., Kamo, S., Ketchum, J.F., Kwok, K., and Trowell, N.F., 2002a, Evolution of the Abitibi greenstone belt based on U-Pb geochronology: Autochthonous volcanic construction followed by plutonism, regional deformation and sedimentation: *Precambrian Research*, v. 115, (pp. 63–95).
- Babin, S, Chevalier, P, 1987. Journal de sondage, propriété 275 Vior. Mines Sigma [Quebec] Ltee. (SIGÉOM: GM 45463), 650 pages and 1 plan.
- Bateman, R., Ayer, J.A., and Dubé, B., 2008, The Timmins-Porcupine gold camp, Ontario: Anatomy of an Archean greenstone belt and ontogeny of gold mineralizations. *Economic Geology*, v. 103, (pp. 1285–1308).
- Benn K, Peschler A. 2005. A detachment fold model for fault zones in the Late Archean Abitibi greenstone belt. *Tectonophysics* 400(1–4): (pp. 85-104).
- Benn, K., Miles, W., Ghassemi, M. R., Gillet, J., 1994. Crustal structure and kinematic framework of the north-western Pontiac Subprovince, Québec: an integrated structural and geophysical study. *Canadian Journal of Earth Sciences*, Vol. 31, (pp. 271-281).
- Bernier, C, Magnan, M, 1997. Rapport d'évaluation de la Propriété Ligneris. Barrick Gold Corporation. (SIGÉOM: GM 55539), 825 pages and 1 plan.
- Berrada Hmima, S., 1994. Étude minéralogique et géochimique de la zone minéralisée de Vior, canton de Lignéris, Abitibi, Québec. École polytechnique de Montréal, Montréal, Québec; Master thesis, 152 pages.
- Boivin, D, Lafleur, J, 1990. Rapport des résultats de la campagne de forages, Hiver 1990, propriété Audet Ouest et Est (274-A, 274-B). Placer Dome Inc. (SIGÉOM: GM 49575), 46 pages and 7 plans.
- Boivin, D, Lafleur, J, 1990. Rapport des résultats des campagnes de forages, Automne 1989 et Hiver 1990, Projet Vior (275). Placer Dome Inc. (SIGÉOM: GM 49578), 224 pages and 42 plans.

- Chartre, E, 1975. Verification geophysical surveys. Services Explo Enrg. (SIGÉOM: GM 32055), 4 pages and 2 plans.
- Chartre, E, 1975. Verification geophysical surveys. Services Explo Enrg. (SIGÉOM: GM 32054), 5 pages and 2 plans.
- Chown, E. H., Daigneault, R., Mueller, W., and Mortensen, J., 1992. Tectonic evolution of the Northern Volcanic Zone of Abitibi Belt. *Canadian Journal of Earth Sciences*, v. 29, (pp. 2211-2225).
- Daigneault, R., Mueller, W.U., Chown, E.H., 2004. Abitibi greenstone belt plate tectonics: the diachronous history of arc development, accretion and collision. In Eriksson, P.G., Altermann, W., Nelson, D.R., Mueller, W.U., Catuneanu, O. (Eds.). *The Precambrian Earth: Tempos and Events, Series: Developments in Precambrian geology*, vol. 12, Elsevier, pages. 88–103.
- Couture, J.-P, Pilote, P., Machado, N., and Desrocher, J.-P., 1994. Timing of gold mineralization in the Val d'Or district, Southern Abitibi belt: Evidence for two distinct mineralizing events. *Economic Geology*, v. 89, (pp. 1542–1551).
- Daigneault, R., Mueller, W.U., Chown, E. H., 2002. Oblique Archean subduction: accretion and exhumation of an oceanic arc during dextral transpression, Southern Volcanic Zone, Abitibi Subprovince, Canada. *Precambrian Research* 115: (pp. 261-290).
- Davis, W.J., Machado, N., Gariépy, C., Sawyer, E.W., and Benn, K., 1995. U-Pb geochronology of the Opatoca tonalite-gneiss belt and its relationship to the Abitibi greenstone belt, Superior Province, Québec. *Canadian Journal of Earth Sciences*, 32, (pp. 113-127).
- Denomme, E, 1973. Rapport géophysique, Projet Octave 11-429-14. SOQUEM. (SIGÉOM: GM 28968), 6 pages and 5 plans.
- D'Entremont, J F, 1986. Journal de sondage, propriété 274B. Mines Sigma [Quebec] Ltee. (SIGÉOM: GM 45224), 8 pages and 1 plan.
- Dimroth, E, Imrech, L., Rocheleau, M., Goulet, N., 1983. Evolution of the south-central part of the Archean Abitibi Belt, Quebec. Part III: plutonic and metamorphic evolution and geotectonic model. *Canadian Journal of Earth Sciences*, Vol. 20, (pp. 1374-1388).
- Dubé, B., and Gosselin, P., 2007, Greenstone-hosted quartz-carbonate vein deposits, in Goodfellow, W.D., ed., *Mineral Deposits of Canada: A Synthesis of Major Deposit-Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods: Geological Association of Canada, Mineral Deposits Division, Special Publication No.5*, p. 49-73.
- Faure, S. 2015. Relations entre les minéralisations aurifères et les isogrades métamorphiques en Abitibi. Rapport CONSOREM Projet 2013-03, 52 p. ([www.consorem.ca](http://www.consorem.ca)).
- Flawn, J G, Lauzier, G, 1976. Report on geological survey, Ligneris-02 Project 728-05. Amax Minerals Exploration. (SIGÉOM: GM 32559), 14 pages and 1 plan.
- Franklin, J.M. 1997. Lithogeochemical and Mineralogical Methods for Base Metal and Gold Exploration. In "Proceedings of Exploration 97: Fourth Decennial

- International Conference on Mineral Exploration” edited by A.G. Gubins, 1997, p. 191–208.
- Gaboury, D., and Pearson, V. 2008. Rhyolite Geochemical Signatures and Association with Volcanogenic Massive Sulfide Deposits: Examples from the Abitibi Belt, Canada. *Economic Geology*, v. 103, p. 1531-1562
- Gagné, M. R., and Masson, J., 2013. A Step Forward! An Act to Amend the Mining Act (2013 S.Q., c. 32). *Mining Bulletin*. Fasken Martineau. 7 pages.
- Gagnon, M. and Fournier, V., 2012. Caractérisation des rejets en vue de la restauration, Mines d’Or Wesdome – Complexe minier Kiena. Rapport # RM4131-000-RE-01. Stavibel, 9 pages and appendices.
- Galley, A.G., Hannington, M.D., and Jonasson, I., 2007, Volcanogenic massive sulphide deposits, in Goodfellow, W.D., ed., *Mineral Deposits of Canada: A Synthesis of Major Deposit-Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods*: Geological Association of Canada, Mineral Deposits Division, Special Publication No.5, p. 141-162.
- Gaucher, E, Theriault, G, 1970. Rapport gravité, Projet 11-429, Sous-Projet 02-05-08. SOQUEM. (SIGÉOM: GM 25681), 1 page and 1 plan.
- Gauthier, L, 1992. Contexte géologique et processus de mise en place de la minéralisation aurifère du gîte de Lignéris, Abitibi, Québec. Université de Montréal, Master thesis, 58 pages.
- Geological Survey of Canada (GSC), Virginia Inc. and Noranda Exploration, 2009. Levé électromagnétique aérien Megatem II en Abitibi. Published by Ministère des Ressources naturelles et de la Faune, Québec; DP 2008-41, 6 pages, 112 plans and numeric data.
- Geotech, 2018. Report on a Helicopter-Borne Versatile Time Domain Electromagnetic (VTEM™ Plus) and Horizontal Magnetic Gradiometer Geophysical Survey. Geotech Ltd., 58 p.
- Girard, R., and Villeneuve, 2019. Till sampling survey, Ligneris Property, Abitibi-Témiscamingue Area, Québec. 214 p.
- Glackmeyer, K, 1977. Magnetometric and horizontal loop, electromagnetic surveys, Project 728 - Group 05. Karl Glackmeyer & Associates Limited. (SIGÉOM: GM 32941), 8 pages and 2 plans.
- Goutier, J., and Melançon, M., 2007, *Compilation géologique de la Sous-province de l’Abitibi (version préliminaire)*: Ministère des Ressources naturelles et de la Faune du Québec.
- Goutier, J., 1997, *Géologie de la région de Destor*: Ministère des Ressources naturelles du Québec 37 pages. RG 96-13.
- Guzon, V., 2012. Mining Rights in the Province of Quebec. *Blakes Bulletin Real Estate – Mining Tenures July 2012*. Blake, Cassels & Graydon LLP. 7 pages.
- Hocq, M., 1981. Carte géologique préliminaire de la région de Joutel-Guyenne (comtés d’Abitibi-Est et d’Abitibi-Ouest). Ministère de l’Énergie et des Ressources, Québec; DP 851, 1 plan.

- Hocq, M., 1982. Projet Joutel-Quévillon, région du Lac Bigniba. Ministère de l'Énergie et des Ressources, Québec; DP-82-05,1 plan.
- Hocq, M., 1983. Région de la rivière Gale. Rapport d'étape des travaux en cours à la division du Précambrien. Ministère de l'Énergie et des Ressources, Québec; et 82-01, (pp. 207-250).
- Holub, M, Lavoie, C, 1971. Résumé des travaux a date et résultats des sondages. SOQUEM. (SIGÉOM: GM 26712), 28 pages and 4 plans.
- Jolly, W. T., 1978. Metamorphic history of the Archean Abitibi Belt. In *Metamorphism in the Canadian Shield*. Geological Survey of Canada, Paper 78-10, (pp. 63-78).
- Keating, P., D'Amours, I., 2010. Réédition des données numériques en format geosoft des levés aéroportés de l'Abitibi, au Québec. Ministère des Ressources naturelles et de la Faune, Québec; DP 2010-09, 6 pages and numeric data.
- Lafleur, J, Simoneau, J, 1989. Les campagnes de forages Automne 1988 et Hiver 1989, Projet 275 - propriété Ligneris. Placer Dome Inc. (SIGÉOM: GM 49206), 407 pages and 36 plans.
- Laliberte, P, Mazoue, L, 1997. Plans de la propriété Ligneris. Barrick Gold Corporation. (SIGÉOM: GM 69463), 11 plans.
- Lambert,G, Turcotte, R, 1989. Levés électromagnétiques PEM, Projet Vior #275. Val d'Or Géophysique Ltee. (SIGÉOM: GM 49564), 24 pages and 2 plans.
- Lambert,G, Turcotte, R, 1988. Levé de polarisation, Projet #275. Val d'Or Géophysique Ltee. (SIGÉOM: GM 48369), 12 pages and 84 plans.
- Lambert,G, Turcotte, R, 1988. Levé de polarisation, Projet #275. Val d'Or Géophysique Ltee. (SIGÉOM: GM 48221), 13 pages and 153 plans.
- Laroche, P, Lavoie, C, 1970. Rapport géophysique et géologique, Projet Octave. SOQUEM. (SIGÉOM: GM 26711), 8 pages and 2 plans.
- Lavoie, C, 1984. Levés électromagnétique, magnétique et de polarisation provoquée, Projet Ligneris. Géola LTEE. (SIGÉOM: GM 41992), 26 pages and 50 plans.
- Lavoie, C, Plante, L, 1988. Levés géophysiques - MAG + TBF, Projet # 275. Géola LTEE. (SIGÉOM: GM 48157), 19 pages and 15 plans.
- Leshner, C..M, Goodwin, A.M., Cambell, I.H., and Gorton, M.P., 1986. Trace-element geochemistry of ore-associated and barren, felsic metavolcanic rocks in the Superior Province, Canada. *Can. J. Earth Sci.* 23: 222-237.
- L'Heureux, M, Legouix, C, 2014. Rapport de travaux, Programme d'exploration Novembre 2013, Projet Ligneris. Société d'Exploration minière Vior Inc. (SIGÉOM: GM 68591), 74 pages and 1 plan.
- Mercier, P E, Ouellette, J F, 2013. Rapport de travaux, Programme d'exploration Octobre et Novembre 2012, Projet Ligneris. Société d'Exploration minière Vior Inc. (SIGÉOM: GM 67623), 80 pages and 1 plan.
- Mercier-Langevin, P., Hannington, M.D., Dubé, B., Piercey, S.J., Peter, J.M., and Pehrsson, S.J., 2015. Precious metal enrichment processes in volcanogenic massive sulphide deposits — A summary of key features, with an emphasis on

- TIGI-4 research Contributions, In: Targeted Geoscience Initiative 4: Contributions to the Understanding of Volcanogenic Massive Sulphide Deposit Genesis and Exploration Methods Development, (ed.) J.M. Peter and P. Mercier-Langevin; Geological Survey of Canada, Open File 7853, p. 117–130.
- Mueller, W. U., Daigneault, R., Mortensen, J, Chown, E. H., 1996a. Archean terrane docking: upper crust collision tectonics, Abitibi Greenstone Belt, Québec, Canada. *Tectonophysics* 265, (pp. 127-150).
- Parent, D, 1947. Report on a geophysical survey. Quebec Gold Mining Corp. (SIGÉOM: GM 00226), 4 pages and 1 plan.
- Powell, W. D., Carmichael, D. M., and Hodgon, C. J., 1993. Thermobarometry in a subgreenschist to greenschist transition in metabasite of the Abitibi greenstone belt, Superior Province, Canada. *Journal of Metamorphic Geology*, Vol. 11, (pp. 165-178).
- Purdy, D, 1973. Diamond drilling report, Octave group. Rio Tinto Canadian Expl Ltd. (SIGÉOM: GM 29650), 20 pages and 2 plans.
- Rhéaume, P., Maurice, C. – Parent, M. – McNicoll, V., 2010. Géologie de la région de la rivière Bigniba (parties des SNRC 32F03, 32F04 et 32C13). Ministère des Ressources naturelles, Québec; GM 64951, 47 pages and 1 plan.
- Ross, P.S., and J.H. Bédard, 2009. Magmatic affinity of modern and ancient subalkaline volcanic rocks determined from trace-element discriminant diagrams. *Can. J. Earth Sc.*, 46: 823-839.
- Saliou BAH, M., and Cheman, M., 2019. IP Gradient Survey, Logistics and Interpretation Report on Project Ligneris, Lignéris and Céloron Townships, Québec, Canada.
- Roussain, R J, 1976. Report on geological survey of Larouche option, Property 730-01. Amax Potash Ltd. (SIGÉOM: GM 32436), 18 pages and 1 plan.
- Roussain, R J, Tremblay, G, 1977. Report on soil geochemical survey, La Sarre claims, Ligneris-2, Project 728-05. Amax Minerals Exploration. (SIGÉOM: GM 33255), 41 pages and 6 plans.
- Salamis, C., 1973. Geophysical surveys. C Salamis & Associates Inc. (SIGÉOM: GM 29151), 19 pages and 5 plans.
- Salamis, C., 1969. Report and proposal, Octave Project. SOQUEM. (SIGÉOM: GM 23622), 26 pages and 14 plans.
- Sawyer, E. W., and Benn, K., 1993. Structure of the high-grade Opatoca Belt and adjacent lowgrade Abitibi Subprovince, Canada: An Archean mountain front. *Journal of Structural Geology*, v.15, (pp. 1443-1458).
- Scot, F., 1960. Report on airborne magnetic and electromagnetic surveys. Canadian Aero Service Ltd. (SIGÉOM: GM 10275-A), 2 pages and 1 plan.
- Thurston, P.C., Ayer, J.A., Goutier, J., and Hamilton, M.A., 2008, Depositional gaps in the Abitibi greenstone belt stratigraphy: A key to exploration for syngenetic mineralization. *Economic Geology*, v. 103, (pp. 1097–1134).

- Trépanier, S., Mathieu, L., and Daigneault, R. 2015. CONSONORM\_LG: New Normative Minerals and Alteration Indexes for Low-Grade Metamorphic Rocks. *Economic Geology*, 110: 2127–2138.
- Turcotte, R., 1986. Levé magnétique complémentaire, Projet Domex No 275, 276. Val d'Or Géophysique Ltee. (SIGÉOM: GM 44210), 13 pages and 6 plans.
- Winchester, J.A. and Floyd, P.A., 1977. Geochemical discrimination of different magma series and their differentiation products using immobile elements. *Chemical Geology*, 20: 325-343.

### **GM (SIGÉOM)**

- GM 41991, Descarreaux, J, Leonard, M A, 1984. Rapport sur les travaux d'exploration, Propriété Ligneris. Société d'Exploration Minière Vior Inc., 242 pages and 4 plans.
- GM 44459, Rupoli, D L, 1986. Field exploration reverse circulation log, INCO/Mazarin JV Project. Société Expl Minière Mazarin. 80 pages and 5 plans.
- GM 48776, Gabriel, M, 1989. Diamond drilling program, Winter 1989, TUT Property. Falconbridge Ltee. 55 pages and 10 plans.
- GM 49418, Ghosh, M K, Imbeau, G, 1990. Exploration Program, Fall 1989, Tut and Bouffard-Lacombe Property. GEOPROBE LTD. 58 pages and 22 plans.
- GM 49438, Cadieux, I, Lambert, G, Learn, J, Desmazes, P, 1989. Rapport final 1989, Propriété Mazarin. Cogema Canada Limitée. 299 pages and 40 plans.
- GM 49575, Boivin, D, Simoneau, J, Lafleur, J, 1990. Rapport des résultats de la campagne de forages, Hiver 1990, Propriété Audet Ouest et Est (274-A, 274-B). Placer Dome Inc. 46 pages and 7 plans.
- GM 49576, Simoneau, F, Boivin, D, Lafleur, J, 1990. Rapport des résultats du décapage automne 1988 et de la campagne de forage automne hiver 1989-90, Projet Lac Patrie (224B). Mines Sigma [Quebec] Ltee. 37 pages and 7 plans.
- GM 49577, Simoneau, F, Boivin, D, Lafleur, J, 1990. Rapport sur les résultats des campagnes de forages automne-hiver 1988 et automne 1989, Projet 276 (Descarreaux). Mines Sigma [Quebec] Ltée. 30 pages and 10 plans.
- GM 51214, Gaboury, F, 1991. Diamond drilling log, Dejour Option Project. Dejour Mines Ltd. 5 pages and 1 plan.
- GM 59075, Zalnierunas, R V, 2001. 2001 Geology report on the TUT-Ligneris Property. Globex Mining Enterprises Inc. 20 pages and 1 plan.
- GM 69948, Beaudoin A, Jenkins, C L, 1986. Geologie structurale du l'indice mineralise TUT, PN-073. Chimitec Ltée. 41 pages and 5 plans.

## APPENDIX I – LIST OF MINING TITLES

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
2546028	32D15	CDC	Active	2019-10-31	2021-10-30	43.8	Société d'Exploration Minière Vior inc. (2399) 100 %
2546029	32D15	CDC	Active	2019-10-31	2021-10-30	4.62	Société d'Exploration Minière Vior inc. (2399) 100 %
2546030	32D15	CDC	Active	2019-10-31	2021-10-30	8.76	Société d'Exploration Minière Vior inc. (2399) 100 %
2546031	32D15	CDC	Active	2019-10-31	2021-10-30	46.98	Société d'Exploration Minière Vior inc. (2399) 100 %
2546032	32D15	CDC	Active	2019-10-31	2021-10-30	10.52	Société d'Exploration Minière Vior inc. (2399) 100 %
2546033	32D15	CDC	Active	2019-10-31	2021-10-30	35.91	Société d'Exploration Minière Vior inc. (2399) 100 %
2546034	32D15	CDC	Active	2019-10-31	2021-10-30	56.52	Société d'Exploration Minière Vior inc. (2399) 100 %
2546035	32D15	CDC	Active	2019-10-31	2021-10-30	28.85	Société d'Exploration Minière Vior inc. (2399) 100 %
2546036	32D15	CDC	Active	2019-10-31	2021-10-30	18.29	Société d'Exploration Minière Vior inc. (2399) 100 %
2546037	32D15	CDC	Active	2019-10-31	2021-10-30	40.65	Société d'Exploration Minière Vior inc. (2399) 100 %
2546038	32D15	CDC	Active	2019-10-31	2021-10-30	14.69	Société d'Exploration Minière Vior inc. (2399) 100 %
2546039	32D16	CDC	Active	2019-10-31	2021-10-30	4.36	Société d'Exploration Minière Vior inc. (2399) 100 %
2546040	32D16	CDC	Active	2019-10-31	2021-10-30	17.27	Société d'Exploration Minière Vior inc. (2399) 100 %
2546041	32D16	CDC	Active	2019-10-31	2021-10-30	8.54	Société d'Exploration Minière Vior inc. (2399) 100 %
2546042	32E01	CDC	Active	2019-10-31	2021-10-30	52.53	Société d'Exploration Minière Vior inc. (2399) 100 %
2546043	32E01	CDC	Active	2019-10-31	2021-10-30	13.02	Société d'Exploration Minière Vior inc. (2399) 100 %
2546044	32E01	CDC	Active	2019-10-31	2021-10-30	11.76	Société d'Exploration Minière Vior inc. (2399) 100 %
2546045	32E01	CDC	Active	2019-10-31	2021-10-30	5.88	Société d'Exploration Minière Vior inc. (2399) 100 %
2546046	32E01	CDC	Active	2019-10-31	2021-10-30	9.89	Société d'Exploration Minière Vior inc. (2399) 100 %
2546047	32E01	CDC	Active	2019-10-31	2021-10-30	9.97	Société d'Exploration Minière Vior inc. (2399) 100 %
2546048	32E01	CDC	Active	2019-10-31	2021-10-30	10.95	Société d'Exploration Minière Vior inc. (2399) 100 %
2546049	32E01	CDC	Active	2019-10-31	2021-10-30	11.26	Société d'Exploration Minière Vior inc. (2399) 100 %
2546050	32E01	CDC	Active	2019-10-31	2021-10-30	8.5	Société d'Exploration Minière Vior inc. (2399) 100 %
2546051	32E01	CDC	Active	2019-10-31	2021-10-30	33.75	Société d'Exploration Minière Vior inc. (2399) 100 %
2546052	32E01	CDC	Active	2019-10-31	2021-10-30	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2546053	32E01	CDC	Active	2019-10-31	2021-10-30	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
2546054	32E01	CDC	Active	2019-10-31	2021-10-30	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2546055	32E01	CDC	Active	2019-10-31	2021-10-30	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2546056	32E01	CDC	Active	2019-10-31	2021-10-30	42.92	Société d'Exploration Minière Vior inc. (2399) 100 %
2546057	32E01	CDC	Active	2019-10-31	2021-10-30	19.42	Société d'Exploration Minière Vior inc. (2399) 100 %
2546058	32E01	CDC	Active	2019-10-31	2021-10-30	32.35	Société d'Exploration Minière Vior inc. (2399) 100 %
2546059	32E01	CDC	Active	2019-10-31	2021-10-30	32.25	Société d'Exploration Minière Vior inc. (2399) 100 %
2546060	32E01	CDC	Active	2019-10-31	2021-10-30	31.7	Société d'Exploration Minière Vior inc. (2399) 100 %
2546061	32E01	CDC	Active	2019-10-31	2021-10-30	31.57	Société d'Exploration Minière Vior inc. (2399) 100 %
2546062	32E01	CDC	Active	2019-10-31	2021-10-30	23.97	Société d'Exploration Minière Vior inc. (2399) 100 %
2546063	32E02	CDC	Active	2019-10-31	2021-10-30	24.25	Société d'Exploration Minière Vior inc. (2399) 100 %
2546064	32E02	CDC	Active	2019-10-31	2021-10-30	1.95	Société d'Exploration Minière Vior inc. (2399) 100 %
2546065	32E02	CDC	Active	2019-10-31	2021-10-30	48.08	Société d'Exploration Minière Vior inc. (2399) 100 %
2542885	32E02	CDC	Active	2019-08-29	2021-08-28	52.58	Société d'Exploration Minière Vior inc. (2399) 100 %
2542886	32E01	CDC	Active	2019-08-29	2021-08-28	56.49	Société d'Exploration Minière Vior inc. (2399) 100 %
4289381	32D16	CL	Active	1984-03-23	2021-03-03	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69698	32E01	CDC	Active	2005-05-24	2021-05-23	31	Société d'Exploration Minière Vior inc. (2399) 100 %
4344592	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289361	32D15	CL	Active	1984-03-23	2021-03-03	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289422	32D16	CL	Active	1984-10-29	2019-09-24	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344751	32E01	CL	Active	1985-11-29	2021-07-07	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344561	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289481	32D16	CL	Active	1984-03-23	2021-03-02	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344682	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
5008106	32E01	CL	Active	1993-11-17	2021-11-16	36	Société d'Exploration Minière Vior inc. (2399) 100 %
5008104	32E02	CL	Active	1993-11-17	2019-11-16	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344712	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
4344631	32E01	CL	Active	1985-11-29	2021-07-06	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344641	32E01	CL	Active	1985-11-29	2021-07-06	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344611	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289492	32D16	CL	Active	1984-03-23	2021-03-02	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69666	32D15	CDC	Active	2005-05-19	2021-05-18	42.5	Société d'Exploration Minière Vior inc. (2399) 100 %
4344711	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69670	32D15	CDC	Active	2005-05-19	2021-05-18	42.5	Société d'Exploration Minière Vior inc. (2399) 100 %
4289482	32D16	CL	Active	1984-03-23	2021-03-02	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289452	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
5008102	32E02	CL	Active	1993-11-17	2019-11-16	36	Société d'Exploration Minière Vior inc. (2399) 100 %
5008101	32E02	CL	Active	1993-11-17	2019-11-16	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289441	32D16	CL	Active	1984-10-29	2019-09-24	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69673	32E01	CDC	Active	2005-05-19	2021-05-18	37.87	Société d'Exploration Minière Vior inc. (2399) 100 %
4344691	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
5008105	32E01	CL	Active	1993-11-17	2021-11-16	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344742	32E01	CL	Active	1985-11-29	2021-07-06	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344632	32E01	CL	Active	1985-11-29	2021-07-06	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289431	32D16	CL	Active	1984-10-29	2019-09-24	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69671	32E01	CDC	Active	2005-05-19	2021-05-18	26.67	Société d'Exploration Minière Vior inc. (2399) 100 %
4289421	32D16	CL	Active	1984-10-29	2019-09-24	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289621	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289382	32D16	CL	Active	1984-03-23	2021-03-03	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69667	32D15	CDC	Active	2005-05-19	2021-05-18	42.58	Société d'Exploration Minière Vior inc. (2399) 100 %
4344732	32E01	CL	Active	1985-11-29	2021-07-06	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289401	32D16	CL	Active	1984-03-23	2021-03-04	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289371	32D15	CL	Active	1984-03-23	2021-03-03	40	Société d'Exploration Minière Vior inc. (2399) 100 %

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
4289392	32D16	CL	Active	1984-03-23	2021-03-04	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344612	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289432	32D16	CL	Active	1984-10-29	2019-09-24	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69683	32D16	CDC	Active	2005-05-19	2021-05-18	43.24	Société d'Exploration Minière Vior inc. (2399) 100 %
4344371	32E02	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344672	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289362	32D15	CL	Active	1984-03-23	2021-03-03	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69682	32D16	CDC	Active	2005-05-19	2021-05-18	41.94	Société d'Exploration Minière Vior inc. (2399) 100 %
69672	32E01	CDC	Active	2005-05-19	2021-05-18	37.91	Société d'Exploration Minière Vior inc. (2399) 100 %
4289372	32D15	CL	Active	1984-03-23	2021-03-03	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344601	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344752	32E01	CL	Active	1985-11-29	2021-07-07	18	Société d'Exploration Minière Vior inc. (2399) 100 %
4344562	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344602	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344722	32E01	CL	Active	1985-11-29	2021-07-06	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344582	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289391	32D16	CL	Active	1984-03-23	2021-03-04	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344642	32E01	CL	Active	1985-11-29	2021-07-06	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344702	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69678	32D16	CDC	Active	2005-05-19	2021-05-18	42.59	Société d'Exploration Minière Vior inc. (2399) 100 %
69674	32E01	CDC	Active	2005-05-19	2021-05-18	37.89	Société d'Exploration Minière Vior inc. (2399) 100 %
4344622	32E01	CL	Active	1985-11-29	2021-07-06	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344662	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
69668	32D15	CDC	Active	2005-05-19	2021-05-18	42.6	Société d'Exploration Minière Vior inc. (2399) 100 %
4344701	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344591	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
5008107	32D16	CL	Active	1993-12-16	2019-12-15	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344661	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344681	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344671	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
69669	32D15	CDC	Active	2005-05-19	2021-05-18	42.52	Société d'Exploration Minière Vior inc. (2399) 100 %
4344581	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289491	32D16	CL	Active	1984-03-23	2021-03-02	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289402	32D16	CL	Active	1984-03-23	2021-03-04	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344741	32E01	CL	Active	1985-11-29	2021-07-06	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289451	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344571	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4289472	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344572	32E01	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344692	32E01	CL	Active	1985-11-29	2021-07-05	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69680	32D16	CDC	Active	2005-05-19	2021-05-18	42.5	Société d'Exploration Minière Vior inc. (2399) 100 %
5008109	32D16	CL	Active	1993-12-16	2019-12-15	24.4	Société d'Exploration Minière Vior inc. (2399) 100 %
4289462	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344731	32E01	CL	Active	1985-11-29	2021-07-06	40	Société d'Exploration Minière Vior inc. (2399) 100 %
5008108	32D16	CL	Active	1993-12-16	2019-12-15	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4344721	32E01	CL	Active	1985-11-29	2021-07-06	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289501	32D16	CL	Active	1984-03-23	2021-03-02	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289471	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69679	32D16	CDC	Active	2005-05-19	2021-05-18	42.59	Société d'Exploration Minière Vior inc. (2399) 100 %
4289442	32D16	CL	Active	1984-10-29	2019-09-24	40	Société d'Exploration Minière Vior inc. (2399) 100 %
4289461	32D16	CL	Active	1984-10-29	2019-09-25	40	Société d'Exploration Minière Vior inc. (2399) 100 %
69699	32E01	CDC	Active	2005-05-24	2021-05-23	42.14	Société d'Exploration Minière Vior inc. (2399) 100 %

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
5008103	32E02	CL	Active	1993-11-17	2019-11-16	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344621	32E01	CL	Active	1985-11-29	2021-07-06	36	Société d'Exploration Minière Vior inc. (2399) 100 %
4344372	32E02	CL	Active	1985-11-29	2021-07-04	36	Société d'Exploration Minière Vior inc. (2399) 100 %
69681	32D16	CDC	Active	2005-05-19	2021-05-18	42.51	Société d'Exploration Minière Vior inc. (2399) 100 %
2542887	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542888	32E01	CDC	Active	2019-08-30	2021-08-29	56.49	Société d'Exploration Minière Vior inc. (2399) 100 %
2542889	32E01	CDC	Active	2019-08-30	2021-08-29	56.49	Société d'Exploration Minière Vior inc. (2399) 100 %
2542890	32E01	CDC	Active	2019-08-30	2021-08-29	56.49	Société d'Exploration Minière Vior inc. (2399) 100 %
2542891	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542892	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542893	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542894	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542895	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542896	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542897	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542898	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542899	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542900	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542901	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542902	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542903	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542904	32E01	CDC	Active	2019-08-30	2021-08-29	56.48	Société d'Exploration Minière Vior inc. (2399) 100 %
2542905	32E01	CDC	Active	2019-08-30	2021-08-29	56.46	Société d'Exploration Minière Vior inc. (2399) 100 %
2542906	32E01	CDC	Active	2019-08-30	2021-08-29	56.46	Société d'Exploration Minière Vior inc. (2399) 100 %
2542907	32E01	CDC	Active	2019-08-30	2021-08-29	56.46	Société d'Exploration Minière Vior inc. (2399) 100 %
2542908	32E01	CDC	Active	2019-08-30	2021-08-29	56.46	Société d'Exploration Minière Vior inc. (2399) 100 %

No. Title	NTS	Type	Status	Registration Date	Expiration Date	Area (ha)	Owners (GESTIM reference ID)
2542909	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542910	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542911	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542912	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542913	32E01	CDC	Active	2019-08-30	2021-08-29	56.47	Société d'Exploration Minière Vior inc. (2399) 100 %
2542914	32E01	CDC	Active	2019-08-30	2021-08-29	56.46	Société d'Exploration Minière Vior inc. (2399) 100 %
2542915	32E01	CDC	Active	2019-08-30	2021-08-29	56.46	Société d'Exploration Minière Vior inc. (2399) 100 %

## APPENDIX II – CERTIFICATS



ALS Canada Ltd.  
2103 Dollarton Hwy  
North Vancouver BC V7H 0A7  
Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
www.alsglobal.com/geochemistry

À: INNOVEXPLO INC.  
560-B, 3E AVENUE  
VAL-D'OR QC J9P 1S4

Page: 1  
Nombre total de pages: 2 (A)  
plus les pages d'annexe  
Finalisée date: 10-AOUT-2019  
Compte: INNOVEX

## CERTIFICAT VO19178125

Projet: Ligneris

Ce rapport s'applique aux 14 échantillons de roche soumis à notre laboratoire de Val d'Or, QC, Canada le 21-JUIL-2019.

Les résultats sont transmis à:

STÉPANE FAURE

MARC L HEUREUX

CORPORATIF INNOVEXPLO WEBTRIEV

## PRÉPARATION ÉCHANTILLONS

CODE ALS	DESCRIPTION
WEI-21	Poids échantillon reçu
LOG-21	Entrée échantillon - Code barre client
CRU-QC	Test concassage QC
PUL-QC	Test concassage QC
CRU-31	Granulation - 70 % <2 mm
SPL-21	Échant. fractionné - div. riffles
PUL-31	Pulvérisé à 85 % <75 um

## PROCÉDURES ANALYTIQUES

CODE ALS	DESCRIPTION	INSTRUMENT
ME-ICP41	Aqua regia ICP-AES 35 éléments	ICP-AES
Ag-OG46	Teneur marchande Ag - Aqua regia	
ME-OG46	Teneur marchandes éléments - Aqua regia	ICP-AES
Zn-OG46	Teneur marchande Zn - Aqua regia	
Au-AA23	Au 30 g fini FA-AA	AAS
Au-GRA21	Au 30 g fini FA-GRAV	WST-SIM

Ce rapport est final et remplace tout autre rapport préliminaire portant ce numéro de certificat. Les résultats s'appliquent aux échantillons soumis. Toutes les pages de ce rapport ont été vérifiées et approuvées avant publication.

\*\*\*\*\* Voir la page d'annexe pour les commentaires en ce qui concerne ce certificat \*\*\*\*\*

Signature: *Nacera Amara*  
Nacera Amara, Laboratory Manager, Val d'Or



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
 www.alsglobal.com/geochemistry

À: INNOVEX INC.  
 560-B, 3E AVENUE  
 VAL-D'OR QC J9P 1S4

Page: 2 - A  
 Nombre total de pages: 2 (A)  
 plus les pages d'annexe  
 Finalisée date: 10-AOUT-2019  
 Compte: INNOVEX

Projet: Ligneris

**CERTIFICAT D'ANALYSE VO19178125**

Description échantillon	Méthode élément unités LDI	WEI-21	Au-AA23	Au-GRA21	Ag-OG46	Zn-OG46	ME-ICP41	ME-ICP41	ME-ICP41
		Poids reçu kg	Au ppm	Au ppm	Ag ppm	Zn %	Ag ppm	Cu ppm	Zn ppm
		0.02	0.005	0.05	1	0.001	0.2	1	2
K504251		0.92	8.73				1.2	44	105
K504252		1.30	2.51				0.5	30	63
K504253		1.39	7.35				1.0	20	37
K504254		0.90	2.79				0.3	19	42
K504255		0.64	0.078				1.9	279	253
K504256		2.09	0.029				<0.2	43	493
K504257		0.53	0.031				0.2	14	83
K504258		2.36	2.67				0.2	46	59
K504259		0.81	0.211				3.9	18	26
K504260		1.19	0.352				23.9	965	100
K504261		0.79	>10.0	11.65	131	6.21	>100	1710	>10000
K504262		1.23	0.199				0.8	58	112
K504263		1.44	0.167				0.5	13	44
K504264		1.38	0.066				2.4	194	1760

\*\*\*\*\* Voir la page d'annexe pour les commentaires en ce qui concerne ce certificat \*\*\*\*\*



ALS Canada Ltd.  
2103 Dollarton Hwy  
North Vancouver BC V7H 0A7  
Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
www.alsglobal.com/geochemistry

À: INNOVEX INC.  
560-B, 3E AVENUE  
VAL-D'OR QC J9P 1S4

Page: Annexe 1  
Total # les pages d'annexe: 1  
Finalisée date: 10-AOUT-2019  
Compte: INNOVEX

Projet: Ligneris

CERTIFICAT D'ANALYSE VO19178125

### COMMENTAIRE DE CERTIFICAT

#### ADRESSE DE LABORATOIRE

Applique à la Méthode:	Traité à ALS Val d'Or, 1324 Rue Turcotte, Val d'Or, QC, Canada.		
	Au-AA23	Au-GRA21	CRU-31
	LOG-21	PUL-31	PUL-QC
	WEI-21		CRU-QC
			SPL-21
Applique à la Méthode:	Traité à ALS Vancouver, 2103 Dollarton Hwy, North Vancouver, BC, Canada.		
	Ag-OG46	ME-ICP41	ME-OG46
			Zn-OG46



ALS Canada Ltd.  
2103 Dollarton Hwy  
North Vancouver BC V7H 0A7  
Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
www.alsglobal.com/geochemistry

À: INNOVEXPLO INC.  
560-B, 3E AVENUE  
VAL-D'OR QC J9P 1S4

Page: 1  
Nombre total de pages: 4 (A)  
plus les pages d'annexe  
Finalisée date: 10-AOUT-2019  
Compte: INNOVEX

**CERTIFICAT CQ VO19178125**

Projet: Ligneris

Ce rapport s'applique aux 14 échantillons de roche soumis à notre laboratoire de Val d'Or, QC, Canada le 21-JUIL-2019.

Les résultats sont transmis à:

STÉPANE FAURE

MARC L HEUREUX

CORPORATIF INNOVEXPLO WEBTRIEV

**PRÉPARATION ÉCHANTILLONS**

CODE ALS	DESCRIPTION
WEI-21	Poids échantillon reçu
LOG-21	Entrée échantillon - Code barre client
CRU-QC	Test concassage QC
PUL-QC	Test concassage QC
CRU-31	Granulation - 70 % <2 mm
SPL-21	Échant. fractionné - div. riffles
PUL-31	Pulvérisé à 85 % <75 um

**PROCÉDURES ANALYTIQUES**

CODE ALS	DESCRIPTION	INSTRUMENT
ME-ICP41	Aqua regia ICP-AES 35 éléments	ICP-AES
Ag-OG46	Teneur marchande Ag - Aqua regia	
ME-OG46	Teneur marchandes éléments - Aqua regia	ICP-AES
Zn-OG46	Teneur marchande Zn - Aqua regia	
Au-AA23	Au 30 g fini FA-AA	AAS
Au-GRA21	Au 30 g fini FA-GRAV	WST-SIM

Ce rapport est final et remplace tout autre rapport préliminaire portant ce numéro de certificat. Les résultats s'appliquent aux échantillons soumis. Toutes les pages de ce rapport ont été vérifiées et approuvées avant publication.

\*\*\*\*\* Voir la page d'annexe pour les commentaires en ce qui concerne ce certificat \*\*\*\*\*

Signature: *Nacera Amara*  
Nacera Amara, Laboratory Manager, Val d'Or



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
 www.alsglobal.com/geochemistry

À: INNOVEXPLO INC.  
 560-B, 3E AVENUE  
 VAL-D'OR QC J9P 1S4

Page: 2 - A  
 Nombre total de pages: 4 (A)  
 plus les pages d'annexe  
 Finalisée date: 10-AOUT-2019  
 Compte: INNOVEX

Projet: Ligneris

**CERTIFICAT D'ANALYSE CQ VO19178125**

Description échantillon	Méthode élément unités LDI	Au-AA23	Au-GRA21	Ag-OG46	Zn-OG46	ME-ICP41	ME-ICP41	ME-ICP41
		Au ppm	Au ppm	Ag ppm	Zn %	Ag ppm	Cu ppm	Zn ppm
		0.005	0.05	1	0.001	0.2	1	2
<b>CONTRÔLE DE LA QUALITÉ</b>								
CCU-1e				264	3.03			
Target Range - Lower Bound				197	2.91			
Upper Bound				213	3.13			
CDN-CM-34						3.7	5850	173
Target Range - Lower Bound						3.1	5390	159
Upper Bound						4.3	6210	199
EMOG-17						67.6	8300	7210
Target Range - Lower Bound						60.1	7780	6780
Upper Bound						73.9	8960	8290
G306-6			48.6					
Target Range - Lower Bound			45.6					
Upper Bound			51.5					
G913-10			7.41					
Target Range - Lower Bound			6.61					
Upper Bound			7.57					
GBM903-13				22	0.931			
Target Range - Lower Bound				22	0.901			
Upper Bound				26	0.968			
KIP-19	2.49							
KIP-19	2.48							
Target Range - Lower Bound	2.28							
Upper Bound	2.58							
OREAS 621				66	5.21			
Target Range - Lower Bound				65	4.99			
Upper Bound				71	5.35			
OREAS-218	0.550							
OREAS-218	0.534							
Target Range - Lower Bound	0.494							
Upper Bound	0.568							
PMP-18	0.306							
Target Range - Lower Bound	0.285							
Upper Bound	0.331							
SP49			18.20					
Target Range - Lower Bound			17.20					
Upper Bound			19.50					

\*\*\*\*\* Voir la page d'annexe pour les commentaires en ce qui concerne ce certificat \*\*\*\*\*



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
 www.alsglobal.com/geochemistry

À: INNOVEXPLO INC.  
 560-B, 3E AVENUE  
 VAL-D'OR QC J9P 1S4

Page: 3 - A  
 Nombre total de pages: 4 (A)  
 plus les pages d'annexe  
 Finalisée date: 10-AOUT-2019  
 Compte: INNOVEX

Projet: Ligneris

**CERTIFICAT D'ANALYSE CQ VO19178125**

Description échantillon	Méthode élément unités LDI	Au-AA23	Au-GRA21	Ag-OG46	Zn-OG46	ME-ICP41	ME-ICP41	ME-ICP41
		Au ppm	Au ppm	Ag ppm	Zn %	Ag ppm	Cu ppm	Zn ppm
		0.005	0.05	1	0.001	0.2	1	2
<b>BLANCS</b>								
BLANK		0.010						
BLANK		<0.005						
BLANK		0.005						
Target Range - Lower Bound		<0.005						
Upper Bound		0.010						
BLANK			<0.05					
Target Range - Lower Bound			<0.05					
Upper Bound			0.10					
BLANK						<0.2	<1	<2
Target Range - Lower Bound						<0.2	<1	<2
Upper Bound						0.4	2	4
BLANK				2	<0.001			
Target Range - Lower Bound				<1	<0.001			
Upper Bound				2	0.002			
<b>DUPLICATA</b>								
ORIGINAL					2.36			
DUP				>1500	2.36			
Target Range - Lower Bound				1450	2.30			
Upper Bound				>1500	2.42			
ORIGINAL		0.010						
DUP		0.007						
Target Range - Lower Bound		<0.005						
Upper Bound		0.010						
ORIGINAL		0.020						
DUP		0.008						
Target Range - Lower Bound		0.010						
Upper Bound		0.020						
ORIGINAL		0.026						
DUP		0.023						
Target Range - Lower Bound		0.018						
Upper Bound		0.031						

\*\*\*\*\* Voir la page d'annexe pour les commentaires en ce qui concerne ce certificat \*\*\*\*\*



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
 www.alsglobal.com/geochemistry

À: INNOVEXPLO INC.  
 560-B, 3E AVENUE  
 VAL-D'OR QC J9P 1S4

Page: 4 - A  
 Nombre total de pages: 4 (A)  
 plus les pages d'annexe  
 Finalisée date: 10-AOUT-2019  
 Compte: INNOVEX

Projet: Ligneris

**CERTIFICAT D'ANALYSE CQ VO19178125**

Description échantillon	Méthode élément unités LDI	Au-AA23	Au-GR21	Ag-OG46	Zn-OG46	ME-ICP41	ME-ICP41	ME-ICP41
		Au ppm	Au ppm	Ag ppm	Zn %	Ag ppm	Cu ppm	Zn ppm
		0.005	0.05	1	0.001	0.2	1	2
<b>DUPLICATA</b>								
K504253						1.0	20	37
DUP						1.2	19	36
Target Range - Lower Bound								
Upper Bound								
K504262		0.199						
DUP		0.187						
Target Range - Lower Bound		0.178						
Upper Bound		0.208						
ORIGINAL		0.025						
DUP		0.029						
Target Range - Lower Bound		0.021						
Upper Bound		0.033						
ORIGINAL		0.014						
DUP		0.021						
Target Range - Lower Bound		0.012						
Upper Bound		0.023						
ORIGINAL		0.034						
DUP		0.026						
Target Range - Lower Bound								
Upper Bound								
ORIGINAL		0.011						
DUP		0.011						
Target Range - Lower Bound		<0.005						
Upper Bound		0.017						
ORIGINAL			96.0					
DUP			104.0					
Target Range - Lower Bound								
Upper Bound								

\*\*\*\*\* Voir la page d'annexe pour les commentaires en ce qui concerne ce certificat \*\*\*\*\*



ALS Canada Ltd.  
2103 Dollarton Hwy  
North Vancouver BC V7H 0A7  
Téléphone: +1 (604) 984 0221 Télécopieur: +1 (604) 984 0218  
www.alsglobal.com/geochemistry

À: INNOVEXPLO INC.  
560-B, 3E AVENUE  
VAL-D'OR QC J9P 1S4

Page: Annexe 1  
Total # les pages d'annexe: 1  
Finalisée date: 10-AOUT-2019  
Compte: INNOVEX

Projet: Ligneris

CERTIFICAT D'ANALYSE CQ VO19178125

### COMMENTAIRE DE CERTIFICAT

#### ADRESSE DE LABORATOIRE

Applique à la Méthode:	Traité à ALS Val d'Or, 1324 Rue Turcotte, Val d'Or, QC, Canada.		
	Au-AA23	Au-GRA21	CRU-31
	LOG-21	PUL-31	PUL-QC
	WEI-21		CRU-QC
			SPL-21
Applique à la Méthode:	Traité à ALS Vancouver, 2103 Dollarton Hwy, North Vancouver, BC, Canada.		
	Ag-OG46	ME-ICP41	ME-OG46
			Zn-OG46